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1.0 APPLICABILITY

This procedure shall be implemented by the In-Plant and Site Radiation Emergency Teams (RET) whenever contamination of hands, general body, hair, mouth, or nostrils is encountered as indicated by an alarm on the personnel frisker or mouth or nasal swabs above background levels.

2.0 PRECAUTIONS

- 2.1 The personnel frisker alarm should be set at 100 cpm above background.
- 2.2 Personnel decontamination, other than minor hand contamination, will be carried out only under the direction of a Radiation Technologist.
- 2.3 In no case shall personnel with mouth or nasal contamination be permitted to eat, drink, or smoke, until approved by the Radiological Protection Director. The medical consultant will be contacted for all mouth or eye contamination problems.

3.0 REFERENCES

None

4.0 INSTRUCTIONS

4.1 Minor Hand Contamination

- 4.1.1 Instruct the contaminated person to wash for not less than 2 minutes, nor more than three minutes with Decon Hand Soap in tepid water. Give special attention to areas between the fingers and around the finger nails.
- 4.1.2 Re-survey the contaminated area and repeat 4.1.1 as necessary, taking care not to break the skin or spread contamination. Do not exceed three or four times.

4.2 Heavily Contaminated Hands

NOTE: This method should be used only if Step 4.1 has been unsuccessful.

- 4.2.1 Scrub the hands with a soft brush using a heavy lather and tepid water. Instruct the contaminated person to wash for not more than 2 minutes each time. Thorough rinses shall be done between scrubs.
- 4.2.2 Do not exceed three scrubs and take care not to abrade the skin. Re-survey for further evaluation after each scrub. Apply lanolin or hand cream to prevent chapping.

4.3 Titanium Dioxide

- 4.3.1 This method shall only be used with approval of the Radiological Protection Director (RPD).
- 4.3.2 Apply a liberal portion of titanium dioxide, a mild abrasive, in a water paste to the hands. Work this paste over contaminated area for at least 2 minutes. Use water sparingly to keep paste moist. Rinse with tepid water and follow by washing thoroughly with soap, brush, and water. Be sure no paste is allowed to remain around the nails. Re-survey and repeat as necessary.

4.4 Potassium Permanganate

- 4.4.1 This method shall only be used with approval of the Radiological Protection Director.
- 4.4.2 Mix equal volumes of a saturated solution of potassium permanganate (6.4gKMnO_4 to 100 ml water) and 0.2N sulfuric acid. Pour this over the wet hands rubbing the entire surface and using a soft hand brush for not more than two minutes. (NOTE: This application will remove a layer of skin if allowed to remain in contact with the hands too long; consequently, the times stated here should not be exceeded for any single application). Rinse with tepid water.
- 4.4.3 Apply a fresh 5% (5gNaHSO_3 to 100 ml water) solution of sodium acid sulfite (NaHSO_3) in the same manner as described above, using a hand brush and tepid water for not more than two minutes. (NOTE: This will remove the permanganate stain and skin layer if in contact with skin more than two minutes.) Rinse thoroughly and wash with soap and water.
- 4.4.4 This procedure may be repeated several times, as long as the permanganate solution is not applied for more than two minutes during one washing.
- 4.4.5 Applications to other parts of the body may be facilitated, by the use of swabs or pads dipped in the solutions. (Use gloves when handling swabs or pads.) Lanolin or hand cream should be applied after washing. DO NOT use near face or other body openings.

4.5 General Body Contamination

- 4.5.1 Instruct the contaminated person to shower in the "hot shower" room. Scrub contaminated parts of body with decon soap starting at the neck and working toward the lower extremities. Local areas of contamination will be dealt with as described in Section 3.3 and 3.4 above.
- 4.5.2 Save all towels, wash rags, etc., so they can be checked for contamination.

4.6 Hair Contamination

- 4.6.1 Instruct the contaminated person to wash hair in a sink with shampoo. Do not use the shower for hair decontamination, as contamination can be spread to the rest of the body.
- 4.6.2 Check face and neck, as well as hair, for contamination. Repeat as required.

4.7 Mouth Contamination

- 4.7.1 Flush the mouth with tap water. Assume a bent position to prevent swallowing the water. Do not allow the person to "gargle" the water.
- 4.7.2 Check the face, nasal areas, and throat for contamination.
- 4.7.3 Whole body count the individual to insure contamination is removed and has not spread to the G-I tract.
- 4.7.4 Cases of persistent contamination should be referred to a physician trained in radiological emergencies.

4.8 Nasal Contamination

- 4.8.1 Instruct the person to blow his nose repeatedly. Save the tissues for counting.
- 4.8.2 Dampen swab (one for each nostril), insert carefully as far as possible, and then withdraw swab, twirling it inside of the nostril as it is withdrawn. Repeat until the swab shows no detectable activity. Run a swab on the GeLi for isotope identification.
- 4.8.3 Cases of persistent contamination should be referred to a physician trained in radiological emergencies.

4.9 Eye Contamination

- 4.9.1 Irrigate eyes with Allclear eye lotion (sterile, isotonic solution) only. Assume a bent position to preclude contamination spread.
- 4.9.2 After contamination is no longer detected on the frisker or contamination persists, perform a stationary whole body count of the head area.
- 4.9.3 Cases of persistent contamination should be referred to a physician trained in radiological emergencies.

4.10 Persistent Extremity Contamination

- 4.10.1 Place the bare hand or foot in a rubber or plastic glove or booty. Tape all openings shut.

- 4.10.2 Place near source of heat for 10 to 15 minutes or until the extremity is sweating profusely. Gloves can be worn for a few hours to utilize body heat.
- 4.10.3 As soon as the extremity is sweating profusely, remove covering and wash with soap and water immediately. Any delay will allow contamination to seep into the skin pores.