



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

February 17, 2017

Mr. John Miller  
International Isotopes, Inc.  
4137 Commerce Circle  
Idaho Falls, ID 83401

SUBJECT: LICENSE TERMINATION FOR INTERNATIONAL ISOTOPES, INC. –  
LICENSE SUB-1587

Dear Mr. Miller:

By letter dated June 9, 2016 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML17005A439), you requested that the U.S. Nuclear Regulatory Commission (NRC) terminate Materials License No. SUB-1587. Attached to your letter was a signed NRC Form 314, Certificate of Disposition of Materials, documenting that all remaining source and waste materials have been transferred for permanent disposal. We have reviewed your request, and we conclude that no further remediation or actions are required. Thus, your request for termination of the license is approved.

Amendment 3 to Materials License No. SUB-1587 is provided in Enclosure 1 to this letter. This amendment terminates your source material license. Our technical review for this licensing action can be found in Enclosure 2 to this letter. Based on our review, we have concluded that the original location of use had been effectively decommissioned and all licensable radioactive material has been removed and properly disposed. An environmental assessment for this licensing action is not required since this action is categorically excluded according to 10 CFR 51.22(c)(20)(iii).

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

J. Miller

- 2 -

Please contact Varughese Kurian at 301-415-7426 if you have any questions or require clarification on any of the information stated above.

Sincerely,

*/RA/*

John R. Tappert, Director  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 040-09058  
License No. SUB-1587

Enclosures:

1. Amendment 3 to License SUB-1587
2. Technical Evaluation Report

cc:

Mark Dietrich, Administrator  
Technical Services Division  
Idaho Department of Environmental Quality  
1410 North Hilton  
Boise, ID 83706

J. Miller

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## TECHNICAL EVALUATION REPORT

International Isotopes, Inc. (the licensee) submitted an application to the U.S. Nuclear Regulatory Commission (NRC) by letter dated April 18, 2005 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML051380491), for possession and use of source material. The licensee planned to use uranium in the form of depleted uranium tetrafluoride ( $\text{DUF}_4$ ) to produce fluorine gas. The licensee planned to conduct operations using licensed material in Building 1359, a building located across the street from the licensee's main office in Idaho Falls, Idaho. Wastes were expected to be shipped for disposal at a commercial waste disposal facility. The NRC subsequently issued Materials License SUB-1587 to the licensee on October 25, 2005 (ADAMS Accession Nos. ML052720024, ML052900521, and ML052720634), for possession of 6,000 kilograms of depleted uranium.

The licensee commenced with pilot plant operations in January 2006. The first NRC inspection was conducted in June 2006 (ADAMS Accession No. ML061670169). At that time, the licensee possessed about 15 pounds (6.8 kilograms) of  $\text{DUF}_4$  for production of small quantities of fluorine gas.

In January 2007, the licensee requested an amendment to the license to allow possession of depleted uranium at a warehouse located across the street from Building 1359. The licensee had constructed this warehouse in 2006, and the licensee wanted to store excess  $\text{DUF}_4$  at this location, in part, to reduce the amount of depleted uranium to be possessed in Building 1359 from 6,000 kilograms to 25 kilograms. The licensee also requested changes to the ventilation system and removal of the licensed limit on gaseous fluorine compounds in the building. The NRC requested additional information, and the licensee responded to this request with additional details in March 2007. The NRC approved the licensee's request and amended the license on July 27, 2007 (ADAMS Accession Nos. ML071580130, ML072050229, and ML072050211).

The NRC conducted a second inspection in July 2008 (ADAMS Accession No. ML082180884). At that time, the licensee was still conducting pilot plant operations and adjusting operations as necessary to improve the fluorine gas production process. The licensee possessed about 1,139 kilograms of source and waste material. The licensee was storing most of the licensed material at the warehouse, and the licensee was maintaining the 25-kilogram source material limit in Building 1359.

By letter dated June 25, 2013 (ADAMS Accession No. ML13178A215), the licensee notified the NRC that it had discontinued pilot plant operations in Building 1359. The licensee requested that the NRC amend the license to remove the building from the license and to convert the license to a possession and storage only license. The licensee indicated that it had moved all licensed material and contaminated equipment from Building 1359 to the warehouse. Further, the licensee requested the NRC to eliminate the requirement for a site security plan.

As part of its June 2013 license amendment package, the licensee voluntarily submitted a decommissioning plan (DP) to the NRC. The DP documented that the licensee had conducted research and development activities at Building 1359 from January 2006 through December 2012. The licensee conducted 87 test runs using 53 kilograms of DU material to produce fluorine gas. The licensee stated that depleted uranium was handled only in glove boxes and

Enclosure

fume hoods, and no spills or contamination events occurred outside of these enclosed spaces. The license amendment package also included a final status survey report which documented the results of the licensee's survey of Building 1359 in May 2013.

By letter dated October 21, 2013 (ADAMS Accession No. ML13281A154), the NRC asked the licensee for an alternate schedule for completion of the decommissioning process, as required by 10 CFR 40.42(i). By letter dated November 4, 2013 (ADAMS Accession No. ML13309B057), the licensee provided a proposed schedule for completion of decommissioning. At that time, the licensee planned to transfer the remaining DUF<sub>4</sub> material and salvageable equipment to its Hobbs, New Mexico, site for possession under NRC Materials License SUB-1011. The remainder of the contaminated equipment would be disposed at an authorized waste disposal site. The licensee planned to complete these activities by June 2016.

An NRC Region IV inspector conducted a confirmatory survey of Building 1359 on December 19, 2013. The inspector measured the ambient gamma radiation levels, surface contamination levels, and removable contamination levels in the building. The inspection confirmed that the licensee had permanently discontinued operations in Building 1359 and all remaining radioactive material had been moved to the warehouse. The inspector observed that the licensee had released the building at risk, and a company that manufactured printing equipment was occupying the building. As documented in NRC Inspection Report 040-09058/13-001 (ADAMS Accession No. ML14087A455), the NRC concluded that the licensee had incorrectly analyzed its survey data, and the licensee was subsequently cited for its failure to adequately survey the building prior to releasing the structure for unrestricted use. Because the licensee incorrectly surveyed the building, the NRC needed to ensure that the licensee had not released the building for unrestricted use without meeting the radiological criteria for unrestricted use after decommissioning.

The licensee updated the final status survey report and revised its proposed release criterion by letter dated February 25, 2014 (ADAMS Accession No. ML14063A473). The licensee subsequently updated the final status survey report a second time and submitted the updated report to the NRC by letter dated March 25, 2014 (ADAMS Accession No. ML14087A157). As part of the inspection process, the inspector reviewed the licensee's revised final status survey results and compared these results to the updated release criterion. The inspector noted that both the final status survey results and confirmatory survey results met the licensee's updated release criterion, indicating that the licensee had adequately cleaned the building.

The NRC staff conducted a technical review of the licensee's proposed release criterion as part of the NRC's review and approval of Amendment 2 for Materials License SUB-1587. As documented in the NRC's Safety Evaluation Report dated February 19, 2015 (ADAMS Accession No. ML14169A177), the NRC staff determined that the final status survey report and associated documentation demonstrated that the gross concentration of residual radioactive material associated with the survey units in Building 1359 was below the wide range derived concentration guideline level of 1,100 disintegrations per minute per 100-square centimeters. This correlates to an annual dose of 20 millirems to a member of the public as modeled using the NRC's DandD computer code, which satisfied the radiological criteria of 25 millirems per year for unrestricted use as provided in 10 CFR 20.1402. (The DandD computer code is referenced in NUREG-1757, Consolidated Decommissioning Guidance, Volume 1, Revision 2, as one method for demonstrating compliance with the dose criteria provided in 10 CFR Part 20,

Subpart E.) In addition, the NRC staff concluded that the DUF<sub>4</sub> inventory that was being stored in the warehouse did not pose a health or safety concern to workers or the environment.

The NRC issued Amendment 2 to the license on February 19, 2015 (ADAMS Accession Nos. ML14169A163, ML14169A171, and ML14169A177), in part, to remove Building 1359 as an authorized location of use. At that time, all remaining radioactive material possessed by the licensee under Materials License SUB-1587 continued to remain in storage in the licensee's warehouse.

On June 9, 2016, the licensee submitted a completed NRC Form 314, Certificate of Disposition of Materials, to the NRC (ADAMS Accession No. ML17005A439) and requested that the NRC terminate Materials License SUB-1587. The licensee provided documentation indicating that all remaining source and waste material had been shipped offsite for permanent disposal. The waste material was shipped from the warehouse in Idaho Falls, Idaho, on June 1, 2016, and the material was received by the waste disposal facility in Richland, Washington, on June 6, 2016. The licensee's waste disposal manifests are not publicly available because they contain potentially sensitive information.

The NRC staff conducted a review of the licensee's license termination request for compliance with the requirements provided in 10 CFR 40.42. The NRC confirmed that the building had been adequately cleaned. The licensee's final status survey results and the NRC's confirmatory survey results were less than the NRC-approved release criterion. Based in part on these survey results, the NRC staff confirmed that the building can be released for unrestricted use in accordance 10 CFR 20.1402, "Radiological Criteria for Unrestricted Use." Further, the licensee disposed of all remaining radioactive material previously possessed under Materials License SUB-1587 in storage at the warehouse. The licensee plans to continue using the warehouse for storage of radioactive material that it possessed under NRC Materials License No. 11-27680-01. Therefore, the NRC staff concluded that no further remediation or actions are required by the licensee for Materials License SUB-1587.

This decommissioning project was designated as a Group 2 project, using the guidance provided in NUREG-1757, Consolidated Decommissioning Guidance, Volume 1, Revision 2. Group 2 projects include sites that will be granted unrestricted release using screening criteria, and a DP is not required for conducting the decommissioning work. Although the licensee submitted a DP to the NRC in June 2013, the NRC staff concluded that the licensee was not required by 10 CFR 40.42(g) to submit a DP to the NRC for review and approval.

The NRC considered whether an environmental assessment was necessary to support this licensing action. Because this is a Group 2 decommissioning project, the NRC staff has determined that a categorical exclusion is appropriate under the provisions of 10 CFR 51.22(c)(20)(iii). This categorical exclusion applies to the decommissioning of sites where licensed operations have been limited to the use of radioactive material in such a manner that a DP is not required by 10 CFR 40.42(g)(1), and the NRC has determined that the facility meets the radiological criteria for unrestricted use under 10 CFR 20.1402 without further remediation or analysis. Therefore, in accordance with the National Environmental Policy Act and NRC regulations in 10 CFR Part 51, neither an environmental impact statement nor an environmental assessment is required for this license termination request.

Finally, the NRC staff conducted an assessment of the record requirements specified in 10 CFR 40.42(j) and (k). The NRC staff concluded that the licensee provided sufficient records to demonstrate the disposition of the radioactive material previously possessed under the license and the decommissioning and final survey of Building 1359. The licensee does not have to demonstrate that the warehouse has been effectively remediated, because the licensee plans to continue to store radioactive material in the warehouse under NRC Materials License No. 11-27680-01.