

October 25, 2005

Mr. John J. Miller, CHR  
Radiation Safety Officer  
International Isotopes Inc.  
4137 Commerce Circle  
Idaho Falls, Idaho 83401

SUBJECT: ISSUING A SOURCE MATERIALS LICENSE TO INTERNATIONAL ISOTOPES  
INC. (TAC LU0086)

Dear Mr. Miller:

By letter dated April 18, 2005, International Isotopes Inc. (I<sup>3</sup>) submitted an application for a Source Materials License for its Idaho Falls facility. The 10 CFR Part 40 license would authorize possession of depleted uranium in the form of UF<sub>4</sub>, U<sub>3</sub>O<sub>8</sub>, and UO<sub>2</sub> in an amount that will not exceed 6,000 kg (13228 lb) at the facility in the St. Leon Business Park on the north side of Idaho Falls, Idaho. The U.S. Nuclear Regulatory Commission (NRC) staff's review of the application resulted in a Request for Additional Information dated May 26, 2005. The applicant responded on June 16 and August 11, 2005. The NRC staff and the applicant also exchanged several e-mails to clarify different aspects of the review.

The NRC staff has completed its review of the license application, and has determined that it provides reasonable assurance that operation of the Idaho Falls facility complies with NRC regulations. The documentation of that review is in the safety evaluation report (Enclosure 1).

License SUB-1587 will be issued for a period of 10 years. The staff has included several License Conditions to ensure compliance with 10 CFR Part 40; to be consistent with regulatory guidance; and to ensure key program components are followed. The License Conditions are provided in Enclosure 2. The proposed License Conditions were transmitted to you in an e-mail dated September 27, 2005. The license itself is Enclosure 3.

The NRC staff determined that a categorical exclusion under the provisions of 10 CFR 51.22(c)(14)(xvi) is appropriate for this licensing action. 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.

If you have any questions regarding either this letter or the enclosures, please contact Michael Raddatz of my staff at (301) 415-6334, e-mail [mgr@nrc.gov](mailto:mgr@nrc.gov), fax (301) 415-5390, or by mail to NRC Document Control Desk, Michael Raddatz, Mail Stop T-8F42, 11555 Rockville Pike, Rockville, MD 20852-2738.

J. Miller

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In accordance with 10 CFR 2.390 of the NRC's Rules of Practice, a copy of this letter will be available electronically from the Publicly Available Records (PARS) component of NRC's document management system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Gary S. Janosko, Chief  
Fuel Cycle Facilities Branch  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 40-6940  
License No. SUB-1587

Enclosures: 1. Safety Evaluation Report  
2. License Conditions  
3. License

J. Miller

2

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OFFICIAL RECORD

**SAFETY EVALUATION REPORT  
LICENSE RENEWAL APPLICATION  
INTERNATIONAL ISOTOPES INC.  
IDAHO FALLS, IDAHO**

**DATE:** October 27, 2005

**DOCKET NO.:** 40-9058

**LICENSE NO.:** SUB-1587

**FACILITY:** International Isotopes Inc.  
4137 Commerce Circle  
Idaho Falls, ID 83401

**TECHNICAL REVIEWERS:** Michael Raddatz, Rex Wescott, Merritt (Nick) Baker, and Edward Johannemann III

**PROJECT MANAGER:** Michael Raddatz

**SUMMARY AND CONCLUSIONS**

By letter dated April 18, 2005, International Isotopes Inc. (I<sup>3</sup>) submitted a request for a Source Materials License for a process to recover fluorine from UF<sub>4</sub>. The facility will be located in Idaho Falls, ID. The U.S. Nuclear Regulatory Commission (NRC) staff conducted an initial review of the application and requested additional information on May 26, 2005. I<sup>3</sup> responded by letters dated June 16 and August 11, 2005. These letters addressed the most significant of the staff's concerns. I<sup>3</sup> sent several followup e-mails to clarify other matters.

Following the applicable portions of NUREG-1520 (Standard Review Plan for the Renewal of a License Application for a Fuel Cycle Facility), the NRC staff evaluated the safety and environmental aspects of the license application. The decommissioning funding plan was reviewed according to NUREG-1757, Volume 3 Consolidated NMSS Decommissioning Guidance. This safety evaluation report (SER) describes the basis for the approval of the license.

The current and proposed activities protect the health and safety of the workers, the public, and the environment. The staff recommends approval of the license request. The 10-year period of the license is appropriate because risk to public health and safety is low and adequate monitoring programs are in place.

## DISCUSSION

### 1.0 GENERAL INFORMATION

#### 1.1 License History and Background

This is a new license.

#### 1.2 Corporate Identity and Financial Qualifications

I<sup>3</sup> has stated that it intends to conduct business in a manner that protects the environment, the surrounding population, and provides a safe work environment to its employees. From 1996 to 2001, I<sup>3</sup> operated and managed the Department of Energy's Test Reactor Area hot cell facility at the Idaho National Engineering and Environmental Laboratory. In September 2001, the company began Part 30 licensed operations at its Idaho Falls facility under NRC License No. 11-27680-01. During the past 4 years the company's scope of radiological work has increased to its present day level, handling significant (kilocurie) quantities of radioactive materials.

#### 1.3 License Application

I<sup>3</sup> proposes to increase the storage and use of depleted uranium (DU) at its facility to increase the production of GeF<sub>4</sub>. To accomplish this increase, I<sup>3</sup> is applying for a license from the NRC to receive and to store up to 5000 kilograms (13228 lb) of DU at any one time with an additional 1000 kilograms (2646 lb) of DU in process equipment.

The purpose of the GeF<sub>4</sub> process is to develop high-purity gases for the semiconductor industry. I<sup>3</sup> wants to increase production of GeF<sub>4</sub> and develop production of other fluoride products. I<sup>3</sup> owns the rights to an exclusive patent for the reaction of depleted uranium tetrafluoride to form gases such as GeF<sub>4</sub>, silicon tetrafluoride, boron trifluoride, and tungsten hexafluoride.

#### 1.4 Facility and Process Description

The I<sup>3</sup> facility is located in the St. Leon Business Park on the north side of Idaho Falls, Idaho. The building is constructed of expanded polymer block filled with approximately 4 inches of concrete. The St. Leon Business Park has a common well that supplies untreated water to the I<sup>3</sup> facility and several other businesses in the park. The facility is approximately 80 feet wide by 100 feet deep. There is approximately 2400 square feet of office space, which includes a conference room, two small restrooms, a break room and a small utility closet. The remainder of the facility space is devoted to material handling, storage, processing, and gas collection. The facility has its own septic system that serves both the restrooms and treated waste water system. There are floor drains in the restrooms and utility closet.

I<sup>3</sup> produces GeF<sub>4</sub> for the semiconductor market. DU, in granular form, is mixed with germanium oxide (GeO<sub>2</sub>) in a mixing container in an enclosed glove box and mixer. The mixed material is then moved to the furnace and heated to form GeF<sub>4</sub> gas. The gas exits into the gas recovery system, where it is cooled through a heat exchanger. Then the GeF<sub>4</sub> is liquefied, and a valve is opened to allow the carrier gases (O<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>, etc.) to leave. The evacuation valve

closes, the storage container is heated, and a storage bottle is filled with GeF4. The total gas captured by this process is estimated to be 95 percent of the total gas that left the furnace.

## 1.5 Findings

The staff reviewed the corporate information and the general facility and detailed process descriptions for the Idaho Falls plant. The financial information adequately shows the resources available to I<sup>3</sup>. The applicant has described the site and has summarized the processes, in enough detail, for the staff to understand the plant operation and material handling procedures for ore, product, and waste.

## 2.0 ORGANIZATION AND ADMINISTRATION

### 2.1 Management Program

The attachment to Block 7, Form 313, of the license application identifies the management organization and the responsibilities of the I<sup>3</sup> staff. The president and chief executive officer (CEO) of the Idaho Falls facility has the overall responsibility for the activities involving the health, safety and protection of the employees, the general public, and the environment. The radiation safety officer (RSO) is responsible for the implementation of the radiation safety program. The other critical operations personnel include the fluorine products operations/safety manager, the fluorine products senior scientist, and the fluorine products system engineer. These individuals are responsible for the company's compliance with policies and procedures. The RSO reports directly to the CEO. The RSO's responsibilities include ensuring and monitoring compliance with local, State, and Federal regulations protecting the environment and the health and safety of the public. The RSO has the authority to stop production or other operations in order to protect the environment, the public, or the health and safety of workers.

### 2.2 Audits and Assessments

The purpose of the Radiation Safety Audit Program is to assure, on a rotational basis, that each area of the facility is given an annual in-depth inspection by a member of the I<sup>3</sup> ALARA/Safety Committee or an outside contractor concentrating on radiological hazards.

The radiation safety audit is conducted and documented in accordance with company operating procedures, and a Radiation Safety Audit Program. A copy of the procedure for this program was provided for staff review.

### 2.3 Incident Investigations

The RSO is responsible for investigating, recording, and reporting incidents, then tracking corrective actions. An incident investigation program is in place with procedures addressing training, reporting, communication of the investigation results, and follow up corrective actions.

### 2.4 Findings

The management structure and audit and incident investigation program meet the intent of the regulations. The implementation of these programs will be examined during periodic NRC inspections.

### 3.0 MATERIAL RECEIPT AND ACCOUNTABILITY

#### 3.1 Material Control and Accounting

Material control and accounting (MC&A) requirements are contained in 10 CFR 40.64. Subsections (a) and (b) specifically delineate when shipments, receipts, and total inventories of source material must be reported. Such requirements generally apply to licensees that ship and/or receive material with foreign treaty obligations or possess 1,000 kilograms or more. Subsection (c) specifies when reports are required for possible theft or diversion of licensed source material. Record retention requirements associated with the receipt and/or disposal of licensed source material are stated in 10 CFR 40.61.

#### 3.2 Discussion

Subsection 40.64(a) requires licensees who transfer, receive, or adjust in any manner the inventory of source material with foreign obligations by 1 kilogram or more or who import or export 1 kilogram of source material to complete a nuclear material transaction report in accordance with the instructions in NUREG/BR-0006. However, the license application does not specifically reference compliance with §40.64(a). As such, a license condition requiring compliance with §40.64(a) will be required. Section 40.64 (b) requires each licensee authorized to possess at any one time and location more than 1,000 kilograms of source material to submit a yearly report of its source material with foreign obligations as defined in 10 CFR Part 40. This information is to be submitted as detailed in NUREG/BR-0007. However, the license application does not specifically reference compliance with §40.64(b). Therefore, a license condition requiring compliance with §40.64(b) will be required.

Subsection 40.64(c) delineates when and how a licensee will notify NRC of attempts to commit a theft or unlawful diversion of licensed materials. However, the license application does not specifically refer to 40.64(c). Therefore, a license condition requiring compliance with 40.64(c) will be imposed.

In addition to the MC&A requirements mentioned above, §40.61 contains specific record keeping requirements, including those related to MC&A documentation. These commitments were not found in the license application request. As such, a license condition requiring compliance with §40.61 will be required.

#### 3.3 Findings

The license application does not specifically state or otherwise affirm the MC&A regulatory requirements that the licensee must meet. Therefore, the staff has recommended that specific license conditions be issued, clearly stating the MC&A requirements applicable to the license.

MC&A-1      The licensee shall report any transfers, receipts, or adjustments to the inventory in any manner of source material with foreign obligations by 1 kilogram or more, imports or exports of 1 kilogram or more of source material as defined in 10 CFR 40.64(a), "Reports."

- MC&A-2 As long as the licensee is authorized to possess at any one time and location more than 1,000 kilograms of source material, it will submit a yearly report of its source material with foreign obligations as defined in 10 CFR 40.64(b), "Reports."
- MC&A-3 The licensee shall comply with the reporting requirements contained in 10 CFR 40.64(c) related to when an attempt has been made, or is believed to have been made, to commit a theft or unlawful diversion of source material in the quantities specified in this part.
- MC&A-4 The licensee shall maintain records as delineated in 10 CFR 40.61, "Records."

#### 4.0 RADIATION PROTECTION AND MONITORING

##### 4.1 Radiation Protection and ALARA Programs

As required under 10 CFR 20.1101, I<sup>3</sup> has both a radiation protection program and a program to ensure that exposures are ALARA. The radiation protection program includes monitoring of radiation exposure (internal and external), environmental monitoring, and effluent control, and is described in Block 10, Form 313, of the License application.

I<sup>3</sup> has an ALARA Committee that is required to meet at least quarterly to address radiation safety, occupational safety, and the health of both workers and the public. The Committee reviews the radiation monitoring results and makes recommendations to achieve ALARA levels in radiation protection. The Committee will also review any employee submittals, processes, procedures, or programs whose implementation may impact compliance with ALARA. I<sup>3</sup> will be required, by a specific license condition, to ensure that the Committee's recommendations are presented to and dispositioned by I<sup>3</sup> management.

##### 4.2 Radiation Protection Procedures and Controls

I<sup>3</sup> maintains current and accurate written procedures of the activities for the radiation safety program in the RSO's Operations Manual. The procedures are reviewed annually, revised as necessary, and are kept available for NRC review.

Administrative controls at the facility include: required training for workers; inventory tracking, restricted access to the area of airborne radioactivity; investigation if monitoring results exceed 30 percent of the limits; and prohibiting eating, drinking, and smoking or chewing of tobacco in the plant process areas. In addition, protective clothing may be used to minimize staff contamination.

##### 4.3 Radiation Safety Training and Qualifications

I<sup>3</sup> has a radiation safety and emergency personnel training program to ensure appropriate training of employees working with or around licensed materials. The RSO is responsible for training all employees, including appropriately training visitors and new employees (monthly and quarterly). The training program was designed to meet requirements of 10 CFR Parts 19 and 20. The program includes refresher training. The radiological protection training program includes general plant safety rules as well as fire and chemical safety. I<sup>3</sup> has also committed to

maintain its safety and emergency training program in accordance with the State regulations.

#### 4.4 Ventilation and Respiratory Protection

The applicant has stated that all required equipment has been installed per Occupational Safety and Health Administration requirements.

#### 4.5 Radiation Surveys and Occupational Monitoring

Block 10 of Form 313 demonstrates that the I<sup>3</sup> Radiation Protection Program meets the requirements of 10 CFR Part 20. Examples of procedures to be used by I<sup>3</sup> staff were submitted as part of the licensing package. The staff reviewed the procedures and found them to be adequate. Implementation of the procedures will be reviewed during periodic inspections by both regional and headquarters NRC personnel.

#### 4.6 NRC Inspections

NRC inspections of I<sup>3</sup> operations will be scheduled as the operations at the Idaho facility come into full production.

#### 4.7 Findings

The staff has reviewed the licensee's radiation control and occupational monitoring programs and the results of NRC inspections. I<sup>3</sup> has adequate administrative and engineering controls in place designed to minimize exposure of employees and members of the public to radioactive material. The staff determined that these programs meet the regulations, are consistent with regulatory guidance, and are adequate to protect the health and safety of the workers. However, the staff is requiring a license condition requiring that the recommendations of the ALARA committee be presented to management, and that management document how each is dispositioned.

RP-1 The ALARA Committee recommendations must be presented to management and management must document how each recommendation is dispositioned.

#### 5.0 CHEMICAL AND INDUSTRIAL SAFETY

Chemical and industrial safety are addressed in the license application. The applicant commits to comply with the Emergency Planning and Community Right To Know Act (EPCRA), and 29 CFR 1910.119, as applicable. Because the licensed operation is likely to be exempt from 29 CFR 1910.119 because inventories are far less than the threshold quantities, the applicant has also committed to a safety and health program in accordance with 29 CFR 1910.120(b). The majority of the safety program will be elements of the site-specific Safety and Health Plan required by the regulation.

### 5.1.1 Process Safety Information

The applicant commits to a central file location for employee awareness materials, new material and safety meetings, and exposure testing. The central safety center will contain material safety data sheets and other emergency response equipment.

### 5.1.2 Process Hazard Analysis (PHA)

The applicant submitted a pre-construction PHA via letter dated July 25, 2005.

### 5.1.3 Training

The applicant commits to general employee training under the radiological safety training program, including training in the use of hazardous materials. Employees who routinely work with hazardous materials will receive 40 hours of training as required for a hazardous material industry technician. The applicant commits to mandatory training in accordance with 29 CFR 1910.120(e) and to emergency responder training in accordance with 29 CFR 1910.120(q)(6).

### 5.1.4 Contractors

The site Safety and Health Plan and Emergency Response Plans apply to contractors when they are retained by the applicant.

### 5.1.5 Emergency Planning

The applicant commits to an emergency response plan and has provided information to the Idaho Falls Fire Department Hazardous Material Response Team and conducted a tour for responders.

### 5.1.6 Monitoring

The application commits to monitoring of gases containing fluorine. Toxic and flammable gas detectors are listed in the Process and Facilities Description.

### 5.1.7 Personnel Protective Equipment (PPE)

The applicant commits to the use of proper PPE, including vapor-proof eye protection and respiratory protection. Filtered fume hoods and glove boxes are used to control contamination and airborne concentration levels.

## 5.2 Findings

Based upon a review of the information provided by the licensee, the staff has reasonable assurance that if controls are maintained in accordance with industry standards the controls should be available and reliable when required to perform their safety functions. The NRC staff will review the safety controls, and I<sup>3</sup>'s plan for managing chemical process safety when the staff performs its next scheduled routine inspection of the facility.

## 6.0 FIRE SAFETY

Details of the fire safety program for I<sup>3</sup> are provided in “Emergency Plan and Fire Prevention Program” (I4-ES&H-006) which was attached to the license application in John Miller’s letter dated August 11, 2005, to Michael Raddatz, responding to NRC comments on I<sup>3</sup>. These two documents provide details on fire protection systems and the facilities fire safety program.

### 6.1 General Fire Protection

Portable fire extinguishers provide the primary means of onsite fire suppression capability. Fire extinguishers are provided for employee use for Class A, B, C, and D fires located as per the requirements of National Fire Protection Association (NFPA 10). All fire extinguishers will be visually inspected on a monthly basis and will undergo an annual maintenance check. Refillable dry chemical and carbon dioxide extinguishers will be hydrostatically tested in accordance with NFPA 10 requirements. Fires that cannot be extinguished by portable extinguishers will be responded to by the Idaho Falls Fire Department, Station 12. I<sup>3</sup> has provided the Idaho Falls Fire Department with a fire preplanning checklist. The applicant has not installed a sprinkler system, and the Bonneville County Zoning and Planning board has concluded that a sprinkler system is not required. There are smoke alarms contained in Building 4137, Room 112, which contains cobalt-60. Pull stations and temperature rise detectors are located in Building 1359 which contains a gas cabinet.

### 6.2 Fire-Related Accident Scenarios

Fire scenarios developed by the applicant include a High Efficiency Particulate Air (HEPA) filter fire, localized fires involving depleted uranium and fluorine gas, and a major building fire.

The applicant postulates the occurrence of a filter fire would probably result from an electrical malfunction associated with the fan motor. The maximum consequence, estimated by the applicant, is a release of 0.5 mg uranium and does not result in any measurable consequence. In addition, the filter is a small portable unit, and any fire that might result in it could be readily extinguished.

The localized fires are postulated to occur in the GeF<sub>4</sub> Production Hood located in Room 301, and in the inductively coupled plasma-mass spectroscopy (ICP-MS) hood located in Room 302, Analytical Laboratory. The GeF<sub>4</sub> production hood would contain both depleted uranium and fluorine gas in production quantities. The depleted uranium is isolated within the reaction furnace. The furnace is electrically heated and has an over temperature feature which will secure power to the heating element of the furnace. The furnace also has a manual shutdown feature. The applicant does not consider a release to be credible. The ICP-MS has temperature controls to minimize overheating and the volume of sample gases used in the ICP-MS is minimal. The amount of uranium in the gas samples is expected to be below the detection capabilities of the ICP-MS unit, in the parts per trillion range.

The applicant listed three major source terms for the major building fire:

- 1) Release of GeF<sub>4</sub> from gas cylinders. A major building fire could result in pressure build up inside the cylinders and result in the bursting of a cylinder rupture disks. This release would be mitigated through the use of ventilated storage cabinets and a building dilution

ventilation system. Because the facility has an acceptable emergency plan meeting the criteria of 10 CFR 40.31(j)(3), no further evaluation of the fire-induced release of  $\text{GeF}_4$  is required.

- 2) Depleted uranium in 55-gallon metal drums and in the  $\text{UF}_4$  glove box. The 55-gallon drums of depleted uranium are to be contained in the material-handling room or powder-storage room. Both rooms are classified as low hazard in regard to combustible loading. Therefore, fire temperatures are not expected to be sufficient to breach the metal drums. I<sup>3</sup> further stated (by e-mail of 9/01/2005 from John Miller to Michael Raddatz) that the rooms are separated from the open process area by wood frame and gypsum board walls with an estimated fire rating of 1 hour. The open area is normally free of combustible materials except during shipping and receiving operations. The applicant calculated a dose that would result from material that might escape from the glove box, and an effective dose equivalent of 0.2 mrem to the maximum exposed individual (MEI).

In response to staff concerns, I<sup>3</sup> has stated (by e-mail 9/9/2005 from John Miller to Michael Raddatz) that it will establish a "combustible material exclusion zone" (CMEZ) around and above the depleted uranium storage room and the powder-handling room. This zone will extend 3 feet out from the exterior walls of the depleted uranium storage room and the powder-handling room and will encompass the entire mezzanine area above both rooms. Storage of combustible or flammable materials in the CMEZ will be prohibited. Storage of non-combustible or non-flammable materials in the CMEZ would be authorized so long as the storage container and packaging for the material is non-combustible or non-flammable. For example, nitrogen gas canisters may be stored in the CMEZ. The CMEZ will be marked with yellow/black painted hash marks and will be stenciled in black paint, Combustible Material Exclusion Zone. The mezzanine will be posted as a Combustible Material Exclusion Zone on the three access sides so that it may be viewed from ground level. I<sup>3</sup> employees will be trained on the purpose of the CMEZ.

- 3) Depleted uranium in the furnace. The furnace is designed such that a major building fire would not likely breach the furnace containment and therefore no release of material would be expected from the furnace in the event of a major building fire.

### 6.3 Findings

The staff finds the fire safety at the facility to be adequate to meet the requirements of 10 CFR 40.31(l).

## 7.0 ENVIRONMENTAL ASSESSMENT

The staff concludes that 10 CFR 51.22(c)(14)(xvi) can be used to categorically exclude this licensing action since it will not have a significant effect on the human environment, therefore, neither an environmental assessment nor an environmental impact statement is required.

## 7.1 Discussion

The I<sup>3</sup> GeF4 production process is contained within a small commercial building, 80 feet wide by 100 feet deep. The process mixes powdered depleted UF4 in solid form with powdered GeO2 in solid form in a reaction vessel to produce GeF4 gas and depleted U3O8 and UO2 powder in solid form. Initial handling of UF4 and GeO2 is done in a UF4 glove box used to control contamination and airborne radioactivity. A drum hood is used to transfer the roasted depleted U3O8 into a 55-gallon drum. The drum hood and glove box are kept under negative pressure and fed through a radiological grade HEPA filter. The entire GeF4 gas production process occurs under a flume hood within the building.

The amount of licensed material (depleted uranium in powder form) in I<sup>3</sup> possession at any one time will be no more than 6000 kg, or approximately seven 55-gallon drums. Because of the molecular weights of the material after the reaction is complete, for every 6000 kg of UF4 source material used, approximately 5500 kg of U3O8 and UO2 source material is produced, an approximate 10 percent reduction of licensed material. The resulting U3O8 will be disposed of in a commercial waste disposal facility such as Envirocare in Utah or US Ecology in Richland, Washington. Both UF4 and U3O8 are stable forms of licensed material and both can be disposed of in low-level waste facilities.

The processing of UF4 with GeO2 to manufacture GeF4 and U3O8 is not specifically discussed as a categorical exclusion under 10 CFR 51.22. However, the quantity, form, waste stream, and dose rate of source material proposed for use by I<sup>3</sup> is similar to those listed in 10 CFR 51.22(c)(14)(xiii) and 10 CFR 51.22(c)(14)(xii).

## 7.2 Findings

The manufacturing and processing of GeF4 from depleted UF4 is analogous to the manufacture and processing of source material for distribution to other licensees, as discussed in 10 CFR 51.22 (c)(14)(xiii), except that the marketable product is not a licensed material and the waste product will be distributed to another licensee for disposal. The form, quantity, waste stream, and average dose rates that I<sup>3</sup> license will permit is similar to those discussed in 10 CFR 51.22 (c)(14)(xiii) and 10 CFR 51.22 (c)(14)(xii). Staff concludes that 10 CFR 51.22 (c)(14)(xvi) can be used to categorically exclude this licensing action since it will not have a significant effect on the human environment; therefore, neither an EA nor an EIS is required.

The staff concludes that a categorical exclusion for this licensing action is appropriate, but is for this specific I<sup>3</sup> licensing action only. Subsequent licensing amendments for additional manufacturing capacity, the processing or manufacturing of different products, or other proposed actions will have to be evaluated individually, and an EA or an EIS may be required.

## 8.0 DECOMMISSIONING FUNDING PLAN

### 8.1 Financial Assurance

The applicant's Decommissioning Funding Plan was developed pursuant to 10 CFR 40.36 and included with the application. The applicant's decommissioning cost estimate is \$117,169. The applicant has committed to obtain financial assurance to cover the cost estimate after the

application has been approved and the license issued but before the receipt of licensed material in quantities requiring financial assurance. The licensee has committed to provide a certificate of financial assurance, a signed original of the financial instrument, and a signed original standby trust to the NRC before receipt of licensed material in quantities requiring financial assurance.

## 8.2 Findings

The licensee's scope of decommissioning activities addressed known and likely contamination under routine facility conditions. The activities include planning and preparation (mobilization); decontamination and dismantling; packaging, shipping, and disposal of wastes; the final radiation survey; and site restoration. The unit cost factors are reasonable, and the level of detail, accuracy, and magnitude of estimated costs are adequate.

The licensee must meet the requirements for financial assurance and the required documents must be submitted by the licensee before the receipt of licensed material in quantities requiring financial assurance by the licensee.

FA-1. Before accepting licensable quantities of source material:

- a.) The licensee must submit a letter of credit in favor of the NRC, conforming to the guidance of NUREG-1757, Vol. 3, "Consolidated NMSS Decommissioning Guidance," in an amount no less than \$117,169, to meet the requirement of § 40.36(d); and
- b.) The licensee must submit a certificate of financial assurance in conformance with NUREG-1757, Vol. 3, to meet the requirement of § 40.36(d); and
- c.) The licensee must submit a standby trust in conformance with NUREG-1757, Vol. 3, to meet the requirement of § 40.36(e)(2)(ii), and which will be maintained as long as the licensee uses a financial assurance method that requires a standby trust; and

FA-2 To meet the requirement of § 40.36(d), the licensee must submit an updated cost estimate to the NRC at least every 3 years.

## 9.0 SECURITY ASSESSMENT

The Fuel Cycle and Special Security Program staff reviewed the license application from I<sup>3</sup>. The staff review determined that there were no physical security measures required by the NRC. However, to limit the potential consequences of a malevolent act staff is imposing two license conditions.

### 9.1 Discussion

The licensee must submit proposals to increase the storage and use of depleted uranium (DU) at its facility to increase the production of GeF<sub>4</sub>. To accomplish this increase, I<sup>3</sup> has applied to NRC to receive and store up to 5,000 kgs of DU at any one time with an additional 1,000 kgs in

process equipment. I<sup>3</sup> owns the rights to an exclusive patent for the reaction of depleted uranium tetrafluoride to form gasses like germanium tetrafluoride, silicon tetrafluoride, boron trifluoride and tungsten hexafluoride.

This application is for a Part 40 license. It is for the production of elemental fluorine utilizing depleted UF<sub>4</sub> as the feed material. Staff chemical specialists were consulted and found that at any one time there could be up to 50 kilograms of gaseous fluorine on site. This amount of fluorine is contained in individual small tanks and the breach of an individual tank would not result in an off-site release.

The staff considered 10 CFR Part 40, Domestic Licensing of Source Material, in its entirety and notes that there are no security requirements for this type of license. However, another licensee, regulated by 10 CFR Part 40, was issued an order with special security requirements. These requirements were identified as interim compensatory measures. Staff has compared the two operations and determined that the amount of material held at I<sup>3</sup>, is unlikely to cause deaths beyond the industrial site boundary and therefore, similar measures are not appropriate in this case.

## 9.1 Findings

The staff finds that two license conditions are appropriate.

- SA-1 The licensee commits to developing and maintaining a site security plan incorporating the requirements and intent of "Policy Guide-50," Site Security Guidelines, Compressed Gas Association, 1/13/2005.
- SA-2 The Licensee will limit gaseous fluorine compounds produced from licensed operations stored on site to less than or equal to 50 kg.

## 10.0 Conclusion

On the basis of the review of the renewal application, and the staff has determined that there is reasonable assurance that I<sup>3</sup> operation of the Idaho Falls facility meets the applicable criteria in Part 20 and Part 40, for the safety of workers, the public, and the environment. Based on the monitoring programs, procedures, and management directives, I<sup>3</sup> should be able to conduct operations in a manner that meets the intent of the regulations and protects of both public health and safety and the environment.