EARTH RESOURCES CORPORATION

University of California
Los Alamos National Laboratory
Final Report - Volume IV
Cylinder Inspection Logs and Analytical Data
LCRU-066 through LCRU-131
June 23, 1994

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Submitted by:

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Form 2
CYLINDER INSPECTION LOG

Project Name: LANC 94

ERC #: LCPH 066

Date: 4-22-94

Inspector: G. ROBERT

Cylinder Serial #: M11927

Dimensions: 8"D X 22"H

Color: SILVER

Owner Stamp: NONE

DOT Rating:

3E1800

3A2015

3AA2400

3A2215

Other: 3A480

Test Date(s): 2-83

Cylinder Type: H.P. _____ L.P. ☒

Valve Type: 660

Labels and/or Markings:

BORON TRICHLORIDE

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>4-25-94</u>	Pressure: <u>0 PSI/G</u>
Identified Contents: <u>BORON TRICHLORIDE, HYDROGEN CHLORIDE, TRACE NITROGEN</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 0666

MASS SPECTRUM INTERPRETATION

HYDROGEN CHLORIDE, BORON TRICHLORIDE, trace NITROGEN

Analyst Signature: Orvas

Date: 4-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, BORON TRICHLORIDE

Analyst Signature: Orvas

Date: 4-25-94

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: _____

LCRV066

Elapsed Time:00:04:35

10:28 25-Apr-94

Created:10:27:34 25-Apr-94

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

LCPU066 BLK

Elapsed Time:00:00:32

10:40 25-Apr-94

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

Monday, April 25, 1994 10:18 **Wait**
 C:\FTIRDATA
 LCRU0666.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-3.24e-04

5001

'980 399

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

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

LCRU066, TRANSMITTANCE
Date : April 25, 1994

Time : 10hr-16min-58sec

Description: VAQLVE SAMPLE

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	454.45	.196
2	465.39	.353
3	504.47	.517
4	602.37	.664
5	600.00	.571
6	691.62	.621
7	713.55	.604
8	979.75	-0.001
9	1003.89	.364
10	1038.40	.134
11	1051.43	.106
12	1080.79	0.007
13	1407.98	0.019
14	1908.41	.464
15	1908.00	.798
16	2701.00	.892
17	2700.00	.051
18	2700.00	.770
19	2773.00	.722
20	2796.00	.675
21	2819.43	.662
22	2841.51	.683
23	2863.00	.737
24	2904.00	.722
25	2903.00	.646
26	2944.00	.619
27	2968.43	.667
28	2979.00	.597
29	2990.70	.768
30	3010.00	.814
31	3077.71	.875

1.108		
.537		
-0.035		
5001	2700	399
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 ERC #: LCRH 067
Date: 3-29-94 Inspector: George Reats
Cylinder Serial #: 5G124646 Dimensions: 6"D x 14"H
Color: Blue Owner Stamp: Air Products
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): 10-82
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 679
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 _____

Sample Method: Large CRV _____ Small CRV _____
Val ✓

Comments: _____

Sample Date: 3-29-94 Pressure: 0 PSIG

Identified Contents: HYDROGEN CHLORIDE, TUNGSTEN HEXAFLUORIDE, NITROGEN
tr. HYDROGEN CHLORIDE, tr. HYDROGEN, RX PRODUCTS

Analytical Method: Mass Spec ✓ FTIR ✓ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes _____ No ✓

Recontainerized Cylinder #: _____

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Plan."

ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU067RE

MASS SPECTRUM INTERPRETATION

tr. HYDROGEN FLUORIDE, NITROGEN, tr. HYDROGEN

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

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, TUNGSTEN HEXAFLUORIDE, REACTION PRODUCTS, TRACE HYDROGEN CHLORIDE

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

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

*LCRU067 WAS RESAMPLED DUE TO PLUGGED LINE IN VALVE SAMPLING SYSTEM

* TUNGSTEN HEXAFLUORIDE, RX PRODUCTS SHOWN IN FTIR SPECTRUM

QA or Document Officer Signature:

DATE: _____

LCRU067RE

Elapsed Time:00:03:09

14:15 13-Apr-94

Created:14:13:17 13-Apr-94

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

Wednesday, April 13, 1994

14:13 Wait

C:\FTIRDATA

LCRU067RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.81e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

LCRU067RE.TRANSMITTANCE
Date : April 13, 1994

Time : 14hr-11min-35sec

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	: .995	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	710.61	0.002
2	805.28	.819
3	1028.27	.849
4	1385.54	.875
5	1506.86	.889
6	3831.99	.815
7	3876.19	.815
8	3999.64	.844
9	4037.33	.831
10	4073.56	.832

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU067

MASS SPECTRUM INTERPRETATION

HYDROGEN FLUORIDE, TUNGSTEN HEXAFLUORIDE RX PRODUCTS
tr. HYDROGEN, tr. HYDROGEN CHLORIDE

Analyst Signature: G. Vargas

Date: 3-29-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, TUNGSTEN HEXAFLUORIDE,
RX PRODUCTS

Analyst Signature: G. Vargas

Date: 3-29-94

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: _____

LCRU067

Elapsed Time:00:54:25

13:43 29-Mar-94

Created:11:36:28 29-Mar-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 2	16	0	200		0.33		1

LCRU 067 BLK

Elapsed Time:00:00:21

14:12 29-Mar-94

Created:14:10:56 29-Mar-94

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

Tuesday, March 29, 1994

11:36 Wait

C:\FTIRDATA

LCRU067.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.78e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU067.TRANSMITTANCE
Date : March 29, 1994
Description: VSAMPLE

Time : 11⁰⁰hr-36⁰⁰min-39sec

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	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	710.24	-0.002
2	803.32	.100
3	927.80	.775
4	1028.04	.709
5	1265.04	.726
6	1376.57	.738
7	1526.86	.834
8	1584.39	.384
9	1680.01	.439
10	1674.78	.661
11	1691.35	.623
12	3031.86	.865
13	3076.20	.862

Tuesday, March 29, 1994

14:11

Wait

C:\FTIRDATA

LCRU067BL.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

LCRU067BL.TRANSMITTANCE
Date : March ~~22~~, 1994
Description: ~~22~~ ²⁹ ov

Time : ^{0v}~~4~~hr-^{0v}~~45~~min-22sec
¹⁴ ¹¹

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .988	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
-------	------------	-----------

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCRU 068
Date: 3-24-94 Inspector: GEORGE ROBERTS
Cylinder Serial #: RUSTED OVER Dimensions: 4" D X 14" H
Color: BROWN/YELLOW Owner Stamp: MATHESON
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): 9-87
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 660
Labels and/or Markings: NITROGEN DIOXIDE
General Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Valve Condition: Good: ✓ Fair: _____ Poor: _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ✓ No _____
Sample Method: Large CRV _____ Small CRV _____
Val ✓
Comments: _____
Sample Date: 3-24-94 Pressure: 0 PSIG
Identified Contents: NITROGEN DIOXIDE, tr. CARBON DIOXIDE
Analytical Method: tr. HYDROGEN tr. NITROGEN Mass Spec ✓ FTIR ✓ Other _____
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
Mole Sieve _____ Flare _____
Recontainerized: Yes _____ No ✓
Recontainerized Cylinder #: _____

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU068

MASS SPECTRUM INTERPRETATION

NITROGEN DIOXIDE, trace NITROGEN, tr. HYDROGEN

Analyst Signature: [Signature] Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

NITROGEN DIOXIDE, tr. CARBON DIOXIDE

Analyst Signature: [Signature] Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: Nitrogen Dioxide

QA or Document Officer Signature:

[Signature: Charles Mattiasso]

DATE: 3-30-94

LCPV068

Elapsed Time:00:00:26

03:42 24-Mar-94

Created:03:41:38 24-Mar-94

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

LCRV 068B

Elapsed Time:00:05:23

03:50 24-Mar-94

Created:03:49:52 24-Mar-94

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

Thursday, March 17, 1994

2:58 **Wait**

C:\FTIRDATA

LCRU068.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

CRU068.TRANSMITTANCE

Date : March 17, 1994

Time : 2hr-58min-20sec

Description: VSAMPLE

Sigma min : 399.19
max : 3999.64
Ampl. min : -0.002
max : 1.061
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) : 3999.64

#peak	wavenumber	intensity
1	428.39	.732
2	604.22	.857
3	749.44	0.000
4	1260.35	-0.001
5	1609.27	0.004
6	1754.80	-0.002
7	2062.88	.817
8	2089.62	.594
9	2916.70	.459
10	2969.05	.661
11	3113.42	.759

Thursday, March 17, 1994 3:21 **Wait**
C:\FTIRDATA
LCRU068BL.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

CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCR4070Date: 3-22-94 Inspector: G. RobertsCylinder Serial #: 20146 CG Dimensions: 6"D x 15"HColor: BLUE/BLACK NECK RING Owner Stamp: AIR PRODUCTS

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA 2015 Test Date(s): 10-93Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 670Labels and/or Markings: TUNGSTEN HEXAFLUORIDEGeneral Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good: ✓ Fair: _____ Poor: _____

Comments: _____

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

Approved to Handle: Yes ✓ No _____Sample Method: Large CRV _____ Small CRV _____
Val ✓

Comments: _____

Sample Date: 3-22-94 Pressure: 30 PSIGIdentified Contents: TUNGSTEN HEXAFLUORIDE, HYDROGEN FLUORIDE, HYDROGEN CHLORIDE
RX PRODUCTSAnalytical Method: Mass Spec ✓ FTIR ✓ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes _____ No ✓

Recontainerized Cylinder #: _____

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV070

MASS SPECTRUM INTERPRETATION

HYDROGEN FLUORIDE, TUNGSTEN HEXAFLUORIDE, HYDROGEN
NITROGEN, AIR, FLUORINE

Analyst Signature: [Signature] Date: 3-24-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

Analyst Signature: _____ Date: _____

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: _____

LCB070

Elapsed Time:00:00:49

02:52 24-Mar-94

Created:02:51:15 24-Mar-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 4	16	0	200		0.33		1

LCRU070

Elapsed Time:00:00:52

00:00 01-Jan-80

Created:00:05:37 01-Jan-80

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	187		0.31		1

EARTH RESOURCES CORPORATION
STANDARD OPERATING PROCEDURES
FOR GAS ANALYSES

ERC

FIGURE B-6
Analytical Summary Form

OVERPACK #: _____

CYLINDER #: LCRU070

MASS SPECTRUM INTERPRETATION

HYDROGEN FLUORIDE, NITROGEN, & HYDROGEN, OXYGEN

AIR

Analyst Signature: [Signature] Date: 3-22-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, HYDROGEN CHLORIDE, TUNGSTEN HEXAFLUORIDE
RX PRODUCTS

Analyst Signature: [Signature] Date: 3-22-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: Tungsten Hexa Fluoride

QA or Document Officer Signature:

[Signature]

DATE: 3-30-94

Tuesday, March 22, 1994

16:02 **Wait**

C:\FTIRDATA

LCRU070.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

_CRU070.TRANSMITTANCE
Date : March 22, 1994
Description: VALVE SAMPLE

0V 0V
Time : 3hr-15min-42sec
16 02

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.014	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) : 3999.64

#peak	wavenumber	intensity
1	709.82	-0.001
2	805.04	.208
3	928.13	.819
4	1028.52	.181
5	1384.65	.379
6	1457.83	.629
7	1480.65	.518
8	3831.86	.869
9	3876.20	.865

--

Wednesday, March 23, 1994 8:46 Wait
 C:\FTIRDATA
 LCRU070-BLK.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:1.00e+00

1.116		
.540		
-0.035		

4000	2199	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen

Tuesday, March 15, 1994 3:41 **Wait**
 C:\FTIRDATA
 LCRU070.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:1.00e+00

4000	2199	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

LCRU070.TRANSMITTANCE
Date : March 15, 1994

Time : 3hr-28min-42sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.014	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) : 3999.64

#peak	wavenumber	intensity
1	709.82	-0.001
2	805.04	.208
3	928.13	.819
4	1028.52	.181
5	1384.65	.379
6	1457.82	.629
7	1480.65	.518
8	3831.86	.869
9	3876.20	.865

Tuesday, March 15, 1994 20:04 ~~Wait~~
C:\FTIRDATA
LCRU070-BLK.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 ERC #: LCRU071
Date: 3-24-94 Inspector: GEORGE ROBERTS
Cylinder Serial #: 3298 Dimensions: 6 D X 18" H
Color: BLUE w/BLACK NECKRING Owner Stamp: AIR PRODUCTS
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3AA 2015 Test Date(s): 4-65
Cylinder Type: H.P. ✓ L.P. Valve Type: 679
Labels and/or Markings:
TUNGSTON HEXAFLUORIDE

General Condition: Good Fair ✓ Poor

Comments:

Valve Condition: Good: ✓ Fair: Poor:

Comments:

Pre-operation Weight: Post-operation Weight:

Approved to Handle: Yes ✓ No

Sample Method: Large CRV Small CRV
Val ✓

Comments:

Sample Date: 3-24-94 Pressure: 0 PSI/G

Identified Contents: TUNGSTEN HEXAFLUORIDE, HYDROGEN FLUORIDE, EL HYDROGEN FLUORINE, NITROGEN, OXYGEN CHLORIDE

Analytical Method: Mass Spec ✓ FTIR ✓ Other

Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon

Mole Sieve Flare

Recontainerized: Yes No ✓

Recontainerized Cylinder #:

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU071

MASS SPECTRUM INTERPRETATION

NITROGEN, HYDROGEN FLUORIDE, FLUORINE, OXYGEN
TUNGSTEN HEXAFLUORIDE, RX PRODUCTS

Analyst Signature: [Signature] Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

TUNGSTEN HEXAFLUORIDE, RX PRODUCTS, TR. HYDROGEN
CHLORIDE, HYDROGEN FLUORIDE SiF_4

Analyst Signature: [Signature] Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: Tungsten Hexafluoride

QA or Document Officer Signature:

Charles A. Mattem

DATE: 3-30-94

LCRU071

Elapsed Time:00:45:35

10:41 24-Mar-94

Created:10:36:09 24-Mar-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	32	0	187		0.31		1

LCRU071BL

Elapsed Time:00:08:25

11:10 24-Mar-94

Created:11:10:19 24-Mar-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
E-7	X 1	32	0	187		0.31		1

Thursday, March 24, 1994

10:37 Wait

C:\FTIRDATA

LCRU071.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

LCRU071.TRANSMITTANCE
Date : March 24, 1994
Description: VSAMPLE

0V 0V
Time : 2hr-10min-29sec
10 37

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: -0.000	Obs. Time	: 0min 20sec
max	: 1.202	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) : 3999.64

#peak	wavenumber	intensity
1	710.23	-0.000
2	804.43	.108
3	927.72	.770
4	1028.02	.653
5	1384.68	.257
6	1480.80	.414
7	3832.00	.917
8	3876.19	.925

Thursday, March 24, 1994

11:10 Wait

C:\FTIRDATA

LCRU071BL.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 ERC #: LCRU 072
Date: 3-29-94 Inspector: GEORGE ROBERTS
Cylinder Serial #: RA-013209 Dimensions: 6"D x 14"H
Color: PINK / GRAY Owner Stamp: MATHESON
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3AA2015 Test Date(s): 7-84
Cylinder Type: H.P. ✓ L.P. Valve Type: 670/679
Labels and/or Markings: SULFUR TETRAFLUORIDE

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

Comments:
Sample Date: 4-12-94 Pressure: 30 PSI'G
Identified Contents: NITROGEN, TRACE HYDROGEN, TRACE OXYGEN
TEST NEGATIVE FOR HYDROGEN FLUORIDE
Analytical Method: Mass Spec ✓ FTIR ✓ Other DRAEGER
Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon
Mole Sieve Flare
Recontainerized: Yes No ✓
Recontainerized Cylinder #:

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P/gn.

ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU-072

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN, & OXYGEN

Analyst Signature: Ovarjos Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: Ovarjos Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR HYDROGEN FLUORIDE (DRAEGER)

Analyst Signature: Ovarjos Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

- HYDROGEN PEAK IN SYSTEM
- TEST NEGATIVE FOR HYDROGEN FLUORIDE
(DRAEGER TUBE TEST)

QA or Document Officer Signature: _____

DATE: _____

LCRU 072

Elapsed Time:00:03:28

14:40 12-Apr-94

Created:14:40:01 12-Apr-94

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

Tuesday, April 12, 1994

14:36 Wait

C:\FTIRDATA

LCRU072.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.68e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU072. TRANSMITTANCE
Date : April 12, 1994

Time : 14hr-36min-14sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .794	Obs. Time	: 0min 20sec
max	: 1.051	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	1506.77	.822
2	1557.54	.828
3	1652.04	.863

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 073

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

Cylinder Serial #: 26376-002 Dimensions: 4"D X 39"H

Color: STAINLESS STEEL Owner Stamp: SGP

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 140 PSI Test Date(s): 1987

Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 3/8" SWAGE-LOK

Labels and/or Markings:
TRICHLOROSILANE

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>0 PSIG</u>
Identified Contents: <u>HELIUM, HYDROGEN CHLORIDE, TRICHLOROSILANE, TRACE NITROGEN</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 #: LCRU073

MASS SPECTRUM INTERPRETATION

HELIUM, HYDROGEN CHLORIDE, TRICHLOROSILANE
TRACE NITROGEN

Analyst Signature: [Signature]

Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, TRICHLOROSILANE

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: _____

LCRU073

Elapsed Time:00:01:24

15:02 27-Apr-94

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

LCPV 073 BLK

Elapsed Time:00:00:33

15:16 27-Apr-94

Created:15:15:50 27-Apr-94

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

Wednesday, April 27, 1994 15:02 Wait

C:\FTIRDATA
LCRU073.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:2.29e-01

5001 2260 399

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

LCRU073. TRANSMITTANCE
Date : April 27, 1994

Time : 14hr-56min-3sec

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	: 1.005	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	4004.17	0.533
2	498.17	0.026
3	599.26	-0.000
4	668.66	0.765
5	808.38	-0.001
6	846.75	0.242
7	993.89	0.016
8	1159.73	0.647
9	1604.58	0.798
10	1605.92	0.047
11	1667.84	0.047
12	1699.45	0.688
13	1731.94	0.576
14	1770.74	0.848
15	1775.00	0.767
16	1773.17	0.736
17	1796.35	0.700
18	1819.42	0.676
19	1841.42	0.710
20	1862.91	0.755
21	1904.55	0.739
22	1933.57	0.682
23	1948.81	0.661
24	1969.99	0.692
25	1978.71	0.724
26	1990.10	0.776
27	2010.34	0.817
28	2077.78	0.858
29	2094.29	0.765

Wednesday, April 27, 1994 15:20 **Wait**
C:\FTIRDATA
LCRU073BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.93e-01

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

CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCR4 074Date: 4-20-94 Inspector: G. RobertsCylinder Serial #: 12963 D Dimensions: 3"D x 16"HColor: Yellow Owner Stamp: Air Products

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA 2015 Test Date(s): 2-76Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: Q79

Labels and/or Markings:

CHLORINE TRIFLUORIDEGeneral 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 TEST)</u>			
Sample Date: <u>4-20-94</u>		Pressure: <u>15 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 #: ACRU074
RESAMPLE

MASS SPECTRUM INTERPRETATION

OXYGEN, CHLORINE, HYDROGEN CHLORIDE, NITROGEN, HYDROGEN
FLUORIDE, TRACE, HYDROGEN, CHLORINE TRIFLUORIDE RX PRODUCTS

Analyst Signature: Overmyer Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, CHLORINE TRIFLUORIDE REACTION PRODUCTS

Analyst Signature: Overmyer Date: 4-20-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

- CHLORINE TRIFLUORIDE REACTION WITH KBr WINDOW CELLS SHOWN IN FTIR SPECTRUM
- RESAMPLED DUE TO PLUGGED LINE IN VALVE SAMPLING SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCPV074 RE

Elapsed Time:00:01:05

14:33 20-Apr-94

Created:14:25:54 20-Apr-94

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

LCRU074 RE BLK

Elapsed Time:00:00:45

15:13 20-Apr-94

Created:15:11:25 20-Apr-94

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

Wednesday, April 20, 1994

14:35 Wait

C:\FTIRDATA

LCRU074RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.22e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

LCRU074RE.TRANSMITTANCE

Date : April 20, 1994

Time : 14hr-35min-11sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .126

max : 1.007

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	481.94	.346
2	547.41	.535
3	621.08	.214
4	739.04	.371
5	885.09	.412
6	996.51	.359
7	1028.48	.174
8	1100.23	.126
9	1263.93	.223
10	1502.32	.406
11	1871.29	.532
12	2348.86	.528
13	2928.59	.361
14	3786.47	.502
15	3831.87	.421
16	3876.18	.399
17	3918.62	.453
18	3999.60	.433
19	4037.15	.423
20	4073.01	.423
21	4107.68	.462
22	4140.48	.518

Wednesday, April 20, 1994 15:31 Wait
C:\FTIRDATA
LCRU074REBLK.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 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV074

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

overpack

Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: _____

overpack

Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAGGER TUBE TEST)

Analyst Signature: _____

overpack

Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU074

Elapsed Time:00:00:34

13:54 20-Apr-94

Created:13:53:13 20-Apr-94

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

Wednesday, April 20, 1994 13:55 **Wait**
C:\FTIRDATA
LCRU074.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.59e-01

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

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

LCRU074.TRANSMITTANCE
Date : April 20, 1994

Time : 13hr-55min-16sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .940	Obs. Time	: 0min 20sec
max	: .975	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

Form 2

Project Name: <u>LANE-94</u>		Date: <u>4-20-94</u>		Inspector: <u>G. [Signature]</u>		Dimensions: <u>3" x 16" H</u>		Owner Stamp: <u>Am. [Signature]</u>		DOT Rating: <u>3E1800</u> <u>3A2015</u> <u>3AA2400</u> <u>3A2215</u>		Other: <u>3AA2015</u>		Cylinder Type: <u>H.P.</u> <u>L.P.</u>		Valve Type: <u>679</u>		Labels and/or Markings: <u>Chloride Trifluoride</u>		General Condition: <u>Good</u> <u>Fair</u> <u>Poor</u>		Comments:		Valve Condition: <u>Good</u> <u>Fair</u> <u>Poor</u>		Comments:		Pre-operation Weight: _____		Approved to Handle: <u>Yes</u> <u>No</u>		Handling Precautions: _____		Approved for Valve Sampling: <u>Yes</u> <u>No</u>		Sample Method: <u>Large CRV</u> <u>Small CRV</u> <u>Val</u>	
Comments:		Sample Date: <u>4-20-94</u>		Pressure: <u>14 PSI</u>		Identified Contents: <u>NITROGEN, OXYGEN, TRACE CHLORINE, TRACE HYDROGEN CHLORIDE, TRACE HYDROGEN FLUORIDE, TRACE HYDROGEN</u>		Analytical Method: <u>Mass Spec</u> <u>FTIR</u> <u>Other</u>		Disposition: <u>Caustic Scrub</u> <u>Acid Scrub</u> <u>Oxidizing Carbon</u> <u>Mole Sieve</u> <u>Flare</u>		Recontaminated: <u>Yes</u> <u>No</u>		Recontaminated Cylinder #:		Comments:		Sample Date: <u>4-20-94</u>		Pressure: <u>14 PSI</u>		Identified Contents: <u>NITROGEN, OXYGEN, TRACE CHLORINE, TRACE HYDROGEN CHLORIDE, TRACE HYDROGEN FLUORIDE, TRACE HYDROGEN</u>		Analytical Method: <u>Mass Spec</u> <u>FTIR</u> <u>Other</u>		Disposition: <u>Caustic Scrub</u> <u>Acid Scrub</u> <u>Oxidizing Carbon</u> <u>Mole Sieve</u> <u>Flare</u>		Recontaminated: <u>Yes</u> <u>No</u>		Recontaminated Cylinder #:							

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 075

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE CHLORINE, TRACE HYDROGEN CHLORIDE,
TRACE HYDROGEN FLUORIDE, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE HYDROGEN FLUORIDE, CHLORINE TRIFLUORIDE REACTION
PRODUCTS

Analyst Signature: [Signature] Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• REACTION OF CHLORINE TRIFLUORIDE WITH KBr WINDOW CELLS
SHOWN IN FTIR SPECTRUM

QA or Document Officer Signature:

DATE: _____

LCRU075

Elapsed Time:00:00:01

16:00 20-Apr-94

Created:16:04:01 20-Apr-94

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

LCRU075 BLK

Elapsed Time:00:00:20

16:13 20-Apr-94

Created:16:13:28 20-Apr-94

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

Wednesday, April 20, 1994 16:02 Wait
C:\FTIRDATA
LCRU075.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.73e-01

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

LCRU075.TRANSMITTANCE
Date : April 20, 1994

Time : 16hr-2min-10sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .774	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	1028.47	.774
2	1105.84	.874
3	1312.79	.834

Wednesday, April 20, 1994

16:09 Wait

C:\FTIRDATA

LCRU075BLK.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

CYLINDER INSPECTION LOG

Project Name: LAUL-94 ERC #: LCRA 076Date: 4-20-94 Inspector: G. ROBERTSCylinder Serial #: 14087D Dimensions: 3" x 16" HColor: YELLOW Owner Stamp: AM PRODUCTS

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): 9-79Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 679

Labels and/or Markings:

CHLORINE TRIFLUORIDEGeneral 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>4-21-94</u>	Pressure: <u>5 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE CHLORINE, TRACE HYDROGEN CHLORIDE, TRACE HYDROGEN FLUORIDE, CHLORINE TRIFLUORIDE RX. PRODUCTS</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 076
RESAMPLE

MASS SPECTRUM INTERPRETATION

OXYGEN, NITROGEN, CHLORINE, HYDROGEN FLUORIDE, HYDROGEN
CHLORIDE, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 4-21-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, CHLORINE TRIFLUORIDE RX PRODUCTS

Analyst Signature: [Signature] Date: 4-21-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

- LCRU 076 RESAMPLED DUE TO SUBSTANTIAL AMOUNT OF
NITROGEN IN FIRST SAMPLE
- _____

QA or Document Officer Signature: _____

DATE: _____

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restrictions on the title page of this plan."

ERC

LCRU076 RE

Elapsed Time:00:00:57

10:27 21-Apr-94

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

LCRU076 RE BLK

Elapsed Time:00:00:20

10:40 21-Apr-94

Created:10:48:11 21-Apr-94

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

Thursday, April 21, 1994

10:31 Wait

C:\FTIRDATA

LCRU076RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.86e-01

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

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

LCRU076RE.TRANSMITTANCE

Date : April 21, 1994

Time : 10hr-24min-29sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -1.500	Obs. Time	: 0min 20sec
max	: 1.500	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	405.90	1.141
2	417.40	-1.456
3	427.31	-1.500
4	432.02	-1.500
5	435.47	-1.408
6	441.30	-1.500
7	445.54	.588
8	450.96	.467
9	456.59	.402
10	462.30	-1.500
11	471.58	-1.575
12	482.64	-1.500
13	488.27	-1.442
14	495.01	-1.500
15	502.28	-.965
16	509.12	-1.500
17	514.06	-.304
18	519.68	-1.500
19	528.44	-1.031
20	536.67	-.230
21	539.51	-0.029
22	544.15	-.489
23	548.90	-.279
24	556.49	-.364
25	573.30	-.609
26	578.87	-1.500
27	585.00	-.596
28	597.51	-1.500
29	606.68	-1.500
30	619.06	-1.500
31	625.00	-1.500
32	637.30	0.048
33	646.00	.175
34	656.00	-1.044

#peak	wavenumber	intensity
1	671.71	-1.2000
2	685.71	-1.5000
3	691.71	-1.5000
4	698.33	-1.1777
5	706.88	-1.5000
6	720.00	-1.3666
7	733.97	-1.5000
8	749.09	-1.5000
9	757.89	-1.2244
10	761.74	-0.9166
11	767.59	0.0833
12	783.39	-1.5000
13	784.99	-1.0889
14	790.71	-1.5000
15	799.00	-0.5997
16	806.50	0.2366
17	809.89	0.4488
18	814.65	0.0066
19	822.42	-1.0400
20	830.00	-1.5000
21	833.10	-1.0888
22	838.22	-1.2442
23	844.73	-1.1099
24	854.22	-1.5000
25	859.06	0.3111
26	869.11	0.4999
27	894.86	0.6899
28	930.01	0.6899
29	1105.43	0.5344
30	1268.79	0.3666
31	1383.87	0.8222
32	1576.19	0.8100
33	1999.63	0.8422
34	2037.13	0.8331
35	2072.96	0.8338

Thursday, April 21, 1994 10:47 **Wait**
C:\FTIRDATA
LCRU076REBLK.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

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV076

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE CHLORINE, TRACE HYDROGEN CHLORIDE
TRACE HYDROGEN FLUORIDE

Analyst Signature: OVargas Date: 4-21-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE HYDROGEN FLUORIDE, CHLORINE TRIFLUORIDE RX PRODUCTS

Analyst Signature: OVargas Date: 4-21-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• SUBSTANTIAL AMOUNT OF N₂ IN SYSTEM

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCP0076

Elapsed Time: 00:00:12
Elapsed Time: 00:00:12

10:00 01-Apr-94
10:00 01-Apr-94

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

LCPV076 BLK

Elapsed Time: 00:04:12

10:12 21-Apr-94

Created: 10:12:14 21-Apr-94

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

Thursday, April 21, 1994

10:09

Wait

C:\FTIRDATA

LCRU076.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.84e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

LCRU076. TRANSMITTANCE
Date : April 21, 1994

Time : 9hr-55min-24sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -1.500	Obs. Time	: 0min 20sec
max	: 1.500	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	403.81	0.228
2	414.74	-0.007
3	418.71	-1.500
4	428.57	-1.500
5	430.05	1.067
6	434.80	0.697
7	443.63	0.089
8	451.57	-0.987
9	457.15	-0.541
10	465.35	-0.977
11	471.78	-0.714
12	483.12	-1.500
13	493.30	-1.500
14	500.94	-1.500
15	507.04	-0.630
16	513.35	-0.021
17	517.06	-1.500
18	520.40	-1.500
19	525.77	-1.500
20	540.89	-0.150
21	550.68	-0.982
22	556.67	-0.373
23	573.34	-1.500
24	577.34	-1.500
25	590.05	-1.500
26	599.75	1.011
27	610.10	-0.660
28	628.52	-1.500
29	633.12	-0.328
30	638.23	-1.500
31	654.04	-0.399
32	654.09	0.167
33	671.30	-1.318
34	682.39	-1.500

#peak	wavenumber	intensity
655	684.288	-1.0000
66	696.288	.0013
67	708.04	.0013
68	708.77	.0066
69	713.75	0.0133
40	728.69	-1.4433
41	733.97	-1.0000
42	739.27	-1.0000
43	748.19	-1.0000
44	754.11	-1.0000
45	757.75	-1.0033
46	774.44	-1.0000
47	783.76	-1.0000
48	798.03	-1.0000
49	798.68	.7900
50	797.77	.461
1	809.27	-0.031
81	809.68	.0033
82	822.46	-1.4988
83	828.76	-1.0000
84	849.71	-1.0000
85	858.78	.4333
86	866.66	.0074
87	866.66	.0074
88	866.66	.0074
89	866.66	.0074
90	866.66	.0074
91	866.66	.0074
92	866.66	.0074
93	866.66	.0074
94	866.66	.0074
95	866.66	.0074
96	866.66	.0074
97	866.66	.0074
98	866.66	.0074
99	866.66	.0074
100	866.66	.0074

Thursday, April 21, 1994 10:11 Wait
C:\FTIRDATA
LCRU076BLK.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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCP4 077

Date: 4-20-94 Inspector: G. ROSEN

Cylinder Serial #: 14088D Dimensions: 3" x 16" H

Color: YELLOW Owner Stamp: AIR PRODUCTS

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): 9-79

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: G79

Labels and/or Markings:
CHLORINE TRIFLUORIDE

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>CHLORO FLUORO CARBON GAS PRODUCT SHOWN IN FTIR</u>	
Sample Date: <u>4-20-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE CHLORINE, TRACE HYDROGEN</u> <u>CHLORINE, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: <u>Mass Spec</u>	<u>FTIR</u> Other ☐
Disposition: <u>Caustic Scrub</u>	<u>Acid Scrub</u> <u>Oxidizing Carbon</u>
	<u>Mole Sieve</u> <u>Flare</u>
Recontainerized: <u>Yes</u>	<u>No</u> ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU07T
RESAMPLE

MASS SPECTRUM INTERPRETATION

OXYGEN NITROGEN CHLORINE, HYDROGEN FLUORIDE, HYDROGEN
CHLORIDE, TRACE HYDROGEN, CHLORINE TRIFLUORIDE REACTION PRODUCTS
Analyst Signature: [Signature] Date: 4-20-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, CHLORINE TRIFLUORIDE REACTION
PRODUCTS
Analyst Signature: [Signature] Date: 4-20-94
QA Confirmation Yes ☐ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

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

INTERPRETED RESULTS: _____

- CHLORINE TRIFLUORIDE REACTION WITH KBr WINDOW CELLS SHOWN IN FTIR SPECTRUM
- RESAMPLE DUE TO PLUGGED LINE IN VALVE SAMPLING SYSTEM
- SUBSTANTIAL AMOUNT OF NITROGEN AND AIR IN FIRST SAMPLE

QA or Document Officer Signature: _____

DATE: _____

LCRV077 RE

Elapsed Time:00:00:51

15:36 20-Apr-94

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

LCPU077 RE BLK

Elapsed Time:00:00:40

15:53 20-Apr-94

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

Wednesday, April 20, 1994

15:33 Wait

C:\FTIRDATA

LCRU077RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.02e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

LCRU077RE.TRANSMITTANCE
Date : April 20, 1994

Time : 15hr-32min-38sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.064	Obs. Time	: 0min 20sec
max	: 1.005	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	477.83	.621
2	540.52	.680
3	626.48	.715
4	721.02	.501
5	923.13	.715
6	1099.83	0.064
7	1129.19	0.085
8	1282.17	.624
9	1311.01	.457
10	1502.34	.824
11	1670.13	.787
12	2049.29	.693
13	2948.41	.764
14	3786.49	.875
15	3831.06	.789
16	3876.20	.757
17	3918.64	.801
18	3999.22	.768
19	4037.15	.769
20	4072.97	.780
21	4107.66	.823

		Wednesday, April 20, 1994		15:53	Wait
		C:\FTIRDATA			
		LCRU077REBLK.TRANSMITTANCE			
		Print Screen			
		Zoom: 1/4 Y:1.00e+00			
1.118					
.541					
-0.035					
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 #: LCRU077

MASS SPECTRUM INTERPRETATION

NITROGEN OXYGEN, CHLORINE, HYDROGEN CHLORIDE
TRACE HYDROGEN

Analyst Signature: O Vargas

Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

CHLORO-FLUORO CARBON PRODUCT, TRACE CARBON DIOXIDE

Analyst Signature: O Vargas

Date: 4-20-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• SUBSTANTIAL AMOUNT OF NITROGEN IN SAMPLE

QA or Document Officer Signature:

DATE: _____

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ERC

Wednesday, April 20, 1994

10:59 Wait

C:\FTIRDATA

LCRU077.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:3.83e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

LCRU077

Elapsed Time:00:02:24

11:05 20-Apr-94

Created:11:00:25 20-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 2	16	0	200		0.33		1

LCRU077BLK

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

LCRU077.TRANSMITTANCE
Date : April 20, 1994

Time : 10hr-56min-17sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .190	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	461.78	.870
2	957.58	.870
3	1106.39	.190
4	1120.38	.208

Wednesday, April 20, 1994 13:01 Wait
C:\FTIRDATA
LCRU077BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.67e-01

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

CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCRU-078Date: 13 APR 94 Inspector: WIN GeorgeCylinder Serial #: C13576 Dimensions: 4" x 12"Color: yellow Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): 2/74Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 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: Yes ☒ No ☐Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____

Sample Date: 4-13-94 Pressure: 0 PSIGIdentified Contents: SULFUR DIOXIDE, NITROGEN, HYDROGENAnalytical 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 #: LCRU078

MASS SPECTRUM INTERPRETATION

SULFUR DIOXIDE, NITROGEN, HYDROGEN

Analyst Signature: or/and

Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SULFUR DIOXIDE

Analyst Signature: or/and

Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• SO₂ IS MAJOR COMPONENT

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU078

Elapsed Time:00:05:06

16:27 13-Apr-94

Created:16:26:51 13-Apr-94

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

LCRU078BLK

Elapsed Time:00:00:25

16:36 13-Apr-94

Created:16:36:09 13-Apr-94

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

Wednesday, April 13, 1994

16:27 Wait

C:\FTIRDATA

LCRU078.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.91e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU078.TRANSMITTANCE

Date : April 13, 1994

Time : 16hr-26min-21sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.025	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	502.50	.691
2	532.86	.685
3	1134.70	.751
4	1165.28	.710
5	1348.13	0.044
6	1374.56	0.025

Wednesday, April 13, 1994 16:35 Wait
C:\FTIRDATA
LCRU078BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.91e-01

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

CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: ICRU D79Date: 5-9-94 Inspector: G. R. B. D.Cylinder Serial #: DL 198264 Dimensions: 4" D x 14" HColor: GRAY Owner Stamp: MATHESON

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): 9-66Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: G70

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>TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>6-8-94</u>	Pressure: <u>5 PSIG</u>
Identified Contents: <u>SILICON TETRAFLUORIDE, MOLYBDENUM HEXAFLUORIDE</u>	
Reaction Products: <u>NITROGEN, TRACE OXYGEN, 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-3147</u> <u>GAS: J69175</u>

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 079

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 6-8-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

SILICON TETRAFLUORIDE, MOLYBDENUM HEXAFLUORIDE
REACTION PRODUCTS

Analyst Signature: _____

Date: 6-8-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

Date: 6-8-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS:

• LCRU 079 ANALYSIS PENDING FURTHER EVALUATION

QA or Document Officer Signature: _____

DATE: _____

LC#U079

Elapsed Time:00:01:05

09:40 08-Jun-94

Created:09:35:58 08-Jun-94

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

Wednesday, June 8, 1994

9:34

Wait

C:\FTIRDATA

LCRU079.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.14e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU079.TRANSMITTANCE
Date : June 8, 1994

Time : 9hr-33min-43sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .561	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	1028.34	.561
2	1462.61	.896
3	3093.07	.870

Wednesday, June 8, 1994 11:08 **Wait**
C:\FTIRDATA
LCRU079BLK.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: LANC ERC #: LCRH 080
Date: 3-24-94 Inspector: GEORGE ROBERTS
Cylinder Serial #: 19398CG Dimensions: 6"D x 18"H
Color: BLUE w/BLACK NECKRING Owner Stamp: AIR PRODUCTS
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3AA 2015 Test Date(s): Non Visible
Cylinder Type: H.P. ✓ L.P. Valve Type: 679
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

Sample Method: Large CRV Small CRV
Val ✓

Comments:

Sample Date: 3-24-94 Pressure: 0 PSIG

Identified Contents: TUNGSTEN HEXAFLUORIDE, TRACE HYDROGEN FLUORIDE, TR. HYDROGEN
NITROGEN, OXYGEN, AIR CHLORIDE

Analytical Method: Mass Spec ✓ FTIR ✓ Other

Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon

Mole Sieve Flare

Recontainerized: Yes No ✓

Recontainerized Cylinder #:

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 080

MASS SPECTRUM INTERPRETATION

NITROGEN, tr. OXYGEN, AIR, tr. HYDROGEN FLUORIDE
WF₆ RX PRODUCTS

Analyst Signature: D. Arpat Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

TUNGSTEN HEXAFLUORIDE (WF₆), TRACE HYDROGEN FLUORIDE
TRACE HYDROGEN CHLORIDE SiF₄

Analyst Signature: D. Arpat Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: Tungsten Hexafluoride

QA or Document Officer Signature:

Charles S. Matern

DATE: 3 - 30 - 94

LCRU080

Elapsed Time:00:00:23

11:17 24-Mar-94

Created:11:16:47 24-Mar-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	32	0	187		0.31		1

Thursday, March 24, 1994

11:17 Wait

C:\FTIRDATA

LCRU0000.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

LCRU080.TRANSMITTANCE
Date : March 24, 1994
Description: VSAMPLE

0V 0V
Time : 0hr-0min-41sec
11 17

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	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) : 3999.64

#peak	wavenumber	intensity
1	710.72	0.001
2	805.66	.818
3	1028.46	.885
4	1385.23	.882

Thursday, March 24, 1994 16:28 **Wait**
C:\FTIRDATA
LCRU080BL.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.98e-01

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

LCRV 08B

Elapsed Time:00:02:31

04:28 24-Mar-94

Created:04:27:58 24-Mar-94

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCAU 081
Date: 3-24-94 Inspector: GEORGE ROBERTS
Cylinder Serial #: 3919 Dimensions: 6"D X 18" H
Color: BROWN/YELLOW Owner Stamp: MATHESON
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): None Visible
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 660
Labels and/or Markings: NITROGEN DIOXIDE

General Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good: ✓ Fair: _____ Poor: _____

Comments: DIP TUBE ON VALVE

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

Approved to Handle: Yes ✓ No _____

Sample Method: Large CRV _____ Small CRV _____
Val ✓

Comments: _____

Sample Date: 3-24-94 Pressure: 0 PSIG

Identified Contents: NITROGEN DIOXIDE, tr. CARBON DIOXIDE, tr. NITROGEN
tr. OXYGEN, tr. HYDROGEN

Analytical Method: Mass Spec ✓ FTIR ✓ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes _____ No ✓

Recontainerized Cylinder #: _____

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU081

MASS SPECTRUM INTERPRETATION

NITROGEN DIOXIDE, tr. CARBON DIOXIDE, tr. NITROGEN
tr. HYDROGEN, tr. HYDROGEN FLUORIDE (SYSTEM)
Analyst Signature: B. Varga Date: 3-24-94
QA Confirmation Yes ☒ No ☐
Comments: _____

FTIR INTERPRETATION

NITROGEN DIOXIDE, tr. CARBON DIOXIDE
Analyst Signature: B. Varga Date: 3-24-94
QA Confirmation Yes ☒ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

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

INTERPRETED RESULTS: Nitrogen Dioxide

QA or Document Officer Signature:

Charles C. Mattern

DATE: 3 - 30 - 94

LCRU081

Elapsed Time:00:00:39

03:14 24-Mar-94

Created:03:13:38 24-Mar-94

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

LCRV081BL

Elapsed Time:00:00:26

03:23 24-Mar-94

Created:03:22:42 24-Mar-94

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

Thursday, March 24, 1994

15:14 **Wait**

C:\FTIRDATA

LCRU081.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

LCRU081. TRANSMITTANCE
Date : March 24, 1994
Description:

0V 0V
Time : 15 hr - 14 min - 42 sec

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: 0.009	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) : 3999.64

#peak	wavenumber	intensity
1	604.38	.924
2	749.88	.110
3	1260.65	0.019
4	1609.82	0.069
5	1746.07	0.009
6	1788.58	.343
7	1806.90	.425
8	2349.61	.865
9	2891.16	.740
10	2916.73	.635

Thursday, March 24, 1994 15:22 Wait
C:\FTIRDATA
LCRU081BL.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 ERC #: LCR4082

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

Cylinder Serial #: RA 01649 Dimensions: 6"D x 14"H

Color: GREEN/RED Owner Stamp: MATHESEN

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): 6-80

Cylinder Type: H.P. ✓ L.P. Valve Type: 660

Labels and/or Markings:
GERMANE

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>34 PSIG</u>
Identified Contents: <u>GERMANE, NITROGEN, 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 #: LCRV082

MASS SPECTRUM INTERPRETATION

GERMANE, NITROGEN, HYDROGEN

Analyst Signature: o/salas Date: 4-14-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

GERMANE

Analyst Signature: o/salas Date: 4-14-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• GERMANE MAJOR COMPONENT

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU082

Elapsed Time:00:11:41

15:26 14-Apr-94

Created:15:23:21 14-Apr-94

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

LCRU082BLK

Elapsed Time:00:03:54

15:42 14-Apr-94

Created:15:40:48 14-Apr-94

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

Thursday, April 14, 1994 15:21 **Wait**
 C:\FTIRDATA
 LCRU082. TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:9.82e-01

5001 2700 399

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

LCRU082.TRANSMITTANCE

Date : April 14, 1994

Time : 15hr-21min-23sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.024	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	812.91	0.028
2	840.67	.178
3	935.46	.798
4	2052.40	.564
5	2106.10	0.024
6	2169.45	.627
7	4150.11	.870

Thursday, April 14, 1994 15:37 Wait
C:\FTIRDATA
LCRU082BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.75e-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 #: LCRU 083Date: 4-20-94 Inspector: G. ROBERTSCylinder Serial #: SG-1422D Dimensions: 3" D x 16" HColor: YELLOW Owner Stamp: AIR PRODUCTS

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA 2015 Test Date(s): 9-79Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 679

Labels and/or Markings:

CHLORINE TRIFLUORIDEGeneral 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: 4-21-94 Pressure: 5 PSIGIdentified Contents: OXYGEN, NITROGEN, HYDROGEN FLUORIDE, HYDROGEN CHLORIDE, CHLORINE, TRACE HYDROGEN, CHLORINE TRIFLUORIDE BY PRODUCTSAnalytical 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 #: LCPV083

MASS SPECTRUM INTERPRETATION

OXYGEN, NITROGEN, CHLORINE, HYDROGEN CHLORIDE, HYDROGEN
FLUORIDE, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 4-21-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, CHLORINE TRIFLUORIDE^{Rx} PRODUCTS

Analyst Signature: _____ Date: 4-21-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• OXYGEN SHOWN DUE TO REACTION OF CHLORINE TRIFLUORIDE
WITH RUST IN THE SYSTEM

QA or Document Officer Signature:

DATE: _____

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restrictions on the title page of this plan."

ERC

LCRV083

Elapsed Time:00:00:42

10:53 21-Apr-94

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

L CRU083 BLK

Elapsed Time:00:00:21

13:45 21-Apr-94

Created:13:44:39 21-Apr-94

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

Thursday, April 21, 1994

10:53

Wait

C:\FTIRDATA

LCRU083.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.72e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

LCRU083. TRANSMITTANCE

Date : April 21, 1994

Time : 10hr-51min-32sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -1.500	Obs. Time	: 0min 20sec
max	: 1.500	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	4053.95	-.718
1	4113.17	-.798
1	4180.60	-1.500
1	4277.66	-1.500
1	4311.99	-1.500
1	4355.68	-1.500
1	4399.99	-1.500
1	4477.66	-.347
1	4533.99	0.063
1	4577.11	-.111
1	4619.97	-1.500
1	4666.66	-1.500
1	4844.11	-1.500
1	4955.75	-1.173
1	5011.78	-.626
1	5066.69	-0.849
1	5113.17	-1.500
1	5159.79	-.636
1	5211.11	-.241
1	5266.71	-.150
1	5311.11	-.410
1	5366.66	-.765
1	5411.11	-1.500
1	5466.66	-1.500
1	5511.11	-1.500
1	5566.66	-1.500
1	5611.11	-1.500
1	5666.66	-1.500
1	5711.11	-1.500
1	5766.66	-1.500
1	5811.11	-1.500
1	5866.66	-1.500
1	5911.11	-1.500
1	5966.66	-1.500
1	6011.11	-1.500
1	6066.66	-1.500
1	6111.11	-1.500
1	6166.66	-1.500
1	6211.11	-1.500
1	6266.66	-1.500
1	6311.11	-1.500
1	6366.66	-1.500
1	6411.11	-1.500
1	6466.66	-1.500
1	6511.11	-1.500
1	6566.66	-1.500
1	6611.11	-1.500
1	6666.66	-1.500
1	6711.11	-1.500
1	6766.66	-1.500
1	6811.11	-1.500
1	6866.66	-1.500
1	6911.11	-1.500
1	6966.66	-1.500
1	7011.11	-1.500
1	7066.66	-1.500
1	7111.11	-1.500
1	7166.66	-1.500
1	7211.11	-1.500
1	7266.66	-1.500
1	7311.11	-1.500
1	7366.66	-1.500
1	7411.11	-1.500
1	7466.66	-1.500
1	7511.11	-1.500
1	7566.66	-1.500
1	7611.11	-1.500
1	7666.66	-1.500
1	7711.11	-1.500
1	7766.66	-1.500
1	7811.11	-1.500
1	7866.66	-1.500
1	7911.11	-1.500
1	7966.66	-1.500
1	8011.11	-1.500
1	8066.66	-1.500
1	8111.11	-1.500
1	8166.66	-1.500
1	8211.11	-1.500
1	8266.66	-1.500
1	8311.11	-1.500
1	8366.66	-1.500
1	8411.11	-1.500
1	8466.66	-1.500
1	8511.11	-1.500
1	8566.66	-1.500
1	8611.11	-1.500
1	8666.66	-1.500
1	8711.11	-1.500
1	8766.66	-1.500
1	8811.11	-1.500
1	8866.66	-1.500
1	8911.11	-1.500
1	8966.66	-1.500
1	9011.11	-1.500
1	9066.66	-1.500
1	9111.11	-1.500
1	9166.66	-1.500
1	9211.11	-1.500
1	9266.66	-1.500
1	9311.11	-1.500
1	9366.66	-1.500
1	9411.11	-1.500
1	9466.66	-1.500
1	9511.11	-1.500
1	9566.66	-1.500
1	9611.11	-1.500
1	9666.66	-1.500
1	9711.11	-1.500
1	9766.66	-1.500
1	9811.11	-1.500
1	9866.66	-1.500
1	9911.11	-1.500
1	9966.66	-1.500
1	10011.11	-1.500
1	10066.66	-1.500
1	10111.11	-1.500
1	10166.66	-1.500
1	10211.11	-1.500
1	10266.66	-1.500
1	10311.11	-1.500
1	10366.66	-1.500
1	10411.11	-1.500
1	10466.66	-1.500
1	10511.11	-1.500
1	10566.66	-1.500
1	10611.11	-1.500
1	10666.66	-1.500
1	10711.11	-1.500
1	10766.66	-1.500
1	10811.11	-1.500
1	10866.66	-1.500
1	10911.11	-1.500
1	10966.66	-1.500
1	11011.11	-1.500
1	11066.66	-1.500
1	11111.11	-1.500
1	11166.66	-1.500
1	11211.11	-1.500
1	11266.66	-1.500
1	11311.11	-1.500
1	11366.66	-1.500
1	11411.11	-1.500
1	11466.66	-1.500
1	11511.11	-1.500
1	11566.66	-1.500
1	11611.11	-1.500
1	11666.66	-1.500
1	11711.11	-1.500
1	11766.66	-1.500
1	11811.11	-1.500
1	11866.66	-1.500
1	11911.11	-1.500
1	11966.66	-1.500
1	12011.11	-1.500
1	12066.66	-1.500
1	12111.11	-1.500
1	12166.66	-1.500
1	12211.11	-1.500
1	12266.66	-1.500
1	12311.11	-1.500
1	12366.66	-1.500
1	12411.11	-1.500
1	12466.66	-1.500
1	12511.11	-1.500
1	12566.66	-1.500
1	12611.11	-1.500
1	12666.66	-1.500
1	12711.11	-1.500
1	12766.66	-1.500
1	12811.11	-1.500
1	12866.66	-1.500
1	12911.11	-1.500
1	12966.66	-1.500
1	13011.11	-1.500
1	13066.66	-1.500
1	13111.11	-1.500
1	13166.66	-1.500
1	13211.11	-1.500
1	13266.66	-1.500
1	13311.11	-1.500
1	13366.66	-1.500
1	13411.11	-1.500
1	13466.66	-1.500
1	13511.11	-1.500
1	13566.66	-1.500
1	13611.11	-1.500
1	13666.66	-1.500
1	13711.11	-1.500
1	13766.66	-1.500
1	13811.11	-1.500
1	13866.66	-1.500
1	13911.11	-1.500
1	13966.66	-1.500
1	14011.11	-1.500
1	14066.66	-1.500
1	14111.11	-1.500
1	14166.66	-1.500
1	14211.11	-1.500
1	14266.66	-1.500
1	14311.11	-1.500
1	14366.66	-1.500
1	14411.11	-1.500
1	14466.66	-1.500
1	14511.11	-1.500
1	14566.66	-1.500
1	14611.11	-1.500
1	14666.66	-1.500
1	14711.11	-1.500
1	14766.66	-1.500
1	14811.11	-1.500
1	14866.66	-1.500
1	14911.11	-1.500
1	14966.66	-1.500
1	15011.11	-1.500
1	15066.66	-1.500
1	15111.11	-1.500
1	15166.66	-1.500
1	15211.11	-1.500
1	15266.66	-1.500
1	15311.11	-1.500
1	15366.66	-1.500
1	15411.11	-1.500
1	15466.66	-1.500
1	15511.11	-1.500
1	15566.66	-1.500
1	15611.11	-1.500
1	15666.66	-1.500
1	15711.11	-1.500
1	15766.66	-1.500
1	15811.11	-1.500
1	15866.66	-1.500
1	15911.11	-1.500
1	15966.66	-1.500
1	16011.11	-1.500
1	16066.66	-1.500
1	16111.11	-1.500
1	16166.66	-1.500
1	16211.11	-1.500
1	16266.66	-1.500
1	16311.11	-1.500
1	16366.66	-1.500
1	16411.11	-1.500
1	16466.66	-1.500
1	16511.11	-1.500
1	16566.66	-1.500
1	16611.11	-1.500
1	16666.66	-1.500
1	16711.11	-1.500
1	16766.66	-1.500
1	16811.11	-1.500
1	16866.66	-1.500
1	16911.11	-1.500
1	16966.66	-1.500
1	17011.11	-1.500
1	17066.66	-1.500
1	17111.11	-1.500
1	17166.66	-1.500
1	17211.11	-1.500
1	17266.66	-1.500
1	17311.11	-1.500
1	17366.66	-1.500
1	17411.11	-1.500
1	17466.66	-1.500
1	17511.11	-1.500
1	17566.66	-1.500
1	17611.11	-1.500
1	17666.66	-1.500
1	17711.11	-1.500
1	17766.66	-1.500
1	17811.11	-1.500
1	17866.66	-1.500
1	17911.11	-1.500
1	17966.66	-1.500
1	18011.11	-1.500
1	18066.66	-1.500
1	18111.11	-1.500
1	18166.66	-1.500
1	18211.11	-1.500
1	18266.66	-1.500
1	18311.11	-1.500
1	18366.66	-1.500
1	18411.11	-1.500
1	18466.66	-1.500
1	18511.11	-1.500
1	18566.66	-1.500
1	18611.11	-1.500
1	18666.66	-1.500
1	18711.11	-1.500
1	18766.66	-1.500
1	18811.11	-1.500
1	18866.66	-1.500
1	18911.11	-1.500
1	18966.66	-1.500
1	19011.11	-1.500
1	19066.66	-1.500
1	19111.11	-1.500
1	19166.66	-1.500
1	19211.11	-1.500
1	19266.66	-1.500
1	19311.11	-1.500
1	19366.66	-1.500
1	19411.11	-1.500
1	19466.66	-1.500
1	19511.11	-1.500
1	19566.66	-1.500
1	19611.11	-1.500
1	19666.66	-1.500
1	19711.11	-1.500
1	19766.66	-1.500
1	19811.11	-1.500
1	19866.66	-1.500
1	19911.11	-1.500
1	19966.66	-1.500
1	20011.11	-1.500
1	20066.66	-1.500
1	20111.11	-1.500
1	20166.66	-1.500
1	20211.11	-1.500
1	20266.66	-1.500
1	20311.11	-1.500
1	20366.66	-1.500
1	20411.11	-1.500
1	20466.66	-1.500
1	20511.11	-1.500
1	20566.66	-1.500
1	20611.11	-1.500
1	20666.66	-1.500
1	20711.11	-1.500
1	20766.66	-1.500
1	20811.11	-1.500
1	20866.66	-1.500
1	20911.11	-1.500
1	20966.66	-1.500
1	21011.11	-1.500
1	21066.66	-1.500
1	21111.11	-1.500
1	21166.66	-1.500
1	21211.11	-1.500
1	21266.66	-1.500
1	21311.11	-1.500
1	21366.66	-1.500
1	21411.11	-1.500
1	21466.66	-1.500
1	21511.11	-1.500
1	21566.66	-1.500

#peak	wavenumber	intensity
672.66	-1.1380	
680.38	-1.991	
685.13	-1.500	
694.25	-1.697	
697.23	-1.006	
708.11	-1.587	
711.27	-1.189	
720.58	-1.500	
733.34	-1.500	
738.40	-1.174	
746.23	1.032	
754.80	-1.686	
759.78	-1.512	
772.73	-1.554	
790.91	-1.500	
797.54	-1.034	
809.10	1.007	
816.49	-1.661	
822.13	-1.086	
831.00	-1.500	
831.50	-1.500	
834.68	-1.500	
840.01	-1.085	
850.68	-1.500	
867.53	-1.410	
1020.51	-1.669	
1103.78	-1.033	
1264.70	0.070	
1278.43	-1.020	
1383.18	-1.697	
1387.18	-1.671	
1391.86	-1.751	
1399.60	-1.724	
1437.10	-1.706	
1472.98	-1.714	
1487.67	-1.777	
1490.46	-1.855

Thursday, April 21, 1994 11:30 **Wait**
C:\FTIRDATA
LCRU083BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.87e-01

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: LAWL-94 ERC #: LCRU 084

Date: 4-22-94 Inspector: G. Roberts

Cylinder Serial #: FF 24860 Dimensions: 8" D x 25" H

Color: SILVER Owner Stamp: MATHESON

DOT Rating: 3E1800 (3A2015) 3AA2400 3A2215

Other: _____ Test Date(s): 6-72, 6-99

Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 660

Labels and/or Markings: PHOSGENE

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>4-25-94</u>	Pressure: <u>50 PSIG</u>
Identified Contents: <u>PHOSGENE, CARBON DIOXIDE, NITROGEN, HELIUM</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 #: LCRU 084

MASS SPECTRUM INTERPRETATION

PHOSGENE, NITROGEN, HELIUM

Analyst Signature: _____

Date: 4-25-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

PHOSGENE, CARBON DIOXIDE

Analyst Signature: _____

Date: 4-25-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• PHOSGENE IS PRIMARY COMPONENT

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU084

Elapsed Time:00:02:12

11:10 25-Apr-94

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

LCRUD 84 BLK

Elapsed Time:00:00:19

11:00 25-Apr-94

Created:10:59:20 25-Apr-94

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

Monday, April 25, 1994

10:47 Wait

C:\FTIRDATA

LCRU084.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-5.61e-04

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU084. TRANSMITTANCE
Date : April 25, 1994

Time : 10hr-46min-31sec

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	: 1.017	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	572.88	0.041
2	669.08	.681
3	838.39	-0.002
4	1010.20	.285
5	1155.79	.792
6	1411.13	.630
7	1672.52	0.038
8	1830.37	-0.001
9	2338.47	.237
10	2359.12	.245
11	3525.84	.025
12	3636.97	.637

Monday, April 25, 1994 10:57 **Wait**
C:\FTIRDATA
LCRU084BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.46e-01

5001	2362	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 ERC #: LCRU 086
Date: 3-24-94 Inspector: George
Cylinder Serial #: _____ Dimensions: 9" D X 40" H
Color: Yellow Owner Stamp: _____
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): _____
Cylinder Type: H.P. _____ L.P. _____ Valve Type: 1/4" Swagelok
Labels and/or Markings: NITROGEN DIOXIDE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good: ☒ Fair: _____ Poor: _____

Comments: _____

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

Approved to Handle: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____
Val ☒

Comments: _____

Sample Date: 3-24-94 Pressure: 0 PSI G

Identified Contents: NITROGEN DIOXIDE, tr. NITROGEN, tr. HYDROGEN
tr. CARBON DIOXIDE

Analytical Method: Mass Spec ☒ FTIR ☒ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes _____ No ☒

Recontainerized Cylinder #: _____

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LERU086

MASS SPECTRUM INTERPRETATION

NITROGEN DIOXIDE, tr. NITROGEN, tr. HYDROGEN
tr. HYDROGEN FLUORIDE (SYSTEM)

Analyst Signature: [Signature] Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

NITROGEN DIOXIDE, TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 3-24-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: Nitrogen Dioxide

QA or Document Officer Signature:

Charles - Matteson

DATE: 3-30-94

LCRU 086

Elapsed Time:00:00:25

03:57 24-Mar-94

Created:03:56:21 24-Mar-94

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

LCRV 086 B

Elapsed Time:00:01:34

04:17 24-Mar-94

Created:04:17:11 24-Mar-94

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

Thursday, March 24, 1994

15:57 Wait

C:\FTIRDATA

LCRU086.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

LCRU086.TRANSMITTANCE
Date : March 24, 1994
Description: VSAMPLE

Time : 01:15 hr - 01:57 min - 5sec

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.065	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) : 3999.64

#peak	wavenumber	intensity
1	427.52	.0009
2	585.42	.0038
3	604.20	.456
4	749.82	0.004
5	1028.54	.890
6	1260.31	-0.001
7	1609.82	0.015
8	1745.60	-0.001
9	1789.31	0.003
10	1808.58	0.007
11	3350.40	.915
12	3600.74	.076
13	3690.79	.657
14	3916.69	.551
15	3969.42	.755
16	1113.49	.009
17	559.90	.050

Thursday, March 24, 1994

16:17 **Wait**

C:\FTIRDATA

LCRU086BL.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

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 087

Date: 4-22-94 Inspector: G. Roberts

Cylinder Serial #: FF 5075 Dimensions: 8" D X 24" H

Color: SILVER Owner Stamp: MATHESON

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 9-80

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: RESIDUAL PHOSGENE IN SYSTEM

Sample Date: 4-25-94 Pressure: 100 PSI G

Identified Contents: CHLORINE TRACE NITROGEN, TRACE CARBON DIOXIDE, TRACE HYDROGEN CHLORIDE, RESIDUAL PHOSGENE

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 #: LCRU087

MASS SPECTRUM INTERPRETATION

CHLORINE, TRACE NITROGEN

Analyst Signature: _____

Date: 4-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE, TRACE HYDROGEN CHLORIDE,
RESIDUAL PHOSGENE

Analyst Signature: _____

Date: 4-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• RESIDUAL PHOSGENE IN VS SYSTEM

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU087

Elapsed Time:00:00:43

11:06 25-Apr-94

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

LCRU087 BLK

Elapsed Time:00:00:27

11:15 25-Apr-94

Monday, April 25, 1994

11:07 **Wait**

C:\FTIRDATA

LCRU0087.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.15e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU087. TRANSMITTANCE

Date : April 25, 1994

Time : 11hr-3min-15sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .912

max : 1.021

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

Monday, April 25, 1994 11:13 **Wait**
C:\FTIRDATA
LCRU087BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.84e-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 ERC #: LCRU-089Date: 13 APR 94 Inspector: Win GeorgeCylinder Serial #: DL-29480 Dimensions: 4"x12"Color: Green Silver Brown Owner Stamp: Matteson

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): 5/70-4/80Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 330

Labels and/or Markings:

SiF₄ \ Silicon TetrafluorideGeneral 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: 4-13-94 Pressure: 100 PSIGIdentified Contents: SILICON TETRAFLUORIDE, TRACE HYDROGENAnalytical 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 #: LCRU089

MASS SPECTRUM INTERPRETATION

SILICON TETRAFLUORIDE, TRACE HYDROGEN, TRACE
NITROGEN

Analyst Signature: [Signature]

Date: 4-13-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

SILICON TETRAFLUORIDE

Analyst Signature: [Signature]

Date: 4-13-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• SILICON TETRAFLUORIDE IS MAJOR COMPONENT

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU089

Elapsed Time:00:03:17

15:11 13-Apr-94

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

LCRU089 BLK

Elapsed Time:00:01:09

15:23 13-Apr-94

Created:15:22:56 13-Apr-94

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

Wednesday, April 13, 1994 15:09 Wait
C:\FTIRDATA
LCRU089.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.01e+00

5001 2706 399

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

LCRU089.TRANSMITTANCE

Date : April 13, 1994

Time : 15hr-7min-26sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.021	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	775.10	.827
2	1021.62	-0.001
3	1178.22	.390
4	1190.58	.268
5	1289.00	.422
6	1824.49	.229
7	2053.30	.654

Wednesday, April 13, 1994 15:26 **Wait**
C:\FTIRDATA
LCRU089BLK.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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCR4 090

Date: 4-25-94 Inspector: G Roberts

Cylinder Serial #: 228860 Dimensions: 6" D x 37" H

Color: Blue / Red Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 12-41 / 3-44

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: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE TEST)</u>	
Sample Date: <u>4-26-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: <u> </u>	Mass Spec <u>✓</u> FTIR <u>✓</u> Other <u>DRAEGER</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 #: LCRU090

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN, TRACE WATER

Analyst Signature: [Signature]

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: [Signature]

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: [Signature]

Date: 4-26-94

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

LCRU090

Elapsed Time:00:01:06

14:33 26-Apr-94

Created:14:28:50 26-Apr-94

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

Tuesday, April 26, 1994

14:28 Wait

C:\FTIRDATA

LCRU090.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.66e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU090, TRANSMITTANCE

Date : April 26, 1994

Time : 14hr-27min-43sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .909

max : 1.009

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

CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCRV091Date: 3-25-94 Inspector: GREGG ROBERTCylinder Serial #: NONE Dimensions: 6"D x 42"HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: NONE Test Date(s): NONECylinder Type: H.P. _____ L.P. ✓ Valve Type: 3/8" SWAGelok BALL VALVELabels and/or Markings: NONEGeneral Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ✓ Fair _____ Poor _____Comments: VALUES APPEAR TO BE OPEN

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>3-25-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, AIR, 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 _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 091

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, AIR, TRACE HYDROGEN

Analyst Signature: _____

Date: 3-25-94

QA Confirmation

Yes ☒

No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: _____

Date: 3-25-94

QA Confirmation

Yes ☒

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: AIR

QA or Document Officer Signature:

Charles C. Mattern

DATE: _____

3-30-94

LCRU091

Elapsed Time:00:03:35

11:05 25-Mar-94

Created:11:04:43 25-Mar-94

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

Friday, March 25, 1994

11:05 **Wait**

C:\FTIRDATA

LCRU091.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

LCRU091. TRANSMITTANCE
Date : March 25, 1994
Description: VSAMPLE

Time : 00 hr - 05 min - 39 sec
11 05

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: .932	Obs. Time	: 0min 20sec
max	: 1.229	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) : 3999.64

#peak	wavenumber	intensity
1	1522.95	.932

Project Name: LANL Date: 3-25-94 Inspector: George Roser

Cylinder Serial #: None Dimensions: 6" D x 42" 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: 3/8" Swagelok Ball Valve

Labels and/or Markings: None

General Condition: Good ✓ Fair ✓ Poor ✓

Comments: Valve Condition: Good ✓ Fair ✓ Poor ✓

Comments: Values appear to be open

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: 3-25-94 Pressure: 0 PSIG

Identified Contents: NITROGEN, tr. OXYGEN, AIR, TRACE HYDROGEN

Analytical Method: Mass Spec ✓ FTIR ✓ Other ✓

Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon Flare ✓

Recontaminated: Yes ✓ No ✓

Recontaminated Cylinder #:

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 092

MASS SPECTRUM INTERPRETATION

NITROGEN, tr. OXYGEN, AIR, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 3-25-94
QA Confirmation Yes ☒ No ☐
Comments: _____

FTIR INTERPRETATION

N.D.

Analyst Signature: [Signature] Date: 3-25-94
QA Confirmation Yes ☒ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

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

INTERPRETED RESULTS: AIR

QA or Document Officer Signature:

[Signature]

DATE: _____

LCPV092

Elapsed Time:00:01:06

11:12 25-Mar-94

Created:11:12:12 25-Mar-94

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

Friday, March 25, 1994

11:12 Wait

C:\FTIRDATA

LCRU092.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.02e+00

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

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

LCRU092, TRANSMITTANCE
Date : March 25, 1994
Description: VSAMPLE

Time : 0V 0V
11 12 hr-min-sec

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: .921	Obs. Time	: 0min 20sec
max	: 1.209	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) : 3999.64

#peak	wavenumber	intensity
1	1512.95	.921

CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCRU093Date: 3-25-94 Inspector: GEORGE ROBERTSCylinder Serial #: NONE Dimensions: 6"D x 42"HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: NONE Test Date(s): NONECylinder Type: H.P. _____ L.P. ✓ Valve Type: 3/8" SWAGelok BALL VALVE

Labels and/or Markings:

NONEGeneral Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ✓ Fair _____ Poor _____Comments: VALVES APPEAR TO BE OPEN

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: 3-25-94 Pressure: 0 PSIIdentified Contents: NITROGEN, TRACE OXYGEN, TRACE HYDROGENAnalytical 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 #: LCRU093

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 3-25-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: [Signature] Date: 3-25-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: AIR

QA or Document Officer Signature:

Charles C. Matthews

DATE: 3-30-94

LCRU093

Elapsed Time:00:01:00

10:30 25-Mar-94

Created:10:39:11 25-Mar-94

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

Friday, March 25, 1994

10:39 Wait

C:\FTIRDATA

LCRU093.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

LCRU093.TRANSMITTANCE
Date : March 25, 1994
Description: VSAMPLE

0v 0v
Time : 10hr-39min-30sec

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: .966	Obs. Time	: 0min 20sec
max	: 1.225	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) : 3999.64

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

CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCRV094Date: 3-25-94 Inspector: GEORGE ROBERTSCylinder Serial #: NONE Dimensions: 6"D X 42"HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: NONE Test Date(s): NONECylinder Type: H.P. _____ L.P. ✓ Valve Type: 3/8" SWAGelok BALL VALVELabels and/or Markings:
NONEGeneral Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ✓ Fair _____ Poor _____Comments: VALVES APPEAR TO BE OPEN

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>3-25-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, AIR, 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 _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU094

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, AIR, TRACE HYDROGEN

Analyst Signature: _____

Date: 3-25-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: _____

Date: 3-25-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: AIR

QA or Document Officer Signature:

Charles A. Matteson

DATE: 3-30-94

LCRV094

Elapsed Time:00:03:29

10:45 25-Mar-94

Created:10:45:01 25-Mar-94

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

Friday, March 25, 1994 10:45 Jait
C:\FTIRDATA
LCRU094.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.03e+00

4000 2199 399

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

LCRU094. TRANSMITTANCE
Date : March 25, 1994
Description: VSAMPLE

Time : ^{0v}~~2~~hr-^{0v}~~2~~min-19sec
_{10 45}

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: .947	Obs. Time	: 0min 20sec
max	: 1.212	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) : 3999.64

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

CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCRV095Date: 3-25-94 Inspector: GEORGE ROBERTSCylinder Serial #: NONE Dimensions: 6"D X 42"HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: NONE Test Date(s): NONECylinder Type: H.P. _____ L.P. ☒ Valve Type: 3/8" SWAGELOK BALL VALVE

Labels and/or Markings:

NONEGeneral Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____Comments: VALVES APPEAR TO BE OPEN

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: 3-25-94 Pressure: 0 PSI GIdentified Contents: NITROGEN, TRACE OXYGEN, TRACE HYDROGENAnalytical Method: Mass Spec ☒ FTIR ☒ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes _____ No ☒

Recontainerized Cylinder #: _____

EARTH RESOURCES CORPORATION
STANDARD OPERATING PROCEDURES
FOR GAS ANALYSES

FIGURE B-6
Analytical Summary Form

OVERPACK #: _____

CYLINDER #: LCRV095

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: _____

QA Confirmation

Yes ☒

No ☐

Comments: _____

Date: 3-25-94

FTIR INTERPRETATION

N/A ND

Analyst Signature: _____

QA Confirmation

Yes ☒

No ☐

Comments: _____

Date: 3-25-94

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

Date: _____

INTERPRETED RESULTS: Air

QA or Document Officer Signature:

Charles - Matten

DATE: _____

3-30-94

"Use or disclosure of data contained on this sheet is subject to the
restrictions on the title page of this Quality Assurance and Quality Control Plan."

LCRU095

Elapsed Time:00:00:19

10:51 25-Mar-94

Created:10:50:33 25-Mar-94

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

Friday, March 25, 1994 10:51 Wait

C:\FTIRDATA

LCRU095.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.04e+00

4000 2199 399

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU095. TRANSMITTANCE
Date : March ~~15~~²⁵, 1994
Description: VSAMPLE

Time : ~~10~~^{0V}hr-~~13~~^{0V}min-13sec
~~10~~¹⁰~~SI~~

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: .941	Obs. Time	: 0min 20sec
max	: 1.238	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) : 3999.64

#peak	wavenumber	intensity
1	1619.39	.941

CYLINDER INSPECTION LOG

Project Name: LANL ERC #: LCRV 096

Date: 3-25-94 Inspector: GEORGE ROBERTS

Cylinder Serial #: NONE Dimensions: 6" D X 42" 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: 3/8" SWAGE LOK BALL VALVE

Labels and/or Markings:
NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: VALUES APPEAR TO BE OPEN

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>3-25-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, tr. OXYGEN, 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 #: LCRV 096

MASS SPECTRUM INTERPRETATION

NITROGEN, tr. OXYGEN, tr. HYDROGEN

Analyst Signature: _____

Date: 3-25-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: _____

Date: 3-25-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: Air

QA or Document Officer Signature:

Charles E. Mattem

DATE: 3-30-94

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

LC RV 096

Elapsed Time:00:00:25

10:59 25-Mar-94

Created:10:59:05 25-Mar-94

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

Friday, March 25, 1994 10:59 Wait
 C:\FTIRDATA
 LCRU096.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:1.03e+00

4000 2199 399
 F1- Curve Only F2- Curve and Scale
 F3- Full Description F4- Housekeeping
 F5- Dump Values F6- Print Screen

LCRU096.TRANSMITTANCE

Date : March 25, 1994

Description: VSAMPLE

Time : 00hr-00min-09sec
10 59

Sigma min	: 399.19	#Scans	: 4
max	: 3999.64	Speed	: .18 cm/sec
Ampl. min	: .943	Obs. Time	: 0min 20sec
max	: 1.216	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) : 3999.64

#peak wavenumber intensity

Form 2
CYLINDER INSPECTION LOG

Project Name: LCAL ERC #: LCALC97

Date: 13 APR 94 Inspector: Jim/Gew

Cylinder Serial #: W3A2402 Dimensions: 26 1/2 3"

Color: SHINING STEEL Owner Stamp: _____

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 5/79

Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 579

Labels and/or Markings:
LINE

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 HYDROGEN CHLORIDE / DRAEGER</u>	
Sample Date: <u>4-13-94</u>	Pressure: <u>200 PSIG</u>
Identified Contents: <u>HELIUM, HYDROGEN, NITROGEN, HYDROGEN CHLORIDE</u> <u>OR OXYGEN</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 #: LCRUC97

MASS SPECTRUM INTERPRETATION

HELIUM, HYDROGEN, NITROGEN, TRACE OXYGEN

Analyst Signature: C. J. Neal

Date: 4-13-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE

Analyst Signature: C. J. Neal

Date: 4-13-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• HYDROGEN CHLORIDE PRIMARY COMPONENT

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

VCRU097

Elapsed Time:00:00:23

16:06 13-Apr-94

Created:16:06:04 13-Apr-94

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

LCRUC97 BLK

Elapsed Time:00:01:20

16:20 13-Apr-94

Created:16:19:36 13-Apr-94

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

Wednesday, April 13, 1994

16:06

Wait

C:\FTIRDATA

LCRU097.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

LCRU097. TRANSMITTANCE
Date : April 13, 1994

Time : 16hr-5min-11sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .980	Obs. Time	: 0min 20sec
max	: 1.053	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 13, 1994 16:19 Wait
C:\FTIRDATA
LCRU097BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

1.122

.543

-0.035

5001

2700

399

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 ERC #: ICRU 098

Date: 4-13-94 Inspector: G Roberts

Cylinder Serial #: W 87936 Dimensions: 4" D x 3" H

Color: Blue Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 7-66

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 580

Labels and/or Markings:
Possible Inert

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 CHLORINE (DRAEGER TEST)</u>	
Sample Date: <u>4-14-94</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 #: LCRU 098

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: ovaypa

Date: 4-14-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: ovaypa

Date: 4-14-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR CHLORINE (DRAEGER TEST)

Analyst Signature: ovaypa

Date: 4-14-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: NITROGEN

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCPU098 BLK

Elapsed Time:00:01:33

15:48 14-Apr-94

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

Thursday, April 14, 1994 15:51 Wait
C:\FTIRDATA
LCRU098.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.82e-01

5001 2700 399

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

LCRU098.TRANSMITTANCE
Date : April 14, 1994

Time : 15hr-50min-4sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .957	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
-------	------------	-----------

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: ICRU 099Date: 5-2-94 Inspector: G. ROBERTSCylinder Serial #: W2A-0538 Dimensions: 4"D x 16"HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 7-79Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 1/4" SWAGelok

Labels and/or Markings:

NICKEL CARBONYLGeneral 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>5-3-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NICKEL CARBONYL, ARGON, 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 #: LCRU099

MASS SPECTRUM INTERPRETATION

NICKEL CARBONYL, ARGON, TRACE HYDROGEN

Analyst Signature: ovaryos Date: 5-3-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NICKEL CARBONYL

Analyst Signature: ovaryos Date: 5-3-94

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: _____

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ERC

LCRU 099

Elapsed Time:00:00:22

13:36 03-May-94

Created:13:36:26 03-May-94

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

LCRU 099 BLK

Elapsed Time:00:00:20

13:52 03-May-94

Created:13:51:00 03-May-94

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

Tuesday, May 3, 1994 13:35 **Unit**
 C:\FTIRDATA
 LCRU099.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-3.09e-04

5001	2040	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

LCRU099. TRANSMITTANCE

Date : May 3, 1994

Time : 13hr-34min-19sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.015	Obs. Time	: 0min 20sec
max	: .994	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	418.30	-0.015
2	457.91	0.057
3	541.27	.767
4	755.42	.459
5	913.66	.777
6	1682.37	.853
7	1987.15	.112
8	2041.86	-0.001
9	2121.20	.100
10	2208.57	.456
11	2354.19	.855
12	2426.96	.661
13	2478.95	.309
14	2551.22	.516
15	4097.27	.481
16	4175.67	.207

Tuesday, May 3, 1994 13:50 Wait
C:\FTIRDATA
LCRU099BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.96e-01

1.120		
.543		
-0.035		

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 #: LCR4101

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

Cylinder Serial #: 774233 Dimensions: 3"D X 12"H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: W.P. 3500 Test Date(s): 2-77

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 3/8" AUTOCLAVE

(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>5-5-94</u>	Pressure: <u>200 PSIG</u>
Identified Contents: <u>NITROSYL FLUORIDE, NITROGEN DIOXIDE, NITROGEN</u>	
<u>TRACE OXYGEN, 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 #: LCRV101

MASS SPECTRUM INTERPRETATION

NITROGEN DIOXIDE, NITROGEN, TRACE OXYGEN, TRACE
HYDROGEN

Analyst Signature: Orlando

Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROGEN DIOXIDE, NITROSYL FLUORIDE

Analyst Signature: Orlando

Date: 5-5-94

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: _____

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ERC

LCRU 101

Elapsed Time:00:00:28

14:04 05-May-94

Created:13:38:36 05-May-94

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

LCRU 101 BLK

Elapsed Time:00:00:22

14:07 05-May-94

Created:14:06:43 05-May-94

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

Thursday, May 5, 1994
 C:\NFTIRDATA
 LCRU101.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:1.77e-02

13:58 **Wait**

5001	1796	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

LCRU101.TRANSMITTANCE

Date : May 5, 1994

Time : 13hr-37min-4sec

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	: .900	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	437.57	.605
2	456.33	.497
3	479.01	.701
4	585.48	.413
5	604.52	.337
6	650.31	.667
7	749.76	0.077
8	791.30	-0.000
9	825.37	.192
10	885.39	.383
11	1344.17	-0.000
12	1672.99	-0.001
13	1789.31	0.002
14	1809.50	0.004
15	2394.05	.472
16	2918.29	.204
17	3554.83	.274

Thursday, May 5, 1994 14:35 **Wait**

C:\FTIRDATA
LCRU101BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.99e-01

1.132

WINDSON
PDAV

.549

-0.035

5001

2700

399

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 #: LCP4 103

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

Cylinder Serial #: 76B335 Dimensions: 4"DX24"H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3B400 Test Date(s): 6-76

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>5-5-94</u>	Pressure: <u>0PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, 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 #: LCRU 103

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: OVappt Date: 5-5-94
QA Confirmation Yes ☐ No ☒
Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: OVappt Date: 5-5-94
QA Confirmation Yes ☐ No ☒
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: OVappt Date: 5-5-94
QA Confirmation Yes ☐ No ☒
Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRV 103

Elapsed Time:00:00:46

10:50 05-May-94

Created:10:47:54 05-May-94

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

Thursday, May 5, 1994 10:47 Wait
C:\FTIRDATA
LCRU103.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.70e-01

5001 2365 399

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

LCRU103.TRANSMITTANCE

Date : May 5, 1994

Time : 10hr-47min-0sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .849	Obs. Time	: 0min 20sec
max	: 1.008	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	2349.52	.849

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 104

Date: 5-25-94 Inspector: G. ROBERTS

Cylinder Serial #: None Dimensions: 3" D X 5" H

Color: BLUE Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 4B240 Test Date(s): None

Cylinder Type: H.P. L.P. ✓ Valve Type: 3/8" SWAGelok - TEFLON

Labels and/or Markings: None

General Condition: Good ✓ Fair Poor

Comments:

Valve Condition: Good ✓ Fair Poor

Comments: PARTICULATE MATTER PLUGGING 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>5-26-94</u>	Pressure: <u>-15 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN, SMALL TRACE CARBON DIOXIDE</u>	
Analytical Method: <u>Mass Spec</u>	FTIR <u>✓</u> Other <u>DRAEGER</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 #: LCRU104
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: O. Varga

Date: 6-20-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: O. Varga

Date: 6-20-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: O. Varga

Date: 6-20-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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restrictions on the title page of this plan."

ERC

LCPV 104 RE

Elapsed Time:00:00:20

10:50 20-Jun-94

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

Monday, June 20, 1994 9:32 **Wait**
 C:\FTIRDATA
 LCRU104RE.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:9.04e-01

5001 2363 399

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

LCRU104RE.TRANSMITTANCE

Date : June 20, 1994

Time : 9hr-31min-36sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .898	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	2350.59	.898

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRUI04
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: OVajpt Date: 5-26-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SMALL TRACE HYDROCARBON, TRACE CARBON DIOXIDE

Analyst Signature: _____ Date: 5-26-94

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: _____

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restrictions on the title page of this plan."

ERC

LCRU 104 RE

Elapsed Time:00:11:46

13:34 26-May-94

Created:13:32:00 26-May-94

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

Thursday, May 26, 1994 13:34

C:\FTIRDATA

LCRU104RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.03e+00

1.312

.962

.611

5001

2966

399

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

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

LCRU104RE.TRANSMITTANCE
Date : May 26, 1994

Time : 13hr-31min-9sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .972	Obs. Time	: 0min 20sec
max	: 1.134	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
-------	------------	-----------

Thursday, May 26, 1994 13:38
C:\FT\DATA
LCRU104REBLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.23e-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 #: LCRU104

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: *O Vargas* Date: 5-26-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

SMALL TRACE CARBON DIOXIDE

Analyst Signature: *O Vargas* Date: 5-26-94
QA Confirmation Yes ☐ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (BRAEGER TUBE)

Analyst Signature: *O Vargas* Date: 5-26-94
QA Confirmation Yes ☐ No ☐
Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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restrictions on the title page of this plan."

ERC

LCRU 104

Elapsed Time:02:07:56

13:15 26-May-94

Created:13:13:37 26-May-94

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

Thursday, May 26, 1994 13:12
C:\FTIRDATA
LCRU104.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

13:12

MAIL

1.264

.612

-0.039

5001

2362

399

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

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

LCRU104.TRANSMITTANCE
Date : May 26, 1994

Time : 13hr-12min-34sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .992	Obs. Time	: 0min 20sec
max	: 1.145	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 #: LCRC107
Date: 5-9-94 Inspector: G. R. B. R.
Cylinder Serial #: NONE Dimensions: 3" D x 5" 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: _____	
Sample Date: <u>5-10-94</u>	Pressure: <u>600 PSIG</u>
Identified Contents: <u>ETHYLE FLUORIDE, TRACE 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 _____ No <u>✓</u>
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 107

MASS SPECTRUM INTERPRETATION

ETHYL FLUORIDE, TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: O Vargas

Date: 5-10-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

ETHYL FLUORIDE, TRACE CARBON DIOXIDE

Analyst Signature: O Vargas

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: _____

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ERC

LCPU 107

Elapsed Time:00:00:34

11:24 10-May-94

Created:11:20:34 10-May-94

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

LCPV107 BLK

Elapsed Time:00:00:41

11:47 10-May-94

Created:11:46:20 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
 LCRU107.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-1.45e-03

11:25 Wait

5001

2973

399

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

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

LCRU107.TRANSMITTANCE

Date : May 10, 1994

Time : 11hr-19min-1sec

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	: 1.109	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	424.47	.212
2	668.45	.888
3	880.26	0.018
4	1076.86	-0.001
5	1171.20	.286
6	1397.92	0.002
7	1447.52	.224
8	1930.06	.747
9	2349.47	.647
10	2761.87	.671
11	2958.59	-0.002
12	4397.90	.850

Tuesday, May 10, 1994 11:45 Wait
C:\FTIRDATA
LCRU107BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.58e-01

5001	2362	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 #: LCA4 108
Date: 5-25-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 3" X 5'4"
Color: Blue Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 4B240 Test Date(s): NONE
Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" Plug
Labels and/or Markings: NONE
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 POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-25-94</u>	Pressure: <u>-11 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, 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 108

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Ovaras Date: 5-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: Ovaras Date: 5-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Ovaras Date: 5-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCPV108

Elapsed Time:00:00:25

10:41 25-May-94

Created:10:35:43 25-May-94

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

Wednesday, May 25, 1994 10:42 AM
C:\FTIRDATA
LCRU108.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

1.148		
.556		
-0.036		

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

LCRU108, TRANSMITTANCE

Date : May 25, 1994

Time : 10hr-35min-15sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .986	Obs. Time	: 0min 20sec
max	: 1.040	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 #: LCR4109
Date: 5-25-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 3"D X 5"H
Color: BLUE Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 4B240 Test Date(s): NONE
Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" Plug
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>RESIDUAL TRICHLOROFLUOROMETHANE IN CRV</u>	
Sample Date: <u>5-25-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE OXYGEN, TRACE HYDROCARBON, RESIDUAL R-11</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU109

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN, TRACE OXYGEN

Analyst Signature: OVARGAS Date: 5-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE HYDROCARBON, RESIDUAL TRICHLOROFLUOROMETHANE

Analyst Signature: OVARGAS Date: 5-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

- TRICHLOROFLUOROMETHANE USED TO CLEAN CRV
- TRACE HYDROCARBON SHOWN IN FTIR

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRUI09

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

LCRU109.TRANSMITTANCE
Date : May 25, 1994

Time : 15hr-2min-56sec

Description: CRV SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .934
max : 1.205
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

Wednesday, May 25, 1994 15:18 **Wait**
C:\FTIRDATA
LCRU109.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.01e+00

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

Wednesday, May 25, 1994 15:17 **Wait**
C:\FTIRDATA
LCRU109BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.01e+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 #: LCPU 110

Date: 5-31-94 Inspector: G. ROBERTS

Cylinder Serial #: 1288 Dimensions: 4" x 14" x 4

Color: PINK Owner Stamp: None

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: DOT 39 NCP Test Date(s): _____

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

Labels and/or Markings:
GCP 2039A

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good _____ Fair _____ Poor _____

Comments: NO VALVE - 1/4" SWAGelok 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 (DRAEGER TUBE)</u>	
Sample Date: <u>6-6-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, 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 #: LCRU110

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: ovaypat Date: 6-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: ovaypat Date: 6-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: ovaypat Date: 6-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU 110

Elapsed Time:00:00:18

11:27 06-Jun-94

Created:11:25:41 06-Jun-94

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

Monday, June 6, 1994 11:24 Wait
C:\FTIRDATA
LCRU110.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

LCRU110.TRANSMITTANCE
Date : June 6, 1994

Time : 11hr-24min-18sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .998	Obs. Time	: 0min 20sec
max	: 1.032	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 IIIDate: 5-4-94 Inspector: GT ROBERTSCylinder Serial #: NONE Dimensions: 2"D x 12"HColor: TAN Owner Stamp: NONEDOT Rating: 3E1800 312015 3AA2400 3A2215Other: _____ Test Date(s): 12-70Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110

Labels and/or Markings:

BORON TRIFLUORIDEGeneral 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 HYDROGEN, TRACE CARBON</u>	
<u>DIOXIDE, TRACE FLUOROCARBON PRODUCT</u>	
Analytical Method: <u>TRACE SULFUR</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 III

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: Overgas

Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE FLUOROCARBON PRODUCT

Analyst Signature: Overgas

Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Overgas

Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

• LCRU III FTIR ANALYSIS PENDING FURTHER EVALUATION
TRACE SiF₄ + SF₆

QA or Document Officer Signature: _____

DATE: _____

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ERC

LORU 111

Elapsed Time:00:00:25

15:47 05-May-94

Created:15:46:28 05-May-94

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

Thursday, May 5, 1994 15:53 **Wait**

C:\FTIRDATA
LCRU111.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.26e-01

5001 1031 399

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

LCRU111.TRANSMITTANCE

Date : May 5, 1994

Time : 15hr-48min-21sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .653	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	945.29	.745
2	1028.31	.653
3	2348.28	.921

Thursday, May 5, 1994 16:01 Mail
C:\FTIRDATA
LCRU111BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.58e-01

5001 2362 399
F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

CYLINDER INSPECTION LOG

Project Name: LAWL-94 ERC #: LCAU 112Date: 5-9-94 Inspector: G. ROBERTSCylinder Serial #: NC4-268 Dimensions: 5"D X 13"HColor: Blue Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3BN40 Test Date(s): 6-61Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 660

Labels and/or Markings:

NITROSYL ???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 PSIG</u>
Identified Contents: <u>NITROSYL CHLORIDE, OXIDES OF NITROGEN</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 #: LCRU112

MASS SPECTRUM INTERPRETATION

OXIDES OF NITROGEN, NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-10-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

NITROSYL CHLORIDE

Analyst 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: _____

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restrictions on the title page of this plan."

ERC

LCPV112

Elapsed Time:00:01:43

09:59 10-May-94

Created:09:58:45 10-May-94

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

LCRU112 BLK

Elapsed Time:00:02:07

10:27 10-May-94

Created:10:26:44 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
 LCRU112.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-1.46e-03

9:59

Wait

5001

1803

399

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

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

LCRU112.TRANSMITTANCE

Date : May 10, 1994

Time : 9hr-56min-31sec

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	: 1.056	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	590.72	-0.003
2	920.91	.550
3	1611.17	.491
4	1780.81	-0.002
5	2083.75	.815
6	2118.29	.282
7	2138.46	.268
8	2370.04	.763
9	3458.51	.595
10	3477.08	.670
11	3552.67	0.037
12	3570.48	0.088
13	3889.90	.921

Tuesday, May 10, 1994 10:26 **Wait**
C:\FTIRDATA
LCRU112BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.19e-01

5001 2361 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 ERC #: LCR4 113

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

Cylinder Serial #: SP10340 Dimensions: 4 1/2 x 3 1/4

Color: Brown/Yellow/Pink Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA 1800 Test Date(s): 3-87

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 660

Labels and/or Markings:
NITRIC OXIDE

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>175 PSIG</u>
Identified Contents: <u>NITRIC OXIDE, NITROSYL CHLORIDE, & 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 #: _____

MASS SPECTRUM INTERPRETATION

NITRIC OXIDE, NITROSYL CHLORIDE, & TRACE NITROGEN DIOXIDE,
HYDROGEN, NITROGEN

Analyst Signature: O. Vargas

Date: 9-14-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITRIC OXIDE, NITROSYL CHLORIDE, ^{O.V.} ~~TRACE~~ NITROGEN DIOXIDE

Analyst Signature: O. Vargas

Date: 9-14-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

* NITRIC OXIDE PRIMARY COMPONENT

QA or Document Officer Signature: _____

DATE: _____

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restrictions on the title page of this plan."

ERC

LCRU113

Elapsed Time:00:00:55

14:41 14-Apr-94

Created:14:38:49 14-Apr-94

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

LCPV113 BLK

Elapsed Time:00:00:24

14:58 14-Apr-94

Created:14:57:25 14-Apr-94

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

Thursday, April 14, 1994 14:38 Unit
 C:\NETIRDATA
 LCRU113. TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:9.94e-01

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

LCRU113.TRANSMITTANCE

Date : April 14, 1994

Time : 14hr-38min-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	: 1.051	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	543.65	.503
2	585.43	.616
3	604.51	.556
4	756.31	.781
5	1277.31	.682
6	1598.54	.125
7	1627.64	0.049
8	1749.44	.684
9	1801.04	-0.001
10	1873.72	.598
11	1908.43	.593
12	2236.33	.789
13	2916.99	.777
14	3560.36	.634

Thursday, April 14, 1994
C:\FTIRDATA
LCRU113BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.78e-01

14:55 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 #: OR LCRU 115

Date: 5-12-94 Inspector: GE ROBERTS

Cylinder Serial #: R-106 Dimensions: 4" D x 12" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 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: _____

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>5-17-94</u>	Pressure: <u>0.8316</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, 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 #: <u>569193</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU115

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: O Vargas Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: O Vargas Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE

Analyst Signature: O Vargas Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

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

Elapsed Time: 00:22:22

10:59 17-May-94

LEU 115

Tuesday, May 17, 1994 10:58 **Wait**
C:\FTIRDATA
LCRU115.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.33e-01

5001 2365 399
F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

LCRU115.TRANSMITTANCE
Date : May 17, 1994

Time : 10hr-58min-3sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .916	Obs. Time	: 0min 20sec
max	: 1.052	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	2348.99	.916

CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU 116Date: 5-17-94 Inspector: G. ROBERTSCylinder Serial #: NONE Dimensions: 8" D x 8" HColor: STAINLESS STEEL Owner Stamp: MSA RESEARCH CORP.

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: NONE VISIBLE Test Date(s): NONE VISIBLECylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" NPTLabels and/or Markings: (NaK) SODIUM POTASSIUM ALLOY LIQUIDGeneral Condition: Good ☒ Fair _____ Poor _____Comments: RUST ON OUTSIDE OF VALVESValve 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>CYL LABELLED NaK - GAS PHASE VALVE WOULD NOT OPEN</u>	
Sample Date: _____	Pressure: _____
Identified Contents: <u>SODIUM POTASSIUM ALLOY LIQUID ON CYLINDER LABEL</u>	
Analytical Method:	Mass Spec _____ FTIR _____ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

CYLINDER INSPECTION LOG

Project Name: LAWL-94 ERC #: LCP4117Date: 5-9-94 Inspector: G. RobinCylinder Serial #: AX 61926 Dimensions: 12"D x 10"HColor: RED Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 4BA240 Test Date(s): 9-81Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 510Labels and/or Markings:
Pyrofloric LiquidsGeneral 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>25 PSIG</u>		
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, METHANE, 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 #: LCRV117

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: OTAPAS Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

METHANE, TRACE CARBON DIOXIDE

Analyst Signature: OTAPAS 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: _____

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restrictions on the title page of this plan."

ERC

LCRU 117

Elapsed Time:00:40:21

10:34 17-May-94

Created:10:27:35 17-May-94

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

Tuesday, May 17, 1994 10:26 **Wait**
C:\FTIRDATA
LCRU117.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.88e-01

5001	3008	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

LCRU117.TRANSMITTANCE
Date : May 17, 1994

Time : 10hr-26min-7sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .754	Obs. Time	: 0min 20sec
max	: 1.055	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	1303.65	.865
2	3015.19	.754

Tuesday, May 17, 1994 10:31 Wait
C:\FTIRDATA
LCRU117BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.49e-01

5001 2352 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: LAWL-94 ERC #: LCAU 118
Date: 4-21-94 Inspector: G. ROSEN
Cylinder Serial #: Not Visible Dimensions: 4" D x 16" H
Color: STAINLESS STEEL Owner Stamp: None
DOT Rating: 3A1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): _____
Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 350 CGA
Labels and/or Markings: 1.1% DIBORANE / He
General Condition: Good ✓ Fair _____ Poor _____
Comments: _____
Valve Condition: Good ✓ Fair _____ Poor _____
Comments: REGULATOR - 0 PSIG ON BOTH GAUGES
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>4-22-94</u>	Pressure: <u>5 PSIG</u>
Identified Contents: <u>DIBORANE, HELIUM, HYDROGEN, CARBON DIOXIDE, TRACE 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 #: LCRU 118

MASS SPECTRUM INTERPRETATION

HELIUM, HYDROGEN, TRACE NITROGEN

Analyst Signature: o/argas Date: 4-22-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

DIBORANE, CARBON DIOXIDE

Analyst Signature: o/argas Date: _____

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: _____

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ERC

LCRU 118

Elapsed Time:00:07:23

09:40 22-Apr-94

Created:09:39:57 22-Apr-94

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

LCRU118.TRANSMITTANCE

Date : April 22, 1994

Time : 9hr-33min-4sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .377	Obs. Time	: 0min 20sec
max	: 1.021	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	1174.16	.832
2	1583.17	.526
3	1600.60	.377
4	1620.56	.478
5	2349.60	.793
6	2518.47	.711
7	2539.35	.761

Friday, April 22, 1994
C:\FTIRDATA
LCRU118.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:5.11e-01

9:40 Wait

1.127

.546

-0.035

5001

1598

399

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

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

LCRU 118 BLK

Elapsed Time:00:03:40

09:50 22-Apr-94

Created:09:50:27 22-Apr-94

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

Friday, April 22, 1994 9:51 **Wait**
C:\FTIRDATA
LCRU118BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.52e-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: LAWL-94 ERC #: LCR4119
Date: 5-9-94 Inspector: G. R. BIRD
Cylinder Serial #: NONE Dimensions: 3" D X 5" H
Color: Blue Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 4B240 Test Date(s): 1-85
Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" 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>5-10-94</u>	Pressure: <u>10 PSIG</u>
Identified Contents: <u>ISOBUTANE, NITROGEN, 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 #: LCRU119LS

MASS SPECTRUM INTERPRETATION

N/A

Analyst Signature: [Signature] Date: 5-27-94
QA Confirmation Yes ☐ No ☒
Comments: _____

FTIR INTERPRETATION

REACTION SHOWN WITH KBr WINDOWS

Analyst Signature: [Signature] Date: 5-27-94
QA Confirmation Yes ☐ No ☒
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

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

INTERPRETED RESULTS:

FURTHER

- LCRU119LS LIQUID SAMPLE ANALYSIS PENDING EVALUATION
- ACID SHOWN IN SAMPLE ; pH = 0
- WATER SOLUBLE ; NOT SOLUBLE IN HEXANE
- NOT A PYROPHORIC

QA or Document Officer Signature: _____

DATE: _____

Friday, May 27, 1994

11:07

Wait

C:\FTIRDATA

LCRU119LS.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-1.22e-03

0.0018

0.0289

-0.024

5001

2700

399

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

LCRU119LS.TRANSMITTANCE

Date : May 27, 1994

Time : 9hr-23min-58sec

Description: LIQUID SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.019	Obs. Time	: 0min 20sec
max	: 0.077	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	416.50	-0.014
2	426.42	-0.005
3	434.40	-0.010
4	444.21	-0.019
5	454.09	-0.003
6	461.60	-0.007
7	471.99	-0.014
8	489.24	-0.012
9	499.47	-0.013
10	516.03	-0.010
11	527.31	-0.007
12	544.34	-0.009
13	554.94	-0.006
14	561.93	-0.005
15	563.60	-0.005
16	561.39	-0.004
17	570.60	-0.004
18	580.47	-0.005
19	732.84	-0.005
20	929.99	-0.001
21	1062.33	0.011
22	1266.64	0.005
23	1781.46	-0.001
24	3088.71	-0.002
25	4608.98	0.067
26	4735.71	0.067
27	4764.07	0.069
28	4943.42	0.067

Friday, May 27, 1994 9:47 **Wait**

C:\FTIRDATA
LCRU119LSBLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:5.26e-02

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 #: LCR6119

MASS SPECTRUM INTERPRETATION

HYDROGEN, NITROGEN, TRACE ISOBUTANE

Analyst Signature: _____

Date: 5-10-99

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

ISOBUTANE, TRACE CARBON DIOXIDE

Analyst Signature: _____

Date: 5-10-99

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: _____

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LCRU 119

Elapsed Time:00:29:12

11:00 10-May-94

Created:10:59:27 10-May-94

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

LCRU 119 BLK

Elapsed Time:00:00:46

11:16 10-May-94

Created:11:15:41 10-May-94

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

Tuesday, May 10, 1994 11:00 Wait
C:\FTIRDATA
LCRU119.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.40e-01

LCRU119.TRANSMITTANCE

Date : May 10, 1994

Time : 10hr-58min-30sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .113	Obs. Time	: 0min 20sec
max	: 1.102	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	1151.50	.915
2	1377.94	.858
3	1472.13	.772
4	2349.61	.746
5	2960.35	.113

Tuesday, May 10, 1994

11:14 **Wait**

C:\FTIRDATA

LCRU119BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.73e-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 ERC #: LCRU-122Date: 13 APR Inspector: GEORGE / WINSTONCylinder Serial #: None Dimensions: 24 1/2"Color: Silver yellow Owner Stamp: NoneDOT Rating: 3E1800 3A2015 3AA2400 3A2215Other: _____ Test Date(s): NoneCylinder Type: H.P. ☒ L.P. _____Valve Type: Rathson Hosebarbs
110 A-locks
petcock

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: Yes _____ No ☒Sample Method: Large CRV _____ Small CRV ☒ Val _____

Comments:

Sample Date: 4-13-94 Pressure: 428 PSIGIdentified Contents: NITROUS OXIDE, NITROGEN, tr. HYDROGEN, tr. OXYGENAnalytical Method: Mass Spec ☒ FTIR ☒ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes ☒ No _____Recontainerized Cylinder #: L59057

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: _____

MASS SPECTRUM INTERPRETATION

NITROUS OXIDE, NITROGEN, TRACE OXYGEN, TRACE
HYDROGEN

Analyst Signature: overgas

Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROUS OXIDE

Analyst Signature: overgas

Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• NITROUS OXIDE, MAJOR COMPONENT •

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU122

Elapsed Time:03:08:56

13:38 13-Apr-94

Created:13:36:38 13-Apr-94

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

Wednesday, April 13, 1994 13:37 **Wait**
 C:\FTIRDATA
 LCRU122.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:9.78e-01

5001	2646	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

LCRU122, TRANSMITTANCE

Date : April 13, 1994

Time : 13hr-35min-58sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	Obs. Time	: 0min 20sec
max	: 1.094	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	577.07	.662
2	590.13	.380
3	1151.54	.796
4	1180.94	.792
5	1272.88	0.060
6	1300.07	0.033
7	2213.38	-0.002
8	2445.53	.799
9	2474.67	.776
10	2549.67	.571
11	2576.91	.487
12	2796.15	.761
13	3463.74	.490
14	3492.33	.318

LCPV122 BLK

Elapsed Time:00:01:05

13:59 13-Apr-94

Created:13:59:20 13-Apr-94

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

Wednesday, April 13, 1994 13:55 **Wait**
C:\FTIRDATA
LCRU122BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.67e-01

5001 2700 399

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

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU123Date: 5-5-94 Inspector: G. ROBERTSCylinder Serial #: NONE Dimensions: 2"D x 5"HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: E7458 1800 Test Date(s): 11-80Cylinder Type: H.P. / L.P. / Valve Type: 1/2" VCR

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: Yes ✓ No /Sample Method: Large CRV / Small CRV / Val ✓

Comments: <u>/</u>	
Sample Date: <u>5-6-94</u>	Pressure: <u>0 PSI</u>
Identified Contents: <u>HYDROGEN FLUORIDE, MOLYBDENUM HEXAFLUORIDE, NITROGEN, TRACE HYDROGEN, MOFURX PRODUCTS</u>	
Analytical Method: <u>Mass Spec</u>	<u>FTIR</u> <u>Other</u>
Disposition: <u>Caustic Scrub</u>	<u>Acid Scrub</u> <u>Oxidizing Carbon</u>
	<u>Mole Sieve</u> <u>Flare</u>
Recontainerized: <u>Yes</u>	<u>No</u> <u>✓</u>
Recontainerized Cylinder #: <u>/</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU123

MASS SPECTRUM INTERPRETATION

NITROGEN, HYDROGEN FLUORIDE, MOLYBDENUM
HEXAFLUORIDE RX PRODUCTS, TRACE HYDROGEN

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

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

MOLYBDENUM HEXAFLUORIDE, HYDROGEN FLUORIDE

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: _____

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ERC

LCRU123

Elapsed Time:00:25:04

10:16 06-May-94

Created:10:15:27 06-May-94

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

LCRU 123 BLK

Elapsed Time:00:02:24

10:38 06-May-94

Created:10:34:57 06-May-94

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

Friday, May 6, 1994 10:11 Wait
C:\FTIRDATA
LCRU123.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:4.87e-01

5001

748

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

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

LCRU123. TRANSMITTANCE

Date : May 6, 1994

Time : 10hr-8min-20sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .304	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	740.62	.304
2	1279.48	.910
3	3831.86	.918
4	3876.19	.907
5	4037.05	.914

Friday, May 6, 1994 10:34 Wait

C:\FTIRDATA
LCRU123BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.93e-01

5001	2362	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 124Date: 5-12-94 Inspector: G. ROBERTSCylinder Serial #: ~~NONE~~ 387 Dimensions: 2"D X 12"HColor: GRAY Owner Stamp: NONEDOT Rating: 3E1800 3A2015 3AA2400 3A2215Other: _____ Test Date(s): NONE VISIBLECylinder Type: H.P. ✓ L.P. _____ Valve Type: 1/8" NPTLabels 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: Yes ✓ No _____Sample Method: Large CRV _____ Small CRV _____ Val ✓

Comments: _____			
Sample Date: <u>5-17-94</u>		Pressure: <u>10 PSIG</u>	
Identified Contents: <u>TUNGSTEN HEXAFLUORIDE REACTION PRODUCTS,</u>			
<u>HYDROGEN FLUORIDE, NITROGEN, OXYGEN, TRACE HYDROGEN, SILICON</u>			
Analytical Method: <u>TETRAFLUORIDE</u>		Mass Spec _____	FTIR _____ 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 #: LCRU 124

MASS SPECTRUM INTERPRETATION

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

Analyst Signature: O Vargas

Date: 5-17-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, TUNGSTEN HEXAFLUORIDE RX PRODUCTS
SILICON TETRAFLUORIDE

Analyst Signature: O Vargas

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: _____

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restrictions on the title page of this plan."

ERC

LCPU 124

Elapsed Time:00:00:34

14:40 17-May-94

Created:14:38:35 17-May-94

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

L CRU124 BLK

Elapsed Time:00:00:29

14:53 17-May-94

Created:14:53:37 17-May-94

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

LCRU124. TRANSMITTANCE

Date : May 17, 1994

Time : 14hr-35min-39sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.007	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	703.70	-0.003
2	925.99	.807
3	1025.77	0.001
4	1177.62	.763
5	1281.50	.568
6	1301.69	.415
7	1447.18	.083
8	1457.90	.045
9	1503.47	.629
10	3831.86	.840
11	3876.19	.820
12	3918.63	.870
13	3999.62	.845
14	4037.07	.841
15	4072.96	.847
16	4107.64	.875

Tuesday, May 17, 1994 14:55 **Wait**
C:\FTIRDATA
LCRU124BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.88e-01

1.113		WINDOW PEAK
539		
-0.035		

5001	1453	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 #: LCRU 125
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 ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____	
Sample Date: <u>5-19-94</u>	Pressure: <u>30 PSIG</u>
Identified Contents: <u>NICKEL CARBONYL, 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 #: LCRU125

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: [Signature]

Date: 5-19-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NICKEL CARBONYL

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: _____

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ERC

L CRU 125

Elapsed Time:00:01:22

14:47 19-May-94

Created:14:45:38 19-May-94

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

LCRU 125 BLK

Elapsed Time:00:09:20

15:05 19-May-94

Created:15:01:28 19-May-94

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

Thursday, May 19, 1994 14:45
 C:\FTIRDATA
 LCRU125.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-1.08e-03

14:45

5001

2057

399

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

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

LCRU125. TRANSMITTANCE

Date : May 19, 1994

Time : 14hr-43min-26sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.006	Obs. Time	: 0min 20sec
max	: 1.155	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	418.12	-0.006
2	458.33	.247
3	541.36	.914
4	755.65	.706
5	1987.72	.359
6	2017.19	0.008
7	2054.50	-0.001
8	2120.52	.199
9	2178.29	.521
10	2351.46	.860
11	2478.39	.589
12	2551.81	.763
13	4097.50	.772
14	4176.30	.501

Thursday, May 19, 1994 15:00 Wait

C:\FTIRDATA
LCRU125BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.01e+00

1.272

.616

-0.040

5001

2363

399

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 126
Date: 5-17-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 2" D x 17" H
Color: SILVER Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): 7-67
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>5-18-94</u>	Pressure: <u>0 PSI/G</u>
Identified Contents: <u>ETHANE, TRACE HYDROGEN, TRACE CARBON DIOXIDE, NITROGEN</u>	
Analytical Method: <u>Mass Spec</u> <u>✓</u> FTIR <u>✓</u> Other _____	
Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____	
	Mole Sieve _____ Flare _____
Recontainerized: Yes <u>✓</u> No <u>✓</u>	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRUI26LS

MASS SPECTRUM INTERPRETATION

N/A

Analyst Signature: _____

[Signature]

Date: _____

6-7-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

PYROPHORIC

Analyst Signature: _____

[Signature]

Date: _____

6-3-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS:

- LCRUI26LS ANALYSIS PENDING FURTHER EVALUATION
- REACTION W/ AIR
- SOLUBLE IN HEXANE
- REACTION W/ WATER
- BY PYROPHORIC

O.V.

QA or Document Officer Signature: _____

DATE: _____

Friday, June 3, 1994
 C:\FTIRDATA
 LCRU126. TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:6.70e-01

15:31

Unit

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

LCRU126, TRANSMITTANCE

Date : June 3, 1994

Time : 15hr-31min-46sec

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	: 1.035	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	575.68	-0.002
2	745.62	.100
3	921.71	0.066
4	978.80	0.001
5	1210.77	.148
6	1402.01	0.013
7	1461.27	0.028
8	2138.37	.846
9	2727.62	.362
10	2889.11	-0.002
11	4307.81	.812

Friday, June 3, 1994 15:41 **Wait**
C:\FTIRDATA
LCRU126BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.76e-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 #: LCRUI26 LS

MASS SPECTRUM INTERPRETATION

N/A

Analyst Signature: _____

ovargas

Date: 6-1-97

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: _____

ovargas

Date: 6-1-97

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

• NO LIQUID IN CYLINDER THEREFORE NO
SAMPLE WAS TAKEN

QA or Document Officer Signature: _____

DATE: _____

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 126

MASS SPECTRUM INTERPRETATION

ETHANE, NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-18-94

QA Confirmation

Yes ☐

No ☒

Comments: _____

FTIR INTERPRETATION

ETHANE, TRACE CARBON DIOXIDE

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: _____

LCRU 126

Elapsed Time:00:00:50

11:17 18-May-94

Created:11:13:30 18-May-94

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

LCRU 126 BLK

Elapsed Time:00:00:22

11:22 18-May-94

Created:11:21:44 18-May-94

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

Wednesday, May 18, 1994 11:17 **Wait**
 C:\FTIRDATA
 LCRU126.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:4.82e-01

5001	2963	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

LCRU126.TRANSMITTANCE

Date : May 18, 1994

Time : 11hr-13min-10sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .421	Obs. Time	: 0min 20sec
max	: 1.040	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	813.00	.902
2	2349.69	.860
3	2892.02	.629
4	2960.92	.421

Wednesday, May 18, 1994 11:21 Unit
 C:\FTIRDATA
 LCRU126BLK.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:8.38e-01

5001	2361	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 ERC #: LCR4127

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

Cylinder Serial #: SP21318 Dimensions: 4" D x 8" H

Color: BROWN/YELLOW Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA1800 Test Date(s): 3-87

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 660

Labels and/or Markings:
NITROGEN DIOXIDE

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>NITROGEN DIOXIDE, NITROSYL CHLORIDE, 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 #: LCRU127

MASS SPECTRUM INTERPRETATION

NITROGEN DIOXIDE, NITROSYL CHLORIDE, TRACE NITROGEN,
TRACE HYDROGEN

Analyst Signature: [Signature]

Date: 4-14-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

NITROGEN DIOXIDE, NITROSYL CHLORIDE

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:

• NITROGEN DIOXIDE IS MAJOR COMPONENT

QA or Document Officer Signature:

DATE: _____

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

Created: 14:15:25 14-Apr-94

Elapsed Time: 00:01:23

14:15 14-Apr-94

LCPU127

LCRU127BLK

Elapsed Time:00:01:13

14:34 14-Apr-94

Created:14:33:25 14-Apr-94

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

Thursday, April 14, 1994 14:14 **Wait**
C:\FTIRDATA
LCRU127.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.93e-01

5001	2450	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

LCRU127. TRANSMITTANCE

Date : April 14, 1994

Time : 14hr-14min-19sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .909	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
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Thursday, April 14, 1994 14:37 **Wait**

C:\FTIRDATA
LCRU127BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.95e-01

1.160

.562

-0.036

5001

2700

399

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 #: LCR412B

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>200 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 #: LCRU128

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: _____

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restrictions on the title page of this plan."

ERC

LCRU128

Elapsed Time:00:00:45

09:37 29-Apr-94

Created:09:35:57 29-Apr-94

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

LCRU128 BLK

Elapsed Time:00:03:45

09:44 29-Apr-94

Created:09:44:29 29-Apr-94

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

Friday, April 29, 1994 9:34 AM
 C:\FTIRDATA
 LCRU128.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-9.17e-04

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

LCRU128. TRANSMITTANCE

Date : April 29, 1994

Time : 9hr-34min-5sec

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	: 1.023	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	491.75	.542
2	512.94	.849
3	644.90	.487
4	667.28	.631
5	898.31	-0.001
6	1014.17	0.003
7	1047.35	.228
8	1135.17	.712
9	1280.83	.808
10	1521.53	.800
11	1543.94	.819
12	1805.54	.469
13	1827.02	.622
14	1924.48	.316
15	1934.09	.268
16	2235.99	.880
17	2350.55	.879

Friday, April 29, 1994 9:43 **Wait**

C:\FTIRDATA

LCRU128BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.95e-01

1.137

.551

-0.036

5001

2362

399

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 #: LCP4 129
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>100 PSI G</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 #: LCRV129

MASS SPECTRUM INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: *ovayos* Date: 4-29-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE

Analyst Signature: *ovayos* 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: _____

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ERC

LCRU129

Elapsed Time:00:00:20

10:22 29-Apr-94

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

LCRU129BLK

Elapsed Time:00:05:24

10:29 29-Apr-94

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

Friday, April 29, 1994 10:18 Wait
C:\FTIRDATA
LCRU129.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-1.08e-04

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

LCRU129. TRANSMITTANCE

Date : April 29, 1994

Time : 10hr-18min-29sec

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	: 1.042	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	.516
2	513.10	.832
3	644.38	.466
4	667.22	.615
5	898.36	-0.002
6	1014.01	0.002
7	1047.41	.196
8	1135.16	.685
9	1280.79	.794
10	1321.53	.782
11	1343.76	.797
12	1805.51	.434
13	1827.04	.594
14	1924.47	.380
15	1934.11	.337
16	2236.25	.828

Friday, April 29, 1994 10:28
C:\FTIRDATA
LCRU129BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.38e-01

Wait

1.147

.555

-0.036

5001

2362

399

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 130

Date: 4-28-94 Inspector: G. Roberts

Cylinder Serial #: NONE Dimensions: 1 3/4" x 9" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: NONE Test Date(s): NONE

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

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>4-28-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, Tr. HYDROGEN, 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 #: LCRU 130

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: O Vargas Date: 4-28-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: O Vargas 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: _____

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ERC

LCRV 130

Elapsed Time:00:00:40

15:06 28-Apr-94

M A S S

Created:15:06:04 28-Apr-94

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

Thursday, April 28, 1994 15:04 DATE
 C:\FTIRDATA
 LCRU130. TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:7.85e-01

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

LCRU130, TRANSMITTANCE
Date : April 28, 1994

Time : 15hr-4min-23sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .768	Obs. Time	: 0min 20sec
max	: .998	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	2349.18	.768

Sample Method:	Large CRV	Small CRV	Val	✓
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Comments: _____

Sample Date: 4-29-94 Pressure: 200 PSIG

Identified Contents: NITROGEN TRIFLUORIDE, TRACE NITROGEN TRACE
HYDROGEN

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 131

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: _____

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ERC

LCRU 131

Elapsed Time:00:00:51

09:58 29-Apr-94

Created:09:56:55 29-Apr-94

RANGE F-7	MAGNIFY X 1	AVERAGE 16	START 0	SPAN 200	CURSOR 0.33	SCAN # 1
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LCRU131 BLK

Elapsed Time:00:00:19

10:04 29-Apr-94

Created:10:04:14 29-Apr-94

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

Friday, April 29, 1994
C:\FTIRDATA
LCRU131.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-2.47e-04

9:56

Wait

5001

909 399

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

CRU131.TRANSMITTANCE

ate : April 29, 1994

Time : 9hr-55min-15sec

escription: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : -0.001

max : 1.023

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	491.75	.602
2	645.03	.535
3	667.57	.685
4	898.61	-0.001
5	1009.42	0.020
6	1029.75	0.008
7	1047.28	.309
8	1135.18	.754
9	1280.80	.823
10	1521.54	.820
11	1800.47	.547
12	1924.50	.403
13	1933.45	.348
14	2235.82	.843

Friday, April 29, 1994 10:02 Wait
C:\FTIRDATA
LCRU131BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.40e-01

1.138

.551

-0.036

5001

2362

399

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