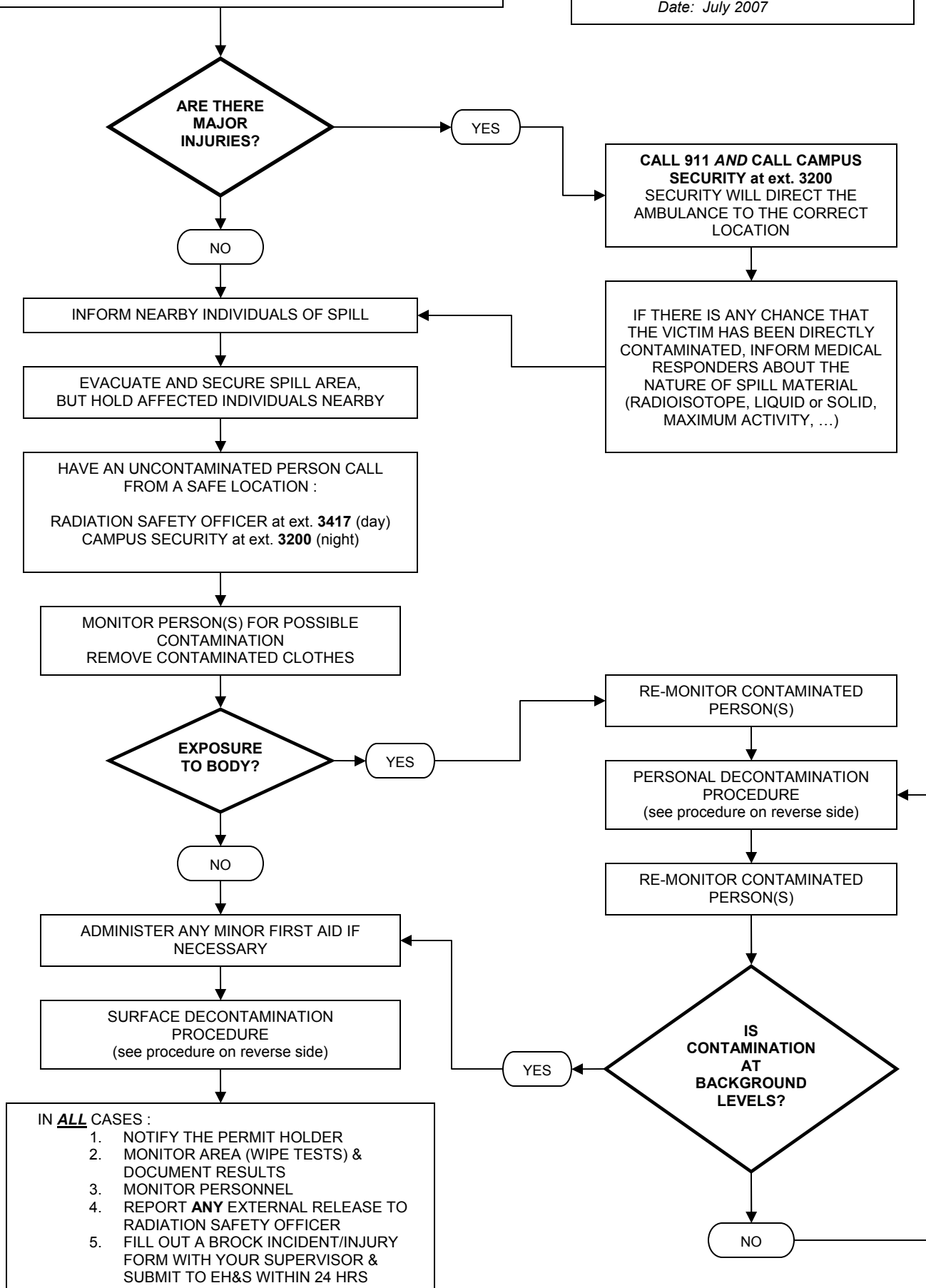


RADIOACTIVE SPILLS RESPONSE

Approved by: Brock University
Radiation Safety Committee
Date: July 2007



Personal decontamination :

- 1) Non-affected individuals attempting to aid in decontamination must put on protective gloves and a lab coat.
- 2) Using a survey meter, attempt to localize the contaminated area on the affected person's body.
- 3) **If eye is exposed**- rinse eyes thoroughly at an eye wash station for at least 5 minutes.
If ingested- rinse mouth out with water.
If the skin is unbroken – using warm water and a mild non-abrasive soap, lather the area and rinse, taking care to not widen the contaminated area.
If the skin is broken – using warm water carefully dab the affected area and gently wipe away from the wound, so as not to spread the radioactive material into the open wound. Avoid widening the contaminated area. If possible, promote slight bleeding so as to flush any radioactive material out of the wound.
- 4) Place all contaminated clothing and clean-up material into plastic bags, seal and label as radioactive waste, as well, include any known information (ie. radioisotope, maximum activity of spill, etc.)
- 5) Seek medical attention, where appropriate.

Surface decontamination :

- 1) Put on protective gloves, disposable footwear and a lab coat.
- 2) Mark the area of spill with tape, marker or a wax pencil.
- 3) If the spill is:
wet - place absorbent material (paper or granular) on the spill
dry - use moist paper
- 4) Wash surface with detergent and hot water, using minimal amounts of water.
- 5) Wipe towards the centre of the spill, being careful not to spread the contamination outside the marked area.
- 6) Place all contaminated clean-up material into plastic bags, seal and label as radioactive waste, as well, include any known information (ie. radioisotope, maximum activity of spill, etc.).
- 7) Wipe test the area.
- 8) Using a survey meter, monitor decontamination personnel.
- 9) If repeated washing with detergent and hot water are not sufficient to reduce the contamination level below 300 Bq/cm² for a controlled work area, or 30 Bq/cm² for any public area, the following methods can be employed on non-porous surfaces:

Method	Advantages	Disadvantages
Decon	Contamination remains in solution (non-toxic)	Long soaking required, little penetration
Organic Solvents	Quick	May be toxic or flammable
Abrasion	Remaining contamination very low	Ineffective on porous surfaces

Note : All of the open source radioisotopes currently used at Brock University are Class C radioisotopes, which require decontamination procedures be performed once a **work area** contamination of 300 Bq/cm² **or** a **public area** (includes decommissioned areas) contamination of 30 Bq/cm² is detected. Contamination checks are to be conducted via a wipe test or direct measurement. The direct measurement method may only be used for the radioisotope P³² with an appropriate calibrated survey meter. In each wipe test, 100 cm² of surface area is wiped with filter paper. For a wet wipe (preferred), moisten the filter paper with water or alcohol.

CNSC Contamination Limits in CPM			Radioisotope Lab limit 300 Bq / cm ²			Public Area limit 30 Bq / cm ²		
Scintillation counter or Survey meter	Class C Radioisotope	Efficiency %	direct measurement (cpm)	wet wipe (cpm)	dry wipe (cpm)	direct measurement (cpm)	wet wipe (cpm)	dry wipe (cpm)
Beckman LS 1800 (for a wide open window)	H ³		na	108000	10800	na	10800	1080
	C ¹⁴	95	na	171000	17100	na	17100	1710
	P ³² , P ³³ , S ³⁵ , & I ¹²⁵	100	na	180000	18000	na	18000	1800
Beckman Coulter LS 6500 (for a wide open window)	H ³	65	na	117000	11700	na	11700	1170
	C ¹⁴	98	na	176400	17640	na	17640	1764
	P ³² , P ³³ , S ³⁵ , & I ¹²⁵	100	na	180000	18000	na	18000	1800
Wm. B. Johnson GSM-110	P ³²	6.9	17388	12420	1242	1739	2520	252
Victoreen Thyac III		6.9	14159	12420	1242	1416	2052	205
Dosimeter 3007A		5.8	16203	10440	1044	1620	2794	279