

May 11, 2011

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

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FROM INTERNATIONAL
ISOTOPES REGARDING ACCIDENT ANALYSIS (TAC L32739)

Dear Mr. Miller:

The U.S. Nuclear Regulatory Commission's (NRC's) staff completed its initial technical review regarding Accident Analysis of your license application for the International Isotopes Fluorine Products, Inc., for the Fluorine Extraction Process and Depleted Uranium Deconversion facility, which is proposed to be constructed and operated in Lea County, New Mexico. Your application was transmitted by letter, dated December 30, 2009. Our review of your application has identified that additional information is needed in the Accident Analysis area before the staff can reach a final safety decision.

Please provide the additional information requested in the enclosure within 30 days of the date of this letter.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 of the NRC's "Rules of Practice," a copy of this letter and the enclosure will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and 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).

If you have any questions regarding this letter, please contact me at 301-492-3566 or via e-mail to Maria.Guardiola@nrc.gov. You may also contact Matthew Bartlett at 301-492-3119 or to Matthew.Bartlett@nrc.gov.

Sincerely,

/RA/

Maria Guardiola, Project Manager
Conversion, Deconversion and
Enrichment Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No. 40-9086

Enclosure:
Request for Additional Information

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DATE	05/09/2011	05/09/2011	05/11/2011	05/11/2011

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Request for Additional Information for International Isotopes, Inc.,
Accident Analysis

- 1) Dispersion volumes inside the buildings do not consider building partitions or take into account either space taken up by equipment or the mixing efficiency of airborne releases because final building design has not been completed. Justify the use of the entire building volumes or assign conservative volume fractions when determining dispersion and worker exposure inside the buildings.

Consideration of these building/room parameters is needed to conservatively evaluate potential worker exposures and demonstrate compliance with the performance requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) 70.61.

- 2) Because final building ventilation design has not been completed, International Isotopes, Inc., (INIS) estimated outdoor releases from buildings based on a flow through a doorway of ~0.1 m/s which does not appear conservative for estimating outdoor exposures to workers or the public. Unless an accurate or bounding estimate is available from the preliminary design, INIS should initially assume a conservative building ventilation rate (the maximum rate discussed in Appendix D of the Environmental Protection Agency's (EPA's) 550-B-99-009, "Risk Management Program Guidance for Offsite Consequence Analysis," cited by INIS is 10 building air exchanges) when calculating outdoor worker and public exposures. Provide justification for the building release rates utilized in the accident consequence evaluations.

Using an accurate or conservative bounding of the building/room ventilation/release rate is needed to demonstrate compliance with the performance requirements in 10 CFR 70.61.

- 3) INIS appears to have utilized non-conservative Airborne Release Fraction and Respirable Fraction (ARF and RF) values for some accident sequences where the method of release appears to be inconsistent with either a powder or liquid spill from which the ARF and RF values were referenced. Specifically, INIS appears to consider UF_6 and UO_2F_2 under the powder or liquid spill category. The staff finds the values utilized by INIS inconsistent with releases of UF_6 as discussed in NUREG/CR-6410 Appendix D, Section D.7. This citation discusses releases of pressurized liquid UF_6 and conservatively assumes any released UF_6 either flashes to vapor or forms solid particles which remain airborne. The reaction of UF_6 with moisture in the air forms hydrogen fluoride and UO_2F_2 . Use of the liquid/powder ARF/RF values for liquid or vapor UF_6 result in an underestimate of the source term by several orders of magnitude. Justify the use of the ARF/RF values utilized for UF_6 releases in the accident consequence evaluations.

Using appropriate ARF/RF values is necessary to demonstrate compliance with the performance requirements in 10 CFR 70.61.

- 4) INIS states that outdoor releases were assessed for a worker located 100 meters from the release point. Describe how this is appropriately conservative given the likelihood of individuals accessing outdoor areas near the potential release point. Specific examples include cylinder releases in the cylinder storage yard, releases through a doorway of a building, etc.

Accurately assessing chemical and radiological exposures to potential receptors is necessary to demonstrate compliance with the performance requirements in 10 CFR 70.61.

- 5) Describe how IROFS BF-3-14 and BF3-21 (drum enclosure and drum closure requirements prior to change-out or moving) are coincident (both applicable at the same time) such that they both apply to accident sequence 301.26. This is needed to verify the limiting risk for this accident sequence consistent with the performance requirements in 10 CFR 70.61.