

Lockheed
Environmental Systems & Technologies Co.

Lockheed Analytical Services
975 Kelly Johnson Drive
Las Vegas, Nevada 89119-3705

Phone: (800) 582-7605
Fax: (702) 361-8146

May 9, 1995

Ms. Joan Kessner
Bechtel Hanford, Inc.
345 Hills
P.O. Box 969
Richland, WA 99352



RE: Log-in No.:	L4209
Quotation No.:	Q400000-B
SAF:	B95-039
Document File No.:	0406596
WHC Document File No.:	207
SDG No.:	LK4209

The attached data report contains the analytical results of samples that were submitted to Lockheed Analytical Services on 6 April 1995.

The temperature of the cooler upon receipt was 5°C. Sample containers received agree with the chain-of-custody documentation. Sample containers were received intact. The vials for volatile analyses did not contain headspace. Samples were received in time to meet the analytical holding time requirements.

The case narratives included in the following attachments provide a detailed description of all events that occurred during sample preparation, analysis, and data review specific to the samples and analytical methods requested.

A list of data qualifiers, chain-of-custody forms, sample receiving checklist, and log-in report are also enclosed representing the samples received within this group.

If you have any questions concerning the analysis or the data please call Kathleen Hall at (509) 943-4423.

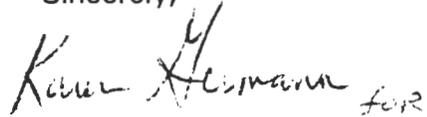
Lockheed Analytical Services

Log-in No.: L4209
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SDG No.: LK4209
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Release of this data report has been authorized by the Laboratory Director or the Director's designee as evidenced by the following signature.

" I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manger or a designee, as verified by the following signature."

Sincerely,

Handwritten signature of Kathleen M. Hall in cursive script, followed by the word "for" in a smaller, less legible script.

Kathleen M. Hall
Client Services Representative

cc: Client Services
Document Control

Lockheed Analytical Services

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CASE NARRATIVE INORGANIC NON METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

- One water sample was received for LK4209 and prepared as batch 406bh and analyzed for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOF6X2	L4209-2	MS, DUP	300.0 Nitrate-N

Holding Time Requirements

- All samples were analyzed within the specified holding time.

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Kay McCann

April 7, 1995

Prepared By

Date

000005

Lockheed Analytical Services

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**CASE NARRATIVE
ORGANIC ANALYSES**

Analytical Method 8240 Volatiles

NOTE: The initial calibration for this group of samples did not have the compound 2-Chloroethylvinylether in the low standard VSTD020, therefore, only a 4 point calibration was used for 2-Chloroethylvinylether.

Analytical Batch 041495-8260-E1

The samples were analyzed within the required holding time on April 14, 1995. All associated tunes, initial and continuing calibrations met criteria. Target compound Acetone and one Tentatively Identified Compound (TIC) were detected in the Method Blank (MB). All associated samples with a detected target compound and TIC as in the MB were flagged with the Qualifier B. Surrogate recoveries were within QC limits. Compound recoveries were within QC limits in the Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Laboratory Control Sample (LCS). The Relative Percent Differences (RPDs) between the MS and MSD recoveries were within QC limits. All internal standard area counts and retention times were within QC limits.

Prepared By
Patricia Lonergan

May 9, 1995

Lockheed Analytical Services
DATA QUALIFIERS FOR INORGANIC ANALYSES

[Revised 08/28/92]

For Use on the Analytical Data Reporting Forms	
B	<i>For CLP Analyses Only</i> – Reported value is less than the contract required detection limit (CRDL) but greater than or equal to the instrument detection limit (IDL).
C	<i>For Routine, Non-CLP Analyses Only</i> – Any constituent that was also detected in the associated blank whose concentration was greater than the reporting detection limit (RDL).
D	Presence of high levels of interfering constituents required dilution of sample which increased the RDL by the dilution factor.
E	Estimated value due to presence of interference.
H	Sample analysis performed outside of method-or client-specified maximum holding time requirement.
M	<i>For CLP Analyses Only</i> – Duplicate injection precision criterion was not met.
N	Matrix spike recovery exceeded acceptance limits.
S	Reported value was determined from the method of standard addition.
U	<i>For CLP Reporting Only</i> – Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
W	<i>For AAS Only</i> – Post-digestion spike for Furnace AAS did not meet acceptance criteria and sample absorbance is less than 50% of spike absorbance.
X, Y, or Z	Analyst-defined qualifier.
*	Relative percent difference (RPD) for duplicate analysis exceeded acceptance limits.
+	Correlation coefficient (r) for the MSA is less than 0.995.
For Use on the QC Data Reporting Forms	
a¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC summary form.

DATA QUALIFIERS FOR ORGANIC ANALYSES

[Revised 04/12/1995]

For Use On The Analytical Data Reporting Forms	
A	<i>For CLP analyses Only</i> – The TIC is a suspected aldol-condensation product.
B	Any constituent that was also detected in the associated blank whose concentration was greater than the practical or reporting detection limit (PQL or RDL).
C	Constituent confirmed by GC/MS analysis. [<i>pesticide/PCB analyses only</i>]
D	Constituent detected in the diluted sample. It also indicates that an accurate quantitation is not possible due to <u>surrogates</u> being diluted out of the samples during the course of the analysis.
E	Constituent concentration exceeded the calibration range.
G	The quantitation is not gasoline or diesel but believed to be some other combination of hydrocarbons.
H	Sample analysis performed outside of method- or client-specified maximum holding time requirement.
J	<i>Estimated value</i> – (1) constituent detected at a level less than the RDL or PQL and greater than or equal to the MDL; (2) estimated concentration for TICs (<i>For CLP Reporting Only</i>).
N	<i>For CLP Reporting Only</i> – Tentatively identified constituents (TICs) identified based on mass spectral library search.
P	<i>For CLP Reporting Only</i> – The percent difference between the concentrations detected on both GC columns was greater than 25 percent [<i>pesticide/PCB analyses only</i>].
U	<i>For CLP Reporting Only</i> – Constituent was analyzed for but not detected (sample quantitation must be corrected for dilution and percent moisture).
X, Y, or Z	Analyst-defined qualifier.
N/A (% Moisture)	N/A in the % moisture cell indicates that data are reported on an "as received" basis. A value in the % moisture cell indicates that data are reported based on a "dry weight" basis.
For Use On The QC Data Reporting Forms	
*	QC data (i.e., percent recovery data for matrix spike, matrix spike duplicate, laboratory control standard, or surrogates; and RPD for matrix spike duplicate or unspiked duplicate) exceeded acceptance limits.
a ¹	The spike recovery and/or RPD for matrix spike and matrix spike duplicates cannot be evaluated due to insufficient spiking level compared to the elevated sample analyte concentration.
b ¹	The RPD cannot be computed because the sample and/or duplicate concentration was below the RDL.

¹ Used as footnote designations on the QC Summary Form.

9613446.2022

Sample Disposition Record

Control #: 95-00286 *nd 4/7/95*
Revision #:
Date Initiated: 04/07/95

Section 1 - BACKGROUND

SAF #: B95-039
OU: 200-ZP-1
Project ID: 200-ZP-1 SAP
Task ID: 4
Sampling Event: 200-ZP-1 Point of Compliance Wells - March 1995
Laboratory: Lockheed
Project Coordinator: R. C. Smith
Task Manager: J. R. Freeman-Pollard

Section 2 - SAMPLE INFORMATION

Number of Samples: *82 nd 4/7/95*
ID Numbers: B0F6X2, B0F6X3
Matrix: Water
Collection Date: 03/31/95, 04/04/95

Section 3 - ISSUE

Class: Lab Direction
NCR Number: N/A
Type: Inconsistent Sample Documentation
Description: An incorrect SAF number (B95-034) was put on the COCs.

N/A

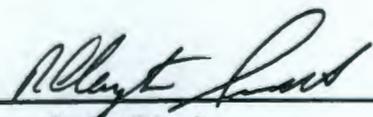
NCR Validation (Print/Sign)

Date

Section 4 - DISPOSITION

Type: Use As Is
Description: The lab has been notified and analytical work will be performed according to SAF B95-039.

R. C. Smith/

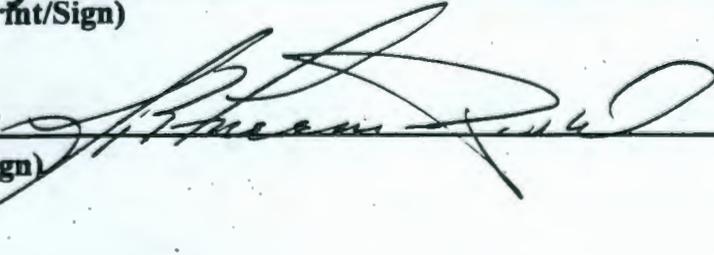


4/7/95

Project Coordinator (Print/Sign)

Date

J. R. Freeman-Pollard/



4/19/95

Task Manager (Print/Sign)

Date

N/A

QA (Print/Sign)

Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number:
Inspection Results:

N/A

Inspector (Print/Sign)

Date

FROM THE DESK OF:

**R. L. WEISS
SAMPLE & DATA MANAGEMENT
372-2695/H4-14**

**TO: K. M. Hall
Lockheed**

DATE: April 6, 1995

SUBJECT: INCORRECT SAF NUMBER ON CHAIN-OF-CUSTODY

Samples received this morning at the laboratory (B0F6X2 & B0F6X3) identified SAF# B95-034 on the Chain-of-Custody (COC). Lockheed is not included in this SAF# as a laboratory to perform analysis. The project identified on the COC was 200-ZP-1 Point of Compliance Wells. The sample numbers and project title match those assigned to SAF# B95-039. The SAF# on the COC is in error and should be B95-039.

9613446.2024

LOGIN CHAIN OF CUSTODY REPORT (ln01)
Apr 06 1995, 12:21 pm

Login Number: L4209
Account: 596 Bechtel Hanford, Inc. * Richland, WA
Project: BECHTEL-HANFORD Bechtel Hanford Project

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
L4209-1 temp 5; SAF# B95-039 Location: 157 Water 1 S SCREENING	B0F6X2	04-APR-95	06-APR-95	11-MAY-95
		Hold:01-OCT-95		
L4209-2 temp 5; SAF# B95-039 Location: 156RAD2-02 Water 1 S 300.0 NITRATE	B0F6X2	04-APR-95	06-APR-95	11-MAY-95
		Hold:06-APR-95		
L4209-3 temp 5; SAF# B95-039 Location: 156RAD2-02 Water 1 S 8240 VOLATILES	B0F6X2	04-APR-95	06-APR-95	11-MAY-95
		Hold:18-APR-95		
L4209-4 temp 5; SAF# B95-039 Location: 156RAD2-02	B0F6X2	04-APR-95	06-APR-95	11-MAY-95
L4209-5 temp 5; SAF# B95-039 Location: 156RAD2-02	B0F6X2	04-APR-95	06-APR-95	11-MAY-95
L4209-6 temp 5; SAF# B95-039 Location: 156RAD2-02 Water 1 S 8240 VOLATILES	B0F6X3	04-APR-95	06-APR-95	11-MAY-95
		Hold:18-APR-95		
L4209-7 temp 5; SAF# B95-039 Location: 156RAD2-02	B0F6X3	04-APR-95	06-APR-95	11-MAY-95
L4209-8 temp 5; SAF# B95-039 Location: 156RAD2-02	B0F6X3	04-APR-95	06-APR-95	11-MAY-95
L4209-9 Location: Water 1 S EDD - DISK DEL. Water 1 S GCMS2 Water 1 S INORG TYPE 2 RPT	REPORT TYPE	06-APR-95	06-APR-95	11-MAY-95

Page 1

Signature: Date:

000012

CYCLO546

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L4209

Data Turnaround
 Priority
 Normal

Collector <i>K. Lee</i>	Company Contact J.R. Freeman-Pollard	Telephone (509) 376-1882
Project Designation 200-ZP-1 Point of Compliance Wells - March 1995	Sampling Location 200 West	SAF No. B95-034
Ice Chest No. <i>SML-114</i>	Field Logbook No. <i>ER-1123</i>	Method of Shipment Hand Delivered
Shipped To Lockheed	Offsite Property No. <i>W95-0-0204-23</i>	Bill of Lading/Air Bill No. <i>2904624387</i>

Possible Sample Hazards/Remarks	Preservation	HCI	Cool 4C	Cool 4C	HCI
	Type of Container	Gs	G	P	Gs
Special Handling and/or Storage Maintain between 2 C. and 6 C.	No. of Container(s)	3	1	1	3
	Volume	40mL	500mL	20mL	40mL
SAMPLE ANALYSIS	VOA-TCL CCI4, Chloro- form, TCE	Anions-IC NO3	Activity Scan	VOA-TCL CCI4, Chloro- form, TCE	

Sample No.	Matrix*	Date Sampled	Time Sampled	VOA-TCL	Anions-IC	Activity	VOA-TCL
BOF6X2	W	4-4-95	1100	X	X	X	
BOF6X3	W	4-4-95	1102				X

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS			Matrix*
Relinquished By <i>K. Lee</i>	Date/Time <i>4-4-95 1310</i>	Received By <i>Eric</i>	Date/Time <i>4-4-95</i>	Data Deliverable Summary			S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By <i>Eric</i>	Date/Time <i>0900</i>	Received By <i>B. Whitton</i>	Date/Time <i>4-4-95</i>	Sample analysis for nitrate by EPA 300.0 is being requested for information only. The BHI Contractor acknowledges the 48-hour holding time will not be met.			
Relinquished By <i>B. Whitton</i>	Date/Time <i>4-5-95</i>	Received By	Date/Time				
Relinquished By	Date/Time	Received By	Date/Time	The Activity Scan is for all samples listed on this chain of custody.			

LABORATORY SECTION	Received By <i>MM</i>	Title <i>Sample Custodian</i>	Date/Time <i>4-6-95 0905</i>
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

000013071054

9615446-2025

9613446.2026

SAMPLE STATUS REPORT FOR N 5052. RAD SCREEN 69934-88 TIME: 4/ 5/95 7:59
DISPATCHED: 3/14/95 15: 6 SAMPLE HAS NOT BEEN SLURPED.
RECEIVED: 4/ 4/95 14:56

EXT. DETER. RESULTS OR STATUS
**** *****
4271 TOT-ACT < 5.00000E 01 pCi/G

OUT OF GOOD CHARGE
RANGE? ANS? CODE
*** **
N Y XR5135

END OF REPORT

BOFGX2
BOFGX3
BW
4-5-95

000014

C40654

9613446.2027

MESSAGE CONFIRMATION

NO. = 581

04/06/95 11:52

ID=LOCKHEED LAB SAMPLE RECEIVING

TIME	S,R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT
11:48	04'17"	5099434218	G3 -S	05	OK 0000

000015

0406590

9613446.2028

MESSAGE CONFIRMATION

CON NO. = 580

04/06/95 08:20

ID=LOCKHEED LAB SAMPLE RECEIVING

	TIME	S,R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT	
3	08:19	01'06"	5099434218	G3 -S	01	OK	0000

000016

04106590

L4209

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 4-6-95 / 0905 Client Name Washinghouse
 Project/Client # _____ Batch or Case # 095-039
 Cooler ID (if noted on outside of cooler) SMU-114

1. Condition of shipping container? good
2. Custody Seals on cooler intact? Yes No []
3. Custody Seals dated and signed? Yes No []
4. Chain of Custody record is taped on inside of cooler lid? Yes No []
5. Vermiculite/packing material is: Wet [] Dry _____
6. Each sample is in a plastic bag? Yes No [] _____
7. Number of sample containers in cooler: 8
8. Samples have: Y tape _____ hazard labels
X custody seals Y appropriate sample labels
9. Samples are: X in good condition _____ leaking
 _____ broken _____ have air bubbles
 _____ other
10. Coolant Present? Yes No [] Sample Temperature 5°C
11. The following paperwork should be accounted for (N/A if not applicable):
 Chain of Custody #(s) N/A
 Request for Analysis #(s) NA
 Airbill # 290 4624 387 Carrier FedEx
12. Have any anomalies been identified above? Yes [] No [] N/A
13. Memos have been initiated for all anomalies identified above? Yes [] N/A

Printed Name/Signature Anthony Miller Date/Time 4-6-95 / 0905

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: Westinghouse

Job No. L4209

Cooler ID:

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt: 5°C
temperature of temp. blank upon receipt:

	Yes	No	* Comments/Discrepancies
custody seals intact	X		
chain of custody present	X		
blue ice (or equiv.) present/frozen	X		
rad survey completed	X		

SAMPLE CONDITION UPON RECEIPT

	Yes	No	* Comments/Discrepancies
all bottles labeled	X		
samples intact	X		
proper container used for sample type	X		
sample volume sufficient for analysis	X		
proper pres. indicated on the COC	X		
VOA's contain headspace		X	
are samples bi-phasic (if so, indicate sample ID'S):			<u>na</u>

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	X		<u>None</u>
samples to subcontract		X	

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: MM/llh 4-6-95

Sent to the client (date/initials): MM/llh ** Client's signature upon receipt:

Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt
** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146

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000020

24006540

9613446.2031

Lockheed Analytical Laboratory
SAMPLE SUMMARY REPORT (su02)
Bechtel Hanford, Inc. * Richland, WA

Client Sample Number	LAL Sample Number	SDG Number	Matrix	Method
BOF6X2 -	L4209-1		Water	SCREENING
	L4209-2		Water	300.0 NITRATE
	L4209-3		Water	8240 VOLATILES
BOF6X3 -	L4209-6		Water	8240 VOLATILES
REPORT TYPE -	L4209-9		Water	EDD - DISK DEL.
	L4209-9		Water	GCMS2
	L4209-9		Water	INORG TYPE 2 RPT

000021

C40659

9613446.2032

LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0F6X2	Date Collected: 04-APR-95
Matrix: Water	Date Received: 06-APR-95

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Nitrate-N	mg/L	300.0	5.5	0.02		06-APR-95	21372	L4209-2

000023

LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

Client Sample ID:	B0F6X2	LAL Sample ID:	L4209-3
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
Matrix:	Water	Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(s)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	9.9	10.	BJ
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

9613446.2034

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X2	LAL Sample ID: L4209-3
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

000039

9613446.2035

LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILESClient Sample ID: B0F6X3
Date Collected: 04-APR-95
Date Analyzed: 14-APR-95
Matrix: WaterLAL Sample ID: L4209-6
Date Received: 06-APR-95
Analytical Dilution: 1
Analytical Batch ID: 041495-8260-E1
Preparation Dilution: 1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	109	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL	DATA
			QUANTITATION LIMIT ug/L	QUALIFIER(s)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	12.	10.	B
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

000040

9613446.2036

VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X3	LAL Sample ID: L4209-6
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

000041

LOCKHEED ANALYTICAL SERVICES

VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Method Blank	LAL Sample ID:	21687MB
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	102	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	111	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	7.4	10.	J
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

000042

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VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: METHOD BLANK	LAL Sample ID: 21687MB
Date Received: N/A	Date Analyzed: 14-APR-95
Analytical Batch: 041495-8260-E1	Analytical Dilution Factor: 1

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
UNKNOWN	20	7.35	J

000043

9613446.2039

LOCKHEED ANALYTICAL SERVICESSPIKED SAMPLE RESULT
VOLATILE ORGANICS BY GC/MSClient Sample ID: BOF6X2
Date Collected: 04-APR-95
Date Analyzed: 14-APR-95LAL Sample ID: 21687MS
Date Received: 06-APR-95
Analytical Dilution: 1
Analytical Batch ID: 041495-8260-E1
Preparation Dilution: 1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	8.8	10.	BJ
1,1-Dichloroethene	75-35-4	50.	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	51.	5.0	
Trichloroethene	79-01-6	44.	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	52.	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	49.	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

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LOCKHEED ANALYTICAL SERVICESSPIKED SAMPLE RESULT
VOLATILE ORGANICS BY GC/MSClient Sample ID: BOF6X2
Date Collected: 04-APR-95
Date Analyzed: 14-APR-95LAL Sample ID: 21687MSD
Date Received: 06-APR-95
Analytical Dilution: 1
Analytical Batch ID: 041495-8260-E1
Preparation Dilution: 1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	104	88-110
Bromofluorobenzene	106	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	8.8	10.	BJ
1,1-Dichloroethene	75-35-4	51.	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	54.	5.0	
Trichloroethene	79-01-6	46.	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	55.	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	53.	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

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9613446.2041

LOCKHEED ANALYTICAL SERVICESSPIKED SAMPLE RESULT
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Lab Ctrl Sample	LAL Sample ID:	21687LCS
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	98	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	10.	10.	B
1,1-Dichloroethene	75-35-4	49.	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	52.	5.0	
Trichloroethene	79-01-6	44.	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	53.	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	50.	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

000046

9613446.2042

LOCKHEED ANALYTICAL SERVICESMATRIX SPIKE DATA SUMMARY
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	BOF6X2	LAL Sample ID:	21687MS
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

Constituent	Spike Added ug/L	Sample Concentration ug/L	MS Concentration ug/L	% Recovery	QC Limits
					% Recovery
1,1-Dichloroethene	50.0	0.000	49.5	99	62-124
Benzene	50.0	0.000	51.5	103	67-127
Trichloroethene	50.0	0.000	43.6	87	60-120
Toluene	50.0	0.000	51.8	104	72-132
Chlorobenzene	50.0	0.000	49.4	99	68-128

000047

9613446.2043

LOCKHEED ANALYTICAL SERVICESMATRIX SPIKE DUPLICATE DATA SUMMARY
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	BOF6X2	LAL Sample ID:	21687MSD
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	104	88-110
Bromofluorobenzene	106	86-115

Constituent	Spike Added ug/L	MSD Concentration ug/L	% Recovery	RPD	QC Limits	
					RPD	% Recovery
1,1-Dichloroethene	50.0	51.5	103	4	14	62-124
Benzene	50.0	54.2	108	5	11	67-127
Trichloroethene	50.0	45.9	92	6	14	60-120
Toluene	50.0	54.6	109	5	13	72-132
Chlorobenzene	50.0	53.4	107	8	13	68-128

000048

9613446.2044

LOCKHEED ANALYTICAL SERVICESLCS DATA SUMMARY
VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Lab Ctrl Sample	LAL Sample ID:	21687LCS
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	98	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

Constituent	Spike Added ug/L	LCS Concentration ug/L	LCS % Recovery	QC Limits
1,1-Dichloroethene	50.0	49.2	98	62-124
Benzene	50.0	51.9	104	67-127
Trichloroethene	50.0	43.6	87	60-120
Toluene	50.0	53.0	106	72-132
Chlorobenzene	50.0	50.2	100	68-128

000049

LOCKHEED ANALYTICAL SERVICES

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Instrument ID: GC/MS-E

Date/Time Analyzed: 14-APR-95 09:09
LAL Batch ID: 041495-8260-E1

		IS1 (PFB) Area	RT	IS2 (DFB) Area	RT	IS3 (CBZ) Area	RT	IS4 (DCB) Area	RT
12 HOUR STD		93009	9.94	180122	11.02	170056	14.94	105345	19.38
UPPER LIMIT		186018	10.44	360244	11.52	340112	15.44	210690	19.88
LOWER LIMIT		46504	9.44	90061	10.52	85028	14.44	52672	18.88
Client Sample ID	LAL Sample ID								
Method Blank	21687MB	89521	9.93	173921	11.02	162572	14.94	97786	19.37
BOF6X2	21687MS	94728	9.94	179825	11.02	169347	14.94	103348	19.37
BOF6X2	L4209-3	99376	9.93	186966	11.02	175110	14.93	108694	19.37
BOF6X3	L4209-6	81272	9.93	156440	11.02	145287	14.94	89847	19.37
056E08501	L4260-1	82047	9.93	156415	11.02	145814	14.94	89032	19.38
Lab Ctrl Sample	21687LCS	94636	9.93	181673	11.01	170113	14.94	103623	19.37
BOF6X2	21687MSD	90074	9.93	169560	11.02	155715	14.94	94814	19.37
A555004	L4263-25	79007	9.93	148169	11.03	135853	14.95	79418	19.37
056E08501	21687MS_1	83456	9.93	157293	11.02	144470	14.94	86896	19.38
056E08501	21687MSD_1	87077	9.94	163415	11.02	151353	14.95	89325	19.37

9613446-2015

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area
 RT UPPER LIMIT = +0.50 minutes of internal standard RT
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

IS1 (PFB) = Pentafluorobenzene
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5
 IS4 (DCB) = 1,4-Dichlorobenzene-d4

000050

DATA VALIDATION REPORT
for
200-ZP-1 Point of Compliance Wells
March 1995
General Chemistry Analysis
SDG LK4209-LAS
LATA VB403.69

Bechtel Hanford Inc.
P.O. Box 969
Richland, Washington

July 17, 1995

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Supplemental Information	000026
END OF PACKAGE	000028

200-ZP-1 Point of Compliance Wells - March 1995
Data Validation Narrative

INTRODUCTION

All samples in Sample Delivery Group (SDG) LK4029-LAS (VB 403.69) were validated at level "C" as defined in the Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002, Rev. 2).

The analysis was performed by Lockheed Analytical Services.

ANALYSES REQUESTED

See Table 1.

DATA QUALITY OBJECTIVES

Precision:	Goals for precision were met.
Accuracy:	Goals for accuracy were met.
Sample Result Verification:	Not applicable to summary data packages which contain no raw data.
Detection Limits:	Detection limit goals were met for all sample results as specified in the <i>200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan</i> , BHI-00038, Rev. 1.
Completeness:	The data package was 100% complete for all requested analyses.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of data as unusable.

9613446.2049

Table 1
Chain-of-Custody
Analysis Request

LATA ID #: VB403.69

SDG: LK4209-LAS

Sample Information							Analyses Requested		
SAMPLE NO.	DATE COLLECTED	MATRIX	SAF	SAMPLING LOCATION	FIELD QC INFO	TEMP °C	1	2	3
B0F6X2	4-Apr-95	WATER	B95-039	699-34-88	Split of B0F6W8	5	X	X	X

Method References:

<u>Analysis</u>	<u>Method</u>
1. Anions (NO ₃)	300.0
2. Activity Scan	Lab Specific
3. Rad Screen (222-S)	Lab Specific

NOTES:

1. ROD 95-0026: An incorrect SAF number was put on the COC. The lab was instructed to perform the analyses by SAF B95-039.
2. Split sample field QC results are evaluated in this report, however, sample B0F6W8 is validated in SDG W0506-QES.

REFERENCES

WHC 1993, *Data Validation Procedures for Chemical Analyses*, WHC-SD-EN-SPP-002, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

BHI 1995, *200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan*, BHI-00038 Rev. 1, Bechtel Hanford, Inc., Richland, Washington.

GLOSSARY OF VALIDATION APPLIED QUALIFIERS (CHEMISTRY)

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows.

- U- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ- Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a QC deficiency identified during data validation, the associated quantitation limit is an estimate.
- J- Indicates the compound or analyte was analyzed for and detected. The associated concentration is an estimate, but the data are usable for decision making purposes.
- BJ- Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R- Indicates the compound or analyte was analyzed for, detected, and due to an identified QC deficiency the data are unusable.
- UR- Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data are unusable due to an identified QC deficiency.

GLOSSARY OF LABORATORY APPLIED QUALIFIERS

Qualifiers which may be applied by the laboratory in compliance with applicable requirements are as follows.

Commonly used laboratory general chemistry qualifiers:

U- Indicates the analyte was analyzed for but not detected in the sample.

9613446.2053

Qualification Summary Table

9613446.2054

QLS GNC

General Chemistry

ANALYTE	TYPE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
No qualifiers were added by the validator					

General Chemistry Field QC

ANALYTE	TYPE	QUALIFIER	FIELD QC SAMPLES	DQO	ASSESSMENT
Nitrate	FIELD QC	NONE	B0F6W8/B0F6X2	PRECISION	Field split precision is acceptable.

Comments:

Data qualification is not required based on field split precision, however field split results are noted here to alert the data user to uncertainties in the data set during decision making processes.

9613446.2055

Data Summary Table

9613446.0000
GENERAL CHEMISTRY
DATA SUMMARY TABLE

LATA ID#: VB403.69		HEIS #:	B0F0X2	
		Date:	4-Apr-95	
		Matrix:	WATER	
Constituent	CAS #	Units	Results	Q
Nitrate by IC	14797-55-8	mg/L	5.5	

9613446.2057

Sample Results (Form I's)

9613446.2058

LOCKHEED ANALYTICAL SERVICES

COMMON IONS AND ADDITIONAL ANALYTES

Sample Results

Client Sample ID: B0F6X2	Date Collected: 04-APR-95
Matrix: Water	Date Received: 06-APR-95

Constituent	Units	Method	Result	Reporting Det Limit	Data Qualifier(s)	Date Analyzed	LAS Batch ID	LAS Sample ID
Nitrate-N	mg/L	300.0	5.5	0.02		06-APR-95	21372	L4209-2

bis 7-7-95

000012 ~~000023~~

9613446.2059

Checklist

9613446-0069
**LATA GENERAL CHEMISTRY
 DATA VALIDATION CHECKLIST**

VALIDATION LEVEL:	A	B	C	D	E
VALIDATION PROCEDURE:	<input type="checkbox"/> WHC-CM-5-3, Rev. 0		<input checked="" type="checkbox"/> WHC-SD-EN-SPP-002, Rev. 2		
PROJECT:	200-ZP-1		SDG:	LK4209-LAS	
VALIDATOR:	BJ SEYMOUR <i>by 7-17-95</i>	LATA NO:	VB403.69	DATE:	7-Jul-95
REVIEWER:	BJ MORRIS <i>BM 7-17-95</i>	LAB:	LAS	CASE:	N/A
SAF NO:	B95-039	QAPP NO:	BHI-00038, R1	SAP NO:	N/A

ANALYSES REQUESTED

<input checked="" type="checkbox"/>	Nitrate 300.0	
SAMPLE NO.	MATRIX	COMMENTS:
B0F6X2	WATER	ROD 95-0026: An incorrect SAF was put on the COC. The lab was instructed to perform the analyses according to SAF B95-039.

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present?	YES	NO	N/A
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is a case narrative present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. HOLDING TIMES

Are sample holding times acceptable?	YES	NO	N/A
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

See **HOLDING TIME SUMMARY** form

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments?	YES	NO	N/A
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are initial calibrations acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Were calibration checks performed on all instruments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are calibration checks acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Validation calculation checks were performed and are acceptable.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If **NO(s)** are checked, see **CALIBRATION DATA SUMMARY** form

4. BLANKS

YES NO N/A

Were laboratory blanks performed for all applicable analyses?

Are laboratory blank results acceptable?

Were preparation blanks analyzed?

Are preparation blank results acceptable?

If NO(s) are checked, see BLANK AND SAMPLE DATA SUMMARY form

5. ACCURACY

YES NO N/A

Were spike samples analyzed at the proper frequency?

Are all spike sample recoveries acceptable?

Were laboratory control samples (LCS) analyzed at the proper frequency?

Are all LCS recoveries acceptable?

Validation calculation checks were performed and are acceptable.

If NO(s) are checked, see ACCURACY DATA SUMMARY form

6. PRECISION

YES NO N/A

Were laboratory duplicates analyzed at the proper frequency?

Are all duplicate RPD values acceptable?

Were MS/MSDs analyzed?

Are all MS/MSD RPD values acceptable?

Validation calculation checks were performed and are acceptable.

If NO(s) are checked, see PRECISION DATA SUMMARY form

7. FIELD QC SAMPLES

YES NO N/A

Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified?

Are field/trip blank results acceptable? (see Blank Data Summary form)

Are field duplicate RPD values acceptable? (see Field QC calculations)

Are field split RPD values acceptable? (see Field QC calculations)

Are performance audit sample results acceptable?

Comments: BF06X2 is a field split of B0F6W8 B0F6W8 is validated in VB 403.68 (W0506-QES).

8. ANALYTE QUANTITATION

YES NO N/A

Was analyte quantitation performed properly?

Are results calculated properly?

Validation calculation checks were performed and are acceptable.

Comments:

9. REPORTED RESULTS AND DETECTION LIMITS

YES NO N/A

Are results reported for all requested analyses?

Are all results supported in the raw data?

Do results meet the CRDLs?

Validation calculation checks were performed and are acceptable.

Comments:

VALIDATION SUMMARY

For deficiencies (major and minor) and comments, please refer to the Qualification Summary Table.

HOLDING TIME SUMMARY

SDG: LK4209-LAS			VALIDATOR: BJ SEYMOUR					DATE: 07-Jul-95		
PROJECT: 200-ZP-1			REVIEWER: BJ MORRIS					LATA NO.: VB403.69		
HEIS-SN	MATRIX CODE	ANALYSIS	DATE COLLECTED	PREP DATE	ANALYSIS DATE	PREP HT (days)	Required HT (days)	ANALYSIS HT (days)	Required HT (days)	VAL Q
BOF6X2	WATER	Nitrate	4-Apr-95	N/A	06-Apr-95	N/A	N/A	2	2	NONE

000017

GENERAL CHEM FIELD SPLIT EVALUATION

LATA ID#: VB403.69		HEIS #:	B0F6W8	B0F6X2	RPD	DIF	DL
		Date:	4-Apr-95	4-Apr-95			
		Matrix:	WATER	WATER			
			ORIGINAL	SPLIT			
Constituent	CAS #	Units	Results	Q	Results	Q	
Nitrate by IC	14797-55-8	mg/L	5.98		5.50		0.02
					8.4%		

EVALUATION:

1. If both sample results are >5*DL the RPD is used for evaluation.
2. The results have exhibited acceptable precision.

9613446.2065

Laboratory Case Narrative

Lockheed Analytical Services

Log-in No.: L4209
 Quotation No.: Q400000-B
 SAF: B95-039
 Document File No.: 0406596
 WHC Document File No.: 207
 SDG No.: LK4209
 Page2

CASE NARRATIVE INORGANIC NON METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

- One water sample was received for LK4209 and prepared as batch 406bh and analyzed for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOF6X2	L4209-2	MS, DUP	300.0 Nitrate-N

Holding Time Requirements

- All samples were analyzed within the specified holding time.

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Kay McCann

April 7, 1995

Prepared By

Date

am
7-16-95

000005

000020

Lockheed Analytical Services

Log-in No.: L4209
Quotation No.: Q400000-B
SAF: B95-039
Document File No.: 0406596
WHC Document File No.: 207
SDG No.: LK4209
Page3

**CASE NARRATIVE
ORGANIC ANALYSES**

Analytical Method 8240 Volatiles

NOTE: The initial calibration for this group of samples did not have the compound 2-Chloroethylvinylether in the low standard VSTD020, therefore, only a 4 point calibration was used for 2-Chloroethylvinylether.

Analytical Batch 041495-8260-E1

The samples were analyzed within the required holding time on April 14, 1995. All associated tunes, initial and continuing calibrations met criteria. Target compound Acetone and one Tentatively Identified Compound (TIC) were detected in the Method Blank (MB). All associated samples with a detected target compound and TIC as in the MB were flagged with the Qualifier B. Surrogate recoveries were within QC limits. Compound recoveries were within QC limits in the Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Laboratory Control Sample (LCS). The Relative Percent Differences (RPDs) between the MS and MSD recoveries were within QC limits. All internal standard area counts and retention times were within QC limits.

Prepared By
Patricia Lonergan

May 9, 1995

u
7-16-95

000006

000021

Chain-of-Custody Information

Bechtel Hanford, Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

L4209

Data Turnaround

- Priority
- Normal

Collector <i>K. Lee</i>	Company Contact J.R. Freeman-Pollard	Telephone (509) 376-1882
Project Designation 200-ZP-1 Point of Compliance Wells - March 1995	Sampling Location 200 West	SAF No. B95-034
Ice Chest No. <i>SML-114</i>	Field Logbook No. <i>ER-1123</i>	Method of Shipment Hand Delivered
Shipped To Lockheed	Offsite Property No. <i>W95-0-0204-23</i>	Bill of Lading/Air Bill No. <i>2904624387</i>

Possible Sample Hazards/Remarks	Preservation	HCl	Cool 4C	Cool 4C	HCl				
	Type of Container	Gs	G	P	Gs				
	No. of Container(s)	3	1	1	3				
Special Handling and/or Storage Maintain between 2 C and 6 C.	Volume	40mL	500mL	20mL	40mL				

SAMPLE ANALYSIS				VOA-TCL CCI4, Chloro- form, TCE	Anions-IC NO3	Activity Scan	VOA-TCL CCI4, Chloro- form, TCE						
Sample No.	Matrix*	Date Sampled	Time Sampled										
BOF6X2	W	4-4-95	1100	X	X	X							
BOF6X3	W	4-4-95	1102				X						

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix*
Relinquished By <i>K. Lee</i>	Date/Time <i>4/4/95 1310</i>	Received By <i>J.R. Freeman-Pollard</i>	Date/Time <i>4-4-95</i>
Relinquished By <i>J.R. Freeman-Pollard</i>	Date/Time <i>0900</i>	Received By <i>K. Lee</i>	Date/Time <i>4-5-95</i>
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
LABORATORY SECTION	Received By <i>A.M. Ellis</i>	Title <i>Sample Custodian</i>	Date/Time <i>4-6-95 0905</i>
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

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00062

9613446.2070

SAMPLE STATUS REPORT FOR N 5052. RAD SCREEN 69934-88 TIME: 4/ 5/95 7:59
DISPATCHED: 3/14/95 15: 6 SAMPLE HAS NOT BEEN SLURPED.
RECEIVED: 4/ 4/95 14:56

EXT. DETER. RESULTS OR STATUS
**** *****
4271 TOT-ACT < 5.00000E 01 .pCi/G

OUT OF GOOD CHARGE
RANGE? ANS? CODE
*** **
N Y XR5135

END OF REPORT

BOFGX2
BOFGX3
BW
4-5-95

~~000014~~
7-16-98 7-16-95
000024 E-16-95

Lockheed Analytical Services Sample Receiving Checklist

Client Name: Westinghouse

Job No. L4209

Cooler ID:

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt:

5°C

temperature of temp. blank upon receipt:

	Yes	No	* Comments/Discrepancies
custody seals intact	X		
chain of custody present	X		
blue ice (or equiv.) present/frozen	X		
rad survey completed	X		

SAMPLE CONDITION UPON RECEIPT

Temperature of cooler upon receipt:

5°C

temperature of temp. blank upon receipt:

	Yes	No	* Comments/Discrepancies
all bottles labeled	X		
samples intact	X		
proper container used for sample type	X		
sample volume sufficient for analysis	X		
proper pres. indicated on the COC	X		
VOA's contain headspace		X	
are samples bi-phasic (if so, indicate sample ID'S):			<u>na</u>

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	X		<u>None</u>
samples to subcontract		X	

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: M. M. Smith 4-6-95

Sent to the client (date/initials):

** Client's signature upon receipt:

Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt.

** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146

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00002900020

MMS 7-6-95

9613446.2072

Supplemental Information

9613446.2073

Sample Disposition Record

Control #: 95-00286 *rev 4/7/95*
Revision #:
Date Initiated: 04/07/95

Section 1 - BACKGROUND

SAF #: B95-039
OU: 200-ZP-1
Project ID: 200-ZP-1 SAP
Task ID: 4
Sampling Event: 200-ZP-1 Point of Compliance Wells - March 1995
Laboratory: Lockheed
Project Coordinator: R. C. Smith
Task Manager: J. R. Freeman-Pollard

Section 2 - SAMPLE INFORMATION

Number of Samples: *62 rev 4/7/95*
ID Numbers: B0F6X2, B0F6X3
Matrix: Water
Collection Date: 03/31/95, 04/04/95

Section 3 - ISSUE

Class: Lab Direction
NCR Number: N/A
Type: Inconsistent Sample Documentation
Description: An incorrect SAF number (B95-034) was put on the COCs.

N/A

NCR Validation (Print/Sign) Date

Section 4 - DISPOSITION

Type: Use As Is
Description: The lab has been notified and analytical work will be performed according to SAF B95-039.

R. C. Smith/ *[Signature]* *4/7/95*
Project Coordinator (Print/Sign) Date

J. R. Freeman-Pollard/ *[Signature]* *4/10/95*
Task Manager (Print/Sign) Date

N/A

QA (Print/Sign) Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number:
Inspection Results:

N/A

Inspector (Print/Sign) Date

9613446.2074

END OF PACKAGE

9613446.2075



Los Alamos Technical Associates, Inc.

8633 Gage Blvd. / Kennewick, WA 99336 / Telephone (509) 783-4369 / FAX (509) 783-9661

July 17, 1995
LATA95-145

COPY



Ms. Joan Kessner
CH2M Hill
345 Hills
Richland, WA 99352

Subject: VB403.69, SDG LK4209-LAS

Dear Ms. Kessner:

Attached is the data validation report for analytical results for 200-ZP-1 Point of Compliance Wells - March 1995, (SDG LK4209-LAS). The package was received by Los Alamos Technical Associates on June 28, 1995.

If you have any questions, please let me know.

Sincerely,

Marsha C. Webb

Marsha C. Webb
Deputy Project Manager

Attachment

cc: Jeanette Duncan, CH2M Hill
VB403.69
MCW/lb

In

9613446.2076

DATA VALIDATION REPORT
for
200-ZP-1 Point of Compliance Wells
March 1995
Volatile Organic Analysis
SDG LK4209-LAS
LATA VB403.69

Bechtel Hanford Inc.
PO Box 969
Richland, Washington

July 17, 1995

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**200-ZP-1 Point of Compliance Wells - March 1995
Data Validation Narrative**

INTRODUCTION

All samples in Sample Delivery Group (SDG) LK4029-LAS (VB 403.69) were validated at level "C" as defined in the Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002, Rev. 2).

The analysis was performed by Lockheed Analytical Services.

ANALYSES REQUESTED

See Table 1.

DATA QUALITY OBJECTIVES

- Precision:** Goals for precision were met.
- Accuracy:** Goals for accuracy were met.
- Sample Result Verification:** Not applicable to summary data packages which contain no raw data.
- Detection Limits:** Detection limit goals were met for all sample results as specified in the *200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan*, BHI-00038, Rev. 1.
- Completeness:** The data package was 100% complete for all requested analyses.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

Minor deficiencies were identified during validation which required qualification of data as estimated. See the "Qualification Summary Table".

9613446.2079

Table 1
Chain-of-Custody
Analysis Request

LATA ID #: VB403.69

SDG: LK4209-LAS

Sample Information							Analyses Requested		
SAMPLE NO.	DATE COLLECTED	MATRIX	SAF	SAMPLING LOCATION	FIELD QC INFO	TEMP °C	1	2	3
B0F6X2	4-Apr-95	WATER	B95-039	699-34-88	Split of B0F6W8	5	X	X	X
B0F6X3	4-Apr-95	WATER	B95-039	699-34-88	Split of B0F6W9	5	X	X	X

Method References:

Analysis	Method
1. VOA (TCL + CCl ₄ , Chloroform, TCE)	8240
2. Activity Scan	Lab Specific
3. RAD Screen (222-S)	Lab Specific

NOTES:

- ROD 95-0026: An incorrect SAF number was put on the COC. The lab was instructed to perform the analyses by SAF B95-039.
- Split sample field QC results are evaluated in this report, however, samples B0F6W8 and B0F6W9 were validated in SDG W0506-QES.

REFERENCES

WHC 1993, *Data Validation Procedures for Chemical Analyses*, WHC-SD-EN-SPP-002, Rev. 2, Westinghouse Hanford Company, Richland, Washington.

BHI 1995, *200-ZP-1 Groundwater Sampling and Analysis Plan/Quality Assurance Plan*, BHI-00038 Rev. 1, Bechtel Hanford, Inc., Richland, Washington.

GLOSSARY OF VALIDATION APPLIED QUALIFIERS (CHEMISTRY)

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows.

- U- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ- Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a QC deficiency identified during data validation, the associated quantitation limit is an estimate.
- J- Indicates the compound or analyte was analyzed for and detected. The associated concentration is an estimate, but the data are usable for decision making purposes.
- BJ- Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R- Indicates the compound or analyte was analyzed for, detected, and due to an identified QC deficiency the data are unusable.
- UR- Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data are unusable due to an identified QC deficiency.
- JN- Indicates a tentatively identified compound (TIC) that has been determined to be valid in terms of identification and quantitation.
- UJN- Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.
- NJ- Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific application (i.e., usable for decision making purposes).
- N- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision making purposes).

GLOSSARY OF LABORATORY APPLIED QUALIFIERS

Qualifiers which may be applied by the laboratory in compliance with applicable requirements are as follows.

Commonly used laboratory qualifiers:

- U- Indicates the analyte was analyzed for but not detected in the sample.
- B- Indicates the analyte was detected in the method blank.
- J- Indicates the analyte was detected in the sample at a concentration greater than the instrument detection limit (IDL), but less than the contract required quantitation limit (CRQL).

Qualification Summary Table

Qualification Summary Table

Volatile Organic

ANALYTE	TYPE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
Acetone	MINOR	U	B0F6X2 B0F6X3	BLANKS	Preparation blank value is positive and outside acceptance criteria.

Comments:

An upward adjustment to meet the CRQL for sample results qualified non-detect (U) due to blank contamination has been made by the validator on the Data Summary Tables and Form Is as required.

Volatile Organic Field QC

ANALYTE	TYPE	QUALIFIER	FIELD QC SAMPLES	DQO	ASSESSMENT
ALL	FIELD QC	NONE	B0F6W8/B0F6X2 B0F6W9/B0F6X3	PRECISION	Field split precision is acceptable.

Comments:

Data qualification is not required based on field split precision, however, field split results are noted here to alert the data user to uncertainties in the data set during decision making processes.

9613446.2085

Data Summary Table

9613446.2006 VOLATILE ORGANIC
DATA SUMMARY TABLE

LATA ID#: VB403.69		HEIS #:	B0F6X2		B0F6X3	
		Date:	4-Apr-95		4-Apr-95	
		Matrix:	WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q
Chloromethane	74-87-3	µg/L	5.0	U	5.0	U
Bromomethane	74-83-9	µg/L	5.0	U	5.0	U
Vinyl chloride	75-01-4	µg/L	5.0	U	5.0	U
Chloroethane	75-00-3	µg/L	5.0	U	5.0	U
Methylene chloride	75-09-2	µg/L	5.0	U	5.0	U
Acetone	67-64-1	µg/L	10	U	12	U
Carbon disulfide	75-15-0	µg/L	5.0	U	5.0	U
1,1-Dichloroethene	75-35-4	µg/L	5.0	U	5.0	U
1,1-Dichloroethane	75-34-3	µg/L	5.0	U	5.0	U
1,2-Dichloroethene (total)	540-59-0	µg/L	N/A		N/A	
Chloroform	67-66-3	µg/L	5.0	U	5.0	U
1,2-Dichloroethane	107-06-2	µg/L	5.0	U	5.0	U
2-Butanone	78-93-3	µg/L	10	U	10	U
1,1,1-Trichloroethane	71-55-6	µg/L	5.0	U	5.0	U
Carbon tetrachloride	56-23-5	µg/L	5.0	U	5.0	U
Bromodichloromethane	75-27-4	µg/L	5.0	U	5.0	U
1,2-Dichloropropane	78-87-5	µg/L	5.0	U	5.0	U
cis-1,3-Dichloropropene	10061-01-5	µg/L	5.0	U	5.0	U
Trichloroethene	79-01-6	µg/L	5.0	U	5.0	U
Dibromochloromethane	124-48-1	µg/L	5.0	U	5.0	U
1,1,2-Trichloroethane	79-00-5	µg/L	5.0	U	5.0	U
Benzene	71-43-2	µg/L	5.0	U	5.0	U
trans-1,3-Dichloropropene	10061-02-6	µg/L	5.0	U	5.0	U
Bromoform	75-25-2	µg/L	5.0	U	5.0	U
4-Methyl-2-pentanone	108-10-1	µg/L	10	U	10	U
2-Hexanone	591-78-6	µg/L	10	U	10	U
Tetrachloroethene	127-18-4	µg/L	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	5.0	U	5.0	U
Toluene	108-88-3	µg/L	5.0	U	5.0	U
Chlorobenzene	108-90-7	µg/L	5.0	U	5.0	U
Ethylbenzene	100-41-4	µg/L	5.0	U	5.0	U
Styrene	100-42-5	µg/L	5.0	U	5.0	U
m,p-Xylene	1330-20-7	µg/L	5.0	U	5.0	U
o-Xylene	95-47-6	µg/L	5.0	U	5.0	U
Trichlorofluoromethane	75-69-4	µg/L	5.0	U	5.0	U
Vinyl acetate	108-05-4	µg/L	10	U	10	U
2-Chloroethylvinylether	110-75-8	µg/L	20	U	20	U
trans-1,2-Dichloroethene	156-50-5	µg/L	5.0	U	5.0	U
cis-1,2-Dichloroethene	156-59-2	µg/L	5.0	U	5.0	U
1,3 Dichlorobenzene	541-73-1	µg/L	5.0	U	5.0	U
1,4 Dichlorobenzene	106-46-7	µg/L	5.0	U	5.0	U
1,2 Dichlorobenzene	95-50-1	µg/L	5.0	U	5.0	U

9613446.2087

Sample Results (Form I's)

LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

Client Sample ID:	B0F6X2	LAL Sample ID:	L4209-3
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
Matrix:	Water	Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	105	88-110
Bromofluorobenzene	110	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(S)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	9.9 10	10.	U -BJ
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

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VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X2	LAL Sample ID: L4209-3
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration (µg/L)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

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LOCKHEED ANALYTICAL SERVICES

GC/MS FOR VOLATILE ORGANICS
8240 VOLATILES

Client Sample ID:	B0F6X3	LAL Sample ID:	L4209-6
Date Collected:	04-APR-95	Date Received:	06-APR-95
Date Analyzed:	14-APR-95	Analytical Dilution:	1
Matrix:	Water	Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	100	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	109	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER (g)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	12.	10.	U B
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

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VOLATILE ORGANIC ANALYSIS RESULTS
FOR ANALYSES USING METHOD 8240
TENTATIVELY IDENTIFIED COMPOUNDS

Client Sample ID: B0F6X3	LAL Sample ID: L4209-6
Date Received: 06-APR-95	Date Analyzed: 14-APR-95
Matrix: WATER	Analytical Dilution Factor: 1
Analytical Batch: 041495-8260-E1	

Tentatively Identified Compound	Estimated Concentration ($\mu\text{g/L}$)	Retention Time (minutes)	Data Qualifier(s)
NONE DETECTED			

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Checklist

9613446.2093 LATA GC/MS ORGANICS
DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
VALIDATION PROCEDURE:	<input type="checkbox"/> WHC-CM-5-3, Rev. 0		<input checked="" type="checkbox"/> WHC-SD-EN-SPP-002, Rev. 2		
PROJECT:	200-ZP-1		SDG:	LK4209-LAS	
VALIDATOR:	BJ MORRIS ^{BM} 7-17-95	LATA NO:	VB403.69	DATE:	6-Jul-95
REVIEWER:	BJ SEYMOUR ^{BS} 7-17-95	LAB:	LAS	CASE:	N/A
SAF NO:	B95-039	QAPP NO:	BHI-00038, R1	SAP NO:	N/A
ANALYSES REQUESTED					
<input checked="" type="checkbox"/>	Volatiles 8240				
SAMPLE NO.	MATRIX	COMMENTS:			
B0F6X2 B0F6X3	WATER	ROD 95-0026: An incorrect SAF was put on the COC. The lab was instructed to perform the analyses according to SAF B95-039.			

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE YES NO N/A

Is technical verification documentation present?

Is a case narrative present?

2. HOLDING TIMES YES NO N/A

Are sample holding times acceptable?

See HOLDING TIME SUMMARY form

3. INSTRUMENT TUNING/PERFORMANCE AND CALIBRATIONS YES NO N/A

Is the GC/MS tuning/performance check acceptable?

Were initial calibrations performed on all instruments at the proper frequency?

Are initial calibrations acceptable?

Were continuing calibrations performed on all instruments at the proper frequency?

Are continuing calibrations acceptable?

Validation calculation checks were performed and are acceptable.

If NO(s) are checked, see CALIBRATION DATA SUMMARY form

4. BLANKS

YES NO N/A

Were laboratory blanks analyzed?

Are laboratory blank results acceptable?

If NO(s) are checked, see BLANK AND SAMPLE DATA SUMMARY form

5. ACCURACY

YES NO N/A

Were surrogates/System Monitoring Compounds analyzed at the proper frequency?

Are all surrogate/System Monitoring Compound recoveries acceptable?

Were spike samples (MS/MSD) analyzed at the proper frequency?

Are all spike sample (MS/MSD) recoveries acceptable?

Validation calculation checks were performed and are acceptable.

If NO(s) are checked, see ACCURACY DATA SUMMARY form

6. PRECISION

YES NO N/A

Were MS/MSDs analyzed?

Are all MS/MSD RPD values acceptable?

Validation calculation checks were performed and are acceptable.

If NO(s) are checked, see PRECISION DATA SUMMARY form

7. FIELD QC SAMPLES

YES NO N/A

Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified?

Are field/trip blank results acceptable? (see Blank Data Summary form)

Are field duplicate RPD values acceptable? (see Field QC calculations)

Are field split RPD values acceptable? (see Field QC calculations)

Are performance audit sample results acceptable?

Comments: B0F6X2 is a field split of B0F6W8. B0F6W8 is validated in W0506-QES (VB403.68)

B0F6X3 is a field split of B0F6W9. B0F6W9 is validated in W0506-QES (VB403.68)

8. SYSTEM PERFORMANCE

Were internal standards analyzed?

YES NO N/A

Are all internal standard areas acceptable?

Are all internal standard retention times acceptable?

9. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable?

YES NO N/A

Is compound quantitation acceptable?

Are all TICs properly identified and coded?

10. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses?

YES NO N/A

Are all results supported in the raw data?

Do results meet the CRQLs?

Validation calculation checks were performed and are acceptable.

Comments:

VALIDATION SUMMARY

For deficiencies (major and minor) and comments, please refer to the Qualification Summary Table.

9613446.2028

DATA GC/MS ORGANICS
DATA VALIDATION CHECKLIST

HOLDING TIME SUMMARY

SDG: LK4209-LAS			VALIDATOR: BJ MORRIS					DATE: - 06-Jul-95		
PROJECT: 200-ZP-1			REVIEWER: BJ SEYMOUR					LATA NO.: VB403.69		
HEIS-SN	MATRIX CODE	ANALYSIS	DATE COLLECTED	PREP DATE	ANALYSIS DATE	PREP HT (days)	Required HT (days)	ANALYSIS HT (days)	Required HT (days)	VAL Q
B0F6X2	WATER	Volatiles	4-Apr-95	N/A	14-Apr-95	N/A	N/A	10	14	None
B0F6X3	WATER	Volatiles	4-Apr-95	N/A	14-Apr-95	N/A	N/A	10	14	None

9613446.2097

LATA GC/MS ORGANICS
DATA VALIDATION CHECKLIST

BLANK DATA SUMMARY

SDG: LK4209-LAS			VALIDATOR: BJ MORRIS				DATE: 06-Jul-95		
PROJECT: 200-ZP-1			REVIEWER: BJ SEYMOUR				LATA NO.: VB403.69		
BLANK ID	ANALYTE	RESULT	LAB Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	VAL Q
Prep	Acetone	7.4	J		µg/L		74	B0F6X2 B0F6X3	U

9613446.2098

LOCKHEED ANALYTICAL SERVICES

VOLATILE ORGANICS BY GC/MS

Client Sample ID:	Method Blank	LAL Sample ID:	21687MB
Date Collected:	N/A	Date Received:	N/A
Date Analyzed:	14-APR-95	Analytical Dilution:	1
		Analytical Batch ID:	041495-8260-E1
		Preparation Dilution:	1.00

SURROGATE RECOVERY (%)		
		QC Limits
1,2-Dichloroethane-d4	102	76-114
Toluene-d8	106	88-110
Bromofluorobenzene	111	86-115

CONSTITUENT	CAS NO.	RESULT ug/L	PRACTICAL QUANTITATION LIMIT ug/L	DATA QUALIFIER(s)
Chloromethane	74-87-3	<5.0	5.0	
Vinyl Chloride	75-01-4	<5.0	5.0	
Bromomethane	74-83-9	<5.0	5.0	
Chloroethane	75-00-3	<5.0	5.0	
Trichlorofluoromethane	75-69-4	<5.0	5.0	
Acetone	67-64-1	7.4	10.	J
1,1-Dichloroethene	75-35-4	<5.0	5.0	
Carbon Disulfide	75-15-0	<5.0	5.0	
Methylene Chloride	75-09-2	<5.0	5.0	
trans-1,2-Dichloroethene	156-50-5	<5.0	5.0	
Vinyl Acetate	108-05-4	<10.	10.	
1,1-Dichloroethane	75-34-3	<5.0	5.0	
2-Butanone	78-93-3	<10.	10.	
cis-1,2-Dichloroethene	156-59-2	<5.0	5.0	
Chloroform	67-66-3	<5.0	5.0	
1,1,1-Trichloroethane	71-55-6	<5.0	5.0	
Carbon tetrachloride	56-23-5	<5.0	5.0	
1,2-Dichloroethane	107-06-2	<5.0	5.0	
Benzene	71-43-2	<5.0	5.0	
Trichloroethene	79-01-6	<5.0	5.0	
1,2-Dichloropropane	78-87-5	<5.0	5.0	
Bromodichloromethane	75-27-4	<5.0	5.0	
2-Chloroethylvinylether	110-75-8	<20.	20.	
4-Methyl-2-Pentanone	108-10-1	<10.	10.	
cis-1,3-Dichloropropene	10061-01-5	<5.0	5.0	
Toluene	108-88-3	<5.0	5.0	
trans-1,3-Dichloropropene	10061-02-6	<5.0	5.0	
2-Hexanone	591-78-6	<10.	10.	
1,1,2-Trichloroethane	79-00-5	<5.0	5.0	
Tetrachloroethene	127-18-4	<5.0	5.0	
Dibromochloromethane	124-48-1	<5.0	5.0	
Chlorobenzene	108-90-7	<5.0	5.0	
Ethylbenzene	100-41-4	<5.0	5.0	
m,p-Xylene	1330-20-7	<5.0	5.0	
o-Xylene	95-47-6	<5.0	5.0	
Styrene	100-42-5	<5.0	5.0	
Bromoform	75-25-2	<5.0	5.0	
1,1,2,2-Tetrachloroethane	79-34-5	<5.0	5.0	
1,3-Dichlorobenzene	541-73-1	<5.0	5.0	
1,4-Dichlorobenzene	106-46-7	<5.0	5.0	
1,2-Dichlorobenzene	95-50-1	<5.0	5.0	

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VOLATILES FIELD SPLIT EVALUATION

Constituent	CAS #	Units	HEIS #:		RPD		DIF		DL
			Date:	B0F6W8	B0F6X2			µg/L	
			Matrix:	4-Apr-95	4-Apr-95				
			ORIGINAL	SPLIT					
			Results	Q	Results	Q			
Chloromethane	74-87-3	µg/L	10	U	5.0	U			
Bromomethane	74-83-9	µg/L	10	U	5.0	U			
Vinyl chloride	75-01-4	µg/L	10	U	5.0	U			
Chloroethane	75-00-3	µg/L	10	U	5.0	U			
Methylene chloride	75-09-2	µg/L	5.0	U	5.0	U			
Acetone	67-64-1	µg/L	100	U	10	U			
Carbon disulfide	75-15-0	µg/L	5.0	U	5.0	U			
1,1-Dichloroethene	75-35-4	µg/L	5.0	U	5.0	U			
1,1-Dichloroethane	75-34-3	µg/L	5.0	U	5.0	U			
1,2-Dichloroethene (total)	540-59-0	µg/L	5.0	U	N/A				
Chloroform	67-66-3	µg/L	5.0	U	5.0	U			
1,2-Dichloroethane	107-06-2	µg/L	5.0	U	5.0	U			
2-Butanone	78-93-3	µg/L	100	U	10	U			
1,1,1-Trichloroethane	71-55-6	µg/L	5.0	U	5.0	U			
Carbon tetrachloride	56-23-5	µg/L	5.0	U	5.0	U			
Bromodichloromethane	75-27-4	µg/L	5.0	U	5.0	U			
1,2-Dichloropropane	78-87-5	µg/L	5.0	U	5.0	U			
cis-1,3-Dichloropropene	10061-01-5	µg/L	5.0	U	5.0	U			
Trichloroethene	79-01-6	µg/L	5.0	U	5.0	U			
Dibromochloromethane	124-48-1	µg/L	5.0	U	5.0	U			
1,1,2-Trichloroethane	79-00-5	µg/L	5.0	U	5.0	U			
Benzene	71-43-2	µg/L	5.0	U	5.0	U			
trans-1,3-Dichloropropene	10061-02-6	µg/L	5.0	U	5.0	U			
Bromoform	75-25-2	µg/L	5.0	U	5.0	U			
4-Methyl-2-pentanone	108-10-1	µg/L	50	U	10	U			
2-Hexanone	591-78-6	µg/L	50	U	10	U			
Tetrachloroethene	127-18-4	µg/L	5.0	U	5.0	U			
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	5.0	U	5.0	U			
Toluene	108-88-3	µg/L	5.0	U	5.0	U			
Chlorobenzene	108-90-7	µg/L	5.0	U	5.0	U			
Ethylbenzene	100-41-4	µg/L	5.0	U	5.0	U			
Styrene	100-42-5	µg/L	5.0	U	5.0	U			
Xylenes (Total)	1330-20-7	µg/L	5.0	U	N/A				
m,p-Xylene	1330-20-7	µg/L	N/A		5.0	U			
o-Xylene	95-47-6	µg/L	N/A		5.0	U			
Trichlorofluoromethane	75-69-4	µg/L	N/A		5.0	U			
Vinyl acetate	108-05-4	µg/L	N/A		10	U			
2-Chloroethylvinylether	110-75-8	µg/L	N/A		20	U			
trans-1,2-Dichloroethene	156-50-5	µg/L	N/A		5.0	U			
cis-1,2-Dichloroethene	156-59-2	µg/L	N/A		5.0	U			
1,3 Dichlorobenzene	541-73-1	µg/L	N/A		5.0	U			
1,4 Dichlorobenzene	106-46-7	µg/L	N/A		5.0	U			
1,2 Dichlorobenzene	95-50-1	µg/L	N/A		5.0	U			

'N/A' = Not Available

EVALUATION:

1. Field duplicates are not evaluated for precision if both results are non-detect.

000023

Shaded areas indicate changes by the validator.
40369DST.XLS, VOLATILES FIELD SPLIT

9617446 2108
VOLATILES FIELD SPLIT EVALUATION

LATA ID#: VB403.69		HEIS #:	B0F6W9	B0F6X3	RPD	DIF	DL
		Date:	4-Apr-95	4-Apr-95			
		Matrix:	WATER	WATER			µg/L
			ORIGINAL	SPLIT			
Constituent	CAS #	Units	Results	Q	Results	Q	
Chloromethane	74-87-3	µg/L	10	U	5.0	U	
Bromomethane	74-83-9	µg/L	10	U	5.0	U	
Vinyl chloride	75-01-4	µg/L	10	U	5.0	U	
Chloroethane	75-00-3	µg/L	10	U	5.0	U	
Methylene chloride	75-09-2	µg/L	5.0	U	5.0	U	
Acetone	67-64-1	µg/L	100	U	12	U	
Carbon disulfide	75-15-0	µg/L	5.0	U	5.0	U	
1,1-Dichloroethene	75-35-4	µg/L	5.0	U	5.0	U	
1,1-Dichloroethane	75-34-3	µg/L	5.0	U	5.0	U	
1,2-Dichloroethene (total)	540-59-0	µg/L	5.0	U	N/A		
Chloroform	67-66-3	µg/L	5.0	U	5.0	U	
1,2-Dichloroethane	107-06-2	µg/L	5.0	U	5.0	U	
2-Butanone	78-93-3	µg/L	100	U	10	U	
1,1,1-Trichloroethane	71-55-6	µg/L	5.0	U	5.0	U	
Carbon tetrachloride	56-23-5	µg/L	5.0	U	5.0	U	
Bromodichloromethane	75-27-4	µg/L	5.0	U	5.0	U	
1,2-Dichloropropane	78-87-5	µg/L	5.0	U	5.0	U	
cis-1,3-Dichloropropene	10061-01-5	µg/L	5.0	U	5.0	U	
Trichloroethene	79-01-6	µg/L	5.0	U	5.0	U	
Dibromochloromethane	124-48-1	µg/L	5.0	U	5.0	U	
1,1,2-Trichloroethane	79-00-5	µg/L	5.0	U	5.0	U	
Benzene	71-43-2	µg/L	5.0	U	5.0	U	
trans-1,3-Dichloropropene	10061-02-6	µg/L	5.0	U	5.0	U	
Bromoform	75-25-2	µg/L	5.0	U	5.0	U	
4-Methyl-2-pentanone	108-10-1	µg/L	50	U	10	U	
2-Hexanone	591-78-6	µg/L	50	U	10	U	
Tetrachloroethene	127-18-4	µg/L	5.0	U	5.0	U	
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	5.0	U	5.0	U	
Toluene	108-88-3	µg/L	5.0	U	5.0	U	
Chlorobenzene	108-90-7	µg/L	5.0	U	5.0	U	
Ethylbenzene	100-41-4	µg/L	5.0	U	5.0	U	
Styrene	100-42-5	µg/L	5.0	U	5.0	U	
Xylenes (Total)	1330-20-7	µg/L	5.0	U	NA		
m,p-Xylene	1330-20-7	µg/L	NA		5.0	U	
o-Xylene	95-47-6	µg/L	NA		5.0	U	
Trichlorofluoromethane	75-69-4	µg/L	NA		5.0	U	
Vinyl acetate	108-05-4	µg/L	NA		10	U	
2-Chloroethylvinylether	110-75-8	µg/L	NA		20	U	
trans-1,2-Dichloroethene	156-50-5	µg/L	NA		5.0	U	
cis-1,2-Dichloroethene	156-59-2	µg/L	NA		5.0	U	
1,3 Dichlorobenzene	541-73-1	µg/L	NA		10	U	
1,4 Dichlorobenzene	106-46-7	µg/L	NA		5.0	U	
1,2 Dichlorobenzene	95-50-1	µg/L	NA		5.0	U	

'NA' = Not Available

EVALUATION:

1. Field duplicates are not evaluated for precision if both results are non-detect.

000024

9603446.2101

Laboratory Case Narrative

Lockheed Analytical Services

Log-in No.: L4209
 Quotation No.: Q400000-B
 SAF: B95-039
 Document File No.: 0406596
 WHC Document File No.: 207
 SDG No.: LK4209
 Page2

CASE NARRATIVE INORGANIC NON METALS ANALYSES

The routine calibration and quality control analyses performed for this batch include as applicable: instrument tune (ICP/MS only), initial and continuing calibration verification, initial and continuing calibration blanks, method blank(s), laboratory control sample(s), ICP interference check samples (ICP only), serial dilutions, analytical (post-digestion) spike samples, matrix spike (predigestion) sample(s), duplicate sample(s).

Preparation and Analysis Requirements

- One water sample was received for LK4209 and prepared as batch 406bh and analyzed for selected analytes as requested on the chain of custody. Quality control analysis was performed on the following sample:

Client ID	LAL #		Method
BOF6X2	L4209-2	MS, DUP	300.0 Nitrate-N

Holding Time Requirements

- All samples were analyzed within the specified holding time.

Method Blanks

- The concentration levels of all the requested analytes in the method blank were below the reporting detection limits.

Internal Quality Control

- All Internal Quality Control were within acceptance limits.

Kay McCann

April 7, 1995

Prepared By

Date

mm
 7-16-95
 000005

000026

Lockheed Analytical Services

Log-in No.: L4209
Quotation No.: Q400000-B-
SAF: B95-039
Document File No.: 0406596
WHC Document File No.: 207
SDG No.: LK4209
Page 3

**CASE NARRATIVE
ORGANIC ANALYSES**

Analytical Method 8240 Volatiles

NOTE: The initial calibration for this group of samples did not have the compound 2-Chloroethylvinylether in the low standard VSTD020, therefore, only a 4 point calibration was used for 2-Chloroethylvinylether.

Analytical Batch 041495-8260-E1

The samples were analyzed within the required holding time on April 14, 1995. All associated tunes, initial and continuing calibrations met criteria. Target compound Acetone and one Tentatively Identified Compound (TIC) were detected in the Method Blank (MB). All associated samples with a detected target compound and TIC as in the MB were flagged with the Qualifier B. Surrogate recoveries were within QC limits. Compound recoveries were within QC limits in the Matrix Spike (MS), Matrix Spike Duplicate (MSD), and Laboratory Control Sample (LCS). The Relative Percent Differences (RPDs) between the MS and MSD recoveries were within QC limits. All internal standard area counts and retention times were within QC limits.

Prepared By
Patricia Lonergan

May 9, 1995

Wm
7-16-95
000006

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9613446.2104

Chain-of-Custody Information

9613446.2106

SAMPLE STATUS REPORT FOR N 5052. RAD SCREEN 69934-88 TIME: 4/ 5/95 7:59
DISPATCHED: 3/14/95 15: 6 SAMPLE HAS NOT BEEN SLURPED.
RECEIVED: 4/ 4/95 14:56

EXT. DETER. RESULTS OR STATUS
**** *****
4271 TOT-ACT < 5.00000E 01 pCi/G

OUT OF GOOD CHARGE
RANGE? ANS? CODE
*** **
N Y XR5135

END OF REPORT

BOFGX2
BOFGX3
BW
4-5-95

000014

000030

am
7-14-95

CHL 54

Lockheed Analytical Services
Sample Receiving Checklist

Client Name: *Westinghouse*

Job No. *L4209*

Cooler ID:

COOLER CONDITION UPON RECEIPT

Temperature of cooler upon receipt:

5°C

temperature of temp. blank upon receipt:

	Yes	No	* Comments/Discrepancies
custody seals intact	<input checked="" type="checkbox"/>		
chain of custody present	<input checked="" type="checkbox"/>		
blue ice (or equiv.) present/frozen	<input checked="" type="checkbox"/>		
rad survey completed	<input checked="" type="checkbox"/>		

SAMPLE CONDITION UPON RECEIPT

	Yes	No	* Comments/Discrepancies
all bottles labeled	<input checked="" type="checkbox"/>		
samples intact	<input checked="" type="checkbox"/>		
proper container used for sample type	<input checked="" type="checkbox"/>		
sample volume sufficient for analysis	<input checked="" type="checkbox"/>		
proper pres. indicated on the COC	<input checked="" type="checkbox"/>		
VOA's contain headspace		<input checked="" type="checkbox"/>	
are samples bi-phasic (if so, indicate sample ID'S):			<i>na</i>

MISCELLANEOUS ITEMS

	Yes	No	* Comments/Discrepancies
samples with short holding times	<input checked="" type="checkbox"/>		<i>None</i>
samples to subcontract		<input checked="" type="checkbox"/>	

ADDITIONAL COMMENTS/DISCREPANCIES

Completed by / date: *MM/llh 4.6.95*

Sent to the client (date/initials): *MM/llh* ** Client's signature upon receipt:

Notes: * = contact the appropriate CSR of any discrepancies immediately upon receipt.

** = please review this information and return via facsimile to the appropriate CSR (702) 361-8146

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G1100541
m-7-10-95

9613446.2108

Supplemental Information

9613446.2109

Sample Disposition Record

Control #: 95-00286 *rev 4/7/95*
Revision #:
Date Initiated: 04/07/95

Section 1 - BACKGROUND

SAF #: B95-039
OU: 200-ZP-1
Project ID: 200-ZP-1 SAP
Task ID: 4
Sampling Event: 200-ZP-1 Point of Compliance Wells - March 1995
Laboratory: Lockheed
Project Coordinator: R. C. Smith
Task Manager: J. R. Freeman-Pollard

Section 2 - SAMPLE INFORMATION

Number of Samples: *62 rev 4/7/95*
ID Numbers: B0F6X2, B0F6X3
Matrix: Water
Collection Date: 03/31/95, 04/04/95

Section 3 - ISSUE

Class: Lab Direction
NCR Number: N/A
Type: Inconsistent Sample Documentation
Description: An incorrect SAF number (B95-034) was put on the COCs.

N/A

NCR Validation (Print/Sign) _____ Date _____

Section 4 - DISPOSITION

Type: Use As Is
Description: The lab has been notified and analytical work will be performed according to SAF B95-039.

R. C. Smith/ *R. C. Smith* _____ *4/7/95*
Project Coordinator (Print/Sign) _____ Date _____

J. R. Freeman-Pollard/ *J. R. Freeman-Pollard* _____ *4/10/95*
Task Manager (Print/Sign) _____ Date _____

N/A

QA (Print/Sign) _____ Date _____

Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number:
Inspection Results:

N/A

Inspector (Print/Sign) _____ Date _____

9613446.2110

END OF PACKAGE