



University Radiation Safety Office

Dennis Lawyer
Health Physicist
License Assistance Team
U.S. Nuclear Regulatory Commission Region I
2100 Renaissance Boulevard, Suite 100
King of Prussia, Pa 19406-2713

September 15, 2015

NRC License No. 47-05⁹72-02
Docket No. 03001142

Dear Mr. Lawyer:

This letter is written in response to your review of our application to renew Nuclear Regulatory Commission License No. 47-05972-02, Docket No. 03001142.

1. Response to the question about the mailing address for our license

We want to maintain the complete mailing address. Please use the following address on our license and for our mailing address:

Marshall University
University Radiation Safety Office
BBSC 301J
One John Marshall Drive
Huntington, WV 25755-2505

2. Response to the question about item 3 in our application regarding the specific buildings where radioactive materials may be used:

This is to confirm that specifically licensed materials may be used and possessed only in the following buildings at Marshall University:

- (1) Marshall University Main Campus
Robert C. Byrd Biotechnology Science Center
1700 Third Avenue
Huntington, West Virginia 25755

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Specifically licensed materials may be used and possessed only in the following buildings at Marshall University (continued):

(2) Marshall University Main Campus
Science Building
1705 Third Avenue
Huntington, West Virginia 25755

(3) Marshall University
Robert W. Coon Education Building
1542 Spring Valley Drive
Huntington, West Virginia 25704

In the original application, I did not include the street number for the Science Building but I did add it above.

3. Response to concerns regarding Item 5:

After carefully consideration of the options presented in your review of item 5 in our license renewal application, it was concluded that the Type B specific license of broad scope best suits the needs of Marshall University. To stay within the limits of the Type B specific license of broad scope, the following items were picked up for disposal on September 11, 2015.

(1) A Model 28-5 Beam Calibrator (SN: 5055) with a Cs-137 source
Manufacturer: U.S. Nuclear (ICN)
Original activity: 100 mCi (Reference date: 25 September 1979)

(2) A Model 773 Beam Calibrator (SN: 419) with a Cs-137 source
Manufacturer: Amersham
Original activity: 144.7 mCi (Reference date 24 January 1991)

(3) A Ra-Be source containing 5 mCi of Ra-226

(4) A 2 mCi Am-241 source

In addition, Item 5 of our renewal application was rewritten to include the limiting condition for a Broad Scope B license that wishes to stay "below the amount of material to have a prescribed value of \$1,200,000 and not use a Decommissioning Funding Plan" that you described in your e-mail of July 8, 2015. See attachment 1.

Furthermore, a new *Certification of Financial Assurance* was written and signed by the President of the University to reflect these conditions. This document also includes a written statement that commits Marshall University to maintaining an inventory below the stated levels. See attachment 2.

4. Response to the concern about sealed sources in our possession that do not appear to be in the Sealed Source Registry.

Two of the sources that were not found on the Sealed Source Registry, the Ra-Be source that was used with an Atomic Accessories Neutron Howitzer and the 2 mCi AM-241 sealed source, were shipped out for disposal as part of our plan to comply with the limits of a type B license as described above. The H-3 source in the Picker-Dresser Model 2920 Neutron Generator was also sent out for disposal. All of these sources were leak-tested before being picked up for disposal.

The two I-129 sources that we have are used for the sole purpose of calibrating well detectors.

- (1) The following information was provided with the LKB Wallac Source:

Product Number: 1270-102; Batch No, 8704A.

Activity: 0.0260 μ Ci

Use: its sole use is as a standard capsule for a LKB Wallac Gamma Counter.

Specification of Standard Capsule: the standard consists of iodine-129 in crystalline form.

The I-129 standard was prepared by the manufacturer by dispensing a ^{129}I -labeled NaI solution into a hollow polyester resin mold. The H_2O was then evaporated and the active NaI powder was sealed with more polyester to prevent the release of free iodine. The standard was sealed with a plastic plug which was then glued into position.

Preparation Date: 23 October 1987.

- (2) The NEN I-129 Source is a rod-shaped source that is also used for calibration in well detectors. It has an activity of 0.119 μ Ci. The reference date is 31 July 1979. Its product number is NES-211S.

5. Response to question regarding Item 6 (Purpose for Which Licensed Material Will Be Used)

We are specifically requesting the authorization to use byproduct materials in research involving laboratory animals. These studies will be limited to projects approved by both the Institutional Animal Care and Use Committee (IACUC) and the RSO.

Limitations on the use of by product materials in research involving animals

Marshall University has a state-of-the-art animal resources facility that is designed primarily for work with small animals. Therefore, *in vivo* studies involving the administration of radionuclides to animals that are housed in cages after the administration of the radionuclide will be limited to smaller animals such as rats and mice. *In vivo* administration of radionuclides will be limited to ^3H - and ^{14}C -labeled compounds.

For larger animals such as rabbits, radionuclides may be used in studies involving organs, tissues or cells only after the organs, tissues and cells have been harvested from the animal and placed in an approved *in vitro* incubation system. Similarly, *in vitro* studies using organs, tissues, and cells from smaller animals may be performed. The radionuclides used for *in vitro* studies will depend on the requirements of the project and the training and expertise of the User.

6. Response to the question about procedures for leak-testing

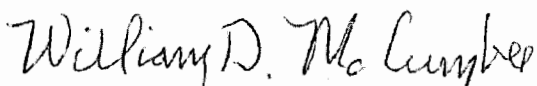
The following statement is for part 10.7 (Surveys) under Item 10 (Radiation Safety Program)

- Leak testing

We will implement the model leak test program published in Appendix T of NUREG-1556, Volume 11, 'Program-Specific Guidance About Licenses of Broad Scope'

7. The Self-Guarantee was amended so that Recital 19 references paragraph 18. See attachment 3.

Thank you for reviewing our application and working with us in getting our license into compliance with the limitations of a Type B specific license of broad scope.



William D. McCumbee, Ph.D.
Radiation Safety Officer
Marshall University
University Radiation Safety Office
BBSC 301J
One John Marshall Drive
Huntington, WV 25755
Telephone: (304) 696-7366
E-mail: mccumbee@marshall.edu

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Office of the President

CERTIFICATION OF FINANCIAL ASSURANCE

Principal: Marshall University
One John Marshall Drive
Huntington, WV 25704

NRC License Number: 47-05972-02
Marshall University
One John Marshall Drive
Huntington, WV 25704

Issued to: U.S. Nuclear Regulatory Commission

I certify that Marshall University is licensed to possess the following types of sealed sources or plated foils with a half-life greater than 120 days licensed under 10 CFR Part 30 and unsealed byproduct material with a half-life greater than 120 days licensed under 10 CFR Part 30 in the following amounts:

Type of Material	Amount of Material
As specified in Section 33.100, Schedule A of 10 CFR 33 (Type B Specific License of Broad Scope)	A. If only one radionuclide is possessed, the possession limit is the quantity specified for that radionuclide in 10 CFR 33.100, Schedule A, Column 1. If two or more radionuclides are possessed, the possession limit is determined as follows: For each radionuclide, determine the ratio of the quantity possessed to the applicable quantity specified in 10 CFR 33.100, Schedule A, Column 1 for that radionuclide. The sum of the ratios for all radionuclides possessed under the license shall not exceed unity.
	Notwithstanding Paragraph A of this condition and 10 CFR 33.100, Schedule A, Column 1, the applicable quantities for the following radionuclides are reduced to: Carbon 14 10 curies Krypton 85 10 curies Iodine 129 10 millicuries Any byproduct material other than alpha emitting byproduct material not listed in 10 CFR 33.100, Schedule A 10 millicuries

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Marshall University Certificate of Financial Assurance
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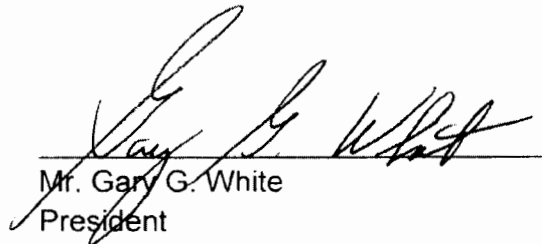
In addition to the limits described above, the licensee shall further restrict the possession of:

(1) unsealed byproduct material to amounts less than 10^5 times the applicable quantities of Appendix B to 10 CFR Part 30 as specified in 10 CFR 30.35(d). For a combination of isotopes, R divided by 10^5 shall be less than or equal to 1 when R is defined as the sum of the ratios of the quantity of each isotope to the applicable value in Appendix B to 10 CFR Part 30.

(2) sealed sources to amounts less than 10^{10} times the applicable quantities of Appendix B to 10 CFR Part 30 as specified in 10 CFR 30.35(d). For a combination of isotopes, R divided by 10^{10} shall be less than or equal to 1 when R is defined as the sum of the ratios of the quantity of each isotope to the applicable value in Appendix B to 10 CFR Part 30.

I commit Marshall University to maintaining an inventory below the level stated above.

I also certify that financial assurance in the amount of \$ 1,125,000 has been obtained for the purpose of decommissioning as prescribed by 10 CFR Part 30.



Mr. Gary G. White
President

August 11, 2015

[Corporate seal]

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Office of the President

SELF-GUARANTEE AGREEMENT

Guarantee made this 11th day of August, 2015 by Marshall University a nonprofit university, organized under the laws of the State of West Virginia, herein referred to as "guarantor," to the U.S. Nuclear Regulatory Commission (NRC) on behalf of ourselves as licensee.

Recitals

1. The guarantor has full authority and capacity to enter into this self-guarantee under its power specified by the State of West Virginia delegated by its Board of Governors.
2. This self-guarantee is being issued to comply with regulations issued by NRC, an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974. NRC has promulgated regulations in Title 10, Chapter I of the Code of Federal Regulations, Part 30, which require that a holder of, or an applicant for, a materials license issued pursuant to 10 CFR Part 30 provide assurance that funds will be available when needed for required decommissioning activities.
3. The self-guarantee is issued to provide financial assurance for decommissioning activities for Marshall University, One John Marshall Drive, License Number 47-05972-02 as required by 10 CFR Part 30. The decommissioning costs for these activities are as follows: \$1,125,000.
4. The guarantor meets or exceeds the following financial test criteria: A current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A (including adjustments of + and -) as issued by Standard & Poor's, or Aaa, Aa, or A (including adjustments of 1, 2, or 3), as issued by Moody's and agrees to comply with all notification requirements as specified in 10 CFR Part 30 and Appendix E to 10 CFR Part 30.

The guarantor meets the following self-guarantee test:

- (a) A current rating for its most recent uninsured, uncollateralized, and unencumbered bond issuance of AAA, AA, or A (including adjustments of + and -) as issued by Standard & Poor's, or Aaa, Aa, or A (including adjustments of 1, 2, or 3), as issued by Moody's.

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5. The guarantor does not have a parent company holding majority control of its voting stock.
6. Decommissioning activities as used below refer to the activities required by 10 CFR Part 30 for decommissioning of the facilities identified above.
7. Pursuant to the guarantor's authority to enter into this guarantee, the guarantor guarantees to NRC that the guarantor shall:
 - (a) carry out the required decommissioning activities, as required by License No. 47-05972-02 or
 - (b) set up a standby trust fund acceptable to the NRC as specified in 10 CFR Part 30 in the amount of the current cost estimates for these activities.
8. The guarantor agrees to submit revised financial statements, financial test data, and an auditor's special report and reconciling schedule annually within 90 days of the close of its fiscal year.
9. The guarantor agrees that if, at the end of any fiscal year before termination of this self-guarantee, it fails to meet the self-guarantee financial test criteria, it shall send within 90 days of the end of the fiscal year, by certified mail, notice to NRC that it intends to provide alternative financial assurance as specified in 10 CFR Part 30. Within 120 days after the end of the fiscal year, the guarantor shall establish such financial assurance.
10. The guarantor also agrees to notify the NRC in writing in advance of any proposed change in or transfer of ownership of the licensed activity and to maintain this guarantee until the new licensee provides alternative financial assurance acceptable to the beneficiary.
11. The guarantor agrees that if it determines, at any time other than as described in Recital 9, that it no longer meets the self-guarantee financial test criteria or it is disallowed from continuing as a self-guarantor, it shall establish alternative financial assurance as specified in 10 CFR Part 30, applicable, within 30 days.
12. The guarantor, as well as its successors and assigns, agrees to remain bound jointly and severally under this guarantee notwithstanding any or all of the following: amendment or modification of the license or NRC-approved decommissioning funding plan for that facility, the extension or reduction of the time of performance of required activities, or any other modification or alteration of an obligation of the licensee pursuant to 10 CFR Part 30.

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13. The guarantor agrees that it shall be liable for all litigation costs incurred by the NRC in any successful effort to enforce the agreement against the guarantor. Such litigation costs shall not be deducted from or otherwise reduce the financial assurance provided by this guarantee.
14. The guarantor agrees to remain bound under this self-guarantee for as long as it, as licensee, must comply with the applicable financial assurance requirements of 10 CFR Part 30. for the previously listed facilities, except that the guarantor may cancel this self-guarantee by sending notice by certified mail to NRC, such cancellation to become effective not before an alternative financial assurance mechanism has been put in place by the guarantor.
15. The guarantor agrees that if it, as licensee, fails to provide alternative financial assurance as specified in 10 CFR Part 30, as applicable, and obtain written approval of such assurance from NRC within 90 days after a notice of cancellation by the guarantor is received by NRC from the guarantor, the guarantor shall make full payment under the self-guarantee.
16. The guarantor expressly waives notice of acceptance of this self-guarantee by NRC. The guarantor also expressly waives notice of amendments or modifications of the decommissioning requirements.
17. If the guarantor files financial reports with the U.S. Securities and Exchange Commission, then it shall promptly submit them to its independent auditor and to NRC during each year in which this self-guarantee is in effect.
18. The guarantor agrees that if the guarantor admits in writing its inability to pay its debts generally, or makes a general assignment for the benefit of creditors, or any proceeding is instituted by or against the guarantor seeking to adjudicate it as bankrupt or insolvent, or seeking dissolution, liquidation, winding-up, reorganization, arrangement, adjustment, protection, relief or composition of it or its debts under any law relating to bankruptcy, insolvency, or reorganization or relief of debtors, or seeking the entry of an order for relief or the appointment of a receiver, trustee, custodian, or other similar official for the guarantor or for any substantial part of its property, or the guarantor takes any action to authorize or effect any of the actions stated in this paragraph, then the Commission may:
 - (a) Declare that the financial assurance guaranteed by the guarantee agreement is immediately due and payable to the standby trust set up to protect the public health and safety and the environment, without diligence, presentment, demand, protest, or any other notice of any kind, all of which are expressly waived by guarantor; and

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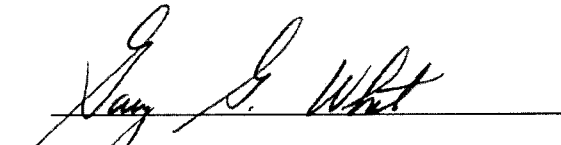
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- (b) Exercise any and all of its other rights under applicable law.
19. The guarantor agrees to notify the NRC, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code, or the occurrence of any other event listed in paragraph 18 of this guarantee and by or against the guarantor; the licensee; an entity (as that term is defined in 11 U.S.C. 101(14)) controlling the licensee or listing the license or licensees as property of the estate; or an affiliate (as that term is defined in 11 U.S.C. 101(2)) of the licensee. This notification must include: a description of the event, including major creditors, the amounts involved, and the actions taken to assure that the amount of funds guaranteed by the guarantee for decommissioning will be transferred to the standby trust as soon as possible; if a petition of bankruptcy was filed, the identity of the bankruptcy court in which the petition for bankruptcy was filed; and the date of filing of any petitions.
20. The guarantor expressly waives notice of acceptance of this guarantee by NRC or by Marshall University. The guarantor also expressly waives notice of amendments or modifications of the decommissioning requirements and of amendments or modifications of the license.
21. The guarantor agrees that if, at any time before termination of this self-guarantee, its most recent bond issuance ceases to be rated in any category of "A-" and above by Standard and Poor's or in any category of "A3" and above by Moody's, the licensee will notify the Commission in writing within 20 days after publication of the change by the rating service.

I hereby certify that this self-guarantee is true and correct to the best of my knowledge.

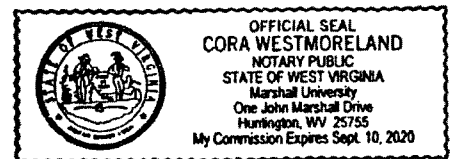
Effective date: August 11, 2015

Marshall University



Mr. Gary G. White
President

Signature of witness or notary 



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