

Radioactive Device Licensing

Safety Alert

Issue #:08-2017

Enform

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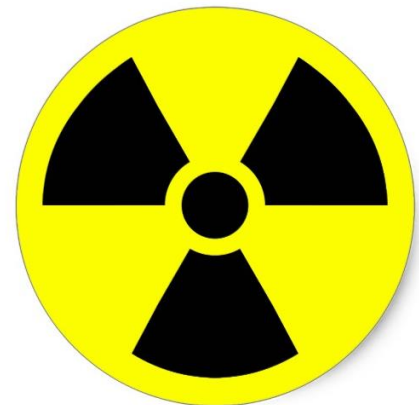
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Description of Incident:

A Canadian purchaser and a United States supplier were both unaware of the Canadian radioactive licensing requirements for certain ignition exciters found in gas turbines. Some of these ignition exciters contain radioactive materials such as Krypton-85. Many of these exciters have a radioactivity level that is exempt in the United States, because it is below the threshold of 1,110 kilo becquerels (30 micro curies). In Canada however, the threshold for Krypton-85 is lower at 10 kilo becquerels.



**View of Spark Gap or "Electron Tube"
Containing Radioactive Gas (Krypton-85)
Photo provided courtesy of Unison Industries**



Radiation Trefoil

Some ignition exciters include a sealed capsule of Krypton-85 in the form of spark gaps, contained within an encased, hermetically sealed metal box. Other radioactive elements may be present depending on the manufacturer and age of the device (i.e. Cs-137). Radiation readings from 5 cm away and outside the sealed metal container, indicate a dose rate from the ignition exciter that is similar to background, or naturally occurring, radiation levels.

There is a remote possibility of increased exposure if the sealed metal box is opened or the ignition exciter breaks and the gas is directly inhaled or ingested. The Canadian Nuclear Substances and Radiation Devices Regulations includes exemptions for low level radioactive devices, however, these ignition exciters are not exempt and therefore require a low-risk license.

What Caused It?

Supplier and purchasing company were unaware of the regulatory licensing differences between Canada and the United States.

Contributing Factors

The radioactive component was being sold as part of an overall turbine purchase.

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Corrective/Preventative Actions:

- Conduct an inventory of all ignition exciters with radioactive elements that exceed Canadian Nuclear Substances and Radiation Devices Regulations [thresholds](#)
- Apply for and obtain a licence from the Canadian Nuclear Safety Commission for the use and possession of the radioactive devices
- Do not perform maintenance on ignition exciters that have a radioactive element. This equipment follows a replacement maintenance strategy (i.e. exciter units may be replaced intact if necessary) and this practice should continue to be followed.
- Do not break open the metal casing on ignition exciters that contain a radioactive element
- Do not dispose of ignition exciters containing a radioactive element as regular waste
- Minimize contact with ignition exciters that contain a radioactive element



For additional information on how to obtain a license, please contact the Nuclear Substances and Radiation Devices Licensing Division of the Canadian Nuclear Safety Commission at cnscl.licence-permis.ccsn@canada.ca or 1-888-229-2672.

Regulatory references:

- [Canadian Nuclear Safety Commission \(CNSC\)](#)
- [Canadian Nuclear Substances and Radiation Devices Regulations](#)
- [United States Nuclear Regulatory Commission](#)

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