



November 29, 2017

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

RE: NRC Material License
No. 13-16457-01

Dear Licensing Branch Reviewer:

Union Hospital will undertake renovations of its West Building to modernize its facilities. This will include the remodeling and reuse of our former Nuclear Medicine Department located on the lower level of the West Building. All radioactive materials were transferred to our new Nuclear Medicine Department in the hospital's East Building in September, 2017.

We request amendment of our license to release the former Nuclear Medicine Department spaces for unrestricted use. In support of this request, please find attached, a copy of the decommissioning survey including wipe test results for gross alpha, beta and gamma contamination.

If you have any questions regarding this request please contact me at (812) 238-7275 (office) or (812) 240-2911 (cell).

Sincerely,

Dean A. Taylor, M.S.
Union Hospital
Radiation Safety Officer

Enclosed

RECEIVED DEC 05 2017

A NEW DAWN IN HEALTHCARE

Beacon X-Ray Testing, Inc.
Physics Consulting Services
5696 South Ernest Street
Terre Haute, Indiana 47802-9499
(812) 894-2554



November 29, 2017

Union Hospital Health Group
Attn: Steven Holman, President, CEO
1606 North Seventh Street
Terre Haute, Indiana 47804-2780

RE: NRC Materials License
No. 13-16457-01

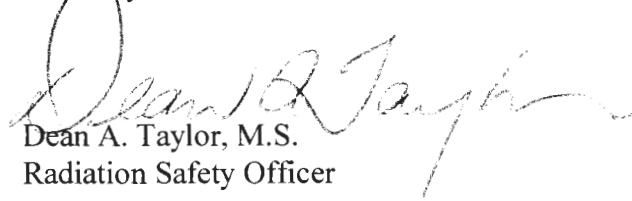
Dear Mr. Holman:

The attached decommissioning survey is provided in support of your application to the NRC to remove the old Nuclear Medicine Department on the lower lever of the West Building from the Union Hospital Radioactive Materials License. A removable contamination survey for gamma contamination was competed on October 20, 2017 and an area radiation survey was completed on October 23, 2017. A wipe survey for alpha/beta contamination was completed on November 01, 2017. These wipe samples were sent to EMSL Analytical, Inc. for analysis with results received on November 28, 2017. All survey results indicate that no unacceptable residual contamination remains from the use and storage of radioactive materials (RAM), RAM waste and stored sealed sources. All remaining waste and sources were moved to the new department in the East Building in September 2017.

I would like to take this opportunity to emphasize the need to have NRC approval in hand (to release the old department spaces for unrestricted use) *before* these spaces can be re-purposed. This fact, notwithstanding, my survey results indicate that there should be no trouble receiving this release and I would anticipate a response from the NRC within 90 days of the date of this report.

I will be available to address any concerns or questions regarding the attached report from you or the NRC. Please contact me at extension 7275 with any questions.

Sincerely,


Dean A. Taylor, M.S.
Radiation Safety Officer

Copy to:
Radiation Safety Committee

Enclosed

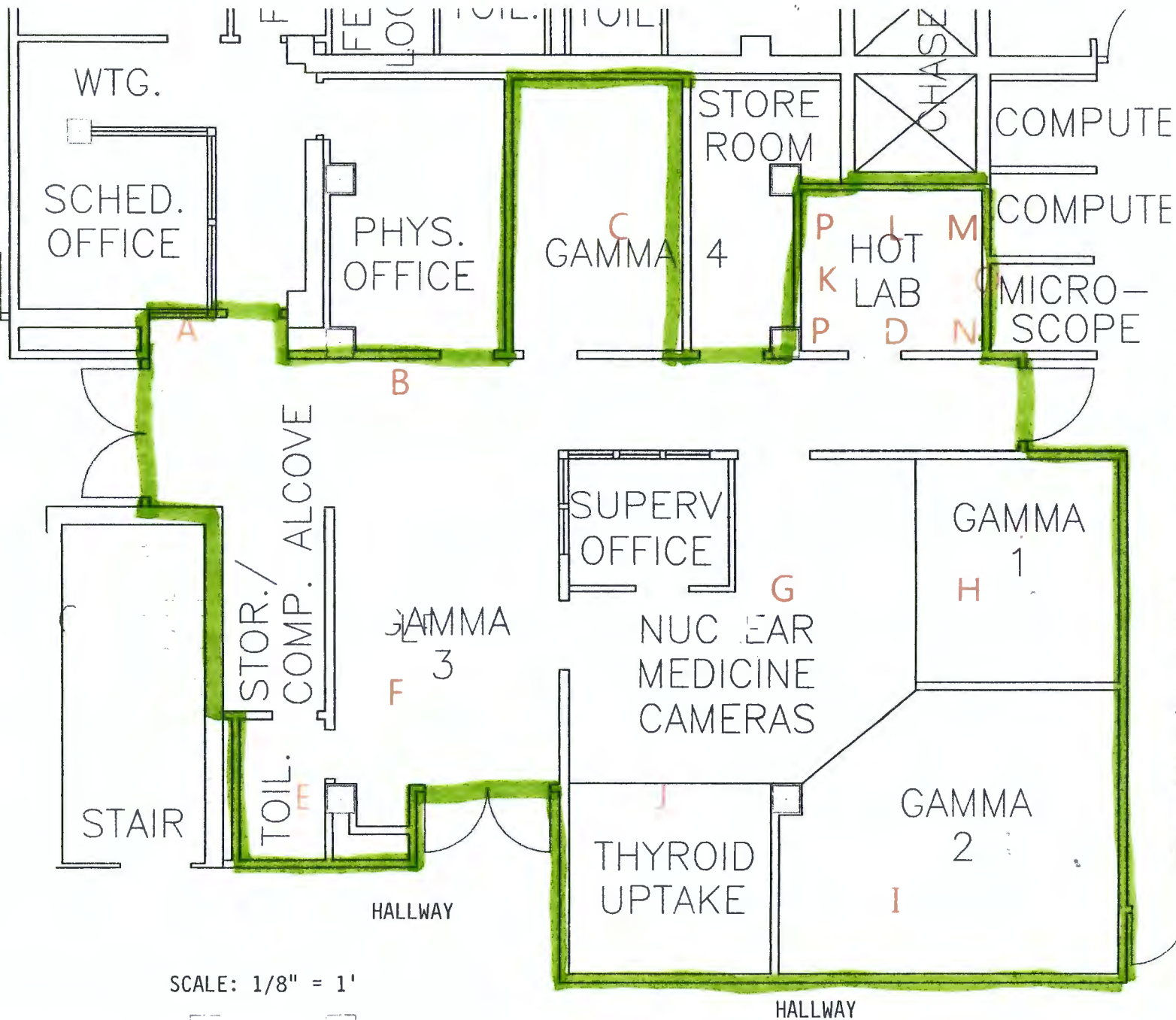
DECOMMISSIONING SURVEY FOR RADIOACTIVE CONTAMINATION			
Surveyor:	Dean A. Taylor, M.S. ISDH Approved Physicist		Report Date:
Survey Location:	Old Nuc. Med., West Building Lower Level		NOV 29, 2017
	Union Hospital, Inc.		
	1606 North Seventh Street		
	Terre Haute, Indiana 47804-2780		
Survey Dates:	Removable γ Contamination Survey:		OCT 20, 2017
	Direct Reading Environmental Radiation Survey:		OCT 23, 2017
	Removable α/β Contamination Survey:		NOV 01, 2017
γ Instrument Used:	Single Channel Analyzer/Area Survey (NaI Crystal Detector)		
Manufacturer: Ludlum Radiation Measurements	Model: 2221	Meter Serial #: 71251	
	Model: 44-2-5	Probe Serial #: PRO-72100	
Calibration conducted by manufacturer:		December 05, 2016	
Unsealed isotopes used/stored in the facility:		F-18, Ga-67, Sr-89, Y-90, Tc-99m, In-111, I-123, I-131, Xe-133, Sm-153, Tl-201, Ra-223	
Sealed sources used/stored in the facility:		Co-57, Co-60, I-125, I-129, Ba-133, Eu-152, Gd-153, Cs-137, Ra-226, Am-241	
RAM Use & Storage Dates:		June 1989 to September 2017	
The following documents are attached:			
1) Floor Plan Indicating Survey Points			
2) Removable Contamination Survey Results			
3) Direct Reading Environmental Radiation Survey Results			
Surveyor:		Date: November 29, 2017	
ISDH Approved Physicist (#264)			

Union Hospital, Inc
1606 North Seventh Street
Terre Haute, Indiana 47804-2780

Comparison of meter response from Ludlum Model 2221 (S/N: 71251) and Ludlum Model 14C (S/N: 243597) to a ¹³⁷ Cs calibration source			
2221 Calibration Date: Dec. 05, 2016		Cal Source:	Amersham ¹³⁷ Cs
Probe type: 1" NaI (Model 44-2)		Cal Activity:	0.0045 µCi
14C Calibration Date: Dec. 06, 2016		Cal Date:	June 01, 1988
Probe type: G-M Detector (Model 44-9)		Current Activity:	0.002303 µCi (as of 10/20/2017)
Meter Response Comparison Conducted: October 24, 2017:			
Meter	Background reading (window out for Model 2221)	Source Reading at 12 inches	Source Reading on contact
2221	520 cpm	550 cpm	650 cpm
14C	0.02 mR/hr	0.02 mR/hr	0.35 mR/hr
Report prepared by: Dean A. Taylor, M.S., Radiation Safety Officer			

DECOMMISSIONING SURVEY FOR RADIOACTIVE CONTAMINATION

Former Nuclear Medicine Department (West Building - Lower Level)
Union Hospital, Inc., 1606 North 7th Street, Terre Haute, IN 47804-2780



SCALE: 1/8" = 1'

Survey Map for:
Removable Contamination Wipe Tests - Conducted October 20 & November 01, 2017
Environmental Radiation Direct Monitoring - Conducted October 23, 2017

**DECOMMISSIONING SURVEY FOR THE FORMER NUCLEAR MEDICINE DEPARTMENT
(WEST BUILDING, LOWER LEVEL) - UNION HOSPITAL, INC.
ENVIRONMENTAL RADIATION SURVEY RESULTS**

Date: OCT 23,2017		Instrument: Area Survey Meter (1.5" NaI Crystal Detector)				
Background Readings (cpm)		N: 1180	E: 1070	S: 1300	W: 1250	
Average Background Reading (cpm)					1200	Cal Date: 12/5/16
Survey Point ID		Counts/Minute (CPM)		Corrected CPM		Action Needed
A	Dose chair area 1	1170		0		None
B	Dose chair area 2	1090		0		None
C	Gamma Camera 4	880		0		None
D	Hot Lab Floor	1070		0		None
E	Rest Room	1070		0		None
F	Gamma Camera 3	1050		0		None
G	Scan Room	1080		0		None
H	Gamma Camera 1	950		0		None
I	Gamma Camera 2	820		0		None
J	Thyroid Uptake	1140		0		None
K	Hot Lab Sink	800		0		None
L	Hot Lab Hood	950		0		None
M	Dose Calibrator	1000		0		None
N	East Lab Counter	980		0		None
O	Hot Lab Shelving	1080		0		None
P	West Lab Counter	980		0		None
Comment: No remedial action is indicated.						

**DECOMMISSIONING SURVEY FOR THE FORMER NUCLEAR MEDICINE DEPARTMENT
(WEST BUILDING, LOWER LEVEL) - UNION HOSPITAL, INC.
REMOVABLE GAMMA CONTAMINATION SURVEY RESULTS**

Date: OCT 20, 2017	Instrument: Well Counter (NaI well-drilled crystal detector)			
Background Readings	Initial: 2.92 cpm		Final: 3.40 cpm	
Cs-137 Source Calibration Activity	2.303 nCi Calculated		4.5 nCi Initial Activity	
	5066 dpm as of 10/20/2017		9900 dpm as of 06/01/1988	
Efficiency ⁻¹ = 5066 dpm/ 9.20 cpm/2.92 cpm) = 807 dpm/ccpm				
Minimum Detectable Activity (MDA) = 3 x 807 dpm/ccpm x (2.92 cpm/ 5 min) ^½				
MDA = 1849 dpm = 2.292 ccpm = 0.00084 µCi				
Wipe Sample ID	Wipe Sample (100 cm ²) Test Results (based on (3) 5-minute counts)			
	cpm	ccpm	dpm	µCi
A Dose chair area 1	3.00	0.08	65	<MDA
B Dose chair area 2	2.33	0	0	0
C Gamma Camera 4	2.73	0	0	0
D Hot Lab Floor	3.47	0.55	444	<MDA
E Rest Room	2.87	0	0	0
F Gamma Camera 3	2.73	0	0	0
G Scan Room	2.40	0	0	0
H Gamma Camera 1	2.33	0	0	0
I Gamma Camera 2	2.67	0	0	0
J Thyroid Uptake	2.93	0.01	11	<MDA
K Hot Lab Sink	2.33	0	0	0
L Hot Lab Hood	2.47	0	0	0
M Dose Calibrator	2.13	0	0	0
N East Lab Counter	2.67	0	0	0
O Hot Lab Shelving	2.73	0	0	0
P West Lab Counter	2.67	0	0	0
Comment: No remedial action is indicated.				

**DECOMMISSIONING SURVEY FOR THE FORMER NUCLEAR MEDICINE DEPARTMENT
(WEST BUILDING, LOWER LEVEL) - UNION HOSPITAL, INC.
REMOVABLE GROSS ALPHA/BETA CONTAMINATION SURVEY RESULTS**

Date: NOV 01, 2017		Third Party Laboratory Used:				EMSL Analytical, Inc.	
Sample Type:		Filter Disk		Sample Size:		100 cm ²	
Date Analyzed: November 21 & 27, 2017							
Wipe Sample ID		MDA (pCi/wipe)		uncertainty (pCi)		Net activity pCi/100 cm ²	
		α	β	α	β	α	β
A	Dose chair area 1	0.254	0.271	0.118	0.134	< MDA	< MDA
B	Dose chair area 2	0.190	0.282	0.117	0.139	< MDA	< MDA
C	Gamma Camera 4	0.093	0.229	0.053	0.107	< MDA	< MDA
D	Hot Lab Floor	0.132	0.255	0.067	0.141	< MDA	< MDA
E	Rest Room	0.251	0.303	0.129	0.179	< MDA	0.336
F	Gamma Camera 3	0.216	0.283	0.107	0.142	< MDA	< MDA
G	Scan Room	0.089	0.226	0.051	0.128	< MDA	< MDA
H	Gamma Camera 1	0.132	0.286	0.071	0.136	< MDA	< MDA
I	Gamma Camera 2	0.251	0.303	0.118	0.144	< MDA	< MDA
J	Thyroid Uptake	0.216	0.283	0.102	0.147	< MDA	< MDA
K	Hot Lab Sink	0.089	0.226	0.081	0.124	0.103	< MDA
L	Hot Lab Hood	0.132	0.286	0.079	0.145	< MDA	< MDA
M	Dose Calibrator	0.254	0.271	0.125	0.176	< MDA	0.416
N	East Lab Counter	0.190	0.282	0.105	0.201	< MDA	0.625
O	Hot Lab Shelving	0.093	0.229	0.094	0.183	0.149	0.331
P	West Lab Counter	0.132	0.255	0.105	0.185	0.160	0.546

Comment: See individual sample test results attached.

Remedial action is not indicated ~

no removable gross alpha contamination in excess of 160 femtobecquerels/100 cm² and
no removable gross beta contamination in excess of 625 femtobecquerels/100 cm².

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800)220-3675 / (856)786-0327
<http://www.emsl.com> cinnaminsonradonlab@emsl.com

EMSL Order #: **781704078**
Customer ID: **UNHS29**
Customer PO: **R30010**

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**
Fax: **812-238-7380**

Project: **NUC Med Decommissioning 2017**

Collected: **Not Provided**
Received: **11/7/2017**

NELAC Certification #: **03036**

Analytical Report

Sample Identification: **2017 A**

Lab Sample #: **781704078-0001**

Date/Time Collected:

Test Parameter

Gross Alpha

Gross Beta

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.118	0.254	11/21/17 11:37 AM	PM	First Count	EPA 900.0 (Mdrdified)
<MDA	0.134	0.271	11/21/17 11:37 AM	PM	First Count	EPA 900.0 (Mdrdified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800)220-3675 / (856)786-0327
<http://www.emsl.com> cinnaminsonradonlab@emsl.com

EMSL Order #: **781704079**
Customer ID: **UNHS29**
Customer PO: **R30010**

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**
Fax: **812-238-7380**

Project: **NUC Med Decommissioning 2017**

Collected: **Not Provided**
Received: **11/7/2017**

NELAC Certification #: **03036**

Analytical Report

Sample Identification: **2017 B**

Lab Sample #: **781704079-0001**

Date/Time Collected:

Test Parameter

Gross Alpha

Gross Beta

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.117	0.190	11/21/17 11:38 AM	PM	First Count	EPA 900.0 (Mdrdified)
<MDA	0.139	0.282	11/21/17 11:38 AM	PM	First Count	EPA 900.0 (Mdrdified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800)220-3675 / (856)786-0327
<http://www.emsl.com> cinnaminsonradonlab@emsl.com

EMSL Order #: **781704080**
Customer ID: **UNHS29**
Customer PO: **R30010**

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**
Fax: **812-238-7380**

Project: **NUC Med Decommissioning 2017**

Collected: **Not Provided**
Received: **11/7/2017**

NELAC Certification #: **03036**

Analytical Report

Sample Identification: **2017 C**

Lab Sample #: **781704080-0001**

Date/Time Collected:

Test Parameter

Gross Alpha

Gross Beta

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.053	0.093	11/21/17 11:37 AM	PM	1st	EPA 900.0 (Modified)
<MDA	0.107	0.229	11/21/17 11:37 AM	PM	1st	EPA 900.0 (Modified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report

Peixue Ma
Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800)220-3675 / (856)786-0327

<http://www.emsl.com> cinnaminsonradonlab@emsl.comEMSL Order #: **781704081**Customer ID: **UNHS29**Customer PO: **R30010**

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**Fax: **812-238-7380**Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**Received: **11/7/2017**NELAC Certification #: **03036****Analytical Report**Sample Identification: **2017 D**Lab Sample #: **781704081-0001**

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.067	0.132	11/21/17 11:37 AM	PM	1st	EPA 900.0 (Modified)
<MDA	0.141	0.255	11/21/17 11:37 AM	PM	1st	EPA 900.0 (Modified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report

Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800)220-3675 / (856)786-0327
<http://www.emsl.com> cinnaminsonradonlab@emsl.com

EMSL Order #: **781704082**
Customer ID: **UNHS29**
Customer PO: **R30010**

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**
Fax: **812-238-7380**

Project: **NUC Med Decommissioning 2017**

Collected: **Not Provided**
Received: **11/7/2017**

NELAC Certification #: **03036**

Analytical Report

Sample Identification: **2017 E**

Lab Sample #: **781704082-0001**

Date/Time Collected:

Test Parameter

Gross Alpha
Gross Beta

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.129	0.251	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)
0.336	0.179	0.303	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date
11/28/2017

Report Revision
R0

Revision Comments
Initial Report


Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800)220-3675 / (856)786-0327

<http://www.emsl.com> cinnaminsonradonlab@emsl.comEMSL Order #: **781704083**Customer ID: **UNHS29**Customer PO: **R30010**Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804Phone: **812-238-7642**Fax: **812-238-7380**Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**Received: **11/7/2017**NELAC Certification #: **03036****Analytical Report**Sample Identification: **2017 F**Lab Sample #: **781704083-0001**

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

<u>Result</u>	<u>Uncertainty</u>	<u>MDA</u>	<u>Start Count Date/</u>	<u>Analyst</u>	<u>Status Count</u>	<u>Method</u>
<u>pCi/wipe</u>	<u>pCi/wipe</u>	<u>pCi/wipe</u>	<u>Time</u>			
<MDA	0.107	0.216	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)
<MDA	0.142	0.283	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date**11/28/2017****Report Revision****R0****Revision Comments****Initial Report**
Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800)220-3675 / (856)786-0327

<http://www.emsl.com> cinnaminsonradonlab@emsl.comEMSL Order #: **781704084**Customer ID: **UNHS29**Customer PO: **R30010**Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804Phone: **812-238-7642**Fax: **812-238-7380**Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**Received: **11/7/2017**NELAC Certification #: **03036****Analytical Report**Sample Identification: **2017 G**Lab Sample #: **781704084-0001**

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

<u>Result</u>	<u>Uncertainty</u>	<u>MDA</u>	<u>Start Count Date/</u>	<u>Analyst</u>	<u>Status Count</u>	<u>Method</u>
<u>pCi/wipe</u>	<u>pCi/wipe</u>	<u>pCi/wipe</u>	<u>Time</u>			
<MDA	0.051	0.089	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)
<MDA	0.128	0.226	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date**11/28/2017****Report Revision****R0****Revision Comments****Initial Report**
Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800)220-3675 / (856)786-0327

<http://www.emsl.com> cinnaminsonradonlab@emsl.comEMSL Order #: **781704085**Customer ID: **UNHS29**Customer PO: **R30010**

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**Fax: **812-238-7380**Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**Received: **11/7/2017**NELAC Certification #: **03036****Analytical Report**Sample Identification: **2017 H**Lab Sample #: **781704085-0001**

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

Result	Uncertainty	MDA	Start Count Date/	Analyst	Status Count	Method
pCi/wipe	pCi/wipe	pCi/wipe	Time			
<MDA	0.071	0.132	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)
<MDA	0.136	0.286	11/27/17 11:38 AM	PM	1st	EPA 900.0 (Modified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


Peixue Ma, Radiological Laboratory Manager

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

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<http://www.emsl.com> cinnaminsonradonlab@emsl.com

EMSL Order #: 781704086

Customer ID: UNHS29

Customer PO: R30010

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: 812-238-7642

Fax: 812-238-7380

Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**

Received: 11/7/2017

NELAC Certification #: 03036

Analytical Report

Sample Identification: 2017 I

Lab Sample #: 781704086-0001

Date/Time Collected:

Test Parameter

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.118	0.251	11/27/17 01:33 PM	PM	1st	EPA 900.0 (Modified)
Gross Alpha						
Gross Beta						
<MDA	0.144	0.303	11/27/17 01:33 PM	PM	1st	EPA 900.0 (Modified)

* All analysis met quality control acceptance criteria unless otherwise specified.

Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


Peixue Ma, Radiological Laboratory Manager

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EMSL Order #: 781704087

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Fax: 812-238-7380

Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**

Received: 11/7/2017

NELAC Certification #: 03036

Analytical Report

Sample Identification: 2017 J

Lab Sample #: 781704087-0001

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.102	0.216	11/27/17 01:33 PM	PM	1st	EPA 900.0 (Modified)
<MDA	0.147	0.283	11/27/17 01:33 PM	PM	1st	EPA 900.0 (Modified)

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Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


Peixue Ma, Radiological Laboratory Manager

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EMSL Order #: **781704088**
Customer ID: **UNHS29**
Customer PO: **R30010**

Attn: **Dean Taylor**
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1606 North 7th Street
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Phone: **812-238-7642**
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Project: **NUC Med Decommissioning 2017**

Collected: **Not Provided**
Received: **11/7/2017**

NELAC Certification #: **03036**

Analytical Report

Sample Identification: **2017 K**

Lab Sample #: **781704088-0001**

Date/Time Collected:

<u>Test Parameter</u>	<u>Result</u> <u>pCi/wipe</u>	<u>Uncertainty</u> <u>pCi/wipe</u>	<u>MDA</u> <u>pCi/wipe</u>	<u>Start Count Date/</u> <u>Time</u>	<u>Analyst</u>	<u>Status Count</u>	<u>Method</u>
Gross Alpha	0.103	0.081	0.089	11/27/17 01:34 PM	PM	1st	EPA 900.0 (Modified)
Gross Beta	<MDA	0.124	0.226	11/27/17 01:34 PM	PM	1st	EPA 900.0 (Modified)

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Report Date
11/28/2017

Report Revision
R0

Revision Comments
Initial Report


Peixue Ma, Radiological Laboratory Manager

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<http://www.emsl.com> cinnaminsonradonlab@emsl.comEMSL Order #: **781704089**Customer ID: **UNHS29**Customer PO: **R30010**

Attn: **Dean Taylor**
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1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**Fax: **812-238-7380**Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**Received: **11/7/2017**NELAC Certification #: **03036****Analytical Report**Sample Identification: **2017 L**Lab Sample #: **781704089-0001**

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.079	0.132	11/27/17 01:34 PM	PM	1st	EPA 900.0 (Modified)
<MDA	0.145	0.286	11/27/17 01:34 PM	PM	1st	EPA 900.0 (Modified)

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Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


Peixue Ma, Radiological Laboratory Manager

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EMSL Order #: 781704090

Customer ID: UNHS29

Customer PO: R30010

Attn: **Dean Taylor**
Union Hospital
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Phone: 812-238-7642

Fax: 812-238-7380

Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**

Received: 11/7/2017

NELAC Certification #: 03036

Analytical Report

Sample Identification: 2017 M

Lab Sample #: 781704090-0001

Date/Time Collected:

<u>Test Parameter</u>	<u>Result</u> <u>pCi/wipe</u>	<u>Uncertainty</u> <u>pCi/wipe</u>	<u>MDA</u> <u>pCi/wipe</u>	<u>Start Count Date/</u> <u>Time</u>	<u>Analyst</u>	<u>Status Count</u>	<u>Method</u>
Gross Alpha	<MDA	0.125	0.254	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)
Gross Beta	0.416	0.176	0.271	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)

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Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


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<http://www.emsl.com> cinnaminsonradonlab@emsl.comEMSL Order #: **781704091**Customer ID: **UNHS29**Customer PO: **R30010**Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804Phone: **812-238-7642**Fax: **812-238-7380**Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**Received: **11/7/2017**NELAC Certification #: **03036****Analytical Report**

Sample Identification: 2017 N

Lab Sample #: 781704091-0001

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
<MDA	0.105	0.190	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)
0.625	0.201	0.282	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)

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Report Date

11/28/2017

Report Revision

R0

Revision Comments

Initial Report


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<http://www.emsl.com> cinnaminsonradonlab@emsl.comEMSL Order #: **781704092**Customer ID: **UNHS29**Customer PO: **R30010**

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: **812-238-7642**Fax: **812-238-7380**Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**Received: **11/7/2017**NELAC Certification #: **03036****Analytical Report**Sample Identification: **2017 O**Lab Sample #: **781704092-0001**

Date/Time Collected:

<u>Test Parameter</u>	<u>Result</u> <u>pCi/wipe</u>	<u>Uncertainty</u> <u>pCi/wipe</u>	<u>MDA</u> <u>pCi/wipe</u>	<u>Start Count Date/</u> <u>Time</u>	<u>Analyst</u>	<u>Status Count</u>	<u>Method</u>
Gross Alpha	0.149	0.094	0.093	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)
Gross Beta	0.331	0.183	0.229	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)

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Report Date

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Initial Report


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EMSL Order #: 781704093

Customer ID: UNHS29

Customer PO: R30010

Attn: **Dean Taylor**
Union Hospital
1606 North 7th Street
Terre Haute, IN 47804

Phone: 812-238-7642

Fax: 812-238-7380

Project: **NUC Med Decommissioning 2017**Collected: **Not Provided**

Received: 11/7/2017

NELAC Certification #: 03036

Analytical Report

Sample Identification: 2017 P

Lab Sample #: 781704093-0001

Date/Time Collected:

Test Parameter**Gross Alpha****Gross Beta**

Result pCi/wipe	Uncertainty pCi/wipe	MDA pCi/wipe	Start Count Date/ Time	Analyst	Status Count	Method
0.160	0.105	0.132	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)
0.546	0.185	0.255	11/21/17 01:32 PM	PM	1st	EPA 900.0 (Modified)

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Report Date

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Report Revision

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Initial Report


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Union Hospital, Inc.
Imaging Services
1606 North Seventh Street
Terre Haute, Indiana 47804-2780

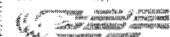
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Region III
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