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Date: July 17, 1997
 Refer to: EM/ER:97-270

Mr. Benito Garcia
 NMED-HRMB
 P.O. Box 26110
 Santa Fe, NM 87502

SUBJECT: RESPONSE TO DENIAL OF RFI REPORT DATED JANUARY 1996 FOR LANL LA-UR-95-3693, TA 21 SWMU 21-029

Dear Mr. Garcia:

Enclosed please find Los Alamos National Laboratory's response to the denial of the RFI Report dated January 1996 for Technical Area (TA) 21, Solid Waste Management Unit (SWMU) 21-029. We are concerned with the New Mexico Environment Department's (NMED's) statement that this report is *grossly deficient*, as we believe that the report, while clearly not perfect, is substantially sound.

Our staffs have reviewed the comments in the denial and have concurred with less than 15% of them. We believe that approximately 50% of NMED's comments are not justified on technical grounds. Another 35% of the comments are founded upon administrative processes or agreements which were not in place at the time the report was written.

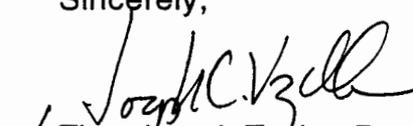
Our interpretation of the appropriateness of these comments and how they derive from NMED reviews, re-emphasizes to us the necessity for holding preNOD meetings between our staffs. We are working towards that goal and believe that if such meetings are held, as a matter of course, resource savings will occur for everyone involved.

If you have any questions regarding the response to the denial, or if your staff would like to set up a meeting to discuss these responses, please have them contact Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,


 Jorg Jensen, Program Manager
 LANL/ER Project

Sincerely,


 Theodore J. Taylor, Program Manager
 DOE/LAEO

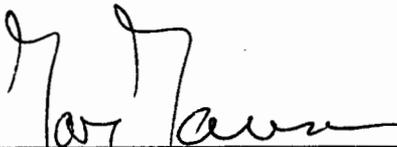
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CERTIFICATION

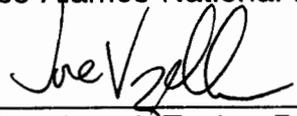
I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage 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 violation.

Document Title: RESPONSE TO DENIAL OF RFI REPORT DATED JANUARY 1996 FOR LANL LA-UR-95-3693, TA 21 SWMU 21-029

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**RESPONSE TO DENIAL LETTER
FOR THE RFI REPORT FOR TA-21, PRS 21-029**

INTRODUCTION

This document responds to a letter titled, "Denial of RFI Report Dated January 1996 for Los Alamos National Laboratory LA-UR-95-3693 Technical Area 21 SWMU 21-029," from the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) to the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project. To facilitate review of this response, NMED's comments are included verbatim. The comments are divided into general and specific categories as presented in the letter. LANL's responses follow each NMED comment.

GENERAL COMMENTS

NMED COMMENT

1. Document of Understanding (DOU), Appendix N, RCRA Facility Investigation (RFI) Report, Pages 1-6. The DOU lists a specific format for RFI reports for which this document lacks. The following sections were not included in the RFI report: Section 2.2.2 Soils, Section 5.1.1 History, Section 5.1.2 Physical Description, Section 5.1.7.2 Risk Assessment, Section 5.1.8 Ecological Assessment, and Section 5.1.9 Extent of Contamination.

LANL RESPONSE:

The Document of Understanding (DOU) was introduced for use on April 18, 1996 (NMED et al. 1996, 1328). Work on the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for Potential Release Site (PRS) 21-029 began in June 1995, and the report was published in January 1996. Because this RFI report was published before the specific format included in the DOU was introduced, its format differs from the format specified in the DOU. The information that would have been contained in the sections listed in NMED's comment is included in the current report under different section headings, as listed in Table 1.

TABLE 1

CROSSWALK BETWEEN THE DOU RFI FRAMEWORK AND THE RFI REPORT FOR PRS 21-029

SECTION IN DOU RFI FRAMEWORK	SECTION IN RFI REPORT FOR PRS 21-029
2.2.2 Soils	2.2 Geology
5.1.1 History	1.1 Facility Background
5.1.2 Physical Description	2.0 Environmental Setting, and 5.1.1 Previous Investigations
5.1.7.2 Risk Assessment	No risk assessment was conducted
5.1.8 Ecological Assessment	5.2.4 Ecotoxicological Screening Action Level Comparisons
5.1.9 Extent of Contamination	5.2.5 Summary of the Results from the 1994 and 1995 Investigations

NMED COMMENT

2. All deviations from the approved RFI Workplan should be summarized in a section entitled as such.

LANL RESPONSE:

The accepted RFI report standards in use when this document was written, which were in accordance with Environmental Protection Agency (EPA) guidelines, required that deviations from the approved work plan be included in the discussion of field activities. In accordance with these standards, deviations were included in the RFI Report for PRS 21-029 in Section 5.1.2, 1994 Field Investigation and Sampling Activities, and Section 5.1.3, 1995 Field Investigation and Sampling Activities.

The format included in the DOU does not require that deviations from the work plan be presented in a separate section. The DOU format states that deviations from the approved work plan should be included within Section 5.1.4, Field Investigation (NMED et al. 1996, 1328).

NMED COMMENT

3. A preliminary review of Voluntary Corrective Action Report for Potential Release Site 21-029 DP Tank Farm, dated July, 1996, which addresses the East Fill Station only, reveals that Total Petroleum Hydrocarbon (TPH) of up to 8,900 parts per million (ppm) was left in place then backfilled during the Voluntary Corrective Action (VCA). The extent of contamination has not been determined for the East Fill Station.

LANL RESPONSE:

The subsurface material with the total petroleum hydrocarbons (TPH) value of 8 900 parts per million (ppm) was removed during the voluntary corrective action (VCA) conducted at DP Tank Farm. The elevated TPH value was detected in sample 0121-96-0043, which was collected from the northern end of the excavation on the east side wall. As discussed in Table F-1 (page F-3) of the VCA report, an additional 8 to 12 in. of subsurface material were removed from this location, and sample 0121-96-0050 was collected to confirm that the high TPH concentrations had been removed. Analytical results indicated that sample 0121-96-0050 contained TPH at a concentration of 670 ppm, which is below the cleanup level of 1 000 ppm used in this VCA. The locations of samples 0121-96-0043 and 0121-96-0050 are shown on Fig. 3.3-2 (page 11) of the VCA report.

The extent of contamination at the East Fill Station has been determined as shown in Figs. 5-4 through 5-9 (pages 42 through 46) of the RFI report. To bound the vertical extent of contamination, all boreholes were drilled to at least 10 ft below any detected contamination with the exception of boreholes 21-2559 and 21-3009. Borehole 21-2559 was drilled during the 1994 investigation and was sampled to characterize contaminants. The benzene, toluene, ethylbenzene, and xylene (collectively known as BTEX) concentrations detected at this location are bounded by locations sampled in the 1995 investigation as shown in Figs. 5-5 and 5-8 (pages 43 and 45) of the RFI report. Borehole 21-3009 was drilled to 12.5 ft below ground surface (bgs) and then terminated because the location was on a slope that was too steep to continue safe operation of the drill rig. The drill rig was moved 20 ft south to a more stable location, and borehole 21-3012 was drilled to bound the southern extent of contamination. The

lateral extent of contamination was further bounded by boreholes 21-3010, 21-3007, and 21-3013. No contaminants were detected in any of the bounding boreholes.

NMED COMMENT

4. The SAP for DP Tank Farm should include SAPs for investigating the East and West Fill Station areas, the above ground tank area, and the hydrocarbon seep area in DP Canyon. Page 3, Voluntary Corrective Action Plan for Potential Release Sites 21-029, DP Tank Farms Removal of Contaminated Soil, April 1996, states: The 1995 UST investigation at the former West Fill Station Location revealed that neither TPH, BTEX, nor benzene were detected in samples collected from any of the boreholes at concentration greater than 1,000, 500, and 10 ppm respectively. However, from the RFI Report, Table A-14, page A-49, Sample 231-3003 found TPH in two samples with results of >600 and >670 ppm. There is no indication further testing was done.

LANL RESPONSE:

DP Tank Farm was investigated in 1994 in accordance with the approved Technical Area (TA) 21 Operable Unit (OU) RFI Work Plan (LANL 1991, 0689). The analytical results from the 1994 RFI indicated that the only constituents present at DP Tank Farm were associated with petroleum products. Based on these results, the site was recommended for no further action (NFA) under RCRA because it met Criterion 3 of the NFA criteria in place at the time (LANL ER Project policy EM/ER:95-PCT-015, dated January 2, 1996). This criterion stated that the site is regulated or closed under a different authority that addresses corrective action, in this case the NMED Underground Storage Tank (UST) Bureau.

Because DP Tank Farm has been characterized in accordance with an approved sampling plan and was found to meet one of the NFA criteria, no additional information would be obtained by further characterization of the site.

Following the RFI, further investigation was conducted in 1995 in accordance with the UST Regulations (New Mexico Environmental Improvement Board 1990, 0644). The extent of petroleum products contamination was determined for both the East and West Fill Stations. As shown in Table 5-6 (page 47) and Fig. 5-10 (page 47) of the RFI report, the TPH values reported as >600 and >670 ppm were the only detected TPH values in the West Fill Station samples. As stated on page 46 of the RFI report, these elevated levels were "contained within an area that is horizontally bounded by boreholes 21-3002, 21-3004, 21-3005, and 21-3014, and a volume bounded vertically by a depth of approximately 20 ft." Because the extent of contamination was determined as required under the UST Regulations, no further testing is required.

The area in DP Canyon below DP Tank Farm that has been known as the "seep area" was incorrectly labeled. The geological definition of a seep is "a spot where water or petroleum oozes from the earth, often forming the source of a small trickling stream" (quoted from the American Geological Institute's Dictionary of Geological Terms). The area in DP Canyon does not fit this definition because petroleum products are not oozing from the earth or forming a stream at this location. The seep area in DP Canyon is actually a small, localized hydrocarbon sheen observed in the surface water of the ephemeral stream in the canyon bottom. This sheen is not always visible, but it can be

seen when the exposed Bandelier tuff beneath the waterline is disturbed by walking or scraping. Based on this information, this area will be referred to as "the localized hydrocarbon sheen." Because the source of the diesel constituents in the area of the localized hydrocarbon sheen has not been conclusively determined, a sampling and analysis plan (SAP) will be prepared to address this area. This SAP will be submitted by August 20, 1997.

NMED COMMENT

5. The seep has been identified as "weathered diesel" and constitutes Refuse in a watercourse. Therefore, under regulations established by the New Mexico Water Quality Control Commission (NMWQCC) in the *State of New Mexico Standards for Interstate and Intrastate Streams*, 20 New Mexico Administrative Code, NMAC, 6.2, Section 2201: ***No person shall dispose of any refuse in a natural watercourse or in a location and manner where there is a reasonable probability that the refuse will be moved into a natural watercourse by leaching or otherwise.***

LANL RESPONSE:

Although diesel constituents were detected in the stream channel north of DP Tank Farm, the source of the localized hydrocarbon sheen in DP Canyon has not been conclusively determined. During the UST investigation, boreholes were hand-augered on the channel banks north and south of the localized hydrocarbon sheen area. Petroleum products were detected in samples collected north of this area (opposite DP Tank Farm), but not in samples collected south of this area. These data support the hypothesis that potential sources other than DP Tank Farm exist, such as runoff from the Los Alamos town site.

After completion of the VCA at DP Tank Farm, quarterly visual inspections were initiated at the site as requested by the NMED Surface Water Quality Bureau. No visible evidence of petroleum products contamination has been observed in the stream channel in the vicinity of the localized hydrocarbon sheen. Annual water sampling is scheduled for August 1997.

To address uncertainty associated with the source of the localized hydrocarbon sheen, LANL will prepare a SAP to address this area. This SAP will be submitted by August 20, 1997.

NMED COMMENT

6. The data verification and validation conclusions reached within this report are grossly inadequate to determine data sufficiency for decision making. See Specific Comments 9, 10 and 11.

LANL RESPONSE:

The data verification and validation conclusions reached in this report are adequate to determine data sufficiency for decision making as clarified in the responses to Specific Comments 9, 10, and 11.

SPECIFIC COMMENTS

NMED COMMENT

1. Executive Summary, Page vi; The DP Tank Farm Site is recommended for No Further Action (NFA) based on Criterion 3 of LANL's NFA Criteria Policy as found in the Document of Understanding (DOU). Criterion 3 states: *No release to the environment has occurred, nor is likely to occur in the future.* However, NMED HRMB cannot concur with this recommendation at this time due to the deficiencies in this report.

LANL RESPONSE:

The NFA criteria in use when this report was published were agreed upon by the EPA and the NMED, and subsequently defined in LANL ER Project Consistency Team (PCT) policy EM/ER:95-PCT-015, No Further Action Criteria Policy, dated January 2, 1996. This version of the NFA criteria preceded the DOU (NMED et al. 1996, 1328). PRS 21-029 was recommended for NFA based on Criterion 3 of the January 2, 1996 NFA Criteria Policy. As stated on page vi of the RFI report, Criterion 3 stated that the site is regulated or closed under a different authority that addresses corrective action, in this case the NMED UST Bureau.

NMED COMMENT

2. Section 1.2, Phase I Work Plan Overview, pg. 1. A summary of the workplan should be provided within this section.

LANL RESPONSE:

The accepted RFI report standards in use when this document was written, which were in accordance with EPA guidelines, required that the work plan be referenced and the RFI objectives be summarized. This information is included in Section 1.2 of the RFI report.

The RFI report guidance included in the DOU does not require a summary of the work plan. Rather, it requires that the work plan be referenced (NMED et al. 1996, 1328). The work plan for DP Tank Farm is found in Section 14.5 of Volume II of the TA-21 OU RFI Work Plan (LANL 1991, 0689).

NMED COMMENT

3. Section 1.3, Field Activities, pg. 4, stated "Data from the 1994 investigation indicated that TPH was the only constituent in the soil at DP Tank Farm at levels greater than SALs." Please see below a compilation of data found in Table A-8, page A-20, of the RFI report that indicates other constituents found above SALs:

Location ID	Sample ID	Benzene (mg/kg)	Trimethylbenzene [1,2,4-] (mg/kg)	Trimethylbenzene [1,3,5-] (mg/kg)
21-2556	AAB9713	<2.7		
21-2556	AAB9714	<1.4	110	
21-2556	AAB9715	<2.5	100	
21-2556	AAB9716	<0.76	50	
21-2558	AAB9722	<6.7	120	
21-2558	AAB9723	<6.9	270	65
21-2558	AAB9724	8	260	69
21-2559	AAB9725	<3.4	160	49
21-2559	AAB9726	<7.3	210	50
21-2559	AAB9727	<3.4	270	70
21-2559	AAB9728	<7.2	250	59
SAL		0.67	40	32

LANL RESPONSE:

The sentence quoted above was stated in error in the RFI report. The following sentence should have been used: "Data from the 1994 investigation indicated that fuel constituents were the only constituents present in the soil at DP Tank Farm at levels exceeding screening action levels (SALs)."

As stated in Section 5.3 of the RFI report, benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were present at levels exceeding SALs. These chemicals were taken into account in the recommendations for this site. Because the only constituents identified at the site were petroleum products, the site was recommended for NFA because it could be regulated or closed under the authority of the NMED UST Bureau.

NMED COMMENT

4. Section 2.2, Geology, pgs. 5-6. A map of the geological features of the subsurface should have been provided.

LANL RESPONSE:

The accepted RFI report standards in use when this document was written, which were in accordance with EPA guidance, did not require a map of geologic features. The current format included in the DOU requires a map to accompany the geology section

(NMED et al. 1996, 1328). This map is provided as Fig. 1. The core logs from DP Tank Farm indicated that there were up to 8 ft of fill material at the site, and the underlying subsurface material was Unit 3 of the Tshirege Member of the Bandelier tuff.

NMED COMMENT

5. Section 2.3, Hydrology, pg. 6. According to information in Section 2.2 concerning fractures, there is a 5 feet spacing of fractures and the location of these fractures should be included. If infiltration of petroleum occurred, it is hypothetical that the migration is in a north-south direction and slightly to the west. As per pg. 28 of the RFI report, there is a seep of petroleum products north of the West Fill Station. Page 6 further states that the Bandelier Tuff is only known to be a water-bearing formation in shallow and localized areas. Therefore, boreholes LADP-4 and MDA-V, which are 0.75 miles and 0.5 miles respectively from the site, are not adequate for determining if there is a saturated zone beneath PRS 21-029. Hydrogeologic cross-sections for the site should be included.

LANL RESPONSE:

Fractures are known to be present in the bedrock beneath DP Tank Farm, but they are not exposed at the surface. Because fractures are typically oriented less than 90 degrees from vertical, their locations change greatly with depth. For these reasons, it is not possible to provide a map of the precise locations of fractures at the site.

As discussed in Section 2.2 (page 5) of the RFI report, a model of hypothetical fractures in the tuff at DP Tank Farm was developed based on data collected from exposed fractures several hundred feet from the site. It is likely that migration of petroleum-related products at PRS 21-029 proceeded downward and in all lateral directions, whether along fractures or by matrix flow through the Bandelier tuff. To test whether fractures were preferred pathways for hydrocarbon flow, angled boreholes were oriented to intersect as many fractures as possible. Fractures were generally not detectable in the drill cores (they were compressed or closed in the process of drilling). Therefore, the role of fractures in contaminant transport has not been conclusively determined.

Any large volume sources of petroleum contamination at DP Tank Farm (i.e., plumes) have been removed through corrective actions. The only remaining contamination is in tuff fractures that extend beyond the excavated areas. With the primary volume sources removed, the existence and further migration of the small remaining volume of contamination in the fractures should have little impact on human health or the environment.

Although diesel constituents were detected in the stream channel north of DP Tank Farm, the source of the localized hydrocarbon sheen in DP Canyon has not been conclusively determined. During the UST investigation, boreholes were hand-augered on the channel banks north and south of the localized hydrocarbon sheen area. Petroleum products were detected in samples collected north of this area (opposite DP Tank Farm), but not in samples collected south of this area. These data support the hypothesis that potential sources other than DP Tank Farm exist, such as runoff from the Los Alamos town site. To address uncertainty associated with the source of the

localized hydrocarbon sheen, LANL will prepare a SAP to address this area. This SAP will be submitted by August 20, 1997.

The Bandelier tuff is a water-bearing formation only under rare hydrogeologic conditions, specifically when an adequate water source, permeable subsurface material, and a mechanism for water retention are present. There is no indication that such hydrogeological conditions exist at or near PRS 21-029. Borehole 21-2558, which was drilled at DP Tank Farm to a depth of 95 ft, did not encounter water-bearing zones, and no water-saturated tuff was encountered in any of the boreholes drilled at the site. Based on this hydrogeological data, hydrogeologic cross sections for DP Tank Farm would only show the main aquifer, which lies approximately 1 150 ft below the site.

NMED COMMENT

6. Section 2.3, Hydrology, pg. 6. The report states there is no potential for petroleum product contaminants to impact the main aquifer. However, alluvial ground-water is known to exist further downstream in DP Canyon. Whereas this report contains no ground water data, the potential impact to ground water is not adequately addressed.

LANL RESPONSE:

DP Tank Farm lies on Unit 3 of the Tshirege Member of the Bandelier tuff. The main aquifer beneath TA-21 is at an elevation of approximately 5 900 ft (determined in Test Well 2 in Pueblo Canyon, and in Otowi 4 in Los Alamos Canyon), chiefly within sediments of the Puyé and Tesuque Formations (Purtymun 1995, 1293; Broxton and Eller 1995, 1162). As stated in Section 2.3 (page 6) of the RFI report, the main aquifer beneath DP Tank Farm lies well below the base of the Bandelier tuff at an approximate depth of 1 150 ft.

Groundwater samples were collected from monitoring wells LAUZ-1 and LAUZ-2 downstream from DP Tank Farm in DP Canyon. Data from these samples are scheduled to be published in a September 1997 report to be titled "Hydrogeologic Properties of the Bandelier Tuff at DP Mesa, TA-21, Los Alamos National Laboratory." These data indicate that no organic compounds were detected in any of the groundwater samples. In addition, four surface water samples were collected in the DP Canyon channel downgradient from PRS 21-029 and analyzed as part of the UST investigation. These surface samples are relevant because surface water has the potential to infiltrate into alluvial groundwater. As shown in Table A-16 (page A-55) of the RFI report, these samples contained no measurable petroleum-related products. All of these data indicate that alluvial groundwater has not been impacted by operations at DP Tank Farm.

LANL is currently preparing a spreadsheet to be titled, "Environmental Restoration Water Sampling Data." This document will contain the analytical results for all water samples that have been collected by the LANL ER Project. This spreadsheet will be submitted to NMED by July 31, 1997.

NMED COMMENT

7. Section 2.4, Wildlife Habitats, pg. 7, does not discuss the wildlife and plant life present in and around this area. LANL shall provide this information.

LANL RESPONSE:

As stated in the RFI report, the affected habitat in and around DP Tank Farm is discussed in the ecological surveys of TAs 1, 32, and 21 (Bennett 1992, 01-0008; Biggs 1993, 01-0019). The accepted RFI report standards in use when this report was written, which were in accordance with EPA guidance, required only that the ecological surveys be referenced.

The outline included in the DOU states that information on biological surveys be referenced when appropriate (NMED et al. 1996, 1328). Information on biological surveys is provided in the documents referenced above. As these documents indicate, there are potential habitats at TA-21 for several protected species, but the presence of these species could not be confirmed.

NMED COMMENT

8. Section 2.0, Environmental Setting, pgs. 5-7. There is no discussion in this section of any cultural resources. As a reference, please refer to Document of Understanding (DOU), Appendix N, pgs. 3-6, to see a discussion of cultural resources to be included in the RFI outline.

LANL RESPONSE:

The accepted RFI report standards in use when this document was written, which were in accordance with EPA guidance, did not require a discussion of cultural resources in the RFI report.

The current format in the DOU includes a section on cultural resources (NMED et al. 1996, 1328). Cultural resources were surveyed at PRS 21-029 on April 3, 1995, and no cultural resources were noted. A report was submitted to the State Historic Preservation Officer (LANL 1992, 01-0037) and concurrence was received.

NMED COMMENT

9. Section 4.1, 1994 Quality Assurance/Quality Control Activities, TAL Metals, pg. 14. Requests 19078 and 20061 exceeded holding times by six days and up to three months, respectively. Decisions were then made to limit the constituent monitoring list in the 1995 investigation based on the 1994 results. A full constituent monitoring list can not be developed from the inadequate 1994 data. Thus, the human health screening assessments presented are inconclusive as well as other remedial actions taken which were based upon the earlier 1994 data.

LANL RESPONSE:

DP Tank Farm samples did not exceed the holding time for target analyte list (TAL) metals, which is six months. As discussed in Section 4.1 (page 14) of the RFI report, the samples in requests 19078 and 20061 exceeded the holding time only for mercury. The required holding time for mercury in water samples is 28 days. For mercury in soil, there is no required holding time. However, there is a recommended

holding time of 28 days that is based on unpreserved water samples (see the EPA SW-846 methods).

Eight water samples in request 20061 exceeded the required mercury holding time. Six of the water samples were equipment rinsates and field rinsates (distilled water used in the field), and one was a quality control (QC) blank. No mercury was detected in these samples, but all the data were rejected because the samples exceeded the required holding time. The last water sample was a blind QC sample that included mercury as one of its analytes. The mercury recovery from this sample was within allowed limits even though the holding time was exceeded by 2 to 3 months.

Soil samples in requests 19078 and 20061 exceeded the recommended mercury holding time, but the data are still valid. As explained on page 14 in the RFI report, the 28-day holding time is based on the likelihood of biotransformation of elemental mercury into organomercury compounds in unpreserved water samples. Soil samples are less likely than unpreserved water samples to undergo this biotransformation. Given that the mercury levels in the blind QC water sample were not affected by the extended holding time, it is highly unlikely that the soil samples were affected. The soil samples were kept refrigerated, further reducing this possibility. In addition, because DP Tank Farm has been closed for over 10 years, any microbial activity leading to biotransformation of mercury in the soil is likely to have occurred well before these samples were collected. For all of these reasons, the 28-day holding time for mercury is expected to be extremely conservative for the soil samples collected at DP Tank Farm.

In request 19078, the soil samples exceeded the holding time by six days. Because the samples did not grossly exceed the recommended holding time, they were considered valid and were not qualified. In request 20061, the soil samples exceeded the holding time by two to three months. These data were still considered usable, but they were qualified as estimated to ensure that the uncertainties associated with the extended holding time were accounted for during data assessment.

The above information demonstrates that use of the mercury data analyzed in requests 19078 and 20061 is valid. However, regardless of these data, it can still be demonstrated that mercury is not a constituent of concern at DP Tank Farm. There is no indication that mercury was ever used or disposed of at the site. In addition, no mercury was detected in any of the samples, including those that met the 28-day holding time (samples AAB9713, AAB9714, AAB9715, and AAB9716, analyzed in request 19086). The mercury results for all samples collected in 1994 are presented in Table A-6 (page A-18) of the RFI report.

Because the 1994 data were analyzed and assessed in accordance with the appropriate QA/QC procedures, these data were adequate to determine the limited constituent list for the 1995 UST investigation.

NMED COMMENT

10. Section 4.1, 1994 Quality Assurance/Quality Control Activities, pg. 15, SVOCs.

Due to the low surrogate recoveries, holding time exceedances, and problematic diluted samples below detection limits, conclusions regarding the presence or

absence of contaminants can not be made. These analytes should have been included in the 1995 investigation to determine whether or not there were present at the site.

LANL RESPONSE:

While there were a number of data quality issues with the 1994 data, the data were evaluated and found to be adequate to achieve the RFI objective, which was to determine the presence or absence of contaminants.

The data were evaluated following the guidance on pages 43 through 77 of the US EPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review (see Attachment A). Based on this evaluation, the low surrogates, sample dilutions, and missed holding times were determined to affect the quality of the data such that most of the data were qualified as estimated detected and undetected values (J or UJ). However, these quality issues did not call for rejection of the data. As explained in the CLP guidelines, qualification of data as J or UJ limits the quantitative use of the data, but under the conditions present during these analyses it does not affect qualitative use of the data for determining the presence or absence of contaminants.

LANL also wishes to clarify that the QA/QC section of the RFI report focuses primarily on problems without emphasizing the successful QA/QC parameters. During analysis of semivolatile organic compounds (SVOCs), the results for all internal standards were within allowed limits. The only exceptions were the internal standards for two samples with high TPH concentrations that were subsequently reanalyzed at a higher dilution; the internal standards for these two samples were within allowed limits during the second analysis. Internal standards indicate whether the analytical laboratory is able to identify analytes in the field samples. Because the internal standards were within allowed limits, there is no indication that the analytical laboratory's ability to identify SVOCs was compromised by the QC problems discussed in the RFI report. In addition to the internal standards, matrix spike samples and matrix spike duplicates were performed for two of the requests (19017 and 19129). In both requests, the analytical laboratory detected all of the analytes in the matrix spike samples, giving further support to the conclusion that the laboratory was able to determine whether SVOCs were present in the field samples.

Based on the above information, the data are adequate for determining the presence of SVOCs. The only SVOCs detected in the field samples were components of TPH. Therefore, no further evaluation of SVOCs other than TPH was warranted during the 1995 UST investigation.

NMED COMMENT

11. Section 4.1, 1994 Quality Assurance/Quality Control Activities, pg. 16, Radionuclides. A problem with request 19090 for Cesium 137 was noted. Whereas Cesium 137 is a daughter of Plutonium decay and Plutonium was purified at TA-21 in the past, further investigation as to whether or not this isotope is present should be done.

LANL RESPONSE:

LANL wishes to clarify that cesium-137 is not a daughter of plutonium as stated in NMED's comment.

The cesium-137 value detected in the QC sample for request 19090 was originally thought to be biased high, but was later determined to be within the acceptable limits (80 to 120% recovery). The analytical laboratory where field samples were analyzed reported a cesium-137 value for the blind QC sample that was 121% of the "known" value given by the laboratory group that prepared the QC sample. This suggested that the analytical laboratory was reporting cesium-137 values for all samples that were 20% higher than the actual values contained in the samples. Had this been the case, the data would have represented higher cesium-137 levels than were actually present, and the data would have been qualified as estimated detected values, biased high (J+).

However, several analytical laboratories reported values for blind QC samples prepared from the same batch that were consistently approximately 20% high. Therefore, the "known" value reported by the laboratory group that prepared the QC sample was reassessed and found to be approximately 21% higher than the reported "known" value. Therefore, the cesium-137 values detected in the QC sample were actually well within the allowed range, and the cesium-137 values detected in the samples are not biased high. The cesium-137 data were correct, valid, and usable without qualification as noted in the RFI report. Based on all of this information, no further investigation of cesium-137 is warranted at DP Tank Farm.

NMED COMMENT

12. Section 4.2, 1995 Quality Assurance/Quality Control Activities, pg. 17. NMED does not consider the sampling parameters analyzed during the 1995 investigation as adequate to have characterized the nature and extent of contamination. See Specific Comments numbers 9, 10 and 11.

LANL RESPONSE:

The sampling parameters analyzed during the 1995 investigation were adequate to characterize the nature and extent of contamination as clarified in the responses to Specific Comments 9, 10, and 11.

NMED COMMENT

13. Section 4.2, 1995 Quality Assurance/Quality Control Activities, BTEX, MEK, and Acetone Analyses, pg. 18. It is not acceptable to subtract the method blank concentration from the sample concentrations without reporting the method blank and sample concentrations independently. LANL shall provide additional information regarding the method detection levels and calibration results. Further definition of the range used to qualify a sample as non detect and a reference is also needed to understand the methodology behind multiplying the analyte result in a blank by 25.

LANL RESPONSE:

LANL agrees that subtracting method blank concentrations from sample concentrations is not an acceptable laboratory practice. However, it was the general

practice of the Mobile Chemistry Analytical Laboratory (MCAL) at the time of the analyses (LANL no longer uses the MCAL for analytical services). All MCAL data were evaluated and corrected to ensure that the MCAL subtraction procedures did not affect the usability of the data. In response to NMED's request, all data pertaining to blank detection levels and calibration results are included in Attachment B.

To correct for mistakes in the subtraction procedure, the results for BTEX, methyl ethyl ketone (MEK), and acetone in each sample were multiplied by each sample's dilution factor (the dilution factor for most samples was 25). This method follows the US EPA CLP National Functional Guidelines for Organic Data Review, which states on page 56, "The reviewer should note that blanks may not involve the same weights, volumes, or dilution factors as the associated samples. These factors must be taken into consideration when applying the 5x and 10x criteria, such that a comparison of the total amount of contamination is actually made" (see Attachment A). Because the data were corrected to account for the incorrect subtraction, they are valid and usable.

NMED COMMENT

14. Section 5.1.2.1, 1994 Field Screening Results, pg. 28, Hydrocarbon Seep and DP Canyon Sampling. The Seep located in DP Canyon was identified as "weathered diesel," and therefore, constitutes Refuse in a water course as per NMAC 6.2, Section 2201. Please see General Comment Number 3.

LANL RESPONSE:

Although diesel constituents were detected in the stream channel north of DP Tank Farm, the source of the localized hydrocarbon sheen in DP Canyon has not been conclusively determined. During the UST investigation, boreholes were hand-augered on the channel banks north and south of the localized hydrocarbon sheen area. Petroleum products were detected in samples collected north of this area (opposite DP Tank Farm), but not in samples collected south of this area. These data support the hypothesis that potential sources other than DP Tank Farm exist, such as runoff from the Los Alamos town site.

After completion of the VCA at DP Tank Farm, quarterly visual inspections were initiated at the site as requested by the NMED Surface Water Quality Bureau. No visible evidence of petroleum products contamination has been observed in the stream channel in the vicinity of the localized hydrocarbon sheen. Annual water sampling is scheduled for August 1997.

To address uncertainty associated with the source of the localized hydrocarbon sheen, LANL will prepare a SAP to address this area. This SAP will be submitted by August 20, 1997.

NMED COMMENT

15. Section 5.2.1, Background Comparisons, pg. 30. The Gehan modification to the Wilcoxon Rank Sum test and the Quantile test were used to account for non detects. Further explanation is needed as to why these tests were chosen as well as actual detection limits.

LANL RESPONSE:

A list of suggested statistical tests for detecting distribution shifts between PRS data and LANL-wide background data is presented in the guidance document, "Application of LANL Background Data to ER Project Decision-Making, Part I: Inorganics," EM/ER:96-PCT-010 (Project Consistency Team, 1210; Ryti et al. 1996, 1298). For the background comparisons in this report, the Gehan modification to the Wilcoxon Rank Sum test and the Quantile test were selected because, together, they capture most types of differences between distributions. These tests are described in detail below.

The Gehan modification to the Wilcoxon Rank Sum test is recommended when there are relatively frequent nondetected values because this test handles detection limits in a statistically robust manner. When there are no nondetected values, the Gehan test is identical to the Wilcoxon Rank Sum test. This test is conducted by pooling PRS data and background data into one data set. The test then determines whether the average rank of site data is greater than that of the background data.

The Quantile test is capable of detecting a statistical difference when only a small number of PRS concentrations are elevated. The Quantile test also accounts reasonably for nondetected values. This test is conducted by comparing the upper quantile of the background data with that of the PRS data.

Lead and zinc were the only two inorganic chemicals that required further background comparisons for DP Tank Farm. The data for lead and zinc are presented in Table A-6 of the RFI report. As these data show, there were no nondetected values for these two inorganic chemicals. Therefore, detection limits were not relevant to the statistical test results for these two chemicals.

NMED COMMENT

16. Fig. 5-7, pg. 45. A summary of the TPH results at the West Fill Station indicates the 1995 investigation was centered on borehole 21-2556. However, Figure 5-7 shows no results for borehole 21-2556 for TPH. Figure 5-10, page 47, also does not show TPH results for 21-2556. If this borehole was not analyzed for TPH, it should not have been used to center the investigation as indicated on page 46.

LANL RESPONSE:

As stated in Section 5.1.3 of the RFI report (page 26), the 1995 UST investigation of the West Fill Station was centered on the location of borehole 21-2556, which was drilled in 1994. This borehole was selected as the center of the array because the highest concentrations of petroleum products were detected in this borehole (see Table A-8, page A-20, of the RFI report). The objective of the 1995 investigation was to bound the extent of contamination detected during the 1994 investigation. The 1994 analytical results from borehole 21-2556 indicated that the vertical extent of contamination in this borehole had been bounded. Therefore, no further sampling of this borehole was warranted. To bound the lateral extent of contamination, drilling was conducted in 1995 in a four-armed array centered around borehole 21-2556 and extending approximately 20 ft in each direction.

NMED COMMENT

17. Section 5.2.5, Summary of the Results from the 1994 and 1995 Investigations, pg. 46, West Fill Station, states that the contamination is bounded vertically by a depth of approximately 20 feet below ground surface (ft bgs). This cannot be determined because boreholes 21-3002 and 21-3005 show detections of BTEX and Benzene at 35 ft bgs. See fig. 5-11 pg. 48. Also, a boring is needed NE of 21-003 to begin to bound the extent of horizontal contamination. Also, East Fill Station needs a borehole NW of 21 -3007 to begin to bound the extent of horizontal contamination.

LANL RESPONSE:

The vertical and horizontal extent of contamination at the East and West Fill Stations were bounded according to NMED UST Bureau requirements (New Mexico Environmental Improvement Board 1990, 0644). Based on a letter from July 1, 1995 to G. Thomas Todd of the Department of Energy Los Alamos Area Office (DOE/LAAO) from Benito J. Garcia, Bureau Chief of the Hazardous and Radioactive Materials Bureau (HRMB), LANL understood that NMED concurred with this approach (see Attachment C).

In borehole 21-3002, the total BTEX and benzene concentrations detected at 32 ft bgs were 0.82 ppm and 0.56 respectively. In borehole 21-3005, the total BTEX and benzene concentrations detected at 34 ft were 0.93 ppm and 0.67 respectively. These concentrations are an order of magnitude below the 50 ppm for BTEX and 10 ppm for benzene, which are specified in the UST Regulations (New Mexico Environmental Improvement Board 1990, 0644). Therefore, the vertical extent of contamination has been bounded at the West Fill Station.

Borehole 21-3003 was an angled borehole drilled in an east-west orientation at an angle of 45 degrees. TPH was detected in this angled borehole in a subsurface zone ranging from 9.5 ft to 13.6 ft west of the borehole's surface location and at a vertical depth ranging from 9.5 ft to 13.6 ft bgs. No TPH was detected within the perimeters of bounding boreholes 21-3002, 21-3004, 21-3005, and 21-3014. Therefore, the horizontal extent of contamination has been bounded at the West Fill Station.

The horizontal extent of contamination in the northwestern portion of the East Fill Station was bounded by borehole 21-3007 to the north and borehole 21-3010 to the west. Neither BTEX constituents nor TPH were detected in these boreholes.

NMED COMMENT

18. Section 5.2.5, Summary of the Results from the 1994 and 1995 Investigations, pg. 50, Stream Channel, states the seep in the stream channel is not related to DP Tank Farm. Whereas, the TPH peaks in the chromatograms were analyzed qualitatively and the values were estimated with uncertainty at less than 1 ppm, the seep may or may not originate from DP tank farm.

LANL RESPONSE:

As stated in Section 5.2.5 (page 50) of the RFI report, the stream channel investigation "suggests that the source of the petroleum is not related to DP Tank Farm." While DP Tank Farm may have contributed to contamination in the localized hydrocarbon sheen area in DP Canyon, the data from this investigation support the hypothesis that

potential sources other than DP Tank Farm exist, such as runoff from the Los Alamos town site. Thus, the source of the localized hydrocarbon sheen has not been conclusively determined. To address uncertainty associated with the source of the localized hydrocarbon sheen, LANL will prepare a SAP to address this area.

NMED COMMENT

19. Section 5.3, Conclusions and Recommendations, on pg. 51 states PRS 21-029 is recommended for no further action. However, due to the deficiencies in this report, HRMB cannot concur with this recommendation. Recommendation for NFA cannot be supported for a site when the site has not been assessed for contamination to ground-water. Also, RFI Report for SWMU 21-029, pg. 50, 5.3 Conclusions and Recommendations, states that Benzene was found at concentrations that exceed SALs. Due to the fact that the extent of contamination was not determined, HRMB cannot support NFA.

LANL RESPONSE:

PRS 21-029 is recommended for no further action under RCRA because it is regulated or closed under a different authority that addresses corrective action, in this case the NMED UST Bureau.

The soil containing benzene at levels exceeding the SAL was removed during the VCA conducted at DP Tank Farm. Benzene was removed to concentrations below 1 ppm, as discussed on page 7 of the VCA report.

As discussed in the response to Specific Comment 17, the full extent of petroleum hydrocarbon contamination was characterized at the East and West Fill Stations during the 1995 UST investigation.

As discussed in the response to Specific Comment 6, groundwater was sampled downstream from DP Tank Farm in DP Canyon, and no organic compounds were detected. In addition, surface water samples collected downgradient from the site in DP Canyon during the UST investigation contained no measurable petroleum-related products. These data indicate that the groundwater has not been impacted by operations at DP Tank Farm. LANL is currently preparing a spreadsheet that contains the analytical results for all water samples that have been collected by the LANL ER Project. This spreadsheet will be submitted to NMED by July 31, 1997.

NMED COMMENT

20. Analytical Data for 1994, Appendix A, pgs. A-3 to A-27, Data Reporting. No information is contained in Appendix A concerning sampling date, time, personnel taking the sample or personnel analyzing the samples. The number of the samples collected for fixed laboratory analyses to be analyzed by an off-site laboratory should also be reported.

LANL RESPONSE:

Neither the format in use when this RFI report was written nor the format included in the DOU require information regarding sampling date, time, and personnel (NMED et al. 1996, 1328). Table A-1 of the RFI report provides a summary of the samples collected for off-site laboratory analysis.

NMED COMMENT

21. Analytical Data for 1994, Appendix A. All Gamma Spectroscopy data, found in Table A-3, pgs. A-6 through A-13, states there were high Cesium-137 recoveries in the QC sample. The comments go onto state that the data were not qualified, but that all data are valid. This is a contradiction. These samples should have been taken again for analysis. Whereas Cesium-137 is a fission product of Plutonium which was purified at TA 21, this product could exist at the site from a variety of migration paths.

LANL RESPONSE:

This comment is addressed in the response to Specific Comment 11. As discussed in that response, the cesium-137 values detected in the QC sample were found to be well within the allowed range, and the cesium-137 values detected in the samples are not biased high. In Table A-3 (pages A-6 through A-13), it states that the data were not qualified, indicating that no qualifiers were necessary. Therefore, all data are valid and there is no contradiction.

NMED COMMENT

22. Analytical Data for 1994, Appendix A, Table A-9, pg. A-21. This Table should be revised based on Specific Comment Number 9.

LANL RESPONSE:

This comment is addressed in the response to Specific Comment 9. Based on that response, Table A-9 is correct.

NMED COMMENT

23. Analytical Data for 1995, Appendix A, pg. A28 thru A56. Data not qualified in the 1994 sampling, such as the gamma spectroscopy and VOC analyses, should have been repeated in 1995 to obtain adequate and valid data for the site. See Specific Comments 9, 10, and 11.

LANL RESPONSE:

As explained in the responses to Specific Comments 9, 10, and 11, the data from the 1994 investigation were valid and usable.

NMED COMMENT

24. Field Screening results by Direct β/γ reading in counts per minute, as per Table A-13, pgs. A-44 through A-48, were often above background. This should have also resulted in additional gamma spectroscopy analyses of the site.

LANL RESPONSE:

The daily background values reported in Table A-13 of the RFI report are averages of the readings taken for each day. When multiple daily background readings are measured and averaged, there is uncertainty associated with that average because of the inherent variability of ambient background (i.e., population variability) and the variability associated with field screening instruments (i.e., measurement variability). A direct comparison of individual borehole readings to an average of daily background readings does not reflect the true variability in the background readings. For example, the individual background readings on May 17 range from 160 to 276 cpm (see

Table 2). To account for this variability, field screening results for radioactivity were evaluated as discussed below.

A t-test was conducted to compare the distributions of the direct beta/gamma readings from boreholes with the reported daily background readings. This t-test was performed by comparing the means of the distributions while accounting for the variability of the two data sets. (T-tests rely on underlying normality assumptions. Examination of these data shows that assumptions of normality are met.) The observed significance level (p-value) for this t-test was 0.4292. A p-value much greater than 0.05 usually indicates no difference between distributions, whereas a p-value much less than 0.05 usually indicates a difference. A p-value close to 0.05 requires further evaluation of the data. The t-test result of 0.4292 indicates that there is not a significant overall difference between readings from boreholes and background readings.

A second t-test was conducted to compare data from individual boreholes and screening dates with daily background readings. The results of this t-test indicate that borehole 21-3006 was the only borehole in which the data demonstrate a potentially significant difference from the daily background readings. Two dates, May 17 and 18, also indicated potentially significant differences between data from individual boreholes and daily background readings. The results by date are consistent with the results by borehole because borehole 21-3006 was the only borehole sampled on May 17 and 18, and most of the readings for this borehole were taken on these two days.

Further evaluation was conducted on the data collected on May 17 and 18 from borehole 21-3006. Two t-tests were conducted to compare the data from this borehole on these days to the observed daily background readings for each day. The daily background values reported in Table A-13 of the RFI report are averages of five readings taken for each day. The individual daily background readings for May 17 and May 18 are presented in Table 2. The t-test for May 17 resulted in a p-value of 0.1178, which indicates that there is not a significant difference between the borehole data and background data. The t-test for May 18 resulted in a p-value of 0.0411, which is very close to 0.05.

Thus, of more than 20 statistical tests performed on this data set (considering tests for all boreholes and all dates separately), there was only one p-value less than 0.05. Statistical theory suggests that when 20 tests are run at a 0.05 significance level, one observed p-value less than 0.05 is expected (see Appendix 6C, Multiple Comparisons, in Box et al. and Chapter 8, Correction for Multiple Comparisons, in Keppel [Box et al. 1978, 01-0056; Keppel 1982, 01-0057]). Thus, based on this statistical theory and further exploratory data analysis, the single p-value that was slightly less than 0.05 was not interpreted as representing a difference between the site and background distributions.

The results of all of these statistical tests indicate that the radiation levels in the borehole samples were within background.

TABLE 2
INDIVIDUAL DAILY BACKGROUND READINGS

SCREENING DATE	INDIVIDUAL BACKGROUND READINGS (cpm)	DAILY BACKGROUND AVERAGE (cpm)
May 17, 1995	162	202
	251	
	276	
	163	
	160	
May 18, 1995	160	179
	190	
	210	
	165	
	173	

NMED COMMENT

25. Attachment B included a letter to the Surface Water Quality Bureau of the NMED, dated May 19, 1995, detailing a release of diesel fuel at TA-21. The attached description of the release stated: *A site investigation at the former DP Tank Farm located at TA-21 has indicated that contaminants may have migrated to DP Canyon by flow through fractures in the tuff.* The VCA Report of PRS 21-029. DP Tank Farm, dated July, 1996, pg. 13, states: *Stained tuff was observed adjacent and along fractures. In some places, the stained material extended as much as 3 to 4 ft from fractures.* Further sampling should be conducted to determine the source and the area of the seep as requested in General Comment 3. LANL shall submit a SAP to determine the nature and extent of contamination.

LANL RESPONSE:

As discussed in the response to Specific Comment 5, a model of hypothetical fractures in the tuff at DP Tank Farm was developed, and boreholes were oriented to intersect as many fractures as possible during the UST investigation. However, the role of fractures in contaminant transport has not been conclusively determined.

Although diesel constituents were detected in the stream channel north of DP Tank Farm, the source of the localized hydrocarbon sheen in DP Canyon remains uncertain. Potential sources other than DP Tank Farm exist, such as runoff from the Los Alamos town site. To address uncertainty associated with the source of the localized

hydrocarbon sheen, LANL will prepare a SAP to address this area. This SAP will be submitted by August 20, 1997.

NMED COMMENT

26. Attachment B included a letter to LANL from AIP, dated June 28, 1995, suggesting samples of surface water and soil/rock be taken. However, all data in this report were gathered in May, 1995, or earlier. (See bore logs in Attachment A for dates.) The next report received for this site, Voluntary Corrective Action Plan for Potential Release Sites 21-029, DP Tank Farms Removal of Contaminated Soil, April 1996, does not discuss the seep area of source of the seep. The SAP should be prepared to determine the source of the seep.

LANL RESPONSE:

Water and soil samples were collected from the stream channel in DP Canyon in response to the letter from the "Agreement in Principal" (AIP) personnel. Analytical results from these samples are presented in the RFI report in Tables A-16 and A-17 (pages A-55 through A-56). These samples were not documented on the borehole logs included with the RFI report because they were not collected from boreholes. The VCA report states in Section 5.0 (page 15), "Monitoring will be conducted in the stream channel adjacent to DP Tank Farm to evaluate the possibility of future contaminant releases. For a two-year period, water sampling will be conducted annually and visual site inspections will be conducted quarterly." This sampling is currently being conducted to monitor the localized hydrocarbon sheen area in DP Canyon. A SAP will be prepared to address this area.

NMED COMMENT

27. Attachment A, Enclosure 5 - This section is missing numerous core sample logs referenced within the report. LANL shall provide core sample logs associated with the RFI.

LANL RESPONSE:

The borehole logs included in Attachment A, Enclosure 5, of the RFI report are part of the "Forty-Five-Day Report on Soil Contamination at the Former TA-21 Underground Storage Tank Farm," which was included with the RFI report for information purposes.

Neither the format in use when this RFI report was written nor the format included in the DOU require inclusion of core logs (NMED et al. 1996, 1328). However, because the core logs were included in the RFI report for information purposes, the complete core logs are resubmitted as Attachment D.

NMED COMMENT

28. Attachment A, Enclosure 8 - What relevance does the map provided have to the subject area? LANL shall provide a map which shows all boreholes within a mile radius which have encountered saturated conditions.

LANL RESPONSE:

The map included in Attachment A, Enclosure 8, of the RFI report is part of the "Forty-Five-Day Report on Soil Contamination at the Former TA-21 Underground

Storage Tank Farm," which was included with the RFI report for information purposes. This map was intended to present the locations of the nearest municipal water wells.

Neither the format in use when this RFI report was written nor the format included in the DOU require inclusion of a map showing the locations of boreholes that have encountered saturated conditions (NMED et al. 1996, 1328). However, to clarify the information presented in the forty-five-day report, the locations of all monitoring wells within a mile radius of DP Tank Farm are presented in Fig. 2.

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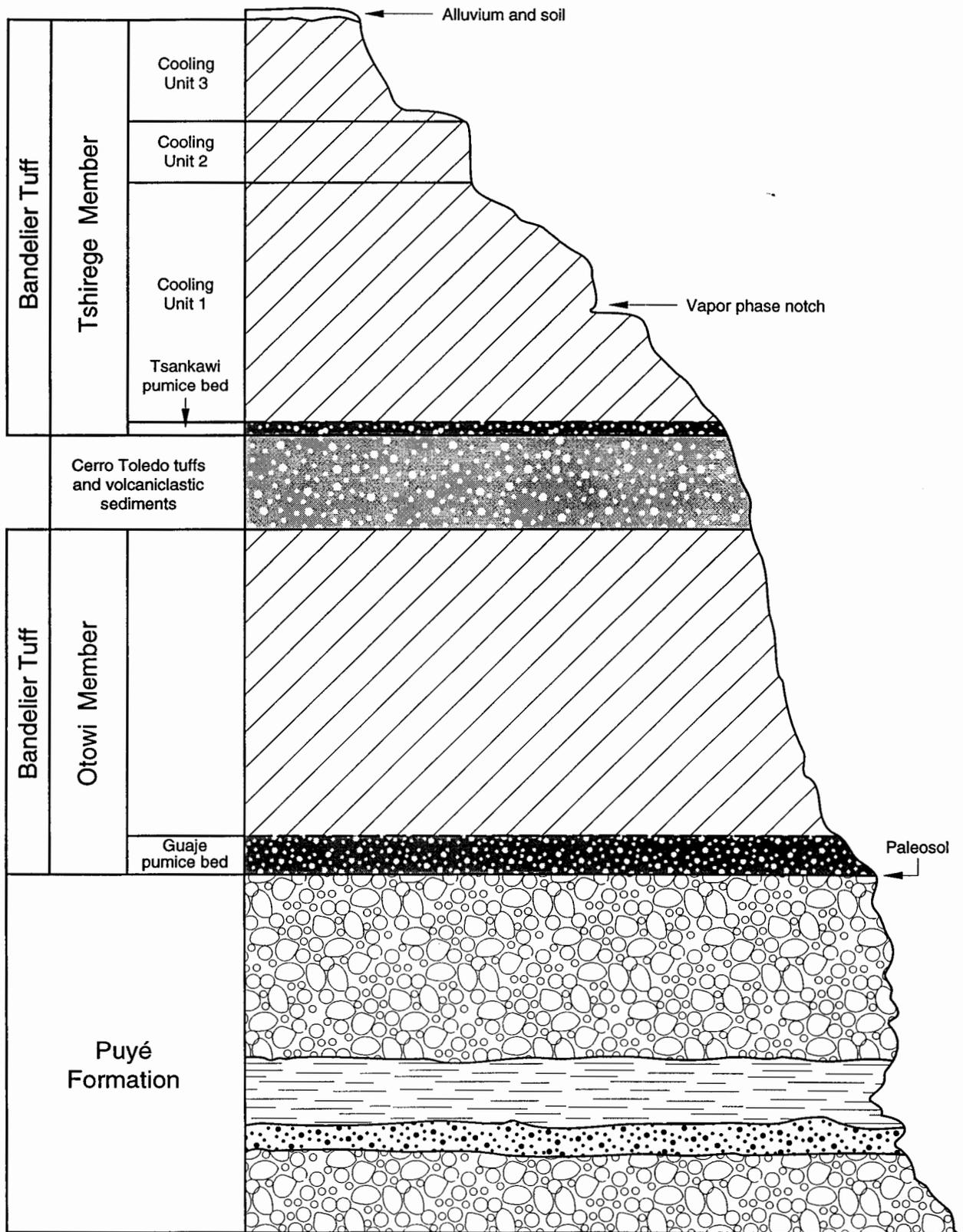


Fig. 1 Generalized stratigraphy of TA-21.

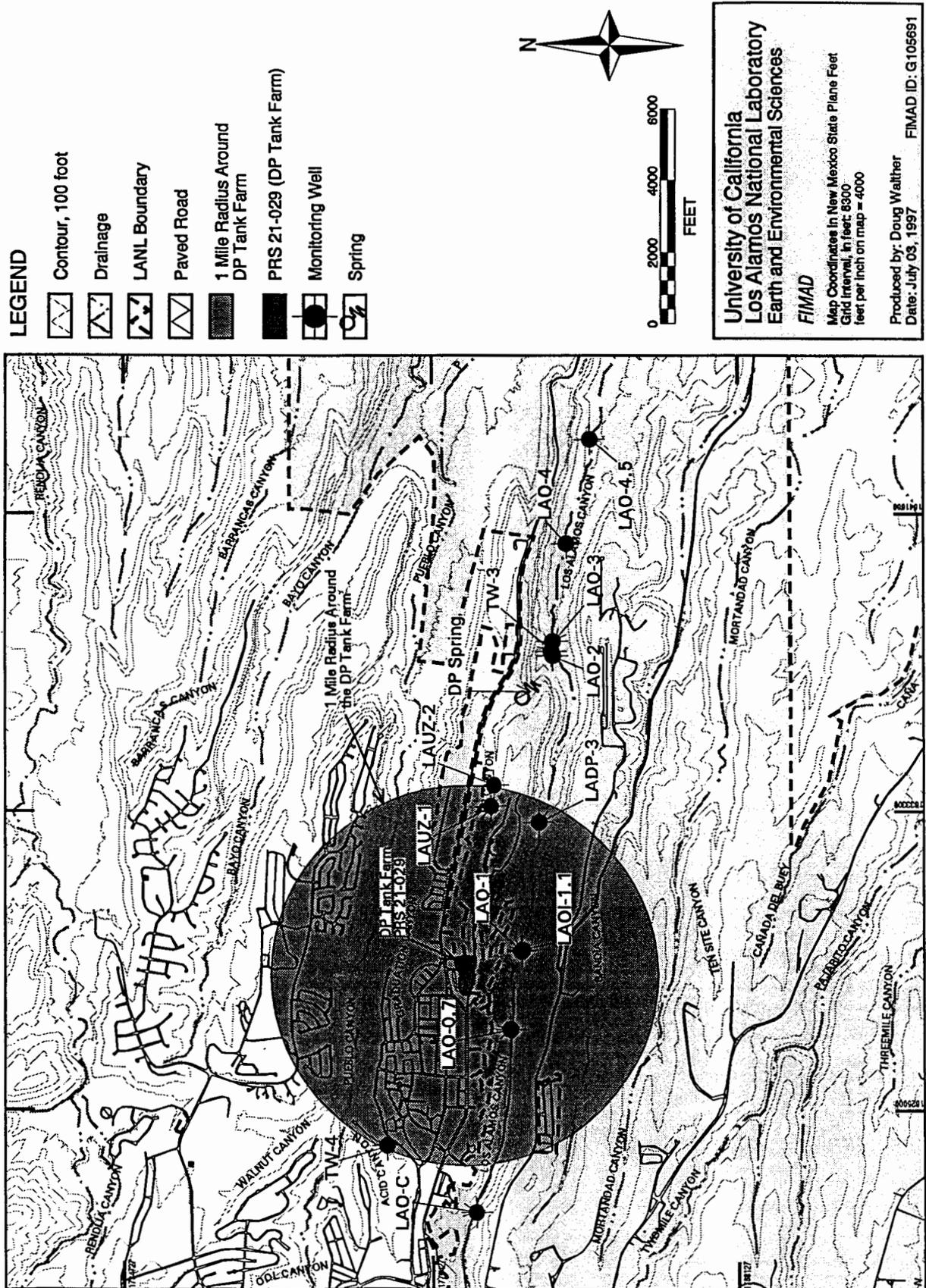


Fig. 2 Monitoring wells within one mile of DP Tank Farm.

**ATTACHMENT A EXCERPT FROM THE US EPA CONTRACT LABORATORY
PROGRAM NATIONAL FUNCTIONAL GUIDELINES FOR
ORGANIC DATA REVIEW**

USEPA CONTRACT LABORATORY PROGRAM

**NATIONAL FUNCTIONAL GUIDELINES
FOR
ORGANIC DATA REVIEW**

Multi-Media, Multi-Concentration (OLM01.0)

and

Low Concentration Water (OLC01.0)

DRAFT

DAY ONE

December, 1990
Revised June, 1991

SEMIVOLATILE DATA REVIEW

**** Data review guidelines that are unique to data generated through the Low Concentration Water SOW are contained within brackets ([]) and written in italics. ****

The semivolatile data requirements to be checked are listed below:

- I. Technical Holding Times (CCS - Contractual holding times only)
- II. GC/MS Instrument Performance Check (CCS)
- III. Initial Calibration (CCS)
- IV. Continuing Calibration (CCS)
- V. Blanks (CCS)
- VI. Surrogate Spikes (CCS)
- VII. Matrix Spikes/Matrix Spike Duplicates
- VIII. *Laboratory Control Samples (CCS)*
- IX. Regional Quality Assurance and Quality Control
- X. Internal Standards (CCS)
- XI. Target Compound Identification
- XII. Compound Quantitation and Reported Contract Required Quantitation Limits (CRQLs)
- XIII. Tentatively Identified Compounds
- XIV. System Performance (CCS)
- XV. Overall Assessment of Data

NOTE: "CCS" indicates that the contractual requirements for these items will also be checked by CCS: CCS requirements are not always the same as the data review criteria.

I. Technical Holding Times

- A. **Review Items:** Form I SV-1 and SV-2 [Form I LCSV-1 and LCSV-2], EPA Sample Traffic Report and/or chain-of-custody, raw data, and sample extraction sheets.

B. **Objective**

The objective is to ascertain the validity of results based on the holding time of the sample from time of collection to time of sample extraction and analysis.

C. **Criteria**

Technical requirements for sample holding times have only been established for water matrices. The holding times for soils (and other non-aqueous matrices such as sediments, oily wastes, and sludge) are currently under investigation. When the results are available they will be incorporated into the data evaluation process. Additionally, results of holding time studies will be incorporated into the data review criteria as the studies are conducted and approved.

The holding time criteria for water samples, as stated in the current 40 CFR Part 136 (Clean Water Act) is as follows:

For semivolatile compounds in cooled (@ 4°C) water samples the maximum holding time is 7 days from sample collection to extraction and 40 days from sample extraction to analysis.

It is recommended that semivolatile compounds in non-aqueous samples be extracted within 14 days of sample collection.

The contractual holding times, which differ from the technical holding times, state that water samples are to be extracted within 5 days from the validated time of sample receipt (VTSR) at the laboratory, and soil samples are to be extracted within 10 days from the VTSR. Also, contractually both water and soil sample extracts must be analyzed within 40 days of sample extraction. However, the contractual delivery due date is 35 days from the VTSR.

[For data generated through the Low Concentration SOW: The contractual delivery due date is 14 days from the VTSR.]

D. **Evaluation**

Technical holding times for sample extraction are established by comparing the sampling date on the EPA Sample Traffic Report with the dates of extraction on Form I SV-1 and SV-2 [Form I LCSV-1 and LCSV-2] and the sample extraction sheets. To determine if the samples were analyzed within the holding time after extraction, compare the dates of extraction on the sample extraction sheets with the dates of analysis on Form I SV-1 and SV-2 [Form I LCSV-1 and LCSV-2].

Verify that the traffic report indicates that the samples were received intact and iced. If the samples were not iced or there were any problems with the samples upon receipt, then discrepancies in the sample condition could effect the data.

E. Action

1. If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits as estimated "UJ" and document that holding times were exceeded.
2. If technical holding times are grossly exceeded, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. The reviewer may determine that positive results or the associated quantitation limits are approximate and should be qualified with "J" or "UJ", respectively. The reviewer may determine that non-detect data are unusable (R).
3. Due to limited information concerning holding times for soil samples, it is left to the discretion of the data reviewer to apply water holding time criteria to soil samples. Professional judgement is required to evaluate holding times for soil samples.
4. Whenever possible, the reviewer should comment on the effect of the holding time exceedance on the resulting data in the data review narrative.
5. When contractual and/or technical holding times are exceeded, this should be noted as an action item for the TPO.
6. The reviewer should also be aware of the scenario in which the laboratory has exceeded the technical holding times, but met contractual holding times. In this case, the data reviewer should notify the Regional TPO (where samples were collected) and/or RSCC that shipment delays have occurred so that the field problem can be corrected. The reviewer may pass this information on to the laboratory's TPO, but should explain that contractually the laboratory met the requirements.

II. GC/MS Instrument Performance Check

A. **Review Items:** Form V SV [Form V LCSV], and DFTPP mass spectra and mass listing.

B. **Objective**

Gas chromatograph/mass spectrometer (GC/MS) instrument performance checks (formerly referred to as tuning) are performed to ensure mass resolution, identification and, to some degree, sensitivity. These criteria are not sample specific. Conformance is determined using standard materials, therefore, these criteria should be met in all circumstances.

C. **Criteria**

The analysis of the instrument performance check solution must be performed at the beginning of each 12-hour period during which samples or standards are analyzed. The instrument performance check, decafluorotriphenylphosphine (DFTPP) for volatile analysis, must meet the ion abundance criteria given below.

Decafluorotriphenylphosphine (DFTPP)

<u>m/z</u>	<u>ION ABUNDANCE CRITERIA</u>
51	30.0 - 80.0% of m/z 198
68	Less than 2.0% of m/z 69
69	Present
70	Less than 2.0% of m/z 69
127	25.0 - 75.0% of m/z 198
197	Less than 1.0% of m/z 198
198	Base peak, 100% relative abundance
199	5.0 - 9.0% of m/z 198
275	10.0 - 30.0% of m/z 198
365	Greater than 0.75% of m/z 198
441	Present, but less than m/z 443
442	40.0 - 110.0% of m/z 198
443	15.0 - 24.0% of m/z 442

NOTE: All ion abundances must be normalized to m/z 198, the nominal base peak, even though the ion abundances of m/z 442 may be up to 110 percent that of m/z 198.

D. **Evaluation**

1. Compare the data presented on each GC/MS Instrument Performance Check (Form V SV [Form V LCSV]) with each mass listing submitted and ensure the following:
 - a. Form V SV [Form V LCSV] is present and completed for each 12-hour period during which samples were analyzed.

- b. The laboratory has not made any transcription errors between the data and the form. If there are major differences between the mass listing and the Form Vs, a more in-depth review of the data is required. This may include obtaining and reviewing additional information from the laboratory.
 - c. The appropriate number of significant figures has been reported (number of significant figures given for each ion in the ion abundance criteria column) and that rounding is correct.
 - d. The laboratory has not made any calculation errors.
2. Verify from the raw data (mass spectral listing) that the mass assignment is correct and that the mass is normalized to m/z 198.
 3. Verify that the ion abundance criteria was met. The criteria for m/z 68, 70, 441, and 443 are calculated by normalizing to the specified m/z.
 4. If possible, verify that spectra were generated using appropriate background subtraction techniques. Since the DFTPP spectrum is obtained from chromatographic peaks that should be free from coelution problems, background subtraction should be done in accordance with the following procedure. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged and background subtraction must be accomplished using a single scan prior to the elution of DFTPP.

NOTE: All instrument conditions must be identical to those used in the sample analysis. Background subtraction actions resulting in spectral distortions for the sole purpose of meeting the contract specifications are contrary to the quality assurance objectives and are therefore unacceptable.

E. Action

1. If the laboratory has made minor transcription errors which do not significantly affect the data, the data reviewer should make the necessary corrections on a copy of the form.
2. If the laboratory has failed to provide the correct forms or has made significant transcription or calculation errors, the Region's designated representative should contact the laboratory and request corrected data. If the information is not available, then the reviewer must use professional judgement to assess the data. The laboratory's TPO should be notified.
3. If mass assignment is in error (such as m/z 199 is indicated as the base peak rather than m/z 198), classify all associated data as unusable (R).
4. If ion abundance criteria are not met, professional judgement may be applied to determine to what extent the data may be utilized. Guidelines to aid in the application of professional judgement in evaluating ion abundance criteria are discussed as follows:

- a. Some of the most critical factors in the DFTPP criteria are the non-instrument specific requirements that are also not unduly affected by the location of the spectrum on the chromatographic profile. The m/z ratios for 198/199 and 442/443 are critical. These ratios are based on the natural abundances of carbon 12 and carbon 13 and should always be met. Similarly, the relative abundances for m/z 68, 70, 197, and 441 indicate the condition of the instrument and the suitability of the resolution adjustment and are very important. Note that all of the foregoing abundances relate to adjacent ions; they are relatively insensitive to differences in instrument design and position of the spectrum on the chromatographic profile.
 - b. For the ions at m/z 51, 127, and 275, the actual relative abundance is not as critical. For instance, if m/z 275 has 40% relative abundance (criteria: 10.0-30.0%) and other criteria are met, then the deficiency is minor.
 - c. The relative abundance of m/z 365 is an indicator of suitable instrument zero adjustment. If relative abundance for m/z 365 is zero, minimum detection limits may be affected. On the other hand, if m/z 365 is present, but less than the 0.75% minimum abundance criteria, the deficiency is not as serious.
5. Decisions to use analytical data associated with DFTPP instrument performance checks not meeting contract requirements should be clearly noted in the data review narrative.
 6. If the reviewer has reason to believe that instrument performance check criteria were achieved using techniques other than those specified in the SOW and I.I.D.4 above, additional information on the DFTPP instrument performance checks should be obtained. If the techniques employed are found to be at variance with contract requirements, the procedures of the laboratory may merit evaluation. Concerns or questions regarding laboratory performance should be noted for TPO action. For example, if the reviewer has reason to believe that an inappropriate technique was used to obtain background subtraction (such as background subtracting from the solvent front or from another region of the chromatogram rather than the DFTPP peak), then this should be noted for TPO action.

III. Initial Calibration

A. **Review Items:** Form VI SV-1 and SV-2 [Form VI LCSV-1 and LCSV-2], quantitation reports, and chromatograms.

B. **Objective**

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for compounds on the semivolatile Target Compound List (TCL). Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear calibration curve.

C. **Criteria**

1. Initial calibration standards containing both semivolatile target compounds and surrogates are analyzed at concentrations of 20, 50, 80, 120, and 160 ug/L at the beginning of each analytical sequence or as necessary if the continuing calibration acceptance criteria are not met. The initial calibration (and any associated samples and blanks) must be analyzed within 12 hours of the associated instrument performance check.

[For data generated through the Low Concentration SOW: Initial calibration standards containing both semivolatile TCL compounds and surrogates are analyzed at concentrations of 5, 10, 20, 50, and 80 ug/L at the beginning of each analytical sequence or as necessary if the continuing calibration acceptance criteria are not met. The initial calibration (and any associated samples and blanks) must be analyzed within 12 hours of the associated DFTPP tuning check. The following nine compounds require initial calibration at 20, 50, 80, 100, and 120 ug/L: 2,4-dinitrophenol, 2,4,5-trichlorophenol, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, 4-nitrophenol, 4,6-dinitro-2-methylphenol, pentachlorophenol, and 2,4,6-tribromophenol (surrogate).]

2. Minimum Relative Response Factor (RRF) criteria must be greater than or equal to 0.05. Contractual RRF criteria are listed in Appendix A [Appendix B].
3. The Percent Relative Standard Deviations (%RSD) for the RRFs in the initial calibration must be less than or equal to 30%.

D. **Evaluation**

1. **Verify that the correct concentration of standards were used for the initial calibration (i.e., 20, 50, 80, 120, and 160 ug/L).** For the eight compounds with higher CRQLs, only a four-point initial calibration is required (i.e., 50, 80, 120, and 160 ug/L).

[Verify that the correct concentration of standards were used for the initial calibration (i.e., 5, 10, 20, 50 and 80 ug/L). For the nine compounds listed in III.C.1. with higher CRQLs, verify that a five point initial calibration at 20, 50, 80, 100, and 120 ug/L was performed.]

2. If any sample results were calculated using an initial calibration, verify that the correct standard (i.e., the 50 ppb standard) was used for calculating sample results and that the samples were analyzed within 12 hours of the associated instrument performance check.

[If any sample results were calculated using an initial calibration, verify that the correct standard (i.e., the 20 ug/L standard or 80 ug/L for the compounds listed in III.C.1.) was used for calculating sample results and that the samples were analyzed within 12 hours of the associated DFTPP tuning check.]

3. Evaluate the RRFs for all semivolatile target compounds and surrogates:
- Check and recalculate the RRF and \overline{RRF} for at least one semivolatile target compound associated with each internal standard. Verify that the recalculated value(s) agrees with the laboratory reported value(s).
 - Verify that all semivolatile target compounds and surrogates have RRFs that are greater than or equal to 0.05.

NOTE: Because historical performance data indicate poor response and/or erratic behavior, the semivolatile compounds in Table 4 have no contractual maximum %RSD criteria. Contractually they must meet a minimum RRF criteria of 0.01, however, for data review purposes, the "greater than or equal to 0.05" criterion is applied to all semivolatile compounds.

Table 4. Semivolatile Target Compounds Exhibiting Poor Response

2,2'-oxybis(1-Chloropropane)	Diethylphthalate
4-Chloroaniline	4-Nitroaniline
Hexachlorobutadiene	4,6-Dinitro-2-methylphenol
Hexachlorocyclopentadiene	N-Nitrosodiphenylamine
2-Nitroaniline	Di-n-butylphthalate
Dimethylphthalate	Butylbenzylphthalate
3-Nitroaniline	3-3'-Dichlorobenzidine
2,4-Dinitrophenol	bis(2-Ethylhexyl)phthalate
4-Nitrophenol	Di-n-octylphthalate
Carbazole†	2,4,6-Tribromophenol (surr)‡
Nitrobenzene-d ₃ (surr)‡	

† Multi-media, Multi-concentration only

‡ Low Concentration Water only

4. Evaluate the %RSD for all semivolatile target compounds and surrogates.
- Check and recalculate the %RSD for one or more semivolatile target compound(s); verify that the recalculated value(s) agrees with the laboratory reported value(s).

- b. Verify that all semivolatile target compounds have a %RSD of less than 30%. The contractual criteria for an acceptable initial calibration specifies that up to any 4 semivolatile target compounds may fail to meet minimum RRF or maximum %RSD as long as they have RRFs that are greater than or equal to 0.010, and %RSD of less than or equal to 40.0%. For data review purposes, however, all compounds must be considered for qualification when the %RSD exceeds the $\pm 30.0\%$ criterion.
 - c. If the %RSD is greater than 30.0%, then the reviewer should use professional judgement to determine the need to check the points on the curve for the cause of the non-linearity. This is checked by eliminating either the high point or the low point and recalculating the %RSD.
5. If errors are detected in the calculations of either the \overline{RRF} or the %RSD, perform a more comprehensive recalculation.-

E. Action

1. All semivolatile target compounds, including the 19 "poor performers" will be qualified using the following criteria:
 - a. If the %RSD is greater than or equal to 30.0% and the RRF is greater than 0.05, qualify positive results with "J", and non-detected semivolatile target compounds using professional judgement.
 - b. If the RRF is less than 0.05, qualify positive results that have acceptable mass spectral identification with "J" using professional judgement, and non-detects as unusable (R).
2. At the reviewer's discretion, a more in-depth review to minimize the qualification of data can be accomplished by considering the following:
 - a. If any of the required semivolatile compounds have a %RSD greater than 30.0%, and if eliminating either the high or the low point of the curve does not restore the %RSD to less than or equal to 30.0%:
 - i. Qualify positive results for that compound(s) with "J".
 - ii. Qualify non-detected semivolatile target compounds based on professional judgement.
 - b. If the high point of the curve is outside of the linearity criteria (e.g. due to saturation):
 - i. No qualifiers are required for positive results in the linear portion of the curve.
 - ii. Qualify positive results outside of the linear portion of the curve with "J"

- iii. No qualifiers are needed for non-detected target compounds.
- c. If the low end of the curve is outside of the linearity criteria:
 - i. No qualifiers are required for positive results in the linear portion of the curve.
 - ii. Qualify low level positive results in the area of non-linearity with "J".
 - iii. Qualify non-detected semivolatile target compounds using professional judgement.
- 3. If the laboratory has failed to provide adequate calibration information, the designated representative should contact the laboratory and request the necessary information. If the information is not available, the reviewer must use professional judgement to assess the data.
- 4. Whenever possible, the potential effects on the data due to calibration criteria exceedance should be noted in the data review narrative.
- 5. If calibration criteria are grossly exceeded, this should be noted for TPO action.

IV. Continuing Calibration

A. **Review Items:** Form VII SV-1 and SV-2 [*Form VII LCSV-1 and LCSV-2*], quantitation reports, and chromatograms.

B. **Objective**

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for semivolatile target compounds. Continuing calibration establishes the 12-hour relative response factors on which the quantitations are based and checks satisfactory performance of the instrument on a day-to-day basis.

C. **Criteria**

1. Continuing calibration standards containing both target compounds and surrogates are analyzed at the beginning of each 12-hour analysis period following the analysis of the instrument performance check and prior to the analysis of blanks and samples.
2. The minimum Relative Response Factors (RRF) for semivolatile target compounds and surrogates must be greater than or equal to 0.05.
3. The percent difference (%D) between the initial calibration \overline{RRF} and the continuing calibration RRF must be within $\pm 25.0\%$ for all target compounds.

D. **Evaluation**

1. Verify that the continuing calibration was run at the required frequency and that the continuing calibration was compared to the correct initial calibration.
2. Evaluate the continuing calibration RRF for all semivolatile target compounds and surrogates.
 - a. Check and recalculate the continuing calibration RRF for at least one semivolatile target compound for each internal standard; verify that the recalculated value(s) agrees with the laboratory reported value(s).
 - b. Verify that all semivolatile target compounds and surrogates have RRFs within specifications.

NOTE: Because historical performance data indicate poor response and/or erratic behavior, the compounds in Table 4 (Section III.D.3) have no contractual maximum %D criteria. Contractually they must meet a minimum RRF criterion of 0.01, however, for data review purposes, the "greater than or equal to 0.05" criterion is applied to all semivolatile compounds.

3. Evaluate the %D between initial calibration RRF and continuing calibration RRF for one or more semivolatile compounds.
 - a. Check and recalculate the %D for at least one semivolatile target compound for each internal standard; verify that the recalculated value agrees with the laboratory reported value(s).
 - b. Verify that the %D is within the $\pm 25.0\%$ criterion, for all semivolatile target compounds and surrogates. Note those compounds which have a %D outside the $\pm 25.0\%$ criterion. The contractual criteria for an acceptable continuing calibration specifies that up to any 4 semivolatile target compounds may fail to meet minimum RRF or maximum %D as long as they have RRFs that are greater than or equal to 0.010, and %D of less than or equal to 40.0%. For data review purposes, however, all compounds must be considered for qualification when the %D exceeds the $\pm 25.0\%$ criterion.
4. If errors are detected in the calculations of either the continuing calibration RRF or the %D, perform a more comprehensive recalculation.

E. Action

1. The reviewer should use professional judgement to determine if it is necessary to qualify the data for any semivolatile target compound. If qualification of data is required, it should be performed using the following guidelines:
 - a. If the %D is outside the $\pm 25.0\%$ criterion and the continuing calibration RRF is greater than or equal to 0.05, qualify positive results "J".
 - b. If the %D is outside the $\pm 25.0\%$ criterion and the continuing calibration RRF is greater than or equal to 0.05, qualify non-detected semivolatile target compounds "UJ".
 - c. If the continuing calibration RRF is less than 0.05, qualify positive results that have acceptable mass spectral identification with "J" or use professional judgement.
 - d. If the continuing calibration RRF is less than 0.05, qualify non-detected semivolatile target compounds as unusable (R).
2. If the laboratory has failed to provide adequate calibration information, the designated representative should contact the laboratory and request the necessary information. If the information is not available, the reviewer must use professional judgement to assess the data.
3. Whenever possible, the potential effects on the data due to calibration criteria exceedance should be noted in the data review narrative.
4. If calibration criteria are grossly exceeded, this should be noted for TPO action.

V. Blanks

A. **Review Items:** Form I SV-1 and SV-2 [Form I LCSV-1 and LCSV-2], Form IV SV [Form IV LCSV], chromatograms, and quantitation reports.

B. **Objective**

The purpose of laboratory (or field) blank analyses is to determine the existence and magnitude of contamination problems resulting from laboratory (or field) activities. The criteria for evaluation of blanks apply to any blank associated with the samples (e.g., method blanks, instrument blanks, trip blanks, and equipment blanks). If problems with any blank exist, all associated data must be carefully evaluated to determine whether or not there is an inherent variability in the data, or if the problem is an isolated occurrence not affecting other data.

C. **Criteria**

1. No contaminants should be found in the blanks.
2. The method blank must be analyzed on each GC/MS system used to analyze that specific group or set of samples.

D. **Evaluation**

1. Review the results of all associated blank, Form I SV-1 and SV-2, and raw data (chromatograms and quantitation reports) to evaluate the presence of target and non-target compounds in the blanks.
2. Verify that a method blank analysis has been reported per matrix, per concentration level, for each extraction batch and for each GC/MS system used to analyze semivolatile samples. The reviewer can use the Method Blank Summary (Form IV SV) to assist in identifying samples associated with each method blank.

E. **Action**

If the appropriate blanks were not analyzed with the frequency described above, then the data reviewer should use professional judgement to determine if the associated sample data should be qualified. The reviewer may need to obtain additional information from the laboratory. The situation should be noted for TPO action.

Action in the case of unsuitable blank results depends on the circumstances and origin of the blank. Positive sample results should be reported unless the concentration of the compound in the sample is less than or equal to 10 times (10x) the amount in any blank for the **common phthalate contaminants**, or 5 times the amount for other compounds. In instances where more than one blank is associated with a given sample, qualification should be based upon a comparison with the associated blank having the highest concentration of a contaminant. The results must not be corrected by subtracting any blank value.

Specific actions are as follows:

1. If a semivolatile compound is found in a blank but not found in the sample, no action is taken. If the contaminants found are volatile target compounds (or interfering non-target compounds) at significant concentrations above the CRQL, then this should be noted for TPO action.
2. Any semivolatile compound detected in the sample (other than the common phthalate contaminants), that was also detected in any associated blank, is qualified if the sample concentration is less than five times (5x) the blank concentration. The quantitation limit may also be elevated. Typically, the sample CRQL is elevated to the concentration found in the sample. The reviewer should use professional judgement to determine if further elevation of the CRQL is required. For phthalate contaminants, the results are qualified "U" by elevating the sample quantitation limit to the sample concentration when the sample result is less than 10x the blank concentration.

The reviewer should note that blanks may not involve the same weights, volumes, or dilution factors as the associated samples. These factors must be taken into consideration when applying the "5x" and "10x" criteria, such that a comparison of the total amount of contamination is actually made.

Additionally, there may be instances where little or no contamination was present in the associated blanks, but qualification of the sample was deemed necessary. Contamination introduced through dilution is one example. Although it is not always possible to determine, instances of this occurring can be detected when contaminants are found in the diluted sample result, but are absent in the undiluted sample result. Since both results are not routinely reported, it may be impossible to verify this source of contamination. However, if the reviewer determines that the contamination is from a source other than the sample, he/she should qualify the data. In this case, the "5x" or "10x" rules may not apply; the sample value should be reported as a non-detect. An explanation of the rationale used for this determination should be provided in the narrative accompanying the Regional Data Assessment Summary.

3. If gross contamination exists (i.e., saturated peaks by GC/MS), all affected compounds in the associated samples should be qualified as unusable (R), due to interference. This should be noted for TPO action if the contamination is suspected of having an effect on the sample results.
4. If inordinate amounts of other target compounds are found at low levels in the blank(s), it may be indicative of a problem and should be noted for TPO action.
5. The same consideration given to the target compounds should also be given to Tentatively Identified Compounds (TICs) which are found in both the sample and associated blank(s) (See SV Section XII for TIC guidance.)
6. If an instrument blank was not analyzed following a sample analysis which contained an analyte(s) at high concentration(s), sample analysis results after the high concentration sample must be evaluated for carryover. Professional judgement should be used to determine if instrument cross-contamination has affected any positive compound

identification(s). If instrument cross-contamination is suggested, then this should be noted for TPO action if the cross-contamination is suspected of having an effect on the sample results.

The following are examples of applying the blank qualification guidelines. Certain circumstances may warrant deviations from these guidelines.

Example 1: Sample result is greater than the Contract Required Quantitation Limit (CRQL), but is less than the 5x or 10x multiple of the blank result.

	<u>Rule</u>	
	<u>10x</u>	<u>5x</u>
Blank Result	7	7
CRQL	5	5
Sample Result	60	30
Qualified Sample Result	60U	30U

In the example for the "10x" rule, sample results less than 70 (or 10 x 7) would be qualified as non-detects. In the case of the "5x" rule, sample results less than 35 (or 5 x 7) would be qualified as non-detects.

Example 2: Sample result is less than CRQL, and is also less than the 5x or 10x multiple of the blank result.

	<u>Rule</u>	
	<u>10x</u>	<u>5x</u>
Blank Result	6	6
CRQL	5	5
Sample Result	4J	4J
Qualified Sample Result	5U	5U

Note that data are not reported as 4U, as this would be reported as a detection limit below the CRQL.

Example 3: Sample result is greater than the 5x or 10x multiple of the blank result.

	<u>Rule</u>	
	<u>10x</u>	<u>5x</u>
Blank Result	10	10
CRQL	5	5
Sample Result	120	60
Qualified Sample Result	120	60

For both the "10x" and "5x" rules, sample results exceeded the adjusted blank results of 100 (or 10x10) and 50 (or 5x10), respectively.

VI. Surrogate Spikes

A. **Review Items:** Form II SV-1 and SV-2 [*Form II LCSV*], chromatograms, and quantitation reports.

B. **Objective**

Laboratory performance on individual samples is established by means of spiking activities. All samples are spiked with surrogate compounds prior to sample preparation. The evaluation of the results of these surrogate spikes is not necessarily straightforward. The sample itself may produce effects due to such factors as interferences and high concentrations of analytes. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the evaluation and review of data based on specific sample results is frequently subjective and demands analytical experience and professional judgment. Accordingly, this section consists primarily of guidelines, in some cases with several optional approaches suggested.

C. **Criteria**

1. Surrogate spikes, 4 acid compounds (3 required and 1 advisory) and 4 base/neutral compounds (3 required and 1 advisory) are added to all samples and blanks to measure their recovery in sample and blank matrices.

[For data generated through the Low Concentration SOW: Surrogate spikes, 3 acid compounds and 3 base/neutral compounds, are added to all samples and blanks to measure their recovery in sample and blank matrices.]

2. Surrogate spike recoveries for semivolatile samples and blanks must be within the limits specified on in Appendix A and on Form II SV-1 and SV-2.

[For data generated through the Low Concentration SOW: Surrogate spike recoveries for semivolatile samples and blanks must be within the limits specified in Appendix B and on Form II LCSV.]

D. **Evaluation**

1. Check raw data (e.g., chromatograms and quantitation reports) to verify the surrogate spike recoveries on the Surrogate Recovery Form II SV-1 and SV-2 [*Form II LCSV*]. Check for any transcription or calculation errors.
2. Check that the surrogate spike recoveries were calculated correctly. The equation can be found in Appendix A [*Appendix B*].
3. The following should be determined from the Surrogate Recovery form(s):
 - a. If any two base/neutral or acid surrogates are out of specification, or if any one base/neutral or acid extractable surrogate has a recovery of less than 10%, then there should be a reanalysis to confirm that the non-compliance is due to sample matrix effects rather than laboratory deficiencies.

NOTE: When there are unacceptable surrogate recoveries followed by successful re-analyses, the laboratories are required to report only the successful run.

- b. The laboratory has failed to perform satisfactorily if surrogate recoveries are out of specification and there is no evidence of reinjection of the extract, or reextraction and reanalysis (if reinjection fails to resolve the problem).
 - c. Verify that no blanks have surrogates recoveries outside the criteria.
4. Any time there are two or more analyses for a particular fraction the reviewer must determine which are the best data to report. Considerations should include but are not limited to:
- a. Surrogate recovery (marginal versus gross deviation).
 - b. Technical holding times.
 - c. Comparison of the values of the target compounds reported in each fraction.
 - d. Other QC information, such as performance of internal standards.

E. Action

Data are not qualified with respect to surrogate recovery unless two or more semivolatile surrogates, within the same fraction (base/neutral or acid fraction), are out of specification. For surrogate spike recoveries out of specification, the following approaches are suggested based on a review of all data from the case, especially considering the apparent complexity of the sample matrix.

1. If two or more surrogates in either semivolatile fraction (base/neutral or acid fraction) have a recovery greater than the upper acceptance limit (UL):
 - a. Specify the fraction that is being qualified, i.e. acid, base/neutral, or both.
 - b. Detected semivolatile target compounds are qualified "J."
 - c. Results for non-detected semivolatile target compounds should not be qualified.
2. If two or more surrogates in either semivolatile fraction have a recovery greater than or equal to 10% but less than the lower acceptance limit (LL):
 - a. Specify the fraction that is being qualified, i.e. acid, base/neutral, or both.
 - b. Detected semivolatile target compounds are qualified "J."
 - c. For non-detected semivolatile target compounds, the sample quantitation limit is qualified as approximated (UJ).

3. If any surrogate in either semivolatile fraction show less than 10% recovery:
 - a. Specify the fraction that is being qualified, i.e. acid, base/neutral, or both.
 - b. Detected semivolatile target compounds are qualified "J".
 - c. Non-detected semivolatile target compounds may be qualified as unusable (R).

Table 5. Qualification of Semivolatile Analytes Based on Surrogate Recoveries

	Surrogate Recovery		
	> UL	10% to LL	< 10%
Detected analytes	J	J	J
Non-detected analytes	No Qualification	UJ	R

4. In the special case of a blank analysis with surrogates out of specification, the reviewer must give special consideration to the validity of associated sample data. The basic concern is whether the blank problems represent an isolated problem with the blank alone, or whether there is a fundamental problem with the analytical process. For example, if one or more samples in the batch show acceptable surrogate recoveries, the reviewer may choose to consider the blank problem to be an isolated occurrence. However, even if this judgement allows some use of the affected data, analytical problems should be noted for TPO action. Also note if there are potential contractual problems associated with the lack of re-analysis of samples that were out of specification.
5. Whenever possible, the potential effects of the data resulting from system monitoring recoveries not meeting the advisory limits should be noted in the data review narrative.

VII. Matrix Spikes/Matrix Spike Duplicates
(Not Required for Low Concentration Water Data)

A. **Review Items:** Form III SV-1 and SV-2, chromatograms, and quantitation reports.

B. **Objective**

Data for matrix spikes/matrix spike duplicates (MS/MSD) are generated to determine long-term precision and accuracy of the analytical method on various matrices and to demonstrate acceptable compound recovery by the laboratory at the time of sample analysis. These data alone cannot be used to evaluate the precision and accuracy of individual samples. However, when exercising professional judgement, this data should be used in conjunction with other available QC information.

C. **Criteria**

1. Matrix spikes and matrix spike duplicate samples are analyzed at frequency of one MS and MSD per 20 samples of similar matrix.
2. Matrix spike and matrix spike duplicate recoveries should be within the advisory limits established on Form III SV-1 and SV-2.
3. The Relative Percent Differences (RPDs) between matrix spike and matrix spike duplicate recoveries should be within the advisory limits listed on Form III SV-1 and SV-2.

D. **Evaluation**

1. Verify that MS and MSD samples were analyzed at the required frequency and that results are provided for each sample matrix.
2. Inspect results for the MS/MSD Recovery on Form III SV-1 and SV-2 and verify that the results for recovery and RPD are within the advisory limits.
3. Verify transcriptions from raw data and verify calculations.
4. Check that the recoveries and RPD were calculated correctly.
5. Compare results (%RSD) of non-spiked compounds between the original result, MS, and MSD.

E. **Action**

1. No action is taken on MS/MSD data alone. However, using informed professional judgment the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.
2. The data reviewer should first try to determine to what extent the results of the MS/MSD effect the associated data. This determination should be made with regard to the

MS/MSD sample itself as well as specific analytes for all samples associated with the MS/MSD.

3. In those instances where it can be determined that the results of the MS/MSD effect only the sample spiked, then qualification should be limited to this sample alone. However, it may be determined through the MS/MSD results that a laboratory is having a systematic problem in the analysis of one or more analytes, which affects all associated samples.
4. The reviewer must use professional judgement to determine the need for qualification of positive results of non-spiked compounds.

NOTE: If a field blank was used for the MS/MSD, a statement to that effect must be included for TPO action.

VIII. Laboratory Control Samples
(Low Concentration Water)

(A. Review Items: Form III LCSV, LCS chromatograms and quantitation reports.

B. Objective

Data for laboratory control samples (LCS) are generated to provide information on the accuracy of the analytical method and the laboratory performance.

C. Criteria

1. *Laboratory control samples are analyzed at frequency of once per 20 samples per SDG. The LCS must be prepared and analyzed concurrently with the samples in the SDG.*
2. *LCS percent recoveries must be within the QC limits provided on Form III LCSV. The LCS must meet the recovery criteria for the sample data to be accepted.*
3. *The LCS contains the following semivolatile target compounds, in addition to the required surrogates:*

<i>Phenol</i>	<i>1,2,4-Trichlorobenzene</i>
<i>2-Chlorophenol</i>	<i>Naphthalene</i>
<i>4-Chloroaniline</i>	<i>2,4-Dinitrotoluene</i>
<i>2,4,6-Trichlorophenol</i>	<i>Diethylphthalate</i>
<i>bis(2-Chloroethyl)ether</i>	<i>N-Nitrosodiphenylamine</i>
<i>N-Nitroso-di-n-propylamine</i>	<i>Hexachlorobenzene</i>
<i>Hexachloroethane</i>	<i>Benzo(a)pyrene</i>
<i>Isophorone</i>	

4. *The criteria for surrogate recovery and internal standard performance also apply.*

D. Evaluation

1. *Verify that LCS samples were analyzed at the required frequency.*
2. *Inspect the results for LCS Recovery on Form III LCSV and verify that the results for recovery are within the advisory limits.*
3. *Verify transcriptions from raw data and verify calculations.*
4. *Check that the recoveries were calculated correctly.*

E. Action

If the LCS criteria are not met, then the laboratory performance and method accuracy are in question. Professional judgement should be used to determine if the data should be qualified or rejected. The following guidance is suggested for qualifying sample data for which the associated LCS does not meet the required criteria.

1. *Action on the LCS recovery should be based on both the number of compounds that are outside of the recovery criteria and the magnitude of the exceedance of the criteria.*
2. *If the LCS recovery criteria are not met, then the LCS results should be used to qualify sample data for the specific compounds that are included in the LCS solution. Professional judgement should be used to*

qualify data for compounds other than those compounds that are included in the LCS. Professional judgement to qualify non-LCS compounds should take into account the compound class, compound recovery efficiency, analytical problems associated with each compound, and comparability in performance of the LCS compound to the non-LCS compound.

3. *If the LCS recovery is greater than 140%, then positive sample results for the affected compound(s) should be qualified with a "J".*
4. *If the mass spectral criteria are met but the LCS recovery is less than 60%, then the associated detected target compounds should be qualified "J" and the associated non-detected target compounds should be qualified "R".*
5. *If more than half of the compounds in the LCS are not within the required recovery criteria, then all of the associated detected target compounds should be qualified "J" and all associated non-detected target compounds should be qualified "R."*
6. *Action on non-compliant surrogate recovery and internal standard performance should follow the procedures provided in VI.E and X.E, respectively. Professional judgement should be used to evaluate the impact that non-compliance for surrogate recovery and internal standard performance in the LCS has on the associated sample data.*
7. *It should be noted for TPO action if a laboratory fails to analyze an LCS with each SDG, or if a laboratory consistently fails to generate acceptable LCS recoveries.]*

IX. Regional Quality Assurance and Quality Control

A. **Review Items:** Form I SV-1 and SV-2 [Form I LCSV-1 and LCSV-2], chromatograms, quantitation report, traffic report and raw data for Regional QC samples.

B. **Objective**

Regional Quality Assurance and Quality Control (QA/QC) refer to any QA and/or QC initiated by the Region, including field duplicates, Regional Performance Evaluation (PE) samples, blind spikes, and blind blanks. It is highly recommended that Regions adopt the use of these.

C. **Criteria**

Criteria are determined by each Region.

1. Performance evaluation sample frequency may vary.

[For data generated through the Low Concentration SOW: A performance evaluation (PE) sample may be required as frequently as once per SDG.]

2. The analytes present in the PE sample must be correctly identified and quantified.

D. **Evaluation**

Evaluation procedures must follow the Region's SOP for data review. Each Region will handle the evaluation of PE samples on an individual basis. Results for PE samples should be compared to the acceptance criteria for the specific PE samples, if available.

E. **Action**

Any action must be in accordance with Regional specifications and the criteria for acceptable PE sample results. Unacceptable results for PE samples should be noted for TPO action.

X. Internal Standards

A. **Review Items:** Form VIII SV-1 and SV-2 [Form VIII LCSV-1 and LCSV-2], quantitation reports, and chromatograms.

B. **Objective**

Internal Standards (IS) performance criteria ensure that GC/MS sensitivity and response are stable during every analytical run.

C. **Criteria**

1. Internal standard area counts for samples and blanks must not vary by more than a factor of two (- 50% to + 100%) from the associated calibration standard.

[For data generated through the Low Concentration Water SOW: Internal standard area counts must not vary by more than a factor of $\pm 40.0\%$ from the associated calibration standard.]

2. The retention time of the internal standards in samples and blanks must not vary by more than ± 30 seconds from the retention time of the associated calibration standard.

[For data generated through the Low Concentration SOW: The retention time of the internal standards in samples and blanks must not vary by more than ± 20.0 seconds from the retention time of the associated calibration standard.]

D. **Evaluation**

1. Check raw data (e.g., chromatograms and quantitation lists) for samples and blanks to verify the internal standard retention times and areas reported on the Internal Standard Area Summary (Forms VIII SV-1, VIII SV-2 [Form VIII LCSV-1 and LCSV-2]).
2. Verify that all retention times and IS areas are within the required criteria.
3. If there are two analyses for a particular fraction, the reviewer must determine which are the best data to report. Considerations should include:
 - a. Magnitude and direction of the IS area shift.
 - b. Magnitude and direction of the IS retention time shift.
 - c. Technical holding times.
 - d. Comparison of the values of the target compounds reported in each fraction.

E. **Action**

1. If an IS area count for a sample or blank is outside - 50% or + 100% of the area for the associated standard:

- a. Positive results for compounds quantitated using that IS should be qualified with "J".
- b. Non-detected compounds quantitated using an IS area count greater than 100% should not be qualified.
- c. Non-detected compounds quantitated using an IS area count less than 50% are reported as the associated sample quantitation limit and qualified with "UJ".
- d. If extremely low area counts are reported, or if performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detected target compounds should then be qualified as unusable (R).

[If an IS area count for a sample or blank is outside $\pm 40.0\%$ of the area for associated standard:

- a. *Positive results for compounds quantitated using that IS should be qualified with "J".*
- b. *Non-detected compounds quantitated using an IS area count greater than 40% should not be qualified.*
- c. *Non-detected compounds quantitated using an IS area count less than 40% are reported as the associated sample quantitation limit and qualified with "UJ".*
- d. *If extremely low area counts are reported, or if performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detected target compounds should then be qualified as unusable (R).]*

2. If an IS retention time varies by more than 30 seconds:

[If an IS retention time varies by more than 20.0 seconds:]

The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection (R) of the data for that sample fraction. Positive results should not need to be qualified with "R" if the mass spectral criteria are met.

3. If the internal standards performance criteria are grossly exceeded, then this should be noted for TPO action. Potential effects on the data resulting from unacceptable internal standard performance should be noted in the data review narrative.

XI. Target Compound Identification

A. **Review Items:** Form I SV-1 and SV-2 [*Form I LCSV-1 and LCSV-2*], quantitation reports, mass spectra, and chromatograms.

B. **Objective**

Qualitative criteria for compound identification have been established to minimize the number of erroneous identifications of compounds. An erroneous identification can either be a false positive (reporting a compound present when it is not) or a false negative (not reporting a compound that is present).

The identification criteria can be applied much more easily in detecting false positives than false negatives. More information is available due to the requirement for submittal of data supporting positive identifications. Negatives, or non-detected compounds, on the other hand represent an absence of data and are, therefore, much more difficult to assess. One example of detecting false negatives is the reporting of a Target Compound as a TIC.

C. **Criteria**

1. Compound must be within ± 0.06 relative retention time (RRT) units of the standard RRT.
2. Mass spectra of the sample compound and a current laboratory-generated standard must match according to the following criteria:

- a. All ions present in the standard mass spectrum at a relative intensity greater than 10% must be present in the sample spectrum

[For data generated through the Low Concentration SOW: All ions present in the standard mass spectrum at a relative intensity greater than 25% must be present in the sample spectrum.]

- b. The relative intensities of these ions must agree within $\pm 20\%$ between the standard and sample spectra. (Example: For an ion with an abundance of 50% in the standard spectrum, the corresponding sample ion abundance must be between 30% and 70%.)

- c. Ions present at greater than 10% in the sample mass spectrum but not present in the standard spectrum must be considered and accounted for.

[For data generated through the Low Concentration SOW: Ions present at greater than 25% in the sample mass spectrum but not present in the standard mass spectrum must be considered and accounted for.]

D. **Evaluation**

1. Check that the RRT of reported compounds is within ± 0.06 RRT units of the standard relative retention time.

2. Check that the sample compound spectra against the laboratory standard spectra to verify that it meets the specified criteria.
3. The reviewer should be aware of situations (e.g., high concentration samples preceding low concentration samples) when sample carryover is a possibility and should use judgment to determine if instrument cross-contamination has affected any positive compound identification.
4. Check the chromatogram to verify that peaks are accounted for, i.e., major peaks are either identified as target compounds, TICs, surrogates, or internal standards.

E. Action

1. The application of qualitative criteria for GC/MS analysis of target compounds requires professional judgement. It is up to the reviewer's discretion to obtain additional information from the laboratory. If it is determined that incorrect identifications were made, all such data should be qualified as not detected (U) or unusable (R).
2. Professional judgement must be used to qualify the data if it is determined that cross-contamination has occurred.
3. Any changes made to the reported compounds or concerns regarding target compound identifications should be clearly indicated in the data review narrative. The necessity for numerous or significant changes should be noted for TPO action.

XII. Compound Quantitation and Reported CRQLs

A. Review Items: Form I SV-1 and SV-2 [Form I LCSV-1 and LCSV-2], sample preparation sheets, case narrative, sample clean-up sheets, quantitation reports, and chromatograms.

B. Objective

The objective is to ensure that the reported quantitation results and Contract Required Quantitation Limits (CRQLs) for semivolatile target compounds are accurate.

C. Criteria

1. Compound quantitation, as well as the adjustment of the CRQL, must be calculated according to the correct equation.
2. Compound area responses must be calculated based on the internal standard (IS) associated with that compound, as listed in Appendix A [Appendix B] (also as specified in the Statement of Work). Quantitation must be based on the quantitation ion (m/z) specified in the SOW for both the IS and target analytes. The compound quantitation must be based on the RRF from the appropriate daily calibration standard.

D. Evaluation

1. For all fractions, raw data should be examined to verify the correct calculation of all sample results reported by the laboratory. Quantitation lists, chromatograms, and sample preparation log sheets should be compared to the reported positive sample results and quantitation limits. Check the reported values.
2. Verify that the correct internal standard, quantitation ion, and RRF were used to quantitate the compound. Verify that the same internal standard, quantitation ion, and RRF are used consistently throughout the calibration and quantitation processes.
3. Verify that the CRQLs have been adjusted to reflect all sample dilutions, concentrations, splits, clean-up activities, and dry weight factors that are not accounted for by the method.

E. Action

1. If there are any discrepancies found, the laboratory may be contacted by the designated representative to obtain additional information that could resolve any differences. If a discrepancy remains unresolved, the reviewer must use professional judgement to decide which value is the best value. Under these circumstances, the reviewer may determine qualification of data is warranted. Decisions made on data quality should be included in the data review narrative. A description of the reasons for data qualification and the qualification that is applied to the data should be documented in the data review narrative.
2. Numerous or significant failures to accurately quantify the target compound or to properly evaluate and adjust CRQLs should be noted for TPO action.

XIII. Tentatively Identified Compounds

- A. **Review Items:** Form I SV-TIC [Form I LCSV-TIC], chromatograms, and library search printout with spectra for three TIC candidates.

B. **Objective**

Chromatographic peaks in semivolatile fraction analyses that are not target analytes, surrogates, or internal standards are potential tentatively identified compounds (TICs). TICs must be qualitatively identified by a National Institute of Standards and Technology (NIST) mass spectral library search and the identifications assessed by the data reviewer.

C. **Criteria**

For each sample, the laboratory must conduct a mass spectral search of the NIST library and report the possible identity for the 20 largest semivolatile fraction peaks which are not surrogate, internal standard, or target compounds, but which have area or height greater than 10 percent of the area or height of the nearest internal standard. TIC results are reported for each sample on the Organic Analyses Data Sheet (Form I SV-TIC).

[For data generated through the Low Concentration SOW: For each sample, the laboratory must conduct a mass spectral search of the NIST library and report the possible identity for the 20 largest semivolatile fraction peaks which are not surrogates, internal standards, or TCL compounds, but which have an area greater than 50 percent of the area of the nearest internal standard. Estimated concentrations for TICs are calculated similarly to the TCL compounds, using total ion areas for the TIC and the internal standard, and assuming a relative response factor of 1.0. TIC results are reported for each sample on the Organic Analyses Data Sheet (Form I LCSV-TIC).]

NOTE: Since the SOW revision of October 1986, the CLP does not allow the laboratory to report as tentatively identified compounds any target compound which is properly reported in another fraction. For example, late eluting volatile target compounds should not be reported as semivolatile TICs.

D. **Evaluation**

1. Guidelines for tentative identification are as follows:

- a. Major ions (greater than 10% relative intensity) in the reference spectrum should be present in the sample spectrum.

[Major ions (greater than 25% relative intensity) in the reference spectrum should be present in the sample spectrum.]

- b. The relative intensities of the major ions should agree within $\pm 20\%$ between the sample and the reference spectra.

- c. Molecular ions present in the reference spectrum should be present in the sample spectrum.

- d. Ions present in the sample spectrum but not in the reference spectrum should be reviewed for possible background contamination, interference, or coelution of additional TIC or target compounds.
 - e. When the above criteria are not met, but in the technical judgment of the data reviewer or mass spectral interpretation specialist the identification is correct, the data reviewer may report the identification.
 - f. If in the data reviewer's judgment the identification is uncertain or there are extenuating factors affecting compound identifications, the TIC result may be reported as "unknown".
2. Check the raw data to verify that the laboratory has generated a library search for all required peaks in the chromatograms for samples and blanks.

[Check the raw data to verify that the laboratory has generated a library search for all required peaks in the chromatograms for samples and blanks with areas greater than or equal to 50 percent of the area of the nearest internal standard.]

3. Blank chromatograms should be examined to verify that TIC peaks present in samples are not found in blanks. When a low-level non-target compound that is a common artifact or laboratory contaminant is detected in a sample, a thorough check of blank chromatograms may require looking for peaks which are less than 10 percent of the internal standard height, but present in the blank chromatogram at a similar relative retention time.

[Blank chromatograms should be examined to verify that TIC peaks present in samples are not found in blanks. When a low-level non-TCL compound that is a common artifact or laboratory contaminant is detected in a sample, a thorough check of blank chromatograms may require looking for peaks which have areas less than 50 percent of the internal standard area, but present in the blank chromatogram at a similar relative retention time.]

4. All mass spectra for each sample and blank must be examined.
5. Since TIC library searches often yield several candidate compounds having a close matching score, all reasonable choices should be considered.
6. The reviewer should be aware of common laboratory artifacts/contaminants and their sources (e.g., aldol condensation products, solvent preservatives, and reagent contaminants). These may be present in blanks and not reported as sample TICs.

Examples:

- a. Common laboratory contaminants: CO₂ (m/z 44), siloxanes (m/z 73), diethyl ether, hexane, certain freons (1,1,2-trichloro-1,2,2-trifluoroethane or fluoro-trichloromethane), and phthalates at levels less than 100 ug/L or 4000 ug/Kg.
- b. Solvent preservatives, such as cyclohexene which is a methylene chloride preservative. Related by-products include cyclohexanone, cyclohexenone, cyclohexanol, cyclohexenol, chlorocyclohexene, and chlorocyclohexanol.

- c. Aldol reaction products of acetone include: 4-hydroxy-4-methyl-2-pentanone, 4-methyl-2-penten-2-one, and 5,5-dimethyl-2(5H)-furanone.
7. Occasionally, a target compound may be identified as a TIC in the proper analytical fraction by non-target library search procedures, even though it was not found on the quantitation list. If the total area quantitation method was used, the reviewer should request that the laboratory recalculate the result using the proper quantitation ion. In addition, the reviewer should evaluate other sample chromatograms and check library reference retention times on quantitation lists to determine whether the false negative result is an isolated occurrence or whether additional data may be affected.
8. Target compounds may be identified in more than one fraction. Verify that quantitation is made from the proper fraction.
9. Library searches should not be performed on internal standards or surrogates.
10. TIC concentration should be estimated assuming a RRF of 1.0.

E. Action

1. All TIC results should be qualified "NJ", tentatively identified, with approximated concentrations.
2. General actions related to the review of TIC results are as follows:
 - a. If it is determined that a tentative identification of a non-target compound is not acceptable, the tentative identification should be changed to "unknown" or an appropriate identification.
 - b. If all contractually required peaks were not library searched and quantitated, the designated representative could request these data from the laboratory.
3. TIC results which are not sufficiently above the level in the blank should not be reported. (Dilutions and sample size must be taken into account when comparing the amounts present in blanks and samples.)
4. When a compound is not found in any blanks, but is a suspected artifact of common laboratory contamination, the result may be qualified as unusable (R).
5. In deciding whether a library search result for a TIC represents a reasonable identification, professional judgment must be exercised. If there is more than one possible match, the result may be reported as "either compound X or compound Y." If there is a lack of isomer specificity, the TIC result may be changed to a non-specific isomer result (e.g., 1,3,5-trimethyl benzene to trimethyl benzene isomer) or to a compound class (e.g., 2-methyl, 3-ethyl benzene to substituted aromatic compound).
6. The reviewer may elect to report all similar isomers as a total. (All alkanes may be summarized and reported as total hydrocarbons.)

7. Other case factors may influence TIC judgments. If a sample TIC match is poor but other samples have a TIC with a good library match, similar relative retention time, and the same ions, identification information may be inferred from the other sample TIC results.
8. Physical constants, such as boiling point, may be factored into professional judgment of TIC results.
9. Any changes made to the reported data or any concerns regarding TIC identifications should be indicated in the data review narrative.
10. Failure to properly evaluate and report TICs should be noted for TPO action.

XIV. System Performance

A. **Review Items:** Form III SV-1 and SV-2 [*Form III LCSV*], Form VIII SV-1 and SV-2 [*Form VIII LCSV-1 and LCSV-2*], and chromatograms.

B. **Objective**

During the period following Instrument Performance QC checks (e.g. blanks, tuning, calibration), changes may occur in the system that degrade the quality of the data. While this degradation would not be directly shown by QC checks until the next required series of analytical QC runs, a through review of the ongoing data acquisition can yield indicators of instrument performance.

C. **Criteria**

There are no specific criteria for system performance. Professional judgement should be used to assess the system performance.

D. **Evaluation**

1. Abrupt, discrete shifts in the reconstructed ion chromatogram (RIC) baseline may indicate a change in the instrument's sensitivity or the zero setting. A baseline shift could indicate a decrease in sensitivity in the instrument or an increase in the instrument zero, possibly causing target compounds at or near the detection limit to be non-detects. A baseline "rise" could indicate problems such as a change in the instrument zero, a leak, or degradation of the column.
2. Poor chromatographic performance affects both qualitative and quantitative results. Indications of substandard performance include:
 - a. High RIC background levels or shifts in absolute retention times of internal standards.
 - b. Excessive baseline rise at elevated temperature.
 - c. Extraneous peaks.
 - d. Loss of resolution as suggested between by factors such as non-resolution of 2,4- and 2,5- dinitrotoluene.
 - e. Peak tailing or peak splitting that may result in inaccurate quantitation.
- [3. A drift in instrument sensitivity may occur during the 12-hour time period. This could be discerned by examination of the IS area on Form VIII LCSV-1 and LCSV-2 for trends such as a continuous or near-continuous increase or decrease in the IS area over time.
4. The results of the LCS analysis (Form III LCSV) may also be used to assess instrument performance.]

E. Action

Professional judgement must be used to qualify the data if it is determined that system performance has degraded during sample analyses. Any degradation of system performance which significantly affected the data should be documented for TPO action.

XV. Overall Assessment of Data

A. Review Items: Entire data package, data review results, and (if available) Quality Assurance Project Plan (QAPjP), and Sampling and Analysis Plan (SAP).

B. Objective

The overall assessment of a data package is a brief narrative in which the data reviewer expresses concerns and comments on the quality and, if possible, the useability of the data.

C. Criteria

Assess the overall quality of the data.

Review all available materials to assess the overall quality of the data, keeping in mind the additive nature of analytical problems.

D. Evaluation

1. Evaluate any technical problems which have not been previously addressed.
2. Review all available materials to assess the overall quality of the data, keeping in mind the additive nature of analytical problems.
3. If appropriate information is available, the reviewer may assess the useability of the data to assist the data user in avoiding inappropriate use of the data. Review all available information, including the QAPjP (specifically the Data Quality Objectives), SAP, and communication with data user that concerns the intended use and desired quality of the data.

E. Action

1. Use professional judgement to determine if there is any need to qualify data which were not qualified based on the QC criteria previously discussed.
2. Write a brief narrative to give the user an indication of the analytical limitations of the data. Any inconsistency of that data with the SDG Narrative should be noted for TPO action. If sufficient information on the intended use and required quality of the data are available, the reviewer should include his/her assessment of the useability of the data within the given context.

**ATTACHMENT B DATA PERTAINING TO BLANK DETECTION LEVELS AND
CALIBRATION RESULTS**

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51707.D
 Acq Time : 17 May 95 1:04 pm
 Sample : blk 100 ul
 Misc :
 Quant Time: May 17 13:15 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Wed May 17 12:12:11 1995
 Response via : Multiple Level Calibration

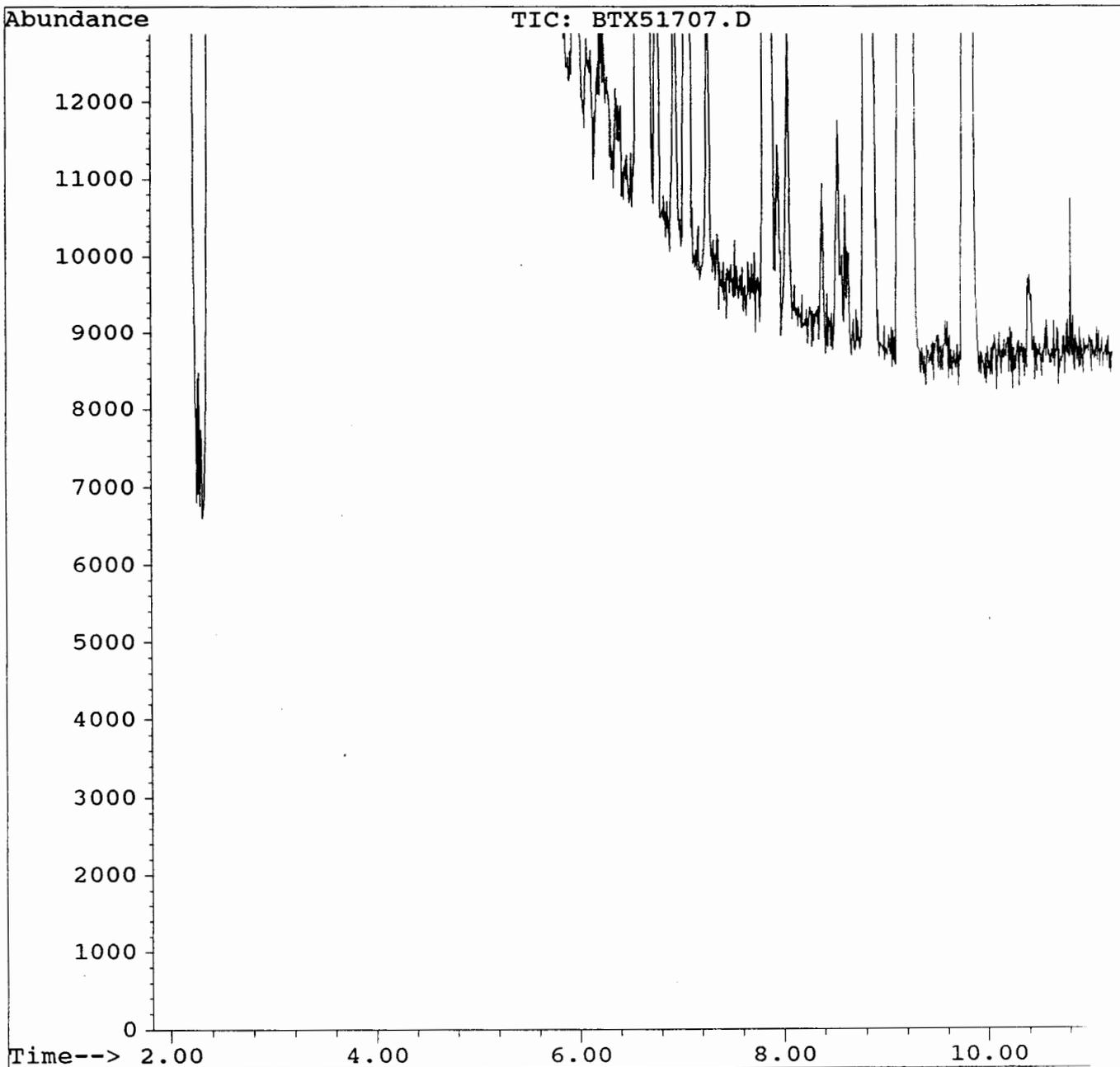
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.32	114	431669	50.00	ug/l	0.05
7) Chlorobenzene-d5	7.86	117	279675	50.00	ug/l	0.06
12) 1,4-Dichlorobenzene-d4	9.80	152	105143	50.00	ug/l	0.04
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	4.95	65	77970	55.09		110.19%
6) Toluene-d8	6.62	98	410373	51.44		102.88%
13) BFB	8.83	95	168623	47.63	ug/l	95.27%
Target Compounds						Qvalue
2) Acetone	2.96	43	20109	47.99		96
3) 2-Butanone	4.26	43	90855	148.96		99

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51707.D
Acq Time : 17 May 95 1:04 pm
Sample : blk 100 ul
Misc :
Quant Time: May 17 13:15 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Wed May 17 12:12:11 1995
Response via : Multiple Level Calibration

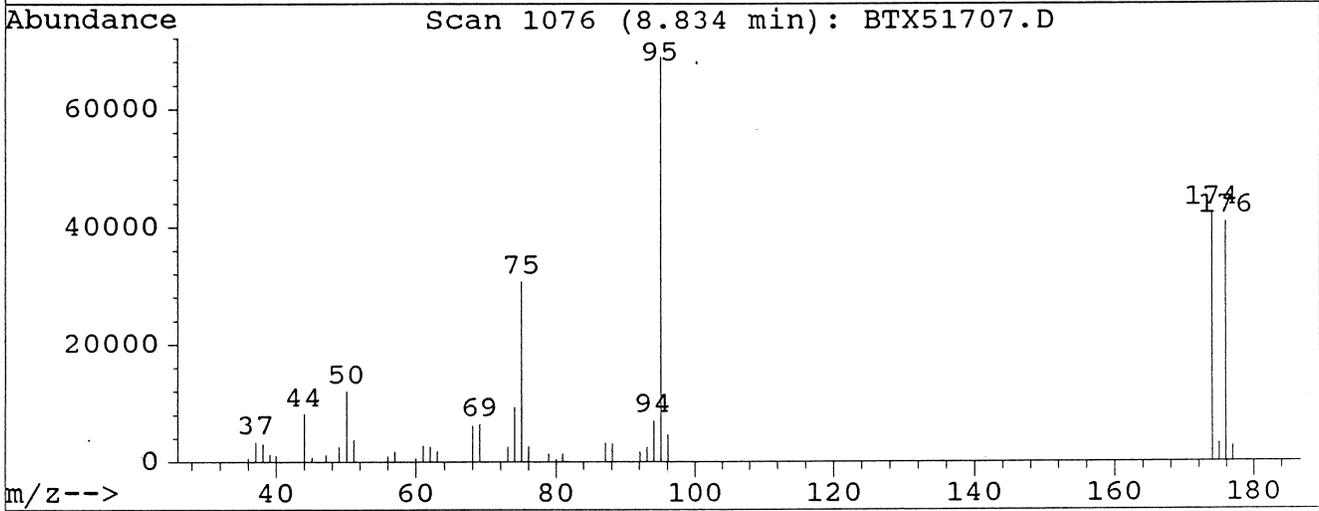
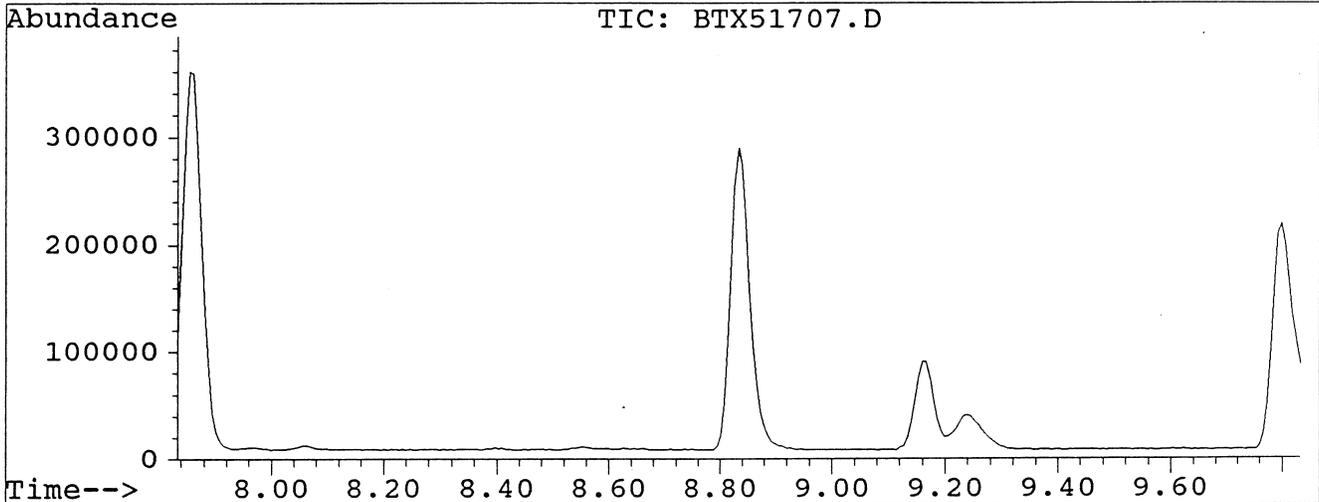


BFB

Data File : C:\HPCHEM\1\DATA\BTX51707.D
Acq Time : 17 May 95 1:04 pm
Sample : blk 100 ul
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA



Peak Apex is scan: 1076

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.4	12004	PASS
75	95	30	60	44.6	30696	PASS
95	95	100	100	100.0	68808	PASS
96	95	5	9	6.7	4642	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	61.4	42224	PASS
175	174	5	9	7.5	3186	PASS
176	174	95	101	96.6	40800	PASS
177	176	5	9	6.5	2646	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51704.D
 Acq Time : 17 May 95 11:34 am
 Sample : 50 ppb
 Misc :
 Quant Time: May 17 11:45 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Wed May 17 11:35:36 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.30	114	437306	50.00	ug/l	0.03
7) Chlorobenzene-d5	7.83	117	275078	50.00	ug/l	0.03
12) 1,4-Dichlorobenzene-d4	9.78	152	104676	50.00	ug/l	0.02
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	4.93	65	74795	53.25		106.49%
6) Toluene-d8	6.60	98	408640	50.91		101.82%
13) BFB	8.81	95	166004	45.09	ug/l	90.18%
Target Compounds						Qvalue
2) Acetone	2.94	43	128022	252.95		99
3) 2-Butanone	4.23	43	219326	331.31		94
5) Benzene	5.01	78	746809	37.44	50	99
8) Toluene	6.66	91	773319	43.52	50	96
9) Ethylbenzene	7.94	91	848285	47.18	50	100
10) M+P-Xylene	8.04	91	1287146	94.06	100	96
11) O-Xylene	8.37	91	595076	47.45	50	99

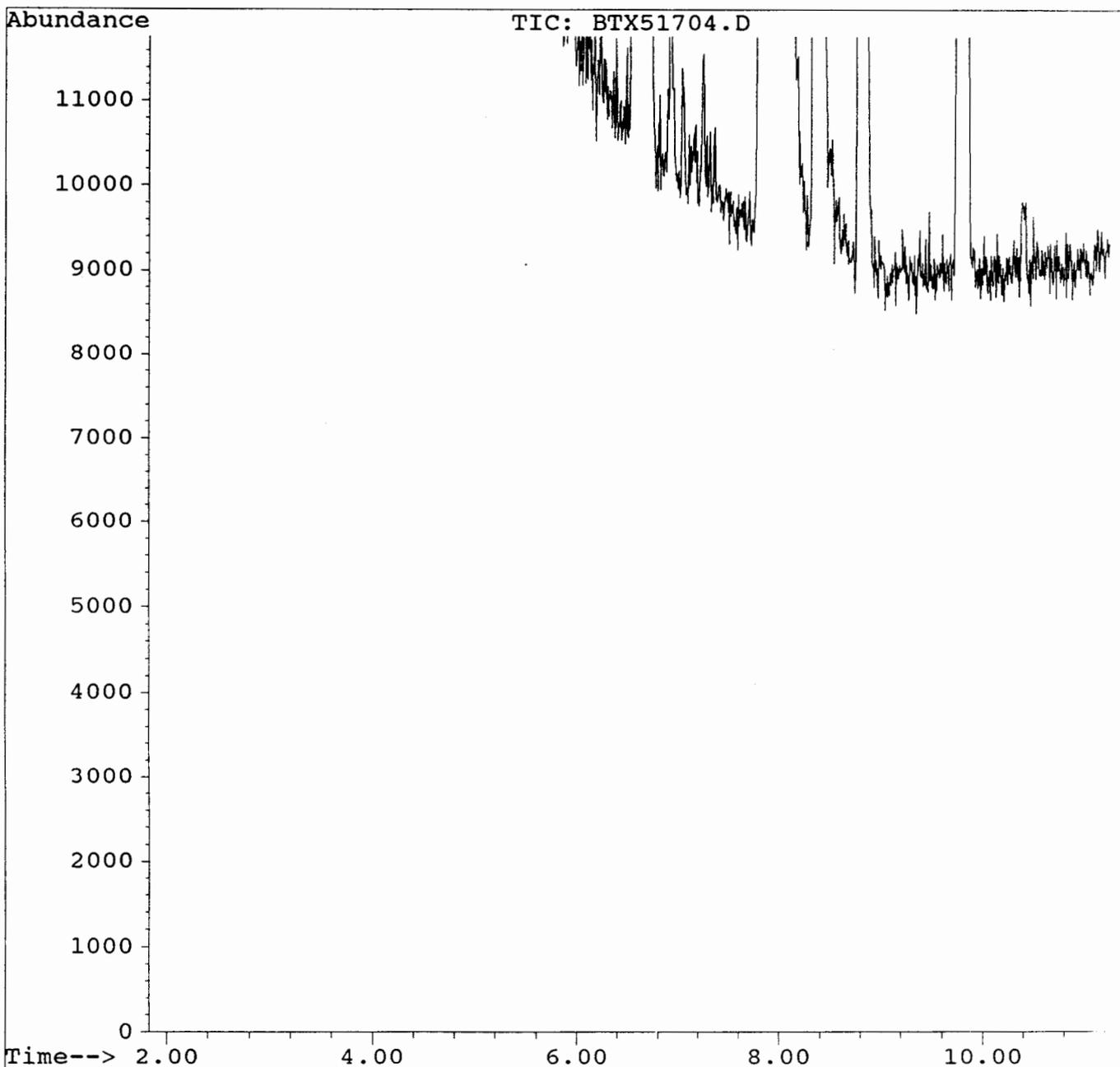
→ 8260

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51704.D
Acq Time : 17 May 95 11:34 am
Sample : 50 ppb
Misc :
Quant Time: May 17 11:45 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Wed May 17 11:35:36 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51801.D
 Acq Time : 18 May 95 9:00 am
 Sample : daily
 Misc :
 Quant Time: May 18 9:34 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Wed May 17 16:57:47 1995
 Response via : Multiple Level Calibration

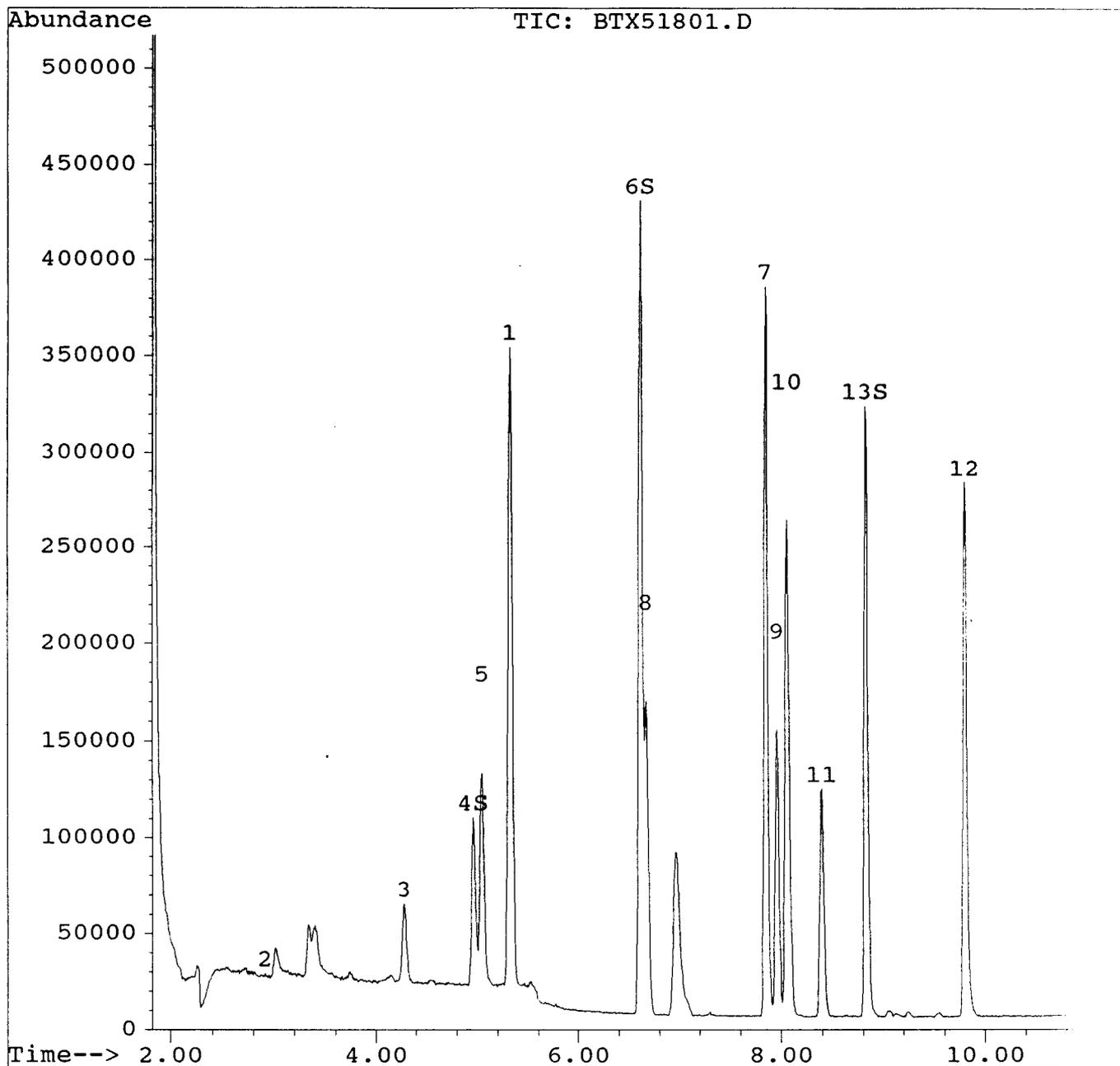
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.33	114	438916	50.00	ug/l	0.06
7) Chlorobenzene-d5	7.85	117	283784	50.00	ug/l	0.05
12) 1,4-Dichlorobenzene-d4	9.80	152	127443	50.00	ug/l	0.04
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	4.97	65	81624	56.72		113.45
6) Toluene-d8	6.62	98	434519	53.57		107.14
13) BFB	8.83	95	181684	42.34	ug/l	84.69
Target Compounds						Qvalue
2) Acetone	3.02	43	40656	134.18		m 51
3) 2-Butanone	4.28	43	81836	131.96		96
5) Benzene	5.05	78	146320	9.37		97
8) Toluene	6.68	91	168597	9.63		96
9) Ethylbenzene	7.96	91	175664	9.58		98
10) M+P-Xylene	8.06	91	276231	19.88		97
11) O-Xylene	8.40	91	125251	9.77		97

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51801.D
Acq Time : 18 May 95 9:00 am
Sample : daily
Misc :
Quant Time: May 18 9:11 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Wed May 17 16:57:47 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51803.D
 Acq Time : 18 May 95 10:00 am
 Sample : 100 ul blk
 Misc :
 Quant Time: May 18 10:36 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Wed May 17 16:57:47 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.35	114	402508	50.00	ug/l	0.08
7) Chlorobenzene-d5	7.87	117	267366	50.00	ug/l	0.07
12) 1,4-Dichlorobenzene-d4	9.81	152	119759	50.00	ug/l	0.05
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	4.98	65	89581	67.89		135.77
6) Toluene-d8	6.64	98	410270	55.15		110.31
13) BFB	8.84	95	177189	43.95	ug/l	87.89
Target Compounds						Qvalue
2) Acetone	3.02	43	12752	45.89		1147.25 m 51
3) 2-Butanone	4.30	43	65829	115.75		25 2893.75 95
5) Benzene	5.07	78	64006	4.47		111.75 96
8) Toluene	6.70	91	25578	1.55		38.75 96

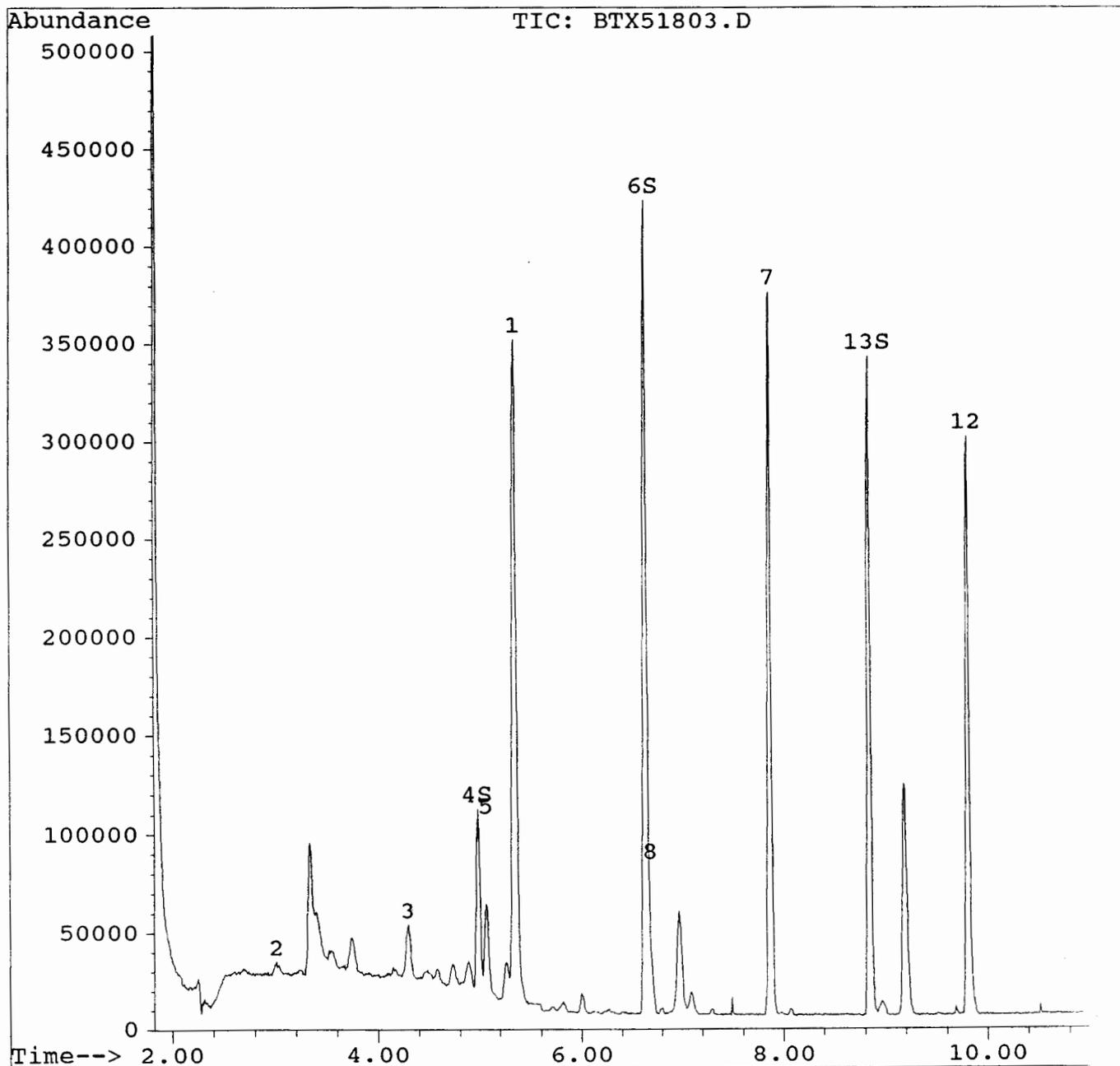
100 ul 1/50
 2x Conc. on extraction
 1/25
 1 ppb
 Detection limit 25 ppb
 50

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51803.D
Acq Time : 18 May 95 10:00 am
Sample : 100 ul blk
Misc :
Quant Time: May 18 10:36 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Wed May 17 16:57:47 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51802.D
 Acq Time : 18 May 95 9:30 am
 Sample : blank
 Misc :
 Quant Time: May 18 9:41 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Wed May 17 16:57:47 1995
 Response via : Multiple Level Calibration

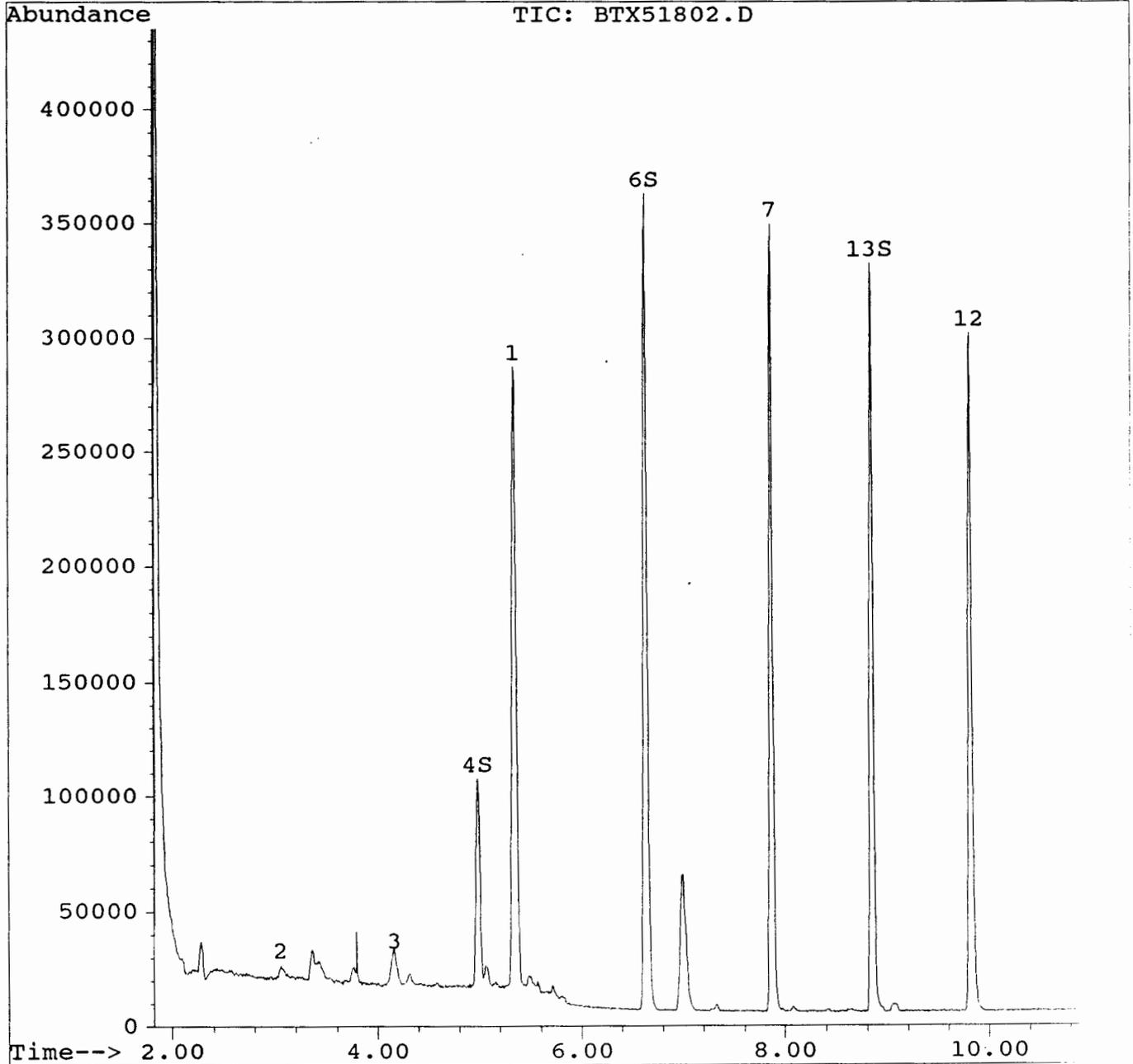
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.34	114	356237	50.00	ug/l	0.07
7) Chlorobenzene-d5	7.87	117	252967	50.00	ug/l	0.07
12) 1,4-Dichlorobenzene-d4	9.82	152	130129	50.00	ug/l	0.06
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	4.99	65	86660	74.20		148.40%
6) Toluene-d8	6.64	98	358150	54.40		108.80%
13) BFB	8.85	95	178870	40.83	ug/l	81.65%
Target Compounds						Qvalue
2) Acetone	3.06	43	24184	98.34		# 77
3) 2-Butanone	4.18	43	8423	16.73		# 59

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51802.D
Acq Time : 18 May 95 9:30 am
Sample : blank
Misc :
Quant Time: May 18 9:41 1995

Operator:
Inst : 5972
Multiplr: 1.00

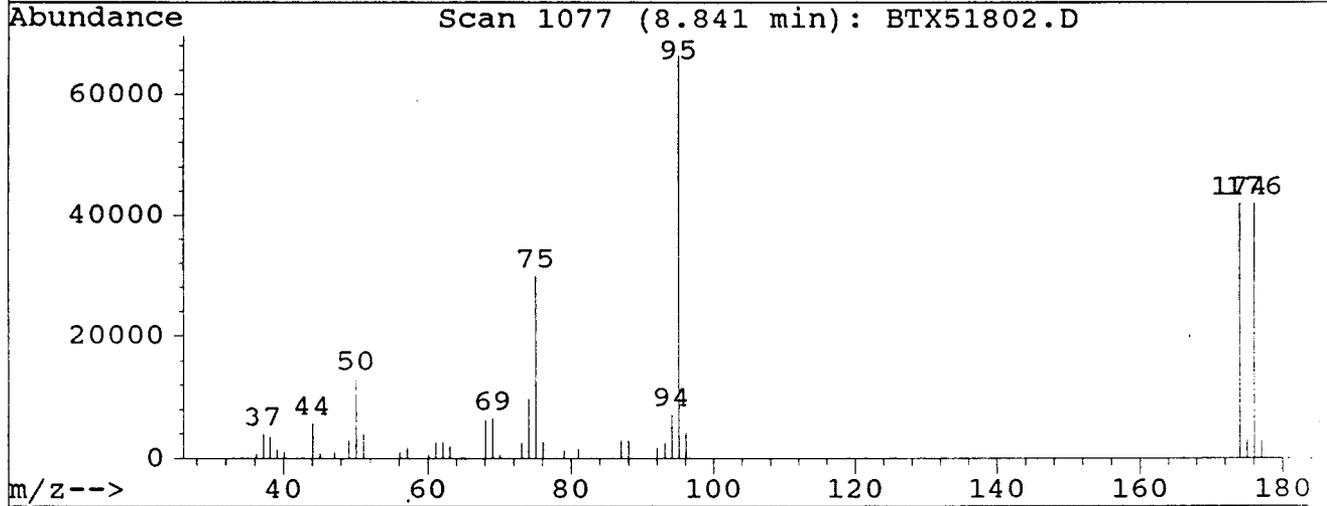
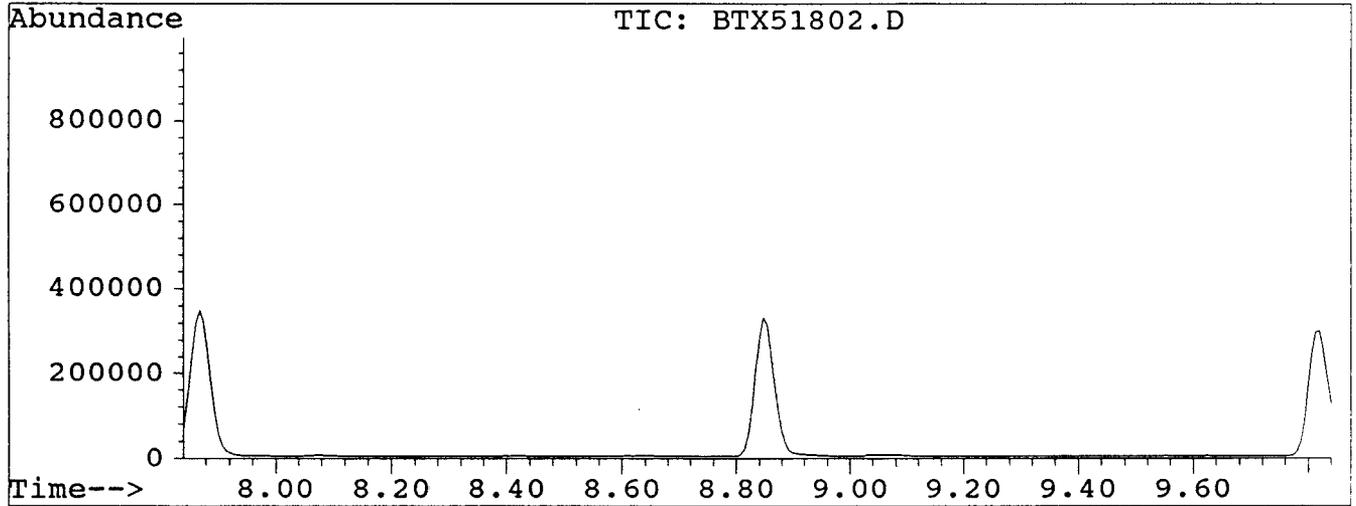
Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Wed May 17 16:57:47 1995
Response via : Multiple Level Calibration



Data File : C:\HPCHEM\1\DATA\BTX51802.D
 Acq Time : 18 May 95 9:30 am
 Sample : blank
 Misc :

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA



Peak Apex is scan: 1077

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.8	13170	PASS
75	95	30	60	45.1	29968	PASS
95	95	100	100	100.0	66496	PASS
96	95	5	9	6.5	4291	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	63.3	42072	PASS
175	174	5	9	7.3	3053	PASS
176	174	95	101	99.8	42000	PASS
177	176	5	9	6.9	2918	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51901.D
 Acq Time : 19 May 95 11:11 am
 Sample : daily
 Misc :
 Quant Time: May 19 11:23 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

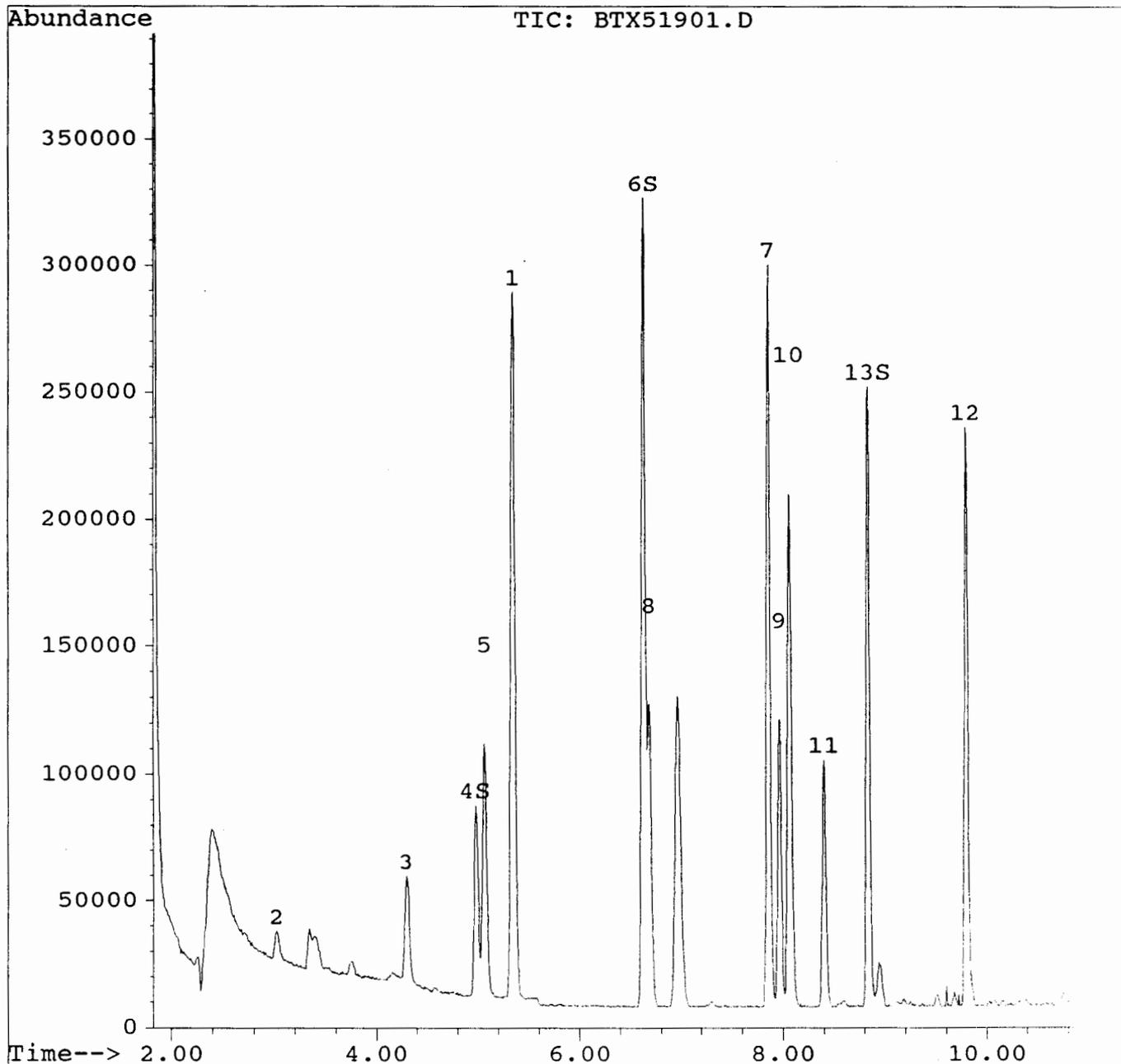
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	5.35	114	347553	50.00	ug/l	0.08
7) Chlorobenzene-d5	7.86	117	224125	50.00	ug/l	0.06
12) 1,4-Dichlorobenzene-d4	9.80	152	90445	50.00	ug/l	0.04
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	4.98	65	73164	64.21		128.42%
6) Toluene-d8	6.63	98	309861	48.24		96.48%
13) BFB	8.84	95	131959	43.33	ug/l	86.67%
Target Compounds						Qvalue
2) Acetone	3.02	43	36741	153.14		91
3) 2-Butanone	4.30	43	102621	208.97		98
5) Benzene	5.07	78	129919	10.51		99
8) Toluene	6.69	91	120488	8.72		97
9) Ethylbenzene	7.97	91	126120	8.71		98
10) M+P-Xylene	8.06	91	195882	17.85		99
11) O-Xylene	8.40	91	92126	9.10		96

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51901.D
Acq Time : 19 May 95 11:11 am
Sample : daily
Misc :
Quant Time: May 19 11:23 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51902.D
 Acq Time : 19 May 95 11:38 am
 Sample : blank
 Misc :
 Quant Time: May 19 11:49 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

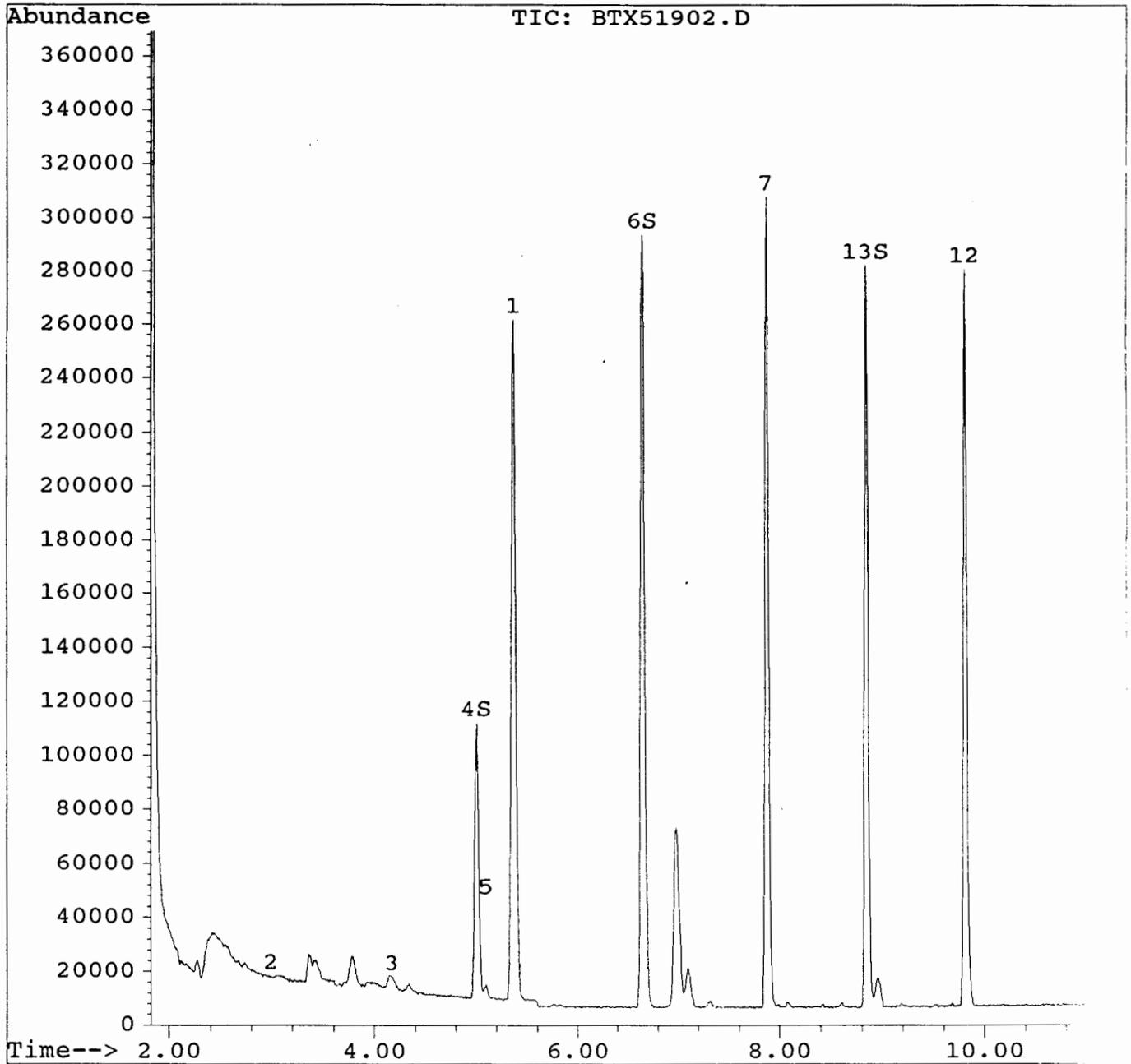
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.37	114	333928	50.00	ug/l	0.10
7) Chlorobenzene-d5	7.88	117	235581	50.00	ug/l	0.07
12) 1,4-Dichlorobenzene-d4	9.81	152	105800	50.00	ug/l	0.05
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.01	65	97870	89.40		178.80
6) Toluene-d8	6.65	98	297961	48.28		96.56
13) BFB	8.85	95	148927	41.81	ug/l	83.62
Target Compounds						Qvalue
2) Acetone	2.99	43	3723	16.15		# 51
3) 2-Butanone	4.18	43	5479	11.61		# 59
5) Benzene	5.09	78	8400	0.71		# 87

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51902.D
Acq Time : 19 May 95 11:38 am
Sample : blank
Misc :
Quant Time: May 19 11:49 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration

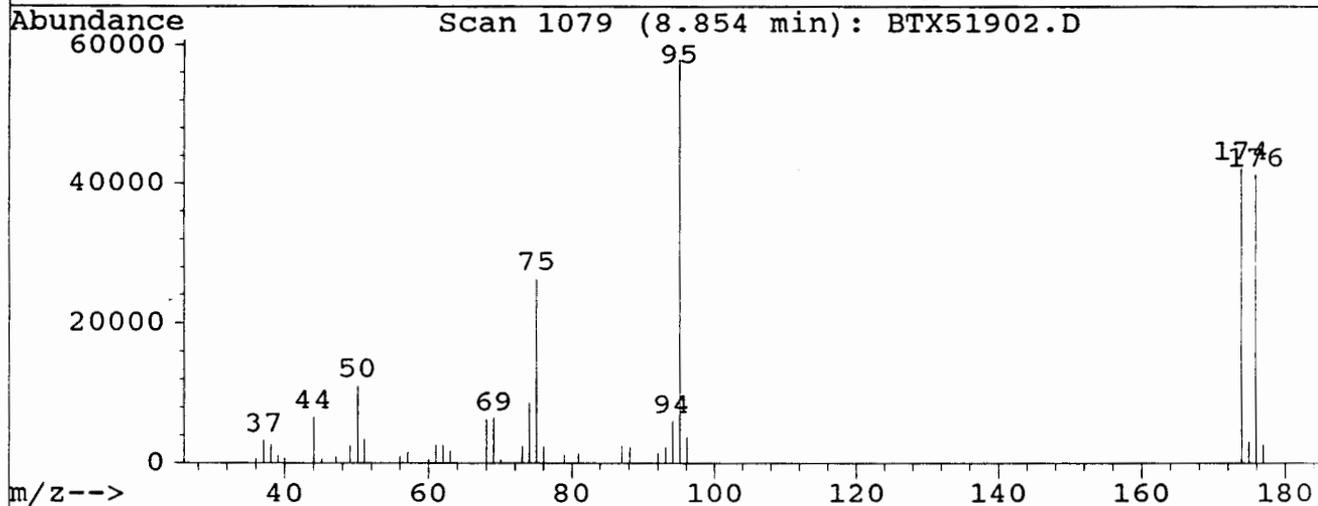
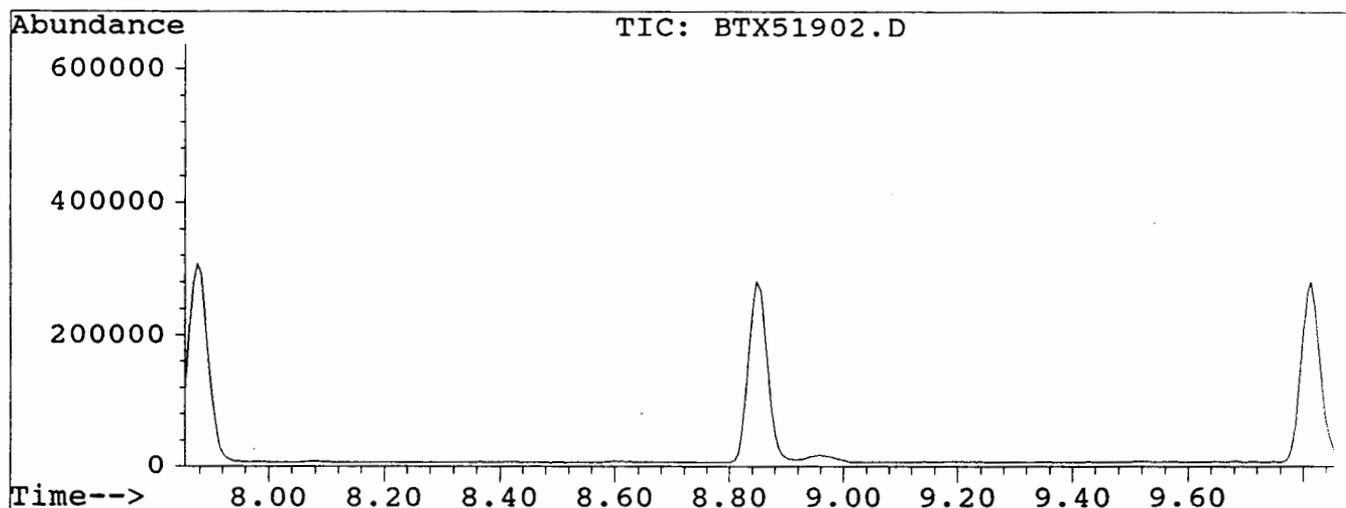


BFB

Data File : C:\HPCHEM\1\DATA\BTX51902.D
Acq Time : 19 May 95 11:38 am
Sample : blank
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA



Peak Apex is scan: 1079

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.2	11152	PASS
75	95	30	60	45.5	26376	PASS
95	95	100	100	100.0	57944	PASS
96	95	5	9	6.6	3833	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	73.0	42296	PASS
175	174	5	9	7.3	3086	PASS
176	174	95	101	97.8	41352	PASS
177	176	5	9	6.6	2730	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51903.D
 Acq Time : 19 May 95 12:04 pm
 Sample : MeOH 100 ul
 Misc :
 Quant Time: May 19 12:23 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

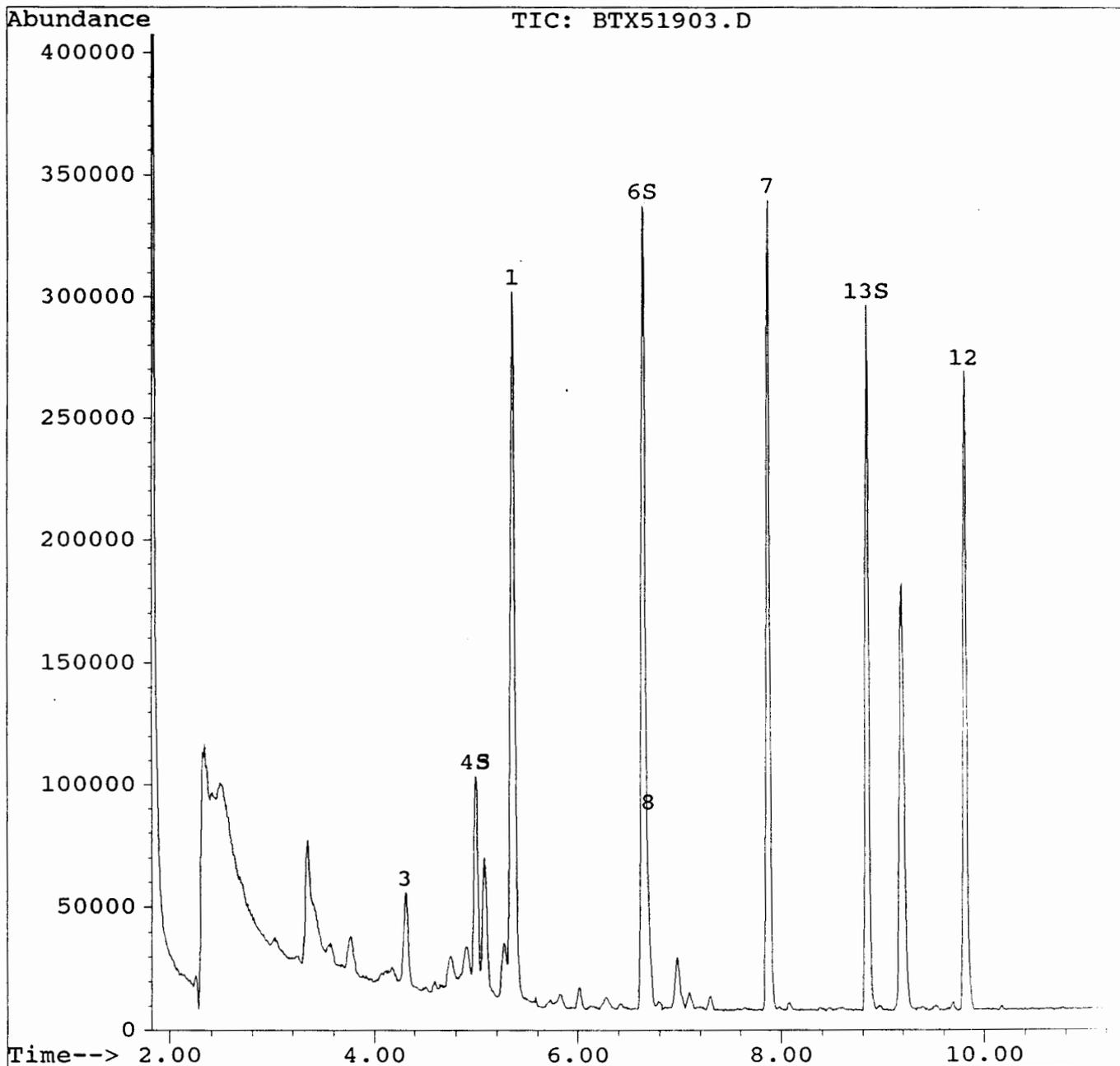
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	5.36	114	376808	50.00	ug/l	0.09
7) Chlorobenzene-d5	7.88	117	255928	50.00	ug/l	0.07
12) 1,4-Dichlorobenzene-d4	9.81	152	106196	50.00	ug/l	0.05
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.00	65	87796	71.07		142.14%
6) Toluene-d8	6.64	98	338936	48.67		97.34%
13) BFB	8.85	95	154846	43.31	ug/l	86.62%
Target Compounds						Qvalue
2) Acetone	3.04	43	11988	46.09	m	0
3) 2-Butanone	4.32	43	83445	156.73		100
5) Benzene	5.08	78	75935	5.66		98
8) Toluene	6.70	91	29182	1.85		95

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX51903.D
Acq Time : 19 May 95 12:04 pm
Sample : MeOH 100 ul
Misc :
Quant Time: May 19 12:15 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52205.D
 Acq Time : 22 May 95 10:55 am
 Sample : blank b
 Misc :
 Quant Time: May 22 11:06 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

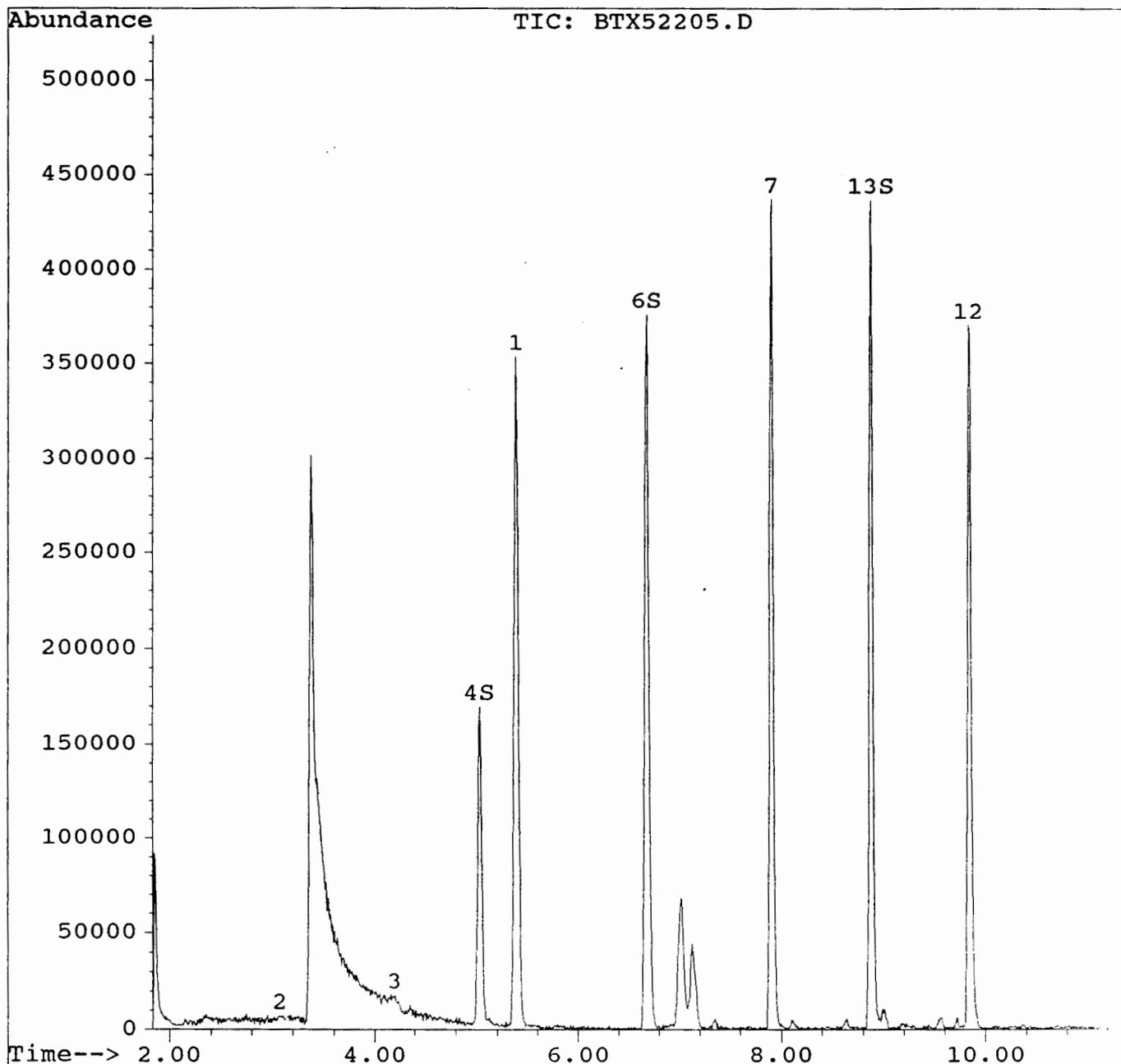
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.39	114	327475	50.00	ug/l	0.12
7) Chlorobenzene-d5	7.91	117	249971	50.00	ug/l	0.11
12) 1,4-Dichlorobenzene-d4	9.84	152	105735	50.00	ug/l	0.08
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.03	65	212546	197.97		395.95
6) Toluene-d8	6.68	98	355730	58.78		117.56
13) BFB	8.88	95	230954	64.88	ug/l	129.75
Target Compounds						Qvalue
2) Acetone	3.07	43	4100	18.14 NO	#	51
3) 2-Butanone	4.20	43	1571	3.40 NO	#	59

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52205.D
Acq Time : 22 May 95 10:55 am
Sample : blank b
Misc :
Quant Time: May 22 11:06 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52206.D
 Acq Time : 22 May 95 11:21 am
 Sample : MeOH 100 ul b
 Misc :
 Quant Time: May 22 11:37 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

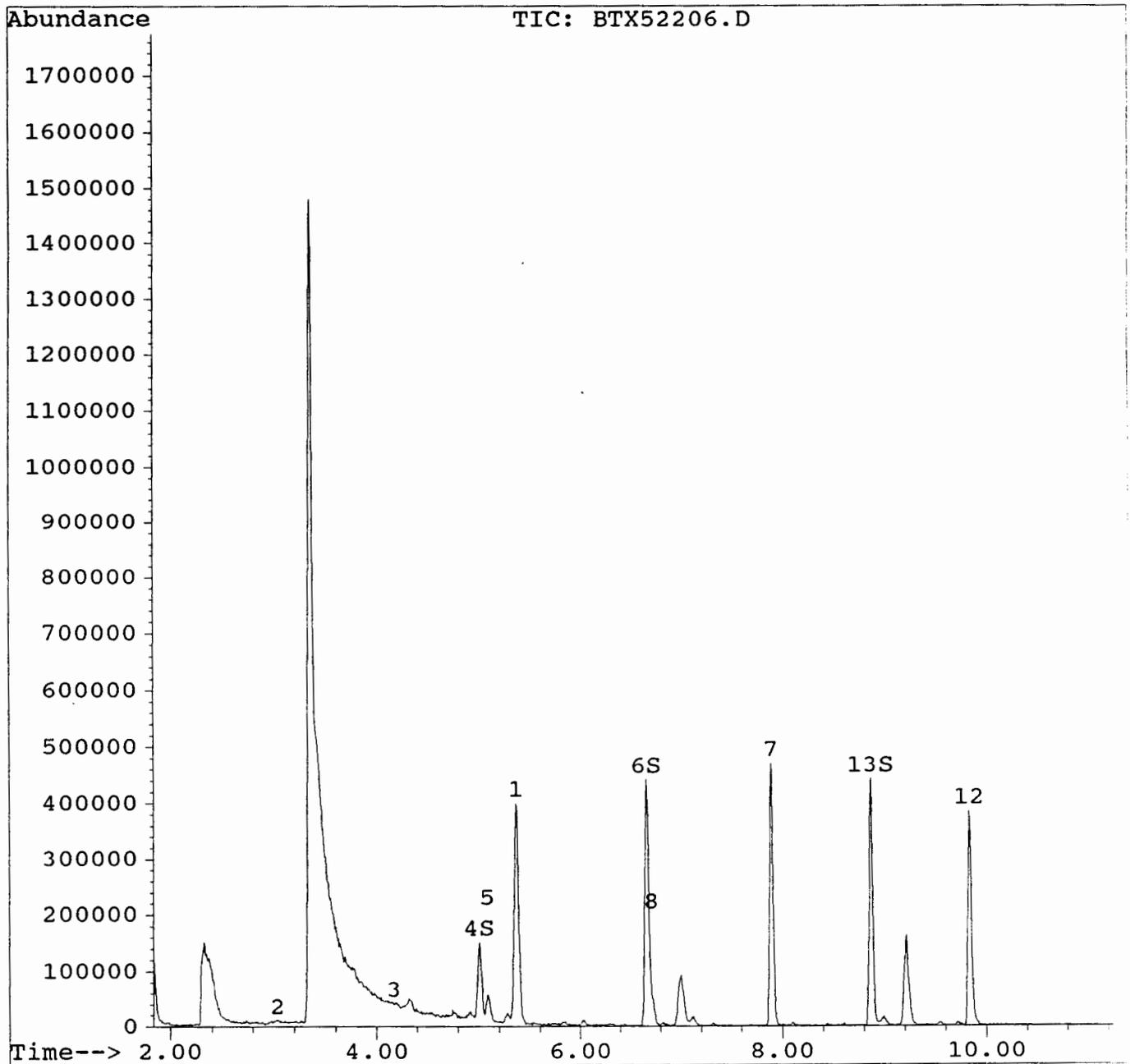
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	5.37	114	369428	50.00	ug/l	0.10
7) Chlorobenzene-d5	7.90	117	265795	50.00	ug/l	0.09
12) 1,4-Dichlorobenzene-d4	9.84	152	113814	50.00	ug/l	0.08
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.01	65	180506	149.04		298.07%
6) Toluene-d8	6.66	98	405016	59.32		118.64%
13) BFB	8.87	95	241080	62.91	ug/l	125.83%
Target Compounds						Qvalue
2) Acetone	3.04	43	6224	24.41 JD	#	51
3) 2-Butanone	4.32	43	32919	63.07	m	59
5) Benzene	5.09	78	50139	3.81		99
8) Toluene	6.72	91	31542	1.92		95

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52206.D
Acq Time : 22 May 95 11:21 am
Sample : MeOH 100 ul b
Misc :
Quant Time: May 22 11:33 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52210.D
 Acq Time : 22 May 95 1:10 pm
 Sample : MeOH 100 ul c
 Misc :
 Quant Time: May 22 13:41 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

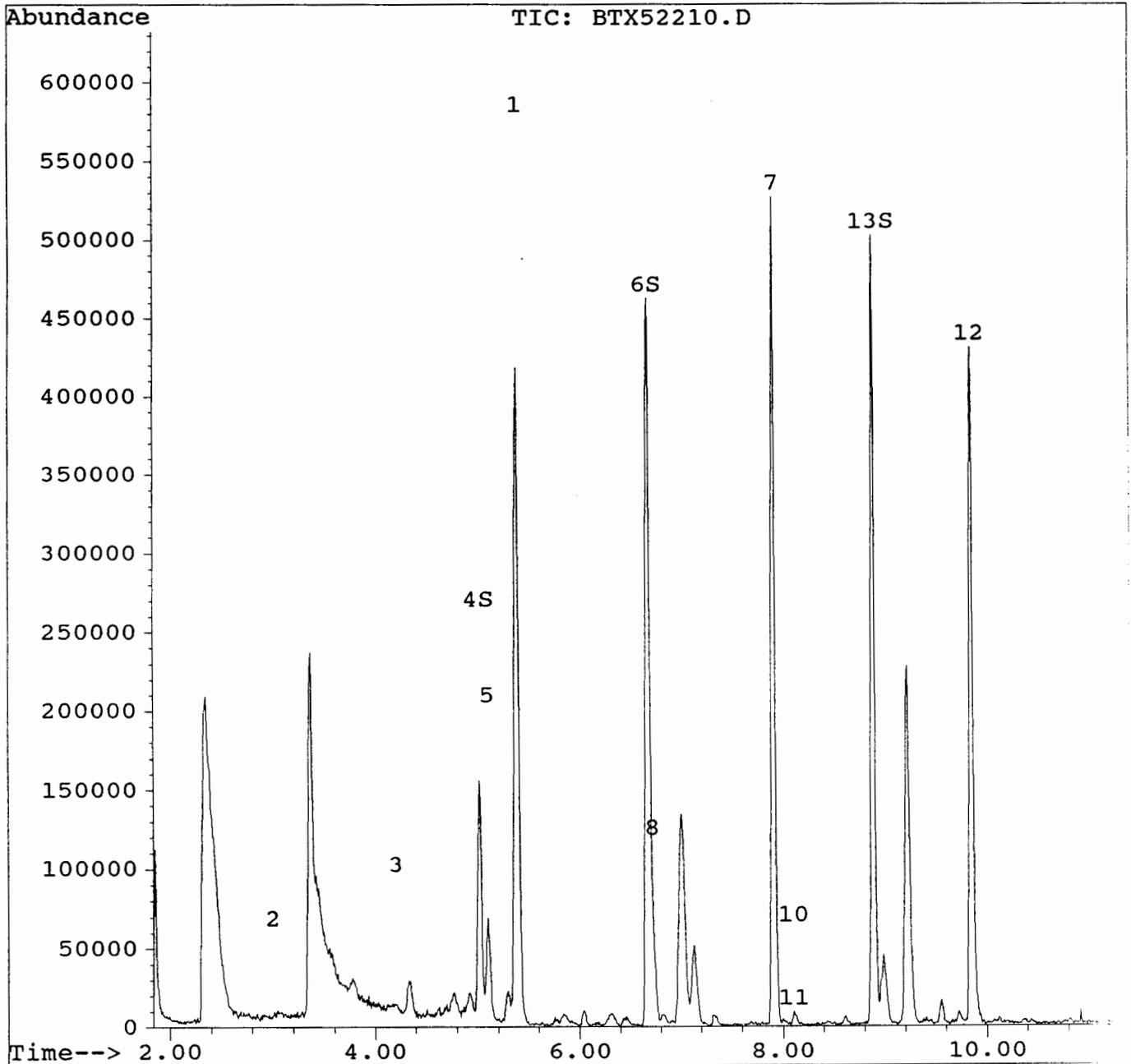
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	5.39	114	424282	50.00	ug/l	0.11
7) Chlorobenzene-d5	7.91	117	311410	50.00	ug/l	0.11
12) 1,4-Dichlorobenzene-d4	9.85	152	135218	50.00	ug/l	0.09
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.02	65	187246	134.61		269.23
6) Toluene-d8	6.68	98	459744	58.63		117.26
13) BFB	8.88	95	271845	59.71	ug/l	119.43
Target Compounds						Qvalue
2) Acetone	3.05	43	2335	7.97		m 51
3) 2-Butanone	4.33	43	31566	52.66		m 59
5) Benzene	5.11	78	65919	4.37		97
8) Toluene	6.74	91	41919	2.18		93
10) M+P-Xylene	8.11	91	7822	0.51		86

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52210.D
Acq Time : 22 May 95 1:10 pm
Sample : MeOH 100 ul c
Misc :
Quant Time: May 22 13:21 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52204.D
 Acq Time : 22 May 95 10:28 am
 Sample : daily b
 Misc :
 Quant Time: May 22 11:13 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

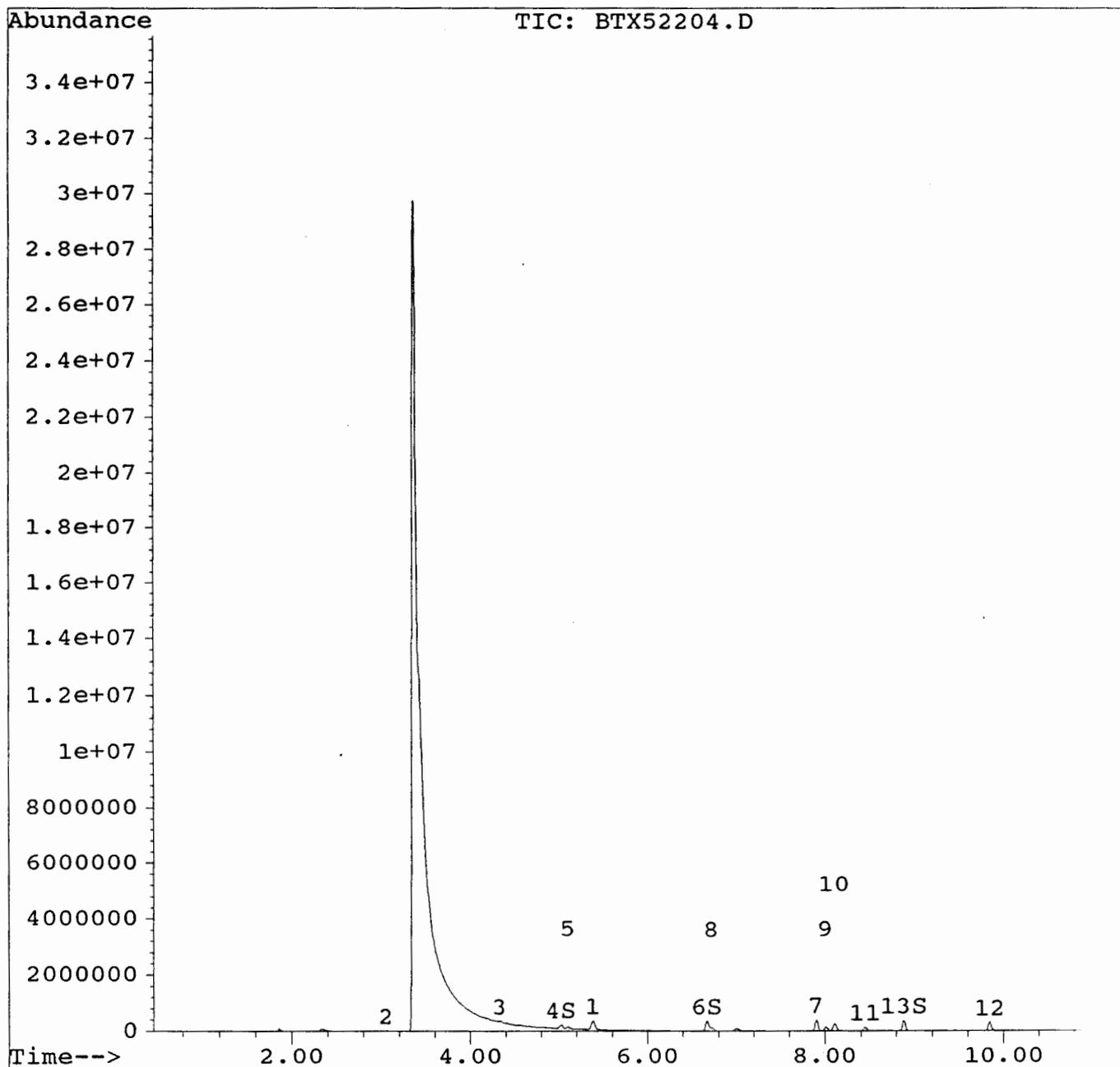
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.39	114	286618	50.00	ug/l	0.12
7) Chlorobenzene-d5	7.91	117	210391	50.00	ug/l	0.11
12) 1,4-Dichlorobenzene-d4	9.85	152	86850	50.00	ug/l	0.09
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.03	65	146536	155.95		311.89%
6) Toluene-d8	6.68	98	312793	59.05		118.10%
13) BFB	8.88	95	200162	68.45	ug/l	136.91%
Target Compounds						Qvalue
2) Acetone	3.06	43	25459	128.67		# 60
3) 2-Butanone	4.34	43	43691	107.89		# 81
5) Benzene	5.10	78	71748	7.04		98
8) Toluene	6.73	91	107922	8.32		98
9) Ethylbenzene	8.01	91	160108	11.78		# 86
10) M+P-Xylene	8.11	91	259338	25.18		m 60
11) O-Xylene	8.45	91	123371	12.98		88

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52204.D
Acq Time : 22 May 95 10:28 am
Sample : daily b
Misc :
Quant Time: May 22 11:13 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52302.D
 Acq Time : 23 May 95 8:03 am
 Sample : blank
 Misc :
 Quant Time: May 23 8:15 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

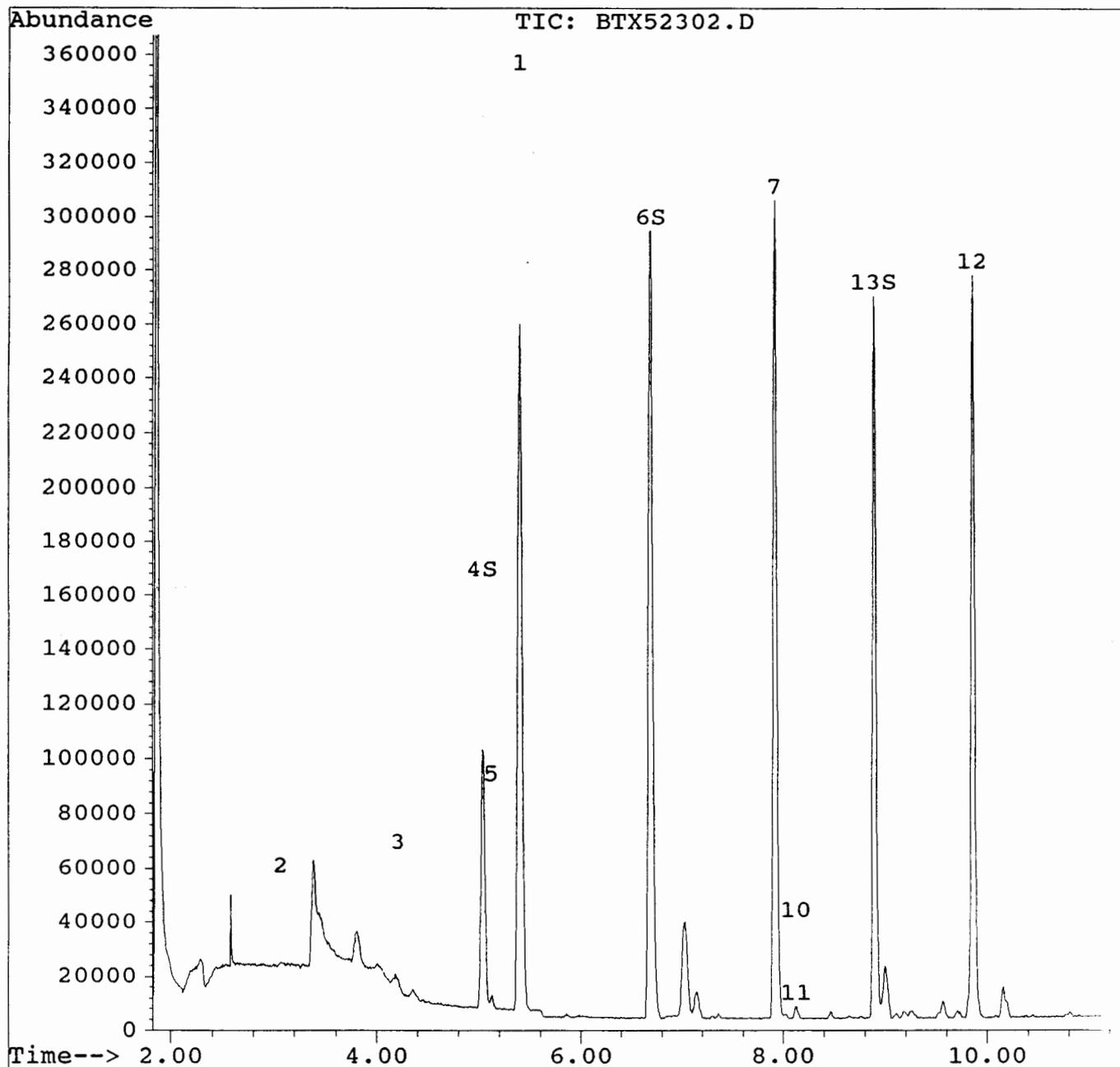
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	5.40	114	314392	50.00	ug/l	0.13
7) Chlorobenzene-d5	7.92	117	219312	50.00	ug/l	0.12
12) 1,4-Dichlorobenzene-d4	9.86	152	96294	50.00	ug/l	0.10
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.04	65	90827	88.12		176.24%
6) Toluene-d8	6.70	98	302021	51.98		103.96%
13) BFB	8.89	95	152320	46.98	ug/l	93.97%
Target Compounds						Qvalue
2) Acetone	3.07	43	9085	41.86		# 51
3) 2-Butanone	4.22	43	3674	8.27		# 59
5) Benzene	5.12	78	7268	0.65		# 51
10) M+P-Xylene	8.12	91	6893	0.64		91
11) O-Xylene	8.12	91	6893	0.70		99

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52302.D
Acq Time : 23 May 95 8:03 am
Sample : blank
Misc :
Quant Time: May 23 8:15 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52308.D
 Acq Time : 23 May 95 11:10 am
 Sample : MeOH 100 ul
 Misc :
 Quant Time: May 23 11:21 1995

Use

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

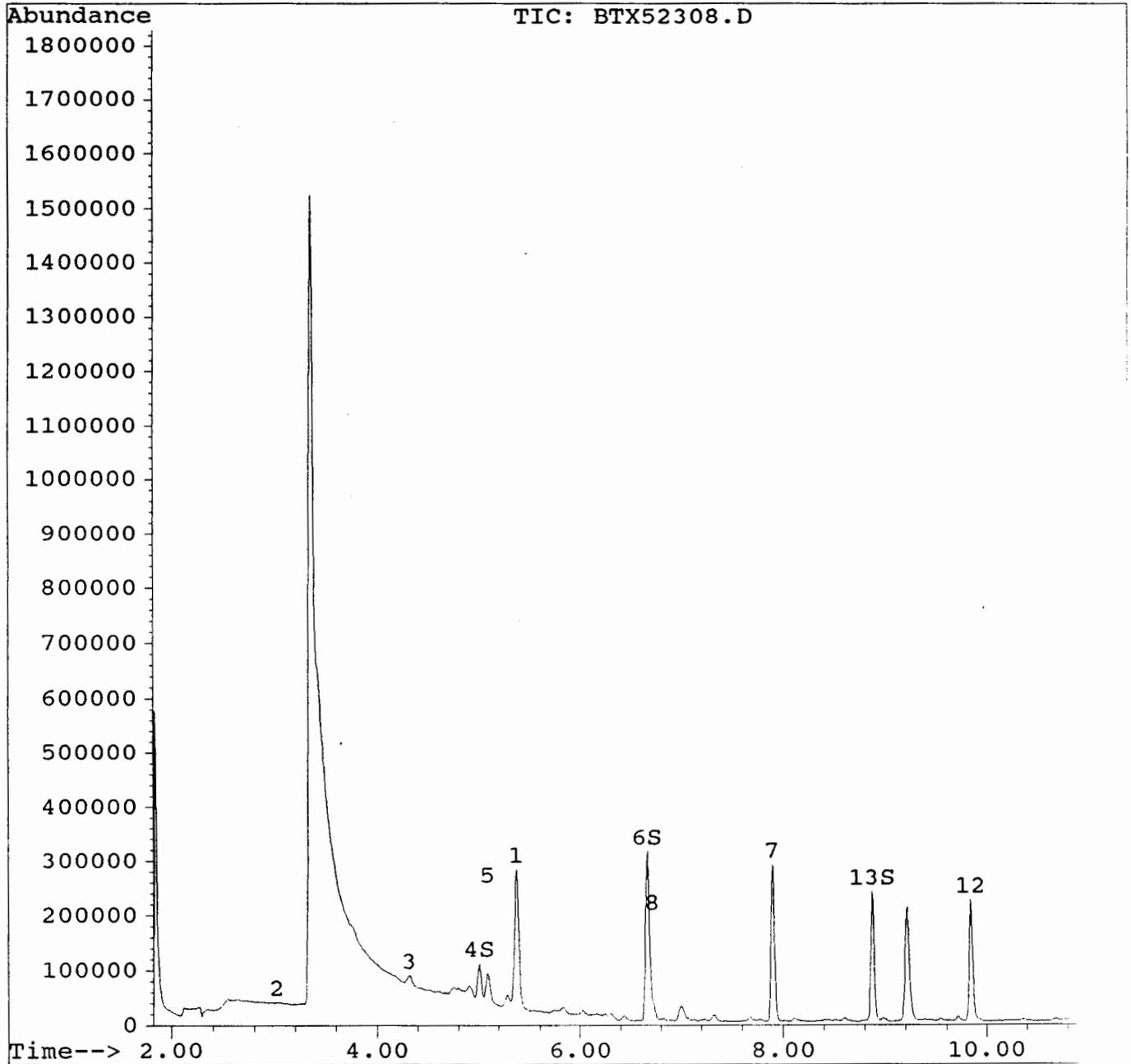
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.37	114	295573	50.00	ug/l	0.10
7) Chlorobenzene-d5	7.90	117	200015	50.00	ug/l	0.10
12) 1,4-Dichlorobenzene-d4	9.84	152	77888	50.00	ug/l	0.08
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.01	65	65193	67.28		134.55%
6) Toluene-d8	6.67	98	293576	53.74		107.49%
13) BFB	8.88	95	129529	49.39	ug/l	98.79%
Target Compounds						Qvalue
2) Acetone	3.03	43	6301	30.88	N O #	51
3) 2-Butanone	4.32	43	34202	81.90		98
5) Benzene	5.09	78	67425	6.41		99
8) Toluene	6.72	91	30397	2.46		94

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52308.D
Acq Time : 23 May 95 11:10 am
Sample : MeOH 100 ul
Misc :
Quant Time: May 23 11:21 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52301.D
 Acq Time : 23 May 95 7:37 am
 Sample : daily
 Misc :
 Quant Time: May 23 7:49 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
 Title : VOA
 Last Update : Thu May 18 12:46:00 1995
 Response via : Multiple Level Calibration

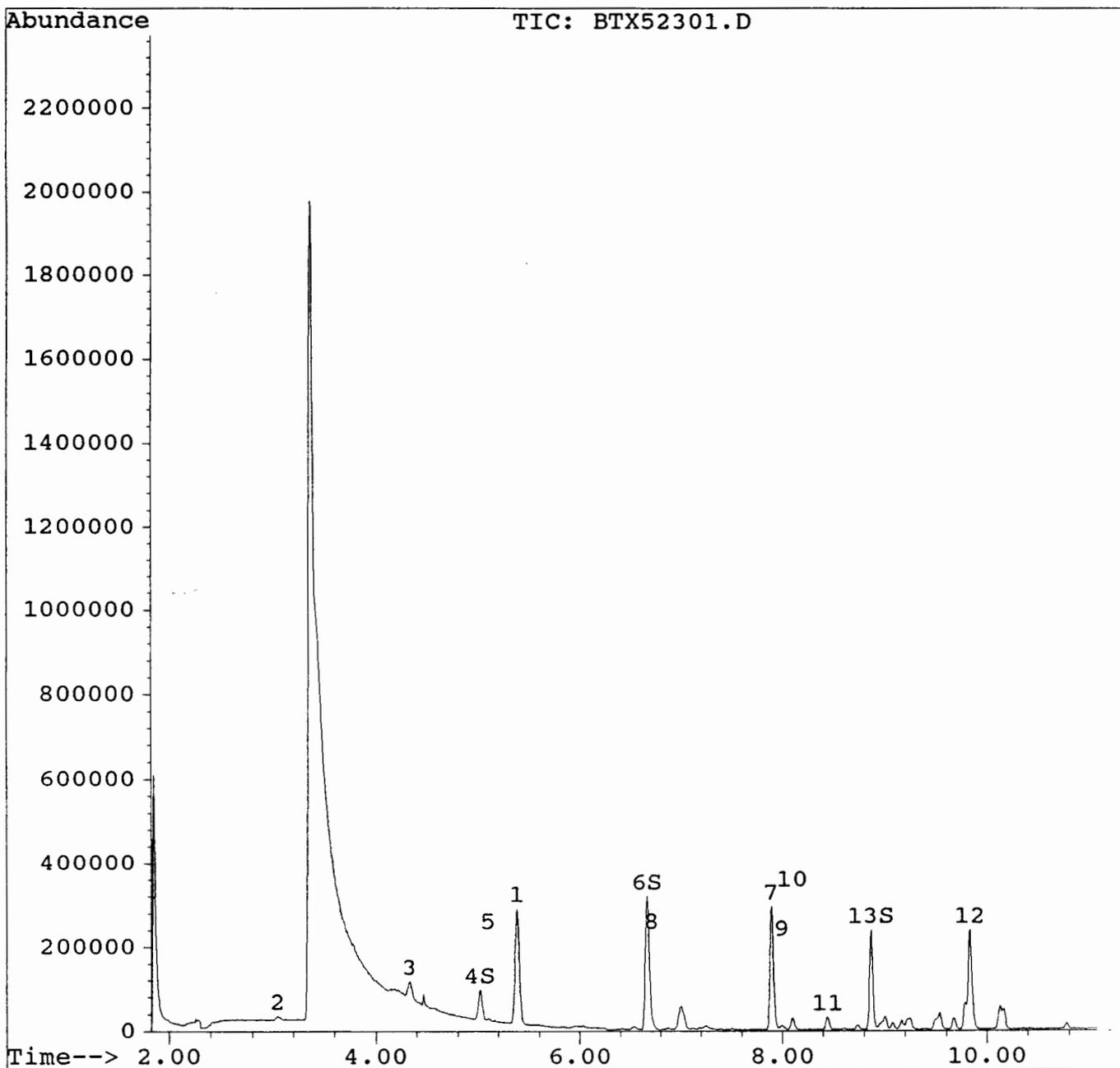
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	5.38	114	327889	50.00	ug/l	0.11
7) Chlorobenzene-d5	7.90	117	212955	50.00	ug/l	0.10
12) 1,4-Dichlorobenzene-d4	9.84	152	77786	50.00	ug/l	0.08
System Monitoring Compounds						%Recovery
4) 1,2-Dichloroethane-d4	5.02	65	69034	64.22		128.44%
6) Toluene-d8	6.67	98	312361	51.55		103.09%
13) BFB	8.87	95	132999	50.78	ug/l	101.57%
Target Compounds						Qvalue
2) Acetone	3.05	43	36636	161.86		# 81
3) 2-Butanone	4.34	43	90990	196.40		97
5) Benzene	5.11	78	8095	0.69		# 90
8) Toluene	6.72	91	12036	0.92		95
9) Ethylbenzene	8.00	91	13480	0.98		91
10) M+P-Xylene	8.09	91	27259	2.61		95
11) O-Xylene	8.44	91	16543	1.72		99

Quantitation Report

Data File : C:\HPCHEM\1\DATA\BTX52301.D
Acq Time : 23 May 95 7:37 am
Sample : daily
Misc :
Quant Time: May 23 7:49 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA
Last Update : Thu May 18 12:46:00 1995
Response via : Multiple Level Calibration

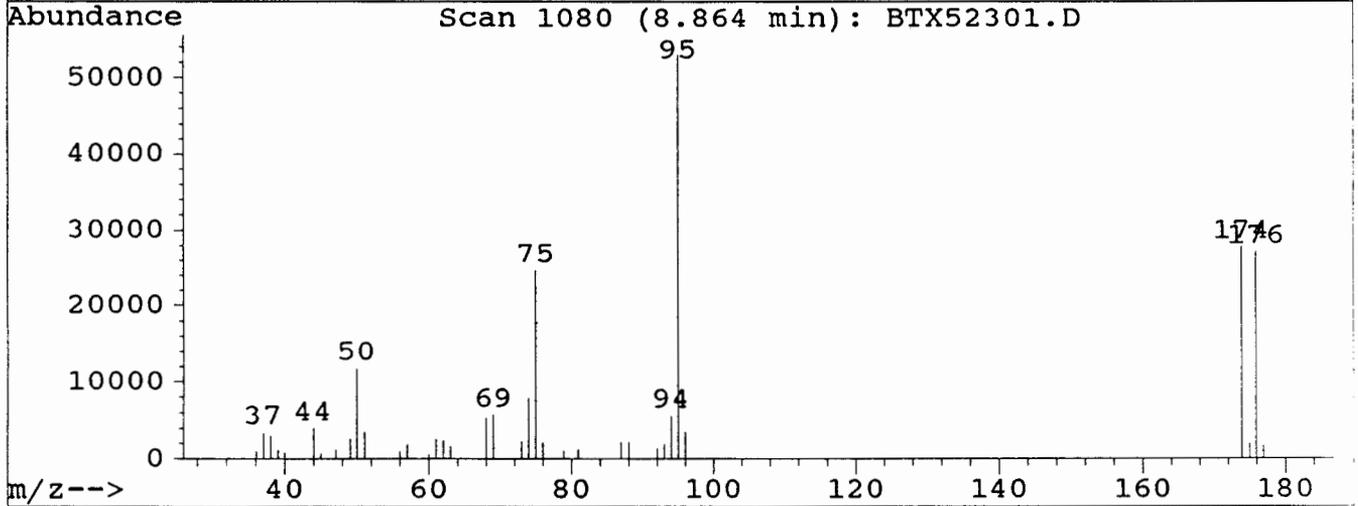
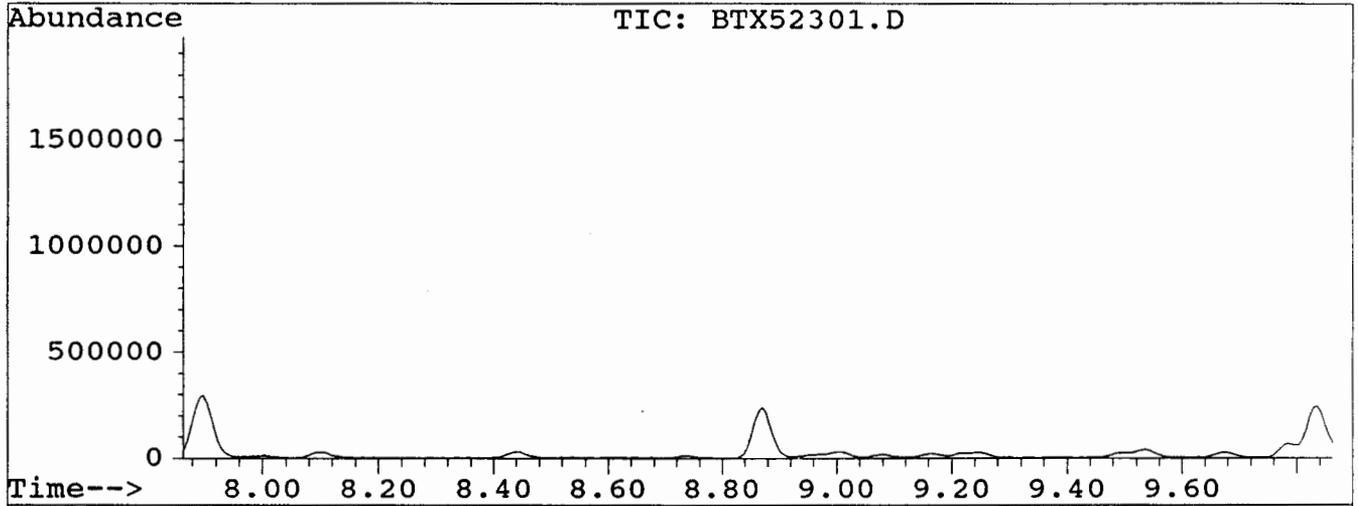


BFB

Data File : C:\HPCHEM\1\DATA\BTX52301.D
Acq Time : 23 May 95 7:37 am
Sample : daily
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA



Peak Apex is scan: 1080

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.2	11783	PASS
75	95	30	60	46.6	24672	PASS
95	95	100	100	100.0	52984	PASS
96	95	5	9	6.8	3592	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	52.4	27776	PASS
175	174	5	9	7.2	1988	PASS
176	174	95	101	97.8	27152	PASS
177	176	5	9	6.6	1787	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52403.D
 Acq Time : 24 May 95 8:31 am
 Sample : 100UL MEOH
 Misc :
 Quant Time: May 24 8:48 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

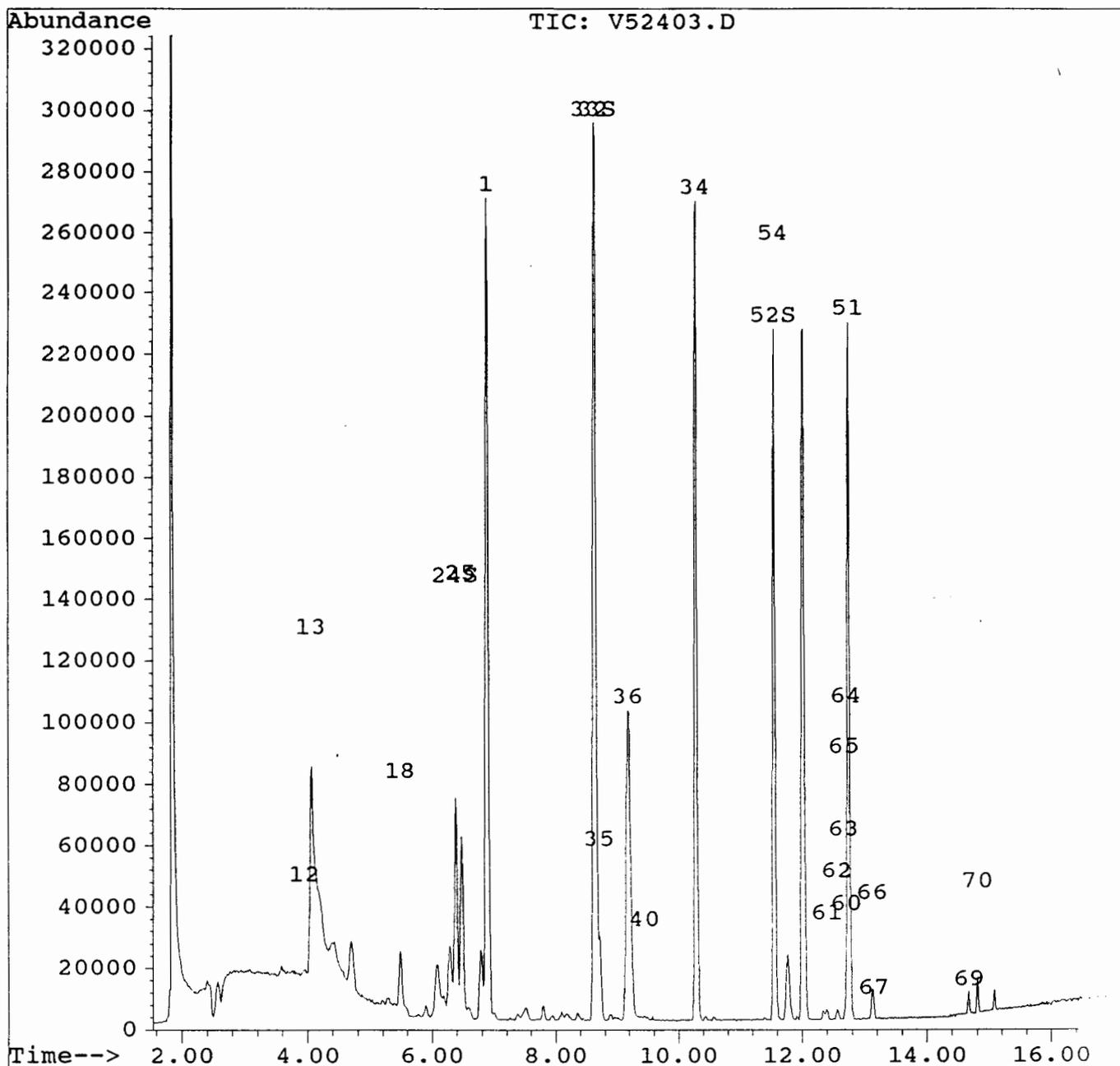
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.89	114	371053	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.29	117	228497	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.75	152	87689	50.00	ug/l	-0.03
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	79074	40.35		80.69%
33) Toluene-d8	8.63	98	351180	50.51		101.02%
52) BFB	11.55	95	144495	20.35	ug/l	40.69%
Target Compounds						Qvalue
12) Acetone	3.95	43	10477	42.30		# 48
13) Methylene Chloride	4.07	84	123392	36.35		# 55
18) 2-Butanone	5.49	43	49514	82.12		# 82
25) Benzene	6.47	78	87918	7.65		# 93
32) 4-Methyl-2-Pentanone	8.63	43	1920	1.52		# 1
35) Toluene	8.71	91	36317	3.19		# 99
36) Trans-1,2-Dichloropropene	9.18	75	4975	1.82		# 39
40) 2-Hexanone	9.44	43	1170	1.61		# 23
54) 1,2,3-Trichloropropene	11.55	75	66860	311.94		# 44
60) Tert-Butylbenzene	12.71	119	7793	0.93		# 87
61) 1,2,4-Trimethylbenzene	12.40	105	6256	0.74		# 81
62) Sec-Butylbenzene	12.56	105	7255	0.67		# 60
63) 1,3-Dichlorobenzene	12.68	146	2728	0.75		# 62
64) P-Isopropyltoluene	12.71	119	7793	0.93		# 91
65) 1,4-Dichlorobenzene	12.68	146	2728	0.75		# 63
66) N-Butylbenzene	13.13	91	11534	1.41		# 95
67) 1,2-Dichlorobenzene	13.15	146	3027	1.07		# 67
69) 1,2,4-Trichlorobenzene	14.67	180	4353	2.89		# 86
70) Hexachlorobutadiene	14.81	225	4636	3.58		# 71

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52403.D
Acq Time : 24 May 95 8:31 am
Sample : 100UL MEOH
Misc :
Quant Time: May 24 8:48 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52402.D
 Acq Time : 24 May 95 8:04 am
 Sample : BLANK
 Misc :
 Quant Time: May 24 8:22 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Tue May 23 14:00:19 1995
 Response via : Multiple Level Calibration

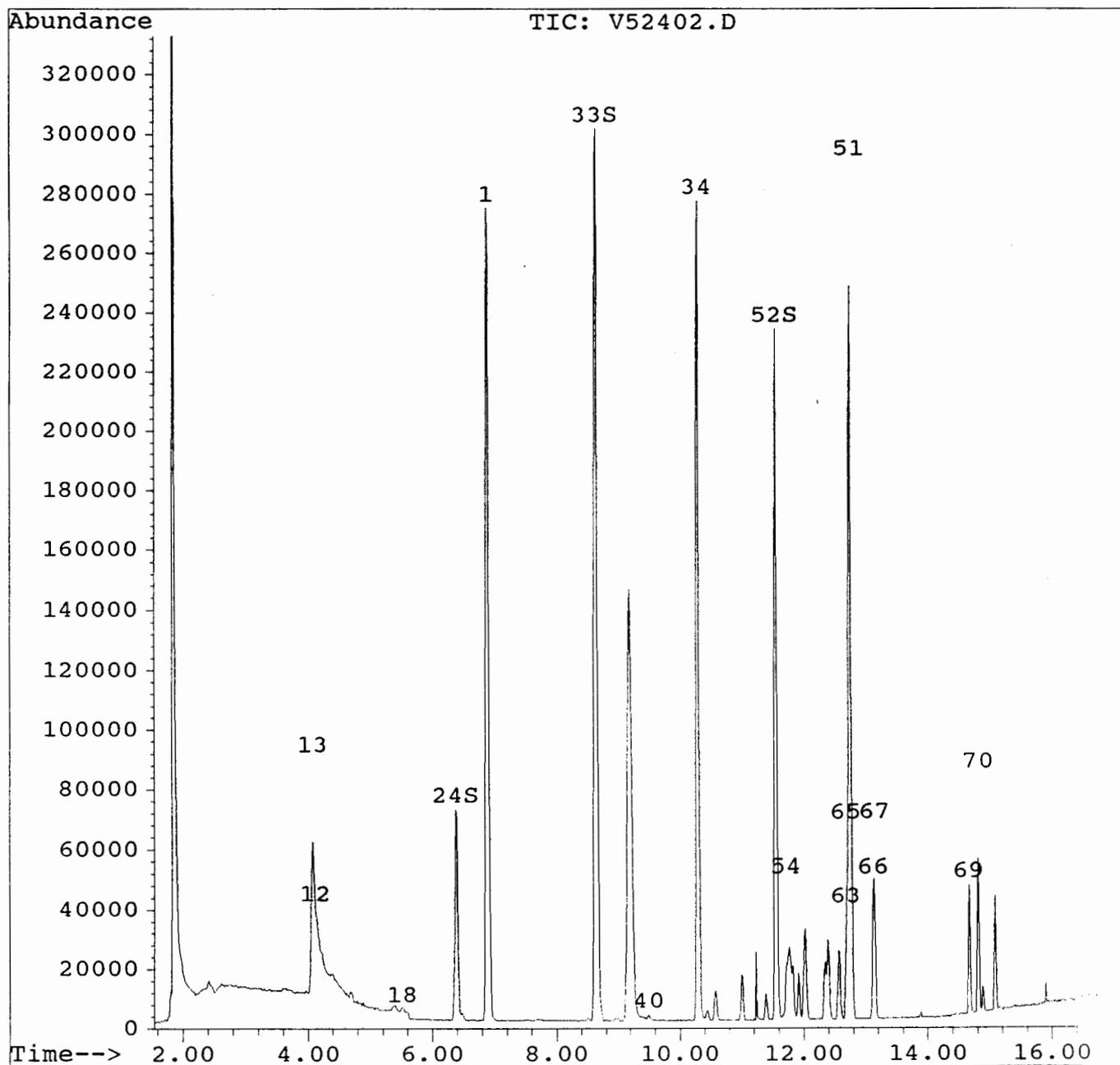
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.89	114	374905	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.29	117	230681	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.75	152	86731	50.00	ug/l	-0.03
						%Recovery
System Monitoring Compounds						
24) 1,2-Dichloroethane-d4	6.38	65	80574	40.69		81.38%
33) Toluene-d8	8.64	98	354636	50.48		100.97%
52) BFB	11.55	95	145899	20.77	ug/l	41.54%
						Qvalue
Target Compounds						
12) Acetone	4.11	43	5236	20.92		# 48
13) Methylene Chloride	4.08	84	93726	<u>27.33</u>		# 51
18) 2-Butanone	5.51	43	4106	6.74		# 50
40) 2-Hexanone	9.50	43	4009	5.46		# 23
54) 1,2,3-Trichloropropene	11.73	75	4313	20.34 <i>no</i>		# 44
63) 1,3-Dichlorobenzene	12.69	146	17763	4.91		# 98
65) 1,4-Dichlorobenzene	12.69	146	17763	4.91		# 98
66) N-Butylbenzene	13.13	91	37007	4.58		# 97
67) 1,2-Dichlorobenzene	13.15	146	16933	6.08		# 98
69) 1,2,4-Trichlorobenzene	14.66	180	19182	12.88		# 97
70) Hexachlorobutadiene	14.81	225	14379	11.23		# 89

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52402.D
Acq Time : 24 May 95 8:04 am
Sample : BLANK
Misc :
Quant Time: May 24 8:22 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Tue May 23 14:00:19 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52403.D
 Acq Time : 24 May 95 8:31 am
 Sample : 100UL MEOH
 Misc :
 Quant Time: May 24 8:48 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Tue May 23 14:00:19 1995
 Response via : Multiple Level Calibration

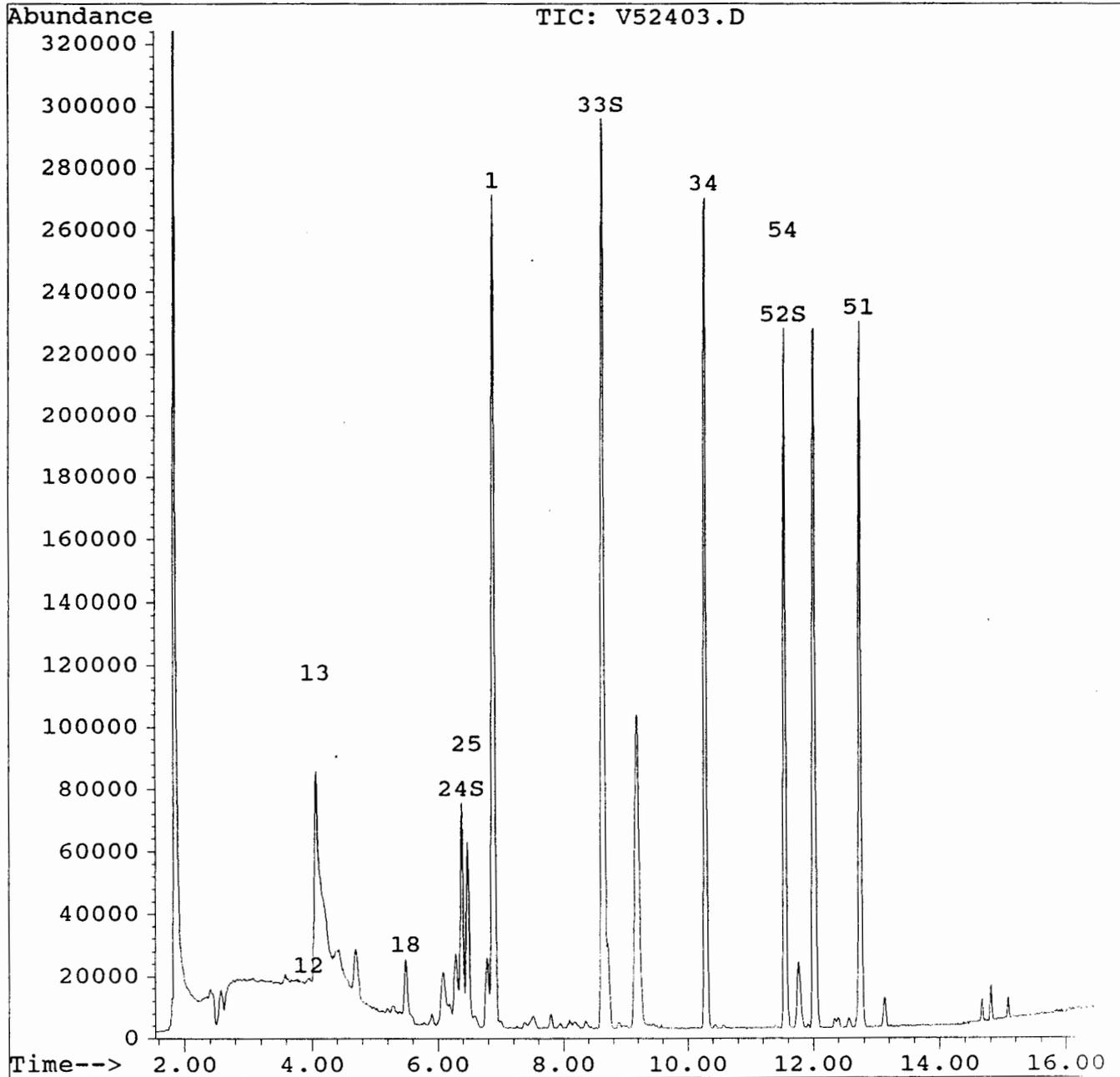
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.89	114	371053	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.29	117	228497	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.75	152	87689	50.00	ug/l	-0.03
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	79074	40.35		80.69%
33) Toluene-d8	8.63	98	351180	50.51		101.02%
52) BFB	11.55	95	144495	20.35	ug/l	40.69%
Target Compounds						Qvalue
12) Acetone	3.95	43	10477	42.30		# 48
13) Methylene Chloride	4.07	84	123392	36.35		# 55
18) 2-Butanone	5.49	43	49514	82.12		# 82
25) Benzene	6.47	78	87918	7.65		93
54) 1,2,3-Trichloropropene	11.55	75	66860	311.94		# 44

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52403.D
Acq Time : 24 May 95 8:31 am
Sample : 100UL MEOH
Misc :
Quant Time: May 24 8:48 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Tue May 23 14:00:19 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52401.D
 Acq Time : 24 May 95 7:38 am
 Sample : daily
 Misc :
 Quant Time: May 24 7:55 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Tue May 23 14:00:19 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.88	114	403136	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.29	117	233658	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.75	152	79453	50.00	ug/l	-0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	91254	42.86		85.71%
33) Toluene-d8	8.64	98	375356	49.69		99.38%
52) BFB	11.55	95	151014	23.47	ug/l	46.94%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	2.04	85	1516	27.50		# 51
3) Chloromethane	2.22	50	316706	92.64		100
4) Vinyl Chloride	2.33	62	255673	87.06		100
5) Bromomethane	2.65	94	136417	95.01		92
6) Chloroethane	2.76	64	95748	96.82		97
7) Trichlorofluoromethane	3.02	101	120962	404.87		97
8) 1,1-Dichloroethene	3.57	61	223624	85.31		88
10) Iodomethane	3.74	142	181870	72.48		# 84
11) Carbon Disulfide	3.83	76	481667	78.87		100
12) Acetone	3.96	43	26099	96.98		# 48
13) Methylene Chloride	4.07	84	235470	63.85		# 42
14) Trans-1,2-Dichloroethene	5.47	61	373260	64.99		# 82
15) 1,1-Dichloroethane	4.84	63	315263	73.64		99
16) 2,2-Dichloropropane	5.48	77	339572	53.88		100
17) Cis-1,2-Dichloroethene	5.47	61	373260	64.99		# 82
18) 2-Butanone	5.50	43	31057	47.41		91
19) Bromochloromethane	5.74	49	127314	46.24		94
20) Chloroform	5.83	83	349766	55.44		100
21) 1,1,1-Trichloroethane	6.06	97	340486	52.63		99
22) 1,1-Dichloropropene	6.24	75	338100	57.17		# 42
23) Carbon Tetrachloride	6.26	117	217011	65.54		99
25) Benzene	6.48	78	691836	55.41		94
26) 1,2-Dichloroethane	6.47	62	152835	44.45		98
27) Trichloroethene	7.21	130	209029	51.90		99
28) 1,2-Dichloropropane	7.43	63	199264	55.22		99
29) Dibromomethane	7.57	174	65726	42.88		95
30) Bromodichloromethane	7.76	83	244471	49.92		99
31) Cis-1,3-Dichloropropene	8.29	75	217307	49.96		98
32) 4-Methyl-2-Pentanone	8.48	43	61496	44.92		87
35) Toluene	8.72	91	651432	55.93		99
36) Trans-1,2-Dichloropropene	8.94	75	137731	49.21		# 72
37) 1,1,2-Trichloroethane	9.16	97	85795	50.71		# 77
38) Tetrachloroethene	9.37	166	204427	54.64		# 95
39) 1,3-Dichloropropane	9.35	76	136472	52.83		# 45

(#) = qualifier out of range (m) = manual integration
 V52401.D VOAML523.M Wed May 24 09:13:16 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52401.D
 Acq Time : 24 May 95 7:38 am
 Sample : daily
 Misc :
 Quant Time: May 24 7:55 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Tue May 23 14:00:19 1995
 Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40) 2-Hexanone	9.46	43	30244	40.68		85
41) Dibromochloromethane	9.63	129	118869	48.34		99
42) 1,2-Dibromoethane	9.76	107	84106	47.82		98
43) Chlorobenzene	10.31	112	348783	52.56		94
44) 1,1,1,2-Tetrachloroethane	10.39	133	116207	47.72		96
45) Ethylbenzene	10.44	91	723890	54.87		99
46) M+P-Xylene	10.57	91	1066050	53.17		96
47) Styrene	11.01	104	333484	51.31	#	83
48) O-Xylene	11.00	91	494217	41.25		96
49) Bromoform	11.20	173	50679	41.53		100
50) Iso-propylbenzene	11.39	105	665635	53.10		98
53) Bromobenzene	11.71	77	265506	59.40		99
54) 1,2,3-Trichloropropene	11.92	75	12128	62.45	#	44
55) 1,1,2,2-Tetrachloroethane	11.67	83	53109	56.04		100
56) N-propylbenzene	11.83	91	757781	65.71		100
57) 2-Chlorotoluene	11.92	91	443548	69.34		98
58) 4-Chlorotoluene	11.92	91	443548	64.20		98
59) 1,3,5-Trimethylbenzene	12.00	105	453627	60.70		94
60) Tert-Butylbenzene	12.70	119	471584	62.22		96
61) 1,2,4-Trimethylbenzene	12.39	105	424189	55.60		94
62) Sec-Butylbenzene	12.56	105	635214	64.93		99
63) 1,3-Dichlorobenzene	12.68	146	186766	56.34		99
64) P-Isopropyltoluene	12.70	119	471584	62.22		94
65) 1,4-Dichlorobenzene	12.68	146	186766	56.34		98
66) N-Butylbenzene	13.11	91	444472	60.08		100
67) 1,2-Dichlorobenzene	13.14	146	131968	51.71		99
68) 1,2-Dibromo-3-Chloropropan	13.88	157	5310	34.18		81
69) 1,2,4-Trichlorobenzene	14.66	180	45131	33.07		98
70) Hexachlorobutadiene	14.81	225	56927	48.53	#	90

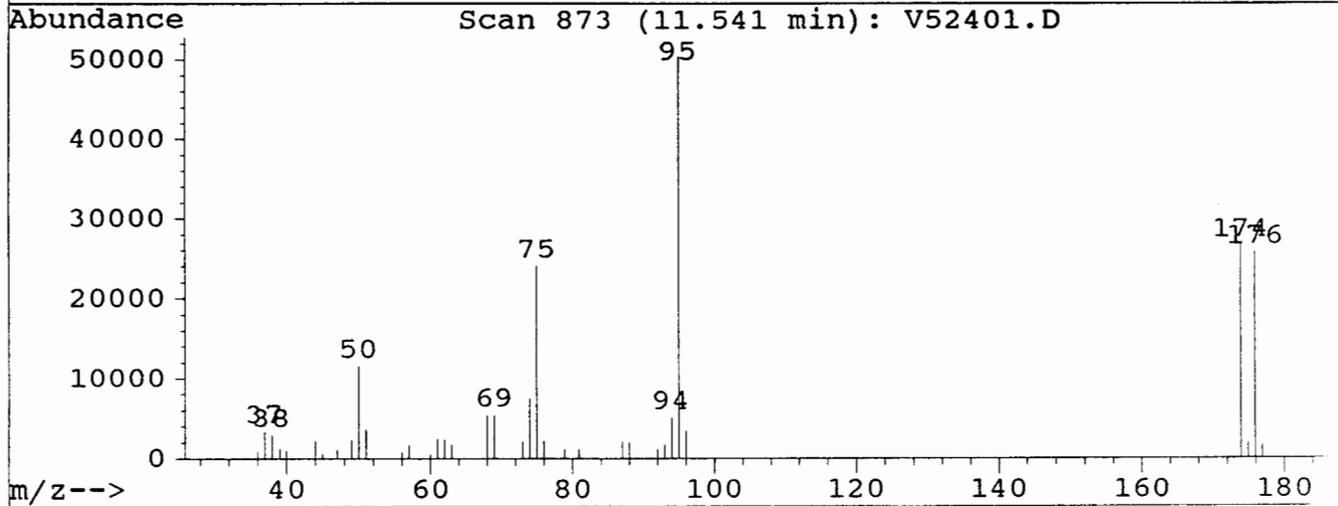
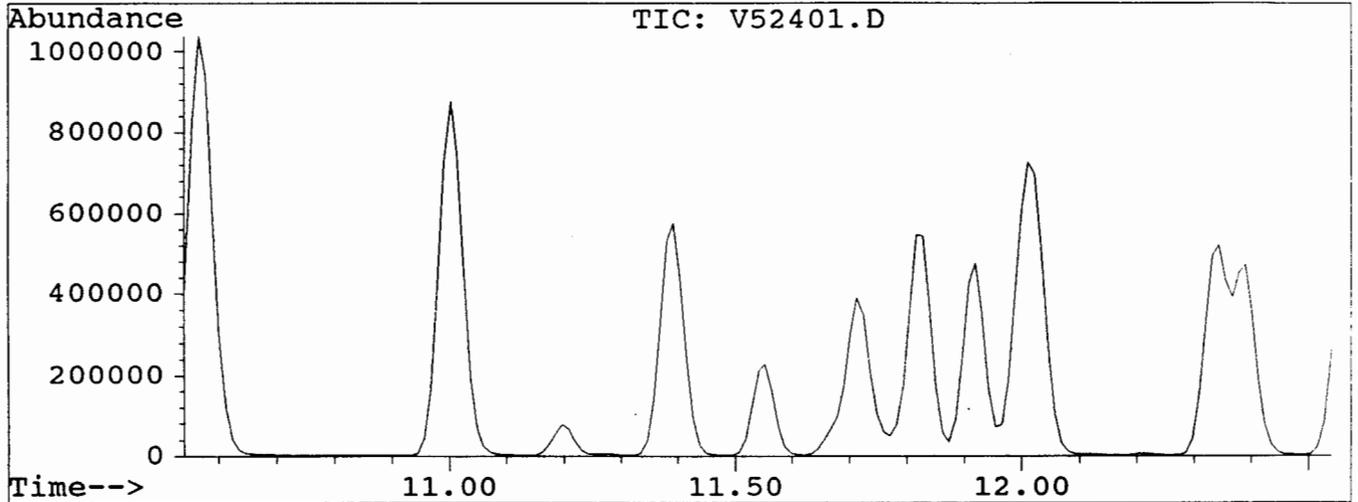
(#) = qualifier out of range (m) = manual integration

BFB

Data File : C:\HPCHEM\1\DATA\V52401.D
Acq Time : 24 May 95 7:38 am
Sample : daily
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BTXGAS.M
Title : VOA



Peak Apex is scan: 873

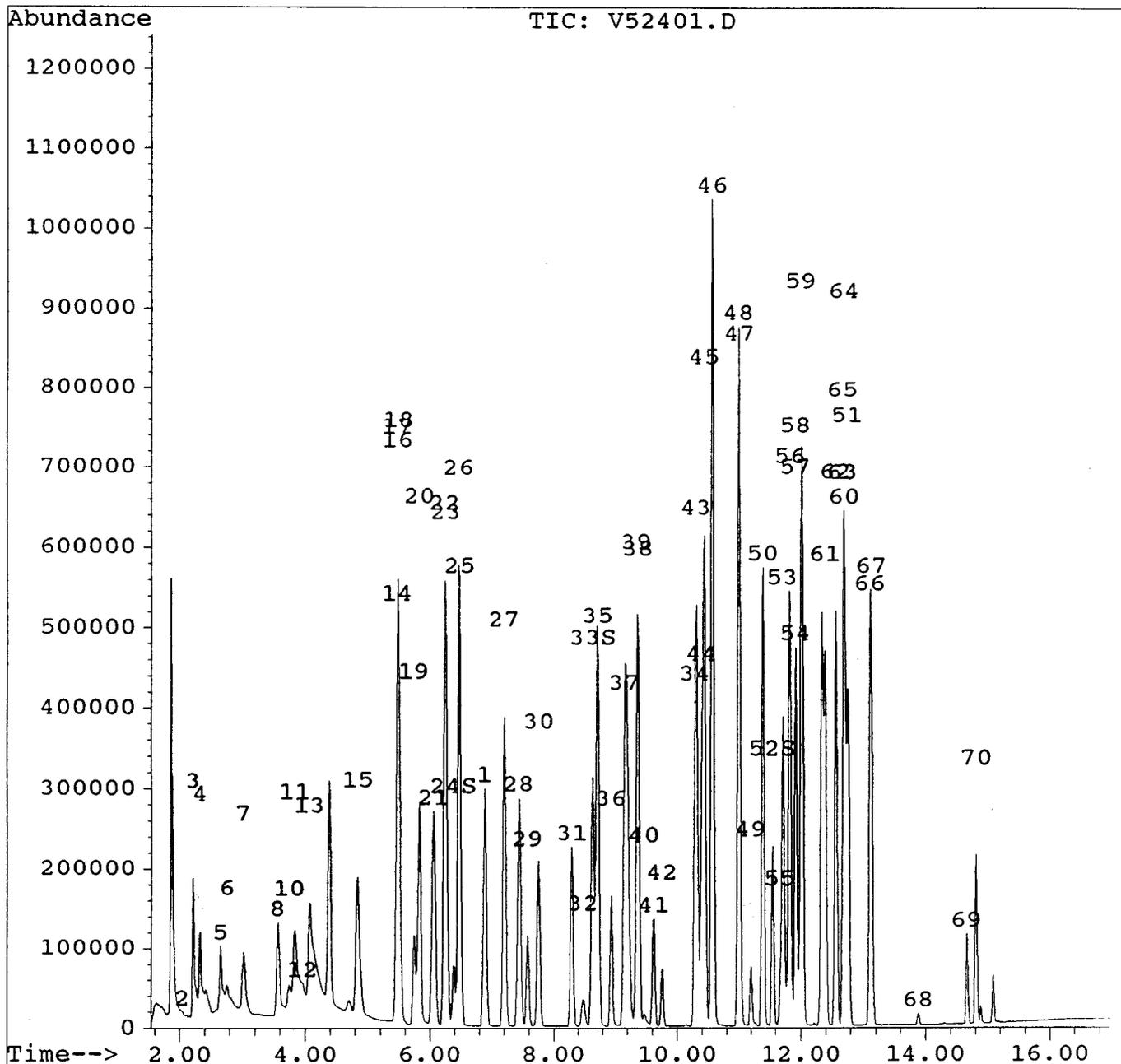
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.1	11650	PASS
75	95	30	60	47.8	24096	PASS
95	95	100	100	100.0	50424	PASS
96	95	5	9	6.9	3482	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	52.8	26608	PASS
175	174	5	9	7.6	2015	PASS
176	174	95	101	96.8	25752	PASS
177	176	5	9	6.3	1634	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52401.D
Acq Time : 24 May 95 7:38 am
Sample : daily
Misc :
Quant Time: May 24 7:55 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Tue May 23 14:00:19 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52502.D
 Acq Time : 25 May 95 7:59 am
 Sample : BLANK
 Misc :
 Quant Time: May 25 8:15 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.88	114	281543	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.29	117	178772	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.74	152	71011	50.00	ug/l	-0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	57944	38.96		77.93
33) Toluene-d8	8.63	98	269784	51.14		102.28
52) BFB	11.55	95	105959	45.18	ug/l	90.37

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
13) Methylene Chloride	4.05	84	70803	27.49		# 41
18) 2-Butanone	5.50	43	3281	7.17		# 50
32) 4-Methyl-2-Pentanone	8.50	43	1172	1.23		# 34
36) Trans-1,2-Dichloropropene	9.19	75	3887	1.82		# 39
40) 2-Hexanone	9.50	43	1814	3.19		# 23
43) Chlorobenzene	10.31	112	2827	0.56		# 35
46) M+P-Xylene	10.57	91	8546	0.56		94
47) Styrene	11.01	104	4292	0.86		91
48) O-Xylene	11.00	91	5591	0.61		86
50) Iso-propylbenzene	11.39	105	9251	0.96		# 81
53) Bromobenzene	11.72	77	8291	2.08		91
54) 1,2,3-Trichloropropene	11.74	75	3991	22.99		# 44
55) 1,1,2,2-Tetrachloroethane	11.68	83	1315	1.55		# 18
56) N-propylbenzene	11.83	91	18669	1.81		95
57) 2-Chlorotoluene	12.03	91	16108	2.82		91
58) 4-Chlorotoluene	11.92	91	12865	2.08		92
59) 1,3,5-Trimethylbenzene	12.01	105	14009	2.10		88
60) Tert-Butylbenzene	12.71	119	20864	3.08		96
61) 1,2,4-Trimethylbenzene	12.40	105	19318	2.83		94
62) Sec-Butylbenzene	12.57	105	22364	2.56		96
63) 1,3-Dichlorobenzene	12.69	146	12929	4.36		93
64) P-Isopropyltoluene	12.71	119	20864	3.08		93
65) 1,4-Dichlorobenzene	12.69	146	12929	4.36		94
66) N-Butylbenzene	13.12	91	26444	4.00		97
67) 1,2-Dichlorobenzene	13.15	146	12618	5.53		98
69) 1,2,4-Trichlorobenzene	14.67	180	14317	11.74		99
70) Hexachlorobutadiene	14.81	225	10700	10.21		# 91

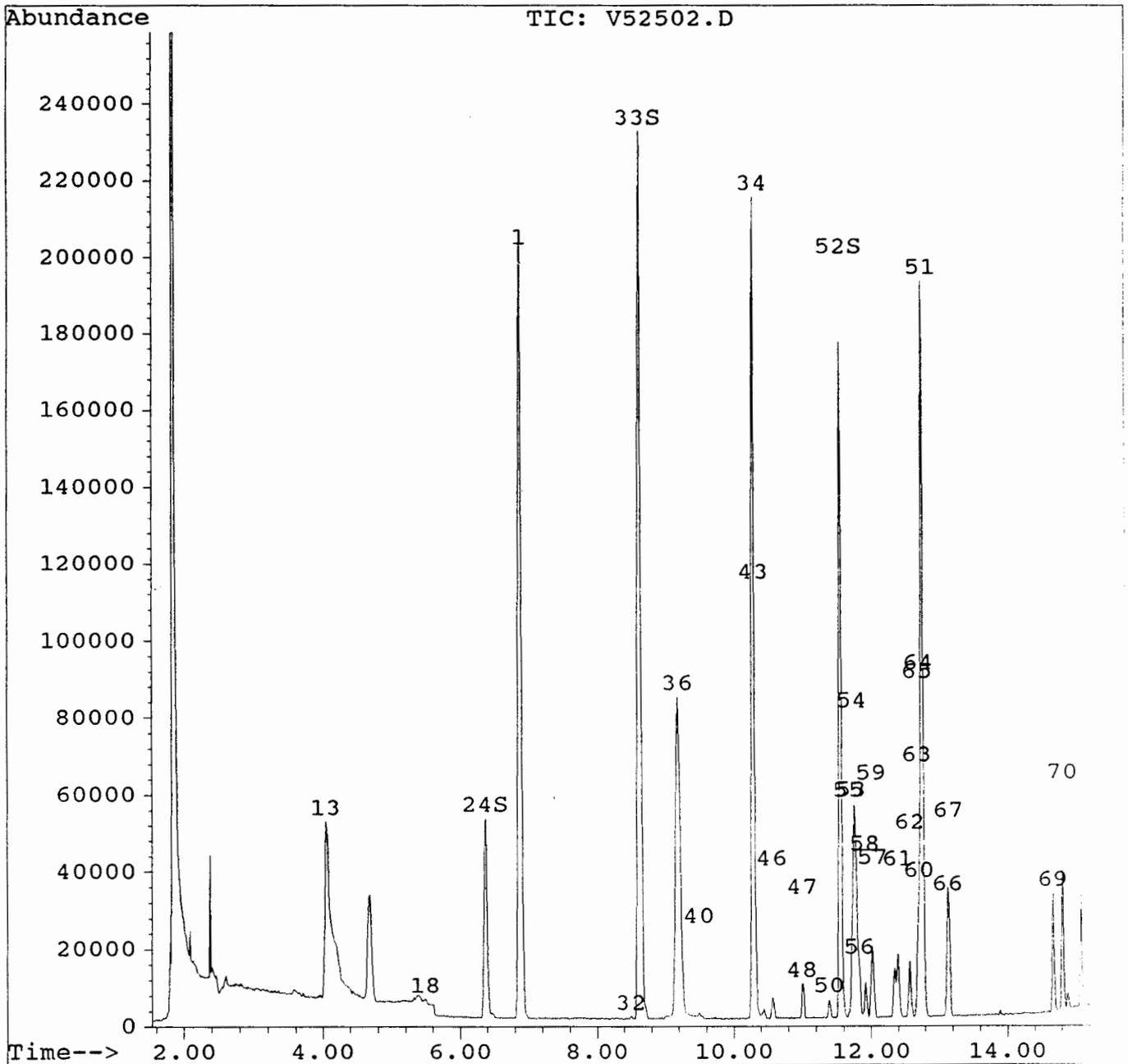
(#) = qualifier out of range (m) = manual integration
 V52502.D VOAML523.M Fri Jun 16 11:21:25 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52502.D
Acq Time : 25 May 95 7:59 am
Sample : BLANK
Misc :
Quant Time: May 25 8:15 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration

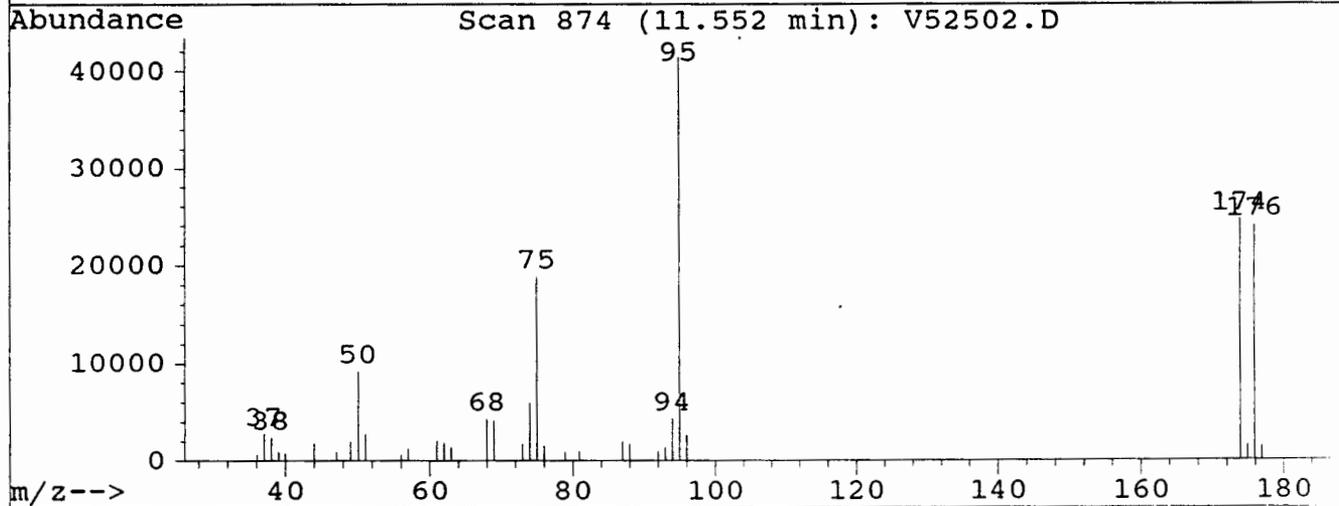
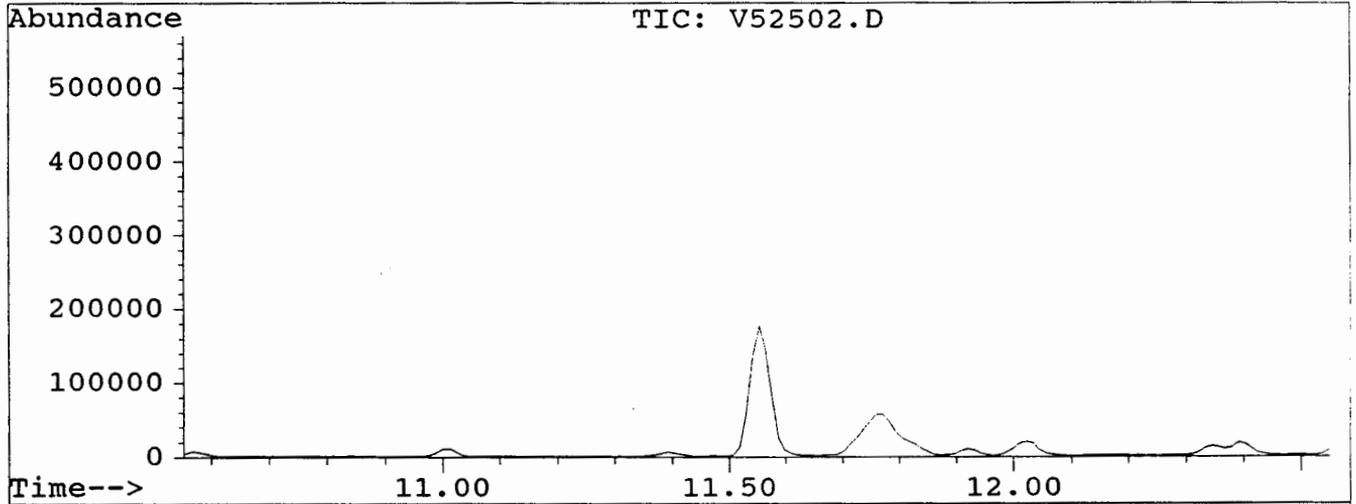


BFB

Data File : C:\HPCHEM\1\DATA\V52502.D
Acq Time : 25 May 95 7:59 am
Sample : BLANK
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA



Peak Apex is scan: 874

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.3	9219	PASS
75	95	30	60	45.6	18896	PASS
95	95	100	100	100.0	41432	PASS
96	95	5	9	6.5	2679	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	59.6	24704	PASS
175	174	5	9	6.7	1662	PASS
176	174	95	101	97.6	24112	PASS
177	176	5	9	6.4	1549	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52503.D
 Acq Time : 25 May 95 8:46 am
 Sample : 100UL MEOH
 Misc :
 Quant Time: May 25 9:02 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

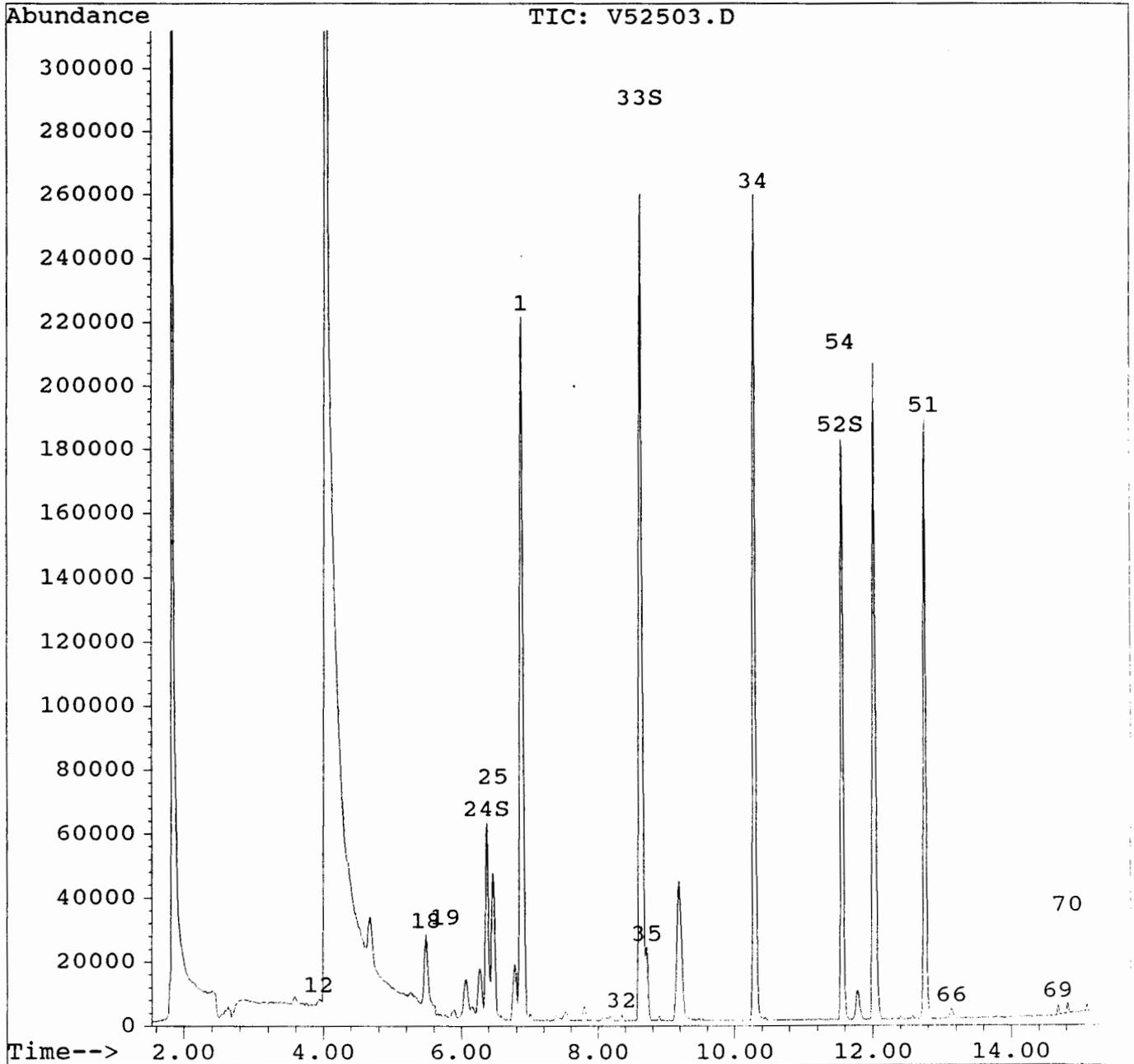
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.88	114	303177	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.29	117	212308	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.76	152	76138	50.00	ug/l	-0.02
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	66104	41.28		82.56%
33) Toluene-d8	8.64	98	299015	52.64		105.27%
52) BFB	11.55	95	112284	44.66	ug/l	89.31%
Target Compounds						Qvalue
12) Acetone	3.94	43	8993	44.43	#	48
13) Methylene Chloride	4.05	84	715980	258.15	#	49
18) 2-Butanone	5.49	43	58834	119.42	#	82
19) Bromochloromethane	5.77	49	9090	4.39	#	27
25) Benzene	6.47	78	68257	7.27		92
32) 4-Methyl-2-Pentanone	8.35	43	2509	2.44	#	34
35) Toluene	8.72	91	30050	2.84		99
54) 1,2,3-Trichloropropene	11.55	75	51965	279.23	#	44
66) N-Butylbenzene	13.14	91	5082	0.72	#	76
69) 1,2,4-Trichlorobenzene	14.68	180	2575	1.97	#	84
70) Hexachlorobutadiene	14.82	225	1938	1.72	#	34

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52503.D
Acq Time : 25 May 95 8:46 am
Sample : 100UL MEOH
Misc :
Quant Time: May 25 9:02 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52501.D
 Acq Time : 25 May 95 7:34 am
 Sample : daily
 Misc :
 Quant Time: May 25 7:52 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.86	114	287632	50.00	ug/l	-0.04
34) Chlorobenzene-d5	10.25	117	177135	50.00	ug/l	-0.07
51) 1,4-Dichlorobenzene-d4	12.69	152	68029	50.00	ug/l	-0.09

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.36	65	60875	40.07		80.14
33) Toluene-d8	8.61	98	268709	49.86		99.72
52) BFB	11.51	95	110447	49.16	ug/l	98.32

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	2.02	85	1683	42.79		# 51
3) Chloromethane	2.18	50	266196	109.14		100
4) Vinyl Chloride	2.30	62	213522	101.91		100
5) Bromomethane	2.62	94	108190	105.61		97
6) Chloroethane	2.72	64	94815	134.38		91
7) Trichlorofluoromethane	2.99	101	94181	441.81		98
8) 1,1-Dichloroethene	3.54	61	199014	106.41		# 88
10) Iodomethane	3.72	142	138952	77.61		88
11) Carbon Disulfide	3.80	76	397563	91.24		100
12) Acetone	3.93	43	26252	136.72		# 48
13) Methylene Chloride	4.05	84	184299	70.04		# 39
14) Trans-1,2-Dichloroethene	5.45	61	263574	64.32		85
15) 1,1-Dichloroethane	4.81	63	248837	81.46		99
16) 2,2-Dichloropropane	5.46	77	230074	51.17		100
17) Cis-1,2-Dichloroethene	5.45	61	263574	64.32		85
18) 2-Butanone	5.48	43	27108	58.00		# 87
19) Bromochloromethane	5.72	49	150387	76.56		# 69
20) Chloroform	5.81	83	249311	55.39		100
21) 1,1,1-Trichloroethane	6.04	97	228426	49.49		99
22) 1,1-Dichloropropene	6.22	75	250003	59.25		# 45
23) Carbon Tetrachloride	6.23	117	112442	47.60		99
25) Benzene	6.45	78	533184	59.85		93
26) 1,2-Dichloroethane	6.45	62	107914	43.99		97
27) Trichloroethene	7.17	130	161053	56.05		98
28) 1,2-Dichloropropane	7.41	63	152302	59.15		99
29) Dibromomethane	7.55	174	50721	46.38		95
30) Bromodichloromethane	7.72	83	170650	48.84		99
31) Cis-1,3-Dichloropropene	8.26	75	159226	51.31		98
32) 4-Methyl-2-Pentanone	8.45	43	47227	48.35		# 86
35) Toluene	8.69	91	503227	57.00		100
36) Trans-1,2-Dichloropropene	8.91	75	103300	48.69		# 71
37) 1,1,2-Trichloroethane	9.12	97	69914	54.51		# 81
38) Tetrachloroethene	9.34	166	167658	59.11		95
39) 1,3-Dichloropropane	9.32	76	110951	56.66		# 44

(#) = qualifier out of range (m) = manual integration
 V52501.D VOAML523.M Fri Jun 16 11:19:38 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52501.D
 Acq Time : 25 May 95 7:34 am
 Sample : daily
 Misc :
 Quant Time: May 25 7:52 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40) 2-Hexanone	9.41	43	26358	46.76	#	82
41) Dibromochloromethane	9.58	129	87912	47.15		99
42) 1,2-Dibromoethane	9.72	107	66634	49.98		99
43) Chlorobenzene	10.28	112	278098	55.28		96
44) 1,1,1,2-Tetrachloroethane	10.36	133	88373	47.87		97
45) Ethylbenzene	10.40	91	570666	57.06		99
46) M+P-Xylene	10.52	91	850530	55.96		96
47) Styrene	10.97	104	272056	55.22	#	86
48) O-Xylene	10.96	91	397308	43.74		96
49) Bromoform	11.15	173	40585	43.88		98
50) Iso-propylbenzene	11.35	105	536700	56.47		98
53) Bromobenzene	11.67	77	218416	57.07		100
54) 1,2,3-Trichloropropene	11.98	75	14845	89.28	#	44
55) 1,1,2,2-Tetrachloroethane	11.62	83	40198	49.54		97
56) N-propylbenzene	11.77	91	634059	64.21		100
57) 2-Chlorotoluene	11.98	91	393751	71.89		93
58) 4-Chlorotoluene	11.98	91	393751	66.56		97
59) 1,3,5-Trimethylbenzene	11.96	105	373001	58.29		94
60) Tert-Butylbenzene	12.66	119	395031	60.87		97
61) 1,2,4-Trimethylbenzene	12.34	105	349286	53.47		92
62) Sec-Butylbenzene	12.51	105	539798	64.45		100
63) 1,3-Dichlorobenzene	12.71	146	154597	54.46		98
64) P-Isopropyltoluene	12.66	119	395031	60.87		93
65) 1,4-Dichlorobenzene	12.71	146	154597	54.46		99
66) N-Butylbenzene	13.06	91	387471	61.17		100
67) 1,2-Dichlorobenzene	13.09	146	117253	53.66		99
68) 1,2-Dibromo-3-Chloropropan	13.83	157	4922	37.00	#	80
69) 1,2,4-Trichlorobenzene	14.61	180	40719	34.85		99
70) Hexachlorobutadiene	14.76	225	49756	49.53	#	90

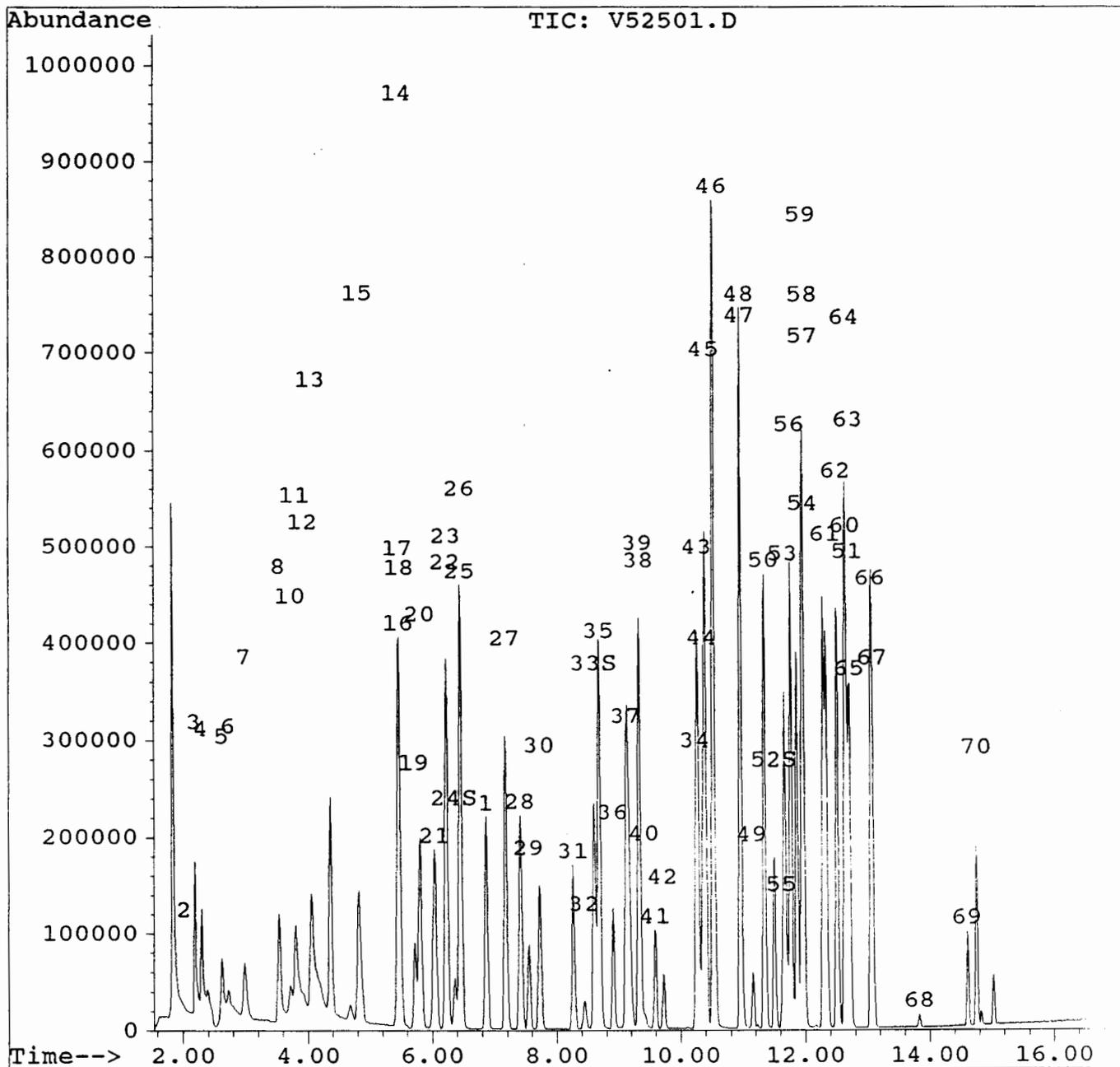
(#) = qualifier out of range (m) = manual integration
 V52501.D VOAML523.M Fri Jun 16 11:19:44 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52501.D
Acq Time : 25 May 95 7:34 am
Sample : daily
Misc :
Quant Time: May 25 7:52 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52604.D
 Acq Time : 26 May 95 9:31 am
 Sample : BLANK
 Misc :
 Quant Time: May 26 9:47 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

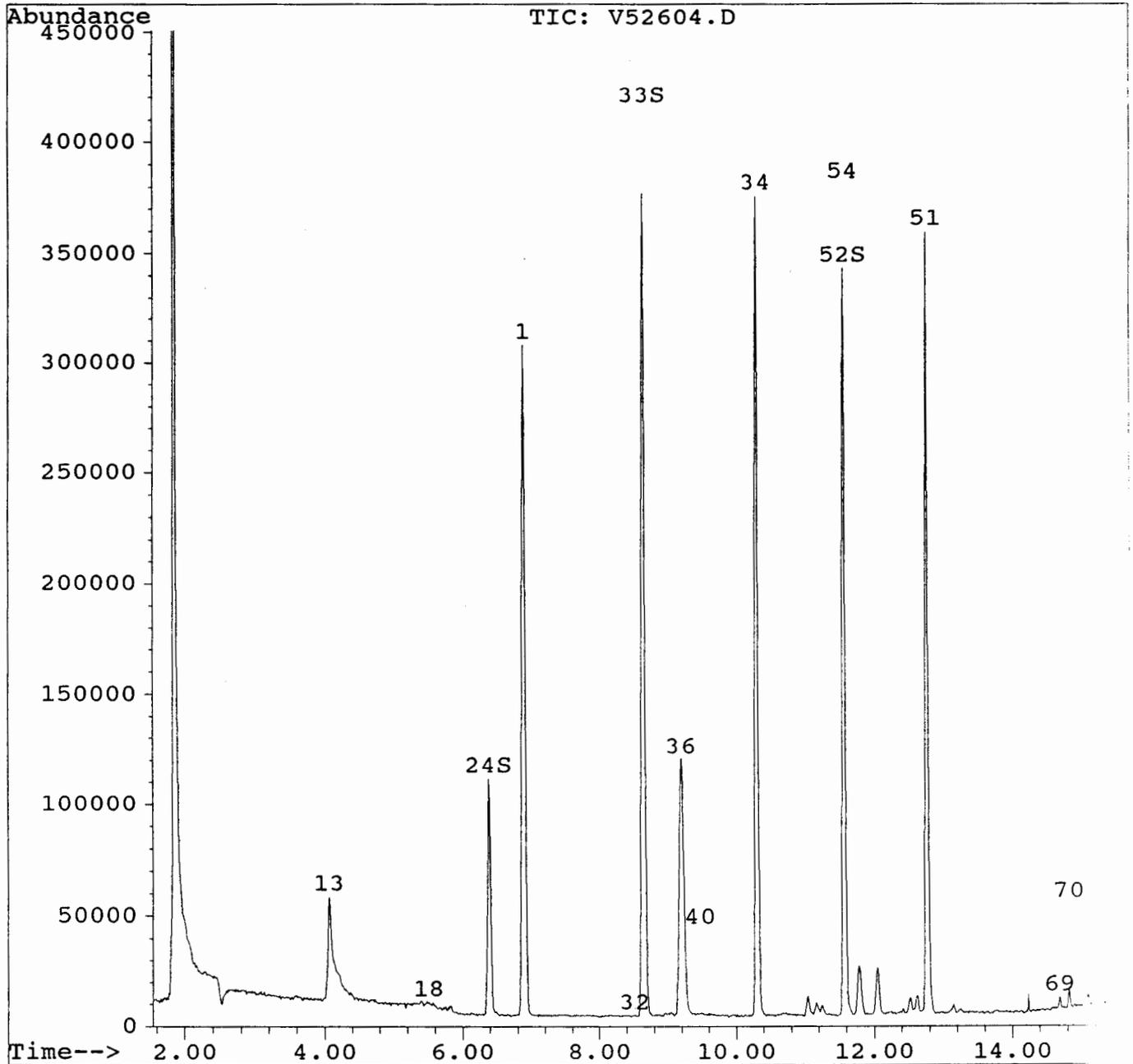
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.89	114	391722	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.31	117	301858	50.00	ug/l	0.00
51) 1,4-Dichlorobenzene-d4	12.76	152	134925	50.00	ug/l	-0.02
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	110489	53.40		106.80%
33) Toluene-d8	8.64	98	411777	56.10		112.20%
52) BFB	11.57	95	195070	43.78	ug/l	87.56%
Target Compounds						Qvalue
13) Methylene Chloride	4.07	84	69017	19.26		# 47
18) 2-Butanone	5.51	43	3371	5.30		# 50
32) 4-Methyl-2-Pentanone	8.52	43	1980	1.49		# 34
36) Trans-1,2-Dichloropropene	9.19	75	5593	1.55		# 1
40) 2-Hexanone	9.48	43	9930	10.34		# 23
54) 1,2,3-Trichloropropene	11.57	75	91915	278.70		# 44
69) 1,2,4-Trichlorobenzene	14.69	180	3293	1.42		# 80
70) Hexachlorobutadiene	14.83	225	3483	1.75		# 59

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52604.D
Acq Time : 26 May 95 9:31 am
Sample : BLANK
Misc :
Quant Time: May 26 9:47 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration

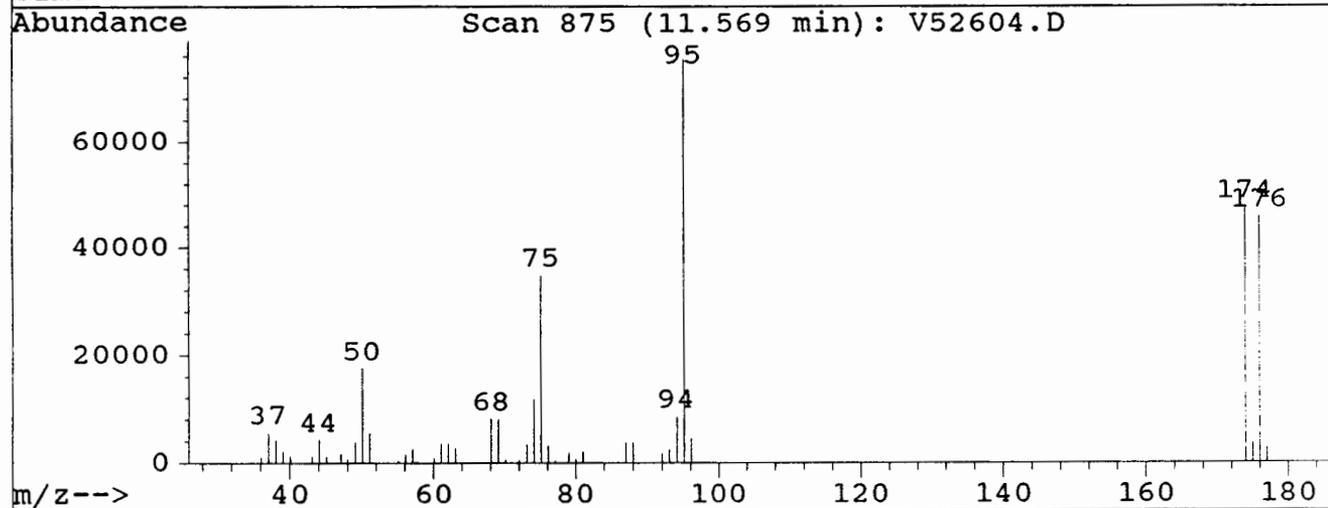
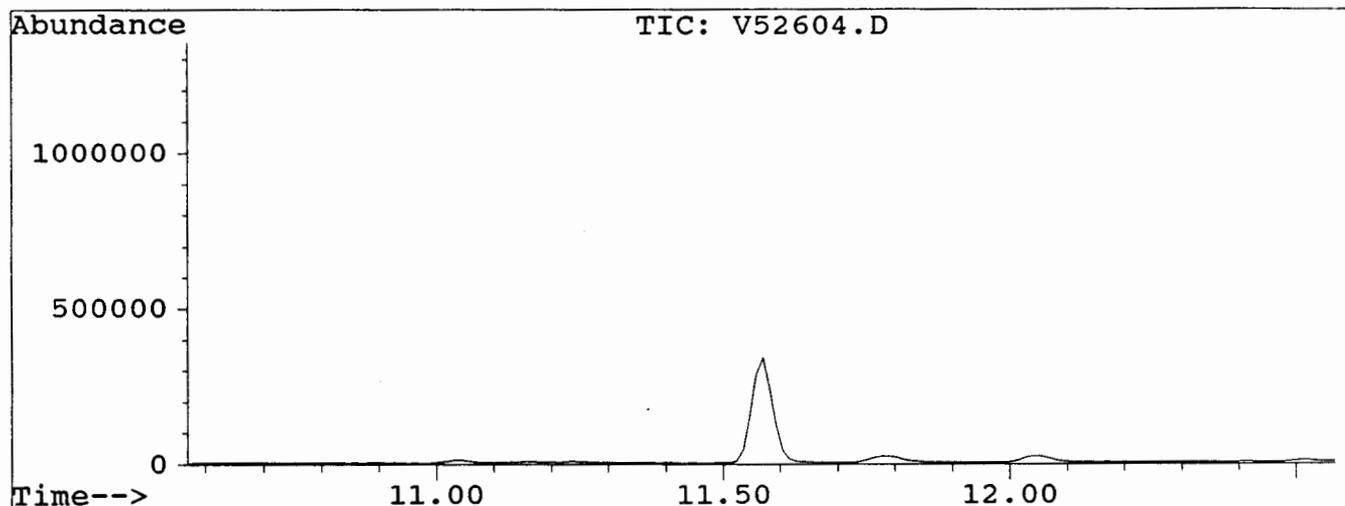


BFB

Data File : C:\HPCHEM\1\DATA\V52604.D
Acq Time : 26 May 95 9:31 am
Sample : BLANK
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA



Peak Apex is scan: 875

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.4	17632	PASS
75	95	30	60	46.3	34840	PASS
95	95	100	100	100.0	75304	PASS
96	95	5	9	6.2	4637	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	63.1	47520	PASS
175	174	5	9	7.6	3608	PASS
176	174	95	101	96.3	45776	PASS
177	176	5	9	6.3	2876	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52603.D
 Acq Time : 26 May 95 9:06 am
 Sample : 100UL MEOH
 Misc :
 Quant Time: May 26 9:22 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.90	114	407866	50.00	ug/l	0.00
34) Chlorobenzene-d5	10.29	117	293763	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.75	152	120049	50.00	ug/l	-0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.39	65	78277	36.34		72.67%
33) Toluene-d8	8.64	98	423019	55.35		110.70%
52) BFB	11.55	95	172340	43.47	ug/l	86.94%

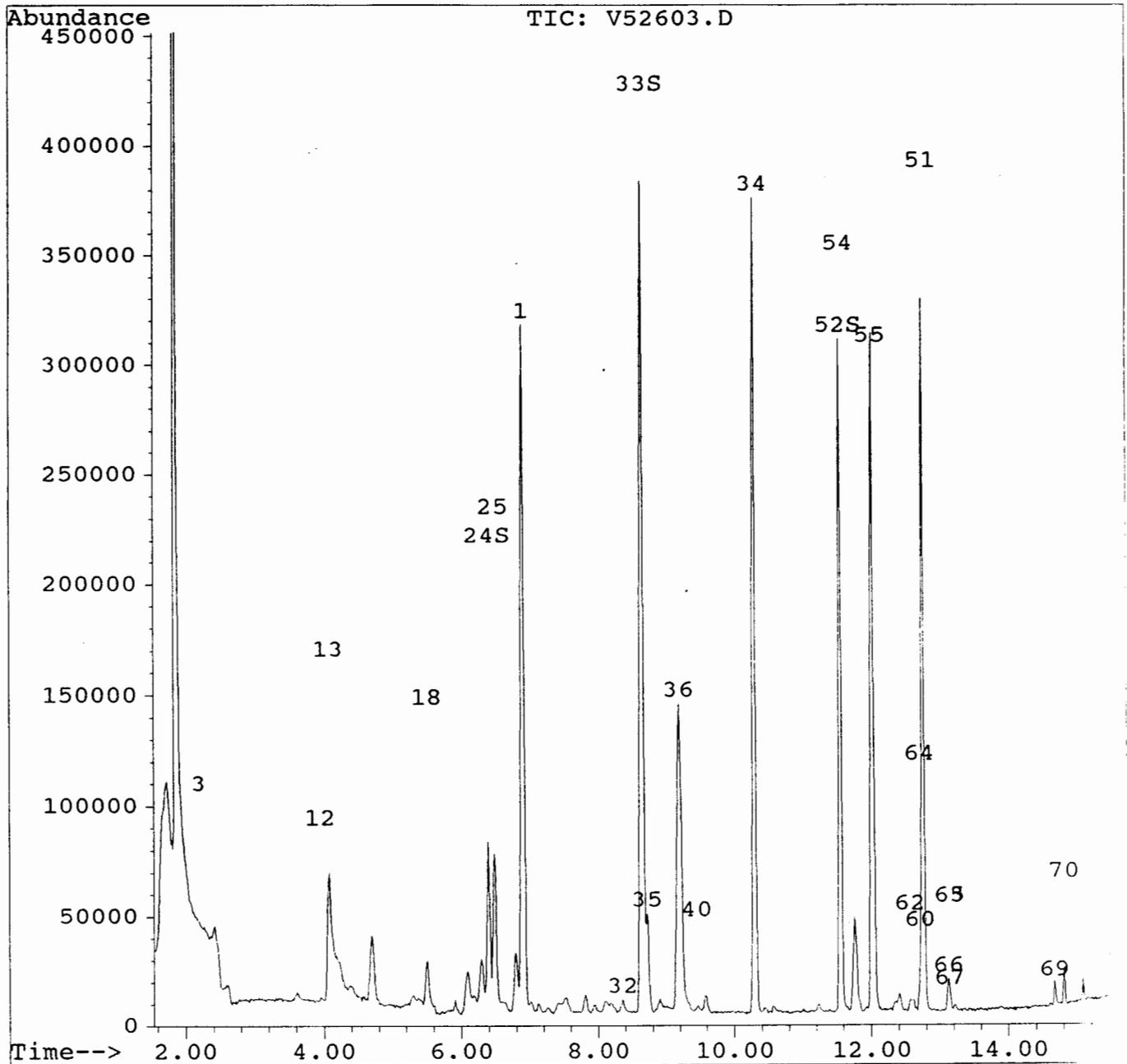
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
3) Chloromethane	2.20	50	1964	0.57		100
12) Acetone	3.95	43	5555	20.40		# 48
13) Methylene Chloride	4.08	84	86954	23.30		# 34
18) 2-Butanone	5.51	43	50483	46.17		# 80
25) Benzene	6.49	78	101595	8.04		94
32) 4-Methyl-2-Pentanone	8.37	43	4921	3.55		# 34
35) Toluene	8.72	91	52283	3.57		96
36) Trans-1,2-Dichloropropene	9.19	75	6545	1.86		# 39
40) 2-Hexanone	9.46	43	3878	4.15		# 83
54) 1,2,3-Trichloropropene	11.55	75	83487	284.52		# 44
55) 1,1,2,2-Tetrachloroethane	12.01	83	1760	1.23		# 1
60) Tert-Butylbenzene	12.71	119	14496	1.27		95
62) Sec-Butylbenzene	12.56	105	8721	0.59		# 60
63) 1,3-Dichlorobenzene	13.15	146	3605	0.72		94
64) P-Isopropyltoluene	12.71	119	14496	1.27		99
65) 1,4-Dichlorobenzene	13.15	146	3605	0.72		95
66) N-Butylbenzene	13.13	91	13643	1.22		98
67) 1,2-Dichlorobenzene	13.15	146	4094	1.06		# 91
69) 1,2,4-Trichlorobenzene	14.67	180	5925	2.87		96
70) Hexachlorobutadiene	14.81	225	5091	2.87		# 72

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52603.D
Acq Time : 26 May 95 9:06 am
Sample : 100UL MEOH
Misc :
Quant Time: May 26 9:22 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52601.D
 Acq Time : 26 May 95 8:15 am
 Sample : daily
 Misc :
 Quant Time: May 26 8:31 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.86	114	480966	50.00	ug/l	-0.04
34) Chlorobenzene-d5	10.28	117	279441	50.00	ug/l	-0.03
51) 1,4-Dichlorobenzene-d4	12.74	152	101135	50.00	ug/l	-0.04

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.36	65	95973	37.78		75.56%
33) Toluene-d8	8.62	98	443934	49.26		98.52%
52) BFB	11.54	95	174059	52.11	ug/l	104.23%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	2.05	85	2730	41.51		# 51
3) Chloromethane	2.21	50	344522	84.47		100
4) Vinyl Chloride	2.32	62	305146	87.09		100
5) Bromomethane	2.62	94	105289	61.46		94
6) Chloroethane	2.74	64	132095	111.96		# 84
7) Trichlorofluoromethane	3.00	101	169602	475.81		98
8) 1,1-Dichloroethene	3.56	61	242642	77.59		91
10) Iodomethane	3.74	142	180912	60.43		# 78
11) Carbon Disulfide	3.82	76	466852	64.07		100
12) Acetone	3.96	43	32998	102.77		# 48
13) Methylene Chloride	4.08	84	200384	45.54		# 45
14) Trans-1,2-Dichloroethene	5.46	61	435072	63.50		89
15) 1,1-Dichloroethane	4.83	63	316639	61.99		99
16) 2,2-Dichloropropane	5.48	77	399003	53.07		100
17) Cis-1,2-Dichloroethene	5.46	61	435072	63.50		89
18) 2-Butanone	5.48	43	40981	52.43		94
19) Bromochloromethane	5.73	49	137589	41.89		93
20) Chloroform	5.81	83	426676	56.69		100
21) 1,1,1-Trichloroethane	6.04	97	405786	52.58		100
22) 1,1-Dichloropropene	6.22	75	417932	59.23		# 86
23) Carbon Tetrachloride	6.24	117	234821	59.44		100
25) Benzene	6.45	78	886743	59.53		84
26) 1,2-Dichloroethane	6.45	62	166862	40.68		98
27) Trichloroethene	7.17	130	277659	57.78		97
28) 1,2-Dichloropropane	7.41	63	235512	54.70		99
29) Dibromomethane	7.55	174	83074	45.43		84
30) Bromodichloromethane	7.74	83	281317	48.15		100
31) Cis-1,3-Dichloropropene	8.27	75	255694	49.27		89
32) 4-Methyl-2-Pentanone	8.46	43	60740	37.19		88
35) Toluene	8.71	91	850368	61.05		100
36) Trans-1,2-Dichloropropene	8.92	75	154513	46.16		# 81
37) 1,1,2-Trichloroethane	9.15	97	102475	50.65		# 84
38) Tetrachloroethene	9.36	166	267234	59.72		84
39) 1,3-Dichloropropane	9.34	76	163263	52.85		# 82

(#) = qualifier out of range (m) = manual integration
 V52601.D VOAML523.M Fri Jun 16 14:35:35 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52601.D
 Acq Time : 26 May 95 8:15 am
 Sample : daily
 Misc :
 Quant Time: May 26 8:31 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40) 2-Hexanone	9.44	43	31053	34.92		87
41) Dibromochloromethane	9.62	129	143637	48.84		98
42) 1,2-Dibromoethane	9.75	107	100464	47.77		98
43) Chlorobenzene	10.32	112	448177	56.48		97
44) 1,1,1,2-Tetrachloroethane	10.40	133	145567	49.98		95
45) Ethylbenzene	10.43	91	932288	59.09		97
46) M+P-Xylene	10.57	91	1360977	56.76		95
47) Styrene	11.00	104	409915	52.74	#	85
48) O-Xylene	10.99	91	623623	43.52		95
49) Bromoform	11.19	173	57226	39.22		98
50) Iso-propylbenzene	11.38	105	827148	55.17		99
53) Bromobenzene	11.70	77	315431	55.44		96
54) 1,2,3-Trichloropropene	12.01	75	14903	60.29	#	44
55) 1,1,2,2-Tetrachloroethane	11.66	83	64548	53.51		98
56) N-propylbenzene	11.82	91	1002452	68.29		100
57) 2-Chlorotoluene	11.91	91	567772	69.73		100
58) 4-Chlorotoluene	11.91	91	567772	64.56		96
59) 1,3,5-Trimethylbenzene	11.99	105	560619	58.94		96
60) Tert-Butylbenzene	12.69	119	601623	62.36		96
61) 1,2,4-Trimethylbenzene	12.38	105	522354	53.79		90
62) Sec-Butylbenzene	12.55	105	817944	65.69		98
63) 1,3-Dichlorobenzene	12.67	146	250247	59.30		99
64) P-Isopropyltoluene	12.69	119	601623	62.36		93
65) 1,4-Dichlorobenzene	12.67	146	250247	59.30		99
66) N-Butylbenzene	13.09	91	599093	63.62		99
67) 1,2-Dichlorobenzene	13.13	146	178360	54.91		97
68) 1,2-Dibromo-3-Chloropropan	13.86	157	5809	29.37		90
69) 1,2,4-Trichlorobenzene	14.64	180	58160	33.48		98
70) Hexachlorobutadiene	14.79	225	70944	47.51	#	90

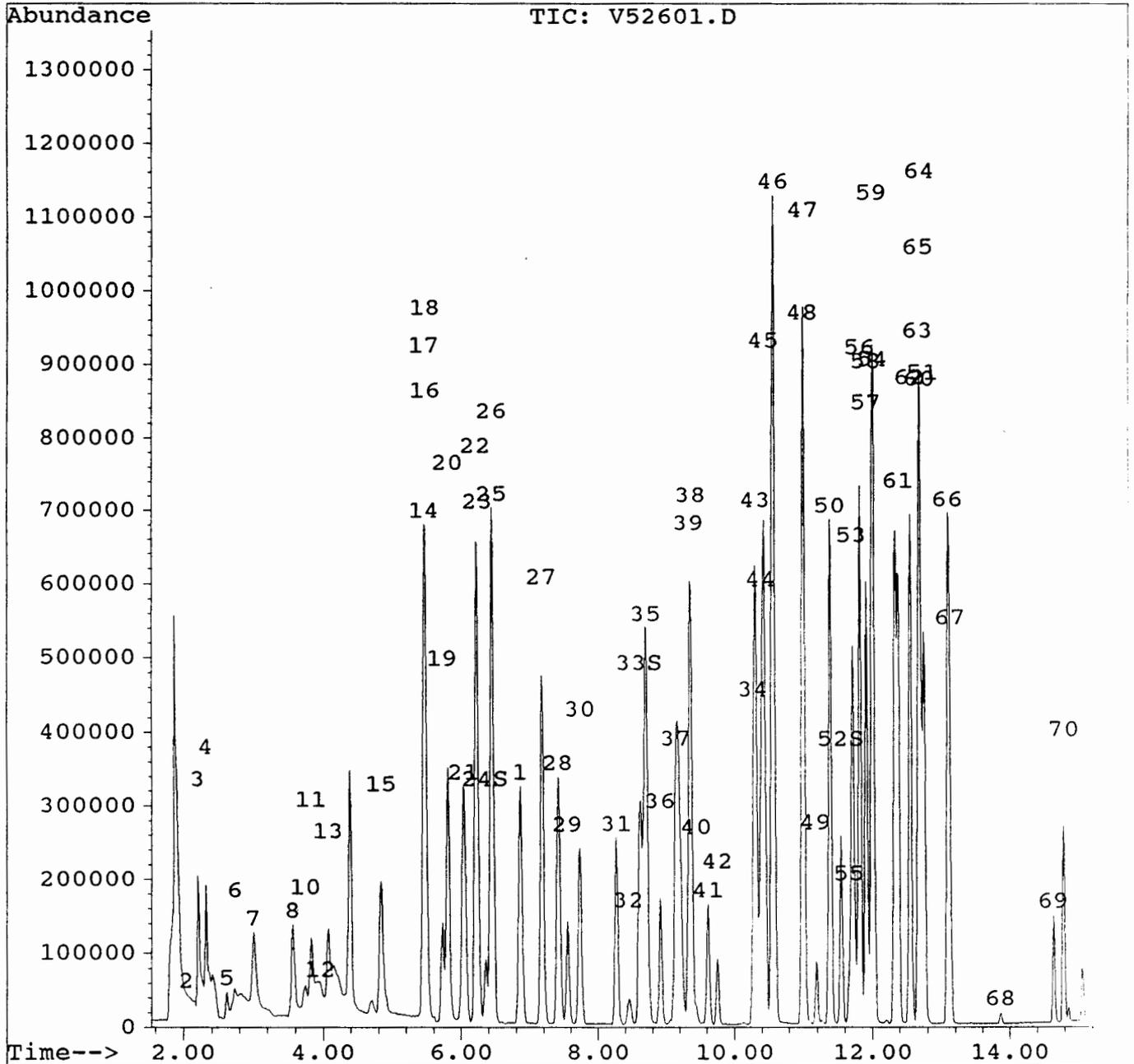
(#) = qualifier out of range (m) = manual integration
 V52601.D VOAML523.M Fri Jun 16 14:35:41 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V52601.D
Acq Time : 26 May 95 8:15 am
Sample : daily
Misc :
Quant Time: May 26 8:31 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53004.D
 Acq Time : 30 May 95 10:07 am
 Sample : BLANK
 Misc :
 Quant Time: May 30 11:31 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.93	114	1136725	50.00	ug/l	0.02
34) Chlorobenzene-d5	10.31	117	760486	50.00	ug/l	0.00
51) 1,4-Dichlorobenzene-d4	12.77	152	372049	50.00	ug/l	-0.01

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.43	65	445821	74.25		148.51%
33) Toluene-d8	8.67	98	1067302	50.11		100.22%
52) BFB	11.58	95	572967	46.63	ug/l	93.27%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
12) Acetone	3.65	43	31925	42.07	m	48
13) Methylene Chloride	4.10	84	587404	56.49	#	78
18) 2-Butanone	5.55	43	7599	4.11	m	50
25) Benzene	6.52	78	20706	0.59		95
32) 4-Methyl-2-Pentanone	8.54	43	5003	1.30	#	34
40) 2-Hexanone	9.52	43	5500	2.27	#	48
47) Styrene	11.04	104	14362	0.68	#	65
48) O-Xylene	11.03	91	21897	0.56		86
49) Bromoform	11.22	173	3023	0.76	#	29
50) Iso-propylbenzene	11.42	105	29213	0.72	#	88
53) Bromobenzene	11.74	77	27662	1.32		98
54) 1,2,3-Trichloropropene	11.58	75	330593	363.53	#	44
55) 1,1,2,2-Tetrachloroethane	11.69	83	4791	1.08		84
56) N-propylbenzene	11.84	91	55300	1.02		95
57) 2-Chlorotoluene	11.94	91	41866	1.40		90
58) 4-Chlorotoluene	11.94	91	41866	1.29		94
59) 1,3,5-Trimethylbenzene	12.41	105	74141	2.12		87
60) Tert-Butylbenzene	12.72	119	88549	2.50	#	86
61) 1,2,4-Trimethylbenzene	12.41	105	74141	2.08		91
62) Sec-Butylbenzene	12.59	105	81489	1.78		98
63) 1,3-Dichlorobenzene	12.70	146	47014	3.03		97
64) P-Isopropyltoluene	12.72	119	88549	2.50	#	73
65) 1,4-Dichlorobenzene	12.70	146	47014	3.03		97
66) N-Butylbenzene	13.14	91	109065	3.15		97
67) 1,2-Dichlorobenzene	13.16	146	49496	4.14		98
68) 1,2-Dibromo-3-Chloropropan	13.89	157	3939	5.41	#	49
69) 1,2,4-Trichlorobenzene	14.67	180	71509	11.19		93
70) Hexachlorobutadiene	14.81	225	57630	10.49	#	98

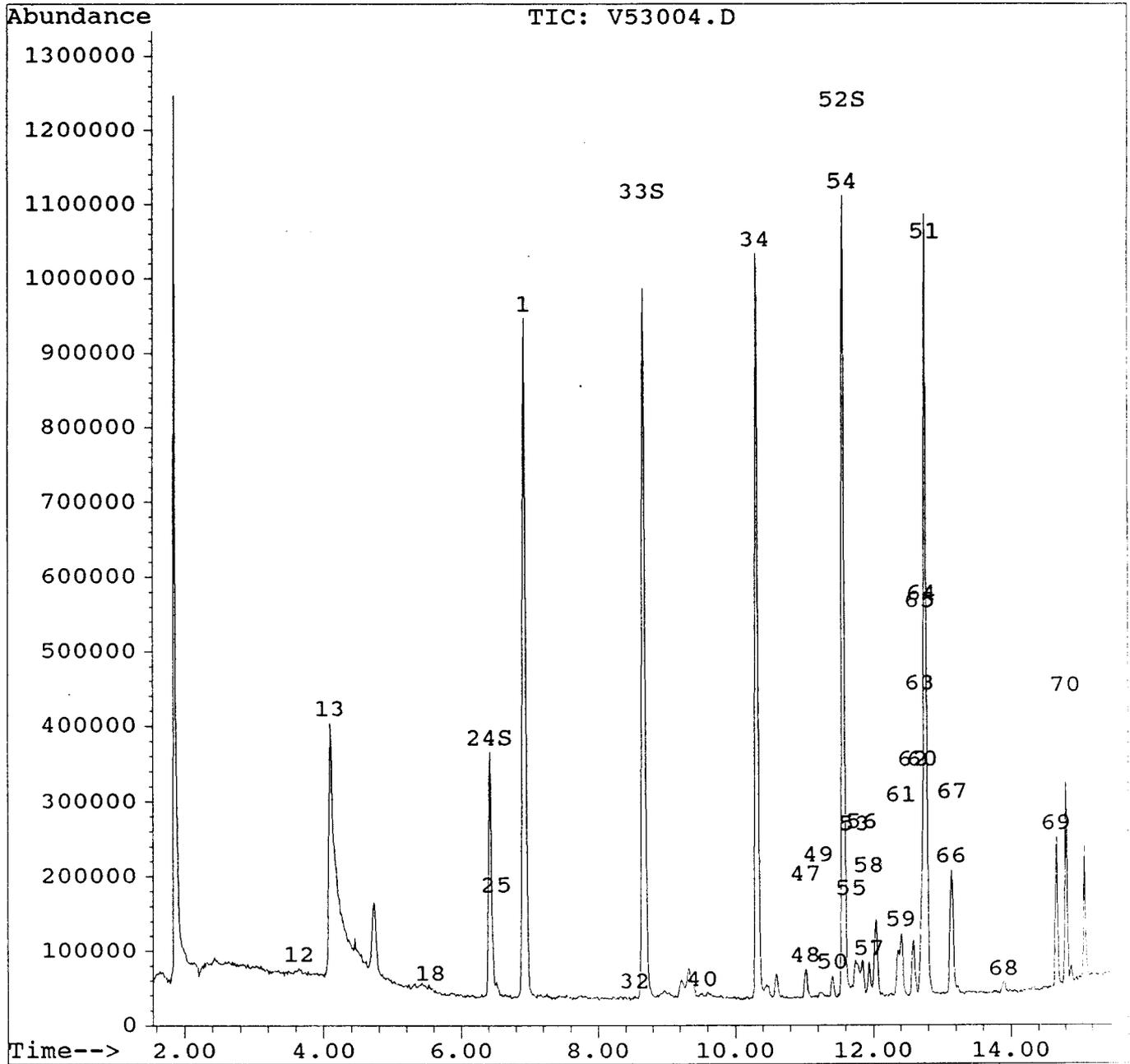
(#) = qualifier out of range (m) = manual integration
 V53004.D VOAML523.M Fri Jun 16 15:52:00 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53004.D
Acq Time : 30 May 95 10:07 am
Sample : BLANK
Misc :
Quant Time: May 30 11:31 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration

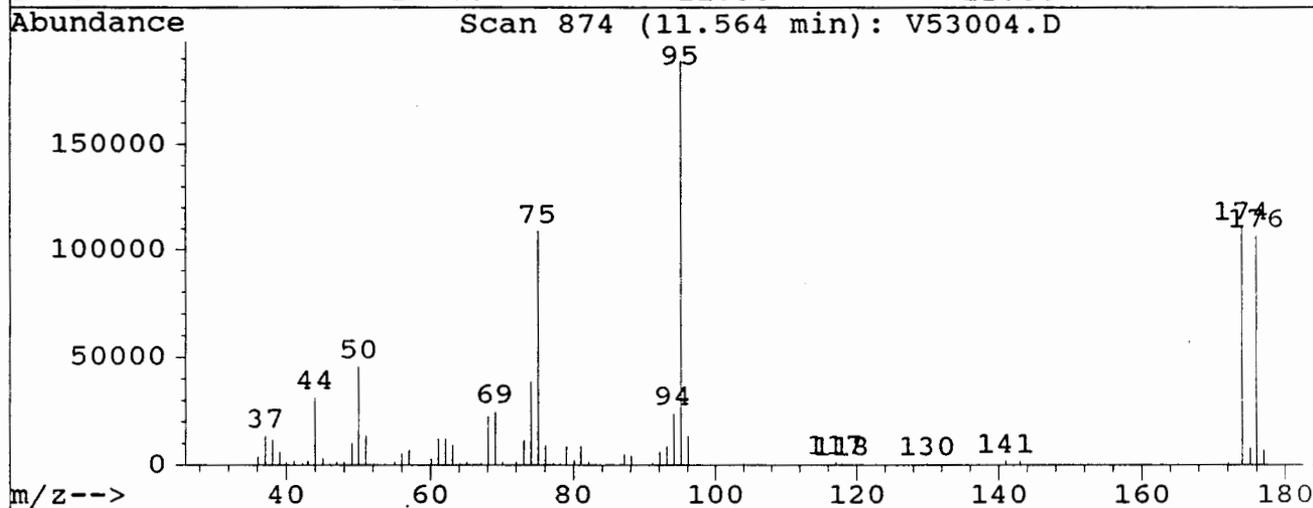
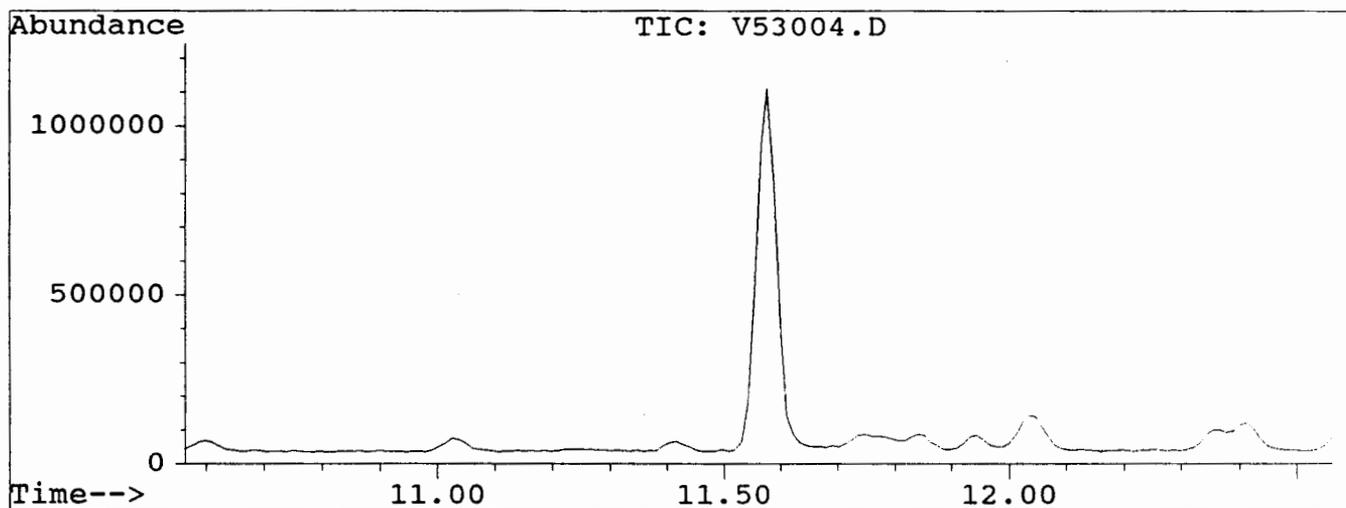


BFB

Data File : C:\HPCHEM\1\DATA\V53004.D
Acq Time : 30 May 95 10:07 am
Sample : BLANK
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA



Peak Apex is scan: 874

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result
50	95	15	40	24.2	45688	PASS
75	95	30	60	57.6	108832	PASS
95	95	100	100	100.0	188992	PASS
96	95	5	9	7.2	13649	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	58.3	110240	PASS
175	174	5	9	7.3	8048	PASS
176	174	95	101	96.8	106728	PASS
177	176	5	9	6.6	7015	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53003.D
 Acq Time : 30 May 95 9:42 am
 Sample : daily 50 b
 Misc :
 Quant Time: May 30 11:15 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.91	114	1163264	50.00	ug/l	0.00
34) Chlorobenzene-d5	10.30	117	715326	50.00	ug/l	-0.01
51) 1,4-Dichlorobenzene-d4	12.74	152	469823	50.00	ug/l	-0.04

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.41	65	358397	58.33		116.66%
33) Toluene-d8	8.65	98	1088109	49.92		99.84%
52) BFB	11.55	95	629863	40.60	ug/l	81.19%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	2.04	85	14876	93.52		# 74
3) Chloromethane	2.20	50	317899	32.23		100
4) Vinyl Chloride	2.31	62	363867	42.94		100
5) Bromomethane	2.63	94	334275	80.68		90
6) Chloroethane	2.73	64	136653	47.89		94
7) Trichlorofluoromethane	2.99	101	622965	722.60		98
8) 1,1-Dichloroethene	3.56	61	658021	87.00		86
10) Iodomethane	3.74	142	610455	84.31		# 53
11) Carbon Disulfide	3.82	76	1075834	61.05		100
12) Acetone	3.60	43	69378	89.34		m 48
13) Methylene Chloride	4.08	84	1390187	130.63		# 70
14) Trans-1,2-Dichloroethene	5.49	61	902922	54.49		87
15) 1,1-Dichloroethane	4.85	63	961109	77.80		99
16) 2,2-Dichloropropane	5.51	77	1343943	73.90		99
17) Cis-1,2-Dichloroethene	5.49	61	902922	54.49		87
18) 2-Butanone	5.52	43	52943	28.01		# 66
19) Bromochloromethane	5.76	49	214589	27.01		# 58
20) Chloroform	5.85	83	1223073	67.19		98
21) 1,1,1-Trichloroethane	6.08	97	1535001	82.23		100
22) 1,1-Dichloropropene	6.26	75	966163	56.62		# 27
23) Carbon Tetrachloride	6.27	117	926036	96.92		97
25) Benzene	6.49	78	1622386	45.03		93
26) 1,2-Dichloroethane	6.49	62	570098	57.46		99
27) Trichloroethene	7.23	130	624722	53.75		94
28) 1,2-Dichloropropane	7.47	63	346141	33.24		100
29) Dibromomethane	7.59	174	223958	50.64		62
30) Bromodichloromethane	7.78	83	862858	61.06		69
31) Cis-1,3-Dichloropropene	8.32	75	541100	43.11		69
32) 4-Methyl-2-Pentanone	8.49	43	98333	24.89		# 84
35) Toluene	8.73	91	1819740	51.04		69
36) Trans-1,2-Dichloropropene	8.96	75	428494	50.01		# 73
37) 1,1,2-Trichloroethane	9.18	97	203814	39.35		# 78
38) Tetrachloroethene	9.38	166	799460	69.79		# 93
39) 1,3-Dichloropropane	9.37	76	340592	43.07		# 49

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53003.D
 Acq Time : 30 May 95 9:42 am
 Sample : daily 50 b
 Misc :
 Quant Time: May 30 11:15 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40) 2-Hexanone	9.46	43	121104	53.21	#	53
41) Dibromochloromethane	9.64	129	396600	52.68		99
42) 1,2-Dibromoethane	9.77	107	252731	46.94		98
43) Chlorobenzene	10.33	112	1058294	52.10		95
44) 1,1,1,2-Tetrachloroethane	10.42	133	425228	57.04	#	89
45) Ethylbenzene	10.45	91	2340240	57.94		95
46) M+P-Xylene	10.58	91	3860175	62.89		89
47) Styrene	11.01	104	1100038	55.29	#	66
48) O-Xylene	11.00	91	1822822	49.69		89
49) Bromoform	11.21	173	242619	64.95		98
50) Iso-propylbenzene	11.39	105	2527541	65.86		95
53) Bromobenzene	11.72	77	927533	35.10	#	80
54) 1,2,3-Trichloropropene	11.92	75	53583	46.66	#	44
55) 1,1,2,2-Tetrachloroethane	11.68	83	145529	25.97		99
56) N-propylbenzene	11.83	91	2921057	42.83		100
57) 2-Chlorotoluene	11.92	91	1737633	45.94		98
58) 4-Chlorotoluene	11.92	91	1737633	42.53		98
59) 1,3,5-Trimethylbenzene	12.00	105	1996480	45.18		88
60) Tert-Butylbenzene	12.70	119	2284429	50.97	#	91
61) 1,2,4-Trimethylbenzene	12.39	105	1926538	42.70		98
62) Sec-Butylbenzene	12.56	105	2806379	48.51		99
63) 1,3-Dichlorobenzene	12.67	146	956628	48.80		99
64) P-Isopropyltoluene	12.70	119	2284429	50.97	#	83
65) 1,4-Dichlorobenzene	12.67	146	956628	48.80		98
66) N-Butylbenzene	13.11	91	2192649	50.12		97
67) 1,2-Dichlorobenzene	13.13	146	706766	46.84		99
68) 1,2-Dibromo-3-Chloropropan	13.88	157	37144	40.43		86
69) 1,2,4-Trichlorobenzene	14.66	180	385355	47.75		97
70) Hexachlorobutadiene	14.80	225	454191	65.47	#	81

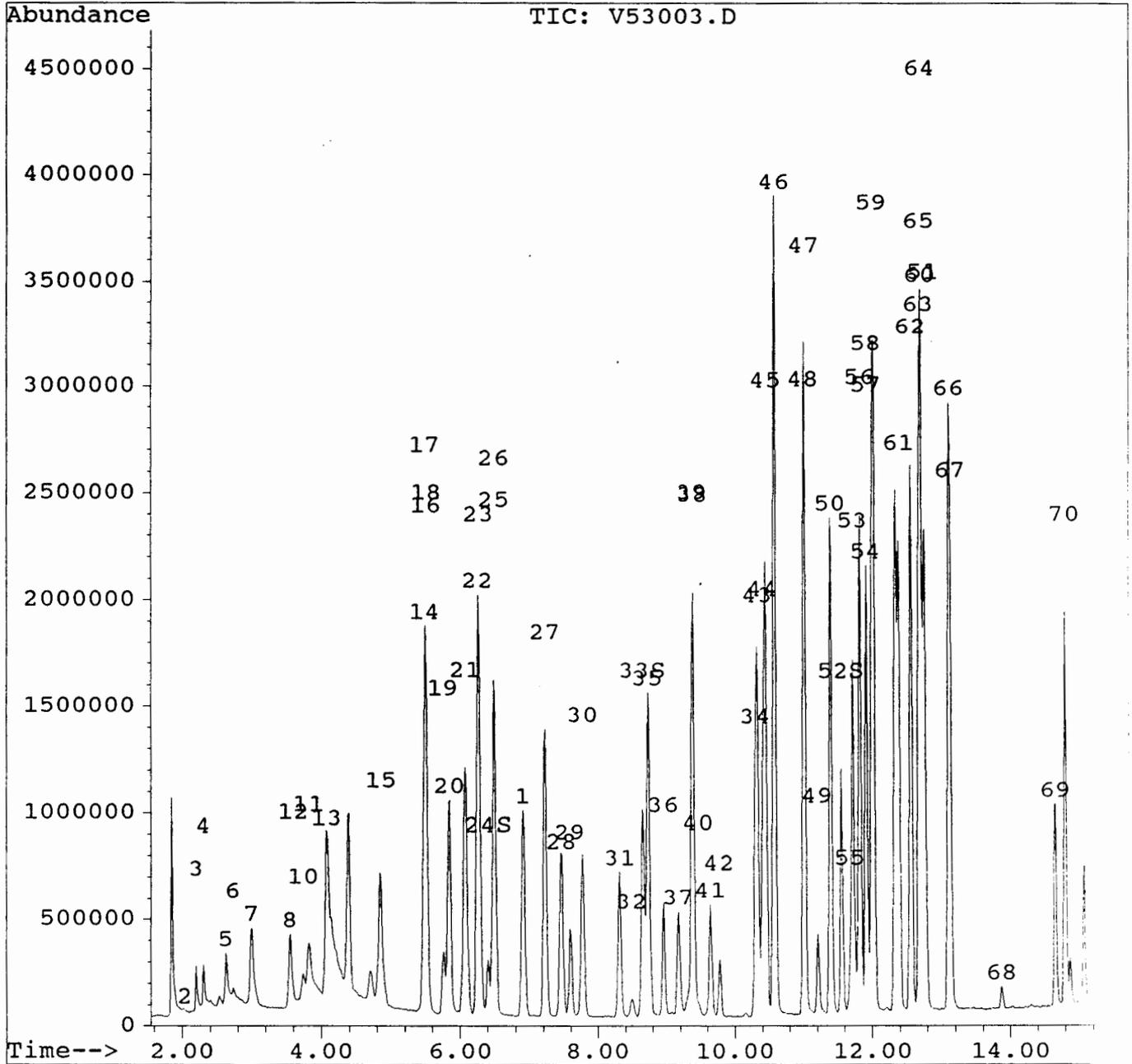
(#) = qualifier out of range (m) = manual integration
 V53003.D VOAML523.M Fri Jun 16 15:49:14 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53003.D
Acq Time : 30 May 95 9:42 am
Sample : daily 50 b
Misc :
Quant Time: May 30 11:15 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53002.D
 Acq Time : 30 May 95 9:17 am
 Sample : BLANK
 Misc : *100 ul flush*
 Quant Time: May 30 9:34 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.87	114	1155447	50.00	ug/l	-0.03
34) Chlorobenzene-d5	10.27	117	678607	50.00	ug/l	-0.05
51) 1,4-Dichlorobenzene-d4	12.71	152	320460	50.00	ug/l	-0.07
						%Recovery
24) 1,2-Dichloroethane-d4	6.37	65	322216	52.80		105.59%
33) Toluene-d8	8.62	98	1075518	49.68		99.36%
52) BFB	11.52	95	468140	44.23	ug/l	88.47%
						Qvalue
3) Chloromethane	2.18	50	5202	0.53		100
5) Bromomethane	2.62	94	3245	0.79	#	6
- 12) Acetone	3.92	43	18482	23.96	#	64
13) Methylene Chloride	4.05	84	678542	64.19	#	74
- 18) 2-Butanone	5.47	43	96382	51.33		91
19) Bromochloromethane	5.73	49	6124	0.78	#	27
- 25) Benzene	6.46	78	287009	8.02		94
26) 1,2-Dichloroethane	6.45	62	6576	0.67	#	41
32) 4-Methyl-2-Pentanone	8.44	43	8087	2.06	#	75
- 35) Toluene	8.70	91	131055	3.87		100
38) Tetrachloroethene	9.36	166	6868	0.63	#	35
39) 1,3-Dichloropropane	9.33	76	4251	0.57	#	19
40) 2-Hexanone	9.42	43	15188	7.03	#	69
41) Dibromochloromethane	9.61	129	3621	0.51		93
42) 1,2-Dibromoethane	9.74	107	3336	0.65		95
43) Chlorobenzene	10.29	112	18953	0.98	#	30
44) 1,1,1,2-Tetrachloroethane	10.37	133	5827	0.82	#	55
- 45) Ethylbenzene	10.42	91	47466	1.24		90
- 46) M+P-Xylene	10.54	91	82913	1.42		86
47) Styrene	10.98	104	30320	1.61	#	53
- 48) O-Xylene	10.98	91	49791	1.43		87
49) Bromoform	11.17	173	6391	1.80		99
50) Iso-propylbenzene	11.37	105	73911	2.03		95
53) Bromobenzene	11.69	77	49807	2.76		90
54) 1,2,3-Trichloropropene	12.00	75	6807	8.69	#	44
55) 1,1,2,2-Tetrachloroethane	11.64	83	9506	2.49	#	80
56) N-propylbenzene	11.79	91	132027	2.84		95
57) 2-Chlorotoluene	11.88	91	89451	3.47		90
58) 4-Chlorotoluene	12.00	91	126187	4.53		90
59) 1,3,5-Trimethylbenzene	12.37	105	164519	5.46		87
60) Tert-Butylbenzene	12.68	119	169185	5.53	#	85
61) 1,2,4-Trimethylbenzene	12.37	105	164519	5.35		91
62) Sec-Butylbenzene	12.54	105	159181	4.03		98
63) 1,3-Dichlorobenzene	12.74	146	88550	6.62		96

(#) = qualifier out of range (m) = manual integration
 V53002.D VOAML523.M Tue May 30 09:34:29 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53002.D
 Acq Time : 30 May 95 9:17 am
 Sample : BLANK
 Misc :
 Quant Time: May 30 9:34 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
64) P-Isopropyltoluene	12.68	119	169185	5.53	#	72
65) 1,4-Dichlorobenzene	12.74	146	88550	6.62		95
66) N-Butylbenzene	13.09	91	189742	6.36		94
67) 1,2-Dichlorobenzene	13.11	146	73814	7.17		96
68) 1,2-Dibromo-3-Chloropropan	13.85	157	5707	9.11	#	58
69) 1,2,4-Trichlorobenzene	14.64	180	89283	16.22		96
70) Hexachlorobutadiene	14.77	225	94633	20.00	#	79

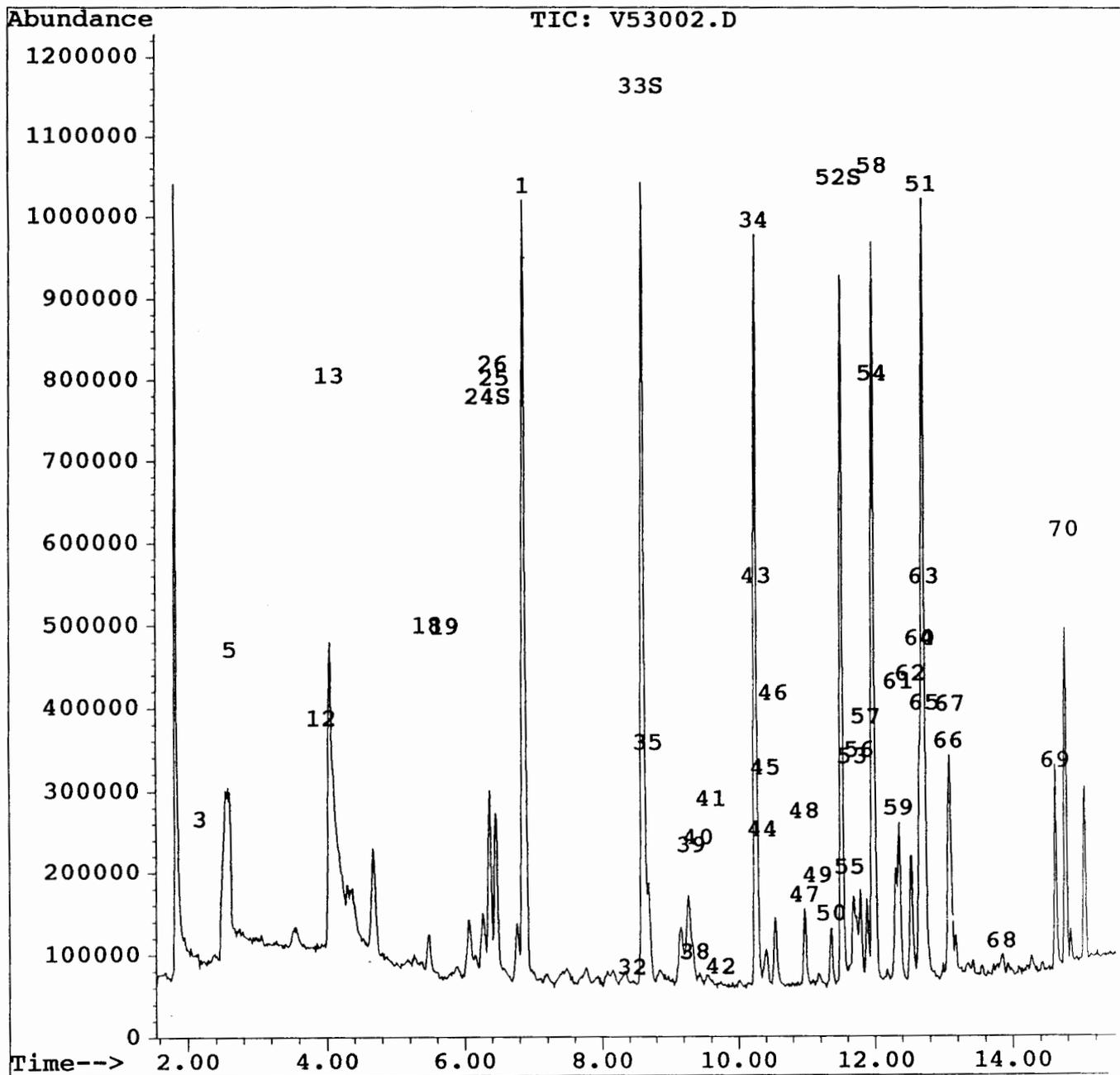
(#) = qualifier out of range (m) = manual integration
 V53002.D VOAML523.M Tue May 30 09:34:31 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53002.D
Acq Time : 30 May 95 9:17 am
Sample : BLANK
Misc :
Quant Time: May 30 9:34 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53002.D
 Acq Time : 30 May 95 9:17 am
 Sample : BLANK *100 ul MeOH RSD*
 Misc :
 Quant Time: May 30 11:18 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.87	114	1155447	50.00	ug/l	-0.03
34) Chlorobenzene-d5	10.27	117	678607	50.00	ug/l	-0.05
51) 1,4-Dichlorobenzene-d4	12.71	152	320460	50.00	ug/l	-0.07
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.37	65	322216	52.80		105.59%
33) Toluene-d8	8.62	98	1075518	49.68		99.36%
52) BFB	11.52	95	468140	44.23	ug/l	88.47%
Target Compounds						Qvalue
3) Chloromethane	2.18	50	5202	0.53		100
5) Bromomethane	2.62	94	3245	0.79	#	6
- 12) Acetone	3.58	43	76365	99.00	m	64
13) Methylene Chloride	4.05	84	678542	64.19	#	74
- 18) 2-Butanone	5.47	43	96382	51.33		91
19) Bromochloromethane	5.73	49	6124	0.78	#	27
- 25) Benzene	6.46	78	287009	8.02		94
26) 1,2-Dichloroethane	6.45	62	6576	0.67	#	41
32) 4-Methyl-2-Pentanone	8.44	43	8087	2.06	#	75
- 35) Toluene	8.70	91	131055	3.87		100
38) Tetrachloroethene	9.36	166	6868	0.63	#	35
39) 1,3-Dichloropropane	9.33	76	4251	0.57	#	19
40) 2-Hexanone	9.42	43	15188	7.03	#	69
41) Dibromochloromethane	9.61	129	3621	0.51		93
42) 1,2-Dibromoethane	9.74	107	3336	0.65		95
43) Chlorobenzene	10.29	112	18953	0.98	#	30
44) 1,1,1,2-Tetrachloroethane	10.37	133	5827	0.82	#	55
- 45) Ethylbenzene	10.42	91	47466	1.24		90
- 46) M+P-Xylene	10.54	91	82913	1.42		86
47) Styrene	10.98	104	30320	1.61	#	53
- 48) O-Xylene	10.98	91	49791	1.43		87
49) Bromoform	11.17	173	6391	1.80		99
50) Iso-propylbenzene	11.37	105	73911	2.03		95
53) Bromobenzene	11.69	77	49807	2.76		93
54) 1,2,3-Trichloropropene	12.00	75	6807	8.69	#	44
55) 1,1,2,2-Tetrachloroethane	11.64	83	9506	2.49	#	80
56) N-propylbenzene	11.79	91	132027	2.84		95
57) 2-Chlorotoluene	11.88	91	89451	3.47		90
58) 4-Chlorotoluene	12.00	91	126187	4.53		90
59) 1,3,5-Trimethylbenzene	12.37	105	164519	5.46		87
60) Tert-Butylbenzene	12.68	119	169185	5.53	#	85
61) 1,2,4-Trimethylbenzene	12.37	105	164519	5.35		91
62) Sec-Butylbenzene	12.54	105	159181	4.03		98
63) 1,3-Dichlorobenzene	12.74	146	88550	6.62		96

(#) = qualifier out of range (m) = manual integration
 V53002.D VOAML523.M Tue May 30 11:20:17 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53002.D
 Acq Time : 30 May 95 9:17 am
 Sample : BLANK
 Misc :
 Quant Time: May 30 11:18 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

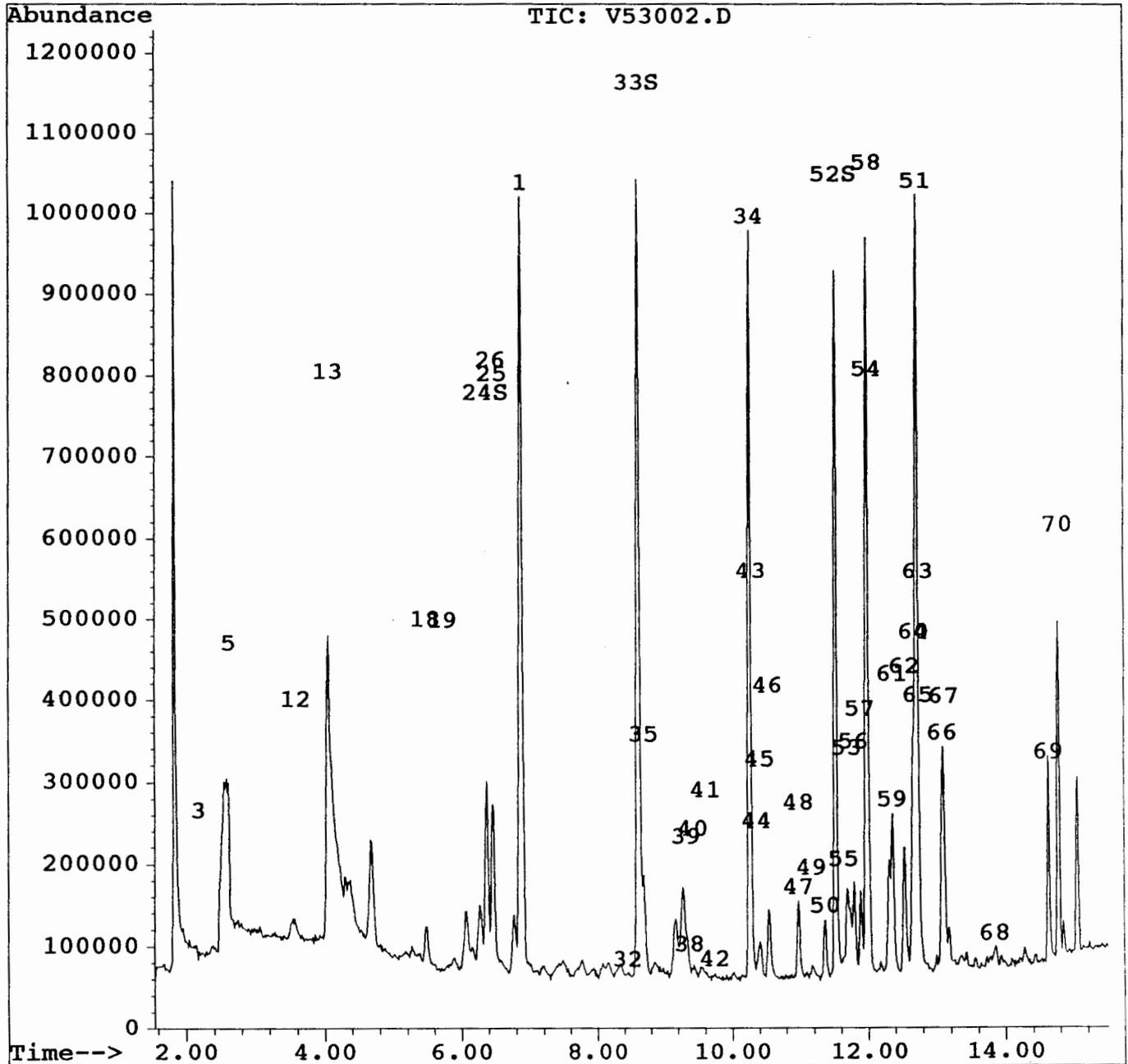
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
64) P-Isopropyltoluene	12.68	119	169185	5.53	#	72
65) 1,4-Dichlorobenzene	12.74	146	88550	6.62		95
66) N-Butylbenzene	13.09	91	189742	6.36		94
67) 1,2-Dichlorobenzene	13.11	146	73814	7.17		96
68) 1,2-Dibromo-3-Chloropropan	13.85	157	5707	9.11	#	58
69) 1,2,4-Trichlorobenzene	14.64	180	89283	16.22		96
70) Hexachlorobutadiene	14.77	225	94633	20.00	#	79

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53002.D
Acq Time : 30 May 95 9:17 am
Sample : BLANK
Misc :
Quant Time: May 30 11:18 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53102.D
 Acq Time : 31 May 95 7:50 am
 Sample : BLANK
 Misc :
 Quant Time: May 31 8:06 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.90	114	370772	50.00	ug/l	0.00
34) Chlorobenzene-d5	10.32	117	247298	50.00	ug/l	0.00
51) 1,4-Dichlorobenzene-d4	12.77	152	107160	50.00	ug/l	0.00

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.40	65	97530	49.80		99.60%
33) Toluene-d8	8.65	98	353127	50.83		101.66%
52) BFB	11.58	95	159406	45.04	ug/l	90.09%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
12) Acetone	3.96	43	2047	8.27		# 48
13) Methylene Chloride	4.07	84	113141	33.36		# 55
18) 2-Butanone	5.51	43	5944	9.87		# 50
32) 4-Methyl-2-Pentanone	8.65	43	2271	1.80		# 1
40) 2-Hexanone	9.52	43	2334	2.97		# 23
43) Chlorobenzene	10.35	112	3917	0.56		# 28
46) M+P-Xylene	10.60	91	13036	0.61		# 88
47) Styrene	11.04	104	5923	0.86		# 83
48) O-Xylene	11.03	91	8587	0.68		# 89
50) Iso-propylbenzene	11.42	105	12625	0.95		# 98
53) Bromobenzene	11.75	77	10649	1.77		# 94
54) 1,2,3-Trichloropropene	11.75	75	3226	12.32		# 44
55) 1,1,2,2-Tetrachloroethane	11.71	83	2088	1.63		# 18
56) N-propylbenzene	11.85	91	26518	1.70		# 96
57) 2-Chlorotoluene	12.06	91	23969	2.78		# 89
58) 4-Chlorotoluene	11.95	91	19759	2.12		# 91
59) 1,3,5-Trimethylbenzene	12.04	105	24393	2.42		# 93
60) Tert-Butylbenzene	12.74	119	34318	3.36		# 98
61) 1,2,4-Trimethylbenzene	12.42	105	36913	3.59		# 96
62) Sec-Butylbenzene	12.59	105	35156	2.66		# 100
63) 1,3-Dichlorobenzene	12.72	146	17769	3.97		# 97
64) P-Isopropyltoluene	12.74	119	34318	3.36		# 97
65) 1,4-Dichlorobenzene	12.72	146	17769	3.97		# 96
66) N-Butylbenzene	13.15	91	41992	4.21		# 96
67) 1,2-Dichlorobenzene	13.17	146	17458	5.07		# 96
69) 1,2,4-Trichlorobenzene	14.70	180	19635	10.67		# 99
70) Hexachlorobutadiene	14.84	225	15876	10.03		# 92

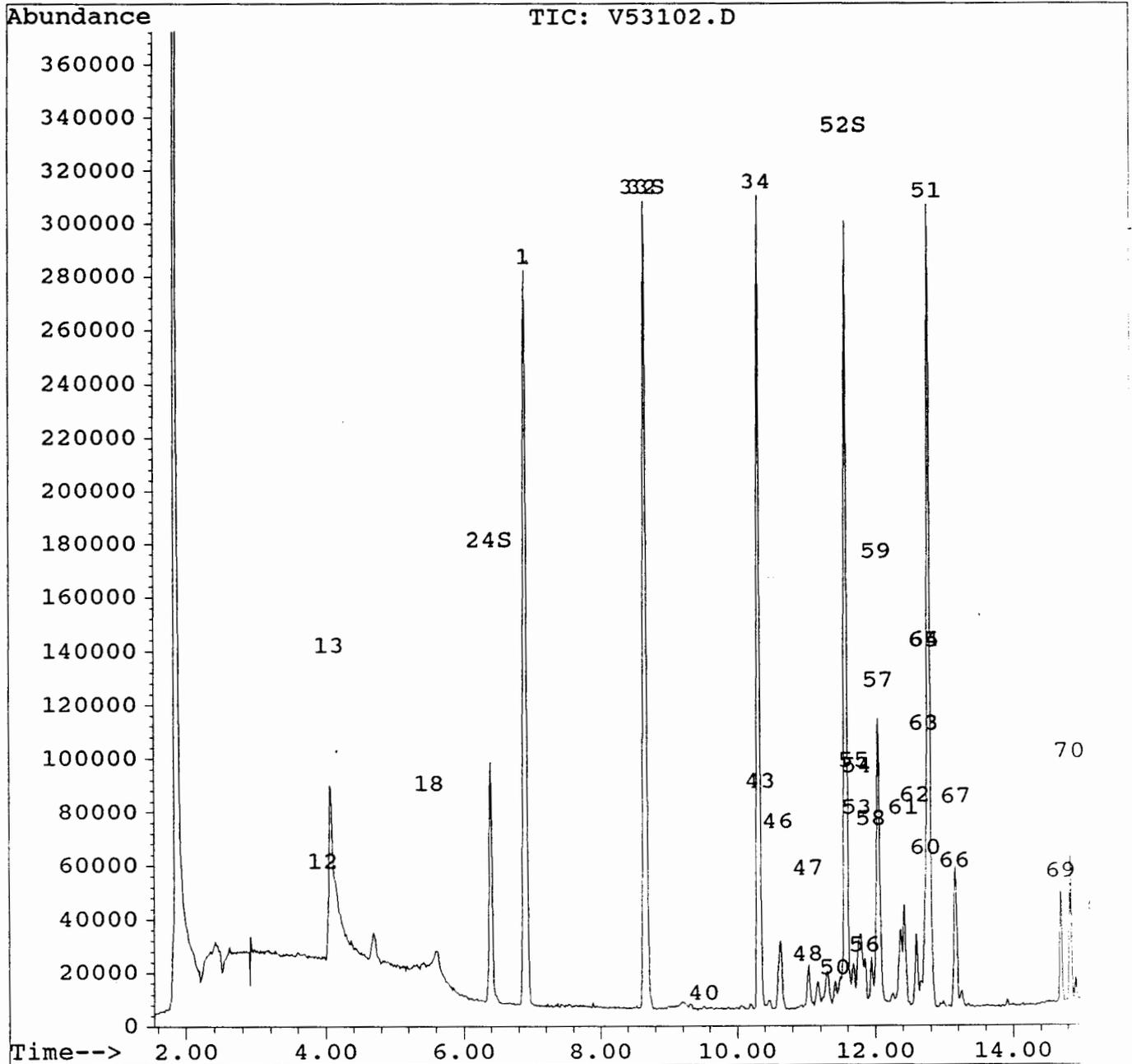
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53102.D
Acq Time : 31 May 95 7:50 am
Sample : BLANK
Misc :
Quant Time: May 31 8:06 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration

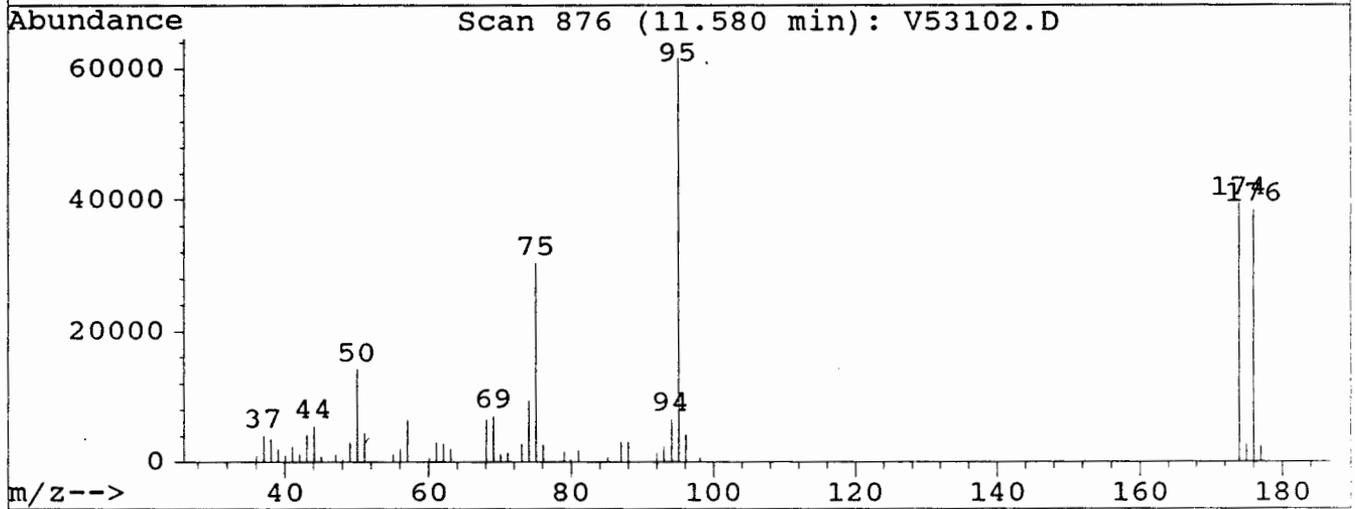
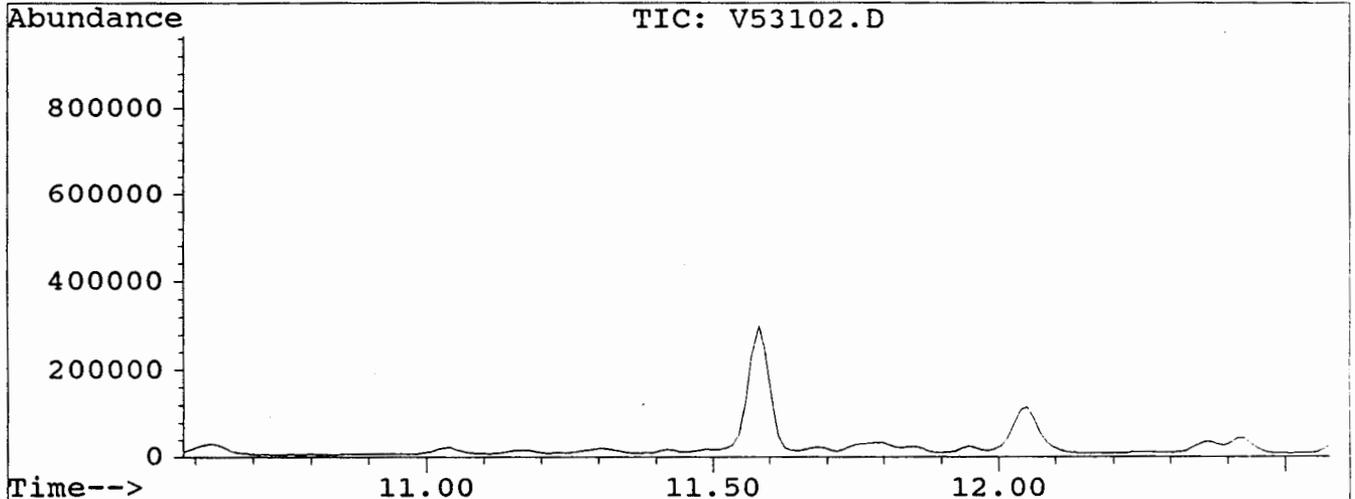


BFB

Data File : C:\HPCHEM\1\DATA\V53102.D
Acq Time : 31 May 95 7:50 am
Sample : BLANK
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA



Peak Apex is scan: 876

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.0	14175	PASS
75	95	30	60	49.1	30328	PASS
95	95	100	100	100.0	61712	PASS
96	95	5	9	7.0	4301	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	63.9	39424	PASS
175	174	5	9	7.1	2787	PASS
176	174	95	101	97.5	38440	PASS
177	176	5	9	6.6	2541	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53103.D
 Acq Time : 31 May 95 8:16 am
 Sample : MeOH 100 ul
 Misc :
 Quant Time: May 31 8:32 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

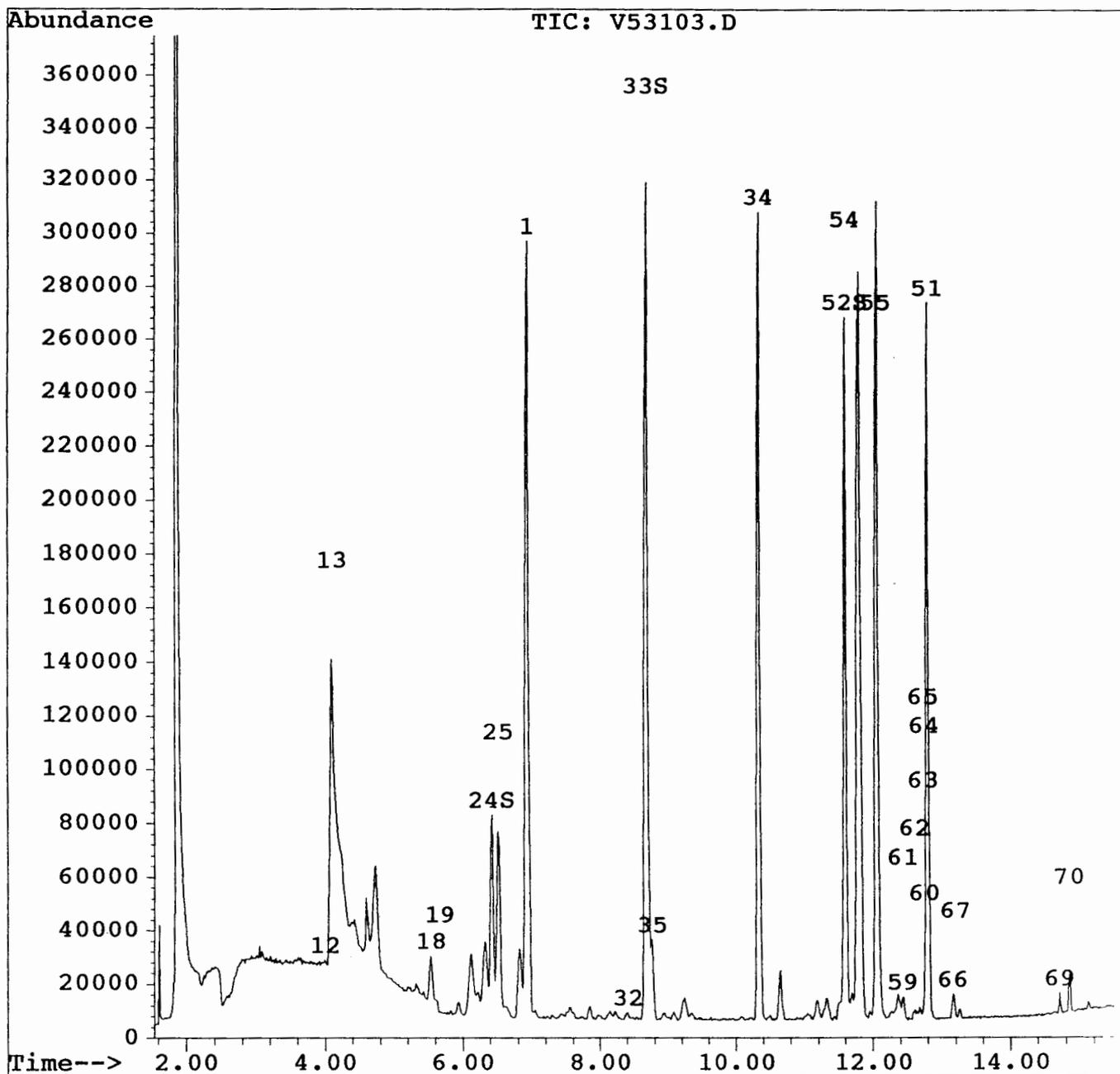
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.93	114	398927	50.00	ug/l	0.03
34) Chlorobenzene-d5	10.34	117	248267	50.00	ug/l	0.03
51) 1,4-Dichlorobenzene-d4	12.79	152	102485	50.00	ug/l	0.01
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.43	65	81046	38.46		76.93%
33) Toluene-d8	8.69	98	367812	49.21		98.41%
52) BFB	11.60	95	152209	44.97	ug/l	89.94%
Target Compounds						Qvalue
→ 12) Acetone	4.00	43	5338	20.04		# 48
13) Methylene Chloride	4.10	84	203615	55.79		# 52
- 18) 2-Butanone	5.53	43	43619	67.29		# 83
19) Bromochloromethane	5.67	49	1487	0.55		# 27
- 25) Benzene	6.52	78	107706	8.72		# 93
32) 4-Methyl-2-Pentanone	8.41	43	4500	3.32		# 34
35) Toluene	8.77	91	40386	3.26		# 97
54) 1,2,3-Trichloropropene	11.60	75	73922	295.09		# 44
55) 1,1,2,2-Tetrachloroethane	12.05	83	4878	3.99		# 1
59) 1,3,5-Trimethylbenzene	12.44	105	8747	0.91		# 87
60) Tert-Butylbenzene	12.75	119	7196	0.74		# 71
61) 1,2,4-Trimethylbenzene	12.44	105	8747	0.89		# 92
62) Sec-Butylbenzene	12.61	105	6752	0.54		# 60
63) 1,3-Dichlorobenzene	12.74	146	2364	0.55		# 24
64) P-Isopropyltoluene	12.75	119	7196	0.74		# 94
65) 1,4-Dichlorobenzene	12.74	146	2364	0.55		# 24
66) N-Butylbenzene	13.16	91	11006	1.15		# 87
67) 1,2-Dichlorobenzene	13.19	146	2734	0.83		# 62
69) 1,2,4-Trichlorobenzene	14.71	180	3616	2.05		# 82
70) Hexachlorobutadiene	14.85	225	5119	3.38		# 70

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53103.D
Acq Time : 31 May 95 8:16 am
Sample : MeOH 100 ul
Misc :
Quant Time: May 31 8:32 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53101.D
 Acq Time : 31 May 95 7:28 am
 Sample : daily
 Misc :
 Quant Time: May 31 7:44 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.89	114	401039	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.29	117	239085	50.00	ug/l	-0.02
51) 1,4-Dichlorobenzene-d4	12.76	152	89570	50.00	ug/l	-0.02

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	79176	37.38		74.76%
33) Toluene-d8	8.64	98	373584	49.72		99.43%
52) BFB	11.55	95	149639	50.59	ug/l	101.18%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	2.03	85	1904	34.72		# 51
3) Chloromethane	2.19	50	220788	64.92		100
4) Vinyl Chloride	2.30	62	173517	59.39		100
5) Bromomethane	2.62	94	89763	62.84		96
6) Chloroethane	2.73	64	78938	80.24		# 87
7) Trichlorofluoromethane	2.99	101	318717	1072.34		99
8) 1,1-Dichloroethene	3.55	61	251780	96.56		# 84
10) Iodomethane	3.73	142	154459	61.87		# 77
11) Carbon Disulfide	3.81	76	381241	62.75		100
12) Acetone	3.95	43	29417	109.88		# 48
13) Methylene Chloride	4.06	84	341579	93.10		# 50
14) Trans-1,2-Dichloroethene	5.48	61	320210	56.05		87
15) 1,1-Dichloroethane	4.83	63	382178	89.73		100
16) 2,2-Dichloropropane	5.49	77	311444	49.68		99
17) Cis-1,2-Dichloroethene	5.48	61	320210	56.05		87
18) 2-Butanone	5.49	43	28291	43.41		94
19) Bromochloromethane	5.74	49	150824	55.07		88
20) Chloroform	5.83	83	334112	53.24		100
21) 1,1,1-Trichloroethane	6.06	97	305748	47.51		100
22) 1,1-Dichloropropene	6.24	75	326181	55.44		# 52
23) Carbon Tetrachloride	6.26	117	199430	60.55		100
25) Benzene	6.47	78	705037	56.76		93
26) 1,2-Dichloroethane	6.47	62	121109	35.41		98
27) Trichloroethene	7.21	130	220531	55.04		94
28) 1,2-Dichloropropane	7.45	63	177193	49.36		99
29) Dibromomethane	7.59	174	61527	40.35		90
30) Bromodichloromethane	7.76	83	218169	44.78		100
31) Cis-1,3-Dichloropropene	8.30	75	190390	44.00		99
32) 4-Methyl-2-Pentanone	8.48	43	48646	35.72		# 84
35) Toluene	8.72	91	663020	55.64		99
36) Trans-1,2-Dichloropropene	8.95	75	118135	41.25		# 74
37) 1,1,2-Trichloroethane	9.17	97	66622	38.49		# 87
38) Tetrachloroethene	9.37	166	219978	57.46		97
39) 1,3-Dichloropropane	9.36	76	120130	45.45		# 53

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53101.D
 Acq Time : 31 May 95 7:28 am
 Sample : daily
 Misc :
 Quant Time: May 31 7:44 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40) 2-Hexanone	9.46	43	27763	36.49	#	81
41) Dibromochloromethane	9.64	129	107191	42.60		100
42) 1,2-Dibromoethane	9.78	107	75062	41.71		98
43) Chlorobenzene	10.33	112	349185	51.43		95
44) 1,1,1,2-Tetrachloroethane	10.41	133	117474	47.15		94
45) Ethylbenzene	10.45	91	727240	53.87		99
46) M+P-Xylene	10.58	91	1067739	52.05		96
47) Styrene	11.02	104	315957	47.51	#	82
48) O-Xylene	11.00	91	486854	39.71		96
49) Bromoform	11.21	173	46201	37.00		100
50) Iso-propylbenzene	11.41	105	673248	52.48		100
53) Bromobenzene	11.73	77	255127	50.63		97
54) 1,2,3-Trichloropropene	11.93	75	11771	53.76	#	44
55) 1,1,2,2-Tetrachloroethane	11.68	83	48755	45.63		93
56) N-propylbenzene	11.83	91	805500	61.96		100
57) 2-Chlorotoluene	11.93	91	414406	57.47		94
58) 4-Chlorotoluene	11.93	91	414406	53.21		90
59) 1,3,5-Trimethylbenzene	12.01	105	468165	55.57		95
60) Tert-Butylbenzene	12.71	119	502196	58.78		97
61) 1,2,4-Trimethylbenzene	12.40	105	448768	52.18		91
62) Sec-Butylbenzene	12.57	105	679445	61.61		97
63) 1,3-Dichlorobenzene	12.69	146	198374	53.08		100
64) P-Isopropyltoluene	12.71	119	502196	58.78		95
65) 1,4-Dichlorobenzene	12.69	146	198374	53.08		98
66) N-Butylbenzene	13.13	91	497877	59.70		97
67) 1,2-Dichlorobenzene	13.15	146	138845	48.26		99
68) 1,2-Dibromo-3-Chloropropan	13.89	157	5614	32.05		94
69) 1,2,4-Trichlorobenzene	14.67	180	51485	33.46		97
70) Hexachlorobutadiene	14.82	225	75072	56.76	#	91

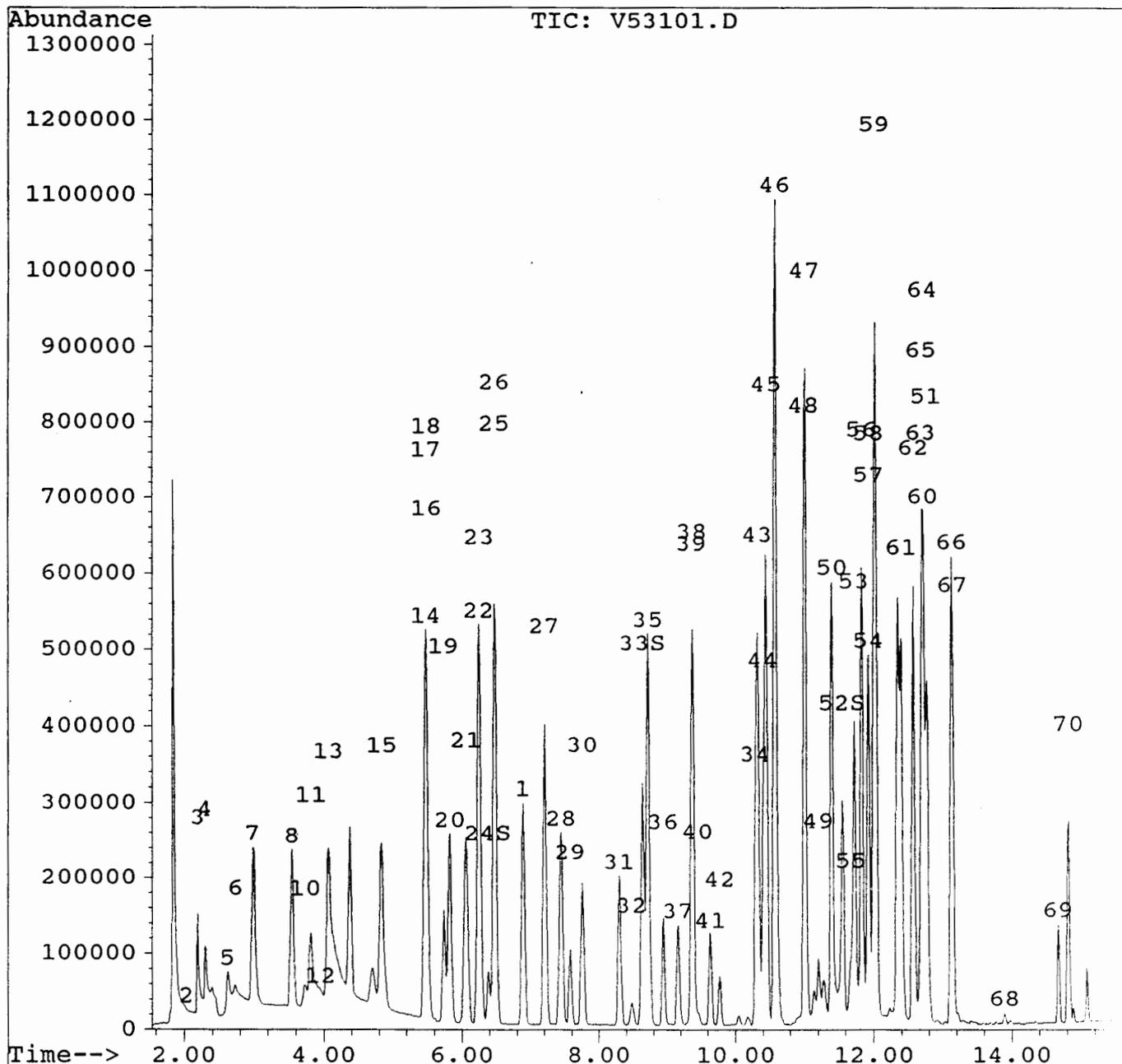
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V53101.D
Acq Time : 31 May 95 7:28 am
Sample : daily
Misc :
Quant Time: May 31 7:44 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60102.D
 Acq Time : 1 Jun 95 8:19 am
 Sample : 100 ul MeOH
 Misc :
 Quant Time: Jun 1 8:35 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.87	114	274951	50.00	ug/l	-0.03
34) Chlorobenzene-d5	10.27	117	183888	50.00	ug/l	-0.04
51) 1,4-Dichlorobenzene-d4	12.72	152	83104	50.00	ug/l	-0.06

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.37	65	71572	49.28		98.57%
33) Toluene-d8	8.62	98	261489	50.76		101.51%
52) BFB	11.53	95	119162	43.42	ug/l	86.84%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
- 12) Acetone	3.95	43	6523	35.54		# 48
13) Methylene Chloride	4.06	84	94975	37.76		# 45
- 18) 2-Butanone	5.49	43	47678	106.71		# 84
- 25) Benzene	6.46	78	68074	7.99		# 95
32) 4-Methyl-2-Pentanone	8.47	43	1699	1.82		# 34
- 35) Toluene	8.70	91	28323	3.09		# 98
40) 2-Hexanone	9.43	43	3956	6.76		# 23
- 45) Ethylbenzene	10.56	91	7010	0.68		# 92
47) Styrene	10.99	104	3255	0.64		# 92
50) Iso-propylbenzene	11.37	105	6114	0.62		# 50
53) Bromobenzene	11.69	77	7302	1.56		# 87
54) 1,2,3-Trichloropropene	11.53	75	58414	287.57		# 44
55) 1,1,2,2-Tetrachloroethane	11.65	83	1262	1.27		# 18
56) N-propylbenzene	11.81	91	15738	1.30		# 90
57) 2-Chlorotoluene	12.00	91	14913	2.23		# 84
58) 4-Chlorotoluene	11.90	91	10145	1.40		# 90
59) 1,3,5-Trimethylbenzene	11.99	105	13072	1.67		# 90
60) Tert-Butylbenzene	12.69	119	18554	2.34		# 95
61) 1,2,4-Trimethylbenzene	12.37	105	19875	2.49		# 92
62) Sec-Butylbenzene	12.55	105	18483	1.81		# 95
63) 1,3-Dichlorobenzene	12.76	146	13743	3.96		# 96
64) P-Isopropyltoluene	12.69	119	18554	2.34		# 94
65) 1,4-Dichlorobenzene	12.76	146	13743	3.96		# 94
66) N-Butylbenzene	13.10	91	24809	3.21		# 94
67) 1,2-Dichlorobenzene	13.13	146	12703	4.76		# 96
69) 1,2,4-Trichlorobenzene	14.65	180	15707	11.00		# 99
70) Hexachlorobutadiene	14.80	225	9499	7.74		# 86

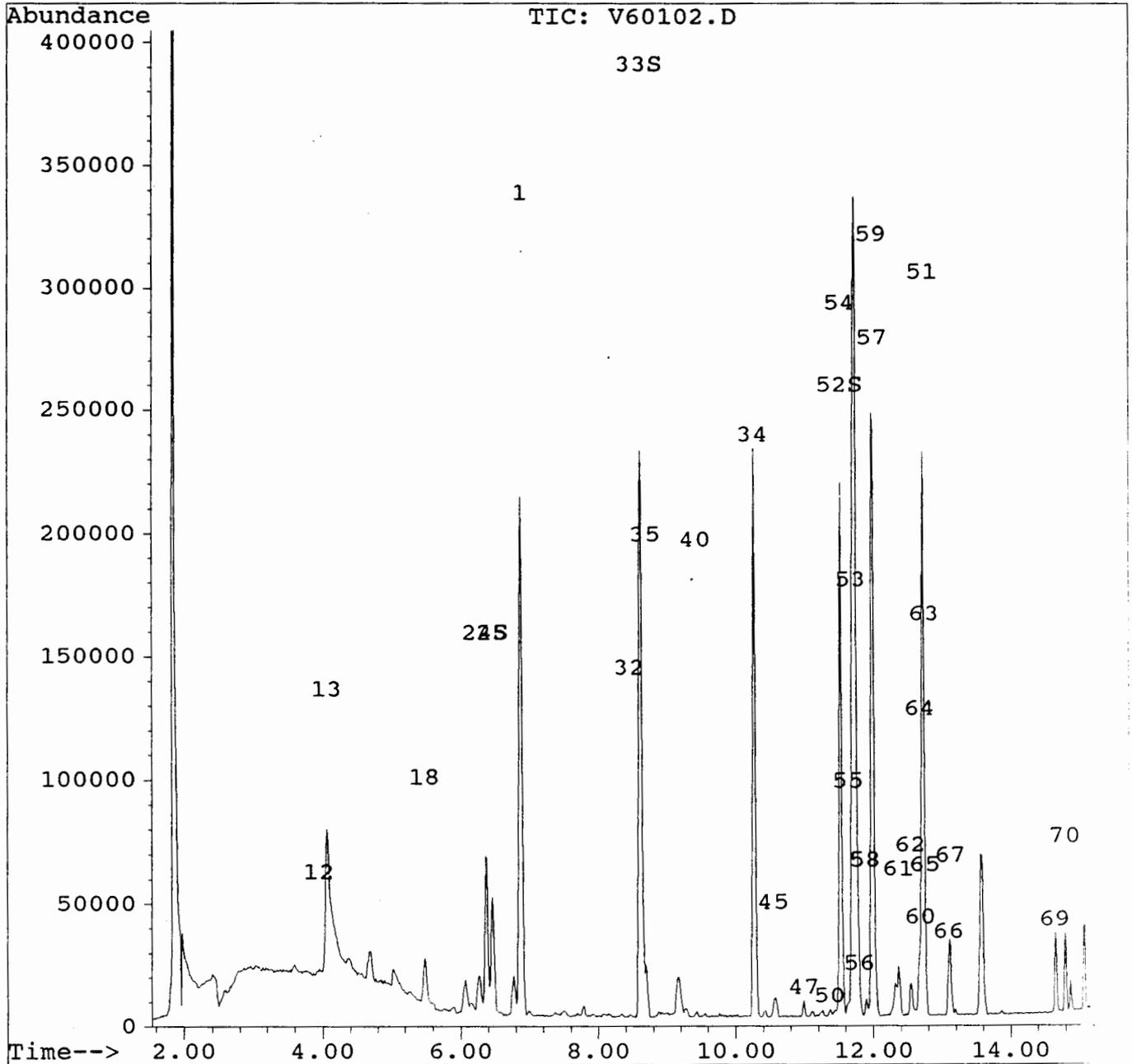
(#) = qualifier out of range (m) = manual integration
 V60102.D VOAML523.M Thu Jun 01 08:36:02 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60102.D
Acq Time : 1 Jun 95 8:19 am
Sample : 100 ul MeOH
Misc :
Quant Time: Jun 1 8:35 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration

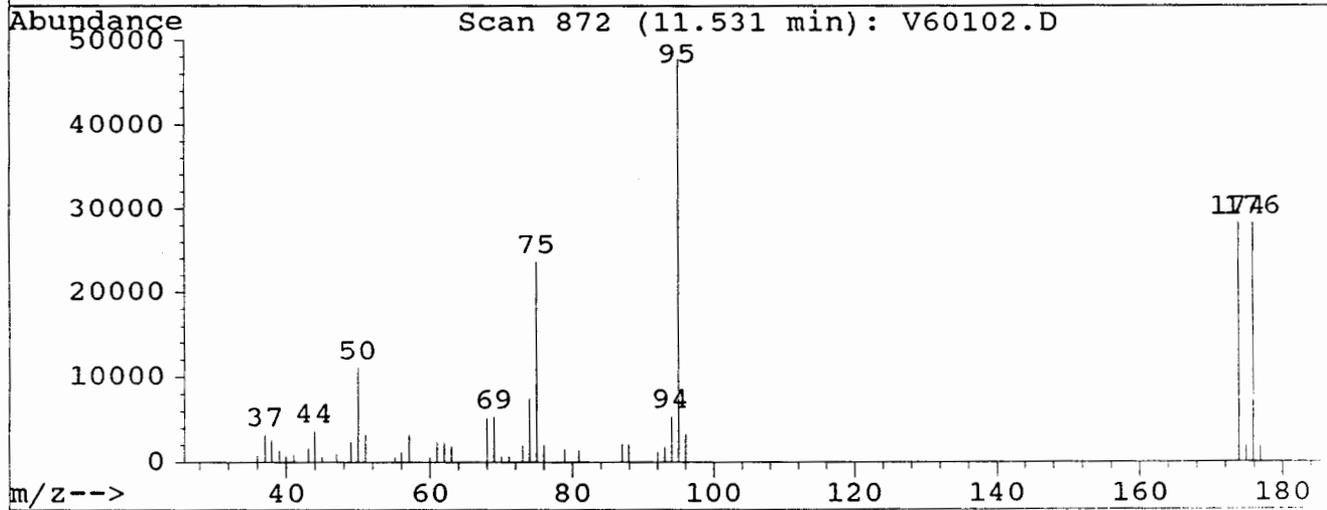
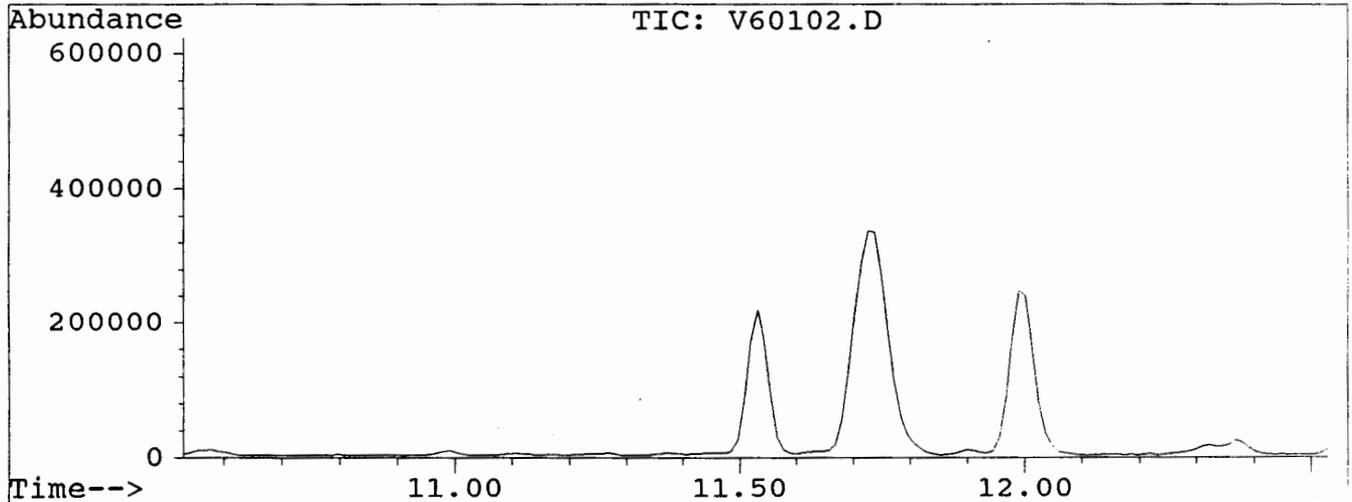


BFB

Data File : C:\HPCHEM\1\DATA\V60102.D
Acq Time : 1 Jun 95 8:19 am
Sample : 100 ul MeOH
Misc :

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA



Peak Apex is scan: 872

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.3	11114	PASS
75	95	30	60	49.6	23704	PASS
95	95	100	100	100.0	47776	PASS
96	95	5	9	6.8	3259	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	59.2	28296	PASS
175	174	5	9	6.8	1917	PASS
176	174	95	101	100.0	28288	PASS
177	176	5	9	6.6	1871	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60101.D
 Acq Time : 1 Jun 95 7:54 am
 Sample : daily
 Misc :
 Quant Time: Jun 1 8:11 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.89	114	269457	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.30	117	175626	50.00	ug/l	0.00
51) 1,4-Dichlorobenzene-d4	12.76	152	81072	50.00	ug/l	-0.02

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	66087	46.43		92.87%
33) Toluene-d8	8.65	98	260893	51.67		103.35%
52) BFB	11.57	95	118920	44.42	ug/l	88.83%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Dichlorodifluoromethane	2.03	85	2241	60.82		# 51
3) Chloromethane	2.19	50	168890	73.91		100
4) Vinyl Chloride	2.31	62	135037	68.79		100
5) Bromomethane	2.64	94	85539	89.13		94
6) Chloroethane	2.75	64	63017	95.34		93
7) Trichlorofluoromethane	3.00	101	280792	1406.08		98
8) 1,1-Dichloroethene	3.55	61	211524	120.73		# 85
10) Iodomethane	3.73	142	128619	76.68		# 72
11) Carbon Disulfide	3.81	76	292422	71.63		100
12) Acetone	3.95	43	12292	68.33		# 48
13) Methylene Chloride	4.06	84	222566	90.29		# 45
14) Trans-1,2-Dichloroethene	5.48	61	226693	59.06		# 84
15) 1,1-Dichloroethane	4.82	63	202520	70.77		99
16) 2,2-Dichloropropane	5.49	77	214859	51.01		99
17) Cis-1,2-Dichloroethene	5.48	61	226693	59.06		# 84
18) 2-Butanone	5.50	43	28422	64.91		# 85
19) Bromochloromethane	5.74	49	180078	97.86		# 73
20) Chloroform	5.82	83	257908	61.16		99
21) 1,1,1-Trichloroethane	6.06	97	218217	50.47		99
22) 1,1-Dichloropropene	6.24	75	221934	56.14		# 84
23) Carbon Tetrachloride	6.26	117	160846	72.68		99
25) Benzene	6.47	78	492348	59.00		84
26) 1,2-Dichloroethane	6.47	62	117541	51.14		88
27) Trichloroethene	7.21	130	152916	56.80		88
28) 1,2-Dichloropropane	7.45	63	143132	59.34		99
29) Dibromomethane	7.59	174	55979	54.64		99
30) Bromodichloromethane	7.77	83	189629	57.93		90
31) Cis-1,3-Dichloropropene	8.31	75	161602	55.59		87
32) 4-Methyl-2-Pentanone	8.49	43	49010	53.56		# 85
35) Toluene	8.73	91	475660	54.34		88
36) Trans-1,2-Dichloropropene	8.95	75	109233	51.93		# 87
37) 1,1,2-Trichloroethane	9.17	97	64664	50.85		# 99
38) Tetrachloroethene	9.39	166	148781	52.90		# 84
39) 1,3-Dichloropropane	9.37	76	114733	59.09		# 99

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60101.D
 Acq Time : 1 Jun 95 7:54 am
 Sample : daily
 Misc :
 Quant Time: Jun 1 8:11 1995

Operator:
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
 Title : VOA
 Last Update : Wed May 24 09:16:26 1995
 Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
40) 2-Hexanone	9.48	43	30859	55.22	#	75
41) Dibromochloromethane	9.64	129	102507	55.46		100
42) 1,2-Dibromoethane	9.78	107	72504	54.85		98
43) Chlorobenzene	10.34	112	268548	53.84		94
44) 1,1,1,2-Tetrachloroethane	10.42	133	98924	54.05		95
45) Ethylbenzene	10.45	91	542177	54.68		96
46) M+P-Xylene	10.59	91	806548	53.52		93
47) Styrene	11.03	104	264324	54.11	#	82
48) O-Xylene	11.02	91	390658	43.38		92
49) Bromoform	11.22	173	51150	55.77		98
50) Iso-propylbenzene	11.41	105	487415	51.73		100
53) Bromobenzene	11.74	77	224334	49.19		97
54) 1,2,3-Trichloropropene	11.93	75	10019	50.56	#	44
55) 1,1,2,2-Tetrachloroethane	11.69	83	45880	47.45		98
56) N-propylbenzene	11.84	91	627198	53.30		99
57) 2-Chlorotoluene	11.93	91	383835	58.81		98
58) 4-Chlorotoluene	11.93	91	383835	54.45		98
59) 1,3,5-Trimethylbenzene	12.02	105	366556	48.07		95
60) Tert-Butylbenzene	12.72	119	402427	52.04		96
61) 1,2,4-Trimethylbenzene	12.40	105	366154	47.03		92
62) Sec-Butylbenzene	12.59	105	520276	52.12		97
63) 1,3-Dichlorobenzene	12.70	146	191395	56.58		98
64) P-Isopropyltoluene	12.72	119	402427	52.04		92
65) 1,4-Dichlorobenzene	12.70	146	191395	56.58		99
66) N-Butylbenzene	13.14	91	416194	55.13		97
67) 1,2-Dichlorobenzene	13.16	146	145422	55.85		98
68) 1,2-Dibromo-3-Chloropropan	13.91	157	6897	43.51		84
69) 1,2,4-Trichlorobenzene	14.69	180	66191	47.53		97
70) Hexachlorobutadiene	14.83	225	70330	58.75	#	92

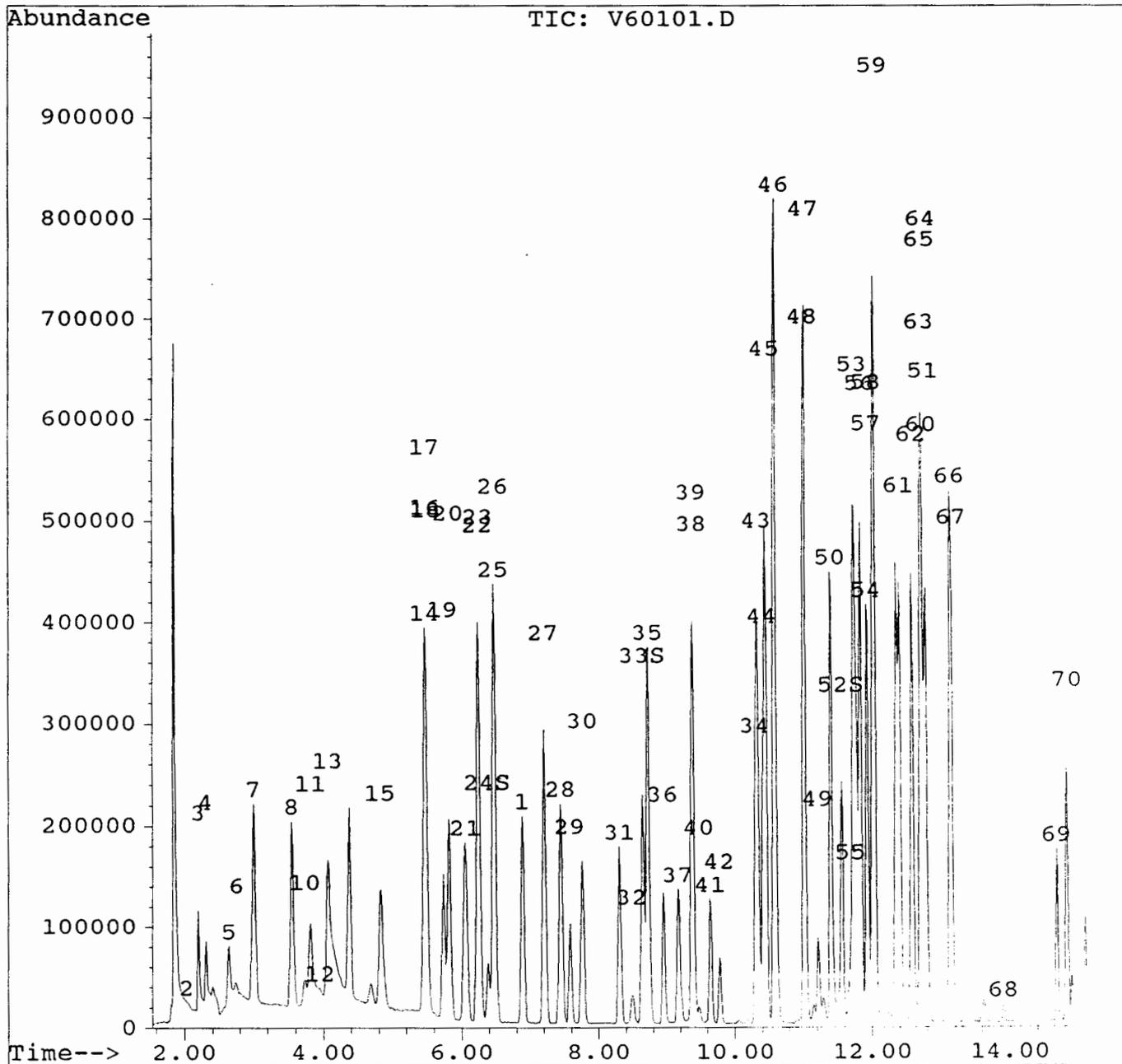
(#) = qualifier out of range (m) = manual integration
 V60101.D VOAML523.M Sun Jun 18 07:27:42 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60101.D
Acq Time : 1 Jun 95 7:54 am
Sample : daily
Misc :
Quant Time: Jun 1 8:11 1995

Operator:
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML523.M
Title : VOA
Last Update : Wed May 24 09:16:26 1995
Response via : Multiple Level Calibration



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

0121-95-0175

Lab Name: ERM FAST Contract: LANL
 Project No.: PM345.00.01 Site: LOS ALAMO Location: NEW MEXICO Group: _____
 Matrix: (soil/water) SOIL Lab Sample ID: 95-0175
 Sample wt/vol: 5.6 (g/mL) G Lab File ID: LNL092.D
 Level: (low/med) LOW Date Received: 8/23/95
 % Moisture: not dec. 9 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units:	
		(ug/L or ug/Kg)	ug/Kg
67-64-1	Acetone	14	B
75-00-3	Chloroethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-35-4	1,1-Dichloroethene	10	U
67-66-3	Chloroform	10	U
78-93-3	2-Butanone	10	U
74-83-9	Bromomethane	10	U
75-09-2	Methylene chloride	18	B
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis 1,2-Dichloroethene	10	U
156-60-5	trans 1,2-Dichloroethene	10	U
74-97-5	Bromochloromethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
107-06-2	1,2-Dichloroethane	10	U
71-43-2	Benzene	10	U
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
79-01-6	Trichloroethene	10	U
108-88-3	Toluene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
127-18-4	Tetrachloroethene	10	U
106-9-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
75-25-2	Bromoform	10	U
100-42-5	Styrene	10	U

1E
VOLATILE ORGANICS ANALYSIS LABORATORY SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

0121-95-0175

Lab Name: ERM FAST Contract: LANL
 Project No.: PM34 Site: LOS ALAM Location: NEW MEXICO Group: _____
 Matrix: (soil/water) SOIL Lab Sample ID: 95-0175
 Sample wt/vol: 5.6 (g/mL) G Lab File ID: LNL092.D
 Level: (low/med) LOW Date Received: 8/23/95
 % Moisture: not dec. 9 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 22 Concentration Units:
 (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 124-38-9	Carbon dioxide	1.68	380	J
2.	Unknown	1.90	14	J
3.	Unknown	9.44	6	J
4.	Unknown	10.23	9	J
5.	Unknown	10.72	13	J
6.	Unknown	10.73	5	J
7. 3073-66-3	Cyclohexane, 1,1,3-trimethyl	11.63	31	J
8. 1795-26-2	Cyclohexane, 1,3,5-trimethyl	11.95	9	J
9. 7667-60-9	Cyclohexane, 1,2,4-trimethyl	11.95	11	J
10. 7094-26-0	Cyclohexane, 1,1,2-trimethyl	12.67	5	J
11.	Unknown	13.14	10	J
12. 4926-78-7	Cyclohexane, 1-ethyl-4-methyl	13.15	10	J
13. 14676-29-0	Heptane, 3-ethyl-2-methyl-	13.69	18	J
14. 6783-92-2	Cyclohexane, 1,1,2,3-tetrame	14.20	61	J
15. 95-36-3	1,2,4-Trimethylbenzene	14.33	23	J
16. 526-73-8	Benzene, 1,2,3-trimethyl-	15.42	36	J
17. 108-67-8	Benzene, 1,3,5-trimethyl-	15.43	5	J
18. 933-98-2	Benzene, 1-ethyl-2,3-dimethyl	15.98	32	J
19. 933-98-2	Benzene, 1-ethyl-2,3-dimethyl	15.98	9	J
20. 91-17-8	Naphthalene, decahydro-	16.17	13	J
21. 493-02-7	Naphthalene, decahydro-, tra	16.17	9	J
22. 493-02-7	Naphthalene, decahydro-, tra	16.18	8	J
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

VBLK01

Lab Name: ERM FAST Contract: LANL
 Project No.: PM345.00.01 Site: LOS ALAMO Location: NEW MEXICO Group: _____
 Matrix: (soil/water) WATER Lab Sample ID: VBLK01
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: LNLO91.D
 Level: (low/med) _____ Date Received: 8/23/95
 % Moisture: not dec. 100 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units:		Q
		(ug/L or ug/Kg)	ug/L	
67-64-1	Acetone		16	
75-00-3	Chloroethane		10	U
74-87-3	Chloromethane		10	U
75-01-4	Vinyl chloride		10	U
75-35-4	1,1-Dichloroethene		10	U
67-66-3	Chloroform		10	U
78-93-3	2-Butanone		3	J
74-83-9	Bromomethane		10	U
75-09-2	Methylene chloride		16	
75-15-0	Carbon disulfide		10	U
75-34-3	1,1-Dichloroethane		10	U
156-59-2	cis 1,2-Dichloroethene		10	U
156-60-5	trans 1,2-Dichloroethene		10	U
74-97-5	Bromochloromethane		10	U
71-55-6	1,1,1-Trichloroethane		10	U
107-06-2	1,2-Dichloroethane		10	U
71-43-2	Benzene		10	U
56-23-5	Carbon tetrachloride		10	U
75-27-4	Bromodichloromethane		10	U
78-87-5	1,2-Dichloropropane		10	U
10061-02-6	trans-1,3-Dichloropropene		10	U
10061-01-5	cis-1,3-Dichloropropene		10	U
108-10-1	4-Methyl-2-pentanone		10	U
79-01-6	Trichloroethene		10	U
108-88-3	Toluene		10	U
79-00-5	1,1,2-Trichloroethane		10	U
591-78-6	2-Hexanone		10	U
124-48-1	Dibromochloromethane		10	U
127-18-4	Tetrachloroethene		10	U
106-9-4	1,2-Dibromoethane		10	U
108-90-7	Chlorobenzene		10	U
75-25-2	Bromoform		10	U
100-42-5	Styrene		10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

VBLK01

Lab Name: ERM FAST Contract: LANL
 Project No.: PM34 Site: LOS ALAM Location: NEW MEXICO Group: _____
 Matrix: (soil/water) WATER Lab Sample ID: VBLK01
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: LNL091.D
 Level: (low/med) _____ Date Received: 8/23/95
 % Moisture: not dec. 100 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 3 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 124-38-9	Carbon dioxide	1.68	80	J
2.	Unknown	1.88	6	J
3.	Unknown	3.55	8	J
4.				
5.				
6.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

0121-95-0175

Lab Name: ERM FAST Contract: LANL
 Project No.: PM345.00.01 Site: LOS ALAMO Location: NEW MEXICO Group: _____
 Matrix: (soil/water) SOIL Lab Sample ID: 95-0175
 Sample wt/vol: 5.6 (g/mL) G Lab File ID: LNL092.D
 Level: (low/med) LOW Date Received: 8/23/95
 % Moisture: not dec. 9 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units:		Q
		(ug/L or ug/Kg)	<u>ug/Kg</u>	
67-64-1	Acetone		14	B
75-00-3	Chloroethane		10	U
74-87-3	Chloromethane		10	U
75-01-4	Vinyl chloride		10	U
75-35-4	1,1-Dichloroethene		10	U
67-66-3	Chloroform		10	U
78-93-3	2-Butanone		10	U
74-83-9	Bromomethane		10	U
75-09-2	Methylene chloride		18	B
75-15-0	Carbon disulfide		10	U
75-34-3	1,1-Dichloroethane		10	U
156-59-2	cis 1,2-Dichloroethene		10	U
156-60-5	trans 1,2-Dichloroethene		10	U
74-97-5	Bromochloromethane		10	U
71-55-6	1,1,1-Trichloroethane		10	U
107-06-2	1,2-Dichloroethane		10	U
71-43-2	Benzene		10	U
56-23-5	Carbon tetrachloride		10	U
75-27-4	Bromodichloromethane		10	U
78-87-5	1,2-Dichloropropane		10	U
10061-02-6	trans-1,3-Dichloropropene		10	U
10061-01-5	cis-1,3-Dichloropropene		10	U
108-10-1	4-Methyl-2-pentanone		10	U
79-01-6	Trichloroethene		10	U
108-88-3	Toluene		10	U
79-00-5	1,1,2-Trichloroethane		10	U
591-78-6	2-Hexanone		10	U
124-48-1	Dibromochloromethane		10	U
127-18-4	Tetrachloroethene		10	U
106-9-4	1,2-Dibromoethane		10	U
108-90-7	Chlorobenzene		10	U
75-25-2	Bromoform		10	U
100-42-5	Styrene		10	U

1E
VOLATILE ORGANICS ANALYSIS L 4A SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

0121-95-0175

Lab Name: ERM FAST Contract: LANL
 Project No.: PM34 Site: LOS ALAM Location: NEW MEXICO Group: _____
 Matrix: (soil/water) SOIL Lab Sample ID: 95-0175
 Sample wt/vol: 5.6 (g/mL) G Lab File ID: LNL092.D
 Level: (low/med) LOW Date Received: 8/23/95
 % Moisture: not dec. 9 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 22 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 124-38-9	Carbon dioxide	1.68	380	J
2.	Unknown	1.90	14	J
3.	Unknown	9.44	6	J
4.	Unknown	10.23	9	J
5.	Unknown	10.72	13	J
6.	Unknown	10.73	5	J
7. 3073-66-3	Cyclohexane, 1,1,3-trimethyl	11.63	31	J
8. 1795-26-2	Cyclohexane, 1,3,5-trimethyl	11.95	9	J
9. 7667-60-9	Cyclohexane, 1,2,4-trimethyl	11.95	11	J
10. 7094-26-0	Cyclohexane, 1,1,2-trimethyl	12.67	5	J
11.	Unknown	13.14	10	J
12. 4926-78-7	Cyclohexane, 1-ethyl-4-methyl	13.15	10	J
13. 14676-29-0	Heptane, 3-ethyl-2-methyl-	13.69	18	J
14. 6783-92-2	Cyclohexane, 1,1,2,3-tetrame	14.20	61	J
15. 95-36-3	1,2,4-Trimethylbenzene	14.33	23	J
16. 526-73-8	Benzene, 1,2,3-trimethyl-	15.42	36	J
17. 108-67-8	Benzene, 1,3,5-trimethyl-	15.43	5	J
18. 933-98-2	Benzene, 1-ethyl-2,3-dimethyl	15.98	32	J
19. 933-98-2	Benzene, 1-ethyl-2,3-dimethyl	15.98	9	J
20. 91-17-8	Naphthalene, decahydro-	16.17	13	J
21. 493-02-7	Naphthalene, decahydro-, tra	16.17	9	J
22. 493-02-7	Naphthalene, decahydro-, tra	16.18	8	J
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

VBLK01

Lab Name: ERM FAST Contract: LANL
 Project No.: PM345.00.01 Site: LOS ALAMO Location: NEW MEXICO Group: _____
 Matrix: (soil/water) WATER Lab Sample ID: VBLK01
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: LNL091.D
 Level: (low/med) _____ Date Received: 8/23/95
 % Moisture: not dec. 100 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units:	
		(ug/L or ug/Kg)	ug/L
67-64-1	Acetone	16	
75-00-3	Chloroethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl chloride	10	U
75-35-4	1,1-Dichloroethene	10	U
67-66-3	Chloroform	10	U
78-93-3	2-Butanone	3	J
74-83-9	Bromomethane	10	U
75-09-2	Methylene chloride	16	
75-15-0	Carbon disulfide	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis 1,2-Dichloroethene	10	U
156-60-5	trans 1,2-Dichloroethene	10	U
74-97-5	Bromochloromethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
107-06-2	1,2-Dichloroethane	10	U
71-43-2	Benzene	10	U
56-23-5	Carbon tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
79-01-6	Trichloroethene	10	U
108-88-3	Toluene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
127-18-4	Tetrachloroethene	10	U
106-9-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
75-25-2	Bromoform	10	U
100-42-5	Styrene	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

VBLK01

Lab Name: ERM FAST Contract: LANL
 Project No.: PM34 Site: LOS ALAM Location: NEW MEXICO Group: _____
 Matrix: (soil/water) WATER Lab Sample ID: VBLK01
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: LNL091.D
 Level: (low/med) _____ Date Received: 8/23/95
 % Moisture: not dec. 100 Date Analyzed: 8/23/95
 GC Column: HP-5 ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 3 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 124-38-9	Carbon dioxide	1.68	80	J
2.	Unknown	1.88	6	J
3.	Unknown	3.55	8	J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
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18.				
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20.				
21.				
22.				
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24.				
25.				
26.				
27.				
28.				
29.				
30.				

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V61418.D
 Acq Time : 14 Jun 95 6:25 pm
 Sample : 100 UL MEOH
 Misc :
 Quant Time: Jun 14 18:41 1995

Operator: lbd
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
 Title : VOA
 Last Update : Wed Jun 07 08:15:29 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.93	114	282648	50.00	ug/l	0.03
34) Chlorobenzene-d5	10.35	117	181678	50.00	ug/l	0.04
51) 1,4-Dichlorobenzene-d4	12.81	152	90128	50.00	ug/l	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.44	65	57434	46.03		92.05%
33) Toluene-d8	8.70	98	265423	51.17		102.33%
52) BFB	11.61	95	102869	44.50	ug/l	89.00%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
-12) Acetone	4.00	43	7887	28.77		# 48
13) Methylene Chloride	4.10	84	8729273	81.75		# 38
-18) 2-Butanone	5.55	43	33826	81.85		# 77
19) Bromochloromethane	5.99	49	13585	6.74		# 27
-25) Benzene	6.52	78	60414	6.64		# 94
32) 4-Methyl-2-Pentanone	8.69	43	1462	2.00		# 1
-35) Toluene	8.78	91	26206	3.11		# 97
53) Bromobenzene	11.77	77	5211	1.18		# 88
54) 1,2,3-Trichloropropene	11.61	75	51673	262.67		# 44
55) 1,1,2,2-Tetrachloroethane	12.08	83	1367	1.91		# 1
56) N-propylbenzene	11.89	91	11791	0.97		# 86
57) 2-Chlorotoluene	11.98	91	6174	0.90		# 46
58) 4-Chlorotoluene	12.09	91	11442	1.51		# 93
59) 1,3,5-Trimethylbenzene	12.07	105	9719	1.27		# 90
60) Tert-Butylbenzene	12.77	119	12406	1.40		# 98
61) 1,2,4-Trimethylbenzene	12.45	105	9885	1.30		# 96
62) Sec-Butylbenzene	12.63	105	12874	1.20		# 94
63) 1,3-Dichlorobenzene	12.75	146	9722	2.46		# 95
64) P-Isopropyltoluene	12.77	119	12406	1.40		# 99
65) 1,4-Dichlorobenzene	12.75	146	9722	2.46		# 96
66) N-Butylbenzene	13.18	91	16629	1.97		# 93
67) 1,2-Dichlorobenzene	12.83	146	13247	4.35		# 92
69) 1,2,4-Trichlorobenzene	14.73	180	8470	5.22		# 97
70) Hexachlorobutadiene	14.87	225	4068	2.28		# 58

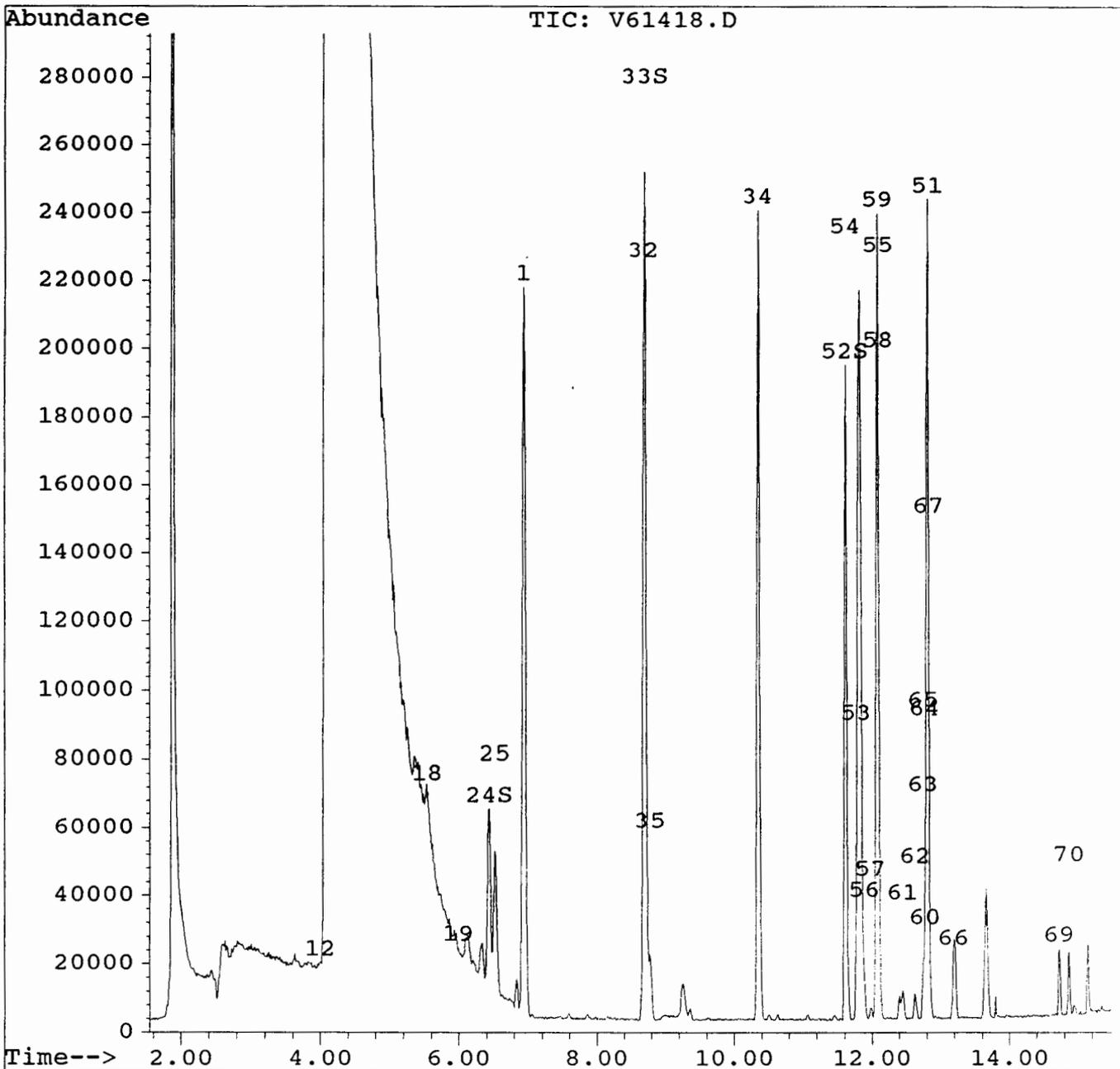
(#) = qualifier out of range (m) = manual integration
 V61418.D VOAML607.M Wed Jun 14 18:41:46 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V61418.D
Acq Time : 14 Jun 95 6:25 pm
Sample : 100 UL MEOH
Misc :
Quant Time: Jun 14 18:41 1995

Operator: lbd
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
Title : VOA
Last Update : Wed Jun 07 08:15:29 1995
Response via : Multiple Level Calibration

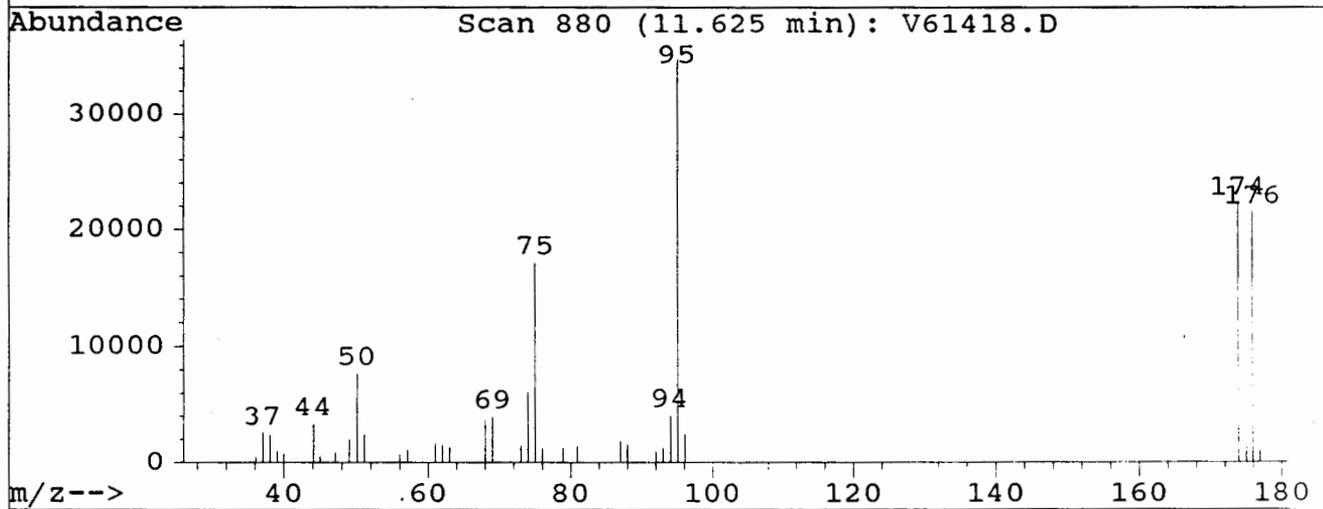
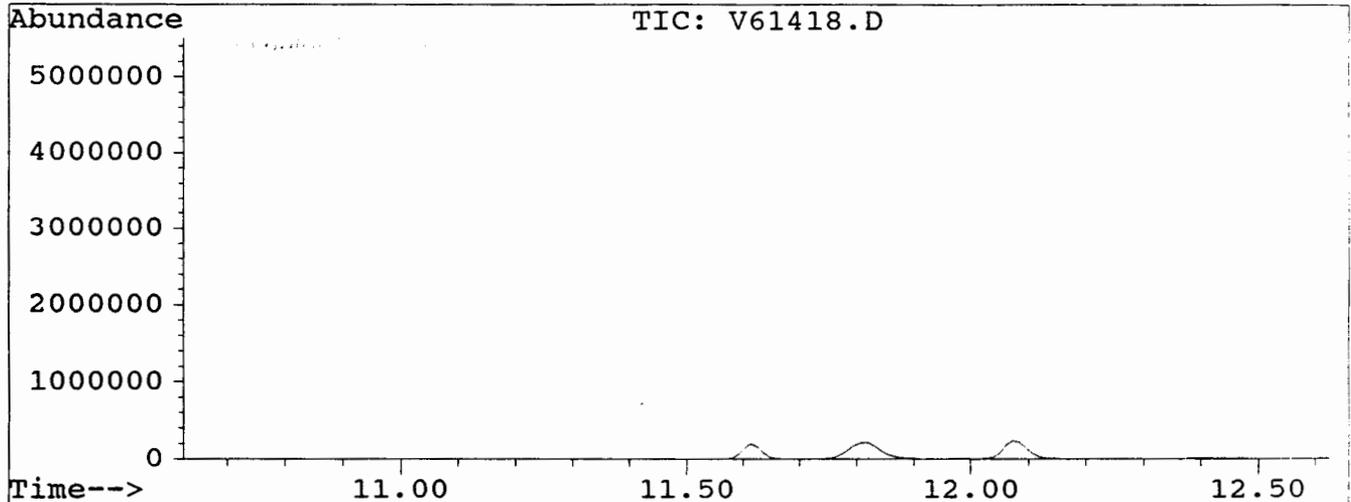


BFB

Data File : C:\HPCHEM\1\DATA\V61418.D
Acq Time : 14 Jun 95 6:25 pm
Sample : 100 UL MEOH
Misc :

Operator: lbd
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
Title : VOA



Peak Apex is scan: 880

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	22.2	7707	PASS
75	95	30	60	49.4	17176	PASS
95	95	100	100	100.0	34784	PASS
96	95	5	9	7.0	2440	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	64.0	22272	PASS
175	174	5	9	6.6	1472	PASS
176	174	95	101	96.6	21504	PASS
177	176	5	9	6.4	1373	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V61417.D
 Acq Time : 14 Jun 95 6:00 pm
 Sample : 50PPB VOA
 Misc :
 Quant Time: Jun 14 18:16 1995

Operator: lbd
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
 Title : VOA
 Last Update : Wed Jun 07 08:15:29 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.93	114	251391	50.00	ug/l	0.03
34) Chlorobenzene-d5	10.35	117	179247	50.00	ug/l	0.04
51) 1,4-Dichlorobenzene-d4	12.81	152	104800	50.00	ug/l	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.43	65	53189	47.92		95.85%
33) Toluene-d8	8.70	98	251712	54.56		109.11%
52) BFB	11.61	95	120396	44.79	ug/l	89.58%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
3) Chloromethane	2.23	50	238576	63.94		100
4) Vinyl Chloride	2.34	62	191349	58.08		100
5) Bromomethane	2.67	94	99751	48.61		94
6) Chloroethane	2.78	64	84690	61.72		92
7) Trichlorofluoromethane	3.04	101	318244	56.68		97
8) 1,1-Dichloroethene	3.59	61	261810	60.53	#	81
10) Iodomethane	3.77	142	143917	69.42	#	86
11) Carbon Disulfide	3.85	76	396462	48.32		100
12) Acetone	3.99	43	9631	39.49	#	48
13) Methylene Chloride	4.10	84	2097991	22.09	#	39
14) Trans-1,2-Dichloroethene	5.51	61	220542	56.39	#	76
15) 1,1-Dichloroethane	4.87	63	258980	51.10		99
16) 2,2-Dichloropropane	5.52	77	237108	55.02		99
17) Cis-1,2-Dichloroethene	5.51	61	220542	56.39	#	76
18) 2-Butanone	5.54	43	21785	59.27	#	85
19) Bromochloromethane	5.78	49	111862	62.37	#	82
20) Chloroform	5.87	83	240385	53.61		99
21) 1,1,1-Trichloroethane	6.10	97	188776	45.07		99
22) 1,1-Dichloropropene	6.28	75	206237	56.42	#	42
23) Carbon Tetrachloride	6.30	117	167327	53.06		99
25) Benzene	6.52	78	493536	61.00		94
26) 1,2-Dichloroethane	6.52	62	95574	51.26		97
27) Trichloroethene	7.26	130	148652	53.59		94
28) 1,2-Dichloropropane	7.50	63	140203	67.44		98
29) Dibromomethane	7.63	174	38034	41.61		85
30) Bromodichloromethane	7.82	83	166221	50.09		98
31) Cis-1,3-Dichloropropene	8.36	75	139547	57.64		97
32) 4-Methyl-2-Pentanone	8.54	43	29738	45.73	#	79
35) Toluene	8.78	91	480013	57.77		99
36) Trans-1,2-Dichloropropene	9.00	75	92162	53.25	#	69
37) 1,1,2-Trichloroethane	9.22	97	55205	54.23	#	84
38) Tetrachloroethene	9.43	166	155379	52.29		96
39) 1,3-Dichloropropane	9.42	76	105325	55.50	#	47
40) 2-Hexanone	9.51	43	17491	43.65	#	79

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V61417.D
 Acq Time : 14 Jun 95 6:00 pm
 Sample : 50PPB VOA
 Misc :
 Quant Time: Jun 14 18:16 1995

Operator: lbd
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
 Title : VOA
 Last Update : Wed Jun 07 08:15:29 1995
 Response via : Multiple Level Calibration

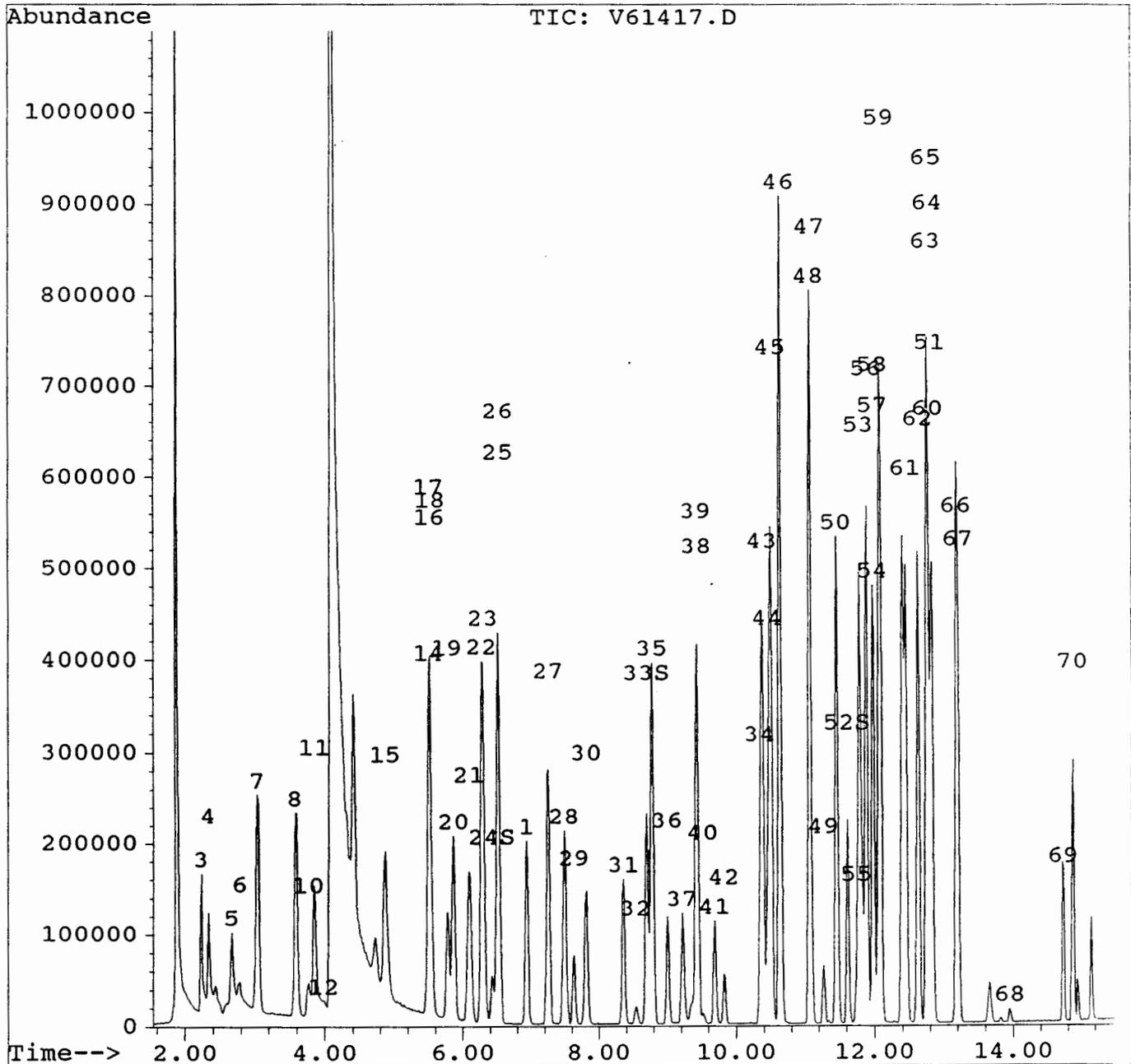
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Dibromochloromethane	9.69	129	89157	47.43		99
42) 1,2-Dibromoethane	9.82	107	59831	48.86		96
43) Chlorobenzene	10.39	112	285265	53.85		96
44) 1,1,1,2-Tetrachloroethane	10.47	133	103822	55.39		95
45) Ethylbenzene	10.50	91	562933	56.77		99
46) M+P-Xylene	10.63	91	858756	55.42		97
47) Styrene	11.07	104	287721	56.28	#	83
48) O-Xylene	11.06	91	409981	54.80		97
49) Bromoform	11.27	173	41710	44.97		100
50) Iso-propylbenzene	11.45	105	554389	56.85		100
53) Bromobenzene	11.79	77	252008	48.97		93
54) 1,2,3-Trichloropropene	11.98	75	11309	49.44	#	44
55) 1,1,2,2-Tetrachloroethane	11.74	83	39934	47.88		96
56) N-propylbenzene	11.89	91	721406	51.03		100
57) 2-Chlorotoluene	11.98	91	417476	52.09		98
58) 4-Chlorotoluene	11.98	91	417476	47.24		94
59) 1,3,5-Trimethylbenzene	12.07	105	423001	47.59		97
60) Tert-Butylbenzene	12.77	119	469661	45.52		96
61) 1,2,4-Trimethylbenzene	12.45	105	410055	46.52		91
62) Sec-Butylbenzene	12.63	105	612833	48.93		97
63) 1,3-Dichlorobenzene	12.75	146	235930	51.44		96
64) P-Isopropyltoluene	12.77	119	469661	45.52		95
65) 1,4-Dichlorobenzene	12.75	146	235930	51.44		98
66) N-Butylbenzene	13.17	91	474758	48.49		97
67) 1,2-Dichlorobenzene	13.21	146	170193	48.09		95
68) 1,2-Dibromo-3-Chloropropan	13.95	157	5799	34.60		89
69) 1,2,4-Trichlorobenzene	14.73	180	64283	34.04	#	96
70) Hexachlorobutadiene	14.87	225	53534	25.86	#	83

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V61417.D
Acq Time : 14 Jun 95 6:00 pm
Sample : 50PPB VOA
Misc :
Quant Time: Jun 14 18:16 1995

Operator: lbd
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
Title : VOA
Last Update : Wed Jun 07 08:15:29 1995
Response via : Multiple Level Calibration



Volatile Organic Compounds in Water - Analytical Results

Sample ID:	0121-95-0116	Dilution:	1
Analyst:	LBD		
Sample Vol.(ml):	5		
Date Extracted:	30-May-95		
Date Analyzed:	31-May-95		
File ID.:	V53017		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.93	98

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0124
 Analyst: LBD Dilution: 1
 Sample Wt.(g): 10
 Date Extracted: 19-May-95
 Date Analyzed: 30-May-95
 File ID.: V53027
 Technique: GCMS

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.14	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3005

18.9-19.3

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0035
 Analyst: LBD
 Sample Wt.(g): 10.85
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522611
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.25	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	146.45	3,374	200
Benzene	71-43-2	28.12	648	50
Toluene	108-88-3	10.56	243	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0125
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 19-May-95
 Date Analyzed: 30-May-95
 File ID.: V53028
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.51	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0126
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 19-May-95
 Date Analyzed: 30-May-95
 File ID.: V53029
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.25	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3006

Sample ID: 0121-95-0124
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53027
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.14	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3006

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0125	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53028		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.51	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3006

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0126
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53029
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.25	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3008
43.8-44.2

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0132
Analyst: LBD
Sample Wt.(g): 10.378
Date Extracted: 23-May-95
Date Analyzed: 23-May-95
File ID.: BTX52307
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		58.03	116

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	13.78	332	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3008
 49.1-19.C

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0133
 Analyst: LBD
 Sample Wt.(g): 10.316
 Date Extracted: 23-May-95
 Date Analyzed: 23-May-95
 File ID.: BTX52306
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		52.51	105

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3010
9-2-95

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0075
 Analyst: LBD
 Sample Wt.(g): 10.592
 Date Extracted: 22-May-95
 Date Analyzed: 23-May-95
 File ID.: BTX52309
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		55.86	112

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60802.D
 Acq Time : 8 Jun 95 10:52 am
 Sample : blank
 Misc :
 Quant Time: Jun 9 10:06 1995

Operator: lbd
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
 Title : VOA
 Last Update : Wed Jun 07 08:15:29 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) 1,4-Difluorobenzene	6.90	114	317578	50.00	ug/l	0.00
34) Chlorobenzene-d5	10.32	117	214177	50.00	ug/l	0.00
51) 1,4-Dichlorobenzene-d4	12.77	152	92402	50.00	ug/l	0.00
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.39	65	85583	61.04		122.08%
33) Toluene-d8	8.65	98	287200	49.27		98.55%
52) BFB	11.58	95	134691	56.83	ug/l	113.67%
Target Compounds						Qvalue
12) Acetone	3.99	43	1607	5.22	#	48
13) Methylene Chloride	4.08	84	76635	0.64		96
18) 2-Butanone	5.51	43	3595	7.74	#	50
25) Benzene	6.49	78	5865	0.57	#	48
47) Styrene	11.04	104	3087	0.51		96
48) O-Xylene	11.03	91	4689	0.52		87
50) Iso-propylbenzene	11.42	105	7382	0.63	#	84
53) Bromobenzene	11.74	77	7428	1.64		93
54) 1,2,3-Trichloropropene	11.75	75	2053	10.18	#	44
56) N-propylbenzene	11.85	91	17338	1.39		95
57) 2-Chlorotoluene	11.94	91	12278	1.74		97
58) 4-Chlorotoluene	11.94	91	12278	1.58		100
59) 1,3,5-Trimethylbenzene	12.04	105	14012	1.79		92
60) Tert-Butylbenzene	12.74	119	23755	2.61		94
61) 1,2,4-Trimethylbenzene	12.41	105	19867	2.56		96
62) Sec-Butylbenzene	12.59	105	22388	2.03		95
63) 1,3-Dichlorobenzene	12.71	146	13033	3.22		95
64) P-Isopropyltoluene	12.74	119	23755	2.61		94
65) 1,4-Dichlorobenzene	12.71	146	13033	3.22		94
66) N-Butylbenzene	13.15	91	26221	3.04		94
67) 1,2-Dichlorobenzene	13.17	146	13477	4.32		96
69) 1,2,4-Trichlorobenzene	14.70	180	14194	8.52		95
70) Hexachlorobutadiene	14.83	225	13061	7.16	#	91

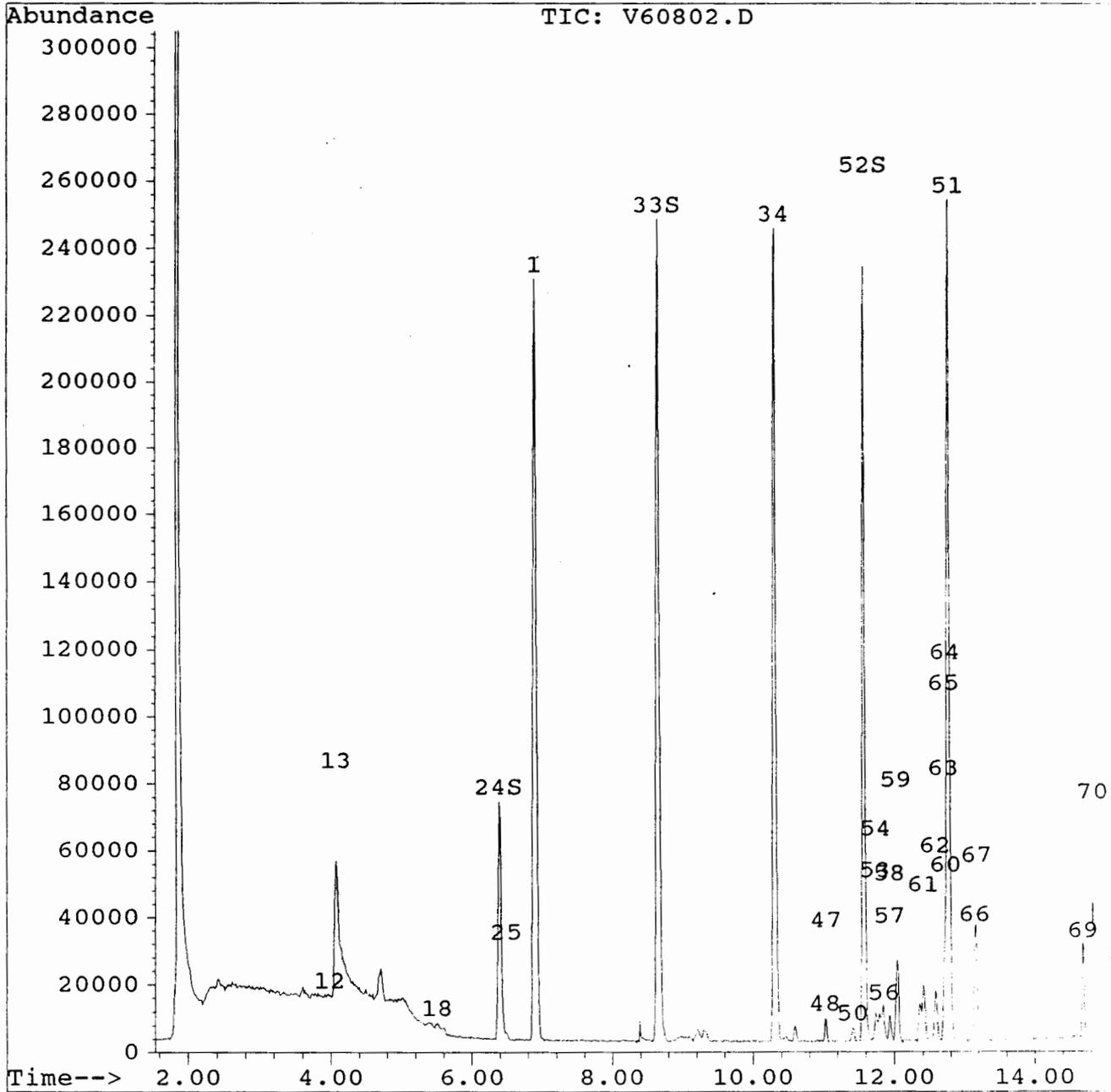
(#) = qualifier out of range (m) = manual integration
 V60802.D VOAML607.M Sun Jun 18 08:27:22 1995

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60802.D
Acq Time : 8 Jun 95 10:52 am
Sample : blank
Misc :
Quant Time: Jun 9 10:06 1995

Operator: lbd
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
Title : VOA
Last Update : Wed Jun 07 08:15:29 1995
Response via : Multiple Level Calibration

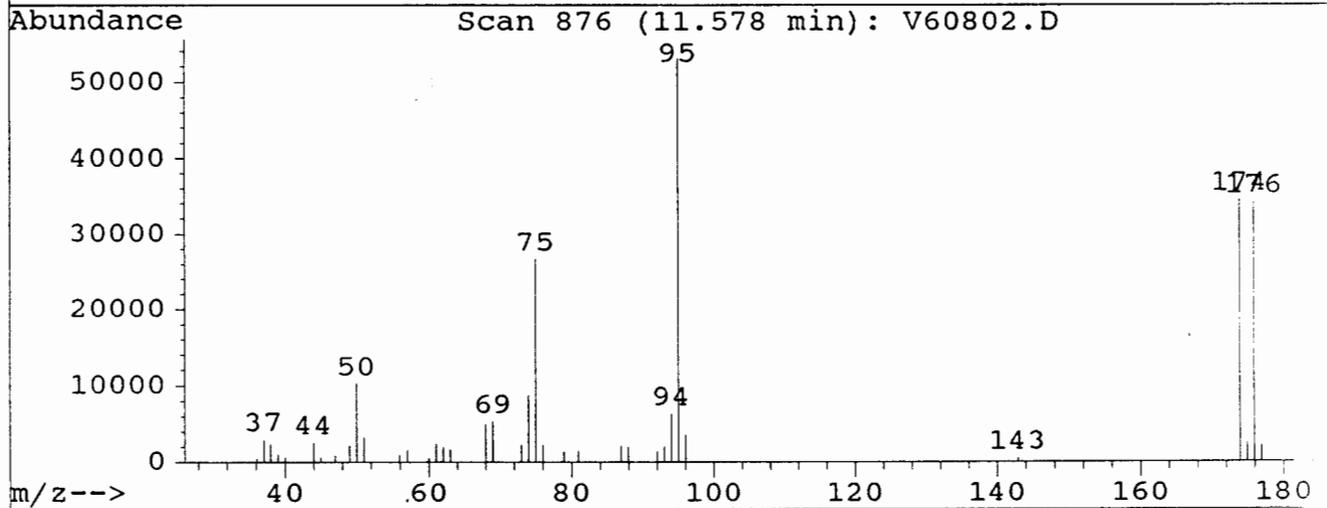
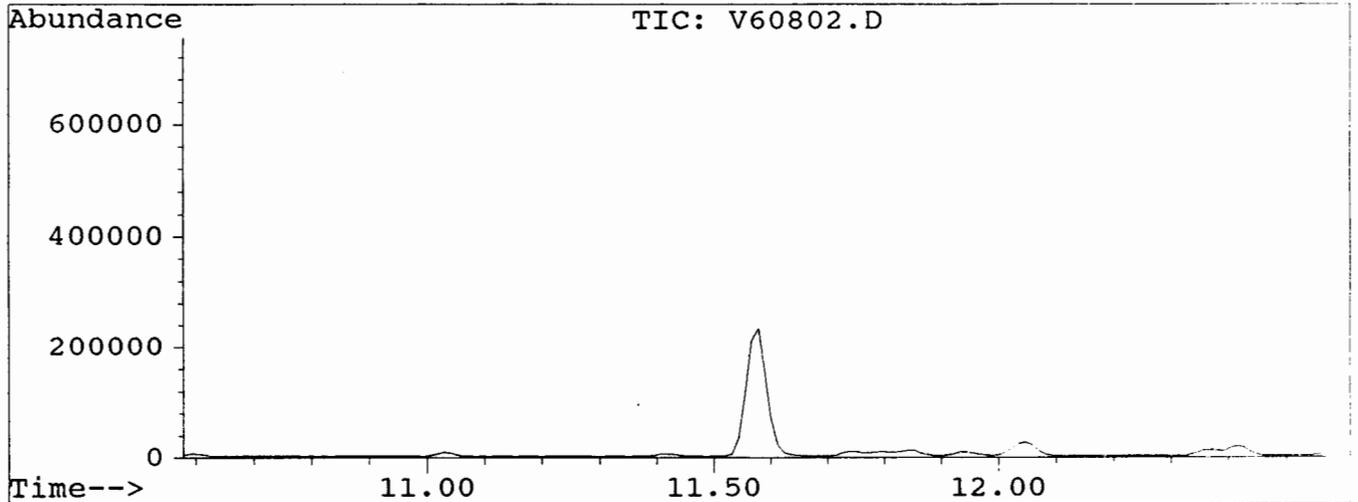


BFB

Data File : C:\HPCHEM\1\DATA\V60802.D
Acq Time : 8 Jun 95 10:52 am
Sample : blank
Misc :

Operator: lbd
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
Title : VOA



Peak Apex is scan: 876

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.3	10275	PASS
75	95	30	60	50.3	26720	PASS
95	95	100	100	100.0	53120	PASS
96	95	5	9	6.7	3545	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	65.1	34600	PASS
175	174	5	9	7.3	2524	PASS
176	174	95	101	99.0	34248	PASS
177	176	5	9	6.4	2180	PASS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60901.D
 Acq Time : 9 Jun 95 10:43 am
 Sample : 100 ul MeOH
 Misc :
 Quant Time: Jun 9 11:00 1995

Operator: lbd
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
 Title : VOA
 Last Update : Wed Jun 07 08:15:29 1995
 Response via : Multiple Level Calibration

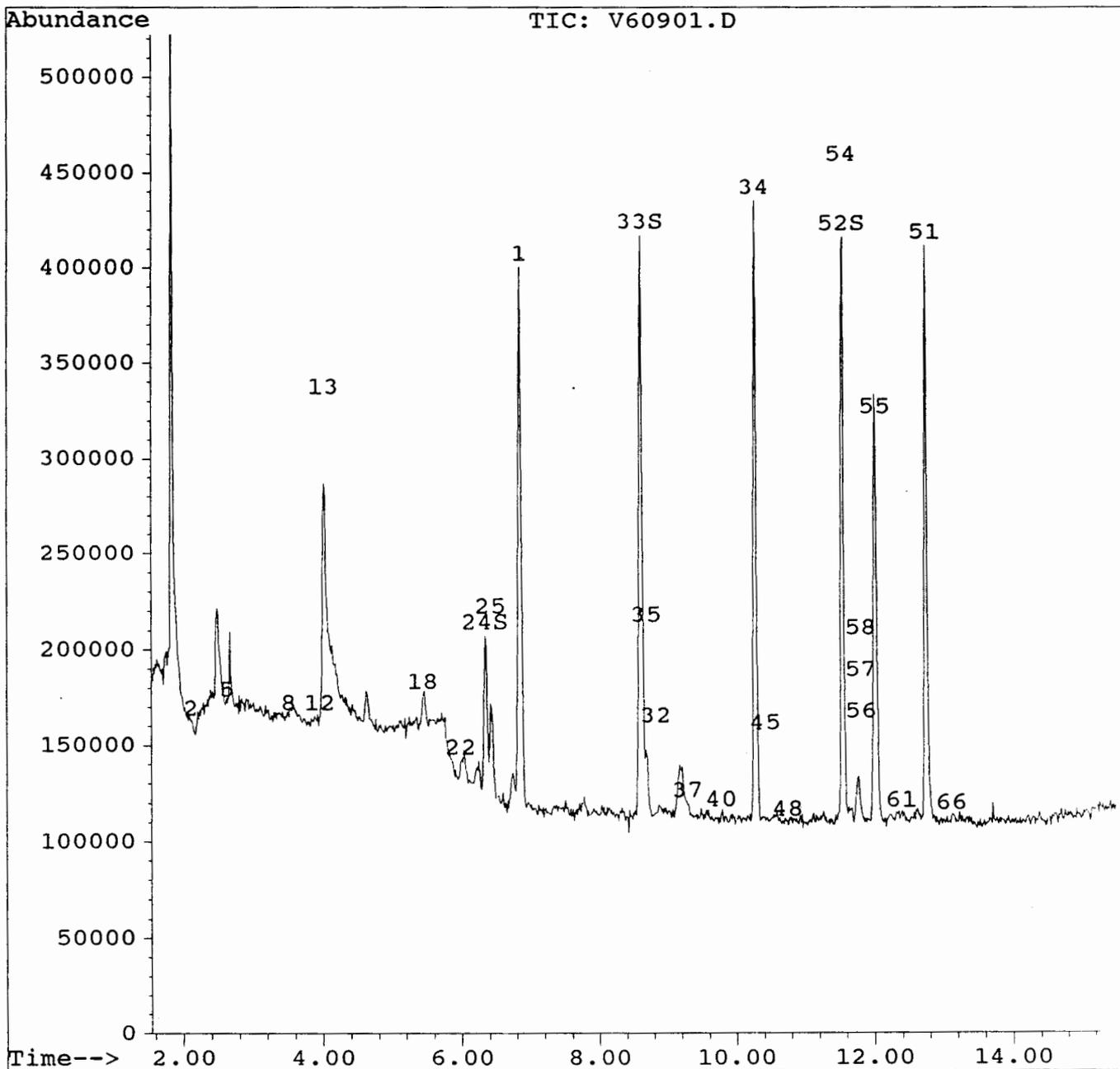
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.85	114	365669	50.00	ug/l	-0.05
34) Chlorobenzene-d5	10.28	117	248588	50.00	ug/l	-0.03
51) 1,4-Dichlorobenzene-d4	12.75	152	117736	50.00	ug/l	-0.03
System Monitoring Compounds						%Recovery
24) 1,2-Dichloroethane-d4	6.35	65	109254	67.68		135.35%
33) Toluene-d8	8.62	98	355327	52.94		105.89%
52) BFB	11.55	95	173247	57.37	ug/l	114.75%
Target Compounds						Qvalue
2) Dichlorodifluoromethane	2.12	85	3441	284.15		# 82
5) Bromomethane	2.63	94	3252	1.09		# 78
8) 1,1-Dichloroethene	3.52	61	3378	0.54		# 28
-12) Acetone	3.96	43	5338	15.05		# 48
13) Methylene Chloride	4.02	84	154220	1.12		# 35
-18) 2-Butanone	5.45	43	122100	228.36		# 65
22) 1,1-Dichloropropene	5.99	75	6449	1.21		# 61
-25) Benzene	6.43	78	75279	6.40		# 98
32) 4-Methyl-2-Pentanone	8.84	43	2600	2.75		# 96
-35) Toluene	8.70	91	36951	3.21		# 98
37) 1,1,2-Trichloroethane	9.30	97	12508	8.86		# 21
40) 2-Hexanone	9.79	43	2459	4.42		# 97
-45) Ethylbenzene	10.43	91	7155	0.52		# 45
-48) O-Xylene	10.75	91	12765	1.23		# 29
54) 1,2,3-Trichloropropene	11.54	75	95696	372.38		# 44
55) 1,1,2,2-Tetrachloroethane	12.02	83	3166	3.38		# 1
56) N-propylbenzene	11.82	91	18110	1.14		# 56
57) 2-Chlorotoluene	11.82	91	18110	2.01		# 46
58) 4-Chlorotoluene	11.82	91	18110	1.82		# 49
61) 1,2,4-Trimethylbenzene	12.39	105	5036	0.51		# 29
66) N-Butylbenzene	13.11	91	9127	0.83		# 30

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60901.D
Acq Time : 9 Jun 95 10:43 am
Sample : 100 ul MeOH
Misc :
Quant Time: Jun 9 11:00 1995

Operator: lbd
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
Title : VOA
Last Update : Wed Jun 07 08:15:29 1995
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60801.D
 Acq Time : 8 Jun 95 10:27 am
 Sample : daily 50
 Misc :
 Quant Time: Jun 9 10:04 1995

Operator: lbd
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
 Title : VOA
 Last Update : Wed Jun 07 08:15:29 1995
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Difluorobenzene	6.89	114	351579	50.00	ug/l	-0.02
34) Chlorobenzene-d5	10.31	117	220534	50.00	ug/l	0.00
51) 1,4-Dichlorobenzene-d4	12.76	152	87237	50.00	ug/l	-0.02

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
24) 1,2-Dichloroethane-d4	6.38	65	75774	48.82		97.64
33) Toluene-d8	8.64	98	324339	50.26		100.53
52) BFB	11.57	95	134497	60.11	ug/l	120.22

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
3) Chloromethane	2.21	50	210967	40.43		100
4) Vinyl Chloride	2.31	62	208348	45.22		100
5) Bromomethane	2.65	94	137824	48.02		93
6) Chloroethane	2.75	64	96400	50.24		91
7) Trichlorofluoromethane	3.00	101	454079	57.83		98
8) 1,1-Dichloroethene	3.55	61	290481	48.02		98
10) Iodomethane	3.74	142	168397	58.08	#	68
11) Carbon Disulfide	3.82	76	575084	50.12		100
12) Acetone	3.96	43	14428	42.30	#	48
13) Methylene Chloride	4.07	84	2998689	22.58		100
14) Trans-1,2-Dichloroethene	5.48	61	276725	50.60		93
15) 1,1-Dichloroethane	4.84	63	305683	43.12		99
16) 2,2-Dichloropropane	5.49	77	326780	54.22		100
17) Cis-1,2-Dichloroethene	5.48	61	276725	50.60		93
18) 2-Butanone	5.50	43	24319	47.31		94
19) Bromochloromethane	5.74	49	130491	52.02		99
20) Chloroform	5.82	83	322448	51.42		99
21) 1,1,1-Trichloroethane	6.06	97	322894	55.12		99
22) 1,1-Dichloropropene	6.25	75	280399	54.85	#	62
23) Carbon Tetrachloride	6.26	117	260137	58.99		100
25) Benzene	6.48	78	574523	50.78		95
26) 1,2-Dichloroethane	6.48	62	117462	45.05		99
27) Trichloroethene	7.21	130	191429	49.34		98
28) 1,2-Dichloropropane	7.45	63	133950	46.07		100
29) Dibromomethane	7.59	174	60440	47.28		92
30) Bromodichloromethane	7.76	83	222326	47.91		100
31) Cis-1,3-Dichloropropene	8.31	75	165825	48.98		99
32) 4-Methyl-2-Pentanone	8.49	43	34483	37.91	#	85
35) Toluene	8.73	91	569183	55.67		99
36) Trans-1,2-Dichloropropene	8.95	75	107913	50.68	#	73
37) 1,1,2-Trichloroethane	9.17	97	61745	49.30	#	92
38) Tetrachloroethene	9.39	166	192404	52.63	#	92
39) 1,3-Dichloropropane	9.37	76	111021	47.55	#	65
40) 2-Hexanone	9.48	43	18961	38.46	#	79

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

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60801.D
 Acq Time : 8 Jun 95 10:27 am
 Sample : daily 50
 Misc :
 Quant Time: Jun 9 10:04 1995

Operator: lbd
 Inst : 5972
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
 Title : VOA
 Last Update : Wed Jun 07 08:15:29 1995
 Response via : Multiple Level Calibration

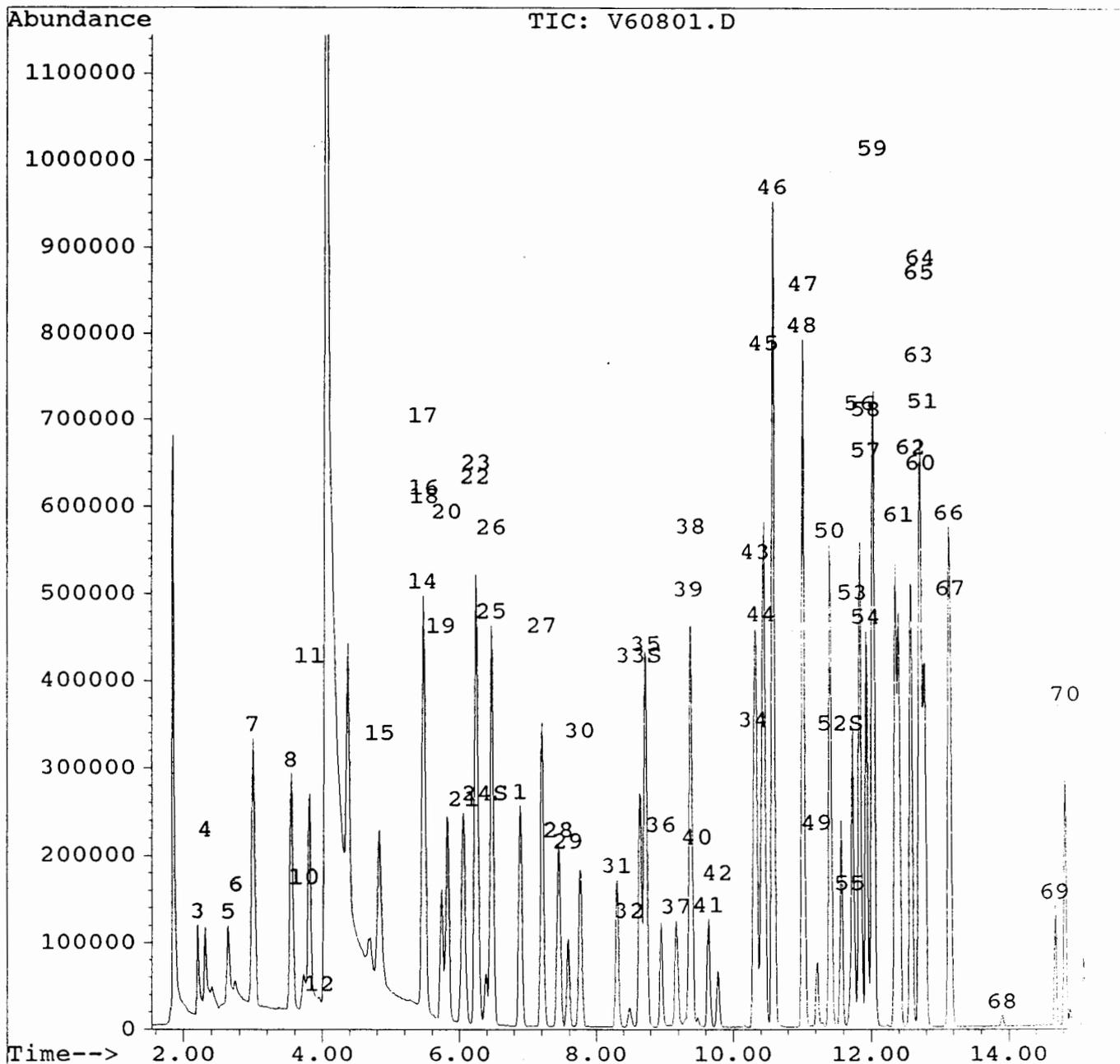
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Dibromochloromethane	9.64	129	107497	46.48		99
42) 1,2-Dibromoethane	9.78	107	72008	47.80		100
43) Chlorobenzene	10.34	112	318346	48.84		96
44) 1,1,1,2-Tetrachloroethane	10.42	133	112147	48.63		97
45) Ethylbenzene	10.45	91	663200	54.36		97
46) M+P-Xylene	10.58	91	1000080	52.46		94
47) Styrene	11.03	104	298300	47.43	#	79
48) O-Xylene	11.02	91	459825	49.96		94
49) Bromoform	11.22	173	51791	45.38		100
50) Iso-propylbenzene	11.41	105	620759	51.74		99
53) Bromobenzene	11.74	77	238554	55.69		96
54) 1,2,3-Trichloropropene	11.93	75	10934	57.42	#	44
55) 1,1,2,2-Tetrachloroethane	11.69	83	36995	53.29		98
56) N-propylbenzene	11.84	91	740269	62.91		98
57) 2-Chlorotoluene	11.93	91	436198	65.38		99
58) 4-Chlorotoluene	11.93	91	436198	59.29		97
59) 1,3,5-Trimethylbenzene	12.03	105	450788	60.93		95
60) Tert-Butylbenzene	12.72	119	506983	59.02		96
61) 1,2,4-Trimethylbenzene	12.40	105	423113	57.67		91
62) Sec-Butylbenzene	12.59	105	636182	61.02		99
63) 1,3-Dichlorobenzene	12.70	146	190456	49.88		98
64) P-Isopropyltoluene	12.72	119	506983	59.02		94
65) 1,4-Dichlorobenzene	12.70	146	190456	49.88		97
66) N-Butylbenzene	13.14	91	470757	57.76		98
67) 1,2-Dichlorobenzene	13.16	146	136392	46.30		98
68) 1,2-Dibromo-3-Chloropropan	13.91	157	5804	41.61		87
69) 1,2,4-Trichlorobenzene	14.69	180	58213	37.03		99
70) Hexachlorobutadiene	14.83	225	79409	46.08		93

Quantitation Report

Data File : C:\HPCHEM\1\DATA\V60801.D
Acq Time : 8 Jun 95 10:27 am
Sample : daily 50
Misc :
Quant Time: Jun 9 10:04 1995

Operator: lbd
Inst : 5972
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VOAML607.M
Title : VOA
Last Update : Wed Jun 07 08:15:29 1995
Response via : Multiple Level Calibration



Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0114
Analyst: LBD
Sample Vol.(ml): 5
Date Extracted: 19-May-95
Date Analyzed: 19-May-95
File ID.: BTX51915
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.16	98

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

21-3007
19.0 17.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0052	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10.484		
Date Extracted:	19-May-95		
Date Analyzed:	19-May-95		
File ID.:	BTX51906		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.01	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0053
 Analyst: LBD Dilution: 1
 Sample Wt.(g): 10.507
 Date Extracted: 19-May-95
 Date Analyzed: 19-May-95
 File ID.: BTX51905
 Technique: GCMS

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.89	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21 300 7
29.2 - 29.7

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0054
Analyst: LBD
Sample Wt.(g): 10.034
Date Extracted: 19-May-95
Date Analyzed: 19-May-95
File ID.: BTX51903
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.56	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0055
 Analyst: LBD
 Sample Wt.(g): 10.529
 Date Extracted: 19-May-95
 Date Analyzed: 19-May-95
 File ID.: BTX51813
 Technique: GCMS
 Cas#

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	49.96	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0056
 Analyst: LBD
 Sample Wt.(g): 10.016
 Date Extracted: 19-May-95
 Date Analyzed: 19-May-95
 File ID.: BTX51814
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	50.18	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0127
 Analyst: LBD
 Sample Wt.(g): 10.572
 Date Extracted: 19-May-95
 Date Analyzed: 19-May-95
 File ID.: BTX51912
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.45	50

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0129
 Analyst: LBD
 Sample Wt.(g): 10.703
 Date Extracted: 19-May-95
 Date Analyzed: 19-May-95
 File ID.: BTX51911
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.68	50

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

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4-48

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0049
 Analyst: LBD
 Sample Wt.(g): 10.716
 Date Extracted: 19-May-95
 Date Analyzed: 19-May-95
 File ID.: BTX51909
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.95	50

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	<u>0121-95-0050</u>	Dilution:	1
Analyst:	<u>LBD</u>		
Sample Wt.(g):	<u>10.111</u>		
Date Extracted:	<u>19-May-95</u>		
Date Analyzed:	<u>19-May-95</u>		
File ID.:	<u>BTX51908</u>		
Technique:	<u>GCMS</u>		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.02	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-301
14.3-14.8

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0051
Analyst: LBD
Sample Wt.(g): 10.528
Date Extracted: 19-May-95
Date Analyzed: 19-May-95
File ID.: BTX51907
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.74	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3010
4.0-4.7

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0074
Analyst: LBD
Sample Wt.(g): 10.552
Date Extracted: 22-May-95
Date Analyzed: 22-May-95
File ID.: BTX52207
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		57.6	115

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0075
 Analyst: LBD
 Sample Wt.(g): 10.592
 Date Extracted: 22-May-95
 Date Analyzed: 23-May-95
 File ID.: BTX52309
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		55.86	112

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3070
12.5.10.15

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	<u>0121-95-0076</u>	Dilution:	1
Analyst:	<u>LBD</u>		
Sample Wt.(g):	<u>10.234</u>		
Date Extracted:	<u>22-May-95</u>		
Date Analyzed:	<u>22-May-95</u>		
File ID.:	<u>BTX52214</u>		
Technique:	<u>GCMS</u>		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		59.08	118

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3010
19.0-19.4

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0077
 Analyst: LBD
 Sample Wt.(g): 10.333
 Date Extracted: 22-May-95
 Date Analyzed: 22-May-95
 File ID.: BTX52209
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		57.63	115

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

0121-95-0078
 23.7-24.1

Sample ID: 0121-95-0078
 Analyst: LBD
 Sample Wt.(g): 10.636
 Date Extracted: 22-May-95
 Date Analyzed: 22-May-95
 File ID.: BTX52213
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		58	116

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

0121-95-0079
22 May 95

Sample ID: 0121-95-0079
 Analyst: LBD
 Sample Wt.(g): 10.569
 Date Extracted: 22-May-95
 Date Analyzed: 22-May-95
 File ID.: BTX52212
 Technique: GCMS
 Cas#

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	57.7	115

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3010
335-340

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0080
 Analyst: LBD Dilution: 1
 Sample Wt.(g): 10.65
 Date Extracted: 22-May-95
 Date Analyzed: 22-May-95
 File ID.: BTX52211
 Technique: GCMS

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		60.85	122

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0115
 Analyst: LBD
 Sample Vol.(ml): 5
 Date Extracted: 23-May-95
 Date Analyzed: 23-May-95
 File ID.: BTX52323
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		53.45	107

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

21-3012
3.2.3.6

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0090
Analyst: LBD
Sample Wt.(g): 10.62
Date Extracted: 24-May-95
Date Analyzed: 24-May-95
File ID.: V52507
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.93	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

21-3012
86-9,2

Sample ID: 0121-95-0091
 Analyst: LBD
 Sample Wt.(g): 10.47
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52506
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.93	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	45.1	1,077	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3012
14.0-14.7

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0092
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52509
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3012
16.7-17.3

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0093
Analyst: LBD
Sample Wt.(g): 10
Date Extracted: 24-May-95
Date Analyzed: 24-May-95
File ID.: V52508
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.39	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0094	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	24-May-95		
Date Analyzed:	24-May-95		
File ID.:	V52511		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		52	104

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3012
26.3-26.9

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0095
Analyst: LBD
Sample Wt.(g): 10
Date Extracted: 24-May-95
Date Analyzed: 24-May-95
File ID.: V52510
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.8	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-2012

38.9-39.7

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0096
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52512
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.2	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

2 - 30, 2

38.5 - 35.9

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0097
 Analyst: LBD
 Sample Wt.(g): 10.35
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52413
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.55	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	24.54	593	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

11-30-12
73.0-40

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0136	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10.76		
Date Extracted:	24-May-95		
Date Analyzed:	24-May-95		
File ID.:	V52414		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.6	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<700	700
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0137		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10.63		
Date Extracted:	24-May-95		
Date Analyzed:	24-May-95		
File ID.:	V52415		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.45	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<300	300
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

54.0-54.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0138
 Analyst: LBD
 Sample Wt.(g): 10.36
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52415
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.61	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<900	900
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0090	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10.62		
Date Extracted:	24-May-95		
Date Analyzed:	24-May-95		
File ID.:	V52507		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.93	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

21-3012
86 9.2

Sample ID: 0121-95-0091
 Analyst: LBD
 Sample Wt.(g): 10.47
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52506
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.93	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	45.1 N.D.	1.077 < 1080	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

DLF
6/27/95

*Blank Contamination
Detection Level Raised*

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

14.6 - 14.7

Sample ID: 0121-95-0092
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52509
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	51	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-20
16.7 - 17.3

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0093
Analyst: LBD
Sample Wt.(g): 10
Date Extracted: 24-May-95
Date Analyzed: 24-May-95
File ID.: V52508
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.39	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0094	Dilution:	1
Analyst:	LBD		
Sample Wt. (g):	10		
Date Extracted:	24-May-95		
Date Analyzed:	24-May-95		
File ID.:	V52511		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		52	104

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-5012
26.3-269

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0095	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	24-May-95		
Date Analyzed:	24-May-95		
File ID.:	V52510		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.8	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

2012
38.9-39.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0096
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52512
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.2	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

38.5-35

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0097
 Analyst: LBD
 Sample Wt.(g): 10.35
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52413
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.55	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	24.54 N.D.	595 < 600	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

DCF
6/24/95

Blank Contamination
Detection Level Raised

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

730-4

Sample ID: 0121-95-0136
 Analyst: LBD
 Sample Wt.(g): 10.76
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52414
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.6	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<700	700
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0137
 Analyst: LBD
 Sample Wt.(g): 10.63
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52415
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	51.45	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<300	300
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

40-54.5

Sample ID: 0121-95-0138
 Analyst: LBD
 Sample Wt.(g): 10.36
 Date Extracted: 24-May-95
 Date Analyzed: 24-May-95
 File ID.: V52415
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	50.61	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<900	900
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0008	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	25-May-95		
Date Analyzed:	25-May-95		
File ID.:	V522518		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.56	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3002
8.8-9.4

Sample ID: 0121-95-0009
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522517
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3008
13.9-14.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0010
 Analyst: LBD
 Sample Wt.(g): 10.591
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522525
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.9	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	211.59	4,995	200
Benzene	71-43-2	22.15	523	50
Toluene	108-88-3	9.97	235	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

300Y
19.2-17

Sample ID: 0121-95-0011
 Analyst: LBD
 Sample Wt.(g): 10.155
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522524
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.88	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	155.6	3,831	200
Benzene	71-43-2	24.14	594	50
Toluene	108-88-3	11.03	272	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3008
22.5-23.0

Sample ID: 0121-95-0012
 Analyst: LBD
 Sample Wt.(g): 10.155
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522523
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.9	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	261.36	6,434	200
Benzene	71-43-2	24.83	611	50
Toluene	108-88-3	11.18	275	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

300
29.0 - 29.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0139
Analyst: LBD
Sample Wt.(g): 9.98
Date Extracted: 25-May-95
Date Analyzed: 25-May-95
File ID.: V522527
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.91	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	175.15	4,388	200
Benzene	71-43-2	24.17	605	50
Toluene	108-88-3	10.73	269	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

see 2
720-345

Sample ID: 0121-95-0140
 Analyst: LBD
 Sample Wt.(g): 10.432
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522526.D
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.24	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	163.97	3,929	200
Benzene	71-43-2	23.4	561	50
Toluene	108-88-3	10.84	260	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0098
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522505
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.87	104

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0099
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522504
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	51.33	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0100
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522507
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.68	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0101
 Analyst: LBD Dilution: 1
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522506
 Technique: GCMS

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.04	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3013
 24.0' ⇒ 24.5'

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0102
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522511
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.19	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3013

29.0' → 29.5'

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0104
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522509
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.66	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3013

3.5' → 4.2'

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0098
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522505
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.87	104

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	<u>0121-95-0105</u>	Dilution:	1
Analyst:	<u>LBD</u>		
Sample Wt.(g):	<u>10</u>		
Date Extracted:	<u>25-May-95</u>		
Date Analyzed:	<u>25-May-95</u>		
File ID.:	<u>V522510</u>		
Technique:	<u>GCMS</u>		

Compound	Cas#	<u>Surrogate Recoveries</u>	
		Amt. Recovered	% Recovery
Toluene-D8		50.37	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3013

8.4' → 9.1'

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0099
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522504
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.33	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0100
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522507
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.68	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0101	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	25-May-95		
Date Analyzed:	25-May-95		
File ID.:	V522506		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.04	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3013

24.0' → 24.5'

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0102
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522511
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.19	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0105		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10		
Date Extracted:	25-May-95		
Date Analyzed:	25-May-95		
File ID.:	V522510		
Technique:	GCMS		

Compound	Cas#	<u>Surrogate Recoveries</u>	
		Amt. Recovered	% Recovery
Toluene-D8		50.37	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3013

29.0' → 29.5'

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0104
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522509
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.66	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0008	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	25-May-95		
Date Analyzed:	25-May-95		
File ID.:	V522518		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.56	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3002
88-94

Sample ID: 0121-95-0009
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522517
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	51	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3008
13.4-14.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0010
 Analyst: LBD
 Sample Wt.(g): 10.591
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522525
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.9	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	211.59	4.995	200 'J'
Benzene	71-43-2	22.15	523	50
Toluene	108-88-3	9.97	235	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

300
14.2

Sample ID: 0121-95-0011
 Analyst: LBD
 Sample Wt.(g): 10.155
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522524
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.88	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	155.6	3,831	200 'J'
Benzene	71-43-2	24.14	594	50
Toluene	108-88-3	11.03	272	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

DLF
6/27

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

2008
23 5 23 0

Sample ID: 0121-95-0012
 Analyst: LBD
 Sample Wt.(g): 10.155
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522523
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	49.9	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	261.36	6,434	200
Benzene	71-43-2	24.83	611	50
Toluene	108-88-3	11.18	275	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

J' 208
6/29

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

7.00
27.0

Sample ID: 0121-95-0139
 Analyst: LBD
 Sample Wt.(g): 9.98
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522527
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.91	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	175.15	4,388	200
Benzene	71-43-2	24.17	605	50
Toluene	108-88-3	10.73	269	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

J
6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

700
760-965

Sample ID: 0121-95-0140
 Analyst: LBD
 Sample Wt.(g): 10.432
 Date Extracted: 25-May-95
 Date Analyzed: 25-May-95
 File ID.: V522526.D
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.24	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	163.97	3,929	200
Benzene	71-43-2	23.4	561	50
Toluene	108-88-3	10.84	260	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

6/27

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0032
 Analyst: LBD
 Sample Wt.(g): 10.38
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522614
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.12	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	320.66	7,723	200
Benzene	71-43-2	22.01	530	50
Toluene	108-88-3	7.93	191	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3005
8.4-9.2

Sample ID: 0121-95-0033
 Analyst: LBD
 Sample Wt.(g): 10.37
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522613
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.65	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	115.3	2,780	200
Benzene	71-43-2	25.27	609	50
Toluene	108-88-3	9.23	223	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3005
13.6.14

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0034
Analyst: LBD
Sample Wt.(g): 9.98
Date Extracted: 26-May-95
Date Analyzed: 26-May-95
File ID.: V522612
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.54	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	172.52	4,322	200
Benzene	71-43-2	26.1	654	50
Toluene	108-88-3	9.36	234	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-500 E
18.9-153

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0035
 Analyst: LBD
 Sample Wt. (g): 10.85
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522611
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.25	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	146.45	3,374	200
Benzene	71-43-2	28.12	648	50
Toluene	108-88-3	10.56	243	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

15'
DUF
6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3005
22.0 - 23.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0037
 Analyst: LBD
 Sample Wt.(g): 9.6
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522609
 Technique: GCMS
 Cas#

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	51.25	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	184.22	4,797	200
Benzene	71-43-2	26.97	702	50
Toluene	108-88-3	10.14	264	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3005
22.0 23.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0036
 Analyst: LBD
 Sample Wt.(g): 9.93
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522610
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.25	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	193.83	4,880	200
Benzene	71-43-2	27.95	704	50
Toluene	108-88-3	10.23	258	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3025
22.0-23.0 FI

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0037
 Analyst: LBD Dilution: 1
 Sample Wt.(g): 9.6
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522609
 Technique: GCMS

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.25	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	184.05	4,793	200
Benzene	71-43-2	26.97	702	50
Toluene	108-88-3	10.14	264	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

305
29.0-29.5

Sample ID: 0121-95-0038
 Analyst: LBD
 Sample Wt.(g): 10.16
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522608
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.5	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	199.84	4,917	200
Benzene	71-43-2	24.65	607	50
Toluene	108-88-3	9.51	234	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3005
34.0 34.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0039
 Analyst: LBD
 Sample Wt.(g): 10.37
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522607
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.88	104

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	164.03	3,954	200
Benzene	71-43-2	27.7	668	50
Toluene	108-88-3	10.74	259	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3005
35-4.3

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0032
 Analyst: LBD
 Sample Wt.(g): 10.38
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522614
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.12	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	320.66	7,723	200 'J' DLF
Benzene	71-43-2	22.01	530	50 6/27
Toluene	108-88-3	7.93	191	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

2005
8-4-95

Sample ID: 0121-95-0033
 Analyst: LBD
 Sample Wt.(g): 10.37
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522613
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.65	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	115.3	2,780	200
Benzene	71-43-2	25.27	609	50
Toluene	108-88-3	9.23	223	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

'J'
0.5
0/2

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3003
13.6.95

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0034		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	9.98		
Date Extracted:	26-May-95		
Date Analyzed:	26-May-95		
File ID.:	V522612		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.54	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	172.52	4,322	200
Benzene	71-43-2	26.1	654	50
Toluene	108-88-3	9.36	234	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

'J' PLF
6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3005
02.0 23 0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0036
 Analyst: LBD
 Sample Wt.(g): 9.93
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522610
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.25	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	193.83	4,880	200 'J' dcf
Benzene	71-43-2	27.95	704	50 6/27/95
Toluene	108-88-3	10.23	258	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3005
220.230

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0037
 Analyst: LBD
 Sample Wt.(g): 9.6
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522609
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.25	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	184.22	4,797	200 'J' DUF
Benzene	71-43-2	26.97	702	50 6/22/95
Toluene	108-88-3	10.14	264	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3-25
27.0 27.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0038
 Analyst: LBD
 Sample Wt.(g): 10.16
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522608
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.5	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	199.84	4,917	200
Benzene	71-43-2	24.65	607	50
Toluene	108-88-3	9.51	234	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

'J' 6/27/95
R.P.

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

34.0 34.4

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0039
 Analyst: LBD
 Sample Wt.(g): 10.37
 Date Extracted: 26-May-95
 Date Analyzed: 26-May-95
 File ID.: V522607
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.88	104

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	164.03	3,954	200
Benzene	71-43-2	27.7	668	50
Toluene	108-88-3	10.74	259	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

'J' DLF
6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0116
 Analyst: LBD
 Sample Vol.(ml): 5
 Date Extracted: 30-May-95
 Date Analyzed: 31-May-95
 File ID.: V53017
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.93	98

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0015
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53026
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.28	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0016
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53025
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.88	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0017	Dilution:	10
Analyst:	LBD		
Sample Wt.(g):	10.24		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53006		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	48.31	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	2000
2-Butanone	78-93-3	N.D.	<200	2000
Benzene	71-43-2	N.D.	<50	500
Toluene	108-88-3	N.D.	<50	500
Ethylbenzene	104-41-4	N.D.	<50	500
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	500
O-Xylene	95-47-6	N.D.	<50	500

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0018
 Analyst: LBD
 Sample Wt.(g): 10.66
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53005
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.68	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0019
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 31-May-95
 File ID.: V53033
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.1	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0020	Dilution:	1
Analyst:	LBD		
Sample Wt. (g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53033		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.41	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3003
34.0-34.7

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0021
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53032
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	48.89	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	<u>0121-95-0022</u>	Dilution:	1
Analyst:	<u>LBD</u>		
Sample Wt. (g):	<u>10</u>		
Date Extracted:	<u>30-May-95</u>		
Date Analyzed:	<u>30-May-95</u>		
File ID.:	<u>V53012</u>		
Technique:	<u>GCMS</u>		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	48.31	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

21-3003

44.0-44.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0141
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53013
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.79	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0023		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53020		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.13	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3004

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0024
 Analyst: LBD
 Sample Wt.(g): 9.99
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53019
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.8	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0025
 Analyst: LBD
 Sample Wt.(g): 9.99
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53018
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.68	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0026		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	31-May-95		
File ID.:	V53036		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.34	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0015		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53026		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.28	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3010
6719

Sample ID: 0121-95-0016
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53025
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.88	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-2003
13.5-14.2

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0017
 Analyst: LBD
 Sample Wt.(g): 10.24
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53006
 Technique: GCMS

Dilution: 10

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	48.31	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	2000
2-Butanone	78-93-3	N.D.	<200	2000
Benzene	71-43-2	N.D.	<50	500
Toluene	108-88-3	N.D.	<50	500
Ethylbenzene	104-41-4	N.D.	<50	500
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	500
O-Xylene	95-47-6	N.D.	<50	500

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0018		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10.66		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53005		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries ^c	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.68	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0019		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	31-May-95		
File ID.:	V53033		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.1	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0020
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53033
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.41	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0021		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53032		
Technique:	GCMS		

Compound	Cas#	<u>Surrogate Recoveries</u>	
		Amt. Recovered	% Recovery
Toluene-D8	203	48.89	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0022		
Analyst:	LBD	Dilution:	1
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	30-May-95		
File ID.:	V53012		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	48.31	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

01-5-95
440-445

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0141
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53013
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.79	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

21-3004

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0023
Analyst: LBD
Sample Wt.(g): 10
Date Extracted: 30-May-95
Date Analyzed: 30-May-95
File ID.: V53020
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.13	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0024
 Analyst: LBD
 Sample Wt.(g): 9.99
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53019
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.8	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0025
 Analyst: LBD
 Sample Wt.(g): 9.99
 Date Extracted: 30-May-95
 Date Analyzed: 30-May-95
 File ID.: V53018
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.68	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0026	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	30-May-95		
Date Analyzed:	31-May-95		
File ID.:	V53036		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.34	99

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Rinse Bla

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0117
Analyst: LBD
Sample Vol.(ml): 5
Date Extracted: 31-May-95
Date Analyzed: 31-May-95
File ID.: V53123
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.61	103

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

3.74
3.8-4.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0160
Analyst: LBD
Sample Wt.(g): 10
Date Extracted: 31-May-95
Date Analyzed: 31-May-95
File ID.: V53122
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.02	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<300	300
Benzene	71-43-2	N.D.	<80	80
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3014
 8.4 g.c

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0161
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53121
 Technique: GCMS
 Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.63	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<500	500
Benzene	71-43-2	N.D.	<80	80
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3-14
13,7-14,4

Sample ID: 0121-95-0162
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53120
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.8	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400	400
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3014
15.7-19.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0163
 Analyst: LBD Dilution: 1
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53119
 Technique: GCMS

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.9	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<600	600
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3014
15.5-19.2

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0164
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53118
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.05	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3014
21.4-220

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0165
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53117
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.84	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<500	500
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0168
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53115
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	53.8	108

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<300	300
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3014
31.5-32.0

Sample ID: 0121-95-0169
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53116
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.56	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Final Report

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0117
Analyst: LBD
Sample Vol.(ml): 5
Date Extracted: 31-May-95
Date Analyzed: 31-May-95
File ID.: V53123
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.61	103

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

3014
3.8-4.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0160
Analyst: LBD
Sample Wt.(g): 10
Date Extracted: 31-May-95
Date Analyzed: 31-May-95
File ID.: V53122
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.02	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<300	300
Benzene	71-43-2	N.D.	<80	80
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

21-3014
8.49.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0161
Analyst: LBD Dilution: 1
Sample Wt.(g): 10
Date Extracted: 31-May-95
Date Analyzed: 31-May-95
File ID.: V53121
Technique: GCMS

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.63	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<500	500
Benzene	71-43-2	N.D.	<80	80
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3014
13.7-14.4

Sample ID: 0121-95-0162
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53120
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.8	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400	400
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3014
18.5-19.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0163
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53119
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.9	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<600	600
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3014
A.5-19.2

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	<u>0121-95-0164</u>	Dilution:	1
Analyst:	<u>LBD</u>		
Sample Wt.(g):	<u>10</u>		
Date Extracted:	<u>31-May-95</u>		
Date Analyzed:	<u>31-May-95</u>		
File ID.:	<u>V53118</u>		
Technique:	<u>GCMS</u>		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.05	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

2014
21.4-22.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0165	Dilution:	1
Analyst:	LBD		
Sample Wt.(g):	10		
Date Extracted:	31-May-95		
Date Analyzed:	31-May-95		
File ID.:	V53117		
Technique:	GCMS		

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.84	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<500	500
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3014
8.4-9.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0168
Analyst: LBD
Sample Wt.(g): 10
Date Extracted: 31-May-95
Date Analyzed: 31-May-95
File ID.: V53115
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	53.8	108

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<300	300
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3014
31.5-32.0

Sample ID: 0121-95-0169
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53116
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.56	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0027
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53111
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.71	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0028
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53110
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.84	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0029
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53109
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.48	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

304
~~339-344~~
 38.5 - 39.0

Sample ID: 0121-95-0030
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53106
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.62	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400	400
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3004
42.5 - 43.0

Sample ID: 0121-95-0031
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53105
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.88	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400	400
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0031
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53105
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.88	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

*Disregard.
 Reprinted with new Det. Limit 5/31/95
 RLB 5/31/95*

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0027
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53111
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.71	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0028
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53110
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.84	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0029
 Analyst: LBD
 Sample Wt. (g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53109
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.48	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3024
~~513-244~~
 38.5 - 39.0

Sample ID: 0121-95-0030
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53106
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.62	101

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400	400
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

3024
42.5-940

Sample ID: 0121-95-0031
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 31-May-95
 Date Analyzed: 31-May-95
 File ID.: V53105
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	49.88	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400	400
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

N of Seep
21-015
30-3.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0171
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60128
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.85	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400 200	200 400 200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

N. of Sep.
21-3015
45-5.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0172
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60120
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.81	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400 200	400 200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

N. of Scgs
70-35

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0173
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60121
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.2	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400 200 <i>LOD</i>	400 200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

No. of Samples
215
8.5-9.0

Sample ID: 0121-95-0174
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60122
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.22	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<100 200	100 200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

~~11~~
Surface water
Downstream

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0243
Analyst: LBD
Sample Vol.(ml): 5
Date Extracted: 1-Jun-95
Date Analyzed: 1-Jun-95
File ID.: V60115
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		52.12	104

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

Volatile Organic Compounds in Water - Analytical Results

~~Surrogate Recoveries~~
e scf

Sample ID: 0121-95-0244
 Analyst: LBD
 Sample Vol.(ml): 5
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60114
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	50.94	102

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

Volatile Organic Compounds in Water - Analytical Results

*Surrogate
Upstream*

Sample ID: 0121-95-0245
 Analyst: LBD
 Sample Vol.(ml): 5
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60113
 Technique: GCMS

Dilution: 1

Compound	Surrogate Recoveries	
	Amt. Recovered	% Recovery
Toluene-D8	48.97	98

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

110 (K...)

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0118
Analyst: LBD
Sample Vol.(ml): 5
Date Extracted: 1-Jun-95
Date Analyzed: 1-Jun-95
File ID.: V60104
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.54	103

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

N. of Seep
21-015
3.0-3.5

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0171
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60128
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.85	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400 200	LAP 400 200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

N. of Sest
21-3015
4.5-5.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0172
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60120
 Technique: GCMS
 Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.81	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400 200	400 200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

N. of Scept
7.0 - 7.5

Sample ID: 0121-95-0173
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60121
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	51.2	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400 200	400 200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

N. of Soil
3015
8.5-9.0

Sample ID: 0121-95-0174
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60122
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8	203	50.22	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<400 <i>200</i>	400 <i>200</i>
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3023
Surface water
Downstream

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0243
Analyst: LBD
Sample Vol.(ml): 5
Date Extracted: 1-Jun-95
Date Analyzed: 1-Jun-95
File ID.: V60115
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		52.12	104

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

Volatile Organic Compounds in Water - Analytical Results

21-3024
Surface water
@ Seep

Sample ID: 0121-95-0244
 Analyst: LBD
 Sample Vol.(ml): 5
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60114
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.94	102

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

Volatile Organic Compounds in Water - Analytical Results

*Surface Water
Upstream*

Sample ID: 0121-95-0245
 Analyst: LBD
 Sample Vol. (ml): 5
 Date Extracted: 1-Jun-95
 Date Analyzed: 1-Jun-95
 File ID.: V60113
 Technique: GCMS

Dilution: 1

Compound	Cas#	<u>Surrogate Recoveries</u>	
		Amt. Recovered	% Recovery
Toluene-D8		48.97	98

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

1/B (Kine 30)

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0118
Analyst: LBD
Sample Vol.(ml): 5
Date Extracted: 1-Jun-95
Date Analyzed: 1-Jun-95
File ID.: V60104
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.54	103

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0218
 Analyst: LBD
 Sample Wt.(g): 10.43
 Date Extracted: 8-Jun-95
 Date Analyzed: 8-Jun-95
 File ID.: V60820
 Technique: GCMS

Dilution: 1

Compound	<u>Surrogate Recoveries</u>	
	Amt. Recovered	% Recovery
Toluene-D8	49.96	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	70.33 N.D.	1.901 < 1900	200 DUF
2-Butanone	78-93-3	159.37 N.D.	3.820 < 3820	200 6/22/95
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

Blank Contamination
 Detection Limit Raised

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0219
 Analyst: LBD
 Sample Wt.(g): 10.15
 Date Extracted: 8-Jun-95
 Date Analyzed: 8-Jun-95
 File ID.: V60821
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		49.83	100

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	36.52 N.D.	< 900	200
2-Butanone	78-93-3	69.32 N.D.	< 1,707	200
Benzene	71-43-2	N.D.	< 50	50
Toluene	108-88-3	N.D.	< 50	50
Ethylbenzene	104-41-4	N.D.	< 50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	< 50	50
O-Xylene	95-47-6	N.D.	< 50	50

Blank Contamination
 Detect. Limit Raised
 DLF
 6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3011
6/27/95

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0220
 Analyst: LBD
 Sample Wt.(g): 10.43
 Date Extracted: 8-Jun-95
 Date Analyzed: 8-Jun-95
 File ID.: V60822
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.27	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	69.32 N.D.	< 1,662	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

Blank contamination
 Detect. Limit Raised

D.F.
 6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3018
8.09.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0221
 Analyst: LBD
 Sample Wt.(g): 10.15
 Date Extracted: 8-Jun-95
 Date Analyzed: 8-Jun-95
 File ID.: V60823
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.15	96

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	21.73 N.D.	535 < 535	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

Blank Contamination
 Detect. Limit Raised
 DUF
 6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3019
1.5-2 >

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0223
 Analyst: LBD
 Sample Wt.(g): 9.99
 Date Extracted: 8-Jun-95
 Date Analyzed: 8-Jun-95
 File ID.: V60824
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.99	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	16.17 N.D.	< 405	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

Blank Contamination
 Detect. Limit Raised
 DLF
 9/27/9

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

2017
4.0-5.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0224
Analyst: LBD
Sample Wt.(g): 10.46
Date Extracted: 8-Jun-95
Date Analyzed: 8-Jun-95
File ID.: V60825
Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.55	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3019
6.0-7.0

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0225
 Analyst: LBD
 Sample Wt.(g): 10.26
 Date Extracted: 8-Jun-95
 Date Analyzed: 8-Jun-95
 File ID.: V60826
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.68	97

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

3019
8.0.90

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0226
 Analyst: LBD
 Sample Wt.(g): 1.24
 Date Extracted: 8-Jun-95
 Date Analyzed: 8-Jun-95
 File ID.: V60827
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		48.9	98

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0234
 Analyst: LBD
 Sample Wt.(g): 9.719
 Date Extracted: 14-Jun-95
 Date Analyzed: 14-Jun-95
 File ID.: V61425
 Technique: GCMS

Dilution: 10

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.79	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	31.9 N.D.	< 8,208	2000
2-Butanone	78-93-3	N.D.	<2000	2000
Benzene	71-43-2	N.D.	<500	500
Toluene	108-88-3	N.D.	<500	500
Ethylbenzene	104-41-4	N.D.	<500	500
M+P-Xylene	108-38-3/106-42-3	N.D.	<500	500
O-Xylene	95-47-6	N.D.	<500	500

Blank Contamination 6/27/95
 Detect. Limit Raised as

3023
3024
3025

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0185
 Analyst: LBD
 Sample Wt.(g): 10.38
 Date Extracted: 14-Jun-95
 Date Analyzed: 14-Jun-95
 File ID.: V61419
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.97	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	31.35 N.D.	<755	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

Blank Contamination DCF
 Detect. Limit Raised 6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0186
 Analyst: LBD
 Sample Wt.(g): 10
 Date Extracted: 14-Jun-95
 Date Analyzed: 14-Jun-95
 File ID.: V61420
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.28	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<200	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0187
 Analyst: LBD
 Sample Wt. (g): 10.6
 Date Extracted: 14-Jun-95
 Date Analyzed: 14-Jun-95
 File ID.: V61421
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		51.12	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	30.18 N.D.	712 <712	200
2-Butanone	78-93-3	N.D.	<200	200
Benzene	71-43-2	N.D.	<50	50
Toluene	108-88-3	N.D.	<50	50
Ethylbenzene	104-41-4	N.D.	<50	50
M+P-Xylene	108-38-3/106-42-3	N.D.	<50	50
O-Xylene	95-47-6	N.D.	<50	50

Blank Contamination
 Detect. Limit Raised
 JLF
 6/27/95

PLEASE NOTE: The reported quantities have been subtracted from the MeOH blank run at the same level as the sample extract.

Volatile Organic Compounds in Water - Analytical Results

Sample ID: 0121-95-0247
 Analyst: LBD
 Sample Vol.(ml): 5
 Date Extracted: 14-Jun-95
 Date Analyzed: 14-Jun-95
 File ID.: V61426
 Technique: GCMS

Dilution: 1

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.96	102

Compound	Cas#	Raw Amount	Sample Conc. (ug/l)	Detection Limit (ug/l)
Acetone	67-64-1	N.D.	<100	100
2-Butanone	78-93-3	N.D.	<100	100
Benzene	71-43-2	N.D.	<10	10
Toluene	108-88-3	N.D.	<10	10
Ethylbenzene	104-41-4	N.D.	<10	10
M+P-Xylene	108-38-3/106-42-3	N.D.	<10	10
O-Xylene	95-47-6	N.D.	<10	10

3020

Volatile Organic Compounds in Soil - Analytical Results

Sample ID:	0121-95-0228		
Analyst:	LBD	Dilution:	10
Sample Wt.(g):	10.62		
Date Extracted:	14-Jun-95		
Date Analyzed:	14-Jun-95		
File ID.:	V61422		
Technique:	GCMS		

Compound	Cas#	<u>Surrogate Recoveries</u>	
		Amt. Recovered	% Recovery
Toluene-D8		51.72	103

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<2000	2000
2-Butanone	78-93-3	N.D.	<2000	2000
Benzene	71-43-2	N.D.	<500	500
Toluene	108-88-3	N.D.	<500	500
Ethylbenzene	104-41-4	N.D.	<500	500
M+P-Xylene	108-38-3/106-42-3	N.D.	<500	500
O-Xylene	95-47-6	N.D.	<500	500

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0229
 Analyst: LBD
 Sample Wt.(g): 10.66
 Date Extracted: 14-Jun-95
 Date Analyzed: 14-Jun-95
 File ID.: V61423
 Technique: GCMS

Dilution: 10

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.89	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	N.D.	<2000	2000
2-Butanone	78-93-3	N.D.	<2000	2000
Benzene	71-43-2	N.D.	<500	500
Toluene	108-88-3	N.D.	<500	500
Ethylbenzene	104-41-4	N.D.	<500	500
M+P-Xylene	108-38-3/106-42-3	N.D.	<500	500
O-Xylene	95-47-6	N.D.	<500	500

3021

Volatile Organic Compounds in Soil - Analytical Results

Sample ID: 0121-95-0233
 Analyst: LBD
 Sample Wt.(g): 10.6
 Date Extracted: 14-Jun-95
 Date Analyzed: 14-Jun-95
 File ID.: V61424
 Technique: GCMS

Dilution: 10

Compound	Cas#	Surrogate Recoveries	
		Amt. Recovered	% Recovery
Toluene-D8		50.98	102

Compound	Cas#	Raw Amount	Soil Conc. (ug/kg)	Detection Limit (ug/kg)
Acetone	67-64-1	26.68 N.D.	<6,288	2000
2-Butanone	78-93-3	N.D.	<2000	2000
Benzene	71-43-2	N.D.	<500	500
Toluene	108-88-3	N.D.	<500	500
Ethylbenzene	104-41-4	N.D.	<500	500
M+P-Xylene	108-38-3/106-42-3	N.D.	<500	500
O-Xylene	95-47-6	N.D.	<500	500

Blank Contamination
 Detect Limit Raised

DLF
 6/27/95

**ATTACHMENT C LETTER FROM NMED TO LANL REGARDING STATUS OF
NFA APPROVAL FOR PRS 21-029**



GARY E. JOHNSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Hazardous & Radioactive Materials Bureau
2044 Galisteo
P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-1557
Fax (505) 827-1544



MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

July 1, 1996

Mr. G. Thomas Todd
DOE/LAEO
538 35 th Street
Los Alamos, New Mexico 87544

Re: RFI Report for SWMU 21-029
Los Alamos National Laboratory (NM0890010515)

Dear Mr. Todd:

The New Mexico Environment Department (NMED) has reviewed the RFI Report for solid waste management unit 21-029 at Los Alamos National Laboratory as well as the comments on the RFI Report submitted to NMED by the U.S. Environmental Protection Agency (EPA). The NMED cannot concur with the request for no further action (NFA) at this time due to the following reasons:

1. The site was formerly an underground fuels storage area with two fill stations and therefore still needs additional remediation to adequately address corrective action; and,
2. RFI data indicate that petroleum related products have been released to the environment in several locations; therefore a certified closure statement from the New Mexico Environment Department (NMED) Underground Storage Tank (UST) Bureau needs to be submitted with this report.

Should you or your staff have any questions concerning this NFA Review please contact myself or Ms. Barbara Hoditschek or Robert S. (Stu) Dinwiddle both of my staff at the above address or by telephone at (505) 827-1561.

Sincerely,

Benito J. Garcia
Bureau Chief, HRMB

ATTACHMENT D BOREHOLE LOGS FOR PRS 21-029

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3002 ^{FUGRO} TAG# 21-14-1 Drill Depth From 0.0 To 35.0 Page of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5/25/95/11:29 End Date/Time 5/25/95/11:00

Drilling Equip./Method CME-750 / Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger / 2" DITC Drill

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0 - 1.0	1.0/0.0		BF 110mm OVR 100mm	—	0.0-0.5 No recovery in 0.5' (0.9' core) 0.0-1.0 Fill: Fine sand, silt and clay with pebbles to 0.5cm 1.0-1.0 Grey (N7) non-welded Tuff. Pumice to 1.5cm with 12% crystals in ASA matrix.		Fill	Run # 1 Rig Set-up Roll 5 EXP 16 Run # 2 Run # 3
1.0 - 2.5	2.5/2.5	3.9-4.4	BF 110mm OVR 100mm	—	2.5-5.0 Grey non-welded Tuff (N7). Pumice are as large as 1.5cm, many are internal to reddish brown color (10R 3/4). Matrix is ASA with 12% crystals.			
2.5 - 5.0	2.5/2.5		BF 110mm OVR 100mm	—	5.0-7.5 Grey non-welded Tuff as above. The core is completely disaggregated. Grey (N6) Pumice to 2.0cm. Matrix is ASA with ~15% crystals.			Run # 3
5.0 - 7.5	2.5/2.5		BF 110mm OVR 100mm	—	7.5-10.0 Moderately welded Grey (N7) Tuff. Pumice are altered to pale greenish hue (5G 2/4), matrix is ASA and ~17% crystals.		Tuff	Run # 4
7.5 - 10.0	2.5/2.5		BF 110mm OVR 100mm	—	10.0-12.0 Grey Tuff (N7), moderately welded and highly fractured by a vertical fracture from 12.0-13.5. Welding increased from 11.5' to end of core.		Unit B Tuff	Run # 5 1504
10.0 - 13.9		13.9-14.5	BF 110mm OVR 100mm	—			Unit B Tuff	Run # 5
13.9 - 15.0	5.0/5.0		BF 110mm OVR 100mm	—	15.0-20.0 Grey Tuff (N7), moderately welded. Pumice are altered dark red (10R 3/4) and are as large as 1.5cm. Matrix is ASA and ~15% crystals.		Unit B Tuff	Run # 6 Roll 5 EXP 17 and 18
15.0 - 16.2			BF 110mm OVR 100mm	—	16.2 Moderate angle fracture clay fill ~0.5 cm thick.		Unit B Tuff	Run # 6
16.2 - 16.5			BF 110mm OVR 100mm	—	16.5-17.45° horizontal fractures, no fill		Unit B Tuff	Run # 6
16.5 - 18.0			BF 110mm OVR 100mm	—	18.0 Low angle fracture minor oxides.		Unit B Tuff	Run # 6
18.0 - 20.0	2.5/2.5		BF 110mm OVR 100mm	—	20.0-25.0 (No recovery 23.5'-40.0') 20.0-23.0 Moderately welded grey Tuff (N7), as above. Core is disaggregated. Pumice are altered reddish brown (10R 3/4). Matrix is ASA with ~15% crystals.		Unit B Tuff	Run # 7 1530
20.0 - 22.5			BF 110mm OVR 100mm	—	With ~15% crystals		Unit B Tuff	Run # 7
22.5 - 25.0	2.5/2.5		BF 110mm OVR 100mm	—	25.0-27.5 Grey (N7), moderately welded Tuff. Pumice are altered red (10R 3/4) and are as large as 2.0cm. Matrix is ASA with 12% crystals.		Unit B Tuff	Run # 8 1545
27.5 - 30.0	2.5/2.5		BF 110mm OVR 100mm	—	27.5-30.0 Poorly welded Grey Tuff as above. Pumice are altered (10R 3/4) and as large as 2.0cm. Crystals are ~15% of the ASA matrix.		Unit B Tuff	Run # 9 1550

Prepared by John C. Cronin Date 5/25/95 Checked By Phil P. Date 6/1/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3002 TAG 21/FU-1 Drill Depth From 0.0 To 35.0 Page 2 of 2
 Driller Stewart Bros. Box #(s) Start Date/Time 5/25/95/1425 End Date/Time 5/25/95/1600
 Drilling Equip./Method CME-750/HEINZ STEIN AUGER Sampling Equip./Method HEINZ STEIN AUGER / 5' CORE BARREL

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	50%	32.0-33.0	PP: OVA: 00	—	30.0-35.0 grey, non-welded TUFF (N7). Core is completely disintegrated. Solid pieces of matrix are thin strings of alteration. Matrix is light grey (N8) and as large as 3.0 cm.		UNIT 3 Mudstone	Run # 10 1600 Photo of Fracture Roll 5 Envelope 19
32.0			PP: OVA: —	—	31.5-32.0 clay filled fracture (medium size)			Run #
33.0			PP: OVA: —	—	No Recovery 33.0-35.0 (2.0' loss)			Run #
35.0			PP: OVA: —	—	End of Hole - D = 35.0'			Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #
			PP: OVA: —	—				Run #

Prepared by John C. Cronker Date 5/25/95 Checked By Paul P. G. Date 6/6/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3003 ^{FUR 5 p Tank Farm} TA/GH 21/FU-1 Drill Depth From 0.0 To 45.0 Page 1 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-30-95/0835 End Date/Time 5-30-95/1140

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	2.5 2.5		BT ^a OVM=0.0 ppm	—	0-2.5 Fill Material; Moderate Brown (5YR 4/4), Fine Sand, Silt and pebbles to 2.5cm.		Fill	Run #1 0845 n/s
2.5	2.5 2.5	0121-95-0015	BT=162 OVM=0.0 ppm	—	2.5-5.0 Pale Reddish Brown (8R 5/4) tuff. Moderately welded. Pumice are light grey and unaltered, to 2.5cm. ~17% crystals in ash matrix. Core is non-welded from 4.0-5.0, maybe due to "Horizontal fracture" heavy oxides in interval.			Run #2 0855 n/s
5.0	2.5 2.5	4.0-4.6	BT=162 OVM=0.0 ppm	—	5.0-5.7 Pale Reddish Brown, Non-welded tuff (10R 5/4). Disaggregated to 5.7' w/ heavy oxides to this level. 5.7-7.5 tuff is moderately welded. Grey (N) pumice to 1.5cm. ~17% crystals in an ashy matrix. 6.5' Low angle No Fill			Run #3 0909 n/s
10	2.5 2.5	0121-95-0016	BT=203 OVM=0.0 ppm	—	7.5-17.5 Completely disaggregated, Non-welded, Reddish-brown tuff (10R 5/4) pumice to 2.0cm are light grey w/ sugary texture. ~17% crystals in ash matrix. No fractures or mineralization suggesting fracture locations are present.		Tuff	Run #4 0915 n/s
	2.5 2.5	8.7-9.3	BT=187 OVM=0.0 ppm	—			Bandelier	Run #5 0925 n/s
5.0	2.5 2.5	0121-95-0017	BT=171 OVM=7.8 ppm HS=165ppm	—			Bandelier	Run #6 0933 n/s Faint Petrol odor.
	2.5 2.5	13.5-14.3	BT=178 OVM=3.4 ppm	—			Bandelier	Run #7 0940 n/s Petrol odor
	2.5 2.5	0121-95-0018	BT=151 OVM=52.0 ppm HS=181ppm	—	17.5-22.5 Non-welded and disaggregated tuff. Pumice are light grey and as large as 1.5cm. ~20% crystals in ashy matrix w/ ~2% lithics.		Bandelier	Run #8 0950 n/s Petrol odor
0.0	2.5 2.5	18.5-19.2	BT=144 OVM=22.6 ppm	—			Bandelier	Run #9 1002 n/s
5.0	2.5 2.5	0121-95-0019	BT=141 OVM=0.0 ppm	—	22.5-25.0 Light Brownish grey (5YR 6/1) Non-welded tuff. Pumice are very pale orange (10YR 7/2) with sugary texture. Pumice as large as 1.5cm. ~23% crystals in ash matrix ~1-2% lithics in matrix.		Unit 3	Run #10 1012 n/s
	2.5 2.5	23.4-24.5	BT=145 OVM=0.0 ppm	—	25.0-27.5 Light Brownish grey (5YR 6/1) tuff, Non-welded, and disaggregated. Pumice as large as 2.0cm. Rare pumice are altered reddish brown (10R 4/6) matrix: ~17% crystals. ~2% lithics. and 4% ash.			Run #11 1020 n/s
	2.5 2.5 5.0	0121-95-0020	BT=145 OVM=0.0 ppm	—	27.5-30 Brownish grey (5YR 6/1) tuff as above. Non-welded and disaggregated. Pumice are very pale orange (10YR 7/2) and as large as 1.5cm. 15% crystals, 2% lithics in ash matrix			Run #12 1033 n/s

Prepared by John C Crocker Date 5-30-95 Checked By Lee P. Bell Date 6/8/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3003 ^{FUPC} ^{OF TANK FARM} TA/OU 21/FU-1 Drill Depth From 0.0 To 45.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-30-95/0935 End Date/Time 5-30-95/1140

Drilling Equip./Method CME-750/Hollow Stem Augers Sampling Equip./Method Hollow Stem Auger/5' core barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	2.3 / 2.5 92%	0121-10-0021 PC	BT=176 OVM=0.0	—	30.0-32.5 Non-welded and disaggregated greyish Brown (5YR6/1) Tuff, altered fumice range from reddish brown (10R5/4) to pale orange (10YR 8/5). Pumice as large as 4.0 cm. Matrix is ash w/ 15% crystals and 2% lithics.			Run # 13 1043 A15
32.5	2.5 / 2.5 100%	0121-10-0021	BT=176 OVM=0.0	—	32.5-35.0 Greyish Brown Tuff as above. 33.4-35.0 Possible fractures, large ring of orange clay in this interval.			Run # 14 1100 A15 Roll 5 photo 23
35.0	2.3 / 2.5 92%	340-34.7	BT=191 OVM=0.0	—	35.0-37.5 Non-welded and disaggregated, brownish grey (5YR 6/1) Tuff, pumice to 1.0 cm are grey (N8). Matrix is ash with ~17% crystals and 1-2% lithic fragments.			Run # 15 1110 A15
37.5	2.5 / 2.5 100%	0121-10-0022	BT= - OVM= -	—	37.5-40.0 Same as above, but becomes moderately welded from 37.5-40.0 37.7-40.0 High angle fracture, No fill.			Run # 16 1117 A15
40.0	5.0 / 5.0 100%	38.7-39.2	BT= - OVM= -	—	40.0-45.0 Moderately welded, Grey Tuff (N7). Pumice are as large as 2.5 cm and altered reddish brown (10R 3/4). Matrix is ash with ~15% crystals and 1-2% lithics.			Run # 17 1140 A15
45.0		0121-10-0023 44.0-44.5	BT=197 OVM=0.0	—				Run #
			BT= - OVM= -	—				Run #
			BT= - OVM= -	—				Run #
			BT= - OVM= -	—				Run #
			BT= - OVM= -	—				Run #
			BT= - OVM= -	—				Run #
			BT= - OVM= -	—				Run #

Prepared by Jim C. Crook Date 5-30-95 Checked By R. P. G. Date 6/8/95

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3004 ^{FUPC Tank Farm} TAU 21/FH-1 Drill Depth From 0.0 To 45.0 Page 1 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-30-95/153041z End Date/Time 5/31/95/0842

Drilling Equip./Method CME-750 / Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger w/ 5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0 - 2.5	2.5 / 2.5 100%		BT = OVM =	—	0.0 - 2.5 Silt, clay and pieces of Tuff to 1.5cm. moist. (Fill material)			Run #1
2.5 - 5.0	1.7 / 2.5 68%	0121-95-0003	BT = 142 OVM = 0.4ppm	—	2.5 - 5.0 as above, less moist. No Recovery 4.2 - 5.0.		Material	Run #2 1563
5.0 - 6.5	2.1 / 2.5 84%	3.1 - 3.7'	HS = 0.0	—	5.0 - 7.5 Dry Fill, as above.		Fill	Run #3
6.5 - 9.6	2.5 / 2.5 100%	0121-95-0004	BT = 189 OVM = 0.0	—	7.5 - 10.0 Brownish grey Tuff (5YR 6/1), Moderately welded, Pumice to 0.75cm are grey (N8), Matrix is ash with ~15% crystals and 1% lithics. 8.0 - 9.0 horizontal and high angle fractures with 0.5cm clay fill. 10.0' low angle fracture with clay fill			Run #4 1605
9.6 - 15.0	5.0 / 5.0 100%		BT = 190 OVM = 0.4ppm	—	10.0 - 15.0 Greyish Brown Tuff (5YR 6/1), Moderately welded. Light grey, sugary pumice to 3.0cm. Matrix is ash with ~15% crystals and 1% lithics. Matrix has local tan stringers of alteration.			Run #5 1620
15.0 - 13.9	2.5 / 5.0 50%	0121-95-0005	BT = OVM =	—	15.0 - 20.0 Grey Tuff (N7), Non-welded and disaggregated. Pumice to 1.5cm have sugary texture. Matrix is ash with ~12% crystals		Bandelier Tuff	Run #5
13.9 - 15.9	2.5 / 5.0 50%		BT = OVM = 0.0	—	15.9' horizontal fracture with clay and oxide fill.			Run #6 1648
15.9 - 17.5	2.5 / 5.0 50%	0121-95-0006	BT = OVM = 0.0	—			Member of	Run #6
17.5 - 20.0	2.5 / 2.5 100%		BT = 150 OVM = 0.0	—	20.0 - 22.5 Light brownish grey Tuff (10R 4/6), Pumice are both altered (reddish brown/red) and unaltered and grey (N8). Matrix is ash with ~15% crystals and 1% lithics.			Run #7 5-31-95 0745
20.0 - 23.5	2.0 / 2.5 80%	0121-95-0007	BT = 176 OVM = 0.0	—	22.5 - 25.0 Light brownish grey Tuff (10R 4/6), Moderately welded to 23.5'. Non-welded and disaggregated 23.5' to 25.0'. Pumice to 4.0cm. Mostly unaltered to 23.5'. Predominantly altered reddish in non-welded part of core. Matrix is ash w/ ~13% crystals and 3% lithics.			Run #8 0755
23.5 - 26.5	2.5 / 2.5 100%	23.5 - 29.2	BT = 140 OVM = 0.4ppm	—	25.0 - 27.5 Brownish grey (5YR 4/1), Moderately welded Tuff. Matrix is ash with ~20% crystals and 3% lithics. Pumice to 4.5cm. Many pumice are altered to fine red (10R 4/6).		Unit 3 of	Run #9 0802
26.5 - 29.3	2.5 / 2.5 100%	0121-95-0008	BT = 176 OVM = 0.0	—	27.5 - 30.0 Brownish grey (5YR 4/1) Moderately welded Tuff. ~22% crystals and 3% lithics in an ash matrix. Pumice to 1.0cm range from grey (N4) and unaltered to reddish brown and altered. Horizontal fractures at 27.5 which may be indicative of a fracture zone in bottom of last run.			Run #10 0811

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID Q1-3004 ^{FU 02 TANK Farm} TAG 021/FH-1 Drill Depth From 0.0 To 45.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5/30/95/1530 End Date/Time 5/31/95/0842

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' Core Barrel.

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	5.0 5.0 100%		BT=179 OVM=0.0mm	—	30.0-35.0 Brownish grey, moderately welded tuff, matrix is ash with ~17% crystals and 2% lithics. Pumice as large as 0.75cm range from grey (N4) and unaltered to reddish brown and altered. (BR34).		Member of Banded Tuff	Run#11 0820 Photo 25 30.0-32.5 Fractures. Roll 5
32.5		33.9-34.4	BT=— OVM=—	—	30.0-32.0 Highly Fractured by Horizontal Fractures (No Fill).		Member of Banded Tuff	Run#
35.0	4.5 5.0 90%		BT=193 OVM=0.0	—	35.0-40.0 Greyish Brown, moderately welded tuff. Matrix is as with ~17% crystals and 2% lithics (3%). Pumice to 4.0cm both altered and unaltered as above. Core become non-welded and disaggregated from 36.5-40.0.		Member of Banded Tuff	Run#12 0830
37.5		36.5-39.0	BT=— OVM=—	—	37.0-38.0 3 horizontal breaks (probably due to drilling), with no fill. 38.5 moderate angle fracture at 38.5'.		Member of Banded Tuff	Run#12
40.0	5.0 5.0 100%		BT=— OVM=—	—	40.0-45.0 Greyish Brown, moderately welded tuff. Pumice to 2.0cm are grey to reddish-brown. Matrix is ash with ~16% crystals and 1% lithics, stringers of tan (10X74) alteration present in matrix.		Member of Banded Tuff	Run#13 0842
42.5		42.5-43.0	BT=— OVM=—	—			Member of Banded Tuff	Run#13
45.0			BT=— OVM=—	—	End of Hole. TD=45.0'			Run#
47.5			BT=— OVM=—	—				Run#
50.0			BT=— OVM=—	—				Run#
52.5			BT=— OVM=—	—				Run#
55.0			BT=— OVM=—	—				Run#
57.5			BT=— OVM=—	—				Run#

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3005 ^{FUPC} TAG# 21/1 Drill Depth From 0.0 To 30.0 Page 1 of 2

Driller STEWART BROS. Box #(s) Start Date/Time 5-26-95/1015 End Date/Time 5-26-95/1130

Drilling Equip./Method CME 750 - Hollow Stem Auger Sampling Equip./Method 3.5" Stainless Steel Core Barrel

Depth (feet)	Recovery (feet per foot, %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	1.0 / 2.5 40%	N/A	BF# 180 OVM# 0.0	-	Shallow ^{RIS} 5/22/95 0.0 - 1.0 Moderate yellowish brown (10YR 5/4) w/ly f.-c. SAND. Trace f. gravel. Slightly moist. Plant roots common [FILL] 1.0 - 2.5 NO RECOVERY	"	FILL	RUN# 1 1017
2.5	2.3 / 2.5 92%	0121-95-0032 3.8-4.8 4.3	BF# 173 OVM# 0.0	-	2.5-4.8 TUFF. Medium light gray (N6). Slightly welded. ^{RIS} Pumice to 1.0 cm. Approx. 10% lithics in ash matrix. 4.8-5.0 NO RECOVERY	"	UNIT 3	RUN# 2 1025 Headspace = 0.0 ppm
5.0	5.0 / 5.0 100%	0121-95-0033 8.4-9.2	BF# 187 OVM# 0.0	-	5.0-10.0 TUFF. Medium light gray (N6). Slightly welded. 1% to 5% slightly elongated pumice to 2cm. Trace larger pumice to 5cm. 10%-15% lithics. Low angle fractures at 6.2', 7.0', 7.9'. Fractures are clean. Dry.	"	TUFF	RUN# 3 1030 Headspace = 0.1 ppm
10.0	5.0 / 5.0 100%	0121-95-0034 13.6-14.1	BF# 165 OVM# 0.0	-	10.0-15.0 TUFF. Medium light gray (N6) to medium gray (N5). 5% elongated pumice to 1cm. 5% to 10% lithics in ash matrix. Low angle fracture at 10.7 ft. lined with iron-oxidized clays containing plant roots. Low angle fracture at 11.5 ft. is clean.	"	TUFF	RUN# 4 1040 Headspace = 0.0 ppm
5.0	5.0 / 5.0	0121-95-0035 18.9-19.3	BF# 167 OVM# 0.0	-	15.0-17.7 Same as above. Slightly welded. Pumice oxidized to a reddish brown. 17.7-17.9 TUFF. Soft. Iron oxide stained. No pumice. 5-10% lithic fragments.	"	TUFF	RUN# 5 1052 Headspace = 0.0 ppm
0.0	3.5 / 5.0 70%	0121-95-0036 0121-95-0037 Full Dep. 22.0-23.0	BF# 173 OVM# 0.0	-	20.0-21.5 TUFF. Medium gray (N5). Soft. Non-welded. 10-5% Pumice are oxidized. 21.5-23.5 TUFF. Medium gray (N5). Slightly welded. 1%-5% Pumice to 1.0cm are oxidized. 5%-10% lithics and sample ^{RIS} sandline(?) in ash matrix. 23.5-25.0 NO RECOVERY	"		RUN# 6 1103 Headspace = 0.10 ppm
5.0	5.0 / 5.0 100%	0121-95-0038 29.0-29.5	BF# 185 OVM# 0.0	-	25.0-26.5 TUFF. Medium gray (N5). Non-welded. Disaggregated. 26.5-30.0 TUFF. Medium gray (N5). Slightly to moderately welded. 1%-2% Pumice 5% lithics in ash matrix.	"		RUN# 7 1120 Headspace = None

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM
SAMPLE MANAGEMENT FACILITY **CORE SAMPLE LOG**

Borehole ID 21-3005 ^{FUPC} TAG# 21/1 Drill Depth From 30.0 To 35.0 Page 2 of 2

Driller STUART BROS. Box #(s) Start Date/Time 5-26-95/1015 End Date/Time 5-26-95/1130

Drilling Equip./Method CME 750 - Hollow Stem Auger Sampling Equip./Method 3.5" STANLEYS STEEL CORE BARREL

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	50/5.0 100%	0161-95-0087 34.0-34.5	BT= 189 OVM= 0.0	—	30.0 - 35.0 TUFF, Medium gray (NS), Moderately welded, 5% elongated pumice to 2cm, many lined with iron-oxidized material, 5% lithics. High angle fractures at 30.8' and 31.5' lined with iron-oxide stained clays.			Run# 8 1128 Headspace - none
32.5			BT= OVM=	—				Run# 1115 Plobs of fractures Roll 5, #20 + #21
35.0			BT= OVM=	—	TD Borehole @ 35 FT. 265			Run#
			BT= OVM=	—				Run#
			BT= OVM=	—				Run#
			BT= OVM=	—				Run#
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			BT= OVM=	—				Run#
			BT= OVM=	—				Run#

Prepared by R. Blegen Date 5/26/95 Checked By R. L. P. B. Date 6/8/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3006 ^{FUPC} TA/TH 21/1 Drill Depth From 0.0 To 25.0 Page 1 of 3
 Driller Stewart Bros. Box #(s) Start Date/Time 5-17-95 0950 End Date/Time 5/19/95 10830hrs
 Drilling Equip./Method CME 750 Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger w/ 5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	2.4' / 2.5' = 96%		BF=249 OVM=0.47mm	—	Fill Material. Reddish Brown (10R 4/6), Silty, Fine Sand and pebbles to ~.75cm. No Odors.			Run# 1 0450 hrs Photo #20 Roll #1
2.5	2.5' / 2.5' = 100%	0121-95-0041-01 0121-95-0041-02 (4.5'-5.0')	BF=250mm OVM=514mm HS=0.11mm	—	2.5'-4.5' Fill material as above. Notice petrol odors. 4.5'-5.0' grey poorly welded Tuff (N5). Pumice to ~0.5 cm. Matrix of ash and ~10% crystals.	Fill		Run# 2 1005 hrs Photo #20 Roll #1
5.0	2.5' / 2.5' = 100%		BF=246mm OVM=740mm	—	5.0-7.5 Grey Tuff (N5). No Fractures. Pumice light grey (N7) as large as 1.0cm.			Run# 3 Photo #21 Roll #1 Petrol odors.
7.5	2.5' / 2.5' = 100%	0121-95-0042-01 0121-95-0042-02 (7.5'-10.0')	BF=250mm OVM=970mm HS=0.44mm	—	7.5-10.0 Grey poorly welded Tuff (N5), Pumice as large as 4.0cm are light grey (N4). ~10% crystals in matrix.			Run# 4 1050 Petrol odors Photo #22 Roll #1
10.0	2.5' / 2.5' = 100%		BF=240mm OVM=1360mm	—	10.0-12.5 Grey Tuff (N5) with beta light grey pumice (N4) and possibly altered pumice (reddish) as large as 4.0cm. Moderate angle clay filled fracture w/ minor calcite(?). At 11.25'			Run# 5 Petrol odors. (strong) Photo #23 Roll #1
12.5	2.5' / 2.5' = 100%	0121-95-0043-01 0121-95-0043-02 (14.0'-14.5')	BF=186 OVM=366 HS=331	—	12.5-14.0 Grey tuff N5. Rubble 12.5-13.2. Pumice light grey, poorly welded. ~13% crystals. 13.4-20.0mm w/ obs 14.0 Horiz No obs. minor oxides			Run# 6 0800 Photo # — Roll # —
15.0	2.5' / 2.5' = 100%		BF=210 OVM=546	—	15-17.5 Non welded grey tuff N5. Multiple moderate & Horiz. Fracts @ 16.5-17.0 and High 16-17.00007. in matrix.			Run# 7 0500 Photo #24 Roll #1
17.5	2.5' / 2.5' = 100%	0121-95-0044-01 0121-95-0044-02 (19.0'-19.5')	BF=187 OVM=493 HS=	—	17.5-20 Grey Tuff (N5) ~ 7% cryst in ash matrix Pumice to ~1.25cm Horiz Fract 18.0' minor w/ fill			Run# 8 0810 Photo 25 Roll
20.0	2.5' / 2.5' = 100%		BF=210 OVM=585	—	20-22.5 Grey Tuff (N5) Pumice ~1.6cm and 15% of tuff. ~12% crystals in ash matrix Low Fract @ 22.0' No Fill material			Run# 9 0915 Photo 26 Roll #1
22.5	2.5' / 2.5' = 100%	0121-95-0045-01 0121-95-0045-02 (24.0'-24.5')	BF=236 OVM=498 HS=702	—	22.5-26.0 Grey Tuff as above. Pumice supply appearance crystals ~ 7% of matrix Horiz Fract @ 24.0' minor to oxides, No silt or other fill (23.0' and High Horiz + mod L w/ oxides N5 fill 24.5'			Run# 10 0827 Photo 28 Roll #1
25.0	5.0' / 5.0' = 100%		BF=230 OVM=298	—	25.0-30 Grey Tuff N5. Pumice to 2.0cm have a reddish color and sugary appearance. Matrix ~ 9% crystals. Multiple Horiz fractures @ 27.5-28.5 No Fill materials			Run# 11 0835 Photo 29 Roll #1
27.5		0121-95-0046-01 0121-95-0046-02 (29.3'-29.8')	BF=220 OVM=316 HS=98	—				Run# 11

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3006 ^{FUDC} TAGU ^{PTW/RF} 21/FU-1 Drill Depth From 0.0 To 65.0 Page 2 of 3

Driller Stewart Bros. Box #(s) Start Date/Time 5-17-95/0940 End Date/Time 5-19-95/0830

Drilling Equip./Method CME-760/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger w/5' Core Barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	5.0 5.0		BT=210 OVM=200	—	Grey Tuff (N5) Pumice to 3.0 cm, reddish color and sugary texture, ~7% crystals in matrix. 31.5' mid fract. w/ No fill material. 30.4-32.3 No 1/2 fract. Tuff, s & slightly welded.	 		Run # 12 0911
.5	100%	0101-95-0047-01 0101-95-0047-02 (34.0-34.5)	BT=210 OVM=220 HS 395	—		 		Run # -
1.0	5.0 5.0		BT=197 OVM=	—	Grey Tuff (N5) 35-40.0 Pumice to 2.0 cm w/ sugary appearance. Matrix ~8% crystals. 35.5-36.5 low L fract w No fill material. 36.5-39.0 low disaggregated possibly low L fractures	 	Tuff	Run # 13 0929 Partial odors
1.5	100%	0101-95-0047-01 0101-95-0047-02 (39.0-39.5)	BT=197 OVM=230 HS 219	—		 		Run # -
2.0	4.0 5.0		BT=220 OVM=230 HS	—	40-45.0 grey N5 welded tuff completely disaggregated moderate frac at 43.5-44.0 No fill material Grey N5 ~7% cryst in matrix No large pumice observed	 	Member of the	Run # 14 1116 1.0' No Rec. 40.0-45.0 slight odor Photo #32 Roll #1
2.5	100%	0101-95-0123-01 0101-95-0123-02 (43.5-43.7)	BT=NA OVM=NA HS-133	—		 		Run # -
3.0	3.5 2.5		BT=170 OVM=21	—	45.0-47.5 Grey Non welded tuff as above completely disaggregated	 	of Ishioka	Run # 15 1125 No strong odors
3.5	2.5 2.5		BT=220 OVM=1.1 HS=27	—	47.5-50 Non welded, disaggregated tuff as above. @ 48.5-49.0 possible fract. Moderate L w/ abundant druses.	 	Unit 3	Run # 16 1130 No strong odors Photo #33 Roll #1
4.0	2.5 2.5		BT=230 OVM=6.0 (3.0)	—	50.0-52.5 Non welded grey (N5) tuff. Completely disaggregated. oxide trace of low L fract.	 		Run # 17 1177 First trace = 26mm 301mm elsewhere
4.5	2.5 2.5		BT=234 OVM=2.4 HS 4.0	—	53.0 as above No fractures to 55.0	 		Run # 18 1155 No photo
5.0	2.5 2.5		BT=220 OVM=24mm HS=0.0mm	—	55.0-57.5 Non-weld grey tuff (N5), ~7% pumice to 1.0 cm, completely disaggregated. No fractures.	 		Run # 19 1150 Photo #35 Roll #1 No odors
5.5	2.5 2.5		BT=415 OVM=0.0 HS=0.0mm	—	57.5-60.0 Non-welded tuff as above. w/ pumice to 3.0 cm	 		Run # 20 0815 No odors Photo 36

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3006 ^{FUDC DP Tank Farm} TADU 21 / FU-1 Drill Depth From 0.0 To 65.0 Page 3 of 3
 Driller Stewart Bios Box #(s) --- Start Date/Time 5-19-95 / 0950 hrs End Date/Time 5-19-95 / 0930 hrs
 Drilling Equip./Method CME 750 / Hollow Stem Augers Sampling Equip./Method Hollow stem auger w/ 5' core barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	2.5 / 5.0		B9=248cpm C/N=0.4ppm		60.0-62.5 Grey Tuff as above (N5). Core is disaggregated. Brown staining present at 60.5' (possible fracture?)		Tshiraga	Run 21 0810 hrs No Odors
62.0	2.5 / 5.0	B12-15-012 -01 B12-18-0126 -02	B9=178cpm C/N=13.5 HS=66.1ppm		62.5-65.0 Grey Tuff (N5). Core Disaggregated. NB? lumice to 1.0cm. No Fractures		Unit 3	Roll #1 Photo #37 Run 22 0830 hrs 0.3' loss. No Recovery 64.7-65.0.
65.0	38%	64.2 64.5			End of Hole. TD = 65.0'			

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3007 ^{FUP OF MARK FROM} TAG# 21/FU-1 Drill Depth From 0.0 To 50.0' Page 1 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-19-95 (5:1100) End Date/Time 5/19/95 1500 hrs

Drilling Equip./Method CME 750 Hollow Stem Auger Sampling Equip./Method Hollow Stem Augers w/ 5' Core Barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	1.5 / 2.5 60%	0121-95-0000 -01 -02	BT=0 OVM=0	—	0-1.5' Fill material. Fine sand and silt with pebbles to ~1.0 cm. No Recoverys 1.5' To 2.5'		Material	Run#1 1100 hrs 0-2.5' Roll 2 EXP 2
2.5	2.5 / 2.5 100%	0121-95-0001 -01 0121-95-0002 -02	BT=180 OVM=0.0ppm HS=0.0ppm	—	2.5'-3.5' Fill material as above. (N5) 3.1'-5.0' Grey, moderately-welded Tuff. Pumice to ~3.0 cm. matrix ~15% crystals quartz and Sanidine (blue iridescent).		TUFF	Run#2 1105 hrs 2.5'-5.0' Roll 2 EXP 3
5.0	2.5 / 5.0 100%	0121-95-0003 -01 0121-95-0004 -02	BT=NA OVM=NA HS=0.0ppm	—	5.0'-10.0' Grey (N5) poorly-moderately welded Tuff. Pumice to ~1.0 cm are lighter grey in color w/ a few having a sugary texture.		TUFF	Run#3 1115 hrs 5.0'-10.0' Roll 2 EXP 4
10.0	5.0 / 5.0 100%	0121-95-0005 -01 0121-95-0006 -02	BT=171 OVM=0.0ppm HS=0.0ppm	—	10-15' Grey Tuff as above.		Bandelier	Run#3 Run#4 1146 hrs 10.0'-15.0' Roll 2 EXP 8
15.0	5.0 / 5.0 100%	0121-95-0007 -01 0121-95-0008 -02	BT=184 OVM=0.0ppm HS=0.0ppm	—	15.0'-20.0' Grey Tuff as above. Locally non-welded and disaggregated (15.0'-16.5') pumice as large as 3.0 cm. Some pumice have a sugary texture due to phenocrysts. Rare reddish grey coloration is present in some pumice and as "stringers" in the matrix (possibly along bedding planes). (Vapor phase alteration?) Crystal content of matrix ~20%		Member	Run#4 Roll 2 EXP 7
20.0	5.0 / 5.0 100%	0121-95-0009 -01 0121-95-0010 -02	BT=NA OVM=NA HS=0.0ppm	—	20.0'-25.0' Grey Tuff as above. Pumice to 5.0 cm in an ash (30%) and crystal (20%) matrix.		Tshireye	Run#5 1145 hrs 15.0'-20.0' Run#5 UNIT 3
25.0	5.0 / 5.0 100%	0121-95-0011 -01 0121-95-0012 -02	BT=190 OVM=0.0ppm HS=0.0ppm	—	25.0'-30.0' Grey (N5) poorly to moderately welded Tuff. Pumice are Grey to reddish brown (vapor phase altered?) and as large as 3.0 cm. Matrix is grey and locally altered (vapor phase?) to reddish brown. (Most prominent at 25.2')		UNIT 3	Run#6 1155 hrs 20.0'-25.0' Roll 2 EXP 10
30.0	5.0 / 5.0 100%	0121-95-0013 -01 0121-95-0014 -02	BT=103 OVM=0.0ppm HS=0.0ppm	—	30.0'-35.0' Grey (N5) poorly to moderately welded Tuff. Pumice are Grey to reddish brown (vapor phase altered?) and as large as 3.0 cm. Matrix is grey and locally altered (vapor phase?) to reddish brown. (Most prominent at 25.2')		UNIT 3	Run#6 Roll 2 EXP 9
35.0	5.0 / 5.0 100%	0121-95-0015 -01 0121-95-0016 -02	BT=171 OVM=38.0 HS=154.9	—	35.0'-40.0' Grey (N5) poorly to moderately welded Tuff. Pumice are Grey to reddish brown (vapor phase altered?) and as large as 3.0 cm. Matrix is grey and locally altered (vapor phase?) to reddish brown. (Most prominent at 25.2')		UNIT 3	Run#7 1200 hrs 25.0'-30.0' Roll 2 EXP 12
40.0	5.0 / 5.0 100%	0121-95-0017 -01 0121-95-0018 -02	BT=171 OVM=38.0 HS=154.9	—	40.0'-45.0' Grey (N5) poorly to moderately welded Tuff. Pumice are Grey to reddish brown (vapor phase altered?) and as large as 3.0 cm. Matrix is grey and locally altered (vapor phase?) to reddish brown. (Most prominent at 25.2')		UNIT 3	Run#7 Roll 2 EXP 11

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3007 ^{FUPC} ~~TA/04~~ 21/1 Drill Depth From 0.0 To 50.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-19-95 1100 hrs End Date/Time 5/19/95 1500 hrs

Drilling Equip./Method CME Hollow Stem Augers Sampling Equip./Method Hollow Stem Augers w/5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	2.5 / 5.0 100%		BT=0.1mm OVM=10.5mm	—	Grey Tuff as Above (30.0-35.0), Tuff is non-welded to poorly welded at bottom of run. Pumice to 3.0cm, Matrix ~ 12% crystals.			Run# 8 1340 hrs 30.0-35.0' Roll 2 EXP 14
1.5		0121-95-0055 -01 0121-95-0055 -02 34.2-34.6	BT=NA OVM=NA HS=20.5mm	—				Run# 8 1350 hrs 35.0-37.5' Roll 2 EXP 13
2.0	2.5 / 3.5 100%		BT=1.8mm OVM=16.1mm	—	Non-welded Grey Tuff (35.0-37.5') N6. ~ 15% crystals in matrix, pumice as large as ~ 1.5cm, core is mostly disaggregated.			Run# 9 1350 hrs 35.0-37.5' Roll 2 EXP 15
3.5	2.5 / 3.5 100%	0121-95-0056 -01 0121-95-0056 -02 34.2-34.6	BT=1.8mm OVM=0.9mm HS=12.2mm	—	37.5-40.0 Poorly welded Grey Tuff (N5), core is almost completely disaggregated. Pumice are greyish white to altered and reddish brown in color and as large as 2.5cm, matrix ~ 14% crystals and ~ 2% ash.			Run# 10 1400 hrs 37.5-40.0' Roll 2 EXP 16
5.0	2.5 / 3.5 100%		BT=1.3mm OVM=0.0mm	—	40.0-42.5 Non welded Grey Tuff as above. Pumice alteration to reddish brown color more common. Pumice to 3.5cm. ~ 9% crystals and 4% ash matrix.			Run# 11 40.0-42.5' Roll 2 EXP 17
6.5	2.5 / 3.5 100%	0121-95-0127 -01 0121-95-0127 -02 44.0-44.7	BT=1.7mm OVM=0.0mm HS=0.0mm	—	42.5-45.0 Grey non-welded Tuff as above, Pumice to 2.0cm and ~ 12% crystals in matrix.			Run# 12 1440 hrs 42.5-45.0' Roll 2 EXP 18
8.0	2.5 / 3.5 100%		BT=2.0mm OVM=0.0mm	—	45.0-47.5 Non welded Grey Tuff as above. Alteration of Pumice and stringers of matrix change color to reddish brown to tan (10.6.5/3). Pumice to 2.0cm. ~ 12% crystals in ash matrix.			Run# 13 45.0-47.5' Roll 2 EXP 19
9.5	2.0 / 3.5 80%	0121-95-004 -01 0121-95-0121 -02 48.7-49.1	BT=2.1mm OVM=0.0mm HS=0.0mm	—	47.5-49.5 Non-welded Tan to Reddish brown Tuff. ~ 20% crystals in rose colored matrix.			Run# 14 1500 hrs 47.5-50.0' Roll 2 EXP 20
11.0			BT= OVM=	—	LOSS: 0.5' @ 49.5-50.0' (No Recovery)			Run#
12.5			BT= OVM=	—	End of Hole: TD=50.0'			Run#
14.0			BT= OVM=	—				Run#
15.5			BT= OVM=	—				Run#
17.0			BT= OVM=	—				Run#

UNIT 3
Tshirege Member
Banded
Tuff

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3008 ^{FUPC} ~~TA08~~ 21/1 Drill Depth From 0.0 To 50.0 Page 1 of 2
 Driller Stewart Bros. Box #(s) ^{NIS 6/8/95} Start Date/Time 5-22-95/1608 End Date/Time 5-23-95/0917
 Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger w/ 5' core barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0 - 2.5	2.0 / 2.5		BT=190µm OVM=20µm	—	0-2.5' Very fine sand, silt (2 clp) and grey pieces of tuff to ~1.0cm. (Fill material). No Recoveries 2.0-2.5'		Run #1 1506 NIS	
2.5 - 3.5	1.5 / 2.5	014-45-0057 -01 014-45-0057 -02 3.0-3.5	BT=140µm OVM=20µm	—	2.5-4.0 Fill material as above. (5R 5D) Tuff pieces to 4.5cm. 4.0-5.0 No Recovery.		Roll 3 Run #2 15-24 NIS	Photo -
3.5 - 5.0	3.5 / 2.5	012-45-0130 012-45-0130 012-45-0130	HS=52.5µm BT=140µm OVM=20µm	—	5.0-6.7 Fill material as above. (moist) 6.7-7.5 Pale Red Tuff. 5R 5D w/ grey pumice to 2.5cm (unaltered). ~9% crystals in ash matrix.		Roll 3 Run #3 Patrol orders.	Photo 9
5.0 - 7.5	100%	012-45-0130 012-45-0130 012-45-0130	HS=145.2µm	—	7.5-10.0 Pale Red Tuff as above. Core is horizontally fractured due to drilling.		Roll 3 Run #4 orders present	Photo 10
7.5 - 10.0	2.5 / 2.5	012-45-0130 012-45-0130 012-45-0130	BT=180µm OVM=74µm	—	10.0-15.0 Pale Red Tuff as above (5R-ND).		Roll 3 Run #5 orders	Photo - 1610
10.0 - 15.0	5.0 / 5.0	012-45-0130 012-45-0130 012-45-0130	HS=153µm BT=120µm OVM=77µm	>17µm	15.0-20.0 Poorly-Moderately welded dark grey tuff (NS), pumice as large as 3.5cm. Matrix ~15% crystals.		Roll 3 Run #6 orders	Exp 12
15.0 - 20.0	5.0 / 5.0	012-45-0061 -01 012-45-0061 -02 012-45-131 (014P)	BT=205µm OVM=305µm	—	20.0-30.0 Grey tuff as above. somewhat moist. less moist at bottom of run. Pumice as large as 2.5cm ~12% crystals in ash matrix.		Roll 3 Run #7 orders	Exp 11 1635
20.0 - 25.0	5.0 / 5.0	012-45-0061 -01 012-45-0061 -02	BT=— OVM=—	—	25.0-30.0 Pinkish grey tuff. Pumice are altered to a reddish grey and as large as 4.0cm. ~14% crystals in ash matrix.		Roll 3 Run #8 Patrol orders	Exp 13 1450 1650
25.0 - 30.0	5.0 / 5.0	012-45-0061 -01 012-45-0061 -02	BT=180µm OVM=135µm	—	(10R42)		Roll 3 Run #9 Patrol orders	Exp 14 1705
30.0 - 35.0	5.0 / 5.0	012-45-0061 -01 012-45-0061 -02	BT=160µm OVM=53µm	—			Roll 3 Run #5	Exp 15
35.0 - 40.0	5.0 / 5.0	012-45-0061 -01 012-45-0061 -02	BT=160µm OVM=53µm	—			Roll 3 Run #5	Exp 17

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3008 ^{FUDC OF Task Force} TAGU 21/FU-1 Drill Depth From 0.0 To 50.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-22-95/1504 End Date/Time 5-23-95/0917

Drilling Equip./Method CME 750/Hollow Stem Auger Sampling Equip./Method Hollow Stem w/ 5' core Barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	2.5 / 3.5		BF=17mm OVM=24mm	—	30.0-32.5 Pinkish grey TUFF (10R6/2). Pumice to 6.5cm are grey (N6), ~12% crystals in ash matrix, Run is Fractured by multiple horizontal fractures.		523-95 Run #9	0750 hrs Rig Setup EXP 19A
1.5	100%	0121-95-0013 -01 and -02	BF=20mm OVM=93mm	—	32.5-35.0 Greyish Brown (5YR 6/1) moderately Welded Tuff. Pumice to 6.0cm. Some with altered rims and sugary interiors. ~17% crystals in ash matrix.		Run #10	EXP 20
3.0	4.5 / 5.0	34.0-34.4	HS=517mm	—	35.0-40.0 Greyish Red Tuff as above. Interval is highly fractured by horizontal fractures. Pumice to 2.5cm, ash matrix ~20% crystals. No Recovery 39.0-39.5		Run #11	EXP 21
4.5	90%	0121-95-0014 -01 and -02	BF=18mm OVM=24mm	—			Run #11	
6.0	5.0 / 5.0	38.4-39.0	HS=47mm	—	40.0-45.0 Greyish Red Tuff as above. Pumice as large as 1.5cm and matrix ~20% crystals.		Run #12	EXP 22 0850
7.5	100%	0121-95-0012 -01 and -02	BF=17mm OVM=62mm	—			Run #12	EXP 25
9.0	5.0 / 5.0	43.8-44.2	HS=4.9mm	—	45.0-50.0 Greyish Red Tuff as above. Pumice as large as 2.0cm. Some are altered red (BR 5/4) Matrix ~20% crystals. Core is highly fractured by low, moderate and high angle fractures from 47.0-50.0		Run #13	EXP 24 0917
10.5	100%	0121-95-0133 -01 and -02	BF=— OVM=—	—	End of Hole TD 50.0'		Run #13	EXP 2
12.0		49.1-49.6	BF=— OVM=—	—			Run #14	EXP 1
13.5			BF=— OVM=—	—			Run #	
15.0			BF=— OVM=—	—			Run #	
16.5			BF=— OVM=—	—			Run #	
18.0			BF=— OVM=—	—			Run #	

Unit 3, Tshivege Member of The Bandelier Tuff

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3009 ^{FU P S DT MARK Form} TA/OU 21/FH-1 Drill Depth From 0.0 To 17.5 Page 1 of 1

Driller Stewart Bros. Box #(s) Start Date/Time 5-24-95/0938 End Date/Time 5-24-95/1030

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	1.3 / 2.5		BT=174mm OVM=20mm	—	0.0-2.5 Fine sand, silt, clay and pebbles to 1.0 cm of grey tuff, Matst. (10R34). No Recovery 1.3'-2.5'		Fill	Run#1 0938
2.5	5.2 / 7.0	0121-95-0015	BT=167mm OVM=70mm	—	2.5-3.0 Fill material as above. 3.0-5.0 Grey Tuff (N7). Pumice areas as large as 0.75 cm are mostly altered reddish brown (10R34). Matrix is ash with ~17% crystals.		Tuff	Run#2 0949 slight petro order Roll 4 Exp 18
5.0	100%	4.3-4.9	BT=203mm OVM=130mm	—	5.0-10.0 Grey Tuff as above. Pumice are altered and as large as 3.5 cm. Ash matrix is ~20% crystals. Tuff is moderately welded. 5.0-10.0 Highly fractured by low and horizontal fract. and fiss		Tuff	Run#3 1000 slight petro order Roll 4 Exp 20
		0121-95-0016	BT=203mm OVM=280mm	—	10.0-15.0 Grey (N7) moderately welded Tuff. Matrix is ash with approximately 20% crystals. Pumice as large as 2.0 cm.		Member of Bandelier	Run#3 Roll 4 Exp 19
	5.0 / 5.0		BT= - OVM= -	—			Member of Bandelier	Run#4 1018 Roll 4 Exp 22
		0121-95-0017	BT= - OVM= -	—			Member of Bandelier	Run#4 order Roll 4 Exp 21
15.0	2.5 / 2.5	14.3-14.6	BT= - OVM= -	—	15.0-17.5 Grey Tuff as above. Becomes non-welded and disaggregated from 16.5-17.5		Unit 3	Run#5 1030 order Roll 4 Exp 23
17.5			BT= - OVM= -	—	End of Hole 17.5'			Run#
20.0			BT= - OVM= -	—				Run#
			BT= - OVM= -	—				Run#
			BT= - OVM= -	—				Run#
			BT= - OVM= -	—				Run#

Prepared by John Crocker

Date 5-24-95

Checked By R. P. G.

Date 6/8/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3010 ^{FUDC} ~~TA/08~~ ^{DTANK/4M} 31A/FU-1 Drill Depth From 0.0 To 30.0 Page 1 of 1

Driller Stewart Bros. Box #(s) Start Date/Time 5/20/95 1035 End Date/Time 5/20/95 1157

Drilling Equip./Method CME 750 w/ hollow stem Auger Sampling Equip./Method Hollow Stem Auger w/ core barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	1.7		BT=165 OVM=0.8 PPM	—	0-2.5' Fill material, Reddish Brown (10R 5/4), Silt, very fine sand w/ pebbles to 1.5cm. Loss: 0.8' No recovery. 1.7'-2.5' (Fill is moist).			Run#1 1035 hrs
2.5	64%			—				Roll 2 #21
2.5	2.5	0121-95-0074	BT=147 OVM=0.7 PPM	—	2.5-5.0 Fill material as above.		Fill Material	Run#2 1040 hrs
3.5	0.5	0121-95-0074		—				Roll 2 #22
5.0	100%	4.0-4.7		—				Run#3 1052 hrs
5.0	5/5		BT=— OVM=—	—	5.0-6.5 Fill as above. 6.5-10.0 Greyish Red Tuff (5R 4 1/2) w/ grey pumice (NS) to 1.5cm. Small pumice altered dark red (5R 2 1/2).		Fill Material	Roll 2 #24
10.0	100%			—				Run#3
10.0	—	0121-95-0075	BT=203 OVM=0.9 PPM	—	6.5-10.0 Greyish Red Tuff 5R 4 1/2. Pumice as			Roll 2 #23
2.0	—	0121-95-0075	HS=1.9 PPM	—				Run#4 1105 hrs
2.0	5.0		BT=— OVM=—	—	10.0-14.0 Greyish Red Tuff as above. Highly fractured. Pumice to 4.0cm. Crystals in ash matrix ~13%			Run#4
4.5	4.5			—				Roll 2 #24
10.0	100%	9.0-9.5		—				Run#5 1129 hrs
5.0	—	0121-95-0076	BT=199 OVM=0.0 HS 0.6	—	14-14.5 Clay. Orange-brown 10R 4/6 w/ deep red mottling 5R 3/4. Slightly moist. No Recovery: 14.5-15.0		Member of	Roll 3 #3
7.0	7.7		BT=— OVM=—	—	15.0-16.2 Clay as above. Slightly moist. 16.2-16.7 Grey Non-welded Tuff Disaggregated. 16.7-17.5: No Recovery			Run#6 ~1130 hrs
2.5	0.5	0121-95-0077	BT=167 OVM=0.0 HS=0.3	—	17.5-20.0 Grey Non-welded Tuff as above. Disaggregated along horizontal partings. Color=NS. Pumice to 2.5cm. W/ sugary texture. ~15% crystals in ash matrix. Some pumice altered		Unit 3, Ts hirenc	Roll 3 #4
10.0	100%	19.0-19.4		—				Run#7 1140 hrs
2.5	2.5		BT=— OVM=—	—	Reddish Brown (5R 3/4). 20-22.5: Grey Tuff as above. Pumice to 4.0cm (NS). Other pumice are altered reddish brown.		Unit 3, Ts hirenc	Roll 3 #4
2.5	2.5	0121-95-0078	BT=194 OVM=0.0	—	22.5-25.0 Non welded Grey Tuff. Disaggregated along horizontal partings from 22.5-24.5. Matrix ~14% Cryst. and 26% ash.			Run#8 1150 hrs
10.0	100%	23.7-24.4	HS=0.3	—				Roll 3 #5
5.0	5.0		BT=— OVM=—	—	25-30.0 Grey Tuff as above. Completely disaggregated. Pumice to 2.0cm (NS). Small 2.0cm are altered reddish brown. ~10% crystals in ash matrix			Run#9 1157 hrs
10.0	100%			—				Roll 3 (#72)
10.0	—	0121-95-0079	BT=195 OVM=0.0 PPM	—				Run#9
2.0	—	0121-95-0079	HS=0.3 PPM	—				Roll 3 #6

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3010 ^{FUP Cop Tank Form} ~~TA/00~~ 21/FU-1 Drill Depth From 0.0 To 35.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-22-95/1035 End Date/Time 5/22/95/1218h19

Drilling Equip./Method CME 750 w/ Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger w/ 5' pipe barrel.

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	2.5 / 3.5 100%		BT = - OVM = -	-	30.0-30.5 Grey (N5) as Above. Pumice to 1.5cm are altered (10x6x). ~ 10% crystals in ash matrix.			Run # 10
32.5	2.5 / 3.5 100%	212-95-0025 -01 212-95-0026 -02	BT = 193 OVM = C.C. H2 O. 1/10	-	30.5-35.0 Grey (N5) poorly welded tuff. Pumice are 17 grey (N6). Some altered (10x4) on rims			Roll #3 Photo 7 Run # 11 1218h19
35.0			BT = OVM =	-	End of hole. TD 35.0'			Roll #3 Photo 8 Run #
			BT = OVM =	-				Run #
			BT = OVM =	-				Run #
			BT = OVM =	-				Run #
			BT = OVM =	-				Run #
			BT = OVM =	-				Run #
			BT = OVM =	-				Run #
			BT = OVM =	-				Run #
			BT = OVM =	-				Run #

Prepared by John C. Carron Date 5-22-95 Checked By L. P. B. Date 6/1/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3011 ^{FUDC OF TANK FARM} ~~TA/08~~ 21 FEU-1 Drill Depth From 0.0 To 40.0 Page 1 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-23-95/1400 End Date/Time 5-23-95/1630

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' core barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology / Soil	Graphic Log	Lithologic Unit	Notes
0.0	1.5 2.5		B _T = 147 OVM = 23%	—	0.0 - 2.5' Dark reddish-brown fill (NR 3/4) Fine sand, silt and clay with pebbles as large as 1.0 cm. No Recovery (1.5' - 2.5')		Material	Run#1 1417
2.5	60%							Roll 4 Photo 3
2.5	2.5 2.5	011-95-0082	B _T = 182 OVM = 0.8%	—	2.5 - 3.3' Fill material as above. 3.3 - 5.0 Reddish grey Tuff, moderately welded. Pumice are grey and as large as 0.75 cm. Matrix is ash with ~ 12% crystals.		H	Run#2 1425
6.0	100%	3.2 - 3.7'	HS = 91.0 ppm	—				Roll 4 Photo 4
	4.2 5.0 84%		B _T = — OVM = —	—	5.0 - 10.0 Reddish grey poorly welded Tuff (5R 4/2). Light grey pumice (NB) are as large as 4.0 cm. Ashy matrix has ~ 12% crystals. No Recovery 9.2' - 10.0 FT.			Run#3 1437
								Roll 4 Photo 6
		011-95-0083	B _T = 160 OVM = 50.9%	—	6.4' Horizontal fracture with oxide fill, 6.1' intersecting moderate vertical and low angle fractures with minor oxides.		Tuff	Run#3
		8.4 - 8.9'	HS = 210 ppm	—				Roll 4 Photo 5
	5.0 5.0		B _T = — OVM = —	—	10.0 - 15.0 Reddish grey Tuff as above. Pumice to 6.0 cm. ~ 12% crystals in ash matrix. 10.5 - 11.0' moderate angle fracture w/ oxide fill.		Member of the Bandelier	Run#4 1448
	100%							Roll 4 Photo 8
		011-95-0084	B _T = 187 OVM = 110.0%	—	11.5 Low angle fracture w/ lite oxide fill (also at 11.8, 12.0, 12.8) 15.0 Low angle fracture w/ Heavy oxide fill.		Member of the Bandelier	Run#4
		13.1 - 13.6'	HS = 57.0 ppm	—				Roll 4 Photo 7
3.0	5.0 5.0		B _T = — OVM = —	—	15.0 - 20.0 Greyish pink (5YR 7/2) moderately welded Tuff. Pumice are light grey (NB) and as large as 2.0 cm. Matrix is ash with ~ 15% crystals.		Member of the Bandelier	Run#5 1504
	100%							Roll 4
		011-95-0085	B _T = 220 OVM = 71.0%	—	15.0 - 15.5 Moderate and Low angle fractures with no fill. ~ 15.5 - 16.2 Multiple Horizontal fractures (Rubbo)		Member of the Bandelier	Run#5
		14.0 - 14.3	HS = 66 ppm	—				Roll 4 Photo 9
3.0	5.0 5.0		B _T = — OVM = —	—	20.0 - 25.0 Grey (5M 7/2), moderately welded Tuff. Pumice are grey and as large as 4.0 cm. Matrix is ash with ~ 15% crystals.		Member of the Bandelier	Run#6 1515
	100%							Roll 4 Photo 11
		011-95-0086	B _T = 170 OVM = 96.0%	—	Note: Fractures in middle of Run are <u>NOT</u> natural.		Unit 3	Run#6
		23.6 - 24.4	HS = 560 ppm	—				Photo 10
3.0	5.0 5.0		B _T = — OVM = —	—	25.0 - 30.0 Greyish pink (5YR 7/2) moderately welded Tuff. Large pumice to 5.0 cm are grey (NB). Smaller pumice are altered to greenish grey (5Y 6/1).		Member of the Bandelier	Run#7 1530
	100%							Roll 4 Photo 13
		011-95-0087	B _T = 203 OVM = 78.0%	—	26.0 Horizontal fracture, minor oxides. 28.3 - 28.5 Horizontal fracture, No fill. 29.5 Low angle fracture, No fill			Run#7
		29.0 - 29.4		—				Roll 4 Photo 12

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3011 ^{FUDS SPARK FIRM} TA/OU 21/FU-1 Drill Depth From 0.0 To 40.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-23-95/1400 End Date/Time 5/23/95/1630

Drilling Equip./Method CME-760/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' core barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	5.0 / 5.0	0121-75-0091	BF: - OVM: -	-	30.0-35.0 Moderately welded greyish pink (5YR 7/2) Tuff. Pumice are grey (N8) and as large as 5.0 cm. Matrix is ash with ~15% crystals			Run # 8
32.5	-	0121-75-0098 0121-75-0099 (Duplicate) 33.5-34.4	BF: 220cm OVM: 50.0 cm HS: 101ppm	-	30.8' Horizontal Fracture, Mineral oxides. 31.4' Low angle Fracture, No Fill 32.7' Moderate angle Fracture, No Fill. 33.8'-34.3' Vert. Fracture, No Fill			Roll 4 Photo 15 Run # 8
30.0	5.0 / 5.0 100%		BF: - OVM: -	-	35.0-40.0 Moderately welded pinkish grey (5YR 7/2) Tuff. Pumice are grey (N8) and as large as 4.0 cm. Matrix is ash with ~15% crystals.			Run # 9
	-	0121-75-0125 39.0-39.5	BF: 198 OVM: -	-	35.2' Horizontal Fracture, No Fill. 36.0' Horizontal Fracture, No Fill. 36.5' Low angle Fracture, No Fill. 37.7-38.0 Multiple low angle and Horizontal Fractures.			Run # 7 Photo 16 Photo 17
40.0			BF: - OVM: -	-	END OF HOLE. 40.0'			Run #
			BF: - OVM: -	-				Run #
			BF: - OVM: -	-				Run #
			BF: - OVM: -	-				Run #
			BF: - OVM: -	-				Run #
			BF: - OVM: -	-				Run #
			BF: - OVM: -	-				Run #
			BF: - OVM: -	-				Run #

Prepared by John P. Hooker Date 5-23-95 Checked By Keller Bl Date 6/8/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3012 ^{FUAC OPTANK Farm} TA/OU 21/FU-1 Drill Depth From 0.0 To 55.0 Page 1 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-24-95/1300 End Date/Time 5-24-95/1612

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' Core Barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	1.2 2.5 46%		B# = 139 cm OVM = 0.011m	—	0.0-2.5 Fill material Very fine sand, silt, and clay. Reddish Brown (10R3/4), slightly moist. No Recovery (1.2'-2.5')		Run #1 Fill Material	1303 A15
2.5	1.3 2.5 62%	0121-45-0040	B# = 200 cm OVM = 0.0	—	2.5'-6.5' Fill material as above. Fill has a piece of grey tuff 0.2' from 3.6-3.8'. No Recovery 3.8'-5.0' (1.2' loss)		Run #2 Fill Material	EXP 24 1307 A15 1.2' loss (No Recov)
5.0	1.4 2.5 72%	32-3.6	HS = 0.11m	—	6.5'-6.8' Grey (N7) Non-welded and disaggregated Tuff. No visible pumice clasts. ~20% crystals in ash matrix. No Recovery 6.8'-7.5' (0.7' loss)		Run #3 Fill Material	1320 A15
7.5	2.2 2.5 86%	0121-45-0041	B# = 163 cm OVM = 0.011m	—	7.5'-9.7' Grey (N7) Non-welded and disaggregated Tuff. Pieces of pumice are lacking. Matrix is ash with ~25% crystals. No Recovery: 9.7'-10.0' (0.3' loss)		Run #4 Fill Material	EXP 25 1325
10.0	2.1 2.5 84%		B# = 193 cm OVM = 0.011m	—	10.0'-12.5' Grey Non-welded Tuff as above. Core is disaggregated. ~18% crystals in ash matrix. No Recovery 12.1'-12.5' (0.4' loss)		Run #5 Fill Material	1330
12.5	2.5 2.5 100%	0121-45-0042	B# = 178 cm OVM = 0.011m	—	12.5'-15.0' Grey (N7) Tuff as above. Becomes moderately welded at 13.5 to end of run. 14.0' intersecting Vert. and Horiz. Fractures (No Fill)		Run #6 Bankier Tuff	1337
15.0	2.5 5.0 56%	14.0-14.7	B# = 206 cm OVM = 0.011m	—	15.0'-20.0' Grey Tuff as above. Partly welded from 15.0-15.5; Non-welded 15.5-17.4. Pumice are lacking. ~18% crystals in ash matrix.		Run #7 Bankier Tuff	EXP 1
17.5	—	0121-45-0043	B# = — OVM = — HS = 0.091m	—	15.5'-16.5' Horizontal partings. No fill material. 17.0'-17.8' core disaggregated. No Recovery 17.8'-20.0' (2.2' loss)		Run #7 Bankier Tuff	EXP 2
20.0	2.0 2.5 60%		B# = 164 cm OVM = 0.011m	—	20.0'-21.3' Grey Tuff separated along horizontal partings (as above). 21.3'-22.0' Grey Non-welded and disaggregated Tuff (N7), Pumice Altered (10R4) and as large as 1.5cm		Run #8 Bankier Tuff	22.0'-22.5' No Recov. EXP 3
22.5	2.5 2.5 100%	0121-45-0044	B# = 174 cm OVM = 0.011m	—	~15% crystals in ash matrix 22.5'-25.0' Moderately welded grey (N7) Tuff. Greying? Pumice to 5.0cm ~17% crystals in ash matrix		Run #9 Bankier Tuff	EXP 4
25.0	2.5 5.0 50%	23.4-24.6	B# = 185 cm OVM = 0.011m	—	23.6' Horiz Fracture. Minor oxide fill. 25.0'-30.0' Grey (N7) Tuff. Non-welded and disaggregated along horizontal partings. Pumice to 1.0cm. ~17% crystals in		Run #10 Bankier Tuff	EXP 5
27.5	—	0121-45-0045	B# = — OVM = —	—	ash matrix with stringers of alteration (5YR6/4)		Run #10 Bankier Tuff	EXP 6
30.0	—	26.3-26.9		—				

Prepared by John Crocker Date 5/24/95 Checked By [Signature] Date 6/4/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3012 ^{FURC DP Tank Form} TA/OU 21/FU-1 Drill Depth From 0.0 To 55.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-24-95/1300 End Date/Time 5-24-95/1612

Drilling Equip./Method AME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' core Barrel

Depth (feet)	Recovery (feet per feet / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core In Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	2.5 0.5 100%		BF = 116 11m OVM = 0.0	—	30.0-32.5 Grey Tuff (NT) Non-Welded and completely disaggregated. (Except 30.2-31.2 which is moderately welded). Pumice are light grey (N6) and as large as 5.0cm. Matrix is ash with ~14% cryst.			Run # 11 Roll 5 Exp 7
32.5	2.5 2.5 100%	0121-95-0096	BF = 167 11m OVM = 0.07m	—	32.5-35.0 Grey Tuff (NT), Moderately Welded. Pumice are grey (N6) and as large as 0.75 cm. Matrix is ash with ~15% crystals. 32.7 Horizontal Fract (No Fill) - Also at 34.7.			Run # 12 1509 Roll 5 Exp 8
36.0	5.0 5.0 100%	33.9-34.7	BF = — OVM = —	—	35.0-40.0 Grey Tuff (NT), Moderately Welded. Pumice are light grey (N6) to ~1.0cm. Matrix is ash with ~15% crystals.			Run # 13 1523 Roll 5 Exp 9
37.5	—	0121-95-0097	BF = 124 11m OVM = 0.07m	—	38.0-38.5 High angle fracture cut by a horizontal fracture. (Oxide fill.)			Run # 13
40.5	4.0 5.0 40%	38.9-39.4	HS 0.01m BF = 201 11m OVM = 0.07m	—	40.0-44.0 Non-Welded and completely disaggregated Grey (NT) Tuff. Pumice as large as 1.0cm and altered reddish-brown (10R5/4). Matrix is ash with ~15% crystals.		Banded Tuff	Run # Run 14 1540 Roll 5 Exp 11
43.0	—	0121-95-0136	BF = — OVM = —	—	42.5-44.0 Disaggregation in this interval may be due to vert. fracture(s). 44.0-45.0 No Recovery (1.0' loss)			Run # 14
5.0	2.5 2.5 100%	43.0-43.4	BF = 167 11m OVM = 0.07m	—	45.0-47.5 Poorly/Non-Welded Grey (NT) Tuff. Matrix is ash with ~20% crystals. Pumice to 1.5cm. 46.6 Oxid stains. 45.5-46.0 Non-Welded (No feet.)		Units of Ishige Member of Banded Tuff	Roll 5 Exp 12 Run # 15 1552 155a
47.5	2.5 2.5 100%	0121-95-0137	BF = 205 11m OVM = 0.07m	—	47.5-50.0 Grey Tuff (NT), Pumice to 0.75cm. Matrix is ash with ~15% crystals. (Run was in Brass sleeves, completely broken up by the time I got the core out.)			Run # 16 1800
50.0	2.5 2.5 100%	49.0-49.5	BF = 207 11m OVM = 0.07m	—	50.0-52.5 Grey (NT) Tuff as above. completely disaggregated. Pumice as large as 3.0cm. Matrix is ash with ~15% cryst.			Run # 17 Roll 5 Exp 13
52.5	2.5 2.5 100%	0121-95-0139	BF = 190 11m OVM = 0.07m	—	52.5-55.0 Grey Tuff as above. Core run in Brass and completely disaggregated.		Run # 18 1812	
55.0	—	54.0-54.5	BF = — OVM = —	—	End of hole. TD 55.0'			Run #
	—		BF = — OVM = —	—				Run #

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-23013 ^{FUPC TANK Farm} _{DP TANK Farm} TA0021 / FH-1 Drill Depth From 0.0 To 35.0' Page 1 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5/25/95/1010 End Date/Time 5/25/95/1155

Drilling Equip./Method CME 750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' Core Barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	1.0 / 2.5 40%		BT=184 OVM=0.0	—	0-0.5 Loss 1.0-2.5 (SYRMA) 0.0-0.5 Fill. Brownish red. Fine sand & silt w/ Pumice to 1.0 cm 0.5-2.5 Disaggregated Grey (N7) Tuff. Pumice to 2.0 cm. ~ 10% crystals in ash matrix		Fill	Run# 1 1017 hrs Roll 5 Exp +6
2.5	2.5 / 2.5 100%	0121-95-0178 -01 and -02	BT=167 OVM=	—	2.5-4.5 Grey Tuff. Non welded to 3.3'. 3.3-4.5 moderately welded grey tuff (N7). Pumice to 1.5 altered reddish ~ 20% crystals in ash matrix 3.3 horiz clean 4.5 low Fe oxide			Run# 2 1025 hrs
5.0	4.5 / 5.0 90%	3.5-4.2	HS=0.0 BT=194 OVM=0.0	—	5.0-10.0 Grey Tuff as above. Run is highly fractured because the driller had to repeatedly pull up.			Run# 3 1037 hrs
			BT=	—				Run# 3
10.0	5.0 / 5.0 100%	0121-95-0179 -01 and -02	HS=0.1 BT=175 OVM=0.0	—	10-15 Grey (N7) moderately welded to 13.0. 13.0-15 Non welded and disaggregated. Pumice to 2.0 cm altered + Grey (NB) ~ 23% crystals in ash matrix		of Borehole Tuff	Run# 4 1047 hrs
			BT=	—				Run# 4
5.0	2.5 / 5.0 50%	0121-95-0180 -01 and -02	HS=0.0 BT=205 OVM=0.0	—	10.0-10.5 Horiz clean 11.0 Horiz clean 12.5-13.0 Multiple Horiz Fractures. Minor oxides.		core member of	Run# 5 1105
			BT=	—				Run# 5
10.0	2.5 / 2.5 100%	0121-95-0181 -01 and -02	HS=0.0 BT=191 OVM=1.0	—	15.0-17.5 Grey Tuff (N7) completely disaggregated. ~ 20% crystals in ash matrix. Pumice to 2.0 cm.		Tshige member of	Run# 6 1115
			BT=	—				Run# 6
25.0	2.5 / 2.5 100%	0121-95-0182 -01 and -02	HS=0.0 BT=219 OVM=0.0	—	17.5-20 No Recovery (N7)		Unit 3	Run# 7 1125
			BT=	—				Run# 7
	2.5 / 2.5 100%	0121-95-0183 -01 and -02	HS=0.0 BT=190 OVM=0.0	—	20.0-22.5 Grey/Non-welded Tuff. Disaggregated. Matrix ~ 20% crystals w/ stringers of tail alteration (SYRMA). Pumice to 0.5 altered to reddish tan.			Run# 8 1140
			BT=	—				Run# 8
	2.5 / 2.5 100%	0121-95-0184 -01 and -02	HS=0.0 BT=219 OVM=0.0	—	22.5-24.0 completely disaggregated grey tuff. Ten stringers of alteration in matrix. 24.0-25.0 moderately welded grey tuff (N7). Pumice to 1.0 cm. Altered. ~ 15% crystals in matrix			Run# 8 1140
			BT=	—				Run# 8
	2.5 / 2.5 100%	0121-95-0185 -01 and -02	HS=0.0 BT=190 OVM=0.0	—	24-25 Vertical fracture No Fill 25.0-30.0 moderately welded grey tuff (N7) Grey (NB) Pumice to 4.5 cm. (Some have thin alteration rims). ~ 10% crystals in ash matrix.			Run# 8
			BT=	—				Run# 8
30.0		0121-95-0186 -01 and -02	HS=0.0 BT=	—	(No Fractures.)			Run# 8

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3013 ^{FU PC DP Tank Farm} TAG# 21/FU-1 Drill Depth From 0.0 To 35.0 Page 2 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5/25/95/1010 End Date/Time 5/25/95/1155

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core In Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	4.3 / 5.0		BT=178 OVM=0.0	—	30-35.0 moderately to poorly well welded tuff. gray (NT). Pumice to 1.5 cm are white to reddish (when altered.) ~15% crystals in ash matrix		Unit 3 of Basaltic Magma Basaltic Tuff	Run # 9 1133
28.5	86%	212-15-015 -01 and -02	BT=— OVM=—	—				Run # 9
25.0		32733	BT=— OVM=—	—	No Recovery 34.7 to 35.0			Run #
20.0			BT=— OVM=—	—	End of hole. TD = 35.0'			Run #
15.0			BT=— OVM=—	—				Run #
10.0			BT=— OVM=—	—				Run #
5.0			BT=— OVM=—	—				Run #
0.0			BT=— OVM=—	—				Run #

Prepared by John C Crocker Date 5/25/95 Checked By L.P. O'G Date 6/8/95

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3014 TAG# 21/FU-1 ^{FUGC DP TANK Farm} Drill Depth From 0.0 To 35.0 Page 1 of 2

Driller Stewart Bros. Box #(s) Start Date/Time 5-31-95/1134 End Date/Time 5-31-95/1300

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger/5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0.0	2.5 2.5 100%		BT=176 cpm OVM=0.0 ppm	—	0.0-2.0 FT. Fine sand, silt and abundant clay with pebbles to 3.0cm. Moist. (10R34) 2.0-2.5 Greyish Red Tuff (5R42). Grey pumice (N8) to 3.0cm. Matrix is ash with 20% crystals and 2% lithics.		Fill Material	Run #1 1134 hrs
2.5	2.5 2.5 100%	01W-95-0180	BT=	—	2.5-5.0 greyish red tuff (5R42). Pumice are grey (N8) and unaltered. Matrix is ash with 22% crystals and 1-2% lithics. 3.5-5.0: Tuff is altered to moderate orangish pink on one side of a clay/oxide-filled fracture (high angle)			Run #2 Roll 5 (alteration across fracture). Photos 26 and 27
5.0	4.7 5.0 94%	3.8-4.5	BT=147 cpm OVM=0.0 ppm	—	5.0-10.0 Greyish brown tuff. Pumice are grey (N8) and as large as 5.0 cm. (Most have a sugary texture). Matrix is ash with ~17% crystals and 3% lithic fragments.			Run #3 1152 hrs
		01W-95-0181	BT=	—			Tuff	Run #3
0.0	5.0 5.0 100%		BT=149 cpm OVM=0.0 ppm	—	10.0-15.0 Greyish Brown Tuff (5R41). Pumice are as large as 3.0cm, are grey (N4) and sugary textured. Rare pumice < 1.0 cm are altered to a reddish brown hue (10R34). Matrix is ash with 25% crystals and 2% lithics. Tuff moderately welded.		Member of Bandelier	Run #4 1208 hrs
		0131-95-112	BT=	—	15.0-20.0			Run #4
5.0	5.0 5.0 100%	13.7-14.4	BT=175 cpm OVM=0.0 ppm	—	14.0-15.0 High angle and moderate angle fractures. No fill material.			Run #5 1220 hrs
		01W-95-0163 01W-95-0164	BT=	—				Run #5
		18.5-19.2	BT=	—				Run #5
5.0	5.0 5.0 100%		BT=147 cpm OVM=0.0 ppm	—	20.0-25.0 Non-welded and completely disaggregated, brownish grey tuff (5R41). Pumice to 1.5 cm, most are altered to reddish brown color (10R34). Matrix is ash with 17% crystals and 1% lithics.		Unit 3 of Tshilge	Run #6 1230 hrs
		0131-95-0165	BT=	—				Run #6
		21.4-22.0	BT=	—				Run #6
0	2.5 2.5 100%		BT=174 cpm OVM=0.0 ppm	—	25.0-27.5 Moderately welded brownish-grey tuff (5R41). Pumice to 1.5 cm; most are altered to a reddish brown (10R34) color. Matrix is ash with ~17% crystals and 1% lithics. 26' and 26.5' Horizontal fractures w/ no fill material.			Run #7 1248 hrs
		01W-95-0165	BT=142 cpm OVM=0.0 ppm	—	27.5-30.0 Brownish grey tuff (5R41). Non-welded and disaggregated. Pumice are altered reddish-brown (10R34) and are as large as 1.5 cm. Matrix is ash with 15% crystals and 2% lithics.			Run #8 1250 hrs

Prepared by John C Crocker

Date 5-31-95

Checked By R. P. B.

Date 6/8/95

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-3014 ^{FUPC} TA/OU 21 / PH-1 Drill Depth From 0.0 To 35.00 Page 2 of 2

Driller STONART Bros. Box #(s) Start Date/Time 5-31-95/1134 End Date/Time 5-31-95/1300

Drilling Equip./Method CME-750/Hollow Stem Auger Sampling Equip./Method Hollow Stem Auger / 5' core barrel

Depth (feet)	Recovery (feet per foot / %)	Field Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology-Petrology - Soil	Graphic Log	Lithologic Unit	Notes
30.0	2.5 5.0 50%		BT: - OVM: -	-	30.0-35.0 Grey Tuff (N5), Non-Welded and disaggregated. In size to 0.75 cm are altered reddish brown (10R3/4) Matrix is ash with ~ 15% crystals.	 	Unit 3 of Tuffage Member of Bandelier Tuff	Run # 9 1257
32.5		011-95-0169 31.5-32.0	BT: 147 OVM: 0.0	-		 	Unit 3 of Tuffage Member of Bandelier Tuff	Run # 9
35.0			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #
			BT: - OVM: -	-				Run #

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2523-22 STAGOU 21/1106 Drill Depth From 0 To 10' Page 1 of 1

Driller Layne Box #(s) N/A Start Date/Time 9/6/94 End Date/Time 9/6/94

Drilling Equip./Method CME 750 Sampling Equip./Method Split core barrel / cart. core

Depth (feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0 - 10	100%		Backlog		0 - 1.8' Silty Sandy Soil Light brn. 1.8 - 2.5' grey-brown tuff regolith & nas welded Tuff fill 2.5 - 5.0 Tuff regolith & Tuff fill 5.0 - 7.0 Same as above 7.0 - 10.0 H. grey partially welded Tuff T.O. = 10'		Soil Regolith & Fill Banded Tuff	

Prepared By A Stoopes Date 9/6/94 Checked By [Signature] Date 2/26/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2554TAOU 21/1106 Drill Depth From 0 To 10' Page 1 of 1

Driller Layne Box #(s) N/A Start Date/Time 9/6/94 End Date/Time 9/6/94

Drilling Equip./Method CME 750/Auger Sampling Equip./Method Split core barrel / cont. core

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
	<p>100%</p>		<p>Backlog</p>		<p>0 - 1.1' Silty Sandy soil yellow brown</p> <p>1.1 - 3.5 lt. brown to grey Tuff fill material</p> <p>3.5 - 5.0 H. grey non- to partially welded tuff</p> <p>5.0 - 10 as above</p>		<p>soil } Tuff Fill Banded Tuff</p>	

Prepared By G. Stoopes Date 9/6/94 Checked By [Signature] Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2555 TAOU 21/1106 Drill Depth From 0 To 10' Page 1 of 1

Driller LAYNE Box #(s) N/A Start Date/Time 9/6/94 End Date/Time 9/6/94

Drilling Equip./Method CME 750/AUGER Sampling Equip./Method SPLIT CORE BARREL/CONT. CORE

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
	<p>100%</p>		<p>Backlog</p>		<p>0 - .8' Silty Sandy soil with cobbles, brn</p> <p>0.8 - 5.0 Tuff fill ll. brn to grey</p> <p>5.0 - 5.5 ps above except</p> <p>5.25 - 5.5 Interval of fine sand gr sand well sorted med yellow brn 10 yr 5/4</p> <p>5.5 - 7¹⁰ 10.0 weathered tuff Regolith med yel brn (10 yr 5/4)</p> <p>T.D. = 10'</p>		<p>Soil</p> <p>Tuff fill</p> <p>Banded Tuff</p>	

Prepared By H Stoops Date 9/6/94 Checked By J. Slater Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2556 TAOU 21/1106 Drill Depth From 0 To 10 Page 1 of 1

Driller Layne Box #(s) NA Start Date/Time 9/7 0830 End Date/Time 9/7 0915

Drilling Equip./Method CME 750 Auger Sampling Equip./Method split ~~rotary~~ core sample

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0-1.35	100%	2500 ppm DUM			0 - 1.35 Brown silty sandy soil		Soil	petroleum odors
1.35-2.5		2500-4000 ppm			1.35 - 2.5 partially welded tuff pale yellow brown 10yr 6/2		Banded Tuff	
2.5-5.0	75%	2500-3000 ppm			2.5 - 5.0 same as above			petroleum odors
5.0-7.5	100%	4500-6200 ppm			5.0 - 7.5 pale brown SYR 5/2 same as above			petroleum
7.5-10.0	100%	4500-8000 ppm			7.5-10.0 same as above			petroleum odors
10-15		1400 ppm			10-15 Partially welded Tuff with large 2-3 cm cream pumice ~2-5%, 10% Cryst in Ash Matrix LT Bru Gy SYR 6/1, strong Petroleum odor, Tuff is saturated with petroleum.			

Prepared By J Walter

Date 9/7/94

Checked By J Slater

Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2556 TAOU 21/1106 Drill Depth From 15 To 27.5 Page 2 of 2
 Driller Layne Box #(s) N/A Start Date/Time 9/12/1525 End Date/Time 9/12/1600
 Drilling Equip./Method CME 750/ AUGER Sampling Equip./Method split core barrel / cut. core.

Depth (Feet)	Recovery (feet per foot/ %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
	100%		Volatiles detected.		<p>15-20 AS Above, Less Petroleum Products from 19-20' Fractures 17.5-19' oily sheen To core ends @ ~18.5'</p> <p>20-27.5 AS above, only slight odor Petroleum odor @ 22.5' 25-27.5 10 ppm Readings on core. Stopped drilling @ 27.5</p>		Banded/Tuff.	

Prepared By G. STOOPES Date 9/12/94 Checked By [Signature] Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2557TA/OU 21/1106 Drill Depth From 0 To 10 Page 1 of 1

Driller Layne Box #(s) N/A Start Date/Time 9/7/94 1000 End Date/Time 9/7/94 1025

Drilling Equip./Method CME 750 Auger Sampling Equip./Method split core sampler

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0-0.7'	100%		background		Silty sandy soil			
0.7-1.8'					lt gray brown tuff soil fill		Banded Tuff } Soil Fill	
1.8-2.5'					partially welded sanidine crystals tuff pale yellowish brown 10yr 6/2			
2.5-5.0'	100%		background		Same as above reddish brown specs throughout sanidine crystals			
5.0-5.6'	100%		background		Same as above			
5.6-7.5'					Same as above color change pale brown 5YR 5/2 pumice 7/100 yellowish gray 5Y 8/1			
7.5-10.0'	100%		background		Same as above			

drill
0915-09
setup
0930-wait
for set
to get r
drill 10
grab 1025-
1045-1100
set
up
1100 lunch

Prepared By J. Writter

Date 9/7/94

Checked By J. Writter

Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2558 TAVOU 21/1106 Drill Depth From 0 To 55 Page 1 of 2
 Driller Layne Box #(s) N/A Start Date/Time 9/8 End Date/Time 9/8/1115
 Drilling Equip./Method CHE 750 / AUGER Sampling Equip./Method Split core barrel / cast CORE

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
100%			46ppm		0-1.0' silty sandy soil			
100%					1.0-2.5 lt gray Tuff			strong odors solvent smell
100%					2.5-10.0 partially welded Tuff. med H. Gy (M6). dense Hand. Dry, strong solvent on Gasoline odors.		Banded Tuff	
					10-50 Banded Tuff partially welded.			
					50- 52.5 55 Tuff becoming less welded softer @ 51.5 Brown staining evident through out Tuff to ~ 53 FT. Tuff retains Petroleum odor - less strong than above.			

Prepared By J Walker / G Steyer Date 9/8/94 Checked By [Signature] Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2588 TAOU 21/1106 Drill Depth From 55 To 95 Page 2 of 2
 Driller Layne Box #(s) N/A Start Date/Time 9/8/1115 End Date/Time 9/9/94 0900
 Drilling Equip./Method CME 750/AUGER Sampling Equip./Method Split core barrel/cont. CORE

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
	<p>100%</p>		<p>Back- ground rad v. tiles above Back- ground.</p>		<p>55-60 same as above less Mantion, v. soft. Crumbly dry slight Petroleum odor drilled through lithic boulders 58-58.7 FT. andesite.</p> <p>60-85 same as above</p> <p>85-90 Tuff Becoming more dense, hard</p> <p>90-95 Dense, Hard welded Tuff. ~15% cnyts ~5% small grey porce in Ash matrix Pole brn SYR S12</p> <p>T.D. = 95 FT.</p>		<p>Bandolier Tuff.</p>	

Prepared By [Signature] Date 9/9/94 Checked By [Signature] Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID: 21-2558/TAOU 21/1106 Drill Depth From 0 To 30 Page 1 of 3
 Driller LAYNE Box #(s) N/A Start Date/Time 9/9/1100 End Date/Time 9/9/1515
 Drilling Equip./Method CHE 750/AUGER Sampling Equip./Method Split core barrel/cont core

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0-1.5	100%		Back Ground		0-1.5 - Silty sandy soil. Slightly moist, Ben. Parts present.		Soil	H.S = Head Space. Readings
1.5-10			0.17 = 5.4 - 12.6 ppm		1.5 - 10 Partially welded Tuff Grey, Hard, Root Fractures present, Dry. crumbly in places. 17 gr (N7) to Med H. gr (N6)			H.S @ 12.5 = 9.0 ppm
10-15			Back-ground		10-15 As above, clay filled Fracture cut dia Through core @ 12'		Bandolier Tuff	H.S @ 15.0 = 5.4 ppm.
15-25					15-25 As above clay filled Fracture @ 18.5' @ 21'			H.S @ 15 H.S 15-17.5 = 9.0 ppm H.S 17.5-20 = 0.0 ppm
25-30					25-30 Partially welded Tuff, dense, Hard Grey.			H.S 20-22.5 = 0.0 ppm. H.S 22.5-25 = 0.0 ppm. H.S 25-27.5 = 0.0 ppm.

Prepared By G Stoores Date 9/9/94 Checked By J. Slater Date 2/10/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2558ATAOU21/1106 Drill Depth From 30 To 55 Page 2 of 22/23
 Driller Layne Box #(s) M/A Start Date/Time 9/9/15/5 End Date/Time 9/12/0900
 Drilling Equip./Method CME 750/AUGER Sampling Equip./Method Split core barrel / cont core

Depth (Feet)	Recovery (feet per feet/ %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0-30	100%		Back-Gravel		30-35 Tuff dense Hard to ~32 becoming more soft @ 35'		Bachelien Tuff	
35-40					35-40 AS above 25-30 but less hard			
40-45					40-45 Grey Tuff, soft, crumbly ~80 ash matrix			
45-50					45-50 AS above color change @ ~48 From lt gy (M7) to Grayish org Pink? (SYR 7H2)			
50-55					50-55 Tuff, v. soft, crumbly color change @ ~52' to lt. brown gy SYR (6/1) 10-15 greyish Pounce 1-2 cm. more Pounce Rich than above			

Prepared By G Stoopes Date 9/9-9/12/94 Checked By J. Stet Date 2/20/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2558A TAVOU 21/1106 Drill Depth From 55 To _____ Page 3 of 3
 Driller Layne Box #(s) N/A Start Date/Time 9/12/0900 End Date/Time 1020 / 9/12/94
 Drilling Equip./Method EME 750 / AUGER Sampling Equip./Method split core barrel / cont. core

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
	<p>100% ↓</p>		<p>Back-ground ↓</p>		<p>55-60 AS ABOVE, SOFT Tuff 60-70 AS ABOVE SOFT Tuff. T.O. - 70'</p>			

Prepared By G. Stoores Date 9/12/94 Checked By J. L. Lato Date 9/29/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2559 TAVO21/1106 Drill Depth From 0 To 10 Page 1 of 1

Driller Layne Box #(s) N/A Start Date/Time 9/9/1030 End Date/Time 9/9/1045

Drilling Equip./Method CME 750/AUGER Sampling Equip./Method SPLIT CORE BARREL / cont. core

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
	100%		Volatiles detected		<p>0-2.5 Silty Sandy Soil</p> <p>2.5-5.0 Grey Tuff, partially welded some root fractures. LT Grey (N6)</p> <p>5-10 - as above</p> <p>T.D. = 10'</p>		Soil Bundelin Tuff	

Prepared By G. Stoopes Date 9/9/94 Checked By [Signature] Date 2/22/95

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 21-2561 TAOU 21/1106 Drill Depth From 0 To 10 Page 1 of 1
 Driller Layne Box #(s) N/A Start Date/Time 9/13/0930 End Date/Time 9/13/1020
 Drilling Equip./Method CME 750 / AUGER Sampling Equip./Method Split core barrel / cont. core

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
0-10	100%		Background		0-0.9 Silty sandy soil slightly moist Roots present. 0.9-2.5 Fill, Soil & Tuff with some pebbles 2.5-4.0 Fill 4.0-5.0 Altered Tuff H grey. 5.0-10.0 H grey Tuff with Rust color oxidation stringers Grey Pumice 2-5% in H grey Ash matrix, clay filled fracture @ 7-7.5' and numerous fractures 8.5-10.0' T.D. = 10'		Fill Bouldier Tuff	

Prepared By G. Stoores Date 9/13/94 Checked By [Signature] Date 2/20/95
 2/20/95 R1

LOS ALAMOS NATIONAL LABORATORY ENVIRONMENTAL RESTORATION PROGRAM

SAMPLE MANAGEMENT FACILITY

CORE SAMPLE LOG

Borehole ID 2112562 TAOU 21/1106 Drill Depth From 0 To 10 Page 1 of 1
 Driller Layne Box #(s) N/A Start Date/Time 9/13/1990 End Date/Time 9/13/1990
 Drilling Equip./Method CME 750 / AUGER Sampling Equip./Method Split core barrel / cont CORE

Depth (Feet)	Recovery (feet per foot %)	Field Borehole Analytical Sample Number	Field Screening Results	Top/Bottom of Core in Box	Lithology - Petrology - Soil	Graphic Log	Lithologic Unit	Notes
			Back-ground		<p>0-0.2 Silty sandy soil with roots slightly moist</p> <p>0.2-2.5 Soil & Tuff mix mottled coloring brown-gray dry to moist.</p> <p>2.5-5.0 red brown slightly moist fill, silty sand, pebbles.</p> <p>5.0-6.5 - powdery tuff fill DRY. 9/13/94</p> <p>6.5-7.5^{10.0} Tuff, light gray partially welded, dense hard. few small clay filled fractures 7-8'</p> <p>T.O. = 10'</p>		Soil & Fill	
							Bandolen Tuff	

Prepared By J. Stange Date 9/13/94 Checked By Jeff Miller Date 9/25/94