



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RADIATION AND INDOOR AIR

National Analytical Radiation Environmental Laboratory
540 South Morris Avenue, Montgomery, AL 36115-2600
334-270-3400

October 24, 2016

Licensing Assistance Team
U.S. Nuclear Regulatory Commission
Division of Nuclear Materials Safety
Region 1
2100 Renaissance Blvd, Suite 100
King of Prussia, PA 19406-2713

Br. 2
03003576

REC-65110716M1010

Dear Sir/Madame:

The National Analytical Radiation Environmental Laboratory (NAREL) is requesting an amendment to our Materials License 01-07317-01 for the following changes:

Requested changes to item 7E:

Please amend the license to change the language in item 7E to "**Any**" and **remove** the following language: **Environmental samples, including samples from areas undergoing site radiological evaluation and remediation.**

Requested changes to item 8E:

Please amend the license to raise the maximum amount of any source material from 100 microcuries to 9 millicuries

Requested changes to condition 11B:

Please amend the license to add Erik Nielsen and David Saunders as users of radioactive materials.

Thank you for your timely consideration of this request. If you have any questions, please contact me at (334) 270-3401, or John Kirby at (334) 270-3439.

Sincerely yours,

John G. Griggs

John G. Griggs, Ph.D.
NAREL Director

592347
NMSS/RGN1 MATERIALS-002

David P. Saunders

Bio

July 26th, 2016

PERSONAL INFORMATION WAS REMOVED
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EDUCATION:

PhD. 1991 University of Texas at Austin, Nuclear Physics

Dissertation Title: "Pion Elastic and Inelastic Scattering from Nitrogen 15"

M.A. [REDACTED] University of Texas at Austin, Nuclear Physics

B.S. [REDACTED] US Air Force Academy, Physics

PROFESSIONAL HISTORY: Radiation Physicist in the US Air Force, Manager/Supervisor of the EPA/NAREL Radiological Counting Laboratory for 14 years, Test Scientist and Manager, Contracting Officer's Technical Representative (COTR/COR) and Subject Matter Expert for numerous contracts for development of Radiation Detection Instrumentation for the US Department of Homeland Security, Senior Research Fellow and Team Leader for development and use of Radioanalytical methods at the Centers for Disease Control and Prevention (CDC). My entire career has contained and concentrated on nuclear and radiation physics issues, and has done so in an environment where I have performed radioanalytical work using the full spectrum of appropriate radioanalytical equipment, including Gamma Spec, Alpha Spec, Gross Alpha/Beta, (both Liquid Scintillation and Gas Flow Proportional Counters), Scintillation Crystal, and Lucas Cell Scintillation detectors and systems, as well as Test and Evaluation of novel/new Radiation Detection and Measurement systems. I am considered an expert in the design, specification, calibration, maintenance, evaluation, use and repair of such systems, and have trained and supervised others in these areas. These tasks required proper use, control and storage of all types of radioactive sources, and supervision of Team members in the same. I have designed, specified and provided feedback on these instruments/systems for other agency staff, to other agencies, and to the leading manufacturers and vendors of these systems, as well as on systems and software for analysis of their output and automation of their operation. I have managed contracts and contractors, and supervised military and civilian employees from Airman Basic to PhD chemist/physicist level in all aspects of their design, acquisition and use. I have done all of these things in a military/government regulatory environment that included operations in consideration of Nuclear Regulatory Commission (NRC) and OSHA requirements. I have extensive experience operating under the Clinical Laboratory Improvement Amendment (CLIA) Quality Management System at the CDC, which is similar to ISO 15189 and essentially a clinical version of ISO 17025, and is mandated by US 42 CFR 493 for Clinical Laboratories. Also, though the NAREL earned National Environmental Laboratory Accreditation Program (NELAP) accreditation after I left, I was involved in preparations for it, and in the development of its Quality Management System and operation using Good Laboratory Practices. I've led numerous teams in the development of analytical Standard Operating Procedures, CLIA certified methods, performance of a multitude of RadioChemical analyses, research and development on state-of-the-art radioanalytical and radiation detection devices and systems, and performed and participated in testing, evaluation, validation, and regular use of these systems. I was instrumental in the conceptualization, design, testing, and implementation of EPA's RadNet system, including its use of Internet/network computer connectivity to speed data acquisition, analysis, presentation, and archive. I also conceptualized and implemented connection of local laboratory LANs to CDC's network/internet system for similar purposes. I have been a member of interagency working groups that include Federal, State, Local, and Tribal representatives that addressed radiological protection policies, capabilities and programs, including, but not limited to, the Interagency Steering Committee On Radiation Studies (ISCORS) Sewage Subcommittee, the National Association for Radiation Readiness (NARR), and I regularly Participate in and make presentations at the annual Radiochemical and Radiobioassay Measurements Conference (RRMC) the premiere international conference on this topic. My formal education, experimental laboratory experience, experience as a licensed electrician, and experience in designing and building modern computers and networks puts me head and shoulders above others with respect to ability to evaluate, maintain, and troubleshoot complex radioanalytical systems at all levels, from detectors to electronics, to computer systems and software. I have a thorough educational basis for this position, with a broad range of core and majors' scientific and technical courses constituting the coursework for my BS from the Air Force Academy, and with my Experimental Nuclear Physics Masters and PhD from the

University of Texas. I taught core and majors' physics courses at the US Air Force Academy as an Instructor and then Assistant Professor of Physics, and developed, course directed and taught a Nuclear Physics course there. I routinely use all of this training and experience to perform, or help others to perform, the activities required of this position, and to produce, analyze and review information/data of the appropriate, statistically demonstrable quality, for use in dose/risk assessment as well as in other regulatory or program processes.

Name: Erik C. Nielsen

Job Title: Health Physicist

Current Job Description: Serves on NAREL's Radiological Emergency Response Team (RERT) as the Mobile Environmental Radiation Laboratory team leader. Participate in the agency's response to radiological incidents and exercises nationwide. Manage the mobile laboratory assets (MERL, Sample Preparation Laboratory, Sample Receiving and Control) and integrated operations of all three. Provide leadership and technical guidance to laboratory team members. Coordinate the resources and activities of sample control, sample shipping, sample preparation, sample analysis and sample disposition. Oversee sample preparation, measurement and analysis as well as the documentation and adherence to chain of custody process to ensure proper sample identification, tracking, storage and shipping following established custody procedures. Implement contamination control procedures, health and safety plans and communicates analytical data to the designated unit.

Education:

Graduate Certificate in Public Management Practices (Environmental Risk Assessment), Sangamon State University, Springfield, IL, 1993.

44 Graduate hours toward a M.A., in Environmental Studies, Sangamon State University, Springfield, IL, 1989-92

BS Agricultural Science, Western Illinois University, Macomb, IL, [REDACTED]

Experience:

2002-2008: Senior Scientist with the Remote Sensing Laboratory USDOE/NNSA contractor in Las Vegas, NV. Served as the Laboratory Analysis Unit Leader in the Radiological Emergency Response Department of the Consequence Management Section. Evaluate and coordinate analytical support for the Federal Radiological Monitoring and Assessment Center (FRMAC) during emergency operations and training.

1992-2002: Senior Radiochemist with multiple commercial environmental testing laboratories. Updated operations and methods to meet NELAC and MARLAP guidance. Developed and documented radiochemistry methods to improve productivity. Trained and assisted analysts and technicians in performing radiochemical analysis. Supervised, operated, calibrated and maintained radiation counting equipment (gamma spectroscopy, x-ray spectroscopy, alpha spectroscopy, liquid scintillation and gas proportional instrumentation). Wrote and modified SOP's for all facets of operations involving radioactive materials and samples. Developed and implemented the QA/QC program for radiochemical data.

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Served as Radiation Safety Officer, responsible for all radioactive material license provisions.

1988-1992: Nuclear Safety Associate and Scientist with the Illinois Department of Nuclear Safety in the Radioecology and Radiochemistry Sections, Springfield, IL. Performed radiochemical analysis on environmental samples. Developed procedures to process nonstandard media (fish, soil, vegetation, milk, sediment, sludge) for low level counting of gamma emitters, carbon-14 and tritium in these matrices. Developed sampling strategy and collected environmental samples at various radiological licensee facilities. Operated field radiation detection equipment. Researched, developed and implemented sampling protocols for different sample matrices (water, soil, air and biota).

1982-1987: Nuclear, Biological and Chemical Warfare officer in the U.S. Army.

Certifications and special licenses:

Alabama Commercial Drivers License, Class A with endorsements for double and triple trailer combinations, Tanker and Hazardous Materials.

Awards and Recognitions:

EPA Bronze Medal - 2010

Publication

Radioanalytical data quality objectives and measurement quality objectives during a Federal Radiological Monitoring and Assessment Center response, Journal of Radioanalytical and Nuclear Chemistry, Vol. 276, No. 2 (May, 2008), pp. 347-351.

Nuclear/radiological emergency response in the USA, International Journal of Emergency Management (IJEM), Volume 4, Issue 3, (Fall 2007), pp. 339-355.

Federal Radiological Monitoring and Assessment Center: The Analytical Response, Journal of Radioanalytical and Nuclear Chemistry, Volume 263, Number 1 (January 2005). pp. 163-169.

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSEE

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, 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.

<p>Licensee</p> <p>1. U.S. Environmental Protection Agency National Analytical Radiation Environmental Laboratory</p> <p>2. 540 South Morris Avenue Montgomery, Alabama 36115-2601</p>		<p>In accordance with the application dated May 8, 2013,</p> <p>3. License number 01-07317-01 is amended in its entirety to read as follows:</p>	
		<p>4. Expiration date September 30, 2022</p>	
		<p>5. Docket No. 030-03576 Reference No.</p>	
<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Any byproduct material with atomic numbers 1 through 96</p> <p>B. Hydrogen 3</p> <p>C. Californium 252</p> <p>D. Byproduct material (from source material) as defined in 10 CFR 40.4 and paragraph 11.e(2) of the Atomic Energy Act</p> <p>E. Any Source Material</p> <p>F. Any special nuclear material</p>	<p>7. Chemical and/or physical form</p> <p>A. Any</p> <p>B. Any</p> <p>C. Any</p> <p>D. Contaminated soil and/or mill tailings</p> <p>E. Environmental samples, including samples from areas undergoing site radiological evaluation and remediation</p> <p>F. Any</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. 1 millicurie per radionuclide and 1 curie total, and see Condition 12</p> <p>B. 5 millicuries, and see Condition 12</p> <p>C. 1 microcurie and see Condition 12</p> <p>D. 9 millicuries</p> <p>E. 100 microcuries</p> <p>F. 10 microcuries per radionuclide and 100 microcuries total</p>	
<p>9. Authorized use:</p> <p>A. through F. Research and development as defined in 10 CFR 30.4; calibration and checking of licensee's instruments; collection and analysis of samples for all sources.</p>			

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

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Docket or Reference Number

030-03576

Amendment No. 50

CONDITIONS

10. Licensed material may be used or stored at the licensee's facilities located at 540 South Morris Avenue, Montgomery, Alabama, and at temporary job sites of the licensee anywhere in the United States.
11.
 - A. Licensed material shall be used by, or under the supervision of, Samuel W. Poppell.
 - B. Licensed material in items 6.A, 6.B., 6.D. through 6.F. may also be used by, or under the supervision of, John G. Griggs, Ph.D., and J. Scott Telofski.
 - C. The Radiation Safety Officer for this license is John K. Kirby.
12. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of unsealed byproduct material to quantities less than 10^5 of the applicable limits in Appendix B of 10 CFR Part 30, as specified in 10 CFR 30.35(d).
13. The licensee shall not use licensed material in or on human beings.
14. The licensee shall not use licensed material in field applications where it is released except as provided otherwise by specific condition of this license.
15.
 - A. Sealed sources shall be tested for leakage and/or contamination at intervals not to exceed six months or at the intervals specified in the certificate of registration issued by the U.S. Nuclear Regulatory Commission under 10 CFR 32.210 or under equivalent regulations of an Agreement State.
 - 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 under equivalent regulations of 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.
 - 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.

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- F. 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.
- G. 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.
- H. Records of leak test results shall be kept in units of microcuries and shall be maintained for 5 years.
16. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
17. The licensee shall conduct a physical inventory every six months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 5 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.
18. Maintenance, repair, cleaning, replacement, and disposal of foils contained in detector cells shall be performed only by the device manufacturer or other persons specifically authorized by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.
19. A. Detector cells containing a titanium tritide foil or a scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents the foil temperatures from exceeding that specified in the certificate of registration referred to in 10 CFR 32.210.
- B. When in use, detector cells containing a titanium tritide foil or a scandium tritide foil shall be vented to the outside.
20. 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 without regard to its radioactivity if the licensee:
- A. Monitors byproduct material at the surface before disposal and determines that its radioactivity cannot be distinguished from the background radiation level with an appropriate radiation detection survey meter set on its most sensitive scale and with no interposed shielding; and
- B. Removes or obliterates all radiation labels, except for radiation labels on materials that are within containers and that will be managed as biomedical waste after they have been released from the licensee; and

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- C. Maintains records of the disposal of licensed materials for 3 years. The record must include the date of disposal, the survey instrument used, the background radiation level, the radiation level measured at the surface of each waste container, and the name of the individual who performed the disposal.
21. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
22. 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 March 23, 2012 (ML12087A348)
B. Application dated May 8, 2013 (ML13179A176)

For the U.S. Nuclear Regulatory Commission

Original signed by Dennis R. LawyerDate August 21, 2013

By

Dennis R. Lawyer
Commercial and R&D Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406



ACKNOWLEDGEMENT - RECEIPT OF CORRESPONDENCE

Name and Address of Applicant and/or Licensee U.S. Environmental Protection Agency National Analytical Radiation Environmental Laboratory 540 South Morris Avenue Montgomery, AL 36115-2601	Date 11/30/2016
	License Number(s) 01-07317-01
	Mail Control Number(s) 592347
	Licensing and/or Technical Reviewer or Branch Comm, Industrial, R&D, and Academic Branch

This is to acknowledge receipt of your: ☒ Letter and/or ☐ Application Dated: 10/24/2016

The initial processing, which included an administrative review, has been performed.

☒ Amendment ☐ Termination ☐ New License ☐ Renewal

☒ There were no administrative omissions identified during our initial review.

☐ This is to acknowledge receipt of your application for renewal of the material(s) license identified above. Your application is deemed timely filed, and accordingly, the license will not expire until final action has been taken by this office.

☐ Your application for a new NRC license did not include your taxpayer identification number. Please complete and submit NRC Form 531, Request for Taxpayer Identification Number, located at the following link: <http://www.nrc.gov/reading-rm/doc-collections/forms/nrc531.pdf>
Follow the instructions on the form for submission.

☐ The following administrative omissions have been identified:

Your application has been assigned the above listed MAIL CONTROL NUMBER. When calling to inquire about this action, please refer to this control number. Your application has been forwarded to a technical reviewer. Please note that the technical review, which is normally completed within 180 days for a renewal application (90 days for all other requests), may identify additional omissions or require additional information. If you have any questions concerning the processing of your application, our contact information is listed below:

Region I
U. S. Nuclear Regulatory Commission
Division of Nuclear Materials Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406-2713
(610) 337-5260, (610) 337-5313,
(610) 337-5398, or (610) 337-5239