

**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, 70 and 71, 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.

<b>Licensee</b>  1. Q Squared Solutions BioSciences, LLC  2. 5225 Exploration Drive Indianapolis, IN 46241		In accordance with letter dated March 21, 2019.	4. Expiration Date: September 30, 2021
		3. License number: 13-32830-01 is amended in its entirety to read as follows:	5. Docket No.: 030-38468 Reference No.:
6. Byproduct, source, and/or special nuclear material  A. Carbon-14  B. Hydrogen-3	7. Chemical and/or physical form  A. Any  B. Any	8. Maximum amount that licensee may possess at any one time under this license  A. 80 millicuries total  B. 80 millicuries total	9. Authorized use  A. For use in conducting metabolism studies.  B. For use in conducting metabolism studies.
<b>CONDITIONS</b>			
10. Licensed material may be used or stored at the licensee's facilities located at: 5225 Exploration Drive, Indianapolis, Indiana, 46241.			
11. A. Licensed material shall only be used by, or under the supervision of, Richard Smith.  B. The Radiation Safety Officer (RSO) for this license is David S. Heim.			
12. The licensee shall not use the licensed material in or on humans.			

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13. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
14. The licensee shall conduct a physical inventory every 6 months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sealed sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 3 years from the date of each inventory, and shall include the radionuclides, quantities, manufacturer's name and model numbers, and the date of the inventory.
15. Experimental animals, or the products from experimental animals, that have been administered licensed material shall not be used for human or animal consumption.
16. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
17. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or by an Agreement State. In the absence of a registration certificate, sealed sources shall be tested for leakage and/or contamination at intervals not to exceed 6 months, or at such other intervals as specified.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to primarily emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed 3 months.
- C. 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 the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or by an Agreement State, prior to the transfer, a sealed source received from another person shall not be put into use until tested and the test results received.

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- D. Sealed sources need not be tested if they contain only hydrogen-3; or they contain only a radioactive gas; or the half-life of the isotope is 30 days or less; or they contain not more than 100 microcuries of beta- and/or gamma-emitting material or not more than 10 microcuries of alpha-emitting material.
- E. 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.
- F. The leak test shall be capable of detecting the presence of 185 becquerels (0.005 microcuries) of radioactive material on the test sample. If the test reveals the presence of 185 becquerels (0.005 microcuries) 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.
- G. Analysis of leak test samples and/or contamination shall be performed by persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services. The licensee is authorized to collect leak test samples but not perform the analysis.
- H. Records of leak test results shall be kept in units of becquerels (microcuries) and shall be maintained for 3 years.
18. The licensee shall not acquire licensed material in a sealed source or device unless the source or device has been registered with the U.S. Nuclear Regulatory Commission pursuant to 10 CFR 32.210 or equivalent regulations of an Agreement State.
19. 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. This license condition applies only to those procedures that are required to be submitted in accordance with the regulations. 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 June 24, 2011 excluding Radiation Safety Manual dated June 2011 (ML111800523)

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- B. Letter dated August 29, 2011 (ML112710652)  
C. Letter dated October 24, 2011 (ML112991648)  
D. Letter dated November 1, 2011 with attached letter dated November 1, 2011 (ML113191349)  
E. Letter dated November 21, 2011 excluding Radiation Safety Manual dated November 2011 (ML113320459)  
F. Letter received May 10, 2013 (ML13135A641)  
G. Letter received July 26, 2013 (ML13207A404)  
H. Letter dated January 28, 2014 (ML14035A331)  
I. Letter dated March 21, 2014 (ML14094A231)  
J. Letter dated June 13, 2014 re: RSO Delegation of Authority (ML14171A336)  
K. Letter dated July 9, 2015 (ML15191A367)  
L. Letter dated August 17, 2015 (ML15267A263)  
M. Letter dated November 23, 2015 (ML15329A265)  
N. Letter dated March 21, 2019 (ML19095B604)



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date: May 23, 2019

By: \_\_\_\_\_

Frank F. D. Tran  
Region 3