**This document was too large to scan
as a single document; therefore, it has
been divided into smaller sections.**

Section 1 of 2

Document Information			
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Tank Vapor Sampling and Analysis Data Package for Tank 241-C-106 Waste Retrieval Sluicing System Process Test Phase III, Sampled March 28, 1999

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Abstract: This data package presents field data and analytical results from the March 28, 1999, headspace vapor sampling of Hanford Site single-shell tank 241-C-106 waste retrieval sluicing system process test phase III.

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Tank Vapor Sampling and Analysis Data Package for Tank 241-C-106 Waste Retrieval Sluicing System Process Test Phase III, Sampled March 28, 1999

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EXECUTIVE SUMMARY

This data package presents sampling data and analytical results from the March 28, 1999, vapor sampling of Hanford Site single-shell tank 241-C-106 during active sluicing. Samples were obtained from the 296-C-006 ventilation system stack and ambient air at several locations. Characterization Project Operations (CPO) was responsible for the collection of all SUMMATM canister samples. The Special Analytical Support (SAS) vapor team was responsible for the collection of all triple sorbent trap (TST), sorbent tube train (STT), polyurethane foam (PUF), and particulate filter samples collected at the 296-C-006 stack. The SAS vapor team used the non-electrical vapor sampling (NEVS) system to collect samples of the air, gases, and vapors from the 296-C-006 stack.

The SAS vapor team collected and analyzed these samples for Lockheed Martin Hanford Corporation (LMHC) and Tank Waste Remediation System (TWRS) in accordance with the sampling and analytical requirements specified in the *Waste Retrieval Sluicing System Vapor Sampling and Analysis Plan (SAP) for Evaluation of Organic Emissions, Process Test Phase III*, HNF-4212, Rev. 0-A, (LMHC, 1999).

All samples were stored in a secured Radioactive Materials Area (RMA) until the samples were radiologically released and received by SAS for analysis. The Waste Sampling and Characterization Facility (WSCF) performed the radiological analyses. The samples were received on April 5, 1999.

SUMMA is a registered trademark of Molectrics, Inc., Cleveland, Ohio.

Four sample types were analyzed by SAS (SUMMA canister, TST, STT, and PUF). Analytes were not detected at concentrations exceeding their notification limits as specified in the SAP.

Section 1.0 presents the sampling information and Section 2.0 presents the results of the analyses.

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ABBREVIATIONS AND ACRONYMS

CAS™	Chemical Abstracts Service™
CCB	continuing calibration blank
CCVS	continuing calibration verification standard
COC	chain of custody
corp.	corporation
CPO	Characterization Project Operations
DBP	dibutyl phosphate
DP	data package
EPA	Environmental Protection Agency
ft	feet
GC	gas chromatograph
GC/MS	gas chromatograph - mass spectrometer
GC/TCD	gas chromatograph - thermal conductivity detector
HP	Hewlett - Packard
IC	ion chromatograph
ICAL	initial calibration
ICVS	initial calibration verification standard
in.Hg	inches of mercury
kPa	kiloPascals
L	liter
LCS	laboratory control sample
LMHC	Lockheed Martin Hanford Corporation
L/min	liters per minute
m	meter
MB	method blank
MDL	minimum detection limit
mg/L	milligrams per liter
mg/m ³	milligrams per cubic meter
ml/min	milliliters per minute
mm	millimeter
mmHg	millimeters of mercury
MPB	method performance blank
MS	mass spectrometry
n/a or N/A	not applicable
NEVS (system)	non-electrical vapor sampling (system)
ng	nanogram
NHC	Numatec Hanford Corporation
NIST	National Institute of Standards and Technology
pCi	picoCurie
pCi/g	picoCurie per gram
perm.	permanent
PNNL	Pacific Northwest National Laboratory
ppbv	parts per billion by volume
ppmv	parts per million by volume
PUF	polyurethane foam
QA	quality assurance

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ABBREVIATIONS AND ACRONYMS (Cont.)

QC	quality control
Rev.	revision
RMA	radioactive material area
RPD	relative percent difference
RSD	relative standard deviation
SAP	sampling and analysis plan
SAS	Special Analytical Support
sccm	standard cubic centimeters per minute
SHMS	standard hydrogen monitoring system
SST	single-shell tank
STT	sorbent tube train
TBP	tributyl phosphate
TD	thermal desorption
TIC	tentatively identified compound
TNMOC	total non-methane organic carbon
TOC	total organic carbon
TO-12	EPA toxic organic method
TO-14	EPA toxic organic method
TST	triple sorbent trap
TWRS	Tank Waste Remediation System
VOC	volatile organic compound
VPRQL	Vapor Program Required Quantitation Limit
WSCF	Waste Sampling and Characterization Facility
°C	degrees Celsius
°F	degrees Fahrenheit
µg/L	micrograms per liter
%R	percent recovery

DOCUMENT INVENTORY FORM

Upon assembly of the complete data package, the document assembler shall verify that each required item is contained in the data package and check the box on this form associated with the required item. The document assembler shall then print his/her name, sign, and date in the assembler's signature block when all items have been checked.

Prefatory Elements:

- ☒ distribution list (form A-6000-135)
- ☒ Engineering Data Transmittal form (form BD-7400-172)
- ☒ Supporting Document cover page (form A-6400-073)
- ☒ title page
- ☒ executive summary
- ☒ table of contents
- ☒ list of abbreviations and acronyms
- ☒ document inventory form
- ☒ quality assurance data package review results
- ☐ nonconformance reports OR
- ☒ nonconformance reports not applicable

Sampling Elements:

- ☒ sampling case narrative
- ☒ sample summary and event chronology
- ☒ sampling procedures table
- ☒ sampling logbook table
- ☒ field-generated vapor TOC results
- ☒ sample radiation screening results
- ☒ chain of custody forms

Analyses Elements:

- ☒ analytical case narrative
- ☒ analytical procedures identification table
- ☒ data qualifier flag translation table
- ☒ target analyte and duplicates concentration table
- ☒ tentatively identified compound concentration table
- ☒ laboratory blank summary
- ☒ field blank summary
- ☒ mass spectrometer instrument tune report
- ☒ target analyte initial calibration table
- ☒ target analyte continuing calibration table
- ☒ internal standards area counts table
- ☒ laboratory control sample results table
- ☒ surrogate compounds results table
- ☒ quantitation reports
- ☒ chromatograms
- ☒ mass spectra of reported tentatively identified compounds

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06/18/99
date

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DATA PACKAGE QUALITY ASSURANCE REVIEW

Date reviewed: 6/10/99

Reviewed by: M. L. Myers

ORGANIC DATA ASSESSMENT SUMMARY

	DBP/TBP	VOC in SUMMA	TNMOC	PERM. GAS	VOC in TST
Holding Time	0	0	0	0	0
Surrogate Recovery	0	n/a	n/a	n/a	X
Blanks	0	0	0	0	0
GC Tunes	0	0	0	0	0
Calibration	0	X	X	X	X
Internal Standards/LCS	0	X	0	0	0

INORGANIC DATA ASSESSMENT SUMMARY

	Ammonia	Nitrogen Dioxide	Nitric Oxide
Calibration	0	0	0
Blanks	0	0	0
CCVS	0	0	0
Matrix Spike/Matrix Spike Duplicate	0	0	0
Holding Time	0	0	0

OVERALL ASSESSMENT: Data acceptable with qualifiers.

0 = data had no problems

X = data qualified with minor problems

N = data qualified with major problems, some data may be unusable

n/a = not applicable

Data assessment summaries are available upon request.

NONCONFORMANCE REPORTS

Nonconformance reports were not generated during the sampling and analysis events described in this data package.

1.0 Sampling Section

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1.1 SCOPE

The sampling section of this data package presents information and sampling data resulting from the March 28, 1999, vapor sampling of Hanford Site single-shell tank (SST) 241-C-106 during active sluicing. Samples were obtained from the 296-C-006 ventilation system stack and ambient air at several locations. Characterization Project Operations (CPO) was responsible for the collection of all SUMMA canister samples. The Special Analytical Support (SAS) vapor team was responsible for the collection of all triple sorbent trap (TST), sorbent tube train (STT), polyurethane foam (PUF), and particulate filter samples collected at the 296-C-006 stack. The SAS project file for this sampling event is numbered V9010. The analytical results from these samples are presented in the analyses section of this data package.

The SAS vapor team collected samples for Lockheed Martin Hanford Corporation (LMHC) and Tank Waste Remediation System (TWRS) in accordance with the sampling requirements specified in the *Waste Retrieval Sluicing System Vapor Sampling and Analysis Plan for Evaluation of Organic Emissions, Process Test Phase III*, HNF-4212, Rev. 0-A, (LMHC, 1999), SAS procedure *Vapor Sampling Using the Non-Electrical Vapor Sampling (NEVS) System*, LO-080-400, Rev. A-1, and work package 2E-99-00577. CPO collected samples in accordance with HNF-4212, (LMHC, 1999), work package ES-99-00090/W, *241-C-106 Perform SUMMA Vapor Sampling*. A copy of work package ES-99-00090/W is included in appendix 1B.

All samples were stored in a secured Radioactive Materials Area (RMA) until the samples were radiologically released and received by the SAS analytical laboratory on April 5, 1999.

All sample container/media preparation, sample handling and storage, and field sampling were performed according to the procedures and work packages listed in Table 1-1. Project logbooks and logbook pages that contain data and information relevant to this sampling event are listed in Table 1-2.

Table 1-1. Summary of Tank Vapor Sample Preparation, Storage, and Collection Procedures or Work Packages.

Procedure or Work Package Title	Procedure or Work Package #/Revision #
Cleaning Procedure for SUMMA Canisters	LO-080-406/A-0
Triple Sorbent Trap Preparation for Waste Tank Vapor Samples	LA-549-403/A-0
Preparation of Triple Sorbent Tubes for Field Sampling, Analysis, and Calibration Standards	LA-549-404/A-0
Sorbent Trap Preparation for Waste Tank Inorganic Vapor Samples	LA-549-402/A-0
Balance Quality Assurance Checks	HNF-IP1128, 2.15/0
Monitoring and Recording Temperatures of Sample and Standard Storage Units	LQ-549-400/A-0
Laboratory and Sample Security	WMH-310, 1.4/0
Preventing Sample Contamination	WMH-310, 2.13/0
Project and Sample Identification for SAS	WMH-310, 2.7/0
Logkeeping Practices	WMH-200, 2.11/0
Sample Chain of Custody, Acceptance, and Disposal	LO-090-450/B-1
Vapor Sampling Using the Non-Electrical Vapor Sampling (NEVS) System	LO-080-400/A-1
241-C-106 Perform SUMMA Vapor Sampling	ES-99-00090/W

Table 1-2. Sampling Project Logbooks.

Logbook Title	Logbook Number	Page Numbers
Trailer #5618, Development of Sample Media Preparation	WHC-N-947-1	75 - 78
Building 622R, Rm 122, SUMMA Preparation	WHC-N-1408-1	19 - 107
Preparation of Samples and Standards for TST Analysis	WHC-N-1411-1	136
Trailer #5618, Sample Media Tracking	WHC-N-855-1	30 - 31
Chain of Custody Numbering	WHC-N-1410-1	59
Building 622F, Rm 01, Sample Custody	WHC-N-1405-1	17+
Building 622R, Rm 120, Sample Refrigerator Temperature Monitoring	HNF-N-196-1	8+
Vapor Sampling	WHC-N-448-1	139

1.2 DESCRIPTION OF VAPOR SAMPLING SYSTEM

This section provides an overview of the non-electrical vapor sampling (NEVS) system, the types of samples acquired, and documents the cleanliness and traceability of the sample containers and media.

1.2.1 Non-Electrical Vapor Sampling (NEVS) System Overview

This section is a summary of what the NEVS system is and how it functions. A schematic drawing of sampling is provided in appendix 1B.

The NEVS system collects representative vapor samples in potentially flammable environments. The system is portable and designed to allow much of the preparation for sampling to be performed outside of a surface contamination area. The NEVS system collects vapor samples by measuring the system pressure change of a known evacuated volume; by drawing vapor samples through the sorbent media, the volume collected is determined by measuring system pressure change. This method eliminates the need for electrically powered equipment. It may also be utilized in nonflammable environments.

Vapor samples are collected in sorbent traps. Sorbent traps are pencil-size stainless steel or glass tubes that contain vapor-adsorbing media. The sorbent traps may be used individually

(TST or PUF) or may be prepared with several individual traps joined in series (STT). A known volume of sample vapor is passed through the tube, which traps (by adsorption) virtually all the target analytes. The concentration of analytes in the vapor sampled is calculated from the quantity of analyte found in the sorbent media and the volume of vapor passed through the sorbent trap.

1.2.2 SUMMA Canister Sampling

SUMMA canisters are stainless-steel vessels that allow collection and transfer of whole-air samples from the sample site to the analytical laboratory for analysis. These canisters have been treated by the SUMMA process that passivates adsorption sites on the interior canister walls to minimize adsorption of gases and vapors. SUMMA canisters must be cleaned and evacuated before each use. The evacuated canister is filled with sample vapor through a valve that is then closed to seal the sample inside.

SUMMA canister samples were collected without the use of the NEVS system.

1.2.3 Sample Container and Sample Media Preparation

This section documents the preparation and storage history of the sample containers and sample media used in the March 28, 1999, sampling event. Table 1-3 documents the treatment of each sample container and sample medium by sample number. Due to the flexibility allowed in the SAP, more sample containers and media were prepared and taken into the field than were actually used for vapor samples. This table summarizes sample media and containers actually utilized in vapor sampling. After preparation, each sample container and sample medium was stored in locked storage at 600/622F/01 until required for field use. The TSTs, STTs, and PUFs were stored at 4 ± 2 °C and SUMMAs were stored at ambient conditions.

Per procedure LO-090-450, Rev. B-1, *Sample Chain of Custody, Acceptance, and Disposal* (NHC, 1997), chains of custody were maintained on each sample container and sample medium upon retrieval from locked storage, through the sampling event, and upon delivery to the analytical laboratory; appendix 1A contains copies of the chains of custody. Sample containers and sample media were transported at ambient temperature to and from the field.

Sample container and medium cleanliness was confirmed as described by *Cleaning Procedure for SUMMA Canisters* (LO-080-406/A-0) and *Preparation of Triple Sorbent Tubes for Field Sampling, Analysis and Calibration Standards* (LA-549-404/A-1). Contamination above 2.5 ppbv was not detected in the canisters. Contamination above detection limits was not detected in the TSTs.

Table 1-3. Sample Containers and Media Preparation History. (2 sheets)

Sample Information					Preparation Information		
Sample Number	COC Number	Sample Type	Serial Number	Sample Container or Medium Manufacturer	Preparation Date	Preparation Procedure/ Revision #	Preparation Logbook #/Pages
VS006-402-S022	V9010-a	SUMMA	022	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VS006-407-S031	V9010-a	SUMMA	031	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VS006-412-S041	V9010-a	SUMMA	041	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VS006-481-S998	V9010-a	SUMMA	998	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VS006-482-S999	V9010-a	SUMMA	999	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VSAMB-401-S061	V9010-b	SUMMA	061	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VSAMB-405-S076	V9010-b	SUMMA	076	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VSAMB-406-S082	V9010-b	SUMMA	082	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VSAMB-410-S089	V9010-b	SUMMA	089	Molectrics	03/25/99	LO-080-406/A-0	WHC-N-1408-1/19 - 107
VS006-404-TR01	V9010-e	STT	n/a	SKC Inc.	03/26/99	LA-549-402/A-0	WHC-N-947-1/78
VS006-408-TR02	V9010-e	STT	n/a	SKC Inc.	03/26/99	LA-549-402/A-0	WHC-N-947-1/78
VS006-413-TR03	V9010-e	STT	n/a	SKC Inc.	03/26/99	LA-549-402/A-0	WHC-N-947-1/78

Table 1-3. Sample Containers and Media Preparation History. (2 sheets)

Sample Information					Preparation Information		
Sample Number	COC Number	Sample Type	Serial Number	Sample Container or Medium Manufacturer	Preparation Date	Preparation Procedure/ Revision #	Preparation Logbook #/Pages
VS006-484-TR17	V9010-e	STT	n/a	SKC Inc.	03/26/99	LA-549-402/A-0	WHC-N-947-1/78
VS006-487-TR18	V9010-e	STT	n/a	SKC Inc.	03/26/99	LA-549-402/A-0	WHC-N-947-1/78
VSAMB-403-TR19	V9010-e	STT	n/a	SKC Inc.	03/26/99	LA-549-402/A-0	WHC-N-947-1/78
VS006-MPB-TR21	n/a	STT	n/a	SKC Inc.	03/26/99	LA-549-402/A-0	WHC-N-947-1/78
VS006-403-TS20	V9010-d	TST	0020	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/75
VS006-409-TS33	V9010-d	TST	0033	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/75
VS006-414-TS39	V9010-d	TST	0039	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/75
VS006-483-TS73	V9010-d	TST	0073	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/76
VS006-486-TS74	V9010-d	TST	0074	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/76
VSAMB-402-TS75	V9010-d	TST	0075	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/76
VS006-MPB-TS79	n/a	TST	0079	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/76
VS006-MPB-TS80	n/a	TST	0080	Supelco Inc.	03/25/99	LA-549-403/A-0	WHC-N-947-1/76
VS006-405-P001	V9010-c	PUF	n/a	Supelco Inc.	03/25/99	Factory Direct	n/a
VS006-410-P002	V9010-c	PUF	n/a	Supelco Inc.	03/25/99	Factory Direct	n/a
VS006-415-P003	V9010-c	PUF	n/a	Supelco Inc.	03/25/99	Factory Direct	n/a
VS006-485-P017	V9010-c	PUF	n/a	Supelco Inc.	03/25/99	Factory Direct	n/a
VS006-488-P018	V9010-c	PUF	n/a	Supelco Inc.	03/25/99	Factory Direct	n/a
VSAMB-404-P019	V9010-c	PUF	n/a	Supelco Inc.	03/25/99	Factory Direct	n/a
VS006-MPB-P021	n/a	PUF	n/a	Supelco Inc.	03/25/99	Factory Direct	n/a

1.3 SAMPLING EVENT DESCRIPTION

This section describes the vapor sampling event on March 28, 1999. All sampling was performed in accordance with the SAP and sampling procedures/work packages listed in Table 1-1. Procedure LO-080-400, Rev. A-1, and the work package governed the actual field collection of the vapor samples.

1.3.1 Sampling Personnel

The SAS sampling team scientists were L. D. Lockard and L. A. Pingel. The person in charge (PIC) for the CPO sampling crew was J. F. Sickels.

1.3.2 Vapor Sample Collection and Event Chronology

SUMMA canisters and sorbent traps for organic vapors, ammonia (NH_3), and oxides of nitrogen were prepared for this sampling event. The sampling media was stored in a custody secure area until required for field use. The NEVS system was set up at the 296-C-006 stack on March 28, 1999. The sampling media was transported to the field on March 28, 1999.

Prior to sample collection on March 28, 1999, a leak check of the NEVS system was performed. Pressure gauge readings were recorded at the beginning of the leak check. The system was evacuated and leakage of ambient air into the system was observed by monitoring system pressure for 1 hour. Leakage resulted in an increase of 0.67 kPa (5.0 mmHg) absolute in system pressure during the 1 hour test.

Sampling began at approximately 9:30 a.m. on March 28, 1999, and was completed by approximately 10:00 p.m. on the same day. Tank vapor was drawn through each sorbent trap until a specified pressure change was noted by the NEVS system. Appendix 1B contains a sample summary and event chronology table listing the pressure changes of the NEVS system, collection times, calculated volumes of tank gas drawn through each sample, and other relevant information. The field data is also included in this appendix for both the NEVS system and CPO canister sampling.

1.4 SAMPLING QUALITY ASSURANCE AND CONTROL

This section highlights some of the sampling quality controls applied during this sampling event.

1.4.1 Sample Chain of Custody: Receipt, Storage, and Shipment

SAS maintained chains of custody on all samples in accordance with LO-090-450, Rev. B-1, *Sample Chain of Custody, Acceptance, and Disposal* (NHC, 1997). Copies of the completed chains of custody are included in appendix 1A.

Prior to the sampling event, all sorbent traps and SUMMA canisters used in this sampling effort were kept in a locked storage area maintained by SAS. Sorbents were maintained at 4 ± 2 °C in a refrigeration unit. SUMMA canisters were stored in the same locked storage area, but were not refrigerated. Personnel from SAS transported these sampling devices to the field in a government vehicle. After sampling, the sample canisters and media were transported by government vehicle to a secure RMA for storage.

1.4.2 Instrument Calibration

The pressure gauge used in the NEVS system is calibrated on an annual basis, or after maintenance or suspected damage, at the Standards Laboratory. It was within its calibration period during this sampling event. The calibration records for the absolute pressure gauge used in collecting samples with the NEVS system are kept in the QA records file of the SAS group.

1.4.3 Blank Samples

Blank samples allow the analyst to determine if any contamination of the tank vapor samples may have occurred during the preparation of the sample containers and media or during the shipping and acquisition of the tank vapor samples.

Trip blanks are samples that accompany the sample media from the point of sample preparation through the sample analysis. They are transported to the field with the sample collection media but remain unopened during the sampling event. Analysis of these trip blanks is used to assess possible sample contamination from the transportation of the sample containers or media to and from the field.

Field blanks are handled in the same manner as trip blanks except they are opened momentarily and closed during the sampling event.

Method performance blanks are samples that are prepared and stored in the custody secured sample storage area. They are not transported to the field and, therefore, do not require a chain of custody. Analysis of these method performance blanks is used to assess possible contamination from the sample container or medium itself, preparation, or sample storage area.

Table 1-4 lists the sample blanks used during this sampling event.

Table 1-4. Sample Blanks.

Sample Number	Blank Type	COC Number
VS006-483-TS73	TST Trip Blank	V9010-d
VS006-484-TR17	STT Trip Blank	V9010-e
VS006-485-P017	PUF Trip Blank	V9010-c
VS006-486-TS74	TST Field Blank	V9010-d
VS006-487-TR18	STT Field Blank	V9010-e
VS006-488-P018	PUF Field Blank	V9010-c
VS006-MPB-TS79	TST Method Performance Blank	n/a
VS006-MPB-TS80	TST Method Performance Blank	n/a
VS006-MPB-TR21	STT Method Performance Blank	n/a
VS006-MPB-P021	PUF Method Performance Blank	n/a

Notes:

n/a = not applicable; chain of custody not required

1.5 PROCEDURE DEVIATIONS, SAMPLING ANOMALIES, AND SOURCES OF ERROR

This section identifies any deviations from procedures, any known anomalous occurrences during handling of the sample containers and media or during the sampling event itself, or any other known sources of error that might affect interpretation of the tank vapor sampling results.

All samples were collected in accordance with the SAP, work packages, and procedures. No anomalies, procedure deviations, or other sources of error were reported during sample collection.

1.6 FIELD-GENERATED TANK VAPOR TOC RESULTS

Field measurements for total organic carbon (TOC) were collected by Industrial Hygiene personnel. CPO recorded the TOC reading when each SUMMA canister sample was collected. These measurements were recorded on the data sheets included in appendix 1B.

1.7 SAMPLE RADIOLOGICAL SCREENING RESULTS

Particulate filter samples for the NEVS system were prepared and samples by SAS for radiation screening purposes. After completion of the sampling event, these filters were used to clear the samples of radiological contamination for receipt at the laboratory.

Waste Sampling and Characterization Facility (WSCF) screening results and release information are presented in appendix 1C.

Appendix 1A

Chains of Custody

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NHC/SAS		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST									
Project Number		V9010		Sample Origin		296-C-006 Stack		Isster No.		C-006 STACK	
Project Title		C-106 Sampling Event #3		Sampling Logbook No.		N/A		COC Procedure		LO-090-150/13-1	
Shipped To (Lab)		Special Analytical Support		Method of Shipment		Government Vehicle		Sampling Method			
Sample Number		Number		Type		Date		Sampling Time		Sample Identification	
V5006-402-S022		1		61.SUMMA		3/28/99		1058		TO-12, TO-14 and/or Permanent Gas	
V5006-407-S031		1		61.SUMMA		3/28/99		1340		TO-12, TO-14 and/or Permanent Gas	
V5006-412-S041		1		61.SUMMA		3/28/99		2033		TO-12, TO-14 and/or Permanent Gas	
V5006-417-S062		1		61.SUMMA						TO-12, TO-14 and/or Permanent Gas	
V5006-422-S072		1		61.SUMMA						TO-12, TO-14 and/or Permanent Gas	
V5006-427-S073		1		61.SUMMA						TO-12, TO-14 and/or Permanent Gas	
V5006-432-S085		1		61.SUMMA						TO-12, TO-14 and/or Permanent Gas	
V5006-437-S086		1		61.SUMMA						TO-12, TO-14 and/or Permanent Gas	
V5006-442-S093		1		61.SUMMA						TO-12, TO-14 and/or Permanent Gas	
*Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.											
Comments/Anomalies:											
Relinquished By		Print		Signature		Date/Time		Received By		Print	
Gregory A. Fries						03-26-99/0935		L.A. Fries		3-26-99/0935	
Relinquished By		Print		Signature		Date/Time		Received By		Print	
L.A. Fries						03-26-99/1010		James Sickels		3-26-97/1010	
Relinquished By		Print		Signature		Date/Time		Received By		Print	
James L. Fries						3-26-99		James Sickels		3-26-99/1110	
Relinquished By		Print		Signature		Date/Time		Received By		Print	
James Sickels						4-5-99 11:15		L.D. Lockard		4-05-99 11:15	
Relinquished By		Print		Signature		Date/Time		Received By		Print	
L.D. Lockard						04/05/99 1300		KARL O. FENWICK		4-05-99 1300	
Relinquished By		Print		Signature		Date/Time		Received By		Print	
Relinquished By		Print		Signature		Date/Time		Received By		Print	
Final Sample Disposition											

NHIC/SAS		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST				COC No. V9010-A	
Originator Gregory A. Fies		Date 03/26/99	Sample Collector(s) J. Sickels M.L. Summison	Charge Code N/A	Page 2 of 2		
Project Number V9010			Sample Origin 296-C-006 Slack	Riser No. C-006 Stack			
Project Title C-106 Sampling Event #3			Sampling Logbook No. N/A	COC Procedure I.O. 090-450/11-1			
Shipped To (lab) Special Analytical Support			Method of Shipment	Government Vehicle	Sampling Method		
Sample Number	Number	Type	Sampling Date	Sampling Time	Sample Identification	Analysis Requested	Holding Time
✓ V5006-447-S097	1	6 L. SUMMA				TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-452-S105	1	6 L. SUMMA				TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-457-S108	1	6 L. SUMMA				TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-462-S109	1	6 L. SUMMA				TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-467-S110	1	6 L. SUMMA				TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-472-S111	1	6 L. SUMMA				TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-477-S112	1	6 L. SUMMA				TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-481-S998 / 4	1	15 L. SUMMA	3-28-99	21:28	Peak Samples	TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
✓ V5006-482-S999 x4	1	32 L. SUMMA	3-28-99	21:34	Peak Samples	TO-12, TO-14 and/or Permanent Gas	21 Calendar Days*
*Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.							
Relinquished By Gregory A. Fies	Print	Sign	Date/Time 03-26-99 0935	Received By L.A. Pangel	Print	Sign	Date/Time 3-26-99 0935
Relinquished By L.A. Pangel	Print	Sign	Date/Time 03-26-99 1010	Received By James K. Hinchey	Print	Sign	Date/Time 3/26/99 1010
Relinquished By James K. Hinchey	Print	Sign	Date/Time 3-26-99 1110	Received By James Sickels	Print	Sign	Date/Time 3-26-99 1110
Relinquished By James Sickels	Print	Sign	Date/Time 4-05-99 11:15	Received By L.D. Lockard	Print	Sign	Date/Time 4-05-99 11:15
Relinquished By L.D. Lockard	Print	Sign	Date/Time 4-05-99 1300	Received By Karl O. Penneck	Print	Sign	Date/Time 4-05-99 1300
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Final Sample Disposition							

NHC/SAS		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST									
COC No. V9010-b		Page 1 of 1									
Originator		Gregory A. Pies		Date		03/26/99		Sample Collector(s)		J. Sickels M.L. Summish	
Project Number		V9010		Sample Origin		C Tank Farm		Riser No.		C-006 Stack	
Project Title		C-106 Sampling Event #3		Sampling Logbook No.		N/A		COC Procedure		LO-090-450/13-1	
Shipped To (Lab)		Special Analytical Support		Method of Shipment		Government Vehicle		Sampling Method			
Sample Number		Number		Type		Sampling Date		Sampling Time		Sample Identification	
VSA/MIB-401-S061 x x		1		6.1. SUMMA		5/28/99		0955		Ambient Near Stack	
VSA/MIB-405-S076 x x		1		6.1. SUMMA		3/28/99		1000		Ambient Downwind F/A Boundary	
VSA/MIB-406-S082 x x		1		6.1. SUMMA		3-28-99		2148		Peak Ambient	
VSA/MIB-410-S089 x x		1		6.1. SUMMA		3-28-99		2151		Peak Ambient	
*Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.											
Comments/Anomalies:											
Received By		Print		Sign		Date/Time		Received By		Print	
James R. Sickels		James R. Sickels		James R. Sickels		03-26-99/0940		James R. Sickels		03-26-99/0940	
Relinquished By		Print		Sign		Date/Time		Relinquished By		Print	
James R. Sickels		James R. Sickels		James R. Sickels		03-26-99/1010		James R. Sickels		03-26-99/1010	
Relinquished By		Print		Sign		Date/Time		Relinquished By		Print	
James R. Sickels		James R. Sickels		James R. Sickels		3-26-99/1110		James R. Sickels		3-26-99/1110	
Relinquished By		Print		Sign		Date/Time		Relinquished By		Print	
LD Lockard		LD Lockard		LD Lockard		4-5-99 11:15		LD Lockard		4-5-99 11:15	
Relinquished By		Print		Sign		Date/Time		Relinquished By		Print	
LD Lockard		LD Lockard		LD Lockard		4-05-99 1300		LD Lockard		4-05-99 1300	
Relinquished By		Print		Sign		Date/Time		Relinquished By		Print	
LD Lockard		LD Lockard		LD Lockard		4-05-99 1300		LD Lockard		4-05-99 1300	
Final Sample Disposition											

NHC/SAS

CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST

COC No. V9010-c

Page 1 of 2

Originator	Gregory A. Pies	Date	03/26/99	Sample Collector(s)	L.A. Pingel LD Lockard	Charge Code	
Project Number	V9010	Sample Origin	296-C-006 Stack and Ambient Air in C Tank Farm	Riser No.			
Project Title	C-106 Sampling Event #3	Sampling Logbook No.	WHL-N-448, 1 PP 135	COC Procedure I.O.-090-450/B-1			
Shipped To (lab)	Special Analytical Support	Method of Shipment	Government Vehicle	Sampling Method	NEVS		

Sample Number	Number	Type	Sampling Date	Sampling Time	Sample Identification	Analysis Requested	Holding Time
VS006-405-P001 X	1	PUF	3/28/99	1004		DBP and TBP	21 Calendar Days*
VS006-410-P002 X	1	PUF	↓	1352		DBP and TBP	21 Calendar Days*
VS006-415-P003 X	1	PUF	↓	2046		DBP and TBP	21 Calendar Days*
VS006-420-P004	1	PUF				DBP and TBP	21 Calendar Days*
VS006-425-P005	1	PUF				DBP and TBP	21 Calendar Days*
VS006-430-P006	1	PUF				DBP and TBP	21 Calendar Days*
VS006-435-P007	1	PUF				DBP and TBP	21 Calendar Days*
VS006-440-P008	1	PUF				DBP and TBP	21 Calendar Days*
VS006-445-P009	1	PUF				DBP and TBP	21 Calendar Days*
VS006-450-P010	1	PUF				DBP and TBP	21 Calendar Days*

Comments/Anomalies:

*Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Gregory A. Pies		<i>[Signature]</i>	03-26-99/1431	Leonard A. Pingel		<i>[Signature]</i>	3-26-99/1431
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
L.A. Pingel		<i>[Signature]</i>	4/5/99 1300	KARL O. PENNOCK		<i>[Signature]</i>	4-5-99 1300
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Final Sample Disposition							

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NHC/SAS		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST					COC No. V9010-c	
							Page 2 of 2	
Originator	Gregory A. Fies		Date	03/26/99		Sample Collector(s)	LAPingel LD Lockard	
Project Number	V9010		Sample Origin	296-C-006 Stack and Ambient Air in C Tank Farm		Charge Code		
Project Title	C-106 Sampling Event #3		Sampling Logbook No.	WAC-N-448, 1 PP135		Riser No.		
Shipped To (lab)	Special Analytical Support		Method of Shipment	Government Vehicle		COC Procedure 1.0-090-450/13-1		
			Sampling Method	NEVS				
Sample Number	Number	Type	Sampling Date	Sampling Time	Sample Identification	Analysis Requested	Holding Time	
VS006-455-P011	1	PUF			Not Sampled	DBP and TBP	21 Calendar Days*	
VS006-460-P012	1	PUF				DBP and TBP	21 Calendar Days*	
VS006-465-P013	1	PUF				DBP and TBP	21 Calendar Days*	
VS006-470-P014	1	PUF				DBP and TBP	21 Calendar Days*	
VS006-475-P015	1	PUF				DBP and TBP	21 Calendar Days*	
VS006-480-P016	1	PUF				DBP and TBP	21 Calendar Days*	
VS006-485-P017 X	1	PUF	3/28/99	1145		DBP and TBP	21 Calendar Days*	
VS006-488-P018 X	1	PUF	3/28/99	0933		DBP and TBP	21 Calendar Days*	
VSAM3-404-P019 X	1	PUF	3/28/99	2130		DBP and TBP	21 Calendar Days*	
VSAM3-409-P020	1	PUF				DBP and TBP	21 Calendar Days*	
Comments/Anomalies: *Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.								
Relinquished By			Print	Sign	Date/Time	Received By		
Gregory A. Fies					03/26/99/1431	Leonard A. Pingel		
Relinquished By			Print	Sign	Date/Time	Received By		
LAPingel					4/5/99 1300	KARL O. PENNOCK		
Relinquished By			Print	Sign	Date/Time	Received By		
Relinquished By			Print	Sign	Date/Time	Received By		
Relinquished By			Print	Sign	Date/Time	Received By		
Relinquished By			Print	Sign	Date/Time	Received By		
Relinquished By			Print	Sign	Date/Time	Received By		
Final Sample Disposition								

NHIC/SAS		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST				COC No. V9010-d	
						Page 2 of 2	
Originator	Gregory A. Fies		Date	03/26/99		Sample Collector(s)	L.A. Pingel LT Lockard
Project Number	V9010		Sample Origin	296-C-006 Stack and Ambient Air in C Tank Farm		Charge Code	
Project Title	C-106 Sampling Event #3		Sampling Logbook No.	WHC-N-448; 1 Bp 134		Riser No.	
Shipped To (lab)	Special Analytical Support		Method of Shipment	Government Vehicle		COC Procedure I.O-090-450/11-1	
						Sampling Method	NEVS
Sample Number	Number	Type	Sampling Date	Sampling Time	Sample Identification	Analysis Requested	Holding Time
VS006-454-TS55	1	TST			Not Sampled	Thermal Desorption	21 Calendar Days*
VS006-459-TS56	1	TST				Thermal Desorption	21 Calendar Days*
VS006-464-TS57	1	TST				Thermal Desorption	21 Calendar Days*
VS006-469-TS58	1	TST				Thermal Desorption	21 Calendar Days*
VS006-474-TS70	1	TST				Thermal Desorption	21 Calendar Days*
VS006-479-TS72	1	TST				Thermal Desorption	21 Calendar Days*
VS006-483-TS73	1	TST	3/28/99			Thermal Desorption	21 Calendar Days*
VS006-486-TS74	1	TST	3/28/99	1140		Thermal Desorption	21 Calendar Days*
VSAMB-402-TS75	1	TST	3/28/99	0931		Thermal Desorption	21 Calendar Days*
VSAMB-407-TS78	1	TST			Not Sampled	Thermal Desorption	21 Calendar Days*
Comments/Anomalies: *Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.							
Relinquished By	Print	Sign	Date/Time		Received By	Print	Sign
Gregory A. Fies			03-26-99/1433		Leonard A. Pingel		
Relinquished By	Print	Sign	Date/Time		Received By	Print	Sign
L.A. Pingel			4/5/99 1300		Karl O. PENNOCK		
Relinquished By	Print	Sign	Date/Time		Received By	Print	Sign
Relinquished By	Print	Sign	Date/Time		Received By	Print	Sign
Relinquished By	Print	Sign	Date/Time		Received By	Print	Sign
Relinquished By	Print	Sign	Date/Time		Received By	Print	Sign
Final Sample Disposition							

NHC/SAS				CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST			
Originator	Gregory A. Fies	Date	03/26/99	Sample Collector(s)	L. A. Pingel	Charge Code	COC No. V9010-e
Project Number	V9010			Sample Origin	296-C-006 Stack and Ambient Air in C Tank Farm	Riser No.	Page 1 of 2
Project Title	C-106 Sampling Event #3			Sampling Logbook No.	WHC-N-448, 1 PP 135		
Shipped To (lab)	Special Analytical Support			Method of Shipment	Government Vehicle		COC Procedure L.O-070-450/11-1
Sample Number	Number	Type	Sampling Date	Sampling Time	Sample Identification	Analysis Requested	Holding Time
VS006-404-TR01	1	STT (Train)	3/28/99	09:56		NH3/NOX	21 Calendar Days*
VS006-408-TR02	1	STT (Train)		13:39		NH3/NOX	21 Calendar Days*
VS006-413-TR03	1	STT (Train)		20:37		NH3/NOX	21 Calendar Days*
VS006-418-TR04	1	STT (Train)				NH3/NOX	21 Calendar Days*
VS006-423-TR05	1	STT (Train)				NH3/NOX	21 Calendar Days*
VS006-428-TR06	1	STT (Train)				NH3/NOX	21 Calendar Days*
VS006-433-TR07	1	STT (Train)				NH3/NOX	21 Calendar Days*
VS006-438-TR08	1	STT (Train)				NH3/NOX	21 Calendar Days*
VS006-443-TR09	1	STT (Train)				NH3/NOX	21 Calendar Days*
VS006-448-TR10	1	STT (Train)				NH3/NOX	21 Calendar Days*
*Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.							
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Gregory A. Fies			03-26-99 1430	Leonard A. Pingel			3-26-99 1430
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
L. A. Pingel			4/5/99 1300	KARL O. PENNOCK			4-05-99 1300
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Final Sample Disposition							

NHC/SAS		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST															
COC No. V9010-c		Page 2 of 2															
Originator		Gregory A. Fries		Date		03/26/99		Sample Collector(s)		LA Fries, LT Lockland		Charge Code					
Project Number		V9010		Sample Origin		296-C-006 Stack and Ambient Air in C Tank Farm		Riser No.				COC Procedure LO-090-450/13-1		Sampling Method		NHS	
Shipped To (Lab)		Special Analytical Support		Method of Shipment		Government Vehicle		Sampling Logbook No.		WTC-N-448, 1 P0133							
Sample Number	Number	Type	Date	Sampling Time	Sample Identification	Analysis Requested	Holding Time										
V5006-453-TR11	1	STT (Train)				NH3/NOx	21 Calendar Days*										
V5006-458-TR12	1	STT (Train)				NH3/NOx	21 Calendar Days*										
V5006-463-TR13	1	STT (Train)				NH3/NOx	21 Calendar Days*										
V5006-468-TR14	1	STT (Train)				NH3/NOx	21 Calendar Days*										
V5006-473-TR15	1	STT (Train)				NH3/NOx	21 Calendar Days*										
V5006-478-TR16	1	STT (Train)				NH3/NOx	21 Calendar Days*										
V5006-484-TR17	1	STT (Train)	3/28/99	1142		NH3/NOx	21 Calendar Days*										
V5006-487-TR18	1	STT (Train)	3/28/99	1142		NH3/NOx	21 Calendar Days*										
V5AM13-403-TR19	1	STT (Train)	3/28/99	0926		NH3/NOx	21 Calendar Days*										
V5AM13-408-TR20	1	STT (Train)				NH3/NOx	21 Calendar Days*										
*Holding times are internal quality goals only. Holding times do not begin until samples are rad. released and received by Special Analytical Support.																	
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By		Print		Sign		Date/Time		Received By		Print		Sign		Date/Time			
Requisitioned By																	

NHC/SAS	CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST								COC No.	V9010-F
(Originator L.D. Lockard)	Date:	03/26/99	Contact/Requestor	L.A. Pingel	AISIN S3-90	Tel. No.	373-4051 FAX: 373-3193	Charge Code		
Project Number	V9010		Sample Origin	296-C-006 Stack Samples				Change Code		
Project Title	C-The Sampling Event #3		Logbook No.			COC Procedure IAO-090-I50B-1		Sampling Method	NEWS	
Shipped To (Lab)	WSCF Laboratory		Method of Shipment	(Government Vehicle		Sampling Method		NEWS		
Sample Number	Number	Type	Sampling Date	Sampling Time	Sample Identification	Analysis Requested	Holding Time			
VS006- 401 U	1	Filiter	3-28-99		Upstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
VS006- 401 D	1	Filiter			Downstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
VS006- 406 U	1	Filiter			Upstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
VS006- 406 D	1	Filiter			Downstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
VS006- 411 U	1	Filiter			Upstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
VS006- 411 D	1	Filiter	3-28-99		Downstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
VS006- 416 U	1	Filiter			Upstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
VS006- 416 D	1	Filiter			Downstream Particulate Filter	AT, TB & GEA*	2 Business Days**			
Comments/Acronyms:	*Alpha Total, Total Beta and Gamma Energy Analysis **Please fax results to Len Pingel at 373-3193 within 2 business days. Please report the date and time of analysis on the report. Thank you.									
Received By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Received By	Print	
Received By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Received By	Print	
Received By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Received By	Print	
Received By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Received By	Print	
Received By	Print	Signature	Date/Time	Received By	Print	Signature	Date/Time	Received By	Print	
Disposition	Final Sample									

Appendix 1B

Schematic Drawing of Sampling, Sample Summary & Event Chronology, and Field Data

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**C-106 Stack sampling for VOCs
Campaign 1, Phase 3**

	Desired Volume (liters)	Vol/torr conversion (ml/torr)	Desired delta Pressure (torr)	initial system pressure (torr)	final system pressure (torr)	Time	Temperature (°C)	Actual delta Pressure (torr)	Volume Collected (liters)
Ambient Air Before Start of Pump									
VSAMB 402 TS75	0.10	10.87	10.0	289	298	931	9.9	9	0.10
VSAMB 403 TR19	6.0	54.7	109.7	180	288	926	9.9	108	5.9
VSAMB 404 P022	25.0	56.9	439.4	143	584	933	9.9	441	25.1
Baseline Samples form Stack before start of Pump									
VS006 401 Filter	1.0	10.87	92.0	200	290	954	10.6	90	1.0
VS006 403 TS20	0.10	10.87	9.2	324	335	1002	10.6	11	0.12
VS006 404 TR01	6.0	54.7	109.7	216	324	956	10.6	108	5.9
VS006 405 P001	25.0	56.9	439.4	149	587	1004	10.6	438	24.9
Collect sample set #1 when VOC rises to 50 ppmv									
VS006 406 Filter	1.0	10.87	92.0	233	322	1334	11.6	89	1.0
VS006 409 TS08	0.10	10.87	9.2	432	442	1346	11.4	10	0.11
VS006 408 TR02	6.0	54.7	109.7	322	432	1339	11.6	110	6.0
VS006 410 P002	25.0	56.9	439.4	178	618	1352	11.4	440	25.0
Collect sample set #2 when VOC rise to 200 ppmv									
VS006 411 Filter	1.0	10.87	92.0	278	368	2033	7.3	90	1.0
VS006 414 TS09	0.10	10.87	9.2	405	415	2043	7.3	10	0.11
VS006 413 TR03	6.0	54.7	109.7	297	405	2037	7.3	108	5.9
VS006 415 P003	25.0	56.9	439.4	169	607	2046	7.3	438	24.9

C-106 Stack sampling for VOCs
Campaign 1, Phase 3

Desired Volume (liters)	Vol/torr conversion (ml/torr)	Desired delta Pressure (torr)	initial system pressure (torr)	final system pressure (torr)	Time	Temperature (°C)	Actual delta Pressure (torr)	Volume Collected (liters)
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Field Blank

VS006 486 TS74					1140	9.5		
VS006 487 TR18					1140	9.5		
VS006 488 P018					1140	9.5		

Trip Blank

VS006 483 TS74
VS006 484 TR17
VS006 485 P017

HNF-4598 Rev. 0

*** RECORD COPY ***

*** RECORD COPY ***

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1. Document Number ES-99-00090/W *GENERIC WORK ITEM*
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING

3. Components

Component Number	Name
241-C-106	HIGH HEAT FACILITY GROUP 3
Temporary Number	Name

4. System 03
- SAMPLING*

5. Location

Facility	ES	EAST SAMPLING/SALTWELLS	Other
Bldg/Rm	241-C	Other C-106	Other

6. Symptom, Problem, or Condition

PERFORM SUMMA VAPOR SAMPLING FROM C-106 STACK (C-006). SAMPLING
WILL BE DONE FROM PITOT TUBE INSTALLED IN STACK PER PACKAGE
ES-99-00089.

7. Originator Name GREEN,DJ
Telephone No. 373-5529 MSIN S7-04

Date
03/12/99

8. Charge Code 101997

9. Priority 3

10. Phase Designator P1-3
- MARCH*

11. Cognizant Engineer WANNER,DD

Phone
373-3297

12. Planning Required Y

13. Screener/Ops Review X LEE,JS

Signature
Date
03/15/99

14. Resolution By X GREEN,DJ

Signature
Date
03/12/99

15. Approvals

Code	Description	Signature	Date
CE	COGNIZANT ENGINEER	X WANNER,DD	03/22/99
CM	COGNIZANT MANAGER	X BROWN,RG	03/22/99
RADCON	RADCON	X HOWARD,PM	03/23/99
S	SAFETY	X ZAK,FA	03/23/99
PIC	PERSON IN CHARGE	X SICKELS,JF	03/23/99
PLN/SCH	PLANNER/SCHEDULER	X GREEN,DJ	03/23/99

16. Resources Required

Res Code	Description	No.	Act Hrs
04	CERTIFIED OPERATOR	4	_____

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1. Document Number ES-99-00090/W *GENERIC WORK ITEM*
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING

54	HEALTH PHYSICS TECHNICIAN	1	_____
96	INDUSTRIAL HYGIENE TECHNICIAN	1	_____
24	PIPEFITTER	2	_____
PIC	PERSON IN CHARGE	1	_____

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1. Document Number ES-99-00090/W GENERIC WORK ITEM
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING

17. Pre-Work Review	Signature	Date
18. Tagout Number		3/25/99
19. Work Release F	Type Signature	Date
20. Work Suspension (See Work Suspension Sheet)		3/26/99
PIC		
21. PIC SUMSION,ML	PIC Org. 75150	

Resolution/Retest
1.0 SCOPE

1.1 OBTAIN VAPOR GRAB SAMPLES FROM HIGH HEAT WASTE TANK 241-C-106.

1.2 241-C-106 IS LISTED AS A FACILITY GROUP 3 TANK PER TWRS TECHNICAL SAFETY REQUIREMENTS, TABLE 5.9-1 OF HNF-SD-WM-TSR-006.

2.0 DESCRIPTION:

2.1 OBTAIN VAPOR GRAB SAMPLES FROM TANK 241-C-106 EXHAUST STACK. THESE SAMPLES WILL BE USED TO ADDRESS VAPOR ISSUES RELATED TO THE SLUICING OF TANK 241-C-106.

2.2 SAMPLING WILL BE PERFORMED AT PIC AND IH&S DIRECTION.

2.3 SAMPLING WILL BE PERFORMED NUMEROUS TIMES DURING SLUICING OPERATIONS.

3.0 REFERENCES:

- 3.1 HNF-SD-WM-BIO-001 TWRS BASIS FOR INTERIM OPERATIONS
- 3.2 HNF-SD-WM-TSR-006 TWRS TECHNICAL SAFETY REQUIREMENTS
- 3.3 HNF-SD-WM-HSP-002 TANK FARM HEALTH AND SAFETY PLAN
- 3.4 HNF-IP-1266 TANK FARMS OPERATIONS ADMINISTRATIVE CONTROLS
- 3.5 TO-100-052 PERFORM WASTE GENERATION, SEGREGATION, AND ACCUMULATION

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1. Document Number ES-99-00090/W *GENERIC WORK ITEM*
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING
- =====

4.0 PERMITS, SPECIAL PROCEDURES, AND OTHER SUPPORTING DOCUMENTS:

- 4.1 RWP E-1116 REV 004
- 4.2 PRE-JOB SAFETY MEETING CHECKLIST
- 4.3 DOME LOADING ASSESSMENT
- 4.4 WASTE PLANNING CHECKLIST
- 4.5 JOB HAZARD ANALYSIS
- 4.6 CHAIN OF CUSTODY FORMS
- 4.7 HNF-4212 WASTE RETRIEVAL SLUICING SYSTEM VAPOR
SAMPLING AND ANALYSIS PLAN
- 4.8 USQ TF-99-0233

5.0 MATERIALS AND EQUIPMENT:

- 5.1 CRAFT PAPER
- 5.2 PLASTIC DRAPES (TARPS)
- 5.3 TAPE (WHITE AND DUCT)
- 5.4 CAUTION TAPE
- 5.5 DECON WATER
- 5.6 WASTE BAGS AND INVENTORY SHEETS
- 5.7 DRY RAGS
- 5.8 RUBBER MATTING

6.0 PREREQUISITES:

- 6.1 A PRE-JOB MEETING SHALL BE CONDUCTED, UTILIZING THE JHA AND/OR PRE-JOB SAFETY MEETING CHECKLIST.
- 6.2 SECTIONS OR STEPS WITHIN SECTIONS OF THIS WORK INSTRUCTION MAY BE PERFORMED OUT OF SEQUENCE, AS LONG AS THE INTEGRITY OF THE WORK SCOPE REMAINS THE SAME AND ALL IGNITION CONTROLS ARE APPLIED.
- 6.3 A WASTE PLANNING CHECKLIST HAS BEEN PROVIDED IN ACCORDANCE WITH HNF-IP-0842. PIC SUBMIT CONTAINER REQUEST FORM TO GENERATOR SERVICES PER POP TO-100-052, AS NECESSARY.
- 6.4 RESPIRATORY PROTECTION AND MONITORING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE SAFE WORK PRACTICES CONTAINED IN THE HASP (WHC-SD-WM-HSP-002). SPECIFIC INSTRUCTIONS SHALL BE PART OF THE PRE-JOB SAFETY MEETING.

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1. Document Number ES-99-00090/W *GENERIC WORK ITEM*
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING

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- 6.5 NON-SPARKING TOOLS SHALL BE USED WHEN REQUIRED PER HNF-SD-WM-BIO-001 AND HNF-SD-WM-TSR-006.
- 6.6 TANK INTRUSIVE ACTIVITIES SHALL BE STOPPED AND THE TANK PLACED IN A STABILIZED MODE IF LIGHTNING IS DETERMINED TO BE WITHIN 50 MILES OF THE JOB-SITE.
- 6.7 VEHICLE ACCESS WITHIN THE TANK FARM BOUNDARY SHALL:
- 6.7.1 BE LIMITED TO VEHICLES WHOSE FUEL SYSTEMS ARE PROTECTED FROM DAMAGE.
- 6.7.2 DRIVERS SHALL TAKE GREAT CAUTION TO REMAIN CLEAR OF ABOVE GROUND OBJECTS AND SHALL OBSERVE MAXIMUM SPEED LIMITS.
- 6.7.3 SPOTTERS IN COMMUNICATIONS WITH THE DRIVER ARE REQUIRED WHEN DRIVING OVER A TANK DOME.
- 6.8 A DOME LOAD EVALUATION HAS BEEN COMPLETED AND INCORPORATED INTO THIS WORK PACKAGE. THE DOME LOAD EVALUATION INCLUDES ALL EQUIPMENT/VEHICLES THAT ARE ENTERING THE TANK FARM TO PERFORM THIS WORK PACKAGE.
- 6.9 PIC ENSURE THAT THE PROCEDURES USED TO PERFORM THIS TASK ARE THE MOST CURRENT REVISION.
- 6.10 PIC CHECK THE STANDING ORDER LOG TO ASCERTAIN WHETHER THERE ARE ORDERS THAT MAY IMPACT THIS WORK. IF THERE ARE ANY, CONTACT THE COG. ENGINEER. (DD WANNER 373-3297).
- 6.11 PLANNER VERIFY THAT THE SAP HAS BEEN RELEASED FOR THIS WORK PACKAGE:
- SAP: HNF-4212

PLANNER SIGNATURE 3-26-99_____
DATE

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1. Document Number ES-99-00090/W GENERIC WORK ITEM
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING
- =====

7.0 SPECIFIC WORK INSTRUCTIONS:

NOTE DOCUMENTED SURVEYS ARE REQUIRED FOR OPENING POTENTIALLY CONTAMINATED SYSTEMS OR ITEMS, ACCESSING PREVIOUSLY UNEXPOSED SURFACES, EXCAVATING OR WHEN REQUIRED BY PROCEDURE.

- 7.1 PIC VERIFY JOB BEING PERFORMED AT CORRECT TANK, WITH INDEPENDENT VERIFICATION.

TANK: 241-C-106 EXHAUST STACK C-006

PIC SIGN: James Luchel DATE: 3-28-99

VERIFICATION BY: Michael Samsion

SIGN: Michael Samsion DATE: 3-28-99

- 7.1.1 PIC VERIFY VENT SYSTEM IS OPERATING

James Luchel 3-28-99
PIC SIGN DATE

NOTE IH&S WILL BE PERFORMING ENTRY MONITORING AT THE C-106 EXHAUST STACK AS REQUIRED FULFILLING BIO/TSR REQUIREMENTS PER EAST AREA WORK PACKAGE. (2E-99-00577 2E-99-00578)

- 7.2 HPT PERFORM DOSE RATE SURVEY OF AREA OVER AND AROUND EXHAUST STACK. RECORD RESULTS ON RADIATION SURVEY REPORT.

- 7.3 OBTAIN SUMMA SAMPLE

- 7.3.1 CONNECT A SINGLE ENDED PORT CONNECTOR TO THE STACK PORT.

NOTE ATTACHMENT 1 (TAKEN FROM THE SAP) WILL INDICATE WHEN A SUMMA SAMPLE WILL BE PERFORMED AND THE SEQUENTIAL ORDER OF THE SUMMA SAMPLES ONLY.

NOTE EACH SAMPLE (I.E. FILTER, SUMMA, TST, STT, PUF TRAP) OF A GIVEN SAMPLE SET (I.E. BASELINE, SAMPLE SET #3, #4, ETC) WILL BE COMPLETED IN THE SEQUENTIAL ORDER STATED IN TABLE 2-2 (STACK SAMPLES) AND 2-3 (C FARM AMBIENT AIR SAMPLE) OF THE SAP.

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1. Document Number ES-99-00090/W *GENERIC WORK ITEM*
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING
- =====

- 7.3.2 REMOVE THE PROTECTIVE CAP FROM THE SUMMA CANISTER.
- 7.3.3 ATTACH TUBING ASSEMBLY TO SUMMA.
- 7.3.4 CONNECT SUMMA CANISTER TO EXHAUST STACK PORT WITH TUBING ASSEMBLY.
- 7.3.5 OPEN THE ISOLATION VALVE.
- 7.3.6 OPEN SUMMA CANISTER ISOLATION VALVE.
- 7.3.7 RECORD DATE VOC READING, SUMMA SAMPLE IDENTIFICATION NUMBER, AND SAMPLE START TIME ON ATTACHMENT 1 DATA SHEET.

NOTE ALTHOUGH THE SAP STATES THE FOLLOWING DURATIONS FOR FILLING VARIOUS SIZE SUMMAS, THE TIME MAY BE EXTENDED PER THE SAP, TO INCREASE THE CHANCE THAT THE SUMMA HAS ACHIEVED AS CLOSE AS POSSIBLE, FULL VOLUME INTEGRITY.

- 7.3.8 BASED ON THE SIZE OF THE SUMMA (SEE ATTACHMENT 1 DATA SHEET), THE SUMMA CANISTER ISOLATION VALVE WILL REMAIN OPEN FOR THE FOLLOWING DURATIONS:
 - 7.3.8.1 TWO (2) MINUTES FOR STANDARD SIX (6) LITER SUMMA.
 - 7.3.8.2 FIVE (5) MINUTES FOR 15 LITER SUMMA.
 - 7.3.8.3 TEN (10) MINUTES FOR 32 LITER SUMMA.
- 7.3.9 CLOSE SUMMA CANISTER ISOLATION VALVE.
- 7.3.10 RECORD SAMPLE STOP TIME ON ATTACHMENT 1 DATA SHEET.
- 7.3.11 CLOSE ISOLATION VALVE.
- 7.3.12 REMOVE SUMMA CANISTER FROM EXHAUST STACK PORT.
- 7.3.13 REMOVE TUBING ASSEMBLY FROM SUMMA.

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1. Document Number ES-99-00090/W GENERIC WORK ITEM
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING

- 7.3.14 REPLACE PROTECTIVE CAP ON SUMMA CANISTER.
- 7.3.15 RECORD ANY ANOMALIES ON THE WORK RECORD (J-5).
- 7.3.16 COMPLETE CHAIN-OF-CUSTODY (C-O-C) FOR SUMMA SAMPLE.
- 7.3.17 REPEAT STEPS 7.3.2 THROUGH 7.3.16 AS MANY TIMES AS REQUIRED TO OBTAIN THE PRESCRIBED SET OF SAMPLES (PER ATTACHMENT 1).
- 7.3.17.1 PIC N/A ALL SPACES ON ATTACHMENT 1 PERTAINING TO SAMPLING NOT PERFORMED.

NOTE SAMPLES SHALL BE SHIPPED PER SECTION 2.2 OF SAP.

8.0 RESTORATION ACTIONS

- 8.1 PIC RECORD ON J-5 THAT THE JOB SITE HAS BEEN CLEANED, DECONTAMINATED TO PRE-JOB STATUS OR BETTER, AND ALL WASTE HAS BEEN PROPERLY DISPOSED OF.
- 8.2 COPIES OF C-O-C AND SHIPMENT RECORDS FOR EACH SAMPLE PLACED IN WORK PACKAGE PRIOR TO ARCHIVE.

PLANNER SIGN

DATE

- 8.3 PIC VERIFY IF ANY OF THE FOLLOWING TRIGGER LEVELS FOR POST-JOB ALARA REVIEW ARE APPLICABLE TO WORK PERFORMED IN THIS PACKAGE:

YES NO

☒

STOP RADIOLOGICAL WORK AUTHORITY WAS EXERCISED BY ANY RADIOLOGICAL WORKER DURING THE PERFORMANCE OF THE WORK.

PIC SIGNATURE

3-28-99
DATE

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1. Document Number ES-99-00090/W *GENERIC WORK ITEM*
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING
- =====

8.4 RADIOLOGICAL CONTROL ORGANIZATION VERIFY IF ANY OF
THE FOLLOWING TRIGGER LEVELS FOR POST-JOB ALARA
REVIEW ARE APPLICABLE TO WORK PERFORMED IN THIS
PACKAGE:

YES NO

_____ THE JOB PRODUCES AN ACTUAL COLLECTIVE DOSE OF
_____ 5 PERSON-REM OR GREATER.

_____ A REPORTABLE RADIOLOGICAL OCCURRENCE IN
_____ ACCORDANCE WITH OCCURRENCE REPORTING AND
PROCESSING OF OPERATIONS INFORMATION (HNF-IP-
0842 VOL. II, SEC. 4.6.2), OCCURRED DURING
THE PERFORMANCE OF THE WORK.

_____ SIGNIFICANT LESSONS LEARNED ARE IDENTIFIED
_____ DURING THE INFORMAL RADIOLOGICAL PERFORMANCE
REVIEW.

_____ THE ACTUAL DOSE FOR TASK OUTSIDE THE RANGE OF
_____ PLUS/MINUS 25% OF PRE-JOB ESTIMATE OF GREATER
THAN 1,000 PERSON-MREM TEDE.

_____ AN ALARA COMMITTEE PRE-JOB ALARA REVIEW WAS
_____ REQUIRED.

_____ IS A POST-JOB ALARA REVIEW REQUIRED?

RADCON SIGNATURE

DATE

8.5 IF A FORMAL POST-JOB ALARA REVIEW IS NOT REQUIRED,
THIS WORK PACKAGE HAS BEEN REVIEWED BY THE TWRS
ALARA COORDINATOR FOR TRENDS AND LESSONS LEARNED.

TWRS ALARA COORDINATOR SIGNATURE

DATE

8.6 RETURN ALL UNUSED MATERIAL TO CPO MATERIAL
COORDINATOR, AT 2101HV. THE RETURNED MATERIAL
SHALL BE ACCOMPANIED BY A COPY OF THE BOM AND THE
QC ACCEPT TAG (GREEN TAG) OR TRANSFER TAG, IF
AVAILABLE.

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1. Document Number ES-99-00090/W GENERIC WORK ITEM
2. Work Item Title 241-C-106 PERFORM SUMMA VAPOR SAMPLING
- =====

9.0 POST MAINTENANCE TESTING

9.1 N/A

10.0 OPERATIONAL FUNCTIONAL TEST

10.1 N/A

22. Reference Documents
SEE RESOLUTION

Type

23. Field Work Complete

Signature

Date

3-28-99

24. Ops_Acceptance

25. Post Review

[illegible]

ATTACHMENT 1 DATA SHEET
 296-C-006 STACK AND C TANK FARM (AMBIENT) SUMMA
 VAPOR SAMPLING DATA SHEET (PHASE III)
 WORK PACKAGE NO. ES-99-00090

Sample Description	Sample ID No.	Start Time	Stop Time	VOC Reading (ppm)	Recorded By/Date
Ambient Air Baseline SUMMA Vapor Samples (All 6 Liter SUMMAs)					
Baseline SUMMA, near 296-C-006 Stack	VSAMB-401-5061	0955	0957	5.2 ppm	ML Summa
Baseline SUMMA, downwind at fresh air boundary	VSAMB-405-5076	1000	1002	5.2 ppm	ML Summa
296-C-006 Stack SUMMA Vapor Samples (All 6 Liter SUMMAs)					
Baseline SUMMA (before pump is started)	VS006-402-5022	1058	1100	5.2 ppm	ML Summa
SUMMA #1, when VOC rises to 50 ppm	VS006-407-5031	1340	1342	50.1 ppm	J. Sickels
SUMMA #2, when VOC rises to 200 ppm	VS006-412-5041	2033	2035	117 ppm	J. Sickels
SUMMA #3, 1 hour after collection of SUMMA #2	VS006-417-5062	2128		114 ppm	J. Sickels
SUMMA #4, 1 hour after collection of SUMMA #3	VS006-422-5072				
SUMMA #5, 1 hour after collection of SUMMA #4	VS006-427-5073			1/1	
SUMMA #6, 1 hour after collection of SUMMA #5	VS006-432-5085			A	
SUMMA #7, 1 hour after collection of SUMMA #6	VS006-437-5086				
SUMMA #8, 1 hour after collection of SUMMA #7	VS006-442-5093				
SUMMA #9, 1 hour after collection of SUMMA #8	VS006-447-5097				

* SAMPLE TAKEN PER TEST DIRECTOR
 ** SAMPLES NOT TAKEN

ATTACHMENT 1 DATA SHEET
 296-C-006 STACK AND C TANK FARM (AMBIENT) SUMMA
 VAPOR SAMPLING DATA SHEET (PHASE III)
 WORK PACKAGE NO. ES-99-00090

Sample Description	Sample ID No.	Start Time	Stop Time	VOC Reading (ppm)	Recorded By/Date
SUMMA #10, 1 hour after collection of SUMMA #9	VS006-452-5105				
SUMMA #11, 1 hour after collection of SUMMA #10	VS006-457-5108				
SUMMA #12, 1 hour after collection of SUMMA #11	VS006-462-5109				
SUMMA #13, 1 hour after collection of SUMMA #12	VS006-467-5110				
SUMMA #14, 1 hour after collection of SUMMA #13	VS006-472-5111				
SUMMA #15, 1 hour after collection of SUMMA #14	VS006-477-5112				
Special 296-C-006 Stack Samples @ Peak/Steady State VOC Concentrations (at direction of Test Director)					
15 L SUMMA	VS006-481-5998	2128	2133	114ppm	J. Sickels
32 L SUMMA	VS006-482-5999	2134	2144	114ppm	J. Sickels
Ambient Air 6 Liter SUMMA Samples @ Peak/Steady State VOC Concentrations (at direction of Test Director)					
SUMMA, near 296-C-006 Stack	VSAMB-406-5082	2148	2150	114ppm	J. Sickels
SUMMA, downwind at fresh air boundary	VSAMB-410-5089	2151	2153	114ppm	J. Sickels

* NOT Taken

Figure 1
Sampling Apparatus
C-106

QTY	DESCRIPTION	MATERIAL/REFERENCE	ITEM
1	QUICK CONNECT COUPLING, 1/4 MPT X BSP/ISO TAPER	SWAGELOK QC4-D-4MT	1
1	1/4 NPT BALL VALVE	SST OR PLASTIC (*)	2
2	CONNECTOR, MALE 1/4 TUBE TO 1/4 NPT	SWAGELOCK , (*)-400-1-4	3
AR	1/4" TUBING	SST OR PFA (*)	4
1	CAP, 1", THRD	ANY 300 SERIES SST	5
1	NIPPLE, 1", THRD, (EXISTING)	SST	6

GENERAL NOTES

* - MATERIAL SPECIFIED IN APPLICABLE WORK PACKAGE.

xx - LENGTH OF PENETRATION IS SPECIFIED IN THE APPLICABLE WORK PACKAGE.

C-106 VAPOR SAMPLING ARRANGEMENT

Appendix 1C

WSCF Screening Results

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DON'T SAY IT — Write It!

TO: K. W. Gray S5-07
 cc: R. J. Giordano S6-14
 L. D. Lockard S3-90
 L. A. Pingel, Jr. S3-90
 REE File

DATE: March 31, 1999

FROM: R. E. Elder *[Signature]* S6-14

Telephone: 376-4187

SUBJECT: RELEASE OF VAPOR SAMPLES — C-106 Sluicing

I have reviewed the laboratory analysis of the vapor samples taken from the C-106 Stack. The review of the data is shown below. Based on this review, the samples associated with this test have no potential for internal contamination above release limits and can be released based on external surveys.

Radioactive Release for Particulate or Surface Contamination

The samples (one liter each) were drawn through a set of two 2-micron prefilters in series. Laboratory results from these filters show a maximum activity of $2.3 \text{ E-}6 \text{ uCi/sample}$ beta and less the minimum detection limit (MDL) for alpha (see table below). In addition, all GEA results were less than the MDL. Assuming that the concentration is consistent through out the sampling period, the maximum total beta activity deposited in either the SUMMA canister (6-liter volume) or the PUF trap (25-liter volume) would be 31 dpm and 128 dpm, respectively. Therefore, the portions of the sampling system downstream of the filters would be considered releasable, per HNF-IP-0718, and would be a candidate for release based on external surveys.

SAMPLES from 296-C-006 Stack

ID	Up/Down Stream	Analysis	Result (uCi/sample)	dpm (calculated)
401	U	Beta	$1.70\text{E-}06$	3.8
401	D	Beta	$2.30\text{E-}06$	5.1
401	U	Alpha	<DL*	
401	D	Alpha	<DL*	
406	U	Beta	$1.70\text{E-}06$	3.8
406	D	Beta	$1.90\text{E-}06$	4.2
406	U	Alpha	<DL*	
406	D	Alpha	<DL*	
411	U	Beta	$1.60\text{E-}06$	3.6
411	D	Beta	$1.60\text{E-}06$	3.6
411	U	Alpha	<DL*	
411	D	Alpha	<DL*	

* The alpha MDL for these samples was $7.6\text{E-}07 \text{ uCi}$ (1.7 dpm).

WSCF
ANALYTICAL LABORATORY REPORT

for

PROJECT HANFORD MANAGEMENT CONTRACTORS
RICHLAND WA 99352

Attention: L.A. PINGEL 373-4051

Report#: 99000483
Report Date: 2-jun-1999
Report W004/ver. 3
PROJECT HANFORD MANAGEMENT CONTRACTORS

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HNF-4598 Rev. 0

WSCF

ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
Project Number MISC. :PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000295	VS006-401U	296-C-006-STK SPL	Gross Alpha	FILTER		3.2E-07	uCi	7.60e-007	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Gross Alpha Abs. Cntg Error	FILTER		4.7E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Gross Beta	FILTER		1.7E-06	uCi	1.00e-006	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Gross Beta Absolute Cntg Error	FILTER		9.2e-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Ce-144 Rel.% Count Error (GEA)	FILTER	LA-508-462	318.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Ce-144 by GEA	FILTER	LA-508-462	U -1.80e+00	pCi	9.81	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	CePr-144 Rel.% Count Error	FILTER	LA-508-462	318.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	CePr-144 by GEA	FILTER	LA-508-462	U -3.59e+00	pCi	19.60	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Co-60 Rel.% Count Error (GEA)	FILTER	LA-508-462	265.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Co-60 by GEA	FILTER	LA-508-462	U 5.64e-01	pCi	3.10	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Cs-134 Rel.% Count Error (GEA)	FILTER	LA-508-462	450.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Cs-134 by GEA	FILTER	LA-508-462	U 3.58e-01	pCi	2.69	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Cs-137 Rel.% Count Error (GEA)	FILTER	LA-508-462	308.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Cs-137 by GEA	FILTER	LA-508-462	U 4.51e-01	pCi	2.35	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Eu-152 Rel.% Count Error (GEA)	FILTER	LA-508-462	1000	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Eu-152 by GEA	FILTER	LA-508-462	U -2.23e-01	pCi	5.51	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Eu-154 Rel.% Count Error (GEA)	FILTER	LA-508-462	273.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Eu-154 by GEA	FILTER	LA-508-462	U 1.62e+00	pCi	9.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Eu-155 Rel.% Count Error (GEA)	FILTER	LA-508-462	195.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Eu-155 by GEA	FILTER	LA-508-462	U 1.46e+00	pCi	5.55	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Nb-94 Rel.% Count Error (GEA)	FILTER	LA-508-462	92.0	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Nb-94 by GEA	FILTER	LA-508-462	U 1.53e+00	pCi	2.76	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Ru-103 Rel.% Count Error (GEA)	FILTER	LA-508-462	155.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Ru-103 by GEA	FILTER	LA-508-462	U -7.46e-01	pCi	1.95	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Ru-106 Rel.% Count Error (GEA)	FILTER	LA-508-462	782.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Ru-106 by GEA	FILTER	LA-508-462	U -1.36e+00	pCi	19.50	03/30/99	03/28/99	03/29/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
E - Compound concentration exceeded calibration range.
N - Identification is based on a mass spectral library search.

D - Compound concentration resulted from a dilution.
J - Estimated value.
Z - See Comments.
U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

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ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
Project Number MISC. :PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000295	VS006-401U	296-C-006-STK SPL	Sb-125 Rel.% Count Error (GEA)	FILTER	LA-508-462	260.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Sb-125 by GEA	FILTER	LA-508-462	U 1.09e+00	pCi	5.38	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Sn-113 Rel.% Count Error (GEA)	FILTER	LA-508-462	511.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Sn-113 by GEA	FILTER	LA-508-462	U 2.38e-01	pCi	2.29	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Zn-65 Rel.% Count Error (GEA)	FILTER	LA-508-462	142.	%	0.00	03/30/99	03/28/99	03/29/99
W990000295	VS006-401U	296-C-006-STK SPL	Zn-65 by GEA	FILTER	LA-508-462	U -2.58e+00	pCi	6.01	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Gross Alpha	FILTER		U 5.7e-07	uCi	7.60e-007	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Gross Alpha Abs. Cntg Error	FILTER		5.9E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Gross Beta	FILTER		2.3E-06	uCi	1.00e-006	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Gross Beta Absolute Cntg Error	FILTER		1.0E-06	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Ce-144 Rel.% Count Error (GEA)	FILTER	LA-508-462	73.9	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Ce-144 by GEA	FILTER	LA-508-462	U 8.48e+00	pCi	11.30	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	CePr-144 Rel.% Count Error	FILTER	LA-508-462	73.9	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	CePr-144 by GEA	FILTER	LA-508-462	U 1.69e+01	pCi	22.60	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Co-60 Rel.% Count Error (GEA)	FILTER	LA-508-462	239.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Co-60 by GEA	FILTER	LA-508-462	U 5.83e-01	pCi	2.95	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Cs-134 Rel.% Count Error (GEA)	FILTER	LA-508-462	256.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Cs-134 by GEA	FILTER	LA-508-462	U 4.85e-01	pCi	2.51	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Cs-137 Rel.% Count Error (GEA)	FILTER	LA-508-462	1000	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Cs-137 by GEA	FILTER	LA-508-462	U 5.29e-02	pCi	2.42	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Eu-152 Rel.% Count Error (GEA)	FILTER	LA-508-462	143.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Eu-152 by GEA	FILTER	LA-508-462	U 2.11e+00	pCi	5.83	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Eu-154 Rel.% Count Error (GEA)	FILTER	LA-508-462	1000	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Eu-154 by GEA	FILTER	LA-508-462	U 8.35e-03	pCi	7.45	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Eu-155 Rel.% Count Error (GEA)	FILTER	LA-508-462	612.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Eu-155 by GEA	FILTER	LA-508-462	U -5.88e-01	pCi	6.23	03/30/99	03/28/99	03/29/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

D - Compound concentration resulted from a dilution.

J - Estimated value.

Z - See Comments.

U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

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ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
 Project Number MISC. :PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000296	VS006-401D	296-C-006-STK SPL	Nb-94 Rel.% Count Error (GEA)	FILTER	LA-508-462	149.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Nb-94 by GEA	FILTER	LA-508-462	U 8.64e-01	pCi	2.50	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Ru-103 Rel.% Count Error (GEA)	FILTER	LA-508-462	546.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Ru-103 by GEA	FILTER	LA-508-462	U -2.02e-01	pCi	2.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Ru-106 Rel.% Count Error (GEA)	FILTER	LA-508-462	183.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Ru-106 by GEA	FILTER	LA-508-462	U -5.20e+00	pCi	16.20	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Sb-125 Rel.% Count Error (GEA)	FILTER	LA-508-462	105.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Sb-125 by GEA	FILTER	LA-508-462	U -2.73e+00	pCi	4.50	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Sn-113 Rel.% Count Error (GEA)	FILTER	LA-508-462	270.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Sn-113 by GEA	FILTER	LA-508-462	U -5.31e-01	pCi	2.47	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Zn-65 Rel.% Count Error (GEA)	FILTER	LA-508-462	331.	%	0.00	03/30/99	03/28/99	03/29/99
W990000296	VS006-401D	296-C-006-STK SPL	Zn-65 by GEA	FILTER	LA-508-462	U -8.96e-01	pCi	5.39	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Gross Alpha	FILTER		U 4.4E-07	uCi	7.60e-007	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Gross Alpha Abs. Cntg Error	FILTER		5.3E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Gross Beta	FILTER		1.7E-06	uCi	1.00e-006	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Gross Beta Absolute Cntg Error	FILTER		9.2E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Ce-144 Rel.% Count Error (GEA)	FILTER	LA-508-462	207.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Ce-144 by GEA	FILTER	LA-508-462	U -3.89e+00	pCi	13.50	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	CePr-144 Rel.% Count Error	FILTER	LA-508-462	207.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	CePr-144 by GEA	FILTER	LA-508-462	U -7.78e+00	pCi	27.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Co-60 Rel.% Count Error (GEA)	FILTER	LA-508-462	249.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Co-60 by GEA	FILTER	LA-508-462	U 7.44e-01	pCi	3.76	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Cs-134 Rel.% Count Error (GEA)	FILTER	LA-508-462	598.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Cs-134 by GEA	FILTER	LA-508-462	U 2.51e-01	pCi	2.53	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Cs-137 Rel.% Count Error (GEA)	FILTER	LA-508-462	893.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Cs-137 by GEA	FILTER	LA-508-462	U 1.73e-01	pCi	2.86	03/30/99	03/28/99	03/29/99

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D - Compound concentration resulted from a dilution.

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ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
Project Number MISC. : PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000297	VS006-406U	296-C-006-STK SPL	Eu-152 Rel.% Count Error (GEA)	FILTER	LA-508-462	357.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Eu-152 by GEA	FILTER	LA-508-462	U -1.31e+00	pCi	7.25	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Eu-154 Rel.% Count Error (GEA)	FILTER	LA-508-462	502.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Eu-154 by GEA	FILTER	LA-508-462	U 1.09e+00	pCi	10.70	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Eu-155 Rel.% Count Error (GEA)	FILTER	LA-508-462	441.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Eu-155 by GEA	FILTER	LA-508-462	U -9.46e-01	pCi	7.22	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Nb-94 Rel.% Count Error (GEA)	FILTER	LA-508-462	606.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Nb-94 by GEA	FILTER	LA-508-462	U 2.41e-01	pCi	2.69	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Ru-103 Rel.% Count Error (GEA)	FILTER	LA-508-462	1000	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Ru-103 by GEA	FILTER	LA-508-462	U -3.09e-02	pCi	2.26	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Ru-106 Rel.% Count Error (GEA)	FILTER	LA-508-462	182.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Ru-106 by GEA	FILTER	LA-508-462	U 6.20e+00	pCi	22.30	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Sb-125 Rel.% Count Error (GEA)	FILTER	LA-508-462	267.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Sb-125 by GEA	FILTER	LA-508-462	U -1.31e+00	pCi	5.95	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Sn-113 Rel.% Count Error (GEA)	FILTER	LA-508-462	124.	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Sn-113 by GEA	FILTER	LA-508-462	U -1.18e+00	pCi	2.35	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Zn-65 Rel.% Count Error (GEA)	FILTER	LA-508-462	1000	%	0.00	03/30/99	03/28/99	03/29/99
W990000297	VS006-406U	296-C-006-STK SPL	Zn-65 by GEA	FILTER	LA-508-462	U -7.41e-02	pCi	6.64	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Gross Alpha	FILTER		U 3.2E-07	uCi	7.60e-007	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Gross Alpha Abs. Cntg Error	FILTER		4.7E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Gross Beta	FILTER		1.9E-06	uCi	1.00e-006	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Gross Beta Absolute Cntg Error	FILTER		9.6E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Ce-144 Rel.% Count Error (GEA)	FILTER	LA-508-462	221.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Ce-144 by GEA	FILTER	LA-508-462	U -2.39e+00	pCi	8.92	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	CePr-144 Rel.% Count Error	FILTER	LA-508-462	221.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	CePr-144 by GEA	FILTER	LA-508-462	U -4.79e+00	pCi	17.90	03/30/99	03/28/99	03/29/99

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ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
 Project Number MISC. : PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000298	VS006-406D	296-C-006-STK SPL	Co-60 Rel.% Count Error (GEA)	FILTER	LA-508-462	160.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Co-60 by GEA	FILTER	LA-508-462	U	-1.12e+00	pCi	3.00	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Cs-134 Rel.% Count Error (GEA)	FILTER	LA-508-462	301.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Cs-134 by GEA	FILTER	LA-508-462	U	4.82e-01	pCi	2.84	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Cs-137 Rel.% Count Error (GEA)	FILTER	LA-508-462	144.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Cs-137 by GEA	FILTER	LA-508-462	U	-9.11e-01	pCi	2.18	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Eu-152 Rel.% Count Error (GEA)	FILTER	LA-508-462	97.5	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Eu-152 by GEA	FILTER	LA-508-462	U	2.89e+00	pCi	5.70	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Eu-154 Rel.% Count Error (GEA)	FILTER	LA-508-462	245.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Eu-154 by GEA	FILTER	LA-508-462	U	-1.82e+00	pCi	7.90	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Eu-155 Rel.% Count Error (GEA)	FILTER	LA-508-462	201.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Eu-155 by GEA	FILTER	LA-508-462	U	1.52e+00	pCi	5.88	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Nb-94 Rel.% Count Error (GEA)	FILTER	LA-508-462	238.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Nb-94 by GEA	FILTER	LA-508-462	U	5.41e-01	pCi	2.46	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Ru-103 Rel.% Count Error (GEA)	FILTER	LA-508-462	269.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Ru-103 by GEA	FILTER	LA-508-462	U	4.27e-01	pCi	2.20	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Ru-106 Rel.% Count Error (GEA)	FILTER	LA-508-462	425.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Ru-106 by GEA	FILTER	LA-508-462	U	2.74e+00	pCi	22.10	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Sb-125 Rel.% Count Error (GEA)	FILTER	LA-508-462	898.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Sb-125 by GEA	FILTER	LA-508-462	U	-2.99e-01	pCi	4.83	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Sn-113 Rel.% Count Error (GEA)	FILTER	LA-508-462	385.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Sn-113 by GEA	FILTER	LA-508-462	U	3.38e-01	pCi	2.44	03/30/99	03/28/99
W990000298	VS006-406D	296-C-006-STK SPL	Zn-65 Rel.% Count Error (GEA)	FILTER	LA-508-462	876.	%	0.00	03/30/99	03/28/99	03/29/99
W990000298	VS006-406D	296-C-006-STK SPL	Zn-65 by GEA	FILTER	LA-508-462	U	-4.13e-01	pCi	6.57	03/30/99	03/28/99
W990000299	VS006-411U	296-C-006-STK SPL	Gross Alpha	FILTER		U	4.4E-07	uCi	7.60e-007	03/30/99	03/28/99
W990000299	VS006-411U	296-C-006-STK SPL	Gross Alpha Abs. Cntg Error	FILTER			5.3E-07	uCi	0.00	03/30/99	03/28/99

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ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
 Project Number MISC. : PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000299	VS006-411U	296-C-006-STK SPL	Gross Beta	FILTER		1.6E-06	uCi	1.00e-006	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Gross Beta Absolute Cntg Error	FILTER		9.1E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Ce-144 Rel.% Count Error (GEA)	FILTER	LA-508-462	96.1	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Ce-144 by GEA	FILTER	LA-508-462	U 7.10e+00	pCi	13.20	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	CePr-144 Rel.% Count Error	FILTER	LA-508-462	96.1	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	CePr-144 by GEA	FILTER	LA-508-462	U 1.42e+01	pCi	26.50	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Co-60 Rel.% Count Error (GEA)	FILTER	LA-508-462	753.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Co-60 by GEA	FILTER	LA-508-462	U -1.92e-01	pCi	2.75	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Cs-134 Rel.% Count Error (GEA)	FILTER	LA-508-462	1000	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Cs-134 by GEA	FILTER	LA-508-462	U -1.41e-01	pCi	2.65	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Cs-137 Rel.% Count Error (GEA)	FILTER	LA-508-462	181.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Cs-137 by GEA	FILTER	LA-508-462	U -7.46e-01	pCi	2.27	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Eu-152 Rel.% Count Error (GEA)	FILTER	LA-508-462	460.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Eu-152 by GEA	FILTER	LA-508-462	U 6.42e-01	pCi	5.48	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Eu-154 Rel.% Count Error (GEA)	FILTER	LA-508-462	133.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Eu-154 by GEA	FILTER	LA-508-462	U -3.21e+00	pCi	7.02	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Eu-155 Rel.% Count Error (GEA)	FILTER	LA-508-462	385.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Eu-155 by GEA	FILTER	LA-508-462	U 9.89e-01	pCi	6.85	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Nb-94 Rel.% Count Error (GEA)	FILTER	LA-508-462	232.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Nb-94 by GEA	FILTER	LA-508-462	U -5.02e-01	pCi	1.99	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Ru-103 Rel.% Count Error (GEA)	FILTER	LA-508-462	75.9	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Ru-103 by GEA	FILTER	LA-508-462	U 8.65e-01	pCi	1.94	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Ru-106 Rel.% Count Error (GEA)	FILTER	LA-508-462	256.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Ru-106 by GEA	FILTER	LA-508-462	U -4.07e+00	pCi	18.10	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Sb-125 Rel.% Count Error (GEA)	FILTER	LA-508-462	526.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Sb-125 by GEA	FILTER	LA-508-462	U 5.84e-01	pCi	5.64	03/30/99	03/28/99	03/29/99

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ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
Project Number MISC. :PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received
W990000299	VS006-411U	296-C-006-STK SPL	Sn-113 Rel.% Count Error (GEA)	FILTER	LA-508-462	251.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Sn-113 by GEA	FILTER	LA-508-462	U 4.96e-01	pCi	2.37	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Zn-65 Rel.% Count Error (GEA)	FILTER	LA-508-462	289.	%	0.00	03/30/99	03/28/99	03/29/99
W990000299	VS006-411U	296-C-006-STK SPL	Zn-65 by GEA	FILTER	LA-508-462	U -9.53e-01	pCi	5.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Gross Alpha	FILTER		U 1.9E-07	uCi	7.60e-007	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Gross Alpha Abs. Cntg Error	FILTER		4.0E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Gross Beta	FILTER		1.6E-06	uCi	1.00e-006	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Gross Beta Absolute Cntg Error	FILTER		8.9E-07	uCi	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Ce-144 Rel.% Count Error (GEA)	FILTER	LA-508-462	659.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Ce-144 by GEA	FILTER	LA-508-462	U 1.03e+00	pCi	12.10	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	CePr-144 Rel.% Count Error	FILTER	LA-508-462	660.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	CePr-144 by GEA	FILTER	LA-508-462	U 2.05e+00	pCi	24.30	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Co-60 Rel.% Count Error (GEA)	FILTER	LA-508-462	270.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Co-60 by GEA	FILTER	LA-508-462	U 6.53e-01	pCi	3.60	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Cs-134 Rel.% Count Error (GEA)	FILTER	LA-508-462	731.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Cs-134 by GEA	FILTER	LA-508-462	U 1.97e-01	pCi	2.78	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Cs-137 Rel.% Count Error (GEA)	FILTER	LA-508-462	246.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Cs-137 by GEA	FILTER	LA-508-462	U 6.06e-01	pCi	2.86	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Eu-152 Rel.% Count Error (GEA)	FILTER	LA-508-462	379.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Eu-152 by GEA	FILTER	LA-508-462	U 9.66e-01	pCi	6.68	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Eu-154 Rel.% Count Error (GEA)	FILTER	LA-508-462	119.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Eu-154 by GEA	FILTER	LA-508-462	U 3.92e+00	pCi	10.20	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Eu-155 Rel.% Count Error (GEA)	FILTER	LA-508-462	136.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Eu-155 by GEA	FILTER	LA-508-462	U -3.13e+00	pCi	7.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Nb-94 Rel.% Count Error (GEA)	FILTER	LA-508-462	521.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Nb-94 by GEA	FILTER	LA-508-462	U 2.86e-01	pCi	2.75	03/30/99	03/28/99	03/29/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

D - Compound concentration resulted from a dilution.

J - Estimated value.

Z - See Comments.

U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

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IC-11

HNF-4598 Rev. 0

ANALYTICAL LABORATORY REPORT

Attention: L.A. PINGEL 373-4051
 Project Number MISC. : PROJ. HANFORD MNGMT. CONT.

Group #: 99000483

Sample #	Client ID	Test Performed	Matrix	Method	RQ	Result	Units	MDL	Analyzed	Sampled	Received	
W990000300	VS006-411D	296-C-006-STK SPL	Ru-103 Rel.% Count Error (GEA)	FILTER	LA-508-462	132.	%	0.00	03/30/99	03/28/99	03/29/99	
W990000300	VS006-411D	296-C-006-STK SPL	Ru-103 by GEA	FILTER	LA-508-462	U	-1.02e+00	pCi	2.24	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Ru-106 Rel.% Count Error (GEA)	FILTER	LA-508-462		166.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Ru-106 by GEA	FILTER	LA-508-462	U	-8.05e+00	pCi	22.50	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Sb-125 Rel.% Count Error (GEA)	FILTER	LA-508-462		681.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Sb-125 by GEA	FILTER	LA-508-462	U	5.50e-01	pCi	6.75	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Sn-113 Rel.% Count Error (GEA)	FILTER	LA-508-462		1000	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Sn-113 by GEA	FILTER	LA-508-462	U	-3.59e-02	pCi	2.82	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Zn-65 Rel.% Count Error (GEA)	FILTER	LA-508-462		168.	%	0.00	03/30/99	03/28/99	03/29/99
W990000300	VS006-411D	296-C-006-STK SPL	Zn-65 by GEA	FILTER	LA-508-462	U	-2.23e+00	pCi	6.27	03/30/99	03/28/99	03/29/99

MDL=Minimum Detection Limit

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.

E - Compound concentration exceeded calibration range.

N - Identification is based on a mass spectral library search.

D - Compound concentration resulted from a dilution.

J - Estimated value.

Z - See Comments.

U - The analyte was analyzed for but not detected.

* - Indicates results that have NOT been validated.

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IC-12

HNF-4598 Rev. 0

ANALYTICAL COMMENT REPORT

Attention:
Project Number

Group #: 99000483

Sample #	Client ID	Lab Area	Test	Comment
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Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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w04c/2 Report #: 99000483

Report Date: 2-jun-1999

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1C-13

HNF-4598 Rev. 0

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number		:	Group #: 99000483			
Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ Result Units

RQ=Result Qualifier

B - The analyte was detected in the associated method blank.
 N - Identification is based on a mass spectral library search.
 J - Estimated value.
 U - The analyte was analyzed for but not detected.

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W04E Report#: 99000483

Report Date: 2-jun-1999

2.0 Analyses Section

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2.1 General Information

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2.1.1 SCOPE

The analyses section of this data package presents the results of the laboratory analyses of vapor samples collected on March 28, 1999, from the 296-C-006 ventilation system stack and ambient air at various locations. These analyses were performed for Lockheed Martin Hanford Corporation (LMHC) and Tank Waste Remediation System (TWRS) in accordance with the analytical requirements specified in the *Waste Retrieval Sluicing System Vapor Sampling and Analysis Plan for Evaluation of Organic Emissions, Process Test Phase III*, HNF-4212, Rev. 0-A, (LMHC, 1999). Discussion and data from the collection of these samples are presented in the sampling section of this data package.

Results for each target analyte are organized by the method used for each analysis. The 7 analytical methods are presented in sections 2.2 through 2.8. Each of these sections has subsections that contain the case narrative, analytical results summary, quality control summary, and supporting data.

2.1.2 ANALYTICAL LOGBOOKS

Table 2-1 provides a listing of the logbooks used during analysis and the corresponding page numbers that contain data and information relevant to this sampling event.

Table 2-1. Analytical Laboratory Project Logbooks.

Logbook Title	Logbook Number	Page Numbers
Preparation of Samples and Standards for TST Analysis	WHC-N-1411-1	136 - 145
Thermal Desorption	WHC-N-943-1	34 - 37
Maintenance and Run Log for Hewlett Packard GC/FTIR/MS	WHC-N-932-1	102 - 113
Tank Vapor Headspace Sampling and Analysis Program - Ammonia Analyses	WHC-N-1400-1	142 - 144
Instrument Log for OI 4460A, HP5890 and HP5971 MSD	WHC-N-1025-4	24
Tank Vapor Headspace Sampling and Analysis Program - Inorganic Anion Analyses	WHC-N-1399-1	133 - 135
TNMOC (TO-12) Analysis	WHC-N-1319-1	83 - 84
Permanent Gas Analysis	HNF-N-125-1	22 - 26

2.1.3 VAPOR PROGRAM REQUIRED QUANTITATION LIMITS

Table 2-2 contains a listing of the Vapor Program Required Quantitation Limit (VPRQL) and corresponding CAS number for each program target analyte.

Table 2-2. Vapor Program Required Quantitation Limits. (5 sheets)

Analyte	CAS Number	VPRQL (mg/m ³)	VPRQL (ppbv)
VOCs in TST Samples			
Acetone	67-64-1	0.15	63
Acetonitrile	75-05-8	0.15	89
Benzene	71-43-2	0.15	47
1-Butanol	71-36-3	0.15	49
Dodecane	112-40-3	0.15	22
n-Hexane	110-54-3	0.15	43
Propanenitrile	107-12-0	0.15	67
Tridecane	629-50-5	0.15	20
Dichloromethane (methylene chloride)	75-09-2	0.15	43
Butanenitrile	109-74-0	0.15	53
2-Pentanone	107-87-9	0.15	43
n-Heptane	142-82-5	0.15	37
Methyl Benzene (Toluene)	108-88-3	0.15	40
Pentanenitrile	110-59-8	0.15	44
2-Hexanone (Methyl Butyl Ketone)	591-78-6	0.15	37
Octane	111-65-9	0.15	32
Hexanenitrile	628-73-9	0.15	38
2-Heptanone	110-43-0	0.15	32
n-Nonane	111-84-2	0.15	29
Heptanenitrile	629-08-3	0.15	33
2-Octanone	111-13-7	0.15	29

Table 2-2. Vapor Program Required Quantitation Limits. (5 sheets)

Analyte	CAS Number	VPRQL (mg/m3)	VPRQL (ppbv)
Decane	124-18-5	0.15	26
Undecane	1120-21-4	0.15	23
Dodecane	112-40-3	0.15	22
Methanol	7-56-1	0.15	110
Ethanol	64-17-5	0.15	80
1-Propanol	71-23-8	0.15	61
Tetrahydrofuran	109-99-9	0.15	51
1,2,4-Trimethylbenzene	95-63-6	0.15	30
o-Xylene	95-47-6	0.15	34
Carbon Tetrachloride	56-23-5	0.15	24
Chloroform	67-66-3	0.15	31
Tetrachloroethylene	127-18-4	0.15	22
Permanent Gases in SUMMA Samples			
Carbon Dioxide	124-38-9	90	50 ppmv
Carbon Monoxide	630-08-0	57	50 ppmv
Hydrogen	1333-74-0	4.1	50 ppmv
Methane	74-82-8	33	50 ppmv
Nitrous oxide	10024-97-2	90	50 ppmv
TNMOC in SUMMA Samples			
Total Non-methane Organic Compounds		0.07	150
VOCs in SUMMA Samples			
Acetone	67-64-1	0.012	5.0

Table 2-2. Vapor Program Required Quantitation Limits. (5 sheets)

Analyte	CAS Number	VPRQL (mg/m ³)	VPRQL (ppbv)
Acetonitrile	75-05-8	0.008	5.0
Benzene	71-43-2	0.016	5.0
Butanal	123-72-8	0.015	5.0
1-Butanol	71-36-3	0.015	5.0
Propanenitrile	107-12-0	0.011	5.0
Chloroethane	75-00-3	0.013	5.0
Trichlorodifluoromethane (Freon 12)	75-71-8	0.025	5.0
Methylbenzene	108-88-3	0.019	5.0
Ethylbenzene	100-41-4	0.022	5.0
2-Butanone	78-93-3	0.015	5.0
n-Heptane	142-72-5	0.020	5.0
Tetrahydrofuran	109-99-9	0.015	5.0
2-Propanol	67-63-0	0.012	5.0
1-Propanol	71-23-8	0.012	5.0
Trichlorofluoromethane (Freon 11)	75-69-4	0.028	5.0
o-Xylene	95-47-6	0.022	5.0
m-Xylene	108-38-3	0.022	5.0
p-Xylene	106-42-3	0.022	5.0
1,2,4-Trimethylbenzene	95-63-6	0.024	5.0
Decane	124-18-5	0.029	5.0
4-Methyl-2-pentanone	108-10-1	0.020	5.0
Butanenitrile	109-74-0	0.014	5.0
Octane	111-65-9	0.023	5.0
Tetrachloroethylene	127-18-4	0.034	5.0
Chloromethane	74-87-3	0.010	5.0

Table 2-2. Vapor Program Required Quantitation Limits. (5 sheets)

Analyte	CAS Number	VPRQL (mg/m3)	VPRQL (ppbv)
Dichloromethane (methylene chloride)	75-09-2	0.017	5.0
Chloroform (trichloromethane)	67-66-3	0.024	5.0
Carbon tetrachloride (tetrachloromethane)	56-23-5	0.031	5.0
Pentane	109-66-0	0.015	5.0
2-Methylpentane	107-83-5	0.018	5.0
1-Hexene	592-41-6	0.017	5.0
n-Butane	106-97-8	0.012	5.0
3-Methyl hexane	589-34-4	0.020	5.0
1,4-Diethylene dioxide (dioxin)	123-91-1	0.018	5.0
Chlorobenzene	108-90-7	0.023	5.0
Styrene	100-42-5	0.021	5.0
3-Heptanone	106-35-4	0.023	5.0
Cyclohexanone	108-94-1	0.020	5.0
Furan	110-00-9	0.014	5.0
n-Nonane	111-84-2	0.026	5.0
Ethanol	64-17-5	0.009	5.0
2-Pentanone	107-87-9	0.018	5.0
2-Hexanone	591-78-6	0.020	5.0
2-Heptanone	110-43-0	0.023	5.0
2-Octanone	111-13-7	0.026	5.0
Inorganic Sorbent Tube Train Samples			
Ammonia	7664-41-7	10	14 ppmv
Nitrogen dioxide	10102-44-0	5.0	2.7 ppmv
Nitric oxide	10102-43-9	5.0	4.1 ppmv

Table 2-2. Vapor Program Required Quantitation Limits. (5 sheets)

Analyte	CAS Number	VPRQL (mg/m3)	VPRQL (ppbv)
Water	7732-18-5	5400	6700 ppmv

2.1.4 DATA QUALIFIER FLAGS

Table 2-3 contains a listing of each data qualifier flag and its corresponding definition.

Table 2-3. Data Qualifier Flag Translation Table.

Qualifier ("Q") Flag	Definition
T	Target analyte reported in sample was also found in trip blank above action limit.
F	Target analyte reported in sample was also found in field blank above action limit.
B	Target analyte reported in sample was also found in laboratory blank above action limit.
D	Target analyte reported is the result of a secondary dilution.
E	Target analyte concentration reported is greater than the highest calibration standard, but the analysis could not be repeated.
Q	Target analyte was detected, but at concentrations less than the Vapor Program Required Quantitation Limit.
J	Tentatively Identified Compound: Non-target analyte reported concentration is an estimate.
N	Tentatively Identified Compound: Non-target analyte reported is tentative, not confirmed with authentic standards.
M	Target analyte was absent (not detected) in sample.
*	Asteric: Data did not meet quality control requirements; refer to data package case narrative.

2.1.5 TANK VAPOR SAMPLE ANALYSIS PROCEDURES

All analyses were performed according to the procedures listed in Table 2-4. Any exceptions to these procedures are noted in the relevant analysis subsection.

Table 2-4. Summary of Tank Vapor Sample Analysis Procedures.

Procedure Title	Procedure #/Revision #
Determination of Volatile Organic Compounds in Hanford Waste Tank Headspace Samples Using SUMMA Passivated Canister Sampling and GC/MS Analysis	LA-523-404/A-1
Analysis of Semi-Volatile Organic Compounds in Ambient Air and Tank Headspace	LA-523-428/A-0
Total Nonmethane Organic Compounds	LA-523-407/A-0
Determination of Permanent Gases in SUMMA Passivated Canisters	LA-523-409/A-0
Measurement of Organics by Thermal Desorption/Gas Chromatography/Mass Spectrometry	LA-523-408/A-1
Determination of Ammonia in Sorbent Tube Leachate by Ion Chromatography	LA-533-402/A-0
Determination of Inorganic Anions in Sorbent Tube Leachate by Ion Chromatography	LA-533-400/A-0
Preparation of Triple Sorbent Tubes for Field Sampling, Analysis and Calibration Standards	LA-549-404/A-1

2.2 Volatile Organic Compounds in SUMMA Canister Samples (TO-14 Method)

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2.2.1 Narrative

This section contains descriptions of the analytical method and quality assurance used during analysis.

2.2.1.1 Determination of Volatile Organic Compounds in SUMMA Canister Samples (TO-14 Method)

The SUMMA samples were analyzed for volatile organic compounds (VOCs) according to procedure LA-523-404, Rev. A-1, *Determination of Volatile Organic Compounds in Hanford Site Waste Tank Headspace Samples Using SUMMA Passivated Canister Sampling and GC-MS Analysis*. This method is based on a modified U. S. Environmental Protection Agency (EPA) method TO-14. The VOCs were concentrated from the tank headspace sample by cryogenic trapping with liquid argon and subsequently analyzed by gas chromatography-mass spectrometry (GC-MS). The method offers low ppbv instrument detection limits.

For target analytes, quantitation is performed based on a 5-point calibration with standard mixtures of the target analyte compounds. Non-target compounds detected in the vapor samples are qualitatively identified via computer-automated comparison of the compound's mass spectrum with the Wiley 138 and National Institute of Standards and Technology (NIST) libraries of mass spectra. They are designated as tentatively identified compounds (TICs) if the match quality meets certain criteria (70 % or better match). The concentration of a TIC is estimated using the response factor of the chlorobenzene-d5 internal standard.

The instrumentation consists of a Hewlett-Packard (Palo Alto, CA) model 5890 Series II gas chromatograph equipped with a Hewlett-Packard model 5972 bench top mass spectrometer. A 60 meter methylphenyl-type capillary column (DB-5, J & W Scientific, Folsom, CA) with an internal diameter of 0.32 mm and 1.0 μ m film thickness is used for compound separation.

The pressure of the SUMMA canisters was checked before analysis; all SUMMA canisters were at ambient pressure (approximately 14.7 psia). The canisters were then pressurized to twice the ambient pressure (dilution factor=2) with Ultrapure air (Scott-Marrin) and allowed to equilibrate for 4 hours or longer. A 50.0 torr sample was withdrawn from the pressurized SUMMA canister for analysis. A fixed volume of an internal standard with 2 components was added to each sample prior to injection. For target compounds that exceeded the calibration range of the instrument, a second dilution was made by transferring 500.0 ml from the original, pressurized canister to another 6 L SUMMA canister and pressurizing to 2 atm. A 50 torr (total dilution factor = 48) or 100 torr (total dilution factor = 24) sample was analyzed and the original concentration for the target compounds was calculated; the compounds determined with a secondary dilution are flagged "D2" in the target compound tables.

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2.2.1.2 Volatile Organic Compound (TO-14 Method) Analytical Quality Assurance

Method LA-523-404, Rev. A-1, is used for the qualitative and quantitative gas chromatography/mass spectrometry (GC/MS) determination of volatile target organic compounds in waste tank headspace samples collected in SUMMA passivated canisters. Non-target organic compounds detected during sample analysis must meet threshold levels prior to reporting. Non-target compounds are reported as "tentatively identified compounds (TICs)" and concentration estimates of TICs are made relative to selected internal standards.

The GC/MS system is tuned and calibrated initially prior to starting sample analysis, and each time continuing calibration criteria cannot be met for subsequent analysis. To ensure satisfactory initial performance, the GC/MS system must meet established tuning and analyte sensitivity criteria. At least 5 concentration levels are used for the initial calibration or ICAL of each target VOC. Internal standards are added to calibration standards and samples in order to compute analyte relative response factors (RRFs). Final computations of sample target analyte concentrations are made using RRFs. The validity of the initial calibration is demonstrated by meeting deviation or curve fit criteria and through the satisfactory measurement of a "check standard", the ICVS, for the target analytes. Initial calibration blanks are measured for target analyte levels to demonstrate satisfactory system cleanliness.

Each day the GC/MS is used for analysis, the continued performance and sensitivity of the system is verified through an "auto-tune" or the analysis of the tuning check compound. GC/MS tuning compound criteria must be met. Also, a mid-level check standard, or CCVS, is measured. Criteria for the CCVS that must be met are percent recovery of the CCVS analytes, response factor sensitivity, and internal standard area counts. Continuing calibration blanks (CCBs) are measured for target analytes to document the continued satisfactory cleanliness of the GC/MS system.

With each tank sample reporting batch, the analysis of a method blank (MB) is conducted and reported. The MB cannot exceed maximum allowable contamination levels for target analytes. With each tank sample reporting batch, the analysis of a laboratory control sample (LCS) and LCS duplicate is conducted. The recovery of the LCS analytes must meet accuracy (percent recovery - %R) and precision (relative percent difference - RPD) requirements. Also, with each tank sample reporting batch, an actual tank sample is analyzed in duplicate, the "laboratory sample duplicate". The RPD between the sample analyte concentrations measured above reporting limits and its sample duplicate analyte concentrations must meet precision requirement or the resulting data is flagged.

The GC-MS system was calibrated according to procedure LA-523-404, Rev. A-1. Two certified gas standards prepared by Scott-Marrin (Riverside, CA) were used: A nonpolar standard with 34 compounds (certificate #CC105483) and a polar standard containing 22 compounds (certificate #CC105523). The calibration is documented in logbook WHC-N-932-1, pages 102 and 103. For sample VSAMB-406-S082 a new set of calibration standards was used; the calibration is described on pages 115 - 117. All compounds met the %RSD requirement of 25 % for both calibrations. No calibration data are available from the second calibration for two compounds (Freon 12 and methyl chloride) which elute earliest from the GC. These compounds were not detected in sample VSAMB-406-S082. The precision of the calibration was checked on

the day of the sample analysis by analyzing an independently prepared laboratory control standard (Scott-Merrin # CC68664). The recovery of the analytes was within the required range of 65 - 135 % except for 1,2,4-trimethylbenzene (214 % and 206 % recovery) and tetrahydrofuran (64 %).

Two internal standards were used to calculate the RRF for each target compound. The recovery of the internal standards for all analyses relative to the CCVS was within the required 50 - 150 % range.

A continuing calibration verification standard (CCVS) prepared from the nonpolar standard was analyzed daily. The response factors for these compounds from the initial calibration were compared with the CCRF on the day of analysis. All compounds in the CCVS met the required 25 % RPD except 1,1,2,2-tetrachloroethane (43 %). In addition, a polar CCVS was also analyzed; the following target analytes exceeded the 25 % RPD: 2-octanone (25.1 %).

A tank headspace sample (VS006-412-S041) was analyzed in duplicate (replicate analysis). All compounds met the required RPD of 35 % except 2-hexanone (36.6 % RPD), 3-heptanone (55.5 %), 2-heptanone (57.5 %), and 2-octanone (82.0 %). These compounds are higher-boiling polar compounds that are probably carryover in the analytical instrument (trap) from the previous high concentration sample. The quantitative data reported for this sample are from the run with the lower concentrations of these compounds, and the data are considered reliable.

A laboratory blank collected from a SUMMA canister filled with ultrapure air contained the target analyte 3-heptanone (4.6 ppbv). The following TICs were also found in this sample: 2-ethyl-1-hexanol (10 ppbv), and an unknown (6.9 ppbv).

2.2.2 Result Summary Tables

The result summary tables list all target analytes by increasing chromatographic retention times. Also listed are the results of the duplicate analysis using the same SUMMA sample and the relative percent difference (RPD) calculated from these values. All reported values have been corrected to 25 °C and 1 atmosphere pressure.

This section contains tables with the tentatively identified compounds (TICs) found in the vapor samples. The concentrations of these compounds were estimated based on the response of an internal standard. An extended list of TICs (at concentrations of 5 ppbv or greater) is included for sample VS006-412-S041.

Phase III 241-C-106 Sluicing Target Analyte Concentrations for SUMMA Analyses				Sample Number		VS006-407-S031			VS006-412-S041			VSAMB-401-S061		
				Analysis Date		4/9/99			4/9/99			4/9/99		
				Analysis Time		10:49			12:05			13:25		
				Primary File ID		19040904.D			19040908.D			19040906.D		
				Secondary File ID										
Target Analyte Name	Compound ID #	Mol Wt	Ret. Time	VPRQL mg/m3	VPRQL ppbv	(mg/m ³) ¹	ppbv	Flag ²	(mg/m ³) ¹	ppbv	Flag ²	(mg/m ³) ¹	ppbv	Flag
Freon 12	75-71-8	120	7.86	0.025	5.0	0.025	5.0	M	0.025	5.0	M	0.025	5.0	M
Methyl chloride	74-87-3	50	9.44	0.010	5.0	0.010	5.0	M	0.010	5.0	M	0.010	5.0	M
N-Butane	106-97-8	58	11.45	0.012	5.0	2.6	1100	D2	5.5	2300	D2	0.012	5.0	M
Ethyl Chloride	75-00-3	64	13.78	0.013	5.0	0.013	5.0	M	0.013	5.0	M	0.013	5.0	M
Freon 11	75-69-4	136	15.66	0.028	5.0	0.028	5.0	M	0.028	5.0	M	0.028	5.0	M
N-Pentane	109-66-0	72	16.31	0.015	5.0	1.4	470	D2	3.5	1200	D2	0.015	5.0	M
Dichloromethane	75-09-2	84	17.99	0.017	5.0	0.017	5.0	M	0.058	17	D2	0.017	5.0	M
2-Methyl-Pentane	107-83-5	86	19.44	0.018	5.0	0.20	58	D2	0.53	150	D2	0.018	5.0	M
1-Hexene	592-41-6	84	20.43	0.017	5.0	3.8	1100	D2	8.2	2400	D2	0.017	5.0	M
N-Hexane	110-54-3	86	20.80	0.018	5.0	2.0	570	D2	5.3	1500	D2	0.018	5.0	M
Chloroform	67-66-3	118	21.66	0.024	5.0	0.024	5.0	M	0.024	5.0	M	0.024	5.0	M
Benzene	71-43-2	78	23.43	0.016	5.0	0.084	26	D2	0.18	57	D2	0.016	5.0	M
Carbon Tetrachloride	56-23-5	152	23.53	0.031	5.0	0.031	5.0	M	0.031	5.0	M	0.031	5.0	M
3-Methyl-Hexane	589-34-4	100	23.96	0.020	5.0	0.020	5.0	M	0.020	5.0	M	0.020	5.0	M
N-Heptane	142-82-5	100	24.85	0.020	5.0	12	3000	D2	23	5700	D2	0.020	5.0	M
Toluene	108-88-3	92	27.50	0.019	5.0	0.31	83	D2	0.45	120	D2	0.019	5.0	M
N-Octane	111-65-9	114	28.51	0.023	5.0	3.0	640	D2	6.5	1400	D2	0.023	5.0	M
Tetrachloroethylene	127-18-4	164	29.15	0.034	5.0	0.034	5.0	M	0.034	5.0	M	0.034	5.0	M
Chlorobenzene	108-90-7	112	30.43	0.023	5.0	0.023	5.0	M	0.023	5.0	M	0.023	5.0	M
Ethylbenzene	100-41-4	106	30.85	0.022	5.0	0.022	5.0	M	0.082	19.0	D2	0.022	5.0	M
m,p-Xylene	106-42-3	106	31.10	0.022	5.0	0.022	5.0	M	0.13	29	D2	0.022	5.0	M
Styrene	100-42-5	104	31.83	0.021	5.0	0.021	5.0	M	0.021	5.0	M	0.021	5.0	M
N-Nonane	111-84-2	128	31.85	0.026	5.0	3.1	590	D2	8.9	1700	D2	0.026	5.0	M
1,1,2,2-Tetrachloroethane	79-34-5	166	32.72	0.034	5.0	0.034	5.0	M	0.034	5.0	M	0.034	5.0	M
o-Xylene	95-47-6	106	31.98	0.022	5.0	0.022	5.0	M	0.022	5.0	M	0.022	5.0	M
N-Decane	124-18-5	142	34.93	0.029	5.0	6.4	1100	D2	13	2200	D2	0.029	5.0	M
1,2,4-Trimethylbenzene	95-63-6	120	31.98	0.025	5.0	0.025	5.0	M	0.025	5.0	M	0.025	5.0	M
Ethanol	64-17-5	46	14.74	0.009	5.0	0.85	450	D2	1.1	610	D2	0.009	5.0	M
Acetonitrile	75-05-8	41	16.17	0.008	5.0	0.008	5.0	M	0.008	5.0	M	0.008	5.0	M
Acetone	67-64-1	58	16.06	0.012	5.0	1.7	730	D2	2.6	1100	D2	0.012	5.0	Q
Furan	110-00-9	68	16.41	0.014	5.0	0.014	5.0	M	0.014	5.0	M	0.014	5.0	M
2-Propanol	67-63-0	60	19.35	0.012	5.0	0.012	5.0	M	0.012	5.0	M	0.012	5.0	M
1-Propanol	71-23-8	60	19.30	0.012	5.0	0.14	57	D2	0.39	160	D2	0.012	5.0	M
Propanenitrile	107-12-0	55	19.90	0.011	5.0	0.27	120	D2	0.31	140	D2	0.011	5.0	M
Butanal	123-72-8	72	20.49	0.015	5.0	0.47	160	D2	0.59	200	D2	0.015	5.0	M
2-Butanone	78-93-3	72	20.68	0.015	5.0	0.47	160	D2	0.59	200	D2	0.015	5.0	M
Tetrahydrofuran	109-99-9	72	22.09	0.015	5.0	0.015	5.0	M	0.015	5.0	M	0.015	5.0	M
1-Butanol	71-36-3	74	23.47	0.015	5.0	1.2	380	D2	1.8	610	D2	0.015	5.0	M
Butanenitrile	109-74-0	69	23.73	0.014	5.0	0.62	220	D2	0.87	310	D2	0.014	5.0	M
2-Pentanone	107-87-9	86	24.32	0.018	5.0	0.34	96	D2	0.46	130	D2	0.018	5.0	M
1,4-Dioxane	123-91-1	88	25.23	0.018	5.0	0.018	5.0	M	0.018	5.0	M	0.018	5.0	M
4-Methyl-2-Pentanone	108-10-1	100	26.38	0.020	5.0	0.020	5.0	M	0.020	5.0	M	0.020	5.0	M
2-Hexanone	591-78-6	100	28.10	0.020	5.0	1.0	250	D2	1.6	380	D2	0.020	5.0	M
3-Heptanone	106-35-4	114	31.42	0.023	5.0	26	5600	D2, B	70	15000	E, B	0.072	15	B
2-Heptanone	110-43-3	114	31.52	0.023	5.0	7.0	1500	D2	8.9	1900	D2	0.023	5.0	Q
Cyclohexanone	108-94-1	98	31.90	0.020	5.0	0.020	5.0	M	0.020	5.0	M	0.020	5.0	M
2-Octanone	111-13-7	128	34.64	0.026	5.0	0.31	60	D2	0.50	95	D2	0.026	5.0	M

¹ mg/m³ calculated at 25°C and 101.3 kPa (1 atmosphere)² Data Flags:

B: Target analyte was detected in laboratory blank

E: Target analyte concentration exceeded the calibration range

D2: Target analyte reported is the result of a secondary dilution

D3: Target analyte reported is the result of a tertiary (or higher) dilution

M: Target analyte was absent (not detected) in sample

Q: Target analyte was detected, but at concentrations less than VPRQL

Phase III 241-C-106 Sluicing Target Analyte Concentrations for SUMMA Analyses				Sample Number		VSAMB-406-S082		
				Analysis Date		6/10/99		
				Analysis Time		18:13		
				Primary File ID		19061008.D		
				Secondary File ID				
Target Analyte Name	Compound ID #	Mol Wt	Ret. Time	VPRQL mg/m3	VPRQL ppbv	(mg/m ³) ¹	ppbv	Flag ²
Freon 12	75-71-8	120	7.86	0.025	5.0	0.025	5.0	M
Methyl chloride.	74-87-3	50	9.44	0.010	5.0	0.010	5.0	M
N-Butane	106-97-8	58	11.45	0.012	5.0	0.012	5.0	Q
Ethyl Chloride	75-00-3	64	13.78	0.013	5.0	0.013	5.0	M
Freon 11	75-69-4	136	15.66	0.028	5.0	0.028	5.0	M
N-Pentane	109-66-0	72	16.31	0.015	5.0	0.015	5.0	M
Dichloromethane	75-09-2	84	17.99	0.017	5.0	0.017	5.0	M
2-Methyl-Pentane	107-83-5	86	19.44	0.018	5.0	0.018	5.0	M
1-Hexene	592-41-6	84	20.43	0.017	5.0	0.017	5.0	M
N-Hexane	110-54-3	86	20.80	0.018	5.0	0.018	5.0	Q
Chloroform	67-66-3	118	21.66	0.024	5.0	0.024	5.0	M
Benzene	71-43-2	78	23.43	0.016	5.0	0.016	5.0	M
Carbon Tetrachloride	56-23-5	152	23.53	0.031	5.0	0.031	5.0	M
3-Methyl-Hexane	589-34-4	100	23.96	0.020	5.0	0.020	5.0	M
N-Heptane	142-82-5	100	24.85	0.020	5.0	0.020	5.0	M
Toluene	108-88-3	92	27.50	0.019	5.0	0.019	5.0	Q
N-Octane	111-65-9	114	28.51	0.023	5.0	0.023	5.0	M
Tetrachloroethylene	127-18-4	164	29.15	0.034	5.0	0.034	5.0	M
Chlorobenzene	108-90-7	112	30.43	0.023	5.0	0.023	5.0	M
Ethylbenzene	100-41-4	106	30.85	0.022	5.0	0.022	5.0	M
	108-38-3							
m,p-Xylene	106-42-3	106	31.10	0.022	5.0	0.022	5.0	M
Styrene	100-42-5	104	31.83	0.021	5.0	0.021	5.0	M
N-Nonane	111-84-2	128	31.85	0.026	5.0	0.026	5.0	M
1,1,2,2-Tetrachloroethane	79-34-5	166	32.72	0.034	5.0	0.034	5.0	M
o-Xylene	95-47-6	106	31.98	0.022	5.0	0.022	5.0	M
N-Decane	124-18-5	142	34.93	0.029	5.0	0.029	5.0	M
1,2,4-Trimethylbenzene	95-63-6	120	31.98	0.025	5.0	0.025	5.0	M
Ethanol	64-17-5	46	14.74	0.009	5.0	0.009	5.0	M
Acetonitrile	75-05-8	41	16.17	0.008	5.0	0.008	5.0	M
Acetone	67-64-1	58	16.06	0.012	5.0	0.019	8.0	
Furan	110-00-9	68	16.41	0.014	5.0	0.014	5.0	M
2-Propanol	67-63-0	60	19.35	0.012	5.0	0.012	5.0	M
1-Propanol	71-23-8	60	19.30	0.012	5.0	0.012	5.0	M
Propanenitrile	107-12-0	55	19.90	0.011	5.0	0.011	5.0	M
Butanal	123-72-8	72	20.49	0.015	5.0	0.026	8.7	
2-Butanone	78-93-3	72	20.68	0.015	5.0	0.015	5.0	Q
Tetrahydrofuran	109-99-9	72	22.09	0.015	5.0	0.015	5.0	M
1-Butanol	71-36-3	74	23.47	0.015	5.0	0.015	5.0	Q
Butanenitrile	109-74-0	69	23.73	0.014	5.0	0.014	5.0	Q
2-Pentanone	107-87-9	86	24.32	0.018	5.0	0.018	5.0	M
1,4-Dioxane	123-91-1	88	25.23	0.018	5.0	0.018	5.0	M
4-Methyl-2-Pentanone	108-10-1	100	26.38	0.020	5.0	0.020	5.0	M
2-Hexanone	591-78-6	100	28.10	0.020	5.0	0.020	5.0	M
3-Heptanone	106-35-4	114	31.42	0.023	5.0	0.070	15	
2-Heptanone	110-43-3	114	31.52	0.023	5.0	0.023	5.0	Q
Cyclohexanone	108-94-1	98	31.90	0.020	5.0	0.020	5.0	M
2-Octanone	111-13-7	128	34.64	0.026	5.0	0.026	5.0	M
¹ mg/m ³ calculated at 25°C and 101.3 kPa (1 atmosphere)								
² Data Flags:								
B: Target analyte was detected in laboratory blank								
E: Target analyte concentration exceeded the calibration range								
D2: Target analyte reported is the result of a secondary dilution								
D3: Target analyte reported is the result of a tertiary (or higher) dilution								
M Target analyte was absent (not detected) in sample								
Q: Target analyte was detected, but at concentrations less than VPRQL								

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Summa Analyses		Sample Number: VS006-407-S031 Analysis Date: 4/9/99 Data File ID: 19040904.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Weight	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
11.17	1-Butene	106-98-9	56	4.8	2100
24.51	1-Heptene	592-76-7	98	4.2	1000
25.00	3-Heptene, (Z)-	592-78-9	98	15	3700
25.13	2-Heptene, (E)-	14686-13-6	98	30	7600
25.46	2-Heptene, (Z)-	592-77-8	98	22	5600
25.71	Cyclopropane, butyl-	930-57-4	98	3.3	820
27.00	2,3-Hexadiene, 2-methyl-	29212-09-7	96	8.6	2200
27.59	Heptane, 3-methyl-	589-81-1	114	14	3100
27.75	2-Heptyne	1119-65-9	96	4.8	1200
28.16	Heptane, 3-methylene-	1632-16-2	112	16	3500
28.50	C8 Alkene	UAE008-01	112	12	2700
30.95	4-Heptanone	123-19-3	114	17	3600
31.26	n-Butyl ether	142-96-1	130	2.9	550
32.67	Unknown	U00000-03	128	4.0	760
33.01	1,3-Diethyl-1,4-epoxybutane, isomer	UHC000-14	128	9.2	1700
33.14	1,3-Diethyl-1,4-epoxybutane, isomer	UHC000-14	128	11	2200
33.28	Unknown	U00000-03	128	6.3	1200
33.57	Unknown	U00000-03	126	6.1	1200
34.32	Heptanenitrile	629-08-3	111	2.3	520
35.28	Unknown	U00000-03	140	14	2400
35.75	1-Hexanol, 2-ethyl-	104-76-7	130	4.3	810
37.30	Ocanenitrile	124-12-9	125	2.5	490
37.77	Undecane	1120-21-4	156	17	2600
40.42	Dodecane	112-40-3	170	35	5100
42.39	Tridecane	629-50-5	184	29	7400

Notes: Estimation based on chlorobenzene-d5 internal standard
TICs are reported above 5 ppbv
*Unique identification number assigned by PNNL personnel to compounds
without CAS#. Necessary for Tank Vapor Database purposes.

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Summa Analyses		Sample Number: VS006-412-S041 Analysis Date: 4/9/99 Data File ID: 19040908.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Weight	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
11.18	1-Butene	106-98-9	56	5.5	2400
12.11	2-Butene, (E)-	624-64-6	56	0.39	170
12.56	2-Butene, (Z)-	590-18-1	56	0.33	150
12.82	1-Propene, 2-methyl-	115-11-7	56	0.83	360
15.90	1-Pentene	109-67-1	70	2.0	700
16.81	2-Pentene, (E)-	627-20-3	70	0.45	160
17.24	Cyclopropane, ethyl-	1191-96-4	70	0.35	120
17.68	2-Propanol, 2-methyl-	75-65-0	74	0.49	160
18.96	1-Pentene, 4-methyl-	691-37-2	84	0.33	95
21.10	2-Hexene, (E)-	4050-45-7	84	0.34	99
21.50	2-Hexene, (Z)-	7642-09-3	84	0.51	150
23.35	3-Hexene, 2-methyl-, (E)-	692-24-0	98	0.32	80
23.78	3-Heptene, (E)-	14686-14-7	98	0.80	200
24.41	1-Hexene, 2-methyl-	6094-02-6	98	0.34	85
24.52	1-Heptene	592-76-7	98	6.1	1500
24.68	Butanenitrile, 2-methylene-	1647-11-6	81	0.51	160
25.04	3-Heptene, (Z)-	7642-10-6	98	14	3400
25.17	2-Heptene, (E)-	14686-13-6	98	22	5500
25.49	2-Heptene, (Z)-	592-77-8	98	18	4500
25.73	Cyclopropane, butyl-	930-57-4	98	4.6	1200
25.92	Cyclohexane, methyl-	108-87-2	98	0.41	100
26.29	Cyclopentane, ethyl-	1640-89-7	98	0.39	97
26.51	Heptadiene, isomer		96	0.36	92
26.63	Unknown C8 alkene/cycloalkane		112	0.64	140
26.75	1-Heptene, 3-methyl-	4810-09-7	112	0.52	110
27.00	2,3-Hexadiene, 2-methyl-	29212-09-7	96	9.9	2500
27.30	Unknown		115	0.81	170
27.62	Heptene, 3-methyl	589-81-1	114	14	3000
27.71	Octene, isomer		112	1.1	250
27.76	2-Heptyne	1119-65-9	96	4.0	1000
28.18	Heptane, 3-methylene-	1632-16-2	112	14	3000
28.41	4-Octene, (E)-	14850-23-8	112	0.79	170
28.73	Octene, isomer		112	1.5	330
28.88	2-Heptene, 3-methyl-	3404-75-9	112	5.1	1100
29.00	Octene, isomer		112	0.57	120
29.36	Unknown		110	0.73	160
30.70	C9 Aliphatic hydrocarbon		128	0.40	77
30.96	4-Heptanone	123-19-3	114	11	2400
31.16	Hexanenitrile	628-73-9	97	0.46	120
31.26	n-Butyl ether	142-96-1	130	3.5	660
31.68	3-Heptanol	589-82-2	116	2.6	550
32.23	Unknown		124	0.48	95
32.68	Unknown		128	3.3	630
32.79	4-Heptanone, 3-methyl-	15726-15-5	128	0.57	110
33.02	1,3-Diethyl-1,4-epoxybutane, isomer		128	6.7	1300
33.15	1,3-Diethyl-1,4-epoxybutane, isomer		128	8.2	1600
33.29	Unknown		128	5.6	1100
33.58	Unknown		126	3.6	700
33.63	Unknown		126	0.53	100
33.87	C10 Aliphatic hydrocarbon		142	0.42	72
34.12	4-Octanone	589-63-9	128	1.4	270

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Summa Analyses		Sample Number: VS006-412-S041 Analysis Date: 4/9/99 Data File ID: 19040908.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Weight	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
34.33	Heptanenitrile	629-08-3	111	1.6	360
34.68	1-Decene (new)	872-05-9	140	1.9	330
34.76	Cyclohexane, 1-methyl-3-propyl-	4291-80-9	140	0.33	58
35.08	Unknown		140	0.54	94
35.30	Unknown		140	8.7	1500
35.62	Decane, 4-methyl-	2847-72-5	156	1.2	180
35.75	1-Hexanol, 2-ethyl-	104-76-7	130	6.2	1200
36.24	Cyclohexane, (2-methylpropyl)-	1678-98-4	140	0.36	63
36.38	Unknown		154	0.74	120
37.31	Octanenitrile	124-12-9	125	2.2	420
37.56	Undecene, 1-or-3 isomer		154	1.5	250
37.79	Undecane	1120-21-4	156	12	1800
37.88	Unknown		154	0.38	60
38.08	Unknown		154	1.8	290
38.69	Unknown		139	1.3	230
39.12	Cyclohexane, C5 substituted		154	0.47	74
39.31	Napthalene, decahydro-2-methyl-	2958-76-1	152	0.38	61
39.48	Undecane, 2-methyl-	7045-71-8	170	0.36	51
40.06	Nonanenitrile (new)	2243-27-9	139	0.64	110
40.21	Dodecene, isomer		168	1.0	150
40.44	Dodecane	112-40-3	170	19	2700
40.76	Dodecane, 6-methyl-	6044-71-9	184	0.93	120
41.94	Decane, 2,6,7-trimethyl-	62108-25-2	184	0.64	86
42.25	Tridecene, isomer		182	0.81	110
42.39	Tridecane	629-50-5	184	10	1400
42.58	Unknown		207	1.1	130
43.76	Tetradecane	629-59-4	198	0.47	58

Notes: Estimation based on chlorobenzene-d5 internal standard
TICs are reported above 5 ppbv
*Unique identification number assigned by PNNL personnel to compounds without CAS#. Necessary for Tank Vapor Database purposes.

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Summa Analyses		Sample Number: VSAMB-401-S061 Analysis Date: 4/9/99 Data File ID: 19040906.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Weight	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
30.95	4-Heptanone	123-19-3	114	0.034	7.3
31.26	n-Butyl ether	142-96-1	130	0.022	4.2
31.68	3-Heptanol	589-82-2	116	0.016	3.4
32.67	Unknown	U00000-03	128	0.014	2.7
33.02	1,3-Diethyl-1,4-epoxybutane, isomer	UHC000-14	128	0.024	4.6
33.15	1,3-Diethyl-1,4-epoxybutane, isomer	UHC000-14	128	0.036	6.8
35.76	1-Hexanol, 2-ethyl-	104-76-7	130	0.067	13
40.41	Dodecane	112-40-3	170	0.15	21
42.38	Tridecane	629-50-5	184	0.21	27

Notes:

Estimation based on chlorobenzene-d5 internal standard

TICs are reported above 5 ppbv

*Unique identification number assigned by PNNL personnel to compounds without CAS#. Necessary for Tank Vapor Database purposes.

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Summa Analyses		Sample Number: VSAMB-406-S082 Analysis Date: 6/10/99 Data File ID: 19061008.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Weight	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
31.57	4-Heptanone	123-19-3	114	0.029	6.3

Notes: Estimation based on chlorobenzene-d5 internal standard
 TICs are reported above 5 ppbv
 *Unique identification number assigned by PNNL personnel to compounds
 without CAS#. Necessary for Tank Vapor Database purposes.

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	Sample Number		VS006-412-S041	VS006-412-S041		
C-106	Analysis Date		4/9/99	4/9/99		
Duplicate Analysis	Analysis Time		12:05	15:33		
	File ID		19040905.D	19040908.D		
Target Analyte Name	VPRQL (ppbv)	VPRQL (mg/m ³)	(ppbv)	(ppbv)	RPD (%)	Comments
Freon 12	5.0	0.025	5 (M)	5 (M)		
Methyl chloride	5.0	0.010	5 (M)	5 (M)		
N-Butane	5.0	0.012	2319	2320	0.0	
Ethyl Chloride	5.0	0.013	5 (M)	5 (M)		
Freon 11	5.0	0.028	5 (M)	5 (M)		
N-Pentane	5.0	0.015	1180	1157	2.0	
Dichloromethane	5.0	0.017	5 (M)	17 (Q)		
2-Methyl-Pentane	5.0	0.018	144.0	146.0	1.4	
1-Hexene	5.0	0.017	2516	2364	6.2	
N-Hexane	5.0	0.018	1531	1476	3.7	
Chloroform	5.0	0.024	5 (M)	5 (M)		
Benzene	5.0	0.016	60.0	57.0	5.1	
Carbon Tetrachloride	5.0	0.031	5 (M)	5 (M)		
3-Methyl-Hexane	5.0	0.020	5 (M)	5 (M)		
N-Heptane	5.0	0.020	5718	5718	0.0	
Toluene	5.0	0.019	122	116	5.0	
N-Octane	5.0	0.023	1518	1355	11.3	
Tetrachloroethylene	5.0	0.034	5 (M)	5 (M)		
Chlorobenzene	5.0	0.023	5 (M)	5 (M)		
Ethylbenzene	5.0	0.022	5 (M)	5 (M)		
m,p-Xylene	5.0	0.022	30	29	3.4	
Styrene	5.0	0.021	5 (M)	5 (M)		
N-Nonane	5.0	0.026	1750	1717	1.9	
1,1,2,2-Tetrachloroethane	5.0	0.034	5 (M)	5 (M)		
o-Xylene	5.0	0.022	5 (M)	5 (M)		
N-Decane	5.0	0.029	2506	2202	12.9	
1,2,4-Trimethylbenzene	5.0	0.025	5 (M)	5 (M)		
Ethanol	5.0	0.0090	633	605	4.5	
Acetonitrile	5.0	0.0080	5 (M)	5 (M)		
Acetone	5.0	0.012	1049	1061	1.1	
Furan	5.0	0.014	5 (M)	5 (M)		
2-Propanol	5.0	0.012	5 (M)	5 (M)		
1-Propanol	5.0	0.012	149	156	4.6	
Propanenitrile	5.0	0.011	135	138	2.2	
Butanal	5.0	0.015	210	204	2.9	
2-Butanone	5.0	0.015	212	199	6.3	
Tetrahydrofuran	5.0	0.015	5 (M)	5 (M)		
1-Butanol	5.0	0.015	648	606	6.7	
Butanenitrile	5.0	0.014	310	311	0.3	
2-Pentanone	5.0	0.018	157	134	15.8	
1,4-Dioxane	5.0	0.018	5 (M)	5 (M)		
4-Methyl-2-Pentanone	5.0	0.020	27 (Q)	5 (M)		
2-Hexanone	5.0	0.020	546	377	36.6	See narrative
3-Heptanone	5.0	0.023	8641	15280	55.5	See narrative
2-Heptanone	5.0	0.023	3492	1933	57.5	See narrative
Cyclohexanone	5.0	0.020	5 (M)	5 (M)		
2-Octanone	5.0	0.026	227	95	82.0	See narrative

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2.2.3 Quality Control Summary Tables

This section contains 4 tables that summarize the quality control parameters used during analysis:

- The Laboratory Blank Summary lists the target compounds above 2.5 ppbv and TICs found in analyzing a method blank.
- A continuing calibration verification standard (CCVS) is analyzed before the analysis of the vapor samples to assure valid calibration. The Continuing Calibration Reports have the continuing calibration response factors (CCRF) for all target compounds and the percent deviation from the CCRFs calculated during initial calibration.
- The Internal Standards Area Counts Table lists the area counts of the 2 internal standards added during the analysis and % recoveries.
- Two laboratory control samples (LCSs) are analyzed with each batch of vapor samples to measure accuracy and precision. This table lists % recovery and %RPD for the 6 compounds in the LCS.

LAB BLANK

Laboratory Blank Summary

Laboratory identification number 19040903.d
Analysis date and time 4/9/99 9:37
Associated Vapor sample VS006-407-S031-2, VS006-412-S041, VSAMB-401-S061

Target analyte	CAS	Retention Time	Concentration (ppbv)	Concentration (mg/m ³)
3-Heptanone	106-35-4	31.39	4.6	0.021

TIC Compound Name	CAS	Retention Time (min)	Estimated Concentration (ppbv)	Estimated Concentration (mg/m ³)
1-Hexanol, 2-ethyl-	104-76-7	35.76	10	0.051
Unknown		35.31	6.9	0.035

Notes:

TIC estimation based on chlorobenzene-d5 internal standard

Target compounds are reported above 2.5 ppbv (0.5 of the VPRQL of 5 ppbv) except for acetone, methylene chloride, and 2-butanone (12.5 ppbv or 5 times VPRQL)

TICs are reported above 5 ppbv (the VPRQL of the target compounds)

HNF-4598 Rev. 0

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\19040901.D
 Acq On : 9 Apr 99 7:06 am
 Sample : Polar CCVS @ 84 PPBV
 Misc : 50 TORR

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VAP_P8.M
 Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
 Last Update : Mon Mar 22 09:53:20 1999
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	FLUOROBENZENE	1.000	1.000	0.0	108	0.00
2	ETHANOL	0.332	0.312	6.0	101	-0.40
3	ACETONITRILE	0.348	0.392	-12.6	98	-0.24
4	ACETONE	0.405	0.371	8.4	102	-0.27
5	FURAN	0.712	0.728	-2.3	103	-0.22
6	2-PROPANOL	1.330	1.327	0.2	104	-0.32
7	1-PROPANOL	1.133	1.185	-4.6	110	-0.26
8	PROPANENITRILE	0.450	0.447	0.6	106	-0.22
9	BUTANAL	0.189	0.186	1.6	113	-0.21
10	2-BUTANONE	0.278	0.253	8.8	110	-0.22
11	TETRAHYDROFURAN	0.327	0.260	20.4	89	-0.21
12	1-BUTANOL	0.634	0.667	-5.3	110	-0.21
13	BUTANENITRILE	1.550	1.425	8.0	102	-0.19
14	2-PENTANONE	2.852	2.661	6.7	104	-0.20
15	1,4-DIOXANE	0.639	0.607	4.9	102	-0.19
16	4-METHYL-2-PENTANONE	0.353	0.288	18.6	90	-0.19
17	CHLOROBENZENE-D5	1.000	1.000	0.0	104	-0.15
18	2-HEXANONE	1.829	1.602	12.4	95	-0.19
19	3-HEPTANONE	0.643	0.542	15.8	93	-0.16
20	2-HEPTANONE	3.541	2.905	17.9	99	-0.16
21	CYCLOHEXANONE	1.151	1.049	8.8	97	-0.16
22	2-OCTANONE	5.100	3.818	25.1	98	-0.16

(#) = Out of Range
 19031906.D VAP_P8.M

SPCC's out = 0 CCC's out = 0
 Fri Apr 09 07:57:34 1999

HNF-4598 Rev. 0

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\19040902.D
 Acq On : 9 Apr 99 8:12 am
 Sample : Nonpolar CCVS @ 21 PPBV
 Misc : 50 TORR

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VAP_NP8.M
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Last Update : Mon Mar 22 09:40:09 1999
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	FLUOROBENZENE	1.000	1.000	0.0	115	0.00
2	FREON 12	2.095	2.002	4.4	113	-0.15
3	METHYL CHLORIDE	0.762	0.767	-0.7	120	-0.14
4	N-BUTANE	1.415	1.418	-0.2	119	-0.12
5	ETHYL CHLORIDE	0.404	0.386	4.5	113	-0.12
6	FREON 11	1.779	1.599	10.1	98	-0.12
7	N-PENTANE	0.117	0.109	7.5	106	-0.12
8	DICHLOROMETHANE	0.894	0.800	10.6	105	-0.12
9	2-METHYL-PENTANE	1.581	1.533	3.0	111	-0.12
10	1-HEXENE	0.583	0.581	0.3	116	-0.12
11	N-HEXANE	0.807	0.812	-0.5	117	-0.13
12	CHLOROFORM	1.061	1.107	-4.3	121	-0.12
13	BENZENE	1.947	2.221	-14.1	120	-0.13
14	CARBON TETRACHLORIDE	1.165	1.382	-18.6	122	-0.14
15	3-METHYL-HEXANE	1.459	1.533	-5.1	120	-0.13
16	N-HEPTANE	0.681	0.682	-0.2	116	-0.13
17	TOLUENE	2.896	2.790	3.7	108	-0.12
18	N-OCTANE	0.721	0.712	1.3	115	-0.12
19	TETRACHLOROETHYLENE	1.381	1.335	3.3	107	-0.12
20	CHLOROBENZENE-D5	1.000	1.000	0.0	107	-0.12
21	CHLOROBENZENE	3.306	3.660	-10.7	111	-0.12
22	ETHYLBENZENE	4.480	5.000	-11.6	111	-0.12
23	M, P-XYLENE	3.399	3.902	-14.8	110	-0.13
24	STYRENE	2.991	3.415	-14.2	110	-0.12
25	N-NONANE	2.882	3.173	-10.1	115	-0.13
26	1,1,2,2-TETRACHLOROETHANE	1.172	1.674	-42.8#	149	-0.12
27	O-XYLENE	3.657	4.090	-11.9	110	-0.13
28	N-DECANE	2.950	3.328	-12.8	113	-0.12
29	1,2,4-TRIMETHYLBENZENE	4.473	4.905	-9.7	109	-0.12

(#) = Out of Range
 19032004.D VAP_NP8.M

SPCC's out = 0 CCC's out = 0
 Fri Apr 09 09:25:37 1999

HNF-4598 Rev. 0

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\19061001.D

Vial: 1

Acq On : 10 Jun 1999 8:13 am

Operator: M. STAUFFER

Sample : NP-CCVS @ 50 PPBB

Inst : GC/MS Ins

Misc : 20 TORR

Multiplr: 1.00

MS Integration Params: RTE_MID.P

GC Integration Params: rteint2.p

Method : C:\OLDCHEM\1\METHODS\VAP_NP9.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Last Update : Wed Jun 09 15:48:10 1999

Response via : Multiple Level Calibration

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

Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	FLUOROBENZENE	1.000	1.000	0.0	97	-0.01
2	FREON 12	0.415	0.000	100.0#	0#	-17.64#
3	METHYL CHLORIDE	0.350	0.345	1.4	0#	-0.23
4	N-BUTANE	0.656	0.629	4.1	95	-0.04
5	ETHYL CHLORIDE	0.234	0.228	2.6	95	-0.03
6	FREON 11	0.813	0.799	1.7	97	-0.02
7	N-PENTANE	0.063	0.060	4.8	94	-0.01
8	DICHLOROMETHANE	0.486	0.472	2.9	95	-0.02
9	2-METHYL-PENTANE	0.970	0.946	2.5	95	-0.01
10	1-HEXENE	0.397	0.382	3.8	93	-0.01
11	N-HEXANE	0.591	0.569	3.7	94	0.00
12	CHLOROFORM	0.648	0.631	2.6	96	-0.01
13	BENZENE	1.099	1.046	4.8	93	-0.01
14	CARBON TETRACHLORIDE	0.661	0.656	0.8	97	0.00
15	3-METHYL-HEXANE	1.058	1.049	0.9	96	-0.01
16	N-HEPTANE	0.387	0.373	3.6	94	-0.17
17	TOLUENE	1.285	1.236	3.8	94	-0.01
18	N-OCTANE	0.417	0.401	3.8	95	0.00
19	TETRACHLOROETHYLENE	0.676	0.661	2.2	94	-0.01
20	CHLOROBENZENE-D5	1.000	1.000	0.0	96	0.00
21	CHLOROBENZENE	1.538	1.460	5.1	92	0.00
22	ETHYLBENZENE	2.294	2.214	3.5	94	0.00
23	M,P-XYLENE	1.793	1.753	2.2	95	0.00
24	STYRENE	1.430	1.444	-1.0	94	0.00
25	N-NONANE	1.669	1.647	1.3	97	0.00
26	1,1,2,2-TETRACHLOROETHANE	1.547	1.507	2.6	95	-0.01
27	O-XYLENE	1.932	1.885	2.4	95	0.00
28	N-DECANE	1.812	1.765	2.6	97	0.00
29	1,2,4-TRIMETHYLBENZENE	2.183	2.099	3.8	94	0.00

(#) = Out of Range

19060805.D VAP_NP9.M

SPCC's out = 0 CCC's out = 0

Thu Jun 10 10:03:01 1999

Internal Standards Area Counts Table

File:	19040902.D	19040908.d	19040904.d	19040906.d
Sample:	CCVS	VS006-412-S041	VS006-407-S031	VSAMB-401-S061
Method:	VAP_NP8.M	VAP_NP8.M	VAP_NP8.M	VAP_NP8.M
Instrument:	GC-MS #1	GC-MS #1	GC-MS #1	GC-MS #1

Internal Standard	Q ion (amu)	Retention Time (min)	Area	Area	Recovery ² %	Area	Recovery ² %	Area	Recovery ² %
Fluorobenzene	96	23.94	7205751	7944149	110	6855468	95	8274880	115
Chlorobenzene-d5 ¹	117	30.31	5995532	6452804	108	6272055	105	6353969	106

File:	19061001.D	19061008.d
Sample:	CCVS	VSAMB-406-S082
Method:	VAP_NP9.M	VAP_NP9.M
Instrument:	GC-MS #1	GC-MS #1

Internal Standard	Q ion (amu)	Retention Time (min)	Area	Area	Recovery ² %
Fluorobenzene	96	23.94	4631803	4107871	89
Chlorobenzene-d5 ¹	117	30.31	3820351	3307030	87

Notes:

- 1) Internal standards used to calculate Relative Response Factors for target compounds
- 2) Recovery relative to the CCVS (CCVS = 100 %)

Laboratory Control Sample Results

Laboratory name

Special Analytical Support

Special Analytical Support

Instrument identification number

GC-MS # 1

GC-MS # 1

Laboratory control sample analysis date and time

4/8/99 13:25

3/20/99 10:48

Associated Vapor sample

VS006-412-S041, VS006-407-S031,
VSAMB-401-S061

Calibration

Analyte	Certified Concentration (ppbv)	Diluted Concentration (ppbv)	Measured Concentration (ppbv)	Recovery %	Measured Concentration (ppbv)	Recovery %	RPD %
Chloromethane	1009 +/- 50	42	35	83	35	83	0
Tetrahydrofuran	1009 +/- 50	42	43	102	27	64	46
n-Pentane	1096 +/- 55	46	42	92	42	92	0
4-Methyl-2-pentanone	1020 +/- 51	43	44	104	47	111	7
Chlorobenzene	1055 +/- 53	44	54	123	52	118	4
1,2,4-Trimethylbenzene	605 +/- 61	25	54	214	52	206	4

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2.2.4 Supporting Data

This section contains relevant information used for the tuning and calibration of the instrument, and the analysis and quantitation of the organic compounds. The following are included:

- Instrument tune reports
- Response Factor Reports with relative standard deviations (%RSD) for the target compounds
- For each SUMMA sample received, the following information is included:
 - Chromatogram using the total ion chromatogram from the mass spectral analysis
 - The Quantitation Reports for both polar and nonpolar target compounds
 - Area Counts Table from the integrated total ion chromatogram
 - A printout of the mass spectral library search using the NIST 98 or Wiley 138 database
 - Mass spectra for each listed tentatively identified compound (TIC).

Instrument: 5972 - MS-IRD
Fri Apr 09 06:50:27 1999

HNF-4598 Rev. 0

04/09/99
2/2
C:\HPCHEM\1\5972\ATUNE.U

EMVolts	2565	AmuGain	482
Xray	25.7	AmuOffs	70
Emission	50.0	Wid219	-0.054
MS Temp	173	TTI	OFF
Vacuum	48	DC Pol	NEG

Samples	8	Repeller	27.05
Averages	3	IonFocus	90.0
StepSize	0.10	EntLens	14.05
MassGain	163	EntOffs	19.07
MassOffs	5	Filament	1

PFTBA OPEN

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
145 peaks Base: 69.00 Abundance: 1121792

Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	1121792	100.00	70.00	12677	1.13
218.95	420736	37.51	219.95	18392	4.37
501.95	26696	2.38	502.95	2646	9.91

Instrument: GC/MS Instrument #1 HNF-4598 Rev. 0
Wed Jun 09 08:35:09 1999

875
06/09/99
C:\HPCHEM\1\5972\ATUNE.U

EMVolts	1812	AmuGain	547
Xray	51.3	AmuOffs	71
Emission	50.0	Wid219	-0.037
MS Temp	176	TTI	OFF
Vacuum	55	DC Pol	POS

Samples	8	Repeller	26.21
Averages	3	IonFocus	90.0
StepSize	0.10	EntLens	30.12
MassGain	228	EntOffs	15.06
MassOffs	14	Filament	1

PFTBA OPEN

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100
146 peaks Base: 69.00 Abundance: 901440

Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	901440	100.00	70.00	10299	1.14
219.00	411776	45.68	220.00	18024	4.38
502.00	10329	1.15	503.00	1098	10.63

Instrument: GC/MS Instrument #1 **HNF-4598 Rev. 0**
 Thu Jun 10 07:28:36 1999

M. Harker
 6/10/99

C:\HPCHEM\1\5972\ATUNE.U

EMVolts	1812	AmuGain	547
Xray	51.3	AmuOffs	71
Emission	50.0	Wid219	-0.037
MS Temp	177	TTI	OFF
Vacuum	60	DC Pol	POS

Samples	8	Repeller	26.21
Averages	3	IonFocus	90.0
StepSize	0.10	EntLens	30.12
MassGain	228	EntOffs	15.06
MassOffs	14	Filament	1

PFTBA OPEN

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100
 162 peaks Base: 69.00 Abundance: 1096192

Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	1096192	100.00	70.00	12642	1.15
219.00	496064	45.25	220.00	22208	4.48
502.00	11042	1.01	503.00	1145	10.37

HNF-4598 Rev. 0
Response Factor Report 5972 - MS

Method : C:\HPCHEM\1\METHODS\VAP_P8.M
Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
Last Update : Mon Mar 22 09:53:20 1999
Response via : Initial Calibration

Calibration Files

1	=19031902.D	2	=19031903.D	3	=19031904.D
4	=19031905.D	5	=19031906.D	6	=19031907.D

Compound		1	2	3	4	5	6	Avg	%RSD

1)	FLUOROBENZENE	-----ISTD-----							
2)	ETHANOL	0.347	0.328	0.338	0.325	0.333	0.321	0.332	2.83
3)	ACETONITRILE	0.279	0.250	0.292	0.438	0.431	0.399	0.348	24.09
4)	ACETONE	0.480	0.390	0.440	0.386	0.390	0.347	0.405	11.56
5)	FURAN	0.654	0.579	0.774	0.769	0.761	0.734	0.712	11.05
6)	2-PROPANOL	1.155	1.334	1.425	1.359	1.370	1.338	1.330	6.90
7)	1-PROPANOL	1.099	1.111	1.159	1.146	1.158	1.123	1.133	2.24
8)	PROPANENITRILE	0.431	0.438	0.450	0.457	0.453	0.470	0.450	3.10
9)	BUTANAL	0.189	0.173	0.188	0.174	0.177	0.232	0.189	11.71
10)	2-BUTANONE	0.293	0.252	0.261	0.276	0.248	0.336	0.278	11.89
11)	TETRAHYDROFURAN	0.334	0.326	0.329	0.340	0.315	0.320	0.327	2.81
12)	1-BUTANOL		0.598	0.651	0.647	0.650	0.622	0.634	3.70
13)	BUTANENITRILE	1.634	1.581	1.612	1.560	1.503	1.409	1.550	5.32
14)	2-PENTANONE	2.888	3.012	3.093	2.950	2.751	2.418	2.852	8.49
15)	1,4-DIOXANE	0.645	0.638	0.675	0.652	0.640	0.584	0.639	4.71
16)	4-METHYL-2-PENTANON	0.401	0.351	0.372	0.363	0.344	0.291	0.353	10.34

17)	CHLOROBENZENE-D5	-----ISTD-----							
18)	2-HEXANONE	1.814	1.945	2.028	1.954	1.752	1.485	1.829	10.75
19)	3-HEPTANONE	0.608	0.691	0.805	0.684	0.601	0.470	0.643	17.50
20)	2-HEPTANONE	3.480	4.201	4.250	3.753	3.040	2.520	3.541	19.08
21)	CYCLOHEXANONE	1.047	1.228	1.314	1.226	1.117	0.974	1.151	11.09
22)	2-OCTANONE	5.470		6.684	5.549	4.037	3.762	5.100	23.54

(#) = Out of Range

VAP_P8.M

Mon Mar 22 09:53:37 1999

HNF-4598 Rev. 0
Response Factor Report 5972 - MS

Method : C:\HPCHEM\1\METHODS\VAP_NP8.M
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Last Update : Mon Mar 22 09:40:09 1999
Response via : Initial Calibration

Calibration Files

1	=19032002.D	2	=19032003.D	3	=19032004.D
4	=19032005.D	5	=19032006.D	6	=19032007.D

Compound	1	2	3	4	5	6	Avg	%RSD
----------	---	---	---	---	---	---	-----	------

1)	FLUOROBENZENE	-----ISTD-----						
2)	FREON 12	2.068	2.037	2.047	2.112	2.091	2.215	2.095 3.11
3)	METHYL CHLORIDE	0.689	0.687	0.736	0.776	0.803	0.882	0.762 9.79
4)	N-BUTANE	1.354	1.363	1.370	1.430	1.437	1.535	1.415 4.84
5)	ETHYL CHLORIDE	0.374	0.370	0.394	0.422	0.418	0.448	0.404 7.49
6)	FREON 11	1.780	1.798	1.876	1.877	1.660	1.683	1.779 5.19
7)	N-PENTANE	0.114	0.112	0.118	0.122	0.116	0.121	0.117 3.54
8)	DICHLOROMETHANE	0.915	0.879	0.874	0.897	0.872	0.928	0.894 2.62
9)	2-METHYL-PENTANE	1.605	1.579	1.583	1.601	1.531	1.586	1.581 1.67
10)	1-HEXENE	0.573	0.576	0.578	0.587	0.579	0.601	0.583 1.78
11)	N-HEXANE	0.814	0.803	0.796	0.812	0.787	0.832	0.807 1.93
12)	CHLOROFORM	1.050	1.070	1.057	1.067	1.033	1.090	1.061 1.84
13)	BENZENE	2.268	2.261	2.128	1.182	1.968	1.871	1.947 20.88
14)	CARBON TETRACHLORID	1.327	1.348	1.305	0.904	1.113	0.991	1.165 16.31
15)	3-METHYL-HEXANE	1.647	1.597	1.471	1.399	1.322	1.316	1.459 9.57
16)	N-HEPTANE	0.726	0.729	0.676	0.670	0.632	0.649	0.681 5.83
17)	TOLUENE	2.997	2.965	2.977	2.964	2.703	2.770	2.896 4.35
18)	N-OCTANE	0.774	0.777	0.711	0.723	0.662	0.680	0.721 6.58
19)	TETRACHLOROETHYLENE	1.483	1.451	1.442	1.442	1.264	1.202	1.381 8.47
20)	CHLOROBENZENE-D5	-----ISTD-----						
21)	CHLOROBENZENE	3.799	3.706	3.524	3.279	2.899	2.627	3.306 14.05
22)	ETHYLBENZENE	5.099	5.065	4.789	4.446	3.908	3.570	4.480 14.04
23)	M,P-XYLENE	4.154	4.083	3.766	3.320	2.718	2.355	3.399 21.75
24)	STYRENE	3.497	3.520	3.317	3.014	2.494	2.104	2.991 19.36
25)	N-NONANE	3.486	3.433	2.935	2.599	1.959		2.882 21.97
26)	1,1,2,2-TETRACHLORO	0.733	1.336	1.199	1.291	1.150	1.324	1.172 19.40
27)	O-XYLENE	4.217	4.155	3.956	3.631	3.162	2.819	3.657 15.47
28)	N-DECANE	3.649	3.483	3.133	2.911	2.451	2.075	2.950 20.47
29)	1,2,4-TRIMETHYLBENZ	5.277	5.244	4.792	4.447	3.813	3.264	4.473 18.00

(#) = Out of Range

VAP_NP8.M

Mon Mar 22 09:40:32 1999

HNF-4598 Rev. 0

Response Factor Report GC/MS Ins

Method : C:\OLDCHEM\1\METHODS\VAP_P9.M (RTE Integrator)
 Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
 Last Update : Wed Jun 09 15:59:46 1999
 Response via : Initial Calibration

Calibration Files

1 =19060808.D 2 =19060809.D 3 =19060810.D
 4 =19060811.D 5 =19060901.D 6 =19060902.D

Compound	1	2	3	4	5	6	Avg	%RSD
1) FLUOROBENZENE	-----ISTD-----							
2) ETHANOL	0.175	0.177	0.165	0.166	0.160	0.163	0.168	4.06
3) ACETONITRILE	0.158	0.094	0.138	0.148	0.161	0.174	0.146	19.27
4) ACETONE	0.202	0.191	0.182	0.184	0.181	0.179	0.186	4.68
5) FURAN	0.386	0.396	0.415	0.428	0.442	0.443	0.418	5.71
6) 2-PROPANOL	0.721	0.736	0.747	0.753	0.723	0.737	0.736	1.73
7) 1-PROPANOL	0.652	0.718	0.766	0.792	0.750	0.764	0.740	6.71
8) PROPANENITRILE	0.265	0.279	0.297	0.303	0.299	0.302	0.291	5.24
9) BUTANAL	0.116	0.116	0.119	0.124	0.121	0.123	0.120	2.83
10) 2-BUTANONE	0.184	0.186	0.184	0.190	0.194	0.195	0.189	2.57
11) TETRAHYDROFURAN	0.181	0.180	0.181	0.186	0.190	0.190	0.185	2.43
12) 1-BUTANOL	0.263	0.259	0.305	0.321	0.311	0.329	0.298	10.00
13) BUTANENITRILE	0.749	0.730	0.796	0.792	0.736	0.733	0.756	3.99
14) 2-PENTANONE	1.449	1.459	1.507	1.470	1.347	1.326	1.426	5.08
15) 1,4-DIOXANE	0.254	0.264	0.274	0.279	0.276	0.279	0.271	3.67
16) 4-METHYL-2-PENTANON	0.118	0.122	0.129	0.129	0.131	0.131	0.127	4.26
17) CHLOROBENZENE-D5	-----ISTD-----							
18) 2-HEXANONE	0.878	0.939	1.018	0.955	0.882	0.871	0.924	6.28
19) 3-HEPTANONE	0.176	0.195	0.224	0.211	0.200	0.206	0.202	7.99
20) 2-HEPTANONE	1.679	1.946	2.262	2.017	1.678	1.627	1.868	13.40
21) CYCLOHEXANONE	0.434	0.507	0.590	0.549	0.486	0.491	0.509	10.59
22) 2-OCTANONE	2.074	2.556	3.352	3.102	2.463	2.592	2.690	17.16

(#) = Out of Range

VAP_P9.M

Wed Jun 09 16:00:05 1999

HNF-4598 Rev. 0

Response Factor Report GC/MS Ins

Method : C:\OLDCHEM\1\METHODS\VAP_NP9.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Last Update : Wed Jun 09 14:05:25 1999
 Response via : Initial Calibration

Calibration Files

1 =19060802.D 2 =19060803.D 3 =19060804.D
 4 =19060805.D 5 =19060806.D 6 =19060807.D

Compound	1	2	3	4	5	6	Avg	%RSD
-----ISTD-----								
1) FLUOROBENZENE								
2) FREON 12	0.415						0.415	0.00
3) METHYL CHLORIDE	0.350						0.350	0.00
4) N-BUTANE	0.674	0.665	0.661	0.638	0.644	0.651	0.656	2.08
5) ETHYL CHLORIDE	0.227	0.228	0.233	0.232	0.238	0.245	0.234	2.87
6) FREON 11	0.862	0.843	0.836	0.798	0.777	0.764	0.813	4.84
7) N-PENTANE	0.062	0.063	0.062	0.062	0.063	0.065	0.063	1.57
8) DICHLOROMETHANE	0.490	0.490	0.490	0.479	0.481	0.483	0.486	1.04
9) 2-METHYL-PENTANE	1.005	1.007	0.993	0.959	0.930	0.926	0.970	3.78
10) 1-HEXENE	0.395	0.404	0.400	0.395	0.394	0.395	0.397	1.03
11) N-HEXANE	0.602	0.602	0.592	0.584	0.583	0.584	0.591	1.53
12) CHLOROFORM	0.680	0.669	0.657	0.635	0.627	0.619	0.648	3.79
13) BENZENE	1.127	1.129	1.110	1.091	1.070	1.064	1.099	2.54
14) CARBON TETRACHLORIDE	0.725	0.726	0.701	0.655	0.593	0.566	0.661	10.39
15) 3-METHYL-HEXANE	1.134	1.125	1.079	1.051	0.984	0.973	1.058	6.49
16) N-HEPTANE	0.389	0.399	0.394	0.384	0.379	0.376	0.387	2.29
17) TOLUENE	1.342	1.323	1.302	1.270	1.243	1.233	1.285	3.43
18) N-OCTANE	0.439	0.431	0.425	0.410	0.402	0.393	0.417	4.30
19) TETRACHLOROETHYLENE	0.683	0.685	0.684	0.678	0.673	0.652	0.676	1.88
-----ISTD-----								
20) CHLOROBENZENE-D5								
21) CHLOROBENZENE	1.312	1.316	1.303	1.247	1.210	1.182	1.262	4.53
22) ETHYLBENZENE	1.980	2.011	1.979	1.865	1.753	1.706	1.882	6.87
23) M, P-XYLENE	1.655	1.640	1.586	1.457	1.289	1.202	1.471	12.93
24) STYRENE	1.218	1.286	1.283	1.215	1.059	0.981	1.174	10.69
25) N-NONANE	1.645	1.627	1.556	1.337	1.084	0.971	1.370	21.12
26) 1,1,2,2-TETRACHLORO	1.360	1.337	1.343	1.249	1.175	1.154	1.270	7.12
27) O-XYLENE	1.678	1.699	1.662	1.564	1.477	1.433	1.585	7.08
28) N-DECANE	1.731	1.666	1.646	1.432	1.253	1.195	1.487	15.34
29) 1,2,4-TRIMETHYLBENZ	1.905	1.927	1.940	1.764	1.633	1.579	1.791	8.81

(#) = Out of Range

VAP_NP9.M

Wed Jun 09 14:07:58 1999

HNF-4598 Rev. 0

File : C:\OLDCHEM\1\DATA\19040904.D
 Operator : G. FIES
 Acquired : 9 Apr 1999 10:49 am using AcqMethod VAP_NP8
 Instrument : 5972 - MS
 Sample Name: VS006-407-S031-2 Sec. Dilution
 Misc Info : 50 TORR, DF total = 48
 Vial Number: 1

HNF-4598 Rev. 0
Quantitation Report

Data File : D:\C106_3\19040904.D
Acq Time : 9 Apr 99 10:49 am
Sample : VS006-407-S031-2 Sec. Dilution
Misc : 50 TORR, DF total = 48
Quant Time: May 17 11:31 1999

Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : D:\METHODS\VAP_NP8.M
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Last Update : Mon Mar 22 09:40:09 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.94	96	6855468	155.50	NG	0.00
20) CHLOROBENZENE-D5	30.31	117	6272055	189.50	NG	-0.12

System Monitoring Compounds %Recovery

Target Compounds					Qvalue
2) FREON 12	0.00	85		Not Detected	
3) METHYL CHLORIDE	0.00	50		Not Detected	
4) N-BUTANE	11.45	43	1536016	23.28 PPB m	91
5) ETHYL CHLORIDE	0.00	64		Not Detected	
6) FREON 11	0.00	101		Not Detected	
7) N-PENTANE	16.31	72	51870	9.81 PPB #	100
8) DICHLOROMETHANE	0.00	49		Not Detected	
9) 2-METHYL-PENTANE	19.44	43	83362	1.20 PPB #	68
10) 1-HEXENE	20.43	56	572484	21.87 PPB #	34
11) N-HEXANE	20.80	57	425476	11.81 PPB #	46
12) CHLOROFORM	0.00	83		Not Detected	
13) BENZENE	23.43	78	44731	0.55 PPB	99
14) CARBON TETRACHLORIDE	0.00	117		Not Detected	
15) 3-METHYL-HEXANE	0.00	43		Not Detected	
16) N-HEPTANE	24.85	57	1794294	62.93 PPB	80
17) TOLUENE	27.50	91	209805	1.72 PPB m	97
18) N-OCTANE	28.51	57	399904	13.37 PPB m	98
19) TETRACHLOROETHYLENE	0.00	166		Not Detected	
21) CHLOROBENZENE	0.00	112		Not Detected	
22) ETHYLBENZENE	0.00	91		Not Detected	
23) M, P-XYLENE	0.00	91		Not Detected	
24) STYRENE	0.00	104		Not Detected	
25) N-NONANE	31.85	43	864605	12.21 PPB #	79
26) 1,1,2,2-TETRACHLOROETHANE	0.00	83		Not Detected	
27) O-XYLENE	0.00	91		Not Detected	
28) N-DECANE	34.93	43	1706660	22.80 PPB m	82
29) 1,2,4-TRIMETHYLBENZENE	0.00	105		Not Detected	

(#) = qualifier out of range (m) = manual integration
19040904.D VAP_NP8.M Mon May 17 11:31:49 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040904.D

Acq Time : 9 Apr 99 10:49 am

Sample : VS006-407-S031-2 Sec. Dilution

Misc : 50 TORR, DF total = 48

Quant Time: May 17 11:17 1999

Operator: G. FIES

Inst : 5972 - MS

Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VAP_P8.M

Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES

Last Update : Mon Mar 22 09:53:20 1999

Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.94	96	6855468	155.50	NG	0.00
17) CHLOROBENZENE-D5	30.31	117	6272055	189.50	NG	-0.15

System Monitoring Compounds

%Recovery

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) ETHANOL	14.84	45	134167	9.36	PPB m	100
3) ACETONITRILE	15.99	40	132	2.03	PPB m	1
4) ACETONE	16.06	58	242959	15.17	PPB m	1
5) FURAN	0.00	68		Not Detected		
6) 2-PROPANOL	0.00	45		Not Detected		
7) 1-PROPANOL	19.31	31	59542	1.19	PPB m	90
8) PROPANENITRILE	19.91	54	50216	2.45	PPB m	58
9) BUTANAL	20.49	72	30324	3.25	PPB m	87
10) 2-BUTANONE	20.68	72	43557	3.24	PPB	79
11) TETRAHYDROFURAN	0.00	72		Not Detected		
12) 1-BUTANOL	23.47	56	218355	7.84	PPB m	89
13) BUTANENITRILE	23.73	41	296072	4.63	PPB m	100
14) 2-PENTANONE	24.32	43	225780	2.00	PPB m	98
15) 1,4-DIOXANE	0.00	88		Not Detected		
16) 4-METHYL-2-PENTANONE	0.00	100		Not Detected		
18) 2-HEXANONE	28.10	58	274104	5.17	PPB m	79
19) 3-HEPTANONE	31.42	114	2027533	116.00	PPB m	1
20) 2-HEPTANONE	31.52	58	2939142	31.86	PPB m	78
21) CYCLOHEXANONE	0.00	98		Not Detected		
22) 2-OCTANONE	34.64	58	166785	1.25	PPB m	1

MS 5/17/99

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

19040904.D VAP_P8.M

Mon May 17 11:17:39 1999

HNF-4598 Rev. 0

TIC: 19040904.D

VS006-407-S031-2 Sec. Dilution

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	11.172	rBB	0.167	3704331	11.072	11.239
2	11.453	rBB	0.194	2975994	11.366	11.561
3	12.826	rBB	0.167	521508	12.726	12.893
4	15.907	rBB	0.134	1181435	15.840	15.974
5	16.061	rBB	0.208	1684670	15.987	16.195
6	16.309	rBB	0.114	1569478	16.255	16.369
7	19.429	rBB	0.134	364001	19.362	19.496
8	20.434	rBB	0.241	4044628	20.334	20.575
9	20.682	rBB	0.121	359340	20.615	20.735
10	20.796	rBB	0.127	2028216	20.735	20.863
11	23.468	rBB	0.127	892591	23.394	23.521
12	23.936	rBB	0.234	14190572	23.856	24.091
13	24.512	rBB	0.141	3262916	24.452	24.593
14	24.687	rBB	0.181	851181	24.599	24.780
15	24.861	rBB	0.154	31975182	24.780	24.934
16	25.001	rBB	0.127	11608396	24.941	25.068
17	25.129	rBB	0.127	23679313	25.068	25.195
18	25.457	rBB	0.147	17327765	25.390	25.537
19	25.711	rBB	0.214	2568599	25.637	25.852
20	26.997	rBB	0.234	6658201	26.883	27.117
21	27.292	rBB	0.141	416008	27.198	27.338
22	27.486	rBB	0.100	2624230	27.432	27.533
23	27.593	rBB	0.121	11134679	27.533	27.653
24	27.693	rBB	0.054	695287	27.660	27.714
25	27.747	rBB	0.080	3745382	27.714	27.794
26	28.095	rBB	0.060	507257	28.048	28.109
27	28.156	rBB	0.127	12390543	28.109	28.236
28	28.403	rBB	0.121	450878	28.323	28.443
29	28.504	rBB	0.221	9574424	28.443	28.664
30	28.718	rBB	0.141	840516	28.664	28.805
31	28.865	rBB	0.121	2753010	28.812	28.932
32	28.993	rBB	0.067	409501	28.952	29.019
33	30.312	rBB	0.208	17676571	30.205	30.412
34	30.854	rBB	0.080	695342	30.807	30.888
35	30.948	rBB	0.134	12915371	30.888	31.022
36	31.129	rBB	0.127	685689	31.062	31.189
37	31.263	rBB	0.127	2280312	31.196	31.323
38	31.424	rBB	0.141	34430632	31.330	31.470
39	31.531	rBB	0.154	14242479	31.470	31.625
40	31.665	rBB	0.087	1482050	31.625	31.712
41	31.852	rBB	0.181	3358688	31.799	31.979
42	32.221	rBB	0.127	377365	32.147	32.274
43	32.669	rBB	0.161	3090935	32.575	32.736
44	32.783	rBB	0.107	468307	32.736	32.843
45	33.011	rBB	0.221	7115420	32.850	33.071
46	33.145	rBB	0.147	8882892	33.071	33.218
47	33.279	rBB	0.121	4905982	33.218	33.339
48	33.567	rBB	0.121	4739021	33.493	33.613
49	33.875	rBB	0.100	395909	33.828	33.928
50	34.116	rBB	0.188	1325086	34.035	34.223
51	34.323	rBB	0.134	1816866	34.230	34.364
52	34.437	rBB	0.194	20730858	34.364	34.558
53	34.678	rBB	0.114	1263167	34.605	34.718
54	34.933	rBB	0.127	6790088	34.873	35.000
55	35.080	rBB	0.174	526779	35.006	35.181
56	35.281	rBB	0.241	10708756	35.181	35.422

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57	35.616	rBB	0.121	1237731	35.556	35.676
58	35.750	rBB	0.174	3341840	35.676	35.850
59	36.239	rBB	0.107	393640	36.185	36.292
60	36.373	rBB	0.100	626507	36.319	36.419
61	36.781	rBB	0.147	536013	36.714	36.861
62	37.303	rBB	0.241	1942906	37.156	37.397
63	37.551	rBB	0.147	1225591	37.491	37.638
64	37.772	rBB	0.141	13120055	37.712	37.853
65	38.080	rBB	0.161	1171173	37.993	38.154
66	38.556	rBB	0.154	464035	38.455	38.609
67	38.696	rBB	0.141	500138	38.609	38.750
68	38.824	rBB	0.208	11507965	38.750	38.958
69	39.112	rBB	0.121	705412	39.065	39.185
70	39.313	rBB	0.100	543189	39.259	39.359
71	39.487	rBB	0.114	524023	39.433	39.547
72	40.210	rBB	0.147	1128170	40.116	40.264
73	40.424	rBB	0.254	27329502	40.344	40.598
74	40.759	rBB	0.188	1525309	40.685	40.873
75	41.938	rBB	0.147	1119691	41.864	42.011
76	42.252	rBB	0.114	1079890	42.172	42.286
77	42.386	rBB	0.100	22547028	42.333	42.433
78	43.766	rBB	0.080	901969	43.733	43.813

LSC Report - Integrated Chromatogram

File : C:\OLDCHEM\1\DATA\19040904.D
Operator : G. FIES
Acquired : 9 Apr 1999 10:49 am using AcqMethod VAP_NP8
Instrument : 5972 - MS
Sample Name: VS006-407-S031-2 Sec. Dilution
Misc Info : 50 TORR, DF total = 48
Vial Number: 1
Quant File :QUANT.RES (RTE Integrator)

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 1 1-Propene, 2-methyl- Concentration Rank 22

R.T.	EstConc	Area	Relative to ISTD	R.T.
11.17	40.59 NG	3704330	FLUOROBENZENE	23.94

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1			1-Propene, 2-methyl-	56	C4H8	000115-11-7	87
2			1-Butene	56	C4H8	000106-98-9	83
3			2-Butene, (E)-	56	C4H8	000624-64-6	80

 Peak Number 2 Butane Concentration Rank 28

R.T.	EstConc	Area	Relative to ISTD	R.T.
11.45	32.61 NG	2975990	FLUOROBENZENE	23.94

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1			Butane	58	C4H10	000106-97-8	72
2			Acetic acid, 2-propenyl ester	100	C5H8O2	000591-87-7	9
3			Diazene, dimethyl-	58	C2H6N2	000503-28-6	5

 Peak Number 3 1-Butene Concentration Rank 74

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.11	3.20 NG	292290	FLUOROBENZENE	23.94

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1			1-Butene	56	C4H8	000106-98-9	68
2			1-Propene, 2-methyl-	56	C4H8	000115-11-7	64
3			2-Butene	56	C4H8	000107-01-7	58

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Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 4 1-Propene, 2-methyl- Concentration Rank 88

R.T.	EstConc	Area	Relative to ISTD	R.T.	
12.57	2.29 NG	209396	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Propene, 2-methyl-	56	C4H8	000115-11-7	90
2	2-Butene, (E) -	56	C4H8	000624-64-6	80
3	2-Butene, (Z) -	56	C4H8	000590-18-1	80

 Peak Number 5 1-Propene, 2-methyl- Concentration Rank 58

R.T.	EstConc	Area	Relative to ISTD	R.T.	
12.83	5.71 NG	521508	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Propene, 2-methyl-	56	C4H8	000115-11-7	90
2	1-Butene	56	C4H8	000106-98-9	86
3	2-Butene, (E)-	56	C4H8	000624-64-6	74

 Peak Number 6 1-Pentene Concentration Rank 42

R.T.	EstConc	Area	Relative to ISTD	R.T.	
15.91	12.95 NG	1181440	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Pentene	70	C5H10	000109-67-1	91
2	Cyclopropane, ethyl-	70	C5H10	001191-96-4	91
3	Cyclobutane, methyl-	70	C5H10	000598-61-8	59

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Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
Acq On : 9 Apr 1999 10:49 am
Sample : VS006-407-S031-2 Sec. Dilution
Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Library : C:\DATABASE\NIST98.L

Peak Number 7 Pentane Concentration Rank 36

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.31	17.20 NG	1569480	FLUOROBENZENE	23.94

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane			72	C5H12	000109-66-0	86
2	Butane, 2-methyl-			72	C5H12	000078-78-4	64
3	Oxirane, ethyl-			72	C4H8O	000106-88-7	9

Peak Number 8 1-Butene, 2-methyl- Concentration Rank 80

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.81	2.70 NG	246323	FLUOROBENZENE	23.94

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Butene, 2-methyl-			70	C5H10	000563-46-2	91
2	Cyclopropane, 1,2-dimethyl-, cis-			70	C5H10	000930-18-7	90
3	2-Butene, 2-methyl-			70	C5H10	000513-35-9	86

Peak Number 9 Cyclobutane, methyl- Concentration Rank 89

R.T.	EstConc	Area	Relative to ISTD	R.T.
17.24	2.25 NG	205706	FLUOROBENZENE	23.94

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclobutane, methyl-			70	C5H10	000598-61-8	91
2	Cyclopentane			70	C5H10	000287-92-3	78
3	1-Pentene			70	C5H10	000109-67-1	64

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Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 10 Pentane, 2-methyl- Concentration Rank 70

R.T.	EstConc	Area	Relative to ISTD	R.T.		
19.43	3.99 NG	364001	FLUOROBENZENE	23.94		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Pentane, 2-methyl-	86	C6H14	000107-83-5	60
2		Pentane, 2-bromo-	150	C5H11Br	000107-81-3	38
3		Hydroxylamine, O-pentyl-	103	C5H13NO	005963-74-6	25

 Peak Number 11 1-Hexene Concentration Rank 21

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.43	44.32 NG	4044630	FLUOROBENZENE	23.94
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	1-Hexene		84 C6H12	000592-41-6 97
2	1-Propene, 2-methyl-		56 C4H8	000115-11-7 58
3	Cyclohexane		84 C6H12	000110-82-7 47

 Peak Number 12 Hexane Concentration Rank 33

R.T.	EstConc	Area	Relative to ISTD	R.T.		
20.80	22.23 NG	2028220	FLUOROBENZENE	23.94		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexane		86	C6H14	000110-54-3	91
2	1-Pentene, 4-methyl-		84	C6H12	000691-37-2	38
3	Pentane, 2,2,3,4-tetramethyl-		128	C9H20	001186-53-4	37

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Library Search Compound Report

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 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 13 1-Butanol Concentration Rank 47

R.T.	EstConc	Area	Relative to ISTD	R.T.		
23.47	9.78 NG	892591	FLUOROBENZENE	23.94		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Butanol		74	C4H10O	000071-36-3	94
2	Cyanic acid, propyl ester		85	C4H7NO	001768-36-1	37
3	Cyclopropane, propyl-		84	C6H12	002415-72-7	37

 Peak Number 14 5-Methyl-2-hexene,c&t Concentration Rank 81

R.T.	EstConc	Area	Relative to ISTD	R.T.	
23.78	2.70 NG	246177	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	5-Methyl-2-hexene,c&t	98	C7H14	003404-62-4	72
2	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	72
3	Cyclopentane, 1,2-dimethyl-, trans-	98	C7H14	000822-50-4	72

 Peak Number 15 1-Heptene Concentration Rank 26

R.T.	EstConc	Area	Relative to ISTD	R.T.	
24.51	35.76 NG	3262920	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Heptene	98	C7H14	000592-76-7	94
2	2-Heptene	98	C7H14	000592-77-8	68
3	1-Hexene, 3-methyl-	98	C7H14	003404-61-3	64

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 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 16 Butanenitrile, 2-methylene- Concentration Rank 49

R.T.	EstConc	Area	Relative to ISTD	R.T.	
24.69	9.33 NG	851181	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Butanenitrile, 2-methylene-	81	C5H7N	001647-11-6	96
2	2-Pentenitrile	81	C5H7N	013284-42-9	64
3	3-Pentenitrile	81	C5H7N	004635-87-4	58

 Peak Number 17 3-Heptene Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.	
24.86	350.38 NG	31975200	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Heptene	98	C7H14	000592-78-9	64
2	2-Heptene	98	C7H14	000592-77-8	62
3	(Z)-3-Heptene	98	C7H14	007642-10-6	52

Heptane

 Peak Number 18 3-Heptene Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.	
25.00	127.21 NG	11608400	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Heptene, <i>z</i>	98	C7H14	000592-78-9	97
2	2-Heptene	98	C7H14	000592-77-8	91
3	3-Heptene, (E)-	98	C7H14	014686-14-7	90

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Library Search Compound Report

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Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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Peak Number 19 2-Heptene, (E)- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.13	259.48 NG	23679300	FLUOROBENZENE	23.94

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptene, (E)-		98	C7H14	014686-13-6	96
2	2-Heptene		98	C7H14	000592-77-8	95
3	Cyclobutanone, 2,3-dimethyl-, cis-		98	C6H10O	028113-36-2	72

Peak Number 20 2-Heptene Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.46	189.88 NG	17327800	FLUOROBENZENE	23.94

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptene, 2		98	C7H14	000592-77-8	95
2	2-Heptene, (E)-		98	C7H14	014686-13-6	95
3	3-Heptene		98	C7H14	000592-78-9	91

Peak Number 21 Cyclopropane, butyl- Concentration Rank 30

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.71	28.15 NG	2568600	FLUOROBENZENE	23.94

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopropane, butyl-		98	C7H14	000930-57-4	94
2	Cyclopentane, 1,2-dimethyl-, cis-		98	C7H14	001192-18-3	53
3	Cyclopentane, 1,3-dimethyl-		98	C7H14	002453-00-1	50

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Library Search Compound Report

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 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 22 Cyclopentane, ethyl- Concentration Rank 75

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.27	2.95 NG	269491	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentane, ethyl-	98	C7H14	001640-89-7	76
2	Cyclopropane, 1,1-diethyl-	98	C7H14	001003-19-6	47
3	1-Pentene, 2,3-dimethyl-	98	C7H14	003404-72-6	35

 Peak Number 23 3,4-Heptadiene Concentration Rank 85

R.T.	EstConc	Area	Relative to ISTD	R.T.		
26.51	2.52 NG	230272	FLUOROBENZENE	23.94		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		3,4-Heptadiene	96	C7H12	002454-31-1	93
2		2,3-Hexadiene, 2-methyl-	96	C7H12	029212-09-7	90
3		Cyclohexene, 1-methyl-	96	C7H12	000591-49-1	83

 Peak Number 24 cis-1-Methyl-2-(2'-propenyl)cy Concentration Rank 71

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.63	3.67 NG	334907	FLUOROBENZENE	23.94	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	cis-1-Methyl-2-(2'-propenyl)cyclopr	96	C7H12	076588-97-1	90
2	Cycloheptene	96	C7H12	000628-92-2	72
3	1,1'-Bicyclopropyl	82	C6H10	005685-46-1	72

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Library Search Compound Report

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Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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Peak Number 25 Cyclopentane, 1,3-dimethyl- Concentration Rank 77

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.74	2.88 NG	262596	FLUOROBENZENE	23.94

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclopentane, 1,3-dimethyl-	98	C7H14	002453-00-1	64
2		1-Heptene, 3-methyl-	112	C8H16	004810-09-7	58
3		Cyclopentane, 1,2,3-trimethyl-, (1.	112	C8H16	015890-40-1	50

Peak Number 26 3,4-Heptadiene Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.00	72.96 NG	6658200	FLUOROBENZENE	23.94

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		3,4-Heptadiene	96	C7H12	002454-31-1	83
2		2,3-Hexadiene, 2-methyl-	96	C7H12	029212-09-7	74
3		Cyclohexene, 1-methyl-	96	C7H12	000591-49-1	72

Peak Number 27 1-Octene Concentration Rank 65

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.29	4.46 NG	416008	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		1-Octene	112	C8H16	000111-66-0	50
2		Heptane, 2-methyl-	114	C8H18	000592-27-8	49
3		Butane, 1-chloro-3-methyl-	106	C5H11Cl	000107-84-6	47

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Library Search Compound Report

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Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE, Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
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Peak Number 28 3-Octene, (Z)- Concentration Rank 31

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.49	28.13 NG	2624230	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Octene, (Z)-		112	C8H16	014850-22-7	64
2	4-Octene, (Z)-		112	C8H16	007642-15-1	64
3	Cyclooctane		112	C8H16	000292-64-8	58

Peak Number 29 Heptane, 3-methyl- Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.59	119.37 NG	11134700	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 3-methyl-		114	C8H18	000589-81-1	91
2	Hexane, 1-(hexyloxy)-2-methyl-		200	C13H28O	074421-17-3	64
3	Hexane, 2-methyl-		100	C7H16	000591-76-4	59

Peak Number 30 3-Octene, (E)- Concentration Rank 53

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.69	7.45 NG	695287	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Octene, (E)-		112	C8H16	014919-01-8	76
2	2-Octene, (E)-		112	C8H16	013389-42-9	76
3	2-Octene		112	C8H16	000111-67-1	72

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Library Search Compound Report

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 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 31 2-Heptyne Concentration Rank 23

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.75	40.15 NG	3745380	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptyne		96	C7H12	001119-65-9	98
2	2,4-Hexadienal, (E,E)-		96	C6H8O	000142-83-6	74
3	Cyclopropane, trimethylmethylene-		96	C7H12	034462-28-7	64

 Peak Number 32 Heptane, 3-methylene- Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.	
28.16	132.83 NG	12390500	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 3-methylene-	112	C8H16	001632-16-2	90
2	Cyclopentane, 1,2,3-trimethyl-, (1.	112	C8H16	015890-40-1	64
3	Hexane, 2-methyl-4-methylene-	112	C8H16	003404-80-6	64

 Peak Number 33 4-Octene, (E)- Concentration Rank 64

R.T.	EstConc	Area	Relative to ISTD	R.T.	
28.40	4.83 NG	450878	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	4-Octene, (E)-	112	C8H16	014850-23-8	91
2	4-Octene, (Z)-	112	C8H16	007642-15-1	90
3	2-Octene, (E)-	112	C8H16	013389-42-9	87

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Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 34 Cyclohexane, 1,2-dimethyl-, ci Concentration Rank 14

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.50	102.64 NG	9574420	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclohexane, 1,2-dimethyl-, cis-	112	C8H16	002207-01-4	68
2		4-Octene, (E)-	112	C8H16	014850-23-8	58
3		4-Octene, (Z)-	112	C8H16	007642-15-1	55
		<i>C8 alkene</i>	112			

 Peak Number 35 2-Octene, (Z)- Concentration Rank 50

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.72	9.01 NG	840516	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		2-Octene, (Z)-	112	C8H16	007642-04-8	90
2		3-Octene, (E)-	112	C8H16	014919-01-8	87
3		2-Octene, (E)-	112	C8H16	013389-42-9	86

 Peak Number 36 2-Heptene, 3-methyl- Concentration Rank 29

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.87	29.51 NG	2753010	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		2-Heptene, 3-methyl-	112	C8H16	003404-75-9	95
2		Hexane, 2-methyl-4-methylene-	112	C8H16	003404-80-6	90
3		2-Hexene, 3,5-dimethyl-	112	C8H16	003404-79-3	87

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 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 37 cis-1-Butyl-2-methylcyclopropa Concentration Rank 66

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.99	4.39 NG	409501	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		cis-1-Butyl-2-methylcyclopropane	112	C8H16	038851-69-3	87
2		trans-1-Butyl-2-methylcyclopropane	112	C8H16	038851-70-6	87
3		Cyclopropane, butyl-	98	C7H14	000930-57-4	80

 Peak Number 38 3-Hexanone, 5-methyl- Concentration Rank 72

R.T.	EstConc	Area	Relative to ISTD	R.T.
29.70	3.44 NG	320997	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		3-Hexanone, 5-methyl-	114	C7H14O	000623-56-3	90
2		3-Heptanone	114	C7H14O	000106-35-4	86
3		3-Hexanone, 4-methyl-	114	C7H14O	017042-16-9	40

 Peak Number 39 Hexane, 3-ethyl- Concentration Rank 84

R.T.	EstConc	Area	Relative to ISTD	R.T.
30.71	2.58 NG	241001	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Hexane, 3-ethyl-	114	C8H18	000619-99-8	53
2		Octane, 4-methyl-	128	C9H20	002216-34-4	52
3		Heptane, 2,3-dimethyl-	128	C9H20	003074-71-3	50

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Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 40 Furan, tetrahydro-2,2,5,5-tetr Concentration Rank 52

R.T.	EstConc	Area	Relative to ISTD	R.T.
30.85	7.45 NG	695342	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Furan, tetrahydro-2,2,5,5-tetrameth	128	C8H16O	015045-43-9	40
2		Heptane, 4-methyl-	114	C8H18	000589-53-7	14
3		2-Hexanone, 3-methyl-	114	C7H14O	002550-21-2	12

 Peak Number 41 4-Heptanone Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
30.95	138.46 NG	12915400	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		4-Heptanone	114	C7H14O	000123-19-3	91
2		3-Hexanone, 2-methyl-	114	C7H14O	007379-12-6	72
3		3-Pentanone, 2,4-dimethyl-	114	C7H14O	000565-80-0	56

 Peak Number 42 Hexanenitrile Concentration Rank 54

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.13	7.35 NG	685689	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Hexanenitrile	97	C6H11N	000628-73-9	91
2		1,7-Octadiene	110	C8H14	003710-30-3	64
3		Heptanenitrile	111	C7H13N	000629-08-3	64

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Library Search Compound Report

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 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 43 n-Butyl ether Concentration Rank 32

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.26	24.45 NG	2280310	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	n-Butyl ether	130 C8H18O	000142-96-1	91
2	Ethanol, 2-butoxy-	118 C6H14O2	000111-76-2	45
3	Isobutyl ether	130 C8H18O	000628-55-7	42

 Peak Number 44 3-Heptanol Concentration Rank 38

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.66	15.89 NG	1482050	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	3-Heptanol	116 C7H16O	000589-82-2	83
2	3-Pentanol, 2,2-dimethyl-	116 C7H16O	003970-62-5	59
3	3-Hexanol, 5-methyl-	116 C7H16O	000623-55-2	56

 Peak Number 45 Nonane Concentration Rank 24

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.85	36.01 NG	3358690	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Nonane	128 C9H20	000111-84-2	97
2	Octane	114 C8H18	000111-65-9	64
3	Heptane, 2,4,6-trimethyl-	142 C10H22	002613-61-8	64

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Library Search Compound Report

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Acq On : 9 Apr 1999 10:49 am
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Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

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Peak Number 46 1H-Pyrazole, 3-methyl- Concentration Rank 69

R.T.	EstConc	Area	Relative to ISTD	R.T.
32.22	4.05 NG	377365	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		1H-Pyrazole, 3-methyl-	82	C4H6N2	001453-58-3	56
2		1,3,5-Triazine	81	C3H3N3	000290-87-9	46
3		2-n-Butyl furan	124	C8H12O	004466-24-4	45

Peak Number 47 Hexanenitrile, 3-methyl- Concentration Rank 78

R.T.	EstConc	Area	Relative to ISTD	R.T.
32.47	2.83 NG	263840	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Hexanenitrile, 3-methyl-	111	C7H13N	053783-89-4	72
2		Hexanenitrile	97	C6H11N	000628-73-9	38
3		Pentanenitrile, 4-methyl-	97	C6H11N	000542-54-1	38

Peak Number 48 2,5-Pyrrolidinedione, 1-methyl Concentration Rank 27

R.T.	EstConc	Area	Relative to ISTD	R.T.
32.67	33.14 NG	3090940	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		2,5-Pyrrolidinedione, 1-methyl-	113	C5H7NO2	001121-07-9	50
2		2-Oxepanone, 4-methyl-	128	C7H12O2	1000196-99-7	38
3		Cyclohexanol, 4-methyl-1-(1-methyle	156	C10H20O	000470-65-5	35

Unknown

128

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Library Search Compound Report

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 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 49 4-Heptanone, 3-methyl- Concentration Rank 62

R.T.	EstConc	Area	Relative to ISTD	R.T.	
32.78	5.02 NG	468307	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	4-Heptanone, 3-methyl-	128	C8H16O	015726-15-5	86
2	2,2,3-Triethyloxirane	128	C8H16O	1000195-02-2	80
3	3-Hexanone, 4-ethyl-	128	C8H16O	006137-12-8	72

 Peak Number 50 2,2'-Bioxepane Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.	
33.01	76.28 NG	7115420	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2,2'-Bioxepane	198	C12H22O2	074793-02-5	72
2	1,3,2-Dioxaborolane, 2,4-diethyl-	128	C6H13BO2	057633-63-3	64
3	3,5-Diamino-1,2,4-triazole	99	C2H5N5	001455-77-2	53

1,3-Diethyl-1,4-epoxybutane, isomer 128

 Peak Number 51 2,2'-Bioxepane Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.	
33.14	95.23 NG	8882890	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2,2'-Bioxepane	198	C12H22O2	074793-02-5	78
2	3,5-Diamino-1,2,4-triazole	99	C2H5N5	001455-77-2	59
3	Hexanoic acid, anhydride	214	C12H22O3	002051-49-2	53

1,3-Diethyl-1,4-epoxybutane, isomer 128

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Library Search Compound Report

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Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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Peak Number 52 3,3-Diethoxy-1-propyne Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.28	52.59 NG	4905980	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		3,3-Diethoxy-1-propyne	128	C7H12O2	010160-87-9	64
2		1-Butene, 2,3,3-trimethyl-	98	C7H14	000594-56-9	53
3		Cyclopropane, 1,1,2,2-tetramethyl-	98	C7H14	004127-47-3	53

Unknown 128

Peak Number 53 2,4,4-Trimethylbut-2-enolide Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.57	50.80 NG	4739020	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		2,4,4-Trimethylbut-2-enolide	126	C7H10O2	004182-41-6	33
2		1,3,2-Dioxaborolane-4,5-dimethanol,	244	C10H17BO6	074841-61-5	33
3		3-Octen-2-one	126	C8H14O	001669-44-9	27

Unknown 126

Peak Number 54 Octane, 4-ethyl- Concentration Rank 91

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.63	2.19 NG	204708	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Octane, 4-ethyl-	142	C10H22	015869-86-0	58
2		Undecane, 5,6-dimethyl-	184	C13H28	017615-91-7	38
3		Undecane, 2,6-dimethyl-	184	C13H28	017301-23-4	33

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Library Search Compound Report

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 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 55 9-Oxabicyclo[6.1.0]nonane Concentration Rank 67

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.87	4.24 NG	395909	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	9-Oxabicyclo[6.1.0]nonane	126	C8H14O	000286-62-4 43
2	1-Nonene	126	C9H18	000124-11-8 35
3	Hexane, 3-ethyl-4-methyl-	128	C9H20	003074-77-9 30

 Peak Number 56 4-Octanone Concentration Rank 39

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.12	14.21 NG	1325090	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	4-Octanone	128	C8H16O	000589-63-9 95
2	4-Heptanone, 2-methyl-	128	C8H16O	000626-33-5 60
3	Dodecane, 2-methyl-	184	C13H28	001560-97-0 43

 Peak Number 57 Heptanenitrile Concentration Rank 35

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.32	19.48 NG	1816870	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Heptanenitrile	111	C7H13N	000629-08-3 86
2	Octanenitrile	125	C8H15N	000124-12-9 45
3	1H-Pyrazole, 1-methyl-	82	C4H6N2	000930-36-9 35

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Library Search Compound Report

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 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 58 Cyclotetrasiloxane, octamethyl Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.44	222.24 NG	20730900	CHLOROBENZENE-D5	30.31

not in

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	90
2		7H-Dibenzo[b,g]carbazole, 7-methyl-	281	C21H15N	003557-49-1	53
3		Ethanethioic acid, S-[8-(diethylpho	324	C14H29O4PS	129065-11-8	52

 Peak Number 59 Cyclohexane, 1-methyl-2-propyl Concentration Rank 79

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.76	2.81 NG	261673	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclohexane, 1-methyl-2-propyl-	140	C10H20	004291-79-6	80
2		N,N'-Hexamethylenebisacetamide	200	C10H20N2O2	003073-59-4	72
3		Cyclohexane, 1-methyl-3-propyl-	140	C10H20	004291-80-9	72

 Peak Number 60 Decane Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.93	72.79 NG	6790090	CHLOROBENZENE-D5	30.31

Target

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Decane	142	C10H22	000124-18-5	97
2		Nonane	128	C9H20	000111-84-2	90
3		Undecane	156	C11H24	001120-21-4	80

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MS Integration Params: VAP_NP.P

Vial: 1
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Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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Peak Number 61 1'-Hydroxy-4,3'-dimethyl-bicyc Concentration Rank 59

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.08	5.65 NG	526779	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	1'-Hydroxy-4,3'-dimethyl-bicyclohex	220	C14H20O2	1000189-12-5 47
2	1H-Pyrazole, 1-methyl-	82	C4H6N2	000930-36-9 43
3	3-Hexyne	82	C6H10	000928-49-4 40

Peak Number 62 Hexanenitrile Concentration Rank 13

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.28	114.80 NG	10708800	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Hexanenitrile	97	C6H11N	000628-73-9 42
2	1,2-Nonadiene	124	C9H16	022433-33-6 33
3	1H-1,2,3-Triazole-4-carboxaldehyde	97	C3H3N3O	016681-68-8 10

Unknown

140

Peak Number 63 Decane, 4-methyl- Concentration Rank 40

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.62	13.27 NG	1237730	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Decane, 4-methyl-	156	C11H24	002847-72-5 93
2	Nonane, 2,6-dimethyl-	156	C11H24	017302-28-2 90
3	Octane, 3-ethyl-	142	C10H22	005881-17-4 64

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Library Search Compound Report

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Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 64 1-Hexanol, 2-ethyl- Concentration Rank 25

R.T.	EstConc	Area	Relative to ISTD	R.T.		
35.75	35.83 NG	3341840	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		1-Hexanol, 2-ethyl-	130	C8H18O	000104-76-7	90
2		1-Decene, 2,4-dimethyl-	168	C12H24	055170-80-4	50
3		2-Propyl-1-pentanol	130	C8H18O	058175-57-8	50

 Peak Number 65 Cyclohexane, (2-methylpropyl)- Concentration Rank 68

R.T.	EstConc	Area	Relative to ISTD	R.T.		
36.24	4.22 NG	393640	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Cyclohexane, (2-methylpropyl)-	140	C10H20	001678-98-4	80
2		Cyclohexane, butyl-	140	C10H20	001678-93-9	80
3		Cyclohexane, pentyl-	154	C11H22	004292-92-6	64

 Peak Number 66 Decane, 3-methyl- Concentration Rank 55

R.T.	EstConc	Area	Relative to ISTD	R.T.	
36.37	6.72 NG	626507	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Decane, 3-methyl-	156	C11H24	013151-34-3	52
2	Undecane, 2-methyl-	170	C12H26	007045-71-8	47
3	Undecane, 2,6-dimethyl-	184	C13H28	017301-23-4	47

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 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

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 Peak Number 67 Decane, 2-methyl- Concentration Rank 57

R.T.	EstConc	Area	Relative to ISTD	R.T.	
36.78	5.75 NG	536013	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Decane, 2-methyl-	156	C11H24	006975-98-0	72
2	Heptane, 2,6-dimethyl-	128	C9H20	001072-05-5	72
3	Octane, 2,6-dimethyl-	142	C10H22	002051-30-1	62

 Peak Number 68 Octanenitrile Concentration Rank 34

R.T.	EstConc	Area	Relative to ISTD	R.T.	
37.30	20.83 NG	1942910	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Octanenitrile	125	C8H15N	000124-12-9	90
2	Heptanenitrile	111	C7H13N	000629-08-3	53
3	1H-Imidazole, 2-methyl-	82	C4H6N2	000693-98-1	38

 Peak Number 69 1,2-Cyclohexanedione Concentration Rank 83

R.T.	EstConc	Area	Relative to ISTD	R.T.	
37.43	2.67 NG	248739	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1,2-Cyclohexanedione	112	C6H8O2	000765-87-7	38
2	Ethanol, 2-(cyclohexylamino)-	143	C8H17NO	002842-38-8	32
3	3H-Pyrazol-3-one, 2,4-dihydro-2,5-d	112	C5H8N2O	002749-59-9	30

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 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 70 1-Undecene Concentration Rank 41

R.T.	EstConc	Area	Relative to ISTD	R.T.		
37.55	13.14 NG	1225590	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Undecene		154	C11H22	000821-95-4	93
2	2-Undecene, (Z)-		154	C11H22	000821-96-5	81
3	Cyclopropane, 1-heptyl-2-methyl-		154	C11H22	074663-91-5	76

 Peak Number 71 Undecane Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.	
37.77	140.65 NG	13120100	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Undecane	156	C11H24	001120-21-4	97
2	Decane	142	C10H22	000124-18-5	90
3	Tridecane	184	C13H28	000629-50-5	83

 Peak Number 72 Aziridine, 2-(1,1-dimethylethy Concentration Rank 82

R.T.	EstConc	Area	Relative to ISTD	R.T.	
37.89	2.67 NG	248915	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Aziridine, 2-(1,1-dimethylethyl)-3-	113	C7H15N	055669-76-6	50
2	1,3-Cyclopentanedione	98	C5H6O2	003859-41-4	50
3	Cyclohexanone, 2-propyl-	140	C9H16O	000094-65-5	50

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
Acq On : 9 Apr 1999 10:49 am
Sample : VS006-407-S031-2 Sec. Dilution
Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Library : C:\DATABASE\NIST98.L

Peak Number 73 4(1H)-Pyridinone, 2,3-dihydro- Concentration Rank 43

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.08	12.56 NG	1171170	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	4(1H)-Pyridinone, 2,3-dihydro-1-met	111	C6H9NO	035488-00-7 53
2	Pyridin-2,6-diol, monoacetate	153	C7H7NO3	1000153-09-1 35
3	2(1H)-Pyridinone, 3-hydroxy-	111	C5H5NO2	016867-04-2 30

Peak Number 74 Decane, 3,7-dimethyl- Concentration Rank 63

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.56	4.97 NG	464035	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Decane, 3,7-dimethyl-	170	C12H26	017312-54-8 93
2	1-Iodo-2-methylnonane	268	C10H21I	1000101-47-9 72
3	Undecane, 5-methyl-	170	C12H26	001632-70-8 64

Peak Number 75 2-Cyclohexen-1-one Concentration Rank 61

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.70	5.36 NG	500138	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	2-Cyclohexen-1-one	96	C6H8O	000930-68-7 43
2	4(3H)-Pyrimidinone	96	C4H4N2O	051953-17-4 42
3	1H-1,2,4-Triazole, 3-ethyl-	97	C4H7N3	007411-16-7 37

HNF-4598 Rev. 0
Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D.
Acq On : 9 Apr 1999 10:49 am
Sample : VS006-407-S031-2 Sec. Dilution
Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Library : C:\DATABASE\NIST98.L

Peak Number 76 Benzoic acid, 2-[(trimethylsil Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.82	123.37 NG	11508000	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzoic acid, 2-[(trimethylsilyl)ox	282	C13H22O3Si2	003789-85-3	50	
2	Benzeneethanamine, N-[(pentafluorop	475	C21H26F5NO2Si2	055429-85-1	33	
3	Benzeneacetic acid, 3-methoxy-4-[(t	268	C13H20O4Si	015964-84-8	25	

Peak Number 77 n-Amylcyclohexane Concentration Rank 51

R.T.	EstConc	Area	Relative to ISTD	R.T.
39.11	7.56 NG	705412	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Amylcyclohexane	154	C11H22	029949-27-7	64	
2	Cyclohexane, pentyl-	154	C11H22	004292-92-6	64	
3	Cyclohexane, (3-methylpentyl)-	168	C12H24	061142-38-9	58	

Peak Number 78 trans-Decalin, 2-methyl- Concentration Rank 56

R.T.	EstConc	Area	Relative to ISTD	R.T.
39.31	5.82 NG	543189	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	trans-Decalin, 2-methyl-	152	C11H20	1000152-47-3	91	
2	Naphthalene, decahydro-2-methyl-	152	C11H20	002958-76-1	90	
3	cis-Decalin, 2-syn-methyl-	152	C11H20	1000155-85-6	70	

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 79 Undecane, 2-methyl- Concentration Rank 60

R.T.	EstConc	Area	Relative to ISTD	R.T.
39.49	5.62 NG	524023	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Undecane, 2-methyl-	170	C12H26	007045-71-8 90
2	Decane, 2,9-dimethyl-	170	C12H26	001002-17-1 72
3	Decane, 3,8-dimethyl-	170	C12H26	017312-55-9 70

 Peak Number 80 Octanenitrile Concentration Rank 90

R.T.	EstConc	Area	Relative to ISTD	R.T.
40.06	2.24 NG	208872	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Octanenitrile	125	C8H15N	000124-12-9 80
2	1,10-Dicyanodecane	192	C12H20N2	004543-66-2 50
3	Heptanenitrile	111	C7H13N	000629-08-3 43

 Peak Number 81 3-Dodecene, (Z)- Concentration Rank 44

R.T.	EstConc	Area	Relative to ISTD	R.T.
40.21	12.09 NG	1128170	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	3-Dodecene, (Z)-	168	C12H24	007239-23-8 96
2	5-Dodecene, (E)-	168	C12H24	007206-16-8 96
3	2-Dodecene, (Z)-	168	C12H24	007206-26-0 96

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 82 Dodecane Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.	
40.42	292.98 NG	27329500	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Dodecane	170	C12H26	000112-40-3	97
2	Undecane	156	C11H24	001120-21-4	90
3	Tridecane	184	C13H28	000629-50-5	90

 Peak Number 83 Undecane, 2,6-dimethyl- Concentration Rank 37

R.T.	EstConc	Area	Relative to ISTD	R.T.	
40.76	16.35 NG	1525310	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Undecane, 2,6-dimethyl-	184	C13H28	017301-23-4	95
2	Dodecane, 6-methyl-	184	C13H28	006044-71-9	93
3	Undecane, 3,6-dimethyl-	184	C13H28	017301-28-9	81

 Peak Number 84 2(1H)-Naphthalenone, octahydro Concentration Rank 73

R.T.	EstConc	Area	Relative to ISTD	R.T.	
41.35	3.34 NG	311567	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2(1H)-Naphthalenone, octahydro-4a-m	166	C11H18O	000938-06-7	60
2	Cyclohexane, (2-ethyl-1-methyl-1-bu	180	C13H24	074810-42-7	49
3	5,7-Dimethyloctahydrocoumarin	182	C11H18O2	1000109-81-5	45

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
 Acq On : 9 Apr 1999 10:49 am
 Sample : VS006-407-S031-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 85 Cyclohexane, 2-butyl-1,1,3-tri Concentration Rank 76

R.T.	EstConc	Area	Relative to ISTD	R.T.	
41.48	2.89 NG	269461	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 2-butyl-1,1,3-trimethy	182	C13H26	054676-39-0	96
2	Cyclopentane, butyl-	126	C9H18	002040-95-1	74
3	6-Tridecene, (Z)-	182	C13H26	006508-77-6	74

 Peak Number 86 Cyclohexane, octyl- Concentration Rank 87

R.T.	EstConc	Area	Relative to ISTD	R.T.	
41.60	2.36 NG	220383	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, octyl-	196	C14H28	001795-15-9	59
2	Cyclohexane, 1,1'-(1,4-butanediyl)b	222	C16H30	006165-44-2	59
3	Cyclohexane, hexyl-	168	C12H24	004292-75-5	59

 Peak Number 87 Decane, 2,6,7-trimethyl- Concentration Rank 45

R.T.	EstConc	Area	Relative to ISTD	R.T.	
41.94	12.00 NG	1119690	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Decane, 2,6,7-trimethyl-	184	C13H28	062108-25-2	78
2	Octadecane, 2,6-dimethyl-	282	C20H42	075163-97-2	72
3	Dodecane, 4,6-dimethyl-	198	C14H30	061141-72-8	64

HNF-4598 Rev. 0
Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D
Acq On : 9 Apr 1999 10:49 am
Sample : VS006-407-S031-2 Sec. Dilution
Misc : 50 TORR, DF total = 48
MS Integration Params: VAP_NP.P

Vial: 1
Operator: G. FIES
Inst : 5972 - MS
Multiplr: 1.00

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Library : C:\DATABASE\NIST98.L

Peak Number 88 6-Tridecene, (Z)- Concentration Rank 46

R.T.	EstConc	Area	Relative to ISTD	R.T.
42.25	11.58 NG	1079890	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	6-Tridecene, (Z)-	182 C13H26	006508-77-6	95
2	2-Tridecene, (E)-	182 C13H26	041446-58-6	94
3	1-Tridecene	182 C13H26	002437-56-1	93

Peak Number 89 Tridecane Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
42.39	241.71 NG	22547000	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Tridecane	184 C13H28	000629-50-5	96
2	Dodecane	170 C12H26	000112-40-3	90
3	Undecane	156 C11H24	001120-21-4	90

Peak Number 90 2-Ethyl-3-trimethylsilyloxy(tr Concentration Rank 86

R.T.	EstConc	Area	Relative to ISTD	R.T.
42.61	2.37 NG	221001	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	2-Ethyl-3-trimethylsilyloxy(trimeth	276 C12H28O3Si2	1000078-93-6	28
2	3,6,9-Trioxa-2,10-disilaundecane, 2	250 C10H26O3Si2	016654-74-3	28
3	Silane, trimethyl(3-methyl-3-phenyl	202 C13H18Si	128889-54-3	25

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040904.D Vial: 1
 Acq On : 9 Apr 1999 10:49 am Operator: G. FIES
 Sample : VS006-407-S031-2 Sec. Dilution Inst : 5972 - MS
 Misc : 50 TORR, DF total = 48 Multiplr: 1.00
 MS Integration Params: VAP_NP.P

Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 91 Tetradecane Concentration Rank 48

R.T.	EstConc	Area	Relative to ISTD	R.T.
43.77	9.67 NG	901969	CHLOROBENZENE-D5	30.31

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1			Tetradecane	198	C14H30	000629-59-4	97
2			Hexadecane	226	C16H34	000544-76-3	91
3			Heptadecane	240	C17H36	000629-78-7	91

HNF-4598 Rev. 0

File : C:\OLDCHEM\1\DATA\19040908.D
 Operator : M. STAUFFER
 Acquired : 9 Apr 1999 3:33 pm using AcqMethod VAP_NP8
 Instrument : 5972 - MS
 Sample Name: VS006-412-S041-2
 Misc Info : 100 TORR, DF total = 24
 Vial Number: 1

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040908.D
 Acq Time : 9 Apr 99 3:33 pm
 Sample : VS006-412-S041-2
 Misc : 100 TORR, DF total = 24
 Quant Time: May 17 15:33 1999

Operator: M. STAUFFER
 Inst : 5972 - MS
 Multiplr: 24.00 1.0

MS
 5/17/99

Method : C:\HPCHEM\1\METHODS\VAP_P8.M
 Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
 Last Update : Mon Mar 22 09:53:20 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	7944149	155.50	NG	0.00
17) CHLOROBENZENE-D5	30.31	117	6452804	189.50	NG	-0.15

System Monitoring Compounds

%Recovery

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) ETHANOL	14.74	45	418591	25.21	PPB m	100
3) ACETONITRILE	16.17	40	7736	2.39	PPB m	1
4) ACETONE	16.06	58	820372	44.19	PPB m	1
5) FURAN	0.00	68		Not Detected		
6) 2-PROPANOL	0.00	45		Not Detected		
7) 1-PROPANOL	19.30	31	377087	6.50	PPB m	91
8) PROPANENITRILE	19.90	54	136078	5.74	PPB m	96
9) BUTANAL	20.49	72	91834	8.49	PPB m	90
10) 2-BUTANONE	20.67	72	129697	8.31	PPB	84
11) TETRAHYDROFURAN	0.00	72		Not Detected		
12) 1-BUTANOL	23.47	56	815010	25.24	PPB m	92
13) BUTANENITRILE	23.72	41	958455	12.94	PPB m	100
14) 2-PENTANONE	24.32	43	728828	5.57	PPB m	100
15) 1,4-DIOXANE	0.00	88		Not Detected		
16) 4-METHYL-2-PENTANONE	0.00	100		Not Detected		
18) 2-HEXANONE	28.10	58	857916	15.72	PPB m	74
19) 3-HEPTANONE	31.42	114	3609993	200.75	PPB m	1
20) 2-HEPTANONE	31.56	58	7642976	80.53	PPB m	65
21) CYCLOHEXANONE	0.00	98		Not Detected		
22) 2-OCTANONE	34.64	58	543186	3.97	PPB m	1

(#) = qualifier out of range (m) = manual integration
 19040908.D VAP_P8.M Mon May 17 15:33:44 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040908.D
 Acq Time : 9 Apr 99 3:33 pm
 Sample : VS006-412-S041-2
 Misc : 100 TORR, DF total = 24
 Quant Time: May 17 15:37 1999

Operator: M. STAUFFER
 Inst : 5972 - MS
 Multiplr: 24.00 1.0
 NS
 5/17/99

Method : D:\METHODS\VAP_NP8.M
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Last Update : Mon Mar 22 09:40:09 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	7944149	155.50	NG	0.00
20) CHLOROBENZENE-D5	30.31	117	6452804	189.50	NG	-0.12

System Monitoring Compounds

%Recovery

Target Compounds					Qvalue
2) FREON 12	0.00	85		Not Detected	
3) METHYL CHLORIDE	0.00	50		Not Detected	
4) N-BUTANE	11.45	43	7390919	96.67 PPB	95
5) ETHYL CHLORIDE	0.00	64		Not Detected	
6) FREON 11	0.00	101		Not Detected	
7) N-PENTANE	16.31	72	295497	48.21 PPB #	100
8) DICHLOROMETHANE	17.99	49	32452	0.70 PPB m	95
9) 2-METHYL-PENTANE	19.43	43	489236	6.09 PPB #	69
10) 1-HEXENE	20.44	56	2987396	98.49 PPB #	52
11) N-HEXANE	20.80	57	2569016	61.52 PPB #	63
12) CHLOROFORM	0.00	83		Not Detected	
13) BENZENE	23.43	78	224026	2.36 PPB	99
14) CARBON TETRACHLORIDE	0.00	117		Not Detected	
15) 3-METHYL-HEXANE	0.00	43		Not Detected	
16) N-HEPTANE	24.90	57	6347060	192.10 PPB m	4 E
17) TOLUENE	27.50	91	684454	4.84 PPB m	97
18) N-OCTANE	28.54	57	1956778	56.44 PPB m	91
19) TETRACHLOROETHYLENE	0.00	166		Not Detected	
21) CHLOROBENZENE	0.00	112		Not Detected	
22) ETHYLBENZENE	30.85	91	100838	0.79 PPB m	99
23) M,P-XYLENE	31.10	91	105116	1.21 PPB m	85
24) STYRENE	0.00	104		Not Detected	
25) N-NONANE	31.87	43	5211979	71.54 PPB m	81
26) 1,1,2,2-TETRACHLOROETHANE	0.00	83		Not Detected	
27) O-XYLENE	0.00	91		Not Detected	
28) N-DECANE	34.94	43	7065518	91.73 PPB m	84
29) 1,2,4-TRIMETHYLBENZENE	0.00	105		Not Detected	

(#) = qualifier out of range (m) = manual integration
 19040908.D VAP_NP8.M Mon May 17 15:37:45 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040905.D
 Acq Time : 9 Apr 99 12:05 pm
 Sample : VS006-412-S041-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 Quant Time: May 17 13:47 1999

Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

DF = 48

Method : D:\METHODS\VAP_NP8.M
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Last Update : Mon Mar 22 09:40:09 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	8285796	155.50	NG	0.00
20) CHLOROBENZENE-D5	30.31	117	7121533	189.50	NG	-0.12

System Monitoring Compounds

%Recovery

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) FREON 12	0.00	85		Not Detected		
3) METHYL CHLORIDE	0.00	50		Not Detected		
4) N-BUTANE	11.45	43	3853126	48.32	PPB	95
5) ETHYL CHLORIDE	0.00	64		Not Detected		
6) FREON 11	0.00	101		Not Detected		
7) N-PENTANE	16.31	72	157134	24.58	PPB #	100
8) DICHLOROMETHANE	0.00	49		Not Detected		
9) 2-METHYL-PENTANE	19.43	43	252824	3.02	PPB #	70
10) 1-HEXENE	20.44	56	1658289	52.42	PPB #	48
11) N-HEXANE	20.80	57	1389537	31.90	PPB #	61
12) CHLOROFORM	0.00	83		Not Detected		
13) BENZENE	23.43	78	123786	1.25	PPB m	97
14) CARBON TETRACHLORIDE	0.00	117		Not Detected		
15) 3-METHYL-HEXANE	0.00	43		Not Detected		
16) N-HEPTANE	24.86	57	4105009	119.12	PPB m	✓ 83
17) TOLUENE	27.50	91	374444	2.54	PPB m	96
18) N-OCTANE	28.52	57	1143806	31.63	PPB m	96
19) TETRACHLOROETHYLENE	0.00	166		Not Detected		
21) CHLOROBENZENE	0.00	112		Not Detected		
22) ETHYLBENZENE	0.00	91		Not Detected		
23) M,P-XYLENE	31.09	91	60594	0.63	PPB m	90
24) STYRENE	0.00	104		Not Detected		
25) N-NONANE	31.86	43	2930718	36.45	PPB m	80
26) 1,1,2,2-TETRACHLOROETHANE	0.00	83		Not Detected		
27) O-XYLENE	0.00	91		Not Detected		
28) N-DECANE	34.94	43	4437586	52.20	PPB m	82
29) 1,2,4-TRIMETHYLBENZENE	0.00	105		Not Detected		

(#) = qualifier out of range (m) = manual integration
 19040905.D VAP_NP8.M Mon May 17 13:47:40 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040905.D
 Acq Time : 9 Apr 99 12:05 pm
 Sample : VS006-412-S041-2 Sec. Dilution
 Misc : 50 TORR, DF total = 48
 Quant Time: May 17 13:55 1999

Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

DF = 48

Method : C:\HPCHEM\1\METHODS\VAP_P8.M
 Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
 Last Update : Mon Mar 22 09:53:20 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	8285796	155.50	NG	0.00
17) CHLOROBENZENE-D5	30.31	117	7121533	189.50	NG	-0.15

System Monitoring Compounds

%Recovery

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue	
2) ETHANOL	14.83	45	228231	13.18	PPB	m	100
3) ACETONITRILE	15.99	40	30	2.02	PPB	m	1 MS 5/17/99
4) ACETONE	16.07	58	423006	21.85	PPB	m	1
5) FURAN	0.00	68		Not Detected			
6) 2-PROPANOL	0.00	45		Not Detected			
7) 1-PROPANOL	19.31	31	187934	3.11	PPB	m	91
8) PROPANENITRILE	19.91	54	69442	2.81	PPB	m	94
9) BUTANAL	20.49	72	49262	4.37	PPB	m	86
10) 2-BUTANONE	20.68	72	71807	4.41	PPB		86
11) TETRAHYDROFURAN	0.00	72		Not Detected			
12) 1-BUTANOL	23.47	56	454953	13.51	PPB	m	96
13) BUTANENITRILE	23.73	41	499543	6.46	PPB	m	100
14) 2-PENTANONE	24.32	43	446899	3.27	PPB		98
15) 1,4-DIOXANE	0.00	88		Not Detected			
16) 4-METHYL-2-PENTANONE	26.33	100	9439	0.57	PPB	m	1
18) 2-HEXANONE	28.10	58	685059	11.37	PPB	#	70
19) 3-HEPTANONE	31.42	114	3573170	180.04	PPB	m	1 E
20) 2-HEPTANONE	31.56	58	7620574	72.75	PPB	m	80
21) CYCLOHEXANONE	0.00	98		Not Detected			
22) 2-OCTANONE	34.64	58	713927	4.73	PPB	m	1

(#) = qualifier out of range (m) = manual integration
 19040905.D VAP_P8.M Mon May 17 13:56:00 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040907.D
 Acq Time : 9 Apr 99 2:25 pm
 Sample : VS006-412-S041-2
 Misc : 25 TORR, DF total = 96
 Quant Time: May 17 14:07 1999

Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VAP_P8.M
 Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
 Last Update : Mon Mar 22 09:53:20 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	8216034	155.50	NG	0.00
17) CHLOROBENZENE-D5	30.31	117	7018395	189.50	NG	-0.15

System Monitoring Compounds

%Recovery

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) ETHANOL	14.93	45	118118	6.88	PPB m	100
3) ACETONITRILE	16.15	40	3169	2.17	PPB m	1
4) ACETONE	16.08	58	199191	10.37	PPB m	1
5) FURAN	0.00	68		Not Detected		
6) 2-PROPANOL	0.00	45		Not Detected		
7) 1-PROPANOL	19.32	31	86872	1.45	PPB m	95
8) PROPANENITRILE	19.92	54	31794	1.30	PPB m	62
9) BUTANAL	20.49	72	22453	2.01	PPB m	85
10) 2-BUTANONE	20.69	72	36813	2.28	PPB	99
11) TETRAHYDROFURAN	0.00	72		Not Detected		
12) 1-BUTANOL	23.47	56	248520	7.44	PPB m	99
13) BUTANENITRILE	23.73	41	265583	3.47	PPB m	100
14) 2-PENTANONE	24.32	43	262690	1.94	PPB	98
15) 1,4-DIOXANE	0.00	88		Not Detected		
16) 4-METHYL-2-PENTANONE	0.00	100		Not Detected		
18) 2-HEXANONE	28.09	58	501948	8.45	PPB m	74
19) 3-HEPTANONE	31.42	114	3113131	159.17	PPB m	1 E
20) 2-HEPTANONE	31.55	58	5942008	57.56	PPB m	83
21) CYCLOHEXANONE	0.00	98		Not Detected		
22) 2-OCTANONE	34.64	58	408047	2.74	PPB m	1

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

19040907.D VAP_P8.M

Mon May 17 14:08:19 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040907.D
 Acq Time : 9 Apr 99 2:25 pm
 Sample : VS006-412-S041-2
 Misc : 25 TORR, DF total = 96
 Quant Time: May 17 14:18 1999

Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : D:\METHODS\VAP_NP8.M
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Last Update : Mon Mar 22 09:40:09 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	8216034	155.50	NG	0.00
20) CHLOROBENZENE-D5	30.31	117	7018395	189.50	NG	-0.12

System Monitoring Compounds

%Recovery

Target Compounds						Qvalue
2) FREON 12	0.00	85		Not Detected		
3) METHYL CHLORIDE	0.00	50		Not Detected		
4) N-BUTANE	11.45	43	1865462	23.59 PPB	m	94
5) ETHYL CHLORIDE	0.00	64		Not Detected		
6) FREON 11	0.00	101		Not Detected		
7) N-PENTANE	16.31	72	75010	11.83 PPB	#	100
8) DICHLOROMETHANE	0.00	49		Not Detected		
9) 2-METHYL-PENTANE	19.44	43	121412	1.46 PPB	#	69
10) 1-HEXENE	20.43	56	854425	27.24 PPB	#	46
11) N-HEXANE	20.79	57	695813	16.11 PPB	#	59
12) CHLOROFORM	0.00	83		Not Detected		
13) BENZENE	23.43	78	61726	0.63 PPB	m	99
14) CARBON TETRACHLORIDE	0.00	117		Not Detected		
15) 3-METHYL-HEXANE	23.90	43	79694	1.14 PPB	m	33
16) N-HEPTANE	24.85	57	2618171	76.62' PPB		81
17) TOLUENE	27.50	91	182323	1.25 PPB		97
18) N-OCTANE	28.51	57	512559	14.29 PPB		99
19) TETRACHLOROETHYLENE	0.00	166		Not Detected		
21) CHLOROBENZENE	0.00	112		Not Detected		
22) ETHYLBENZENE	0.00	91		Not Detected		
23) M,P-XYLENE	0.00	91		Not Detected		
24) STYRENE	0.00	104		Not Detected		
25) N-NONANE	31.86	43	1375290	17.36 PPB	#	79
26) 1,1,2,2-TETRACHLOROETHANE	0.00	83		Not Detected		
27) O-XYLENE	0.00	91		Not Detected		
28) N-DECANE	34.93	43	2412842	28.80 PPB	m	80
29) 1,2,4-TRIMETHYLBENZENE	0.00	105		Not Detected		

(#) = qualifier out of range (m) = manual integration
 19040907.D VAP_NP8.M Mon May 17 14:19:50 1999

HNF-4598 Rev. 0

TIC: 19040908.D

VS006-412-S041-2

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	11.177	rBB	0.295	17670979	11.056	11.351
2	11.451	rBB	0.241	14278286	11.364	11.605
3	12.108	rBB	0.154	1233480	12.041	12.195
4	12.563	rBB	0.154	1063598	12.489	12.643
5	12.824	rBB	0.194	2670536	12.717	12.911
6	15.905	rBB	0.127	6398427	15.838	15.965
7	16.059	rBB	0.174	4612742	16.012	16.186
8	16.307	rBB	0.261	11798229	16.193	16.454
9	16.809	rBB	0.141	1425012	16.728	16.869
10	17.237	rBB	0.107	1106189	17.197	17.304
11	17.679	rBB	0.181	1560366	17.599	17.780
12	18.959	rBB	0.194	1049081	18.858	19.052
13	19.434	rBB	0.127	1403954	19.374	19.501
14	20.439	rBB	0.261	18758239	20.331	20.593
15	20.673	rBB	0.127	1060651	20.606	20.733
16	20.800	rBB	0.134	11233961	20.733	20.867
17	21.102	rBB	0.094	1084552	21.055	21.148
18	21.497	rBB	0.134	1642662	21.436	21.570
19	23.345	rBB	0.107	1020908	23.285	23.392
20	23.472	rBB	0.121	2821251	23.399	23.519
21	23.780	rBB	0.094	2565962	23.733	23.827
22	23.934	rBB	0.208	17149590	23.867	24.075
23	24.410	rBB	0.094	1087132	24.363	24.457
24	24.524	rBB	0.147	19400078	24.457	24.604
25	24.684	rBB	0.114	1647787	24.611	24.725
26	24.912	rBB	0.181	97040481	24.792	24.972
27	25.039	rBB	0.121	44223025	24.972	25.093
28	25.173	rBB	0.141	70760134	25.093	25.234
29	25.495	rBB	0.147	58272286	25.414	25.562
30	25.729	rBB	0.221	14830361	25.642	25.863
31	25.917	rBB	0.201	1327163	25.863	26.064
32	26.285	rBB	0.174	1244849	26.218	26.392
33	26.513	rBB	0.167	1159862	26.406	26.573
34	26.633	rBB	0.121	2037825	26.573	26.693
35	26.747	rBB	0.087	1649185	26.700	26.787
36	27.002	rBB	0.254	31719988	26.868	27.122
37	27.303	rBB	0.147	2596603	27.202	27.350
38	27.497	rBB	0.107	14191188	27.437	27.544
39	27.618	rBB	0.127	45331917	27.544	27.671
40	27.711	rBB	0.047	3677986	27.678	27.725
41	27.758	rBB	0.074	12842391	27.725	27.798
42	28.100	rBB	0.060	1695133	28.053	28.113
43	28.180	rBB	0.134	44001861	28.120	28.254
44	28.415	rBB	0.080	2522569	28.368	28.448
45	28.528	rBB	0.228	50083351	28.448	28.676
46	28.729	rBB	0.134	4767756	28.676	28.810
47	28.877	rBB	0.127	16337792	28.816	28.944
48	29.004	rBB	0.060	1812545	28.964	29.024
49	29.359	rBB	0.214	2326229	29.218	29.432
50	29.700	rBB	0.087	1240413	29.653	29.741
51	30.310	rBB	0.174	18197783	30.243	30.417
52	30.705	rBB	0.121	1290580	30.651	30.772
53	30.852	rBB	0.094	2964197	30.799	30.892
54	30.959	rBB	0.134	36491258	30.892	31.026
55	31.160	rBB	0.094	1470301	31.113	31.207
56	31.261	rBB	0.121	11265914	31.207	31.328

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57	31.462	rBB	0.174	70038899	31.334	31.509
58	31.562	rBB	0.127	37586630	31.509	31.636
59	31.676	rBB	0.087	8387017	31.636	31.723
60	31.870	rBB	0.121	18323047	31.810	31.930
61	32.225	rBB	0.127	1540595	32.151	32.279
62	32.681	rBB	0.167	10566247	32.573	32.741
63	32.788	rBB	0.107	1809980	32.741	32.848
64	33.015	rBB	0.194	21394334	32.881	33.076
65	33.149	rBB	0.147	26371284	33.076	33.223
66	33.290	rBB	0.127	17873702	33.223	33.350
67	33.578	rBB	0.094	11513916	33.524	33.618
68	33.631	rBB	0.054	1682378	33.618	33.672
69	33.873	rBB	0.094	1334592	33.832	33.926
70	34.120	rBB	0.174	4519701	34.053	34.227
71	34.328	rBB	0.141	5235565	34.227	34.368
72	34.448	rBB	0.181	32705426	34.368	34.549
73	34.683	rBB	0.114	6124580	34.609	34.723
74	34.763	rBB	0.087	1068290	34.723	34.810
75	34.944	rBB	0.147	28194184	34.877	35.024
76	35.085	rBB	0.154	1713857	35.031	35.185
77	35.299	rBB	0.248	27724894	35.185	35.433
78	35.620	rBB	0.127	3719417	35.553	35.681
79	35.754	rBB	0.167	19907172	35.681	35.848
80	36.243	rBB	0.100	1155250	36.190	36.290
81	36.377	rBB	0.107	2373895	36.317	36.424
82	37.308	rBB	0.234	6911954	37.161	37.395
83	37.556	rBB	0.147	4943646	37.489	37.636
84	37.790	rBB	0.127	37446495	37.717	37.844
85	37.884	rBB	0.121	1218196	37.844	37.964
86	38.085	rBB	0.154	5789297	37.991	38.145
87	38.694	rBB	0.141	4233417	38.614	38.755
88	38.835	rBB	0.194	20137271	38.755	38.949
89	39.116	rBB	0.114	1494984	39.063	39.176
90	39.310	rBB	0.094	1222693	39.264	39.357
91	39.485	rBB	0.134	1142058	39.411	39.545
92	40.060	rBB	0.107	2057995	40.000	40.107
93	40.208	rBB	0.154	3309117	40.114	40.268
94	40.442	rBB	0.254	59853610	40.348	40.603
95	40.757	rBB	0.188	2981070	40.683	40.871
96	41.936	rBB	0.174	2060889	41.862	42.036
97	42.250	rBB	0.114	2577215	42.170	42.284
98	42.391	rBB	0.100	33461522	42.337	42.438
99	42.579	rBB	0.167	3409913	42.532	42.699
100	43.764	rBB	0.087	1498551	43.724	43.811

LSC Report - Integrated Chromatogram

File : C:\OLDCHEM\1\DATA\19040908.D
Operator : M. STAUFFER
Acquired : 9 Apr 1999 3:33 pm using AcqMethod VAP_NP8
Instrument : 5972 - MS
Sample Name: VS006-412-S041-2
Misc Info : 100 TORR, DF total = 24
Vial Number: 1
Quant File : VAP_NP8.RES (RTE Integrator)

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D
 Acq On : 9 Apr 1999 3:33 pm
 Sample : VS006-412-S041-2
 Misc : 100 TORR, DF total = 24
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: M. STAUFFE
 Inst : 5972 - MS
 Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 1 1-Propene, 2-methyl- Concentration Rank 22

R.T.	EstConc	Area	Relative to ISTD	R.T.	
11.18	160.23 NG	17671000	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Propene, 2-methyl-	56	C4H8	000115-11-7	90
2	1-Butene	56	C4H8	000106-98-9	87
3	2-Butene, (Z) -	56	C4H8	000590-18-1	80

 Peak Number 2 1-Butene Concentration Rank 77

R.T.	EstConc	Area	Relative to ISTD	R.T.	
12.11	11.18 NG	1,233,480	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Butene	56	C4H8	000106-98-9	87
2	1-Propene, 2-methyl-	56	C4H8	000115-11-7	87
3	2-Butene, (E)-	56	C4H8	000624-64-6	72

 Peak Number 3 1-Propene, 2-methyl- Concentration Rank 83

R.T.	EstConc	Area	Relative to ISTD	R.T.	
12.56	9.64 NG	1063600	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Propene, 2-methyl-	56	C4H8	000115-11-7	87
2	2-Butene, (Z)-	56	C4H8	000590-18-1	86
3	Cyclobutane	56	C4H8	000287-23-0	62

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D

Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Library : C:\DATABASE\NIST98.L

 Peak Number 4 1-Butene Concentration Rank 49

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.82	24.21 NG	2670540	FLUOROBENZENE	23.93
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	1-Butene		56 C4H8	000106-98-9 87
2	1-Propene, 2-methyl-		56 C4H8	000115-11-7 83
3	2-Butene, (E)-		56 C4H8	000624-64-6 74

 Peak Number 5 1-Pentene Concentration Rank 32

R.T.	EstConc	Area	Relative to ISTD	R.T.
15.90	58.02 NG	6398430	FLUOROBENZENE	23.93
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	1-Pentene		70 C5H10	000109-67-1 91
2	Cyclopropane, ethyl-		70 C5H10	001191-96-4 90
3	Cyclobutane, methyl-		70 C5H10	000598-61-8 58

 Peak Number 6 Acetone Concentration Rank 38

R.T.	EstConc	Area	Relative to ISTD	R.T.
16.06	41.83 NG	4612740	FLUOROBENZENE	23.93
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Acetone		58 C3H6O	000067-64-1 72
2	2-Pentanone, 4-hydroxy-4-methyl-		116 C6H12O2	000123-42-2 9
3	Ethene, methoxy-		58 C3H6O	000107-25-5 4

Target

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D

Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Library : C:\DATABASE\NIST98.L

 Peak Number 7 2-Pentene, (Z)- Concentration Rank 69

R.T.	EstConc	Area	Relative to ISTD	R.T.	
16.81	12.92 NG	1425010	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Pentene, (Z)- E	70	C5H10	000627-20-3	91
2	Cyclopropane, 1,2-dimethyl-, cis-	70	C5H10	000930-18-7	91
3	1-Butene, 2-methyl-	70	C5H10	000563-46-2	91

 Peak Number 8 Cyclopropane, ethyl- Concentration Rank 80

R.T.	EstConc	Area	Relative to ISTD	R.T.	
17.24	10.03 NG	1106190	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopropane, ethyl-	70	C5H10	001191-96-4	91
2	Cyclobutane, methyl-	70	C5H10	000598-61-8	90
3	Cyclopentane	70	C5H10	000287-92-3	86

 Peak Number 9 2-Propanol, 2-methyl- Concentration Rank 66

R.T.	EstConc	Area	Relative to ISTD	R.T.	
17.68	14.15 NG	1560370	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Propanol, 2-methyl-	74	C4H10O	000075-65-0	83
2	3-Pentanol	88	C5H12O	000584-02-1	72
3	Formamide, N-methyl-	59	C2H5NO	000123-39-7	5

HNF-4598 Rev. 0
Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D
Acq On : 9 Apr 1999 3:33 pm
Sample : VS006-412-S041-2
Misc : 100 TORR, DF total = 24
MS Integration Params: VAP_NP.P

Vial: 1
Operator: M. STAUFFE
Inst : 5972 - MS
Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP NP8.M (RTE Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Library : C:\DATABASE\NIST98.L

Peak Number 10 1-Pentene, 4-methyl- Concentration Rank 85

R.T.	EstConc	Area	Relative to ISTD	R.T.
18.96	9.51 NG	1049080	FLUOROBENZENE	23.93

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1			1-Pentene, 4-methyl-	84	C6H12	000691-37-2	90
2			1-Hexene	84	C6H12	000592-41-6	72
3			1-Butene	56	C4H8	000106-98-9	52

Peak Number 11 2-Butanone Concentration Rank 84

R.T.	EstConc	Area	Relative to ISTD	R.T.
20.67	9.62 NG	1060650	FLUOROBENZENE	23.93

right

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1			2-Butanone	72	C4H8O	000078-93-3	78
2			Propanal, 2-methyl-	72	C4H8O	000078-84-2	38
3			Hydrogen azide	43	HN3	007782-79-8	5

Peak Number 12 2-Hexene, (E)- Concentration Rank 82

R.T.	EstConc	Area	Relative to ISTD	R.T.
21.10	9.83 NG	1084550	FLUOROBENZENE	23.93

Hit#	of	3	Tentative ID	MW	MolForm	CAS#	Qual
1			2-Hexene, (E)-	84	C6H12	004050-45-7	91
2			2-Hexene, (Z)-	84	C6H12	007688-21-3	90
3			3-Hexene, (E)-	84	C6H12	013269-52-8	87

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Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D

Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

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 Peak Number 13 2-Hexene, (Z)- Concentration Rank 65

R.T.	EstConc	Area	Relative to ISTD	R.T.	
21.50	14.89 NG	1642660	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Hexene, (Z) - 3-Hexene, Z	84	C6H12	7642-09-3 007688-21-3	91
2	2-Hexene, (E) -	84	C6H12	004050-45-7	76
3	2-Hexene	84	C6H12	000592-43-8	76

 Peak Number 14 3-Hexene, 2-methyl-, (E)- Concentration Rank 86

R.T.	EstConc	Area	Relative to ISTD	R.T.		
23.35	9.26 NG	1020910	FLUOROBENZENE	23.93		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Hexene, 2-methyl-, (E)-		98	C7H14	000692-24-0	94
2	3-Hexene, 2-methyl-, (Z)-		98	C7H14	015840-60-5	91
3	1-Butene, 2-ethyl-3-methyl-		98	C7H14	007357-93-9	87

 Peak Number 15 Cyclopentane, 1,2-dimethyl-, c Concentration Rank 50

R.T.	EstConc	Area	Relative to ISTD	R.T.	
23.78	23.27 NG	2565960	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	72
2	Isopropylcyclobutane	98	C7H14	000872-56-0	64
3	Cyclobutane, butyl-	112	C8H16	013152-44-8	59
	3-Heptene, E	98		14686-14-7	

HNF-4598 Rev. 0

Library Search Compound Report

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Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

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 Peak Number 16 1-Hexene, 2-methyl- Concentration Rank 81

R.T.	EstConc	Area	Relative to ISTD	R.T.	
24.41	9.86 NG	1087130	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Hexene, 2-methyl-	98	C7H14	006094-02-6	90
2	1-Pentene, 2,4-dimethyl-	98	C7H14	002213-32-3	86
3	Cyclopentane, methyl-	84	C6H12	000096-37-7	45

 Peak Number 17 1-Heptene Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.	
24.52	175.91 NG	19400100	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Heptene	98	C7H14	000592-76-7	97
2	3-Heptene	98	C7H14	000592-78-9	53
3	Cyclobutane, 1,2-diethyl-, cis-	112	C8H16	061141-50-2	50

 Peak Number 18 Butanenitrile, 2-methylene- Concentration Rank 64

R.T.	EstConc	Area	Relative to ISTD	R.T.	
24.68	14.94 NG	1647790	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Butanenitrile, 2-methylene-	81	C5H7N	001647-11-6	91
2	2-Pentenitrile	81	C5H7N	013284-42-9	87
3	1,2-Heptadiene	96	C7H12	002384-90-9	52

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Library Search Compound Report

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MS Integration Params: VAP_NP.P

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Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

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 Peak Number 19 (Z)-3-Heptene Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.	
25.04	400.98 NG	44223000	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	(Z)-3-Heptene	98	C7H14	007642-10-6	97
2	3-Heptene	98	C7H14	000592-78-9	94
3	2-Heptene	98	C7H14	000592-77-8	91

 Peak Number 20 2-Heptene Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.	
25.17	641.60 NG	70760100	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptene MS 5/25/99	98	C7H14	000592-77-8	97
2	2-Heptene, (E) -	98	C7H14	014686-13-6	97
3	3-Heptene	98	C7H14	000592-78-9	83

 Peak Number 21 2-Heptene, (E)- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.	
25.49	528.37 NG	58272300	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptene, (E)-	98	C7H14	014686-13-6	97
2	2-Heptene, 2	98	C7H14	000592-77-8	94
3	3-Heptene	98	C7H14	000592-78-9	93

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Library Search Compound Report

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Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

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 Peak Number 22 Cyclopropane, butyl- Concentration Rank 23

R.T.	EstConc	Area	Relative to ISTD	R.T.	
25.73	134.47 NG	14830400	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopropane, butyl-	98	C7H14	000930-57-4	95
2	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	59
3	Cyclopentane, 1,3-dimethyl-	98	C7H14	002453-00-1	53

 Peak Number 23 Cyclohexane, methyl- Concentration Rank 73

R.T.	EstConc	Area	Relative to ISTD	R.T.	
25.92	12.03 NG	1327160	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, methyl-	98	C7H14	000108-87-2	53
2	3-Penten-2-one, 4-methyl-	98	C6H10O	000141-79-7	50
3	2-Pentene, 3,4-dimethyl-, (E)-	98	C7H14	004914-92-5	50

 Peak Number 24 Cyclopentane, ethyl- Concentration Rank 76

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.29	11.29 NG	1244850	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentane, ethyl-	98	C7H14	001640-89-7	94
2	1-Hexene, 3-methyl-	98	C7H14	003404-61-3	43
3	1-Heptene	98	C7H14	000592-76-7	42

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 Peak Number 25 3,4-Heptadiene Concentration Rank 79

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.51	10.52 NG	1159860	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	3,4-Heptadiene , isomer	96	C7H12	002454-31-1	96
2	2,3-Hexadiene, 2-methyl-	96	C7H12	029212-09-7	93
3	1,3-Pentadiene, 2,4-dimethyl-	96	C7H12	001000-86-8	72

 Peak Number 26 1,6-Heptadiene Concentration Rank 55

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.63	18.48 NG	2037830	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1,6-Heptadiene	96	C7H12	003070-53-9	72
2	Cyclopropane, 1-propenyl-	82	C6H10	004663-21-2	72
3	1,1'-Bicyclopropyl	82	C6H10	005685-46-1	64

Unknown C8 alkene/cycloalkane 112

 Peak Number 27 1-Heptene, 3-methyl- Concentration Rank 63

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.75	14.95 NG	1649190	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Heptene, 3-methyl-	112	C8H16	004810-09-7	90
2	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	78
3	Isopropylcyclobutane	98	C7H14	000872-56-0	72

Library Search Compound Report

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Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

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Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

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 Peak Number 28 2,3-Hexadiene, 2-methyl- Concentration Rank 14

R.T.	EstConc	Area	Relative to ISTD	R.T.	
27.00	287.61 NG	31720000	FLUOROBENZENE	23.93	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2,3-Hexadiene, 2-methyl-	96	C7H12	029212-09-7	74
2	2-Cyclopenten-1-one, 2-methyl-	96	C6H8O	001120-73-6	58
3	Cyclohexene, 3-methyl-	96	C7H12	000591-48-0	53

 Peak Number 29 Heptane, 2-methyl- Concentration Rank 44

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.30	27.04 NG	2596600	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 2-methyl-		114	C8H18	000592-27-8	47
2	Heptane, 3-methylene-		112	C8H16	001632-16-2	47
3	Acetic acid, isononyl ester		186	C11H22O2	040379-24-6	43

Unknown

115

 Peak Number 30 Heptane, 3-methyl- Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.62	472.06 NG	45331900	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Heptane, 3-methyl-	114	C8H18	000589-81-1	91
2		Hexane, 2,4-dimethyl-	114	C8H18	000589-43-5	72
3		Heptane, 3,4,5-trimethyl-	142	C10H22	020278-89-1	59

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Library Search Compound Report

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Acq On : 9 Apr 1999 3:33 pm
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MS Integration Params: VAP_NP.P

Vial: 1
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Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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Peak Number 31 2-Octene, (Z)- Concentration Rank 40

R.T.	EstConc	Area	Relative to ISTD	R.T.	
27.71	38.30 NG	3677990	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Octene, (Z)-	112	C8H16	007642-04-8	93
2	2-Octene	112	C8H16	000111-67-1	91
3	2-Octene, (E)-	112	C8H16	013389-42-9	90
Octene, isomer		112			

Peak Number 32 2-Heptyne Concentration Rank 24

R.T.	EstConc	Area	Relative to ISTD	R.T.	
27.76	133.73 NG	12842400	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptyne	96	C7H12	001119-65-9	96
2	Cyclopropane, trimethylmethylene-	96	C7H12	034462-28-7	72
3	1,2-Hexadiene, 5-methyl-	96	C7H12	013865-36-6	72

Peak Number 33 2-Hexanone Concentration Rank 57

R.T.	EstConc	Area	Relative to ISTD	R.T.	
28.10	17.65 NG	1695130	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Hexanone	100	C6H12O	000591-78-6	87
2	2-Hexanone, 4-hydroxy-3-propyl-	158	C9H18O2	062338-17-4	64
3	Oxirane, 2-methyl-2-(1-methylethyl)	100	C6H12O	072221-03-5	59

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 Peak Number 34 Heptane, 3-methylene- Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.	
28.18	458.21 NG	44001900	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 3-methylene-	112	C8H16	001632-16-2	94
2	Cyclopentane, 1,2,4-trimethyl-, (1.	112	C8H16	016883-48-0	80
3	2-Butene, 2-methyl-	70	C5H10	000513-35-9	64

 Peak Number 35 4-Octene, (E)- Concentration Rank 46

R.T.	EstConc	Area	Relative to ISTD	R.T.	
28.41	26.27 NG	2522570	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	4-Octene, (E) -	112	C8H16	014850-23-8	94
2	4-Octene, (Z) -	112	C8H16	007642-15-1	87
3	2-Octene, (E) -	112	C8H16	013389-42-9	87
	4-Octene, isomer	112		14850-23-8	

 Peak Number 36 2-Octene, (E)- Concentration Rank 35

R.T.	EstConc	Area	Relative to ISTD	R.T.	
28.73	49.65 NG	4767760	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Octene, (E) -	112	C8H16	013389-42-9	90
2	3-Octene, (E) -	112	C8H16	014919-01-8	90
3	4-Octene, (E) -	112	C8H16	014850-23-8	87
	Octene, isomer	112		7642-04-8	

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 Peak Number 37 2-Heptene, 3-methyl- Concentration Rank 21

R.T.	EstConc	Area	Relative to ISTD	R.T.	
28.88	170.13 NG	16337800	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptene, 3-methyl-	112	C8H16	003404-75-9	95
2	Hexane, 2-methyl-4-methylene-	112	C8H16	003404-80-6	91
3	Heptane, 3-methylene-	112	C8H16	001632-16-2	64

 Peak Number 38 cis-1-Butyl-2-methylcyclopropane Concentration Rank 53

R.T.	EstConc	Area	Relative to ISTD	R.T.		
29.00	18.87 NG	1812550	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		cis-1-Butyl-2-methylcyclopropane	112	C8H16	038851-69-3	87
2		trans-1-Butyl-2-methylcyclopropane	112	C8H16	038851-70-6	83
3		4-Octene, (E)-	112	C8H16	014850-23-8	81
		Octene, isomer	112		38851-70-6	

 Peak Number 39 1-Hexene Concentration Rank 48

R.T.	EstConc	Area	Relative to ISTD	R.T.		
29.36	24.22 NG	2326230	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		1-Hexene	84	C6H12	000592-41-6	76
2		Cyclopropane, 1-ethyl-2-methyl-, ci	84	C6H12	019781-68-1	64
3		1-Heptene	98	C7H14	000592-76-7	59
		unknown	110			

Library Search Compound Report

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 Peak Number 40 3-Heptanone Concentration Rank 70

R.T.	EstConc	Area	Relative to ISTD	R.T.	
29.70	12.92 NG	1240410	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Heptanone	114	C7H14O	000106-35-4	80
2	3-Hexanone, 5-methyl-	114	C7H14O	000623-56-3	74
3	3,5-Heptanedione, 2,2,4,6,6-pentame	198	C12H22O2	005467-42-5	40

Target

 Peak Number 41 Heptane, 2,4-dimethyl- Concentration Rank 68

R.T.	EstConc	Area	Relative to ISTD	R.T.	
30.70	13.44 NG	1290580	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 2,4-dimethyl-	128	C9H20	002213-23-2	72
2	Heptane, 2,3-dimethyl-	128	C9H20	003074-71-3	53
3	1-Pentanol, 2-methyl-	102	C6H14O	000105-30-6	50

C9 aliphatic hydrocarbon 128

 Peak Number 42 4-Heptanone Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.	
30.96	380.00 NG	36491300	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	4-Heptanone	114	C7H14O	000123-19-3	90
2	3-Pentanone, 2,4-dimethyl-	114	C7H14O	000565-80-0	72
3	3-Hexanone, 2-methyl-	114	C7H14O	007379-12-6	72

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Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 43 Hexanenitrile Concentration Rank 62

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.16	15.31 NG	1470300	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Hexanenitrile	97	C6H11N	000628-73-9 94
2	Heptanenitrile	111	C7H13N	000629-08-3 40
3	2-Propen-1-amine, N-2-propenyl-	97	C6H11N	000124-02-7 38

 Peak Number 44 n-Butyl ether Concentration Rank 26

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.26	117.32 NG	11265900	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	n-Butyl ether	130	C8H18O	000142-96-1 90
2	Ethanol, 2-butoxy-	118	C6H14O2	000111-76-2 42
3	Butane, 1-(2-chloroethoxy)-	136	C6H13ClO	010503-96-5 38

 Peak Number 45 3-Heptanone Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.46	729.34 NG	70038900	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	3-Heptanone	114	C7H14O	000106-35-4 91
2	3-Hexanone, 5-methyl-	114	C7H14O	000623-56-3 59
3	2-Propen-1-ol, 2-methyl-	72	C4H8O	000513-42-8 52

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Data File : C:\OLDCHEM\1\DATA\19040908.D

Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

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Peak Number 46 2-Heptanone Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.56	391.40 NG	37586600	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptanone		114	C7H14O	000110-43-0	91
2	2-Hexanone, 4-methyl-		114	C7H14O	000105-42-0	72
3	2-Hexanone, 5-methyl-		114	C7H14O	000110-12-3	59

Peak Number 47 3-Heptanol Concentration Rank 28

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.68	87.34 NG	8387020	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Heptanol		116	C7H16O	000589-82-2	90
2	3-Hexanol, 5-methyl-		116	C7H16O	000623-55-2	78
3	2-Butanol, 2,3-dimethyl-		102	C6H14O	000594-60-5	64

Peak Number 48 1H-Pyrazole, 3-methyl- Concentration Rank 59

R.T.	EstConc	Area	Relative to ISTD	R.T.
32.23	16.04 NG	1540600	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	1H-Pyrazole, 3-methyl-		82	C4H6N2	001453-58-3	59
2	Fomepizole		82	C4H6N2	007554-65-6	50
3	1,3,5-Triazine		81	C3H3N3	000290-87-9	43

Unknown

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MS Integration Params: VAP_NP.P

Vial: 1
Operator: M. STAUFFE
Inst : 5972 - MS
Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
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Peak Number 49 2,5-Pyrrolidinedione, 1-methyl Concentration Rank 27

R.T.	EstConc	Area	Relative to ISTD	R.T.
32.68	110.03 NG	10566200	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	2,5-Pyrrolidinedione, 1-methyl-	113 C5H7NO2	001121-07-9	50
2	2-Oxepanone, 4-methyl-	128 C7H12O2	1000196-99-7	30
3	Cyclopentane, methyl-	84 C6H12	000096-37-7	27
Unknown		128		

Peak Number 50 4-Heptanone, 3-methyl- Concentration Rank 54

R.T.	EstConc	Area	Relative to ISTD	R.T.
32.79	18.85 NG	1809980	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	4-Heptanone, 3-methyl-	128 C8H16O	015726-15-5	91
2	3-Hexanone, 4-ethyl-	128 C8H16O	006137-12-8	86
3	Heptane, 2,5,5-trimethyl-	142 C10H22	001189-99-7	72

Peak Number 51 1,3,2-Dioxaborolane, 2,4-dieth Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.02	222.79 NG	21394300	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	1,3,2-Dioxaborolane, 2,4-diethyl-	128 C6H13BO2	057633-63-3	64
2	2,2'-Bioxepane	198 C12H22O2	074793-02-5	64
3	Hexanoic acid, anhydride	214 C12H22O3	002051-49-2	59

1,3-Diethyl-1,4-epoxybutane, isomer 128

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D
 Acq On : 9 Apr 1999 3:33 pm
 Sample : VS006-412-S041-2
 Misc : 100 TORR, DF total = 24
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: M. STAUFFE
 Inst : 5972 - MS
 Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
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 Peak Number 52 2,2'-Bioxepane Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.	
33.15	274.61 NG	26371300	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2,2'-Bioxepane	198	C12H22O2	074793-02-5	56
2	3,5-Diamino-1,2,4-triazole	99	C2H5N5	001455-77-2	53
3	Hexanoic acid, anhydride	214	C12H22O3	002051-49-2	50
1,3-Diethyl-1,4-epoxybutane, isomer					128

 Peak Number 53 3,3-Diethoxy-1-propyne Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.	
33.29	186.13 NG	17873700	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	3,3-Diethoxy-1-propyne	128	C7H12O2	010160-87-9	64
2	4-Hexen-2-one, 3,4-dimethyl-	126	C8H14O	053252-21-4	64
3	1-Butene, 2,3,3-trimethyl-	98	C7H14	000594-56-9	53
Unknown		128			

 Peak Number 54 2(5H)-Furanone, 3,5,5-trimethyl Concentration Rank 25

R.T.	EstConc	Area	Relative to ISTD	R.T.		
33.58	119.90 NG	11513900	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2(5H)-Furanone, 3,5,5-trimethyl-	126	C7H10O2	050598-50-0	28	
2	2-Hexanone, 5-methyl-3-methylene-	126	C8H14O	001187-87-7	17	
3	2-Propenal, (1,1-dimethylethyl)meth	126	C8H14O	072101-22-5	17	
Unknown			128	126		
			125			

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MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

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 Peak Number 55 2-Buten-1-ol Concentration Rank 58

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.63	17.52 NG	1682380	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		2-Buten-1-ol	72	C4H8O	006117-91-5	40
2		Octane, 4-ethyl-	142	C10H22	015869-86-0	35
3		2-Propen-1-ol, 2-methyl-	72	C4H8O	000513-42-8	28

*Unknown**126*

 Peak Number 56 Hexane, 2,3,5-trimethyl- Concentration Rank 67

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.87	13.90 NG	1334590	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Hexane, 2,3,5-trimethyl-	128	C9H20	001069-53-0	47
2		5-Ethyldecane	170	C12H26	017302-36-2	43
3		1-Propene, 1-(2-propenyloxy)-, (E)-	98	C6H10O	061142-13-0	38

*C10 aliphatic hydrocarbon**142*

 Peak Number 57 4-Octanone Concentration Rank 36

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.12	47.07 NG	4519700	CHLOROBENZENE-D5	30.31

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		4-Octanone	128	C8H16O	000589-63-9	95
2		4-Heptanone, 2-methyl-	128	C8H16O	000626-33-5	60
3		Heptadecane	240	C17H36	000629-78-7	43

Library Search Compound Report

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Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Library : C:\DATABASE\NIST98.L

 Peak Number 58 Octanenitrile Concentration Rank 33

R.T.	EstConc	Area	Relative to ISTD	R.T.	
34.33	54.52 NG	5235570	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Octanenitrile	125	C8H15N	000124-12-9	64
2	Heptanenitrile	111	C7H13N	000629-08-3	64
3	1H-Pyrazole, 1-methyl-	82	C4H6N2	000930-36-9	38

 Peak Number 59 Cyclotetrasiloxane, octamethyl Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.	
34.45	340.57 NG	32705400	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclotetrasiloxane, octamethyl-	296	C8H24O4Si4	000556-67-2	90
2	Benzoic acid, 3-methyl-2-trimethyls	296	C14H24O3Si2	1000153-57-1	59
3	Benzene, 1-phenyl-4-(2-cyano-2-phen	281	C21H15N	027869-56-3	53

 Peak Number 60 1-Decene Concentration Rank 30

R.T.	EstConc	Area	Relative to ISTD	R.T.	
34.68	63.78 NG	6124580	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Decene	140	C10H20	000872-05-9	96
2	1-Decanol	158	C10H22O	000112-30-1	90
3	Cyclopropane, 1,2-dimethyl-3-pentyl	140	C10H20	062238-10-2	72

Comment: New

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Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Library : C:\DATABASE\NIST98.L

 Peak Number 61 Cyclohexane, 1,4-dimethyl-, ci Concentration Rank 78

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.76	11.12 NG	1068290	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Cyclohexane, 1,4-dimethyl-, cis-	112 C8H16	000624-29-3 74
2		Cyclohexane, 1,3-dimethyl-, trans-	112 C8H16	002207-03-6 68
3		Cyclohexane, 1-ethyl-2-methyl-	126 C9H18	003728-54-9 59
		<i>Cyclohexane, 1-methyl-3-propyl-</i>	<i>140</i>	<i>4291-80-9</i>

 Peak Number 62 1H-Pyrazole, 1-methyl- Concentration Rank 56

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.08	17.85 NG	1713860	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		1H-Pyrazole, 1-methyl-	82 C4H6N2	000930-36-9 38
2		3-Hexyne	82 C6H10	000928-49-4 35
3		5-Octen-2-one, 5-methyl-	140 C9H16O	121986-29-6 27
		<i>Unknown</i>	<i>140</i>	

 Peak Number 63 Hexanenitrile Concentration Rank 13

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.30	288.71 NG	27724900	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Hexanenitrile	97 C6H11N	000628-73-9 36
2		2-Oxazolidinone, 3-ethenyl-5-methyl	127 C6H9NO2	003395-98-0 33
3		1-Pyrroline, 3-ethyl-	97 C6H11N	001192-29-6 22
		<i>Unknown</i>	<i>140</i>	

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Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

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 Peak Number 64 Nonane, 2,6-dimethyl- Concentration Rank 39

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.62	38.73 NG	3719420	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Nonane, 2,6-dimethyl-	156 C11H24	017302-28-2 90
2		Decane, 4-methyl-	156 C11H24	002847-72-5 90
3		Octane, 2,3,6-trimethyl-	156 C11H24	062016-33-5 64

 Peak Number 65 1-Hexanol, 2-ethyl- Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.75	207.30 NG	19907200	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		1-Hexanol, 2-ethyl-	130 C8H18O	000104-76-7 86
2		2-Propyl-1-pentanol	130 C8H18O	058175-57-8 53
3		Heptane, 1,1'-oxybis-	214 C14H30O	000629-64-1 50

 Peak Number 66 Cyclohexane, butyl- Concentration Rank 74

R.T.	EstConc	Area	Relative to ISTD	R.T.
36.24	12.03 NG	1155250	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Cyclohexane, butyl-	140 C10H20	001678-93-9 72
2		Cyclohexane, (2-methylpropyl)-	140 C10H20	001678-98-4 64
3		Cyclohexane, propyl-	126 C9H18	001678-92-8 59

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 Sample : VS006-412-S041-2
 Misc : 100 TORR, DF total = 24
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: M. STAUFFER
 Inst : 5972 - MS
 Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
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 Peak Number 67 Tridecane, 6-methyl- Concentration Rank 47

R.T.	EstConc	Area	Relative to ISTD	R.T.		
36.38	24.72 NG	2373900	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1		Tridecane, 6-methyl-	198	C14H30	013287-21-3	78
2		Nonane, 5-(1-methylpropyl)-	184	C13H28	062185-54-0	53
3		Decane, 3-methyl-	156	C11H24	013151-34-3	52
		Unknown	154			

 Peak Number 68 Octanenitrile Concentration Rank 29

R.T.	EstConc	Area	Relative to ISTD	R.T.	
37.31	71.98 NG	6911950	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Octanenitrile	125	C8H15N	000124-12-9	86
2	Nonanenitrile	139	C9H17N	002243-27-8	43
3	8-Azabicyclo[3.2.1]octane-3-carboni	150	C9H14N2	005911-81-9	40

 Peak Number 69 1-Undecene Concentration Rank 34

R.T.	EstConc	Area	Relative to ISTD	R.T.	
37.56	51.48 NG	4943650	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Undecene	154	C11H22	000821-95-4	89
2	5-Undecene	154	C11H22	004941-53-1	64
3	1-Decene	140	C10H20	000872-05-9	58
Undecene, 1-cr 3 isomer		154			

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Vial: 1
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Inst : 5972 - MS
Multiplr: 24.00

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Peak Number 70 Undecane Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
37.79	389.94 NG	37446500	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Undecane		156 C11H24	001120-21-4 96
2	Tridecane		184 C13H28	000629-50-5 83
3	Heptadecane		240 C17H36	000629-78-7 78

Peak Number 71 Cyclohexanone, 2-propyl- Concentration Rank 72

R.T.	EstConc	Area	Relative to ISTD	R.T.
37.88	12.69 NG	1218200	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	Cyclohexanone, 2-propyl-		140 C9H16O	000094-65-5 47
2	1-Propene, 1,1'-oxybis-, (E,E)-		98 C6H10O	004696-28-0 46
3	Cyclohexanone, 2-butyl-		154 C10H18O	001126-18-7 46

Unknown

154

Peak Number 72 3-Buten-2-one, 4-(1-aziridinyl) Concentration Rank 31

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.08	60.29 NG	5789300	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1	3-Buten-2-one, 4-(1-aziridinyl)-		111 C6H9NO	018277-57-1 38
2	2(1H)-Pyrimidinone, 4-amino-		111 C4H5N3O	000071-30-7 35
3	5-Amino-1,3-dimethylpyrazole		111 C5H9N3	003524-32-1 35

Unknown

154

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Acq On : 9 Apr 1999 3:33 pm
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Misc : 100 TORR, DF total = 24
MS Integration Params: VAP_NP.P

Vial: 1
Operator: M. STAUFFE
Inst : 5972 - MS
Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
Title : NONPOLAR VAPOR STANDARD CALIBRATION
Library : C:\DATABASE\NIST98.L

Peak Number 73 1H-1,2,4-Triazole, 3-ethyl- Concentration Rank 37

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.69	44.08 NG	4233420	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		1H-1,2,4-Triazole, 3-ethyl-	97 C4H7N3	007411-16-7 43
2		4(3H)-Pyrimidinone	96 C4H4N2O	051953-17-4 40
3		5-Hydroxypyrimidine	96 C4H4N2O	026456-59-7 35

Unknown

139

Peak Number 74 Benzoic acid, 2-[(trimethylsil) Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.83	209.70 NG	20137300	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Benzoic acid, 2-[(trimethylsilyl)ox	282 C13H22O3Si2	003789-85-3 59
2		Benzoic acid, 4-[(trimethylsilyl)ox	282 C13H22O3Si2	002078-13-9 38
3		Benzeneethanamine, N-[(pentafluorop	475 C21H26F5NO2Si2	055429-85-1 37

Peak Number 75 n-Amylcyclohexane Concentration Rank 61

R.T.	EstConc	Area	Relative to ISTD	R.T.
39.12	15.57 NG	1494980	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		n-Amylcyclohexane	154 C11H22	029949-27-7 64
2		Cyclohexane, pentyl-	154 C11H22	004292-92-6 64
3		Cyclohexane, (3-methylpentyl)-	168 C12H24	061142-38-9 58

cyclohexane, C5 substituted 154

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D
 Acq On : 9 Apr 1999 3:33 pm
 Sample : VS006-412-S041-2
 Misc : 100 TORR, DF total = 24
 MS Integration Params: VAP_NP.P

Vial: 1
 Operator: M. STAUFFE
 Inst : 5972 - MS
 Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Library : C:\DATABASE\NIST98.L

 Peak Number 76 Naphthalene, decahydro-2-methy Concentration Rank 71

R.T.	EstConc	Area	Relative to ISTD	R.T.
39.31	12.73 NG	1222690	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Naphthalene, decahydro-2-methyl-	152 C11H20	002958-76-1 98
2		1-Methyldecahydronaphthalene	152 C11H20	002958-75-0 98
3		trans-Decalin, 2-methyl-	152 C11H20	1000152-47-3 91

 Peak Number 77 Undecane, 2-methyl- Concentration Rank 75

R.T.	EstConc	Area	Relative to ISTD	R.T.
39.48	11.89 NG	1142060	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Undecane, 2-methyl-	170 C12H26	007045-71-8 90
2		Decane, 2,9-dimethyl-	170 C12H26	001002-17-1 86
3		Dodecane, 2-methyl-	184 C13H28	001560-97-0 72

 Peak Number 78 Nonanenitrile Concentration Rank 52

R.T.	EstConc	Area	Relative to ISTD	R.T.
40.06	21.43 NG	2058000	CHLOROBENZENE-D5	30.31
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Nonanenitrile	139 C9H17N	002243-27-8 90
2		Octanenitrile	125 C8H15N	000124-12-9 72
3		2-Isopropyl-1-pyrroline	111 C7H13N	000872-81-1 46

Comment: New

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D

Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Library : C:\DATABASE\NIST98.L

 Peak Number 79 2-Dodecene, (Z)- Concentration Rank 42

R.T.	EstConc	Area	Relative to ISTD	R.T.		
40.21	34.46 NG	3309120	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Dodecene, (Z)-		168	C12H24	007206-26-0	97
2	4-Dodecene		168	C12H24	002030-84-4	97
3	3-Dodecene, (Z)-		168	C12H24	007239-23-8	96
	Dodecene, isomer		168			

 Peak Number 80 Dodecane Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.		
40.44	623.28 NG	59853600	CHLOROBENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Dodecane		170	C12H26	000112-40-3	95
2	Tridecane		184	C13H28	000629-50-5	90
3	Decane, 6-ethyl-2-methyl-		184	C13H28	062108-21-8	90

 Peak Number 81 Undecane, 2,6-dimethyl- Concentration Rank 43

R.T.	EstConc	Area	Relative to ISTD	R.T.	
40.76	31.04 NG	2981070	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Undecane, 2,6-dimethyl-	184	C13H28	017301-23-4	96
2	Dodecane, 6-methyl-	184	C13H28	006044-71-9	95
3	Undecane, 3,6-dimethyl-	184	C13H28	017301-28-9	76

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D

Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Library : C:\DATABASE\NIST98.L

 Peak Number 82 Hexadecane, 2,6,10,14-tetramet Concentration Rank 51

R.T.	EstConc	Area	Relative to ISTD	R.T.	
41.94	21.46 NG	2060890	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexadecane, 2,6,10,14-tetramethyl-	282	C20H42	000638-36-8	78
2	Octadecane, 2,6-dimethyl-	282	C20H42	075163-97-2	72
3	Undecane, 5-methyl-	170	C12H26	001632-70-8	72
	Decane, 2,6,7-trimethyl-	184		62108-25-2	

 Peak Number 83 6-Tridecene, (Z)- Concentration Rank 45

R.T.	EstConc	Area	Relative to ISTD	R.T.	
42.25	26.84 NG	2577220	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	6-Tridecene, (Z)-	182	C13H26	006508-77-6	95
2	2-Tridecene, (E)-	182	C13H26	041446-58-6	93
3	2-Tridecene, (Z)-	182	C13H26	041446-59-7	93
	Tridecene, isomer	182			

 Peak Number 84 Tridecane Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.	
42.39	348.45 NG	33461500	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Tridecane	184	C13H28	000629-50-5	97
2	Dodecane	170	C12H26	000112-40-3	90
3	Tetradecane	198	C14H30	000629-59-4	90

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040908.D

Acq On : 9 Apr 1999 3:33 pm

Sample : VS006-412-S041-2

Misc : 100 TORR, DF total = 24

MS Integration Params: VAP_NP.P

Vial: 1

Operator: M. STAUFFE

Inst : 5972 - MS

Multiplr: 24.00

Quant Method : C:\OLDCHEM\1\METHODS\VAP_NP8.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Library : C:\DATABASE\NIST98.L

Peak Number 85 2(3H)-Furanone, dihydro-3,4-bi Concentration Rank 41

R.T.	EstConc	Area	Relative to ISTD	R.T.		
42.58	35.51 NG	3409910	CHLORO BENZENE-D5	30.31		
Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2(3H)-Furanone, dihydro-3,4-bis[(tr	262	C10H22O4Si2	055220-79-6	40	
2	Benzenepropanoic acid, .alpha.-[(tr	310	C15H26O3Si2	027750-45-4	38	
3	Ribo-hexos-3-ulose, 2,4,5,6-tetraki	524	C20H48N2O6Si4	062108-14-9	36	
Unknown		207				

Peak Number 86 Tetradecane Concentration Rank 60

R.T.	EstConc	Area	Relative to ISTD	R.T.	
43.76	15.60 NG	1498550	CHLOROBENZENE-D5	30.31	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	Tetradecane	198	C14H30	000629-59-4	97
2	Hexadecane	226	C16H34	000544-76-3	91
3	Heptadecane	240	C17H36	000629-78-7	91

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 47
ID : 3,6-DIHYDRO-6,6-DIMETHYL-2H-PYRAN-2-ONE

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 58
ID : Heptane, 2-methyl-

Library Searched : C:\DATABASE\NIST98.L
Quality : 86
ID : cis-1-Methyl-2-(2'-propenyl)cyclopropane

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\NIST98.L
Quality : 97
ID : 1-Decene

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 42
 ID : Hexanenitrile

Library Searched : C:\DATABASE\NIST98.L
Quality : 86
ID : Tridecane, 6-methyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 49
ID : 3-n-Butylcyclohexanone

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 43
 ID : 3-Buten-2-one, 4-(1-aziridinyl)-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 43
ID : 1H-1,2,4-Triazole, 3-ethyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\NIST98.L
Quality : 90
ID : Nonanenitrile

Library Searched : C:\DATABASE\NIST98.L
 Quality : 90
 ID : Nonanenitrile

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\NIST98.L
Quality : 72
ID : Hexadecane, 2,6,10,14-tetramethyl-

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 42
 ID : Ethanedioic acid, bis(trimethylsilyl) ester

HNF-4598 Rev. 0

File : C:\OLDCHEM\1\DATA\19040906.D
Operator : G. FIES
Acquired : 9 Apr 1999 1:25 pm using AcqMethod VAP_NP8
Instrument : 5972 - MS
Sample Name: VSAMB-401-S061
Misc Info : 50 TORR, DF total = 2
Vial Number: 1

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040906.D
 Acq Time : 9 Apr 99 1:25 pm
 Sample : VSAMB-401-S061
 Misc : 50 TORR, DF total = 2
 Quant Time: May 17 15:14 1999

Operator: G. FIES
 Inst : 5972 - MS
 Multiplr: 1.00

Method : D:\METHODS\VAP_NP8.M
 Title : NONPOLAR VAPOR STANDARD CALIBRATION
 Last Update : Mon Mar 22 09:40:09 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	8274880	155.50	NG	0.00
20) CHLOROBENZENE-D5	30.32	117	6353969	189.50	NG	-0.11

System Monitoring Compounds %Recovery

Target Compounds			Qvalue
2) FREON 12	0.00	85	Not Detected
3) METHYL CHLORIDE	0.00	50	Not Detected
4) N-BUTANE	0.00	43	Not Detected
5) ETHYL CHLORIDE	0.00	64	Not Detected
6) FREON 11	0.00	101	Not Detected
7) N-PENTANE	0.00	72	Not Detected
8) DICHLOROMETHANE	0.00	49	Not Detected
9) 2-METHYL-PENTANE	0.00	43	Not Detected
10) 1-HEXENE	0.00	56	Not Detected
11) N-HEXANE	0.00	57	Not Detected
12) CHLOROFORM	0.00	83	Not Detected
13) BENZENE	0.00	78	Not Detected
14) CARBON TETRACHLORIDE	0.00	117	Not Detected
15) 3-METHYL-HEXANE	0.00	43	Not Detected
16) N-HEPTANE	0.00	57	Not Detected
17) TOLUENE	0.00	91	Not Detected
18) N-OCTANE	0.00	57	Not Detected
19) TETRACHLOROETHYLENE	0.00	166	Not Detected
21) CHLOROBENZENE	0.00	112	Not Detected
22) ETHYLBENZENE	0.00	91	Not Detected
23) M,P-XYLENE	0.00	91	Not Detected
24) STYRENE	0.00	104	Not Detected
25) N-NONANE	0.00	43	Not Detected
26) 1,1,2,2-TETRACHLOROETHANE	0.00	83	Not Detected
27) O-XYLENE	0.00	91	Not Detected
28) N-DECANE	0.00	43	Not Detected
29) 1,2,4-TRIMETHYLBENZENE	0.00	105	Not Detected

(#) = qualifier out of range (m) = manual integration
 19040906.D VAP_NP8.M Mon May 17 15:15:15 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : D:\C106_3\19040906.D

Acq Time : 9 Apr 99 1:25 pm

Sample : VSAMB-401-S061

Misc : 50 TORR, DF total = 2

Quant Time: May 17 15:17 1999

Operator: G. FIES

Inst : 5972 - MS

Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\VAP_P8.M

Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES

Last Update : Mon Mar 22 09:53:20 1999

Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	23.93	96	8274880	155.50	NG	0.00
17) CHLOROBENZENE-D5	30.32	117	6353969	189.50	NG	-0.14

System Monitoring Compounds

%Recovery

Target Compounds

Qvalue

2) ETHANOL	0.00	45		Not Detected		
3) ACETONITRILE	15.97	40	145	2.03 PPB	79	MS 5/17/99
4) ACETONE	16.37	58	29586	1.53 PPB m	1	
5) FURAN	0.00	68		Not Detected		
6) 2-PROPANOL	0.00	45		Not Detected		
7) 1-PROPANOL	0.00	31		Not Detected		
8) PROPANENITRILE	0.00	54		Not Detected		
9) BUTANAL	0.00	72		Not Detected		
10) 2-BUTANONE	0.00	72		Not Detected		
11) TETRAHYDROFURAN	0.00	72		Not Detected		
12) 1-BUTANOL	0.00	56		Not Detected		
13) BUTANENITRILE	0.00	41		Not Detected		
14) 2-PENTANONE	0.00	43		Not Detected		
15) 1,4-DIOXANE	0.00	88		Not Detected		
16) 4-METHYL-2-PENTANONE	0.00	100		Not Detected		
18) 2-HEXANONE	0.00	58		Not Detected		
19) 3-HEPTANONE	31.39	114	137097	7.74 PPB	66	
20) 2-HEPTANONE	31.51	58	185418	1.98 PPB m	81	
21) CYCLOHEXANONE	0.00	98		Not Detected		
22) 2-OCTANONE	0.00	58		Not Detected		

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

19040906.D VAP_P8.M

Mon May 17 15:17:30 1999

HNF-4598 Rev. 0

TIC: 19040906.D

VSAMB-401-S061

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	17.900	rVB	0.214	247170	17.853	18.068
2	21.932	rBV	0.121	104608	21.818	21.938
3	23.934	rBV	0.409	16891908	23.860	24.269
4	28.100	rBV	0.147	95761	28.046	28.193
5	30.310	rBV	0.362	18119954	30.196	30.557
6	30.946	rVB	0.174	710888	30.899	31.073
7	31.260	rBV	0.114	434784	31.207	31.321
8	31.388	rBV	0.141	2744292	31.321	31.461
9	31.515	rVV	0.161	916433	31.461	31.622
10	31.682	rVV	0.141	312262	31.622	31.763
11	32.674	rBV	0.201	294374	32.540	32.740
12	33.015	rVV	0.114	498845	32.961	33.075
13	33.149	rVV	0.141	737010	33.082	33.223
14	33.236	rVV	0.027	344406	33.223	33.249
15	33.283	rVB	0.141	327460	33.256	33.397
16	33.571	rBV	0.228	444092	33.484	33.712
17	34.328	rBV	0.141	141783	34.227	34.368
18	34.428	rVV	0.127	1259652	34.368	34.495
19	35.272	rBV	0.248	843344	35.198	35.446
20	35.761	rBV	0.221	1362778	35.694	35.915
21	37.308	rVB	0.121	169135	37.268	37.388
22	37.770	rVB	0.114	252115	37.716	37.830
23	38.078	rVB	0.134	92954	38.031	38.165
24	38.701	rBV	0.114	384890	38.640	38.754
25	38.821	rVB	0.201	2878689	38.754	38.955
26	40.067	rBV	0.121	450716	40.013	40.134
27	40.208	rVV	0.181	243626	40.161	40.341
28	40.408	rVB	0.268	3235739	40.341	40.609
29	40.757	rVB	0.181	112827	40.710	40.891
30	41.935	rVB	0.161	97831	41.882	42.042
31	42.257	rBV	0.114	166137	42.176	42.290
32	42.377	rBV	0.100	4026926	42.330	42.431
33	42.592	rBV	0.241	1416884	42.538	42.779
34	43.770	rBV	0.094	97204	43.730	43.824

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Library Search Compound Report

Data File : C:\OLDCHEM\1\DATA\19040906.D Vial: 1
 Acq On : 9 Apr 1999 1:25 pm Operator: G. FIES
 Sample : VSAMB-401-S061 Inst : 5972 - MS
 Misc : 50 TORR, DF total = 2 Multiplr: 1.00
 MS Integration Params: RTE LO.P
 Method : C:\HPCHEM\1\METHODS\WIPP_A.M (RTE Integrator)
 Title : TARGET COMPOUNDS FOR WIPP HEADSPACE ANALYSES
 Library : C:\DATABASE\nist98.1

 Peak Number 1 4-Heptanone Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.	
30.95	6.91 NG	648869	CHLOROBENZENE-D5	30.32	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	4-Heptanone	114	C7H14O	000123-19-3	91
2	3-Hexanone, 2-methyl-	114	C7H14O	007379-12-6	86
3	3-Pentanone, 2,4-dimethyl-	114	C7H14O	000565-80-0	72

 Peak Number 2 n-Butyl ether Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.	
31.26	4.51 NG	423670	CHLOROBENZENE-D5	30.32	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	n-Butyl ether	130	C8H18O	000142-96-1	72
2	Ethanol, 2-butoxy-	118	C6H14O2	000111-76-2	42
3	Ethanedioic acid, dibutyl ester	202	C10H18O4	002050-60-4	38

 Peak Number 3 2-Heptanone Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.	
31.52	9.04 NG	849435	CHLOROBENZENE-D5	30.32	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	2-Heptanone	114	C7H14O	000110-43-0	90
2	2-Hexanone, 4-methyl-	114	C7H14O	000105-42-0	72
3	2-Hexanone, 5-methyl-	114	C7H14O	000110-12-3	52

 Peak Number 4 3-Heptanol Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.	
31.68	3.27 NG	306941	CHLOROBENZENE-DS	30.32	
Hit# of 3	Tentative ID	MW	MolForm	CAS#	Qual
1	3-Heptanol	116	C7H16O	000589-82-2	86

2 3-Hexanol, 5-methyl- 116 C7H16O 000623-55-2 80
 3 Formic acid, 1,1-dimethylethyl este 102 C5H10O2 000762-75-4 53

 Peak Number 5 2,5-Pyrrolidinedione, 1-methyl Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.
32.67	2.86 NG	268408	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	2,5-Pyrrolidinedione, 1-methyl-	113	C5H7NO2	001121-07-9	52	
2	2,3-Dimethyl-isoxazol-5(2H)-one	113	C5H7NO2	1000145-60-5	38	
3	Cyclohexanol, 4-methyl-1-(1-methyle	156	C10H20O	000470-65-5	35	
	<i>Unknown</i>		<i>128</i>			

 Peak Number 6 1,3,2-Dioxaborolane, 2,4-dieth Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.02	4.88 NG	458669	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	1,3,2-Dioxaborolane, 2,4-diethyl-	128	C6H13BO2	057633-63-3	72	
2	2,2'-Bioxepane	198	C12H22O2	074793-02-5	64	
3	3,5-Diamino-1,2,4-triazole	99	C2H5N5	001455-77-2	53	
	<i>1,3-Diethyl-1,4-epoxybutane, isomer</i>		<i>128</i>			

 Peak Number 7 Hexanoic acid, anhydride Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.15	7.23 NG	678971	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexanoic acid, anhydride	214	C12H22O3	002051-49-2	64	
2	Glycocyanidine	99	C3H5N3O	000503-86-6	59	
3	3,5-Diamino-1,2,4-triazole	99	C2H5N5	000503-88-8	58	
	<i>1,3-Diethyl-1,4-epoxybutane, isomer</i>		<i>128</i>			

 Peak Number 8 Acetaldehyde Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.24	3.35 NG	314205	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Acetaldehyde	44	C2H4O	000075-07-0	5	
2	Ethylene oxide	44	C2H4O	000075-21-8	3	
3	Propane	44	C3H8	000074-98-6	2	

 Peak Number 9 3-Penten-2-one, 4-methyl- Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.28	2.35 NG	220254	CHLOROBENZENE-D5	30.32
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		3-Penten-2-one, 4-methyl-	98 C6H10O	000141-79-7 59
2		Cyclopropane, 1,1,2,2-tetramethyl-	98 C7H14	004127-47-3 59
3		4-Hexen-2-one, 3,4-dimethyl-	126 C8H14O	053252-21-4 59

 Peak Number 10 3-Octen-2-one Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
33.57	2.66 NG	249947	CHLOROBENZENE-D5	30.32
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		3-Octen-2-one	126 C8H14O	001669-44-9 25
2		2-Hexanone, 5-methyl-3-methylene-	126 C8H14O	001187-87-7 16
3		4-Acetyl cycloheptanone	168 C10H16O2	086428-60-6 12

 Peak Number 11 Cyclotetrasiloxane, octamethyl Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
34.43	13.30 NG	1249230	CHLOROBENZENE-D5	30.32
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Cyclotetrasiloxane, octamethyl-	296 C8H24O4Si4	000556-67-2 74
2		5H-Naphtho[2,3-c]carbazole, 5-methyl-	281 C21H15N	100025-44-3 47
3		Benzoic acid, 3-methyl-2-trimethyls	296 C14H24O3Si2	1000153-57-1 40

 Peak Number 12 Hexanenitrile Concentration Rank 13

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.27	3.90 NG	366112	CHLOROBENZENE-D5	30.32
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		Hexanenitrile	97 C6H11N	000628-73-9 42
2		1,7-Octadiene	110 C8H14	003710-30-3 33
3		1,2-Nonadiene	124 C9H16	022433-33-6 33

 Peak Number 13 1-Hexanol, 2-ethyl- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
35.76	13.69 NG	1285450	CHLOROBENZENE-D5	30.32
Hit# of	3	Tentative ID	MW MolForm	CAS# Qual
1		1-Hexanol, 2-ethyl-	130 C8H18O	000104-76-7 86

HNF-4598 Rev. 0

2 2-Propyl-1-pentanol	130 C8H18O	058175-57-8 42
3 Heptane, 1,1'-oxybis-	214 C14H30O	000629-64-1 40

 Peak Number 14 Undecane Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.
37.77	2.58 NG	241981	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Undecane		156	C11H24	001120-21-4	91
2	Decane		142	C10H22	000124-18-5	72
3	Decane, 2,3,6-trimethyl-		184	C13H28	062238-12-4	72

 Peak Number 15 4(3H)-Pyrimidinone Concentration Rank 14

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.70	3.70 NG	347928	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	4(3H)-Pyrimidinone		96	C4H4N2O	051953-17-4	45
2	1H-1,2,4-Triazole, 3-ethyl-		97	C4H7N3	007411-16-7	38
3	s(+)-1-Cyano-2-methyl-azetidine		96	C5H8N2	1000143-32-0	35

 Peak Number 16 Benzoic acid, 2-[(trimethylsil Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
38.82	30.01 NG	2818330	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzoic acid, 2-[(trimethylsilyl)ox		282	C13H22O3Si2	003789-85-3	64
2	Benzenethanamine, N-[(pentafluorop		475	C21H26F5NO2Si2	055429-85-1	45
3	Benzenoacetic acid, 3-methoxy-4-[(t		268	C13H20O4Si	015964-84-8	25

 Peak Number 17 Nonanenitrile Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
40.07	4.58 NG	430436	CHLOROBENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Nonanenitrile		139	C9H17N	002243-27-8	90
2	Octanenitrile		125	C8H15N	000124-12-9	64
3	Heptanenitrile		111	C7H13N	000629-08-3	47

 Peak Number 18 Dodecane Concentration Rank 2

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R.T.	EstConc	Area	Relative to ISTD	R.T.
40.41	30.23 NG	2839030	CHLORO BENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Dodecane		170	C12H26	000112-40-3	97
2	Decane, 2,3,6-trimethyl-		184	C13H28	062238-12-4	90
3	Decane, 6-ethyl-2-methyl-		184	C13H28	062108-21-8	90

 Peak Number 19 Tridecane Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
42.38	42.05 NG	3949220	CHLORO BENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Tridecane		184	C13H28	000629-50-5	97
2	Heptadecane		240	C17H36	000629-78-7	91
3	Dodecane		170	C12H26	000112-40-3	90

 Peak Number 20 3,6,9-Trioxa-2,10-disilaundeca Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
42.59	13.65 NG	1281920	CHLORO BENZENE-D5	30.32

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	3,6,9-Trioxa-2,10-disilaundecane, 2		250	C10H26O3Si2	016654-74-3	33
2	3,8-Dioxa-2,9-disiladecane, 2,2,9,9		438	C18H46O4Si4	074779-61-6	33
3	Ethanedioic acid, bis(trimethylsilyl)		234	C8H18O4Si2	018294-04-7	33

19040906.D WIPP_A.M Wed May 19 08:12:16 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\19061008.D
Operator : G. FIES
Acquired : 10 Jun 1999 6:13 pm using AcqMethod VAP_NP9
Instrument : GC/MS Ins
Sample Name: VSAMB-406-S082
Misc Info : 20 TORR, DF=2
Vial Number: 1

HNF-4598 Rev. 0

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\19061008.D
 Acq On : 10 Jun 1999 6:13 pm
 Sample : VSAMB-406-S082
 Misc : 20 TORR, DF=2
 MS Integration Params: rteint.p
 Quant Time: Jun 16 14:39 1999

Vial: 1
 Operator: G. FIES
 Inst : GC/MS Ins
 Multiplr: 1.00
 GC Integration Params: rteint2.p
 Quant Results File: VAP_P9.RES

Quant Method : C:\HPCHEM\1\METHODS\VAP_P9.M (RTE Integrator)
 Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
 Last Update : Wed Jun 09 15:59:46 1999
 Response via : Initial Calibration
 DataAcq Meth : VAP_NP9

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	24.54	96	4107871	155.50	NG	0.00
17) CHLOROBENZENE-D5	30.95	117	3307030	189.50	NG	0.02

System Monitoring Compounds

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) ETHANOL	0.00	45	0	N.D.		
3) ACETONITRILE	16.83	40	127	N.D.		
4) ACETONE	16.81	58	18980m	3.99	PPB	
5) FURAN	0.00	68	0	N.D.		
6) 2-PROPANOL	17.72	45	165	N.D.		
7) 1-PROPANOL	0.00	31	0	N.D.		
8) PROPANENITRILE	21.12	54	60	N.D.		
9) BUTANAL	21.13	72	14020m	4.35	PPB	
10) 2-BUTANONE	21.39	72	4918m	0.96	PPB	
11) TETRAHYDROFURAN	0.00	72	0	N.D.		
12) 1-BUTANOL	24.20	56	4926m	0.58	PPB	
13) BUTANENITRILE	24.38	41	12230m	0.62	PPB	
14) 2-PENTANONE	24.98	43	16011	N.D.		
15) 1,4-DIOXANE	0.00	88	0	N.D.		
16) 4-METHYL-2-PENTANONE	0.00	100	0	N.D.		
18) 2-HEXANONE	28.72	58	3480	N.D.		
19) 3-HEPTANONE	32.02	114	26938m	7.55	PPB	
20) 2-HEPTANONE	32.15	58	20496m	0.69	PPB	
21) CYCLOHEXANONE	0.00	98	0	N.D.		
22) 2-OCTANONE	35.76	58	118	N.D.		

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

19061008.D VAP_P9.M Wed Jun 16 14:39:32 1999

HNF-4598 Rev. 0

Quantitation Report

(QT Reviewed)

Data File : C:\HPCHEM\1\DATA\19061008.D

Vial: 1

Acq On : 10 Jun 1999 6:13 pm

Operator: G. FIES

Sample : VSAMB-406-S082

Inst : GC/MS Ins

Misc : 20 TORR, DF=2

Multiplr: 1.00

MS Integration Params: RTE_MID.P

GC Integration Params: rteint2.p

Quant Time: Jun 16 14:31 1999

Quant Results File: VAP_NP9.RES

Quant Method : C:\HPCHEM\1\METHODS\VAP_NP9.M (RTE Integrator)

Title : NONPOLAR VAPOR STANDARD CALIBRATION

Last Update : Wed Jun 09 15:48:10 1999

Response via : Initial Calibration

DataAcq Meth : VAP_NP9

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) FLUOROBENZENE	24.54	96	4107871	155.50	NG	0.00
20) CHLOROBENZENE-D5	30.95	117	3307030	189.50	NG	0.01

System Monitoring Compounds

Target Compounds					Qvalue
2) FREON 12	0.00	85	0	N.D.	
3) METHYL CHLORIDE	9.66	50	2138m	0.23 PPB	
4) N-BUTANE	11.91	43	7810m	0.46 PPB	
5) ETHYL CHLORIDE	0.00	64	0	N.D.	
6) FREON 11	16.18	101	2763	N.D.	
7) N-PENTANE	0.00	72	0	N.D.	
8) DICHLOROMETHANE	0.00	49	0	N.D.	
9) 2-METHYL-PENTANE	20.02	43	2720	N.D.	
10) 1-HEXENE	21.36	56	57	N.D.	
11) N-HEXANE	21.14	57	6917m	0.45 PPB	
12) CHLOROFORM	0.00	83	0	N.D.	
13) BENZENE	24.04	78	6410	0.23 PPB	97
14) CARBON TETRACHLORIDE	24.08	117	712	N.D.	
15) 3-METHYL-HEXANE	24.16	43	2158	N.D.	
16) N-HEPTANE	25.43	57	1003	N.D.	
17) TOLUENE	28.12	91	15915	0.49 PPB	96
18) N-OCTANE	29.09	57	2074	N.D.	
19) TETRACHLOROETHYLENE	29.73	166	349	N.D.	
21) CHLOROBENZENE	31.03	112	1603	N.D.	
22) ETHYLBENZENE	31.49	91	2821	N.D.	
23) M,P-XYLENE	31.74	91	5628	0.21 PPB	90
24) STYRENE	0.00	104	0	N.D.	
25) N-NONANE	32.53	43	581	N.D.	
26) 1,1,2,2-TETRACHLOROETHANE	0.00	83	0	N.D.	
27) O-XYLENE	32.59	91	2301	N.D.	
28) N-DECANE	35.55	43	127	N.D.	
29) 1,2,4-TRIMETHYLBENZENE	35.76	105	10137	0.29 PPB	95

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

19061008.D VAP_NP9.M Wed Jun 16 14:32:17 1999

HNF-4598 Rev. 0

TIC: 19061008.D

VSAMB-406-S082

Peak#	Ret Time	Type	Width	Area	Start Time	End Time
1	24.536	rVB	0.246	9135205	24.457	24.702
2	30.948	rBV	0.362	10523932	30.856	31.218
3	32.016	rBV	0.172	896718	31.930	32.102

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\19061008.D Vial: 1
 Acq On : 10 Jun 1999 6:13 pm Operator: G. FIES
 Sample : VSAMB-406-S082 Inst : GC/MS Ins
 Misc : 20 TORR, DF=2 Multiplr: 1.00
 MS Integration Params: RTE LO.P GC Integration Params: rteint2.p
 Quant Method : C:\HPCHEM\1\METHODS\VAP_P9.M (RTE Integrator)
 Title : POLAR TARGET COMPOUNDS FOR TANK VAPOR ANALYSES
 Library : NIST98.L

 Peak Number 1 4-Heptanone Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
31.57	2.36 NG	129595	CHLOROBENZENE-D5	30.95

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	4-Heptanone	114	C7H14O	000123-19-3	91	
2	3-Hexanone, 2-methyl-	114	C7H14O	007379-12-6	86	
3	3-Pentanone, 2,4-dimethyl-	114	C7H14O	000565-80-0	86	

 Peak Number 2 Benzeneethanamine, N-[(pentafl Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
39.51	3.49 NG	192069	CHLOROBENZENE-D5	30.95

Hit# of	3	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzeneethanamine, N-[(pentafluorop	475	C21H26F5NO2Si2	055429-85-1	59	
2	Benzoic acid, 2-[(trimethylsilyl)ox	282	C13H22O3Si2	003789-85-3	38	
3	Benzeneacetic acid, 3-methoxy-4-[(t	268	C13H20O4Si	015964-84-8	25	

19061008.D VAP_P9.M Wed Jun 16 14:40:30 1999

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2.3 Volatile Organic Compounds in Triple Sorbent Trap Samples

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2.3.1 Narrative

This section contains descriptions of the analytical method and quality assurance used during analysis.

2.3.1.1 Determination of Volatile Organic Compounds in Triple Sorbent Trap Samples

The volatile organic compounds (VOCs) in triple sorbent trap (TST) samples are determined by GC-MS. TSTs capture VOCs from the tank headspace vapor on carbon-based adsorbents. The first step in the analysis of the TST samples is to "focus" the trapped VOCs onto a narrow-bore thermal desorption tube. This is accomplished by using the technique of thermal desorption. The TST is rapidly heated with a constant purge of helium gas flowing through the tube. The VOCs desorb from the TST and are subsequently trapped on the narrow-bore thermal desorption tube. Focusing improves the efficiency of the injection into a gas chromatograph. The thermal desorption tube is then heated to inject the VOCs into a gas chromatograph equipped with a fused silica column and mass-selective detector. The VOCs are separated on the column and detected by means of a mass-selective detector.

The instrumentation consists of a Hewlett-Packard model 5890 Series II gas chromatograph equipped with a 0.53-mm inside diameter by 105-m long RTX -502.2 fused-silica column and a Hewlett-Packard model 5972 mass-selective detector.

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2.3.1.2 Triple Sorbent Trap Volatile Organic Compounds Analytical Quality Assurance

Headspace samples collected on triple sorbent traps (TSTs) were analyzed following procedures LA-549-404, Rev. A-1, and LA-523-408, Rev. A-1. Standard and sample preparation is documented in logbook WHC-N-1411-1, pages 137-138 and pages 141-143. The thermal desorption GC/MS instrument maintenance and run log is documented in logbook WHC-N-943-1, pages 34-37.

The GC/MS system was tuned and calibrated prior to sample analysis. The tune and calibration were then checked daily against criteria established in LA-523-408. The initial calibration (ICAL) consisted of a 6-point calibration with 70, 100, 200, 400, 600 and 1000 nanogram (ng) standards prepared on TST tubes. The calibration was performed using the internal standard method. The average response factor, over the range of calibration, and the percent relative standard deviation (%RSD) of the set of standards was calculated for each target compound. Procedure LA-523-408 requires a 5-point calibration curve with a %RSD of less than 25 %. The results are tabulated in the Response Factor Report.

Twenty-eight of the 33 target list analytes met the initial calibration requirements using the average response factor method of calculation. Compounds with chains of 8 or more carbon atoms exhibited a trend toward higher response factors, however, those compounds fit a linear regression with a coefficient of determination (r^2) of 0.996 or better. As a further check on the linear regression calibration, the calibration standards were processed as samples and the results were used to calculate the recovery of each analyte compared to the amount in the standard. The results are tabulated in the Linear Calibration Verification Table.

Two of the hydrocarbons (dodecane, and tridecane) did not meet the requirements for average response factor or linear curve fit. Results for those compounds were flagged to indicate that calibration requirements were not met.

A second calibration from 200 to 2000 nanograms was established for compounds that were found in high concentrations in the samples. Heptane, nonane, decane and undecane were calibrated in that range using average response factors. Dodecane and tridecane failed to meet calibration requirements in the 200 to 2000 nanogram range and results are flagged for those compounds to indicate that quality control requirements were not met.

CCVSs were analyzed daily to monitor instrument response. Procedure LA-523-408 requires that the daily response factor for each analyte be within 25 % of the average response factor established in the initial calibration. For compounds calibrated by the linear regression method, a recovery based on the known amount in the CCVS was calculated. With the exception of n-dodecane, and n-tridecane all the target analytes were within acceptable limits. The response factor deviations and analyte recoveries are tabulated in the TST Continuing Calibration Table.

A laboratory control sample (LCS) prepared with standards from an independent source was analyzed in duplicate. LA-523-408 requires that the recovery of each LCS analyte be within 65 - 135 % and the relative percent difference (RPD) be within 35 %. All of the LCS analytes met the requirement. The results are tabulated in the Laboratory Control Sample Results Table.

LA-523-408 requires that the internal standard area counts for samples must be within 50 - 150 % of the area counts for the daily CCVSs. The area counts of the internal standards were within acceptable limits. Internal standard area counts for samples and CCVSs are tabulated in the TST Internal Standards Area Counts Table.

Surrogates were added to TST tubes prior to sample collection. Surrogate recoveries for sample VS006-414-TS39 were slightly lower than normal, however, LA-523-408 does not specify acceptance limits for surrogate recovery so the sample results were not flagged. Surrogate recoveries for samples and blanks are tabulated in the Surrogate Compounds Results Table.

A method performance blank, trip blank, and field blank were analyzed with the sample set. Acetone was observed in the Trip Blank (VS006-483-TS73) at a concentration greater than one-half the VPRQL, the action limit (0.075 mg/m^3). Sample results that were effected are flagged with a "T". Results for the blank analysis are tabulated in the TST Blank Summary Table.

A large number of tentatively identified compounds (TICs) at high concentration levels were observed in this sample set. In some cases the TIC peaks interfered with the identification and quantitation of target peaks. n-Hexane co-eluted with 1-hexene and n-octane co-eluted with 3-methylene heptane, TICs which contain the ions used to quantitate n-hexane and n-octane. Since there were no ions unique to the target analytes that were satisfactory for quantitative analysis, the values reported for n-hexane and n-octane are the total of the TIC and the respective target compound. In some cases 1-butanol could not be accurately quantitated because it's detector response was not sufficiently resolved from the high response to n-heptane. n-Hexane, n-octane and 1-butanol were flagged with an "*" in the Sample Summary Tables to indicate a difficulty encountered in quantitating these analytes.

A computer search was run to match the mass spectra of the TICs to library spectra of standard compounds. The concentrations of the TICs were calculated based on a response factor of 1 relative to hexafluorobenzene. TICs with an area count greater than 10% of the area of hexafluorobenzene were reported.

The TICs in sample VS006-414-TS39 were analyzed in detail in an attempt to identify and estimate the concentrations of as many TICs as possible. Twenty-five of the largest TIC peaks from VS006-414-TS39 were selected and concentration estimates were determined for those compounds in sample VS006-409-TS33.

The TIC Library Search Reports in Section 2.3.4 list the 5 highest quality, computerized library search matches. The results listed in the TIC Summary Tables were based on the judgement of the analyst using both the computerized library search and manual search techniques to tentatively identify the non-target compounds.

TICs with responses greater than 10% of the area of hexafluorobenzene were not detected in the field blank, trip blank, method performance blank, ambient air before start of pump (VSAMB-402-TS75), or baseline from stack before start of pump (VS006-403-TS20) samples.

2.3.2 TST Result Summary Tables

The result summary tables are organized by sample. All reported values have been corrected to 25 °C and 1 atmosphere pressure. The following are included:

- Sample Summary Tables for target analytes
- TIC Summary Tables
- Blank Summary Table.

Phase III 241-C-106 Sluicing Target Analyte Concentrations for Triple Sorbent Tube Analyses				Sample Number		VS006-403-TS20				VS006-409-TS33			
				Analysis Date		4/22/99				4/22/99			
				Analysis Time		11:13				11:57			
				Primary File ID		39041332.D				39041333.D			
Target Analyte Name	Compound ID #	Mol Wt	Ret. Time	VPRQL mg/m ³	VPRQL ppbv	(mg/m ³) ¹	ppbv	Flag ²	Elapsed Hold Time	(mg/m ³) ¹	ppbv	Flag ²	Elapsed Hold Time
Methanol	67-56-1	32	8.45	0.15	110	0.15	110	M, *	25 Days	0.15	110	Q, *	25 Days
Ethanol	64-17-5	46	9.79	0.15	80	0.15	80	Q	25 Days	0.15	80	Q	25 Days
Acetone	67-64-1	58	11.15	0.15	63	0.15	63	Q, T	25 Days	0.23	95	T	25 Days
Acetonitrile	75-05-8	41	11.63	0.15	89	0.15	89	Q	25 Days	0.15	89	Q	25 Days
Dichloromethane	75-09-2	84	12.37	0.15	43	0.15	43	M	25 Days	0.15	43	M	25 Days
1-Propanol	71-23-8	60	12.67	0.15	61	0.15	61	Q	25 Days	0.19	260		25 Days
n-Hexane	110-54-3	86	13.00	0.15	43	0.15	43	Q	25 Days	2.7	760	*	25 Days
Butanal	123-72-8	72	14.14	0.15	51	0.15	51	Q	25 Days	0.70	240		25 Days
Propanenitrile	107-12-0	55	14.41	0.15	67	0.15	67	Q	25 Days	0.15	67	M	25 Days
Chloroform	67-66-3	120	15.02	0.15	31	0.15	31	M	25 Days	0.15	31	M	25 Days
Tetrahydrofuran	109-99-9	72	15.37	0.15	51	0.15	51	M	25 Days	0.15	51	M	25 Days
1-Butanol	71-36-3	74	15.94	0.15	49	0.50	160	*	25 Days	0.70	49	*	25 Days
n-Heptane	142-82-5	100	16.12	0.15	37	0.15	37	Q	25 Days	18	4400		25 Days
Tetrachloromethane	56-23-5	152	16.21	0.15	24	0.15	24	M	25 Days	0.15	24	M	25 Days
Benzene	71-43-2	78	16.47	0.15	47	0.15	47	Q	25 Days	0.15	47	M	25 Days
2-Pentanone	107-87-9	86	17.03	0.15	43	0.15	43	M	25 Days	0.33	43		25 Days
Butanenitrile	109-74-0	69	17.29	0.15	53	0.15	53	Q	25 Days	1.1	370		25 Days
n-Octane	111-65-9	114	19.02	0.15	32	0.15	32	M	25 Days	3.4	740	*	25 Days
Toluene	108-88-3	92	19.62	0.15	40	0.15	40	M	25 Days	0.30	40		25 Days
2-Hexanone	591-78-6	100	19.94	0.15	37	0.15	37	Q	25 Days	0.75	180		25 Days
Pentanenitrile	110-59-8	83	20.23	0.15	44	0.15	44	M	25 Days	0.84	150		25 Days
Tetrachloroethylene	127-18-4	164	20.81	0.15	22	0.15	22	M	25 Days	0.15	22	M	25 Days
n-Nonane	111-84-2	128	21.64	0.15	29	0.15	29	M	25 Days	2.5	480		25 Days
2-Heptanone	110-43-0	114	22.59	0.15	32	0.15	32	Q	25 Days	9.3	2000		25 Days
Hexanenitrile	628-73-9	97	22.93	0.15	38	0.15	38	M	25 Days	1.6	400		25 Days
o-Xylene	95-47-6	106	23.30	0.15	34	0.15	34	M	25 Days	0.15	34	Q	25 Days
n-Decane	124-18-5	142	24.12	0.15	26	0.15	26	M	25 Days	7.9	1400		25 Days
2-Octanone	111-13-7	128	25.00	0.15	29	0.15	29	M	25 Days	0.72	140		25 Days
Heptanenitrile	629-08-3	111	25.34	0.15	33	0.15	33	M	25 Days	1.4	310		25 Days
1,2,4-Trimethylbenzene	95-63-6	120	25.67	0.15	30	0.15	30	M	25 Days	0.15	30	Q	25 Days
n-Undecane	1120-21-4	156	26.30	0.15	23	0.76	120		25 Days	19	3000	E	25 Days
n-Dodecane	112-40-3	170	28.37	0.15	22	0.15	22	Q, *	25 Days	37	5300	E, *	25 Days
n-Tridecane	629-50-5	184	30.44	0.15	20	0.21	29	Q, *	25 Days	38	5000	E, *	25 Days

¹ mg/m³ calculated at 25°C and 101.3 kPa (1 atmosphere)² Data Flags:

B: Target analyte was detected in laboratory blank

D: Target analyte reported is the result of a secondary dilution

F: Target analyte was found in field blank

M: Target analyte was absent (not detected) in sample

Q: Target analyte was detected, but at concentrations less than VPRQL

T: Target analyte reported in sample was also found in trip blank above action limit.

*: Asterisk: Data did not meet quality control requirements; refer to Data Package Case Narrative.

Phase III 241-C-106 Sluicing Target Analyte Concentrations for Triple Sorbent Tube Analyses				Sample Number		VS006-414-TS39				VSAMB-402-TS75			
				Analysis Date		4/22/99				4/22/99			
				Analysis Time		13:09				15:32			
				Primary File ID		39041334.D				39041337.D			
Target Analyte Name	Compound ID #	Mol Wt	Ret. Time	VPRQL mg/m ³	VPRQL ppbv	(mg/m ³) ¹	ppbv	Flag ²	Elapsed Hold Time	(mg/m ³) ¹	ppbv	Flag ²	Elapsed Hold Time
Methanol	67-56-1	32	8.45	0.15	110	0.20	150	*	25 Days	0.15	110	Q, *	25 Days
Ethanol	64-17-5	46	9.79	0.15	80	0.15	80	Q	25 Days	0.15	80	M	25 Days
Acetone	67-64-1	58	11.15	0.15	63	0.25	110	T	25 Days	0.15	63	Q, T	25 Days
Acetonitrile	75-05-8	41	11.63	0.15	89	0.15	89	Q	25 Days	0.15	89	Q	25 Days
Dichloromethane	75-09-2	84	12.37	0.15	43	0.15	43	M	25 Days	0.15	43	M	25 Days
1-Propanol	71-23-8	60	12.67	0.15	61	0.25	100		25 Days	0.15	61	M	25 Days
n-Hexane	110-54-3	86	13.00	0.15	43	6.9	2000	*	25 Days	0.15	43	M	25 Days
Butanal	123-72-8	72	14.14	0.15	51	1.02	350		25 Days	0.15	51	M	25 Days
Propanenitrile	107-12-0	55	14.41	0.15	67	0.16	73		25 Days	0.15	67	M	25 Days
Chloroform	67-66-3	120	15.02	0.15	31	0.15	31	M	25 Days	0.15	31	M	25 Days
Tetrahydrofuran	109-99-9	72	15.37	0.15	51	0.15	51	M	25 Days	0.15	51	M	25 Days
1-Butanol	71-36-3	74	15.94	0.15	49	0.69	230	*	25 Days	0.15	49	M, *	25 Days
n-Heptane	142-82-5	100	16.12	0.15	37	36	8800	E	25 Days	0.15	37	M	25 Days
Tetrachloromethane	56-23-5	152	16.21	0.15	24	0.15	24	M	25 Days	0.15	24	M	25 Days
Benzene	71-43-2	78	16.47	0.15	47	0.15	47	M	25 Days	0.15	47	Q	25 Days
2-Pentanone	107-87-9	86	17.03	0.15	43	0.32	90		25 Days	0.15	43	M	25 Days
Butanenitrile	109-74-0	69	17.29	0.15	53	2.8	980		25 Days	0.15	53	M	25 Days
n-Octane	111-65-9	114	19.02	0.15	32	8.2	1800	*	25 Days	0.15	32	M	25 Days
Toluene	108-88-3	92	19.62	0.15	40	0.50	130		25 Days	0.15	40	M	25 Days
2-Hexanone	591-78-6	100	19.94	0.15	37	1.2	300		25 Days	0.15	37	M	25 Days
Pentanenitrile	110-59-8	83	20.23	0.15	44	0.15	44	M	25 Days	0.15	44	M	25 Days
Tetrachloroethylene	127-18-4	164	20.81	0.15	22	0.15	22	M	25 Days	0.15	22	M	25 Days
n-Nonane	111-84-2	128	21.64	0.15	29	7.3	1400		25 Days	0.15	29	M	25 Days
2-Heptanone	110-43-0	114	22.59	0.15	32	11	2400	E	25 Days	0.15	32	M	25 Days
Hexanenitrile	628-73-9	97	22.93	0.15	38	2.5	630		25 Days	0.15	38	M	25 Days
o-Xylene	95-47-6	106	23.30	0.15	34	0.15	34	M	25 Days	0.15	34	M	25 Days
n-Decane	124-18-5	142	24.12	0.15	26	21	3500	E	25 Days	0.15	26	M	25 Days
2-Octanone	111-13-7	128	25.00	0.15	29	0.90	170		25 Days	0.15	29	M	25 Days
Heptanenitrile	629-08-3	111	25.34	0.15	33	2.3	510		25 Days	0.15	33	M	25 Days
1,2,4-Trimethylbenzene	95-63-6	120	25.67	0.15	30	0.15	30	M	25 Days	0.15	30	M	25 Days
n-Undecane	1120-21-4	156	26.30	0.15	23	38	5900	E	25 Days	0.15	23	M	25 Days
n-Dodecane	112-40-3	170	28.37	0.15	22	52	7500	E, *	25 Days	0.15	22	M	25 Days
n-Tridecane	629-50-5	184	30.44	0.15	20	60	8000	E, *	25 Days	0.15	20	M	25 Days

¹ mg/m³ calculated at 25°C and 101.3 kPa (1 atmosphere)² Data Flags:

B: Target analyte was detected in laboratory blank

D: Target analyte reported is the result of a secondary dilution

F: Target analyte was found in field blank

M: Target analyte was absent (not detected) in sample

Q: Target analyte was detected, but at concentrations less than VPRQL

T: Target analyte reported in sample was also found in trip blank above action li

*: Asterisk: Data did not meet quality control requirements; refer to Data Packa

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Triple Sorbent Tube Analyses		Sample Number: VS006-409-TS33 Analysis Date: 4/22/99 Data File ID: 39041333.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Wt.	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
10.20	1-Pentene	109-67-1	70	2.1	720
12.97	1-Hexene	592-41-6	84	7.1	2100
16.33	3-Heptene	592-78-9	98	28	6900
16.54	2-Heptene	592-77-8	98	42	11000
16.89	2-Heptene	592-77-8	98	21	5200
17.28	Cyclopropane, butyl-	930-57-4	98	1.3	320
18.32	Heptane, 3-methyl-	589-81-1	114	13	2700
18.51	C7 Diene (Unresolved)		98	8.5	2100
19.00	Heptane, 3-methylene	1632-16-2	112	20	4400
19.17	C7 Alkyne/Diene		98	5.1	1300
19.72	2-Octene	111-67-1	112	1.2	270
22.05	4-Heptanone	123-19-3	114	11	2300
22.45	3-Heptanone	106-35-4	114	24	5200
23.52	Unknown	U00000-03	na	1.2	na
23.63	1,3-Diethyl-1,4-Epoxybutane	UHC000-14	128	4.4	840
23.73	Furan, 2,5-Diethyltetrahydro	1239-48-9	128	5.7	1100
23.96	Unknown	U00000-03	na	3.0	na
24.27	Unknown	U00000-03	na	3.4	na
24.56	Decane, 4-methyl-	2847-72-5	156	1.1	170
25.84	2-Azabicyclo [2.2.1] heptane	279-24-3	97	5.6	1400
27.30	Naphthalene, decahydro	91-17-8	138	1.5	270
27.54	Octanenitrile	124-12-9	125	1.8	350
28.24	Unknown	U00000-03	na	2.2	na
28.59	Undecane, 2,6-Dimethyl-	17301-23-4	184	1.2	160
28.76	Unknown (Unresolved)	U00000-03	na	3.2	na
28.94	Naphthalene, decahydro-2-methyl-	2958-76-1	152	1.1	180
29.72	Nonanenitrile	2243-27-8	139	1.1	190

Notes: Estimation based on hexafluorobenzene internal standard
 *Unique identification number assigned by PNNL personnel to compounds without CAS#. Necessary for Tank Vapor Database purposes.

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Triple Sorbent Tube Analyses		Sample Number: VS006-414-TS39 Analysis Date: 4/22/99 Data File ID: 39041334.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Wt.	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
7.19	Unknown	U00000-03	na	0.32	na
7.50	1-Propene	115-07-1	42	0.67	390
8.41	1-Propene, 2-methyl-	115-11-7	56	2.3	1000
10.26	1-Pentene	109-67-1	70	1.3	450
12.08	Unknown C6 Alkene/Cycloalkane	UAE005-02	84	0.65	na
13.00	1-Hexene	592-41-6	84	18	5100
13.44	2-Hexene	4050-45-7	84	0.92	270
14.41	C6 Alkyne/Diene		84	0.58	na
15.07	C7 Alkene	UAE007-03	98	0.96	na
15.46	3-Heptene	592-78-9	98	2.4	600
15.61	2-Heptene	592-77-8	98	0.36	89
16.35	3-Heptene	592-78-9	98	44	11000
16.57	2-Heptene	592-77-8	98	54	14000
16.91	2-Heptene	592-77-8	98	41	10000
17.17	Cyclopropane, butyl-	930-57-4	98	5.0	1200
17.61	2,4-Hexadienal	142-83-6	64	0.36	140
17.80	Unresolved Peaks			1.3	na
18.34	Heptane, 3-methyl-	589-81-1	114	32	6900
18.52	C7 Diene (Unresolved)		98	23	na
19.02	Heptane, 3-methylene	1632-16-2	112	39	8600
19.19	C7 Alkyne/Diene		98	13	3300
19.60	Unknown C8 Alkene/Cycloalkane	UAE008-02	112	8.9	1900
19.74	2-Octene	111-67-1	112	3.3	730
20.23	C8 Alkyne/Diene		112	1.2	270
21.00	Heptane, 3-ethyl-	15869-80-4	128	2.3	440
21.16	Unknown	U00000-03	na	0.65	na
21.59	Butane, 1,1-oxybis (unresolved)		130	na	na
22.06	4-Heptanone	123-19-3	114	18	3800
22.47	3-Heptanone	106-35-4	114	36	7800
22.97	Unknown	U00000-03	na	3.6	na
23.13	C10 Alkane		142	0.93	160
23.25	Unknown	U00000-03	na	0.67	na
23.43	Unknown	U00000-03	na	1.4	na
23.52	Unknown	U00000-03	na	2.6	na
23.64	1,3-Diethyl-1,4-Epoxybutane	UHC000-14	128	9.5	1800
23.75	Furan, 2,5-Diethyltetrahydro	1239-48-9	128	12	2400
23.97	Unknown	U00000-03	na	8.2	na
24.28	Unknown	U00000-03	na	8.6	na
24.57	Decane, 4-methyl-	2847-72-5	156	2.5	400
25.70	1-Hexanol, 2-ethyl-	104-76-7	130	27	5100
25.85	2-Azabicyclo [2.2.1] heptane	279-24-3	97	13	3300
26.04	Unknown	U00000-03	na	0.41	na

Phase III 241-C-106 Sluicing Tentatively Identified Compounds For Triple Sorbent Tube Analyses		Sample Number: VS006-414-TS39 Analysis Date: 4/22/99 Data File ID: 39041334.D			
Retention Time (min)	Tentative ID	Compound ID #	Mol Wt.	Estimated Concentration (mg/m3)	Estimated Concentration (ppbv)
26.60	1-Undecene	821-95-4	154	0.74	120
26.75	C9 Ketone	UKE009-01	142	0.66	110
26.91	C11 Alkene	UAE011-01	154	0.89	140
27.31	Naphthalene, decahydro	91-17-8	138	2.2	390
27.55	Octanenitrile	124-12-9	125	3.6	700
27.77	Unknown	U00000-03	na	0.87	na
28.06	Unknown C11 Alkene/Cycloalkane	UAE011-03	154	0.48	77
28.25	Unknown	U00000-03	na	5.1	na
28.61	Undecane, 2,6-Dimethyl-	17301-23-4	184	0.36	47
28.77	Unknown (Unresolved)	U00000-03	na	7.1	na
28.95	Naphthalene, decahydro-2-methyl-	2958-76-1	152	1.7	280
29.13	Unknown	U00000-03	na	0.56	na
29.47	Naphthalene, decahydro-1,5-dimethyl	66552-62-3	166	0.70	100
29.73	Nonanenitrile	2243-27-8	139	1.7	300
29.89	Naphthalene, decahydro-2,6-dimethyl	1618-22-0	166	0.77	110
30.11	Unknown	U00000-03	na	0.34	na
30.29	Unknown	U00000-03	na	0.51	na
30.69	Unknown	U00000-03	na	0.33	na
31.07	Unknown	U00000-03	na	0.91	na
31.40	Naphthalene, decahydro-2,6-dimethyl	1618-22-0	166	0.29	42
31.83	Decanenitrile	1975-78-6	153	0.50	80
32.44	Tetradecane	629-59-4	98	1.9	470
33.22	Unknown	U00000-03	na	0.35	na

Notes:

Estimation based on hexafluorobenzene internal standard

*Unique identification number assigned by PNNL personnel to compounds

TST Blank Summary

SAS Laboratory
Instrument 3
D.B. Bonfoey

Sample I.D.:	VS006-MPB-TS79	VS006-483-TS73	VS006-486-TS74
Sample Type:	Method Performance Blank	Trip Blank	Field Blank
Analysis Date:	04/22/99	04/22/99	04/22/99
Analysis Time:	10:27 AM	1:54 PM	2:48 PM

Analyte	CAS Number	(mg/m ³)	ppbv	Flag	(mg/m ³)	ppbv	Flag	(mg/m ³)	ppbv	Flag
Methanol	67-56-1	0.15	110	Q	0.15	110	Q	0.15	110	Q
Ethanol	64-17-5	0.15	80	M	0.15	80	M	0.15	80	M
Acetone	67-64-1	0.15	63	Q	0.15	63	Q	0.15	63	Q
Acetonitrile	75-05-8	0.15	89	Q	0.15	89	Q	0.15	89	Q
Dichloromethane	75-09-2	0.15	43	M	0.15	43	M	0.15	43	M
1-Propanol	71-23-8	0.15	61	M	0.15	61	M	0.15	61	M
n-Hexane	110-54-3	0.15	43	M	0.15	43	M	0.15	43	M
Butanal	123-72-8	0.15	51	M	0.15	51	M	0.15	51	M
Propanenitrile	107-12-0	0.15	67	M	0.15	67	M	0.15	67	M
Chloroform	67-66-3	0.15	31	M	0.15	31	M	0.15	31	M
Tetrahydrofuran	109-99-9	0.15	51	M	0.15	51	M	0.15	51	M
1-Butanol	71-36-3	0.15	49	M	0.15	49	M	0.15	49	M
n-Heptane	142-82-5	0.15	37	M	0.15	37	M	0.15	37	M
Tetrachloromethane	56-23-5	0.15	24	M	0.15	24	M	0.15	24	M
Benzene	71-43-2	0.15	47	Q	0.15	47	Q	0.15	47	Q
2-Pentanone	107-87-9	0.15	43	M	0.15	43	M	0.15	43	M
Butanenitrile	109-74-0	0.15	53	M	0.15	53	M	0.15	53	M
n-Octane	111-65-9	0.15	32	M	0.15	32	M	0.15	32	M
Toluene	108-88-3	0.15	40	M	0.15	40	M	0.15	40	M
2-Hexanone	591-78-6	0.15	37	M	0.15	37	M	0.15	37	M
Pentanenitrile	110-59-8	0.15	44	M	0.15	44	M	0.15	44	M
Tetrachloroethylene	127-18-4	0.15	22	M	0.15	22	M	0.15	22	M
n-Nonane	111-84-2	0.15	29	M	0.15	29	M	0.15	29	M
2-Heptanone	110-43-0	0.15	32	M	0.15	32	M	0.15	32	M
Hexanenitrile	628-73-9	0.15	38	M	0.15	38	M	0.15	38	M
o-Xylene	95-47-6	0.15	34	M	0.15	34	M	0.15	34	M
n-Decane	124-18-5	0.15	26	M	0.15	26	M	0.15	26	M
2-Octanone	111-13-7	0.15	29	M	0.15	29	M	0.15	29	M
Heptanenitrile	629-08-3	0.15	33	M	0.15	33	M	0.15	33	M
1,2,4-Trimethylbenzene	95-63-6	0.15	30	M	0.15	30	M	0.15	30	M
n-Undecane	1120-21-4	0.15	23	M	0.15	23	M	0.15	23	M
n-Dodecane	112-40-3	0.15	22	M	0.15	22	M	0.15	22	M
n-Tridecane	629-50-5	0.15	20	M	0.15	20	M	0.15	20	M

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2.3.3 TST Quality Control Summary Tables

This section contains 5 tables that summarize the quality control parameters used during analysis. It includes the following tables:

- Laboratory Control Sample Results
- Internal Standards Area Counts
- Surrogate Compounds Results
- Continuing Calibration
- Linear Calibration Verification.

TST Laboratory Control Sample Results Table

SAS Laboratory
Instrument 3
D.B. Bonfoey

4/13/99 Calibration

70-1000 ng

Date Analyzed:

LCS-1

04/13/99

Time Analyzed:

2:55 PM

Data File:

39041307.D

LCS-2

04/19/99

11:42 AM

30941317.D

Compound	Recovery		Recovery		Precision RPD (%)
	ng	%	ng	%	
n-Hexane	190	95	184	92	3.4
Benzene	212	106	200	100	6.0
Pentanenitrile	178	89	164	82	8.2
2-Hexanone	190	95	175	87	8.3
2-Heptanone	183	91	168	84	8.6
n-Undecane	165	83	147	74	11

Acceptance Criteria: 65 - 135 % Recovery and RPD $\leq$ 35%

TST Internal Standards Area Counts Table

SAS Laboratory
Instrument 3
D.B. Bonfoey

4/13/99 Calibration

Benzene-d6 and Ethylbenzene-d10 were used for internal standards.

Sample ID	Benzene-d6 Area Counts (% of CCVS)	Ethylbenzene-d10 Area Counts (% of CCVS)	Analysis Date	Analysis Time	Data File
200 ng STD:1411-1-143.03	6546700 (100%)	7582120 (100%)	04/22/99	9:14 AM	39041330.D
VS006-MPB-TS79	6946888 (106%)	7619731 (100%)	04/22/99	10:27 AM	39041331.D
VS006-403-TS20	6753766 (103%)	7823153 (103%)	04/22/99	11:13 AM	39041332.D
VS006-409-TS33	8927609 (136%)	9167991 (121%)	04/22/99	11:57 AM	39041333.D
VS006-414-TS39	9809272 (150%)	9953421 (131%)	04/22/99	1:09 PM	39041334.D
VS006-483-TS73	5975699 (91%)	7409404 (98%)	04/22/99	1:54 PM	39041335.D
VS006-486-TS74	6187354 (95%)	7535401 (99%)	04/22/99	2:48 PM	39041336.D
VSAMB-402-TS75	5276537 (81%)	7268891 (96%)	04/22/99	3:32 PM	39041337.D

TST Surrogate Compounds Results Table

SAS Laboratory
Instrument 3
D.B. Bonfoey

Hexafluorobenzene at 322 nanograms, toluene-d8 at 376 nanograms, and bromobenzene-d5 at 308 nanograms were used as surrogates for this analysis.

Sample ID	Hexafluorobenzene Recovery (%)	Toluene-d8 Recovery (%)	Bromobenzene-d5 Recovery (%)	Analysis Date	Analysis Time	Data File
200 ng STD:1411-1-143.0	107	107	102	04/22/99	9:14 AM	39041330.D
VS006-MPB-TS79	101	96	112	04/22/99	10:27 AM	39041331.D
VS006-403-TS20	99	100	112	04/22/99	11:13 AM	39041332.D
VS006-409-TS33	79	85	102	04/22/99	11:57 AM	39041333.D
VS006-414-TS39	68	73	84	04/22/99	1:09 PM	39041334.D
VS006-483-TS73	111	105	104	04/22/99	1:54 PM	39041335.D
VS006-486-TS74	107	100	106	04/22/99	2:48 PM	39041336.D
VSAMB-402-TS75	119	112	102	04/22/99	3:32 PM	39041337.D

TST Continuing Calibration Table

SAS Laboratory

4/13/99 Calibration

Instrument 3

D.B. Bonfoey

Standard Identification:

200 ng CCVS

1411-1-143.03

Date of Analysis:

04/22/99

Time of Analysis:

9:14 AM

Data File:

39041330.D

Samples batched with the CCVS:

VS006-MPB-TS79

VS006-483-TS73

VS006-403-TS20

VS006-486-TS74

VS006-409-TS33

VSAMB-402-TS75

VS006-414-TS39

Analyte	Response Factor (% Deviation)	Linear Calibration (% Recovery)
Methanol	-3.9	
Ethanol	-3.3	
Acetone	3.5	
Acetonitrile	-1.4	
Dichloromethane	14.0	
1-Propanol	-8.7	
n-Hexane	-6.9	
Hexafluorobenzene (S)	-7.2	
Butanal	-6.5	
Propanenitrile	6.8	
Chloroform	1.6	
Tetrahydrofuran	0.4	
1-Butanol	-1.3	101
n-Heptane	2	
Tetrachloromethane	-10.8	
Benzene	-6.7	
2-Pentanone	-10.2	
Butanenitrile	-2.5	
n-Octane	0.6	
Toluene-d8 (S)	-6.9	
Toluene	-4.6	
2-Hexanone	-2.1	
Pentanenitrile	4	
Tetrachloroethylene	-3.5	
n-Nonane	11.5	91
2-Heptanone	-10.4	
Hexanenitrile	3	98
o-Xylene	-17.5	
n-Decane	15.5	88
Bromobenzene-d5 (S)	-2.2	
2-Octanone	17.3	84
Heptanenitrile	3.3	89
1,2,4-Trimethylbenzene	-13.8	
n-Undecane	40.5	75
n-Dodecane	77.3	23
n-Tridecane	38.8	61

(S) = Surrogate

Acceptance Criteria: < 25 % Deviation (absolute) or 75 - 125 % Recovery

TST Linear Calibration Verification Table

SAS Laboratory
Instrument 3
D.B. Bonfoey

4/13/99 Calibration

	Percent Recoveries (%)					
	70 ng Std	100 ng Std	200 ng Std	400 ng Std	600 ng Std	1000 ng Std
n-Nonane	127	108	90	98	101	101
Hexanenitrile	122	110	96	94	99	101
n-Decane	128	105	89	93	105	100
2-Octanone	111	94	87	99	109	97
Heptanenitrile	70	76	97	110	109	96
n-Undecane	133	100	84	97	105	99
n-Dodecane	33	24	46	144	162	190
n-Tridecane	86	66	84	114	150	309

2.3.4 TST Supporting Data

This section contains relevant supporting data used for the tuning and calibration of the instrument, and the analysis and quantitation of the organic compounds. The following are included:

- Response Factor and Compound List Reports
- Mass Spectrometer Tune Reports
- Sample Quantitation Reports and chromatograms
- Library Search Compound Reports for TIC calculations
- Mass spectra of reported TICs.

HNF-4598 Rev. 0

Response Factor Report 5972 INST

Method : C:\HPCHEM\1\METHODS\390413CB.M
 Title :
 Last Update : Wed May 05 09:51:40 1999
 Response via : Initial Calibration

Calibration Files

200 =39041304.D 400 =39041305.D 600 =39041306.D
 100 =39041303.D 70 =39041312.D 1000 =39041308.D

Compound		200	400	600	100	70	1000	Avg	%RSD
-----		-----							
1)	Benzene-d6	-----ISTD-----							
2)	Methanol	0.272	0.226	0.238	0.288	0.256	0.222	0.250	10.45
3)	Ethanol	0.454	0.399	0.412	0.478	0.383	0.395	0.420	8.87
4)	Acetone	1.096	0.942	0.881	1.253	0.937	0.831	0.990	15.83
5)	Acetonitrile	0.459	0.338	0.332	0.508	0.531		0.433	21.63
6)	Dichloromethane	0.380	0.279	0.253	0.463	0.349		0.345	24.25
7)	1-Propanol	0.423	0.400	0.438	0.412	0.380	0.453	0.418	6.27
8)	n-Hexane	0.344	0.327	0.356	0.319	0.314	0.368	0.338	6.39
9) S	Hexafluorobenzene	0.788	0.738	0.627	0.810	0.713	0.645	0.720	10.28
10)	Butanal	0.078	0.070	0.071	0.078	0.076	0.071	0.074	5.28
11)	Propanenitrile	0.328	0.277	0.292	0.358	0.278	0.293	0.304	10.49
12)	Chloroform	0.811	0.719	0.655	0.879	0.684	0.634	0.731	13.11
13)	Tetrahydrofuran	0.317	0.285	0.307	0.336	0.288	0.313	0.308	6.18
14)	1-Butanol	0.200	0.223	0.253	0.174	0.149	0.262	0.210	21.04
15)	n-Heptane	0.329	0.378	0.415	0.319	0.294	0.460	0.366	17.35
16)	Tetrachloroethane	0.769	0.773	0.602	0.794	0.666	0.550	0.692	14.70
17)	Benzene	0.947	0.967	0.917	0.915	0.839	0.778	0.894	7.99
18)	2-Pentanone	0.819	0.935	0.862	0.763	0.730	0.671	0.797	11.92
19)	Butanenitrile	0.454	0.492	0.507	0.429	0.413	0.505	0.467	8.67
20)	n-Octane	0.180	0.198	0.200	0.163	0.144	0.211	0.182	14.06
21) S	Toluene-d8	0.939	0.987	0.828	0.921	0.918	0.830	0.904	6.99
22)	Toluene	1.004	1.159	0.909	0.868	0.799		0.948	14.70
23)	2-Hexanone	0.604	0.767	0.714	0.534	0.480	0.580	0.613	17.75
24)	Pentanenitrile	0.298	0.382	0.386	0.262	0.242	0.405	0.329	21.38
25)	Tetrachloroethylene	0.462	0.492	0.440	0.447	0.385	0.428	0.442	8.09
26)	n-Nonane	0.277	0.379	0.405	0.224	0.199	0.434	0.320	31.04
-----		-----							
27)	Ethylbenzene-d10	-----ISTD-----							
28)	2-Heptanone	0.633	0.743	0.703	0.519	0.424	0.553	0.596	20.09
29)	Hexanenitrile	0.274	0.319	0.353	0.228	0.184	0.378	0.289	25.76
30)	o-Xylene	0.957	1.021	0.829	0.825	0.676	0.628	0.822	18.58
31)	n-Decane	0.236	0.329	0.402	0.159	0.134	0.399	0.276	42.59
32) S	Bromobenzene-d5	0.373	0.389	0.350	0.366	0.369	0.354	0.367	3.83
33)	2-Octanone	0.269	0.391	0.460	0.170	0.133	0.425	0.308	44.71
34)	Heptanenitrile	0.412	0.504	0.506	0.263	0.194	0.447	0.388	33.57
35)	1,2,4-trimethylbenz	0.938	1.037	0.797	0.683	0.535		0.798	24.99
36)	n-Undecane	0.184	0.329	0.392	0.074	0.063	0.392	0.239	63.79
37)	n-Dodecane	0.101	0.309	0.347	0.053	0.070	0.407	0.214	73.28
38)	n-Tridecane	0.077	0.104	0.138	0.061	0.079		0.092	32.72
-----		-----							

(#) = Out of Range

390413CB.M

Tue May 25 09:15:26 1999

2C-22

HNF-4598 Rev. 0

Compound List Report 5972 INST

Method : C:\HPCHEM\1\METHODS\390413CB.M
 Title :
 Last Update : Wed May 05 09:51:40 1999
 Response via : Initial Calibration
 Total Cpnds : 38

PK#	Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	Benzene-d6	84	16.35	1.000	A	1	A	B
2	Methanol	31	8.45	0.517	A	1	A	B
3	Ethanol	31	9.78	0.598	A	2	A	B
4	Acetone	43	11.13	0.680	A	1	A	B
5	Acetonitrile	41	11.62	0.711	A	0	A	B
6	Dichloromethane	84	12.35	0.755	A	2	A	B
7	1-Propanol	31	12.63	0.772	A	2	A	B
8	n-Hexane	57	12.98	0.794	A	2	A	B
9 S	Hexafluorobenzene	186	13.71	0.838	A	2	A	B
10	Butanal	72	14.12	0.863	A	1	A	B
11	Propanenitrile	54	14.39	0.880	A	1	A	B
12	Chloroform	83	14.97	0.915	A	2	A	B
13	Tetrahydrofuran	42	15.33	0.937	A	2	A	B
14	1-Butanol	56	15.92	0.973	L	1	A	B
15	n-Heptane	43	16.09	0.984	A	2	A	B
16	Tetrachloroethane	117	16.18	0.990	A	2	A	B
17	Benzene	78	16.45	1.006	A	1	A	B
18	2-Pentanone	43	17.01	1.040	A	2	A	B
19	Butanenitrile	41	17.27	1.056	A	0	A	B
20	n-Octane	85	19.00	1.162	A	2	A	B
21 S	Toluene-d8	98	19.46	1.190	A	1	A	B
22	Toluene	91	19.60	1.199	A	1	A	B
23	2-Hexanone	43	19.92	1.218	A	2	A	B
24	Pentanenitrile	41	20.20	1.235	A	2	A	B
25	Tetrachloroethylene	166	20.79	1.271	A	2	A	B
26	n-Nonane	57	21.61	1.322	L	2	A	B
27	Ethylbenzene-d10	98	22.08	1.000	A	1	A	B
28	2-Heptanone	43	22.56	1.022	A	3	A	B
29	Hexanenitrile	41	22.91	1.038	L	2	A	B
30	o-Xylene	91	23.28	1.054	A	1	A	B
31	n-Decane	57	24.10	1.092	L	3	A	B
32 S	Bromobenzene-d5	82	24.83	1.125	A	2	A	B
33	2-Octanone	58	24.98	1.132	L	2	A	B
34	Heptanenitrile	82	25.32	1.147	L	2	A	B
35	1,2,4-trimethylbenzene	105	25.64	1.162	A	1	A	B
36	n-Undecane	57	26.28	1.190	L	3	A	B
37	n-Dodecane	57	28.36	1.284	A	3	A	B
38	n-Tridecane	57	30.43	1.378	A	3	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin

#Qual = number of qualifiers

A/H = Area or Height

ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

390413CB.M

Thu Jun 03 17:07:47 1999

2C-23

HNF-4598 Rev. 0

Response Factor Report 5972 INST

Method : C:\HPCHEM\2\METHODS\390420HI.M
 Title :
 Last Update : Mon May 03 11:18:45 1999
 Response via : Initial Calibration

Calibration Files

200 =39032904.D 400 =39032905.D 600 =39032906.D
 1000 =39032908.D 2000 =39032909.D

Compound	200	400	600	1000	2000	Avg	%RSD
-----ISTD-----							
1) Benzene-d6							
2) n-Heptane	0.197	0.200	0.216	0.211	0.214	0.208	4.09
3) n-Nonane	0.149	0.156	0.171	0.161	0.158	0.159	5.04
-----ISTD-----							
4) Ethylbenzene-d10							
5) n-Decane	0.073	0.085	0.094	0.086	0.092	0.086	9.51
6) n-Undecane	0.069	0.086	0.105	0.094	0.103	0.091	15.66
7) n-Dodecane	0.050	0.078	0.130	0.104	0.126	0.098	34.33
8) n-Tridecane	0.036	0.041	0.096	0.068	0.105	0.069	45.26

(#) = Out of Range

390420HI.M

Fri May 21 15:08:21 1999

HNF-4598 Rev. 0

Compound List Report 5972 INST

Method : C:\HPCHEM\2\METHODS\390420HI.M
Title :
Last Update : Mon May 03 11:18:45 1999
Response via : Initial Calibration
Total Cpnds : 8

PK#	Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	Benzene-d6	84	16.40	1.000	A	0	A	B
2	n-Heptane	71	16.17	0.986	A	2	A	B
3	n-Nonane	85	21.72	1.324	A	2	A	B
4	Ethylbenzene-d10	98	22.18	1.000	A	1	A	B
5	n-Decane	85	24.20	1.091	A	2	A	B
6	n-Undecane	85	26.39	1.190	A	2	A	B
7	n-Dodecane	85	28.28	1.275	L	2	A	B
8	n-Tridecane	85	30.22	1.362	L	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin

#Qual = number of qualifiers

A/H = Area or Height

ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

390420HI.M

Fri May 21 15:14:10 1999

HP5972 Standard Spectra AutoTune

Instrument: 5972 INSTRUMENT 4 TEMP

Tue Apr 13 07:51:42 1999

C:\HPCHEM\4\5972\ATUNE.U

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
 279 peaks Base: 69.00 Abundance: 328512

Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	328512	100.00	70.00	4375	1.33
219.00	145792	44.38	219.90	8810	6.04
502.00	11970	3.64	503.00	1258	10.51

HNF-4598 Rev. 0

4/22/99 tune check on 390413AT.U

Thu Apr 22 07:56:07 1999

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
185 peaks Base: 69.00 Abundance: 400960

Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	400896	100.00	70.00	4645	1.16
219.00	175808	43.85	220.00	9248	5.26
502.00	18648	4.65	503.00	1765	9.46

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041331.D
Acq On : 22 Apr 99 10:27 am
Sample : VS006-MPB-TS79
Misc :
Quant Time: May 17 14:53 1999

Vial: 31
Operator: Bonfoey/Lockard
Inst : 5972 INST
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\390413CB.M
Title :
Last Update : Wed May 05 09:51:40 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Benzene-d6	16.38	84	6946888	200.00	ng	0.02
27) Ethylbenzene-d10	22.11	98	7619731	200.00	ng	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
9) Hexafluorobenzene	13.73	186	8136098	325.28	ng	101.02%
21) Toluene-d8	19.48	98	11365028	361.94	ng	96.26%
32) Bromobenzene-d5	24.85	82	4830849	345.43	ng	112.15%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Methanol	8.48	31	10422	1.20	ng	# 1
3) Ethanol	9.79	31	2962	0.20	ng	# 29
4) Acetone	11.11	43	98896	2.88	ng	96
5) Acetonitrile	11.63	41	20798	1.38	ng	100
6) Dichloromethane	12.34	84	181	0.02	ng	# 1
7) 1-Propanol	12.62	31	949	0.07	ng	# 69
8) n-Hexane	12.98	57	3820	0.33	ng	# 32
10) Butanal	14.11	72	1088	0.42	ng	# 74
11) Propanenitrile	14.38	54	1624	0.15	ng	# 12
12) Chloroform	14.94	83	119	0.00	ng	# 29
13) Tetrahydrofuran	15.31	42	472	0.04	ng	# 59
15) n-Heptane	16.16	43	2219	0.17	ng	# 34
16) Tetrachloroethane	16.16	117	787	0.03	ng	# 59
17) Benzene	16.38	78	79272	2.55	ng	# 86
18) 2-Pentanone	16.98	43	2367	0.09	ng	# 74
19) Butanenitrile	17.29	41	3108	0.19	ng	100
20) n-Octane	18.99	85	244	0.04	ng	# 1
22) Toluene	19.60	91	20252	0.62	ng	# 21
23) 2-Hexanone	19.66	43	4807	0.23	ng	# 41
24) Pentanenitrile	20.28	41	3540	0.31	ng	# 51
25) Tetrachloroethylene	20.76	166	345	0.02	ng	# 19
28) 2-Heptanone	22.58	43	5617	0.25	ng	# 40
30) o-Xylene	23.64	91	2542	0.08	ng	97
35) 1,2,4-trimethylbenzene	25.23	105	1347	0.04	ng	90
37) n-Dodecane	28.40	57	2670	0.33	ng	# 15
38) n-Tridecane	30.39	57	438	0.13	ng	# 6

(#) = qualifier out of range (m) = manual integration
39041331.D 390413CB.M Mon May 17 14:53:27 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041331.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 10:27 am using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-MPB-TS79
Misc Info :
Vial Number: 31

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041332.D
Acq On : 22 Apr 99 11:13 am
Sample : VS006-403-TS20
Misc :
Quant Time: May 25 11:36 1999

Vial: 32
Operator: Bonfoey/Lockard
Inst : 5972 INST
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\390413CB.M
Title :
Last Update : Wed May 05 09:51:40 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.38	84	6753766	200.00	ng	0.03
27) Ethylbenzene-d10	22.11	98	7823153	200.00	ng	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
9) Hexafluorobenzene	13.73	186	7745590	318.52	ng	98.92%
21) Toluene-d8	19.49	98	11464658	375.55	ng	99.88%
32) Bromobenzene-d5	24.85	82	4936247	343.79	ng	111.62%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
3) Ethanol	9.81	31	56601	3.99	ng	# 40
4) Acetone	11.12	43	302841	9.06	ng	# 56
5) Acetonitrile	11.63	41	40343	2.76	ng	100
6) Dichloromethane	12.33	84	187	0.02	ng	# 7
7) 1-Propanol	12.64	31	95352	6.76	ng	# 93
8) n-Hexane	13.01	57	43120	3.78	ng	# 66
10) Butanal	14.14	72	31160	12.46	ng	96
11) Propanenitrile	14.39	54	15418	1.50	ng	# 87
12) Chloroform	14.98	83	2042	0.08	ng	# 11
14) 1-Butanol	15.94	56	145149	61.02	ng	96
15) n-Heptane	16.13	43	41541	3.36	ng	# 88
16) Tetrachloroethane	16.21	117	934	0.04	ng	# 12
17) Benzene	16.40	78	82306	2.73	ng	# 79
19) Butanenitrile	17.28	41	95328	6.05	ng	100
22) Toluene	19.62	91	29435	0.92	ng	# 78
23) 2-Hexanone	19.95	43	39531	1.91	ng	# 87
25) Tetrachloroethylene	20.81	166	1501	0.10	ng	# 42
28) 2-Heptanone	22.59	43	249894	10.72	ng	95
30) o-Xylene	23.29	91	11481	0.36	ng	# 66
35) 1,2,4-trimethylbenzene	25.65	105	3045	0.10	ng	# 34
36) n-Undecane	26.29	57	179730	93.47	ng	m 36
37) n-Dodecane	28.38	57	144699	17.25	ng	# 97
38) n-Tridecane	30.45	57	94704	26.40	ng	# 28

(#) = qualifier out of range (m) = manual integration
39041332.D 390413CB.M Tue May 25 11:37:07 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041332.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 11:13 am using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-403-TS20
Misc Info :
Vial Number: 32

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041333.D
Acq On : 22 Apr 99 11:57 am
Sample : VS006-409-TS33
Misc :
Quant Time: May 25 12:29 1999

Vial: 33
Operator: Bonfoey/Lockard
Inst : 5972 INST
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\390413CB.M
Title :
Last Update : Wed May 05 09:51:40 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.38	84	8927609	200.00	ng	0.03
27) Ethylbenzene-d10	22.10	98	9167991	200.00	ng	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
9) Hexafluorobenzene	13.72	186	8193650	254.90	ng	79.16%
21) Toluene-d8	19.49	98	12901003	319.70	ng	85.03%
32) Bromobenzene-d5	24.85	82	5285629	314.12	ng	101.99%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Methanol	8.45	31	159711	14.29	ng	# 1
3) Ethanol	9.80	31	250806	13.37	ng	# 40
4) Acetone	11.17	43	1113891	25.20	ng	# 86
5) Acetonitrile	11.63	41	138715	7.17	ng	100
6) Dichloromethane	12.26	84	15010	0.98	ng	# 1
7) 1-Propanol	12.68	31	404297	21.68	ng	# 93
8) n-Hexane	13.00	57	4521190	299.45	ng	# 33
10) Butanal	14.16	72	259748	78.59	ng	81
14) 1-Butanol	15.96	56	399330	78.12	ng	m 1
15) n-Heptane	16.12	43	36684215	2247.09	ng	# 97
16) Tetrachloroethane	16.22	117	2182	0.07	ng	# 12
18) 2-Pentanone	17.04	43	1304531	36.68	ng	# 92
19) Butanenitrile	17.15	41	2460901	118.10	ng	100
20) n-Octane	19.03	85	3124056	383.60	ng	# 1
22) Toluene	19.63	91	1423303	33.64	ng	95
23) 2-Hexanone	19.95	43	2302623	84.14	ng	# 88
24) Pentanenitrile	20.23	41	1388512	94.42	ng	# 84
25) Tetrachloroethylene	20.83	166	5521	0.28	ng	# 19
26) n-Nonane	21.64	57	4543524	281.81	ng	m 99
28) 2-Heptanone	22.59	43	28497603	1043.15	ng	91
29) Hexanenitrile	22.94	41	2275838	178.74	ng	# 64
30) o-Xylene	23.31	91	59861	1.59	ng	90
31) n-Decane	24.12	57	16017566	880.45	ng	# 88
33) 2-Octanone	25.00	58	489320	80.77	ng	m 59
34) Heptanenitrile	25.34	82	2950840	155.18	ng	97
35) 1,2,4-trimethylbenzene	25.66	105	60352	1.65	ng	# 34
36) n-Undecane	26.31	57	28848690	1542.36	ng	# 93
37) n-Dodecane	28.35	57	42315123	4305.15	ng	# 31
38) n-Tridecane	30.42	57	38286270	9106.05	ng	# 28

(#) = qualifier out of range (m) = manual integration
39041333.D 390413CB.M Tue May 25 12:29:54 1999

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041333.D
Acq On : 22 Apr 99 11:57 am
Sample : VS006-409-TS33
Misc :
Quant Time: May 17 15:32 1999

Vial: 33
Operator: Bonfoey/Lockard
Inst : 5972 INST
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\390420HI.M
Title :
Last Update : Mon May 03 11:18:45 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.38	84	8869545	200.00	ng	-0.02
4) Ethylbenzene-d10	22.10	98	9096967	200.00	ng	-0.08

System Monitoring Compounds %Recovery

Target Compounds						Qvalue
2) n-Heptane	16.12	71	18510169	2011.33	ng	90
3) n-Nonane	21.64	85	1632797	231.78	ng	99
5) n-Decane	24.13	85	3605919	920.41	ng	94
6) n-Undecane	26.31	85	8911729	2145.62	ng	# 77
7) n-Dodecane	28.39	85	24234236	4131.72	ng	# 46
8) n-Tridecane	30.44	85	20497994	4207.34	ng	# 88

(#) = qualifier out of range (m) = manual integration
39041333.D 390420HI.M Mon May 17 15:33:49 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041333.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 11:57 am using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-409-TS33
Misc Info :
Vial Number: 33

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041334.D
Acq On : 22 Apr 99 1:09 pm
Sample : VS006-414-TS39
Misc :
Quant Time: May 25 13:23 1999

Vial: 34
Operator: Bonfoey/Lockard
Inst : 5972 INST
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\390413CB.M
Title :
Last Update : Wed May 05 09:51:40 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.41	84	9809272	200.00	ng	0.06
27) Ethylbenzene-d10	22.11	98	9953421	200.00	ng	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
9) Hexafluorobenzene	13.75	186	7697487	217.94	ng	67.68%
21) Toluene-d8	19.51	98	12161717	274.29	ng	72.95%
32) Bromobenzene-d5	24.86	82	4713778	258.03	ng	83.78%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Methanol	8.48	31	278922	22.72	ng	# 1
3) Ethanol	9.80	31	326527	15.85	ng	# 87
4) Acetone	11.16	43	1360536	28.02	ng	# 56
5) Acetonitrile	11.64	41	159545	7.51	ng	100
6) Dichloromethane	12.33	84	19336	1.14	ng	# 1
7) 1-Propanol	12.71	31	586858	28.64	ng	# 74
8) n-Hexane	13.03	57	12880112	776.40	ng	# 33
10) Butanal	14.18	72	417825	115.05	ng	# 73
11) Propanenitrile	14.42	54	276367	18.51	ng	# 86
14) 1-Butanol	16.01	56	430864	77.53	ng	m 55
15) n-Heptane	16.11	43	54789121	3054.46	ng	# 34
16) Tetrachloroethane	16.16	117	745	0.02	ng	# 1
18) 2-Pentanone	17.06	43	1403133	35.91	ng	m 99
19) Butanenitrile	17.17	41	7159786	312.71	ng	100
20) n-Octane	19.05	85	8251876	922.16	ng	# 1
22) Toluene	19.64	91	2627532	56.52	ng	95
23) 2-Hexanone	19.97	43	4126035	137.21	ng	# 89
25) Tetrachloroethylene	20.85	166	5994	0.28	ng	# 19
26) n-Nonane	21.58	57	17247261	829.78	ng	# 40
28) 2-Heptanone	22.60	43	37537422	1265.63	ng	# 40
29) Hexanenitrile	22.96	41	4513493	283.21	ng	m 64
31) n-Decane	24.13	57	35200955	1712.82	ng	# 96
33) 2-Octanone	25.01	58	1009468	101.52	ng	# 66
34) Heptanenitrile	25.35	82	5676526	259.02	ng	99
36) n-Undecane	26.30	57	40130968	1952.95	ng	# 36
37) n-Dodecane	28.36	57	51961610	4869.42	ng	# 31
38) n-Tridecane	30.42	57	50129942	10982.11	ng	# 28

(#) = qualifier out of range (m) = manual integration
39041334.D 390413CB.M Tue May 25 13:23:35 1999

HNF-4598 Rev. 0

Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041334.D
 Acq On : 22 Apr 99 1:09 pm
 Sample : VS006-414-TS39
 Misc :
 Quant Time: May 17 15:34 1999

Vial: 34
 Operator: Bonfoey/Lockard
 Inst : 5972 INST
 Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\390420HI.M
 Title :
 Last Update : Mon May 03 11:18:45 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.41	84	9780881	200.00	ng	0.01
4) Ethylbenzene-d10	22.11	98	9805953	200.00	ng	-0.07

System Monitoring Compounds %Recovery

Target Compounds						Qvalue
2) n-Heptane	16.14	71	41158262	4055.59	ng	91
3) n-Nonane	21.65	85	5691227	732.62	ng	# 86
5) n-Decane	24.14	85	9819247	2325.15	ng	87
6) n-Undecane	26.33	85	19149674	4277.19	ng	# 92
7) n-Dodecane	28.41	85	37564648	5886.16	ng	# 1
8) n-Tridecane	30.46	85	36545898	6826.79	ng	# 1

(#) = qualifier out of range (m) = manual integration
 39041334.D 390420HI.M Mon May 17 15:35:04 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041335.D
 Acq On : 22 Apr 99 1:54 pm
 Sample : VS006-483-TS73
 Misc :
 Quant Time: May 17 15:19 1999

Vial: 35
 Operator: Bonfoey/Lockard
 Inst : 5972 INST
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\390413CB.M
 Title :
 Last Update : Wed May 05 09:51:40 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.39	84	5975699	200.00	ng	0.03
27) Ethylbenzene-d10	22.11	98	7409404	200.00	ng	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
9) Hexafluorobenzene	13.73	186	7666667	356.33	ng	110.66%
21) Toluene-d8	19.49	98	10694099	395.92	ng	105.30%
32) Bromobenzene-d5	24.86	82	4349107	319.81	ng	103.83%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Methanol	8.46	31	32780	4.38	ng	# 1
3) Ethanol	9.78	31	2629	0.21	ng	# 1
4) Acetone	11.13	43	285673	9.66	ng	99
5) Acetonitrile	11.61	41	6130	0.47	ng	100
6) Dichloromethane	12.32	84	530	0.05	ng	# 25
7) 1-Propanol	12.65	31	2047	0.16	ng	# 69
8) n-Hexane	12.97	57	3462	0.34	ng	# 29
10) Butanal	14.09	72	651	0.29	ng	# 1
11) Propanenitrile	14.37	54	1229	0.14	ng	# 69
12) Chloroform	14.95	83	278	0.01	ng	# 1
13) Tetrahydrofuran	15.34	42	3244	0.35	ng	# 27
15) n-Heptane	16.04	43	5661	0.52	ng	# 37
16) Tetrachloroethane	16.15	117	495	0.02	ng	# 48
17) Benzene	16.39	78	69526	2.60	ng	# 86
18) 2-Pentanone	17.05	43	32280	1.36	ng	# 93
19) Butanenitrile	17.33	41	3551	0.25	ng	100
20) n-Octane	18.99	85	1570	0.29	ng	# 1
22) Toluene	19.65	91	12965	0.46	ng	# 21
23) 2-Hexanone	19.96	43	14261	0.78	ng	# 41
24) Pentanenitrile	20.13	41	1262	0.13	ng	# 21
25) Tetrachloroethylene	20.82	166	2329	0.18	ng	# 19
30) o-Xylene	23.18	91	1130	0.04	ng	99
35) 1,2,4-trimethylbenzene	25.24	105	6951	0.24	ng	96
37) n-Dodecane	28.34	57	6252	0.79	ng	# 31

(#) = qualifier out of range (m) = manual integration
 39041335.D 390413CB.M Mon May 17 15:19:22 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041335.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:54 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-483-TS73
Misc Info :
Vial Number: 35

HNF-4598 Rev. 0

Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041336.D
 Acq On : 22 Apr 99 2:48 pm
 Sample : VS006-486-TS74
 Misc :
 Quant Time: May 17 15:21 1999

Vial: 36
 Operator: Bonfoey/Lockard
 Inst : 5972 INST
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\390413CB.M
 Title :
 Last Update : Wed May 05 09:51:40 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.38	84	6187354	200.00	ng	0.03
27) Ethylbenzene-d10	22.12	98	7535401	200.00	ng	0.04

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
9) Hexafluorobenzene	13.73	186	7677809	344.64	ng	107.03%
21) Toluene-d8	19.49	98	10547797	377.15	ng	100.31%
32) Bromobenzene-d5	24.86	82	4504977	325.73	ng	105.76%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Methanol	8.45	31	8037	1.04	ng	# 1
3) Ethanol	9.77	31	779	0.06	ng	# 1
4) Acetone	11.11	43	136516	4.46	ng	98
5) Acetonitrile	11.65	41	23239	1.73	ng	100
6) Dichloromethane	12.36	84	446	0.04	ng	# 56
7) 1-Propanol	12.63	31	1514	0.12	ng	# 69
8) n-Hexane	13.00	57	2841	0.27	ng	# 30
10) Butanal	14.18	72	1822	0.80	ng	# 1
11) Propanenitrile	14.39	54	1456	0.15	ng	# 69
12) Chloroform	14.99	83	325	0.01	ng	# 1
13) Tetrahydrofuran	15.33	42	784	0.08	ng	95
15) n-Heptane	16.20	43	2696	0.24	ng	# 46
16) Tetrachloroethane	16.13	117	762	0.04	ng	# 12
17) Benzene	16.39	78	73819	2.67	ng	91
18) 2-Pentanone	17.04	43	9970	0.40	ng	# 83
19) Butanenitrile	17.30	41	4234	0.29	ng	100
20) n-Octane	19.00	85	654	0.12	ng	# 1
22) Toluene	19.65	91	13515	0.46	ng	87
23) 2-Hexanone	20.28	43	7242	0.38	ng	# 41
24) Pentanenitrile	20.20	41	730	0.07	ng	# 26
25) Tetrachloroethylene	20.80	166	2944	0.22	ng	# 29
28) 2-Heptanone	22.61	43	11062	0.49	ng	# 40
30) o-Xylene	23.29	91	3507	0.11	ng	# 84
35) 1,2,4-trimethylbenzene	25.55	105	5192	0.17	ng	96
37) n-Dodecane	28.39	57	2927	0.36	ng	# 40

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

39041336.D 390413CB.M Mon May 17 15:21:54 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041336.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 2:48 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-486-TS74
Misc Info :
Vial Number: 36

HNF-4598 Rev. 0

Quantitation Report

Data File : C:\HPCHEM\1\DATA\390413\39041337.D
 Acq On : 22 Apr 99 3:32 pm
 Sample : VSAMB-402-TS75
 Misc :
 Quant Time: May 17 15:36 1999

Vial: 37
 Operator: Bonfoey/Lockard
 Inst : 5972 INST
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\390413CB.M
 Title :
 Last Update : Wed May 05 09:51:40 1999
 Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Benzene-d6	16.38	84	5276537	200.00	ng	0.03
27) Ethylbenzene-d10	22.11	98	7268891	200.00	ng	0.03

System Monitoring Compounds	R.T.	QIon	Response	Conc	Units	%Recovery
9) Hexafluorobenzene	13.73	186	7274635	382.91	ng	118.92%
21) Toluene-d8	19.49	98	10021574	420.19	ng	111.75%
32) Bromobenzene-d5	24.85	82	4195315	314.46	ng	102.10%

Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
2) Methanol	8.44	31	10560	1.60	ng	# 1
3) Ethanol	9.80	31	5846	0.53	ng	# 1
4) Acetone	11.11	43	195940	7.50	ng	96
5) Acetonitrile	11.62	41	34456	3.01	ng	100
6) Dichloromethane	12.41	84	787	0.09	ng	# 1
7) 1-Propanol	12.65	31	1989	0.18	ng	# 69
8) n-Hexane	12.99	57	2002	0.22	ng	# 34
10) Butanal	14.12	72	1076	0.55	ng	# 1
11) Propanenitrile	14.41	54	2031	0.25	ng	# 69
12) Chloroform	14.90	83	276	0.01	ng	# 1
13) Tetrahydrofuran	15.32	42	944	0.12	ng	# 31
15) n-Heptane	16.09	43	1704	0.18	ng	# 34
16) Tetrachloroethane	16.20	117	1074	0.06	ng	# 1
17) Benzene	16.38	78	62036	2.63	ng	# 66
18) 2-Pentanone	17.00	43	2642	0.13	ng	# 68
19) Butanenitrile	17.29	41	2029	0.16	ng	100
20) n-Octane	18.99	85	694	0.14	ng	# 42
22) Toluene	19.89	91	790	0.03	ng	98
23) 2-Hexanone	20.23	43	4929	0.30	ng	# 41
24) Pentanenitrile	20.21	41	1374	0.16	ng	# 7
25) Tetrachloroethylene	20.80	166	827	0.07	ng	# 61
28) 2-Heptanone	22.60	43	2392	0.11	ng	# 40
30) o-Xylene	23.18	91	3212	0.11	ng	92
35) 1,2,4-trimethylbenzene	25.56	105	1194	0.04	ng	# 34
37) n-Dodecane	28.35	57	5300	0.68	ng	# 31
38) n-Tridecane	30.43	57	1164	0.35	ng	# 1

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

39041337.D 390413CB.M Mon May 17 15:36:11 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041337.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 3:32 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VSAMB-402-TS75
Misc Info :
Vial Number: 37

HNF-4598 Rev. 0

Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\390413\39041334.D Vial: 34
 Acq On : 22 Apr 99 1:09 pm Operator: Bonfoey/Lockard
 Sample : VS006-414-TS39 Inst : 5972 INST
 Misc : Multiplr: 1.00
 Method : C:\HPCHEM\1\METHODS\AREA2.M
 Title :
 Library : WILEY138.L

 Peak Number 1 Rank in Relative Concentration 57

R.T.	Conc	Area	Relative to ISTD	R.T.	
7.19	36.50 ng	3398277	Hexafluorobenzene	13.75	
Hit# of 20	Tentative ID		Ref#	CAS#	Qual
1	2-Propenal		116005	000107-02-8	2
2	MONODEUTEROACETYLENE		115836	002210-34-6	2
3	Hydrocyanic acid		115838	000074-90-8	2
4	Ethyne		115835	000074-86-2	2
5	Ethane		115855	000074-84-0	2

 Peak Number 2 Rank in Relative Concentration 40

R.T.	Conc'	Area	Relative to ISTD	R.T.	
7.50	76.03 ng	7079354	Hexafluorobenzene	13.75	
Hit# of 20	Tentative ID		Ref#	CAS#	Qual
1	1-Propene		115905	000115-07-1	91
2	3-Butenoic acid		14	000625-38-7	83
3	Furan, 2,5-dihydro-		116324	001708-29-8	78
4	2-Butenoic acid, (Z)-		116968	000503-64-0	72
5	Cyclopropanecarboxylic acid		116979	001759-53-1	72

 Peak Number 3 Rank in Relative Concentration 20

R.T.	Conc	Area	Relative to ISTD	R.T.	
8.41	262.24 ng	24417791	Hexafluorobenzene	13.75	
Hit# of 20	Tentative ID		Ref#	CAS#	Qual
1	1-Propene, 2-methyl-		116022	000115-11-7	87
2	1-Butene		116018	000106-98-9	64
3	Borane, ethyldimethyl-		116330	001113-22-0	37
4	1,3-Butadiene		115996	000106-99-0	25
5	2-Propenal		116006	000107-02-8	10

 Peak Number 4 Rank in Relative Concentration 30

R.T.	Conc	Area	Relative to ISTD	R.T.
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HNF-4598 Rev. 0

10.26 146.78 ng 13667107 Hexafluorobenzene 13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1-Pentene	116331	000109-67-1	59
2	Pentane, 1-chloro-	118524	000543-59-9	53
3	Pentane	116456	000109-66-0	50
4	Oxirane, 2,2-dimethyl-	116433	000558-30-5	42
5	Butane, 2-chloro-3-methyl-	1754	000631-65-2	40

Peak Number 5 Rank in Relative Concentration 43

R.T.	Conc	Area	Relative to ISTD	R.T.
12.08	73.31 ng	6826056	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Pentane, 2-bromo-	12433	000107-81-3	56
2	Pentane, 2-methyl-	106	000107-83-5	49
3	Pentane	116452	000109-66-0	37
4	1-Propanol, 2-methyl-	116573	000078-83-1	37
5	Butane, 1-chloro-3-methyl-	118532	000107-84-6	37

Peak Number 6 Rank in Relative Concentration 33

R.T.	Conc	Area	Relative to ISTD	R.T.
13.44	103.47 ng	9634004	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2-Hexene, (E)-	116889	004050-45-7	46
2	2-Hexene	116887	000592-43-8	46
3	3,4-Dihydropyran	116875	000110-87-2	43
4	Cyclopentanone	116853	000120-92-3	43
5	2-Hexene, (Z)-	116886	007688-21-3	38

Peak Number 7 Rank in Relative Concentration 53

R.T.	Conc	Area	Relative to ISTD	R.T.
15.61	40.25 ng	3747789	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1-Undecene	124351	000821-95-4	83
2	Furan, 3-butyltetrahydro-2-methyl-,	10224	036712-20-6	78
3	Furan, 2,5-dihydro-	116328	001708-29-8	64
4	1-Pentene, 2-methyl-	116894	000763-29-1	59
5	2-Heptene	117785	000592-77-8	49

Peak Number 8 Rank in Relative Concentration 2

R.T.	Conc	Area	Relative to ISTD	R.T.
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HNF-4598 Rev. 0

16.35	4967.12 ng	462497747	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2-Heptene, (E)-	898	014686-13-6	87
2	3-Heptene	901	000592-78-9	83
3	2-Pentene, 3-ethyl-	914	000816-79-5	64
4	Cycloheptane	117822	000291-64-5	59
5	Cyclobutanone, 2,4-dimethyl-	814	043042-67-7	59

 Peak Number 9 Rank in Relative Concentration 3

R.T.	Conc	Area	Relative to ISTD	R.T.
16.91	4628.69 ng	430985985	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	3-Heptene	901	000592-78-9	87
2	2-Heptene, (E)-	898	014686-13-6	87
3	Cyclobutanone, 2,4-dimethyl-	814	043042-67-7	59
4	2-Heptene	117785	000592-77-8	53
5	1-Heptene	897	000592-76-7	43

 Peak Number 10 Rank in Relative Concentration 23

R.T.	Conc	Area	Relative to ISTD	R.T.
17.29	239.41 ng	22291920	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Cyclopentene, 1,5-dimethyl-	637	016491-15-9	86
2	Cyclopentene, 4,4-dimethyl-	638	019037-72-0	78
3	CYCLOBUTANE, ISOPROPYLIDEN-	633	000000-00-0	72
4	2,4-Hexadienal, (E,E)-	117577	004488-48-6	64
5	Furan, 2-ethyl-	117583	003208-16-0	62

 Peak Number 11 Rank in Relative Concentration 52

R.T.	Conc	Area	Relative to ISTD	R.T.
17.61	41.14 ng	3830361	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2,4-Hexadienal	117580	000142-83-6	93
2	2,4-Hexadienal, (E,E)-	117578	004488-48-6	93
3	1,3-Pentadiene, 2,4-dimethyl-	627	001000-86-8	87
4	1,4-Hexadiene, 4-methyl-	618	001116-90-1	87
5	Furan, 2-ethyl-	117583	003208-16-0	80

 Peak Number 12 Rank in Relative Concentration 29

R.T.	Conc	Area	Relative to ISTD	R.T.
17.80	150.71 ng	14032586	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1-Butene, 2-methyl-	116339	000563-46-2	50
2	1-Pentene, 2,3-dimethyl-	915	003404-72-6	38
3	Cyclopropane, butyl-	931	000930-57-4	38
4	Cyclobutanone, 2,3,3-trimethyl-	2558	028290-01-9	38
5	Cyclopentane, 1,2,3-trimethyl-, (1.	119104	002613-69-6	38

Peak Number 13 Rank in Relative Concentration 5

R.T.	Conc	Area	Relative to ISTD	R.T.
18.34	3637.30 ng	338675987	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Octane, 3,4-dimethyl-	10253	015869-92-8	59
2	Heptane, 3-methyl-	119370	000589-81-1	50
3	Cyclohexane	116929	000110-82-7	43
4	Butane, 2,2,3-trimethyl-	1241	000464-06-2	43
5	Hexane, 2,3,5-trimethyl-	120933	001069-53-0	38

Peak Number 14 Rank in Relative Concentration 6

R.T.	Conc	Area	Relative to ISTD	R.T.
18.52	2591.17 ng	241268402	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2,3-Hexadiene, 2-methyl-	622	029212-09-7	93
2	3,4-Heptadiene	615	002454-31-1	80
3	2-Butenal, 2-ethenyl-	576	020521-42-0	74
4	2-Cyclopenten-1-one, 2-methyl-	593	001120-73-6	68
5	1,3-Pentadiene, 2,4-dimethyl-	627	001000-86-8	62

Peak Number 15 Rank in Relative Concentration 8

R.T.	Conc	Area	Relative to ISTD	R.T.
19.19	1500.28 ng	139693478	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2-Heptyne	602	001119-65-9	94
2	1,2-Hexadiene, 5-methyl-	616	013865-36-6	81
3	2,5-Heptadiene, (E,E)-	614	039619-60-8	64
4	1,4-Hexadiene, 4-methyl-	618	001116-90-1	59
5	2,4-Hexadienal	117579	000142-83-6	59

Peak Number 16 Rank in Relative Concentration 17

R.T.	Conc	Area	Relative to ISTD	R.T.	
19.74	377.85 ng	35182582	Hexafluorobenzene	13.75	
Hit# of 20	Tentative ID		Ref#	CAS#	Qual
1	2-Octene		119054	000111-67-1	83
2	2-Octene, (E)-		2641	013389-42-9	70
3	3-Octene, (E)-		2643	014919-01-8	70
4	2-Octene, (Z)-		2640	007642-04-8	70
5	Cyclobutanone, 2,3,3-trimethyl-		2558	028290-01-9	64

Peak Number 17 Rank in Relative Concentration 21

R.T.	Conc	Area	Relative to ISTD	R.T.	
21.00	257.60 ng	23985880	Hexafluorobenzene	13.75	
Hit# of 20	Tentative ID		Ref#	CAS#	Qual
1	Heptane, 3-ethyl-		6040	015869-80-4	59
2	Heptane, 4-propyl-		10257	003178-29-8	56
3	Heptane, 3-ethyl-2-methyl-		10259	014676-29-0	50
4	Octane, 3-methyl-		120910	002216-33-3	47
5	Hexanal, 2-ethyl-		120843	000123-05-7	47

Peak Number 18 Rank in Relative Concentration 44

R.T.	Conc	Area	Relative to ISTD	R.T.	
21.16	73.25 ng	6820512	Hexafluorobenzene	13.75	
Hit# of 20	Tentative ID		Ref#	CAS#	Qual
1	4-Octyne		2219	001942-45-6	76
2	3,4-Octadiene, 7-methyl-		4880	037050-05-8	53
3	4-METHYLENE-5-HEXENAL		2163	000000-00-0	52
4	2,4-Hexadiene		116772	000592-46-1	47
5	3-Octyne		118879	015232-76-5	47

Peak Number 19 Rank in Relative Concentration 7

R.T.	Conc	Area	Relative to ISTD	R.T.	
21.65	2116.71 ng	197090814	Hexafluorobenzene	13.75	
Hit# of 20	Tentative ID		Ref#	CAS#	Qual
1	Nonane		120904	000111-84-2	58
2	Octane		119366	000111-65-9	53
3	[1'-13C]-Octyne		2216	000000-00-0	50
4	Pentane, 2,4-dimethyl-		118121	000108-08-7	47
5	1-Heptene		117780	000592-76-7	43

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Peak Number 20

Rank in Relative Concentration 4

R.T.	Conc	Area	Relative to ISTD	R.T.
22.47	4096.13 ng	381398483	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	3-Heptanone	3091	000106-35-4	59
2	3-Hexanone, 5-methyl-	119328	000623-56-3	40
3	1-Propene, 3-methoxy-	116426	000627-40-7	27
4	2-Butenoic acid, (Z)-	116967	000503-64-0	27
5	Pentane	116453	000109-66-0	25

 Peak Number 21 Rank in Relative Concentration 32

R.T.	Conc	Area	Relative to ISTD	R.T.
23.13	105.63 ng	9834999	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Octane, 4-ethyl-	10247	015869-86-0	58
2	Octane, 3,6-dimethyl-	10255	015869-94-0	52
3	Nonane, 3-methyl-	10243	005911-04-6	50
4	Heptadecane, 2,6,10,15-tetramethyl-	72677	054833-48-6	50
5	Dodecane, 2-methyl-	127258	001560-97-0	47

 Peak Number 22 Rank in Relative Concentration 41

R.T.	Conc	Area	Relative to ISTD	R.T.
23.25	75.18 ng	7000009	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Heptane, 2,3-dimethyl-	6043	003074-71-3	50
2	2H-Pyran, tetrahydro-2-(2-propynylo	9219	006089-04-9	43
3	Hexane, 3-ethyl-2-methyl-	6051	016789-46-1	40
4	Oxirane, (2-methylpropyl)-	118095	023850-78-4	38
5	Hexane, 2,3,5-trimethyl-	120933	001069-53-0	37

 Peak Number 23 Rank in Relative Concentration 28

R.T.	Conc	Area	Relative to ISTD	R.T.
23.43	159.39 ng	14841440	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1-Piperidinecarboxaldehyde	119156	002591-86-8	38
2	2,5-Pyrrolidinedione, 1-methyl-	119134	001121-07-9	37
3	Cyclohexanol, 1-(1,5-dimethylhexyl)	46940	024945-44-6	37
4	Cyclohexene, 4,4-dimethyl-	2281	014072-86-7	37
5	CIS-MENTH-4-OL	15574	003239-02-9	32

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 Peak Number 24 Rank in Relative Concentration 18

R.T.	Conc	Area	Relative to ISTD	R.T.
23.52	292.54 ng	27238990	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Cyclohexanol, 1-(1,5-dimethylhexyl)	46940	024945-44-6	38
2	2,5-Pyrrolidinedione, 1-methyl-	119134	001121-07-9	37
3	Thiazole, 2,4-dimethyl-	119142	000541-58-2	25
4	Thiazole, 4,5-dimethyl-	119144	003581-91-7	22
5	N-METHYL-3-HYDROXY-.DELTA.4-PYRROLI	2758	058823-17-9	22

 Peak Number 25 Rank in Relative Concentration 11

R.T.	Conc	Area	Relative to ISTD	R.T.
23.64	1077.38 ng	100317217	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1-HYDROXYCYCLOHEXANECARBOXYLIC ACID	10615	001123-28-0	64
2	1,3,2-Dioxaborolane, 2,4-diethyl-	5771	057633-63-3	59
3	1,1'-BICYCLOHEXYL-1,1'-DIOL	34005	002888-11-1	56
4	Furan, 2,5-diethyltetrahydro-	6013	041239-48-9	56
5	2,2'-Bioxepane	33981	074793-02-5	56

 Peak Number 26 Rank in Relative Concentration 10

R.T.	Conc	Area	Relative to ISTD	R.T.
23.75	1397.43 ng	130117470	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2,2'-Bioxepane	33981	074793-02-5	64
2	Phenol-d5	478	000000-00-0	53
3	GLYCOCYANIDINE	955	000503-86-6	45
4	Furan, 2,5-diethyltetrahydro-	6013	041239-48-9	45
5	3-METHYL-5-PYRAZOLONE-1-D1	736	053778-58-8	45

 Peak Number 27 Rank in Relative Concentration 13

R.T.	Conc	Area	Relative to ISTD	R.T.
23.97	924.50 ng	86081672	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1-Methyl-2-cyclopenten-1-ol	844	040459-88-9	80
2	3-Penten-2-one, 4-methyl-	117726	000141-79-7	64
3	tert-Butylketene	788	059005-31-1	59
4	3-BROMO-1,1,2-TRIMETHYL-CYCLOPROPAN	17429	000000-00-0	59
5	3-Chloro-1-cyclohexyloxy-3-methyl-2	106250	086296-67-5	50

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 Peak Number 28 Rank in Relative Concentration 12

R.T.	Conc	Area	Relative to ISTD	R.T.
24.28	972.50 ng	90550828	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2(5H)-FURANONE, 4,5,5-TRIMETHYL-	5202	000000-00-0	53
2	Acrylonitrile, 3-hydroxy-, acetate	2313	014268-54-3	38
3	3-Hepten-2-one, 4-methyl-	5304	022319-25-1	38
4	4-Methyl-2-methyleneoxepane	5378	064507-65-9	37
5	Oxazole, trimethyl-	2343	020662-84-4	36

 Peak Number 29 Rank in Relative Concentration 19

R.T.	Conc	Area	Relative to ISTD	R.T.
24.57	287.84 ng	26801309	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Decane, 4-methyl-	124557	002847-72-5	52
2	Heptane, 3-ethyl-5-methyl-	10260	052896-90-9	52
3	Octane, 6-ethyl-2-methyl-	15634	062016-19-7	47
4	Octane, 2-iodo-	52284	000557-36-8	47
5	Dodecane, 2-methyl-	127258	001560-97-0	43

 Peak Number 30 Rank in Relative Concentration 48

R.T.	Conc	Area	Relative to ISTD	R.T.
24.72	54.65 ng	5088215	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1,6-Heptadiene, 2-methyl-	2236	013643-06-6	38
2	CIS-UNDEC-4-ENAL	20589	068820-32-6	32
3	2,4-Decadienal, (E,Z)-	123942	025152-83-4	32
4	2-Octen-1-ol, (Z)-	5960	026001-58-1	27
5	Oxirane, 3-butenyl-	894	010353-53-4	22

 Peak Number 31 Rank in Relative Concentration 31

R.T.	Conc	Area	Relative to ISTD	R.T.
25.24	107.85 ng	10042334	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1-Hentetracontanol	137292	040710-42-7	35
2	1-Decanol, 2-ethyl-	28569	021078-65-9	35
3	2-Hexene, 1-(pentyloxy)-, (E)-	21620	056052-82-5	32
4	Cycloheptanone, 3-methyl-, (R)-	5381	013609-58-0	25
5	Decane, 3-methyl-	15625	013151-34-3	25

 Peak Number 32 Rank in Relative Concentration 9

R.T.	Conc	Area	Relative to ISTD	R.T.
25.85	1490.54 ng	138786668	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2-Azabicyclo[2.2.1]heptane	699	000279-24-3	78
2	1,2-Nonadiene	120434	022433-33-6	40
3	Nonanenitrile	122382	002243-27-8	39
4	CIS-1,2-CYCLOBUTANEDICARBOXYLIC ACI	5119	000000-00-0	37
5	Hexanenitrile	117638	000628-73-9	33

 Peak Number 33 Rank in Relative Concentration 51

R.T.	Conc	Area	Relative to ISTD	R.T.
26.04	46.49 ng	4329055	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2-Cyclohexen-1-one	117596	000930-68-7	52
2	3-AMINO-1,2,4-TRIAZINE	117555	001120-99-6	47
3	Cyclohexene, 1-decyl-	45108	062338-41-4	25
4	(S)-(-)-Ipsenol	14604	035628-05-8	16
5	1H-Pyrazole, 3,5-dimethyl-	117570	000067-51-6	14

 Peak Number 34 Rank in Relative Concentration 38

R.T.	Conc	Area	Relative to ISTD	R.T.
26.60	83.32 ng	7758215	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	.ALPHA.-CITRONELLOL	15532	000000-00-0	35
2	HEXANOL-4-D2	1452	053778-67-9	27
3	1-Pentanol, 2-methyl-	1457	000105-30-6	22
4	Heptane, 2,6-dimethyl-	120921	001072-05-5	14
5	Butane, 2-iodo-2-methyl-	33461	000594-38-7	14

 Peak Number 35 Rank in Relative Concentration 42

R.T.	Conc	Area	Relative to ISTD	R.T.
26.75	74.78 ng	6962734	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	4-Octanone	120861	000589-63-9	47
2	4-Heptanone, 2-methyl-	5951	000626-33-5	43
3	5-Nonanone	122705	000502-56-7	43
4	Decane, 1-iodo-	62498	002050-77-3	38

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5 4-Nonanone

122702 004485-09-0 35

 Peak Number 36 Rank in Relative Concentration 35

R.T.	Conc	Area	Relative to ISTD	R.T.
26.91	100.59 ng	9366439	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Undecane, 4-methyl-	126017	002980-69-0	68
2	Decane, 2,9-dimethyl-	21662	001002-17-1	59
3	Octane, 2-methyl-	6037	003221-61-2	50
4	OCTANE, 2,3,6,7-TETRAMETHYL-	21671	000000-00-0	43
5	Undecane, 5-methyl-	126018	001632-70-8	43

 Peak Number 37 Rank in Relative Concentration 22

R.T.	Conc	Area	Relative to ISTD	R.T.
27.31	246.46 ng	22948436	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Naphthalene, decahydro-, cis-	122334	000493-01-6	89
2	Naphthalene, decahydro-	122335	000091-17-8	76
3	9-Borabicyclo[3.3.1]nonane, 9-hydro	8584	063366-65-4	70
4	Naphthalene, decahydro-, trans-	122344	000493-02-7	46
5	10-Undecen-1-ol	125978	000112-43-6	43

 Peak Number 38 Rank in Relative Concentration 16

R.T.	Conc	Area	Relative to ISTD	R.T.
27.55	404.69 ng	37681365	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Octanenitrile	5025	000124-12-9	59
2	7-Azabicyclo[4.1.0]heptane, 1-methy	2383	025022-25-7	50
3	Heptanenitrile	118930	000629-08-3	50
4	TROPINE-N-OXIDE B	15772	032663-71-1	42
5	1,1'-Bicyclohexyl	125608	000092-51-3	38

 Peak Number 39 Rank in Relative Concentration 36

R.T.	Conc	Area	Relative to ISTD	R.T.
27.77	97.93 ng	9118413	Hexafluorobenzene	13.75
Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2,4-Hexadien-1-ol	117760	000111-28-4	46
2	1-CYANO-2,3-EPITHIOPROPANE	969	058130-93-1	43
3	2-Propenal, 2-methyl-	116304	000078-85-3	43

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4 2-Butenediamide, 2-methyl-, (Z)-	5690 041138-17-4	40
5 2-Butenedioic acid, 2-methyl-, (E)-	6258 000498-24-8	38

 Peak Number 40 Rank in Relative Concentration 50

R.T.	Conc	Area	Relative to ISTD	R.T.
27.93	52.88 ng	4924015	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	1,4-Oxathian-2-one	119713	005512-70-9	90
2	1H-Imidazole, 2-methyl-	116747	000693-98-1	83
3	2-HYDROXY-4-(METHYLMETHOXY ETHER)-7	34715	000000-00-0	83
4	2-NITROBENZOIC ACID -1-C13	19801	041398-24-7	83
5	DODECANE, 2-CYCLOHEXYL-	57563	013151-82-1	74

 Peak Number 41 Rank in Relative Concentration 49

R.T.	Conc	Area	Relative to ISTD	R.T.
28.06	54.54 ng	5078308	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Cyclohexane, (1-methylethyl)-	120634	000696-29-7	76
2	Cyclohexane, pentyl-	14841	004292-92-6	74
3	Cyclohexane, 1,1'-methylenebis-	126867	003178-23-2	72
4	3-CYCLOHEXYL-3-DEUTEROPROP-1-ENE	4918	055702-62-0	64
5	Cyclohexane, hexyl-	20760	004292-75-5	64

 Peak Number 42 Rank in Relative Concentration 15

R.T.	Conc	Area	Relative to ISTD	R.T.
28.25	577.29 ng	53752636	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Oxazole, trimethyl-	118925	020662-84-4	43
2	3-Buten-2-one, 4-(1-aziridinyl)-	2342	018277-57-1	43
3	2-ETHYL-5-PENTYL-5-PYRROLINE	19967	061772-94-9	38
4	Anisole-2,4,6-D3	1920	000000-00-0	38
5	2(1H)-Pyridinone, 3-hydroxy-	2319	016867-04-2	27

 Peak Number 43 Rank in Relative Concentration 1

R.T.	Conc	Area	Relative to ISTD	R.T.
28.41	5349.44 ng	498095873	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Dodecane	126000	000112-40-3	76
2	Decane	122728	000124-18-5	58

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3 Cyclooctane	2729 000292-64-8	45
4 8-Aza-10-decanlactam	21343 072636-94-3	43
5 1-Octene	119048 000111-66-0	41

 Peak Number 44 Rank in Relative Concentration 27

R.T.	Conc	Area	Relative to ISTD	R.T.
28.61	174.08 ng	16209369	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Undecane, 2,6-dimethyl-	127264	017301-23-4	97
2	Undecane, 4,6-dimethyl-	27759	017312-82-2	74
3	Nonane, 3-methyl-	10243	005911-04-6	72
4	Undecane, 2,5-dimethyl-	27744	017301-22-3	72
5	Octane, 3,6-dimethyl-	10255	015869-94-0	64

 Peak Number 45 Rank in Relative Concentration 14

R.T.	Conc	Area	Relative to ISTD	R.T.
28.77	797.88 ng	74292162	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2-Cyclohexen-1-one	117593	000930-68-7	50
2	2H-Azepin-2-one, hexahydro-5-methyl	5606	002210-07-3	25
3	Methyl-2-cyanopropanoate	2754	000000-00-0	17
4	2,3-Nonadiene	120435	022433-34-7	17
5	1H-Pyrazole, 1-ethyl-3,5-dimethyl-	4742	017629-26-4	16

 Peak Number 46 Rank in Relative Concentration 26

R.T.	Conc	Area	Relative to ISTD	R.T.
28.95	194.55 ng	18115077	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Naphthalene, decahydro-2-methyl-	124047	002958-76-1	86
2	7-Hexadecyne	45100	074685-28-2	60
3	3,4-Octadiene, 7-methyl-	4880	037050-05-8	55
4	1H-Inden-1-one, octahydro-7a-methyl	13742	017428-83-0	49
5	Cyclohexene, 1-pentyl-	124043	015232-85-6	49

 Peak Number 47 Rank in Relative Concentration 45

R.T.	Conc	Area	Relative to ISTD	R.T.
29.13	63.06 ng	5871288	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Cyclohexane, 1,4-dimethyl-, cis-	119114	000624-29-3	45

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2 Cyclohexane, 1,3-dimethyl-, trans-	119113	002207-03-6	45
3 6-Decen-5-one	124188	032064-79-2	38
4 Cyclohexane, 1,4-dimethyl-, trans-	2727	002207-04-7	38
5 Furan, 2,3-dihydro-4-(1-methylethyl	2620	034314-84-6	35

Peak Number 48 Rank in Relative Concentration 39

R.T.	Conc	Area	Relative to ISTD	R.T.
29.47	79.52 ng	7404197	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Naphthalene, decahydro-2,6-dimethyl	19761	001618-22-0	70
2	Naphthalene, decahydro-2,3-dimethyl	19760	001008-80-6	64
3	Naphthalene, decahydro-1,6-dimethyl	125614	001750-51-2	58
4	8-Amino-6-methyl-s-triazolo[5,1-d][	19093	085575-03-7	52
5	2(1H)-Naphthalenone, octahydro-4a-m	19649	000938-06-7	50

Peak Number 49 Rank in Relative Concentration 25

R.T.	Conc	Area	Relative to ISTD	R.T.
29.73	195.04 ng	18160511	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Nonanenitrile	8963	002243-27-8	53
2	2-Cyclohexen-1-one, 3-methyl-	2193	001193-18-6	43
3	Heptanenitrile	118930	000629-08-3	38
4	Cyclohexane, nitro-	120964	001122-60-7	35
5	Decanenitrile	14111	001975-78-6	32

Peak Number 50 Rank in Relative Concentration 37

R.T.	Conc	Area	Relative to ISTD	R.T.
29.89	86.82 ng	8084059	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2,6-DIMETHYL-4-OXA-ENDO-TRICYCLO(5.	19698	069902-77-8	78
2	Naphthalene, decahydro-1,6-dimethyl	125614	001750-51-2	72
3	Naphthalene, decahydro-2,6-dimethyl	19761	001618-22-0	64
4	Naphthalene, decahydro-2,3-dimethyl	19760	001008-80-6	62
5	Pulegone	123988	000089-82-7	50

Peak Number 51 Rank in Relative Concentration 55

R.T.	Conc	Area	Relative to ISTD	R.T.
30.11	38.90 ng	3621711	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
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HNF-4598 Rev. 0

1	4,8-DIMETHYLNONA-1,7-DIENE	13858	062108-28-5	46
2	2(1H)-Naphthalenone, octahydro-4a-m	125595	000938-07-8	46
3	1,7-OCTADIENE, 2,6-DIMETHYL-	8732	000000-00-0	43
4	1,4-Hexadiene, 2,5-dimethyl-	2243	000927-97-9	43
5	9-Decen-1-ol	15528	013019-22-2	37

Peak Number 52 Rank in Relative Concentration 46

R.T.	Conc	Area	Relative to ISTD	R.T.
30.29	57.54 ng	5357735	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Cyclohexane, 1,1'-propylidenebis-	38780	054934-91-7	60
2	Cyclopentane, 1-methyl-3-(1-methyle	5452	053771-88-3	59
3	3-UNDECENE, 5-METHYL-, CIS/TRANS	20694	000000-00-0	50
4	3-CYCLOHEXYL-3-DEUTEROPROP-1-ENE	4918	055702-62-0	46
5	Cyclotetradecane	33202	000295-17-0	35

Peak Number 53 Rank in Relative Concentration 56

R.T.	Conc	Area	Relative to ISTD	R.T.
30.69	37.32 ng	3475066	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	6-Tridecene	127045	024949-38-0	87
2	Cyclopropane, nonyl-	20748	074663-85-7	68
3	4-Nonene, 5-butyl-	127047	007367-38-6	62
4	1-Dodecanol	127404	000112-53-8	56
5	CYCLOOCTANE, 1,2-DIMETHYL-	9535	000000-00-0	53

Peak Number 54 Rank in Relative Concentration 34

R.T.	Conc	Area	Relative to ISTD	R.T.
31.07	103.14 ng	9603657	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Pentane, 3-(2,2-dichloro-3-methylcy	31595	024577-79-5	53
2	Cyclopentanone	116856	000120-92-3	50
3	2-Fluorocycloheptanone	6406	001755-11-9	47
4	Cyclooctane	2729	000292-64-8	47
5	2-Butynedioic acid, di-2-propenyl e	31620	014447-07-5	38

Peak Number 55 Rank in Relative Concentration 58

R.T.	Conc	Area	Relative to ISTD	R.T.
31.40	32.23 ng	3001267	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
------------	--------------	------	------	------

1	4-Pyridinol, acetate (ester)	122117	014210-20-9	47
2	1,1':3',1''-Tercyclopentane	37760	006051-40-7	47
3	(E,E) (3S,8S),3,8-DIMETHYLDECA-4,6-D	19723	067730-63-6	38
4	Naphthalene, 2-butyldecahydro-	127888	006305-52-8	35
5	Cyclohexanol, 4-ethyl-4-methyl-3-(1	27692	055869-52-8	32

Peak Number 56 Rank in Relative Concentration 47

R.T.	Conc	Area	Relative to ISTD	R.T.
31.83	56.82 ng	5290919	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Decanenitrile	14111	001975-78-6	50
2	Octanenitrile	5025	000124-12-9	47
3	2-Azabicyclo[2.2.1]heptane	699	000279-24-3	35
4	2-Cyclohexen-1-one, 3-methyl-	118860	001193-18-6	27
5	Isoxazole, 3,5-dimethyl-	676	000300-87-8	27

Peak Number 57 Rank in Relative Concentration 24

R.T.	Conc	Area	Relative to ISTD	R.T.
32.44	214.21 ng	19945580	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Tetradecane	128278	000629-59-4	96
2	Hexadecane	130127	000544-76-3	87
3	Pentadecane	129237	000629-62-9	86
4	Tridecane	127255	000629-50-5	86
5	Dodecane	126006	000112-40-3	86

Peak Number 58 Rank in Relative Concentration 54

R.T.	Conc	Area	Relative to ISTD	R.T.
33.22	39.71 ng	3697250	Hexafluorobenzene	13.75

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Piperidine, 1-(1-oxopentyl)-	20970	018494-52-5	52
2	2-OXASPIRO(4.5)DECAN-1,8-DIONE	20236	067132-93-8	47
3	Benzene, 1-ethoxy-4-fluoro-	9167	000459-26-7	43
4	Phenetole, m-fluoro-	9166	000458-03-7	43
5	2-BUTYL-5-PENTYL-PYRROLIDINE	33416	019501-71-4	38

39041334.D AREA2.M Tue Jun 01 15:13:48 1999

Library Searched : C:\DATABASE\WILEY138.L
Quality : 3
ID : Ethane

HNF-4598 Rev. 0

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 91

ID : 1-Propene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 83
ID : 1-Propene, 2-methyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 59

ID : 1-Pentene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 35

ID : 1-Pentene, 4-methyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 91

ID : 1-Hexene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 53

ID : 2-Hexene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 64
ID : 1,5-Hexadiene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 72

ID : 1-Hexyne

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 68

ID : 3-Heptene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 97

ID : 3-Heptene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 91

ID : 2-Heptene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 97
ID : 2-Heptene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 41
ID : Cyclopropane, butyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 87

ID : 2,4-Hexadienal

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 80

ID : Heptane, 3-methyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 93

ID : 3,4-Heptadiene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 76

ID : Heptane, 3-methylene-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 49

ID : 2-Heptyne

Library Searched : C:\DATABASE\WILEY138.L

Quality : 52

ID : 2-Octene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 35

ID : 1,6-Octadiene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 53

ID : Heptane, 3-ethyl-

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 64

ID : Butane, 1,1'-oxybis-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 53

ID : 4-Heptanone

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 53

ID : 3-Heptanone

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 50

ID : Octane, 4-ethyl-

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 38
ID : 1,3-Diethyl-1,4-epoxybutane

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 45
ID : Furan, 2,5-diethyltetrahydro-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 80
ID : 1-Methyl-2-cyclopenten-1-ol

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 53
ID : Oxazole, trimethyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 49
ID : Decane, 4-methyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 72
ID : 1-Hexanol, 2-ethyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 78
 ID : 2-Azabicyclo[2.2.1]heptane

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 55
 ID : 1-Undecene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 42
ID : 5-Nonanone

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 96
ID : Naphthalene, decahydro-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 64
 ID : Octanenitrile

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 27
 ID : 1-Decene, 5-methyl-

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 97

ID : Undecane, 2,6-dimethyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
Quality : 95
ID : Naphthalene, decahydro-2-methyl-

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 74

ID : Naphthalene, decahydro-1,5-dimethyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 40

ID : Nonanenitrile

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 55
 ID : Naphthalene, decahydro-2,6-dimethyl-

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\390413\39041334.D
Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 14

ID : 6-Tridecene

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 35

ID : 1-Tridecene

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Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 49

ID : Naphthalene, decahydro-2,6-dimethyl-

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L

Quality : 81

ID : Decanenitrile

HNF-4598 Rev. 0

Library Searched : C:\DATABASE\WILEY138.L
 Quality : 97
 ID : Tetradecane

HNF-4598 Rev. 0

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Operator : Bonfoey/Lockard
Acquired : 22 Apr 99 1:09 pm using AcqMethod 390413AQ
Instrument : 5972 INST
Sample Name: VS006-414-TS39
Misc Info :
Vial Number: 34

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**This document was too large to scan
as a single document; therefore, it has
been divided into smaller sections.**

Section 2 of 2

Document Information

Document #	HNF-4598	Revision	0
Title	TANK VAPOR SAMPLING & ANALYSIS DATA PACKAGE FOR TANK 241C106 WASTE RETRIEVAL SLUICING SYS PROCESS TEST PHASE 3 SAMPLED 03/28/1999		
Date	06/21/1999		
Originator	LOCKREM LL	Originator Co.	NHC
Recipient		Recipient Co.	
References			
Keywords			
Projects			
Other Information			

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2.4 Total Non-Methane Organic Carbon in SUMMA Canister Samples (T0-12 Method)

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2.4.1 Narrative

This section contains descriptions of the analytical method and quality assurance used during analysis.

2.4.1.1 Determination of Total Non-Methane Organic Carbon (TO-12 Method) in SUMMA Canister Samples

This method is based on the U.S. Environmental Protection Agency TO-12 method for the analysis of samples collected in SUMMA canisters. A tank vapor subsample is drawn from the SUMMA canister through a cryogenic vapor concentration system. The concentrated subsample is subsequently analyzed by gas chromatography - flame ionization detection. The chromatograph is calibrated to provide a gross carbon-hydrogen bond response using a multilevel calibration curve generated with a commercially supplied propane standard. The calibration is verified with a propane standard traceable to NIST.

The instrumentation consists of a Hewlett-Packard model 5890 Series II gas chromatograph equipped with a fused silica capillary column and a flame ionization detector.

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2.4.1.2 Total Non-methane Organic Carbon (TO-12 Method) Analytical Quality Assurance

Method LA-523-407, Rev. A-0, is used for quantitative gas chromatographic analysis of total non-methane organic carbon in waste tank headspace samples collected in SUMMA canisters. The method does not measure specific analytes but integrates all non-methane organic compounds as a single, reportable analyte.

The gas chromatographic system is calibrated initially prior to starting sample analysis and each time continuing calibration criteria cannot be met for subsequent analysis. At least 5 propane standard concentration levels are used for initial calibration, or ICAL. The validity of the initial calibration is demonstrated by meeting deviation or curve fit criteria and through the satisfactory analysis of a "check standard" gas, the ICVS. Initial calibration gas blanks are measured to demonstrate system cleanliness. Each day that the GC system is used for analysis, the continuing calibration of the system is verified through the measurement of a mid-level check propane standard, or CCVS. The measurement must meet criteria for percent recovery of the propane standard. Continuing calibration blanks, CCBs, are used to document the continued cleanliness of the GC system.

With each tank sample reporting batch, the analysis of a laboratory control sample (LCS) and LCS duplicate is conducted. The recovery of the LCS analyte must meet accuracy (percent recovery - %R) and precision (relative percent difference - RPD) requirements. Also, with each tank sample reporting batch, an actual tank sample is analyzed in duplicate, the "laboratory sample duplicate". The RPD between the sample analyte concentrations measured above reporting limits and its laboratory sample duplicate must meet precision requirement or the resulting data is flagged.

No deviations from the analytical QC procedures occurred.

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2.4.2 Result Summary Tables

The result summary tables summarize the results of the Total Non-Methane Organic Carbon analysis. All reported values have been corrected to 25 °C and 1 atmosphere pressure.

TNMOC Analysis

Sample Canister Number

VS006-402-S022

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/21/99	Laboratory Notebook Number	WHC-N-1319	Sample Datafile Identifier	21690421				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppbC)	Sample Concentration (ppbC)	Reported Concentration (ppmC)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
TNMOC	N/A	1.25	1.25	1322	2644	2.6	0.65	1.3	1.3		

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

TNMOC Analysis

Sample Canister Number

VS006-407-S031

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/22/99	Laboratory Notebook Number	WHC-N-1319	Sample Datafile Identifier	21690422				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppbC)	Sample Concentration (ppbC)	Reported Concentration (ppmC)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
TNMOC	N/A	1.25	1.25	15738	377706	380	7.72	185	190		D

Notes:

The sample was diluted to approximately 24 atmospheres when received by the Analytical Laboratory

Dilution Factor

24.00

TNMOC Analysis

Analyst: L.A. Pingel

Sample Canister Number VS006-412-S041

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/22/99	Laboratory Notebook Number	WHC-N-1319	Sample Datafile Identifier	21690422				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppbC)	Sample Concentration (ppbC)	Reported Concentration (ppmC)	Diluted Sample Concentration (mg/m ³)	Sample Concentration (mg/m ³)	Reported Concentration (mg/m ³)	Relative Standard Deviation (%)	Flags
TNMOC	N/A	1.25	1.25	21212	636350	640	10.41	312	310		D

Notes:

The sample was diluted to approximately 30 atmospheres when received by the Analytical Laboratory

Dilution Factor 30.00

TNMOC Analysis

Analyst: L.A. Pingel

Sample Canister Number VSAMB-401-S061

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/21/99	Laboratory Notebook Number	WHC-N-1319	Sample Datafile Identifier	21690421				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppbC)	Sample Concentration (ppbC)	Reported Concentration (ppmC)	Diluted Sample Concentration (mg/m ³)	Sample Concentration (mg/m ³)	Reported Concentration (mg/m ³)	Relative Standard Deviation (%)	Flags
TNMOC	N/A	1.25	1.25	2129	4259	4.3	1.05	2.1	2.1		

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

TNMOC Analysis

Analyst: L.A. Pingel

Sample Canister Number VSAMB-405-S076

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/21/99	Laboratory Notebook Number	WHC-N-1319	Sample Datafile Identifier	21690421				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppbC)	Sample Concentration (ppbC)	Reported Concentration (ppmC)	Diluted Sample Concentration (mg/m ³)	Sample Concentration (mg/m ³)	Reported Concentration (mg/m ³)	Relative Standard Deviation (%)	Flags
TNMOC	N/A	1.25	1.25	114	227	0.23	0.056	0.11	0.11		

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

TNMOC Analysis

Sample Canister Number

VSAMB-406-S082

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/21/99	Laboratory Notebook Number	WHC-N-1319	Sample Datafile Identifier	21690421				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppbC)	Sample Concentration (ppbC)	Reported Concentration (ppmC)	Diluted Sample Concentration (mg/m ³)	Sample Concentration (mg/m ³)	Reported Concentration (mg/m ³)	Relative Standard Deviation (%)	Flags
TNMOC	N/A	1.25	1.25	836	1672	2.0	0.41	0.82	0.82		

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

TNMOC Analysis

Sample Canister Number

VSAMB-410-S089

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/21/99	Laboratory Notebook Number	WHC-N-1319	Sample Datafile Identifier	2\690421				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppbC)	Sample Concentration (ppbC)	Reported Concentration (ppmC)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
TNMOC	N/A	1.25	1.25	752	1504	1.5	0.37	0.74	0.74		

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

2.4.3 Quality Control Summary Table

The QC summary tables describes each analysis by run number. The table includes the following:

- CCVS results
- Duplicate results
- Analytical results of the waste tank samples.

VS006- 402-S022
TNMOC

Project Number: C-106, 3

Instrument #6. TNMOC (TO-12) Gas GC, located in Analysis Trailer #2
Data File: 2\690421
Instrument Method: 2\690421.MTH

Data Acquired on: 4/21/99
Analyst: L.A. Pingel
Laboratory Notebook: WHC-N-1319

Run #	Analyzed Concentrations				
		ppmC			%D
008F 0101.D	185-1-12.02		Zero Air		
009F 0201.D	1319-1-79.0	3.0	CCVS	3099 ppbv	3.30%
009F 0202.D	1319-1-79.0	3.0	CCVS Dup	4035 ppbv	34.50%
010F 0301.D	185-1-12.02		Zero Air		
029F 0401.D	402-S022		1322 ppbv	0.6 mg/m ³	
			Average	0.7 mg/m ³	

VS006- 407-S031
TNMOC

Project Number: C-106, 3

Instrument #6. TNMOC (TO-12) Gas GC, located in Analysis Trailer #2
Data File: 2\690422
Instrument Method: 2\690421.MTH

Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: WHC-N-1319

Run #	Analyzed Concentrations				
		ppmC			%D
008F 0101.D	185-1-12.02		Zero Air		
009F 0201.D	1319-1-79.0	3.0	CCVS	3099 ppbv	3.30%
009F 0202.D	1319-1-79.0	3.0	CCVS Dup	4035 ppbv	34.50%
010F 0301.D	185-1-12.02		Zero Air		
042F 0401.D	407-S031		15738 ppbv	7.7 mg/m ³	
			Average	7.7 mg/m ³	

VS006- 412-S041
TNMOC

Project Number: C-106, 3

Instrument #6. TNMOC (TO-12) Gas GC, located in Analysis Trailer #2
Data File: 2\690422
Instrument Method: 2\690421.MTH

Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: WHC-N-1319

Run #	Analyzed Concentrations					
			ppmC			%D
008F 0101.D	185-1-12.02			Zero Air		
009F 0201.D	1319-1-79.0	3.0	CCVS	3099 ppbv		3.30%
009F 0202.D	1319-1-79.0	3.0	CCVS Dup	4035 ppbv		34.50%
010F 0301.D	185-1-12.02			Zero Air		
043F 0401.D	412-S041			21212 ppbv	10.4 mg/m ³	
				Average	10.0 mg/m ³	

VSAMB- 401-S061
TNMOC

Project Number: C-106, 3

Instrument #6. TNMOC (TO-12) Gas GC, located in Analysis Trailer #2
Data File: 2\690421
Instrument Method: 2\690421.MTH

Data Acquired on: 4/21/99
Analyst: L.A. Pingel
Laboratory Notebook: WHC-N-1319

Run #	Analyzed Concentrations				
		ppmC			%D
008F 0101.D	185-1-12.02		Zero Air		
009F 0201.D	1319-1-79.0	3.0	CCVS	3099 ppbv	3.30%
009F 0202.D	1319-1-79.0	3.0	CCVS Dup	4035 ppbv	34.50%
010F 0301.D	185-1-12.02		Zero Air		
031F 0401.D	401-S061		2129 ppbv	1.0 mg/m ³	
			Average	1.0 mg/m ³	

VSAMB- 405-S076
TNMOC

Project Number: C-106, 3

Instrument #6. TNMOC (TO-12) Gas GC, located in Analysis Trailer #2
Data File: 2\690421
Instrument Method: 2\690421.MTH

Data Acquired on: 4/21/99
Analyst: L.A. Pingel
Laboratory Notebook: WHC-N-1319

Run #	Analyzed Concentrations				
		ppmC			%D
008F 0101.D	185-1-12.02		Zero Air		
009F 0201.D	1319-1-79.0	3.0	CCVS	3099 ppbv	3.30%
009F 0202.D	1319-1-79.0	3.0	CCVS Dup	4035 ppbv	34.50%
010F 0301.D	185-1-12.02		Zero Air		
034F 0401.D	405-S076		114 ppbv	0.056 mg/m ³	
			Average	0.056 mg/m ³	

VSAMB- 406-S082
TNMOC

Project Number: C-106, 3

Instrument #6. TNMOC (TO-12) Gas GC, located in Analysis Trailer #2
Data File: 2\690421
Instrument Method: 2\690421.MTH

Data Acquired on: 4/21/99
Analyst: L.A. Pingel
Laboratory Notebook: WHC-N-1319

Run #	Analyzed Concentrations				
		ppmC			%D
008F 0101.D	185-1-12.02		Zero Air		
009F 0201.D	1319-1-79.0	3.0	CCVS	3099 ppbv	3.30%
009F 0202.D	1319-1-79.0	3.0	CCVS Dup	4035 ppbv	34.50%
010F 0301.D	185-1-12.02		Zero Air		
032F 0401.D	406-S082		836 ppbv	0.41 mg/m ³	
			Average	0.41 mg/m ³	

VSAMB- 410-S089
TNMOC

Project Number: C-106, 3

Instrument #6. TNMOC (TO-12) Gas GC, located in Analysis Trailer #2
Data File: 2\690421
Instrument Method: 2\690421.MTH

Data Acquired on: 4/21/99
Analyst: L.A. Pingel
Laboratory Notebook: WHC-N-1319

Run #	Analyzed Concentrations				
		ppmC			%D
008F 0101.D	185-1-12.02		Zero Air		
009F 0201.D	1319-1-79.0	3.0	CCVS	3099 ppbv	3.30%
009F 0202.D	1319-1-79.0	3.0	CCVS Dup	4035 ppbv	34.50%
010F 0301.D	185-1-12.02		Zero Air		
033F 0401.D	410-S089		752 ppbv	0.4 mg/m ³	
			Average	0.4 mg/m ³	

2.4.4 Supporting Data

This section contains chromatograms and quantitation reports for all analyses including waste tank samples, calibration verifications, and blanks.

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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\690421\029F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 29
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: VS006-402-S022	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	690421.MTH
Acquired on	: 21 Apr 99 10:52 AM	Analysis Method	: 690421.MTH
Report Created on:	21 Apr 99 10:55 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\029F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	532654	BV + 0.000	1	1322.098	TNMOC	

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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\690421\035F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 35
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: VS006-407-S031	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	690421.MTH
Acquired on	: 21 Apr 99 11:39 AM	Analysis Method	: 690421.MTH
Report Created on:	21 Apr 99 11:42 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\035F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	5.24153E+007	BBA+	0.000	1	168756.4	TNMOC

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 External Standard Report
 =====

```

Data File Name      : C:\HPCHEM\2\DATA\690422\042F0301.D
Operator            : L.A. Pingel
Instrument           : TNMOC
Sample Name         : VS006-407-S031 2
Run Time Bar Code   :
Acquired on         : 22 Apr 99 12:04 PM
Report Created on   : 22 Apr 99 12:06 PM
Last Recalib on    : 20 APR 99 11:10 AM
Multiplier          : 1
Sample Info         : Second Dilution of original sample canister

Page Number         : 1
Vial Number         : 42
Injection Number    : 1
Sequence Line       : 3
Instrument Method    : 690422.MTH
Analysis Method     : 690422.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Sig. 1 in C:\HPCHEM\2\DATA\690422\042F0301.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	4999613	BV +	0.000	1	15737.76	TNMOC

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External Standard Report

Data File Name : C:\HPCHEM\2\DATA\690421\030F0401.D		Page Number : 1
Operator : L.A. Pingel		Vial Number : 30
Instrument : TNMOC		Injection Number : 1
Sample Name : VS006-412-S041		Sequence Line : 4
Run Time Bar Code:		Instrument Method: 690421.MTH
Acquired on : 21 Apr 99 11:01 AM		Analysis Method : 690421.MTH
Report Created on: 21 Apr 99 11:04 AM		Sample Amount : 0
Last Recalib on : 20 APR 99 11:10 AM		ISTD Amount :
Multiplier : 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\030F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	9.54722E+007	BBA+	0.000	1	307708.6	TNMOC

External Standard Report

```

Data File Name       : C:\HPCHEM\2\DATA\690422\043F0301.D
Operator            : L.A. Pingel
Instrument           : TNMOC
Sample Name         : VS006-412-S041 2
Run Time Bar Code   :
Acquired on         : 22 Apr 99 12:30 PM
Report Created on   : 22 Apr 99 12:32 PM
Last Recalib on    : 20 APR 99 11:10 AM
Multiplier         : 1
Sample Info         : Second Dilution of original sample canister

Page Number         : 1
Vial Number         : 43
Injection Number    : 1
Sequence Line       : 3
Instrument Method    : 690422.MTH
Analysis Method     : 690422.MTH
Sample Amount       : 0
ISTD Amount         :

```

Sig. 1 in C:\HPCHEM\2\DATA\690422\043F0301.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	6695799	BBA+	0.000	1	21211.65	TNMOC

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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\690421\031F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 31
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: VSAMB-401-S061	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	690421.MTH
Acquired on	: 21 Apr 99 11:09 AM	Analysis Method	: 690421.MTH
Report Created on:	21 Apr 99 11:12 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\031F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	782810	BV +	0.000	1	2129.396	TNMOC

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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\690421\034F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 34
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: VSAMB-405-S076	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	690421.MTH
Acquired on	: 21 Apr 99 11:31 AM	Analysis Method	: 690421.MTH
Report Created on:	21 Apr 99 11:34 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\034F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	158171	BV +	0.000	1	113.577	TNMOC

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External Standard Report

```

Data File Name      : C:\HPCHEM\2\DATA\690421\032F0401.D
Operator           : L.A. Pingel
Instrument          : TNMOC
Sample Name        : VSAMB-406-S082
Run Time Bar Code  :
Acquired on        : 21 Apr 99  11:17 AM
Report Created on   : 21 Apr 99  11:20 AM
Last Recalib on    : 20 APR 99  11:10 AM
Multiplier         : 1
Page Number        : 1
Vial Number        : 32
Injection Number    : 1
Sequence Line      : 4
Instrument Method   : 690421.MTH
Analysis Method     : 690421.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Sig. 1 in C:\HPCHEM\2\DATA\690421\032F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	382085	BV + 0.000	1	836.186	TNMOC

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External Standard Report

=====

Data File Name	: C:\HPCHEM\2\DATA\690421\033F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 33
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: VSAMB-410-S089	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	690421.MTH
Acquired on	: 21 Apr 99 11:24 AM	Analysis Method	: 690421.MTH
Report Created on:	21 Apr 99 11:27 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\033F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	356007	BV + 0.000	1		752.028	TNMOC

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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\690421\036F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 36
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: 182-1-12.02	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	690421.MTH
Acquired on	: 21 Apr 99 11:46 AM	Analysis Method	: 690421.MTH
Report Created on:	21 Apr 99 11:49 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\036F0401.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	112112	BV + 0.000	1	-35.063	TNMOC	

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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\690421\008F0101.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 8
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: 185-1-12.02	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	690421.MTH
Acquired on	: 21 Apr 99 10:24 AM	Analysis Method	: 690421.MTH
Report Created on:	21 Apr 99 10:27 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\008F0101.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	13001	BV +	0.000	1	-354.912	TNMOC

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External Standard Report

```

Data File Name      : C:\HPCHEM\2\DATA\690421\009F0201.D
Operator           : L.A. Pingel
Instrument          : TNMOC
Sample Name        : 9e3 CCVS
Run Time Bar Code  :
Acquired on       : 21 Apr 99 10:31 AM
Report Created on : 21 Apr 99 10:33 AM
Last Recalib on  : 20 APR 99 11:10 AM
Multiplier        : 1

Page Number        : 1
Vial Number        : 9
Injection Number   : 1
Sequence Line      : 2
Instrument Method   : 690421.MTH
Analysis Method    : 690421.MTH
Sample Amount      : 0
ISTD Amount        :
  
```

Sig. 1 in C:\HPCHEM\2\DATA\690421\009F0201.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	1083248	BB + 0.000	1	3098.963	TNMOC

=====
 External Standard Report
 =====

Data File Name	: C:\HPCHEM\2\DATA\690421\009F0202.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 9
Instrument	: TNMOC	Injection Number	: 2
Sample Name	: 9e3 CCVS	Sequence Line	: 2
Run Time Bar Code:		Instrument Method	: 690421.MTH
Acquired on	: 21 Apr 99 10:38 AM	Analysis Method	: 690421.MTH
Report Created on:	: 21 Apr 99 10:41 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

-Sig. 1 in C:\HPCHEM\2\DATA\690421\009F0202.D

Ret Time	Area	Type	Width	Ref#	ppbC	Name
1.248	1373257	BV +	0.000	1	4034.872	TNMOC

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External Standard Report

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Data File Name	: C:\HPCHEM\2\DATA\690421\010F0301.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 10
Instrument	: TNMOC	Injection Number	: 1
Sample Name	: 185-1-12.02	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: 690421.MTH
Acquired on	: 21 Apr 99 10:45 AM	Analysis Method	: 690421.MTH
Report Created on:	: 24 May 99 09:58 AM	Sample Amount	: 0
Last Recalib on	: 20 APR 99 11:10 AM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\2\DATA\690421\010F0301.D

Ret Time	Area	Type Width	Ref#	ppbC	Name
1.248	7008	BV + 0.000	1	-374.252	TNMOC

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25 May 99 02:18 PM

page 1

Method: C:\HPCHEM\2\METHODS\690421.MTH

Integration Events

Events:	Value:	Time:
Initial Area Reject	1	INITIAL
Initial Peak Width	0.040	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	0	INITIAL
Area Sum ON		0.015
Area Sum OFF		2.480

Calibration Table

PK#	RT	Lvl	ppbC	Amt/Area	Ref Istd I#	Name
1	1.250	1	200.0	1.222e-003	1	TNMOC
		2	500.0	1.9506e-003		
		3	1000.0	2.7347e-003		
		4	10000.0	3.0095e-003		
		5	30000.0	3.1731e-003		
		6	75000.0	3.2138e-003		

Calibration Settings

Title:
Total Non-Methane Organic Carbon

Reference window:	5.000 %
Non-reference window:	5.000 %
Units of amount:	ppbC
Multiplier:	1.0
RF uncal peaks:	0.0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: Linear
Origin: Ignore

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2.5 Permanent Gases in SUMMA Canister Samples

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2.5.1 Narrative

This section contains descriptions of the analytical method and quality assurance used during analysis.

2.5.1.1 Determination of Permanent Gases in SUMMA Canister Samples

The permanent gas target analytes are carbon dioxide, carbon monoxide, hydrogen, methane, and nitrous oxide. These target analytes are determined in aliquots of tank headspace vapor collected in SUMMA canisters by means of a gas chromatograph equipped with a thermal conductivity detector (GC/TCD). The permanent gas target analytes are identified by matching their sample peak-retention times with those from standard gas mixtures. Target analyte concentrations are determined by calibrating the GC/TCD with standard gas mixtures; the integrated area of the chromatographic peak is proportional to the analyte concentration. The instrument detection limit for this method is typically on the order of 20 parts per million by volume.

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2.5.1.2 Permanent Gas Analytical Quality Assurance

Method LA-523-409, Rev. A-0, is used for the qualitative and quantitative gas chromatographic determination of selected permanent gases in waste tank headspace samples collected in SUMMA canisters.

The gas chromatographic system is calibrated initially prior to starting sample analysis and each time continuing calibration criteria cannot be met for subsequent analysis. At least 3 standard concentration levels containing each target analyte is used for initial calibration (ICAL). The initial calibration standards, or calibration verification standard, are measured to determine analyte chromatographic column retention times and to compute target analyte retention time windows. The validity of the initial calibration is demonstrated by meeting deviation or curve fit criteria and through the satisfactory analysis of a "check standard" gas, the ICVS. Initial calibration gas blanks are measured to demonstrate system cleanliness. Each day that the GC system is used for analysis, the continuing calibration of the system is verified through the measurement of a mid-level check standard gas, or CCV. Criteria for the CCV that must be met are target analyte retention time windows and percent recovery of the CCV analytes. Method blanks (MBs) are analyzed to document the continued cleanliness of the GC system.

With each tank sample reporting batch, the analysis of a laboratory control sample (LCS) and LCS duplicate is conducted. The recovery of the LCS analytes must meet accuracy (percent recovery - %R) and precision (relative percent difference - RPD) requirements. Also, with each tank sample reporting batch, an actual tank sample is analyzed in duplicate (laboratory sample duplicate). The RPD between sample analyte concentrations measured above reporting limits and the sample duplicate analyte concentrations must meet precision requirements or the resulting data is flagged.

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2.5.2 Result Summary Tables

The result summary tables are presented in this section. All reported values have been corrected to 25 °C and 1 atmosphere pressure.

Hydrogen/Methane Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number VS006-402-S022

Laboratory Sample Number	C-106, 3 Phase 3	Sample Analysis Date	5/3/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	3\590503				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Hydrogen	1333-74-0	5.68	5.69	24	49		2	4			
				5	10		0	1			
				9	18	50	1	1	4.1		M
Methane	74-82-8	7.19	7.18	0	0		0	0			
				0	0		0	0			
				0	0	50	0	0	33		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

The sample was analyzed 3 times and the mean of those 3 analysis is reported

The relative standard deviation is the %RSD of the 3 analysis.

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Permanent Gas Analysis

Sample Canister Number VS006-402-S022

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/23/99	Laboratory Notebook Number	HNF-N-125, 1		Sample Datafile Identifier	1\590423			
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Carbon Dioxide	124-38-9	3.83	3.85	127	254		229	457			
				130	260		234	467			
				120	241	250	216	433	450	3.9	
Nitrous Oxide	100-97-2	4.20	4.21	0	0		0	0			
				0	0		0	0			
				0	0	50	0	0	90		M
Carbon Monoxide	630-08-0	7.46	7.36	0	0		0	0			
				0	0		0	0			
				0	0	50	0	0	57		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

The sample was analyzed 3 times and the mean of those 3 analysis is reported

The relative standard deviation is the %RSD of the 3 analysis.

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Hydrogen/Methane Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number VS006-407-S031

Laboratory Sample Number	C-106, 3 Phase 3	Sample Analysis Date	5/3/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	31590503				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Hydrogen	1333-74-0	5.68	5.69	128 100 103	256 200 205	220	10 8 8	21 16 17	18	10	
Methane	74-82-8	7.19	7.18	0 0 0	0 0 0	50	0 0 0	0 0 0	33		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory
 The sample was analyzed 3 times and the mean of those 3 analysis is reported
 The relative standard deviation is the %RSD of the 3 analysis.

Dilution Factor 2.00

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Permanent Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number VS006-407-S031

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/23/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	11590423				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Carbon Dioxide	124-38-9	3.83	3.85	22	44		39	79			
				68	136		122	245			
				76	153	110	137	275	200	53	
Nitrous Oxide	100-97-2	4.20	4.21	187	374		336	673			
				187	373		336	672			
				195	391	380	351	703	680	2.6	
Carbon Monoxide	630-08-0	7.46	7.36	0	0		0	0			
				0	0		0	0			
				0	0	50	0	0	57	M	

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

Hydrogen/Methane Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number VS006-412-S041

Laboratory Sample Number	C-106, 3 Phase 3	Sample Analysis Date	5/3/99	Laboratory Notebook Number	HNF-N-125, 1		Sample Datafile Identifier	31590503			
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Hydrogen	1333-74-0	5.68	5.69	100 114	199 228	210	8 9	16 19	17		
Methane	74-82-8	7.19	7.18	0 0 0	0 0 0	50	0 0 0	0 0 0	33		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

The sample was analyzed 3 times and the mean of those 3 analysis is reported

The relative standard deviation is the %RSD of the 3 analysis.

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Permanent Gas Analysis

Sample Canister Number

VS006-412-S041

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/23/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Date/Identifier	11590423
--------------------------------	-----------------------	----------------------------	---------	----------------------------------	--------------	---------------------------	----------

Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m ³)	Sample Concentration (mg/m ³)	Reported Concentration (mg/m ³)	Relative Standard Deviation (%)	Flags
Carbon Dioxide	124-38-9	3.83	3.85	60	48	96	107	215	173		
				49	87	175					
				119	87	190					
				97	107	13.0					
Nitrous Oxide	100-97-2	4.20	4.21	186	372	335	669	703	690		
				195	384	345					
				192	380	2.5					
Carbon Monoxide	630-08-0	7.46	7.36	0	0	0	0	0	57		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

Hydrogen/Methane Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number VSAMB-401-S061

Laboratory Sample Number	C-106, 3 Phase 3	Sample Analysis Date	5/3/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	31590503				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Hydrogen	1333-74-0	5.68	5.69	-2.2 -1.2 -0.5	-4.4 -2.3 -0.9	50	0 0 0	0 0 0	4.1		M
Methane	74-82-8	7.19	7.18	0 0 0	0 0 0	50	0 0 0	0 0 0	33		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

The sample was analyzed 3 times and the mean of those 3 analysis is reported

The relative standard deviation is the %RSD of the 3 analysis.

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Permanent Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number

VSAMB-401-S061

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/23/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	11590423				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Carbon Dioxide	124-38-9	3.83	3.85	179 170 164	358 340 328	340	322 306 295	644 612 590	620	4.4	
Nitrous Oxide	100-97-2	4.20	4.21	0 0 0	0 0 0	50	0 0 0	0 0 0	90		M
Carbon Monoxide	630-08-0	7.46	7.36	0 0 0	0 0 0	50	0 0 0	0 0 0	57		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

Hydrogen/Methane Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number

VSAMB-405-S076

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	5/3/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	3\590503				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Hydrogen	1333-74-0	5.68	5.69	5 4	9 9	50	0 0	1 1	4.1	4.1	M
Methane	74-82-8	7.19	7.18	0 0	0 0	50	0 0	0 0	33		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

The sample was analyzed 3 times and the mean of those 3 analysis is reported

The relative standard deviation is the %RSD of the 3 analysis.

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Permanent Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number VSAMB-405-S076

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/22/99	Laboratory Notebook Number	HNF-N-125, 1	Laboratory Datafile Identifier	1\590422				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Carbon Dioxide	124-38-9	5.65	5.62	189 192 187	379 383 373	380	341 345 336	682 690 672	680	1.3	
Nitrous Oxide	100-97-2	6.18	6.20	0 0 0	0 0 0	50	0 0 0	0 0 0	90		M
Carbon Monoxide	630-08-0	7.46	7.46	0 0 0	0 0 0	50	0 0 0	0 0 0	57		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

Hydrogen/Methane Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number

VSAMB-406-S082

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	5/3/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	31590503				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Hydrogen	1333-74-0	5.68	5.69	2 0 0	4 0 0	50	0 0 0	0 0 0	4.1		M
Methane	74-82-8	7.19	7.18	0 0 0	0 0 0	50	0 0 0	0 0 0	33		M

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

The sample was analyzed 3 times and the mean of those 3 analysis is reported

The relative standard deviation is the %RSD of the 3 analysis.

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Permanent Gas Analysis

Sample Canister Number VSAMB-406-S082

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	Laboratory Notebook 4/22/99	HNF-N-125, 1	Sample Datafile Identifier					
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m ³)	Sample Concentration (mg/m ³)	Reported Concentration (mg/m ³)	Relative Standard Deviation (%)	Flags
Carbon Dioxide	124-38-9	3.83	3.85	215	215	430	437	394	774	
Nitrous Oxide	100-97-2	4.20	4.21	80	219	429	787	386	772	1.1
Carbon Monoxide	630-08-0	7.46	7.36	0	0	50	0	0	96	M
				0	0		0	0		
				0	0		0	0		
				0	0		0	0		

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor

2.00

Hydrogen/Methane Gas Analysis

Sample Canister Number

VSAMB-410-S089

Analyst: L.A. Pingel

Laboratory Sample Number	C-106, 3 Phase 3	Sample Analysis Date	5/3/99	Laboratory Notebook Number	HNF-N-125, 1	Sample Datafile Identifier	31590503				
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m ³)	Sample Concentration (mg/m ³)	Reported Concentration (mg/m ³)	Relative Standard Deviation (%)	Flags
Hydrogen	1333-74-0	5.68	5.69	4	8		0	1			
				2	4		0	0			
				4	9	50	0	1	4.1	M	
Methane	74-82-8	7.19	7.18	0	0		0	0			
				0	0		0	0			
				0	0	50	0	0	33	M	

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory
 The sample was analyzed 3 times and the mean of those 3 analysis is reported
 The relative standard deviation is the %RSD of the 3 analysis.

Dilution Factor

2.00

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

Permanent Gas Analysis

Analyst: L.A. Pingel

Sample Canister Number VSAMB-410-S089

Laboratory Sample Number	C-106, 3 Phase III	Sample Analysis Date	4/23/99	Laboratory Notebook Number	HNF-N-125, 1		Sample Datafile Identifier	11590423			
Target Analyte Number	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Diluted Sample Concentration (ppmv)	Sample Concentration (ppmv)	Reported Concentration (ppmv)	Diluted Sample Concentration (mg/m^3)	Sample Concentration (mg/m^3)	Reported Concentration (mg/m^3)	Relative Standard Deviation (%)	Flags
Carbon Dioxide	124-38-9	3.83	3.85	172 174 183	345 348 366	 350	310 314 329	620 627 658	 640	 3.2	
Nitrous Oxide	100-97-2	4.20	4.21	0 0 0	0 0 0	 50	0 0 0	0 0 0	 90	 M	
Carbon Monoxide	630-08-0	7.46	7.36	0 0 0	0 0 0	 50	0 0 0	0 0 0	 57	 M	

Notes:

The sample was diluted to approximately 2 atmospheres when received by the Analytical Laboratory

Dilution Factor 2.00

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2.5.3 Quality Control Summary Tables

Quality control summary tables are organized by sample number and analytes. The tables include the following:

- CCV results
- Duplicate results
- Method blank results.

VS006- 402-S022

Project Number: C-106, 3

Hydrogen

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 3\590503
 Instrument Method: 3\590503.mth
 Data Acquired on: 5/3/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
009F 0101.D	185-1-12.02		Zero Air		
010F 0201.D	185-1-22.01	1260	CCVS	1367 ppmv	8.5%
010F 0202.D	185-1-22.01	1260	CCVS/Dup	1361 ppmv	8.0%
011F 0301.D	185-1-12.02		Zero Air		
017F 0101.D	402-S022		24 ppmv	2.0 mg/m ³	
017F 0102.D	402-S022		5 ppmv	0.4 mg/m ³	
017F 0103.D	402-S022		9 ppmv	0.7 mg/m ³	
			Average	1.05 mg/m ³	

VS006- 402-S022
Methane

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 3\590503
Instrument Method: 3\590503.mth
Data Acquired on: 5/3/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #		ppm	Analyzed Concentrations		
					%D
009F 0101.D	185-1-12.02	Zero Air			
010F 0201.D	185-1-22.01	1229	CCVS	1332 ppmv	8.4%
010F 0202.D	185-1-22.01	1229	CCVS/Dup	1310 ppmv	6.6%
011F 0301.D	185-1-12.02	Zero Air			
017F 0101.D	402-S022		0.0 ppmv	0.0 mg/m ³	
017F 0102.D	402-S022		0.0 ppmv	0.0 mg/m ³	
017F 0103.D	402-S022		0.0 ppmv	0.0 mg/m ³	
		Average		0.0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VS006- 402-S022
Carbon Dioxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1331 ppmv		4.5%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1296 ppmv		1.7%
003F 0301.D	185-1-12.02		Zero Air			
008F 0401.D	402-S022		127 ppmv	229 mg/m ³		
008F 0402.D	402-S022		130 ppmv	234 mg/m ³		
008F 0403.D	402-S022		120 ppmv	216 mg/m ³		
			Average	230 mg/m ³		

VS006- 402-S022
Nitrous Oxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1274	CCVS	1340 ppmv	5.2%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1303 ppmv	2.3%
003F 0301.D	185-1-12.02		Zero Air		
008F 0401.D	402-S022		0.0 ppmv	0.0 mg/m ³	
008F 0402.D	402-S022		0.0 ppmv	0.0 mg/m ³	
008F 0403.D	402-S022		0.0 ppmv	0.0 mg/m ³	
Average				0.0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VS006- 402-S022
Carbon Monoxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 1\590423
 Instrument Method: 1\590423.mth
 Data Acquired on: 4/23/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1255	CCVS	1250 ppmv	0.4%
002F 0202.D	185-1-22.01	1255	CCVS/Dup	1254 ppmv	0.1%
003F 0301.D	185-1-12.02		Zero Air		
008F 0401.D	402-S022		0.0 ppmv	0.0 mg/m ³	
008F 0402.D	402-S022		0.0 ppmv	0.0 mg/m ³	
008F 0403.D	402-S022		0.0 ppmv	0.0 mg/m ³	
			Average	0.0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VS006- 407-S031
Hydrogen

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 3\590503
Instrument Method: 3\590503.mth
Data Acquired on: 5/3/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				
		ppm			%D
009F 0101.D	185-1-12.02		Zero Air		
010F 0201.D	185-1-22.01	1260	CCVS	1367 ppmv	8.5%
010F 0202.D	185-1-22.01	1260	CCVS/Dup	1361 ppmv	8.0%
011F 0301.D	185-1-12.02		Zero Air		
018F 0101.D	407-S031		128 ppmv	10.5 mg/m ³	
018F 0102.D	407-S031		100 ppmv	8.2 mg/m ³	
018F 0103.D	407-S031		103 ppmv	8.4 mg/m ³	
			Average	9.01 mg/m ³	

VS006- 407-S031
Methane

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 3\590503
Instrument Method: 3\590503.mth
Data Acquired on: 5/3/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			
		ppm				%D
009F 0101.D	185-1-12.02		Zero Air			
010F 0201.D	185-1-22.01	1229	CCVS	1332 ppmv		8.4%
010F 0202.D	185-1-22.01	1229	CCVS/Dup	1310 ppmv		6.6%
011F 0301.D	185-1-12.02		Zero Air			
018F 0101.D	407-S031		0.0 ppmv	0.0 mg/m ³		
018F 0102.D	407-S031		0.0 ppmv	0.0 mg/m ³		
018F 0103.D	407-S031		0.0 ppmv	0.0 mg/m ³		
			Average	0.0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VS006- 407-S031
Carbon Dioxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 1\590423
 Instrument Method: 1\590423.mth
 Data Acquired on: 4/23/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1274	CCVS	1331 ppmv	4.5%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1296 ppmv	1.7%
003F 0301.D	185-1-12.02		Zero Air		
010F 0401.D	407-S031		22 ppmv	39 mg/m ³	
010F 0402.D	407-S031		68 ppmv	122 mg/m ³	
010F 0403.D	407-S031		76 ppmv	137 mg/m ³	
			Average	100 mg/m ³	

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VS006- 407-S031
Nitrous Oxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1340 ppmv		5.2%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1303 ppmv		2.3%
003F 0301.D	185-1-12.02		Zero Air			
010F 0401.D	407-S031		187 ppmv	336 mg/m ³		
010F 0402.D	407-S031		187 ppmv	336 mg/m ³		
010F 0403.D	407-S031		195 ppmv	351 mg/m ³		
			Average	340 mg/m ³		

VS006- 407-S031
Carbon Monoxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 1\590423
 Instrument Method: 1\590423.mth
 Data Acquired on: 4/23/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #		ppm	Analyzed Concentrations			%D
001F 0101.D	185-1-12.02	Zero Air				
002F 0201.D	185-1-22.01	1255	CCVS	1250 ppmv		0.4%
002F 0202.D	185-1-22.01	1255	CCVS/Dup	1254 ppmv		0.1%
003F 0301.D	185-1-12.02	Zero Air				
010F 0401.D	407-S031		0.0 ppmv	0.0 mg/m ³		
010F 0402.D	407-S031		0.0 ppmv	0.0 mg/m ³		
010F 0403.D	407-S031		0.0 ppmv	0.0 mg/m ³		
		Average		0.0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VS006- 412-S041
Hydrogen

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 3\590503
 Instrument Method: 3\590503.MTH
 Data Acquired on: 5/3/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				
		ppm			%D
009F 0101.D	185-1-12.02		Zero Air		
010F 0201.D	185-1-22.01	1260	CCVS	1367 ppmv	8.5%
010F 0202.D	185-1-22.01	1260	CCVS/Dup	1361 ppmv	8.0%
011F 0301.D	185-1-12.02		Zero Air		
019F 0101.D	412-S041		100 ppmv	8.2 mg/m ³	
019F 0102.D	412-S041		1161 ppmv	94.9 mg/m ³	
019F 0103.D	412-S041		114 ppmv	9.3 mg/m ³	
			Average	37.5 mg/m ³	

VS006- 412-S041
Methane

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 3\590503
 Instrument Method: 3\590503.MTH
 Data Acquired on: 5/3/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #		ppm	Analyzed Concentrations			%D
009F 0101.D	185-1-12.02	Zero Air				
010F 0201.D	185-1-22.01	1229	CCVS	1332 ppmv		8.4%
010F 0202.D	185-1-22.01	1229	CCVS/Dup	1310 ppmv		6.6%
011F 0301.D	185-1-12.02	Zero Air				
019F 0101.D	412-S041		0 ppmv	0 mg/m ³		
019F 0102.D	412-S041		0 ppmv	0 mg/m ³		
019F 0103.D	412-S041		0 ppmv	0 mg/m ³		
		Average		0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VS006- 412-S041
Carbon Dioxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1274	CCVS	1331 ppmv	4.5%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1296 ppmv	1.7%
003F 0301.D	185-1-12.02		Zero Air		
009F 0401.D	412-S041		60 ppmv	107 mg/m ³	
009F 0402.D	412-S041		48 ppmv	87 mg/m ³	
009F 0403.D	412-S041		49 ppmv	87 mg/m ³	
			Average	94 mg/m ³	

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VS006- 412-S041
Nitrous Oxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				
	ppm				%D
001F 0101.D	185-1-12.02	Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1340 ppmv	5.2%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1303 ppmv	2.3%
003F 0301.D	185-1-12.02	Zero Air			
009F 0401.D	412-S041		186 ppmv	335 mg/m ³	
009F 0402.D	412-S041		195 ppmv	352 mg/m ³	
009F 0403.D	412-S041		192 ppmv	345 mg/m ³	
Average				340 mg/m ³	

VS006- 412-S041
Carbon Monoxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1255	CCVS	1250 ppmv		0.4%
002F 0202.D	185-1-22.01	1255	CCVS/Dup	1254 ppmv		0.1%
003F 0301.D	185-1-12.02		Zero Air			
009F 0401.D	412-S041		0 ppmv	0 mg/m ³		
009F 0402.D	412-S041		0 ppmv	0 mg/m ³		
009F 0403.D	412-S041		0 ppmv	0 mg/m ³		
			Average	0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 401-S061
Hydrogen

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 3\590503
 Instrument Method: 3\590503.mth
 Data Acquired on: 5/3/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #	TEST		ppm	Analyzed Concentrations		%D
009F 0101.D	185-1-12.02		Zero Air			
010F 0201.D	185-1-22.01	1260	CCVS	1367 ppmv		8.5%
010F 0202.D	185-1-22.01	1260	CCVS/Dup	1361 ppmv		8.0%
011F 0301.D	185-1-12.02		Zero Air			
014F 0101.D	401-S061		-2 ppmv	-0.2 mg/m ³		
014F 0102.D	401-S061		-1 ppmv	-0.1 mg/m ³		
014F 0103.D	401-S061		-0.5 ppmv	-0.04 mg/m ³		
			Average	0.0 mg/m ³		

VSAMB- 401-S061

Project Number: C-106, 3

Methane

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2

Data File: 3\590503

Instrument Method: 3\590503.mth

Data Acquired on: 5/3/99

Analyst: L.A. Pingel

Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			
		ppm				%D
009F 0101.D	185-1-12.02		Zero Air			
010F 0201.D	185-1-22.01	1229	CCVS	1332 ppmv		8.4%
010F 0202.D	185-1-22.01	1229	CCVS/Dup	1310 ppmv		6.6%
011F 0301.D	185-1-12.02		Zero Air			
014F 0101.D	401-S061		0.0 ppmv	0.0 mg/m ³		
014F 0102.D	401-S061		0.0 ppmv	0.0 mg/m ³		
014F 0103.D	401-S061		0.0 ppmv	0.0 mg/m ³		
Average				0.0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 401-S061
Carbon Dioxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations			
	ppm			%D
001F 0101.D	185-1-12.02	Zero Air		
002F 0201.D	185-1-22.01	1274	CCVS	1331 ppmv 4.5%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1296 ppmv 1.7%
003F 0301.D	185-1-12.02	Zero Air		
007F 0401.D	401-S061	179 ppmv	322 mg/m ³	
007F 0402.D	401-S061	170 ppmv	306 mg/m ³	
007F 0403.D	401-S061	164 ppmv	295 mg/m ³	
		Average	310 mg/m ³	

VSAMB- 401-S061
Nitrous Oxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1274	CCVS	1340 ppmv	5.2%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1303 ppmv	2.3%
003F 0301.D	185-1-12.02		Zero Air		
007F 0401.D	401-S061		0.0 ppmv	0.0 mg/m ³	
007F 0402.D	401-S061		0.0 ppmv	0.0 mg/m ³	
007F 0403.D	401-S061		0.0 ppmv	0.0 mg/m ³	
Average				0.0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 401-S061
Carbon Monoxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 1\590423
 Instrument Method: 1\590423.mth
 Data Acquired on: 4/23/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1255	CCVS	1250 ppmv	0.4%
002F 0202.D	185-1-22.01	1255	CCVS/Dup	1254 ppmv	0.1%
003F 0301.D	185-1-12.02		Zero Air		
007F 0401.D	401-S061		0.0 ppmv	0.0 mg/m ³	
007F 0402.D	401-S061		0.0 ppmv	0.0 mg/m ³	
007F 0403.D	401-S061		0.0 ppmv	0.0 mg/m ³	
			Average	0.0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 405-S076
Hydrogen

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 3\590503
 Instrument Method: 3\590503.mth
 Data Acquired on: 5/3/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations			%D
	ppm			
009F 0101.D	185-1-12.02	Zero Air		
010F 0201.D	185-1-22.01	1260 CCVS	1367 ppmv	8.5%
010F 0202.D	185-1-22.01	1260 CCVS/Dup	1361 ppmv	8.0%
011F 0301.D	185-1-12.02	Zero Air		
016F 0101.D	405-S076	4.5 ppmv	0.37 mg/m ³	
016F 0102.D	405-S076	4.3 ppmv	0.35 mg/m ³	
		Average	0.36 mg/m ³	

VSAMB- 405-S076
Methane

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 3\590503
Instrument Method: 3\590503.mth
Data Acquired on: 5/3/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				%D
		ppm			
009F 0101.D	185-1-12.02		Zero Air		
010F 0201.D	185-1-22.01	1229	CCVS	1332 ppmv	8.4%
010F 0202.D	185-1-22.01	1229	CCVS/Dup	1310 ppmv	6.6%
011F 0301.D	185-1-12.02		Zero Air		
016F 0101.D	405-S076		0.0 ppmv	0.0 mg/m ³	
016F 0102.D	405-S076		0.0 ppmv	0.0 mg/m ³	
			Average	0.0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 405-S076
Carbon Dioxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590422
Instrument Method: 1\590422.MTH
Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			
		ppm				%D
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1360 ppmv		6.8%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1381 ppmv		8.4%
003F 0301.D	185-1-12.02		Zero Air			
005F 0401.D	405-S076		189 ppmv	341 mg/m ³		
005F 0402.D	405-S076		192 ppmv	345 mg/m ³		
005F 0403.D	405-S076		187 ppmv	336 mg/m ³		
			Average	340 mg/m ³		

VSAMB- 405-S076
Nitrous Oxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590422
Instrument Method: 1\590422.MTH
Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1363 ppmv		7.0%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1384 ppmv		8.6%
003F 0301.D	185-1-12.02		Zero Air			
005F 0401.D	405-S076		0.0 ppmv	0.0 mg/m ³		
005F 0402.D	405-S076		0.0 ppmv	0.0 mg/m ³		
005F 0403.D	405-S076		0.0 ppmv	0.0 mg/m ³		
			Average	0.0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 405-S076
Carbon Monoxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590422
Instrument Method: 1\590422.MTH
Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations		
		ppm			%D
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1255	CCVS	1312 ppmv	4.5%
002F 0202.D	185-1-22.01	1255	CCVS/Dup	1321 ppmv	5.3%
003F 0301.D	185-1-12.02		Zero Air		
005F 0401.D	405-S076		0.0 ppmv	0.0 mg/m ³	
005F 0402.D	405-S076		0.0 ppmv	0.0 mg/m ³	
005F 0403.D	405-S076		0.0 ppmv	0.0 mg/m ³	
			Average	0.0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 406-S082
Hydrogen

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 3\590503
 Instrument Method: 3\590503.mth
 Data Acquired on: 5/3/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				
		ppm			%D
009F 0101.D	185-1-12.02		Zero Air		
010F 0201.D	185-1-22.01	1260	CCVS	1367 ppmv	8.5%
010F 0202.D	185-1-22.01	1260	CCVS/Dup	1361 ppmv	8.0%
011F 0301.D	185-1-12.02		Zero Air		
015F 0101.D	406-S082		-2.0 ppmv	0.2 mg/m ³	
015F 0102.D	406-S082		-1.0 ppmv	-0.1 mg/m ³	
015F 0103.D	406-S082		-2.2 ppmv	-0.2 mg/m ³	
			Average	0.0 mg/m ³	

VSAMB- 406-S082
Methane

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 3\590503
Instrument Method: 3\590503.mth
Data Acquired on: 5/3/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			
		ppm				%D
009F 0101.D	185-1-12.02		Zero Air			
010F 0201.D	185-1-22.01	1229	CCVS	1332 ppmv		8.4%
010F 0202.D	185-1-22.01	1229	CCVS/Dup	1310 ppmv		6.6%
011F 0301.D	185-1-12.02		Zero Air			
015F 0101.D	406-S082		0.0 ppmv	0.0 mg/m ³		
015F 0102.D	406-S082		0.0 ppmv	0.0 mg/m ³		
015F 0103.D	406-S082		0.0 ppmv	0.0 mg/m ³		
			Average	0.0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 406-S082
Carbon Dioxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590422
Instrument Method: 1\590422.mth
Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1360 ppmv		6.8%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1381 ppmv		8.4%
003F 0301.D	185-1-12.02		Zero Air			
004F 0401.D	406-S082		215 ppmv	387 mg/m ³		
004F 0402.D	406-S082		219 ppmv	394 mg/m ³		
004F 0403.D	406-S082		215 ppmv	386 mg/m ³		
			Average	390 mg/m ³		

VSAMB- 406-S082
Nitrous Oxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590422
Instrument Method: 1\590422.mth
Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1363 ppmv		7.0%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1384 ppmv		8.6%
003F 0301.D	185-1-12.02		Zero Air			
004F 0401.D	406-S082		80 ppmv	144 mg/m ³		
004F 0402.D	406-S082		0.0 ppmv	0.0 mg/m ³		
004F 0403.D	406-S082		0.0 ppmv	0.0 mg/m ³		
			Average	48 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 406-S082
Carbon Monoxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590422
Instrument Method: 1\590422.mth
Data Acquired on: 4/22/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1255	CCVS	1312 ppmv		4.5%
002F 0202.D	185-1-22.01	1255	CCVS/Dup	1321 ppmv		5.3%
003F 0301.D	185-1-12.02		Zero Air			
004F 0401.D	406-S082		0.0 ppmv	0.0 mg/m ³		
004F 0402.D	406-S082		0.0 ppmv	0.0 mg/m ³		
004F 0403.D	406-S082		0.0 ppmv	0.0 mg/m ³		
			Average	0.0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 410-S089

Project Number: C-106, 3

Hydrogen

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 3\590503
 Instrument Method: 3\590503.mth
 Data Acquired on: 5/3/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				
	ppm				%D
009F 0101.D	185-1-12.02	Zero Air			
010F 0201.D	185-1-22.01	1260	CCVS	1367 ppmv	8.5%
010F 0202.D	185-1-22.01	1260	CCVS/Dup	1361 ppmv	8.0%
011F 0301.D	185-1-12.02	Zero Air			
013F 0101.D	410-S089	4 ppmv		0.3 mg/m ³	
013F 0102.D	410-S089	2 ppmv		0.2 mg/m ³	
013F 0103.D	410-S089	4 ppmv		0.3 mg/m ³	
		Average		0.3 mg/m ³	

VSAMB- 410-S089
Methane

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 3\590503
Instrument Method: 3\590503.mth
Data Acquired on: 5/3/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				
		ppm			%D
009F 0101.D	185-1-12.02		Zero Air		
010F 0201.D	185-1-22.01	1229	CCVS	1332 ppmv	8.4%
010F 0202.D	185-1-22.01	1229	CCVS/Dup	1310 ppmv	6.6%
011F 0301.D	185-1-12.02		Zero Air		
013F 0101.D	410-S089		0 ppmv	0 mg/m ³	
013F 0102.D	410-S089		0 ppmv	0 mg/m ³	
013F 0103.D	410-S089		0 ppmv	0 mg/m ³	
			Average	0 mg/m ³	

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 410-S089
Carbon Dioxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
 Data File: 1\590423
 Instrument Method: 1\590423.mth
 Data Acquired on: 4/23/99
 Analyst: L.A. Pingel
 Laboratory Notebook: HNF-N-125, 1

Run #	Analyzed Concentrations				%D
		ppm			
001F 0101.D	185-1-12.02		Zero Air		
002F 0201.D	185-1-22.01	1274	CCVS	1331 ppmv	4.5%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1296 ppmv	1.7%
003F 0301.D	185-1-12.02		Zero Air		
006F 0401.D	410-S089		172 ppmv	310 mg/m ³	
006F 0402.D	410-S089		174 ppmv	314 mg/m ³	
006F 0403.D	410-S089		183 ppmv	329 mg/m ³	
			Average	320 mg/m ³	

VSAMB- 410-S089
Nitrous Oxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			
		ppm				%D
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1274	CCVS	1340 ppmv		5.2%
002F 0202.D	185-1-22.01	1274	CCVS/Dup	1303 ppmv		2.3%
003F 0301.D	185-1-12.02		Zero Air			
006F 0401.D	410-S089		0 ppmv	0 mg/m ³		
006F 0402.D	410-S089		0 ppmv	0 mg/m ³		
006F 0403.D	410-S089		0 ppmv	0 mg/m ³		
			Average	0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

VSAMB- 410-S089
Carbon Monoxide

Project Number: C-106, 3

Instrument #5. Permanent Gas GC, located in Analysis Trailer #2
Data File: 1\590423
Instrument Method: 1\590423.mth
Data Acquired on: 4/23/99
Analyst: L.A. Pingel
Laboratory Notebook: HNF-N-125, 1

Run #			Analyzed Concentrations			%D
		ppm				
001F 0101.D	185-1-12.02		Zero Air			
002F 0201.D	185-1-22.01	1255	CCVS	1250 ppmv		0.4%
002F 0202.D	185-1-22.01	1255	CCVS/Dup	1254 ppmv		0.1%
003F 0301.D	185-1-12.02		Zero Air			
006F 0401.D	410-S089		0 ppmv	0 mg/m ³		
006F 0402.D	410-S089		0 ppmv	0 mg/m ³		
006F 0403.D	410-S089		0 ppmv	0 mg/m ³		
			Average	0 mg/m ³		

0 is used as a mathematical place holder when no analyte is detected above the instrument detection limit.

2.5.4 Supporting Data

This section contains chromatograms and quantitation reports for all analyses including waste tank samples, calibration verifications, blanks, and initial calibration data. This section is organized by analysis.

External Standard Report

Data File Name : C:\HPCHEM\3\DATA\590503\017F0101.D		Page Number : 1
Operator : L.A. Pingel		Vial Number : 17
Instrument : HYDROGEN		Injection Number : 1
Sample Name : VS006-402-S022		Sequence Line : 1
Run Time Bar Code:		Instrument Method: 590503.MTH
Acquired on : 03 May 99 02:18 PM		Analysis Method : 590503.MTH
Report Created on: 03 May 99 02:26 PM		Sample Amount : 0
Last Recalib on : 29 APR 99 03:46 PM		ISTD Amount :
Multiplier : 1		

Sig. 1 in C:\HPCHEM\3\DATA\590503\017F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.655	364	BV	0.104	1	24.413	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

=====

External Standard Report

=====

Data File Name	: C:\HPCHEM\3\DATA\590503\017F0102.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 17
Instrument	: HYDROGEN	Injection Number	: 2
Sample Name	: VS006-402-S022	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	590503.MTH
Acquired on	: 03 May 99 02:27 PM	Analysis Method	: 590503.MTH
Report Created on:	03 May 99 02:35 PM	Sample Amount	: 0
Last Recalib on	: 29 APR 99 03:46 PM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\3\DATA\590503\017F0102.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.662	169	BV	0.118	1	4.991	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

=====

 External Standard Report

Data File Name	: C:\HPCHEM\3\DATA\590503\017F0103.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 17
Instrument	: HYDROGEN	Injection Number	: 3
Sample Name	: VS006-402-S022	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	590503.MTH
Acquired on	: 03 May 99 02:35 PM	Analysis Method	: 590503.MTH
Report Created on:	03 May 99 02:44 PM	Sample Amount	: 0
Last Recalib on	: 29 APR 99 03:46 PM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\3\DATA\590503\017F0103.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.663	210	BV	0.126	1	9.039	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

 External Standard Report

Data File Name	: C:\HPCHEM\3\DATA\590503\018F0101.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 18
Instrument	: HYDROGEN	Injection Number	: 1
Sample Name	: VS006-407-S031	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	590503.MTH
Acquired on	: 03 May 99 02:45 PM	Analysis Method	: 590503.MTH
Report Created on:	03 May 99 02:53 PM	Sample Amount	: 0
Last Recalib on	: 29 APR 99 03:46 PM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\3\DATA\590503\018F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.671	1406	BV	0.114	1	127.784	hydrogen	
7.192	* not found *					1	methane

Not all calibrated peaks were found

=====

External Standard Report

=====

```

Data File Name   : C:\HPCHEM\3\DATA\590503\018F0102.D
Operator        : L.A. Pingel
Instrument       : HYDROGEN
Sample Name     : VS006-407-S031
Run Time Bar Code:
Acquired on     : 03 May 99 02:53 PM
Report Created on: 03 May 99 03:01 PM
Last Recalib on : 29 APR 99 03:46 PM
Multiplier      : 1
Page Number     : 1
Vial Number     : 18
Injection Number: 2
Sequence Line   : 1
Instrument Method: 590503.MTH
Analysis Method : 590503.MTH
Sample Amount   : 0
ISTD Amount     :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\018F0102.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.681	1127	BV	0.113	1	100.066	hydrogen	
7.192	* not found *					1	methane

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\3\DATA\590503\018F0103.D
Operator           : L.A. Pingel
Instrument          : HYDROGEN
Sample Name        : VS006-407-S031
Run Time Bar Code  :
Acquired on        : 03 May 99  03:02 PM
Report Created on  : 03 May 99  03:10 PM
Last Recalib on    : 29 APR 99  03:46 PM
Multiplier         : 1

Page Number        : 1
Vial Number        : 18
Injection Number   : 3
Sequence Line      : 1
Instrument Method   : 590503.MTH
Analysis Method    : 590503.MTH
Sample Amount      : 0
ISTD Amount        :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\018F0103.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.681	1153	BV	0.115	1	102.659	hydrogen	
7.192	* not found *					1	methane

not all calibrated peaks were found

=====

=====

External Standard Report

=====

ata File Name	: C:\HPCHEM\3\DATA\590503\019F0101.D	Page Number	: 1
perator	: L.A. Pingel	Vial Number	: 19
nstrument	: HYDROGEN	Injection Number	: 1
ample Name	: VS006-412-S041	Sequence Line	: 1
un Time Bar Code:		Instrument Method:	590503.MTH
quired on	: 03 May 99 03:10 PM	Analysis Method	: 590503.MTH
eport Created on:	03 May 99 03:18 PM	Sample Amount	: 0
ast Recalib on	: 29 APR 99 03:46 PM	ISTD Amount	:
ultiplier	: 1		

Fig. 1 in C:\HPCHEM\3\DATA\590503\019F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
5.680	1123	BV	0.112	1	99.695	hydrogen
7.192	* not found *					
				1		methane

not all calibrated peaks were found

=====

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External Standard Report

=====

Data File Name	: C:\HPCHEM\3\DATA\590503\019F0103.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 19
Instrument	: HYDROGEN	Injection Number	: 3
Sample Name	: VS006-412-S041	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 590503.MTH
Acquired on	: 03 May 99 03:34 PM	Analysis Method	: 590503.MTH
Report Created on:	: 03 May 99 03:42 PM	Sample Amount	: 0
Last Recalib on	: 29 APR 99 03:46 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\3\DATA\590503\019F0103.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.659	1267	BV	0.116	1	114.011	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

=====

 External Standard Report

```

Data File Name      : C:\HPCHEM\3\DATA\590503\014F0101.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : VSAMB-401-S061
Run Time Bar Code   :
Acquired on         : 03 May 99 01:02 PM
Report Created on   : 03 May 99 01:11 PM
Last Recalib on    : 29 APR 99 03:46 PM
Multiplier          : 1

Page Number         : 1
Vial Number         : 14
Injection Number    : 1
Sequence Line       : 1
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\014F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.647	97	BV	0.132	1	-2.180	hydrogen	
7.192	* not found *					1	methane

Not all calibrated peaks were found

 External Standard Report

```

Data File Name   : C:\HPCHEM\3\DATA\590503\014F0102.D
Operator        : L.A. Pingel
Instrument       : HYDROGEN
Sample Name     : VSAMB-401-S061
Run Time Bar Code :
Acquired on    : 03 May 99 01:11 PM
Report Created on : 03 May 99 01:19 PM
Last Recalib on : 29 APR 99 03:46 PM
Multiplier     : 1

Page Number      : 1
Vial Number     : 14
Injection Number : 2
Sequence Line   : 1
Instrument Method : 590503.MTH
Analysis Method  : 590503.MTH
Sample Amount   : 0
ISTD Amount     :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\014F0102.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.640	107	BV	0.114	1	-1.162	hydrogen	
7.192	* not found *					1	methane

Not all calibrated peaks were found

 External Standard Report

```

Data File Name      : C:\HPCHEM\3\DATA\590503\014F0103.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : VSAMB-401-S061
Run Time Bar Code   :
Acquired on         : 03 May 99 01:20 PM
Report Created on   : 03 May 99 01:28 PM
Last Recalib on    : 29 APR 99 03:46 PM
Multiplier          : 1

Page Number         : 1
Vial Number         : 14
Injection Number    : 3
Sequence Line       : 1
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\014F0103.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.646	114	BV	0.118	1	-0.460	hydrogen	
7.192	* not found *						methane

not all calibrated peaks were found

 External Standard Report

```

Data File Name      : C:\HPCHEM\3\DATA\590503\016F0101.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : VSAMB-405-S076
Run Time Bar Code   :
Acquired on         : 03 May 99 01:55 PM
Report Created on   : 03 May 99 02:03 PM
Last Recalib on    : 29 APR 99 03:46 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 16
Injection Number    : 1
Sequence Line       : 1
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\016F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.625	164	BV	0.114	1	4.546	hydrogen	
7.192	* not found *					1	methane

Not all calibrated peaks were found

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\3\DATA\590503\016F0102.D
Operator           : L.A. Pingel
Instrument          : HYDROGEN
Sample Name        : VSAMB-405-S076
Run Time Bar Code  :
Acquired on        : 03 May 99  02:04 PM
Report Created on   : 03 May 99  02:12 PM
Last Recalib on    : 29 APR 99  03:46 PM
Multiplier         : 1
Page Number        : 1
Vial Number        : 16
Injection Number    : 2
Sequence Line      : 1
Instrument Method   : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\016F0102.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.633	162	BV	0.125	1	4.289	hydrogen	
7.192	* not found *					1	methane

not all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\3\DATA\590503\015F0101.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : VSAMB-406-S062
Run Time Bar Code   :
Acquired on         : 03 May 99 01:29 PM
Report Created on   : 03 May 99 01:37 PM
Last Recalib on    : 29 APR 99 03:46 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 15
Injection Number    : 1
Sequence Line       : 1
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\015F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.641	139	BV	0.131	1	2.040	hydrogen	
7.192	* not found *					1	methane

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name   : C:\HPCHEM\3\DATA\590503\015F0102.D
Operator        : L.A. Pingel
Instrument       : HYDROGEN
Sample Name     : VSAMB-406-S062
Run Time Bar Code:
Acquired on    : 03 May 99 01:38 PM
Report Created on: 03 May 99 01:46 PM
Last Recalib on : 29 APR 99 03:46 PM
Multiplier     : 1
Page Number    : 1
Vial Number    : 15
Injection Number : 2
Sequence Line  : 1
Instrument Method: 590503.MTH
Analysis Method : 590503.MTH
Sample Amount   : 0
ISTD Amount     :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\015F0102.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.638	108	BV	0.118	1	-1.043	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

Data File Name	: C:\HPCHEM\3\DATA\590503\015F0103.D		
Operator	: L.A. Pingel	Page Number	: 1
Instrument	: HYDROGEN	Vial Number	: 15
Sample Name	: VSAMB-406-S062	Injection Number	: 3
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 03 May 99 01:46 PM	Instrument Method:	590503.MTH
Report Created on:	03 May 99 01:55 PM	Analysis Method	: 590503.MTH
Last Recalib on	: 29 APR 99 03:46 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Ret Time	Area	Type	Width	Ref#	ppm	Name
5.639	96	BV	0.119	1	-2.233	hydrogen
7.192	* not found *			1		methane

Not all calibrated peaks were found

External Standard Report

```

=====
Data File Name      : C:\HPCHEM\3\DATA\590503\013F0101.D
Operator           : L.A. Pingel
Instrument          : HYDROGEN
Sample Name        : VSAMB-410-S089
Run Time Bar Code  :
Acquired on        : 03 May 99  11:22 AM
Report Created on   : 03 May 99  11:30 AM
Last Recalib on    : 29 APR 99  03:46 PM
Multiplier         : 1

Page Number        : 1
Vial Number        : 13
Injection Number    : 1
Sequence Line      : 1
Instrument Method   : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\013F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.636	160	BV	0.126	1	4.144	hydrogen	
7.192	* not found *						methane

not all calibrated peaks were found

 External Standard Report

Data File Name	: C:\HPCHEM\3\DATA\590503\013F0102.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 13
Instrument	: HYDROGEN	Injection Number	: 2
Sample Name	: VSAMB-410-S089	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	590503.MTH
Acquired on	: 03 May 99 11:30 AM	Analysis Method	: 590503.MTH
Report Created on:	03 May 99 11:39 AM	Sample Amount	: 0
Last Recalib on	: 29 APR 99 03:46 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\3\DATA\590503\013F0102.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.638	140	BV	0.113	1	2.133	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

External Standard Report

```

Data File Name      : C:\HPCHEM\3\DATA\590503\013F0103.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : VSAMB-410-S089
Run Time Bar Code   :
Acquired on         : 03 May 99  11:39 AM
Report Created on   : 03 May 99  11:47 AM
Last Recalib on    : 29 APR 99  03:46 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 13
Injection Number    : 3
Sequence Line       : 1
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\013F0103.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.643	161	BV	0.118	1	4.266	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

External Standard Report

```

Data File Name      : C:\HPCHEM\3\DATA\590503\009F0101.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : 185-1-12.02
Run Time Bar Code   :
Acquired on         : 03 May 99 09:53 AM
Report Created on   : 03 May 99 10:01 AM
Last Recalib on    : 29 APR 99 03:46 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 9
Injection Number    : 1
Sequence Line       : 1
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\009F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.652	117	BV	0.135	1	-0.156	hydrogen	
7.192	* not found *						methane

not all calibrated peaks were found

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\3\DATA\590503\010F0201.D
Operator           : L.A. Pingel
Instrument          : HYDROGEN
Sample Name        : 1200 PPM STD
Run Time Bar Code  :
Acquired on        : 03 May 99  10:02 AM
Report Created on  : 03 May 99  10:10 AM
Last Recalib on    : 29 APR 99  03:46 PM
Multiplier         : 1
Page Number        : 1
Vial Number        : 10
Injection Number    : 1
Sequence Line      : 2
Instrument Method   : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\010F0201.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
5.694	13889	BV	0.122	1	1366.523	hydrogen
7.183	7072	BV	0.291	1	1332.035	methane

=====

External Standard Report

```

Data File Name      : C:\HPCHEM\3\DATA\590503\010F0202.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : 1200 PPM STD
Run Time Bar Code   :
Acquired on         : 03 May 99 10:10 AM
Report Created on   : 03 May 99 10:19 AM
Last Recalib on    : 29 APR 99 03:46 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 10
Injection Number    : 2
Sequence Line       : 2
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\3\DATA\590503\010F0202.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
5.693	13837	BV	0.122	1	1361.394	hydrogen
7.180	6956	BV	0.292	1	1309.910	methane

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\3\DATA\590503\011F0301.D
Operator            : L.A. Pingel
Instrument           : HYDROGEN
Sample Name         : 185-1-12.02
Run Time Bar Code   :
Acquired on         : 03 May 99  10:19 AM
Report Created on   : 03 May 99  10:28 AM
Last Recalib on    : 29 APR 99  03:46 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 11
Injection Number    : 1
Sequence Line       : 3
Instrument Method    : 590503.MTH
Analysis Method     : 590503.MTH
Sample Amount       : 0
ISTD Amount         :

```

Fig. 1 in C:\HPCHEM\3\DATA\590503\011F0301.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
5.654	108	BV	0.130	1	-1.011	hydrogen	
7.192	* not found *						methane

Not all calibrated peaks were found

=====

Method: C:\HPCHEM\3\METHODS\590429.MTH

Integration Events

Events:	Value:	Time:
Initial Area Reject	1	INITIAL
Initial Peak Width	0.300	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	-4	INITIAL
Integrator OFF		0.010
Integrator ON		5.500
Integrator OFF		6.000
Integrator ON		6.800

Calibration Table

Peak#	RT	Lvl	ppm	Amt/Area	Ref Istd I#	Name
1	5.684	1	50.0	7.8543e-002	1	hydrogen
		2	100.0	8.7278e-002		
		3	250.0	9.8296e-002		
		4	500.0	9.6425e-002		
		5	1000.0	9.7618e-002		
		6	2500.0	0.09884		
2	7.192	1	50.0	0.12137	1	methane
		2	100.0	0.18884		
		4	500.0	0.18449		
		5	1000.0	0.18588		
		6	2500.0	0.18973		

Calibration Settings

Title:
Hydrogen/Methane

Reference window:	5.000 %
Non-reference window:	5.000 %
Units of amount:	ppm
Multiplier:	1.0
IF uncal peaks:	0.0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: Linear
Origin: Ignore

hydrogen

methane

=====

External Standard Report

=====

```

Data File Name   : C:\HPCHEM\1\DATA\590422\005F0401.D
Operator        : L.A. Pingel
Instrument       : PERMANENT
Sample Name     : VSAMB-405-S076
Run Time Bar Code:
Acquired on     : 22 Apr 99 03:12 PM
Report Created on: 22 Apr 99 03:21 PM
Last Recalib on : 14 APR 99 03:54 PM
Multiplier     : 1
Page Number    : 1
Vial Number    : 5
Injection Number : 1
Sequence Line  : 4
Instrument Method: 590422.MTH
Analysis Method : 590422.MTH
Sample Amount   : 0
ISTD Amount     :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590422\005F0401.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.851	5853	BV	0.088	1	189.403	Carbon Dioxide	
4.198	* not found *					1	Nitrous Oxide
7.463	* not found *					1	Carbon Monoxide

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\1\DATA\590422\005F0402.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : VSAMB-405-S076
Run Time Bar Code   :
Acquired on         : 22 Apr 99 03:21 PM
Report Created on   : 22 Apr 99 03:31 PM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 5
Injection Number    : 2
Sequence Line       : 4
Instrument Method    : 590422.MTH
Analysis Method     : 590422.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590422\005F0402.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.849	5921	BV	0.088	1	191.618	Carbon Dioxide	
4.198	* not found *					1	Nitrous Oxide
7.463	* not found *					1	Carbon Monoxide

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

ata File Name	: C:\HPCHEM\1\DATA\590422\005F0403.D	Page Number	: 1
operator	: L.A. Pingel	Vial Number	: 5
nstrument	: PERMANENT	Injection Number	: 3
ample Name	: VSAMB-405-S076	Sequence Line	: 4
un Time Bar Code:		Instrument Method:	590422.MTH
acquired on	: 22 Apr 99 03:31 PM	Analysis Method	: 590422.MTH
eport Created on:	22 Apr 99 03:40 PM	Sample Amount	: 0
ast Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
ultiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590422\005F0403.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.852	5770	BB	0.086	1	186.737	Carbon Dioxide	
4.198	* not found *						Nitrous Oxide
7.463	* not found *						Carbon Monoxide

Not all calibrated peaks were found

=====

External Standard Report

```

Data File Name      : C:\HPCHEM\1\DATA\590422\004F0401.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : VSAMB-406-S082
Run Time Bar Code   :
Acquired on         : 22 Apr 99 02:44 PM
Report Created on   : 22 Apr 99 02:53 PM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 4
Injection Number    : 1
Sequence Line       : 4
Instrument Method    : 590422.MTH
Analysis Method     : 590422.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590422\004F0401.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.846	17095	BV	0.165	1	551.885	Carbon Dioxide
4.228	2319	PV	0.114	1	80.079	Nitrous Oxide
7.463	* not found *			1		Carbon Monoxide

Not all calibrated peaks were found

=====

External Standard Report

=====

Data File Name	: C:\HPCHEM\1\DATA\590422\004F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 4
Instrument	: PERMANENT	Injection Number	: 1
Sample Name	: VSAMB-406-S082	Sequence Line	: 4
Run Time Bar Code:		Instrument Method	: 590422.MTH
Acquired on	: 22 Apr 99 02:44 PM	Analysis Method	: 590422.MTH
Report Created on:	22 Apr 99 02:55 PM	Sample Amount	: 0
Last Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590422\004F0401.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.858	6646	MM	0.091	1	214.990	Carbon Dioxide	
4.228	2319	FV	0.114	1	80.079	Nitrous Oxide	
7.463	* not found *					1	Carbon Monoxide

Not all calibrated peaks were found

User Modified

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External Standard Report

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ata File Name	: C:\HPCHEM\1\DATA\590422\004F0402.D	Page Number	: 1
perator	: L.A. Pingel	Vial Number	: 4
nstrument	: PERMANENT	Injection Number	: 2
ample Name	: VSAMB-406-S082	Sequence Line	: 4
un Time Bar Code:		Instrument Method	: 590422.MTH
cquired on	: 22 Apr 99 02:53 PM	Analysis Method	: 590422.MTH
eport Created on:	22 Apr 99 03:02 PM	Sample Amount	: 0
ast Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
ultiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590422\004F0402.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.849	6761	BV	0.092	1	218.690	Carbon Dioxide	
4.198	* not found *						Nitrous Oxide
7.463	* not found *						Carbon Monoxide

Not all calibrated peaks were found

=====

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External Standard Report

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ata File Name	: C:\HPCHEM\1\DATA\590422\004F0403.D	Page Number	: 1
perator	: L.A. Pingel	Vial Number	: 4
nstrument	: PERMANENT	Injection Number	: 3
ample Name	: VSAMB-406-S082	Sequence Line	: 4
un Time Bar Code:		Instrument Method:	590422.MTH
cquired on	: 22 Apr 99 03:03 PM	Analysis Method	: 590422.MTH
eport Created on:	22 Apr 99 03:12 PM	Sample Amount	: 0
ast Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
ultiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590422\004F0403.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.853	6632	BB	0.093	1	214.540	Carbon Dioxide	
4.198	* not found *						Nitrous Oxide
7.463	* not found *						Carbon Monoxide

Not all calibrated peaks were found

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External Standard Report

=====

```

Data File Name      : C:\HPCHEM\1\DATA\590422\001F0101.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : 185-1-12.02
Run Time Bar Code   :
Acquired on         : 22 Apr 99 02:05 PM
Report Created on   : 22 Apr 99 02:14 PM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 1
Injection Number    : 1
Sequence Line       : 1
Instrument Method    : 590422.MTH
Analysis Method     : 590422.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590422\001F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.810	331	BB	0.032	1	11.359	Carbon Dioxide	
4.198	* not found *						Nitrous Oxide
7.463	* not found *						Carbon Monoxide

Not all calibrated peaks were found

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External Standard Report

=====

Data File Name	: C:\HPCHEM\1\DATA\590422\002F0201.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 2
Instrument	: PERMANENT	Injection Number	: 1
Sample Name	: 1200 ppm CCVS	Sequence Line	: 2
Run Time Bar Code:	185-1-22.01	Instrument Method	: 590422.MTH
Acquired on	: 22 Apr 99 02:15 PM	Analysis Method	: 590422.MTH
Report Created on:	22 Apr 99 02:24 PM	Sample Amount	: 0
Last Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590422\002F0201.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.848	42158	BV	0.087	1	1360.000	Carbon Dioxide
4.210	43252	PBA	0.088	1	1362.619	Nitrous Oxide
7.359	32490	BV	0.195	1	1312.100	Carbon Monoxide

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External Standard Report

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Data File Name	: C:\HPCHEM\1\DATA\590422\002F0202.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 2
Instrument	: PERMANENT	Injection Number	: 2
Sample Name	: 1200 ppm CCVS	Sequence Line	: 2
Run Time Bar Code:		Instrument Method:	590422.MTH
Acquired on	: 22 Apr 99 02:24 PM	Analysis Method	: 590422.MTH
Report Created on:	22 Apr 99 02:33 PM	Sample Amount,	: 0
Last Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590422\002F0202.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.848	42817	BB	0.089	1	1381.258	Carbon Dioxide
4.210	43923	BBA	0.089	1	1383.628	Nitrous Oxide
7.363	32715	BV	0.219	1	1321.052	Carbon Monoxide

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External Standard Report

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Data File Name	: C:\HPCHEM\1\DATA\590422\003F0301.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 3
Instrument	: PERMANENT	Injection Number	: 1
Sample Name	: 185-1-12.02	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: 590422.MTH
Acquired on	: 22 Apr 99 02:34 PM	Analysis Method	: 590422.MTH
Report Created on:	22 Apr 99 02:43 PM	Sample Amount	: 0
Last Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590422\003F0301.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.826	* not found *			1		Carbon Dioxide
4.198	* not found *			1		Nitrous Oxide
7.463	* not found *			1		Carbon Monoxide

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

Data File Name	: C:\HPCHEM\1\DATA\590423\008F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 8
Instrument	: PERMANENT	Injection Number	: 1
Sample Name	: VS006-402-S022	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	590423.MTH
Acquired on	: 23 Apr 99 10:11 AM	Analysis Method	: 590423.MTH
Report Created on:	23 Apr 99 10:20 AM	Sample Amount	: 0
Last Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

Sig. 1 in C:\HPCHEM\1\DATA\590423\008F0401.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.851	3919	BV	0.075	1	127.066	Carbon Dioxide	
4.198	* not found *						Nitrous Oxide
7.463	* not found *						Carbon Monoxide

Not all calibrated peaks were found

=====

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External Standard Report

=====

ata File Name	: C:\HPCHEM\1\DATA\590423\008F0402.D	Page Number	: 1
perator	: L.A. Pingel	Vial Number	: 8
nstrument	: PERMANENT	Injection Number	: 2
ample Name	: VS006-402-S022	Sequence Line	: 4
un Time Bar Code:		Instrument Method:	590423.MTH
cquired on	: 23 Apr 99 10:21 AM	Analysis Method	: 590423.MTH
eport Created on:	23 Apr 99 10:30 AM	Sample Amount	: 0
ast Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
ultiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590423\008F0402.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.852	4003	BB	0.078	1	129.778	Carbon Dioxide	
4.198	* not found *						Nitrous Oxide
7.463	* not found *						Carbon Monoxide

not all calibrated peaks were found

=====

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External Standard Report

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```

Data File Name      : C:\HPCHEM\1\DATA\590423\008F0403.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : VS006-402-S022
Run Time Bar Code   :
Acquired on         : 23 Apr 99  10:30 AM
Report Created on   : 23 Apr 99  10:39 AM
Last Recalib on    : 14 APR 99  03:54 PM
Multiplier          : 1

Page Number         : 1
Vial Number         : 8
Injection Number    : 3
Sequence Line       : 4
Instrument Method    : 590423.MTH
Analysis Method     : 590423.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\008F0403.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.849	3708	BB	0.074	1	120.255	Carbon Dioxide
4.198	* not found *			1		Nitrous Oxide
7.463	* not found *			1		Carbon Monoxide

Not all calibrated peaks were found

=====

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External Standard Report

=====

```

Data File Name      : C:\HPCHEM\1\DATA\590423\010F0401.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : VS006-407-S031
Run Time Bar Code   :
Acquired on         : 23 Apr 99 01:30 PM
Report Created on   : 23 Apr 99 01:39 PM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 10
Injection Number    : 1
Sequence Line       : 4
Instrument Method    : 590423.MTH
Analysis Method     : 590423.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\010F0401.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.843	656	BB	0.047	1	21.832	Carbon Dioxide	
4.219	5730	BBA	0.082	1	186.966	Nitrous Oxide	
7.463	* not found *					1	Carbon Monoxide

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

ata File Name	: C:\HPCHEM\1\DATA\590423\010F0402.D	Page Number	: 1
operator	: L.A. Pingel	Vial Number	: 10
nstrument	: PERMANENT	Injection Number	: 2
ample Name	: VS006-407-S031	Sequence Line	: 4
un Time Bar Code:		Instrument Method:	590423.MTH
quired on	: 23 Apr 99 01:40 PM	Analysis Method	: 590423.MTH
eport Created on:	23 Apr 99 01:49 PM	Sample Amount	: 0
ast Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
ultiplier	: 1		

ig. 1 in C:\HPCHEM\1\DATA\590423\010F0402.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.847	2086	BV	0.080	1	67.947	Carbon Dioxide
4.219	5719	PBA	0.082	1	186.607	Nitrous Oxide
7.463	* not found *			1		Carbon Monoxide

ot all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\1\DATA\590423\010F0403.D
Operator           : L.A. Pingel
Instrument          : PERMANENT
Sample Name        : VS006-407-S031
Run Time Bar Code  :
Acquired on        : 23 Apr 99 01:49 PM
Report Created on  : 23 Apr 99 01:58 PM
Last Recalib on   : 14 APR 99 03:54 PM
Multiplier         : 1
Page Number        : 1
Vial Number        : 10
Injection Number   : 3
Sequence Line      : 4
Instrument Method   : 590423.MTH
Analysis Method    : 590423.MTH
Sample Amount      : 0
ISTD Amount        :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\010F0403.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.856	2346	BV	0.072	1	76.346	Carbon Dioxide	
4.219	5995	PBA	0.084	1	195.253	Nitrous Oxide	
7.463	* not found *						Carbon Monoxide

not all calibrated peaks were found

=====

=====

External Standard Report

=====

File Name	: C:\HPCHEM\1\DATA\590423\009F0401.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 9
Instrument	: PERMANENT	Injection Number	: 1
Sample Name	: VS006-412-S041	Sequence Line	: 4
Time Bar Code:		Instrument Method	: 590423.MTH
Printed on	: 23 Apr 99 10:39 AM	Analysis Method	: 590423.MTH
Report Created on:	23 Apr 99 10:48 AM	Sample Amount	: 0
Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

1 in C:\HPCHEM\1\DATA\590423\009F0401.D

Time	Area	Type	Width	Ref#	ppm	Name	
3.841	1828	BB	0.074	1	59.628	Carbon Dioxide	
4.217	5697	BBA	0.077	1	185.930	Nitrous Oxide	
4.463	* not found *						Carbon Monoxide

all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\1\DATA\590423\009F0403.D
Operator           : L.A. Pingel
Instrument          : PERMANENT
Sample Name        : VS006-412-S041
Run Time Bar Code  :
Acquired on        : 23 Apr 99  11:07 AM
Report Created on   : 23 Apr 99  11:16 AM
Last Recalib on    : 14 APR 99  03:54 PM
Multiplier         : 1
Page Number        : 1
Vial Number        : 9
Injection Number    : 3
Sequence Line      : 4
Instrument Method   : 590423.MTH
Analysis Method     : 590423.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\009F0403.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.845	1483	BV	0.078	1	48.500	Carbon Dioxide	
4.218	5884	PBA	0.078	1	191.765	Nitrous Oxide	
7.463	* not found *						Carbon Monoxide

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

```

File Name       : C:\HPCHEM\1\DATA\590423\007F0401.D
Operator        : L.A. Pingel
Sample Name     : PERMANENT
Sample Name     : VSAMB-401-S061
Time Bar Code   :
Created on      : 23 Apr 99 09:43 AM
Recalib on     : 23 Apr 99 09:52 AM
Printer        : 1
Page Number     : 1
Vial Number     : 7
Injection Number : 1
Sequence Line   : 4
Instrument Method : 590423.MTH
Analysis Method  : 590423.MTH
Sample Amount   : 0
ISTD Amount     :
  
```

in C:\HPCHEM\1\DATA\590423\007F0401.D

Time	Area	Type	Width	Ref#	ppm	Name
3.853	5527	BV	0.082	1	178.888	Carbon Dioxide
1.98	* not found *			1		Nitrous Oxide
1.63	* not found *			1		Carbon Monoxide

11 calibrated peaks were found

=====

External Standard Report

=====

Data File Name	: C:\HPCHEM\1\DATA\590423\007F0403.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 7
Instrument	: PERMANENT	Injection Number	: 3
Sample Name	: VSAMB-401-S061	Sequence Line	: 4
Run Time Bar Code:		Instrument Method	: 590423.MTH
Acquired on	: 23 Apr 99 10:01 AM	Analysis Method	: 590423.MTH
Report Created on:	: 23 Apr 99 10:10 AM	Sample Amount	: 0
Last Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590423\007F0403.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.852	5059	BB	0.078	1	163.819	Carbon Dioxide	
4.198	* not found *						Nitrous Oxide
7.463	* not found *						Carbon Monoxide

Not all calibrated peaks were found

=====

External Standard Report

```

Data File Name      : C:\HPCHEM\1\DATA\590423\006F0401.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : VSAMB-410-S089
Run Time Bar Code   :
Acquired on         : 23 Apr 99 09:14 AM
Report Created on   : 23 Apr 99 09:23 AM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 6
Injection Number    : 1
Sequence Line       : 4
Instrument Method    : 590423.MTH
Analysis Method     : 590423.MTH
Sample Amount       : 0
ISTD Amount         :

```

Fig. 1 in C:\HPCHEM\1\DATA\590423\006F0401.D

Ret Time	Area	Type	Width	Ref#	ppm	Name	
3.853	5325	BB	0.079	1	172.389	Carbon Dioxide	
4.198	* not found *					1	Nitrous Oxide
7.463	* not found *					1	Carbon Monoxide

Not all calibrated peaks were found

=====

External Standard Report

=====

Data File Name	: C:\HPCHEM\1\DATA\590423\006F0402.D	Page Number	: 1
Operator	: L.A. Pingel	Vial Number	: 6
Instrument	: PERMANENT	Injection Number	: 2
Sample Name	: VSAMB-410-S089	Sequence Line	: 4
Run Time Bar Code:		Instrument Method:	590423.MTH
Acquired on	: 23 Apr 99 09:24 AM	Analysis Method	: 590423.MTH
Report Created on:	23 Apr 99 09:33 AM	Sample Amount	: 0
Last Recalib on	: 14 APR 99 03:54 PM	ISTD Amount	:
Multiplier	: 1		

Fig. 1 in C:\HPCHEM\1\DATA\590423\006F0402.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.852	5382	BV	0.079	1	174.218	Carbon Dioxide
4.198	* not found *					Nitrous Oxide
7.463	* not found *					Carbon Monoxide

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name   : C:\HPCHEM\1\DATA\590423\006F0403.D
Operator        : L.A. Pingel
Instrument       : PERMANENT
Sample Name     : VSAMB-410-S089
Run Time Bar Code:
Acquired on    : 23 Apr 99 09:33 AM
Report Created on: 23 Apr 99 09:42 AM
Last Recalib on : 14 APR 99 03:54 PM
Multiplier     : 1
Page Number    : 1
Vial Number    : 6
Injection Number : 3
Sequence Line  : 4
Instrument Method: 590423.MTH
Analysis Method : 590423.MTH
Sample Amount   : 0
ISTD Amount     :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\006F0403.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.853	5652	BB	0.082	1	182.946	Carbon Dioxide
4.198	* not found *			1		Nitrous Oxide
7.463	* not found *			1		Carbon Monoxide

Not all calibrated peaks were found

=====

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\1\DATA\590423\001F0101.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : 185-1-12.02
Run Time Bar Code   :
Acquired on         : 23 Apr 99  08:34 AM
Report Created on   : 23 Apr 99  08:43 AM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 1
Injection Number    : 1
Sequence Line       : 1
Instrument Method    : 590423.MTH
Analysis Method     : 590423.MTH
Sample Amount       : 0
ISTD Amount         :

```

Fig. 1 in C:\HPCHEM\1\DATA\590423\001F0101.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.826	* not found *			1		Carbon Dioxide
4.198	* not found *			1		Nitrous Oxide
7.463	* not found *			1		Carbon Monoxide

Not all calibrated peaks were found

=====

External Standard Report

```

=====
Data File Name      : C:\HPCHEM\1\DATA\590423\002F0201.D
Operator           : L.A. Pingel
Instrument          : PERMANENT
Sample Name        : 1200 ppm CCVS
Run Time Bar Code  :
Acquired on        : 23 Apr 99 08:44 AM
Report Created on  : 23 Apr 99 08:53 AM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier         : 1

Page Number        : 1
Vial Number        : 2
Injection Number   : 1
Sequence Line      : 2
Instrument Method   : 590423.MTH
Analysis Method    : 590423.MTH
Sample Amount      : 0
ISTD Amount        :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\002F0201.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.851	41263	BV	0.084	1	1331.135	Carbon Dioxide
4.215	42526	PBA	0.085	1	1339.877	Nitrous Oxide
7.370	30938	BV	0.223	1	1250.120	Carbon Monoxide

=====

External Standard Report

=====

```

Data File Name      : C:\HPCHEM\1\DATA\590423\002F0202.D
Operator            : L.A. Pingel
Instrument           : PERMANENT
Sample Name         : 1200 ppm CCVS
Run Time Bar Code   :
Acquired on         : 23 Apr 99 08:53 AM
Report Created on   : 23 Apr 99 09:02 AM
Last Recalib on    : 14 APR 99 03:54 PM
Multiplier          : 1
Page Number         : 1
Vial Number         : 2
Injection Number    : 2
Sequence Line       : 2
Instrument Method    : 590423.MTH
Analysis Method     : 590423.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\002F0202.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.851	40166	BV	0.082	1	1295.776	Carbon Dioxide
4.214	41348	PBA	0.083	1	1302.961	Nitrous Oxide
7.374	31037	BV	0.201	1	1254.105	Carbon Monoxide

=====

=====

External Standard Report

=====

```

Data File Name   : C:\HPCHEM\1\DATA\590423\003F0301.D
Operator        : L.A. Pingel
Instrument       : PERMANENT
Sample Name     : 185-1-12.02
Run Time Bar Code:
Acquired on     : 23 Apr 99 09:03 AM
Report Created on: 23 Apr 99 09:12 AM
Last Recalib on : 14 APR 99 03:54 PM
Multiplier     : 1
Page Number      : 1
Vial Number     : 3
Injection Number : 1
Sequence Line   : 3
Instrument Method: 590423.MTH
Analysis Method : 590423.MTH
Sample Amount   : 0
ISTD Amount     :
  
```

Fig. 1 in C:\HPCHEM\1\DATA\590423\003F0301.D

Ret Time	Area	Type	Width	Ref#	ppm	Name
3.826	* not found *			1		Carbon Dioxide
4.198	* not found *			1		Nitrous Oxide
7.463	* not found *			1		Carbon Monoxide

ot all calibrated peaks were found

=====

Method: C:\HPCHEM\1\METHODS\590422.MTH

Integration Events

Events:	Value:	Time:
Initial Area Reject	0	INITIAL
Initial Peak Width	0.090	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	0	INITIAL
Integrator OFF		0.010
Integrator ON		3.660
Baseline Now		3.700
Integrator OFF		4.380
Integrator ON		6.800
Integrator OFF		8.500

Calibration Table

pk#	RT	Lvl	ppm	Amt/Area	Ref Istd I#	Name
1	3.826	1	50.0	2.8524e-002	1	Carbon Dioxide
		2	100.0	2.8895e-002		
		4	500.0	3.3162e-002		
		5	1000.0	3.2636e-002		
		6	1250.0	3.2339e-002		
		7	2500.0	3.2149e-002		
2	4.198	1	50.0	2.9979e-002	1	Nitrous Oxide
		2	100.0	0.03197		
		4	500.0	3.1631e-002		
		5	1000.0	3.2318e-002		
		6	1250.0	3.1673e-002		
		7	2500.0	3.1284e-002		
3	7.463	1	50.0	3.8493e-002	1	Carbon Monoxide
		2	100.0	5.0553e-002		
		4	500.0	3.9954e-002		
		5	1000.0	4.0851e-002		
		6	1250.0	4.1627e-002		
		7	2500.0	3.9871e-002		

Calibration Settings

File:
Permanent Gases

Reference window:	5.000 %
Non-reference window:	5.000 %
Units of amount:	ppm
Multiplier:	1.0
Uncal peaks:	0.0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: Linear
Origin: Ignore

2E-115

Carbon Dioxide

Nitrous Oxide

Carbon Monoxide

Method: C:\HPCHEM\1\METHODS\590423.MTH

Integration Events

Events:	Value:	Time:
Initial Area Reject	0	INITIAL
Initial Peak Width	0.090	INITIAL
Shoulder Detection	OFF	INITIAL
Initial Threshold	0	INITIAL
Integrator OFF		0.010
Integrator ON		3.660
Baseline Now		3.700
Integrator OFF		4.380
Integrator ON		6.800
Integrator OFF		8.500

Calibration Table

k#	RT	Lvl	ppm	Amt/Area	Ref Istd I#	Name
1	3.826	1	50.0	2.8524e-002	1	Carbon Dioxide
		2	100.0	2.8895e-002		
		4	500.0	3.3162e-002		
		5	1000.0	3.2636e-002		
		6	1250.0	3.2339e-002		
		7	2500.0	3.2149e-002		
2	4.198	1	50.0	2.9979e-002	1	Nitrous Oxide
		2	100.0	0.03197		
		4	500.0	3.1631e-002		
		5	1000.0	3.2318e-002		
		6	1250.0	3.1673e-002		
		7	2500.0	3.1284e-002		
3	7.463	1	50.0	3.8493e-002	1	Carbon Monoxide
		2	100.0	5.0553e-002		
		4	500.0	3.9954e-002		
		5	1000.0	4.0851e-002		
		6	1250.0	4.1627e-002		
		7	2500.0	3.9871e-002		

Calibration Settings

Title:
Permanent Gases

Reference window:	5.000 %
On-reference window:	5.000 %
Units of amount:	ppm
Multiplier:	1.0
Uncal peaks:	0.0
Sample Amount:	0.0

Sample ISTD Information

No Sample ISTD Amounts

Multilevel Information

Fit: Linear
Origin: Ignore

Carbon Dioxide

Nitrous Oxide

Carbon Monoxide

2.6 Ammonia in Sorbent Tube Train Samples

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2.6.1 Narrative

This section contains descriptions of the analytical method and quality assurance used during analysis.

2.6.1.1 Determination of Ammonia in Sorbent Tube Train Samples

In the sorbent tube train, a sulfuric acid impregnated sorbent adsorbs ammonia from the sampled tank headspace gas and converts adsorbed ammonia to ammonium salt. To analyze the sample for ammonia, water is used to leach the ammonium salt from the sorbent. The leachate is then analyzed by 1 of 2 methods: 1) Direct analysis of the hydrated ammonium ion by an ion chromatograph (IC) equipped with a conductivity detector or 2) by converting ammonium ion to ammonia and subsequent analysis of ammonia by ion-selective electrode (ISE).

The IC method is considered as the primary analytical method because of its small sample size requirement, lower detection limit, and autosampling capability. The ion chromatographic eluent is a dilute solution of methanesulfonic acid. The ISE method is considered as the backup method. In the ISE method, conversion of ammonium ion to ammonia is achieved by addition of concentrated sodium hydroxide. The ammonia concentration in the headspace vapor is then determined by dividing the total mass of ammonia leached from the tube by the volume of tank headspace vapor pulled through the sorbent tube.

All samples from tank C-106 Phase III were analyzed exclusively by IC. The IC method was slightly modified to improve chromatographic separation between sodium and ammonium ions. The modified method incorporated gradient elution rather than isocratic elution of components. Gradient elution involves changing the concentration of the eluent during the chromatographic run in order to increase or decrease the separation of components. The following gradient conditions were used:

<u>Pump</u>	<u>Eluent</u>
Pressure: Approximately 1400 psi	methanesulfonic acid
Flow Rate: 1.00 ml/min	

<u>Gradient</u>	
<u>Time</u>	<u>Concentration.</u>
Init.	0.01M (Start Run)
8.00	0.01M
8.01	0.02M
18.00	0.02M
18.01	0.01M
25.00	0.01M (End Run)

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2.6.1.2 Ammonia Analytical Quality Assurance

Method LA-533-402, Rev. A-0, is used to conduct the quantitative ion chromatographic determination of ammonia in waste tank headspace samples collected in sorbent tube train samples (STTs).

The ion chromatographic system is calibrated initially prior to starting sample analysis and each time continuing calibration criteria cannot be met for subsequent analysis. At least 3 ammonia standard concentration levels are used for initial calibration (ICAL). The initial calibration standards are used to determine chromatographic column retention time and to compute ammonia retention time windows. The validity of the initial calibration is demonstrated by meeting linearity, deviation, or curve fit criteria and through the satisfactory analysis of an ammonia "check standard", the ICVS. Initial calibration blanks are used to demonstrate system cleanliness. Each day that the IC system is used for analysis, the continuing calibration of the system is verified through the analysis of a mid-level ammonia check standard, or CCVS. Criteria for the CCVS that must be met are target analyte retention time windows and percent ammonia recovery. Continuing calibration blanks, CCBs, are used to document the continued satisfactory cleanliness of the analytical system.

With each tank sample reporting batch, the analysis of a method blank (MB) or process blank is conducted and reported. The MB cannot exceed maximum allowable ammonia contamination levels. Also, with each tank sample reporting batch, the analysis of an ammonia laboratory control sample (LCS) is conducted. The LCS consists of a STT onto which ammonia gas is sorbed. The recovery of the LCS must meet accuracy (percent recovery - %R) requirements or the batch sample data is flagged. Because it represents new technology, this LCS is now under development. And also, with each tank sample reporting batch, the analysis of 2 actual STT samples "spiked" with ammonia is conducted. The recovery of ammonia from the 2 samples spiked with ammonia must meet precision (expressed as relative percent difference - RPD) and accuracy (expressed as percent recovery - %R) criteria or the resulting sample data batch is flagged.

There were no exceptions to the ammonia quality control.

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2.6.2 Result Summary Tables

Result summary tables are organized by sample. All reported values have been corrected to 25 °C and 1 atmosphere pressure. Precision information can be derived from the matrix spike and matrix spike-duplicate results.

Sample Target Analyte Concentrations for Sorbent Train Number VS006-404-TR01

Laboratory Sample Number	VS006-404-TR01a	Laboratory Duplicate Number	n/a	Sample Analysis Date	5/11/99	CAS Number	7664-41-7	Expected Retention Time (min)	6.6	Sample Retention Time (min)	6.60	Sample Data File Identifier	101-a001.d11	Sample Concentration (ppmv) ²	5.2	Flags
Target Analyte Name	Ammonia															

(Breakthrough Section)

Laboratory Sample Number	VS006-404-TR01a2	Laboratory Duplicate Number	n/a	Sample Analysis Date	5/11/99	CAS Number	7664-41-7	Expected Retention Time (min)	6.6	Sample Retention Time (min)	6.40	Sample Data File Identifier	101-a201.d20	Sample Concentration (ppmv) ²	4.8	Flags
Target Analyte Name	Ammonia															Q

¹ Retention times are for NH₄⁺² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Sample Target Analyte Concentrations for Sorbent Train Number VS006-408-TR02

Laboratory Sample Number	VS006-408-TR02a	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	14:48:00	Sample Data File Identifier	102-a001.d12	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min)	Sample Retention Time ¹ (min)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.40	20	28	

(Breakthrough Section)

Laboratory Sample Number	VS006-408-TR02a2	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	18:47:00	Sample Data File Identifier	102-a201.d21	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min)	Sample Retention Time ¹ (min)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.53	3.3	4.8	Q

¹ Retention times are for NH₄⁺² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Sample Target Analyte Concentrations for Sorbent Train Number VS006-413-TR03

Laboratory Sample Number	VS006-413-TR03a	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	15:14:00	Sample Data File Identifier	t03-a001.d13	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.60	22	31	

(Breakthrough Section)

Laboratory Sample Number	VS006-413-TR03a2	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	19:13:00	Sample Data File Identifier	t03-a201.d22	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.40	3.3	4.8	Q

¹ Retention times are for NH₄⁺

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Sample Target Analyte Concentrations for Sorbent Train Number VSAMB-403-TR19

Laboratory Sample Number	VSAMB-403-TR19a	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	16:34:27	Sample Data File Identifier	t19-a001.d16	
Target Analyte Name	CAS Number	Expected Retention Time (min.)	Sample Retention Time (min.)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.47	3.3	4.8	Q

(Breakthrough Section)

Laboratory Sample Number	VSAMB-403-TR19a2	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	20:33:23	Sample Data File Identifier	t19-a201.d25	
Target Analyte Name	CAS Number	Expected Retention Time (min.)	Sample Retention Time (min.)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.43	3.3	4.8	Q

¹ Retention times are for NH₄⁺

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

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2.6.3 Quality Control Summary Tables

Quality control summary tables are organized by the quality control parameter. The ammonia chromatography methods measure concentrations of ammonium ion in solution, then converts the concentration of ammonium ion to corresponding amount of ammonia. Calibration standards and instrument blank results, therefore, are reported in terms of ammonium ion. Field blank and method performance blank samples have no tank vapor pulled through them, however, they are reported in terms of ammonia by basing the result on a "typical" sample size of 2000 ml tank vapor. The following tables are presented in this section in the following order:

- Target Analyte Initial Calibration Tables
- Initial and Continuing Calibration Verification Summary
- Initial and Continuing Blank Verification Summary
- Trip Blank, Field Blank and Method Performance Blank Summary
 - Trip Blanks
 - Field Blanks
 - Method Performance Blank
- Matrix Spike Summary Table.

Target Analyte Initial Calibration Tables

Instrument ID Number	WC48875	Initial Calibration Date	1/11/99	Initial Calibration File Identifiers	i-cal100.d04 i-cal201.d05 i-cal301.d06 i-cal400.d07 i-cal500.d08 i-cal601.d09	
		Initial Calibration Time	7:05 PM			
Operator ID	M. J. Duchsherer	Standard ID	5653-138-A			
Target Analyte Name	Instrument Calibration Range (mg/L)	No. of Calibration Points	Calibration Model	Instrument Response Factor	Intercept	r^2
Ammonium	0.125 - 5.00	6	Linear	1.43E+05	1.07E+04	0.997

Batched Samples		
VS006-404-TR01a	VS006-484-TR17a2	VS006-487-TR18a MS
VS006-408-TR02a	VS006-487-TR18a2	VS006-487-TR18a-MSD
VS006-413-TR03a	VS006-403-TR19a2	
VS006-484-TR17a	VS006-MPB-TR21a2	
VS006-487-TR18a		
VS006-403-TR19a		
VS006-MPB-TR21a		
VS006-404-TR01a2		
VS006-408-TR02a2		
VS006-413-TR03a2		

Initial and Continuing Calibration Verification Summary

Instrument ID Number	WC48875	ICVS/CCVS Analysis Date	5/11/99	ICVS/CCVS Analysis Time	13:55	
Operator ID	K. O. PENNOCK	Standard ID	5653-145-C	ICVS/CCVS File Identifier	ccvs0001.d10	
Target Analyte Name	CCVS "Book" Concentration (mg/L)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (mg/L)	Percent Recovery	Batched Samples
Ammonium	0.625	1	1.72E+05	0.679	109	VS006-404-TR01a VSAMB-403-TR19a VS006-408-TR02a VS006-MPB-TR21a VS006-413-TR03a VS006-484-TR17a VS006-487-TR18a

Instrument ID Number	WC48875	ICVS/CCVS Analysis Date	5/11/99	ICVS/CCVS Analysis Time	17:54	
Operator ID	K. O. PENNOCK	Standard ID	5653-145-C	ICVS/CCVS File Identifier	ccvs0001.d19	
Target Analyte Name	CCVS "Book" Concentration (mg/L)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (mg/L)	Percent Recovery	Batched Samples
Ammonium	0.625	1	1.73E+05	0.683	109	VS006-404-TR01a2 VS006-403-TR19a2 VS006-408-TR02a2 VS006-MPB-TR21a2 VS006-413-TR03a2 VS006-484-TR17a2 VS006-487-TR18a2

Initial and Continuing Calibration Verification Summary

Instrument ID Number	WC48875	ICVS/CCVS Analysis Date	5/12/99	ICVS/CCVS Analysis Time	21:19	
Operator ID	K. O. PENNOCK	Standard ID	5653-145-C	ICVS/CCVS File Identifier	ccvs0002.d28	
Target Analyte Name	CCVS "Book" Concentration (mg/L)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (mg/L)	Percent Recovery	Batched Samples
Ammonium	0.625	1	1.71E+05	0.676	108	END STANDARD

Instrument ID Number	WC48875	ICVS/CCVS Analysis Date	5/19/99	ICVS/CCVS Analysis Time	16:39	
Operator ID	K. O. PENNOCK	Standard ID	5653-145-C	ICVS/CCVS File Identifier	ccvs0000.d04	
Target Analyte Name	CCVS "Book" Concentration (mg/L)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (mg/L)	Percent Recovery	Batched Samples
Ammonium	0.625	1	1.73E+05	0.681	109	VS006-487-TR18a MS VS006-487-TR18a-MSD

HNF-4598 Rev. 0

Initial and Continuing Calibration Verification Summary

Instrument ID Number	WC48875	ICVS/CCVS Analysis Date	5/19/99	ICVS/CCVS Analysis Time	19:18	
Operator ID	K. O. PENNOCK	Standard ID	5653-145-C	ICVS/CCVS File Identifier	ccvs0001.d10	
Target Analyte Name	CCVS "Book" Concentration (mg/L)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (mg/L)	Percent Recovery	Batched Samples
Ammonium	0.625	1	1.73E+05	0.684	109	END STANDARD

Initial and Continuing Calibration Blank Summary

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/11/99	ICB/CCB Analysis Time	13:02
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00002.d08
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (mg/L)	Batched Samples
Ammonium	7664-41-7	6.6		< 0.125	VS006-404-TR01a VSAMB-403-TR19a VS006-406-TR02a VS006-MPB-TR21a VS006-413-TR03a VS006-484-TR17a VS006-487-TR18a

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/11/99	ICB/CCB Analysis Time	17:27
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00001.d18
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (mg/L)	Batched Samples
Ammonium	7664-41-7	6.6		< 0.125	VS006-404-TR01a2 VS006-403-TR19a2 VS006-406-TR02a2 VS006-MPB-TR21a2 VS006-413-TR03a2 VS006-484-TR17a2 VS006-487-TR18a2

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/11/99	ICB/CCB Analysis Time	21:26
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00001.d27
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (mg/L)	Batched Samples
Ammonium	7664-41-7	6.6		< 0.125	END BLANK

Initial and Continuing Calibration Blank Summary

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/19/99	ICB/CCB Analysis Time	15:46
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00000.d02
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (mg/L)	Batched Samples
Ammonium	7664-41-7	6.6		< 0.125	VS006-487-TR18a MS VS006-487-TR18a-MSD

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/19/99	ICB/CCB Analysis Time	18:51
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00000.d09
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (mg/L)	Batched Samples
Ammonium	7664-41-7	6.6		< 0.125	END BLANK

NH₃ Trip Blanks and Method Performance Blank Summary

Trip Blank

Laboratory Sample Number	VS006-484-TR17a	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	15:41:00	Sample Data File Identifier	t17-a001.d14	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.43	3.3	4.8	Q

(Breakthrough Section)

Laboratory Sample Number	VS006-484-TR17a2	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	19:40:00	Sample Data File Identifier	t17-a201.d23	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.47	3.3	4.8	Q

¹ Retention times are for NH₄⁺

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

NH₃ Trip Blanks and Method Performance Blank Summary

Field Blank

Laboratory Sample Number	VS006-487-TR18a	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	16:07:00	Sample Data File Identifier	t18-a001.d15	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ^{2,3}	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.50	3.3	4.8	Q

(Breakthrough Section)

Laboratory Sample Number	VS006-487-TR18a2	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	20:06:00	Sample Data File Identifier	t18-a201.d24	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ^{2,3}	Sample Concentration (ppmv) ^{2,3}	Flags
Ammonia	7664-41-7	6.6		3.3	4.8	M

¹ Retention times are for NH₄⁺

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

NH₃ Trip Blanks and Method Performance Blank Summary

Method Performance Blank

Laboratory Sample Number	VS006-MPB-TR21a	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	17:01:02	Sample Data File Identifier	t21-a001.d17	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.67	3.3	4.8	Q

¹ Retention times are for NH₄⁺

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

(Breakthrough Section)

Laboratory Sample Number	VS006-MPB-TR21a2	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	20:59:54	Sample Data File Identifier	t21-a201.d26	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Ammonia	7664-41-7	6.6	6.50	3.3	4.8	Q

Matrix Spike Summary

Instrument ID Number	WC48875	Target Analyte Name	Ammonium	Expected Retention Time	6.60	Operator ID	M. J. Duchsherer
MS ID	VS006-487-TR18a MS	MS File Identifier	t18-a000.d06	MS Analysis Date	5/19/99	MS Analysis Time	17:32:00
MSD ID	VS006-487-TR18a-MSD	MSD File Identifier	t18-a000.D07	MSD Analysis Date	5/19/99	MSD Analysis Time	17:58:00
Sample ID	VS006-487-TR18a	Sample Concentration	0.772 mg/L	Sample Volume	0.500 mL	Diluent Volume	0.50 mL
MS/MSD Standard ID	5653-145-c	MS/MSD Standard Conc.	0.625 mg/L	MS/MSD Standard Volume	0.500 mL		
MS Retention Time	MSD Retention Time	MS Analytical Result (mg/L)	MSD Analytical Result (mg/L)	MS % Recovery	MSD % Recovery	RPD	Batched Samples
6.57	6.47	0.503	0.461	118	98	8.71	All

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2.6.4 Supporting Data

This section contains chromatograms and quantitation reports for all analyses including samples, initial calibrations, calibration verifications, blanks, and spikes. This section is organized by the run orders shown in the run sequence table. The general order is as follows:

- Run Sequence Table
- Initial Calibration Data
- Initial Calibration Verification Data
- Initial Blank Verification Data
- Sample Data.

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Vial #	Inj. Pos	Inj. Vol.	Inj. Vial	Sample	Method (.MET)	Data	Dil.	Int. Std.	Template (.PRP)
1	A02								vap1
2	A05								vap2
3	A07	25	2	5653-126-A	hina-nh3	CCB	1	1	
4	A02	25	1	autocal5	hina-nh3	I-CAL5	1	1	
5	A03	25	1	autocal4	hina-nh3	I-CAL4	1	1	
6	A04	25	1	autocal3	hina-nh3	I-CAL3	1	1	
7	A05	25	1	autocal2	hina-nh3	I-CAL2	1	1	
8	A06	25	1	autocal1	hina-nh3	I-CAL1	1	1	
9	A08	25	1	Cal Level 6 (5 ug/ml	hina-nh3	I-CAL6	1	1	
10	A07	25	2	5653-126-A ICB/CCB	hina-nh3	CCB	1	1	
11	B04	25	1	5653-138-C ICVS/CCV	hina-nh3	CCVS	1	1	
12	C01	25	1	VS006-404-TR01a	hina-nh3	T01-a	1	1	
13	C02	25	1	VS006-408-TR02a	hina-nh3	T02-a	1	1	
14	C03	25	1	VS006-413-TR03a	hina-nh3	T03-a	1	1	
15	C04	25	1	VS006-484-TR17a	hina-nh3	T17-a	1	1	
16	C05	25	1	VS006-487-TR18a	hina-nh3	T18-a	1	1	
17	C06	25	1	VS006-403-TR19a	hina-nh3	T19-a	1	1	
18	C07	25	1	VS006-mpb-TR21a	hina-nh3	T21-a	1	1	
19	A07	25	2	5653-126-A ICB/CCB	hina-nh3	CCB	1	1	
20	B04	25	1	5653-138-C ICVS/CCV	hina-nh3	CCVS	1	1	
21	C08	25	1	VS006-404-TR01a2	hina-nh3	T01-a2	1	1	
22	C09	25	1	VS006-408-TR02a2	hina-nh3	T02-a2	1	1	
23	C10	25	1	VS006-413-TR03a2	hina-nh3	T03-a2	1	1	
24	C11	25	1	VS006-484-TR17a2	hina-nh3	T17-a2	1	1	
25	C12	25	1	VS006-487-TR18a2	hina-nh3	T18-a2	1	1	
26	C13	25	1	VS006-403-TR19a2	hina-nh3	T19-a2	1	1	
27	C14	25	1	VS006-mpb-TR21a2	hina-nh3	T21-a2	1	1	
28	A07	25	2	5653-126-A ICB/CCB	hina-nh3	CCB	1	1	
29	B04	25	1	5653-138-C ICVS/CCV	hina-nh3	CCVS	1	1	
30	A07	0	1	STOP PUMPS	c-stop	CSTOP	1	1	

More Run Parameters

#	Vial Pos	Oven Ctl	Oven Set	Cool Ctl	Cool Set	Cycle Time	Equil Time	Grad Delay	Visc Factor	Prep Visc	Inj Type	Needle Height
1	A02	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Push	2.0
2	A05	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Push	2.0
3	A07	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
4	A02	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
5	A03	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
6	A04	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
7	A05	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
8	A06	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
9	A08	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
10	A07	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
11	B04	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
12	C01	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
13	C02	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0

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14	C03	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
15	C04	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
16	C05	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
17	C06	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
18	C07	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
19	A07	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
20	B04	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
21	C08	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
22	C09	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
23	C10	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
24	C11	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
25	C12	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
26	C13	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
27	C14	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
28	A07	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
29	B04	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Full	2.0
30	A07	Off	18	Off	0	0.00	0.00	0.00	Normal	Normal	Push	2.0

Comment :

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Method Updated: 19:56 on Mon, 11 Jan 1999

Component: Ammonium

Fit Type: Linear

$r^2 = 0.997063$

$\text{Amt} = \text{Resp} * 7.008\text{e-}006 + -0.07502$

$\text{Resp} = \text{Amt} * 1.427\text{e+}005 + 1.071\text{e+}004$

Standard: External

Calibration: Area

Component Table - Previous Modification: Mon Jan 11 19:56:45 1999

☒ Retention Parameters ☐ Quantitation Parameters

Comp #	Component Name	Ret. Time	Window (min +/-)	Window (2 +/-)	Ref. Comp. #
1	Sodium	5.40		5.0	0
2	Ammonium	6.63		5.0	0

Buttons:

Amount = $K0 + K1 * \text{Area}$
 $K0 = -0.075021$
 $K1 = 7.00781\text{e-}006$

Level	Amount	Area	Height
1	0.125	13201	810
2	0.25	37307	1127
3	0.625	105769	5710
4	1.25	201733	10840
5	2.5	365700	18207
6	5	710391	31237

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***** AUTOMATIC CALIBRATION UPDATE *****

```

=====
Data File : I-CAL100.D04          Report Date: 01/11/1999 17:43:28
Sample Name: autocal1 - A06       Collected : 01/11/1999 17:18:25
Inject # : 4                      Vial # : A06
Method File: c:\peaknet\method\hina-nh3.met Last Update: 01/11/1999 14:09:31
System Name: Cations (WC48875)    Detector : CD20
Cal. Level : 1                   Analyst :
=====
  
```

***** COMPONENTS FOUND IN THIS RUN *****

COMP NUM	COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
1	Sodium	5.40	5.37	5.37	8.062e+004	1.681e+005	1.681e+005
2	Ammonium	6.63	6.60	6.60	2.031e+004	1.323e+004	1.323e+004

```

=====
Data File : I-CAL100.D04          Report Date: 01/11/1999 17:43:28
Sample Name: autocal1 - A06       Collected : 01/11/1999 17:18:25
Inject # : 4                      Vial # : A06
Method File: c:\peaknet\method\hina-nh3.met Calibrated : 01/11/1999 17:43:28
System Name: Cations (WC48875)    Detector : CD20
Column Type:                      Operator : M. Duchsherer
=====
  
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.37	Sodium	0.000	11967	168138	1	-0.62
2	6.60	Ammonium	0.125	810	13231	1	-0.50
Totals			0.125	12777	181369		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: I-CAL100.D04 Sample: autocall - A06

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***** AUTOMATIC CALIBRATION UPDATE *****

```

=====
Data File : I-CAL201.D05          Report Date: 01/11/1999 18:10:02
Sample Name: autocal2 - A05       Collected : 01/11/1999 17:45:00
Inject # : 5                      Vial # : A05
Method File: c:\peaknet\method\hina-nh3.met Last Update: 01/11/1999 17:43:28
System Name: Cations (WC48875)    Detector : CD20
Cal. Level : 2                   Analyst :
=====
  
```

***** COMPONENTS FOUND IN THIS RUN *****

COMP NUM	COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
1	Sodium	5.37	5.40	5.40	6.277e+004	1.082e+005	1.082e+005
2	Ammonium	6.60	6.63	6.63	4.368e+004	3.767e+004	3.767e+004

```

=====
Data File : I-CAL201.D05          Report Date: 01/11/1999 18:10:02
Sample Name: autocal2 - A05       Collected : 01/11/1999 17:45:00
Inject # : 5                      Vial # : A05
Method File: c:\peaknet\method\hina-nh3.met Calibrated : 01/11/1999 18:10:02
System Name: Cations (WC48875)    Detector : CD20
Column Type:                      Operator : M. Duchsherer
=====
  
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00	1000	

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.40	Sodium	0.000	8254	109191	1	0.62
2	6.63	Ammonium	0.250	2197	37667	1	0.51
Totals			0.250	10451	145858		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: I-CAL201.D05 Sample: autocal2 - A05

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***** AUTOMATIC CALIBRATION UPDATE *****

```

=====
Data File   : I-CAL301.D06          Report Date: 01/11/1999 18:36:55
Sample Name: autocal3 - A04         Collected  : 01/11/1999 18:11:33
Inject #    : 6                     Vial #       : A04
Method File: c:\peaknet\method\hina-nh3.met Last Update: 01/11/1999 18:10:02
System Name: Cations (WC48875)      Detector    : CD20
Cal. Level  : 3                     Analyst     :
=====
  
```

***** COMPONENTS FOUND IN THIS RUN *****

COMP NUM	COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
1	Sodium	5.40	5.40	5.40	4.171e+004	7.365e+004	7.365e+004
2	Ammonium	6.63	6.63	6.63	1.135e+005	1.068e+005	1.068e+005

```

=====
Data File   : I-CAL301.D06          Report Date: 01/11/1999 18:36:55
Sample Name: autocal3 - A04         Collected  : 01/11/1999 18:11:33
Inject #    : 6                     Vial #       : A04
Method File: c:\peaknet\method\hina-nh3.met Calibrated : 01/11/1999 18:36:55
System Name: Cations (WC48875)      Detector    : CD20
Column Type:                        Operator     : M. Duchsherer
=====
  
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.40	Sodium	0.000	5503	73654	1	0.00
2	6.63	Ammonium	0.625	5718	106759	1	0.00
Totals			0.625	11221	180413		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: I-CAL301.D06 Sample: autocal3 - A04

***** AUTOMATIC CALIBRATION UPDATE *****

```

=====
Data File   : I-CAL400.D07          Report Date: 01/11/1999 19:03:30
Sample Name: autocal4 - A03         Collected  : 01/11/1999 18:38:25
Inject #    : 7                     Vial #       : A03
Method File: c:\peaknet\method\hina-nh3.met Last Update: 01/11/1999 18:36:55
System Name: Cations (WC48875)      Detector    : CD20
Cal. Level  : 4                     Analyst     :
=====

```

***** COMPONENTS FOUND IN THIS RUN *****

COMP NUM	COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
1	Sodium	5.40	5.40	5.40	5.694e+004	1.019e+005	1.019e+005
2	Ammonium	6.63	6.67	6.67	2.113e+005	2.018e+005	2.018e+005

```

=====
Data File   : I-CAL400.D07          Report Date: 01/11/1999 19:03:30
Sample Name: autocal4 - A03         Collected  : 01/11/1999 18:38:25
Inject #    : 7                     Vial #       : A03
Method File: c:\peaknet\method\hina-nh3.met Calibrated : 01/11/1999 19:03:30
System Name: Cations (WC48875)      Detector    : CD20
Column Type:                        Operator     : M. Duchsherer
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.40	Sodium	0.000	7157	101868	1	0.00
2	6.67	Ammonium	1.250	10340	201789	1	0.50
Totals			1.250	17497	303657		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0

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***** AUTOMATIC CALIBRATION UPDATE *****

```

=====
Data File   : I-CAL500.D08          Report Date: 01/11/1999 19:30:05
Sample Name: autocal5 ~ A02        Collected  : 01/11/1999 19:05:02
Inject #    : 8                    Vial #       : A02
Method File: c:\peaknet\method\hina-nh3.met Last Update: 01/11/1999 19:03:30
System Name: Cations (WC48875)     Detector    : CD20
Cal. Level  : 5                    Analyst     :
=====

```

***** COMPONENTS FOUND IN THIS RUN *****

COMP NUM	COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
1	Sodium	5.40	5.43	5.43	6.934e+004	1.234e+005	1.234e+005
2	Ammonium	6.67	6.67	6.67	3.911e+005	3.857e+005	3.857e+005

```

=====
Data File   : I-CAL500.D08          Report Date: 01/11/1999 19:30:05
Sample Name: autocal5 ~ A02        Collected  : 01/11/1999 19:05:02
Inject #    : 8                    Vial #       : A02
Method File: c:\peaknet\method\hina-nh3.met Calibrated : 01/11/1999 19:30:05
System Name: Cations (WC48875)     Detector    : CD20
Column Type:                       Operator     : M. Duchsherer
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.43	Sodium	0.000	9326	123364	1	0.62
2	6.67	Ammonium	2.500	18220	385700	1	0.00
Totals			2.500	27547	509064		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: I-CAL500.D08 Sample: autocal5 - A02

***** AUTOMATIC CALIBRATION UPDATE *****

```

=====
Data File : I-CAL601.D09          Report Date: 01/11/1999 19:56:45
Sample Name: autocal6 - A08       Collected : 01/11/1999 19:31:38
Inject # : 9                      Vial # : A08
Method File: c:\peaknet\method\hina-nh3.met Last Update: 01/11/1999 19:30:05
System Name: Cations (WC48875)    Detector : CD20
Cal. Level : 6                   Analyst :
=====

```

***** COMPONENTS FOUND IN THIS RUN *****

COMP NUM	COMPONENT NAME	OLD RET.TIME	MEASURED RET.TIME	NEW RET.TIME	OLD RESPONSE	MEASURED RESPONSE	NEW RESPONSE
1	Sodium	5.43	5.40	5.40	2.354e+004	4.097e+004	4.097e+004
2	Ammonium	6.67	6.63	6.63	7.178e+005	7.104e+005	7.104e+005

```

=====
Data File : I-CAL601.D09          Report Date: 01/11/1999 19:56:45
Sample Name: autocal6 - A08       Collected : 01/11/1999 19:31:38
Inject # : 9                      Vial # : A08
Method File: c:\peaknet\method\hina-nh3.met Calibrated : 01/11/1999 19:56:45
System Name: Cations (WC48875)    Detector : CD20
Column Type:                      Operator : M. Duchsherer
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.40	Sodium	0.000	3159	40967	1	-0.61
2	6.63	Ammonium	5.000	31267	710391	1	-0.50
Totals			5.000	34426	751358		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: I-CAL601.D09 Sample: autocal6 - A08

HNF-4598 Rev. 0

```

=====
Data File   : ccb00002.d08                      Report Date: 05/25/1999 13:54:04
Sample Name: ICB/CCB N-3 DI H2O - A07          Collected  : 05/11/1999 13:02:10
Inject #    : 8                                Vial #       : A07
Method File: c:\peaknet\method\hina-nh3.met    Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	308	3804	1	-1.85
0	0.00	Ammonium	0.000	0	0	0	0.00
Totals			0.000	308	3804		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccb00002.d08 Sample: ICB/CCB N-3 DI H20 - A07

HNF-4598 Rev. 0

```

=====
Data File   : ccvs0003.d09                      Report Date: 05/25/1999 13:08:03
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/11/1999 13:28:41
Inject #    : 9                                Vial #       : B04
Method File: c:\peaknet\method\hina-nh3.met      Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector     : CD20
Column Type:                                     Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.37	Sodium	0.000	203	2610	1	-0.62
2	6.53	Ammonium	0.692	5909	109502	1	-1.51
Totals			0.692	6112	112111		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0003.d09 Sample: ICVS/CCVS 5653-145-C - B04

HNF-4598 Rev. 0

```

=====
Data File   : ccvs0001.d10                      Report Date: 05/25/1999 13:06:29
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/11/1999 13:55:01
Inject #    : 10                               Vial #       : B04
Method File: c:\peaknet\method\hina-nh3.met      Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector     : CD20
Column Type:                                     Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25              1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	193	2283	1	-1.85
2	6.43	Ammonium	0.679	6015	107657	1	-3.02
Totals			0.679	6208	109941		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0001.d10 Sample: ICVS/CCVS 5653-145-C - B04

HNF-4598 Rev. 0

```

=====
Data File   : t01-a001.d11                      Report Date: 05/25/1999 09:21:20
Sample Name: VS006-404-TR01a - C01              Collected  : 05/11/1999 14:21:33
Inject #    : 11                                Vial #       : C01
Method File: c:\peaknet\method\hina-nh3.met      Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector    : CD20
Column Type:                                     Operator     : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.40	Sodium	0.000	3170	41230	1	0.00
2	6.60	Ammonium	0.769	6582	120439	1	-0.50
Totals			0.769	9752	161670		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t01-a001.d11 Sample: VS006-404-TR01a - C01

HNF-4598 Rev. 0

```

=====
Data File   : t02-a001.d12                      Report Date: 05/25/1999 09:22:49
Sample Name: VS006-408-TR02a - C02             Collected  : 05/11/1999 14:48:10
Inject #    : 12                               Vial #      : C02
Method File: c:\peaknet\method\hina-nh3.met     Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector    : CD20
Column Type:                                   Operator     : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.23	Sodium	0.000	2889	36897	1	-3.09
2	6.40	Ammonium	2.118	15888	312921	1	-3.52
Totals			2.118	18776	349818		

Note: DF20 not calculated. Concentration = $20 \times 2.118 = 42.36 \mu\text{g/mL}$ (K) 5/25/99

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t02-a001.d12 Sample: VS006-408-TR02a - C02

HNF-4598 Rev. 0

```

=====
Data File   : t03-a001.d13                      Report Date: 05/25/1999 09:23:22
Sample Name: VS006-413-TR03a - C03              Collected  : 05/11/1999 15:14:45
Inject #    : 13                                Vial #      : C03
Method File: c:\peaknet\method\hina-nh3.met      Calibrated  : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector    : CD20
Column Type:                                     Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.40	Sodium	0.000	2336	31891	1	0.00
2	6.60	Ammonium	2.274	16089	335225	1	-0.50
Totals			2.274	18425	367116		

NOTE: Dilution Factor of 20 not calculated. Conc. = $20 \times 2.274 \Rightarrow 45.48 \mu\text{g/ml}$ (KOP) 5/25/99

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t03-a001.d13 Sample: VS006-413-TR03a - C03

HNF-4598 Rev. 0

```

=====
Data File   : t17-a001.d14
Sample Name : VS006-484-TR17a - C04
Inject #    : 14
Method File : c:\peaknet\method\hina-nh3.met
System Name : Cations (WC48875)
Column Type :

Report Date: 05/25/1999 09:24:08
Collected  : 05/11/1999 15:41:20
Vial #      : C04
Calibrated  : 01/11/1999 19:56:45
Detector    : CD20
Operator    : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25             1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.23	Sodium	0.000	12343	191770	1	-3.09
2	6.43	Ammonium	0.417	3839	70190	1	-3.02
Totals			0.417	16182	261959		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t17-a001.d14 Sample: VS006-484-TR17a - C04

HNF-4598 Rev. 0

```

=====
Data File   : t18-a001.d15          Report Date: 05/25/1999 09:24:41
Sample Name: VS006-487-TR18a - C05  Collected  : 05/11/1999 16:07:53
Inject #    : 15                   Vial #       : C05
Method File: c:\peaknet\method\hina-nh3.met Calibrated: 01/11/1999 19:56:45
System Name: Cations (WC48875)      Detector    : CD20
Column Type:                        Operator     : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25             1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	23017	404214	1	-1.85
2	6.50	Ammonium	0.772	5703	120810	1	-2.01
Totals			0.772	28720	525024		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t18-a001.d15 Sample: VS006-487-TR18a - C05

```

=====
Data File   : t19-a201.d25                      Report Date: 05/25/1999 09:29:31
Sample Name : VS006-403-TR19a2 - C13            Collected  : 05/11/1999 20:33:23
Inject #    : 25 AMB (K) 6/16/99              Vial #      : C13
Method File : c:\peaknet\method\hina-nh3.met     Calibrated  : 01/11/1999 19:56:45
System Name : Cations (WC48875)                 Detector   : CD20
Column Type :                                   Operator   : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.23	Sodium	0.000	14887	216154	1	-3.09
2	6.43	Ammonium	0.217	2369	41606	1	-3.02
Totals			0.217	17256	257760		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

AMB (K) 6/16/99
File: t19-a201.d25 Sample: VS006-403-TR19a2 - C13

HNF-4598 Rev. 0

```

=====
Data File   : t21-a001.d17                      Report Date: 05/25/1999 09:29:49
Sample Name : VS006-mpb-TR21a - C07             Collected  : 05/11/1999 17:01:02
Inject #    : 17                               Vial #     : C07
Method File : c:\peaknet\method\hina-nh3.met     Calibrated  : 01/11/1999 19:56:45
System Name : Cations (WC48875)                 Detector   : CD20
Column Type :                                   Operator    : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.20	Sodium	0.000	26297	389226	1	-3.70
2	6.37	Ammonium	0.427	3841	71600	1	-4.02
Totals			0.427	30138	460826		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t21-a001.d17 Sample: VS006-mpb-TR21a - C07

HNF-4598 Rev. 0

```

=====
Data File   : ccb00001.d18                      Report Date: 05/25/1999 13:54:49
Sample Name: ICB/CCB N-3 DI H2O - A07          Collected  : 05/11/1999 17:27:31
Inject #    : 18                                Vial #       : A07
Method File: c:\peaknet\method\hina-nh3.met    Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.37	Sodium	0.000	155	1873	1	-0.62
0	0.00	Ammonium	0.000	0	0	0	0.00
Totals			0.000	155	1873		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccb00001.d18 Sample: ICB/CCB N-3 DI H2O - A07

HNF-4598 Rev. 0

```

=====
Data File   : ccvs0001.d19                      Report Date: 05/25/1999 13:06:54
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/11/1999 17:54:04
Inject #    : 19                               Vial #       : B04
Method File: c:\peaknet\method\hina-nh3.met      Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector     : CD20
Column Type:                                     Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	245	3001	1	-1.85
2	6.47	Ammonium	0.683	5898	108208	1	-2.51
Totals			0.683	6143	111209		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0001.d19 Sample: ICVS/CCVS 5653-145-C - B04

HNF-4598 Rev. 0

```

=====
Data File   : t01-a201.d20          Report Date: 05/25/1999 09:22:12
Sample Name: VS006-404-TR01a2 - C08 Collected  : 05/11/1999 18:20:37
Inject #    : 20                    Vial #       : C08
Method File: c:\peaknet\method\hina-nh3.met Calibrated: 01/11/1999 19:56:45
System Name: Cations (WC48875)      Detector    : CD20
Column Type:                        Operator     : Karl O. Pennock
=====
  
```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25              1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.23	Sodium	0.000	16552	228199	1	-3.09
2	6.40	Ammonium	0.191	2193	37926	1	-3.52
Totals			0.191	18745	266125		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t01-a201.d20 Sample: VS006-404-TR01a2 - C08

HNF-4598 Rev. 0

```

=====
Data File   : t02-a201.d21          Report Date: 05/25/1999 09:23:07
Sample Name: VS006-408-TR02a2 - C09 Collected  : 05/11/1999 18:47:14
Inject #    : 21                   Vial #       : C09
Method File: c:\peaknet\method\hina-nh3.met  Calibrated : 01/11/1999 19:56:45
System Name: Cations (WC48875)           Detector  : CD20
Column Type:                             Operator   : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.33	Sodium	0.000	13596	185903	1	-1.23
2	6.53	Ammonium	0.149	1873	31986	1	-1.51
Totals			0.149	15469	217889		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t02-a201.d21 Sample: VS006-408-TR02a2 - C09

HNF-4598 Rev. 0

```

=====
Data File   : t03-a201.d22                      Report Date: 05/25/1999 09:23:46
Sample Name: VS006-413-TR03a2 - C10             Collected  : 05/11/1999 19:13:47
Inject #    : 22                                Vial #       : C10
Method File: c:\peaknet\method\hina-nh3.met      Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector     : CD20
Column Type:                                     Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.20	Sodium	0.000	10573	153771	1	-3.70
2	6.40	Ammonium	0.198	2284	39021	1	-3.52
Totals			0.198	12857	192792		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t03-a201.d22 Sample: VS006-413-TR03a2 - C10

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Data File : t17-a201.d23	Report Date: 05/25/1999 09:24:22
Sample Name: VS006-484-TR17a2 - C11	Collected : 05/11/1999 19:40:18
Inject # : 23	Vial # : C11
Method File: c:\peaknet\method\hina-nh3.met	Calibrated : 01/11/1999 19:56:45
System Name: Cations (WC48875)	Detector : CD20
Column Type:	Operator : Karl O. Pennock

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.27	Sodium	0.000	10980	158403	1	-2.47
2	6.47	Ammonium	0.213	2359	41052	1	-2.51
Totals			0.213	13339	199455		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t17-a201.d23 Sample: VS006-484-TR17a2 - C11

HNF-4598 Rev. 0

```

=====
Data File   : t18-a201.d24          Report Date: 05/25/1999 09:24:56
Sample Name: VS006-487-TR18a2 - C12 Collected  : 05/11/1999 20:06:52
Inject #    : 24                   Vial #       : C12
Method File: c:\peaknet\method\hina-nh3.met Calibrated: 01/11/1999 19:56:45
System Name: Cations (WC48875)      Detector    : CD20
Column Type:                        Operator     : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	1870	25180	1	-1.85
0	0.00	Ammonium	0.000	0	0	0	0.00
Totals			0.000	1870	25180		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t18-a201.d24 Sample: VS006-487-TR18a2 - C12

```

=====
Data File   : t19-a001.d16                      Report Date: 05/25/1999 09:29:09
Sample Name: VS006-403-TR19a - C06              Collected  : 05/11/1999 16:34:27
Inject #    : 16 AMB (KT) 6-16-99                Vial #       : C06
Method File : c:\peaknet\method\hina-nh3.met     Calibrated  : 01/11/1999 19:56:45
System Name : Cations (WC48875)                 Detector    : CD20
Column Type :                                     Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.27	Sodium	0.000	19382	299136	1	-2.47
2	6.47	Ammonium	0.493	4201	81063	1	-2.51
Totals			0.493	23582	380199		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

^{AMB} ^{(KT) 6-16-99}
File: t19-a001.d16 Sample: VS006-403-TR19a - C06

HNF-4598 Rev. 0

```

=====
Data File   : t21-a201.d26          Report Date: 05/25/1999 09:30:02
Sample Name: VS006-mpb-TR21a2 - C14 Collected  : 05/11/1999 20:59:54
Inject #    : 26                   Vial #       : C14
Method File: c:\peaknet\method\hina-nh3.met Calibrated: 01/11/1999 19:56:45
System Name: Cations (WC48875)      Detector    : CD20
Column Type:                        Operator     : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	18701	257992	1	-1.85
2	6.50	Ammonium	0.116	1599	27280	1	-2.01
Totals			0.116	20300	285273		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t21-a201.d26 Sample: VS006-mpb-TR21a2 - C14

HNF-4598 Rev. 0

```

=====
Data File   : ccb00001.d27                      Report Date: 05/25/1999 14:00:15
Sample Name: ICB/CCB N-3 DI H2O - A07          Collected  : 05/11/1999 21:26:27
Inject #    : 27                                Vial #       : A07
Method File: c:\peaknet\method\hina-nh3.met    Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.33	Sodium	0.000	208	2484	1	-1.23
0	0.00	Ammonium	0.000	0	0	0	0.00
Totals			0.000	208	2484		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccb00001.d27 Sample: ICB/CCB N-3 DI H2O - A07

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```

=====
Data File   : ccvs0002.d28                      Report Date: 05/25/1999 13:16:26
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/12/1999 09:19:45
Inject #    : 28                               Vial #       : B04
Method File: c:\peaknet\method\hina-nh3.met     Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	446	5352	1	-1.85
2	6.47	Ammonium	0.676	5894	107173	1	-2.51
Totals			0.676	6340	112525		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0002.d28 Sample: ICVS/CCVS 5653-145-C - B04

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```

=====
Data File   : ccb00000.d02                      Report Date: 05/25/1999 13:48:48
Sample Name: ICB/CCB N-3 DI H2O - A07          Collected  : 05/19/1999 15:46:25
Inject #    : 2                                Vial #       : A07
Method File: c:\peaknet\method\hina-nh3.met     Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25              1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
0	0.00	Sodium	0.000	0	0	0	0.00
0	0.00	Ammonium	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccb00000.d02 Sample: ICB/CCB N-3 DI H2O - A07

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```

=====
Data File   : ccvs0000.d03                      Report Date: 05/25/1999 13:09:13
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/19/1999 16:12:53
Inject #    : 3                                Vial #       : B04
Method File: c:\peaknet\method\hina-nh3.met     Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.37	Sodium	0.000	299	3781	1	-0.62
2	6.57	Ammonium	0.692	5768	109474	1	-1.01
Totals			0.692	6066	113256		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0000.d03 Sample: ICVS/CCVS 5653-145-C - B04

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```

=====
Data File   : ccvs0000.d04                      Report Date: 05/25/1999 13:09:29
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/19/1999 16:39:15
Inject #    : 4                                Vial #       : B04
Method File: c:\peaknet\method\hina-nh3.met     Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25              1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.33	Sodium	0.000	300	3542	1	-1.23
2	6.53	Ammonium	0.681	5992	107849	1	-1.51
Totals			0.681	6292	111391		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0000.d04 Sample: ICVS/CCVS 5653-145-C - B04

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Data File : t18-a000.d05	Report Date: 05/25/1999 14:36:24
Sample Name: VS006-487-TR18a-ms - C15	Collected : 05/19/1999 17:05:45
Inject # : 5	Vial # : C15
Method File: c:\peaknet\method\hina-nh3.met	Calibrated : 01/11/1999 19:56:45
System Name: Cations (WC48875)	Detector : CD20
Column Type:	Operator : Karl O. Pennock

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	25	1	7500	5.00 Hz	0.00	25.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.27	Sodium	0.000	19526	274979	1	-2.47
2	6.47	Ammonium	0.462	4342	76612	1	-2.51
Totals			0.462	23869	351590		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t18-a000.d05 Sample: VS006-487-TR18a-ms - C15

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```

=====
Data File   : t18-a000.d06                      Report Date: 05/25/1999 14:28:58
Sample Name: VS006-487-TR18a-ms - C15          Collected  : 05/19/1999 17:32:05
Inject #    : 6                                Vial #       : C15
Method File: c:\peaknet\method\hina-nh3.met     Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25              1 7500 5.00 Hz 0.00 25.00      1000
=====
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.37	Sodium	0.000	20361	281624	1	-0.62
2	6.57	Ammonium	0.503	4561	82538	1	-1.01
Totals			0.503	24922	364162		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t18-a000.d06 Sample: VS006-487-TR18a-ms - C15

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```

=====
Data File   : t18-a000.d07          Report Date: 05/25/1999 14:29:30
Sample Name: VS006-487-TR18a-msd - C16  Collected  : 05/19/1999 17:58:39
Inject #    : 7                    Vial #       : C16
Method File: c:\peaknet\method\hina-nh3.met  Calibrated  : 01/11/1999 19:56:45
System Name: Cations (WC48875)          Detector   : CD20
Column Type:                            Operator   : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           25                1  7500  5.00 Hz  0.00  25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.27	Sodium	0.000	18410	254329	1	-2.47
2	6.47	Ammonium	0.461	4346	76555	1	-2.51
Totals			0.461	22756	330884		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t18-a000.d07 Sample: VS006-487-TR18a-msd - C16

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```

=====
Data File   : t18-a000.d08                      Report Date: 05/25/1999 14:37:03
Sample Name: VS006-487-TR18a-msd - C16          Collected  : 05/19/1999 18:25:01
Inject #    : 8                                Vial #      : C16
Method File: c:\peaknet\method\hina-nh3.met      Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector    : CD20
Column Type:                                     Operator     : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External           25              1 7500 5.00 Hz 0.00 25.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.27	Sodium	0.000	17901	253586	1	-2.47
2	6.47	Ammonium	0.462	4348	76696	1	-2.51
Totals			0.462	22249	330282		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: t18-a000.d08 Sample: VS006-487-TR18a-msd - C16

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```

=====
Data File   : ccb00000.d09                      Report Date: 05/25/1999 13:51:08
Sample Name: ICB/CCB N-3 DI H2O - A07          Collected  : 05/19/1999 18:51:29
Inject #    : 9                                Vial #       : A07
Method File: c:\peaknet\method\hina-nh3.met    Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                 Detector     : CD20
Column Type:                                   Operator      : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.43	Sodium	0.000	221	2806	1	0.62
0	0.00	Ammonium	0.000	0	0	0	0.00
Totals			0.000	221	2806		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccb00000.d09 Sample: ICB/CCB N-3 DI H2O - A07

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```

=====
Data File   : ccvs0001.d10                      Report Date: 05/25/1999 13:52:21
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/19/1999 19:18:02
Inject #    : 10                               Vial #      : B04
Method File : c:\peaknet\method\hina-nh3.met     Calibrated   : 01/11/1999 19:56:45
System Name : Cations (WC48875)                 Detector    : CD20
Column Type :                                  Operator    : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.27	Sodium	0.000	312	3932	1	-2.47
2	6.47	Ammonium	0.684	6008	108347	1	-2.51
Totals			0.684	6320	112279		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0001.d10 Sample: ICVS/CCVS 5653-145-C - B04

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```

=====
Data File   : ccvs0000.d11                      Report Date: 05/25/1999 13:10:05
Sample Name: ICVS/CCVS 5653-145-C - B04         Collected  : 05/19/1999 19:44:26
Inject #    : 11                               Vial #      : B04
Method File: c:\peaknet\method\hina-nh3.met      Calibrated   : 01/11/1999 19:56:45
System Name: Cations (WC48875)                  Detector    : CD20
Column Type:                                     Operator     : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          25           1 7500 5.00 Hz 0.00 25.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.30	Sodium	0.000	365	4532	1	-1.85
2	6.50	Ammonium	0.693	6185	109615	1	-2.01
Totals			0.693	6550	114147		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
Totals			0.000	0	0		

File: ccvs0000.d11 Sample: ICVS/CCVS 5653-145-C - B04

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2.7 NO and NO₂ in Sorbent Tube Train Samples

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2.7.1 Narrative

This section contains descriptions of the analytical method and quality assurance used during analysis.

2.7.1.1 Determination of NO and NO₂ in Sorbent Tube Train Samples

Nitric oxide (NO) and nitrogen dioxide (NO₂) are trapped and quantitatively converted to nitrite and nitrate anion in the STT sorbent tubes. The sorbent tubes are then leached with triethanolamine/water solution and analyzed for nitrate and/or nitrite ion by ion chromatography. The ion chromatograph consists of a guard column, one or more analytical columns, a suppressor device, and a conductivity detector. The chromatographic eluent is a mixture of aqueous sodium carbonate and sodium bicarbonate.

The nitric oxide (NO) part of the sorbent train was identified with a 'b2' subscript instead of a 'd' subscript as outlined in the procedure. No other deviations from procedures were noted during the analysis of the sorbent tube train samples for NO and NO₂.

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2.7.1.2 Nitrogen Oxides Analytical Quality Assurance

Method LA-533-400, Rev. A-0, is used to conduct the quantitative ion chromatographic determination of nitrate and nitrite ions in STT leaching solutions. The measurement of these analytes are used to calculate and report the concentration of nitric oxide (NO) and nitrogen dioxide (NO₂) in waste tank headspace samples collected in STTs.

The ion chromatographic system is calibrated initially prior to starting sample analysis and each time continuing calibration criteria cannot be met for subsequent analysis. At least 3 standard concentration levels containing the target analytes are used for initial calibration (ICAL). The initial calibration standards are used to determine chromatographic column retention times and to compute retention time windows. The validity of the initial calibration is demonstrated by meeting linearity, deviation, or curve fitting criteria and through the satisfactory analysis of a "check standard", the ICVS, for the target analytes. Initial calibration blanks are measured to demonstrate system cleanliness. Each day that the IC system is used for analysis, the continuing calibration of the system is verified through the measurement of a mid-level check standard, or CCVS. Criteria for the CCVS target analytes that must be met are retention time windows and percent recoveries. Continuing calibration blanks (CCBs) are used to document the continued cleanliness of the analytical system.

With each tank sample reporting batch, the analysis of a method blank (MB) or process blank is conducted and reported. The MB cannot exceed maximum allowable contamination levels for the target analytes. Also, with each tank sample reporting batch, the analysis of 2 actual samples "spiked" with the target analyte is conducted. The recovery of the matrix spike and matrix spike duplicate must meet precision (expressed as relative percent difference - RPD) and accuracy (expressed as percent recovery - %R) criteria. And also, with each tank sample reporting batch, the analysis of a laboratory control sample (LCS) is conducted. Because it represents new technology for this measurement system, the use of the LCS is now under development. The recovery of the LCS must meet accuracy (percent recovery - %R) requirements or the resulting data is flagged.

The matrix and matrix spike duplicate recoveries for nitrogen dioxide were higher than expected, 252% and 260%, respectively, suggesting a positive bias, but which was probably due to using too little of the sample relative to the spike. (Lack of sample prevented re-preparation of the matrix spike.) There were no other exceptions to quality control requirements.

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2.7.2 Result Summary Tables

Result summary tables are organized by sample. All reported values have been corrected to 25 °C and 1 atmosphere pressure. Precision information can be derived from the matrix spike and matrix spike duplicate results.

Sample Target Analyte Concentrations for Sorbent Train Number VS006-404-TR01

Laboratory Sample Number	VS006-404-TR01b r	Laboratory Duplicate Number	n/a	Sample Retention Time (min)	Sample Concentration (mg/M ³)	Sample Concentration (ppmv)	Flags
Sample Analysis Date	5/11/99	Sample Analysis Time	13:54:13	Sample Retention Time (min)	1.64	1.7	101-b000.d11
Target Analyte Name	CAS Number	Expected Retention Time (min)	1.67	Sample Retention Time (min)	1.64	1.7	101-b000.d11
Nitrogen Dioxide	10102-44-0	1.67	1.64	1.64	0.88	Q	

Laboratory Sample Number	VS006-404-TR01b2 r	Laboratory Duplicate Number	n/a	Sample Retention Time (min)	Sample Concentration (mg/M ³)	Sample Concentration (ppmv)	Flags
Sample Analysis Date	5/11/99	Sample Analysis Time	15:30:34	Sample Retention Time (min)	1.64	1.7	101-b200.d21
Target Analyte Name	CAS Number	Expected Retention Time (min)	1.67	Sample Retention Time (min)	1.64	1.7	101-b200.d21
Nitric Oxide	10102-43-9	1.67	1.64	1.64	1.4	Q	

¹ Retention times are for NO₂² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Sample Target Analyte Concentrations for Sorbent Train Number VS006-408-TR02

Laboratory Sample Number	VS006-408-TR02b	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/10/99	Sample Analysis Time	12:41:30	Sample Data File Identifier	t02-b002.d11	
Target Analyte Name	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Nitrogen Dioxide	10102-44-0	1.67	1.66	1.7	0.88	Q

Laboratory Sample Number	VS006-408-TR02b2	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/10/99	Sample Analysis Time	14:17:46	Sample Data File Identifier	t02-b201.d21	
Target Analyte Name	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Nitric Oxide	10102-43-9	1.67	1.64	1.7	1.4	Q

¹ Retention times are for NO₂

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Sample Target Analyte Concentrations for Sorbent Train Number VS006-413-TR03

Laboratory Sample Number	VS006-413-TR03b r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	14:13:29	Sample Data File Identifier	t03-b000.d13	
Target Analyte Name	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Nitrogen Dioxide	10102-44-0	1.67	1.65	1.7	0.88	Q

Laboratory Sample Number	VS006-413-TR03b2 r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	15:49:56	Sample Data File Identifier	t03-b200.d23	
Target Analyte Name	CAS Number	Expected Retention Time (min)	Sample Retention Time (min)	Sample Concentration (mg/M) ²	Sample Concentration (ppmv) ²	Flags
Nitric Oxide	10102-43-9	1.67	1.63	1.7	1.4	Q

¹ Retention times are for NO₂

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Sample Target Analyte Concentrations for Sorbent Train Number VSAMB-403-TR19

Laboratory Sample Number	VSAMB-403-TR19b r	Laboratory Duplicate Number	n/a	Sample Analysis Date	5/11/99	Expected Retention Time (min)	Sample Retention Time (min)	Sample Data File Identifier	Sample Concentration (mg/M ³)	Sample Concentration (ppmv)	Flags
Target Analyte Name											
Nitrogen Dioxide	10102-44-0	1.67	1.64					1.7	0.88		Q

Laboratory Sample Number	VSAMB-403-TR19b2 r	Laboratory Duplicate Number	n/a	Sample Analysis Date	5/11/99	Expected Retention Time (min)	Sample Retention Time (min)	Sample Data File Identifier	Sample Concentration (mg/M ³)	Sample Concentration (ppmv)	Flags
Target Analyte Name											
Nitric Oxide	10102-43-9	1.67	1.65					1.7	1.4		Q

¹ Retention times are for NO₂² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

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2.7.3 Quality Control Summary Tables

Quality control summary tables are organized by the quality control parameter. The NO_2/NO chromatography method determines the concentrations of nitrite ion in solution, then converts the concentration of nitrite ion to the corresponding amount of nitrogen dioxide and nitric oxide. Calibration standards and instrument blank results, therefore, are reported in terms of nitrite ion. Field blank and method performance blank samples have no tank vapor pulled through them, however, they are reported in terms of nitrogen dioxide and nitric oxide by basing the result on a "typical" sample size of 2000 ml tank vapor. The following tables are presented in this section in the following order:

- Target Analyte Initial Calibration Tables
- Initial and Continuing Calibration Verification Summary
- Initial and Continuing Blank Verification Summary
- Trip Blank, Field Blank and Method Performance Blank Summary
 - Trip Blank
 - Field Blank
 - Method Performance Blank
- Matrix Spike Summary.

Target Analyte Initial Calibration Tables

Instrument ID Number	WC48876	Initial Calibration Date	1/2/99	Initial Calibration File Identifiers	i-cal100.d06 i-cal200.d05 i-cal300.d04 i-cal400.d03 i-cal500.d02	
		Initial Calibration Time	1:41 PM			
Operator ID	M. J. Duchsherer	Standard ID	5653-137-A			
Target Analyte Name	Instrument Calibration Range (µg/mL)	No. of Calibration Points	Calibration Model	Instrument Response Factor (slope)	Intercept	r ²
Nitrite	0.125 - 2.50	5	Linear	9.993E +04	-2349	0.9997

Batched Samples			
VS006-404-TR01b r	VS006-484-TR17b2 r	VS006-404-TR01b2 r	VS006-408-TR02b MS
VS006-408-TR02b	VS006-487-TR18b2 r	VS006-408-TR02b2	VS006-408-TR02b MSD
VS006-413-TR03b r	VSAMB-403-TR19b2 r	VS006-413-TR03b2 r	
VS006-484-TR17b r	VS006-MPB-TR21b2 r	VS006-484-TR17b2 r	
VS006-487-TR18b r		VS006-487-TR18b2 r	
VSAMB-403-TR19b r		VSAMB-403-TR19b2 r	
VS006-MPB-TR21b r		VS006-MPB-TR21b2 r	
VS006-404-TR01b2 r			
VS006-408-TR02b2			
VS006-413-TR03b2 r			

Initial and Continuing Calibration Verification Summary

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/10/99	ICVS/CCVS Analysis Time	12:22	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0002.d09	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	1.06E+05	0.687	110	VS006-408-TR02b

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/10/99	ICVS/CCVS Analysis Time	13:58	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0001.d19	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	9.49E+04	0.617	99	End Standard

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/10/99	ICVS/CCVS Analysis Time	15:35	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0001.d29	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	9.22E+04	0.600	96	VS006-408-TR02b MS VS006-408-TR02b2 MS

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Initial and Continuing Calibration Verification Summary

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/10/99	ICVS/CCVS Analysis Time	16:23	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0000.d34	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	9.38E+04	0.610	98	End Standard

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/11/99	ICVS/CCVS Analysis Time	13:44	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0000.d10	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	1.05E+05	0.681	109	VS006-404-TR01b r VS006-MPB-TR21b r VS006-413-TR03b r VS006-484-TR17b r VS006-487-TR18b r VSAMB-403-TR19b r

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/11/99	ICVS/CCVS Analysis Time	15:20	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0000.d20	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	1.02E+05	0.664	106	VS006-404-TR01b2 r VSAMB-403-TR19b2 r VS006-MPB-TR21b2 r VS006-413-TR03b2 r VS006-484-TR17b2 r VS006-487-TR18b2 r

Initial and Continuing Calibration Verification Summary

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/11/99	ICVS/CCVS Analysis Time	16:47	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0000.d29	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	9.81E+04	0.637	102	VS006-408-TR02b MSD VS006-408-TR02b2 MSD

Instrument ID Number	WC48876	ICVS/CCVS Analysis Date	5/11/99	ICVS/CCVS Analysis Time	17:35	
Operator ID	Karl O. Pennock	Standard ID	5653-147-B	ICVS/CCVS File Identifier	ccvs0000.d34	
Target Analyte Name	CCVS "Book" Concentration (µg/mL)	No. of Verification Points	Instrument Response Factor	CCVS Analytical Result (µg/mL)	Percent Recovery	Batched Samples
Nitrite	0.625	1	9.91E+04	0.644	103	End Standard

Initial and Continuing Calibration Blank Summary

Instrument ID Number	WC48876	ICB/CCB Analysis Date	5/10/99	ICB/CCB Analysis Time	12:12
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00002.d08
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	VS006-406-TR02b

Instrument ID Number	WC48876	ICB/CCB Analysis Date	5/10/99	ICB/CCB Analysis Time	13:39
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00001.d17
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	END BLANK

Instrument ID Number	WC48876	ICB/CCB Analysis Date	5/10/99	ICB/CCB Analysis Time	15:25
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00000.d28
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	VS006-406-TR02b MS VS006-406-TR02b2 MS

Initial and Continuing Calibration Blank Summary

Instrument ID Number	WC48876	ICB/CCB Analysis Date	5/10/99	ICB/CCB Analysis Time	16:03
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00000.d32
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	END BLANK

Instrument ID Number	WC48876	ICB/CCB Analysis Date	5/11/99	ICB/CCB Analysis Time	13:16
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00001.d07
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	VS006-404-TR01b r VS006-413-TR03b r VS006-484-TR17b r VS006-487-TR18b r VSAMB-403-TR19b r

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/11/99	ICB/CCB Analysis Time	15:01
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00000.d18
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	VS006-404-TR01b2 r VSAMB-403-TR19b2 r VS006-413-TR03b2 r VS006-484-TR17b2 r VS006-487-TR18b2 r

Initial and Continuing Calibration Blank Summary

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/11/99	ICB/CCB Analysis Time	16:38
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00000.d28
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	V5006-406-TR02b MSD V5006-406-TR02b2 MSD

Instrument ID Number	WC48875	ICB/CCB Analysis Date	5/11/99	ICB/CCB Analysis Time	17:26
Operator ID	K. O. PENNOCK	Blank ID	N-3 DI H2O	ICB/CCB File Identifier	ccb00000.d33
Target Analyte Name	CAS Number	Expected Retention Time	ICB/CCB Retention Time	ICB/CCB Analytical Result (ug/mL)	Batched Samples
Nitrite	7664-41-7	1.67		< 0.125	END BLANK

NO/NO₂ Trip Blank and Method Performance Blank Summary

Trip Blank

Laboratory Sample Number	VS006-484-TR17b r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	14:23:10	Sample Data File Identifier	t17-b000.d14	
Target Analyte Name	CAS Number	Expected Retention Time (min.)	Sample Retention Time (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Nitrogen Dioxide	10102-44-0	1.67	1.65	1.7	0.88	Q

Laboratory Sample Number	VS006-484-TR17b2 r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	15:59:35	Sample Data File Identifier	t17-b200.d24	
Target Analyte Name	CAS Number	Expected Retention Time (min.)	Sample Retention Time (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Nitric Oxide	10102-43-9	1.67	1.65	1.7	1.40	Q

¹ Retention times are for NO₂

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

NO/NO₂ Trip Blank and Method Performance Blank Summary

Field Blank

Laboratory Sample Number	VS006-487-TR18b r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	14:32:50	Sample Data File Identifier	t18-b000.d15	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Nitrogen Dioxide	10102-44-0	1.67	1.63	1.7	0.88	Q

Laboratory Sample Number	VS006-487-TR18b2 r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	16:09:13	Sample Data File Identifier	t18-b200.d25	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Nitric Oxide	10102-43-9	1.67	1.65	1.7	1.40	Q

¹ Retention times are for NO₂

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Sample Target Analyte Concentrations for Sorbent Train Number VS006-MPB-TR21

Laboratory Sample Number	VS006-MPB-TR21b r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	14:52:14	Sample Data File Identifier	t07-b000.d17	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Nitrogen Dioxide	10102-44-0	1.67	1.63	1.7	0.88	Q

Laboratory Sample Number	VS006-MPB-TR21b2 r	Laboratory Duplicate Number	n/a			
Sample Analysis Date	5/11/99	Sample Analysis Time	16:28:28	Sample Data File Identifier	t01-b200.d27	
Target Analyte Name	CAS Number	Expected Retention Time ¹ (min.)	Sample Retention Time ¹ (min.)	Sample Concentration (mg/M ³) ²	Sample Concentration (ppmv) ²	Flags
Nitric Oxide	10102-43-9	1.67	1.64	1.7	1.4	Q

¹ Retention times are for NO₂

² mg/M³ and ppmv calculated at 25 °C and 101.3 kPa (one atmosphere)

Matrix Spike Summary

Instrument ID Number	WC48876	Target Analyte Name	Nitrite	Expected Retention Time	1.67	Operator ID	K.O. Pennock
MS ID	VS006-408-TR02b MS	MS File Identifier	102-b-ms.d30	MS Analysis Date	5/10/99	MS Analysis Time	15:44:42
MSD ID	VS006-408-TR02b MSD	MSD File Identifier	102-b-ms.d31	MSD Analysis Date	5/11/99	MSD Analysis Time	17:06:51
Sample ID	VS006-408-TR02b	Sample Concentration	0.133 ug/mL	Sample Volume	0.250 mL	Diluent Volume	0.500 mL
MS/MSD Standard ID	5653-144-C	MS/MSD Standard Conc.	0.625 ug/mL	MS/MSD Standard Volume	0.250 mL		
MS Retention Time	MSD Retention Time	MS Analytical Result (ug/mL)	MSD Analytical Result (ug/mL)	MS % Recovery	MSD % Recovery	RPD	Batched Samples
1.7	1.66	0.427	0.439	252.0	259.7	2.8	All

Matrix Spike Summary

Instrument ID Number	WC48876	Target Analyte Name	Nitrite	Expected Retention Time	1.67	Operator ID	K.O. Pennock
MS ID	VS006-408-TR02b2 MS	MS File Identifier	t02-b200.d31	MS Analysis Date	5/10/99	MS Analysis Time	15:54:21
MSD ID	VS006-408-TR02b2 MSD	MSD File Identifier	t02-b200.d32	MSD Analysis Date	5/11/99	MSD Analysis Time	17:16:28
Sample ID	VS006-408-TR02b2	Sample Concentration	2.495 ug/mL	Sample Volume	0.600 mL	Diluent Volume	0.180 mL
MS/MSD Standard ID	5653-144-A	MS/MSD Standard Conc.	25.000 ug/mL	MS/MSD Standard Volume	0.020 mL		
MS Retention Time	MSD Retention Time	MS Analytical Result (µg/mL)	MSD Analytical Result (µg/mL)	MS % Recovery	MSD % Recovery	RPD	Batched Samples
1.65	1.66	2.361	2.370	78.4	79.8	0.4	All

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2.7.4 Supporting Data

This section contains chromatograms and quantitation reports for all analyses including samples, initial calibrations, calibration verifications, blanks, and spikes. This section is organized by the run orders shown in the run sequence table. The general order is as follows:

- Run Sequence Table
- Initial Calibration Data
- Initial Calibration Verification Data
- Initial Blank Verification Data
- Sample Data.

DIONEX SCHEDULE - C:\PEAKNET\SCHEDULE\NOX\VS006-3\SAMPLES.SCH

Inj#	Sample Name	Method	Data File	Vol.	Dil.	Int.Std.
1	5653-136-C - A07	.. \nox-vap.	.. \CCB	50	1	1
2	autocal5 - A02	.. \nox-vap.	.. \I-CAL5	50	1	1
3	autocal4 - A03	.. \nox-vap.	.. \I-CAL4	50	1	1
4	autocal3 - A04	.. \nox-vap.	.. \I-CAL3	50	1	1
5	autocal2 - A05	.. \nox-vap.	.. \I-CAL2	50	1	1
6	autocal1 - A06	.. \nox-vap.	.. \I-CAL1	50	1	1
7	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB	50	1	1
8	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB	50	1	1
9	5653-147-B ICVS/CC	.. \nox-vap.	.. \CCVS	50	1	1
10	VS006-404-TR01b -	.. \nox-vap.	.. \T01-b	50	1	1
11	VS006-408-TR02b -	.. \nox-vap.	.. \T02-b	50	1	1
12	VS006-413 -TR03b -	.. \nox-vap.	.. \T03-b	50	1	1
13	VS006-484-TR17b -	.. \nox-vap.	.. \T17-b	50	1	1
14	VS006-487-TR18b -	.. \nox-vap.	.. \T18-b	50	1	1
15	VSAME-403-TR19b -	.. \nox-vap.	.. \T19-b	50	1	1
16	VS006-mpb-TR21b -	.. \nox-vap.	.. \T21-b	50	1	1
17	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB	50	1	1
18	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB	50	1	1
19	5653-147-B ICVS/CC	.. \nox-vap.	.. \CCVS	50	1	1
20	VS006-404-TR01b2 -	.. \nox-vap.	.. \T01-b2	50	1	1
21	VS006-408-TR02b2 -	.. \nox-vap.	.. \T02-b2	50	1	1
22	VS006-413 -TR03b2	.. \nox-vap.	.. \T03-b2	50	1	1
23	VS006-484-TR17b2 -	.. \nox-vap.	.. \T17-b2	50	1	1
24	VS006-487-TR18b2 -	.. \nox-vap.	.. \T18-b2	50	1	1
25	VSAME-403-TR19b2 -	.. \nox-vap.	.. \T19-b2	50	1	1
26	VS006-mpb-TR21b2 -	.. \nox-vap.	.. \T21-b2	50	1	1
27	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB	50	1	1
28	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB	50	1	1
29	5653-147-B ICVS/CC	.. \nox-vap.	.. \CCVS	50	1	1
30	VS006-408-TR02b MS	.. \nox-vap.	.. \T02-b-MS	50	1	1
31	VS006-408-TR02b2 MS	.. \nox-vap.	.. \T02-b2	50	1	1
32	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB000001.D32	50	1	1
33	5653-136-C ICB/CCB	.. \nox-vap.	.. \CCB00000.D33	50	1	1
34	5653-147-B ICVS/CC	.. \nox-vap.	.. \CCVS0000.D34	50	1	1
35	5653-147-B ICVS/CC	.. \nox-vap.	.. \CCVS0000.D35	50	1	1
36	Stop Pumps - A07	.. \a-stop.m	.. \stop0000.D36	0	1	1

Comment:

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Method Updated: 13:03 on Thu, 07 Jan 1999

Component: Nitrite

Fit Type: Linear

$r^2 = 0.999706$

$Amt = Resp * 1.001e-005 + 0.02351$

$Resp = Amt * 9.993e+004 + -2349$

Standard: External

Calibration: Area

Component Table - Previous Modification: Thu Jan 07 13:03:31 1999

☒ Retention Parameters ☐ Quantitation Parameters

Comp #	Component Name	Ret Time	Window (min +/-)	Window (Z +/-)	Rel Comp #
1	Nitrite	1.68		5.0	0

Buttons: **Groups...**, **Add**, **Delete...**, **Exit**

Level	Amount	Area	Height
1	0.125	11895	3570
2	0.25	23372	7023
3	0.625	57968	17297
4	1.25	121205	35186
5	2.5	248487	73997

$K0 = 0.0235$
 $K1 = 1E-005$

Amount = $K0 + K1 * Area$

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```

=====
Data File   : i-cal100.d06          Report Date: 06/15/1999 17:54:59
Sample Name: autocal1 - A06        Collected  : 01/02/1999 14:20:00
Inject #    : 6                    Vial #      : A06
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/04/1999 08:25:35
System Name: Anions (WC48876)       Detector   : ED40:COND
Column Type: Dionex AS4A-SC         Operator   : M. Duchsherer
=====

```

```

-----
Calibration Volume : Dilution Points   Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.67	Nitrite	0.125	3570	11895	1	0.00
Totals			0.125	3570	11895		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.45		0.000	477	1009	1	
3	2.63		0.000	273	1116	1	
4	5.37		0.000	5741	60033	1	
Totals			0.000	6490	62158		

File: i-cal100.d06 Sample: autocal1 - A06

```

=====
Data File   : i-cal200.d05                      Report Date: 06/15/1999 17:40:20
Sample Name : autocal2 - A05                    Collected  : 01/02/1999 14:10:19
Inject #    : 5                                Vial #     : A05
Method File : C:\PEAKNET\METHOD\NOX-VAP.MET    Calibrated : 01/04/1999 08:25:38
System Name : Anions (WC48876)                 Detector   : ED40:COND
Column Type : Dionex AS4A-SC                    Operator    : M. Duchsherer
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00          1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.67	Nitrite	0.250	7023	23372	1	0.00
Totals			0.250	7023	23372		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	2.63		0.000	346	1416	1	
4	5.35		0.000	6147	64907	1	
Totals			0.000	6493	66323

```

=====
Data File   : i-cal300.d04          Report Date: 06/15/1999 17:40:07
Sample Name: autocal3 - A04        Collected  : 01/02/1999 14:00:40
Inject #    : 4                    Vial #       : A04
Method File: C:\PEAKNET\METHOD\NOX-VAP.MET  Calibrated : 01/04/1999 08:25:41
System Name: Anions (WC48876)       Detector    : ED40:COND
Column Type: Dionex AS4A-SC         Operator    : M. Duchsherer
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.67	Nitrite	0.625	17297	57968	1	0.00
Totals			0.625	17297	57968		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	2.62		0.000	442	1942	1	
5	5.34		0.000	5569	58124	1	
Totals			0.000	6011	60066		

File: i-cal300.d04 Sample: autocal3 - A04

```

=====
Data File   : i-cal400.d03          Report Date: 06/15/1999 17:39:45
Sample Name: autocal4 - A03        Collected  : 01/02/1999 13:50:59
Inject #    : 3                    Vial #       : A03
Method File : C:\PEAKNET\METHOD\NOX-VAP.MET Calibrated : 01/04/1999 08:25:44
System Name : Anions (WC48876)     Detector    : ED40:COND
Column Type : Dionex AS4A-SC       Operator    : M. Duchsherer
=====

```

```

Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.67	Nitrite	1.250	35186	121205	1	0.00
Totals			1.250	35186	121205		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.45		0.000	519	1114	1	
3	2.63		0.000	622	2884	1	
4	5.35		0.000	5697	59348	1	
Totals			0.000	6838	63346

```

=====
Data File   : d:\i-cal500.d02          Report Date: 06/15/1999 17:38:23
Sample Name: autocal5 - A02           Collected  : 01/02/1999 13:41:19
Inject #    : 2                       Vial #      : A02
Method File : C:\PEAKNET\METHOD\NOX-VAP.MET Calibrated : 01/04/1999 08:25:47
System Name : Anions (WC48876)        Detector    : ED40:COND
Column Type : Dionex AS4A-SC          Operator    : M. Duchsherer
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00 1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.68	Nitrite	2.500	73997	248487	1	0.00
Totals			2.500	73997	248487		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.45		0.000	575	1316	1	
3	2.64		0.000	960	4574	1	
4	5.35		0.000	4698	49377	1	
Totals			0.000	6233	55267

```

=====
Data File   : ccb00002.d08                      Report Date: 05/26/1999 09:30:32
Sample Name: 5653-136-C ICB/CCB - A07          Collected  : 05/10/1999 12:12:34
Inject #    : 8                                Vial #      : A07
Method File: c:\peaknet\method\nox-vap.met      Calibrated   : 01/07/1999 13:03:31
System Name: Anions (WC48876)                  Detector     : ED40:COND
Column Type: Dionex AS4A-SC                     Operator      : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00         1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
5	5.18		0.000	948	10220	1	
Totals			0.000	948	10220		

File: ccb00002.d08 Sample: 5653-136-C ICB/CCB - A07

```

=====
Data File   : ccvs0002.d09                      Report Date: 05/26/1999 09:32:12
Sample Name: 5653-147-B ICVS/CCVS - B04         Collected  : 05/10/1999 12:22:11
Inject #    : 9                                Vial #      : B04
Method File: c:\peaknet\method\nox-vap.met       Calibrated  : 01/07/1999 13:03:31
System Name: Anions (WC48876)                   Detector    : ED40:COND
Column Type: Dionex AS4A-SC                      Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50           1 2400 5.00 Hz  0.00  8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.67	Nitrite	0.687	17879	66321	1	-0.79
Totals			0.687	17879	66321		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.36		0.000	1206	3884	1	
2	1.46		0.000	16258	38337	1	
4	2.58		0.000	4988	24623	1	
5	5.16		0.000	4210	47307	1	
6	6.57		0.000	306	3617	1	
Totals			0.000	26968	117767		

File: ccvs0002.d09 Sample: 5653-147-B ICVS/CCVS - B04

```

=====
Data File   : t02-b002.d11          Report Date: 05/26/1999 09:36:43
Sample Name : VS006-408-TR02b - C02  Collected  : 05/10/1999 12:41:30
Inject #    : 11                    Vial #       : C02
Method File : c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name : Anions (WC48876)          Detector  : ED40:COND
Column Type : Dionex AS4A-SC            Operator   : Karl O. Pennock
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.66	Nitrite	0.133	2960	10908	1	-1.19
Totals			0.133	2960	10908		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.35		0.000	1097	3466	1	
2	1.45		0.000	132718	385881	1	
4	2.58		0.000	1679	10709	1	
5	3.97		0.000	144075	1409822	1	
6	5.13		0.000	47890	547700	1	
Totals			0.000	327458	2357578

```

=====
Data File   : ccb00001.d17          Report Date: 05/26/1999 09:29:36
Sample Name: 5653-136-C ICB/CCB - A07  Collected  : 05/10/1999 13:39:35
Inject #    : 17                    Vial #       : A07
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC              Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
6	5.22		0.000	901	9745	1	
Totals			0.000	901	9745		

File: ccb00001.d17 Sample: 5653-136-C ICB/CCB - A07

```

=====
Data File   : ccvs0001.d19                      Report Date: 05/26/1999 09:38:35
Sample Name: 5653-147-B ICVS/CCVS - B04         Collected  : 05/10/1999 13:58:38
Inject #    : 19                                Vial #      : B04
Method File: c:\peaknet\method\nox-vap.met       Calibrated   : 01/07/1999 13:03:31
System Name: Anions (WC48876)                   Detector     : ED40:COND
Column Type: Dionex AS4A-SC                       Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
-----

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.67	Nitrite	0.617	15831	59293	1	-0.79
Totals			0.617	15831	59293		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.37		0.000	1440	5054	2	
2	1.47		0.000	15080	36665	2	
4	2.57		0.000	4619	22796	1	
6	5.17		0.000	3797	43143	1	
7	6.61		0.000	226	2741	1	
Totals			0.000	25162	110399		

File: ccvs0001.d19 Sample: 5653-147-B ICVS/CCVS - B04

```

=====
Data File   : t02-b201.d21          Report Date: 06/16/1999 15:56:14
Sample Name : VS006-408-TR02b2 - C09 Collected  : 05/10/1999 14:17:56
Inject #    : 21                   Vial #       : C09
Method File : c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name : Anions (WC48876)           Detector  : ED40:COND
Column Type : Dionex AS4A-SC             Operator   : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.64	Nitrite	2.495	57674	246993	2	-2.38
Totals			2.495	57674	246993		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.43		0.000	102226	365763	2	
5	2.53		0.000	17869	97825	2	
8	3.95		0.000	150782	1472329	2	
10	5.11		0.000	45504	513419	2	
Totals			0.000	316382	2449337		

File: t02-b201.d21 Sample: VS006-408-TR02b2 - C09

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```

=====
Data File   : ccb00000.d28                      Report Date: 05/25/1999 15:27:38
Sample Name: 5653-136-C ICB/CCB - A07          Collected  : 05/10/1999 15:25:23
Inject #    : 28                                Vial #       : A07
Method File: c:\peaknet\method\nox-vap.met      Calibrated   : 01/07/1999 13:03:31
System Name: Anions (WC48876)                  Detector     : ED40:COND
Column Type: Dionex AS4A-SC                     Operator      : Karl O. Pennock
=====
  
```

Calibration	Volume	Dilution Points	Rate	Start	Stop	Area	Reject
External	50	1 2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
7	5.22		0.000	925	9733	1	
Totals			0.000	925	9733		

File: ccb00000.d28 Sample: 5653-136-C ICB/CCB - A07

```

=====
Data File   : ccvs0001.d29          Report Date: 05/25/1999 15:28:49
Sample Name: 5653-147-B ICVS/CCVS - B04  Collected  : 05/10/1999 15:35:02
Inject #    : 29                    Vial #       : B04
Method File: c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC              Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50             1 2400  5.00 Hz  0.00   8.00     1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.67	Nitrite	0.600	15967	57624	1	-0.40
Totals			0.600	15967	57624		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.37		0.000	1455	5331	2	
2	1.47		0.000	14619	35384	2	
4	2.58		0.000	4524	22303	1	
6	5.17		0.000	3672	41246	1	
7	6.58		0.000	306	3817	1	
Totals			0.000	24575	108081		

File: ccvs0001.d29 Sample: 5653-147-B ICVS/CCVS - B04

```

=====
Data File   : t02-b-ms.d30          Report Date: 05/25/1999 15:25:39
Sample Name : VS006-408-TR02b MS - C36  Collected  : 05/10/1999 15:44:42
Inject #    : 30                    Vial #       : C36
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)          Detector   : ED40:COND
Column Type : Dionex AS4A-SC            Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.70	Nitrite	0.427	10696	40279	1	1.19
Totals			0.427	10696	40279		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.40		0.000	1432	4976	1	
2	1.50		0.000	139758	381130	1	
5	2.53		0.000	680	1765	2	
6	2.59		0.000	2397	12308	2	
8	4.01		0.000	139898	1350295	2	
10	5.15		0.000	60486	681356	2	
Totals			0.000	344650	2431830		

File: t02-b-ms.d30 Sample: VS006-408-TR02b MS - C36

```

=====
Data File   : t02-b200.d31      MS Ⓚ6-17      Report Date: 06/17/1999 10:07:16
Sample Name : VS006-408-TR02b2 MSD - C37      Collected  : 05/10/1999 15:54:21
Inject #    : 31                  Vial #       : C37
Method File : c:\peaknet\method\nox-vap.met    Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)                Detector   : ED40:COND
Column Type : Dionex AS4A-SC                   Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.65	Nitrite	2.361	55488	233572	2	-1.59
Totals			2.361	55488	233572		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.45		0.000	145842	499238	2	
6	2.54		0.000	15948	78550	1	
9	3.96		0.000	144863	1402829	2	
11	4.91		0.000	710	1581	2	
12	5.12		0.000	50138	564229	2	
Totals			0.000	357500	2546427		

MS [Ⓚ]6-17

File: t02-b200.d31 Sample: VS006-408-TR02b2 MSD - C37

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```

=====
Data File   : ccb00001.d32          Report Date: 05/25/1999 15:31:43
Sample Name: 5653-136-C ICB/CCB - A07  Collected  : 05/10/1999 16:03:55
Inject #    : 32                    Vial #       : A07
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)          Detector   : ED40:COND
Column Type: Dionex AS4A-SC            Operator    : Karl O. Pennock
=====
  
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
7	5.22		0.000	1029	11444	1	
Totals			0.000	1029	11444		

File: ccb00001.d32 Sample: 5653-136-C ICB/CCB - A07

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```

=====
Data File   : ccb00000.d33          Report Date: 05/25/1999 15:27:57
Sample Name: 5653-136-C ICB/CCB - A07  Collected  : 05/10/1999 16:13:24
Inject #    : 33                    Vial #       : A07
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)          Detector   : ED40:COND
Column Type: Dionex AS4A-SC             Operator    : Karl O. Pennock
=====
  
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
6	5.21		0.000	984	10617	1	
Totals			0.000	984	10617		

File: ccb00000.d33 Sample: 5653-136-C ICB/CCB - A07

```

=====
Data File   : ccvs0000.d34          Report Date: 05/25/1999 15:31:06
Sample Name: 5653-147-B ICVS/CCVS - B04  Collected  : 05/10/1999 16:23:00
Inject #    : 34                    Vial #       : B04
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC              Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50             1  2400  5.00 Hz  0.00  8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.67	Nitrite	0.610	16154	58626	1	-0.40
Totals			0.610	16154	58626		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.37		0.000	1569	5864	2	
2	1.47		0.000	14916	36933	2	
4	2.58		0.000	4599	23017	1	
5	5.17		0.000	3770	42212	1	
6	6.58		0.000	252	2615	1	
Totals			0.000	25107	110641		

File: ccvs0000.d34 Sample: 5653-147-B ICVS/CCVS - B04

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```

=====
Data File   : ccb00001.d07          Report Date: 06/17/1999 17:03:01
Sample Name: 5653-136-C ICB/CCB - A07  Collected  : 05/11/1999 13:16:03
Inject #    : 7                     Vial #       : A07
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC             Operator    : Karl O. Pennock
=====
  
```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
  
```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
6	5.15		0.000	718	7453	1	
Totals			0.000	718	7453		

File: ccb00001.d07 Sample: 5653-136-C ICB/CCB - A07

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```

=====
Data File   : ccvs0000.d10          Report Date: 05/25/1999 13:29:07
Sample Name: 5653-147-B ICVS/CCVS - B04  Collected  : 05/11/1999 13:44:33
Inject #    : 10                    Vial #       : B04
Method File: c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC             Operator    : Karl O. Pennock
=====
  
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.67	Nitrite	0.681	17496	65693	1	-0.79
Totals			0.681	17496	65693		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.45		0.000	4493	12928	1	
4	2.58		0.000	1551	7441	1	
5	5.13		0.000	1328	14511	1	
Totals			0.000	7372	34881		

File: ccvs0000.d10 Sample: 5653-147-B ICVS/CCVS - B04

```

=====
Data File   : t01-b000.d11          Report Date: 05/25/1999 15:13:52
Sample Name: VS006-404-TR01b r - C01  Collected  : 05/11/1999 13:54:13
Inject #    : 11                    Vial #       : C01
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC             Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50                1  2400  5.00 Hz  0.00  8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.64	Nitrite	0.148	3262	12473	1	-2.38
Totals			0.148	3262	12473		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.43		0.000	130526	435278	1	
3	2.54		0.000	2054	13033	1	
4	3.92		0.000	168079	1638043	1	
5	5.05		0.000	57726	640769	1	
6	6.46		0.000	415	5369	1	
Totals			0.000	358799	2732493		

File: t01-b000.d11 Sample: VS006-404-TR01b r - C01

```

=====
Data File   : t03-b000.d13          Report Date: 05/25/1999 15:15:32
Sample Name: VS006-413 -TR03b r - C03  Collected  : 05/11/1999 14:13:29
Inject #    : 13                    Vial #       : C03
Method File: c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name: Anions (WC48876)          Detector   : ED40:COND
Column Type: Dionex AS4A-SC            Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50                1  2400  5.00 Hz  0.00   8.00    1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.65	Nitrite	0.156	3463	13256	1	-1.98
Totals			0.156	3463	13256		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.44		0.000	121972	414910	1	
4	2.55		0.000	2055	12978	1	
5	3.95		0.000	153973	1497231	1	
6	5.08		0.000	52194	584990	1	
7	6.53		0.000	333	3655	1	
Totals			0.000	330526	2513763		

File: t03-b000.d13 Sample: VS006-413 -TR03b r - C03

```

=====
Data File   : t17-b000.d14          Report Date: 05/25/1999 15:16:04
Sample Name : VS006-484-TR17b r - C04  Collected  : 05/11/1999 14:23:10
Inject #    : 14                    Vial #       : C04
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)          Detector   : ED40:COND
Column Type : Dionex AS4A-SC            Operator   : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.65	Nitrite	0.152	3377	12851	1	-1.59
Totals			0.152	3377	12851		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.44		0.000	122677	420621	1	
5	2.57		0.000	2368	14477	2	
8	3.93		0.000	162372	1581930	2	
9	5.07		0.000	53404	596637	1	
12	6.49		0.000	436	4676	2	
Totals			0.000	341257	2618341		

File: t17-b000.d14 Sample: VS006-484-TR17b r - C04

```

=====
Data File   : t18-b000.d15          Report Date: 05/25/1999 15:16:38
Sample Name : VS006-487-TR18b r - C05  Collected  : 05/11/1999 14:32:50
Inject #    : 15                    Vial #       : C05
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)          Detector   : ED40:COND
Column Type : Dionex AS4A-SC            Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
-----

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.63	Nitrite	0.144	3063	12019	2	-2.78
Totals			0.144	3063	12019		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.43		0.000	123908	422623	2	
5	2.47		0.000	550	1143	2	
6	2.55		0.000	2192	11963	2	
9	3.74		0.000	636	1562	2	
10	3.91		0.000	160678	1553112	2	
12	5.04		0.000	52430	582255	2	
Totals			0.000	340394	2572658		

File: t18-b000.d15 Sample: VS006-487-TR18b r - C05

```

=====
Data File   : t19-b000.d16                      Report Date: 05/25/1999 15:17:07
Sample Name : VS006-403-TR19b r - C06           Collected  : 05/11/1999 14:42:34
Inject #    : 16 AMB 6/14/99                    Vial #       : C06
Method File : c:\peaknet\method\nox-vap.met      Calibrated   : 01/07/1999 13:03:31
System Name : Anions (WC48876)                  Detector     : ED40:COND
Column Type : Dionex AS4A-SC                     Operator      : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.64	Nitrite	0.068	1527	4491	1	-2.38
Totals			0.068	1527	4491		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.43		0.000	118621	389635	1	
10	3.72		0.000	765	1814	2	
11	3.77		0.000	1137	3189	2	
12	3.92		0.000	149837	1446900	2	
14	5.05		0.000	52566	584260	2	
Totals			0.000	322926	2425797

```

=====
Data File   : t21-b000.d17          Report Date: 05/25/1999 15:17:42
Sample Name : VS006-mpb-TR21b r - C07  Collected  : 05/11/1999 14:52:14
Inject #    : 17                    Vial #       : C07
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)          Detector   : ED40:COND
Column Type : Dionex AS4A-SC            Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50                1  2400  5.00 Hz  0.00  8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	1.63	Nitrite	0.071	1153	4768	1	-3.17
Totals			0.071	1153	4768		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.43		0.000	125434	410278	1	
9	2.51		0.000	930	6044	1	
12	3.71		0.000	703	1604	2	
13	3.75		0.000	1165	2239	2	
14	3.90		0.000	186581	1852628	2	
17	5.05		0.000	50435	549747	1	
Totals			0.000	365248	2822540		

File: t21-b000.d17 Sample: VS006-mpb-TR21b r - C07

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```

=====
Data File   : ccb00000.d18                      Report Date: 05/25/1999 13:39:06
Sample Name: 5653-136-C ICB/CCB - A07          Collected  : 05/11/1999 15:01:56
Inject #    : 18                                Vial #       : A07
Method File: c:\peaknet\method\nox-vap.met      Calibrated   : 01/07/1999 13:03:31
System Name: Anions (WC48876)                  Detector     : ED40:COND
Column Type: Dionex AS4A-SC                     Operator      : Karl O. Pennock
=====
  
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
6	5.16		0.000	877	9161	1	
Totals			0.000	877	9161		

File: ccb00000.d18 Sample: 5653-136-C ICB/CCB - A07

```

=====
Data File   : ccvs0000.d20          Report Date: 05/25/1999 13:30:00
Sample Name: 5653-147-B ICVS/CCVS - B04  Collected  : 05/11/1999 15:20:59
Inject #    : 20                    Vial #       : B04
Method File: c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC             Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50          1 2400 5.00 Hz 0.00 8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.67	Nitrite	0.664	17109	64021	1	-0.79
Totals			0.664	17109	64021		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.33		0.000	515	1120	1	
2	1.46		0.000	4525	12508	1	
4	2.58		0.000	1519	7551	1	
5	5.12		0.000	1345	14806	1	
Totals			0.000	7903	35985		

File: ccvs0000.d20 Sample: 5653-147-B ICVS/CCVS - B04

```

=====
Data File   : t01-b200.d21          Report Date: 05/25/1999 15:14:06
Sample Name : VS006-404-TR01b2 r - C08  Collected  : 05/11/1999 15:30:34
Inject #    : 21                    Vial #       : C08
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)          Detector   : ED40:COND
Column Type : Dionex AS4A-SC            Operator    : Karl O. Pennock
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.64	Nitrite	0.483	11132	45927	1	-2.38
Totals			0.483	11132	45927		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.43		0.000	119347	404823	1	
5	2.55		0.000	3828	22081	2	
7	3.70		0.000	425	1006	2	
8	3.92		0.000	162829	1580941	2	
10	5.05		0.000	50186	558366	2	
Totals			0.000	336614	2567217		

File: t01-b200.d21 Sample: VS006-404-TR01b2 r - C08

```

=====
Data File   : t03-b200.d23          Report Date: 05/25/1999 15:15:47
Sample Name : VS006-413 -TR03b2 r - C10  Collected  : 05/11/1999 15:49:56
Inject #    : 23                    Vial #       : C10
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)           Detector   : ED40:COND
Column Type : Dionex AS4A-SC             Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume  Dilution Points  Rate Start  Stop Area Reject
-----
External           50                1  2400  5.00 Hz  0.00   8.00       1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	1.63	Nitrite	0.479	12816	45510	1	-2.78
Totals			0.479	12816	45510		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.43		0.000	102054	318257	1	
9	2.53		0.000	3106	12400	1	
14	3.91		0.000	148825	1398397	1	
16	4.85		0.000	751	1241	2	
17	5.05		0.000	48328	537835	2	
Totals			0.000	303064	2268130		

File: t03-b200.d23 Sample: VS006-413 -TR03b2 r - C10

```

=====
Data File   : t17-b200.d24          Report Date: 05/25/1999 15:16:21
Sample Name: VS006-484-TR17b2 r - C11  Collected  : 05/11/1999 15:59:35
Inject #    : 24                    Vial #       : C11
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC             Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50          1 2400 5.00 Hz 0.00 8.00          1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	1.65	Nitrite	0.065	1073	4098	1	-1.59
Totals			0.065	1073	4098		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.45		0.000	105565	349039	1	
12	2.55		0.000	727	4963	1	
17	3.93		0.000	158378	1493858	1	
20	5.08		0.000	48654	525124	1	
Totals			0.000	313325	2372984		

File: t17-b200.d24 Sample: VS006-484-TR17b2 r - C11

```

=====
Data File   : t18-b200.d25          Report Date: 05/25/1999 15:16:52
Sample Name : VS006-487-TR18b2 r - C12  Collected  : 05/11/1999 16:09:13
Inject #    : 25                    Vial #       : C12
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)          Detector   : ED40:COND
Column Type : Dionex AS4A-SC            Operator    : Karl O. Pennock
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	1.65	Nitrite	0.069	1086	4567	1	-1.98
Totals			0.069	1086	4567		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.45		0.000	97034	312021	1	
18	3.92		0.000	151125	1426743	1	
21	5.06		0.000	45854	492583	1	
Totals			0.000	294013	2231346		

File: t18-b200.d25 Sample: VS006-487-TR18b2 r - C12

```

=====
Data File   : t19-b200.d26                      Report Date: 05/25/1999 15:17:27
Sample Name : VS006-403-TR19b2 r - C13          Collected  : 05/11/1999 16:18:53
Inject #    : 26 AMB 6-14-99                      Vial #       : C13
Method File : c:\peaknet\method\nox-vap.met      Calibrated   : 01/07/1999 13:03:31
System Name : Anions (WC48876)                  Detector    : ED40:COND
Column Type : Dionex AS4A-SC                     Operator     : Karl O. Pennock
=====

```

```

=====
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50                1  2400  5.00 Hz  0.00   8.00    1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	1.65	Nitrite	0.056	993	3229	1	-1.98
Totals			0.056	993	3229		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.45		0.000	98622	301056	1	
11	2.51		0.000	750	1372	2	
12	2.55		0.000	1399	6566	2	
15	3.91		0.000	152672	1443637	1	
18	5.05		0.000	46380	513629	2	
Totals			0.000	299823	2266260

```

=====
Data File   : t21-b200.d27          Report Date: 05/25/1999 15:36:45
Sample Name : VS006-mpb-TR21b2 r - C14  Collected  : 05/11/1999 16:28:28
Inject #    : 27                    Vial #       : C14
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)           Detector   : ED40:COND
Column Type : Dionex AS4A-SC             Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50           1  2400  5.00 Hz  0.00  8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
4	1.64	Nitrite	0.065	1037	4118	1	-2.38
Totals			0.065	1037	4118		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.44		0.000	112332	378847	1	
14	2.55		0.000	639	2100	1	
20	3.91		0.000	179931	1729849	1	
23	5.06		0.000	49074	531584	1	
Totals			0.000	341976	2642380		

File: t21-b200.d27 Sample: VS006-mpb-TR21b2 r - C14

```

=====
Data File   : ccb00000.d28          Report Date: 05/25/1999 13:39:21
Sample Name: 5653-136-C ICB/CCB - A07  Collected  : 05/11/1999 16:38:11
Inject. #   : 28                    Vial #       : A07
Method File: c:\peaknet\method\nox-vap.met  Calibrated : 01/07/1999 13:03:31
System Name: Anions (WC48876)           Detector   : ED40:COND
Column Type: Dionex AS4A-SC             Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50           1  2400  5.00 Hz  0.00  8.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
6	5.15		0.000	3059	33157	1	
Totals			0.000	3059	33157		

File: ccb00000.d28 Sample: 5653-136-C ICB/CCB - A07

```

=====
Data File   : ccvs0000.d29          Report Date: 05/25/1999 13:30:38
Sample Name : 5653-147-B ICVS/CCVS - B04  Collected  : 05/11/1999 16:47:48
Inject #    : 29                    Vial #       : B04
Method File : c:\peaknet\method\nox-vap.met  Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)           Detector   : ED40:COND
Column Type : Dionex AS4A-SC             Operator    : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.67	Nitrite	0.637	16305	61342	1	-0.79
Totals			0.637	16305	61342		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.45		0.000	4279	11866	1	
3	2.58		0.000	1415	6949	1	
4	5.11		0.000	1291	14256	1	
Totals			0.000	6985	33071		

File: ccvs0000.d29 Sample: 5653-147-B ICVS/CCVS - B04

```

=====
Data File   : t02-b-ms.d31      MSD (K) 6/14/99   Report Date: 06/16/1999 16:45:22
Sample Name : VS006-408-TR02b MS r - C36         Collected  : 05/11/1999 17:06:51
Inject #    : 31                               Vial #    : C36
Method File : c:\peaknet\method\nox-vap.met       Calibrated  : 01/07/1999 13:03:31
System Name : Anions (WC48876)                  Detector   : ED40:COND
Column Type : Dionex AS4A-SC                     Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.66	Nitrite	0.439	10806	41480	1	-1.19
Totals			0.439	10806	41480		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.36		0.000	3931	12511	1	
2	1.46		0.000	143750	393724	1	
6	2.57		0.000	2232	10029	1	
8	3.78		0.000	779	1644	2	
9	3.93		0.000	148211	1422800	2	
11	5.04		0.000	96799	1062009	2	
Totals			0.000	395701	2902716

```

=====
Data File   : t02-b200.d32          Report Date: 06/17/1999 10:08:02
Sample Name : VS006-408-TR02b2 MSD - C37  Collected  : 05/11/1999 17:16:28
Inject #    : 32                    Vial #       : C37
Method File : c:\peaknet\method\nox-vap.met Calibrated : 01/07/1999 13:03:31
System Name : Anions (WC48876)         Detector    : ED40:COND
Column Type : Dionex AS4A-SC           Operator    : Karl O. Pennock
=====

```

```

=====
Calibration Volume  Dilution Points  Rate  Start  Stop Area Reject
-----
External           50                1  2400  5.00 Hz  0.00   8.00   1000
=====

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
3	1.66	Nitrite	2.370	55608	234528	1	-1.19
Totals			2.370	55608	234528		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.45		0.000	143541	463541	1	
7	2.56		0.000	16822	86649	1	
11	3.93		0.000	151325	1442118	1	
13	4.87		0.000	684	1117	2	
14	5.07		0.000	53875	597334	2	
Totals			0.000	366247	2590760		

File: t02-b200.d32 Sample: VS006-408-TR02b2 MSD - C37

```

=====
Data File   : ccb00000.d33                      Report Date: 05/25/1999 13:39:30
Sample Name: 5653-136-C ICB/CCB - A07          Collected  : 05/11/1999 17:26:06
Inject #    : 33                               Vial #      : A07
Method File: c:\peaknet\method\nox-vap.met      Calibrated   : 01/07/1999 13:03:31
System Name: Anions (WC48876)                  Detector    : ED40:COND
Column Type: Dionex AS4A-SC                     Operator     : Karl O. Pennock
=====

```

```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External          50           1 2400 5.00 Hz 0.00 8.00      1000
-----

```

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
0	0.00	Nitrite	0.000	0	0	0	0.00
Totals			0.000	0	0		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
5	5.09		0.000	3117	33404	1	
Totals			0.000	3117	33404		

File: ccb00000.d33 Sample: 5653-136-C ICB/CCB - A07

```

=====
Data File   : ccvs0000.d34                      Report Date: 05/25/1999 13:41:56
Sample Name : 5653-147-B ICVS/CCVS - B04        Collected  : 05/11/1999 17:35:41
Inject #    : 34                                Vial #      : B04
Method File : c:\peaknet\method\nox-vap.met      Calibrated   : 01/07/1999 13:03:31
System Name : Anions (WC48876)                  Detector     : ED40:COND
Column Type : Dionex AS4A-SC                     Operator      : Karl O. Pennock
=====

```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	50	1	2400	5.00 Hz	0.00	8.00		1000

***** Component Report: All Components *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
2	1.66	Nitrite	0.644	16529	61957	1	-1.19
Totals			0.644	16529	61957		

***** Peak Report: Unknown Peaks *****

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.45		0.000	4422	12122	1	
3	2.57		0.000	1435	6835	1	
4	5.10		0.000	1336	14595	1	
Totals			0.000	7193	33552		

File: ccvs0000.d34 Sample: 5653-147-B ICVS/CCVS - B04

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2.8 Determination of Dibutyl Phosphate and Tributyl Phosphate in PUF Filters

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2.8.1 Narrative

This section contains descriptions of the analytical method and quality assurance used during analysis.

2.8.1.1 Determination of Dibutyl Phosphate and Tributyl Phosphate in PUF Filters

PUF filters were analyzed for dibutyl phosphate (DBP) and tributyl phosphate (TBP) following procedure LA-523-428. The analytes were not detected above the detection limit (150 ppbv) for samples VS006-485-P017, VS006-488-P018 VSAMB-404-P019.

Procedure LA-523-428 is based on EPA Method TO10 which is a method designed to trap and determine the concentration of organochlorine pesticides in ambient air. Dibutyl phosphate and tributyl phosphate are collected by drawing headspace vapors through a polyurethane foam (PUF) filter. The PUF traps semi-volatile compounds which are extracted, using an organic solvent in continuous soxhlet extraction, then analyzed using gas chromatography/mass spectroscopy.

The extraction apparatus consists of a soxhlet extractor with a 50 mL extractor capacity and a 125 mL flask. The PUF filters are continuously extracted for a period of 16 hours using methyl t-butyl ether (MTBE) as the extraction solvent.

After extraction, the solvent volume is reduced to approximately ½ mL using a Turbovap Evaporator. The extract is then diluted to one mL with MTBE. An aliquot of the extract is treated with BSTFA (N,O-bis(trimethylsilyl)trifluoroacetamide), a derivatization reagent, to convert DBP to a compound that is stable to conditions encountered in gas chromatographic analysis. BSTFA converts DBP to the trimethylsilyl ester (DBP-TMSE).

The instrumentation consists of a Hewlett-Packard model 5890 Series II gas chromatograph equipped with a 0.53-mm inside diameter by 15-m long DB-5 fused-silica column and a Hewlett-Packard model 5972 mass-selective detector.

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2.8.1.2 Analytical Quality Assurance for the Analysis of PUF Filters

Headspace samples collected on PUF filters were analyzed following procedure LA-523-428. Standard and sample preparation is documented in logbook WHC-N-1411-1, page 145. The GC/MS instrument maintenance and run log is documented in logbook WHC-N-1025-4, page 24.

The instrument was calibrated using the internal standard method with a five point calibration curve. The average response factor was used for quantitation of surrogates and target analytes. The percent relative standard deviations (%RSD) of the calibration points was 9% or less for all the analytes except DPP (35%). DPP was calibrated using a linear regression with an r^2 value of 0.992.

Procedure LA-523-428 requires that internal area counts for samples must be within 50 – 150% of the area counts of the daily CCVS. A CCVS was not required for this analysis so the average internal standard response from the five calibration standards was used as the reference. The internal standard responses and the percent deviations are tabulated in the Sample Summary Table.

DBP and TBP were calibrated down to 10 micrograms, the detection limit for samples. Assuming 100% recovery from the PUF filter, a 25 liter sample would have detection limits of 46 ppbv for DBP and 38 ppbv for TBP based on a 10 microgram detector response.

Two surrogates, octachloronaphthlene (OCN) and diphenyl phosphate (DPP) were spiked onto PUF filters prior to the extraction step. OCN is used in EPA Method TO10 to monitor the recovery of non-polar organochlorine compounds. Diphenyl phosphate is derivatized along with DBP and therefore serves as both a surrogate for the derivatization step and as a surrogate for the extraction of the phosphates from PUF filters.

Two PUF filters were spiked with OCN, DPP, DBP, and TBP. Recovery of DPP from those samples averaged 73% compared to 75% for DBP and 78% for TBP.

The average recovery of DPP from the Field and trip Blank matrix was 64% and the recovery from the ambient air sample was 56%. The reporting limit was set at 150 ppbv for all the samples to provide a safety factor of at least 3 for DBP and 4 for TBP compared to a 100% recovery of 10 micrograms/sample.

The results of the analysis were flagged with an “*” to point out the low surrogate and spike recoveries.

Extrapolation below the minimum reporting value is not advisable because MDLs have not been established for this procedure.

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2.8.2 Sample Summary Table

The sample summary table summarizes the quality control and results of the DBP and TBP analysis. All reported values have been corrected to 25 °C and 1 atmosphere pressure.

Sample Summary Table 241-C-106 Sluicing Phase III

QC Sample Summary Table

Logbook Sample ID:	PUF Spike 1411-1-145.01	PUF Spike 1411-1-145.02	Solvent Blank 1411-1-145.03		
Internal Standard (DDE)					
Area Counts:	375225 (94%)	460053 (115%)	413389 (103%)	%Recovery	
Surrogates:	Amount Detected & %Recovery			Average	Range
Octachloronaphthalene	140 ng (70%)	130 ng (65%)	140 ng (70%)	68%	5%
DPP-TMSE (Surrogate)	140 ng (70%)	150 ng (75%)	150 ng (75%)	73%	5%
Target Analytes:					
DBP-TMSE	150 ng (75%)	150 ng (75%)	<10 ug	75%	0%
TBP	150 ng (75%)	160 ng (80%)	<10 ug	78%	5%

Vapor Sample Summary Table

		(Trip Blank)	(Field Blank)
Sample Number:	VSAMB-404-P019	VS006-485-P017	VS006-488-P018
Internal Standard (DDE)			
Area Counts:	510912 (127%)	390943 (97%)	445359 (111%)
Surrogates:	Amount Detected & %Recovery		
Octachloronaphthalene	120.76 ng (60%)	147.90 ng (74%)	151.82 ng (76%)
DPP-TMSE (Surrogate)	111.71 ng (56%)	128.76 ng (64%)	128.54 ng (64%)
Target Analytes:	Reported Concentrations		
DBP-TMSE	ppbv	<150	<150
	mg/m ³	<1.4	<1.4
	Flag:	M, *	M, *
TBP	ppbv	<150	<150
	mg/m ³	<1.8	<1.8
	Flag:	M, *	M, *

Note: Extrapolation below these values is not advisable because MDLs have not been established.

²Data Flags:

Flags: *: Data did not meet quality control requirements; refer to data package case narrative.

M: Target analyte was absent (not detected) in sample.

2.8.3 Supporting Data

This section contains relevant supporting data used for the tuning and calibration of the instrument, and the analysis and quantitation of the organic compounds. The following are included:

- Response Factor and Compound List Report
- Mass spectrometer tune report
- Quantitation Reports and chromatograms.

HNF-4598 Rev. 0

Response Factor Report 5971 - VO

Method : C:\HPCHEM\2\METHODS\90517TBP.M
Title :
Last Update : Tue May 18 09:33:42 1999
Response via : Initial Calibration

Calibration Files

100 =V9050605.D 200 =V9051706.D 50 =V9051704.D
25 =V9051703.D 10 =V9051702.D

Compound	100	200	50	25	10	Avg	%RSD
----------	-----	-----	----	----	----	-----	------

1)	p,p'-DDE	-----ISTD-----						
2)	Dibutyl phosphate-TMS	2.267	2.292	2.227	2.203	1.859	2.170	8.17
3)	Tributyl phosphate	3.216	3.406	3.343	3.396	3.115	3.295	3.82
4) S	Diphenyl phosphate-TM	0.826	0.733	0.673	0.559	0.272	0.613	34.89
5)	Octachloronaphthlene	1.099	1.192	1.251	1.205	1.377	1.225	8.29

(#) = Out of Range

90517TBP.M

Thu Jun 03 16:54:52 1999

HNF-4598 Rev. 0

Compound List Report 5971 - VO

Method : C:\HPCHEM\2\METHODS\90517TBP.M
 Title :
 Last Update : Tue May 18 09:33:42 1999
 Response via : Initial Calibration
 Total Cpnds : 5

PK#	Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	p,p'-DDE	246	19.62	1.000	L	2	A	B
2	Dibutyl phosphate-TMSE	155	11.84	0.604	A	2	A	B
3	Tributyl phosphate	99	13.59	0.693	A	2	A	B
4 S	Diphenyl phosphate-TMSE	213	17.43	0.888	L	2	A	B
5	Octachloronaphthlene	404	27.15	1.384	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin

#Qual = number of qualifiers

A/H = Area or Height

ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

90517TBP.M

Thu Jun 03 16:59:35 1999

HNF-4598 Rev. 0

HP5971 Standard Spectra AutoTune

Instrument: 5971 - VOA

Mon May 17 11:08:35 1999

C:\HPCHEM\1\5971\ATUNE.U

Scan: 10.00 - 650.00 Samples: 16 Thresh: 150 Step: 0.10
91 peaks Base: 69.05 Abundance: 256896

Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	256896	100.00	70.05	2916	1.14
219.00	124952	48.64	220.00	5784	4.63
502.05	9009	3.51	503.05	945	10.49

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\90517TBP\V9051711.D
Acq On : 17 May 99 6:34 pm
Sample : VS006-485-P017
Misc :
Quant Time: May 18 9:42 1999

Vial: 11
Operator: Bonfoey
Inst : 5971 - VO
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\90517TBP.M
Title :
Last Update : Tue May 18 09:33:42 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
-----	-----	-----	-----	-----	-----	-----
1) p,p'-DDE	19.63	246	390943	50.00	ug/ml	0.02
System Monitoring Compounds						%Recovery
4) Diphenyl phosphate-TMSE	17.43	213	748364	128.76	ug/ml	64.38%
Target Compounds						Qvalue
2) Dibutyl phosphate-TMSE	11.85	155	748	0.04	ug/ml#	66
3) Tributyl phosphate	13.60	99	1704	0.07	ug/ml#	88
5) Octachloronaphthlene	27.17	404	1416459	147.90	ug/ml	98
-----	-----	-----	-----	-----	-----	-----

(#) = qualifier out of range (m) = manual integration
V9051711.D 90517TBP.M Wed May 26 07:57:25 1999

HNF-4598 Rev. 0

File : C:\HPCHEM\1\DATA\90517TBP\V9051711.D
Operator : Bonfoey
Acquired : 17 May 99 6:34 pm using AcqMethod 90517TBP
Instrument : 5971 - VO
Sample Name: VS006-485-P017
Misc Info :
Vial Number: 11

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\90517TBP\V9051712.D
Acq On : 17 May 99 7:11 pm
Sample : VS006-488-P018
Misc :
Quant Time: May 18 9:43 1999

Vial: 12
Operator: Bonfoey
Inst : 5971 - VO
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\90517TBP.M
Title :
Last Update : Tue May 18 09:33:42 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) p,p'-DDE	19.62	246	445359	50.00	ug/ml	0.00

System Monitoring Compounds						%Recovery
4) Diphenyl phosphate-TMSE	17.44	213	851025	128.54	ug/ml	64.27%

Target Compounds						Qvalue
2) Dibutyl phosphate-TMSE	11.83	155	54	0.00	ug/ml#	1
3) Tributyl phosphate	13.61	99	6189	0.21	ug/ml#	91
5) Octachloronaphthlene	27.17	404	1656356	151.82	ug/mlm	43

(#) = qualifier out of range (m) = manual integration
V9051712.D 90517TBP.M Wed May 26 07:57:58 1999

File : C:\HPCHEM\1\DATA\90517TBP\V9051712.D
Operator : Bonfoey
Acquired : 17 May 99 7:11 pm using AcqMethod 90517TBP
Instrument : 5971 - VO
Sample Name: VS006-488-P018
Misc Info :
Vial Number: 12

HNF-4598 Rev. 0
Quantitation Report

Data File : C:\HPCHEM\1\DATA\90517TBP\V9051713.D
Acq On : 17 May 99 7:48 pm
Sample : VSAMB-404-P019
Misc :
Quant Time: May 18 9:44 1999

Vial: 13
Operator: Bonfoey
Inst : 5971 - VO
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\90517TBP.M
Title :
Last Update : Tue May 18 09:33:42 1999
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) p,p'-DDE	19.64	246	510912	50.00	ug/ml	0.02

System Monitoring Compounds					%Recovery
4) Diphenyl phosphate-TMSE	17.44	213	844127	111.71	ug/ml 55.86%

Target Compounds					Qvalue
2) Dibutyl phosphate-TMSE	11.84	155	742	0.03	ug/ml# 91
3) Tributyl phosphate	13.60	99	38296	1.14	ug/ml 98
5) Octachloronaphthlene	27.19	404	1511460	120.76	ug/ml# 74

(#) = qualifier out of range (m) = manual integration
V9051713.D 90517TBP.M Wed May 26 08:00:43 1999

File : C:\HPCHEM\1\DATA\90517TBP\V9051713.D
Operator : Bonfoey
Acquired : 17 May 99 7:48 pm using AcqMethod 90517TBP
Instrument : 5971 - VO
Sample Name: VSAMB-404-P019
Misc Info :
Vial Number: 13

3.0 References

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3.0 REFERENCES

- LMHC, 1999, *Waste Retrieval Sluicing System Vapor Sampling and Analysis Plan for Evaluation of Organic Emissions, Process Test Phase III*, HNF-4212, Rev. 0-A, Lockheed Martin Hanford Corporation, Richland, Washington.
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		ECN No.			

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