



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

January 19, 2022

EA-21-125

Mr. Charles Bollinger  
Chief Operating Officer  
Industrial Nuclear Company, Inc.  
14320 Wicks Blvd.  
San Leandro, CA 94577

**SUBJECT: INDUSTRIAL NUCLEAR COMPANY – U.S. NUCLEAR REGULATORY  
COMMISSION REVIEW RELATED TO EXPORTS OF BYPRODUCT  
MATERIAL AND APPARENT VIOLATIONS**

Dear Mr. Bollinger:

This letter refers to the U.S. Nuclear Regulatory Commission's (NRC's) review of records conducted from March to October 2021, related to 23 exports of Category 2 quantities of iridium-192 (Ir-192), selenium-75 (Se-75), and cobalt-60 (Co-60) made by Industrial Nuclear Company (INC) to the United Kingdom (UK), Ireland, Venezuela, and the United Arab Emirates (UAE) from June 2019 to May 2021. The NRC initiated its review after receiving incomplete information on an advanced notification for exports of Ir-192 to the UK on March 22, 2021. The enclosure presents a summary of issues related to the exports. The NRC discussed its preliminary findings with you, Mike Rose, and Julie Patridge on May 13, 2021, and again with you, Mr. Rose, Ms. Patridge, and Quinton Nester on October 18, 2021. A final exit briefing was conducted telephonically with you, Mr. Rose, and Ms. Patridge on January 10, 2022.

Based on the results of this review, three apparent violations were identified, one of which is being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at <https://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The first apparent violation involves INC providing incomplete information related to the foreign recipient's authorization in the advanced notifications for 18 exports. The second apparent violation involves two exports in which INC shipped more material than authorized by the foreign country. The third apparent violation, which is being considered for escalated enforcement, involves three exports in which INC shipped material not authorized by the foreign country.

Before the NRC makes its enforcement decision, we are providing you an opportunity to (1) respond in writing to the apparent violation(s) addressed in this letter within 30 days of the date of this letter, or (2) request a Pre-decisional Enforcement Conference (PEC). If a PEC is held, it will be open for public observation and the NRC will issue a press release to announce the time and date of the conference. If you decide to participate in a PEC, please contact Mr. Peter Habighorst at 301-287-9241 or Ms. Andrea Jones at 404-997-4443 within 10 days of the date of this letter. A PEC should be held within 30 days of the date of this letter.

If you choose to provide a written response, it should be clearly marked as a "Response to (An) Apparent Violation(s) in this letter, EA-21-125" and should include for each apparent violation: (1) the reason for the apparent violation or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. Additionally, your response should be sent to the NRC's Document Control Center, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; with a copy mailed to Mark Lombard, Director, Office of Enforcement, 11555 Rockville, MD 20852, within 30 days of the date of this letter. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a pre-decisional enforcement conference does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction. Any information forwarded to the NRC should be clearly labeled on the first page with the case reference number: EA-21-125.

Should you have any questions, please contact Mr. Peter Habighorst at 301-287-9241 or Ms. Andrea Jones at 404-997-4443.

Sincerely,

Mark Lombard, Director  
Office of Enforcement

Enclosure:  
Basis for Apparent Violations and  
Apparent Violations Being Considered  
for Escalated Enforcement

SUBJECT: INDUSTRIAL NUCLEAR COMPANY – NRC REVIEW RELATED TO  
EXPORTS OF BYPRODUCT MATERIAL AND APPARENT VIOLATIONS  
Dated: 1/19/2022

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**BASIS FOR APPARENT VIOLATIONS**  
**AND APPARENT VIOLATION BEING CONSIDERED FOR ESCALATED ENFORCEMENT**

On March 23, 2021, the NRC initiated a review of Industrial Nuclear Company's (INC's) records on advanced notifications of shipments. Based on its review, the NRC identified that from June 2019 to May 2021, INC made 23 exports of Category 2 quantities of Iridium-192 (Ir-192), Selenium-75 (Se-75), and Cobalt-60 (Co-60) to the United Kingdom (UK), Ireland, Venezuela, and the United Arab Emirates (UAE) that resulted in three apparent violations, one of which is being considered for escalated enforcement.

**Apparent Violation A:**

10 CFR 110.7a states, in part, that information required by statute or by the Commission's regulations shall be complete and accurate in all material respects.

10 CFR 110.50(c)(3)(i)(H) states, in part, that advanced notifications for exports must contain a copy of the foreign recipient's authorization or confirmation of that authorization from the government of the importing country as required by 110.32(g) unless the authorization has already been provided to the NRC.

10 CFR 110.32(g)(2) states, that for proposed exports of Category 2 quantities of material listed in Table 1 of appendix P to this part, pertinent documentation that the recipient of the material has the necessary authorization under the laws and regulations of the importing country to receive and possess the material. This documentation must be provided to the NRC at least 24 hours prior to the shipment.

10 CFR 110.32(g)(3) states, in part, that pertinent documentation shall consist of a copy of the recipient's authorization to receive and possess the material to be exported or a confirmation from the government of the importing country that the recipient is so authorized.

Contrary to the above, from October 2019 to May 2021, on 18 exports of Category 2 quantities of Ir-192, Se-75, and Co-60 to the UK, Ireland, and Venezuela, INC failed to provide complete and accurate information in their advanced notifications for exports to the NRC by not including pertinent documentation of the recipient's authorization to receive and possess the material to be exported or a confirmation from the government of the importing country that the recipient is so authorized.

**Shipment Detail and Basis for Apparent Violation A:**

1. On May 08, 2021, INC exported one source containing 0.703 TBq of Ir-192 to the UK, and the UK permit provided did not specify which radionuclide or activity level was authorized.
2. On March 23, 2021, INC exported 2 sources containing a total of 3.182 TBq of Ir-192 to the UK, and one of the two UK permits provided did not specify which radionuclide or activity level was authorized.

3. On January 08, 2021, INC exported 4 sources containing a total of 8.658 TBq of Ir-192 to the UK, and three of the four UK permits provided did not specify which radionuclide or activity level was authorized.
4. On November 12, 2020, INC exported one source containing 1.702 TBq of Se-75 and one source containing 1.924 TBq of Ir-192 to the UK, and the UK permit provided did not specify which radionuclide or activity level was authorized.
5. On November 06, 2020, INC exported 2 sources containing a total of 4.033 TBq of Ir-192 to the UK, and one of the two UK permits provided did not specify which radionuclide or activity level was authorized.
6. On October 06, 2020, INC exported one source containing 1.961 TBq of Se-75 and one source containing 3.478 TBq of Co-60 to the UK, and one of the two UK permits provided did not specify which radionuclide or activity level was authorized.
7. On September 11, 2020, INC exported one source containing 0.925 TBq of Ir-192 to the UK, and the UK permit provided did not specify which radionuclide or activity level was authorized.
8. On August 28, 2020, INC exported one source containing 2.997 TBq of Ir-192 to the UK, and the UK permit provided did not specify which radionuclide or activity level was authorized.
9. On June 26, 2020, INC exported 2 sources containing a total of 1.4319 TBq of Ir-192 to the UK, and the two UK permits provided did not specify which radionuclide or activity level was authorized.
10. On May 28, 2020, INC exported one source containing 3.145 TBq of Ir-192 to the UK, and the UK permit provided did not specify which radionuclide or activity level was authorized.
11. On March 12, 2020, INC exported one source containing 2.183 TBq of Se-75 to the UK, and the UK permit provided did not specify which radionuclide or activity level was authorized.
12. On February 27, 2020, INC exported one source containing 0.999 TBq of Ir-192 to the UK, and the UK permit provided did not specify which radionuclide or activity level was authorized.
13. On October 23, 2019, INC exported 2 sources containing a total of 1.4319 TBq of Ir-192 to the UK, and the two UK permits provided did not specify which radionuclide or activity level was authorized.

14. On November 20, 2020, INC exported one source of 1.776 TBq of Se-75 and one source of 1.147 TBq of Ir-192 to Ireland, and the Ireland license provided did not specify which radionuclide or activity level was authorized.
15. On July 25, 2020, INC exported one source of 2.331 TBq of Se-75 to Ireland, and the Ireland license provided authorized Uranium-238 and Ir-192, but not Se-75.
16. On April 16, 2021, INC exported one source containing 3.922 TBq of Ir-192 to Venezuela, and the Venezuela permit provided the wrong authorization, authorizing Cs-137 instead of Ir-192. A permit was later discovered that provides authorization for this shipment.
17. On March 05, 2021, INC exported one source containing 3.848 TBq of Ir-192 to Venezuela, and the Venezuela permit provided the wrong authorization, authorizing Cs-137 instead of Ir-192. A permit was later discovered that provides authorization for this shipment.
18. On February 06, 2021, INC exported one source containing 3.922 TBq of Ir-192 to Venezuela, and the Venezuela permit provided the wrong authorization, authorizing Cs-137 instead of Ir-192. A permit was later discovered that provides authorization for this shipment.

#### **Apparent Violation B:**

10 CFR 110.50(c)(3)(i)(H) states, in part, that advanced notifications for exports must contain a copy of the foreign recipient's authorization or confirmation of that authorization from the government of the importing country as required by 110.32(g) unless the authorization has already been provided to the NRC.

10 CFR 110.32(g)(2) states, in part, that for proposed exports of Category 2 quantities of material listed in Table 1 of appendix P to this part, pertinent documentation that the recipient of the material has the necessary authorization under the laws and regulations of the importing country to receive and possess the material.

10 CFR 110.32(g)(3) states, in part, that pertinent documentation shall consist of a copy of the recipient's authorization to receive and possess the material to be exported or a confirmation from the government of the importing country that the recipient is so authorized.

Contrary to the above, on two occasions, INC exported more radioactive material than the provided documentation authorized to the UAE and the UK.

#### **Shipment Detail and Basis for Apparent Violation B:**

1. On May 09, 2021, INC exported 2.109 TBq of Se-75 to the UAE that exceeded the 0.17 TBq of Se-75 authorized by UAE's regulator.
2. On February 01, 2020, INC exported 1.295 TBq of Ir-192 to the UK that exceeded the 0.925 TBq of Ir-192 authorized by the UK's regulator.

**Apparent Violation C:**

10 CFR 110.50(c)(3)(i)(H) states, in part, that advanced notifications for exports must contain a copy of the foreign recipient's authorization or confirmation of that authorization from the government of the importing country as required by 110.32(g) unless the authorization has already been provided to the NRC.

10 CFR 110.32(g)(2) states, that for proposed exports of Category 2 quantities of material listed in Table 1 of appendix P to this part, pertinent documentation that the recipient of the material has the necessary authorization under the laws and regulations of the importing country to receive and possess the material. This documentation must be provided to the NRC at least 24 hours prior to the shipment.

Contrary to the above, from June 2019 to September 2020, INC failed to provide to the NRC the pertinent documentation that the recipient of the material has the necessary authorization under the laws and regulations of the importing country to receive and possess the material. Specifically, INC made three exports, of Ir-192 to Venezuela for which INC could not provide the necessary documentation that authorizes these exports.

**Shipment Detail and Basis for Apparent Violation C:**

1. On September 15, 2020, INC exported one source containing 3.959 TBq of Ir-192 to Venezuela, and the Venezuela permit provided the wrong authorization, authorizing Cs-137 instead of Ir-192.
2. On November 07, 2019, INC exported one source containing 3.922 TBq of Ir-192 to Venezuela, and the Venezuela permit provided the wrong authorization, authorizing Cs-137 instead of Ir-192.
3. On June 25, 2019, INC exported one source containing 3.811 TBq of Ir-192 to Venezuela, and the Venezuela permit provided the wrong authorization, authorizing Cs-137 instead of Ir-192.