



# DNSR Newsletter

## Preventing Portable Gauge Accidents

Portable moisture and density gauges are used extensively in industry. When these gauges are involved in accidents, they usually end up being crushed or damaged by heavy vehicles on construction sites. In the past 12 months, there have been 20 accidents with portable gauges reported to the CNSC. This is a concern, because each gauge normally contains two radioactive source capsules that emit radiation. For the most part, all these accidents were preventable.



Portable gauge accidents are preventable.

As a rule, radioactive sources in portable moisture and density gauges include one caesium-137 (Cs-137) gamma source at the end of a retractable rod to

measure density, and one americium-241/beryllium (Am-241/Be) neutron source contained within the body of the gauge to measure moisture. The capsules containing these radioactive sources are built to stringent safety standards, thus making them very resistant to damage. Although there have been no ruptures reported due to accidents, in the unlikely event that a source capsule was to break open, people in the immediate area would be exposed to radiation, which could be harmful to health.

Paragraph 12(1)(c) of the *General Nuclear Safety and Control Regulations* requires licensees to take all reasonable precautions to protect the environment and the health and safety of persons. Is your organization ensuring it has taken all reasonable precautions to prevent portable gauge accidents?

### Preventing portable gauge accidents

There are a few easy steps that can be taken to help prevent portable gauge accidents on the job site, such as the creation of a job hazard analysis and adopting a few simple actions.

- Job hazard analysis**  
 A job hazard analysis (JHA), also known as job safety analysis, is a great way to ensure hazards at the worksite are identified and preventive measures are used to overcome the hazards. More information on creating a JHA can be found on the [Canadian Centre for Occupational Health and Safety Web site](#).



- Preventive actions**  
 The CNSC has a few simple suggestions for portable gauge operators that could dramatically reduce the chance of an accident occurring.

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### Preventing Portable Gauge Accidents



## Preventing Portable Gauge Accidents ... *Continued from page 1.*

These include:

- Communicating more effectively with others on the job site to ensure they know where you will be working with the gauge.
- Making your work area more visible by parking close by, turning hazard lights and strobes on, and extending the vehicle's safety flag, if available.
- Cordoning off a larger area with high-visibility tape to allow more time to react to vehicles moving towards you and your portable gauge. Use a hand-held air horn to get the attention of a driver approaching too close.
- Putting the gauge back in its container when it is not being used, and moving it to a safe location away from heavy equipment.

### In case of an accident

To be properly prepared for an accident where a gauge is crushed or damaged, ensure that all employees are trained and aware of the appropriate responses. The first actions to take would include securing the area and calling the licensee's radiation safety officer. The CNSC Duty Officer must also be contacted at 613-995-0479 to report the accident.



*The CNSC now expects a radiation survey meter to be available at each site of licensed activity within two hours of an event or emergency situation involving a portable gauge.*

Since the normal container used for transporting the portable gauge may no longer be suitable, a new container that meets the Type-A package requirements must be used to safely transport the damaged gauge. A radiation survey meter is also required to ensure radiation levels around the correctly labelled package are safe and in accordance with CNSC regulations.



The survey meter also allows personnel to ensure both the Cs-137 and Am-241/Be source capsules have been recovered and allows the workers to confirm that radioactive contamination is not present. If there is any possibility that a source capsule may have ruptured, you may need to have a qualified consultant respond to the job site.

*Contact your radiation safety officer when preparing to move or handle a damaged portable gauge.*

Establishing safety measures in your workplace can help avoid unnecessary accidents on the job. Accidents involving portable gauges can be prevented by doing a job hazard analysis and taking a few simple safety precautions. 

### DNSR Newsletter

The *DNSR Newsletter* is a CNSC publication. If you have any suggestions on topics or issues that you would like to see covered, please do not hesitate to contact us.

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Canadian Nuclear Safety Commission  
P.O. Box 1046, Station B  
Ottawa, Ontario K1P 5S9  
Telephone: 1-800-668-5284 (in Canada)  
or 613-995-5894 (outside Canada)  
Fax: 613-995-5086  
Email: [info@cnsccsn.gc.ca](mailto:info@cnsccsn.gc.ca)  
Web site: [nuclearsafety.gc.ca](http://nuclearsafety.gc.ca)