

Davis-Besse Nuclear Power Station

Unit No. 1

Health Physics Procedure HP 1604.01

Personnel Decontamination

NUCLEAR SAFETY RELATED

Record of Approval and Changes

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Date

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Recommended by Jack Evans 2/24/76
SRB Chairman Date

QA Approved NA DWB 2/24/76
Manager of Quality Assurance Date

Approved by Jack Evans 2/24/76
Station Superintendent Date

Revision No.	SRB Recommendation	Date	QA Approved	Date	Sta. Supt. Approved	Date
1	<u>GLW</u>	4/12/77	NA		<u>GLW</u>	4/14/77
2	<u>BK Buse</u>	3/4/80	NA		<u>TD Murray</u>	3/15/80
3	<u>BK Buse</u>	11/2/82	NA		<u>TD Murray</u>	11/12/82
4	<u>TD Murray</u>	1/7/83	NA		<u>TD Murray</u>	1/24/83

1. PURPOSE

- 1.1 This procedure delineates guidelines to be followed by all personnel in the methods of personnel decontamination.

2. REFERENCES

- 2.1 Davis-Besse Radiation Protection Manual, Section 3.5.4.2
- 2.2 US Department of Health, Education and Welfare Radiological Health Handbook
- 2.3 Health Physics Procedure - External Personnel Radiation Exposure Monitoring, HP 1602.01.

3. EQUIPMENT NEEDED

- 3.1 Health Physics personnel contamination monitoring equipment:
- 3.1.1 Rm-14 with HP 260 or HP 210 probe.
- 3.2 Protective clothing to prevent spread of contamination, such as plastic gloves, apron, bib, etc.
- 4 | 3.3 Personnel Decontamination Equipment (some of which could be):
- 3.3.1 Gauze pads
- 3.3.2 Cotton swabs
- 3.3.3 Nail clippers
- 3.3.4 Hair cutting equipment, such as clippers, scissors, etc.
- 3.3.5 Safety razor and blades
- 3.3.6 Soft brush
- 3.3.7 Mild hand soap
- 3.3.8 Special decontamination soap, such as Turco's "Decon Hand Soap"

4. DATA SHEETS REQUIRED

- 4.1 Attachment II Personnel Contamination Worksheet

5. PRECAUTIONS AND SAFETY

- 4 | 5.1 Contact Chemistry and Health Physics Section personnel in event of any contamination of the hands or body or any contamination of the ears, eyes, nose or throat.
- 5.2 Where contamination spread to open wounds is possible, contact the Chemistry and Health Physics Foreman or his designee before decontamination is started.
- 5.3 Only water will be used to decontaminate the mouth or nose.
- 5.4 When washing, caution must be exercised to prevent breaking the skin, as this creates a potential for internal contamination.
- 5.5 Never use water which is warmer than body temperature for washing, as this opens the body pores which may absorb contamination, creating a more difficult problem and potential internal contamination.
- 5.6 Decontamination shall be performed using the necessary precautions and protective clothing to prevent the spread of contamination.
- 4 | 5.7 Decontamination of skin with iodine absorption cannot be achieved. If levels of skin contamination cannot be reduced after several attempts have been made, a whole body count should be used to determine the presence of iodine contamination. If contamination levels are greater than 10,000 dpm, medical help may be necessary. Iodine levels in the skin less than 10,000 dpm could be released and so noted on Attachment I.
- 5.8 All personnel contamination/decontamination will be documented on Attachment II. Forward the completed Attachment II to the Health Physics Supervisor.

6. ON-SITE DECONTAMINATION PROCEDURE

6.1 Contamination of Hands or Body

- 6.1.1 If contamination is detected on the body of radiation worker, contact the Health Physics Department for assistance.

4 | NOTE: A person is considered contaminated when there is greater than 100 cpm over background as indicated on a RM-14 Frisker or other similar instrument.

- 4 | 6.1.2 Thoroughly wash the affected areas with mild soap for 2-3 minutes. When washing hands pay particular attention to finger nails and areas between fingers.
- 4 | 6.1.3 Use lukewarm water, using caution to prevent contamination from entering any body openings or skin breaks, wash, starting with the head and proceeding downwards.
- 4 | 6.1.4 Rinse thoroughly with large amounts of clean water, dry and monitor with a survey instrument such as a RM-14 using HP 260 or HP 210 probe. If contamination levels exist greater than 100 cpm above background, repeat the washing and rinsing process two (2) more times using fresh water for each wash.
- 6.1.5 When surveying for contamination, be sure to check in areas where contamination may be hidden. Areas not previously contaminated must be surveyed as contamination may have been spread to those areas.
- 6.1.6 Decontamination is considered complete when the area is 100 cpm above background or less when monitored with an RM-14 with a HP 260 or HP 210 probe.
- 4 | 6.2 The following steps are to be performed under the supervision of Chemistry and Health Physics Foreman:
- 6.2.1 Cleanse the area with special decontamination soap, such as Turco's "Decon Hand Soap" (a soft brush may be used); dry the area and survey.
- 4 | 6.2.2 Repeat Step 6.2.1 until contamination levels are less than 100 cpm above background or until there is no decrease in the level of contamination.
- 6.2.3 If the contamination is located in and around the finger nails, clip or trim the finger nails as much as possible.
- 6.2.4 If none of the proceeding steps are sufficient to remove the contamination, any further decontamination will be administered by the Chemist and Health Physicist or a medical coordinator.

6.3 Hair Contamination

- 6.3.1 Contamination of the hair shall require the immediate notification of the Chemistry and Health Physics Foreman or his designee.
- 6.3.2 If the contamination is present only in a small area, the hair may be cut off.
- 6.3.3 If washing is required, the hair should be washed with the individual in a position that will prevent the spread of contamination to other parts of the body.
- 6.3.4 Dry the hair and survey for contamination.
- 6.3.5 Continue Steps 6.3.3 and 6.3.4 until contamination levels are less than 100 cpm above the background or until there is no decrease in the level of contamination.
- 6.3.6 If none of the proceeding steps are sufficient to remove the contamination from the hair any further decontamination will be administered by the Chemist and Health Physicist or a medical coordinator.

6.4 Contamination of the Ear

- 6.4.1 Contamination of the ear shall require the immediate notification of the Chemistry and Health Physics Foreman or his designee.
- 6.4.2 Contamination in the outer ear may be decontaminated with soap and tepid water on a cotton tipped swab, using care not to get any water in the inner ear. The swabs should only be damp and the individual shall tilt his head so that the ear is down.
- 6.4.3 Do not flush the ear with water or anything else.
- 6.4.4 Contamination in the inner ear or other methods of decontamination of the outer ear will only be administered under the supervision of the Chemist and Health Physicist or a medical coordinator.

6.5 Contamination of the Eyes or Mouth

- 6.5.1 Contamination of the eyes or mouth shall require the immediate notification of the Chemistry and Health Physics Foreman or his designee.
- 6.5.2 The eyes and mouth may be flushed with tepid water but no other action may be taken.
- 6.5.3 When flushing the mouth, bend the individual over the sink to prevent swallowing of the water.
- 6.5.4 Any further decontamination steps will only be administered under the supervision of the Chemist and Health Physicist or a medical coordinator.
- 6.5.5 After decontamination, have the individual whole body counted to evaluate internal exposure.

6.6 Contamination of the Nose

- 6.6.1 Contamination of the nose shall require the immediate notification of the Chemistry and Health Physics Foreman or his designee.
- 6.6.2 Have the contaminated individual blow his nose into a facial tissue or paper towel.
- 6.6.3 Check the paper for contamination.
- 6.6.4 Check the nose for remaining contamination. If contamination remains, a damp cotton swab may be used for decontamination.
- 6.6.5 It is generally better if the contaminated individual performs the following steps himself:
 - 1. Insert the damp swab into the nostril as far as possible. Exercise caution so that the swab does not touch the sides of the nostril during insertion.
 - 2. Press the swab lightly against the sides of the nostril and withdraw in a circular motion so all sides of the nostril are wiped. Check swab for contamination.
- 6.6.6 Continue Steps 6.6.5.1 and 6.6.5.2 until contamination levels are less than 100 counts above

background and are no longer decreasing or the nostril becomes tender.

- 6.6.7 If none of the above steps are sufficient to remove the contamination, any further decontamination will be administered by the Chemist and Health Physicist or a medical coordinator.
- 6.6.8 After decontamination is complete, the individual showers and then will be whole body counted to check the internal exposure received.

7. OFFSITE DECONTAMINATION PROCEDURE

7.1 Offsite Decontamination Facilities

- 7.1.1 Decontamination of a few plant employees during an emergency could be accomplished at the DBAB Radiological Testing Lab.
- 7.1.2 The major Decontamination Center for an evacuation of Davis-Besse personnel is the TED Lindsey Service Center. This is located at State Route #590 and State Route #20.

7.2 Offsite Decontamination

- 7.2.1 The Chemistry and Health Physics Section is responsible for monitoring and decontamination of personnel evacuated from the DBNPS.
- 7.2.2 The Chemist and Health Physicist or his designee will assign C&HP Testers to the Offsite Decontamination Center to perform monitoring and decontamination as required.

NOTE: The number of C&HP Testers assigned to the center will be determined by the number of DBNPS personnel evacuating to the center.

- 7.2.3 Personnel decontamination should first be attempted by using sealed towelettes or a spray foam and clean rags.

NOTE: This first method will generate very little liquid radwaste for easier clean up.

- 7.2.4 Further decontamination should be accomplished in accordance with Section 6 of this procedure.

- 3
- 7.2.5 Attachment 1 lists the equipment available from the Station Health Physics Monitoring Room for use at the Offsite Decontamination Center. Additional C&HP Tester Equipment, if required, is available upon approval by the Chemist and Health Physicist or his designee.

NOTE: Equipment should be picked up by and accompany the assigned C&HP Tester(s) to the Decontamination Center.

OFFSITE DECONTAMINATION EQUIPMENT

(Not all instruments will be required)

E-520 Survey Meter	1 ea
PRM-4A with HP 210 Probe	1 ea
RM-14 with HP 260 Probe	1 ea
E-400 with HP 270 Probe	1 ea

Additional supplies that may be required and should be considered are as follows:

1. A special decontamination soap such as "Turco's Decon Hand Soap"
2. Soft brush
3. Mild hand soap
4. Cotton swabs
5. Gauze pads
6. Hair shampoo
7. Towels
8. Razors and shaving cream
9. Towelettes
10. Spray foam deconer

DAVIS-BESSE NUCLEAR POWER STATION
PERSONNEL CONTAMINATION WORKSHEETNAME _____
TLD. _____
LOCATION OF INCIDENT _____DATE _____
TIME _____

DESCRIPTION OF INDICENT:

LOCATION OF CONTAMINATION	HOW DETERMINED	INITIAL LEVEL	1st DECON	2nd DECON	3rd DECON

BIOASSAY AND/OR WHOLE
BODY COUNT INFORMATION

REMARKS

C/H.P. Technician _____ Date _____

Health Physics Supervisor _____

ENDAttachment 2
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