EARTH RESOURCES CORPORATION

University of California
Los Alamos National Laboratory
Final Report - Volume III
Cylinder Inspection Logs and Analytical Data
LCRU-001 through LCRU-063
June 23, 1994

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Submitted by:

EARTH RESOURCES CORPORATION
1227 Marshall Farms Road
Ocoee, Florida 34761

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

Printed on
Recycled Paper

DISCLAIMER

**Portions of this document may be illegible
electronic image products. Images are
produced from the best available original
document.**

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCP4001

Date: 5-11-94 Inspector: G. Roberts

Cylinder Serial #: NONE Dimensions: 2" D X 10" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 9-78

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" VCR

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-12-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, HYDROGEN, METAL CARBONYL</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes ☒ No _____
Recontainerized Cylinder #: <u>TW-H-862419</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU001

MASS SPECTRUM INTERPRETATION

NITROGEN, HYDROGEN, OXYGEN, METAL CARBONYL

Analyst Signature: _____

Date: 5-12-94

QA Confirmation

Yes ☐

No ☒

Comments: _____

FTIR INTERPRETATION

METAL CARBONYL

Analyst Signature: _____

Date: 5-12-94

QA Confirmation

Yes ☐

No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS:

- POSSIBLE ISOTOPIC ENRICHMENT
- POSSIBLE COBALT CARBONYL

QA or Document Officer Signature: _____

DATE: _____

LCRU 001

Elapsed Time:00:24:00

14:45 12-May-94

Created:14:27:01 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 001 BLK

Elapsed Time:00:00:37

14:52 12-May-94

Created:14:52:23 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 12, 1994

14:27 Wait

C:\FTIRDATA

LCRU001.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-5.09e-04

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

_CRU001.TRANSMITTANCE
Date : May 12, 1994

Time : 14hr-26min-6sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.136	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	440.74	.675
2	474.84	.776
3	564.72	.626
4	1819.69	0.001
5	2009.21	-.795
6	2044.43	-0.001
7	2106.84	.195
8	2938.10	.891

Thursday, May 12, 1994 14:52 Wait
C:\FTIRDATA
LCRU001BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.04e+00

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 002
Date: 5-31-94 Inspector: G. Roberts
Cylinder Serial #: NONE Dimensions: _____
Color: SILVER Owner Stamp: NONE
DOT Rating: 3E1800 312015 3AA2400 3A2215
Other: _____ Test Date(s): None Visible
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" Plug
Labels and/or Markings:
ANTACOSY PENTFLUORIDE
General Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Valve Condition: Good _____ Fair _____ Poor _____
Comments: No VALVE - 1/4" Plug
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes _____ No ☒
Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: <u>TEST NEGATIVE FOR FLUORINE, CHLORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-31-94</u>	Pressure: <u>-10 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, CARBON DIOXIDE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes ☒ No _____
Recontainerized Cylinder #: <u>648654D</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV002

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

ovayak

Date: 5-31-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: _____

ovayak

Date: 5-31-94

QA Confirmation

Yes ☐

No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE, CHLORINE (DRAEGER TUBE)

Analyst Signature: _____

ovayak

Date: 5-31-94

QA Confirmation

Yes ☐

No ☒

Comments: _____

INTERPRETED RESULTS: _____

• LIQUID IN CRV HAD PH = 1

QA or Document Officer Signature: _____

DATE: _____

LCRU002

Elapsed Time:00:01:12

13:29 31-May-94

Created:13:29:20 31-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 31, 1994 15:22 Wait
 C:\FTIRDATA
 LCRU002.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:8.67e-01

1.225
 .593
 -0.038
 5001 2358 399

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

CRU002.TRANSMITTANCE

ate : May 31, 1994

Time : 13hr-27min-17sec

escription: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .866	Obs. Time	: 0min 20sec
max	: 1.110	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2349.35	.866

CYLINDER INSPECTION LOG

Project Name: LAUL-94 Date: 5-12-94 Inspector: G. Roberts
 Cylinder Serial #: None Dimensions: 2" x 12" x 14"
 Color: Yellow Owner Stamp: None
 DOT Rating: 3E1800 3A2015 3AA2400 3A2215 Test Date(s): None Visible
 Other: None Visible
 Labels and/or Markings: None
 General Condition: Good Fair Poor
 Comments: _____
 Valve Condition: Good Fair Poor
 Comments: _____
 Pre-operation Weight: _____
 Approved to Handle: Yes No
 Handling Precautions: _____
 Approved for Valve Sampling: Yes No
 Sample Method: Large CRV Small CRV Val

Comments: TEST POSITIVE FOR FLUORINE (BREATH TUBE)
 Sample Date: 5-19-94 Pressure: 0 PSIG
 Identified Contents: NITROGEN, TR. HYDROGEN, TEST POSITIVE FOR FLUORINE
 Analytical Method: Mass Spec FTIR Other
 Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon Flare
 Recontaminated: Yes No
 Recontaminated Cylinder #: _____

"Use or disclosure of data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU003

MASS SPECTRUM INTERPRETATION

NITROGEN, TR. HYDROGEN

Analyst Signature: _____

Date: 5-19-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: _____

Date: 5-19-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

Date: 5-19-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 003

Elapsed Time:00:00:21

13:43 19-May-94

Created:13:41:40 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 19, 1994

13:40

Wait

C:\FTIRDATA

LCRU003.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.05e+00

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU003.TRANSMITTANCE

Date : May 19, 1994

Time : 13hr-40min-14sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 1.012	Obs. Time	: 0min 20sec
max	: 1.160	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1603.93	1.027

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL 94 ERC #: ICRU004

Date: 4-13-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D X 12" H

Color: WHITE Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 2-73

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 3/8" Pipe (240)

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>4-14-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>CHLORINE, NITROGEN, TRACE HYDROGEN CHLORIDE, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

LCRU004

Elapsed Time:00:01:44

13:14 14-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCP004 BLK

Elapsed Time:00:00:52

14:11 14-Apr-94

Created:14:10:58 14-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, April 14, 1994

10:52

Wait

C:\FTIRDATA

LCRU004.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.01e+00

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU004.TRANSMITTANCE

Date : April 14, 1994

Time : 10hr-50min-34sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .539

max : 1.090

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	848.00	.539
2	1826.74	.714
3	2349.08	.885

Thursday, April 14, 1994
C:\FTIRDATA
LCRU004BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

13:25 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 007

Date: 5-17-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D X 12" H

Color: RED Owner Stamp: _____

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 6-58

Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 110 PETCOCK

Labels and/or Markings: NONE

General Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ✓ Poor _____

Comments: SECONDARY VALVE

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ✓ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ✓ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ✓

Comments: _____	
Sample Date: <u>5-19-94</u>	Pressure: <u>40 PSIG</u>
Identified Contents: <u>ISOBUTANE, NITROGEN, TRACE OXYGEN</u>	
Analytical Method: <u>TRACE CARBON DIOXIDE</u>	
Mass Spec <u>✓</u>	FTIR <u>✓</u> Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	
Mole Sieve _____ Flare _____	
Recontainerized: Yes _____ No <u>✓</u>	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU007

MASS SPECTRUM INTERPRETATION

ISOBUTANE, NITROGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

ISOBUTANE, TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCRU 007

Elapsed Time:00:04:49

10:43 19-May-94

Created:10:41:56 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCPV 007 BLK

Elapsed Time:00:00:27

10:53 19-May-94

Created:10:51:03 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 19, 1994

10:44 Wait

C:\FTIRDATA

LCRU007.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-1.04e-03

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

_CRU007.TRANSMITTANCE

Date : May 19, 1994

Time : 10hr-40min-43sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	Obs. Time	: 0min 20sec
max	: 1.081	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	888.89	.625
2	1174.39	.763
3	1332.80	.737
4	1375.42	.431
5	1477.24	.227
6	2350.77	.862
7	2627.48	.872
8	2931.42	-0.002

Thursday, May 19, 1994 10:48 **Wait**
C:\FTIRDATA
LCRU007BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.52e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRV 008

Date: 5-17-94 Inspector: G ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D x 11" H

Color: RED Owner Stamp: _____

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: _____ Test Date(s): 7-80

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PETCOCK

Labels and/or Markings: NONE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: MONEL VALVE

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-19-94</u>	Pressure: <u>0 PSI G</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV008

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: W. J. J. J. Date: 5-19-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: W. J. J. J. Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER) TUBE

Analyst Signature: W. J. J. J. Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCPV 008

Elapsed Time:00:00:20

10:19 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 19, 1994

10:13 **Wait**

C:\FTIRDATA

LCRU008.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.42e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

_CRU008.TRANSMITTANCE

Date : May 19, 1994

Time : 10hr-12min-49sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .841	Obs. Time	: 0min 20sec
max	: 1.027	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2348.70	.841

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 009

Date: 5-10-94 Inspector: G. Roberts

Cylinder Serial #: NONE Dimensions: 2" D x 10" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: _____ Test Date(s): 7-75

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" SWIFT-OK

Labels and/or Markings:

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-11-94</u>	Pressure: <u>50 PSI</u>
Identified Contents: <u>CHLORINE, NITROGEN, CARBON DIOXIDE,</u> <u>TRACE SILICON, TETRA FLUORIDE, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>TW-H-862388</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV009

MASS SPECTRUM INTERPRETATION

CHLORINE, NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-11-94

QA Confirmation

Yes ☐

No ☒

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE, TRACE SILICON TETRAFLUORIDE

Analyst Signature: _____

Date: 5-11-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 009

Elapsed Time:00:00:30

10:03 11-May-94

Created:09:59:59 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 009 BLK

Elapsed Time:00:00:23

10:10 11-May-94

Created:10:09:47 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994

9:56 **Wait**

C:\FTIRDATA

LCRU009.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.53e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

LCRU009.TRANSMITTANCE

Date : May 11, 1994

Time : 9hr-56min-0sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .749	Obs. Time	: 0min 20sec
max	: 1.017	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1028.38	.883
2	2349.96	.749

Wednesday, May 11, 1994 10:08 **Wait**
C:\FTIRDATA
LCRU009BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.64e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRU 010

Date: 5-12-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" X 12" H

Color: SILVER Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 12-78

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" NPT

Labels and/or Markings:
TUNGSTEN HEXAFLUORIDE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>S-17-94</u>	Pressure: <u>4 PSI G</u>
Identified Contents: <u>TUNGSTEN HEXAFLUORIDE REACTION PRODUCTS,</u> <u>HYDROGEN FLUORIDE, HYDROGEN CHLORIDE, HYDROGEN</u>	
Analytical Method: <u>SILICON TETRAFLUORIDE</u>	Mass Spec ☒ FTIR ☒ Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	Mole Sieve _____ Flare _____
Recontainerized: Yes _____ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRVO10

MASS SPECTRUM INTERPRETATION

NITROGEN, TUNGSTEN HEXAFLUORIDE RX PRODUCTS, HYDROGEN
FLUORIDE, SILICON TETRAFLUORIDE

Analyst Signature: [Signature] Date: 5-17-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TUNGSTEN HEXAFLUORIDE RX PRODUCTS, HYDROGEN
FLUORIDE, HYDROGEN CHLORIDE, SILICON TETRAFLUORIDE

Analyst Signature: [Signature] Date: 5-17-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 010

Elapsed Time:00:12:34

14:23 17-May-94

Created:14:19:01 17-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 010 BLK

Elapsed Time:00:00:22

14:31 17-May-94

Created:14:31:24 17-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 17, 1994

14:22 Wait

C:\FTIRDATA

LCRU010.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:3.46e-04

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU010, TRANSMITTANCE

Date : May 17, 1994

Time : 14hr-17min-34sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.000	Obs. Time	: 0min 20sec
max	: 1.004	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	480.13	.652
2	709.73	0.000
3	805.08	.209
4	930.26	.785
5	1024.11	-0.000
6	1189.87	.853
7	1359.53	.703
8	1383.99	.332
9	1451.05	0.001
10	1508.06	.132
11	1824.86	.892
12	2344.06	.821
13	3786.33	.864
14	3831.86	.792
15	3876.18	.782
16	3918.63	.840
17	3993.06	.815
18	4037.01	.788
19	4072.95	.794
20	4107.65	.829
21	4140.45	.874

	Tuesday, May 17, 1994 14:34 Wait C:\FTIRDATA LCRU010BLK.TRANSMITTANCE Print Screen Zoom: 1/4 Y:1.00e+00
--	---

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCAU 011

Date: 4-26-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2"x12" L&R BOTTLE

Color: RED Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 11-68

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PET Cock

Labels and/or Markings:
NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: _____	
Sample Date: <u>4-27-94</u>	Pressure: <u>22 PSIG</u>
Identified Contents: <u>NITROGEN, tr. HYDROGEN, tr. CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU011

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCEU 011

Elapsed Time:00:01:27

13:54 27-Apr-94

Created:13:53:03 27-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, April 27, 1994 13:53 Wait
C:\FTIRDATA
LCRU011.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.19e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU011.TRANSMITTANCE
Date : April 27, 1994

Time : 13hr-53min-47sec

Description: VALVE SAMPLE
CRV or.

Sigma min : 399.19
max : 5000.52
Ampl. min : .914
max : 1.027
Resolution : 4.00 cm-1
Detector : DTGS 2mm
Mode : IR

#Scans : 4
Speed : .18 cm/sec
Obs. Time : 0min 20sec
Source : Glowbar
Beamsplitter : KBr
Apodization : Cosine

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 012
Date: 5-12-94 Inspector: Ge Roberts
Cylinder Serial #: None Dimensions: 2"DX12"H
Color: Pink Owner Stamp: None
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): None Visible
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" Swagelok
Labels and/or Markings: None

General Condition: Good _____ Fair ☒ Poor _____
Comments: _____
Valve Condition: Good _____ Fair ☒ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No ☒
Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>6-7-94</u>	Pressure: <u>-10 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCR012

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

ovayas

Date: 6-7-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

n/p

Analyst Signature: _____

ovayas

Date: 6-7-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

ovayas

Date: 6-7-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCPV012

Elapsed Time:00:24:42

11:06 07-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, June 7, 1994
C:\FTIRDATA
LCRU012.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.94e-01

11:03 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU012, TRANSMITTANCE
Date : June 7, 1994

Time : 11hr-3min-11sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .975	Obs. Time	: 0min 20sec
max	: 1.010	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU005
RESAMPLE

MASS SPECTRUM INTERPRETATION

HYDROGEN, NITROGEN, OXYGEN

Analyst Signature: O Vargas Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: O Vargas Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR HYDROGEN IODIDE (HYDROGEN CHLORIDE DRAEGER TUBE)

Analyst Signature: O Vargas Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: LCRU005:

- RESAMPLED DUE TO SUSPECTED HYDROGEN IODIDE IN THE CYLINDER
- TEST POSITIVE FOR HYDROGEN IODIDE (HYDROGEN CHLORIDE DRAEGER TUBE)
- WHEN CYLINDER WAS CUT IN HALF, VISUAL INSPECTION SHOWED RED SOLID; INDICATES PRESENCE OF IODIDE

QA or Document Officer Signature:

DATE: _____

LCRU005 RE

Elapsed Time:00:23:22

15:51 13-Apr-94

Created:15:49:00 13-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 2	8	0	200		0.33		1

LCPV005 RE BLK

Elapsed Time:00:00:28

16:00 13-Apr-94

Created:16:00:04 13-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	8	0	200		0.33		1

CRU005RE.TRANSMITTANCE
Date : April 13, 1994
Description: CRV SAMPLE

Time : 15hr-54min-41sec

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .952	Obs. Time	: 0min 20sec
max	: 1.059	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LAIL 94 ERC #: LCRY-005

Date: 13 APR 94 Inspector: WIN George

Cylinder Serial #: NONE Dimensions: 2 1/2"

Color: Blue PINK Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 petcock

Labels and/or Markings:

NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes _____ No ☒

Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: RESIDUAL TRACE NITROUS OXIDE IN CRV

Sample Date: 4-13-94 Pressure: 164 PSIG

Identified Contents: HYDROGEN, NITROGEN

Analytical Method: Mass Spec ☒ FTIR ☒ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes ☒ No _____

Recontainerized Cylinder #: TW-H-862414

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU005

MASS SPECTRUM INTERPRETATION

HYDROGEN, NITROGEN

Analyst Signature: _____

overpas

Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE RESIDUAL NITROUS OXIDE

Analyst Signature: _____

overpas

Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: 4

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• RESIDUAL N₂O IN SYSTEM (CRV)

QA or Document Officer Signature: _____

DATE: _____

LCRV005

Elapsed Time:00:16:03

14:59 13-Apr-94

Created:14:55:39 13-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	0	0	200		0.33		1

LCRU005 BLK

Elapsed Time:00:00:36

15:03 13-Apr-94

Created:15:03:15 13-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	0	0	200		0.33		1

Wednesday, April 13, 1994 14:57 **Wait**
C:\FTIRDATA
LCRU005.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.99e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

_CRU005.TRANSMITTANCE

Date : April 13, 1994

Time : 14hr-38min-54sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .951

max : 1.041

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak

wavenumber

intensity

Wednesday, April 13, 1994 15:02 Wait
C:\FTIRDATA
LCRU005BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.01e+00

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Wednesday, April 13, 1994 15:54 **Wait**
C:\FTIRDATA
LCRU005RE.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.02e+00

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 013

Date: 5-12-94 Inspector: G. Roberts

Cylinder Serial #: None Dimensions: 2" x 11"

Color: GRAY Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 12-76

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: VCR

Labels and/or Markings: None

General Condition: Good _____ Fair _____ Poor _____

Comments: _____

Valve Condition: Good _____ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST ^{POSITIVE} NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-17-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU013
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: OVAPPS Date: 5-17-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: OVAPPS Date: 5-17-94
QA Confirmation Yes ☐ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: OVAPPS Date: 5-17-94
QA Confirmation Yes ☐ No ☐
Comments: _____

INTERPRETED RESULTS:

- LCRU013 RESAMPLE DUE TO SUSPECTED PRODUCT IN CYLINDER
- TEST POSITIVE FOR FLUORINE (DRAEGER TUBE TEST)

QA or Document Officer Signature: _____

DATE: _____

LCRU 013 RE

Elapsed Time:00:00:21

14:02 17-May-94

Created:13:58:57 17-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 17, 1994
C:\FTIRDATA
LCRU013RE.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.39e-01

13:57 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU013RE.TRANSMITTANCE

Date : May 17, 1994

Time : 13hr-57min-5sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .937	Obs. Time	: 0min 20sec
max	: 1.010	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU013

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: OVargas Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: OVargas Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: OVargas Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCPU013

Elapsed Time:00:00:18

09:45 17-May-94

Created:09:44:03 17-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 17, 1994

9:42 **Wait**

C:\FTIRDATA

LCRU013.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.34e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU013.TRANSMITTANCE
Date : May 17, 1994

Time : 9hr-41min-59sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .932	Obs. Time	: 0min 20sec
max	: 1.067	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2349.59	.932

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 014
Date: 5-17-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 2" D X 12" H
Color: BLUE/SILVER/BLACK Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE VISIBLE
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PETCOCK
Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: SECONDARY VALVE

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-19-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE, POSITIVE FOR FLUORINE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU014

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-19-94
QA Confirmation Yes ☐ No ☒
Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-19-94
QA Confirmation Yes ☐ No ☒
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: [Signature] Date: 5-19-94
QA Confirmation Yes ☐ No ☒
Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCRU 014

Elapsed Time:00:02:22

10:31 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	16	0	200		0.33		1

Thursday, May 19, 1994

10:28 Wait

C:\FTIRDATA

LCRU014.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.52e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU014.TRANSMITTANCE
Date : May 19, 1994

Time : 10hr-27min-55sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .845	Obs. Time	: 0min 20sec
max	: 1.049	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2348.19	.845

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL 94 ERC #: LCR4015
Date: 5-12-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 2" D x 12" L
Color: _____ Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): _____
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PETROCK
Labels and/or Markings: NONE
General Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Valve Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No _____
Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-17-94</u>	Pressure: <u>700 PSIG</u>
Identified Contents: <u>HYDROGEN CHLORIDE, CHLORINE, HYDROGEN FLUORIDE,</u> <u>HYDROGEN NITRIL CHLORIDE, SILICON TETRAFLUORIDE, CL₂</u>	
Analytical Method: <u>Rx PRODUCTS</u>	Mass Spec ☒ FTIR ☒ Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	
Mole Sieve _____ Flare _____	
Recontainerized: Yes _____	No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 015

MASS SPECTRUM INTERPRETATION

HYDROGEN CHLORIDE, HYDROGEN FLUORIDE, HYDROGEN
CHLORINE, TRACE SILICON TETRAFLUORIDE, CHLORINE RX PRODUCTS
Analyst Signature: [Signature] Date: 5-17-94
QA Confirmation Yes ☐ No ☒
Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, HYDROGEN FLUORIDE, SILICON TETRA
FLUORIDE, NITROSYL CHLORIDE, CHLORINE RX PRODUCTS
Analyst Signature: [Signature] Date: 5-17-94
QA Confirmation Yes ☐ No ☒
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____
QA Confirmation Yes ☐ No ☐
Comments: _____

INTERPRETED RESULTS: _____

• LCRU 015 ANALYSIS PENDING FURTHER EVALUATION

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU 015

Elapsed Time:00:02:55

15:21 17-May-94

Created:15:17:48 17-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU015 BLK

Elapsed Time:00:00:49

15:37 17-May-94

Created:15:36:12 17-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 17, 1994 15:20 Wait
 C:\FTIRDATA
 LCRU015.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:2.79e-01

5001

1036 399

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

LCRU015.TRANSMITTANCE

Date : May 17, 1994

Time : 15hr-12min-50sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.096	Obs. Time	: 0min 20sec
max	: 1.079	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19
 Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1028.08	0.096
1	1691.71	.047
1	1788.51	.099
1	1808.51	.099
1	1875.79	.099
1	1781.53	.099
1	1735.70	.099
1	1749.99	.099
1	1773.24	.466
1	1796.41	.466
1	1801.40	.466
1	1804.80	.466
1	1808.51	.466
1	1809.44	.466
1	1822.64	.466
1	1842.70	.466
1	1868.47	.466
1	1875.79	.466
1	1895.14	.466
1	1908.12	.661
1	1927.70	.764
1	2042.07	.800

Tuesday, May 17, 1994 15:33 **Wait**
C:\FTIRDATA
LCRU015BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCA4016
Date: 5-11-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 2" D X 10" H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE USED
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 1/2" VCR
Labels and/or Markings: NONE

General Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Valve Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ✓ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ✓ No _____
Sample Method: Large CRV _____ Small CRV _____ Val ✓

Comments:	<u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>		
Sample Date:	<u>5-12-94</u>	Pressure:	<u>0 PSI G</u>
Identified Contents:	<u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>		
Analytical Method:	Mass Spec <u>✓</u>	FTIR <u>✓</u>	Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____	Acid Scrub _____	Oxidizing Carbon _____
		Mole Sieve _____	Flare _____
Recontainerized:	Yes _____	No <u>✓</u>	
Recontainerized Cylinder #:	_____		

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 016

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Orlaga

Date: 5-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: Orlaga

Date: 5-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Orlaga

Date: 5-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCPV 016

Elapsed Time:00:00:26

16:05 12-May-94

Created:16:04:14 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	16	0	200		0.33		1

Thursday, May 12, 1994	16:08	Wait
	C:\FTIRDATA		
	LCRU016.TRANSMITTANCE		
	Print Screen		
Zoom: 1/4 Y:9.96e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

CRU016.TRANSMITTANCE

Date : May 12, 1994

Time : 16hr-7min-13sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .992	Obs. Time	: 0min 20sec
max	: 1.140	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 017
Date: 5-17-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 2"D X 12"H
Color: RED Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE VISIBLE
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PETCOCK
Labels and/or Markings: NONE
General Condition: Good _____ Fair ☒ Poor _____
Comments: _____
Valve Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes GWR JAA No ☒
Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: _____	
Sample Date: <u>6-7-94</u>	Pressure: <u>-5 PSIG</u>
Identified Contents: <u>SMALL TRACE SILICON TETRAFLUORIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>GAS: TW-H-826876</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCP0017

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 6-7-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SMALL TRACE SILICON TETRAFLUORIDE

Analyst Signature: _____

Date: 6-7-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 017

Elapsed Time:00:00:39

09:55 07-Jun-94

Created:09:55:38 07-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, June 7, 1994

9:55 Wait

C:\FTIRDATA

LCRU0017.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.68e-01

5001		1030	399
F1- Curve Only	F2- Curve and Scale		
F3- Full Description	F4- Housekeeping		
F5- Dump Values	F6- Print Screen		

_CRU017.TRANSMITTANCE

Date : June 7, 1994

Time : 9hr-54min-45sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .966	Obs. Time	: 0min 20sec
max	: 1.016	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Tuesday, June 7, 1994 9:58 Wait
C:\FTIRDATA
LCRU017BLK. TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.95e-01

5001	2700	399
F1- Curve Only F3- Full Description F5- Dump Values	F2- Curve and Scale F4- Housekeeping F6- Print Screen	

CYLINDER INSPECTION LOG

Form 2

Project Name: LAUL-94		ERC #: 1084-018	
Date: 5-11-94		Inspector: G. Lobert	
Cylinder Serial #: None		Dimensions: 2" x 12" H	
Color: None Green		Owner Stamp: None	
DOT Rating: 3E1800 3A2015 3AA2400 3A2215		Test Date(s): 9-77	
Cylinder Type: H.P. L.P. ☒		Valve Type: 110	
Labels and/or Markings: Nitrosyl Chloride			
General Condition: Good ☒ Fair ☐ Poor ☐		Comments:	
Valve Condition: Good ☒ Fair ☐ Poor ☐		Comments:	
Pre-operation Weight: _____		Post-operation Weight: _____	
Approved to Handle: Yes ☒ No ☐		Handling Precautions: _____	
Approved for Valve Sampling: Yes ☒ No ☐		Sample Method: Large CRV ☐ Small CRV ☐ Val ☒	
Comments: _____			
Identified Contents: Nitrogen, trace oxygen, trace hydrogen			
Analytical Method: Mass Spec ☒ FTIR ☒ Other ☐			
Disposition: Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐ Mole Sieve ☐ Flare ☐			
Recontaminated: Yes ☐ No ☒			
Recontaminated Cylinder #: _____			
Sample Date: 5-12-94			
Pressure: 0 PSI			
Comments: TEST NEGATIVE FOR FLUORINE (TRACE TUBE) TEST NEGATIVE FOR NITROUS FLUORIDES (DETECT)			

Use or disclosure of data contained on this sheet is subject to the restrictions on the title page of this plan.

ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCEU018

MASS SPECTRUM INTERPRETATION

NI TROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: O. Vargas Date: 5-12-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: O. Vargas Date: 5-12-94
QA Confirmation Yes ☐ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)
TEST NEGATIVE FOR NITROUS FLAMES (DRAEGER)

Analyst Signature: O. Vargas Date: 5-12-94
QA Confirmation Yes ☐ No ☐
Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 018

Elapsed Time:00:00:10

16:20 12-May-94

Created:16:27:54 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 12, 1994
C:\FTIRDATA
LCRU018.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.48e-01

16:28 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU018.TRANSMITTANCE

ate : May 12, 1994

Time : 16hr-27min-29sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .946	Obs. Time	: 0min 20sec
max	: 1.129	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 019

Date: 5-17-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2 1/2" x 14" H

Color: BLUE Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PETCOCK

Labels and/or Markings: NITROSYL CHLORIDE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-19-94</u>	Pressure: <u>-10 PSIG</u>
Identified Contents: <u>NITROSYL CHLORIDE, OXIDES OF NITROGEN,</u> <u>TRACE HYDROGEN, NITROGEN, TRACE CHLORINE, TRACE HYDROGEN</u>	
Analytical Method: <u>CHLORIDE, TRACE CO₂ Mass Spec</u> <u>FTIR</u> Other _____	
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	
Mole Sieve _____ Flare _____	
Recontainerized: Yes _____ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU019

MASS SPECTRUM INTERPRETATION

NITROGEN, OXIDES OF NITROGEN, TRACE HYDROGEN,
TRACE CHLORINE, TRACE HYDROGEN CHLORIDE

Analyst Signature: OVargas Date: 5-19-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROSYL CHLORIDE, TRACE CARBON
DIOXIDE

Analyst Signature: OVargas Date: 5-19-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRV 019

Elapsed Time:00:01:00

10:00 19-May-94

Created:09:56:48 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 019 BLK

Elapsed Time:00:01:06

10:11 19-May-94

Created:10:10:17 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 19, 1994

9:56 Wait

C:\FTIRDATA

LCRU019.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.87e-03

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU019.TRANSMITTANCE
Date : May 19, 1994

Time : 9hr-54min-44sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.000	Obs. Time	: 0min 20sec
max	: 1.025	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	459.02	.833
2	585.31	.625
3	604.13	.237
4	1261.08	.841
5	1599.16	.307
6	1626.98	.213
7	1788.73	0.000
8	1810.45	-0.000
9	2127.81	.885
10	2349.81	.823
11	2917.32	.874
12	3558.84	.731

Thursday, May 19, 1994 10:08 Wait
C:\FTIRDATA
LCRU019BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.51e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4 020

Date: 4-26-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D x 12" H LEC. BOTTOM

Color: RED Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PET COCK

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: _____

Sample Date: 4-27-94 Pressure: 126 PSIG

Identified Contents: NITROGEN, CHLORINE, HYDROGEN CHLORIDE,

Analytical Method: Mass Spec ☒ FTIR ☒ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes ☒ No _____

Recontainerized Cylinder #: TW-H-862404

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU020

MASS SPECTRUM INTERPRETATION

NITROGEN, CHLORINE, HYDROGEN CHLORIDE, TRACE
HYDROGEN

Analyst Signature: ovarys Date: 4-27-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE

Analyst Signature: ovarys Date: 4-27-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• LCRU020 FTIR ANALYSIS PENDING FURTHER EVALUATION

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU020

Elapsed Time:00:00:41

15:33 27-Apr-94

Created:14:32:14 27-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 020 BLK

Elapsed Time:00:01:03

14:50 27-Apr-94

Created:14:49:55 27-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, April 27, 1994 14:51 Wait
C:\FTIRDATA
LCRU020.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.83e-01

5001 2870 399
F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

CRU020.TRANSMITTANCE
ate : April 27, 1994
escription: CRV SAMPLE

Time : 14hr-30min-22sec

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .858	Obs. Time	: 0min 20sec
max	: .999	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	458.13	.858
2	1251.25	.882

Wednesday, April 27, 1994 14:49 Wait
C:\FTIRDATA
LCRU020BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.28e-01

5001	2357	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4 021

Date: 5-10-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D X 19" H

Color: Dull Red Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 3/8" Autoclave

Labels and/or Markings:

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-11-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>SULFUR HEXAFLUORIDE, SULFUR TETRAFLUORIDE</u>	
<u>NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: <u>GC OXYGEN</u>	Mass Spec ☒ FTIR ☒ Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	Mole Sieve _____ Flare _____
Recontainerized: Yes _____ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU021

MASS SPECTRUM INTERPRETATION

SULFUR HEXAFLUORIDE, SULFUR TETRAFLUORIDE
NITROGEN, TRACE HYDROGEN, TRACE OXYGEN

Analyst Signature: [Signature] Date: 5-11-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

SULFUR HEXAFLUORIDE, SULFUR TETRAFLUORIDE
TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-11-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCPV021

Elapsed Time:02:51:21

14:20 11-May-94

Created:14:28:46 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 021 BLK

Elapsed Time:00:02:27

14:43 11-May-94

Created:14:42:53 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994 14:38 Wait
C:\FTIRDATA
LCRU021.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.24e-04

5001

907 399

F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

.CRU021.TRANSMITTANCE

Date : May 11, 1994

Time : 14hr-27min-42sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	Obs. Time	: 0min 20sec
max	: .993	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	440.82	.596
2	542.13	.590
3	590.54	-0.001
4	706.91	0.008
5	799.45	.299
6	848.90	-0.002
7	902.80	-0.001
8	1001.53	.818
9	1050.93	.808
10	1454.96	.778
11	1525.07	.525
12	1609.46	.514
13	1700.87	.689
14	2349.38	.758

Wednesday, May 11, 1994 14:42 **Wait**
C:\FTIRDATA
LCRU021BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.37e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 022

Date: 5-4-94 Inspector: G. ROBERTS

Cylinder Serial #: 530 Dimensions: 1"DX5"H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: NONE VISIBLE Test Date(s): NONE VISIBLE

Cylinder Type: H.P. _____ L.P. _____ Valve Type: 1/4" SWAGelok

Labels and/or Markings:
NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-5-94</u>	Pressure: <u>0PSIG</u>
Identified Contents: <u>TRACE NITROGEN DIOXIDE, NITROGEN, TRACE OXYGEN, TRACE SILICON TETRAFLUORIDE, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>659052</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCPU 022

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: [Signature]

Date: 5-5-99

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE NITROGEN DIOXIDE, ^{SMALL} TRACE SILICON
TETRAFLUORIDE, TRACE CARBON DIOXIDE

Analyst Signature: [Signature]

Date: 5-5-99

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRV022

Elapsed Time:00:02:26

15:23 05-May-94

Created:15:22:48 05-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 5, 1994

15:22 Wait

C:\FTIRDATA

LCRU022.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.29e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU022.TRANSMITTANCE

ate : May 5, 1994

Time : 15hr-19min-45sec

escription: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .892

max : 1.095

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak
1

wavenumber
1614.25

intensity
.892

Thursday, May 5, 1994 15:39 Wait
C:\FTIRDATA
LCRU022BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.49e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRV 023
Date: 5-25-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 1 1/4" D x 3" H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 312015 3AA2400 3A2215
Other: NONE Test Date(s): NONE
Cylinder Type: H.P. _____ L.P. _____ Valve Type: 1/4" SWAGelok
Labels and/or Markings: NONE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair _____ Poor _____

Comments: NO VALVE

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes _____ No ☒

Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>6-1-94</u>	Pressure: <u>-10 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE</u>	
Analytical Method: <u>CARBON DIOXIDE</u>	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	Mole Sieve _____ Flare _____
Recontainerized: Yes _____ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 023

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: Orlagas

Date: 6-1-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: Orlagas

Date: 6-1-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Orlagas

Date: 6-1-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU023

Elapsed Time:01:00:55

10:29 01-Jun-94

Created:10:28:52 01-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, June 1, 1994

10:27 Wait

C:\FTIRDATA

LCRU023.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.24e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU023, TRANSMITTANCE

ate : June 1, 1994

Time : 10hr-25min-29sec

escription: CRV SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .921
max : 1.273
Resolution : 4.00 cm-1
Detector : DTGS 2mm
Mode : IR

#Scans : 4
Speed : .18 cm/sec
Obs. Time : 0min 20sec
Source : Glowbar
Beamsplitter : KBr
Apodization : Cosine

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1364.08	.988

Project Name: LAUL-94 Date: 5-10-94 Inspector: G. Bogert

Cylinder Serial #: None Dimensions: 3/4" x 6" H

Color: "Plastic" Tube Owner Stamp: None

DOT Rating: None 3E1800 312015 3AA2400 3A2215

Other: None Test Date(s): None

Cylinder Type: H.P. Valve Type: 1/4" Swagelok

Labels and/or Markings:

General Condition: Good Fair Poor

Comments:

Valve Condition: Good Fair Poor

Comments:

Pre-operation Weight:

Approved to Handle: Yes No

Handling Precautions:

Approved for Valve Sampling: Yes No

Sample Method: Large CRV Small CRV Val

Comments:	Sample Date: <u>5-11-94</u>	Pressure: <u>1000 PSIG</u>
Identified Contents:	<u>Oxygen, Nitrogen, Argon, Helium, Silicon Tetra</u>	
Analytical Method:	<u>FLUORIDE, TRACE FLUOROCARBON, TRACE CARBON DIOXIDE</u>	
Disposition:	Caustic Scrub	Acid Scrub
	Oxidizing Carbon	Other
	Mass Spec	FTIR
	Mole Sieve	Flare
Recontaminated:	Yes	No
Recontaminated Cylinder #:		

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU024

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, BROMINE, TRACE SILICON
TETRAFLUORIDE, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-11-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE, SILICON TETRAFLUORIDE,
TRACE FLUOROCARBON

Analyst Signature: [Signature] Date: 5-11-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

LCRU024 FTIR ANALYSIS PENDING FURTHER EVALUATION

QA or Document Officer Signature: _____

DATE: _____

LCRU024

Elapsed Time:00:04:02

10:59 11-May-94

Created:10:57:22 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 024 BLK

Elapsed Time:00:00:36

11:24 11-May-94

Created:11:24:19 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994 10:59 **Wait**
C:\FTIRDATA
LCRU024.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.32e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

CRU024.TRANSMITTANCE

ate : May 11, 1994

Time : 10hr-44min-36sec

escription: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .692
max : 1.020
Resolution : 4.00 cm-1
Detector : DTGS 2mm
Mode : IR

#Scans : 4
Speed : .18 cm/sec
Obs. Time : 0min 20sec
Source : Glowbar
Beamsplitter : KBr
Apodization : Cosine

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1028.40	.692
2	2349.69	.893

Wednesday, May 11, 1994 11:20 Wait
C:\FTIRDATA
LCRU024BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.48e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCAU 025

Date: 4-26-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D X 12" H Let Bottle

Color: RED Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PET COCK

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: _____	
Sample Date: <u>4-27-94</u>	Pressure: <u>100 PSIG</u>
Identified Contents: <u>NITROGEN, CHLORINE, HYDROGEN CHLORIDE, TRAIL</u>	
<u>HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>TW-H-862404</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU025

MASS SPECTRUM INTERPRETATION

NITROGEN, CHLORINE, HYDROGEN CHLORIDE, TRACE HYDROGEN

Analyst Signature: Orlano

Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE,

Analyst Signature: Orlano

Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• LCRU025 FTIR ANALYSIS PENDING FURTHER EVALUATION

QA or Document Officer Signature: _____

DATE: _____

LCRU025

Elapsed Time:00:00:29

15:24 27-Apr-94

Created:15:23:42 27-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 025 BLK

Elapsed Time:00:02:01

15:39 27-Apr-94

Created:15:37:40 27-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	16	0	200		0.33		1

Wednesday, April 27, 1994 15:23 Wait
C:\FTIRDATA
LCRU025.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.90e-01

1.138
5001 2886 399
-0.036
F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

_CRU025, TRANSMITTANCE

Date : April 27, 1994

Time : 15hr-22min-14sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .935	Obs. Time	: 0min 20sec
max	: 1.031	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Wednesday, April 27, 1994 15:34 Wait
C:\FTIRDATA
LCRU025BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.02e+00

5001 2700 399
F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCPH 026
Date: 5-17-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 2" D X 14" H
Color: BLUE Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE VISIBLE
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 110 PETROCK
Labels and/or Markings: NONE

General Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Valve Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ✓ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ✓ No _____
Sample Method: Large CRV _____ Small CRV _____ Val ✓

Comments: _____	
Sample Date: <u>5-19-94</u>	Pressure: <u>100 PSIG</u>
Identified Contents: <u>PERCHLORYL FLUORIDE, TRACE NITROGEN,</u>	
<u>TRACE HYDROGEN, OXYGEN</u>	
Analytical Method: _____	Mass Spec _____ FTIR <u>✓</u> Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV026

MASS SPECTRUM INTERPRETATION

PERCHLORYL FLUORIDE, TRACE NITROGEN,
TRACE HYDROGEN, OXYGEN

Analyst Signature: OVayas Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

PERCHLORYL FLUORIDE^{e.v}

Analyst Signature: OVayas Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU026

Elapsed Time:00:02:46

11:09 19-May-94

Created:10:57:59 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCPV026 BLK

Elapsed Time:00:00:52

11:21 19-May-94

Created:11:20:49 19-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 19, 1994

11:09 Wait

C:\FTIRDATA

LCRU026.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-3.37e-04

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU026.TRANSMITTANCE
ate : May 19, 1994

Time : 10hr-56min-43sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.087	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	404.87	.562
2	589.96	-0.001
3	709.82	-0.001
4	807.03	.816
5	1059.34	-0.001
6	1305.08	-0.001
7	1420.18	.722
8	2025.37	.704
9	2360.32	.166
10	2616.83	.811

Thursday, May 19, 1994 11:19 **Wait**
C:\FTIRDATA
LCRU026BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.29e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 027

Date: 5-8-97 Inspector: G. ROBERT

Cylinder Serial #: NONE Dimensions: 2" D X 12" H

Color: SILVER Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: _____ Test Date(s): 9-86

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" NPT

Labels and/or Markings:
PHENIX HEXAFLUORIDE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-9-94</u>	Pressure: <u>0 PSI G</u>
Identified Contents: <u>NITROGEN, CARBON DIOXIDE, TRACE HYDROGEN</u>	
<u>TEST POSITIVE FOR FLUORINE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 027

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

O'Vall

Date: 5-9-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: _____

O'Vall

Date: 5-9-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

O'Vall

Date: 5-9-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCPU027

Elapsed Time:00:00:19

09:27 09-May-94

Created:09:25:41 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Monday, May 9, 1994
C:\FTIRDATA
LCRU027.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.87e-01

9:24 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU027.TRANSMITTANCE

Date : May 9, 1994

Time : 9hr-23min-58sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .770	Obs. Time	: 0min 20sec
max	: 1.103	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1506.80	.913
2	2349.27	.770

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU028
Date: 5-6-94 Inspector: G. Roberts
Cylinder Serial #: NONE Dimensions: 2"D x 9"H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE VISIBLE
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" SWAGECOIL
Labels and/or Markings: NONE
General Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Valve Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No _____
Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>			
Sample Date: <u>5-9-94</u>		Pressure: <u>0 PSIG</u>	
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>			
Analytical Method:	Mass Spec ☒	FTIR ☒	Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____	Acid Scrub _____	Oxidizing Carbon _____
		Mole Sieve _____	Flare _____
Recontainerized:	Yes _____	No ☒	
Recontainerized Cylinder #: _____			

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU028LS

MASS SPECTRUM INTERPRETATION

Analyst Signature: N/A

Date: 5-27-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

Analyst Signature: ovaryas

Date: 5-27-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

- FURTHER
- LIQUID SAMPLE ANALYSIS PENDING EVALUATION
 - HEXANE SHOWN IN BLANK
 - PYROPHORIC (REACTION W/WATER; W/AIR)
 - SOLUBLE IN HEXANE,

QA or Document Officer Signature: _____

DATE: _____

Friday, May 27, 1994

11:05 Wait

C:\FTIRDATA

LCRU028LS.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:2.79e-02

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU0281 S. TRANSMITTANCE

date : May 27, 1994

Time : 11hr-2min-43sec

Description: LIQUID SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.006	Obs. Time	: 0min 20sec
max	: 1.035	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2273.21	.473
2	2827.82	-0.000
3	3180.38	0.081
4	3807.67	.430
5	3876.51	.421
6	4087.62	.178
7	4287.81	.102
8	4379.12	.210

Friday, May 27, 1994 11:26 Wait
 C:\FTIRDATA
 LCRU028LSBLK2.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:9.71e-01

5001 2700 399

F1- Curve Only F2- Curve and Scale
 F3- Full Description F4- Housekeeping
 F5- Dump Values F6- Print Screen

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 028
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE ISOBUTANE, OXYGEN, TRACE ^{O.V} ~~OX~~ HYDROGEN

Analyst Signature: *O Vargas*

Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE ISOBUTANE, TRACE CARBON DIOXIDE

Analyst Signature: *O Vargas*

Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• LCRU 028 RESAMPLED DUE TO SUSPECTED PYROPHORIC LIQUID IN CYLINDER

QA or Document Officer Signature: _____

DATE: _____

LCPV028 RE

Elapsed Time:00:00:51

10:22 09-May-94

Created:10:30:46 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	0	0	200		0.33		1

LCRV028 RE

Elapsed Time:00:24:48

10:26 09-May-94

Created:10:25:14 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	8	0	200		0.33		1

Monday, May 9, 1994

10:24 Wait

C:\FTIRDATA

LCRU028RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.62e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU028RE.TRANSMITTANCE

Date : May 9, 1994

Time : 10hr-19min-7sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .808	Obs. Time	: 0min 20sec
max	: 1.103	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	418.51	.952
2	1506.72	.931
3	1557.60	.933
4	1652.10	.965
5	2348.81	.966
6	2961.89	.808

Monday, May 9, 1994

10:30 Wait

C:\FTIRDATA

LCRU028REBLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.04e+00

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 028

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-9-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-9-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TRACE NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: [Signature] Date: 5-9-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 028

Elapsed Time:00:00:27

09:58 09-May-94

Created:09:57:15 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Monday, May 9, 1994
C:\FTIRDATA
LCRU028.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.29e-01

10:00 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU028.TRANSMITTANCE
ate : May 9, 1994

Time : 10hr-0min-6sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .901	Obs. Time	: 0min 20sec
max	: 1.066	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1558.11	.901
2	2349.10	.925

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 029

Date: 5-17-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D x 14" H

Color: BLUE Owner Stamp: _____

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): None Visible

Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 110 PET COCK

Labels and/or Markings:
MATHESON TAG

General Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ✓ Fair _____ Poor _____

Comments: MONEL VALVE

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ✓ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ✓ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ✓

Comments: _____	
Sample Date: <u>5-18-94</u>	Pressure: <u>25 PSIG</u>
Identified Contents: <u>NITROSYL CHLORIDE, TRACE OF HYDROGEN OXIDES OF NITROGEN</u>	
Analytical Method:	Mass Spec <u>✓</u> FTIR <u>✓</u> Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU029

MASS SPECTRUM INTERPRETATION

OXIDES OF NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-18-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROSYL CHLORIDE

Analyst Signature: _____

Date: 5-18-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRV029

Elapsed Time:00:00:38

10:17 18-May-94

Created:10:16:49 18-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 029 BLK

Elapsed Time:00:00:47

10:28 18-May-94

Created:10:28:16 18-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 18, 1994

10:15 Wait

C:\FTIRDATA

LCRU029.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-2.94e-04

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU029, TRANSMITTANCE
ate : May 18, 1994

Time : 10hr-12min-46sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.066	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	593.03	0.000
2	762.04	.812
3	924.21	.769
4	1279.87	.682
5	1599.37	.188
6	1627.67	0.078
7	1803.08	-0.001
8	1873.68	.556
9	1907.89	.541
10	2117.74	.585
11	2137.93	.571
12	2209.01	.818
13	2335.32	.762
14	2392.19	.903
15	2916.91	.851
16	3552.09	.240
17	3570.42	.339

Wednesday, May 18, 1994 10:27 Wait
C:\FTIRDATA
LCRU029BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.42e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCP4 030
Date: 5-9-94 Inspector: G. R. B. J.
Cylinder Serial #: NONE Dimensions: 2" D X 12" H
Color: TAN Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE 11/21/95
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110
Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Valve Condition: Good _____ Fair ☒ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No _____
Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-10-94</u>	Pressure: <u>500 PSIG</u>
Identified Contents: <u>SILICON TETRAFLUORIDE, NITROGEN, TRACE</u>	
<u>HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	
Mole Sieve _____ Flare _____	
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU030

MASS SPECTRUM INTERPRETATION

SILICON TETRAFLUORIDE, NITROGEN, TRACE HYDROGEN

Analyst Signature: OVAGAT Date: 5-10-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SILICON TETRAFLUORIDE, TRACE CARBON DIOXIDE

Analyst Signature: OVAGAT Date: 5-10-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCPV 030

Elapsed Time:00:59:25

14:19 10-May-94

Created:14:17:26 10-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LC RU 030 BLK

Elapsed Time:00:00:23

14:26 10-May-94

Created:14:25:53 10-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 10, 1994

14:17 Wait

C:\FTIRDATA

LCRU030.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.65e-04

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

.CRU030.TRANSMITTANCE

Date : May 10, 1994

Time : 14hr-16min-5sec

Description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52

Ampl. min : -0.009
max : 1.120

Resolution : 4.00 cm⁻¹

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1021.85	-0.001
2	1190.06	.710
3	1288.32	.877
4	1825.00	.760
5	2350.27	.862

Tuesday, May 10, 1994

14:24 Wait

C:\FTIRDATA

LCRU030BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.30e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 031

Date: 5-17-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2"D x 11"H

Color: RED/BROWN Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 110 Pot Core

Labels and/or Markings: NONE

General Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ✓ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes FOR LAB No ✓

Sample Method: Large CRV _____ Small CRV _____ Val _____

Comments: _____	
Sample Date: <u>6-7-94</u>	Pressure: <u>-10 PSIG</u>
Identified Contents: <u>HYDROGEN CHLORIDE SILICON TETRAFLUORIDE</u>	
<u>NITROGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec <u>✓</u> FTIR <u>✓</u> Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes <u>✓</u> No _____
Recontainerized Cylinder #: <u>GAS: TW-H-826876</u>

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU031

MASS SPECTRUM INTERPRETATION

TRACE HYDROGEN CHLORIDE, NITROGEN, TRACE HYDROGEN

Analyst Signature: Orlaga Date: 6-7-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, SILICON TETRAFLUORIDE

Analyst Signature: Orlaga Date: 6-7-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCPV 031

Elapsed Time:00:22:20

08:34 07-Jun-94

Created:08:32:56 07-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 031 BLK

Elapsed Time:00:00:20

08:43 07-Jun-94

Created:08:43:06 07-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, June 7, 1994 8:32 **Wait**
C:\FTIRDATA
LCRU031.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.56e-01

5001		1032 399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

CRU031.TRANSMITTANCE
ate : June 7, 1994
escription: CRVBLANK

Time : 8hr-31min-58sec

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .788	Obs. Time	: 0min 20sec
max	: 1.031	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1028.38	.788
2	2942.79	.880

Tuesday, June 7, 1994 8:41 Wait
C:\FTIRDATA
LCRU031BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 032
Date: 5-17-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 28X12 1/4
Color: RED/BROWN Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): Non VISIBLE
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 110 PETCOCK
Labels and/or Markings: NONE

General Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Valve Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ✓ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes GWR No ✓
Sample Method: Large CRV _____ Small CRV ✓ Val _____

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>6-7-94</u>	Pressure: <u>-10 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec <u>✓</u> FTIR <u>✓</u> Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU032

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: O Vargas Date: 6-7-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: O Vargas Date: 6-7-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: O Vargas Date: 6-7-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCHV 032

Elapsed Time:00:05:28

09:22 07-Jun-94

Created:09:20:26 07-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, June 7, 1994 9:23 **Wait**
C:\FTIRDATA
LCRU032.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

CRU032.TRANSMITTANCE
ate : June 7, 1994

Time : 9hr-23min-52sec

escription: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .990	Obs. Time	: 0min 20sec
max	: 1.009	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LAWL-94 ERC #: LCP4033
Date: 5-9-94 Inspector: G. R. [Signature]
Cylinder Serial #: NONE Dimensions: 2" D X 12" L
Color: GREEN / SILVER Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE VISIBLE
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 / 170
Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-10-94</u>	Pressure: <u>400 PSIG</u>
Identified Contents: <u>SILICON TETRAFLUORIDE, NITROGEN, TRACE</u>	
<u>HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR _____ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU033

MASS SPECTRUM INTERPRETATION

SILICON TETRAFLUORIDE, NITROGEN, TRACE HYDROGEN

Analyst Signature: OVANOS Date: 5-10-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

SILICON TETRAFLUORIDE, TRACE CARBON DIOXIDE

Analyst Signature: OVANOS Date: 5-10-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 033

Elapsed Time:00:01:14

15:10 10-May-94

Created:15:09:14 10-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRV033 BLK

Elapsed Time: 00:00:50

15:10 10-May-94

Created: 15:19:10 10-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 10, 1994
C:\FTIRDATA
LCRU033.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-8.01e-04

15:08 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU033.TRANSMITTANCE

ate : May 10, 1994

Time : 15hr-7min-34sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.106	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	669.08	.906
2	838.64	.876
3	1022.14	-0.001
4	1197.52	.642
5	1825.15	.818
6	2349.59	.679

Tuesday, May 10, 1994

15:16 Wait

C:\FTIRDATA

LCRU033BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:6.22e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4 034

Date: 5-6-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" D X 10" H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 4-76

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" AUTOCLAVE

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-9-94</u>	Pressure: <u>0 PSI G</u>
Identified Contents: <u>ISOTOPIC OXIDES OF NITROGEN, NITROGEN, HELIUM</u>	
<u>ISOTOPIC NITROGEN DIOXIDE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRUD34

MASS SPECTRUM INTERPRETATION

ISOTOPIC OXIDES OF NITROGEN, NITROGEN, HELIUM

Analyst Signature: Orlaga Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

ISOTOPIC NITROGEN DIOXIDE

Analyst Signature: Orlaga Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

LCRUD34 ANALYSIS PENDING FURTHER EVALUATION

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCRV034

Elapsed Time:00:16:09

13:20 09-May-94

Created:11:13:15 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 3	16	0	200		0.33		1

LCPV034 BLK

Elapsed Time:00:00:37

11:42 09-May-94

Created:11:40:23 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Monday, May 9, 1994
 C:\FTIRDATA
 LCRU034.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:7.87e-03

11:40 Wait

5001	1226	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

CRU034, TRANSMITTANCE
ate : May 9, 1994

Time : 11hr-11min-47sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.061	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	577.57	.736
2	726.42	0.015
3	1223.19	0.004
4	1562.36	-0.001
5	1694.48	-0.001
6	1756.94	.272
7	1777.02	.401
8	2341.98	.781
9	2793.78	.679
10	2831.69	.587
11	2870.03	.766
12	3565.05	.935
13	3733.43	.934
14	3851.35	.950

Monday, May 9, 1994

11:42 Wait

C:\FTIRDATA

LCRU034BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.03e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL -94 ERC #: LCA4 035

Date: 5-5-94 Inspector: G. Roberts

Cylinder Serial #: NONE Dimensions: 2 1/2 x 10 1/4

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" SWAGE-LOK

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-6-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE NITROGEN DIOXIDE, TRACE OXYGEN</u> <u>TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>L59052</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 035

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE NITROGEN DIOXIDE, TRACE OXYGEN,
TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE NITROGEN DIOXIDE, TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

*Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan.*

ERC

LCRU 035

Elapsed Time:00:00:21

10:42 06-May-94

Created:10:42:04 06-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Elapsed Time:00:00:33

10:56 06-May-94

Created:10:55:27 06-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Friday, May 6, 1994

10:42 Wait

C:\FTIRDATA

LCRU035.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.75e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU035. TRANSMITTANCE

ate : May 6, 1994

Time : 10hr-40min-45sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .841	Obs. Time	: 0min 20sec
max	: 1.041	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1616.29	.841
2	2350.34	.844

Friday, May 6, 1994 10:54 Wait
C:\FTIRDATA
LCRU035BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.24e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 036

Date: 5-10-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2"DX12"H

Color: BLACK Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: _____ Test Date(s): 6-72

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110

Labels and/or Markings: _____

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-11-94</u>	Pressure: <u>100 PSIG</u>
Identified Contents: <u>ARGON, TRACE SILICON TETRAFLUORIDE, NITROGEN</u>	
<u>IN HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LC RU 036

MASS SPECTRUM INTERPRETATION

ARGON, NITROGEN, TRACE HYDROGEN

Analyst Signature: OVAYAS Date: 5-11-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE SILICON TETRAFLUORIDE, TRACE CARBON
DIOXIDE

Analyst Signature: OVAYAS Date: 5-11-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 036

Elapsed Time:00:00:26

11:29 11-May-94

Created:11:28:42 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCPV 036 BLK

Elapsed Time:00:00:41

11:35 11-May-94

Created:11:34:22 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994

11:30 **Wait**

C:\FTIRDATA

LCRU036.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.36e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU036. TRANSMITTANCE
ate : May 11, 1994

Time : 11hr-26min-38sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .757	Obs. Time	: 0min 20sec
max	: 1.033	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2350.11	.757

Wednesday, May 11, 1994

11:34 Wait

C:\FTIRDATA

LCRU036BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.32e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 037

Date: 5-17-94 Inspector: G. ROBERTS

Cylinder Serial #: None Dimensions: 2"D x 11"H

Color: PINK Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): Non Visible

Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 110 PETCOCK

Labels and/or Markings:
SUFRA TETRAFLUORIDE

General Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ✓ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ✓ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ✓

Comments: _____	
Sample Date: <u>5-18-94</u>	Pressure: <u>100 PSIG</u>
Identified Contents: <u>THIONYL FLUORIDE, NITROGEN, TRACE HYDROGEN</u> <u>TRACE HYDROGEN CHLORIDE</u>	
Analytical Method:	Mass Spec <u>✓</u> FTIR <u>✓</u> Other <u>✓</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU037

MASS SPECTRUM INTERPRETATION

THIONYL FLUORIDE, NITROGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-18-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

THIONYL FLUORIDE, TRACE HYDROGEN
CHLORIDE, TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-18-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

-LCPU037

Elapsed Time:00:00:46

10:48 18-May-94

Created:10:45:11 18-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU037 BLK

Elapsed Time:00:02:55

10:56 18-May-94

Created:10:55:13 18-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 18, 1994

10:45

Wait

C:\FTIRDATA

LCRU037.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:5.50e-04

1.116

.530

-0.056

5001

781

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU037. TRANSMITTANCE

Date : May 18, 1994

Time : 10hr-44min-11sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.003	Obs. Time	: 0min 20sec
max	: 1.063	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	527.45	0.018
2	545.65	0.026
3	772.85	-0.003
4	945.15	0.096
5	1142.01	.728
6	1281.40	.123
7	1336.62	-0.001
8	1483.04	.657
9	1546.71	.674
10	1605.54	.824
11	1788.50	.540
12	1808.55	.576
13	2349.87	.901
14	2653.16	.768

Wednesday, May 18, 1994
C:\FTIRDATA
LCRU037BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.93e-01

10:54 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4038
Date: 5-6-94 Inspector: G. Roberts
Cylinder Serial #: None Dimensions: 2" D x 10 1/4" H
Color: STAINLESS STEEL Owner Stamp: None
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): 5-82
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/2" VCR
Labels and/or Markings: None

General Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Valve Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No _____
Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-9-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN TRIFLUORIDE, NITROGEN, TRACE</u>	
<u>HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes ☒ No _____
Recontainerized Cylinder #: <u>TW-H-862393</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU038

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE NITROGEN TRIFLUORIDE, TRACE
HYDROGEN

Analyst Signature: OVANPAS Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE CARBON DIOXIDE

Analyst Signature: OVANPAS Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCPV 038

Elapsed Time:00:17:21

14:40 09-May-94

Created:14:45:11 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 038

Elapsed Time:00:00:20

14:55 09-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Monday, May 9, 1994
C:\FTIRDATA
LCRU038.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:5.50e-04

14:44 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU038.TRANSMITTANCE

Date : May 9, 1994

Time : 14hr-44min-5sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : -0.001

max : 1.064

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	491.74	.925
2	645.44	.863
3	668.17	.901
4	901.91	-0.001
5	1009.91	.410
6	1029.82	.244
7	1548.84	.920
8	1795.86	.916
9	1929.55	.824
10	2348.98	.838

Monday, May 9, 1994

14:53 **Wait**

C:\FTIRDATA

LCRU038BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.89e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 039

Date: 5-17-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 2" x 12" H

Color: RED Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PETCOCK

Labels and/or Markings: NONE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: SECONDARY VALVE

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-18-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes ☒ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU039

MASS SPECTRUM INTERPRETATION

NITROGEN², TRACE HYDROGEN

Analyst Signature: _____

O'Quinn

Date: 5-18-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: _____

O'Quinn

Date: 5-18-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

O'Quinn

Date: 5-18-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCPV039

Elapsed Time:00:01:19

11:01 18-May-94

Created:11:00:17 18-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 18, 1994

11:01 Wait

C:\FTIRDATA

LCRU039.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.92e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU039.TRANSMITTANCE

Date : May 18, 1994

Time : 11hr-0min-39sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .865

max : 1.050

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak
1

wavenumber
2349.47

intensity
.865

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 041
Date: 5-10-94 Inspector: G. Roberts
Cylinder Serial #: NONE Dimensions: 2" D X 10" H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 312015 3AA2400 3A2215
Other: _____ Test Date(s): ?-82
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 1/4" SWAGE LOCK
Labels and/or Markings: _____

General Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ✓ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ✓ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ✓

Comments: <u>PYROLYTIC LIQUID</u>	
Sample Date: <u>5-11-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>ARGON, TRACE NITROGEN, TRACE HYDROGEN METHANE</u>	
Analytical Method:	Mass Spec <u>✓</u> FTIR <u>✓</u> Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU041LS

MASS SPECTRUM INTERPRETATION

N/A

Analyst Signature: _____

Ortega

Date: 5-31-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

PYROPHORIC, REACTION W/ WINDOW CELLS

Analyst Signature: _____

Ortega

Date: 5-31-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS:

- LCRU041LS FTIR ANALYSIS PENDING FURTHER EVALUATION
- REACTION W/ WATER
- REACTION W/ AIR
- REACTION W/ WINDOW CELLS
- PYROPHORIC

QA or Document Officer Signature:

DATE: _____

Tuesday, May 31, 1994

15:19 Wait

C:\FTIRDATA

LCRU041LS.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:2.35e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU041LS. TRANSMITTANCE

ate : May 31, 1994

Time : 15hr-18min-54sec

Description: LIQUID SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : -0.007
max : .557
Resolution : 4.00 cm-1
Detector : DTGS 2mm
Mode : IR

#Scans : 4
Speed : .18 cm/sec
Obs. Time : 0min 20sec
Source : Glowbar
Beamsplitter : KBr
Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	644.07	-0.007
2	989.10	.249
3	1061.37	.100
4	1224.56	-0.001
5	1433.36	0.079
6	1556.80	.437
7	1699.62	.456
8	1789.56	.384
9	1884.00	.372
10	2282.29	.366
11	2919.05	-0.002
12	3525.33	.130
13	4346.53	.177

Tuesday, May 31, 1994

15:37 **Wait**

C:\FTIRDATA

LCRU041LSBLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:5.82e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 041

MASS SPECTRUM INTERPRETATION

ARGON, TRACE METHANE, TRACE NITROGEN,
TRACE HYDROGEN

Analyst Signature: Overly Date: 5-11-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

METHANE

Analyst Signature: Overly Date: 5-11-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCPV 041

Elapsed Time:00:01:23

16:12 11-May-94

Created:16:11:20 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 041 BLK

Elapsed Time:00:00:24

16:21 11-May-94

Created:16:20:27 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994

16:10 Wait

C:\FTIRDATA

LCRU041.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.34e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

.CRU041.TRANSMITTANCE

Date : May 11, 1994

Time : 16hr-9min-55sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .545	Obs. Time	: 0min 20sec
max	: 1.027	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1303.61	.681
2	2957.15	.836
3	3014.45	.545

Wednesday, May 11, 1994 16:19 **Wait**
C:\FTIRDATA
LCRU041BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.99e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 042
Date: 5-11-94 Inspector: G. Roberts
Cylinder Serial #: NONE Dimensions: 3"D x 9"H
Color: Blue Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 4B240 Test Date(s): 7-79
Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" SWAGE LOCK
Labels and/or Markings: NONE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>SUSPECTED RESIDUAL DICHLORODIFLUOROETHYLENE IN V S</u>	
Sample Date: <u>5-12-94</u>	Pressure: <u>0 PSI @ SYSTEM</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE HYDROGEN, TRACE DICHLORODIFLUOROETHYLENE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU042

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: Ovaras

Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

RESIDUAL TRACE DICHLORODIFLUOROETHYLENE

Analyst Signature: Ovaras

Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

- SUSPECTED RESIDUAL OF R-112 ($C_2Cl_2F_2$) IN VALVE SAMPLING SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRU 042

Elapsed Time:00:01:28

11:09 12-May-94

Created:11:07:52 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 12, 1994

11:08 Wait

C:\FTIRDATA

LCRU042.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.74e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU042.TRANSMITTANCE
ate : May 12, 1994

Time : 11hr-6min-0sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .947	Obs. Time	: 0min 20sec
max	: 1.100	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1030.14	.947

Thursday, May 12, 1994 11:17 Wait
C:\FTIRDATA
LCRU042BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.03e+00

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: CANL-94 ERC #: LCRU 093
Date: 5-31-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 4" D X 10" H
Color: Blue Owner Stamp: NONE
DOT Rating: 3E1800 312015 3AA2400 3A2215
Other: 4B240 Test Date(s): NONE
Cylinder Type: H.P. _____ L.P. ☒
Valve Type: 1/4" Plug
Labels and/or Markings:
GCP2102A

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair _____ Poor _____

Comments: NO VALVE - 1/4" PLUG

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes _____ No ☒

Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: _____	
Sample Date: <u>6-3-94</u>	Pressure: <u>45 PSIG</u>
Identified Contents: <u>HYDROGEN CHLORIDE, BORON TRICHLORIDE, NITROGEN</u>	
Analytical Method: <u>TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>F-947</u>	<u>LIQUID</u> <u>GAS</u> <u>TW-H-862425</u>

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV043

MASS SPECTRUM INTERPRETATION

TRACE BORON TRICHLORIDE, HYDROGEN CHLORIDE, NITROGEN
TRACE HYDROGEN

Analyst Signature: OVayes Date: 6-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

BORON TRICHLORIDE, HYDROGEN CHLORIDE.

Analyst Signature: OVayes Date: 6-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

*Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan.*

ERC

LCRV043

Elapsed Time:00:00:22

14:21 03-Jun-94

Created:14:20:21 03-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Friday, June 3, 1994
C:\FTIRDATA
LCRU043.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.00e-04

14:19

Wait

5001

952 399

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

LCRU043 BLK

Elapsed Time:00:00:54

14:36 03-Jun-94

Created:14:35:52 03-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

CRU043.TRANSMITTANCE
ate : June 3, 1994

Time : 14hr-18min-48sec

escription: 'CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.105	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	454.41	.440
2	473.55	.658
3	620.05	.752
4	721.97	.841
5	968.88	-0.001
6	1283.29	.710
7	1381.21	.158
8	1457.19	.576
9	1908.37	.725
10	2701.00	.813
11	2725.70	.753
12	2749.99	.665
13	2773.20	.603
14	2796.57	.551
15	2819.42	.518
16	2840.83	.568
17	2862.90	.644
18	2904.24	.622
19	2923.57	.531
20	2942.88	.499
21	2960.43	.537
22	2979.26	.581
23	2995.11	.651
24	3012.23	.709
25	3027.89	.777

Friday, June 3, 1994 14:35 **Wait**
C:\FTIRDATA
LCRU043BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

5001		2700		399
F1- Curve Only		F2- Curve and Scale		
F3- Full Description		F4- Housekeeping		
F5- Dump Values		F6- Print Screen		

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU044

MASS SPECTRUM INTERPRETATION

NITROGEN, HYDROGEN CHLORIDE, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 6-1-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

BORON TRICHLORIDE, HYDROGEN CHLORIDE

Analyst Signature: [Signature] Date: 6-1-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU044

Elapsed Time:03:48:55

14:27 01-Jun-94

Created:14:21:57 01-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU044BLK

Elapsed Time:00:00:18

14:37 01-Jun-94

Created:14:36:02 01-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, June 1, 1994

14:26

Wait

C:\FTIRDATA

LCRU044.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-1.79e-04

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU044.TRANSMITTANCE
ate : June 1, 1994

Time : 14hr-20min-15sec

escription: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	Obs. Time	: 0min 20sec
max	: 1.036	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	454.41	.526
2	473.73	.755
3	619.73	.904
4	968.19	-0.002
5	1203.47	.834
6	1316.65	.712
7	1377.04	.470
8	1420.29	.532
9	1907.95	.821
10	2725.74	.904
11	2749.99	.847
12	2773.19	.809
13	2796.34	.774
14	2819.42	.751
15	2841.41	.783
16	2862.94	.832
17	2904.25	.818
18	2923.56	.760
19	2942.81	.740
20	2960.39	.770
21	2978.71	.798
22	2995.09	.845
23	3012.24	.881

Wednesday, June 1, 1994 14:38 **Wait**
C:\FTIRDATA
LCRU044BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.99e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4045
Date: 5-31-94 Inspector: G. Roberts
Cylinder Serial #: NONE Dimensions: 4"D x 10"H
Color: BLUE Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 4B 240 Test Date(s): _____
Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" Plug
Labels and/or Markings: NONE (GCR 2100A)
General Condition: Good _____ Fair ☒ Poor _____
Comments: _____
Valve Condition: Good _____ Fair _____ Poor _____
Comments: NO VALVE - 1/4" Plug
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes _____ No ☒
Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: _____	
Sample Date: <u>6-2-94</u>	Pressure: <u>45 PSIG</u>
Identified Contents: <u>HYDROGEN CHLORIDE, BORON TRICHLORIDE, NITROGEN, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>GAS TW-4-862411</u>	<u>LIQUID F8135</u>

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV 045

MASS SPECTRUM INTERPRETATION

HYDROGEN CHLORIDE, NITROGEN, TRACE BORON TRICHLORIDE,
TRACE HYDROGEN

Analyst Signature: O Vargas Date: 6-2-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, BORON TRICHLORIDE

Analyst Signature: O Vargas Date: 6-2-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 045

Elapsed Time:00:00:22

13:23 02-Jun-94

Created:13:22:45 02-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU045 BLK

Elapsed Time:00:00:17

13:39 02-Jun-94

Created:13:38:54 02-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, June 2, 1994

13:22 Wait

C:\NFTIRDATA

LCRU045.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-3.52e-04

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU045.TRANSMITTANCE
ate : June 2, 1994

Time : 13hr-20min-39sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.020	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	454.95	.544
2	619.88	.864
3	723.15	.859
4	968.22	-0.001
5	1379.97	.418
6	1456.78	.655
7	1908.24	.809
8	2675.75	.846
9	2701.00	.776
10	2725.71	.694
11	2749.99	.577
12	2773.23	.502
13	2796.39	.441
14	2819.41	.407
15	2840.85	.467
16	2862.90	.565
17	2904.23	.536
18	2923.57	.426
19	2943.79	.387
20	2960.44	.426
21	2979.22	.479
22	2995.11	.563
23	3013.23	.639
24	3027.70	.733
25	3043.05	.815

Thursday, June 2, 1994 13:43 Wait
C:\FTIRDATA
LCRU045BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.99e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 046

Date: 4-27-94 Inspector: G. ROBERTS

Cylinder Serial #: N/A Dimensions: 3" D x 9" H

Color: GREEN Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 4B240 Test Date(s): None Visible

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4"

Labels and/or Markings: NF3

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>4-29-94</u>	Pressure: <u>250 PSIG</u>
Identified Contents: <u>NITROGEN TRIFLUORIDE, TRACE NITROGEN, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 046

MASS SPECTRUM INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE NITROGEN
TRACE HYDROGEN

Analyst Signature: [Signature] Date: 4-29-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE

Analyst Signature: [Signature] Date: 4-29-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU046

Elapsed Time:00:00:53

09:19 29-Apr-94

Created:09:19:18 29-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 046 BLK

Elapsed Time:00:06:38

09:28 29-Apr-94

Created:09:28:11 29-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Friday, April 29, 1994

9:18 **Wait**

C:\FTIRDATA

LCRU046.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-2.12e-04

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU046.TRANSMITTANCE
ate : April 29, 1994

Time : 9hr-17min-14sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.024	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	491.75	.547
2	513.06	.852
3	644.90	.497
4	667.19	.655
5	898.31	-0.001
6	1014.38	0.003
7	1047.80	.234
8	1135.18	.717
9	1280.76	.813
10	1322.02	.810
11	1544.07	.829
12	1800.24	.477
13	1924.48	.323
14	1934.09	.275
15	2235.92	.831

Friday, April 29, 1994 9:26 **Wait**
C:\FTIRDATA
LCRU046BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.51e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCAU 047

Date: 5-10-94 Inspector: G. Roberts

Cylinder Serial #: NONE Dimensions: 3"D x 9"H

Color: Blue Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: 4B240 Test Date(s): 3-77

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" NPT

Labels and/or Markings:
TRI-N-Propyl Boron

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>SUSPECTED ISOBUTANE</u>	
Sample Date: <u>5-11-94</u>	Pressure: <u>10PSIG</u>
Identified Contents: <u>PROPYLENE, NITROGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU047LS

MASS SPECTRUM INTERPRETATION

N/A
Analyst Signature: Overpack Date: 6-1-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

SUSPECTED ISOBUTANE
Analyst Signature: Overpack Date: 6-1-94
QA Confirmation Yes ☐ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____
QA Confirmation Yes ☐ No ☐
Comments: _____

INTERPRETED RESULTS:

- LCRU047LS ANALYSIS PENDING FURTHER EVALUATION
- SUSPECTED ISOBUTANE
- EVAPORATED
- DID NOT REACT W/WATER
- SOLUBLE IN HEXANE

QA or Document Officer Signature:

DATE: _____

Wednesday, June 1, 1994 11:03 Wait

C:\FTIRDATA
LCRU047LS.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.70e-01

5001 2700 399

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

3RU047LS. TRANSMITTANCE

ate : June 1, 1994

Time : 11hr-3min-24sec

Description: LIQUID SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	Obs. Time	: 0min 20sec
max	: 1.215	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	499.98	.929
2	597.62	.916
3	734.46	.521
4	786.46	.480
5	888.91	.458
6	1059.58	.162
7	1124.65	0.009
8	1263.26	0.016
9	1336.79	0.000
10	1375.49	0.029
11	1457.57	0.017
12	2895.53	-0.002
13	4311.39	.904

Wednesday, June 1, 1994 11:14 **Wait**
C:\FTIRDATA
LCRU047LSBLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.63e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU047

MASS SPECTRUM INTERPRETATION

PROPYLENE, NITROGEN, TRACE HYDROGEN

Analyst Signature: O Vargas Date: 5-11-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

PROPYLENE

Analyst Signature: O Vargas Date: 5-11-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU 047

Elapsed Time:00:02:04

15:33 11-May-94

Created:15:29:39 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU 047 BLK

Elapsed Time:00:04:26

15:48 11-May-94

Created:15:47:39 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994 15:32 Wait
C:\FTIRDATA
LCRU047.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:3.81e-01

5001 927 399

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

CRU047.TRANSMITTANCE

ate : May 11, 1994

Time : 15hr-26min-35sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .150	Obs. Time	: 0min 20sec
max	: 1.003	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	579.59	.636
2	914.55	.161
3	990.12	.439
4	1443.12	.482
5	1471.37	.577
6	1640.90	.606
7	1663.52	.558
8	1828.08	.863
9	2963.03	.150
10	3089.83	.455

Wednesday, May 11, 1994 15:42 Wait
C:\FTIRDATA
LCRU047BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.77e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 048

Date: 5-9-94 Inspector: G. R. BENT

Cylinder Serial #: 74H28 Dimensions: 3 1/2" x 12" H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: W.P. 3500 Test Date(s): 1-74

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 1/4" FLANGE

Labels and/or Markings: NONE

General Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Valve Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No ☐

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No ☐

Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____	
Sample Date: <u>5-10-94</u>	Pressure: <u>0.5 PSIG</u>
Identified Contents: <u>CARBON DIOXIDE, TRACE SILICON, TETRAFLUORIDE</u> <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>	
Analytical Method: <u>Mass Spec</u> ☒ <u>FTIR</u> ☒ Other ☐	
Disposition: Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐	
	Mole Sieve ☐ Flare ☐
Recontainerized: Yes ☒ No ☐	
Recontainerized Cylinder #: <u>TW-H-826388</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU048

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-10-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE SILICON TETRAFLUORIDE, CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-10-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU048

Elapsed Time:00:00:52

16:02 10-May-94

Created:15:57:43 10-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 10, 1994 15:57 Wait
C:\FTIRDATA
LCRU048.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:4.67e-01

5001 1029 399

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

CRU048.TRANSMITTANCE

ate : May 10, 1994

Time : 15hr-56min-14sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .455	Obs. Time	: 0min 20sec
max	: 1.099	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	669.07	.868
2	1028.02	.455
3	2349.29	.592

Tuesday, May 10, 1994
C:\FTIRDATA
LCRU048BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.99e-01

16:07 **Wait**

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRU049

Date: 5-9-94 Inspector: G. R. BENT

Cylinder Serial #: 75B 1031 Dimensions: 3 1/2" x 11" H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3B400 Test Date(s): 11-75

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/2" VCR

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-11-94</u>	Pressure: <u>0 PSI</u>
Identified Contents: <u>NITROGEN, TRACE SILICON, TETRAFLUORIDE</u>	
Analytical Method: <u>TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Mass Spec ☒ FTIR ☒ Other _____	
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	
Mole Sieve _____ Flare _____	
Recontainerized: Yes ☒ No _____	
Recontainerized Cylinder #: <u>TW-H-826388</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU049

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

O Vargas

Date: 5-11-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE, TRACE SILICON TETRAFLUORIDE

Analyst Signature: _____

O Vargas

Date: 5-11-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 049

Elapsed Time:00:43:34

09:12 11-May-94

Created:09:11:51 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994

9:11 **Wait**

C:\FTIRDATA

LCRU049.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.03e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU049.TRANSMITTANCE

ite : May 11, 1994

Time : 9hr-10min-50sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .748	Obs. Time	: 0min 20sec
max	: 1.009	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1028.40	.897
2	2350.11	.748

Wednesday, May 11, 1994 9:15 Wait
C:\FTIRDATA
LCRU049BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:6.83e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCP4050

Date: 5-4-94 Inspector: G. ROBERTS

Cylinder Serial #: 74B791 Dimensions: 3 1/2" D x 10 1/2" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3B400 Test Date(s): 10-74

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/2" VCR

Labels and/or Markings:
F2

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-5-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>	
<u>TRACE CARBON DIOXIDE, TEST POSITIVE FOR FLUORINE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes ☒ No _____
Recontainerized Cylinder #: <u>569193</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU050

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-5-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-5-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: [Signature] Date: 5-5-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCPU 050

Elapsed Time:00:01:07

09:26 05-May-94

Created:09:24:25 05-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 5, 1994

9:24 **Wait**

C:\FTIRDATA

LCRU050.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.83e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU050.TRANSMITTANCE

ate : May 5, 1994

Time : 9hr-24min-17sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .877	Obs. Time	: 0min 20sec
max	: 1.007	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2349.66	.877

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL -94 ERC #: LCR4 051

Date: 5-5-94 Inspector: G. ROBERTS

Cylinder Serial #: 75B945 Dimensions: 3 1/2" x 11" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3B 400 Test Date(s): 11-75

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: _____

Labels and/or Markings:
NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-6-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU051

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Orlajos Date: 5-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: Orlajos Date: 5-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Orlajos Date: 5-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan.

ERC

LCRV 051

Elapsed Time:00:14:03

13:49 06-May-94

Created:13:47:06 06-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Friday, May 6, 1994
C:\FTIRDATA
LCRU051.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.03e+00

13:51 **Wait**

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU051.TRANSMITTANCE
ate : May 6, 1994

Time : 13hr-51min-19sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .973	Obs. Time	: 0min 20sec
max	: 1.119	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4052
Date: 5-4-94 Inspector: G. ROBERTS
Cylinder Serial #: ~~121K078~~ W1A-6061 Dimensions: 3 1/2" D x 11" H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3A1800 Test Date(s): 12-78
Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 1/4" SEWAGE LOK
Labels and/or Markings: NONE
General Condition: Good ☒ Fair ☐ Poor ☐
Comments: _____
Valve Condition: Good ☒ Fair ☐ Poor ☐
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No ☐
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No ☐
Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____	
Sample Date: <u>5-5-94</u>	Pressure: <u>0 PSI</u>
Identified Contents: <u>SUSPECTED RESIDUAL NITROGEN DIOXIDE, NITROGEN FLUORIDE, NITROGEN, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☐ FTIR ☐ Other ☐
Disposition: _____	Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐
	Mole Sieve ☐ Flare ☐
Recontainerized: _____	Yes ☐ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 052
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: O'Vayak

Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROGEN DIOXIDE, TRACE NITROSYL FLUORIDE

Analyst Signature: O'Vayak

Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

*LCRU052 RESAMPLED DUE TO POSSIBLE CONTAMINATION
IN VALVE SAMPLING SYSTEM #1

QA or Document Officer Signature: _____

DATE: _____

LCRU052 RE

Elapsed Time:00:00:28

14:59 05-May-94

Created:14:57:57 05-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 5, 1994
C:\FTIRDATA
LCRU052RE.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.03e-01

14:59 **Wait**

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU052RE.TRANSMITTANCE
Date : May 5, 1994

Time : 14hr-54min-15sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .719	Obs. Time	: 0min 20sec
max	: 1.082	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1318.81	.903
2	1627.71	.719
3	1707.22	.879

Thursday, May 5, 1994 15:05 **Wait**
C:\FTIRDATA
LCRU052REBLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.74e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU052

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE NITROGEN DIOXIDE, TRACE
HYDROGEN

Analyst Signature: [Signature] Date: 5-5-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROSYL FLUORIDE, NITROGEN DIOXIDE

Analyst Signature: [Signature] Date: 5-5-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• POSSIBLE RESIDUAL PRODUCTS DETECTED; POSSIBLE
CROSS CONTAMINATION IN VALVE SAMPLING SYSTEM

QA or Document Officer Signature:

DATE: _____

LCRV052

Elapsed Time:00:05:05

14:21 05-May-94

Created:14:19:26 05-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRV052 BLK

Elapsed Time:00:00:20

14:36 05-May-94

Created:14:29:42 05-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 5, 1994

14:18 Wait

C:\FTIRDATA

LCRU052.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:5.18e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU052.TRANSMITTANCE

ate : May 5, 1994

Time : 14hr-13min-40sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .442	Obs. Time	: 0min 20sec
max	: 1.050	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	457.06	.823
2	792.02	.849
3	884.98	.863
4	1027.98	.443
5	1318.50	.715
6	1599.19	.603
7	1628.17	.503
8	1700.06	.623
9	1788.66	.788

Thursday, May 5, 1994

14:30 Wait

C:\FTIRDATA

LCRU052BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.00e+00

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCA4053
Date: 5-11-94 Inspector: G. Roberts
Cylinder Serial #: NONE Dimensions: 4" D x 12 1/2" H
Color: Blue Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 4B240 Test Date(s): 12-80
Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/8" NPT
Labels and/or Markings: NONE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-12-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>DICHLORODIFLUOROETHYLENE, TRACE OXYGEN, NITROGEN, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU053

MASS SPECTRUM INTERPRETATION

DICHLORODIFLUOROETHYLENE, NITROGEN, TRACE
OXYGEN, TRACE HYDROGEN

Analyst Signature: ovapost Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

DICHLORODIFLUOROETHYLENE

Analyst Signature: ovapost Date: 5-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCRU 053

Elapsed Time:00:00:49

10:52 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	16	0	200		0.33		1

LCRU 053 BLK

Elapsed Time:00:05:00

11:01 12-May-94

Created:11:00:24 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 12, 1994
 C:\FTIRDATA
 LCRU053.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-7.27e-04

10:53

Wait

5001

1745

399

F1- Curve Only
 F3- Full Description
 F5- Dump Values

F2- Curve and Scale
 F4- Housekeeping
 F6- Print Screen

DRU053. TRANSMITTANCE
Date : May 12, 1994

Time : 10hr-48min-38sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.110	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	434.20	.866
2	563.92	.408
3	635.37	.746
4	781.68	.731
5	855.56	.574
6	989.17	-0.001
7	1030.15	-0.001
8	1128.24	.246
9	1171.92	.282
10	1320.79	-0.000
11	1475.71	.664
12	1735.57	-0.001
13	1975.66	.870
14	2056.93	.889
15	2348.80	.750
16	2633.23	.667
17	2766.01	.787
18	2946.15	.791

Thursday, May 12, 1994

11:00 Wait

C:\FTIRDATA

LCRU053BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.03e+00

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LAWL-94 ERC #: LCRU 054
Date: 5-12-94 Inspector: G. Roberts
Cylinder Serial #: 77B1397 Dimensions: 3"D x 16"H
Color: STAINLESS STEEL Owner Stamp: None
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3B400 Test Date(s): 10-77
Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" NPT

Labels and/or Markings:

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>POSSIBLE RESIDUAL TUNGSTEN HEXAFLUORIDE PRODUCTS</u>	
Sample Date: <u>5-17-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN SILICON TETRAFLUORIDE TRACE HYDROGEN</u>	
Analytical Method: <u>RESIDUAL TUNGSTEN HEXAFLUORIDE PRODUCTS</u>	
Mass Spec _____	FTIR ☒ Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	
Mole Sieve _____ Flare _____	
Recontainerized: Yes _____ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU054

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

OV [signature]

Date: 5-17-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

SILICON TETRAFLUORIDE, RESIDUAL TUNGSTEN
HEXAFLUORIDE RX PRODUCTS

Analyst Signature: _____

OV [signature]

Date: 5-17-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCP0054

Elapsed Time:00:02:00

15:00 17-May-94

Created:14:59:39 17-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, May 17, 1994
C:\FTIRDATA
LCRU054.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.54e-02

14:59 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

RU054. TRANSMITTANCE
te : May 17, 1994

Time : 14hr-57min-14sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.079	Obs. Time	: 0min 20sec
max	: 1.015	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1028.10	0.079

Tuesday, May 17, 1994 15:04 Wait
C:\FTIRDATA
LCRU054BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 055Date: 4-27-94 Inspector: G. ROBERTSCylinder Serial #: N/A Dimensions: 4" D x 12" HColor: BLUE Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 4B240 Test Date(s): NONE VISIBLECylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" NPTLabels and/or Markings: NF3General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>4-28-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN TRIFLUORIDE, CARBON DIOXIDE, TRACE</u>	
Analytical Method: <u>NITROGEN, TRACE HYDROGEN</u>	
Mass Spec _____	FTIR ☒ Other _____
Disposition: Caustic Scrub _____	Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: Yes _____	No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 055

MASS SPECTRUM INTERPRETATION

NITROGEN TRIFLUORIDE, tr. NITROGEN, tr. HYDROGEN

Analyst Signature: [Signature] Date: 4-28-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE, CARBON DIOXIDE

Analyst Signature: [Signature] Date: 4-28-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU055

Elapsed Time:00:00:46

10:49 28-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

L CRU 055 BLK

Elapsed Time:00:00:19

10:57 28-Apr-94

MASS

Created:10:56:16 28-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, April 28, 1994

10:48 Wait

C:\FTIRDATA

LCRU055.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-3.49e-05

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU055. TRANSMITTANCE
Date : April 28, 1994

Time : 10hr-47min-10sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.013	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	491.74	.540
2	513.05	.834
3	644.98	.472
4	667.60	.585
5	898.33	-0.001
6	1008.85	0.007
7	1029.76	0.004
8	1047.84	.236
9	1135.17	.705
10	1280.89	.796
11	1501.55	.755
12	1542.44	.759
13	1805.40	.472
14	1827.04	.617
15	1924.44	.325
16	1934.08	.278
17	2349.24	.694

Thursday, April 28, 1994

10:55 Wait

C:\FTIRDATA

LCRU055BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:6.49e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRY 056

Date: 5-11-94 Inspector: G. Roberts

Cylinder Serial #: None Dimensions: 3" D x 9" H

Color: Blue Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 4B240 Test Date(s): 1-79

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" SWAGelok

Labels and/or Markings: None

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE</u>	
Sample Date: <u>5-12-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU056

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXIGEN, TRACE HYDROGEN

Analyst Signature: ovayes Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: ovayes Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: ovayes Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the restrictions on the title page of this plan."

ERC

LCRU 056

Elapsed Time: 00:00:56

00:50 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	16	0	200		0.33		1

Thursday, May 12, 1994

9:00 Wait

C:\FTIRDATA

LCRU056.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.01e+00

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU056.TRANSMITTANCE
Date : May 12, 1994

Time : 8hr-57min-34sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 1.007	Obs. Time	: 0min 20sec
max	: 1.125	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRU 057

Date: 5-31-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 4" D X 10" H

Color: BLUE Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: 4B240 Test Date(s): NONE

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" Plug

Labels and/or Markings:
GCP 2103A

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair _____ Poor _____

Comments: NO VALVE- 1/4" Plug

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes _____ No ☒

Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments: _____	
Sample Date: <u>6-3-94</u>	Pressure: <u>40 PSIG</u>
Identified Contents: <u>HYDROGEN CHLORIDE BORON TRICHLORIDE</u>	
<u>NITROGEN, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>LIQUID F-5236</u>	<u>GAS TW-H862424</u>

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU057

MASS SPECTRUM INTERPRETATION

HYDROGEN CHLORIDE, TRACE BORON TRICHLORIDE
TRACE HYDROGEN

Analyst Signature: overgas Date: 6-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, ^{d.v} TRA BORON TRICHLORIDE

Analyst Signature: overgas Date: 6-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU057

Elapsed Time:00:00:23

10:10 03-Jun-94

Created:10:09:53 03-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRV057 BLK

Elapsed Time:00:01:05

10:29 03-Jun-94

Created:10:28:46 03-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Friday, June 3, 1994

10:10 Wait

C:\FTIRDATA

LCRU057.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.20e-05

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU057. TRANSMITTANCE
ate : June 3, 1994
escription: CRV SAMPLE

Time : 10hr-8min-53sec

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.044	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	454.99	.548
2	619.89	.859
3	723.07	.857
4	968.67	-0.001
5	1390.66	.389
6	1908.34	.802
7	2701.03	.838
8	2725.72	.776
9	2749.99	.682
10	2773.22	.615
11	2796.57	.558
12	2819.42	.522
13	2840.84	.572
14	2862.93	.651
15	2904.24	.628
16	2923.57	.533
17	2942.80	.504
18	2960.43	.547
19	2979.27	.596
20	2995.11	.672
21	3012.23	.737
22	3027.70	.812
23	3043.07	.875

	Friday, June 3, 1994	10:28	Wait
	C:\FTIRDATA		
	LCRU057BLK.TRANSMITTANCE		
	Print Screen		
	Zoom: 1/4 Y:9.99e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 058

Date: 5-11-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 3" D x 9" H

Color: Blue Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 4B240 Test Date(s): 1-79

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" SWAGelok

Labels and/or Markings: NONE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-12-94</u>	Pressure: <u>0 PSI'G</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU058

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: ovargas Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: ovargas Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: ovargas Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU 058

Elapsed Time:00:47:00

09:49 12-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, May 12, 1994

9:52 **Wait**

C:\FTIRDATA

LCRU058.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.04e+00

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

CRU058.TRANSMITTANCE
ate : May 12, 1994

Time : 9hr-52min-20sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 1.027	Obs. Time	: 0min 20sec
max	: 1.108	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCAU 059

Date: 4-13-94 Inspector: G. ROBERTS

Cylinder Serial #: 4-258 Dimensions: 4"D x 12" H

Color: GRAY Owner Stamp: 4"D x 12" H NONE ^{GHR.}

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): 8-70

Cylinder Type: H.P. ✓ L.P. Valve Type: 660

Labels and/or Markings:

CHLORINE

General Condition: Good ✓ Fair Poor

Comments:

Valve Condition: Good Fair ✓ Poor

Comments:

Pre-operation Weight: Post-operation Weight:

Approved to Handle: Yes ✓ No

Handling Precautions:

Approved for Valve Sampling: Yes ✓ No

Sample Method: Large CRV Small CRV Val ✓

Comments: <u> </u>	
Sample Date: <u>4-14-94</u>	Pressure: <u>100 PSIG</u>
Identified Contents: <u>CHLORINE, HYDROGEN CHLORIDE, NITROGEN, OXYGEN</u> <u>HYDROGEN</u>	
Analytical Method:	Mass Spec <u>✓</u> FTIR <u>✓</u> Other <u> </u>
Disposition:	Caustic Scrub <u> </u> Acid Scrub <u> </u> Oxidizing Carbon <u> </u>
	Mole Sieve <u> </u> Flare <u> </u>
Recontainerized:	Yes <u> </u> No <u>✓</u>
Recontainerized Cylinder #: <u> </u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU059
RESAMPLE

MASS SPECTRUM INTERPRETATION

TRACE CHLORINE, TRACE HYDROGEN CHLORIDE, TRACE HYDROGEN,
WATER

Analyst Signature: [Signature] Date: 4-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE, TRACE NITROSYL CHLORIDE, TRACE HYDROGEN
CHLORIDE

Analyst Signature: [Signature] Date: 4-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

* LCRU059 RESAMPLE DUE TO SUBSTANTIAL AMOUNT OF AMMONIA
AND AIR IN SA FIRST SAMPLE

* WATER IN MASS SPEC SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRV059 RE

Elapsed Time:00:01:24

03:40 19-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

L CRU059 RE BLK

Elapsed Time:00:01:11

04:10 19-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, April 19, 1994

15:36 Wait

C:\FTIRDATA

LCRU059RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.88e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU059RE.TRANSMITTANCE
te : April 19, 1994
escription: VALVE SAMPLE

Time : 15hr-27min-31sec

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .904	Obs. Time	: 0min 20sec
max	: 1.045	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method
Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	2350.17	.904

Tuesday, April 19, 1994 15:55 **Wait**
C:\FTIRDATA
LCRU059BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.43e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU059

MASS SPECTRUM INTERPRETATION

CHLORINE, HYDROGEN CHLORIDE, NITROGEN, OXYGEN,
in HYDROGEN

Analyst Signature: [Signature] Date: 4-14-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: [Signature] Date: 4-14-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

- CHLORINE IS MAJOR COMPONENT O.K.
CONTENT

QA or Document Officer Signature: _____

DATE: _____

LCRU059

Elapsed Time: 00:50:22

00:20 14-Apr-94

Created: 09:21:24 14-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRU059BLK

Elapsed Time:00:12:43

09:41 14-Apr-94

Created:09:41:13 14-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, April 14, 1994

9:26 **Wait**

C:\FTIRDATA

LCRU059.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.98e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU059. TRANSMITTANCE
Date : April 14, 1994

Time : 9hr-25min-57sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .983	Obs. Time	: 0min 20sec
max	: 1.044	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 060Date: 6-8-94 Inspector: G. RobertsCylinder Serial #: R2849 Dimensions: 4" D x 12" HColor: GRAY Owner Stamp: _____

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: ICC 3AA 2015 Test Date(s): 10-60 / 11-71Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 670 / 679

Labels and/or Markings:

NONEGeneral Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ✓ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ✓ No _____

Handling Precautions: _____

Approved for Valve Sampling: Cross Port Leak Yes _____ No ✓Sample Method: Large CRV _____ Small CRV ✓ Val _____

Comments: <u>TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>6-8-94</u>	Pressure: <u>2 PSIG</u>
Identified Contents: <u>SILICON TETRAFLUORIDE, TRACE FLUOROCARBON DRUGS</u>	
<u>NITROGEN, TRACE HYDROGEN, POS. FOR FLUORINE</u>	
Analytical Method: <u>CARBON DIOXIDE</u>	Mass Spec: <u>✓</u> FTIR _____ Other <u>DRAEGER</u>
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	Mole Sieve _____ Flare _____
Recontainerized: <u>LIQUID</u>	Yes <u>✓</u> No _____
Recontainerized Cylinder #: <u>F6085</u>	<u>GAS: TWH-862400</u>

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV060

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: Overups Date: 6-8-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SILICON TETRAFLUORIDE, CARBON DIOXIDE, TRACE FLUOROCARBON
PRODUCT

Analyst Signature: Overups Date: 6-8-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Overups Date: 6-8-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU060

Elapsed Time:00:00:27

13:57 08-Jun-94

Created:13:47:53 08-Jun-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, June 8, 1994

13:48 **Wait**

C:\NFTIRDATA

LCRU060.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.33e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU060.TRANSMITTANCE
te : June 8, 1994

Time : 13hr-43min-54sec

scription: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .800	Obs. Time	: 0min 20sec
max	: 1.011	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	1028.68	.800
2	2349.85	.860

Wednesday, June 8, 1994 14:45 **Wait**
C:\FTIRDATA
LCRU060BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4061

Date: 5-10-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 3" D X 9" H

Color: BLUE Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: 4B240 Test Date(s): 8-75

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" NPT

Labels and/or Markings:
PENTABORANE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-11-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>PENTABORANE, HYDROGEN, NITROGEN,</u> <u>TRACE CARBON DIOXIDE</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU0061

MASS SPECTRUM INTERPRETATION

HYDROGEN, PENTABORANE, NITROGEN

Analyst Signature: OVargas

Date: 5-11-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

PENTABORANE, TRACE CARBON DIOXIDE

Analyst Signature: OVargas

Date: 5-11-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCP0061

Elapsed Time:00:03:43

15:14 11-May-94

MASS

Created:15:09:43 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	16	0	200		0.33		1

LCPV061 BLK

Elapsed Time:00:00:22

15:17 11-May-94

Created:15:16:48 11-May-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Wednesday, May 11, 1994

15:03 Wait

C:\FTIRDATA

LCRU061.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:2.03e-02

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU061.TRANSMITTANCE

te : May 11, 1994

Time : 15hr-1min-2sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.017	Obs. Time	: 0min 20sec
max	: .940	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	614.97	.456
2	893.07	.348
3	1421.45	.228
4	1801.52	.641
5	2350.07	.720
6	2612.15	0.017

Wednesday, May 11, 1994 15:16 **Wait**
C:\FTIRDATA
LCRU061BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.98e-01

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRU 062

Date: 4-25-94 Inspector: G. R. B. B.

Cylinder Serial #: C1860 Dimensions: 4"D x 18"H

Color: YELLOW/RED Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: NONE VISIBLE Test Date(s): 12-42/12-47

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: MEDICAL POST

Labels and/or Markings: NONE

General Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Valve Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Pre-operation Weight: _____ Post-operation Weight: _____

Approved to Handle: Yes ☒ No ☐

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No ☐

Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____	
Sample Date: <u>4-26-94</u>	Pressure: <u>40 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE METHYL CHLORIDE, TR. HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other ☐
Disposition:	Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐
	Mole Sieve ☐ Flare ☐
Recontainerized:	Yes ☐ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV062

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE METHYL CHLORIDE, TRACE HYDROGEN

Analyst Signature: _____

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE METHYL CHLORIDE

Analyst Signature: _____

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU 062

Elapsed Time:00:28:31

15:20 26-Apr-94

Created:15:12:10 26-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

LCRV062 BLK

Elapsed Time:00:00:37

15:39 26-Apr-94

MASS

Created:15:39:22 26-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Tuesday, April 26, 1994

15:20 Wait

C:\FTIRDATA

LCRU062.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.56e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU062.TRANSMITTANCE

te : April 26, 1994

Time : 15hr-9min-8sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .917	Obs. Time	: 0min 20sec
max	: 1.045	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
-------	------------	-----------

Tuesday, April 26, 1994
C:\FTIRDATA
LCRU062BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.01e+00

15:38 Wait

F1- Curve Only
F3- Full Description
F5- Dump Values

F2- Curve and Scale
F4- Housekeeping
F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL 94 ERC #: LCR4 063

Date: 4-28-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 4" D X 10" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: NONE Test Date(s): NONE

Cylinder Type: H.P. ~~F~~ L.P. ✓ Valve Type: 1/4" SWAGE

Labels and/or Markings: NONE

General Condition: Good ✓ Fair Poor

Comments:

Valve Condition: Good ✓ Fair Poor

Comments:

Pre-operation Weight: Post-operation Weight:

Approved to Handle: Yes ✓ No

Handling Precautions:

Approved for Valve Sampling: Yes ✓ No

Sample Method: Large CRV Small CRV Val ✓

NIL

Comments: <u>RES. SUSPECTED RESIDUAL PRODUCTS IN V.S. SYSTEM</u>	
Sample Date: <u>4-28-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, HYDROGEN, RESIDUAL PRODUCTS</u> <u>(POSSIBLE TRICHLOROSILANE PRODUCTS)</u>	
Analytical Method:	Mass Spec <u>✓</u> FTIR <u> </u> Other <u> </u>
Disposition:	Caustic Scrub <u> </u> Acid Scrub <u> </u> Oxidizing Carbon <u> </u>
	Mole Sieve <u> </u> Flare <u> </u>
Recontainerized:	Yes <u> </u> No <u>✓</u>
Recontainerized Cylinder #: <u> </u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU063
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 4-28-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: _____

Date: 4-28-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• LCRU063 RESAMPLED DUE TO SUSPECTED CONTAMINATION
IN FIRST SAMPLE, SUSPECTED RESIDUAL IN PRODUCT IN VALVE
SAMPLING SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRU063 RE

Elapsed Time:00:02:14

14:27 28-Apr-94

MASS

Created:14:26:14 28-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, April 28, 1994

14:25 Wait

C:\FTIRDATA

LCRU063RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.96e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU063RE. TRANSMITTANCE

te : April 28, 1994

Time : 14hr-25min-4sec

scription: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .781

max : 1.001

Resolution : 4.00 cm⁻¹

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak
1

wavenumber
2349.42

intensity
.781

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 063

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, HYDROGEN, RESIDUAL PRODUCTS

Analyst Signature: _____ Date: 4-28-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

RESIDUAL PRODUCTS

Analyst Signature: D. Vargas Date: 4-28-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• SUSPECTED RESIDUAL PRODUCTS IN VS SYSTEM DETECTED
IN LCRU 063

QA or Document Officer Signature: _____

DATE: _____

"Use or disclosure of the data contained on this sheet is subject to the
restrictions on the title page of this plan."

ERC

LCRU063

Elapsed Time:00:00:33

10:34 28-Apr-94

Created:10:28:05 28-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 2	16	0	200		0.33		1

LCPV 003 BLK

Elapsed Time:00:00:44

10:45 28-Apr-94

Created:10:44:59 28-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		0.33		1

Thursday, April 28, 1994

10:33 Wait

C:\FTIRDATA

LCRU063.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.87e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RJ063.TRANSMITTANCE
te : April 28, 1994

Time : 10hr-25min-27sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .131	Obs. Time	: 0min 20sec
max	: 1.023	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19
Sigma max (window) : 5000.52

#peak	wavenumber	intensity
1	423.63	.652
2	846.51	.640
3	857.61	.623
4	992.05	.137
5	1002.83	.131
6	1027.34	.332
7	2315.17	.642

Thursday, April 28, 1994

10:43 Wait

C:\NFTIRDATA

LCRU063BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.56e-01

F1- Curve Only	F2- Curve and Scale
F3- Full Description	F4- Housekeeping
F5- Dump Values	F6- Print Screen