



January 11, 2019

Materials Licensing Branch
United States Nuclear Regulatory Commission, Region III
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

Eli Lilly and Company

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RADIOACTIVE MATERIALS LICENSE NUMBER: 13-01133-02

RE: Additional information for request to remove location of use

Sara,

The attached document is in response to your request for additional information in support of Amendment 71 to remove Elanco World Headquarters (Line item 10D) as a location of use from our Broad Scope license originally submitted on October 12, 2018.

As the license is not expiring or being terminated, Form 314 is not applicable. In accordance with 10 CFR 30.36(j), attached is information supporting the cessation of licensed activities at this site and surveys verifying removal of radioactive material such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA.

Please feel free to contact me for clarification of any of the included answers or for any additional questions.

Sincerely,

Trenton L. Mays, M.S., CHP
Radiation Safety Officer
Telephone: 317-276-2747
Email: t.mays@lilly.com

enclosure

The following information was requested by email from Sara Forster on December 19, 2018 and we agreed I would follow up by January 11, 2019 instead of the originally requested January 3, 2019 in our subsequent phone call on December 20, 2018.

To facilitate our continued review of your request, please provide additional information – via a signed and dated cover letter and resubmitted supporting information - as noted:

1. [NRC Form 314](#) for the Greenfield facility, signed by you or other duly authorized individual;

[Lilly Response: Equivalent information per 10 CFR 30.36\(j\) is supplied below as the license has not expired and is not being terminated.](#)

2. Final disposition of all licensed material used or stored at the Greenfield location of use including:
 - History of radioactive materials use at the licensee's facilities (e.g. unsealed carbon-14, sealed sources and any other radionuclides, as applicable) including for all areas where radioactive material was used or stored. (Please indicate each radionuclide, form, and maximum quantity possessed in each area – or in the building – under the license, as well as the dates on which such radionuclides were used or stored.)

[Elanco Headquarters was approved as a location under the Lilly Broad Scope License on February 8, 2010. Labs A116 and A117 were commissioned for use on March 22, 2010. The labs were used to store and prepare for transfer solid and liquid vials containing ¹⁴C labeled compounds totaling approximately 200 mCi \(approximately 40 vials averaging 5 mCi each with a maximum activity in one vial of 30 mCi\).](#)

[One additional lab was approved at the Elanco Headquarters location for housing a sealed source \(Ni-63 Electron Capture Detector\). The sealed source was returned to the vendor \(Agilent Technologies\) on November 22, 2013. Leak tests of the source were performed under the Broad Scope license between March, 12, 2010 and the date of the last test performed the day of return on November 22, 2013. No results of leaking were identified on any leak tests.](#)

- Last date material was used at the licensee's facilities, including the building overall and for each room where radioactive material was used.

[Periodic shipments of material took place during the time the lab was approved, with the final remaining vials being transferred out on June 5, 2014.](#)

- Last date that material was stored at the licensee's facilities.

The last remaining vials were transferred out of Elanco Headquarters on June 5, 2014.

- For any items disposed of via decay-in-storage, confirmation that radioactive materials labels were removed and container surveyed prior to disposal. (Please indicate the final disposition date for any such waste removed from the referenced facilities.)

No items were disposed of via decay-in-storage.

- For any material dispositioned via return to the manufacturer or transfer to another radioactive materials licensee, a letter confirming receipt.

License verification for receipt of radioactive materials was obtained prior to shipping radioactive material outside of the Lilly Broad Scope license. Confirmation of receipt was not requested at the time and is not available for transfers to other licensees.

- For any material dispositioned as radioactive waste, a copy of the radioactive waste manifest and documentation confirming that the recipient waste facility was authorized to receive such materials.

All radioactive waste was processed in keeping with waste programs and procedures under the Broad Scope license.

3. Most recent leak tests for sealed sources used or stored at the Greenfield, Indiana location of use under the license including:

- Date of survey, name of individuals conducting the survey, and survey results.

The last leak test for the ⁶³Ni ECD source noted in the response to question 2 was completed on November 22, 2013. A screenshot of the database information for this leak test including the information requested is attached.

- Description of any history of leaking sources OR confirmation that there were no leaking sources, under the license, at the Greenfield, Indiana location of use.

There were no leaking sources at the Elanco Headquarters location listed on the license.

4. Final survey results for an areas where radioactive material was used or stored under the license – at the Greenfield, Indiana, location of use - including:

- Date of survey, name of individuals conducting the survey, and survey results.

Addressed in item 6 below.

- Description of instrumentation used to conduct the survey including calibration data.

Survey meter calibration and efficiency forms are attached. A database screenshot that provides calibration information is attached for one meter as the paper record is in off-site storage (it can be retrieved if needed).

Liquid scintillation counter results are attached to each survey.

- Map of the area for which surveys were provided, including numbered locations keyed to the survey results.

Maps of the lab and areas surveyed are included with the attached surveys.

5. For any items (1 through 4) above for which you are unable to respond in full, please provide an explanation as to why the information is unavailable or otherwise cannot be provided with your response.

N/A

6. Please provide a brief description of any decommissioning (disposals, area surveys, dismantling, etc.) conducted in the referenced facilities, as applicable.

Comprehensive surveys were performed during closeout of labs A117 and A116. Initial surveys and final survey are attached with highlights of additional surveys showing decontamination progress noted below. All dpm values listed below should be read as values per 100cm². All work and surveys were conducted by or under the direct supervision of a radiation safety staff health physicist.

Survey 1 June 27, 2014 (attached): Initial scoping surveys of lab A116 and A117

- A116 results showed no contamination.
- A117 results showed results above 200 dpm on
 - 2 wall locations (216 dpm and 589 dpm)
 - 5 locations inside the balance enclosure (6936 dpm to 304 dpm)
 - 1 location on the ventilation grid (916 dpm).

Survey 2 July 8, 2014: Survey after decontamination of areas listed on survey 1 and removal of the ventilation grid as rad waste.

- All locations in Survey 1 showed no contamination
- New survey of ventilation recess after grid was removed
 - 5 locations (3257 dpm to 278 dpm)

Survey 3 July 21, 2014: Survey of balance enclosure after filter was removed and disposed of as radioactive waste.

- All results showed no contamination

Survey 4 July 21, 2014: Survey of roof and orbital strobe; survey of ventilation recess after cleaning locations in Survey 2.

- Results showed no contamination on roof or orbital strobe
- Results of ventilation recess showed no contamination
- Results of flex duct prior to removal to rad waste (1049 dpm)

Survey 5 July 30, 2014: Survey of ductwork in A116 (holes cut in both ends of ductwork to allow access for wipe tests).

- Results showed no contamination (99 dpm max) (*note this section of ductwork was removed as rad waste on October 6, 2014)

Survey 6 October 6, 2014: Removal of all ductwork in A117 and A116 going back to main connection point outside of A116 as rad waste.

- Results of survey main line showed no contamination

Survey 7 October 10, 2014 (attached): Final confirmatory survey of A117 after all of the ductwork and balance enclosure was removed.

- Results showed no contamination.

Final Leak Test Record from Database
(paper record in storage)

Editing Sealed Source History Record	
Mfg. Serial #	U6340
History Type	<input checked="" type="radio"/> LeakTest <input type="radio"/> Inventory <input type="radio"/> Other
Procedure Date	11/22/2013
Removable Activity	1.00700E-05 uCi Unit
Pass?	<input checked="" type="checkbox"/>
Performed by	2076332 Mahin, Alisha
Comments	Clean (The leak test results were <0.0005 uCi.)
Notes	

Leak Test Calculation

Isotope	Ni-63	HalfLife (days)	36536.5
<input type="checkbox"/> Alpha Emitter?		Last Leaktest	11/22/2013
Efficiency	0.85000000		
Background	28	Background Time	1
Counts	47	Count Time	1 min.
Count Date			

Calculate Result

Net cpm	19
Activity (DPM)	22.35294000
MDA uCi	1.46700E-05

Database Record of Survey Calibration for Meter
27797 (Paper record in Storage)

Editing Meter History Record

Serial # 27797

Calib. Type DUAL CAL

History Type ☒ mR/hr
☐ Eff. Cal.
☐ I-125 Eff.
☐ Other

Date 02/12/2014

Performed by 2076332

Pass/Fail Pass

Probe Serial #

Comments

Editing Meter History Record

Serial # 27797

Calib. Type DUAL CAL

History Type ☐ mR/hr
☒ Eff. Cal.
☐ I-125 Eff.
☐ Other

Date 02/19/2014

Performed by 115219

Pass/Fail Pass

Probe Serial #

Comments

Survey Meter Calibration for Instrument 27796

Radiation Survey Instrument Calibration for Dose Rate (Radiation Level)
Data Sheet – Eli Lilly & Company

Owner	Location	Calibration Date
Radiation Safety		Nov 25, 2013

Instrument	Meter Body	Probe
Type:	digital	Pancake
Mfgr:	SE International	-----
Model:	Inspector	-----
Serial No.	27796	-----
Lilly Inv. No.		

Calibration Source Data

Source #: S-684 Nuclide: ^{137}Cs Calibrated Exp. Rate @ 1 m: 47.3 mR/hr on 6/29/1989
 Decay Corrected Exp. Rate @ 1 m: 2708 mR/hr on Sep 30, 2013
 Low Range Scales Distance: 8 mR/hr at 1.84 meters
 High Range Scales Distance: 80 mR/hr at 0.58 meters

Pass Physical Check Yes No (If "No", state problem):

	A	X ₁				B	A/B
Scale	True mR/hr	Distance, cm	Attenuators			Observed mR/hr	mR/hr after adjustment
			0.1	0.1	0.25		
NA	0.2	184.0		X	X	0.197	1.02
NA	0.8	184.0		X		0.842	0.95
NA	2.0	184.0			X	2.160	0.93
NA	8.0	184.0				8.813	0.91
NA	20.0	58.2			X	21.08	0.95
NA	80.0	58.2				87.84	0.91

At high dose rate (2 to 5 times maximum range) meter reads "high off scale": ☒ Yes ☐ No
 (If "No", state problem):

Background: 0.02 mR/hr

Check source attached? Yes ☒ No ☐ If Yes, reading on contact: _____ mR/hr

Final Status: ☒ Pass ☐ Fail

Comments:

Signature: Alshu Mar

sm

Data Sheet – Eli Lilly and Company

M490281

Owner	Location	Calibration Date
R.S.	98/A/1115	12-02-13

Instrument	Meter Body	Probe
Type:	MULTI SCALE	PGM
Mfgr:	SE. INTERNATIONAL	
Model:	INSPECTOR	
Serial No.:	27796	

Pass Physical Check: ☒ Yes ☐ No (If "No", state problem)

WD. 9742565

Scale	Pulser. Cpm	Meter, as found. Cpm	Adjusted cpm
N/A			

Nuclide	Activity, uCi	Assay date	E Decay corrected activity. dpm	A Measured response. cpm	AE Efficiency (A/B) x100%
C-14	0.007831	NA	17,385	900	5.2
Tc-99	0.007684	NA	17,058	3,200	18.8
Si-32	0.005327	15 JUN 98	10,702	4,800	44.9
I-129	0.9898	NA	1,171,191	N/A	N/A

~~At a high count rate (2 to 5 times maximum range), the meter reads "off scale".~~

Yes ~~No~~ (If "No", state problem) N/A

High count rate was generated by a. ~~Pulser~~ Radioactive Source N/A

Background: 22 cpm

Check source attached? Yes ☒ No ☐ If Yes, reading on contact: N/A cpm

Final Status: ☒ Pass ☐ Fail

Comments: N/A

Signature: Sry

AM

Survey Instrument Record for Instrument 27799

Radiation Survey Instrument Calibration for Dose Rate (Radiation Level)

Data Sheet – Eli Lilly & Company

Owner	Location	Calibration Date
Radiation Safety		Feb 26, 2014

Instrument	Meter Body	Probe
Type:	digital	Pancake
Mfgr:	SE International	-----
Model:	Inspector	-----
Serial No.	27799	-----
Lilly Inv. No.		

Calibration Source Data

Source #: S-684 Nuclide: ^{137}Cs Calibrated Exp. Rate @ 1 m: 47.3 mR/hr on 6/29/1989
 Decay Corrected Exp. Rate @ 1 m: 26.78 mR/hr on April 11, 2014
 Low Range Scales Distance: 8 mR/hr at 1.82 meters
 High Range Scales Distance: 0 mR/hr at 0.58 meters

Pass Physical Check ☒ Yes No (If "No", state problem):

	A	X ₁					B	A/B
Scale	True mR/hr	Distance, cm	Attenuators			Observed mR/hr	mR/hr after adjustment	Correction Factor
			0.1	0.1	0.25			
NA	0.2	182.9		X	X	0.199		1.00
NA	0.8	182.9		X		0.789		1.11
NA	2.0	182.9			X	1.903		1.65
NA	8.0	182.9				8.027		1.00
NA	20.0	57.9			X	20.89		0.96
NA	80.0	57.9				80.73		0.99

At high dose rate (2 to 5 times maximum range) meter reads "high off scale": ☒ Yes No
 (If "No", state problem):

Background: 0.015 mR/hr

Check source attached? Yes No If Yes, reading on contact: _____ mR/hr

Final Status: ☒ Pass Fail

Comments:

Signature: _____

[Handwritten Signature]

[Handwritten Initials]

Data Sheet - Eli Lilly and Company

M490306

Owner	Location	Calibration Date
R.S.	98/A/1115	05-MAR-2015/4 AM

3/21/14

Instrument	Meter Body	Probe
Type:	Multi-Scale	PGM
Mfgr:	SE INTERNATIONAL	
Model:	Inspector	
Serial No.:	277949 AM 3/21/14	

Pass Physical Check: ☒ Yes ☐ No (If "No", state problem)

W.O. 9779902

Scale	Pulser. Cpm	Meter, as found. Cpm	Adjusted cpm
N/A			

Nuclide	Activity, uCi	Assay date	B Decay corrected activity. dpm	A Measured response. cpm	AB Efficiency (A/B) x 100%
C-14	0.007831	NA	17,385	700	4.0
Tc-99	0.007684	NA	17,058	2200	12.9
Si-32	0.005327	15 JUN 98	10,632	3600	33.9
I-129	0.9898	NA	1,171,191	N/A	N/A

At a high-count rate (2 to 5 times maximum range), the meter reads "off scale":

Yes ☐ No ☒ (If "No", state problem) N/A

High-count rate was generated by a: Pulser ☒ Radioactive Source N/A

Background: 20 cpm

Check source attached? Yes ☒ No ☐ If Yes, reading on contact: N/A cpm

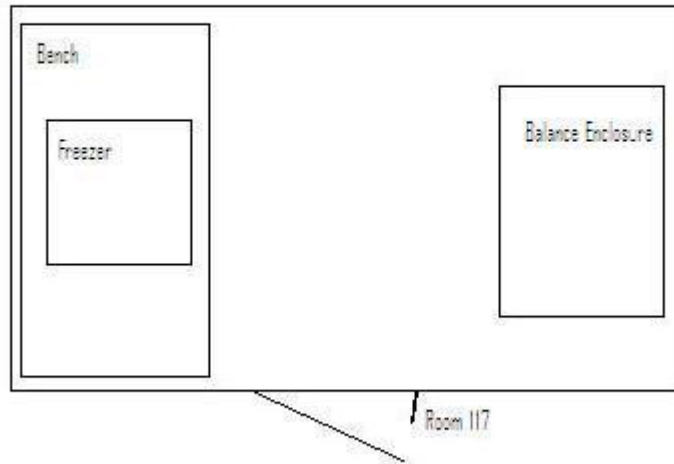
Final Status: ☒ Pass ☐ Fail

Comments: N/A

Signature: JSJ

[Handwritten mark]

Elanco Headquarters
Building A Room 117 and 116 Maps



Survey #1a: Initial Scoping Survey of Lab A117

Flanco 117 Survey
June 27, 2014

North Wall

10	11	15	21	28
56	57	58	65	66
59	60	61	67	68
62	63	64	69	70

224 dpm

631 dpm

SEI # 27796 calib # 25/13

Bkg - ceiling 50-70 cpm

Bkg - room 30-45 cpm

no elevated readings

Shirley Mah

South Wall

23	22	17	16	6
75	76			53
77	78			54
79	80			55

258 dpm

WEST Wall

7	8	9
44	45	46
47	48	49
50	51	52

EAST Wall

29	30
71	73
72	74

well under hood stand

CEILING

5	14	20	Vent
3	4	13	25
2	12	18	24

lip of vent 26 + 27
458 dpm

DOOR

108
109
110

FLOOR

83	86	89	92	95	98	101
82	85	88	91	94	97	100
81	84	87	90	93	96	99

TABLE

shelf 35
shelf 34
36 37

38 inside top drawers
39 inside bottom cabinet
40 front cabinet
41 left side
42 right side
43 back

Balance Enclosure

Vent 31
Top 32
Sides 33
- inside left 102
- inside right 103
- Balance 107
- top of vent 104
- back of hood 105
- bottom table 106

678 dpm

2130 dpm

346 dpm

348 dpm

6113 dpm

(deconq
resurvey 7/8/14)

Protocol# 22 - Direct Assay.lsa

User: Daneka Chambers

Documented Surveys

Assay Definition-

Assay Description:
Direct DPM AssayAssay Type: Direct DPM
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\Daneka Chambers\Direct Assay
Raw Results Path: C:\Packard\Tricarb\Results\Daneka Chambers\Direct
Assay\20140627_1342.results
Assay File Name: C:\Packard\TriCarb\Assays\Direct Assay.lsa

Count Conditions-

Nuclide: Direct DPM 3H-UG
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: 3H-UG
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1
#Vials/Sample: 1
Normalization Std DPM: 127500
Repeat Sample Count: 1
Calculate % Reference: OffBackground Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	2000.0

Count Corrections-

Static Controller: On
Colored Samples: n/a
Coincidence Time (nsec): 18
Luminescence Correction: On
Heterogeneity Monitor: n/a
Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

Cycle 1 Results

S#	DPM1	CPMA	tSIE	MESSAGES
1	36	29	508.53	Big
2	66	61	526.28	
3	39	30	546.82	
4	41	31	453.20	
5	44	36	549.79	
6	37	30	548.06	
7	34	29	548.74	
8	52	42	549.43	
9	56	49	547.76	

Protocol# 22 - Direct Assay.lsa

User: Daneka Chambers

Documented Surveys

10	51	43	550.81
11	50	40	555.78
12	42	35	548.39
13	47	40	542.70
14	34	32	545.32
15	211	192	544.11
16	318	292	538.57
17	46	39	543.99
18	41	31	546.68
19	45	34	545.11
20	37	31	544.64
21	60	45	541.62
22	153	132	545.85
23	142	126	546.28
24	47	39	545.73
25	45	31	545.22
26	1001	931	526.12
27	202	180	517.08
28	103	72	547.62
29	83	74	547.99
30	41	35	546.21
31	114	93	541.48
32	6654	5192	515.01
33	2122	1947	516.80
34	36	34	542.05
35	112	100	535.32
36	59	44	534.12
37	76	61	543.26
38	85	72	536.57
39	47	40	535.29
40	49	39	548.96
41	68	57	513.83
42	115	104	532.31
43	38	29	525.76
44	46	38	545.19
45	78	67	547.14
46	53	40	542.63
47	44	35	541.30
48	66	57	539.67
49	48	38	544.24
50	39	31	542.86
51	47	38	541.81
52	32	25	539.58
53	37	31	537.52
54	56	42	544.98
55	34	28	540.60
56	58	50	539.66
57	83	66	542.52
58	71	60	545.14
59	36	29	543.21
60	49	36	545.00
61	650	589	547.72
62	37	31	541.78
63	57	46	540.67
64	31	24	542.10
65	74	60	542.57
66	52	40	541.86
67	54	40	541.08
68	41	34	542.89
69	165	148	544.35
70	59	43	538.17
71	74	61	540.86
72	123	102	540.52

Protocol# 22 - Direct Assay.lsa

User: Daneka Chambers

Documented Surveys

73	44	38	543.82
74	78	67	541.65
75	185	169	547.28
76	124	111	547.74
77	117	104	539.61
78	46	39	545.73
79	88	79	539.66
80	49	41	535.11
81	49	43	525.06
82	61	53	526.64
83	68	54	525.25
84	79	65	504.13
85	49	40	514.96
86	53	44	510.22
87	48	35	518.69
88	56	48	518.75
89	59	47	500.51
90	59	53	503.86
91	69	60	516.33
92	165	150	506.17
93	70	60	524.71
94	87	69	510.79
95	83	69	515.93
96	96	79	517.60
97	127	111	504.94
98	94	83	515.28
99	90	79	516.95
100	194	181	505.32
101	73	57	523.03
102	62	50	530.56
103	39	35	531.80
104	366	319	451.58
105	110	94	529.62
106	5950	5589	520.25
107	383	354	521.65
108	46	39	481.20
109	50	39	535.27
110	46	42	537.38

Protocol# 3 - Direct Assay.lsa

User: Alisha Mahin

Wipe/Leak Tests

Assay Definition-

Assay Description:
Direct DPM Assay

Assay Type: Direct DPM
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\Alisha Mahin\Direct Assay
Raw Results Path: C:\Packard\Tricarb\Results\Alisha Mahin\Direct
Assay\20140630_0744.results
Assay File Name: C:\Packard\TriCarb\Assays\Direct Assay.lsa

Count Conditions-

Nuclide: Direct DPM 3H-UG
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: 3H-UG
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1
#Vials/Sample: 1
Normalization Std DPM: 127500
Repeat Sample Count: 1
Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	2000.0

Count Corrections-

Static Controller: On
Colored Samples: n/a
Coincidence Time (nsec): 18
Luminescence Correction: On
Heterogeneity Monitor: n/a
Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

Cycle 1 Results

S#	DPM1	CPMA	tSIE	MESSAGES
✓ 42	42	33	510.59	Bkg
25	224	200	544.55	
216	258	239	532.81	
426	958	914	518.38	
532	6978	5988	498.26	
633	2130	1968	509.91	
761	631	591	546.15	
8104	348	291	438.20	
8106	6113	5776	520.36	

recounts from 6/27/14

Protocol# 3 - Direct Assay.lsa

User: Alisha Mahin

Wipe/Leak Tests

10/07 346 326 523.13

Eland A 116 Survey
June 27, 2014

Highway 116

South Wall

14		10	8	9
13		17	6	7
12	15		4	5
11		16	2	3

East Wall

			81	78 top Freezer
			80	77
			79	76

Freezer

Inside

Door

84	
85	
87	
88	
89	
	82
	83

86 handles inside
freezer

West Wall

24	25	29	34	35	39	62 wall	63 wall
22	23	28	42 side	46 top	38	64 shelf	65 shelf
20	21	27	44 back	47 top	37	66 wall	67 corner
18	19	26	45 under top	48 side	36	68	71 inside
			40	41		69 outside	72 inside
			30	31		73 inside	

hood

balance
hood

drawers

Protocol# 27 - DirectAssay.lsa

User: Daneka Chambers

Documented Surveys

Assay Definition-

Assay Description:
Direct DPM Assay

Assay Type: Direct DPM
Report Name: Report 1
Output Data Path: C:\Packard\Tricarb\Results\Daneka Chambers\DirectAssay
Raw Results Path: C:\Packard\Tricarb\Results\Daneka
Chambers\DirectAssay\20140627_1453.results
Assay File Name: C:\Packard\Tricarb\Assays\DirectAssay.lsa

Count Conditions-

Nuclide: Direct DPM 3H
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: 3H
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1
#Vials/Sample: 1
Normalization Std DPM: 289100
Repeat Sample Count: 1
Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	2000.0

Count Corrections-

Static Controller: On
Colored Samples: n/a
Coincidence Time (nsec): 18
Luminescence Correction: On
Heterogeneity Monitor: n/a
Delay Before Burst (nsec): 75

Half Life-

Regions	Half Life	Units	Reference Date	Reference Time
A				

Cycle 1 Results

S#	DPM1	CPMA	tSIE	MESSAGES
1	54	37	556.61	
2	47	37	545.29	
3	47	36	544.35	
4	51	36	553.22	
5	55	43	547.62	
6	38	31	551.39	
7	57	42	553.95	
8	44	32	554.29	
9	40	30	553.69	

Protocol# 27 - DirectAssay.lsa

User: Daneka Chambers

Documented Surveys

10	52	38	550.92
11	47	35	540.54
12	56	43	549.19
13	42	35	544.47
14	52	40	553.24
15	48	39	546.27
16	49	32	546.98
17	39	28	543.89
18	33	28	549.27
19	29	25	548.34
20	48	35	549.35
21	53	36	551.35
22	27	22	550.71
23	45	37	550.12
24	49	33	549.99
25	41	35	555.17
26	32	26	534.40
27	40	32	496.52
28	45	33	533.64
29	38	25	534.63
30	47	32	536.07
31	38	29	519.12
32	42	37	541.38
33	59	44	540.40
34	29	23	540.07
35	48	35	539.05
36	44	35	540.12
37	45	38	538.54
38	32	23	543.39
39	40	30	534.11
40	49	39	454.74
41	100	82	454.33
42	46	35	536.24
43	34	22	543.92
44	45	29	506.19
45	35	24	531.35
46	41	30	549.28
47	62	49	546.48
48	50	39	542.09
49	36	31	554.23
50	48	38	523.18
51	37	29	531.56
52	44	34	547.76
53	52	38	555.04
54	67	53	534.86
55	113	87	538.75
56	47	29	546.24
57	45	34	551.03
58	48	38	554.11
59	147	119	546.45
60	46	38	534.87
61	53	42	555.25
62	44	34	552.45
63	56	42	557.75
64	45	35	545.00
65	52	41	534.39
66	56	44	546.90
67	43	32	532.46
68	48	39	523.30
69	62	46	553.30
70	36	29	555.61
71	39	34	548.90
72	47	35	545.71

Protocol# 27 - DirectAssay.lsa

User: Daneka Chambers

Documented Surveys

73	58	43	544.56
74	46	35	535.98
75	52	43	547.33
76	46	36	542.01
77	45	36	548.08
78	41	29	537.81
79	38	28	539.02
80	38	28	544.04
81	53	38	541.67
82	40	33	548.73
83	41	29	552.96
84	32	23	550.92
85	38	34	551.78
86	40	31	550.02
87	52	40	548.92
88	41	33	553.57
89	42	36	549.91

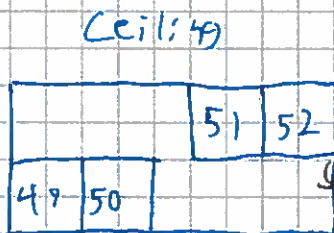
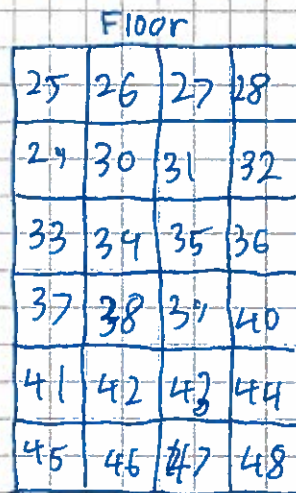
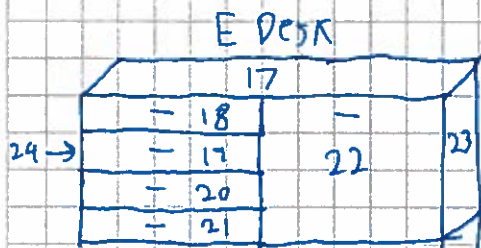
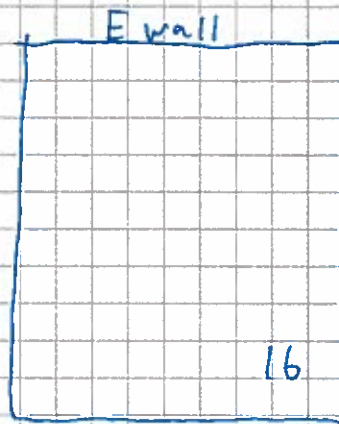
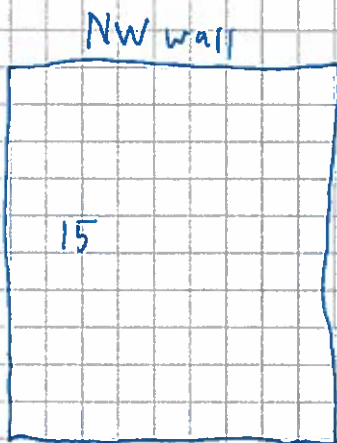
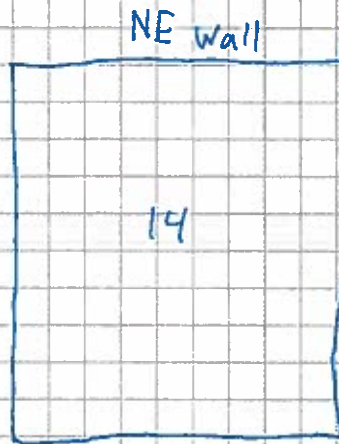
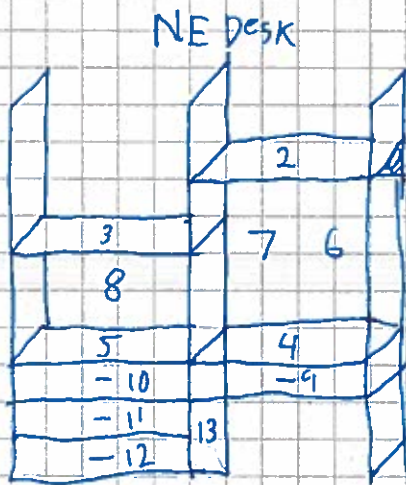
Survey 1c: Initial Scoping Survey of A116 cont.

A 116 Sunny
June 27, 2014
SET # 27799
Calib 2/26/14

(Bkg Ceiling 50-70 AM)

Bkg nom: 10-40
no elevated readings

Tyler Rutter 6/30/14



Audha Rai
4/30/14

Protocol# 26 - DirectAssay.lsa

User: Daneka Chambers

Documented Surveys

Assay Definition-

Assay Description:
Direct DPM Assay

Assay Type: Direct DPM
Report Name: Report 1
Output Data Path: C:\Packard\Tricarb\Results\Daneka Chambers\DirectAssay
Raw Results Path: C:\Packard\Tricarb\Results\Daneka
Chambers\DirectAssay\20140627_1723.results
Assay File Name: C:\Packard\Tricarb\Assays\DirectAssay.lsa

Count Conditions-

Nuclide: Direct DPM 3H
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: 3H
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1
#Vials/Sample: 1
Normalization Std DPM: 289100
Repeat Sample Count: 1
Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	2000.0

Count Corrections-

Static Controller: On
Colored Samples: n/a
Coincidence Time (nsec): 18
Luminescence Correction: On
Heterogeneity Monitor: n/a
Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

Cycle 1 Results

S#	DPM1	CPMA	tSIE	MESSAGES
1	45	33	508.03	
2	36	31	435.23	
3	38	31	488.59	
4	160	148	538.43	
5	50	37	510.80	
6	38	27	552.63	
7	76	48	547.51	
8	42	34	549.41	
9	46	26	452.17	

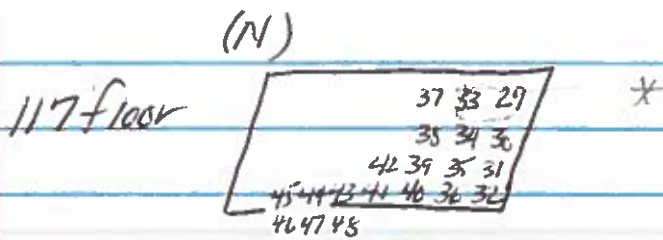
Protocol# 26 - DirectAssay.lsa

User: Daneka Chambers

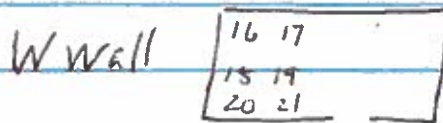
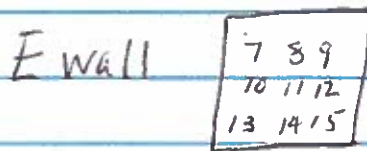
Documented Surveys

10	47	34	432.93
11	47	35	472.42
12	38	27	507.62
13	37	30	520.99
14	45	37	547.71
15	45	34	551.62
16	43	27	544.71
17	41	34	540.19
18	50	38	503.22
19	38	29	540.34
20	38	29	551.43
21	52	44	550.87
22	53	34	507.19
23	38	23	542.78
24	36	26	546.35
25	121	100	522.99
26	61	50	525.20
27	55	44	521.50
28	47	37	474.47
29	66	48	527.81
30	40	31	528.28
31	48	33	516.65
32	61	49	520.41
33	73	59	518.60
34	44	29	523.54
35	50	39	538.98
36	44	33	530.81
37	49	39	521.62
38	42	28	535.37
39	40	29	527.15
40	54	39	513.75
41	52	37	524.90
42	19	19	534.47
43	40	29	521.01
44	50	41	525.59
45	54	41	533.66
46	50	40	521.56
47	45	33	514.46
48	56	36	524.51
49	40	28	538.78
50	40	27	540.85
51	41	33	539.88
52	38	31	534.08

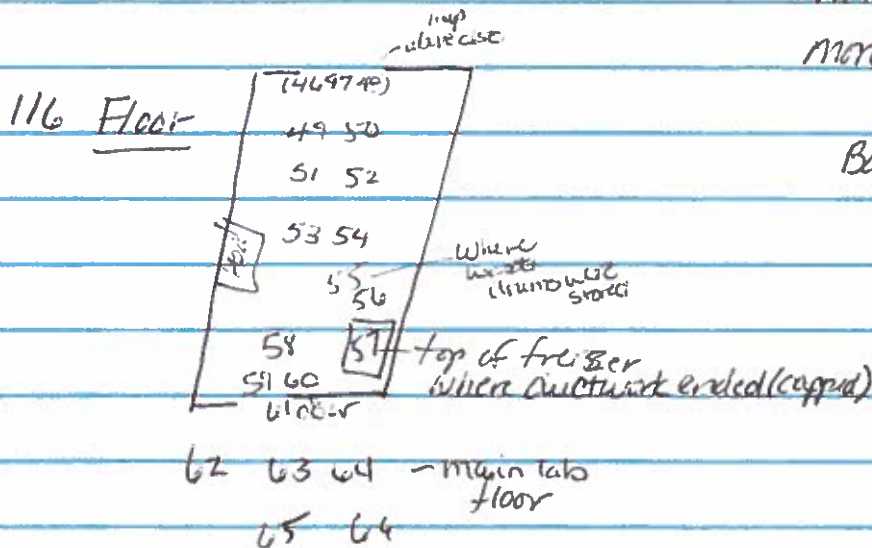
Survey #7: Final Confirmatory Closeout Survey of A117



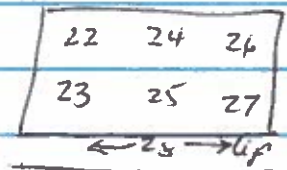
Flanco close-out
Survey
10/10/14
(confirmatory)



*end of ductwork that was removed. Some Contamination noted after the vent cover was removed & prior to ductwork removal (on mtly survey)
This area + balance enclosure was focused on after removal.
Initial closeout has more detail of rest of labs.



Balance enclosure



SEL # 27797
Bkg 30-50 cpm
No reading > bkg

Protocol# 3 - Direct Assay.lsa

User: Alisha Mahin

Wipe/Leak Tests

Assay Definition-

Assay Description:
Direct DPM Assay

Assay Type: Direct DPM
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\Alisha Mahin\Direct Assay
Raw Results Path: C:\Packard\Tricarb\Results\Alisha Mahin\Direct
Assay\20141010_0914.results
Assay File Name: C:\Packard\TriCarb\Assays\Direct Assay.lsa

Count Conditions-

Nuclide: Direct DPM 3H-UG
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s
Pre-Count Delay (min): 0.00
Quench Set:
Low Energy: 3H-UG
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1
#Vials/Sample: 1
Normalization Std DPM: 127500
Repeat Sample Count: 1
Calculate % Reference: Off

Background Subtract: Off
Low CPM Threshold: Off
2 Sigma % Terminator: Off

Regions	LL	UL
A	0.0	2000.0

Count Corrections-

Static Controller: On
Colored Samples: n/a
Coincidence Time (nsec): 18
Luminescence Correction: On
Heterogeneity Monitor: n/a
Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				

Cycle 1 Results

S#	DPM1	CPMA	tSIE	MESSAGES
1	48	32	694.15	
2	39	28	702.82	
3	51	40	697.44	
4	43	37	707.64	
5	33	25	709.74	
6	51	38	709.64	
7	46	40	708.03	
8	57	47	712.85	
9	38	33	703.26	

Protocol# 3 - Direct Assay.lsa

User: Alisha Mahin

Wipe/Leak Tests

10	44	33	707.03
11	62	53	701.14
12	53	43	702.87
13	56	41	703.34
14	51	43	703.84
15	47	40	702.25
16	49	36	693.36
17	33	26	689.68
18	70	56	693.41
19	38	33	706.18
20	40	33	693.26
21	39	28	702.75
22	46	37	704.56
23	34	28	710.28
24	34	28	707.25
25	46	32	713.69
26	57	47	702.64
27	43	32	700.47
28	45	34	705.79
29	45	36	697.49
30	51	39	686.27
31	45	37	707.83
32	43	35	704.99
33	44	32	697.61
34	41	34	697.41
35	52	41	706.65
36	43	33	701.65
37	38	29	710.86
38	50	38	705.09
39	42	31	706.51
40	38	27	710.21
41	54	38	704.52
42	43	38	704.41
43	58	49	702.96
44	52	39	705.30
45	46	34	707.09
46	28	27	709.37
47	34	33	710.93
48	33	31	707.54
49	49	38	692.42
50	44	36	700.93
51	34	26	697.20
52	42	31	700.99
53	39	34	695.83
54	34	27	697.44
55	51	41	696.21
56	57	38	683.44
57	33	29	698.70
58	36	31	701.05
59	39	30	697.17
60	36	32	693.67
61	46	36	705.26
62	60	46	686.79
63	57	42	697.04
64	55	40	699.33
65	52	37	692.35
66	52	40	693.50
67 <i>Bq</i>	50	40	707.69

Song, Taehoon

From: Forster, Sara
Sent: Monday, January 14, 2019 6:03 AM
To: Pavon, Sandy; Song, Taehoon; Sandrik, Lauren
Subject: FW: RE: Additional Information Request concerning Eli Lilly and Company, NRC Lic. No. 13-01133-02, CN610300
Attachments: NRC Amendment 71 Response and Additional Information Jan 2019.pdf

Please scan in the additional information (attached) and return to me. Thank you!

Sara Forster

From: Trenton L. Mays [mailto:t.mays@lilly.com]
Sent: Friday, January 11, 2019 2:41 PM
To: Forster, Sara <Sara.Forster@nrc.gov>
Cc: Trenton L. Mays <t.mays@lilly.com>
Subject: [External_Sender] RE: Additional Information Request concerning Eli Lilly and Company, NRC Lic. No. 13-01133-02, CN610300

Hi Sara,

Please find the additional information requested below in the attached documents. Feel free to give me a call for clarifications to any of the information provided.

Thanks!

Trent

Trenton L. Mays, M.S., CHP
Radiation Safety Officer
Manager, Radiation Safety, Env Risk Assessment and Global Hazcom
Eli Lilly and Company
Lilly Corporate Center, Indianapolis IN 46285 U.S.A.
+1 317.276.2747 (office) | +1 317.601.8998 (mobile)
t.mays@lilly.com | www.lilly.com



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From: Forster, Sara <Sara.Forster@nrc.gov>
Sent: Wednesday, December 19, 2018 12:22 PM
To: Trenton L. Mays <t.mays@lilly.com>

EXTERNAL EMAIL: Use caution before replying, clicking links, and opening attachments.

Dear Mr. Mays:

We have reviewed your October 12, 2018 letter (NRC Accession No. ML18296A252) requesting to remove the Elanco Animal Health, Greenfield, Indiana, location of use from the referenced license, and to authorize your release of the referenced location for unrestricted use. Upon review, we have determined that additional information from you is still needed for our office to complete our review of your request.

Under 10 CFR 30.36(j), the licensee is required to submit a completed NRC Form 314 (or equivalent information) certifying the final disposition of all licensed material and attaching copies of closeout surveys, as they are reasonably available. As of the time of your request, it is our understanding that the licensee – historically - has used or stored radioactive materials at the Greenfield location of use. Accordingly, at a minimum, it appears that the NRC Form 314 together with supporting information, relative to the final disposition of the Greenfield facilities, is needed to complete our review.

To facilitate our continued review of your request, please provide additional information – via a signed and dated cover letter and resubmitted supporting information - as noted:

1. NRC Form 314 for the Greenfield facility, signed by you or other duly authorized individual;
2. Final disposition of all licensed material used or stored at the Greenfield location of use including:
 - History of radioactive materials use at the licensee's facilities (e.g. unsealed carbon-14, sealed sources and any other radionuclides, as applicable) including for all areas where radioactive material was used or stored. (Please indicate each radionuclide, form, and maximum quantity possessed in each area – or in the building – under the license, as well as the dates on which such radionuclides were used or stored.)
 - Last date material was used at the licensee's facilities, including the building overall and for each room where radioactive material was used.
 - Last date that material was stored at the licensee's facilities.
 - For any items disposed of via decay-in-storage, confirmation that radioactive materials labels were removed and container surveyed prior to disposal. (Please indicate the final disposition date for any such waste removed from the referenced facilities.)
 - For any material dispositioned via return to the manufacturer or transfer to another radioactive materials licensee, a letter confirming receipt.
 - For any material dispositioned as radioactive waste, a copy of the radioactive waste manifest and documentation confirming that the recipient waste facility was authorized to receive such materials.
3. Most recent leak tests for sealed sources used or stored at the Greenfield, Indiana location of use under the license including:
 - Date of survey, name of individuals conducting the survey, and survey results.
 - Description of any history of leaking sources OR confirmation that there were no leaking sources, under the license, at the Greenfield, Indiana location of use.
4. Final survey results for an areas where radioactive material was used or stored under the license – at the Greenfield, Indiana, location of use - including:

- Date of survey, name of individuals conducting the survey, and survey results.
 - Description of instrumentation used to conduct the survey including calibration data.
 - Map of the area for which surveys were provided, including numbered locations keyed to the survey results.
5. For any items (1 through 4) above for which you are unable to respond in full, please provide an explanation as to why the information is unavailable or otherwise cannot be provided with your response.
6. Please provide a brief description of any decommissioning (disposals, area surveys, dismantling, etc.) conducted in the referenced facilities, as applicable.

Please provide the requested information within 14 days of this message (on or before January 3, 2019). Include a signed and dated cover letter transmitting your response. Submission of your response as a pdf file attached to an email or via facsimile will allow for the quickest processing. Please call or email me with any questions you may have, or if you need additional time to respond. Thank you for your prompt attention to this matter.

Sara A. Forster, Health Physicist Licensing Reviewer
U.S. Nuclear Regulatory Commission - Region III
Division of Nuclear Materials Safety
2443 Warrenville Rd. - Ste. 210
Lisle, IL 60532-4352
sara.forster@nrc.gov
Direct: (630) 829-9892
Facsimile: (630) 515-1078

