

U.S. NUCLEAR REGULATORY COMMISSION

Amendment No. 02

**MATERIALS LICENSE**

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		In accordance with letter dated December 10, 2015,	
1. Niowave, Inc.		3. License number 21-35144-02 is <b>amended</b> in its entirety to read as follows:	
2. 1012 North Walnut Street Lansing, MI 48906-5061		4. Expiration date March 31, 2025	
		5. Docket No. 030-38770 Reference No.	
6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license	
A. Scandium-46	A. Solid	A. 1 millicurie	
B. Scandium-47	B. Solid	B. 1 millicurie	
C. Manganese-56	C. Solid	C. 1 millicurie	
D. Zinc-65	D. Solid	D. 1 millicurie	
E. Copper-67	E. Solid	E. 1 millicurie	
F. Selenium-75	F. Solid	F. 1 millicurie	
G. Yttrium-88	G. Solid	G. 1 millicurie	
H. Strontium-89	H. Solid	H. 1 millicurie	
I. Yttrium-90	I. Solid	I. 1 millicurie	
J. Molybdenum-99	J. Solid	J. 1 millicurie	
K. Holmium-166	K. Solid	K. 1 millicurie	
L. Iridium-192	L. Solid	L. 1 millicurie	
M. Gold-198	M. Solid	M. 1 millicurie	
N. Uranium-234	N. Solid	N. 0.015 gram (93.7 microcuries)	
O. Uranium-235	O. Solid	O. 2.3 grams (5 microcuries)	
P. Uranium-238	P. Solid	P. <b>288.9 grams (97.1 microcuries)</b>	
Q. Any byproduct material with Atomic Numbers 1-83 with a half-life less than or equal to 120 days	Q. Incidentally activated products in solid form	Q. 15 millicuries total	

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R. Any byproduct material  
with Atomic Numbers 1-83  
with a half-life greater than  
120 days

R. Incidentally activated  
products in solid form

R. 1.0 microcurie per  
radionuclide, 1.0 millicurie  
total possession

9. Authorized use:

A. through P. For research and development as defined in 10 CFR 30.4 (excluding separation, synthesis, and processing).

Q. and R. For possession and storage of byproduct materials incidental to target activation.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities located at 1012 North Walnut Street (including the Niowave Electron Research and Development facility), Lansing, Michigan.
11. The Radiation Safety Officer for this license is Valeriia Starovoirova, Ph.D.
12. Licensed material shall be used by, or under the supervision of, Terry Grimm, Ph.D., Valeriia, Starovoirova, Ph.D., and Erik Maddock.
13. This license does not authorize distribution pursuant to 32.72 or 32.74; to persons exempt from licensing; or to general licensees.
14.
  - A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed the intervals specified in the certificate of registration issued by NRC under 10 CFR 32.210 or by an Agreement State
  - B. In the absence of a certificate from a transferor indicating that a leak test has been made within the intervals specified in the certificate of registration issued by NRC under 10 CFR 32.210 or by an Agreement State prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested and the test results received.
  - C. Sealed sources need not be tested if they are in storage and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
  - D. The leak test shall be capable of detecting the presence of 0.005 microcurie (185 Becquerels) of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie (185 Becquerels) or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(c)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations.

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- E. Tests for leakage and/or contamination, including leak test sample collection and analysis, shall be performed by the licensee or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
- F. Records of leak test results shall be kept in units of microcuries and shall be maintained for 3 years.
15. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee, except as specifically authorized.
16. The licensee is authorized to hold byproduct material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash provided:
- A. Before disposal as ordinary trash, byproduct material shall be surveyed at the container surface with the appropriate survey meter set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
- B. A record of each disposal permitted under this license condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
17. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities less than  $10^4$  times the applicable quantities of Appendix B to 10 CFR Part 30 in unsealed form, and for a combination of isotopes, if R, as defined in Section 30.35(a)(1), divided by  $10^4$  is less than or equal to 1.

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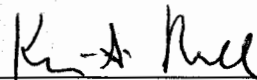
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18. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated February 11, 2015 (ML15043A755); and
- B. Letters dated February 11, 2015 (ML10543A755);  
February 24, 2015 (ML15065A251);  
March 5, 2015 (ML15065A252);  
March 18, 2015 (ML15077A371);  
**July 7, 2015 (excluding change to upper limit of low enriched uranium to <20%;  
ML15196A611);**  
**September 24, 2015 (ML15272A374), and**  
**RSO delegation of authority dated October 6, 2015 (ML15280A086).**

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date DEC 11 2015

By

Kevin G. Null  
Materials Licensing Branch  
Region III