EARTH RESOURCES CORPORATION

University of California
Los Alamos National Laboratory
Final Report - Volume V
Cylinder Inspection Logs and Analytical Data
LCRU-133 through LCRU-199
June 23, 1994

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Submitted by:

EARTH RESOURCES CORPORATION
1227 Marshall Farms Road
Ocoee, Florida 34761

MASTER

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Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCAU 133
Date: 4-21-94 Inspector: G. Roberts
Cylinder Serial #: HS-01772 Dimensions: 4" X 22" H
Color: GRAY Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3AA2015 Test Date(s): 2-77
Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 670
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>4-21-94</u>	Pressure: <u>OPSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, NITROGEN TRIFLUORIDE, TRACE CARBON DIOXIDE, AIR</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 133
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, NITROGEN TRIFLUORIDE, ^{EV.} AIR, ARGON

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

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE CARBON DIOXIDE

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 133 RESAMPLED DUE TO SUBSTANTIAL AMOUNT OF
- NITROGEN DETECTED IN MASS SPECTRUM IN FIRST SAMPLE
- NITROGEN AND OXYGEN SHOWN IN LCRU 133 RE

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU 133 RE

Elapsed Time: 00:00:56

15:44 21-Apr-94

Created: 15:44:36 21-Apr-94

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

LCRU133 RE BLK

Elapsed Time:00:00:40

15:59 21-Apr-94

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

Thursday, April 21, 1994 15:44 Wait

C:\FTIRDATA
LCRU133RE.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

5001 1155 399

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

CRU133RE. TRANSMITTANCE

ate : April 21, 1994

Time : 15hr-42min-40sec

escription: 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	410.63	-1.104
2	414.63	0.038
3	417.99	-1.123
4	429.57	-1.500
5	431.90	-1.782
6	435.63	-1.500
7	437.72	-1.500
8	437.72	-1.500
9	460.90	-1.500
10	464.76	-1.500
11	483.67	-1.500
12	487.04	-1.500
13	494.84	-1.500
14	509.54	-1.500
15	513.93	-1.500
16	518.76	-1.500
17	520.40	-1.500
18	522.89	-1.500
19	541.84	-1.500
20	542.80	-1.500
21	561.77	-1.500
22	566.00	-1.500
23	573.77	-1.500
24	593.66	-1.500
25	607.66	-1.500
26	619.66	-1.500
27	625.66	-1.500
28	636.44	-1.500
29	641.66	-1.500
30	651.66	-1.500
31	649.90	-1.500
32	660.90	-1.500
33	673.66	-1.500

#peak	wavenumber	intensity
35	679.90	-0.0096
36	688.00	-1.5000
37	690.00	-1.5000
38	704.00	-1.5000
39	713.90	-1.4733
40	722.00	-1.5000
41	727.00	-1.4355
42	731.00	-1.5000
43	747.00	-1.5000
44	758.00	-1.1311
45	760.00	-1.4111
46	780.00	-1.5000
47	790.74	-1.5000
48	792.00	-1.4449
49	800.00	-1.5000
50	809.00	-1.0027
51	814.61	-1.4666
52	820.00	-0.0059
53	827.11	-1.5000
54	831.99	-1.1099
55	843.00	-1.4855
56	850.00	-1.5000
57	857.00	-1.7433
58	878.00	-1.4488
59	905.67	-0.0008
60	1030.79	.5755
61	1280.84	.687

Thursday, April 21, 1994 15:57 Wait

C:\FTIRDATA
LCRU133REBLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.95e-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 #: LCRU133

MASS SPECTRUM INTERPRETATION

NITROGEN, AIR, OXYGEN, NITROGEN TRIFLUORIDE, TRACE HYDROGEN

Analyst Signature: Ovarpa

Date: 4-21-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE CARBON DIOXIDE

Analyst Signature: Ovarpa

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 AND AIR IN SYSTEM

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU133

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	32	0	200		0.33		1

LCPV133 BLK

Elapsed Time:00:27:59

15:40 21-Apr-94

Created:15:40:02 21-Apr-94

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

Thursday, April 21, 1994 15:01 **Wait**
C:\FTIRDATA
LCRU133.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

5001		1165	399
F1- Curve Only		F2- Curve and Scale	
F3- Full Description		F4- Housekeeping	
F5- Dump Values		F6- Print Screen	

CRU133 TRANSMITTANCE
Date : April 21, 1994

Time : 14hr-58min-21sec

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	408.38	-1.0000
2	416.64	-1.0000
3	427.00	-1.0000
4	431.00	-1.0000
5	435.00	-1.0000
6	441.16	-1.0000
7	445.00	-1.0000
8	451.00	-1.0000
9	455.00	-1.0000
10	463.00	-1.0000
11	466.00	-1.0000
12	476.00	-1.0000
13	480.00	-1.0000
14	490.00	-1.0000
15	500.00	-1.0000
16	511.11	-1.0000
17	517.00	-1.0000
18	528.00	-1.0000
19	539.00	-1.0000
20	541.49	-1.0000
21	551.00	-1.0000
22	560.00	-1.0000
23	570.00	-1.0000
24	577.00	-1.0000
25	588.00	-1.0000
26	594.70	-1.0000
27	604.47	-1.0000
28	608.00	-1.0000
29	614.00	-1.0000
30	620.00	-1.0000
31	630.00	-1.0000
32	640.00	-1.0000
33	647.00	-1.0000
34	670.00	-1.0000

#peak	wavenumber	intensity
365	681.52	1.239
367	680.96	-1.5000
368	693.71	-1.5000
369	699.79	-1.7022
40	705.13	-1.5000
41	722.00	-1.5000
42	726.94	1.028
43	736.77	-1.5000
44	746.87	-1.5000
45	750.85	-1.5000
46	766.42	-0.851
47	772.96	-1.268
48	782.55	-1.5000
49	799.53	-1.5000
50	792.91	.717
51	798.65	.114
52	809.13	-1.5000
53	814.71	-1.5000
54	823.06	-0.891
55	827.04	-1.5000
56	833.09	-1.235
57	845.64	-1.5000
58	850.02	-1.5000
59	867.02	.204
60	905.22	-0.834
61	1030.05	.561
62	1280.04	.668

Thursday, April 21, 1994 15:37 Wait

C:\FTIRDATA
LCRU133BLK.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 #: LCAU 134

Date: 5-3-94 Inspector: G. ROBERTS

Cylinder Serial #: 778733 Dimensions: 3 1/2" D x 10" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3B400 Test Date(s): 6-77

Cylinder Type: H.P. L.P. ✓ Valve Type: 1/2" VCA

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> </u>	
Sample Date: <u>5-4-94</u>	Pressure: <u>0 PSI</u>
Identified Contents: <u>CHLORINE, HYDROGEN CHLORIDE, SILICON TETRAFLUORIDE</u>	
<u>HYDROGEN, OXYGEN, CHLORINE TRIFLUORIDE RX PRODUCTS</u>	
Analytical Method: <u>NITROGEN, CO2</u>	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>TW-H-826388</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU134

MASS SPECTRUM INTERPRETATION

OXYGEN, CHLORINE, HYDROGEN CHLORIDE, TRACE SILICON
TETRAFLUORIDE, HYDROGEN, CHLORINE TRIFLUORIDE RX PRODUCTS

Analyst Signature: Ovarfas Date: 5-5-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, SILICON TETRAFLUORIDE, CARBON DIOXIDE
CHLORINE TRIFLUORIDE RX PRODUCTS

Analyst Signature: Ovarfas 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

LCPU134

Elapsed Time:00:01:53

15:44 04-May-94

Created:15:33:37 04-May-94

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

LCRU 134 BLK

Elapsed Time:00:00:22

16:06 04-May-94

Created:16:06:01 04-May-94

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

Wednesday, May 4, 1994 15:50 Wait
C:\FTIRDATA
LCRU134.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:4.20e-02

5001

1029 399

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

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

CRU134, TRANSMITTANCE
ate : May 4, 1994

Time : 15hr-29min-41sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.022	Obs. Time	: 0min 20sec
max	: .985	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	458.21	.838
2	528.53	.639
3	746.41	.290
4	804.56	.510
5	885.01	.698
6	1027.54	.022
7	1098.06	.853
8	1268.92	.698
9	1281.58	.644
10	1335.08	.512
11	1373.51	.595
12	1502.34	.637
13	2348.96	.652

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

Wednesday, May 4, 1994 16:04 Wait

C:\FTIRDATA

LCRU134BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.44e-01

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 134 135

Date: 5-3-94 Inspector: G. ROBERTS

Cylinder Serial #: W2A 1202 Dimensions: 4" D X 17" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 12-83

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

Labels and/or Markings:
NONE

General Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Valve Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

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

Approved to Handle: Yes ☒ No ☐

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No ☐

Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: <u>TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-4-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN CARBON DIOXIDE, TRACE OXYGEN, TRACE HYDROGEN, TEST POSITIVE FOR FLUORINE</u>	
Analytical Method: <u>Mass Spec</u>	<u>FTIR</u> ☒ Other <u>DRAEGER</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> ☐
Recontainerized Cylinder #: <u>J69193</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU135

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Ovaras Date: 5-4-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: Ovaras Date: 5-4-94
QA Confirmation Yes ☐ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Ovaras Date: 5-4-94
QA Confirmation Yes ☐ No ☐
Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU135

Elapsed Time:00:00:24

14:51 04-May-94

Created:14:47:29 04-May-94

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

Wednesday, May 4, 1994 14:51 **Wait**

C:\FTIRDATA
LCRU135.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.14e-01

5001 2365 399

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

.CRU135.TRANSMITTANCE

date : May 4, 1994

Time : 14hr-51min-31sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .677	Obs. Time	: 0min 20sec
max	: .985	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	668.40	.870
2	2349.55	.677

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 136
Date: 5-3-94 Inspector: G. ROBERTS
Cylinder Serial #: H-84543 Dimensions: 4"D X 26"H
Color: STAINLESS STEEL Owner Stamp: CURTIN
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3A1800 Test Date(s): 8-69
Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 1/4" VCR
Labels and/or Markings:
VOLUME 4.99 LITERS
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>5-4-94</u>	Pressure: <u>800 PSIG</u>
Identified Contents: <u>XENON, TRACE NITROGEN, TRACE HYDROGEN,</u> <u>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 #: LCRU134

MASS SPECTRUM INTERPRETATION

XENON, TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-4-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-4-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRACOFF TUBE)

Analyst Signature: [Signature] Date: 5-4-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU136

Elapsed Time:00:01:31

09:15 04-May-94

Created:09:10:36 04-May-94

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

LCRU 136 BLK

Elapsed Time:00:00:20

09:21 04-May-94

Created:09:19:57 04-May-94

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

Wednesday, May 4, 1994 9:12 Wait
C:\FTIRDATA
LCRU136.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.70e-01

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

CRU136.TRANSMITTANCE

Date : May 4, 1994

Time : 9hr-8min-32sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .866	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	2350.24	.866

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCR4137
Date: 4-21-94 Inspector: G. Robins
Cylinder Serial #: W3-2497 Dimensions: 4" x 24" H
Color: STAINLESS STEEL Owner Stamp: _____
DOT Rating: 3A1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): 5-75
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 580
Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: REGULATOR - OPSIG ON INLET - REGULATOR VALVE OPEN - OUTLET VALVE ON
REGULATOR 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>4-22-94</u>	Pressure: <u>250 PSIG</u>
Identified Contents: <u>HELIUM, TRACE XENON, 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 #: LCRU137

MASS SPECTRUM INTERPRETATION

HELIUM, TRACE XENON, TRACE NITROGEN

Analyst Signature: ovarys Date: 4-22-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: ovarys Date: 4-22-94

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

LCRUI37

Elapsed Time:00:00:36

09:10 22-Apr-94

Created:09:14:59 22-Apr-94

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

LCRU 137 BLK

Elapsed Time: 00:00:10

09:22 22-Apr-94

Created: 09:22:06 22-Apr-94

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

Friday, April 22, 1994 9:16 Wait
C:\FTIRDATA
LCRU137.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.96e-01

5001 2361 399
F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

CRU137. TRANSMITTANCE

ate : April 22, 1994

Time : 9hr-11min-36sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .894	Obs. Time	: 0min 20sec
max	: 1.020	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	2349.71	.894

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCAU 138
Date: 4-27-94 Inspector: G. Roberts
Cylinder Serial #: N/A Dimensions: 4" D x 12" H
Color: Blue 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" NPT
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>4-28-94</u>	Pressure: <u>70 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 #: LCRU138

MASS SPECTRUM INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 4-28-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE

Analyst Signature: _____

Date: 4-28-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 138

Elapsed Time:00:00:16

13:30 28-Apr-94

Created:13:29:43 28-Apr-94

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

LCRU 138 BLK

Elapsed Time:00:02:18

13:44 28-Apr-94

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

Thursday, April 28, 1994 13:29 Matt
 C:\FTIRDATA
 LCRU138. TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:1.00e-04

5001 800

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

CRU138. TRANSMITTANCE
Date : April 28, 1994

Time : 13hr-27min-46sec

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	: .969	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	.527
2	513.06	.814
3	644.91	.478
4	667.10	.636
5	898.32	-0.001
6	1014.48	0.001
7	1047.30	.216
8	1135.19	.683
9	1280.94	.817
10	1521.54	.761
11	1543.60	.775
12	1805.56	.447
13	1826.99	.593
14	1924.48	.301
15	1934.09	.255

Thursday, April 28, 1994 13:40 **Wait**
C:\FTIRDATA
LCMU138BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.89e-01

5001 2365 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 #: LCP4 139

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

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

Color: BLACK Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

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

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

Labels and/or Markings:
NONE

General Condition: Good _____ Fair ☒ Poor _____

Comments: _____

Valve Condition: Good _____ Fair ☒ Poor _____

Comments: _____

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

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

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

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 139

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Orlando Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: Orlando Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TRACE NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Orlando Date: 5-9-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRV139

Elapsed Time:00:00:25

10:36 09-May-94

Created:10:35:38 09-May-94

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

Monday, May 9, 1994
C:\FTIRDATA
LCRU139.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.95e-01

10:34 Wait

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

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

RU139. TRANSMITTANCE

te : May 9, 1994

Time : 10hr-33min-33sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .929	Obs. Time	: 0min 20sec
max	: 1.096	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	418.53	.935
2	1506.76	.930
3	1557.60	.929
4	1652.10	.962

CYLINDER INSPECTION LOG

Project Name: LANL 94 ERC #: LCRU 140Date: 4-22-94 Inspector: G. ROBERTSCylinder Serial #: DL-19718 Dimensions: 4" x 13"Color: GRAY Owner Stamp: None

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: 3AA 2015 Test Date(s): 9-66Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 679Labels 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: 4-25-94 Pressure: 0 PSIGIdentified Contents: HYDROGEN FLUORIDE, HYDROGEN CHLORIDE, TUNGSTEN
HEXAFLUORIDE RX PRODUCTS, TRACE HYDROGEN, NITROGENAnalytical 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 #: LCU140

MASS SPECTRUM INTERPRETATION

NITROGEN, ¹⁵N HYDROGEN, TRACE HYDROGEN CHLORIDE,
TRACE HYDROGEN FLUORIDE, TUNGSTEN HEXAFLUORIDE REACTION PROD.

Analyst Signature: [Signature] Date: 4-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN FLUORIDE, HYDROGEN CHLORIDE, TUNGSTEN
HEXAFLUORIDE RX PRODUCTS

Analyst Signature: [Signature] 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: _____

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restrictions on the title page of this plan."

ERC

LCRU140

Elapsed Time:00:00:57

14:09 25-Apr-94

Created:14:01:55 25-Apr-94

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

LCRU 140 BLK

Elapsed Time:00:00:23

14:20 25-Apr-94

Created:14:19:51 25-Apr-94

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

Monday, April 25, 1994 14:04 Wait
 C:\FTIRDATA
 LCRU140.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:3.20e-02

5001 1029 399

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

RU140. TRANSMITTANCE
te : April 25, 1994

Time : 13hr-58min-31sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	Obs. Time	: 0min 20sec
max	: 1.024	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	480.18	.854
2	691.73	.607
3	753.51	-0.002
4	914.49	.698
5	1027.58	0.026
6	1387.59	.508
7	1447.16	.100
8	1457.91	0.076
9	1508.06	.444
10	3831.87	.856
11	3876.20	.846
12	3918.64	.893
13	3999.63	.870
14	4037.14	.858
15	4072.97	.862
16	4107.67	.894

Monday, April 25, 1994 14:24 Wait
C:\FTIRDATA
LCRU140BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.87e-01

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

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

CYLINDER INSPECTION LOG

Project Name: LANI-94 ERC #: LCR4 141Date: 5-27-94 Inspector: G. ROBERTSCylinder Serial #: NONE Dimensions: 2" D X 10" HColor: Blue Owner Stamp: NONEDOT Rating: 3E1800 3A2015 3AA2400 3A2215Other: _____ Test Date(s): 11-81/12-74Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 1/4" PLUGLabels and/or Markings:
ANTIMONY PENTAFLUORIDEGeneral Condition: Good ✓ Fair _____ Poor _____

Comments: _____

Valve Condition: Good _____ Fair _____ Poor _____

Comments: NO VALVE - 1/4" PLUG IN OUTLET

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: TEST NEGATIVE FOR FLUORINE, CHLORINE (DRAEGER TUBE)Sample Date: 5-27-94 Pressure: -10 PSIGIdentified Contents: NITROGEN, TRACE OXYGEN, TRACE HYDROGENAnalytical Method: Mass Spec ✓ FTIR ✓ Other DRAEGER

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes ✓ No _____Recontainerized Cylinder #: F 3211 / TW-H-862397

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU141

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: ovargas Date: 5-27-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

SUSPECTED ANTIMONY PENTAFLUORIDE

Analyst Signature: ovargas Date: 5-27-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE, CHLORINE (DRAEGER TUBE)

Analyst Signature: ovargas Date: 5-27-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

- FURTHER
↓
- LCRU141 FTIR ANALYSIS PENDING EVALUATION
 - SUSPECTED ANTIMONY PENTAFLUORIDE
 - WRITTEN ON SIDE OF CYLINDER - ANTIMONY PENTAFLUORIDE
 - LIQUID RESIDUAL IN CRV HAD PH = 0

QA or Document Officer Signature: _____

DATE: _____

LCRU 141

Elapsed Time:00:29:43

10:30 27-May-94

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

Friday, May 27, 1994 10:24 Wait
C:\FTIRDATA
LCRU141.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.87e-01

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

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

	Friday, May 27, 1994 C:\FTIRDATA LCRU141BLK.TRANSMITTANCE Print Screen Zoom: 1/4 Y:9.85e-01	10:40	Wait
--	---	-------	------

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

CRU141.TRANSMITTANCE

ate : May 27, 1994

Time : 10hr-23min-3sec

Description: CRV SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .775

max : 1.013

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak
1

wavenumber
945.32

intensity
.775

CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCR4145Date: 5-11-94 Inspector: G. RobertsCylinder Serial #: NONE Dimensions: 2"D x 10"HColor: STAINLESS STEEL Owner Stamp: NONEDOT Rating: 3E1800 3A2015 3AA2400 3A2215Other: _____ Test Date(s): NONE VISIBLECylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" VCRLabels 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: 5-12-94 Pressure: 0 PSIIdentified Contents: NITROGEN TRIFLUORIDE, NITROGEN, 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 #: LCRU145

MASS SPECTRUM INTERPRETATION

NITROGEN TRIFLUORIDE, NITROGEN, TRACE HYDROGEN

Analyst Signature: ovapps Date: 5-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE

Analyst Signature: ovapps Date: 5-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU 145

Elapsed Time:00:00:21

15:22 12-May-94

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

LCRU145 BLK

Elapsed Time:00:00:21

15:21 12-May-94

Created:15:29:23 12-May-94

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

Thursday, May 12, 1994

15:23 Wait

C:\FTIRDATA

LCRU145.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.93e-04

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

DRU145.TRANSMITTANCE

ate : May 12, 1994

Time : 15hr-21min-11sec

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	: 1.151	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	491.77	.743
2	645.18	.669
3	667.06	.846
4	899.50	-0.001
5	1009.44	0.080
6	1029.77	0.039
7	1047.19	.474
8	1135.24	.861
9	1280.89	.798
10	1521.59	.908
11	1801.34	.706
12	1928.98	.519

Thursday, May 12, 1994 15:29 **Wait**
C:\FTIRDATA
LCRU145BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.04e+00

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

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 147

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

Cylinder Serial #: 768895 Dimensions: 3 1/2" D X 10" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3B400 Test Date(s): 10-76

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

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV147

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: Ovaras Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: Ovaras Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION.

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Ovaras Date: 5-5-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU147

Elapsed Time:00:00:26

10:52 05-May-94

Created:10:19:56 05-May-94

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

Thursday, May 5, 1994 10:18 Wait
C:\FTIRDATA
LCRU147.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.57e-01

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

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

CRU147.TRANSMITTANCE

ate : May 5, 1994

Time : 10hr-18min-19sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .851	Obs. Time	: 0min 20sec
max	: 1.010	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	2349.63	.851

CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCR4 148Date: 4-21-94 Inspector: G. ROBERTSCylinder Serial #: NOT VISIBLE Dimensions: 4" D X 24" HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): _____

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

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: <u>4-22-94</u>	Pressure: <u>30 PSIG</u>
Identified Contents: <u>NITROGEN, 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 148
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN

Analyst Signature: Orlaga

Date: 4-22-94

QA Confirmation Yes ☐ No ☐

5-13-94

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: Orlaga

Date: 4-22-94

QA Confirmation Yes ☐ No ☐

5-13-94

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

•LCRU 148 RESAMPLED DUE TO SUSPECTED PRODUCT IN
CYLINDER BECAUSE OF PRESSURE IN CYLINDER

QA or Document Officer Signature: _____

DATE: _____

LCRU 148 RE

Elapsed Time:00:01:15

07:37 13-May-94

Created:10:22:47 22-Apr-94

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

		Friday, May 13, 1994	7:52	Wait
		B:\ LCRU148RE.TRANSMITTANCE Print Screen Zoom: 1/4 Y:1.01e+00		
1.133				
.549				
-0.035				
5001	2700	399		
F1- Curve Only	F2- Curve and Scale			
F3- Full Description	F4- Housekeeping			
F5- Dump Values	F6- Print Screen			

RU148RE.TRANSMITTANCE

te : April 22, 1994

Time : 10hr-22min-9sec

scription: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .995
max : 1.027
Resolution : 4.00 cm-1
Detector : DTGS 2mm
Mode : IR

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

tolerance= 10.0% centre of gravity method

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

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

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 148
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN

Analyst Signature: Or/afat

Date: 4-22-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: Or/afat

Date: 4-22-94

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 148 RE

Elapsed Time:00:01:15

10:23 22-Apr-94

Created:10:22:47 22-Apr-94

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

Friday, April 22, 1994 10:22 Wait

C:\FTIRDATA

LCRU148RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.01e+00

1.133

.549

-0.035

5001

2700

399

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

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

RU148RE.TRANSMITTANCE
te : April 22, 1994

Time : 10hr-22min-9sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .995	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
-------	------------	-----------

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU148

MASS SPECTRUM INTERPRETATION

NITROGEN

Analyst Signature: ovargas Date: 4-22-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: ovargas Date: 4-22-94

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

LCRU148

Elapsed Time:00:00:50

10:06 22-Apr-94

Created:10:03:29 22-Apr-94

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

Friday, April 22, 1994

10:08 Wait

C:\FTIRDATA

LCRU148.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.07e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU148. TRANSMITTANCE

ate : April 22, 1994

Time : 10hr-2min-44sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .700	Obs. Time	: 0min 20sec
max	: .999	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	669.03	.870
2	2349.39	.700

Friday, April 22, 1994

10:18 **Wait**

C:\FTIRDATA

LCRU148BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.99e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4 151

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

Cylinder Serial #: N/A Dimensions: 4" D x 12" H

Color: Blue 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" NPT

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>4-28-94</u>	Pressure: <u>200 PSI G</u>
Identified Contents: <u>NITROGEN + PFLUORIDE, TRACE CARBON DIOXIDE, 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 #: LCRU151

MASS SPECTRUM INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE NITROGEN, TRACE
HYDROGEN
Analyst Signature: OVargas Date: 4-28-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE CARBON DIOXIDE
Analyst Signature: OVargas 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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restrictions on the title page of this plan."

ERC

LCRU 151

Elapsed Time:00:01:50

13:48 28-Apr-94

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

LCRUI51 BLK

Elapsed Time:00:00:21

13:55 28-Apr-94

Created:13:54:39 28-Apr-94

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

Thursday, April 28, 1994

13:46 Wait

C:\FTIRDATA

LCRU151.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:0.00e+00

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

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

RU151. TRANSMITTANCE
te : April 28, 1994

Time : 13hr-46min-45sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: .984	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	.504
2	513.10	.814
3	644.91	.455
4	667.25	.583
5	898.27	-0.001
6	1014.82	0.000
7	1047.25	.186
8	1135.30	.665
9	1280.93	.813
10	1331.55	.748
11	1542.85	.757
12	1685.22	.417
13	1827.03	.570
14	1924.48	.270
15	1934.11	.227
16	2344.01	.829

Thursday, April 28, 1994

13:56 Wait

C:\FTIRDATA

LCRU151BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.87e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 152
Date: 4-27-94 Inspector: G. ROBERTS
Cylinder Serial #: N/A Dimensions: 4" D x 12" H
Color: Blue 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" NPT
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>4-28-94</u>	Pressure: <u>200 PSIG</u>
Identified Contents: <u>NITROGEN TRIFLUORIDE CARBON DIOXIDE, TRACE</u> <u>NITROGEN, TRACE HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other _____
Disposition:	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____ Mole Sieve _____ Flare _____
Recontainerized:	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCPV152

MASS SPECTRUM INTERPRETATION

NITROGEN TRIFLUORIDE, TRACE NITROGEN, TRACE
HYDROGEN

Analyst Signature: OVargas

Date: 4-28-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

NITROGEN TRIFLUORIDE, CARBON DIOXIDE

Analyst Signature: OVargas

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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restrictions on the title page of this plan."

LCRU152

Elapsed Time:00:00:24

11:01 28-Apr-94

Created:11:01:00 28-Apr-94

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

LCPU152 BLK

Elapsed Time:00:00:16

11:06 28-Apr-94

Created:11:06:23 28-Apr-94

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

Thursday, April 28, 1994 11:00 Wait

C:\FTIRDATA
LCRU152.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-4.85e-04

5001

891

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

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

IRU152, TRANSMITTANCE
 Date : April 28, 1994

Time : 10hr-59min-26sec

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	491.74	.491
2	512.88	.810
3	644.89	.431
4	667.88	.529
5	897.92	-0.001
6	1013.04	0.001
7	1047.89	.180
8	1135.11	.667
9	1138.00	.947
10	1150.11	.727
11	1242.58	.728
12	1305.34	.409
13	1327.06	.563
14	1334.43	.361
15	1334.11	.321
16	2349.14	.627

Thursday, April 28, 1994 11:04 Wait
C:\FTIRDATA
LCRU152BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:6.43e-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: LAUC-94 ERC #: LCRU153

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

Cylinder Serial #: SG-92207 Dimensions: 4" X 16"

Color: BLUE Owner Stamp: AIR PRODUCTS

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3AA2015 Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 540

Labels and/or Markings:
TETRAFLUOROHYDRAZINE

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>100PSIG</u>
Identified Contents: <u>TETRAFLUOROHYDRAZINE, TRACE NITROGEN,</u>	
<u>6% 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 #: LCR0153

MASS SPECTRUM INTERPRETATION

TETRAFLUOROHYDRAZINE, TRACE HYDROGEN

Analyst Signature: _____

Date: 4-25-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TETRAFLUOROHYDRAZINE

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: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU 153

Elapsed Time:00:00:47

15:05 25-Apr-94

Created:15:02:27 25-Apr-94

RANGE	MAGNIFY	AVERAGE	START	SPAN		CURSOR		SCAN #
F-7	X 1	16	0	200		57.00		1

LCPV153 BLK

Elapsed Time:00:00:43

15:20 25-Apr-94

Created:15:18:37 25-Apr-94

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

Monday, April 25, 1994 15:02 **Wait**
C:\FTIRDATA
LCRU153.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-1.04e-04

5001 971 399

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

CRU153, TRANSMITTANCE

ate : April 25, 1994

Time : 15hr-0min-36sec

Description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : -0.002
max : 1.001
Resolution : 4.00 cm-1
Detector : DTGS 2mm
Mode : IR

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

tolerance= 10.0%

centre of gravity method

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

#peak	wavenumber	intensity
1	467.00	.239
2	527.24	.550
3	538.82	.556
4	589.70	.565
5	733.39	0.000
6	970.31	-0.002
7	1280.61	.188
8	1441.73	.793
9	1949.10	.517
10	2209.45	.568
11	2235.62	.484

Monday, April 25, 1994 15:17 **Wait**
C:\FTIRDATA
LCRU153BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.22e-01

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

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

CYLINDER INSPECTION LOG

Project Name: LAUL-94 Date: 5-5-94 Inspector: G. Rogers

Cylinder Serial #: D1689 Dimensions: 5" x 14" H

Color: Green/Sliver Owner Stamp: LAUL

DOT Rating: 3A2015 (circled) 3A2215 3A2400 3E1800

Other: _____ Test Date(s): 10-57

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

Labels and/or Markings: None

General Condition: Good Fair Poor

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: 5-6-94 Pressure: 25 Psi

Identified Contents: Sulfur Dioxide, Trace Nitrogen, Trace Hydrogen

Analytical Method: Mass Spec FTIR Other

Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon Mole Sieve Flare

Recontaminated: Yes No

Recontaminated Cylinder #: _____

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU154

MASS SPECTRUM INTERPRETATION

SULFUR DIOXIDE, TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: O. Vargas Date: 5-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SULFUR DIOXIDE

Analyst Signature: O. Vargas Date: 5-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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

ERC

LCRU154

Elapsed Time:00:00:32

11:11 06-May-94

Created:11:10:01 06-May-94

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

LCPV154 BLK

Elapsed Time:00:00:15

11:19 06-May-94

Created:11:19:34 06-May-94

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

11:10 Wait

Friday, May 6, 1994
 C:\FTIRDATA
 LCRU154.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:-9.53e-04

5001	1370	399
F1- Curve Only	F2- Curve and Scale	
F3- Full Description	F4- Housekeeping	
F5- Dump Values	F6- Print Screen	

RU154.TRANSMITTANCE

ite : May 6, 1994

Time : 11hr-8min-50sec

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	: 1.063	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	502.39	0.033
2	532.94	0.032
3	1134.95	0.077
4	1165.82	0.046
5	1354.85	-0.001
6	2487.96	.525
7	2510.63	.429

Friday, May 6, 1994 11:18 **Wait**
C:\FTIRDATA
LCRU154BLK.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

Form 2

Project Name: <u>4401-94</u>		ERC #: <u>LCRU 155</u>	
Date: <u>5-17-94</u>		Inspector: <u>G. Roberts</u>	
Cylinder Serial #: <u>None</u>		Dimensions: <u>2"Ø x 12" H</u>	
Color: <u>Gray</u>		Owner Stamp: <u>None</u>	
DOT Rating: <u>3E1800</u>		Test Date(s): <u>None Visible</u>	
Cylinder Type: <u>H.P.</u>		Valve Type: <u>110 PETCOCK</u>	
Labels and/or Markings: <u>None</u>			
General Condition: <u>Good</u>		Fair <u>✓</u> Poor	
Valve Condition: <u>Good</u>		Fair <u>✓</u> Poor	
Comments:			
Pre-operation Weight: _____		Post-operation Weight: _____	
Approved to Handle: <u>Yes</u>		No	
Handling Precautions: _____			
Approved for Valve Sampling: <u>Yes</u>		No	
Sample Method: <u>Large CRV</u>		Small CRV <u>✓</u> Val <u>✓</u>	
Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>			
Sample Date: <u>5-19-94</u>		Pressure: <u>0 PSIG</u>	
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, TRACE CARBON</u>			
Analytical Method: <u>DIAZYDE, FTIR</u>		Mass Spec <u>✓</u> Other <u>DRAEGER</u>	
Disposition: <u>Caustic Scrub</u>		Acid Scrub <u>✓</u> Oxidizing Carbon <u>✓</u> Mole Sieve <u>✓</u> Flare <u>✓</u>	
Recontaminated: <u>Yes</u>		No <u>✓</u>	
Recontaminated Cylinder #: _____			

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV155

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: _____

Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

Date: 5-19-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU155

Elapsed Time:00:33:42

14:32 19-May-94

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

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

Thursday, May 19, 1994

14:29 **Wait**

LCRU155.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.77e-01

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

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

RU155. TRANSMITTANCE
Date : May 19, 1994

Time : 14hr-24min-52sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .974	Obs. Time	: 0min 20sec
max	: 1.173	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	937.60	1.018
2	2287.95	.974

CYLINDER INSPECTION LOG

Form 2

Project Name: LANL Date: 4-13-94 Inspector: G. Roberts

Cylinder Serial #: R8-30277 Dimensions: 6" X 14" H

Color: Red/Sliver Owner Stamp: NONE

DOT Rating: 3A2015 3A2215 3AA2400

Other: Test Date(s): 2-77

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: _____

Recontaminated Cylinder #: _____

Recontaminated: Yes ☐ No ☒

Disposition: Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐ Flare ☐

Analytical Method: Mass Spec ☒ FTIR ☒ Other ☐

Identified Contents: Nitrogen, tr. Chlorine, tr. Hydrogen Chloride, Oxygen, tr. Hydrogen

Sample Date: 4-14-94 Pressure: 0.516

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU156

MASS SPECTRUM INTERPRETATION

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

Analyst Signature: ovargas

Date: 4-14-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: ovargas

Date: 4-14-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• CHLORINE IS PRIMARY CONTENT

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

LCRU156

Elapsed Time:00:01:24

09:48 14-Apr-94

Created:09:48:08 14-Apr-94

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

LCRU156 BLK

Elapsed Time:00:00:25

10:27 14-Apr-94

Created:10:26:57 14-Apr-94

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

Thursday, April 14, 1994 9:45 **Wait**
C:\FTIRDATA
LCRU156.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	

RU156.TRANSMITTANCE

te : April 14, 1994

Time : 9hr-45min-52sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .982

max : 1.063

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak

wavenumber

intensity

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL - 94 ERC #: LCRU158
Date: 5-17-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE Dimensions: 2" D X 12" H
Color: Blue/Yellow Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): NONE VISIBLY
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 110 PET COCK
Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: 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 PSIG</u>
Identified Contents: <u>TRACE HYDROGEN, NITROGEN, NITROSYL CHLORIDE, 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 #: LCRV158

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-18-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

NITROSYL CHLORIDE, 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: _____

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ERC

L CRV 158

Elapsed Time:00:01:27

14:32 18-May-94

Created:14:31:16 18-May-94

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

Wednesday, May 18, 1994

14:31 Wait

C:\FTIRDATA

LCRU158.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.18e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU158.TRANSMITTANCE

ate : May 18, 1994

Time : 14hr-27min-1sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .823	Obs. Time	: 0min 20sec
max	: 1.173	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	887.50	.983
2	1628.10	.870
3	1798.34	.824

Wednesday, May 18, 1994 14:34 Wait
C:\FTIRDATA
LCRU158BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.36e-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 159Date: 4-11-94 Inspector: George RobertsCylinder Serial #: NONE VISIBLE Dimensions: 6"D x 38"HColor: SILVER Owner Stamp: NONEDOT Rating: 3A1800 312015 3AA2400 3A2215Other: A Test Date(s): NONE VISIBLECylinder 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: TEST POS. FOR HF (DRAEGER TEST)Sample Date: 4-12-94 Pressure: 100 PSIGIdentified Contents: HYDROGEN CHLORIDE, TRACE SILICON TETRAFLUORIDE
HELIUM, HYDROGEN, TEST POSITIVE FOR HYDROGEN FLUORIDEAnalytical Method: Mass Spec ☒ FTIR ☒ Other DRAEGERDisposition: Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐Mole Sieve ☐ Flare ☐Recontainerized: Yes ☐ No ☒

Recontainerized Cylinder #: _____

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV159

MASS SPECTRUM INTERPRETATION

HELIUM, HYDROGEN, TRACE NITROGEN

Analyst Signature: Ovarjas Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, TRACE SILICON TETRAFLUORIDE

Analyst Signature: Ovarjas Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR HYDROGEN FLUORIDE (DRAEGER)

Analyst Signature: Ovarjas Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• TEST POSITIVE FOR HYDROGEN FLUORIDE
(DRAEGER TUBE TEST)

QA or Document Officer Signature: _____

DATE: _____

LCRU159

Elapsed Time:00:02:01

14:16 12-Apr-94

Created:14:14:58 12-Apr-94

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

LCRU 159 BLK

Elapsed Time:00:00:22

14:34 12-Apr-94

Created:14:33:38 12-Apr-94

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

Tuesday, April 12, 1994

14:12 Wait

C:\FTIRDATA

LCRU159.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.75e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU159. TRANSMITTANCE

ate : April 12, 1994

Time : 14hr-11min-28sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .806

max : 1.190

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak
1

wavenumber
1513.05

intensity
.846

Tuesday, April 12, 1994 14:31 Wait
C:\FTIRDATA
LCRU159BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.74e-01

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

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCAL 160
Date: 4-25-94 Inspector: G. Lopez
Cylinder Serial #: NONE VISIBLE Dimensions: 13"D X 24"H
Color: OLIVE YELLOW Owner Stamp: NONE VISIBLE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 250 PSI Test Date(s): 12-78
Cylinder Type: H.P. _____ L.P. ✓ Valve Type: 1/2" VCO
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>4-26-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE 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 <u>✓</u> No _____
Recontainerized Cylinder #: <u>569193</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU160

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 160

Elapsed Time:00:00:19

10:12 26-Apr-94

Created:10:10:04 26-Apr-94

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

Tuesday, April 26, 1994

10:08

Wait

C:\FTIRDATA

LCRU160.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

RU160. TRANSMITTANCE
te : April 26, 1994

Time : 10hr-7min-53sec

scription: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .967
max : 1.030
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: LANC-94 ERC #: LCAU 161Date: 5-2-94 Inspector: G. ROBERTSCylinder Serial #: 78B756 Dimensions: 4"D x 16"HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3B400 Test Date(s): 9-78Cylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" VCA

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: <u>5-3-94</u>		Pressure: <u>5 PSIG</u>	
Identified Contents: <u>METHANE, CARBON DIOXIDE, TRACE NITROGEN</u>			
Analytical Method: <u>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 #: LCRV 161

MASS SPECTRUM INTERPRETATION

METHANE, TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: OVAYOS Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

METHANE, CARBON DIOXIDE

Analyst Signature: OVAYOS 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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restrictions on the title page of this plan."

ERC

LCRU 161

Elapsed Time:00:00:36

10:43 03-May-94

Created:10:41:11 03-May-94

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

LCRU 161 BLK

Elapsed Time:00:01:01

10:46 03-May-94

Created:10:46:28 03-May-94

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

Tuesday, May 3, 1994

10:39 Wait

C:\FTIRDATA

LCRU161.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.02e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU161. TRANSMITTANCE
Date : May 3, 1994

Time : 10hr-39min-45sec

scriptio: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.013	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	1111	100
2	1111	100
3	1111	100
4	1111	100
5	1111	100
6	1111	100
7	1111	100
8	1111	100
9	1111	100
10	1111	100
11	1111	100
12	1111	100
13	1111	100
14	1111	100
15	1111	100
16	1111	100
17	1111	100
18	1111	100
19	1111	100
20	1111	100
21	1111	100
22	1111	100
23	1111	100
24	1111	100
25	1111	100
26	1111	100
27	1111	100
28	1111	100
29	1111	100
30	1111	100
31	1111	100
32	1111	100
33	1111	100
34	1111	100
35	1111	100
36	1111	100
37	1111	100
38	1111	100
39	1111	100
40	1111	100
41	1111	100
42	1111	100
43	1111	100
44	1111	100
45	1111	100
46	1111	100
47	1111	100
48	1111	100
49	1111	100
50	1111	100
51	1111	100
52	1111	100
53	1111	100
54	1111	100
55	1111	100
56	1111	100
57	1111	100
58	1111	100
59	1111	100
60	1111	100
61	1111	100
62	1111	100
63	1111	100
64	1111	100
65	1111	100
66	1111	100
67	1111	100
68	1111	100
69	1111	100
70	1111	100
71	1111	100
72	1111	100
73	1111	100
74	1111	100
75	1111	100
76	1111	100
77	1111	100
78	1111	100
79	1111	100
80	1111	100
81	1111	100
82	1111	100
83	1111	100
84	1111	100
85	1111	100
86	1111	100
87	1111	100
88	1111	100
89	1111	100
90	1111	100
91	1111	100
92	1111	100
93	1111	100
94	1111	100
95	1111	100
96	1111	100
97	1111	100
98	1111	100
99	1111	100
100	1111	100

#peak	wavenumber	intensity
33	3120.07	.660
34	3129.34	.699
35	3138.46	.730
36	3147.27	.743
37	3155.97	.806
40	3164.22	.803
41	3214.09	.559
42	3257.00	.703
43	3312.50	.660
44	3350.50	.810
45	3441.81	.875

Tuesday, May 3, 1994 10:45 Wait
C:\FTIRDATA
LCRU161BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.65e-01

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

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRA 162

Date: 4-25-94 Inspector: G Roberts

Cylinder Serial #: NONE VISIBLE Dimensions: 13"D X 24"H

Color: BROWNISH YELLOW Owner Stamp: NONE VISIBLE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 250 PSI Test Date(s): NONE VISIBLE

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

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

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

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAGER TUBE)</u>	
Sample Date: <u>4-26-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>HELIUM, NITROGEN, TRACE OXYGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: <u>Mass Spec</u> ☒ <u>FTIR</u> ☒ Other <u>DRAGER</u>	
Disposition: <u>Caustic Scrub</u> _____ <u>Acid Scrub</u> _____ <u>Oxidizing Carbon</u> _____	
	<u>Mole Sieve</u> _____ <u>Flare</u> _____
Recontainerized: Yes _____ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 162

MASS SPECTRUM INTERPRETATION

HELIUM, NITROGEN, TRACE OXYGEN

Analyst Signature: ovayas

Date: 4-26-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: ovayas

Date: 4-26-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAGER TUBE)

Analyst Signature: ovayas

Date: 4-26-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 162

Elapsed Time:00:00:46

09:53 26-Apr-94

Created:09:53:18 26-Apr-94

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

LCPV 162 BLK

Elapsed Time:00:00:19

10:01 26-Apr-94

Created:09:59:58 26-Apr-94

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

Tuesday, April 26, 1994

9:53 Wait

C:\FTIRDATA

LCRU162.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.52e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

3RU162.TRANSMITTANCE

ate : April 26, 1994

Time : 9hr-51min-33sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .950

max : 1.026

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

Form 2

Project Name: 1402-94 ERC #: LC104163

Date: 4-25-94 Inspector: G. Loggins

Cylinder Serial #: None Visible Dimensions: 13" D x 24" H

Color: None Green Owner Stamp: None Visible

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 250 PSIG Test Date(s): 12-78

Cylinder Type: H.P. L.P. Valve Type: 1/4" SAE 6210/5

Labels and/or Markings: None

General Condition: Good Fair Poor

Comments: _____

Valve Condition: Good Fair Poor

Comments: _____

Pre-operation Weight: _____

Approved to Handle: Yes No

Handling Precautions: _____

Approved for Valve Sampling: Yes No

Sample Method: Large CRV Small CRV Val

Comments: TEST NEGATIVE FOR FLUORINE (DRAKEP + USE)

Sample Date: 4-26-94 Pressure: OP SIG

Identified Contents: NITROGEN, OXYGEN, HELIUM, TRALE CARBON DIOXIDE

Analytical Method: Mass Spec FTIR Other DRAKEP

Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon Flare

Recontaminated: Yes No

Recontaminated Cylinder #: _____

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU163

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, HELIUM, TRACE CARBON DIOXIDE

Analyst Signature: ovayes

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: ovayes

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAGER TUBE TEST)

Analyst Signature: ovayes

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 163

Elapsed Time:00:00:31

09:43 26-Apr-94

Created:09:38:51 26-Apr-94

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

LCRU 163 BLK

Elapsed Time:00:00:25

09:46 26-Apr-94

Created:09:46:29 26-Apr-94

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

Tuesday, April 26, 1994

9:37 **Wait**

C:\FTIRDATA

LCRU163.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.15e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU163.TRANSMITTANCE

ate : April 26, 1994

Time : 9hr-37min-2sec

Description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .905
max : 1.026
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-94 ERC #: ICRU 164Date: 4-25-94 Inspector: G. RobertsCylinder Serial #: P216487 Dimensions: 7"D x 27"HColor: Blue w/ yellow - black stripe Owner Stamp: DACOT

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: E 6498-3000 Test Date(s): 7-78Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 1/4" Swage-Lok

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: 4-26-94 Pressure: 2 PSIGIdentified Contents: ARGON, trace NITROGEN, CARBON DIOXIDEAnalytical 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 #: LCPV 164
RESAMPLE

MASS SPECTRUM INTERPRETATION

ARGON, tr. NITROGEN, WATER

Analyst Signature: [Signature] Date: 4-26-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

N/D

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: _____

- LCPV 164 RESAMPLED DUE TO SUSPECTED PRODUCT IN CYLINDER

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU164 RE

Elapsed Time:00:00:29

14:06 26-Apr-94

Created:14:03:33 26-Apr-94

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

LCRU 164 RE BLK

Elapsed Time:00:00:21

14:26 26-Apr-94

Created:14:25:40 26-Apr-94

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

Tuesday, April 26, 1994

14:06 **Wait**

C:\FTIRDATA

LCRU164RE.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.85e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CRU164RE.TRANSMITTANCE

ate : April 26, 1994

Time : 14hr-1min-59sec

Description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .900
max : 1.010
Resolution : 4.00 cm⁻¹
Detector : DTGS 2mm
Mode : IR

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

tolerance= 10.0% centre of gravity method

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

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

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV164

MASS SPECTRUM INTERPRETATION

ARGON; tr. NITROGEN

Analyst Signature: [Signature] Date: 9-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: [Signature] Date: 9-26-94

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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LCRU164

Elapsed Time:00:00:35

11:00 26-Apr-94

Created:10:50:01 26-Apr-94

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

LCPV164 BLK

Elapsed Time:00:00:31

10:55 26-Apr-94

Created:10:55:05 26-Apr-94

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

Tuesday, April 26, 1994

10:49 Wait

C:\FTIRDATA

LCRU164.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.06e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU164. TRANSMITTANCE

Date : April 26, 1994

Time : 10hr-49min-4sec

Description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .805
max : 1.020
Resolution : 4.00 cm⁻¹
Detector : DTGS 2mm
Mode : IR

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

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	2349.45	.805

Tuesday, April 26, 1994
C:\FTIRDATA
LCRU164BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.51e-01

10:54 **Wait**

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 165

Date: 5-2-94 Inspector: G. ROBERTS

Cylinder Serial #: W1C3382 Dimensions: 3 1/2" D x 11" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 4-84

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>5-3-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE CARBON DIOXIDE,</u> <u>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 #: LCRV 165

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE ^{o.k.} HYDROGEN

Analyst Signature: O Vargas Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: O Vargas Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: O Vargas Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU165

Elapsed Time:00:00:39

09:10 03-May-94

Created:09:08:42 03-May-94

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

Tuesday, May 3, 1994

9:13 **Wait**

C:\FTIRDATA

LCRU165.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.04e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU165.TRANSMITTANCE
Date : May 3, 1994

Time : 9hr-7min-49sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .900	Obs. Time	: 0min 20sec
max	: 1.016	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

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

CYLINDER INSPECTION LOG

Form 2

Project Name: 1400-94 Date: 5-6-94 Inspector: G. Roberts

Cylinder Serial #: W-2626 Dimensions: 4" x 9 1/2" H

Color: STAINLESS STEEL Owner Stamp: Abac

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 3-73

Cylinder Type: H.P. L.P. Valve Type: 3/8" Swagelok

Labels and/or Markings: Abac

General Condition: Good Fair Poor

Comments: _____

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

Approved to Handle: Yes No

Handling Precautions: _____

Approved for Valve Sampling: Yes No

Sample Method: Large CRV Small CRV Val

Comments:	
Sample Date: <u>5-9-94</u>	Pressure: <u>0 PSI.6</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, CARBON DIOXIDE</u>	
Analytical Method: <u>SMALL TRACE SILICON TETRAFLUORIDE</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 #: <u>TU-H-826388</u>	

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU166

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-9-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE SMALL TRACE SILICON

TETRAFLUORIDE

Analyst Signature: _____

Date: 5-9-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: _____

Date: 5-9-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 166

Elapsed Time:00:00:50

16:10 09-May-94

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

Monday, May 9, 1994 16:08 Wait
 C:\FTIRDATA
 LCRU166.TRANSMITTANCE
 Print Screen
 Zoom: 1/4 Y:1.04e+00

5001 1035 399

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

RU166. TRANSMITTANCE

te : May 9, 1994

Time : 16hr-7min-49sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .749	Obs. Time	: 0min 20sec
max	: 1.068	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	668.43	.935
2	1558.07	.944
3	2349.29	.749

Monday, May 9, 1994 16:14 **Wait**
C:\FTIRDATA
LCRU166BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.66e-01

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCR4-167

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

Cylinder Serial #: NONE Dimensions: 9"D X 13"H

Color: WHITE Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: DOT 39 NRC Test Date(s): NONE

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

Labels and/or Markings:
FREON 12

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>R-12, tr. N₂, tr. H₂</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 167

MASS SPECTRUM INTERPRETATION

DICHLORODIFLUOROMETHANE, TRACE NITROGEN
TRACE OXYGEN

Analyst Signature: [Signature] Date: 4-28-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

DICHLORODIFLUOROMETHANE

Analyst Signature: [Signature] Date: 4-28-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU167

Elapsed Time:00:00:30

14:46 28-Apr-94

Created:14:45:49 28-Apr-94

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

LCRU 167 BLK

Elapsed Time:00:02:02

15:01 28-Apr-94

Created:15:00:43 28-Apr-94

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

Thursday, April 28, 1994

14:45 Wait

C:\FTIRDATA

LCRU167.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-1.23e-03

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

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

RU167. TRANSMITTANCE

Date : April 28, 1994

Time : 14hr-43min-25sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : -0.002

max : .990

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	667.69	0.047
2	898.16	-0.002
3	1125.00	-0.002
4	1239.09	.388
5	1373.08	.686
6	1586.84	.761
7	1759.09	.831
8	2193.35	.641
9	2342.95	.398
10	2313.36	.621

Thursday, April 28, 1994

15:02 **Wait**

C:\FTIRDATA

LCRU167BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.90e-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: LAWL ERC #: LCRU-168
Date: 13 APR 94 Inspector: Wini/George
Cylinder Serial #: None Dimensions: 2" x 12"
Color: Blue Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: _____ Test Date(s): None
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: _____
Labels and/or Markings: None
General Condition: Good _____ Fair ☒ Poor _____
Comments: _____
Valve Condition: Good ☒ Fair _____ Poor _____
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No _____
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No _____
Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST POSITIVE FOR HYDROGEN FLUORIDE (DRAGER TEST)</u>			
Sample Date: <u>4-13-94</u>		Pressure: <u>0 PSIG</u>	
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>			
Analytical Method:		Mass Spec ☒	FTIR ☒ Other <u>DRAGER</u>
Disposition:		Caustic Scrub _____	Acid Scrub _____
		Oxidizing Carbon _____	Mole Sieve _____
		Flare _____	
Recontainerized:		Yes _____	No ☒
Recontainerized Cylinder #: _____			

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 68
RESAMPLE

MASS SPECTRUM INTERPRETATION

NITROGEN, WATER, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: _____

O Vargas

Date: 4-19-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: _____

O Vargas

Date: 4-19-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TEST TUBE)

Analyst Signature: _____

O Vargas

Date: 4-19-94

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS:

• LCRU 68 RESAMPLE DUE TO SUSPECTED CONTAMINATION
IN SAMPLE CYLINDER OF HYDROGEN FLUORIDE

• WATER DETECTED IN MASS SPEC SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRU168RE

Elapsed Time:00:01:13

03:16 19-Apr-94

Created:03:15:38 19-Apr-94

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

Tuesday, April 19, 1994 15:14 Wait
C:\FTIRDATA
LCRU168RE.TRANSMITTANCE
Print Screen.
Zoom: 1/4 Y:9.42e-01

5001 2361 399
F1- Curve Only F2- Curve and Scale
F3- Full Description F4- Housekeeping
F5- Dump Values F6- Print Screen

RU168RE.TRANSMITTANCE
te : April 19, 1994

Time : 15hr-13min-17sec

scription: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .940
max : 1.025
Resolution : 4.00 cm-1
Detector : DTGS 2mm
Mode : IR

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

tolerance= 10.0% centre of gravity method

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

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

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU168

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Orlaga Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/A ^{OV}
TRACE CO₂

Analyst Signature: Orlaga Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR HYDROGEN FLUORIDE (DRAEGER)

Analyst Signature: Orlaga Date: 4-13-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 168

Elapsed Time:00:00:41

14:03 13-Apr-94

Created:14:03:11 13-Apr-94

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

Wednesday, April 13, 1994 14:02 **Wait**
C:\FTIRDATA
LCRU168.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.77e-01

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

DRU168.TRANSMITTANCE
Date : April 13, 1994

Time : 14hr-1min-47sec

Description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .876
max : .993
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	1506.85	.885

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRU 169

Date: 5-3-94 Inspector: G. ROBERTS

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

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 5-82

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

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>5-4-94</u>	Pressure: <u>0 PSI/G</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 #: LCRV169

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: OV/ajps

Date: 5-4-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: OV/ajps

Date: 5-4-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: OV/ajps

Date: 5-4-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

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ERC

LCRU169

Elapsed Time:00:00:30

10:20 04-May-94

Created:10:18:51 04-May-94

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

Wednesday, May 4, 1994

10:18 Wait

C:\FTIRDATA

LCRU169.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.56e-01

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

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

RU169.TRANSMITTANCE

te : May 4, 1994

Time : 10hr-17min-28sec

Description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .747
max : .996
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	2349.34	.747

CYLINDER INSPECTION LOG

Form 2

Project Name: <u>LAU-94</u>		Date: <u>4-29-94</u>		Inspector: <u>G. G. G.</u>		ERC #: <u>LCR 170</u>	
Cylinder Serial #: <u>None</u>		Dimensions: <u>2" X 12" H</u>		Owner Stamp: <u>None</u>		Test Date(s): <u>9-78</u>	
Color: <u>Stainless Steel</u>		DOT Rating: <u>3E1800</u>		Valve Type: <u>1/4" Swagelok</u>		Other: <u>3A1800</u>	
Cylinder Type: <u>H.P.</u>		Valve Condition: <u>Good</u>		Post-operation Weight: <u>Yes</u>		Labels and/or Markings: <u>None</u>	
General Condition: <u>Good</u>		Valve Condition: <u>Good</u>		Pre-operation Weight: <u>Yes</u>		Comments:	
Approved to Handle: <u>Yes</u>		Handling Precautions: <u>Yes</u>		Approved for Valve Sampling: <u>Yes</u>		Comments:	
Sample Method: <u>Large CRV</u>		Sample Date: <u>5-2-94</u>		Sample Pressure: <u>800 PSIG</u>		Identified Contents: <u>Neon, Carbon Dioxide, Trace Nitrogen</u>	
Analytical Method: <u>Mass Spec</u>		Disposition: <u>Caustic Scrub</u>		Mole Sieve: <u>Flare</u>		Recontaminated: <u>Yes</u>	
Recontaminated Cylinder #: <u>None</u>		Recontaminated: <u>Yes</u>		Other: <u>None</u>		Comments:	

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: _____

MASS SPECTRUM INTERPRETATION

NEON, TRACE NITROGEN

Analyst Signature: *W. Vargas* Date: 5-2-94
QA Confirmation Yes ☐ No ☐
Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: *W. Vargas* Date: 5-2-94
QA Confirmation Yes ☐ No ☒
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

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

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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restrictions on the title page of this plan."

ERC

LCRV170

Elapsed Time:00:00:24

10:41 02-May-94

Created:10:40:52 02-May-94

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

LCRV170 BLK

Elapsed Time:00:00:22

10:49 02-May-94

Created:10:48:51 02-May-94

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

Monday, May 2, 1994

10:36 Wait

C:\FTIRDATA

LCRU170.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:6.52e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU170. TRANSMITTANCE

ate : May 2, 1994

Time : 10hr-36min-43sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .642	Obs. Time	: 0min 20sec
max	: 1.024	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	668.43	.860
2	2349.36	.642

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL -94 ERC #: LCPU 171
Date: 5-5-94 Inspector: G. Roberts
Cylinder Serial #: 77H1625 Dimensions: 3 1/2" D x 12" H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: WP3500 Test Date(s): 12-77
Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 3/8" 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>5-6-94</u>	Pressure: <u>700 PSIG</u>
Identified Contents: <u>XENON, TRACE 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 #: LLRU171

MASS SPECTRUM INTERPRETATION

XENON, TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: overleaf

Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: overleaf

Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: overleaf

Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 171

Elapsed Time:00:00:49

15:35 06-May-94

Created:15:35:19 06-May-94

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

LCAU171 BLK

Elapsed Time:00:00:29

15:42 06-May-94

Created:15:41:29 06-May-94

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

Friday, May 6, 1994
C:\FTIRDATA
LCRU171.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.04e+00

15:32 **Wait**

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

DRU171.TRANSMITTANCE

ate : May 6, 1994

Time : 15hr-32min-28sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .984	Obs. Time	: 0min 20sec
max	: 1.150	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	1604.15	1.024

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 172
Date: 4-29-94 Inspector: G. B. D.
Cylinder Serial #: NONE Dimensions: 2" D X 10" H
Color: STAINLESS STEEL Owner Stamp: _____
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3A1800 SK Test Date(s): 1-79
Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" SW. & GELER
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>B-2-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN OXYGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes _____ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU172

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-2-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: [Signature] Date: 5-2-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCPV172

Elapsed Time:00:01:13

13:49 02-May-94

Created:13:48:29 02-May-94

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

Monday, May 2, 1994 13:44 **Wait**
C:\FTIRDATA
LCRU172.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.00e-01

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

2RU172. TRANSMITTANCE
ate : May 2, 1994

Time : 13hr-43min-37sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .894	Obs. Time	: 0min 20sec
max	: .996	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>1471-94</u>		Date: <u>5-6-94</u>		Inspector: <u>G. Rogers</u>		ERC #: <u>LCR4173</u>	
Cylinder Serial #: <u>02650</u>		Dimensions: <u>40x9 1/2 H</u>		Owner Stamp: <u>None</u>		DOT Rating: <u>3A1800</u>	
Color: <u>STAINLESS STEEL</u>		Cylinder Type: <u>H.P.</u>		Valve Type: <u>3/8" Submerged</u>		Other: <u>3A1800</u>	
Labels and/or Markings: <u>None</u>		General Condition: <u>Good</u>		Valve Condition: <u>Good</u>		Comments: <u>None</u>	
Pre-operation Weight: <u>None</u>		Approved to Handle: <u>Yes</u>		Handling Precautions: <u>None</u>		Approved for Valve Sampling: <u>Yes</u>	
Sample Method: <u>Large CRV</u>		Sample Date: <u>5-9-94</u>		Pressure: <u>0 psig</u>		Identified Contents: <u>TRICHLOROETHYLENE, NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: <u>Mass Spec</u>		Disposition: <u>Caustic Scrub</u>		Acid Scrub: <u>None</u>		Oxidizing Carbon: <u>None</u>	
Recontaminated: <u>Yes</u>		Recontaminated Cylinder #: <u>569187</u>		Mole Sieve: <u>None</u>		Flare: <u>None</u>	
Comments: <u>None</u>		Sample Date: <u>5-9-94</u>		Pressure: <u>0 psig</u>		Identified Contents: <u>TRICHLOROETHYLENE, NITROGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	

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ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU173

MASS SPECTRUM INTERPRETATION

TRICHLOROFLUOROMETHANE, NITROGEN, TRACE
HYDROGEN

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

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRICHLOROFLUOROMETHANE, TRACE
CARBON DIOXIDE

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

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 173

Elapsed Time:00:00:50

15:44 09-May-94

Created:15:40:46 09-May-94

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

LCRV 173 BLK

Elapsed Time:00:00:20

15:50 09-May-94

Created:15:49:26 09-May-94

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

Monday, May 9, 1994 15:40 Wait
C:\FTIRDATA
LCRU173.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-3.67e-04

5001 1081 399

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

RU173.TRANSMITTANCE
Date : May 9, 1994

Time : 15hr-39min-16sec

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	: 1.064	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	536.72	.910
2	796.45	.601
3	842.07	-0.002
4	933.14	.266
5	1080.93	-0.001
6	1377.01	.865
7	1686.40	.896
8	2141.27	.802
9	2349.35	.808

Monday, May 9, 1994

15:48 Wait

C:\FTIRDATA

LCRU173BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.79e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

CYLINDER INSPECTION LOG

Form 2

Project Name: LAUC-94 ERC #: 6084174

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

Cylinder Serial #: H 67516 Dimensions: 4" D x 26" H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3A1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 3-69

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

Labels and/or Markings: H₂S, FLAMM GAS

General Condition: Good Fair Poor

Comments: _____

Valve Condition: Good Fair Poor

Comments: _____

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

Approved to Handle: Yes No

Handling Precautions: _____

Approved for Valve Sampling: Yes No

Sample Method: Large CRV Small CRV Val

Comments: _____

Sample Date: 4-25-94 Pressure: 200 PSIG

Identified Contents: HYDROGEN SULFIDE, TRACE HYDROGEN CYANIDE, TRACE HYDROGEN

Analytical Method: FTIR Mass Spec Other

Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon Mole Sieve Flare

Recontaminated: Yes No

Recontaminated Cylinder #: _____

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

ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU174

MASS SPECTRUM INTERPRETATION

HYDROGEN SULFIDE, TRACE HYDROGEN

Analyst Signature: [Signature]

Date: 9-25-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

HYDROGEN SULFIDE, TRACE HYDROGEN CHLORIDE

Analyst Signature: [Signature]

Date: 9-25-94

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: _____

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

ERC

LCRU174

Elapsed Time:00:00:56

14:22 25-Apr-94

Created:14:29:42 25-Apr-94

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

LCRU174 BLK

Elapsed Time:00:02:52

14:43 25-Apr-94

Created:14:43:03 25-Apr-94

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

Monday, April 25, 1994

14:39 **Wait**

C:\FTIRDATA

LCRU174.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

RU174, TRANSMITTANCE
Date : April 25, 1994

Time : 14hr-27min-34sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .885	Obs. Time	: 0min 20sec
max	: 1.016	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	3791.47	.885

Monday, April 25, 1994 14:42 Wait
C:\FTIRDATA
LCRU174BLK.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-94 ERC #: LCR4 175
Date: 4-22-94 Inspector: G. ROBERTS
Cylinder Serial #: NONE VISIBLE Dimensions: 4"D X 26"H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3A1800 Test Date(s): NONE VISIBLE
Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: GGO
Labels and/or Markings:
H₂S, FLAMM GAS
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>200 PSIG</u>
Identified Contents: <u>HYDROGEN SULFIDE, 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 #: LCPU 175

MASS SPECTRUM INTERPRETATION

HYDROGEN SULFIDE, TRACE HYDROGEN

Analyst Signature: O Vargas

Date: 4-25-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN SULFIDE

Analyst Signature: O Vargas

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: _____

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ERC

LCRU175

Elapsed Time:00:00:50

14:50 25-Apr-94

Created:14:49:45 25-Apr-94

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

LCRU175 BLK

Elapsed Time:00:02:02

14:50 25-Apr-94

Created:14:57:55 25-Apr-94

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

Monday, April 25, 1994

14:48 **Wait**

C:\FTIRDATA

LCRU175.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

DRU175.TRANSMITTANCE
Date : April 25, 1994

Time : 14hr-47min-58sec

Description: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .864	Obs. Time	: 0min 20sec
max	: 1.026	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	3791.53	.864

Monday, April 25, 1994 14:57 Wait
C:\FTIRDATA
LCRU175BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.64e-01

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

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 176

Date: 4-29-94 Inspector: G. Lobato

Cylinder Serial #: W 2096 Dimensions: 4" D X 10" H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 1-72

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

Labels and/or Markings:
NONE

General Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Valve Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

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

Approved to Handle: Yes ☒ No ☐

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No ☐

Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____	
Sample Date: <u>S-2-94</u>	Pressure: <u>-10 PSIG</u>
Identified Contents: <u>CARBONYL SULFIDE, NITROGEN, TRACE HYDROGEN</u> <u>TRACE CARBON DIOXIDE</u>	
Analytical Method: <u>Mass Spec</u> ☒ <u>FTIR</u> ☒ Other ☐	
Disposition: Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐	
	Mole Sieve ☐ Flare ☐
Recontainerized: Yes ☐ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRV 176

MASS SPECTRUM INTERPRETATION

CARBONYL SULFIDE, NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 5-29-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

CARBONYL SULFIDE, TRACE CARBON DIOXIDE

Analyst Signature: _____

Date: 5-29-94

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

LCRU176

Elapsed Time:00:00:26

14:14 02-May-94

Created:14:14:05 02-May-94

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

LCRU 176 BLK

Elapsed Time:00:00:23

14:28 02-May-94

Created:14:26:58 02-May-94

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

Monday, May 2, 1994 14:12 **Wait**
C:\FTIRDATA
LCRU176.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-2.08e-04

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

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

RU176 TRANSMITTANCE
Date : May 2, 1994

Time : 14hr-11min-51sec

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	520.70	.695
2	668.45	.855
3	847.84	.726
4	866.90	.677
5	1037.80	.853
6	1880.96	.870
7	2054.48	-0.001
8	2349.04	.666
9	2907.97	.731
10	2925.74	.676
11	4108.63	.767

Monday, May 2, 1994

14:25 Wait

C:\FTIRDATA

LCRU176BLK.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:5.94e-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-94 ERC #: LCRU 177

Date: 4-29-94 Inspector: G. ROBERT

Cylinder Serial #: NONE Dimensions: 4" D x 16" H

Color: STAINLESS Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 SL 6B400 Test Date(s): 3-77

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> </u>	
Sample Date: <u>5-2-94</u>	Pressure: <u>0 PSI</u>
Identified Contents: <u>METHANE, CARBON DIOXIDE, NITROGEN, TRACE OXYGEN</u>	
Analytical Method: <u> </u>	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 #: LCRV177

MASS SPECTRUM INTERPRETATION

METHANE, NITROGEN, TRACE OXYGEN

Analyst Signature: OVAYAT Date: 5-2-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

METHANE, CARBON DIOXIDE

Analyst Signature: OVAYAT Date: 5-2-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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ERC

LCPV 177

Elapsed Time:00:21:12

14:52 02-May-94

Created:14:51:50 02-May-94

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

LCRU 177 BLK

Elapsed Time:00:00:25

14:58 02-May-94

Created:14:57:42 02-May-94

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

Monday, May 2, 1994

14:50 **Wait**

C:\FTIRDATA

LCRU177.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.67e-01

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU177. TRANSMITTANCE
Date : May 2, 1994

Time : 14hr-49min-36sec

description: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : 0.040
max : .996
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	668.41	84.3
1	444.71	71.1
1	333.71	61.9
1	222.99	64.9
1	111.66	89.5
1	77.77	81.3
1	66.66	77.6
1	55.55	73.4
1	44.44	66.6
1	33.33	66.6
1	22.22	67.7
1	11.11	71.1
1	9.99	76.6
1	8.88	84.8
1	7.77	80.8
1	6.66	72.2
1	5.55	70.0
1	4.44	73.3
1	3.33	68.8
1	2.22	69.7
1	1.11	71.5
1	0.99	72.9
1	0.88	75.1
1	0.77	77.5
1	0.66	79.8
1	0.55	81.8
1	0.44	73.4
1	0.33	79.6

Monday, May 2, 1994 14:56 **Wait**
C:\FTIRDATA
LCRU177BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:6.49e-01

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

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

CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRU 178Date: 5-3-94 Inspector: G ROBERTSCylinder Serial #: 66154 Dimensions: 6" SPHEREColor: WHITE/RED Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: NON RETURNABLE Test Date(s): NONECylinder Type: H.P. _____ L.P. ☒ Valve Type: 1/4" SWAGelokLabels and/or Markings:
FLAMMABLEGeneral 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>5-4-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>TEST POSITIVE FOR FLUORINE, NITROGEN, TRACE OXYGEN,</u>	
<u>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 #: LCRU178

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: OVAYAT Date: 5-4-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: OVAYAT Date: 5-4-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: OVAYAT Date: 5-4-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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

ERC

LCRU.178

Elapsed Time:00:00:31

09:56 04-May-94

Created:09:52:11 04-May-94

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

Wednesday, May 4, 1994

9:52

Wait

C:\FTIRDATA

LCRU178.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:8.16e-01

1.111

.538

-0.035

5001

2363

399

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

CRU178. TRANSMITTANCE

ate : May 4, 1994

Time : 9hr-50min-37sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .801	Obs. Time	: 0min 20sec
max	: 1.006	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	2349.64	.801

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCA4 179

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

Cylinder Serial #: NONE VISIBLE Dimensions: 6" D X 36" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): NONE VISIBLE

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

Labels and/or Markings:
FLAMMABLE GAS / POISON GAS

General Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Valve Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

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

Approved to Handle: Yes ☒ No ☐

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No ☐

Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____	
Sample Date: <u>4-27-94</u>	Pressure: <u>100 PSIG</u>
Identified Contents: <u>SILANE, HYDROGEN</u>	
Analytical Method:	Mass Spec ☒ FTIR ☒ Other ☐
Disposition:	Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐
	Mole Sieve ☐ Flare ☐
Recontainerized:	Yes ☒ No ☐
Recontainerized Cylinder #: <u>TW-H-862412 / TW-H-862418</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU179

MASS SPECTRUM INTERPRETATION

HYDROGEN, SILANE

Analyst Signature: O Vargas Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SILANE

Analyst Signature: O Vargas 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: _____

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

ERC

LCPV 179

Elapsed Time:00:00:28

14:03 27-Apr-94

Created:13:58:49 27-Apr-94

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

LCRV179 BLK

Elapsed Time:00:00:25

14:12 27-Apr-94

MASS

Created:14:11:52 27-Apr-94

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

Wednesday, April 27, 1994

13:57 Wait

C:\FTIRDATA

LCRU179.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.83e-02

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU179. TRANSMITTANCE
te : April 27, 1994

Time : 13hr-56min-54sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.000	Obs. Time	: 0min 20sec
max	: 1.016	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	857.15	.199
2	898.31	-0.000
3	932.79	0.001
4	979.65	.271
5	1034.80	.773
6	2123.11	.257
7	2182.48	0.005
8	2241.03	.211
9	3154.47	.886
10	4305.33	.820

Wednesday, April 27, 1994 14:16 **Wait**
C:\FTIRDATA
LCRU179BLK.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

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 180Date: 5-2-94 Inspector: G. RobertsCylinder Serial #: 763892 Dimensions: 3 1/2" D x 10" HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3E400 Test Date(s): 10-76Cylinder Type: H.P. ✓ L.P. ✓ Valve Type: 1/2" VCRLabels 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>TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-3-94</u>	Pressure: <u>0 PSI</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE CARBON DIOXIDE,</u>	
<u>TRACE HYDROGEN, POSITIVE FOR FLUORINE</u>	
Analytical Method:	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>569193</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 180

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: O Vargas Date: 5-3-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: O Vargas Date: 5-3-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: O Vargas Date: 5-3-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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

ERC

LCRU 180

Elapsed Time:00:00:21

09:46 03-May-94

Created:09:42:49 03-May-94

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

Tuesday, May 3, 1994
C:\FTIRDATA
LCRU180.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.75e-01

9:42 **Wait**

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

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

RU180. TRANSMITTANCE

te : May 3, 1994

Time : 9hr-41min-54sec

scription: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .869

max : 1.013

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak
1

wavenumber
2349.24

intensity
.869

CYLINDER INSPECTION LOG

Form 2

Project Name: LANC-94 Date: 4-26-94 Inspector: G. Roberts

Cylinder Serial #: None Visible Dimensions: 6" x 36" H

Color: STAINLESS STEEL Owner Stamp: None Visible

DOT Rating: (3E1800) 3A2015 3AA2400 3A2215 Test Date(s): None Visible

Other: _____

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

Labels and/or Markings: Flammable GAs / Poison GAs

General Condition: Good Fair ✓ Poor _____

Valve Condition: Good Fair ✓ Poor _____

Comments: _____

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

Approved to Handle: Yes ✓ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ✓ No _____

Sample Method: Large CRV Small CRV Val ✓

Comments: _____

Sample Date: 4-27-94 Pressure: 500 PSI

Identified Contents: Hydrogen, Silane

Analytical Method: Mass Spec FTIR Other ✓

Disposition: Caustic Scrub Acid Scrub Oxidizing Carbon Mole Sieve Flare

Recontaminated: Yes ✓ No _____

Recontaminated Cylinder #: TW-H-862412/TW-H-862418/TW-H-862415

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

ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU181

MASS SPECTRUM INTERPRETATION

HYDROGEN, SILANE

Analyst Signature: _____

Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SILANE

Analyst 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: _____

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

ERC

LCRU181 ^{0.1V} ~~B~~

Elapsed Time:00:06:16

14:32 27-Apr-94

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

LCPV181 BLK

Elapsed Time:00:00:26

14:20 27-Apr-94

Created:14:27:33 27-Apr-94

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

Wednesday, April 27, 1994

14:19 **Wait**

C:\FTIRDATA

LCRU181.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:4.02e-03

F1- Curve Only

F3- Full Description

F5- Dump Values

F2- Curve and Scale

F4- Housekeeping

F6- Print Screen

RU181. TRANSMITTANCE
te : April 27, 1994

Time : 14hr-19min-22sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.000	Obs. Time	: 0min 20sec
max	: 1.032	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
1	818.48	.733
2	857.14	.108
3	910.79	-0.000
4	979.98	.133
5	1034.74	.706
6	1053.84	.745
7	2124.60	.150
8	2182.92	0.002
9	2241.01	.103
10	3154.82	.844
11	4305.30	.750

Wednesday, April 27, 1994 14:26 **Wait**
C:\FTIRDATA
LCRU181BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.00e+00

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCA4182

Date: 4-11-94 Inspector: George Roberts

Cylinder Serial #: NONE Dimensions: 4" x 14"

Color: Blue Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

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

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

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

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

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST POSITIVE FOR HYDROGEN FLUORIDE (DRAEGER)</u>	
Sample Date: <u>4-12-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>	
<u>TEST POSITIVE FOR HYDROGEN FLUORIDE & TEST</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 182

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: [Signature] Date: 4-12-94
QA Confirmation Yes ☒ No ☐
Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: [Signature] Date: 4-12-94
QA Confirmation Yes ☒ No ☐
Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR HYDROGEN FLUORIDE
(DRAEGER TEST)

Analyst Signature: [Signature] Date: 4-12-94
QA Confirmation Yes ☐ No ☒
Comments: _____

INTERPRETED RESULTS:

- TEST POSITIVE FOR HYDROGEN FLUORIDE
(DRAEGER)
- HYDROGEN DETECTED IN SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRU 182

Elapsed Time:01:51:13

10:52 12-Apr-94

Created:10:51:03 12-Apr-94

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

Tuesday, April 12, 1994

10:48

Wait

C:\FTIRDATA

LCRU182.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

RU182.TRANSMITTANCE

te : April 12, 1994

Time : 10hr-48min-2sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .942

max : 1.207

Resolution : 4.00 cm⁻¹

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak
1

wavenumber
1523.01

intensity
.942

CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4 183Date: 4-11-94 Inspector: George RibasCylinder Serial #: 78A3381 Dimensions: 3"D X 18"HColor: STAINLESS STEEL Owner Stamp: NoneDOT Rating: 3A1800 312015 3AA2400 3A2215Other: _____ Test Date(s): 10-78Cylinder Type: H.P. ✓ L.P. _____ Valve Type: 679Labels 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>TEST POSITIVE FOR HYDROGEN FLUORIDE</u>	
Sample Date: <u>4-12-94</u>	Pressure: <u>30 PSIG</u>
Identified Contents: <u>NITROGEN, tr. HYDROGEN, CARBON DIOXIDE</u>	
Analytical Method: <u>TESTOV.</u>	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 #: LCRU183

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN

Analyst Signature: _____

Date: 4-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

CARBON DIOXIDE

Analyst Signature: _____

Date: 4-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

OV. TEST POSITIVE FOR ~~DET~~ HYDROGEN FLUORIDE

Analyst Signature: _____

Date: 4-12-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS:

• HYDROGEN PEAK DETECTED IN SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRV183

Elapsed Time:00:00:31

14:58 12-Apr-94

Created:14:57:49 12-Apr-94

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

Tuesday, April 12, 1994

14:58 **Wait**

C:\FTIRDATA

LCRU183.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:9.76e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU183.TRANSMITTANCE

te : April 12, 1994

Time : 14hr-58min-17sec

Description: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .787

max : 1.003

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	418.95	.830
2	1455.98	.868
3	1506.79	.805
4	1540.51	.837
5	1557.55	.811
6	1652.06	.851
7	1683.45	.865
8	2646.98	.814
9	3733.57	.806
10	3851.31	.806

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCR4 184

Date: 5-2-94 Inspector: G. ROBERTS

Cylinder Serial #: NONE Dimensions: 1 1/2" D x 5" H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

Cylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" 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>5-3-94</u>		Pressure: <u>0 PSIG</u>	
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, ISOTOPIC CARBON</u>			
Analytical Method: <u>DISULFIDE</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 #: LCRU184

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN, ISOTOPIC CARBON
DISULFIDE

Analyst Signature: _____ Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

ISOTOPIC CARBON DISULFIDE

Analyst Signature: _____ Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• ISOTOPES OF CARBON AND SULFUR

QA or Document Officer Signature:

DATE: _____

LC#U184

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

Elapsed Time: 00:02:06

13:57 03-May-94

LCRV184 BLK

Elapsed Time:00:01:49

14:18 03-May-94

Created:14:17:23 03-May-94

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

Tuesday, May 3, 1994
C:\FTIRDATA
LCRU184.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-9.73e-04

13:56 **Wait**

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

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

RU184.TRANSMITTANCE

te : May 3, 1994

Time : 13hr-53min-57sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.001	Obs. Time	: 0min 20sec
max	: 1.007	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	1484.93	.133
2	1519.21	-0.001
3	2152.91	.393
4	2160.49	.364
5	2314.01	.838

Tuesday, May 3, 1994 14:15 **Wait**
C:\FTIRDATA
LCRU184BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.20e-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 185Date: 4-29-94 Inspector: G. RobardCylinder Serial #: NONE Dimensions: 2" D x 10" HColor: STAINLESS STEEL Owner Stamp: _____DOT Rating: 3E1800 3A2015 3AA2400 3A2215Other: 3A1800 Test Date(s): NONE VISIBLECylinder Type: H.P. ☒ L.P. _____ Valve Type: 1/4" SWAGE-LOC

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: 5-2-94 Pressure: 250 PSIGIdentified Contents: ISOTOPIC CARBON MONOXIDE, HYDROGENAnalytical Method: TRACE CARBON DIOXIDE Mass Spec _____ FTIR ☒ Other _____

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes ☒ No _____Recontainerized Cylinder #: TW-H-862394

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCPV185

MASS SPECTRUM INTERPRETATION

HYDROGEN, ISOTOPIC CARBON MONOXIDE

Analyst Signature: [Signature] Date: 5-2-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

ISOTOPIC CARBON MONOXIDE, TRACE CARBON
DIOXIDE

Analyst Signature: [Signature] Date: 5-2-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

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ERC

LCRU185

Elapsed Time:00:03:10

10:14 02-May-94

Created:10:07:32 02-May-94

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

LCRU185 BLK

Elapsed Time:00:00:19

10:24 02-May-94

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

Monday, May 2, 1994
C:\FTIRDATA
LCRU185.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:4.40e-01

10:06 **Wait**

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

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

RU185.TRANSMITTANCE
te : May 2, 1994

Time : 10hr-3min-55sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .411	Obs. Time	: 0min 20sec
max	: .999	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	668.31	.882
2	2066.72	.495
3	2120.78	.411
4	2345.20	.726

Monday, May 2, 1994 10:20 Wait
C:\FTIRDATA
LCRU185BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:6.78e-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 #: LCRU 186Date: 5-2-94 Inspector: G. ROBERTSCylinder Serial #: 80H820 Dimensions: 2" D X 12" HColor: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: W.P. 5000 Test Date(s): 3-80Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 1/4" SWAGELOKLabels and/or Markings: NONEGeneral 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>5-3-94</u>	Pressure: <u>200 PSIG</u>
Identified Contents: <u>HYDROGEN CHLORIDE, SILICON TETRAFLUORIDE</u>	
<u>TRACE NITROGEN, TRACE HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☐ Other ☐
Disposition: _____	Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐
	Mole Sieve ☐ Flare ☐
Recontainerized: _____	Yes ☐ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 186

MASS SPECTRUM INTERPRETATION

HYDROGEN CHLORIDE, TRACE SILICON TETRAFLUORIDE
TRACE NITROGEN, TRACE HYDROGEN

Analyst Signature: OT/ajps Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

HYDROGEN CHLORIDE, SILICON TETRAFLUORIDE

Analyst Signature: OT/ajps Date: 5-3-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____ Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

• LCRU 186 FTIR ANALYSIS PENDING FURTHER EVALUATION

QA or Document Officer Signature: _____

DATE: _____

LCCU 186

Elapsed Time:00:00:37

14:28 03-May-94

Created:14:23:32 03-May-94

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

LC20186 BLK

Elapsed Time:00:02:01

14:44 03-May-94

Created:14:43:29 03-May-94

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

Tuesday, May 3, 1994
C:\FTIRDATA
LCRU186.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:6.26e-03

14:25 Wait

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

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

RU186. TRANSMITTANCE
te : May 3, 1994

Time : 14hr-21min-43sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 0.002	Obs. Time	: 0min 20sec
max	: 1.037	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	858.10	.785
2	991.31	.361
3	1027.16	0.000
4	1029.97	.852
5	1031.86	.847
6	1033.71	.835
7	1045.32	.832
8	1056.74	.846
9	1068.00	.860
10	1120.67	.839
11	1130.43	.835
12	1140.06	.832
13	1149.56	.833
14	1158.77	.834
15	1315.25	.745
16	1701.29	.838
17	1726.11	.767
18	1750.01	.679
19	1774.02	.637
20	1797.17	.571
21	1819.47	.519
22	1841.83	.561
23	1863.73	.667
24	1904.29	.661
25	1923.64	.568
26	1942.87	.498
27	1961.97	.534
28	1979.42	.580
29	1996.13	.649
30	2013.28	.738
31	2027.70	.800
32	2043.12	.857

	Tuesday, May 3, 1994 C:\FTIRDATA LCRU186BLK.TRANSMITTANCE Print Screen Zoom: 1/4 Y:1.00e+00	14:47	Wait
--	---	-------	------

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 #: LCRU 187Date: 4-25-94 Inspector: G. RobertsCylinder Serial #: NONE VISIBLE Dimensions: 2" P X 10" HColor: STAINLESS STEEL Owner Stamp: NONEDOT Rating: 3E1800 3A2015 3AA2400 3A2215Other: _____ Test Date(s): NONE VISIBLECylinder Type: H.P. ✓ L.P. _____ Valve Type: 1/4" SWAGELOCKLabels 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: TEST NEGATIVE FOR FLUORINE (DRAEGER TEST)Sample Date: 4-26-94 Pressure: 33 PSIGIdentified Contents: ISOTOPIC CARBON DIOXIDEAnalytical Method: Mass Spec ✓ FTIR ✓ Other DRAEGER

Disposition: Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____

Mole Sieve _____ Flare _____

Recontainerized: Yes _____ No ✓

Recontainerized Cylinder #: _____

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 187

MASS SPECTRUM INTERPRETATION

ISOTOPIC CARBON DIOXIDE

Analyst Signature: Ovarjas

Date: 4-26-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

ISOTOPIC CARBON DIOXIDE

Analyst Signature: Ovarjas

Date: 4-26-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAGER TUBE)

Analyst Signature: Ovarjas

Date: 4-26-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• POSSIBLE C¹³ ISOTOPE

QA or Document Officer Signature:

DATE: _____

LCPV 187

Elapsed Time:00:00:26

10:57 26-Apr-94

Created:10:26:53 26-Apr-94

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

LCRU 187 BLK

Elapsed Time:00:00:23

10:45 26-Apr-94

Created:10:42:41 26-Apr-94

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

Tuesday, April 26, 1994 10:42 Wait
C:\FTIRDATA
LCRU187.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:-1.86e-03

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

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

CRU187.TRANSMITTANCE

ate : April 26, 1994

Time : 10hr-23min-10sec

escription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: -0.002	Obs. Time	: 0min 20sec
max	: 1.018	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	647.41	0.023
2	720.08	.640
3	2267.76	-0.002
4	3508.00	.636
5	3540.21	.694
6	3611.14	.458
7	3646.23	.371

Tuesday, April 26, 1994 10:41 Wait
C:\FTIRDATA
LCRU187BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.50e-01

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

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRH 188

Date: 5-2-94 Inspector: G. ROBERTS

Cylinder Serial #: WIA-8034 Dimensions: 3 1/2" D x 11" H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 3A1800 Test Date(s): 6-79

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

Labels and/or Markings:
None

General Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Valve Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

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

Approved to Handle: Yes ☒ No ☐

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No ☐

Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-3-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE HYDROGEN</u>	
Analytical Method: <u>TRACE CARBON DIOXIDE</u>	
Mass Spec ☒	FTIR ☒ Other <u>DRAEGER</u>
Disposition:	Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐
	Mole Sieve ☐ Flare ☐
Recontainerized:	Yes ☐ No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU188

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: *Olavos* Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: *Olavos* Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: *Olavos* Date: 5-3-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature:

DATE: _____

LCRU 188

Elapsed Time:00:00:21

10:13 03-May-94

Created:10:11:32 03-May-94

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

Tuesday, May 3, 1994
C:\FTIRDATA
LCRU188.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.51e-01

10:10 **Wait**

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

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

RU188.TRANSMITTANCE
te : May 3, 1994

Time : 10hr-10min-37sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .849	Obs. Time	: 0min 20sec
max	: 1.006	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	2349.38	.849

Form 2 CYLINDER INSPECTION LOG

Project Name: LAU-94 ERC #: LCR4189

Date: 4-29-94 Inspector: G. B. XO

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

Color: Stainless Steel Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: None Test Date(s): 6-77

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

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 (DEACETABUTYLE)</u>	
Sample Date:	<u>6-6-94</u>	Pressure: <u>0 PSI</u>
Identified Contents:	<u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>	
Analytical Method:	<u>Mass Spec</u>	<u>FTIR</u>
Disposition:	<u>Caustic Scrub</u>	<u>Acid Scrub</u>
	<u>Oxidizing Carbon</u>	<u>Mole Sieve</u>
	<u>Flare</u>	<u>No</u>
Recontaminated:	<u>Yes</u>	<u>No</u>
Recontaminated Cylinder #:		

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

ERC

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU189

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Ovaras Date: 6-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: Ovaras Date: 6-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: Ovaras Date: 6-6-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCPU 189

Elapsed Time:00:00:49

10:14 06-Jun-94

Created:10:10:31 06-Jun-94

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

Monday, June 6, 1994 10:19 Wait
C:\FTIRDATA
LCRU189.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.99e-01

5001 2700 399

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

RU189.TRANSMITTANCE
ite : June 6, 1994

Time : 10hr-19min-48sec

Description: CRV SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .995	Obs. Time	: 0min 20sec
max	: 1.010	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

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

CYLINDER INSPECTION LOG

Form 2

Project Name: IANL-94 ERC #: LCR4 190

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

Cylinder Serial #: NONE Dimensions: 2" D X 9" H

Color: STAINLESS STEEL Owner Stamp: None

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): 6-78

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

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>5-9-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, TRACE HYDROGEN, SMALL TRACE SILICON</u>	
<u>TETRAFLUORIDE, TRACE CARBON DIOXIDE, POS. 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>TW-H-826388</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU190

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE HYDROGEN, SMALL TRACE SILICON
TETRAFLUORIDE

Analyst Signature: O'Varys Date: 5-9-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

SMALL TRACE SILICON TETRAFLUORIDE

Analyst Signature: O'Varys Date: 5-9-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: O'Varys Date: 5-9-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 190

Elapsed Time:00:00:22

14:12 09-May-94

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

LCRU 190 BLK

Elapsed Time:00:09:37

14:25 09-May-94

Created:14:25:16 09-May-94

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

Monday, May 9, 1994 14:23 **Wait**
C:\FTIRDATA
LCRU190.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

RU190.TRANSMITTANCE

te : May 9, 1994

Time : 14hr-10min-1sec

scription: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : .816
max : 1.052
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	1557.68	.816
2	2347.84	.839

Monday, May 9, 1994 14:24 **Wait**
C:\FTIRDATA
LCRU190BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.77e-01

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

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 191
Date: 4-29-94 Inspector: G. R. BIRD
Cylinder Serial #: NONE Dimensions: 1 1/2" X 5" H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3A1800 ~~3A~~ 3B400 Test Date(s): NONE VISIBLE
Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 1/4" SWAGELOK
Labels and/or Markings: NONE
General Condition: Good ☒ Fair ☐ Poor ☐
Comments: _____
Valve Condition: Good ☒ Fair ☐ Poor ☐
Comments: _____
Pre-operation Weight: _____ Post-operation Weight: _____
Approved to Handle: Yes ☒ No ☐
Handling Precautions: _____
Approved for Valve Sampling: Yes ☒ No ☐
Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____	
Sample Date: <u>5-2-94</u>	Pressure: <u>0 PSIG</u>
Identified Contents: <u>NITROGEN, OXYGEN, TRACE HYDROGEN, TRACE SILICON</u>	
Analytical Method: <u>TETRAFLUORIDE, CARBON DIOXIDE</u>	
Mass Spec ☒ FTIR ☒ Other ☐	
Disposition: Caustic Scrub ☐ Acid Scrub ☐ Oxidizing Carbon ☐	
Mole Sieve ☐ Flare ☐	
Recontainerized: Yes ☐ No ☒	
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 191

MASS SPECTRUM INTERPRETATION

NITROGEN, OXYGEN, TRACE HYDROGEN

Analyst Signature: OVargas

Date: 5-2-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

TRACE SILICON Tetrafluoride, CARBON DIOXIDE

Analyst Signature: OVargas

Date: 5-2-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRV191

Elapsed Time:00:00:58

09:44 02-May-94

Created:09:42:50 02-May-94

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

Monday, May 2, 1994
C:\FTIRDATA
LCRU191.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:9.52e-01

15:35 Wait

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

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

RU191.TRANSMITTANCE

te : May 2, 1994

Time : 9hr-41min-11sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .855	Obs. Time	: 0min 20sec
max	: 1.015	Source	: Glowbar
Resolution	: 4.00 cm ⁻¹	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	2349.58	.855

Monday, May 2, 1994 9:54 **Wait**
C:\FTIRDATA
LCRU191BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.39e-01

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

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

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRH192

Date: 4-11-94 Inspector: George Robin

Cylinder Serial #: ~~None Visible~~ P102 Dimensions: 3" x 28" H

Color: STAINLESS STEEL Owner Stamp: NONE VISIBLE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

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

Labels and/or Markings:
NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

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

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: _____

Sample Date: 4-11-94 Pressure: 0 PSIG

Identified Contents: KRYPTON, NITROGEN, HYDROGEN, ^{0%} OXYGEN

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 #: LCPV192

MASS SPECTRUM INTERPRETATION

KRYPTON, NITROGEN, HYDROGEN, OXYGEN

Analyst Signature: _____

Date: 4-11-94

QA Confirmation

Yes ☒

No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: _____

Date: 4-11-94

QA Confirmation

Yes ☒

No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation

Yes ☐

No ☐

Comments: _____

INTERPRETED RESULTS:

- KRYPTON IS PRIMARY CONTENT
- HYDROGEN DETECTED IN SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRU192

Elapsed Time:00:02:07

16:05 11-Apr-94

Created:16:00:17 11-Apr-94

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

LCRU192BLK

Elapsed Time:00:01:09

16:11 11-Apr-94

Created:16:10:25 11-Apr-94

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

Monday, April 11, 1994

16:04 **Wait**

C:\FTIRDATA

LCRU192.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

RU0192.TRANSMITTANCE
te : April 11, 1994

Time : 16hr-1min-11sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .985	Obs. Time	: 0min 20sec
max	: 1.026	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 #: LCR4 193

Date: 4-11-94 Inspector: George Roberts

Cylinder Serial #: 75B208 Dimensions: 3"D x 28"H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: 3B400 Test Date(s): 5-75

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

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>4-11-94</u>	Pressure: <u>0 PSI G</u>
Identified Contents: <u>KRYPTON, TRACE NITROGEN, & 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 #: LCRV193

MASS SPECTRUM INTERPRETATION

KRYPTON, TRACE HYDROGEN, TRACE NITROGEN

Analyst Signature: [Signature]

Date: 4-11-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: [Signature]

Date: 4-11-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

- PRIMARY CONTENT OF KRYPTON DETECTED IN MASS SPEC
- HYDROGEN PEAK IN SYSTEM

QA or Document Officer Signature:

DATE: _____

LCRU193

Elapsed Time:00:00:26

16:27 11-Apr-94

Created:16:26:29 11-Apr-94

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

LCRU193 BLK

Elapsed Time:00:00:19

16:36 11-Apr-94

Created:16:36:02 11-Apr-94

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

Monday, April 11, 1994

16:22 Wait

C:\FTIRDATA

LCRU193.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:1.05e+00

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU193.TRANSMITTANCE
te : April 11, 1994

Time : 16hr-18min-59sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: 1.037	Obs. Time	: 0min 20sec
max	: 1.070	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: LANE-94 ERC #: LCR4194

Date: 5-3-94 Inspector: G. ROBERTS

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

Color: Brown/Pink Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

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

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>5-4-94</u>	Pressure: <u>90 PSIG</u>
Identified Contents: <u>CARBON TETRAFLUORIDE, TRACE NITROGEN,</u>	
<u>TRACE HYDROGEN</u>	
Analytical Method: <u>Mass Spec</u> ☒	FTIR ☒ Other _____
Disposition: <u>Caustic Scrub</u> _____	Acid Scrub _____ Oxidizing Carbon _____
Mole Sieve _____ Flare _____	
Recontainerized: Yes _____	No ☒
Recontainerized Cylinder #: _____	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU194

MASS SPECTRUM INTERPRETATION

CARBON TETRAFLUORIDE, TRACE NITROGEN,
TRACE HYDROGEN

Analyst Signature: [Signature] Date: 5-4-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

CARBON TETRAFLUORIDE

Analyst Signature: [Signature] Date: 5-4-94

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: _____

LCRU194

Elapsed Time:00:00:30

14:03 04-May-94

Created:13:55:56 04-May-94

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

LCRU194 BLK

Elapsed Time:00:00:25

14:11 04-May-94

MASS

Created:14:10:27 04-May-94

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

Wednesday, May 4, 1994

13:56 Wait

C:\FTIRDATA

LCRU194.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:-7.44e-04

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU194. TRANSMITTANCE

te : May 4, 1994

Time : 13hr-54min-9sec

scription: VALVE SAMPLE

Sigma min : 399.19
max : 5000.52
Ampl. min : -0.001
max : .981
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	612.25	.344
2	629.98	.349
3	650.59	.359
4	1066.24	.816
5	1264.70	-0.001
6	1341.36	.830
7	1518.40	.374
8	1536.99	.346
9	1555.95	.463
10	1707.62	.744
11	1908.97	.716
12	2142.71	.811
13	2218.86	0.044
14	2349.50	.825
15	2555.08	.457

Wednesday, May 4, 1994
C:\FTIRDATA
LCRU194BLK.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:7.39e-01

14:09 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 #: ICAU 195
Date: 5-5-94 Inspector: G. ROBERTS
Cylinder Serial #: 728625 Dimensions: 3 1/2" x 10" H
Color: STAINLESS STEEL Owner Stamp: NONE
DOT Rating: 3E1800 3A2015 3AA2400 3A2215
Other: 3B 400 Test Date(s): 8-72
Cylinder Type: H.P. _____ L.P. ✓ Valve Type: 3/8" 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)</u>		
Sample Date:	<u>5-6-94</u>	Pressure:	<u>0 PSIG</u>
Identified Contents:	<u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN</u>		
Analytical Method:	Mass Spec _____	FTIR <u>✓</u>	Other <u>DRAEGER</u>
Disposition:	Caustic Scrub _____	Acid Scrub _____	Oxidizing Carbon _____
		Mole Sieve _____	Flare _____
Recontainerized:	Yes <u>✓</u>	No _____	
Recontainerized Cylinder #:	<u>569193</u>		

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU195

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: ovargas Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

FTIR INTERPRETATION

N/D

Analyst Signature: ovargas Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR FLUORINE (DRAEGER TUBE)

Analyst Signature: ovargas Date: 5-6-94

QA Confirmation Yes ☐ No ☒

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU195

Elapsed Time:00:00:56

14:43 06-May-94

Created:14:42:55 06-May-94

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

Friday, May 6, 1994 14:42 **Wait**
C:\FTIRDATA
LCRU195.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.04e+00

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

RU195. TRANSMITTANCE
te : May 6, 1994

Time : 14hr-42min-37sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .972	Obs. Time	: 0min 20sec
max	: 1.141	Source	: Glowbar
Resolution	: 4.00 cm-1	Beamsplitter	: KBr
Detector	: DTGS 2mm	Apodization	: Cosine
Mode	: IR		

tolerance= 10.0% centre of gravity method

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

#peak	wavenumber	intensity
1	1603.86	1.020

Form 2
CYLINDER INSPECTION LOG

Project Name: LANL-94 ERC #: LCRU 196

Date: 5-3-94 Inspector: G ROBERTS

Cylinder Serial #: 76B275 Dimensions: 4"D X 16"H

Color: STAINLESS STEEL Owner Stamp: NONE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: 38400 Test Date(s): 6-76

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

Labels and/or Markings: NONE

General Condition: Good ☒ Fair _____ Poor _____

Comments: _____

Valve Condition: Good ☒ Fair _____ Poor _____

Comments: _____

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

Approved to Handle: Yes ☒ No _____

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No _____

Sample Method: Large CRV _____ Small CRV _____ Val ☒

Comments: <u>TEST NEGATIVE FOR FLUORINE (DRAEGER TUBE)</u>	
Sample Date: <u>5-4-94</u>	Pressure: <u>0 PSI G</u>
Identified Contents: <u>NITROGEN, TRACE OXYGEN, TRACE HYDROGEN, TRACE CARBON DIOXIDE</u>	
Analytical Method: <u>Mass Spec</u> ☒ <u>FTIR</u> ☒ 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 196

MASS SPECTRUM INTERPRETATION

NITROGEN, TRACE OXYGEN, TRACE HYDROGEN

Analyst Signature: Orlano

Date: 5-4-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

TRACE CARBON DIOXIDE

Analyst Signature: Orlano

Date: 5-4-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST NEGATIVE FOR FLUORINE (DRAGER TUBE)

Analyst Signature: Orlano

Date: 5-4-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS: _____

QA or Document Officer Signature: _____

DATE: _____

LCRU 196

Elapsed Time:00:00:49

10:43 04-May-94

Created:10:40:16 04-May-94

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

Wednesday, May 4, 1994

10:39 Wait

C:\FTIRDATA

LCRU196.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:7.66e-01

F1- Curve Only

F2- Curve and Scale

F3- Full Description

F4- Housekeeping

F5- Dump Values

F6- Print Screen

RU196.TRANSMITTANCE
te : May 4, 1994

Time : 10hr-38min-41sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .730	Obs. Time	: 0min 20sec
max	: .996	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	2349.68	.730

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCRU 197

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

Cylinder Serial #: NONE VISIBLE Dimensions: 6"D X 36"H

Color: STAINLESS STEEL Owner Stamp: NONE VISIBLE

DOT Rating: 3E1800 3A2015 3AA2400 3A2215

Other: _____ Test Date(s): NONE VISIBLE

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

Labels and/or Markings:
FLAMMABLE GAS / POISON GAS

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>500 PSIG</u>
Identified Contents: <u>SILANE, HYDROGEN</u>	
Analytical Method: _____	Mass Spec ☒ FTIR ☒ Other _____
Disposition: _____	Caustic Scrub _____ Acid Scrub _____ Oxidizing Carbon _____
	Mole Sieve _____ Flare _____
Recontainerized: _____	Yes ☒ No _____
Recontainerized Cylinder #: <u>TW-H-862412/TW-H-862418/TW-H-826371</u>	

Form 4
ANALYTICAL SUMMARY FORM

OVERPACK #: _____

CYLINDER #: LCRU 197

MASS SPECTRUM INTERPRETATION

HYDROGEN, SILANE

Analyst Signature: ovayos

Date: 4-27-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

SILANE

Analyst Signature: ovayos

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: _____

LCRU 197

Elapsed Time:00:00:45

11:15 27-Apr-94

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

LCRV197 BLK

Elapsed Time:00:00:25

13:07 27-Apr-94

Created:13:06:48 27-Apr-94

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

Wednesday, April 27, 1994

11:13 Wait

C:\FTIRDATA

LCRU197.TRANSMITTANCE

Print Screen

Zoom: 1/4 Y:2.04e-02

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

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

RU197. TRANSMITTANCE
Date : April 27, 1994

Time : 11hr-11min-11sec

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	: 1.046	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	857.16	.158
2	898.21	-0.001
3	932.77	0.000
4	980.56	.207
5	1034.78	.642
6	1124.74	.242
7	1183.15	0.003
8	1240.62	.189
9	3154.87	.879
10	4305.42	.825

Wednesday, April 27, 1994 13:29 Wait
C:\FTIRDATA
LCRU197BLK.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: LANL-94 ERC #: LCRA 198

Date: 4-11-94 Inspector: George Roberts

Cylinder Serial #: H5-014594 Dimensions: 8 1/2" D x 54" H

Color: BLUE Owner Stamp: LANL

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: 3AA 2265 Test Date(s): 1-77

Cylinder Type: H.P. ☒ L.P. ☐ Valve Type: 679

Labels and/or Markings:
F2 LASER MIXTURE

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 FLUORIDE (DRAEGER)</u>	
Sample Date: <u>4-12-94</u>	Pressure: <u>48 PSIG</u>
Identified Contents: <u>HELIUM, NEON, NITROGEN, HYDROGEN, OXYGEN</u>	
Analytical Method: <u>TEST POSITIVE FOR HYDROGEN FLUORIDE</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 #: LCRV198

MASS SPECTRUM INTERPRETATION

NITROGEN, HELIUM, HYDROGEN, NEON, OXYGEN

Analyst Signature: O Vargas

Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: O Vargas

Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

TEST POSITIVE FOR HYDROGEN FLUORIDE (DRAEGER TUBE)

Analyst Signature: _____

Date: 4-12-94

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

• TEST POSITIVE FOR HYDROGEN FLUORIDE (DRAEGER)

QA or Document Officer Signature: _____

DATE: _____

LCRU198

Elapsed Time:00:01:31

14:06 12-Apr-94

Created:13:53:51 12-Apr-94

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

L CRU198 BLK

Elapsed Time:00:00:45

14:10 12-Apr-94

Created:14:10:09 12-Apr-94

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

Tuesday, April 12, 1994 13:51 **Wait**
C:\FTIRDATA
LCRU198.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:8.90e-01

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

RU198.TRANSMITTANCE
te : April 12, 1994

Time : 13hr-49min-7sec

scription: VALVE SAMPLE

Sigma min	: 399.19	#Scans	: 4
max	: 5000.52	Speed	: .18 cm/sec
Ampl. min	: .763	Obs. Time	: 0min 20sec
max	: 1.091	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	1529.57	.763

Form 2
CYLINDER INSPECTION LOG

Project Name: LANC-94 ERC #: LCR4199

Date: 4-11-94 Inspector: George R. B. J.

Cylinder Serial #: N293889 Dimensions: 8 1/2" x 54"

Color: PURPLE NECK RING / SILVER Owner Stamp: AMCO Inc

DOT Rating: 3E1800 312015 3AA2400 3A2215

Other: 3AA 2265 Test Date(s): 3-78

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

Labels and/or Markings:
PURE NEON

General Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

Valve Condition: Good ☒ Fair ☐ Poor ☐

Comments: _____

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

Approved to Handle: Yes ☒ No ☐

Handling Precautions: _____

Approved for Valve Sampling: Yes ☒ No ☐

Sample Method: Large CRV ☐ Small CRV ☐ Val ☒

Comments: _____

Sample Date: 4-12-94 Pressure: 100 PSI'G

Identified Contents: NEON, NITROGEN, TRACE HYDROGEN, OXYGEN

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 #: LCRU199

MASS SPECTRUM INTERPRETATION

NEON, NITROGEN, OXYGEN, trace HYDROGEN

Analyst Signature: _____

Date: 4-12-94

QA Confirmation Yes ☒ No ☐

Comments: _____

FTIR INTERPRETATION

N/A

Analyst Signature: _____

Date: 4-12-94

QA Confirmation Yes ☒ No ☐

Comments: _____

COLORIMETRIC OR OTHER INTERPRETATION

Analyst Signature: _____

Date: _____

QA Confirmation Yes ☐ No ☐

Comments: _____

INTERPRETED RESULTS:

- PRIMARY CONTENT (NEON) IS NITROGEN (AIR)
- HYDROGEN IN SYSTEM

QA or Document Officer Signature: _____

DATE: _____

LCRU199

Elapsed Time:00:01:19

11:21 12-Apr-94

Created:11:18:37 12-Apr-94

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

LCRU199BLK

Elapsed Time:00:01:06

11:27 12-Apr-94

Created:11:26:41 12-Apr-94

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

Tuesday, April 12, 1994 11:15 Wait
C:\FTIRDATA
LCRU199.TRANSMITTANCE
Print Screen
Zoom: 1/4 Y:1.02e+00

5001 2700 399

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

RU199. TRANSMITTANCE

te : April 12, 1994

Time : 11hr-15min-15sec

scription: VALVE SAMPLE

Sigma min : 399.19

max : 5000.52

Ampl. min : .900

max : 1.132

Resolution : 4.00 cm-1

Detector : DTGS 2mm

Mode : IR

#Scans : 4

Speed : .18 cm/sec

Obs. Time : 0min 20sec

Source : Glowbar

Beamsplitter : KBr

Apodization : Cosine

tolerance= 10.0%

centre of gravity method

Sigma min (window) : 399.19

Sigma max (window) : 5000.52

#peak

1

wavenumber

1506.81

intensity

.900