Cytotoxic Spill Cleanup Procedure

1. **SCOPE**

   This document describes the cleanup procedure in the case of a cytotoxic spill involving a liquid or powdered cytotoxic substance.

2. **PURPOSE**

   Any spillage of a cytotoxic chemotherapy agent must be immediately and effectively managed in order to minimize the contamination of the environment and reduce the health risks to personnel. A small spill is defined as involving less than 5 ml or 5 g of a cytotoxic substance; a large spill involves more than 5 ml or 5 g of a cytotoxic substance.

3. **RESPONSIBILITY**

   WorkSafe BC Regulations 6.58 states:

   (1) Written emergency procedures to address spills of a cytotoxic drug must be developed and implemented which address requirements for small spill cleanup, both inside and outside the biological safety cabinet, large spill cleanup, and personal decontamination.

   (2) Spill kits, clearly labelled, must be kept in or near cytotoxic drug preparation, administration and storage areas and a sign detailing spill procedures must be posted in all such areas.

   Responsibility for managing the cytotoxic drug spill cleanup must be allocated to a person that has not been contaminated, has received training in the handling of and risks associated with cytotoxic drugs and has been previously fit-tested with a respirator.

   Small spill can be handled by one person. Large spill should be cleaned by two staff members, designating one as primary cleaner and the second as the helper.

   *Only personnel that have been fit-tested with a respirator may proceed with cleaning. If you have not been fit-tested, locate a designated person in your area.*
4. **TRAINING REQUIRED**
   
   Chemical Safety Training offered by Risk Management Services
   
   Knowledge of the Exposure Control Plan for Cytotoxic Substances ([UBC-RMS-OHS-ECP-17-001](#))

5. **MATERIALS/EQUIPMENT**

   **Contents to be included in a Cytotoxic Spill Clean-up Kit:**
   
   1. Safe work procedures for the management of a cytotoxic spill (instructions for use)
   2. Sign(s) to identify and isolate the spill
   3. Personal Protective Equipment:
      - Latex (double gloved) and/or nitrile gloves x 2
      - Head cover
      - Impermeable gown or coverall
      - Shoe covers (made of water-resistant material)
      - Safety glasses or full-face chemical splash shield
      - N95 Respirator (user’s fit tested RESPIRATOR)
   4. Adequate quantities of absorbent materials such as swabs, absorbent towels, chemical absorbent spill pillow, chemical absorbent granules, chemical absorbent mat
   5. A small scoop to collect any glass fragments (e.g. dedicated dustpan or disposable scoop)
   6. Plastic waste bags and ties, and bin or container (clearly labeled for cytotoxic use)
   7. Suitable cleaning/decontaminating agent may also be included
   8. Water for powder spills (to be used to reduce dust and particulate matter)

6. **HAZARDS**

   Cytotoxic substances are defined as any chemical substance confirmed or suspected of having a genotoxic, mutagenic or teratogenic effect in humans. This information can usually be obtained from the SDS of the chemical (sections 2 and 11).

   Many chemical compounds can fall under the category of cytotoxic compounds; consult the specific Exposure Control Plan ([UBC-RMS-OHS-ECP-17-001](#)) for hazard identification and more information regarding the health hazards associated with exposure to cytotoxic compounds.
7. GENERAL INSTRUCTIONS

In the event of a spill involving cytotoxic material, powders or the aerosols generated are a greater health hazard than the spill itself.

Once the risk of injuries has been controlled, the spill may be cleaned up and the area decontaminated using the procedure corresponding to the site of the spill.

- All cytotoxic drug spills must be attended to immediately.
- Attend to yourself first: remove any contaminated clothing and wash skin that has been contaminated with soap and water then obtain the nearest spill kit.
- Don personal protective equipment in the following order:
  - Googles
  - One pair of gloves
  - Respirator (when necessary)
  - Gown,
  - Head cover
  - Shoes covers
  - Second pair of gloves
- Cleaning of cytotoxic spills should begin from the outside of the spill area and work towards the center.
- Refer to the cytotoxic substance safety data sheet for specific information.

8. CLEANUP PROCEDURE FOR SPILL WITHIN A BIOLOGICAL SAFETY CABINET / FUME HOOD

1. Keep the BSC / fume hood operating.
2. Access the nearest spill kit.
3. For a spill on an absorbent pad:
   - If a cytotoxic solution: wait for the liquid to be absorbed the carefully fold the mat containing the spill, avoiding contact with the contaminated area.
   - If a cytotoxic powder: carefully place an adsorbent pad over the powder ensuring minimal dust production, then carefully wet the pad so that the powder dissolves and is absorbed.
4. For a spill on the cabinet work surface
   - If a large spill: a spill pillow to absorb the fluid should be used (placed on the floor of the cabinet or in the sump area).
   - If a cytotoxic solution: mop up the spill with an absorbent wipe or swab and place in plastic bag. Check also the under tray and grill area of the BSC and include it in the cleaning if affected by the spill.
• If a cytotoxic powder: cover with a dampened sterile wipe ensuring minimal dust production, fold absorbent sheet being careful to collect any broken glass.

5. Dispose absorbed and collected waste in plastic bag and then place sealed plastic bag into cytotoxic waste bin. Broken glass will be disposed of in the cytotoxics sharp waste container.

6. Clean the area with a suitable cleaning agent working from outside in.

7. Rinse area thoroughly with purified water.

8. Dry the affected area with absorbent towels or swabs.

9. Wipe the affected area with sterile alcohol 70% to assist with drying of the surface.

10. Discard the waste into the cytotoxic waste bin.

11. If personal protective equipment is contaminated, discard it into a cytotoxic waste bin and don new PPE before continuing work.

12. As soon as practicable, report the spill via UBC’s Centralized Accident / Incident Reporting System (CAIRS).

13. Arrange for a replacement spill kit to be obtained.

9. **CLEANUP PROCEDURE FOR SPILL OUTSIDE OF A BIOLOGICAL SAFETY CABINET / FUME HOOD**

1. Area control:
   - Alert other employees in the area of the potential hazard.
   - Stop all operations, which may tend to worsen the situation.
   - Limit access to the area while a spill kit is obtained.
   - Place the warning sign (from the kit) in a prominent position.

2. The person to carry out the spill clean-up must be trained in the cytotoxic spill management procedure and had been previously fitted with a N95 respirator.

3. Don appropriate PPE (see general instructions), including respirator.

4. Carefully collect any broken glass and place it in the cytotoxics sharp waste container. Cover the spill with absorbent mat or pad. If powder is spilt, carefully place the absorbent pad over the spill and wet with water so the powder dissolves and is absorbed.

5. Carefully collect the absorbent or mat and place in plastic waste bag.

6. Clean the area with strong alkaline cleaning / decontaminating agent, absorb the solution with absorbent towels and dispose of in plastic bag.
7. Rinse area thoroughly with water, disposing clean up absorbent towels in plastic cytotoxics waste bag.
8. Discard contaminated PPE and gloves into waste bag.
9. Place the collected and sealed waste in the cytotoxic waste bin.
10. Wash hands thoroughly with soap and water.
11. Remove signs.
12. As soon as practicable, report the spill via UBC’s Centralized Accident / Incident Reporting System (CAIRS).
13. Arrange for a replacement spill kit to be obtained.

10. CLEANUP PROCEDURE FOR CONTAMINATION OF PERSONNEL WITH A CYTOTOXIC SUBSTANCE

1. If an employee is contaminated with a cytotoxic substance, remove all overtly contaminated PPE and place in the cytotoxic waste container.
2. Remove all contaminated personal clothing and, if heavily contaminated, discard the clothing into the cytotoxic waste container.
3. Use an emergency shower or equivalent (e.g. hand-held spray device) if appropriate. Wash the contaminated area of the skin with soap and rinse with large amounts of water.
4. Arrange for clothing with a minimal amount of contamination to be laundered separately and rinsed well.
5. If the eyes have been exposed to a cytotoxic agent:
   - Thoroughly irrigate with water or isotonic eyewash for as long as possible (e.g. up to 15 minutes).
   - Remove contact lenses, if not flushed from the eye, as soon as possible and discard.
   - Use an eyewash station, if available, or water splashed by hand into the eye from a faucet.
   - Do not irrigate the eye directly with running water from a faucet due to the potential for water pressure damage to the eye.
   - In all cases where the eye is contaminated by a cytotoxic substance, seek ophthalmologic advice soon as possible.
6. If the skin is broken or there is a needle-stick injury, express blood from the wound and irrigate the affected area with plenty of water.
7. Seek medical attention as soon as practical.
8. Report the spill and/or injury via UBC’s Centralized Accident / Incident Reporting System (CAIRS).

11. **OTHER IMPORTANT INFORMATION**

   For information on respirators and respirator fitting, see Risk Management Services – Respiratory Safety.

   For information of cytotoxic substances and corresponding controls, see UBC’s Exposure Control Plan for Cytotoxic Substances (UBC-RMS-OHS-ECP-17-001).

12. **REVIEW AND RETENTION**

   This SWP is reviewed annually or whenever deemed necessary by the responsible departmental representative in Risk Management Services.

13. **DOCUMENT INFORMATION**

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