MISSOURI ANALYTICAL LABORATORIES, INC.
---CHEMISTS - MICROBIOLOGISTS---

1820 DELMAR BLVD.
ST. LOUIS, MO 63103-1798 U.S.A
TELEPHONE 314-241-8772
FAX 314-241-8775
rossl@missourianalytical.com

September 22, 2017

United States Nuclear Regulatory Commission Region III
Attn: Materials Licensing Branch Chief
2443 Warrenville Rd., Suite 210
Lisle, IL 60532-4352

RE: NRC Material License No. 24-12366-01

Dear Sir/Madam,

Missouri Analytical Laboratories, Inc. currently has NRC Material License No. 24-12366-01 (Amendment No. 19) and has decided to cease licensed activities permanently at the entire site. Thus we request that our license be terminated and that our entire site be released for unrestricted use.

Attached is NRC Form 314, our "Protocol for the Disposition of Radioactive Material and the Decommissioning of the Site", dated July 18, 2017, and our report of the execution of this protocol.

Submitted by 9/22/17
Ross Larson
Radiation Safety Officer

Submitted by 9/22/17
Richard Gilbert
Vice President

NRC FORM 314 (02-2017)
10 CFR 30.36(j)(1); 40.42(j)(1); 70.38(j)(1); and 72.54(k)(5)(1)(1)

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF DISPOSITION OF MATERIALS

APPROVED BY OMB: NO. 3150-0028 EXPIRES: 02/29/2020

LICENSEE NAME AND ADDRESS	LICENSE NUMBER	DOCKET NUMBER
Missouri Analytical Laboratories, Inc. 1820 Delmar Blvd. St. Louis, MO 63103	24-12366-01	030-05138
	LICENSE EXPIRATION DATE: December 31, 2024	

A. LICENSE STATUS (Check the appropriate box)

☐ This license has expired. ☒ This license has not yet expired; please terminate it.

B. DISPOSAL OF RADIOACTIVE MATERIAL

(Check the appropriate boxes and complete as necessary. If additional space is needed, provide attachments)

The licensee, or any individual executing this certificate on behalf of the licensee, certifies that:

☐ 1. No radioactive materials have ever been procured or possessed by the licensee under this license.

☒ 2. All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner.

☒ a. Transfer of radioactive materials to the licensee listed below:
R.M. Wester and Associates, Inc., NRC license 24-20091-01, on September 15, 2017 transfer of sealed sources. Refer to attachments

☒ b. Disposal of radioactive materials:

☒ 1. Directly by the licensee:
Decay-in-Storage. Refer to attachment.

☐ 2. By licensed disposal site:

☐ 3. By waste contractor:

☒ c. All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA.

C. SURVEYS PERFORMED AND REPORTED

☒ 1. A radiation survey was conducted by the licensee. The survey confirms:

☒ a. the absence of licensed radioactive materials

☐ b. that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.

☒ 2. A copy of the radiation survey results:

☒ a. is attached; or ☐ b. is not attached (Provide explanation); or ☐ c. was forwarded to NRC on: _____ Date

☐ 3. A radiation survey is not required as only sealed sources were ever possessed under this license, and

☒ a. The results of the latest leak test are attached; and/or ☐ b. No leaking sources have ever been identified.

The person to be contacted regarding the information provided on this form:

NAME	TITLE	TELEPHONE (Include Area Code)	E-MAIL ADDRESS
Ross Larson	RSO	3142418772 (FAX) 3142418775	RossL@MissouriAnalytical.com

Mail all future correspondence regarding this license to:
Ross Larson, Missouri Analytical Laboratories, Inc.
1820 DELMAR Blvd., St. Louis, MO 63103

C. CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE	SIGNATURE	DATE
Ross Larson RSO	Ross Larson	September 22, 2017

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECT. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

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Protocol for the Disposition of Radioactive Material
and the Decommissioning of the Site

I. Introduction

Missouri Analytical Labs, Inc. currently has NRC Material License No. 24-12366-01 (Amendment No. 19) and has decided to cease licensed activities permanently at the entire site. Per our license, we are authorized to hold radioactive material with a half-life of less than or equal to 120 days for decay-in-storage. The byproduct material handled is P-32 with a half-life of 14.3 days. The last shipment of irradiated teeth was received on November 10, 2016 and the last generation of radioactive slurry was on January 4, 2017. Thus the most recent teeth and slurry have been held for decay-in-storage beyond 10 half-lives. No principal activity has been conducted since January 4, 2017. A report will be prepared by the RSO following the execution of this protocol and NRC Form 314 will be completed.

II. Disposition of Radioactive Material

Per our license, survey the radioactive material waste container surface with a calibrated survey meter set on its most sensitive scale and with no interposed shielding. The meter to be used is Victoreen Model 493, serial number 765, set at the lowest setting (1), and last calibrated on June 13, 2017 by R. M. Wester & Associates, 215 Indacom Dr., St. Peters, MO 63376. A record of the disposal will be made which includes the date of disposal, the date on which byproduct material was placed in storage, the radionuclide disposed, the survey meter used, the background dose rate, the dose rate measured at the surface of each waste container, the name of the individual performing the disposal, and the name of a witness to the disposal. In order to be eligible for disposal, all radioactive materials must be indistinguishable from background. Before disposal as ordinary trash, all radiation labels will be removed.

The following license-exempt sealed sources will be transferred to the licensee R. M. Wester & Associates:

1) ^{210}Bi, 0.0187 µCi, 4/22/74, NEN
2) ^{210}Bi, 0.0213 µCi, 11/12/87, NEN
3) ^{14}C, 0.148 µCi, 7/29/83, NEN
4) ^{60}Co, 0.040 µCi, 11/18/82, NEN
5) ^{60}Co, 0.042 µCi, 7/14/87, NEN
6) ^{137}Cs, 1.04 µCi, 1/12/84, NEN
7) ^{90} Sr, 0.022 µCi, 4/11/83, NEN

MISSOURI ANALYTICAL LABORATORIES, INC.

---CHEMISTS - MICROBIOLOGISTS---

Protocol for the Disposition of Radioactive Material
and the Decommissioning of the Site

Protocol (continued)

III. Radiation Survey

After all P-32 material has been properly disposed of, a radiation survey will be conducted of the Second Floor Lab Area and Lower Level Radioactive Decay-in-Storage Area where NRC licensed material has been used and stored. The areas surveyed are those depicted in Diagram 99.A.0 which is part of Missouri Analytical SOP Number 99.0 entitled "Radiation Safety Program". The new laboratory bench which was authorized for use of licensed materials in Amendment No. 17 was never put into service and thus will not be surveyed. Diagram 99.A.0 depicts the only areas in which licensed materials have been used or stored. The purpose of this radiation survey is to determine whether or not licensed radioactive materials are absent (indistinguishable from background) or whether any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.

IV. Wipe Testing

After the survey referenced in Section III is completed, wipe testing will be performed per SOP No. 99.0 (Radiation Safety Program). The areas to be wipe tested are those depicted in Diagram 99.A.0 and will include any area which the survey found to have an activity of greater than 0.1mR/hr. At each site, swab a 100 square cm area using a water-moistened cotton tip swab and an aluminum 100 square cm template. On the gas flow counter, count the calibrator, blank swabs, and test swabs 7 minutes. The gas flow counter used will be Tennelec APC-II, serial # 71629, calibrated with license-exempt sealed source ^{90}Sr, 0.022 µCi, 4/11/83, NEN. The purpose of the wipe testing is to determine whether or not licensed radioactive materials are absent (indistinguishable from background) or whether any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.

Submitted by _____ 7/18/17
Ross Larson
Radiation Safety Officer

Approved by _____ 7/18/17
Richard Gilbert
Vice President

MISSOURI ANALYTICAL LABORATORIES, INC.
---CHEMISTS - MICROBIOLOGISTS---

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Results of the Execution of "Protocol for the Disposition of Radioactive Material and the Decommissioning of the Site"

I. Introduction

Missouri Analytical Laboratories, Inc. currently has NRC Material License No. 24-12366-01 (Amendment No. 19) and has decided to cease licensed activities permanently at the entire site. Thus the document "Protocol for the Disposition of Radioactive Material and the Decommissioning of the Site", dated July 18, 2017, was written by the Radiation Safety Officer and approved by executive management. This report provides the results of the execution of this protocol.

II. Disposition of Radioactive Material

Per our license, we are authorized to hold radioactive material with a half-life of less than or equal to 120 days for decay-in-storage. The byproduct material handled is P-32 with a half-life of 14.3 days. The last shipment of irradiated teeth was received on November 10, 2016, the last generation of radioactive slurry was on January 4, 2017, and the last generation of planchets containing dried radioactive slurry was on January 5, 2017. Thus the most recent irradiated teeth, radioactive slurry, and radioactive planchets have been held for decay-in-storage beyond 10 half-lives. At the disposal date of June 16, 2017, for the most recent teeth, slurry, and planchets, the age was 218, 163, and 162 days, respectively. Per our license, before disposal as ordinary trash, byproduct material will be surveyed at the container surface with an appropriate survey meter set on its most sensitive scale and with no interposed shielding to determine whether its radioactivity cannot be distinguished from background.

The survey was conducted on June 15 and June 16, 2017 on all byproduct material by Ross Larson (RSO) and Nicole Engler (both authorized users per license). The survey meter used was Victoreen Model 493, serial number 765, set at the lowest setting (1), and last calibrated on June 13, 2017 by R. M. Wester Associates, 215 Indacom Dr., St. Peters, MO 63376 (NRC License 24-20091-01). The disposal record is attached and shows entries for date of disposal, date of storage, radio-nucleotides disposed and type of waste, survey instrument, background dose rate range in mR/hr, waste dose rate at surface in mR/hr, disposal signature, and witness signature.

The background dose rate was 0.00-0.06 mR/hr on June 15, 2017 and 0.00 to 0.05 mR/hr on June 16, 2017. The measured dose rate for all byproduct material was within these ranges. All byproduct material was indistinguishable from background, all radiation labels were removed, and all byproduct material was disposed of as ordinary trash. No byproduct material is present on our site.

MISSOURI ANALYTICAL LABORATORIES, INC.

---CHEMISTS - MICROBIOLOGISTS---

Results of the Execution of "Protocol for the Disposition of Radioactive Material and the Decommissioning of the Site"

Disposition of Radioactive Material (continued)

The following license-exempt sealed sources were transferred on September 15, 2017 to R. M. Wester & Associates, Inc., NRC license 24-20091-01, individual contact and phone number: Joseph D. Koch, 636-928-9628.

1) ^{210}Bi, 0.0187 µCi, 4/22/74, NEN
2) ^{210}Bi, 0.0213 µCi, 11/12/87, NEN
3) ^{14}C, 0.148 µCi, 7/29/83, NEN
4) ^{60}Co, 0.040 µCi, 11/18/82, NEN
5) ^{60}Co, 0.042 µCi, 7/14/87, NEN
6) ^{137}Cs, 1.04 µCi, 1/12/84, NEN
7) ^{90} Sr, 0.022 µCi, 4/11/83, NEN

No license-exempt sealed sources are present on our site.

III. Radiation Survey

On September 12, 2017, a radiation survey was conducted by Ross Larson and witnessed by Nicole Engler. The survey meter used was Victoreen Model 493, serial number 765, set at the lowest setting (1), and last calibrated on June 13, 2017 by R. M. Wester & Associates. The radiation survey covered the Second Floor Lab Area and Lower Level Radioactive Decay-in-Storage Area where NRC licensed material had been used and stored. All P-32 material had been properly disposed of prior to this survey. The background radiation was determined about 50 feet away from the licensed area and had the following readings:

Second Floor Lab Area: 0.00-0.06 mR/hr

Lower Level Radioactive Decay-in-Storage Area: 0.00-0.06 mR/hr

The result of the radiation survey was that no readings were outside of the background readings for the areas where NRC licensed material had been used and stored.

IV. Wipe Testing

After the survey referenced in Section III, wipe testing was performed per SOP No. 99.0, entitled "Radiation Safety Program". Diagram 99.A.0 (attached) depicts the areas where licensed materials were used or stored and the sites that were wipe tested. At each site, a 100 square cm area was swabbed using a water-moistened cotton tip swab and an aluminum 100 square cm template. Using a gas flow counter, the calibrator, blank swab, and each site test swab were analyzed 7 minutes for beta counts. The gas flow counter used was Tennelec APC-II, serial #71629,

MISSOURI ANALYTICAL LABORATORIES, INC.

---CHEMISTS - MICROBIOLOGISTS---

Results of the Execution of "Protocol for the Disposition of Radioactive Material and the Decommissioning of the Site"

Wipe Testing (continued)

calibrated with license-exempt sealed source ^{90}Sr, 0.022 µCi, 4/11/83, NEN on the day of the wipe testing (September 12, 2017). The swabbing was performed by Ross Larson and witnessed by Nicole Engler. The gas flow counter was operated by Nicole Engler and witnessed by Ross Larson. The dpm/100cm^2 for the test site swabs was calculated by Ross Larson and the calculations were checked by Nicole Engler.

The wipe test report is attached. The dpm/100cm^2 ranged from 0.73 to 8.93 for the test site swabs. The limit is 200 dpm/100cm^2.

V. Conclusion

All radioactive material has been removed from our site. The radiation survey and wipe testing have demonstrated that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA. Thus we request that our license be terminated and that our entire site be released for unrestricted use.

Submitted by _____ 9/22/17
Ross Larson
Radiation Safety Officer

Submitted by _____ 9/22/17
Nicole Engler
Licensed User

Reviewed by _____ 9/22/17
Richard Gilbert
Vice President

Disposal Record of Radioactive Waste Byproduct Material to ordinary Trash

Date of Disposal	Date of Storage	Radionuclides Disposed and Type of Waste	Survey Instrument	Background Base Rate Range in mR/hr	Waste Case Rate at Surface in mR/hr	Disposed By	Witnessed By
3/10/10	6/25/07	P-32 Slurry 1 gal	Victoreen 493	0.01 → 0.05	0.04		Nuclear Engr
3/10/10	11/1/07	P-32 Slurry 1 gal			0.04		Nuclear Engr
3/10/10	6/25/07	P-32 Slurry 1 gal			0.02		Nuclear Engr
3/10/10	6/27/07	P-32 Slurry 1 gal			0.02		Nuclear Engr
3/10/10	6/25/07	P-32 Slurry 1 gal			0.04		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.04		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.02		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.04		Nuclear Engr
3/10/10	2/4/09 3/4/09	P-32 Slurry 1 gal			0.04		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.01		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.02		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.05		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.02		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal			0.01		Nuclear Engr
3/10/10	2/4/09	P-32 Planchets			0.02		Nuclear Engr
3/10/10	2/4/09	P-32 Planchets			0.05		Nuclear Engr
3/10/10	2/4/09	P-32 Planchets			0.04		Nuclear Engr
3/10/10	2/4/09	P-32 Planchets			0.02		Nuclear Engr
3/10/10	2/4/09	P-32 Slurry 1 gal	↓	↓	0.05		Nuclear Engr
End of disposal Period			Ross Larson RSO		3/4/10		
6/15/17	8/2/11	P-32 Slurry 1 gal	Victoreen 493	0.0 → 0.06	0.02		Nuclear Engr
	12/29/10				0.01		Nuclear Engr
	12/29/10				0.03		Nuclear Engr
	8/2/11				0.03		Nuclear Engr
	12/29/10				0.0		Nuclear Engr
	7/24/10				0.01		Nuclear Engr
	12/24/10				0.0		Nuclear Engr
	3/10/10				0.01		Nuclear Engr
	2/10/10				0.03		Nuclear Engr
↓	7/24/10	↓	↓	↓	0.04		Nuclear Engr

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Disposal Record of Radioactive Waste Byproduct Material
To Ordinary Trash

Date of Disposal	Date of Storage	Radionuclides Disposed and Type of Waste	Survey Instrument	Background Dose Rate Range in mR/hr	Waste Dose Rate at Surface in mR/hr	Disposed by	Witnessed by
6/15/17	7/24/10	P-32 Slurry Vial	Victoreen 493	0.0 → 0.06	0.02	Barker	Hugh Engle
	12/29/10				0.02	Barker	Hugh Engle
	3/10/10				0.0	Barker	Hugh Engle
	7/24/10				0.0	Barker	Hugh Engle
	7/29/09				0.0	Barker	Hugh Engle
	10/26/09				0.01	Barker	Hugh Engle
	10/28/09				0.0	Barker	Hugh Engle
	10/26/09				0.02	Barker	Hugh Engle
	10/26/09				0.0	Barker	Hugh Engle
	8/2/11	P-32 Planchets			0.01	Barker	Hugh Engle
	3/10/10				0.02	Barker	Hugh Engle
	8/2/11				0.01	Barker	Hugh Engle
	11/2/09				0.01	Barker	Hugh Engle
	8/2/11				0.01	Barker	Hugh Engle
	2/6/09				0.01	Barker	Hugh Engle
	2/6/09				0.05	Barker	Hugh Engle
	11/2/09				0.02	Barker	Hugh Engle
	3/10/10				0.04	Barker	Hugh Engle
	8/2/11				0.01	Barker	Hugh Engle
	8/2/11				0.0	Barker	Hugh Engle
↓	11/2/09	↓	↓	↓	0.03	Barker	Hugh Engle
	End of disposal Barker, Ross Lawson, RSO 6/13/17						
6/16/17	2/7/13	P-32 Slurry Vial	Victoreen 493	0.0 → 0.05	0.0	Barker	Hugh Engle
	2/7/13				0.01	Barker	Hugh Engle
	2/17/12				0.04	Barker	Hugh Engle
	7/22/13				0.04	Barker	Hugh Engle
	2/7/13				0.04	Barker	Hugh Engle
	7/22/13				0.0	Barker	Hugh Engle
	2/17/12				0.04	Barker	Hugh Engle
↓	2/17/12	↓	↓	↓	0.03	Barker	Hugh Engle

Disposal Record of Radioactive Waste Byproduct Material To Ordinary Trash

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Date of Disposal	Date of Storage	Radionuclide Disposed and Type of Waste	Survey Instrument	Background Dose Rate Range in mR/hr	Waste Dose Rate at Surface in mR/hr	Disposed By	Witnessed By
6/16/17	2/17/12	P-32 Slurry 1 Gal	Victoreen 493	0.0-0.05	0.01		Nicole Engle
	5/29/14				0.01		Nicole Engle
	2/17/12				0.04		Nicole Engle
	2/17/12				0.03		Nicole Engle
	2/7/13				0.02		Nicole Engle
	2/17/12				0.04		Nicole Engle
	2/17/12				0.04		Nicole Engle
	5/29/14	P-32 Planchets			0.01		Nicole Engle
	5/29/14				0.01		Nicole Engle
	5/29/14				0.01		Nicole Engle
	5/29/14				0.01		Nicole Engle
	5/29/14				0.01		Nicole Engle
	6/29/14				0.0		Nicole Engle
	7/7/15	P-32 Teeth			0.01		Nicole Engle
	7/7/15				0.01		Nicole Engle
	1/5/17				0.02		Nicole Engle
	1/5/17	P-32 Planchets			0.04		Nicole Engle
	1/4/17				0.01		Nicole Engle
	1/4/17				0.0		Nicole Engle
	1/4/17	P-32 Slurry 1 Gal			0.02		Nicole Engle
	1/4/17				0.04		Nicole Engle
	1/4/17				0.02		Nicole Engle
	1/4/17				0.03		Nicole Engle
	1/4/17				0.02		Nicole Engle
	1/4/17				0.01		Nicole Engle
	7/7/15	P-32 Planchets			0.01		Nicole Engle
	7/7/15	P-32 Teeth			0.01		Nicole Engle
	7/7/15	P-32 Planchets			0.01		Nicole Engle
	7/7/15				0.0		Nicole Engle
	12/2/15	P-32 Slurry 1 Gal			0.01		Nicole Engle

Disposal Record of Radioactive Waste Byproduct Material To Ordinary Trash

Date of Disposal	Date of Storage	Radionuclides Disposed and Type of Waste	Survey Instrument	Background Dose Rate Range in mR/Hr	Waste Dose Rate at Surface in mR/hr	Disposed By	Witnessed By
6/16/17	12/2/15	P-32 & Urgy 1 Vial	Victoreen 493	0.0-0.05	0.02	[redacted]	Hugh Engle
	7/7/15				0.03	[redacted]	Hugh Engle
	7/7/15				0.03	[redacted]	Hugh Engle
	11/7/14				0.02	[redacted]	Hugh Engle
	12/7/14				0.04	[redacted]	Hugh Engle
	11/7/14				0.05	[redacted]	Hugh Engle
	11/7/14				0.05	[redacted]	Hugh Engle
	7/7/15				0.03	[redacted]	Hugh Engle
	7/7/15				0.01	[redacted]	Hugh Engle
	5/9/14				0.05	[redacted]	Hugh Engle
	7/22/13				0.04	[redacted]	Hugh Engle
	7/22/13				0.03	[redacted]	Hugh Engle
	5/29/14				0.02	[redacted]	Hugh Engle
	7/22/13				0.04	[redacted]	Hugh Engle
	12/2/15				0.01	[redacted]	Hugh Engle
	End of disposal [redacted], Ross Carson, RSO,						6/16/17

"Specializing In Your Radiation Safety Needs"

R. M. WESTER and ASSOCIATES, INC

215 Indacom Drive
St. Peters, MO 63376
(636) 928-9628
www.rmwester.com

September 15, 2017

Ross Larson
Missouri Analytical Laboratories, Inc.
1820 Delmar Blvd.
St. Louis, MO 63103 USA

Dear Mr. Larson,

This letter is to confirm receipt of the following sources at R. M. Wester and Associates, Inc., NRC license 24-20091-01 on September 15, 2017:

1) ^{210}Bi, 0.0187 µCi, 4/22/74, NEN
2) ^{210}Bi, 0.0213 µCi, 11/12/87, NEN
3) ^{14}C, 0.148 µCi, 7/29/83, NEN
4) ^{60}Co, 0.040 µCi, 11/18/82, NEN
5) ^{60}Co, 0.042 µCi, 7/14/87, NEN
6) ^{137}Cs, 1.04 µCi, 1/12/84, NEN
7) ^{90}Sr, 0.022 µCi, 4/11/83, NEN

Please feel free to contact me if you need additional information.

Sincerely,

Joseph D. Koch, PhD, RPIH
Director of Operations
R. M. Wester and Associates, Inc.

Shipper's No. _____ Date: September 15, 2017

Carrier: R. M. Wester and Associates, Inc.

at 1820 Delmar Blvd., St. Louis, MO from Missouri Analytical Laboratories, Inc.

To:

Consignee:	R. M. Wester and Associates, Inc.		Shipper:	Missouri Analytical Laboratories, Inc.	
Street:	215 Indacom Dr.		Street:	1820 Delmar Blvd.	
Destination:	St. Peters, MO	Zip 63376	Origin:	St. Louis, MO	Zip 63103
Route:	major roads and highways				

	HM							
1 box	X	UN2910	Radioacitve Material, Excepted Package,	7		1.332 uCi	5 lb	
			limited quantity of material					

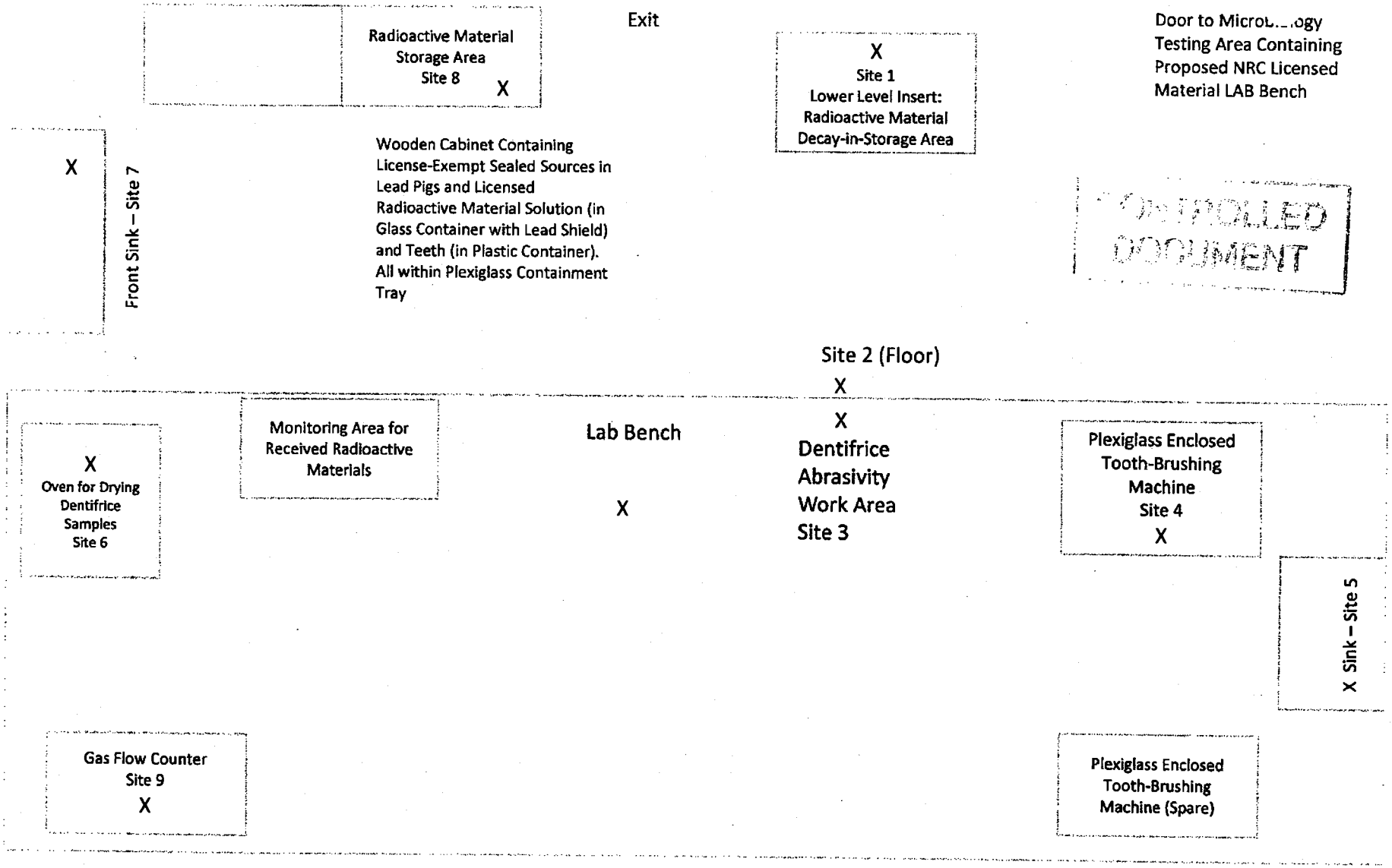
Shipper: Missouri Analytical Laboratories, Inc. Carrier: R. M. Wester and Associates, Inc

Per: Ross Larson Date: 9/15/17 Per: Joseph Koch Date: 9/15/17

Signature Ross Larson Signature: Joseph Koch

EMERGENCY RESPONSE TELEPHONE NUMBER: 636-928-9628

This is to certify that the above-named materials are properly classified, packaged, described, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Per above signature



Enlarged Diagram of Second Floor Lab Area and Insert of Lower Level Radioactive Material Decay-in-Storage Area Where Current NRC Licensed Material Are Used and Stored. X = Areas That Are Wipe-Tested On a Monthly Basis. Area Dimensions: 26 Feet Long By 17 Feet Wide. Diagram Date: June 26, 2014

Diagram 99.A.0

BATTERY DEAD TUE SEP 12, 2017
GROUP C

SAMPLE SN	CODE	TIME (MIN.)	ALPHA COUNTS	BETA COUNTS	ALPHA CPM	BETA CPM	TOD CLOCK HR:MN:SEC	
1		7.00	2	91417	0.28	13059.57	10:04:01	Calibrator
2		7.00	1	58	0.14	8.28	10:10:40	Blank (Background) Swab
3		7.00	5	83	0.71	11.85	10:17:19	Site 1 Swab
3		7.00	4	66	0.57	9.42	10:23:58	Site 2 Swab
3		7.00	1	75	0.14	10.71	10:30:38	Site 3 Swab
6		7.00	2	62	0.28	8.85	10:37:17	Site 4 Swab
7		7.00	1	60	0.14	8.57	10:43:56	Site 5 Swab
7		7.00	1	65	0.14	9.28	10:50:35	Site 6 Swab
9		7.00	0	74	0	10.57	10:57:15	Site 7 Swab
10		7.00	0	76	0	10.85	11:03:55	Site 8 Swab
11		7.00	0	64	0	9.14	11:10:35	Site 9 Swab

Other test swabs per survey result: No 9/12/17

Survey by: 9/12/17 Witnessed by: 9/12/17

Swabbed by: 9/12/17 Witnessed by: 9/12/17

Analysis (counting) by: 9/12/17 Witnessed by: 9/12/17

MISSOURI ANALYTICAL LABORATORIES, INC.

---CHEMISTS - MICROBIOLOGISTS---

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rossl@missourianalytical.com

Wipe Test Report

Date of Swabbing: September 12, 2017
Swabbed by: Ross Larson
Witnessed by: Nicole Engler
Instrument: Tennelec APC-II, serial #71629
Instrument Efficiency: 40%
Area Swabbed: 100 cm^2
Monitoring For: Phosphorus-32 beta counts
Counting Time: 7 minutes
Calibrator: ^{90}Sr, 0.022 µCi, 4/11/83, NEN

Article Counted	cp7m	cpm	cpm-blank	dpm/100 cm^2
Calibrator	91,417	13059.57	-	-
Blank Swab	58	8.28	-	-
Site 1 Swab	83	11.85	3.57	8.93
Site 2 Swab	66	9.42	1.14	2.85
Site 3 Swab	75	10.71	2.43	6.08
Site 4 Swab	62	8.85	0.57	1.43
Site 5 Swab	60	8.57	0.29	0.73
Site 6 Swab	65	9.28	1.00	2.50
Site 7 Swab	74	10.57	2.29	5.73
Site 8 Swab	76	10.85	2.57	6.43
Site 9 Swab	64	9.14	0.86	2.15
Other Swab	None	-	-	-

where dpm= cpm – blank (background) / 0.40

Limit: 200 dpm/100 cm^2

Submitted by [signature] 9/22/17
Ross Larson
RSO

Submitted by [signature] 9/22/17
Nicole Engler
Licensed User