



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Response to alarms from vehicle radiation monitoring systems



Canada 

The purpose of this brochure is to advise waste disposal facilities and scrap metal recyclers of the steps to take when a vehicle radiation monitoring system alarms.

The Canadian Nuclear Safety Commission (CNSC) sets regulatory limits on the quantities of nuclear substances (radioactive material) that may be disposed of into waste streams. Waste containing radioactive material, even if it is within regulatory limits and has been properly disposed of, may still trigger these sensitive alarms. Material which may trigger alarms at waste disposal facilities may be either medical, industrial or domestic waste.

The CNSC recommends that those choosing to purchase sensitive vehicle radiation monitoring systems also purchase a hand-held gamma survey meter and train their staff in how to use it. Those purchasing these systems should also engage the services of a radiation safety consultant to assist with the isolation and identification of radioactive material in waste and scrap metal streams.

Radiation Warning Symbol (Trefoil)



magenta on a yellow background



black on a yellow background

What to do if the vehicle radiation monitoring system alarms at a waste disposal facility or scrap metal facility:

PART A

- Pass the vehicle through the radiation monitor twice to confirm a valid alarm.
- Ask the driver of the vehicle if he/she has recently received medical treatment with radioisotopes.

- If he/she has recently received medical treatment with radioisotopes, monitor the vehicle again with the driver out of the vehicle and at least 30 metres from the radiation monitor. If the alarm stops sounding, the load is clear of any radioactive material and can be accepted.
- If he/she has not recently received medical treatment with radioisotopes, move the vehicle to an isolated area.
- Identify the origin of the shipment and/or type of shipment (i.e. scrap metal, garbage trucks, etc).
- Survey the vehicle with a calibrated hand-held gamma survey meter, if available.
 - If the dose rates are less than 25 $\mu\text{Sv/hr}$, isolate the load for several hours and re-monitor the load; the radioactive material may have decayed to values below the alarm threshold. If it has not, the load may be stored for longer periods until it has decayed to values below the alarm threshold. If possible, follow the steps in Part B of this procedure. Contact the CNSC to obtain an estoppel form and further instructions.
 - If the rates exceed 25 $\mu\text{Sv/hr}$, erect barriers to create a 5 metre boundary around the perimeter of the load, and contact the CNSC to obtain an estoppel form and further instructions.
 - If the rates exceed 100 $\mu\text{Sv/hr}$, or if no gamma survey meter is available, erect barriers to create a 10 metre boundary around the perimeter of the load, and contact the CNSC for further instructions.

PART B

The following procedure should only be carried out by a person trained in radiation protection

- Perform a contamination swipe on the truck while wearing plastic or latex gloves, and obtain a reading with a contamination monitor.

If the reading obtained is approximately twice background levels, it is likely that the outside of the truck has been contaminated. The truck will not be permitted to travel on transportation routes until it is contamination-free.

- If possible, attempt to retrieve the material from the load, isolate it and properly dispose of it.

If the waste disposal facility or scrap metal facility chooses to reject the load, an estoppel must be requested from the CNSC by the carrier in order for the load to be returned to its original or other specified location. An estoppel is a form, signed by a CNSC inspector, which allows the load of waste to be returned to its point of origin (or other specified destination) in a manner that does not comply with all or some of the regulations pertaining to transport of radioactive material.

If the waste disposal facility or scrap metal facility chooses to accept the load, CNSC staff must be contacted to determine the applicability of requirements under the *Nuclear Safety and Control Act*.

To contact the CNSC or to obtain an estoppel form, call the CNSC Duty Officer at (613) 995-0479, or contact one of our regional offices:

Western Regional Office:

Calgary, Alberta

Phone: (403) 292-5181

Fax: (403) 292-6985

Southern Ontario Regional Office:

Mississauga, Ontario

Phone: (905) 821-7760

Fax: (905) 821-8544

Central Regional Office:

Ottawa, Ontario

Phone: 1-888-229-2672

Fax: (613) 995-5086

Eastern Regional Office:

Laval, Québec

Phone: (450) 973-5766

Fax: (450) 973-5779

The Canadian Nuclear Safety Commission regulates the use of nuclear energy and materials to protect health, safety, security and the environment and to respect Canada's international commitments on the peaceful use of nuclear energy.

The information in this brochure is provided for reference purposes only. The *Nuclear Safety and Control Act* and associated regulations, as well as the *Transportation of Dangerous Goods Act* and associated regulations should be consulted for official purposes.

For more information, visit our Web site at www.nuclearsafety.gc.ca, or contact us at:

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