

SOP 800: RADIATION EXPOSURE CONTROL PROCEDURES

1.0 OBJECTIVE

SOP 800 Series contains procedures to be used by emergency workers and/or the general public to minimize exposure to radiation resulting from an accident at Salem/Hope Creek Generating Stations (SHCGS).

2.0 CONTENTS

- 2.1** SOP 801: Radiation Exposure Control Measures - Emergency Worker
- 2.2** SOP 802: Personnel Monitoring
- 2.3** SOP 803: Decontamination

SOP 801 - RADIATION EXPOSURE CONTROL MEASURES

1.0 OBJECTIVE

This procedure describes the method of identifying emergency worker classification, specifies emergency worker exposure (dose) limits, describes emergency worker response kit contents and provides guidance on the use of that equipment.

2.0 CONTENTS

SOP 801-A: Emergency Worker Classification and Exposure Dose Limits
SOP 801-B: Emergency Worker Response Kit Contents
SOP 801-C: Use of Emergency Worker Response Kit
SOP 801-D: Personnel Exposure Monitoring

3.0 PREREQUISITES

3.1 An emergency condition exists which requires response of the State of Delaware Emergency Workers.

4.0 REFERENCES

4.1 FEMA Exercise Manual Guidance.
4.2 State of Delaware Radiological Emergency Plan
4.3 State of Delaware, SOP 900 Series Procedures
4.4 State of Delaware, SOP 1300 Series Procedures

5.0 ATTACHMENTS

801-A1, Emergency Worker Exposure Limits
801-B1, Emergency Worker Self-Protection Instruction Card
801-B2, Emergency Worker Daily Dose Record Card
801-B3, Emergency Worker Permanent Dose Record Card
801-B4, Daily Personnel Exposure Record Form
801-B5, Instruction Sheet
801-C1, Emergency Worker Response Kit
801-C2, Manufacturer Information on KI
801-D1, Permanent Personnel Exposure Record Form
801-E1, Instructions for Suiting-Up and Removing Anti-Contamination Suit.

6.0 RECORDS

All data, records, forms and logs to be transmitted to, and maintained by DEMA at the State EOC.

SOP 801-A: EMERGENCY WORKER CLASSIFICATION AND EXPOSURE DOSE LIMITS

1.0 GENERAL

An Emergency Worker (EW) is an individual who has an essential mission to protect the health and safety of the public and who could be exposed to ionizing radiation from the plume deposition, or radiological contamination following the release of radiological material from an accident at a nuclear power plant. To obtain emergency worker status, an individual must complete Emergency Worker Exposure Control training.

2.0 EMERGENCY WORKER CLASSIFICATIONS

2.1 For purposes of emergency worker exposure control, emergency workers are classified according to both work assignment and the likelihood of exposure to radiation; that is, if the work assignment will take place in an area of high or low exposure rate.

Note: It is recommended that all emergency workers be selected who are not sensitive to potassium iodide (KI), due to the possibility of being asked to take KI to block absorption of radioiodine by the thyroid. Refer to Attachment 801-C2.

2.2 High exposure rate areas are areas with radiation levels at or above 0.1 Roentgens per hour (R/h) whole-body. Emergency workers who may receive exposures in this range include, but are not limited to, radiation monitoring team personnel, police and law enforcement personnel (including those involved in route alerting or traffic control), firemen, rescue personnel and on-scene emergency medical personnel, evacuation vehicle drivers, and essential service or utility personnel. All emergency workers with emergency assignments in the 10-mile EPZ are considered to be in areas of high exposure and are considered Category 1/2 emergency workers. Each of these EW will be issued an Emergency Worker Response Kit, described in SOP 801-B, and which includes permanent dosimetry, electronic or direct-reading dosimeters and KI tablets (see Att. 801-C2).

2.3 Low exposure rate areas are areas with radiation levels of less than 0.1 R/h whole-body. Emergency workers who may receive exposures in this range include, but are not limited to personnel involved in dosimetry issuance and collection, dose record keeping, environmental sample reception and analysis, traffic access control for re-entry, emergency operations centers, decontamination centers, hospitals, and other medical service centers. Emergency workers outside of the 10-mile EPZ are considered to be in low exposure rate areas. These EW are considered Category 3 emergency workers. These EW will not be issued individual equipment, unless they could reasonably be expected to come into direct contact with radiological contamination as a result of their duties, e.g. EW performing monitoring and decontamination duties at hospitals, decontamination and registration centers. In low exposure rate areas, a single set of self-reading electronic or direct-reading dosimeters, strategically placed, (i.e. near entrances and exits) may be used to monitor work areas.

3.0 RADIATION EXPOSURE (DOSE) CONTROL

3.1 As emergency workers report to field positions, they are to read their dosimeters every 15 minutes.

3.2 **Turn-back value:** Emergency workers who encounter a dose rate of **1.25 Rem/hr** or higher should not proceed with their assignment unless directed by the Division of Public Health representative in the Technical Assessment Center (TAC) through the Delaware Emergency Management Agency (DEMA) Director.

**SOP 801-A: EMERGENCY WORKER CLASSIFICATION AND EXPOSURE DOSE LIMITS
(Continued)**

3.0 RADIATION EXPOSURE (DOSE) CONTROL (Continued)

- 3.3** Normally emergency workers should not exceed a total dose of 1.25 Rem. Permission to receive radiological doses in excess of 1.25 Rem must be given by the Division of Public Health representative in the Technical Assessment Center (TAC) through the Delaware Emergency Management Agency (DEMA) Director.
- 3.4** Permission to exceed 5.0 Rem can only be given by the Governor of Delaware, or designee, after consultation with Division of Public Health representative in the Technical Assessment Center (TAC) through the Delaware Emergency Management Agency (DEMA) Director.
- 3.5** Potassium Iodide (KI) ingestion may be authorized by the Division of Public Health in the Technical Assessment Center (TAC) through the Director of the Delaware Emergency Management Agency (DEMA). In the event that emergency workers are projected to receive doses from radioiodine in excess of 25 Rem to the thyroid, ingestion of KI may be authorized. (See Attachment 801-C2).
- 3.6** Attachment 801-A1 summarizes Emergency Worker Dose Limits.

Attachment 801-A1

EMERGENCY WORKER EXPOSURE LIMITS

<u>Total Dose Limit (Rem)</u>	<u>Activity</u>	<u>Condition</u>
1.25	All	Permission to exceed this dose must be given by the Division of Public Health through the DEMA Director
5	All	Permission to exceed this dose must be given by the Governor or designee
10	Protecting valuable property	Lower dose not practicable
25	Life saving or protection of large populations	Lower dose not practicable
>25	Life saving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved, and with the ability to monitor exposures

TURN-BACK DOSE RATES

Turn-back value: Emergency workers who encounter a dose rate of **1.25 Rem/hr** or higher should not proceed with their assignment unless directed by the Division of Public Health representative in the Technical Assessment Center (TAC) through the (DEMA) Director.

Gamma Dose Rate

1.25 R/hr or greater

Guideline

Do not proceed unless directed by the Delaware Emergency Management Agency (DEMA) Director after consultation with the Division of Public Health representative of the Technical Assessment Center (TAC).

SOP 801-B: EMERGENCY WORKER RESPONSE KIT CONTENTS

1.0 GENERAL

The Emergency Worker Response Kit is designed to contain the necessary equipment and instructions, for each emergency worker.

2.0 RESPONSE KIT CONTENTS

2.1 INSTRUCTION SHEET

2.1.1 The Instruction Sheet is included in the kit to provide general information concerning contents and use of each kit.

2.1.2 Attachment 801-B5 contains an example Instruction Sheet.

2.2 SELF PROTECTION CARDS

2.2.1 The State Emergency Worker Self Protection Instruction Card provides information and instructions for the following:

- a. State and County EOC telephone numbers
- b. Emergency Worker Checklist
- c. Dosimeter of Legal Record (DLR) Badge
- d. Exposure Record Form
- e. KI Tablets (See Attachment 801-C2)
- f. Dosimeters
- g. Dosimeters Charger Use

2.2.2 Attachment 801-B1 contains an example of the State Emergency Worker Self-Protection Instruction Card.

2.3 DOSIMETRY

2.3.1 The following dosimetry equipment is included in the response kit:

- a. Dosimeter of Legal Record (DLR) badge
- b. Electronic Dosimeter (PD-3I) / or
DCA 862, or equivalent, low-range pocket dosimeter (0-200 mR) and
DCA 622, or equivalent, high-range pocket dosimeter (0-20R)

2.3.2 Separate from the kit and shared by others is the CDV 750, or equivalent dosimeter charger, for use on the DCA 862 and DCA 622, or equivalent dosimeter.

2.3.3 Emergency Worker Daily Dose Record Card is included to maintain a record of pocket dosimeter readings each day, and if KI is required (see Att. 801-C2), a record of when it was taken. Attachment 801-B2 contains an example Daily Dose Record Card.

2.3.4 The Emergency Worker Permanent Dose Record Card is included to maintain both cumulative daily dosimeter totals and DLR records for each individual. Attachment 801-B3 contains an example Permanent Dose Record Card.

2.3.5 The Daily Personnel Exposure Record Form is included to keep a record of readings taken at 15 minute intervals (Attach. 801-B-4).

2.0 RESPONSE KIT CONTENTS (Continued)

2.4 KI TABLETS

Potassium Iodine (KI) tablets, when ingested, act as a blocking mechanism for radioactive iodine (see Att. 801-C2). KI will be ingested by Emergency Workers only after use is authorized by the Division of Public Health representative of the Technical Assessment Center (TAC) through the Delaware Emergency Management Agency (DEMA) Director.

3.0 ANTI-CONTAMINATION KIT

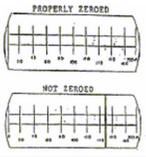
3.1 The Anti-Contamination Clothing Kit is separate. Emergency Workers may be issued this equipment in addition to the other items listed above. Recommend issuing one (1) ACK to each Category 1/2 Emergency Worker required to enter the 10-mile EPZ or to any Category 3 Emergency Worker assigned to a decontamination center, registration center or medical facility that may come into direct contact with radiological contamination. DEMA will notify agencies when to instruct emergency workers to wear AC clothing. Such notification will be made when emergency workers could be expected to receive direct contamination while performing their duties.

3.2 Anti-Contamination Clothing consists of the following items:

- a.** Plastic lined overalls with hood (Tyvek Suit)
- b.** Latex or rubber gloves
- c.** Pull-on boots
- d.** Masking tape (use to seal suit and attach dosimeter)

4.0 The use of the equipment and forms in the Emergency Worker Response Kit is addressed in SOP 801-C.

**ATTACHMENT 801-B1
 EMERGENCY WORKER SELF PROTECTION INSTRUCTION CARD**

<p align="center">SELF-READING ELECTRONIC DOSIMETER (PD-31)</p>  <ul style="list-style-type: none"> • Install a battery: Open the battery compartment, insert a single AA battery, then close and lock the compartment. IF THE BATTERY IS REMOVED, WAIT AT LEAST 10 SECONDS BEFORE REINSERTING A BATTERY. • Note: to zero the instrument, remove the battery and re-insert before operation. • To start operation: Insert battery and press the run button. Firmware revision number will appear on the display. • Mode button changes display face. • Display Face: Press backlight button. • RATE Icon flashes when the calculated dose rate is in excess of the Dose Rate Alarm set point. • Dose Icon flashes when the accumulated dose has exceeded the Dose Alarm set point. 	<p align="center">DOSIMETRY INFORMATION</p>  <ul style="list-style-type: none"> • Remove dosimeter from charger • Aim at light • Verify zero hairline. <p>DOSIMETER CHARGER CDV-750 MODEL 6</p>  <p><i>Note: A CDV-750 dosimeter charger is used to "zero" pocket self-reading dosimeters (pencil dosimeters).</i></p> <ol style="list-style-type: none"> 1. Lift clamp and pull it back to maximum length. 2. Place dosimeter in clamp as shown. 3. Squeeze clamp trigger and push forward until the end is against dosimeter piece. 4. Release trigger-securing dosimeter in charger. 5. Point at light source and observe scale. 6. Repeatedly squeeze generator lever lightly and release watch for hairline to move from right to left. 7. If hairline moves to the left of zero, push discharge button to move it to the right. 	<p align="center">DOSIMETRY INFORMATION</p> <ul style="list-style-type: none"> • Record dosimeter serial numbers. • Zero (or record initial reading) at beginning of assignment. • Should be worn at chest level. • Read dosimeter every 15 minutes. • Maintain contact with Supervisor. <p>Normal Dose Limit: 1.25 REM Emergency Workers Extension 5 REM Life Saving Activities: 25 REM</p> <ul style="list-style-type: none"> • Contact your Supervisor if you are approaching or exceed your authorized dose limit. • Exposure extensions may be authorized by the Division of Public Health to 5 REM, and by the Governor above 5 REM. All exposure extensions must be authorized through DEMA.
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<p align="center">IMPORTANT: CONTACT YOUR SUPERVISOR OR APPROPRIATE EMERGENCY OPERATIONS CENTER</p> <ul style="list-style-type: none"> • If you have a problem • If you need additional information • If you are unsure of instructions <p>If you reach your turn back value call your supervisor immediately to discontinue your mission</p> <ul style="list-style-type: none"> • Turn back value: Dose rate 1.25 REM/hr or higher <p>State EOC (877) 729-3362 Or (302) 659-3362</p> <p>New Castle EOC (302) 573-2855</p> <p>Kent EOC (302) 735-3465</p> <p>Sussex EOC (302) 855-7801</p>	<p align="center">EMERGENCY WORKER VITAL INFORMATION</p> <hr/> <p align="center"><u>DLR BADGE</u></p> <p>Provides permanent exposure record. MUST be worn throughout the incident above waist and on outside of clothing.</p> <hr/> <p align="center"><u>DOSIMETRY</u></p> <p>Electronic or self-reading dosimeters provide approximate cumulative exposure. Instructions on reverse side (this card). Wear above waist on outside of clothing.</p> <hr/> <p align="center"><u>EXPOSURE RECORD CARDS</u></p> <p>Record DLR badge number. Record dosimeter serial number (s) Record initial dosimeter readings & Final readings at end of assignment.</p> <hr/> <p align="center"><u>KI TABLETS (POTASSIUM IODIDE)</u></p> <p>See Att. 801-C2 for manufacturer information. Blocks Radiation to thyroid. Take only when directed by Supervisor. Take only one tablet during a 24-hour period. DO NOT TAKE IF ALLERGIC TO SHELLFISH OR IODINE.</p>	<p align="center"><u>STATE OF DELAWARE EMERGENCY WORKER SELF-PROTECTION INSTRUCTION CARD</u></p> <p>Before beginning your assignment, you should have the following:</p> <p align="center"><u>EMERGENCY WORKER RESPONSE KIT</u></p> <ul style="list-style-type: none"> • EW self-protection Instruction Card • DLR Badge • Electronic Dosimeter or Two (2) Self-Reading Dosimeters High and Low Range • Daily Dose Record Card • Permanent Dose Record Card • KI Tablets (See Att. 801-C2) • Anti-Contamination Kit (Optional) Tyvek Suit, Gloves, Booties, Tape. Turn in kits and all contents with forms upon completion of response assignment at Emergency Worker Decon Center, or where directed by Supervisor.
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ATTACHMENT 801-B2

EMERGENCY WORKER DAILY DOSE RECORD CARD

NAME _____

LAST FOUR (4) DIGITS OF SOCIAL SECURITY # _____

DATE _____ AGENCY _____

DOSIMETERS	HIGH-RANGE (0-20R)	LOW-RANGE (0-200mR)	ELECTRONIC
SERIAL NO.			
READINGS (START)			
READINGS (END)			
TOTAL DOSE			

DLR # _____

DLR REISSUED TO EMERGENCY WORKER: YES NO

REISSUED BY: _____

DLR SENT OUT FOR ANALYSIS: YES NO

INITIAL KI TABLET TAKEN AT _____ (AM/PM)

WHITE – AGENCY COPY **YELLOW** – DECONTAMINATION CENTER COPY
PINK – EMERGENCY WORKER COPY **GREEN** – PUBLIC HEALTH COPY
GOLD – EMERGENCY WORKER PERSONNEL FILE.

**NOTE: SEE PAGE 11 FOR INSTRUCTIONS.
SEE COLOR CODES AT THE BOTTOM OF THE EMERGENCY
WORKER DAILY DOSE RECORD CARD FOR DISPOSITION.**

ATTACHMENT 801-B3

Emergency Worker Permanent Dose Record Card

 Name

 Last four (4) digits of
 Social Security #

 Agency Name

Date	Electronic or Pocket Dosimeter #	Electronic Dosimeter Range	Pocket Dosimeter Range (mR or R)	Sub-total	Total

Issue Date	DLR #	Dose Sub-total	Dose Total

ATTACHMENT 801-B5

INSTRUCTION SHEET

**DELAWARE RADIOLOGICAL EMERGENCY PLAN
EMERGENCY WORKER SELF-PROTECTION KIT**

Emergency workers must understand how to protect themselves from radiological exposure. The following items are included in each emergency worker kit:

1. **DOSIMETER(S):** Electronic dosimeter or one low-range self-reading dosimeter (0-200mR) and one high-range self-reading dosimeter (0-20R), should be worn above the waist (chest area).
2. **ONE INFORMATION CARD:** The Emergency Worker Information Card contains critical instructions for the radiological emergency responder.
3. **TWO DOSE RECORD CARDS:** The two **Dose Record Cards** must be filled out for each emergency worker prior to response mission in the field. The worker must record dosimeter readings on the appropriate card initially and at the end of each response mission. These cards will be collected at the Emergency Worker Decontamination Center/Middletown National Guard Armory or turned in to supervisor after each response mission.
4. **ONE DAILY PERSONNEL EXPOSURE RECORD FORM:** Fill in with readings taken from electronic dosimeter or Self-Reading Dosimeters or High and Low Range Dosimeters every 15 minutes.
5. **DLR:** The Dosimeter of Legal Record (DLR) badge permanently records exposure to radiation. The DLR should be worn above the waist. DLRs will be collected to verify workers' self-reading dosimeter readings at the Emergency Worker Decontamination Center/Middletown National Guard Armory after each response mission.
6. **ANTI-CONTAMINATION SUIT:** Selected emergency responders may be requested to "suit-up" in protective clothing. The suit consists of plastic-lined overalls with hood, gloves, and pull-on boots. Masking tape is used around the ankles, hands, neck and zipper to seal openings. Tape is also used to secure dosimeters to chest area of suit (See Attachment 801-E1).
7. **POTASSIUM IODIDE (KI):** KI inhibits the thyroid from accumulating radioactive iodide. KI may be authorized by the Division of Public Health in the Technical Assessment Center (TAC) through the Delaware Emergency Management Agency (DEMA) Director. **DO NOT TAKE KI IF ALLERGIC TO SHELLFISH OR IODINE.** Refer to Attachment 801-C2.
8. **USE OF CDV-750 DOSIMETER CHARGER:** A CDV-750 dosimeter charger is used to "zero" pocket self-reading dosimeters, per instructions on the Emergency Worker Information Card.

SOP 801-C: USE OF EMERGENCY WORKER RESPONSE KIT

1.0 GENERAL

The Emergency Worker Response Kit is an exposure control measure for response personnel to utilize during a radiological emergency.

2.0 INSTRUCTIONS FOR USE

- 2.1 Obtain an Emergency Worker Response Kit.
- 2.2 Enter the requested information on the outside of the envelope. See Attachment 801-C1.
- 2.3 Read the Emergency Worker Self-Protection Instruction Card. See Attachment 801-B1.
- 2.4 Zero dosimeters per the instructions on the Self-Protection Instruction Card, Attachment 801-B1.
- 2.5 Complete the Emergency Worker Daily Dose Record Card and Permanent Dose Record Card, Permanent Personnel Exposure Record Form, Attachments 801-B2, 801-B3 and 801-D1.
- 2.6 Read the Instruction Sheet, Attachment 801-B5.
- 2.7 KI tablets are included in the kit and should only be taken when notified by your supervisor. **DO NOT TAKE KI IF ALLERGIC TO SHELLFISH OR IODINE.** See attachments 801-B1 and 801-C2.
- 2.8 An Anti-Contamination Clothing Kit (ACK) may be issued separate from the EW Response Kit. Equipment should be worn per instructions in Attachment 801-B5, when instructed by your supervisor.
- 2.9 Ensure that dosimetry is attached to the upper portion of your body (chest area) on the outside of your clothing.
- 2.10 If you have questions, problems or need additional information, immediately contact your supervisor, county EOC or State EOC.

ATTACHMENT 801-C1

EMERGENCY WORKER RESPONSE KIT

1. _____
Worker Name

2. _____
Agency (Including Volunteer Fire Co.)

3. _____
Last four (4) digits of Social Security #

4. _____
DLR#

OTHER INCLUSIONS

- a. EMERGENCY WORKER SELF-PROTECTION INSTRUCTION CARD
- b. EMERGENCY WORKER DAILY DOSE RECORD CARD
- c. EMERGENCY WORKER PERMANENT DOSE RECORD CARD
- d. DAILY PERSONNEL EXPOSURE RECORD FORM
- e. INSTRUCTION SHEET
- f. KI TABLETS (See Attachment 801-C2)
- g. SELF-READING ELECTRONIC DOSIMETER OR HIGH-RANGE AND LOW-RANGE DOSIMETERS
- h. ANTI-CONTAMINATION CLOTHING KIT (SEPARATE)
- i. DCA-750 OR EQUIVALENT DOSIMETER CHARGER
ONLY USED FOR HIGH AND LOW RANGE DOSIMETERS
THE DCA-750 IS SEPARATE AND IS SHARED.

**ATTACHMENT 801-C2
MANUFACTURER INFORMATION ON KI**

IOSAT TABLETS
(Potassium Iodide Tablets, U.S.P.)
(Pronounced poe-TASS-e-um EYE-oh-dyed)
(Abbreviated KI)

TAKE POTASSIUM IODIDE ONLY WHEN PUBLIC HEALTH OFFICIALS TELL YOU. IN A RADIATION EMERGENCY, RADIOACTIVE IODINE COULD BE RELEASED INTO THE AIR. POTASSIUM IODIDE (A FORM OF IODINE) CAN HELP PROTECT YOU.

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO NOT TAKE IT MORE OFTEN. MORE WILL NOT HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. DO NOT TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC TO IODIDE (SEE SIDE EFFECTS BELOW).

INDICATIONS

THYROID BLOCKING IN A RADIATION EMERGENCY ONLY.

DIRECTIONS FOR USE

Use only as directed by State or local public health authorities in the event of a radiation emergency.

DOSE

ADULTS AND CHILDREN ONE YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children.

BABIES UNDER ONE YEAR OF AGE: One-half (1/2) tablet once a day. Crush first.

DOSAGE

Take for 10 days unless directed otherwise by State or local public health authorities. Store at controlled room temperature between 15° and 30° C (59° and 86°F). Keep package dry and foil packets intact.

WARNING

POTASSIUM IODIDE SHOULD NOT BE USED BY PEOPLE ALLERGIC TO IODIDE. Keep out of the reach of children. In case of overdose or allergic reaction, contact a physician or public health authority.

DESCRIPTION

Each IOSAT™ Tablet contains 130 mg. of potassium iodide.

HOW POTASSIUM IODIDE WORKS

Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods like iodized salt or fish. The thyroid can “store” or hold only a certain amount of iodine.

**ATTACHMENT 801-C2
MANUFACTURER INFORMATION ON KI (Continued)**

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.

If you take potassium iodide, it will fill up your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

WHO SHOULD NOT TAKE POTASSIUM IODIDE: The only people who should not take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or antithyroid drug). Pregnant and nursing women and babies and children may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE

Potassium Iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can “hold” only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

SIDE EFFECTS

Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will be taking the drug.

Possible side effects include skin rashes, swelling of the salivary glands, and “iodism” (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR

If side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED

IODAT Tablets (Potassium Iodide Tablets, U.S.P): packages of 14 tablets (NDC51803-001-01): Each white, round, scored tablet contains 130 mg potassium iodide.

Distributed by ANBEX, INC.
10 East 40th Street
New York, NY 10016
www.anbex.com

SOP 801-D: PERSONNEL EXPOSURE MONITORING

1.0 GENERAL

This procedure provides the guidance for personnel exposure monitoring during an emergency condition. This procedure is applicable to all emergency workers who are assigned an Emergency Worker Response Kit.

2.0 PERSONNEL EXPOSURE MONITORING

2.1 Exposure Monitoring Requirements

- 2.1.1 A DLR and dosimeter(s) shall be worn above the waist and on the outside of clothing.
- 2.1.2 A DLR and dosimeter(s) shall be worn above the waist and on the outside of clothing any time radioactive materials are being handled and the radiation levels are unknown or the potential for increasing radiation levels exist.
- 2.1.3 Check dosimeter(s) every 15 minutes.
- 2.1.4 When a DLR is assigned to an individual, it must be worn by that individual. The DLR is a permanent record of the individual's exposure.

2.2 Dosimetry Issue and Documentation

- 2.2.1 A DLR, a self-reading electronic dosimeter or a low-range and high-range dosimeter, shall be issued to each emergency worker as follows:
 - a. Initiate Attachment 801-B4, "Daily Personnel Exposure Record Form" for each individual and record the appropriate data as requested on the form. Read dosimeters every 15 minutes.
 - b. Complete Attachment 801-D1, "Permanent Personnel Exposure Record Form" for each individual and record the appropriate data as requested on the form.
 - c. Remove a DLR from the storage area and record the DLR number on Attachment 801-D1.
 - d. Remove a self-reading electronic dosimeter or a low-range and a high-range dosimeter from the storage area and ensure that it is reading zero. If not, re-zero using dosimeter charger. Record the dosimeter serial numbers on Attachment 801-D1.
 - e. Secure DLR and dosimeter(s) to upper portion of body, normally the chest area.

NOTE: Monitoring periods normally run from midnight to midnight.

**SOP 801-D: PERSONNEL EXPOSURE MONITORING
(Continued)**

2.0 PERSONNEL EXPOSURE MONITORING (Continued)

2.2 Dosimetry Issue and Documentation (Continued)

2.2.2 Upon completion of assignment and at the end of each shift, read the dosimeters and record the value observed in the space provided on Attachment 801-B4.

- a.** If end of shift, re-zero dosimeter(s) and place it with the DLR in the designated storage area.
- b.** If midnight, re-zero dosimeter(s), attach to upper body and continue work.

ATTACHMENT 801-D1

PERMANENT PERSONNEL EXPOSURE RECORD FORM

Year _____ Full Name _____

DOB _____ Last Four (4) Digits of Social Security Number _____

Department _____ State _____

License _____

1st Quarter Whole Body Exposure

<i>Month</i>	<i>Dosimeter (Rem)</i>	<i>DLR (Rem)</i>	<i>Cumulative</i>	
			<i>SRD</i>	<i>DLR</i>
January	_____	_____	_____	_____
February	_____	_____	_____	_____
March	_____	_____	_____	_____

2nd Quarter Whole Body Exposure

April	_____	_____	_____	_____
May	_____	_____	_____	_____
June	_____	_____	_____	_____

3rd Quarter Whole Body Exposure

July	_____	_____	_____	_____
August	_____	_____	_____	_____
September	_____	_____	_____	_____

4th Quarter Whole Body Exposure

October	_____	_____	_____	_____
November	_____	_____	_____	_____
December	_____	_____	_____	_____

Total Exposure for Year Ending _____

Completed by _____ Date _____

Reviewed by _____ Date _____

ATTACHMENT 801-E1

ANTI-CONTAMINATION SUITS Suiting-Up/Removal Procedures

SUIT UP

1. Put on suit, zip up front, put on hood.
2. Make 5 inch strip of heavy tape rolled up and secure ends with tape to chest of suit.
Clip dosimeters on tape strip.
3. Pull on boots with suit pant legs outside and over boots.
Wrap masking tape to secure suit to boots.
Make tab in tape by folding end of tape back on itself, for easy removal.
4. Tape entire front zipper.
Make tab in tape (at top) by folding end of tape back on itself, for easy removal.
5. Tape around neck to secure opening at top of zipper.
Make tab in tape by folding end of tape back on itself, for easy removal.
6. Put on two pairs of gloves.
7. The outer pair of gloves (second pair) should have suit sleeves outside gloves.
Wrap masking tape to secure suit to outer gloves.
Make tab in tape by folding end of tape back on itself, for easy removal.
8. Put on two to three additional pairs gloves, do not tape.
As gloves become contaminated, remove outer most pair and place in Rad Waste.
DO NOT contaminate nor remove the taped pair of gloves.
Put on two to three clean pair gloves.
Replace contaminated gloves with clean pairs as necessary.

SUIT REMOVAL

NOTE: Be careful not to touch skin or clothing with hands that may be contaminated. Remove all anti-contamination clothing carefully, so no particulate contamination becomes airborne.

1. Stand on plastic sheet or pad.
Place all removed gloves, boots, tape and suit on plastic sheet/pad.
2. Remove tape around boots.
3. Remove all gloves except the taped pair.
4. Take off dosimeters and place in plastic bag.
5. Remove tape around neck.
6. Pull hood back and down from outside, turning hood inside out, careful not to touch head with gloves or outside of hood.
7. Remove tape from front zipper, pulling tab from top down.
8. Unzip front zipper.
9. Remove tape around taped pair of gloves.
10. Roll suit down body turning it inside out, as far as possible, and touching only outside of suit as much as possible.
11. Pull gloved hands through sleeves, turning sleeves inside out.
12. Roll suit down over boots. During this step, may now touch inside of suit, but avoid touching clothing with hands. Suit is now off.
13. Remove gloves that were taped. This will leave a first pair of clean gloves.
14. Sit on clean surface before removing boots by placing hands on inside of boots & pushing boots off.
15. As boots are removed, step off the plastic sheet onto a clean surface.
16. Remove one glove.
17. Remove other glove by placing un-gloved fingers inside of glove and pushing off.
18. Plastic sheet containing gloves, boots, tape and suit will be folded inward and placed in Rad Waste.

SOP 802 - PERSONNEL MONITORING

1.0 OBJECTIVE

The objective of this procedure is to describe methods used to monitor emergency workers and evacuees for external radiological contamination and possible thyroid uptake of radioiodines.

2.0 CONTENTS

SOP 802-A Personnel Monitoring Guidelines.

SOP 802-B Personnel Monitoring Guidelines (Manual Method)

SOP 802-C Portal Monitor

SOP 802-D Portal Monitor Supplemental Information

3.0 PREREQUISITES

3.1 An emergency condition has been declared at the level of Site Area Emergency.

3.2 A radiological release is projected or is in progress.

4.0 REFERENCES

4.1 State of Delaware Radiological Emergency Plan.

4.2 State of Delaware, SOP 900 Series Procedures.

4.3 State of Delaware, SOP 1300 Series Procedures.

4.4 State of Delaware, SOP 1500 Series Procedures.

4.5 EPA-400, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.

4.6 Portable Portal Monitor Instruction Manual.

5.0 RECORDS

All data, records, forms and logs are to be transmitted to and maintained by DEMA at the State EOC.

SOP 802-A: PERSONNEL MONITORING GUIDELINES

1.0 GENERAL

This section provides the guidelines and instructions for personnel monitoring for external contamination and radioiodine uptake.

2.0 GUIDELINES

- 2.1** Establish monitoring facilities at evacuation centers or other locations in low background areas (less than 0.1 mR/hr).
- 2.2** Monitor all personnel entering the facility if any of the following criteria are met:
 - 2.2.1** Declaration of a Site Area Emergency.
 - 2.2.2** Release in progress.
 - 2.2.3** Release is projected.
 - 2.2.4** As directed by DEMA Director.
- 2.3** Refer to SOP 802-C for personnel monitoring using the Portal Monitor.
- 2.4** Refer to SOP 802-B for personnel monitoring, including thyroid, using portable survey meters.

SOP 802-B: PERSONNEL MONITORING GUIDELINES: MANUAL METHOD

1.0 GENERAL

This section provides guidelines and instructions for detailed monitoring of personnel for external contamination. It also provides guidelines for monitoring personnel for thyroid uptake.

2.0 GUIDELINES

- 2.1 Monitor all personnel who have indicated contamination from passing through a portal monitor, or otherwise suspected, using the guidelines below:
- 2.2 Perform an operational check of the survey instrument (please refer to instruction manual for assistance):
 - 2.2.1 Check for calibration currency.
 - 2.2.2 Turn on external speaker (or, if so equipped, connect speaker wiring).
 - 2.2.3 Install and test batteries.
 - 2.2.4 Connect probe and cable.
 - 2.2.5 Check response with a check source.
- 2.3 Determine the background count rate. This is generally between 15 and 30 uR/hr for most locations in Delaware. For instruments which read in counts per minute (CPM), the ranges are generally as follows:

<u>Meter</u>	<u>Normal Background Range</u>
CD V-700	10 - 15 cpm
Eberline E-140 (with HP-260 Pancake Probe)	20 - 50 cpm
Ludlum Model 3	50 - 80 cpm

- 2.4 Cover the probe with plastic to prevent accidental contamination.
- 2.5 Use the audible mode (speaker turned on), or earphone jack if available, to allow for visual concentration on the surface being scanned.
- 2.6 Have the person stand with arms and legs apart.
- 2.7 Hold the probe about one inch from the surface, and scan slowly (about 1 - 2 inches per second) over the entire surface of the body starting from the head down to the feet. Pay particular attention to the areas of the body indicated as contaminated by the portal monitor (see SOP 802-C). These areas are very likely to be the bottoms of the shoes, hands, knees, elbows and face. A reading exceeding twice background indicated that decontamination would be required for that area IAW SOP 803.

2.0 GUIDELINES (Continued)

2.8 Thyroid Examination:

2.8.1 This should be done after it has been determined that no external contamination is present.

2.8.2 Place the probe across the subject's neck between the Adams apple and the top of the clavicle (collarbone). If the probe has a beta-shield door, the door should be closed. Hold for about 5 seconds. A reading higher than 5 times background would indicate that radioactive iodine uptake has occurred. For instruments with count-per-minute readings, the following count rates indicate radioactive iodine uptake:

CD V-700 -> 50 CPM

**Eberline E-140
(With HP-260
Pancake Probe) -> 350 CPM**

Ludlum Model 3 -> 1500 CPM

These readings indicate that the individual should be sent to a medical facility for further measurements and treatment.

2.9 Complete the applicable documentation as appropriate in SOP 803, attachment 803-A1.

SOP 802-C: PORTAL MONITOR LUDLUM MODEL 52

1.0 GENERAL

The Ludlum Model 52 Portable Portal Monitor is used for whole-body personnel monitoring of Beta and Gamma contamination. It meets the FEMA standard for Emergency Response Portal Monitoring (FEMA-REP-14).

2.0 ASSEMBLY

- 2.1 Set the base on the floor with the screens over the foot detectors facing up.
- 2.2 Attach the sections as shown in the diagram. Each section is labeled (R1, L1, R2, L2, etc.). The detector screens must be facing toward the middle of the portal.
- 2.3 Attach the electronics section to the outside of section R2, with the LEDs facing up.
- 2.4 Plug the power cord into the connector on the bottom of the electronics section, marked "INPUT."
- 2.5 Install 6 D-cell batteries into the electronics section. The batteries will power the monitor if AC power is not available. The monitor will function on AC power if plugged in, with the batteries installed, but it will not charge the batteries.
- 2.6 **Anti-Contamination Precautions**
 - 2.6.1 Cover the feet detectors on the base with a sheet of paper or plastic, to preclude dirt and/or other contaminants from falling into the screens.
 - 2.6.2 Wrap the sides and top of the monitor with plastic wrap. Be sure the sensors are covered, but with no more than one layer, as this would detract from the Beta readings.
 - 2.6.3 The operator should wear gloves, in case of contact with unmonitored people or objects.
 - 2.6.4 Operators should observe individuals being monitored, to ensure that contaminated persons do not physically touch the sensors. If this happens, change the plastic wrap.

3.0 POWER UP

- 3.1 Turn on the monitor with the power switch at the bottom of the electronics section.
- 3.2 The ORANGE "UPDATING" light indicates that a background reading is being taken. Allow one minute for this. Persons and radioactive sources should remain at least 3 feet away.
- 3.3 The GREEN "READY" light indicates the monitor is ready for use.

4.0 SOURCE CHECK

- 4.1 With the monitor on and operational, (and assuming you are not contaminated) step onto the base. Conduct a source check.
 - 4.1.1 Hold a Cesium-137 source button within one foot of a detector.
 - 4.1.2 After the count time (pre-set at 6 seconds), the alarm should sound.
 - 4.1.3 Observe the top of the electronics section for the alarm indicator light, and ensure that the light which is flashing corresponds to the sensor tested.
 - 4.1.4 Step off the base.
- 4.2 Repeat the process described above for another detector, until all individual detectors are tested.

5.0 MONITORING PERSONS

- 5.1 If not done already, turn on the monitor IAW 3.0 above.
- 5.2 When the READY light flashes, have a person step onto the base.
- 5.3 The monitor will take six (6) seconds to scan.
- 5.4 If the person is clean, the monitor will beep once, and the CHECK OK light will flash.
- 5.5 Have the person step off.
- 5.6 Have the next person enter.
- 5.7 If the monitor alarms:
 - 5.7.1 If the person being monitored is contaminated, the alarm will sound.
 - 5.7.2 Check the diagram at the top of the electronics section. The flashing light(s) will give the general location of the contamination.
 - 5.7.3 Have the person step off to be manually monitored, IAW SOP 802-B.
- 5.8 Have the next person enter.

6.0 SHUTDOWN AND DISASSEMBLY

- 6.1 Turn the monitor off.
- 6.2 Remove the batteries from the electronics section. Leaving the batteries in for excessive time (days or weeks) could result in corrosive damage to the section.
- 6.3 Separate the individual sections (no tools required) and pack them into the case. See diagram on Page 13.

7.0 CHECKLIST FOR OPERATION OF BICRON PORTAL MONITOR

- Before operating the Bicron Portal Monitor, conduct inventory as follows:

<u>Quantity</u>	<u>Equipment</u>
2	Large base plates for vehicle monitor
2	Small base plates for personnel monitor
2	Tower assembly pillars
1	Crossover for individual personnel
1	Vehicle Crossover cable (large)
6	D cell batteries to place in Control module attached to pillar "B"
2	Pillar caps
2	Probe cables – small thin 16" connect
1	Power input jack
1	Power Cord
1	Motion sensor attached to pillar "B"

- After conducting inventory, set up Vehicle Portal Monitor as follows:
- Place large base plates on floor approximately 6 feet apart.
- Attach tower pillars (A) and (B) with yellow dot facing each other to the large base plates. This will ensure that the (THIS WAS LEFT BLANK...)
- Lay crossover vehicle cable across ground from pillar (A) to pillar (B).
- Vehicle crossover cable needs to be connected to the top of tower pillar (A) and into the control module of tower pillar (B) into the first jack.
- The 2 caps go on top of each tower pillar
- Power Input Jack goes from power source into Control Module and cable attached to left jack on the control module.
- Calibration information is listed on the side of the Control Module along with battery installation procedures.
- Turn power button on which is on the control module.
- When portal monitor powers up it should automatically adjust the parameters.
- If there is a problem with the parameters contact the DNG Joint Operation Center.

*** Test the motion sensor – green light should be flashing ***

SOP 802-D: PORTAL MONITOR SUPPLEMENTAL INFORMATION

1.0 OPERATING PARAMETERS: MODES AND SETPOINTS

- 1.1 Turning the instrument on will automatically place it in the READY mode. A count can only be started when the system is in the READY mode. You must exit out of any other mode before a count can be taken.
- 1.2 Prior to operation, the monitor must be allowed to update the background count if the background time is not set to zero. This mandatory update occurs just after power-up and then after expiration of the background update interval timer. New background count data is compared to the low and high setpoints that have been programmed into the unit. If the setpoints have been exceeded, a HI BACKGROUND or LOW BACKGROUND alarm is given and the unit returns to updating background until the alarm condition has been corrected, i.e. the background goes down, failed detectors are repaired, or the parameters have been changed.
- 1.3 The alarm parameters are set at approximately twice background levels. Considering that background continually changes with time, geographic location, and even body location, the parameters set are conservative enough to be applicable for nearly all possible environments in which an Evacuee Reception Center would be situated.

2.0 PORTAL MONITOR PARAMETERS

2.1 DEFINITIONS OF THE PARAMETERS

- 2.1.1 **Count Time:** The length of time in seconds which the monitor will take to determine if a subject is contaminated. Range: 1 to 60 seconds. Set at 6 seconds.
- 2.1.2 **Background Count Time:** The length of time in seconds the instrument will accumulate counts to determine background. The instrument will take the last three background counts and average them to determine background. Range: 0 to 99 seconds. Set at 60 seconds.
- 2.1.3 **Update Interval:** The length of time in minutes the instrument will wait before taking another background count. Range: 0 to 99 minutes. 0 is off, meaning that no more backgrounds will be taken after initial startup. Set at 5 minutes.
- 2.1.4 **Force Background:** The length of time in minutes the instrument will wait before it shuts down operations and forces you to allow it to take a new background count. Range: 0 to 99 minutes. Set at 30 minutes.
- 2.1.5 **Hold Time:** The length of time in seconds which the alarm will sound and the lights will flash. Set at 6 seconds.
- 2.1.6 **Alarm Volume:** The volume of the alarm signal. Range: 0 to 255. Set at 255.

2.2 HOW TO SET THE PARAMETERS

NOTE: INITIAL SETTING OF THE PARAMETERS IS TO BE DONE BY DEMA PERSONNEL. CALL THE DNG JOINT INFORMATION CENTER TO RESET.

2.0 PORTAL MONITOR PARAMETERS (Continued)

2.2 HOW TO SET THE PARAMETERS (Continued)

2.2.1 To move from one level of the menu tree to a sub-level, press the SELECT key. To step through the different items on one level, use the UP or DOWN ARROW KEYS. The SELECT key also moves from one digit to the next when setting parameters. The parameters are listed in the following order; L1, L2, L3, R1, R2, FEET, HEAD, and SUM. Pressing the SELECT Key from the READY mode gives the following selections:

Setup Menu

Read Menu

View Counts Menu

2.3 SETUP MENU

The Setup Menu has four choices:

Setup ALARMS MENU
Setup BACKGROUNDS MENU
Setup TIME MENU
Setup VOLUME MENU

To change a parameter, access the variable of interest through the setup menus using the SELECT and INCREMENT/DECREMENT keys. Press the SELECT key to change the parameter. The cursor becomes visible and blinks on the variable to change. On multiple digit variables, press the SELECT key to access the next digit.

2.4 SETUP ALARMS MENU

This allows changes to be made to the count alarms for each of the Individual Alarm channels. To access the SETUP ALARM MENU:

- Turn the instrument ON. Wait for READY to display on the LCD.
- Press SELECT once to select the setup menu. SETUP menu appears.
- Press SELECT once more to execute the setup menu. ALARMS menu appears.
- Press SELECT once to execute the alarms menu. L1 ALARMS XXXX appears where XXXX is a 4-digit number between 0 and 9999. To access other alarm channels, use the INCREMENT or DECREMENT keys.
- To change the current setting, press SELECT to activate the first digit. Use INCREMENT/DECREMENT to change the first digit as desired. Press SELECT to activate the second digit. Use INCREMENT/DECREMENT to change the second digit as needed. Repeat for the other digits. Press SELECT to temporarily save the settings.
- Repeat the above step to change the other alarm channels as desired.
- Press the EXIT key to exit back to the ALARMS menu.

2.0 PORTAL MONITOR PARAMETERS (Continued)

2.4 SETUP ALARMS MENU (Continued)

Note: Press the SAVE key in order to put parameters in non-volatile memory before power down.

Repeat the above step to change the other alarm channels.

2.5 SETUP BACKGROUNDS MENU

Access the SETUP menu:

- With READY displayed on the LCD.
- Press SELECT once to execute the setup menu. ALARMS menu appears.
- Press DECREMENT once to advance the BACKGROUND MENU.
- Press SELECT once to activate the BACKGROUND Menu.
- Press SELECT and use either INCREMENT or DECREMENT key to toggle the background subtract feature ON or OFF as desired. This will normally be left in the ON position.
- Activate and exit the on/off prompt by pressing the SELECT key one last time.
- Press the DECREMENT key to select the BKGROUND TIME.
Note: This number must be less than or equal to the FORCE UPDATE and BKGND UPD INT parameter as set above.
- Press the DECREMENT key to select the BKGND UPD INT timer. Save and exit this item by pressing the SELECT key one time.
Note: This parameter must be greater than or equal to the BKGROUND TIME parameter and less than or equal to the FORCE UPDATE parameter.
- Press the DECREMENT key to move to the FORCE UPDATE interval timer. Press the SELECT key to edit this timer as desired. The FORCE INTERVAL must always be larger than the BKGND UPD INT and the BKGND TIME. Save and exit this menu item by pressing the SELECT key one last time.

2.6 SETUP TIME MENU

This menu sets the count time and alarm hold time. The alarm hold time also applies to the "Incomplete" LED. To access:

- With READY displayed on the LCD, press SELECT once to select the setup menu. Setup menu appears.
- Press SELECT once again to execute the setup menu. ALARMS menu appears.
- Press the decrement key twice. TIME menu appears.

2.0 PORTAL MONITOR PARAMETERS (Continued)

2.6 SETUP TIME MENU (Continued)

- Press SELECT once to execute the setup time menu. COUNT TIME XX appears. The XX is a number between 1 and 60.
- Press SELECT to activate the first digit. Use INCREMENT/DECREMENT to change the first digit. Press SELECT to activate the second digit. Use INCREMENT/DECREMENT to change the second digit. Press SELECT to temporarily save the parameter.
- Use INCREMENT/DECREMENT to change to the next setting.
- Press the Exit key to exit back to the TIME menu.
Note: Press the SAVE key in order to store parameters in the non-volatile memory prior to power down.

2.7 SETUP VOLUME MENU

The volume menu sets the alarm volume. The Model 52 emits a beeping sound after various events (mode change, parameter change, etc.). The beeping volume is always at the maximum and is not adjustable. To access the SETUP VOLUME menu:

- With READY displaying on LCD:
- Press SELECT once to select the setup menu. SETUP menu appears.
- Press DECREMENT three times to get to the VOLUME MENU.
- Press SELECT once to execute the setup volume menu. ALARM VOLUME XXX appears. The XXX is a number between 0 and 255. This variable sets from 000 (lowest) to 255 (loudest). Any audio alarm uses this volume set point. The beep audio is not affected by this setting.
- Press SELECT to activate the first digit. Use INCREMENT/DECREMENT to change the first digit. Press SELECT to activate the second digit. Use INCREMENT/DECREMENT to change the second digit. Repeat for the third digit.
- Press SELECT to save.
- Press the Exit key to exit back to the VOLUME menu.
Note: Press the SAVE key in order to store parameters in the non-volatile memory prior to power down.

2.8 PASSWORD MENU

This menu sets the password and if the password is ON or OFF. To access:

- With READY displayed on the LCD, press SELECT once to select the setup menu. SETUP menu appears.

2.0 PORTAL MONITOR PARAMETERS (Continued)

2.8 PASSWORD MENU (Continued)

- Press SELECT once to execute the setup menu. ALARMS menu appears.
- Press the increment or decrement keys until the PASSWORD menu appears.
- Press SELECT once to execute the password on/off menu. PASSWORD: XXX appears. The XXX is either ON or OFF.
- Press SELECT to change the password status. Use INCREMENT/DECREMENT to change to either ON or OFF. Press SELECT to temporarily save parameter.
- Use INCREMENT/DECREMENT to change to the next setting. ENTER PASS: XXX appears.
- Press SELECT to activate the first digit. Use INCREMENT/DECREMENT to change the first digit. Press SELECT to activate the second digit. Use INCREMENT/DECREMENT to change the second digit. Repeat for the third and fourth digit. Press SELECT to save.
- Press the Exit key to exit back to the TIME menu.
Note: Press the SAVE key in order to store parameters in non-volatile memory prior to power down.

2.9 READ MENU

The Read Menu has three choices:

- 1 - Read Alarms Menu.
- 2 - Read Time Menu.
- 3 - Read Volume Menu.

The read menu accesses the same menu structure as the Setup Menu. However, no variables may be changed from the read menu.

2.10 READ ALARMS MENU

To access:

- Turn the instrument ON. Wait for READY to display on the LCD.
- Press SELECT once to select the setup menu. SETUP menu appears.
- Press the increment key once. READ menu appears.
- Press SELECT once to execute the READ menu. ALARM menu appears.
- Press SELECT once to execute the alarms menu. L1 ALARM XXXX appears.
- Use the INCREMENT/DECREMENT key to change to the next alarm channel.
- Press the Exit key to exit back to the ALARMS menu.

2.0 PORTAL MONITOR PARAMETERS (Continued)

2.11 READ TIME MENU

This menu reads all of the time parameters of the Model 52. The user cannot change these values from this menu. To access:

- Turn the instrument ON. Wait for the READY to display on the LCD.
- Press SELECT once to select the setup menu. SETUP menu appears.
- Press decrement key once. READ menu appears.
- Press SELECT once to execute the read menu. ALARMS menu appears.
- Press decrement key once. TIME menu appears.
- Press SELECT once to execute the TIME menu. COUNT TIME XX appears. The XX is a number between 0 and 99.
- Use the INCREMENT/DECREMENT key to change to other time parameters.
- Press the Exit key to exit back to the TIME menu.

2.12 READ VOLUME MENU

This menu reads all of the volume parameters of the Model 52. The user cannot change these values from this menu. To access:

- Turn the instrument ON. Wait for READY to display on the LCD.
- Press SELECT once to select the setup menu. SETUP menu appears.
- Press decrement key once. READ menu appears.
- Press SELECT once to execute the READ menu. ALARMS menu appears.
- Press decrement key twice. VOLUME menu appears.
- Press SELECT once to execute the time menu. ALARM VOLUME XXX appears. The XXX is a number between 0 and 255.
- Use the INCREMENT/DECREMENT keys to change to other parameters.
- Press the exit key to exit back to the VOLUME menu.

2.13 COUNTS MENU

The counts menu will display the counts for each channel, one channel at a time. Use the INCREMENT/DECREMENT keys to change to the next channel.

SOP 803: DECONTAMINATION

1.0 OBJECTIVE

The objective of this procedure is to provide guidelines for personnel and equipment decontamination. The actual method or combination of methods to be used must be based on the specific conditions of contamination. The general approach to personnel decontamination should use the simplest, mildest method first, and proceed to stronger methods **only if needed**.

2.0 CONTENTS

SOP 803-A, Personnel Decontamination

SOP 803-B, Equipment Decontamination

3.0 PREREQUISITES

3.1 An emergency condition exists which requires decontamination of personnel and equipment.

3.2 Decontamination facilities have been activated and are operational.

4.0 REFERENCES

4.1 State of Delaware, Radiological Emergency Plan

4.2 State of Delaware, SOP 900 Series Procedures

4.3 State of Delaware, SOP 1300 Series Procedures

4.4 State of Delaware, SOP 1500 Series Procedures

4.5 EPA-400, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

5.0 ATTACHMENTS

803-A1, Evacuee/Emergency Decontamination Center Record

803-A2, Surface Contamination Screening Levels

803-B1, Equipment Decontamination Record

803-B2, Decontamination Methods for Various Surfaces

6.0 RECORDS

All records, data, forms and logs are to be transmitted to and maintained by DEMA at the State EOC.

SOP 803-A: PERSONNEL DECONTAMINATION

1.0 GENERAL

This section provides the methods, guidelines and documentation required for personnel decontamination.

2.0 PRECAUTIONS AND LIMITATIONS

- 2.1 Life saving medical attention takes precedence over decontamination. Treat serious injuries first and contamination later. If necessary, transport injured/contaminated individual(s) to a hospital per SOP 900, 1300 or 1500 as appropriate.
- 2.2 Decontaminate spotty contamination carefully to prevent the spread of contamination to lower contamination or uncontaminated areas. Decontaminate higher activity areas first.
- 2.3 Inspect for minor wounds, such as cuts and abrasions. Protect them from becoming contaminated during decontamination.
- 2.4 Discontinue any decontamination method which appears to cause skin reddening or irritation.
- 2.5 Instruct the contaminated person to keep the water just warm, never hot to prevent opening skin pores.
- 2.6 Frequently survey skin areas to determine the effectiveness of decontamination procedures.
- 2.7 Record all monitoring data and actions taken on the Evacuee/Emergency Worker Decontamination Center Record, Attachment 803-A1.

3.0 INSTRUCTIONS

NOTE: Perform an operational check of the survey instrument and determine background count rate (refer to SOP 802) before proceeding.

- 3.1 Perform decontamination following steps 3.5 through 3.8 in accordance with schedule in Attachment 803-A2, as appropriate. Advise the contaminated person on proper washing techniques and instruct him/her to pay particular attention to isolated areas of the body.
- 3.2 After each attempt at decontamination, use an Eberline E-140 with HP 260 and pancake probe, CD V-700 or equivalent with the probe shield open (steel casing twisted open) and covered with plastic (bag, etc.) to re-monitor the individual for any remaining contamination. Contamination is no longer considered present when levels drop below two times (<2X) background.
- 3.3 Record contamination and decontamination levels on Attachment 803-A1.

**SOP 803-A: PERSONNEL DECONTAMINATION
(Continued)**

3.0 INSTRUCTIONS (Continued)

3.4 If the methods fail after three attempts to decontaminate to achieve average meter readings below those of step 3.2, transport the individual to a hospital per SOP 900, 1300 or 1500 as appropriate.

3.5 Hand Contamination

3.5.1 Instruct the individual to wash their hands with a mild soap and warm water.

3.5.2 Dry and survey the contaminated skin.

3.5.3 If Step 3.2 of the acceptance criteria has been satisfied, complete record form. Otherwise, continue with Step 3.5.4.

3.5.4 Repeat steps 3.5.1 and 3.5.2 a maximum of two additional times.

3.5.5 Instruct the individual to wash their hands with mild detergent and water, heavy lather, and a soft brush, being careful not to abrade the skin up to a maximum of three times, drying and surveying the hands after each washing.

3.5.6 If Step 3.2 has been satisfied, complete Attachment 803-A1, or return to step 3.4.

3.6 Hair Contamination (No Skin Contamination)

3.6.1 Have the individual apply shampoo and work up a heavy lather, massaging for several minutes.

3.6.2 Rinse the lather from the hair, dry and resurvey.

3.6.3 If Step 3.2 of the acceptance criteria has been satisfied, complete Attachment 803-A1. Otherwise, continue with Step 3.6.5.

3.6.4 Repeat Steps 3.6.1 through 3.6.3 a maximum of two additional times.

3.6.5 If Step 3.2 has been satisfied, complete Attachment 803-A1. If not, follow Step 3.4.

3.7 Spotty Skin Contamination

3.7.1 Slightly moisten an absorbent cotton pad with a water/soap solution.

3.7.2 Gently rub the pad in a circular motion for one to two minutes over the area.

3.7.3 Rinse the skin area with a slightly moistened absorbent pad and dry.

3.7.4 Survey the area and surrounding skin areas that may have become contaminated.

**SOP 803-A: PERSONNEL DECONTAMINATION
(Continued)**

3.0 INSTRUCTIONS (Continued)

3.7 Spotty Skin Contamination (Continued)

3.7.5 If Step 3.2 of the acceptance criteria has been satisfied, repeat Steps 3.7.1 through 3.7.4 for any other contaminated skin areas, performing the decontamination cycle a maximum of three times in any one area.

3.7.6 If Step 3.2 of the acceptance criteria has been satisfied after all contaminated skin areas have been decontaminated, complete and submit Attachment 803-A1. If not, follow Step 3.4.

3.8 General Skin Contamination

3.8.1 Have the individual adjust the personnel decontamination shower to a warm, moderate flow. (Cover the surrounding floor area if necessary to prevent contamination).

3.8.2 Instruct the individual to lather using mild soap and to rub the contaminated areas for several minutes, taking care not to get any water or lather above the shoulders.

3.8.3 Instruct the individual to rinse and dry.

3.8.4 Survey the individual's entire body.

3.8.5 If Step 3.2 of the acceptance criteria has been satisfied, complete Attachment 803-A1. If not, repeat Steps 3.8.1 through 3.8.4 up to two additional times. If Step 3.2 is still not satisfied, follow Step 3.4.

4.0 PERSONNEL DECONTAMINATION RECORDS

4.1 Attachment 803-A1 is the decontamination record for personnel decontamination.

4.2 **Dose Record Keeper**, once an evacuee or emergency worker enters the decontamination facility, have them complete the top part of the form.

4.3 **Dosimetry Record Keeper**, complete the rest of the form as follows:

4.3.1 Indicate the monitoring instrument(s) used in the appropriate space.

4.3.2 Record the predetermined general area background radiation level.

4.3.3 Enter the initial count for the various body parts as relayed by the initial monitor after subtracting the background count.

4.3.4 Indicate on the Body Map, with an "X", areas of contamination. This will aid in later monitoring.

4.3.5 Using an arrow, indicate on the Body Map the location of any injuries.

**SOP 803-A: PERSONNEL DECONTAMINATION
(Continued)**

4.0 PERSONNEL DECONTAMINATION RECORDS (Continued)

4.3 Dosimetry Record Keeper, complete the rest of the form as follows: (Continued)

4.3.6 Check ALL decontamination methods used.

4.3.7 Enter the count rate after decontamination in the appropriate column in the Monitoring section.

NOTE: Record readings after each decontamination attempt. If after three attempts, there is continued whole body contamination above two times (>2X) background, then send the patient to a hospital for further decontamination.

4.3.8 Enter the thyroid count in the appropriate space of the Monitoring section as relayed by the monitor.

NOTE: If thyroid contamination exceeds 5 times background (reference SOP 802 - Thyroid Examination Guidelines), then the individual should be sent to a medical facility for further measurements and treatment.

4.3.9 Check the appropriate Final Action taken.

4.4 If hospitalization is not required, keep one copy for DNG files, send one copy to DEMA, and give one copy to the individual for his/her personal files.

4.5 If hospitalization is required, send one copy of the Personnel Registration/Decontamination form (Attachment 803-A1) with the individual to the hospital, keep one copy for DNG files, and send one copy to DEMA.

ATTACHMENT 803-A2

SURFACE CONTAMINATION SCREENING LEVELS

Surface contamination screening levels for persons and other surfaces at monitoring stations in low background radiation areas (<0.1 mR/hr Gamma Exposure Rate):

<u>Condition</u>	<u>Survey meter thin window¹ reading</u>	<u>Recommended action</u>
Before decontamination	<2X bkgd	Unconditional release
	>2X bkgd	Decontaminate
After simple ² decontamination effort	<2X bkgd	Unconditional release
	>2X bkgd	Full decontamination
After full ³ decontamination effort	<2X bkgd	Unconditional release
	>2X bkgd	Continue to decontaminate persons
	<0.5 mR/hr ⁴	Release animals and equipment
After two additional full decontamination efforts	<2X bkgd	Unconditional release
	>2X bkgd	Send individual to hospital
	<0.5 mR/hr ⁴	Release animals and equipment
	>0.5 mR/hr ⁴	Continue decontamination efforts or put animals/ equipment in remote area

Notes:

1. Recommended limits for open window readings are expressed as twice the background in the area where measurements are being made.
2. Flushing with water and wiping is an example of a simple decontamination effort.
3. Washing or scrubbing with soap or solvent followed by flushing is an example of a full decontamination effort.
4. Closed shield reading including background.

SOP 803-B: EQUIPMENT DECONTAMINATION

1.0 GENERAL

This section describes the methods for the radiological monitoring and decontamination of equipment. This procedure is primarily concerned with vehicles (e.g., cars, fire trucks, and ambulances), but the methods described can be applied to other types of equipment of similar material.

2.0 PRECAUTIONS AND LIMITATIONS

- 2.1 Unless otherwise noted, only designated trained personnel should perform this procedure.
- 2.2 Prevent the spread of contamination. Use common sense and correct radiological safety techniques to avoid spreading contamination from one safety area to another.

3.0 INSTRUCTIONS

NOTE: Perform an operational check of the survey instrument and determine background count rate (Refer to SOP 802) before proceeding.

- 3.1 When surveying, count the number of distinct clicks for a specific unit of time. This is equal to the count rate. Convert count rate to counts per minute (CPM).
- 3.2 Record the general area background radiation levels on record form, Attachment 803-B1.
- 3.3 Monitor equipment with the E-140 or equivalent as follows:
 - 3.3.1 While scanning, use the speaker or meter indication and use the probe with the window closed (CD V-700).
 - 3.3.2 Hold the probe approximately one (1) inch from the vehicle exterior, and scan slowly. Be especially careful taking readings of the front bumper, the four wheel wells, the rear bumper, and the flatbed in a pickup truck.
 - 3.3.3 Stop moving the probe when a noticeable increase in the "Click" rate is detected, and wait 30 seconds for a stable meter reading.
 - 3.3.4 Slowly open the vehicle door, and monitor front and back floor mats, seats, and vehicle equipment.
 - 3.3.5 Consider the vehicle contaminated if the E-140 or CD V-700 readings indicate a reading greater than 0.5 mR/hr (closed shield).
 - 3.3.6 If the vehicle is contaminated, drive the vehicle to a designated wash area.
- 3.4 Follow the decontamination schedule in Attachment 803-A2 and perform decontamination using the methods described in Attachment 803-B2. Perform according to the particular type of surface contaminated, and according to methods available at the location where decontamination is to be performed.

**SOP 803-B: EQUIPMENT DECONTAMINATION
(Continued)**

3.0 INSTRUCTIONS (Continued)

- 3.5 After each attempt at decontamination, use a E-140 or equivalent low range survey meter to re-monitor the equipment for surface contamination. Ensure the probe shield is open (steel casing rotated closed) if using the CD V-700.
- 3.6 Record contamination and decontamination levels on Equipment Decontamination Record, Attachment 803-B1.
- 3.7 If the decontamination methods in Attachment 803-B2 fail to achieve average meter readings below 0.5 mR/hr (closed shield), isolate the vehicle and/or equipment from public access and post appropriate signs and/or barriers.

4.0 EQUIPMENT DECONTAMINATION RECORD

- 4.1 Attachment 803-B1 is the documentation record for equipment decontamination.
- 4.2 Record the date time and decontamination center location on the top of the general section.
- 4.3 Record the name(s) of those who have used the instrument.
- 4.4 Record the kind of equipment, listing make, model number, and serial number.
- 4.5 Indicate where the equipment was used.
- 4.6 Radiation Monitoring Technician complete the balance of this form as follows:
 - 4.6.1 Indicate the monitoring instrument(s) used.
 - 4.6.2 Record the predetermined general area background radiation level.
 - 4.6.3 Enter the contamination level for various parts of the instrument, and indicate the instrument in the appropriate column.
 - 4.6.4 Check the decontamination method(s) used.
 - 4.6.5 Enter the contamination level after decontamination in the appropriate column in the Monitoring section. If the decontamination methods fail to achieve an average meter reading of less than 0.5 mR/hr (closed window) on surfaces that can come in contact with skin or the hands, arrange to have the equipment isolated.
 - 4.6.6 Check the appropriate final action taken.
- 4.7 Keep one copy for DNG files, send one copy to DEMA, and keep one copy with the equipment.

**ATTACHMENT 803-B1
 EQUIPMENT DECONTAMINATION RECORD**

GENERAL Date: _____ Time: _____ Location: _____

EQUIPMENT WAS USED BY (LIST ALL USERS):

Name(s) _____
 (Last) (First) (Middle Initial)

TYPE OF EQUIPMENT: _____
 (INCLUDE MAKE & SPECIAL NO.) _____
 WHERE USED: _____

MONITORING: MONITORING INSTRUMENT(S) _____

BACKGROUND: _____ mR/hr _____ cpm

Equipment Part (Describe)	Initial Counts Minus Background	Counts After Decon Minus Background
_____	_____ mR/hr _____ cpm	_____ mR/hr _____ cpm
_____	_____ mR/hr _____ cpm	_____ mR/hr _____ cpm
_____	_____ mR/hr _____ cpm	_____ mR/hr _____ cpm
_____	_____ mR/hr _____ cpm	_____ mR/hr _____ cpm
_____	_____ mR/hr _____ cpm	_____ mR/hr _____ cpm
_____	_____ mR/hr _____ cpm	_____ mR/hr _____ cpm

ACTION

CHECK DECONTAMINATION METHOD(S) USED:

SURFACE

- _____ ALL NONPOROUS SURFACES
(METAL, PAINT, PLASTIC, ETC.)
- _____ NONPOROUS (ESPECIALLY
INDUSTRIAL FILM)

METHOD

- _____ WATER - HIGH PRESSURE HOSE
- _____ DETERGENTS USED WITH THE
ABOVE MEASURES

CHECK APPROPRIATE FINAL ACTION:

- _____ EQUIPMENT DECONTAMINATED BELOW 0.5 mR/hr (closed window)
- _____ EQUIPMENT ISOLATED - UNABLE TO DECONTAMINATE SURFACES
EXPOSED TO HANDS OR SKIN BELOW 0.5 mR/hr (closed window)

ATTACHMENT 803-B2

DECONTAMINATION METHODS FOR VARIOUS SURFACES

<u>SURFACE</u>	<u>METHOD</u>	<u>REMARKS</u>
<u>All</u> non-porous surfaces (metal, paint, plastic, etc.)	Water	Use gross decontamination using high pressure hoses. Work from top to bottom to avoid recontamination from upwind spray. 15 to 20 feet from the surface is optimum. Vertical surface should be hosed at an angle of 30 to 45 degrees.
Non-porous (especially industrial film)	Detergent	Use in conjunction with the above methods.

SOP 900 - EMERGENCY WORKER DECONTAMINATION FACILITY

1.0 OBJECTIVE

The objective of this procedure is to define the methods by which emergency workers, vehicles, and equipment will be monitored, processed and decontaminated in the event of contamination.

2.0 CONTENTS

2.1 **SOP 900-A:** Decontamination Facility Guidelines

2.2 **SOP 900-B:** Decontamination Facility Operations/Middletown Readiness Center

3.0 PREREQUISITES

An emergency condition exists which requires activation and operation of the Emergency Worker (EW) Decontamination Facility.

4.0 REFERENCES

4.1 State of Delaware, Radiological Emergency Plan

4.2 Environmental Protection Agency (EPA)-400, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.

5.0 ATTACHMENTS

900-A1, Flow Diagram for Personnel, EW Decontamination Facility

900-A2, Flow Diagram for Equipment, EW Decontamination Facility

900-A3, Personnel Registration/Decontamination Form

900-A4, Property Receipt Form

900-A5, Portal Monitor Tracking Form

900-A6, Decontamination Tracking Form

900-A7, Equipment Registration/Decontamination Record

900-B1, EW Monitoring and Decontamination Facility Layout, Middletown Readiness Center

6.0 RECORDS

All data, records, evaluations, forms, logs, and checklists are to be transmitted to and maintained by Delaware Emergency Management Agency (DEMA) at the State Emergency Operations Center (EOC) for historical files.

SOP 900-A: DECONTAMINATION FACILITY GUIDELINES

1.0 GENERAL

A Decontamination Facility is a specifically designated area, building, or mobile unit established for the purpose of safely monitoring for and removing contamination from people or objects.

Separate facilities have been designated for EWs and equipment, and evacuees and their property. EWs and their equipment will report to the Delaware National Guard Middletown Readiness Center.

2.0 PERSONNEL RESPONSIBILITIES

The Decontamination Facility will be staffed by DNG personnel.

2.1 Manager of Decontamination Facility

The Manager of the Decontamination Facility is a Delaware National Guard Officer, who is responsible for the management and operations of the facility. This individual has overall authority in matters of personnel management, facility operations, radiological safety and medical procedures.

2.2 Radiation Monitoring Technician

The Radiation Monitoring Technician is a person knowledgeable in the use of radiological monitoring instrumentation and procedures, radiation technology, and decontamination for both personnel and equipment. Acting under the direction of the Manager of the Decontamination Facility, this individual will be responsible for monitoring personnel and equipment for contamination. Personnel monitoring will be conducted in accordance with SOP 802.

2.3 Decontamination Specialist

The Decontamination Specialist is a person knowledgeable in radiation technology and decontamination. The methods of decontamination are outlined in SOP 900-B. Personnel and equipment decontamination will be conducted in accordance with SOP 803. The Decontamination Specialist will employ various methods (e.g., removal of contaminated clothing, washing and rinsing with soap and water) as a means to remove contamination. In addition, the Decontamination Specialist is responsible for the management of supplies and the disposal of contaminated items.

2.4 Dose Record Keeper

Under the guidance of the Manager of Decontamination Facility, the Dose Record Keeper is responsible for accurate dosimeter readings, completion of dose record forms, and the management of dose records for EWs as outlined in SOP 900-B, and accordance with SOP 801-D. The Dose Record Keeper will immediately notify the Manager of Decontamination Facility of any individual dose that exceeds the State emergency worker guidelines specified by the Technical Assistance Center (TAC). On a daily basis, a list of accumulated exposure doses for all personnel will be prepared for review by the Manager of Decontamination Facility. The Manager will forward this information to the TAC and the worker's agency.

SOP 900-A: DECONTAMINATION FACILITY GUIDELINES (Continued)

3.0 SITE OF THE DECONTAMINATION FACILITY

The general guidelines concerning site selection for a decontamination facility indicate a location that is a sufficient distance from the source of contamination to prevent any impact from contamination or direct radiation. Consideration should be given to meteorology, amount of released radioactive material, duration of the emergency, and the projected dose to the population. The DNG Middletown Readiness Center was selected for an EW decontamination facility by DEMA in cooperation with other participating agencies.

4.0 ARRANGEMENT OF THE DECONTAMINATION FACILITY

The physical shape, size and floor plan of an existing structure that has been designated as a decontamination facility determines the placement of the personnel/equipment monitoring, decontamination, and record keeping stations. Two main guidelines are used in determining the placement of various stations and layout of the facility. These guidelines are Simplicity and Isolation.

4.1 Simplicity

The flow of equipment and personnel should be straight-line whenever possible. Traffic zones and patterns of movement should be marked off using partitions, screens, tables, chairs, ropes, tape, etc. Contaminated personnel should be rapidly identified and quickly moved to decontamination stations without delay or contaminating others.

4.2 Isolation

Once Radiation Monitoring Technicians have identified contaminated personnel or equipment, they should be immediately isolated to prevent cross contamination of clean areas. Signs should be placed to indicating contaminated and clean areas, as well as and the various stations and flow of traffic. Attachments 900-A1 and 900-A2 indicate the suggested patterns of flow for personnel and vehicles at a decontamination facility.

5.0 PRIORITY OF TREATMENT

- 5.1** Lifesaving medical attention shall take precedence over decontamination. EWs urgently needing medical attention shall be sent to the Christiana Health Care Services (Christiana or Wilmington Hospital). The hospital shall be advised that a contaminated patient is en route.
- 5.2** Personnel with minor injuries who can be decontaminated without causing further spread of contamination to the injury should be decontaminated at the EW Decontamination Facility.
- 5.3** EWs who have the greatest degree of contamination, such as a large portion of their body or a high concentration on a portion of their body, should be decontaminated before those who have less severe contamination.

6.0 PROCESSING PERSONNEL

Using pre-established traffic flow patterns, arriving EWs will be processed in accordance with Att. 900-A1. Personnel monitoring will be conducted in accordance with SOP 802. EWs determined to be clean at the Initial Vehicle/Personnel Scan and Sample Drop Off, Station VP1, will be sent to the records area, Station P8, for final processing. EWs determined to be contaminated at Station VP1, will be sent to Personnel Scan, Station P3. Decontamination of

SOP 900-A: DECONTAMINATION FACILITY GUIDELINES (Continued)

6.0 PROCESSING PERSONNEL (Continued)

personnel will be in accordance with SOP 803-A. EWs that cannot be decontaminated at this facility after three attempts will be sent to a Medical Holding Area, Station P6, for transportation to the Christiana Health Care Services (Christiana or Wilmington Hospital) for specialized treatment in accordance with SOPs 1501 and 1502. Proper forms will be completed and records maintained by the decontamination center personnel per SOP 900.

7.0 PROCESSING EQUIPMENT

Contaminated equipment, principally vehicles, will be decontaminated in out door areas suited to the specialized treatment that is necessary. Decontamination of equipment will be in accordance with SOP 803-B. Equipment that is then decontaminated, or determined to have contamination levels lower than the specified limits, may be returned to the operators or routed to designated decontaminated storage areas for reassignment. Equipment which cannot be decontaminated will be stored in well defined and posted areas for contaminated equipment. See Att. 900-A2. Proper forms will be completed and records maintained by decontamination center personnel.

8.0 PROCESSING SAMPLES

Environmental contaminated samples taken in the field will be placed in another bag and tagged with information (date, time and facility). The sample custody form will be signed. Sample transport personnel at the decontamination facility will be contacted to pick up the samples and prepare them for transportation to the laboratory where they will be analyzed.

9.0 EMERGENCY WORKER PERSONNEL EXPOSURE CONTROL

EW exposure control will be conducted in accordance with SOP 801. Prior to the possibility of exposure, each EW will be issued an EW Response Kit.

- 9.1** Each EW will be issued a self-reading electronic dosimeter or two self-reading dosimeters (one low range, one high range) and one Dosimeter of Legal Record (DLR).
- 9.2** The dosimeter readings of each EW will determine further assignments. Refer to SOP 801, Att. 801-A1 for radiation exposure limits. Cumulative Limits (State Policy) are 1.25 Rem total dose limit (without permission to exceed) and 25 Rem to the thyroid.
- 9.3** All EWs must report to the Middletown Readiness Center Decontamination Facility or as otherwise directed by DEMA, to be monitored for contamination and to record dosimeter readings upon completion of their assigned mission.

10.0 WASTE DISPOSAL

Contaminated waste generated by the decontamination of personnel and equipment includes clothing and shower towels, as well as rags, paper towels, and napkins used to wipe contaminated surfaces and other items contaminated during a radiological emergency. Decontamination Facility EWs will place this waste into trash containers with plastic bag inserts. When the trash containers become full, the plastic bags will be sealed, labeled, and transported to the packing/shipping area of the Decontamination Facility. The utility is responsible for disposing of radioactive waste.

SOP 900-A: DECONTAMINATION FACILITY GUIDELINES (Continued)

11.0 DECOMMISSIONING THE DECONTAMINATION FACILITY

The Decontamination Facility will be decommissioned at the direction of DEMA. Assigned personnel will clean up and restore the area to normal pre-emergency status condition.

12.0 FORM DISPOSITION

12.1 Personnel Registration/Decontamination Form (Att. 900-A3)
Form says: White – DEMA, Yellow – Decontamination Center, Pink – Hospital, Green – DPH, Gold – Evacuee or EW

12.1.1 Station VP1 (Initial Vehicle & Personnel Scan, Sample Drop Off) -Complete upper portion for all EWs
White, Yellow, Pink, Green, Gold copy (entire form) – given to EW
Contaminated personnel sent to Station P2
Clean personnel sent to Station P8

12.1.2 Station P3 (Personnel Scan) – Complete upper and lower portions (as necessary) - Mark form indicating contaminated areas (clothing, skin).
White, Yellow, Pink, Green, Gold copy (entire form) – given to EW
Contaminated personnel sent to Station P4
Decontaminated personnel sent to Station P8

12.1.3 Station P5 (Personnel Post-Decontamination Rescan, Male and Female) - Complete form and indicate resurvey results after decontamination attempts.
White copy – DNG retains for DEMA
Yellow, Pink, Green, Gold copy - given to EW
Personnel still contaminated after three decon attempts sent to Station P6
Decontaminated personnel sent to Station P8

12.1.4 Station P6 (Medical Holding Area)
Yellow Copy - DNG retains
Pink, Green, Gold copy - remain with EW

12.1.5 Station P8 (Records Area) - For clean and decontaminated EWs
Yellow, Pink and Green copy - DNG retains
Gold copy – given to EW

12.1.6 Final Disposition
White – DEMA, Yellow – Decontamination Center (DNG), Pink – Hospital,
Green – DPH, Gold – EW

12.2 Property Receipt Form (Att. 900-A4)
Form says: White – DEMA, Yellow – DNG, Pink – Evacuee or EW

12.2.1 Station P3 (Personnel Scan, Male and Female) - Completes form
White copy – DNG retains for DEMA
Yellow and Pink copy – given to EW

12.2.2 Station P8 (Records Area)
Yellow copy – DNG retains
Pink copy - given to EW

**SOP 900-A: DECONTAMINATION FACILITY GUIDELINES
(Continued)**

12.0 FORM DISPOSITION (Continued)

12.2 Property Receipt Form (Att. 900-A4) (Continued)

12.2.3 Final Disposition

White – DEMA, Yellow – DNG, Pink – EW

12.3 Equipment Registration/Decontamination Record (Att. 900-A7)

Form says: White – DEMA, Yellow – DNG, Pink – EW Agency

12.3.1 Station VP1 (Initial Vehicle & Personnel Scan, Sample Drop Off) - Completes

General and Initial Monitoring sections

White copy - DNG retains for DEMA

Yellow and Pink copy – displayed on vehicle dash

12.3.2 Station V3 (Second Vehicle Scan) - Completes Monitoring After Decon

Attempt(s) and Final Action (vehicle decontaminated or moved to
contaminated vehicle parking)

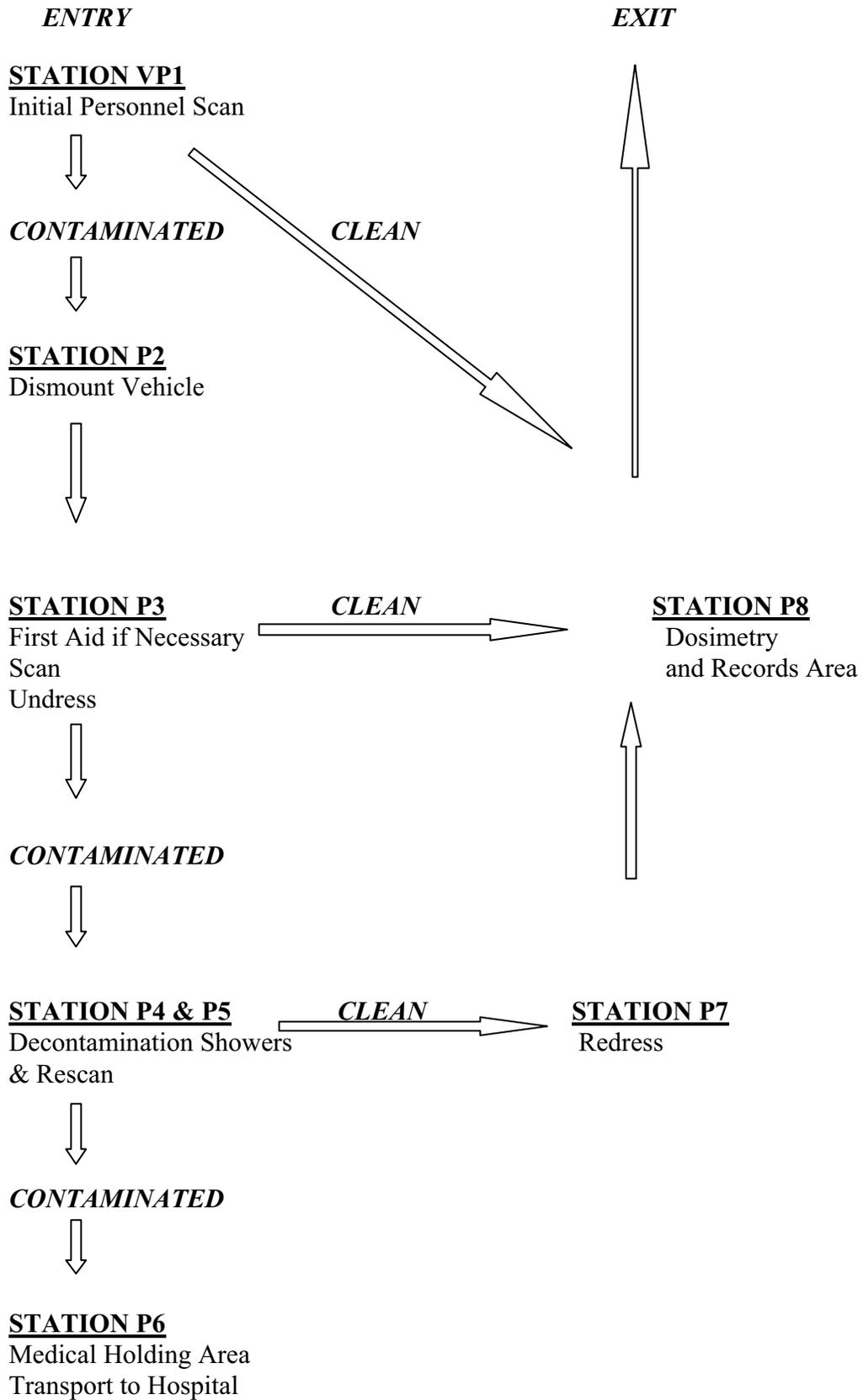
Yellow copy – DNG retains

Pink copy – displayed on vehicle dash

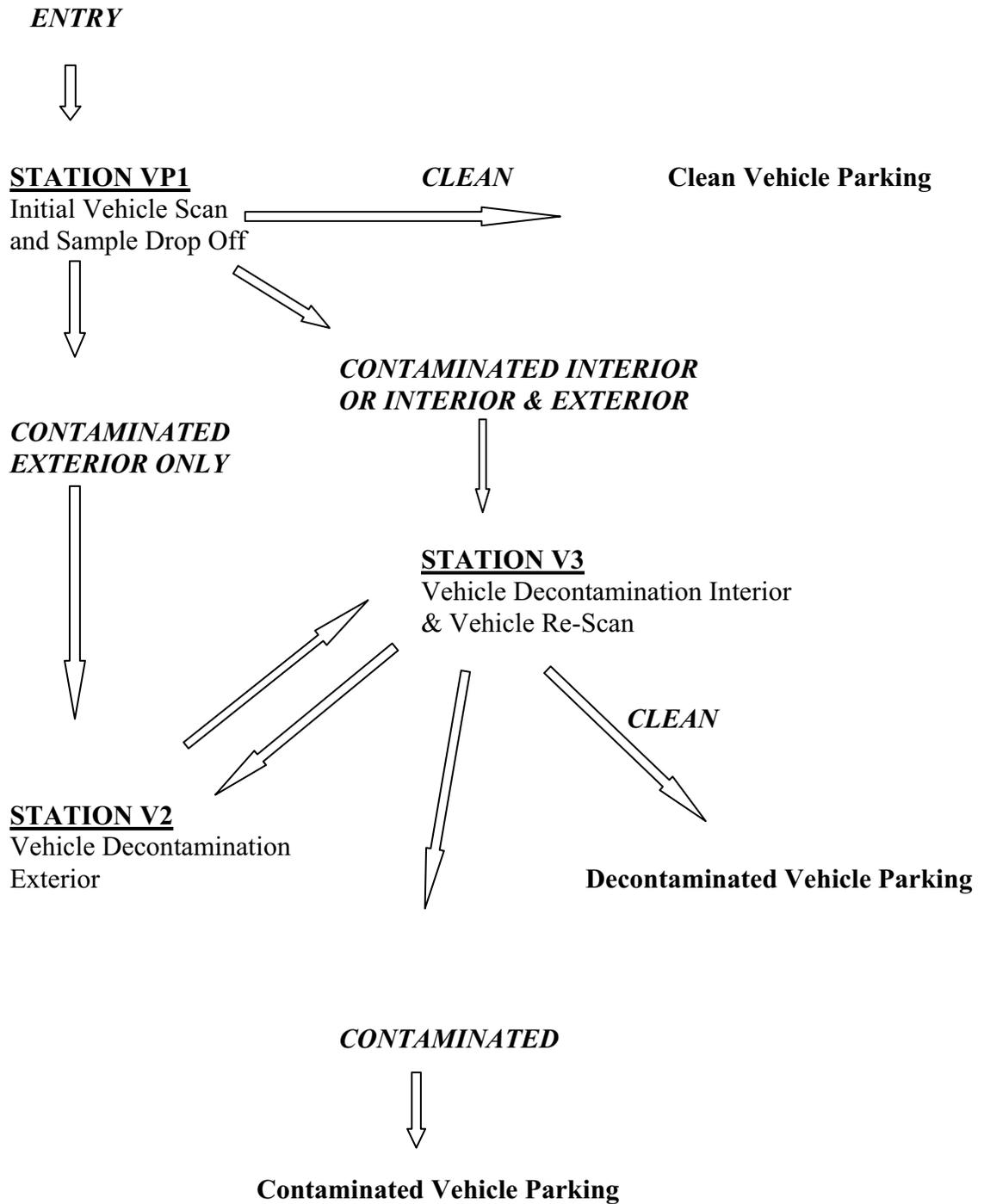
12.3.3 Final Disposition

White – DEMA, Yellow – DNG, Pink - EW Agency

**ATTACHMENT SOP 900-A1: FLOW DIAGRAM
FOR PERSONNEL DECONTAMINATION FACILITY**



**ATTACHMENT SOP 900-A2: FLOW DIAGRAM OF EQUIPMENT (VEHICLE)
DECONTAMINATION FACILITY**



**ATTACHMENT SOP 900-A4
PROPERTY RECEIPT FORM**

Name _____ Tag# _____

Last Four (4) Digits SS# _____ Phone Number _____

Address _____

Decontamination Center: _____

Received By: _____ Date: _____

ITEMS OTHER THAN CLOTHING (Wallet, Firearms, Jewelry, etc.)

Include particular identifying marks and/or obvious damage, i.e. missing stones, in jewelry, engraved identification, type of a wallet (leather, vinyl), etc.

Items _____

CLOTHING (Shirt, Pants, Shoes, Cap etc.)

Include particular identifying marks and/or obvious damage, i.e. monograms, embroidery, patches, rips, etc.

Items _____

OTHER

Be as specific as possible in items description

Items _____

STORAGE LOCATION _____

OWNER'S SIGNATURE _____

Form Disposition:

**White - DEMA
Yellow - DNG
Pink - EW**

**ATTACHMENT SOP 900-A7
 EQUIPMENT REGISTRATION/DECONTAMINATION RECORD**

GENERAL

Date: _____ Time: _____ Location: _____

EQUIPMENT WAS USED BY (LIST ALL USERS):

	(Last)	(First)	(Middle Initial)
Name	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

EQUIPMENT'S AGENCY: _____

TYPE OF EQUIPMENT: _____

(Include Make, Model, Serial/License Number) _____

Where Equipment Was Used: _____

MONITORING

INITIAL MONITORING

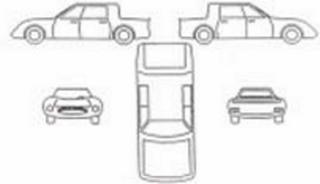
MONITOR NAME: _____

MONITORING INSTRUMENT: _____

SPECIFIC AREAS
 OF CONTAMINATION (interior / exterior)

INITIAL READING

_____ mR/hr	_____ CPM



AFTER DECON ATTEMPT(S)

MONITOR NAME: _____

MONITORING INSTRUMENT: _____

SPECIFIC AREAS
 OF CONTAMINATION (interior / exterior)

READING AFTER
 DECONTAMINATION

_____ mR/hr	_____ CPM

READING AFTER
 DECONTAMINATION

_____ mR/hr	_____ CPM

FINAL ACTION

_____ EQUIPMENT DECONTAMINATED BELOW 0.5mR/hr (window closed)

_____ EQUIPMENT ISOLATED
 UNABLE TO DECONTAMINATE SURFACES EXPOSED TO HANDS OR SKIN BELOW
 2 TIMES BACKGROUND (closed window)

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER

1.0 GENERAL

Facility operations are segregated into several stations that perform specific tasks. This procedure provides the guidance for activation and operation of the decontamination facility and the stations within the facility. Attachment 900-B1 contains the facility operational layout for Middletown Readiness Center.

2.0 FACILITY ACTIVATION

- 2.1** Joint Forces Headquarters (JFHQ) Joint Operations Center (JOC) has notified the Middletown Readiness Center to activate as the Emergency Worker Decontamination Facility and Field Sample Collection Site in response to a radiological emergency.
- 2.2** The Officer in Charge (OIC) will coordinate with headquarters and will supervise the establishment of the facility. This will be accomplished by first briefing all full time employees and full time unit support on the situation and mission. The Operations Officer will proceed with all steps in SOP 900-B, 2.0 to ensure facility activation and to assign tasks to individuals and groups to establish the decontamination facility and sample collection site. The operations officer must ensure that all tasks are completed. Use Attachment 900-B1 to establish the various stations.
- 2.3** Brief all AGR soldiers (OIC, Operations Officer, Battalion NBC NCO). The following subjects will be addressed:
 - 2.3.1** Event Status
 - 2.3.2** Procedures, facility, equipment and personnel assignments for the radiological monitoring and decontamination of EWs and equipment.
- 2.4** Issue appropriate personal dosimetry and protective clothing to AGR personnel (see SOP 801).
- 2.5** Lock all outside doors to the Readiness Center building.
- 2.6** Post two DNG guards, one at the vehicle entrance on the south side of the Readiness Center (Cass Street) to direct EW vehicles to Station VP1, and one at the vehicle entrance on the north side of the Readiness Center (Cass Street) to prevent arriving EW vehicles from entering prior to being scanned for contamination at the south side vehicle entrance to the Readiness Center.
- 2.7** Establish the following Stations (see Att. 900-B1):
 - 2.7.1 Initial Vehicle/Personnel Scan and Sample Drop-Off (VP1)**, on Cass Street, just before vehicle entrance on south side of the Readiness Center. All EW vehicles will approach along Cass Street from the south, traveling north.
 - 2.7.2 Vehicle Exterior Decontamination (V2)**, vehicle wash rack
 - 2.7.3 Vehicle Interior Decontamination and Second Scan (V3)**, vehicle interior decon & scan after wash to decon exterior
 - 2.7.4 Personnel Dismount (P2)**, personnel exit contaminated vehicle
 - 2.7.5 Personnel Scan (P3)**, inside Boiler Room, decon via clothing removal
 - 2.7.6 Personnel Decontamination (P4)**, male latrine with shower area

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

2.0 FACILITY ACTIVATION (Continued)

2.7.7 Personnel Post-Decontamination and Re-Scan (P5), male latrine

NOTE: Male and female personnel will alternate usage of stations P4 and P5.

2.7.8 Medical Holding Area (P6), for personnel evacuation to hospital for decontamination

2.7.9 Personnel Redress Area (P7), after decon via shower

2.7.10 Personnel Records Area (P8)

2.8 Personnel Required

2.8.1 Staffing the 10 stations will require 27 personnel.

11 Radiation Monitoring Technicians

8 Decontamination Specialists

4 Dose Record Keepers

4 Other (2 Drivers, Station P7, 2 for Personnel Redress)

2.8.2 2 Guards

2 in Re-supply (at least 1 Decontamination Specialist)

2.8.3 4 personnel to staff the Operation Center, one will be Manager of Decontamination Facility (OIC, Operations Officer, Communication Switchboard Coordinator and NCOIC)

2.9 Place barriers in the following locations (see Att. 900-B1):

2.9.1 Place privacy screens in the boiler room (Station P3) for male and female EWs so that they can be monitored for contamination and remove clothing as necessary.

2.9.2 Place barrier tape across hallway in two locations:

Between hallway door to boiler room and entrance to drill floor

Between latrine door and hallway door to Redress Area

2.9.3 Place barrier tape inside male latrine to separate personnel entering the decontamination area (Station P4) from personnel in the re-scan area (Station P5).

2.9.4 Place barrier to separate decontaminated vehicle parking and contaminated vehicle parking, in rear of Readiness Center, west side.

2.10 Post all signs to mark designated building entrances and exits, contaminated areas, and for identification of stations and directions.

2.11 Ensure all vehicle and personnel stations are stocked with the designated equipment and supplies as noted in the Facility Operations Section, 4.0.

2.12 Position portable communications devices at all stations and other locations as indicated, and test for good communications (see SOP 900-B, 3.6.1 and Att. 900-B1).

2.13 Unlock designated entrances and exits, Middletown Readiness Center (see Att. 900-B1)

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

2.0 FACILITY ACTIVATION (Continued)

2.13.1 Exterior Doors

Boiler room door to outside, south side, by contaminated vehicle entrance road
Rear door, west side, leading to Drill Floor
Side door, north side, leading to Drill Floor
Side door, north side, from Station P6
Main entrance door, east side

2.13.2 Interior Doors

Boiler room door to hallway
Male latrine door to hallway
Connecting door, male latrine (P5) to Redress Area (P7)
Redress Area door to hallway
Hallway door leading to Station P6

3.0 FACILITY INSTRUCTIONS

3.1 Concept of Operation

On order of the JFHQ JOC, the Officer in Charge (OIC) will execute this OPORD to establish an Emergency Worker Decontamination (decon) site at the Middletown Readiness Center. All coordination and direction will come through the JFHQ JOC. All on site coordination will be accomplished through the OIC located in the Operations Area.

3.2 Entry within the 10 mile Emergency Planning Zone (EPZ) by DNG personnel must be authorized by the Task Force Commander.

3.3 No pregnant females will be employed in the EPZ.

3.4 Permissible levels of radiation exposure for EWs:

3.4.1 Refer to SOP 801, Attachment 801-A1, for radiation exposure dose limits.

3.4.2 Cumulative: (State Policy)

1.25 rem total dose limit (without permission to exceed)
25 rem thyroid

3.5 **Command:** The normal AGR chain of command will be in effect.

3.6 **Signal:**

3.6.1 Local Site Communications

Fourteen (14) hand held commercial FM radios will be used for internal site communications (Attachment 900-B1).

(1) Operations Area
(1) Sample Handling & Processing
(1) Re-supply

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

3.0 FACILITY INSTRUCTIONS (Continued)

3.6.1 Local Site Communications (Continued)

- (1) Guard at vehicle entrance on the north side of Readiness Center (Cass Street)
- (1) Station VP1
- (2) Stations V2 through V3
- (7) Stations P2 through P8

3.6.2 Outside Communications

The DNG commercial phone system will be the primary source of outside communications.

4.0 FACILITY OPERATIONS

4.1 The OIC will coordinate with all EW agencies and monitor all reports to higher headquarters.

4.2 The operations officer will manage the local operation of the decontamination site. He will assign DNG personnel to all stations and coordinate with any outside agencies that have EW personnel who report to the Middletown Readiness Center for decon. The DNG personnel will provide the monitoring and decontamination functions for all EW personnel.

4.3 The following stations will be operated by DNG personnel.

4.3.1 Station VP1, Initial Vehicle/Personnel Scan and Sample Drop-Off, (see Att. 900-B1)

Personnel: 4 DNG (Radiation Monitoring Technicians). One person will remain clean to drive clean vehicles and vehicles with clean interiors. All DNG personnel will wear protective clothing. Gloves will be changed as often as necessary to avoid cross contamination. See SOP 900-A, 12.3 for Equipment Registration/Decontamination Record (Att. 900-A7) distribution. See SOP 900-A, 12.1 for Personnel Registration/Decontamination Form (Att. 900-A3) distribution. All keys will remain in vehicles. Monitor: see SOPs 802 and 803.

4.3.1.1 If environmental field samples arrive with the EWs, DNG Sample Handling and Processing personnel will be contacted to pick up samples at Station VP1. All samples will be placed in another plastic bag, labeled with sample number and location and placed in a secure container. The sample custody form (Att. 306-B6 or Att. 307-C2) will be completed.

4.3.1.2 DNG will inquire if EW has taken KI prior to arrival at the decon center, offer KI to EW (if DEMA recommends taking KI and if not previously taken) and issue KI if EW desires. Note on Att. 900-A3. ***KI SHOULD NOT BE TAKEN BY PEOPLE ALLERGIC TO SHELLFISH OR IODINE!!***

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.1 Station VP1, Initial Vehicle/Personnel Scan and Sample Drop-Off (Cont.)

- 4.3.1.3 All EWs will exit vehicle, put on clean booties, put on clean gloves and pass through a personnel portal monitor. The upper portion of Att. 900-A3 will be completed. EWs determined to be clean will be directed to the north side vehicle entrance and enter the Readiness Center using the side door, north side, leading to Drill Floor and Station P8. EWs determined to be contaminated will proceed with their vehicle to Station P2. DNG will log each EW on the Portal Monitor Tracking Form (Att. 900-A5). **NOTE: You could have a vehicle contaminated on the exterior with clean EW occupants and therefore a clean interior. However, if the EW occupants are contaminated, then at least the vehicle interior is contaminated. A vehicle contaminated only on the interior may not register contaminated on the portal monitor.**
- 4.3.1.4 All EW vehicles will pass through a vehicle portal monitor to scan exterior for contamination. Vehicles contaminated on the exterior will be re-scanned with a hand held survey meter on the outside to determine specific locations of contamination. Change the survey meter cover after scanning a contaminated vehicle. Contaminated areas will be indicated on Att. 900-A7.
- 4.3.1.5 Vehicles with contaminated EW occupants will be assumed to be contaminated on the on the interior. These vehicles will be scanned on the interior with a hand held survey meter to determine specific locations of contamination. Attention should be given to seats, floor, steering wheel, dashboard and door interiors. Change the survey meter cover after scanning a contaminated vehicle. Contaminated areas will be indicated on Att. 900-A7.
- a) Vehicles determined to be contaminated on the exterior only, will be driven by DNG along the south side vehicle entrance road directly to Station V2.
 - b) Vehicles determined to be contaminated on the interior only or the interior & exterior will be driven by the EWs occupants along the south side vehicle entrance road to Station P2 where EWs will dismount. Vehicle will then be driven by DNG to Station V3. Station V3 will attempt decontamination of the interior before decontamination of the exterior is attempted by Station V2.

NOTE: You could have a contaminated vehicle with clean EW occupants. However, if the EW occupants are contaminated, then at least the vehicle interior is contaminated.

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits	8
Booties	100 pair
Chairs	5
Communication Radio	1
Containers for Samples	2 coolers

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.1 Station VP1, Initial Vehicle/Personnel Scan and Sample Drop-Off (Cont.)

4.3.1.5 (Continued)

Drinking cups (paper, 3 oz.)	100
Drinking water, for KI	5 gallons
Equipment Registration/Decon Record (Att. 900-A7)	100
EW Kits, per SOP 801, Att. B4 & B5	4
Gloves (non latex)	2 boxes
Hand Held Survey Meter, with extra batteries	2
KI tablets	100
Masking tape (wide)	1 roll
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Pen, pencils	1 box each
Pencil sharpener	1
Personnel Registration/Decon Form (Att. 900-A3)	100
Plastic bags, large, for samples	2 box
Portal Monitor (personnel)	1
Portal Monitor (vehicle)	1
Portal Monitor Tracking Forms (Att. 900-A5)	5
Rubber Bands	1 box
Station Sign	1
Step Ladder	1
Table (large folding)	1
Talcum Powder	1
Tape Dispenser, Rolls of Tape	1 & 2
Waste Container, Rad (w/plastic liner)	1
Zip lock bags, large, clear (meter covers)	2 box

4.3.1.6 Vehicles with clean EW occupants will be assumed to be clean on the interior. These vehicles will not need to be scanned on the interior. This will be so indicated on Att. 900-A7.

4.3.1.7 Vehicles determined to be clean on the exterior and interior will be so indicated on Att 900-A7 and driven north to the north side vehicle entrance to the Readiness Center and parked in Clean Vehicle Parking, see Att. 900-B1. DNG will notify Station P8, via communication device, as to status of the clean vehicles.

4.3.1.8 Vehicles determined to be contaminated on the exterior only will be driven by DNG along the south side vehicle entrance road directly to Station V2.

4.3.1.9 Vehicles determined to be contaminated on the interior only or the interior & exterior will be driven by the EWs occupants along the south side vehicle entrance road to Station P2 where EWs will dismount. Vehicle will then be driven by DNG to Station V3. Station V3 will attempt decontamination of the interior before decontamination of the exterior is attempted by Station V2.

4.3.1.10 DNG will retain white copy of Att. 900-A7. Yellow and pink copies are displayed on vehicle dash.

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.2 Station P2, Personnel Dismount, (see Att. 900-B1)

Personnel: 1 DNG (Driver)

DNG personnel will wear protective clothing. Gloves will be changed as often as necessary to avoid cross contamination.

4.3.2.1 EWs will dismount the vehicle, remove booties issued at Station VP1 and put on clean booties. Booties will be placed into container labeled Rad Waste.

4.3.2.2 EWs will be directed to Station P3 via the door to boiler room on south side of Readiness Center.

4.3.2.3 If Att. 900-A7 indicates the vehicle interior is contaminated (which it should be if EW occupants are contaminated), it will be driven to Station V3 where decontamination of the interior will be attempted using a special vacuum equipped with a HEPA filter.

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits	2
Booties	100 pair
Chairs	2
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	1
Gloves (non latex)	1 box
Masking tape (wide)	1 roll
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Pen, pencils	1 box each
Pencil sharpener	1
Plastic bags, large, for Rad waste	1 box
Station Sign	1
Table (small folding)	1
Talcum Powder	1
Tape Dispenser, Rolls of Tape	1 & 2
Waste Container, Rad (w/plastic liner)	1

4.3.3 Station V2, Vehicle Exterior Decontamination, vehicle wash rack (see Att. 900-B1)

Personnel: 3 DNG (Decontamination Specialists)

DNG personnel will wear appropriate protective clothing.

Decon: see SOP 803.

4.3.3.1 Vehicles indicated on the Att. 900-A7 as contaminated on the exterior will be washed with liquid car wash soap. Particular attention will be given to areas identified as contaminated on Att. 900-A7.

4.3.3.2 After washing, vehicles will be picked up by personnel from Station V3 and driven to Station V3 for Second Scan.

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.3 Station V2, Vehicle Exterior Decontamination (Cont.)

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits, heavy duty, water proof	3
Boots (rubber, heavy duty industrial)	3 pair
Buckets (3 gallon)	3
Chairs	3
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	3
Face Shield (clear plastic, full-face, head-mounted)	3
Gloves (heavy duty rubber)	6 pair
Gloves (non latex)	1 box
Hose with nozzle, sufficient length	1
Masking tape (wide)	1 roll
Mops (washing)	2
Plastic bags, large, for Rad waste	1 box
Soap (liquid car wash)	5 gallons
Sponges (extra large, commercial)	4
Station Sign	1
Step Ladder	1
Talcum powder	1
Waste Container, Rad (w/plastic liner)	1
Wheel Brushes	2

4.3.4 Station V3, Vehicle Interior Decontamination and Second Scan, (see Att. 900-B1)

Personnel: 3 DNG
 (1 Radiation Monitoring Technician, 1 Decontamination Specialist, 1 Clean Driver)
 DNG personnel will wear protective clothing. Gloves will be changed as often as necessary to avoid cross contamination. See SOP 900-A, 12.3 for Equipment Registration/Decontamination Record (Att. 900-A7) distribution. Monitor/Decon: see SOP 803

4.3.4.1 Vehicles that are contaminated on the interior will first be vacuumed using a special vacuum equipped with a HEPA filter. Particular attention will be given to interior areas identified as contaminated on Att. 900-A7. The interior will then be monitored to determine if it has been decontaminated (less than 2 times background). If the interior is still contaminated, a second attempt at decontamination could be made, if time permits. Otherwise, it will be noted on Att. 900-A7 and the vehicle driven to Contaminated Vehicle Parking by a person other than the clean driver. For a vehicle that cannot be decontaminated on the interior, DNG will not attempt to decontaminate the exterior. DNG will retain the Yellow copy and display the Pink copy on vehicle dash. DNG will notify Station P8, via communication radio, as to status of the vehicles.

4.3.4.2 A vehicle that has been successfully decontaminated on the interior will be so indicated on the Att. 900-A7. If the vehicle arrived at Station V3 directly from Station VP1 and Att. 900-A7 indicates the vehicle also has exterior contamination, the vehicle will be driven by the clean driver to Station V2 for washing. If Att. 900-A7 does not indicate contamination on the exterior, the vehicle will be driven by the clean driver to Decontaminated Vehicle Parking.

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.4 Station V3, Vehicle Interior Decontamination and Second Scan (Cont.)

4.3.4.3 Vehicles returning from Station V2 after washing will be re-scanned on the exterior using a hand held meter to determine if they have been decontaminated or remain contaminated. Particular attention will be given to exterior areas identified as contaminated on Att. 900-A7.

4.3.4.4 Vehicles determined to be decontaminated will be so indicated on Att. 900-A7. The Yellow copy will be retained. The Pink copy will remain on vehicle dash; and the vehicles driven to Decontaminated Vehicle Parking by the clean driver (on the west side of Readiness Center), for possible reassignment to emergency personnel. Keys will remain in the vehicles. DNG will notify Station P8, via communication radio, as to status of the vehicles.

4.3.4.5 Vehicles determined to be still contaminated will be so indicated on Att. 900-A7. If time permits, the vehicles could be returned to Station V2 for additional washing. Otherwise, the Yellow copy of Att. 900-A7 will be retained, Pink copy placed on vehicle dash and vehicles driven to Contaminated Vehicle Parking by a person other than the clean driver, on the west side of Readiness Center. DNG will notify Station P8, via communication radio, as to status of the vehicles.

4.3.4.6 Change the survey meter cover when a vehicle scans contaminated.

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits	4
Chairs	3
Clip Boards	2
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	2
Gloves (non latex)	1 box
Hand Held Survey Meter, with extra batteries	1
Masking tape (wide)	1 roll
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Pen, pencils	1 box each
Pencil sharpener	1
Plastic bags, large, for Rad waste	1 box
Rubber Bands	1 box
Station Sign	1
Step Ladder	1
Table (large folding)	1
Talcum Powder	1
Vacuum, Special with HEPA Filter	1
Extra HEPA Filters	Sufficient Quantity
Zip lock bags, large, clear (meter covers)	1 box
Waste Container, Rad (w/plastic liner)	1

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.5 Station P3, Personnel Scan, inside Boiler Room (see Att. 900-B1)

Personnel: 5 DNG (1 Dose Record Keeper)

(1 male Radiation Monitoring Technician, 1 male Decontamination Specialist)

(1 female Radiation Monitoring Technician, 1 female Decontamination Specialist)

DNG personnel will wear protective clothing. Gloves will be changed as often as necessary to avoid cross contamination. See SOP 900-A, 12.1 for Personnel Registration/Decontamination Form (Att. 900-A3) distribution. See SOP 900-A, 12.2 for Property Receipt Form (Att. 900-A4) distribution. Monitor: see SOP 802.

4.3.5.1 Self reading dosimeters will be removed, final readings read by EWs and placed in zip lock bags together with the DLR and Att. 801-B2 and B3. These bags will be stored at Station P3. The Dose Record Keeper will complete new copies of the EWs' Att. 801-B2 and B3 recording the final dose readings. These new copies will be hand carried by the Dose Record Keeper to Station P8. This will reduce cross contamination from any contaminated forms.

4.3.5.2 Male and female EWs will be separated into partitioned areas. EWs will stand on a large paper tear-off pad. The top sheet will be removed and placed in Rad waste after each EW. Clothing that scans contaminated will be removed and placed in Rad waste. Change the survey meter's plastic cover periodically.

4.3.5.3 EWs will be re-scanned to determine if still contaminated. DNG will indicate resurvey results on Att. 900-A3. Additional clothing that scans contaminated will be removed and placed in Rad waste.

4.3.5.4 EWs who finally scan clean will have their Att. 900-A3 so indicated. All copies of form go with EWs. EWs will be issued Tyvek suit and booties and directed to Station P8, Personnel Records (up left side of steps, enter hallway, turn left).

4.3.5.5 DNG will itemize all clothing and personal items (that are removed because of contamination) on the Property Receipt Form (Att. 900-A4). All itemized personal property will be placed in a plastic bag, sealed and tagged. Contaminated wallets must stay at Station P3. Clean Wallets can be placed in zip lock bags and remain with EW.

4.3.5.6 EWs that are still contaminated after all outer clothing has been removed (local areas or general skin contamination), will decontaminate the local areas or disrobe and enter the shower, in accordance to SOP 803. DNG will indicate status on Att. 900-A3. All copies of form go with EWs. EWs will be issued paper hospital gowns and disposable slippers and directed to Station P4, Personnel Decontamination (up right side of steps, enter hallway, turn right).

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.5 Station P3, Personnel Scan (Continued)

4.3.5.6 (Cont.)

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits	5
Att. 801-B2 and 801-B3	100 each
Chairs	6
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	4
Gloves (non latex)	1 box
Hand Held Survey Meter, with extra batteries	2
Hospital Gowns (paper)	100
Masking tape (wide)	1 roll
Pads (step-off, paper tear off, large)	2
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Pen, pencils	1 box each
Pencil sharpener	1
Personal Property bag tags	100
Personnel Registration/Decon Form (Att. 900-A3)	100
Plastic bags, large, for Rad waste	1 box
Property Receipt Form (Att. 900-A4)	100
Rubber Bands	1 box
Slippers (disposable)	100 pairs
Station Sign	1
Table (large folding)	1
Talcum Powder	1
Tape Dispenser, Rolls of Tape	1 & 2
Tyvek Suits for EWs	100
Waste Container, Rad (w/plastic liner)	1
Zip Lock Bags, large, clear (for meter covers, wallets, dosimeters)	2 boxes

4.3.6 Station P4, Personnel Decontamination, male latrine with shower area (see Att. 900-B1)

Personnel: 2 DNG (1 male, 1 female, Decontamination Specialists)
Male and female DNG workers will alternate as male and female EWs utilize the decon. area. Decontamination: see SOP 803.

4.3.6.1 EWs will decontaminate local areas or disrobe and enter the shower. EWs will be issued shower shoes, wash cloths, body/fingernail brushes, and soap as needed.

4.3.6.2 Personnel items that were worn while contamination occurred (i.e. rings, bracelets, necklaces, glasses etc.) may remain on the person and can be washed and decontaminated.

4.3.6.3 DNG will pass EWs' Att. 900-A3 & A4 to DNG at Station P5, as EWs enter decon.

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.6 Station P4, Personnel Decontamination (Continued)

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits	2
Body Brushes (disposable)	100
Chairs	2
Clip Boards	2
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	2
Fingernail Brushes (disposable)	100
Gloves (non latex)	1 box
Masking tape (wide)	1 roll
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Partition Privacy Screen (folding)	1
Pen, pencils	1 box each
Pencil sharpener	1
Plastic bags, large, for Rad waste	1 box
Rubber Bands	1 box
Shower Shoes (flip-flops)	100 pairs
Soap (liquid)	10 bottles
Station Sign	1
Table (small folding)	1
Talcum Powder	1
Tape Dispenser, Rolls of Tape	1 & 2
Wash Cloths	100
Waste Container, Rad (w/plastic liner)	1
Zip lock bags, large	1 box

4.3.7 Station P5, Personnel Post-Decontamination and Re-Scan, male latrine (see Att. 900-B1)

Personnel: 2 DNG (1 male, 1 female, Radiation Monitoring Technicians)
 Male and female DNG workers will alternate as male and female EWs utilize decon. area. DNG personnel will wear protective clothing. Gloves will be changed as often as necessary to avoid cross contamination. Station P5 is located inside the male latrine, and after the showers. See SOP 900-A, 12.1 for Personnel Registration/Decontamination Form (Att. 900-A3) distribution. Monitor: see SOP 802.

4.3.7.1 Place down a large absorbent disposable pad as a step-off pad, on which EWs exiting the decontamination shower will stand. This pad will be replaced after each EW, folding pad inward and using tongs to place in Rad waste.

4.3.7.2 EWs exiting the decontamination area will be provided with a towel. After drying, EWs will be instructed to place towel and shower shoes in waste container.

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.7 Station P5, Personnel Post-Decontamination and Re-Scan (Cont.)

4.3.7.3 DNG will re-scan EWs with a hand held survey meter while EWs are standing on the step-off pad. Particular attention will be given to all the contaminated areas identified on Att. 900-A3. Change the survey meter's plastic cover periodically.

- a) Decontaminated EWs will be directed to the Redress Area and provided with clean temporary clothing. These EWs will exit on the decontaminated side of the barrier tape. They will be directed through the east end door into the adjoining room to Station P7. DNG will complete Att. 900-A3 with final survey results and indicate EW decontaminated. DNG will retain White copy. EWs will carry Yellow, Pink, Green, Gold copy to Station P7.
- b) EWs determined to be still contaminated will have their Att. 900-A3 so indicated and be directed back to Station P4.

4.3.7.4 EWs still contaminated after three decontamination attempts, will have their Att. 900-A3 completed with final survey results, indicating EW contaminated and evacuated to hospital. DNG will retain White copy. EWs will carry Yellow, Pink, Green, Gold copy to Station P6. Place Att. 900-A3 & A4 in a plastic zip lock bag back-to-back so they can be read through the clear plastic. DNG will log each EW on the Decontamination Tracking Form (Att. 900-A6). EWs will be provided temporary clothing and will exit (on the contaminated side of the barrier tape) via the hallway door, walk directly across the hallway and through the door marked Station P6. On the other side of the door they will be directed to the Medical Holding Area for evacuation to the hospital for further decontamination.

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits	2
Chairs	2
Clip Board	1
Clothing, including footwear (temporary)	100 sets
Communication Radio	1
Container (large, for used wash cloths/towels)	2
Decontamination Tracking Form (Att. 900-A6)	5
EW Kits, per SOP 801, Att. B4 & B5	2
Gloves (non latex)	1 box
Hand Held Survey Meter, with extra batteries	1
Masking tape (wide)	1 roll
Pads, absorbent disposable step-off	100
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Partition Privacy Screen (folding)	1
Pen, pencils	1 box each
Pencil sharpener	1
Plastic bags, large, for Rad waste	1 box
Rubber Bands	1 box
Station Sign	1
Table (small folding)	1

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.7 Station P5, Personnel Post-Decontamination and Re-Scan (Cont.)

4.3.7.4 (Continued)

Talcum Powder	1
Tape Dispenser, Rolls of Tape	1 & 2
Tongs	1 pair
Towels (large)	100
Waste Container, Rad (w/plastic liner)	1
Zip lock bags, large, clear (meter covers, forms)	2 box

4.3.8 Station P6, Medical Holding Area, (see Att. 900-B1)

Personnel: 2 DNG (1male, 1female, both Radiation Monitoring Technicians)
 DNG personnel will wear protective clothing. Gloves will be changed as often as necessary to avoid cross contamination. Station P6 is located in an office on the north side of the Readiness Center and has an outside door for ease of medical evacuation. See SOP 900-A, 12.1 for Personnel Registration/Decontamination Form (Att. 900-A3) distribution.

4.3.8.1 All EWs (male and female) who could not be successfully decontaminated, after three decontamination attempts, will be transported to a hospital for further decontamination procedures.

4.3.8.2 All EW forms (Att. 900-A3, A4) will be completed as necessary.

4.3.8.3 DNG will maintain a log of all EWs transported and to which hospital they are transported.

4.3.8.4 Medical evacuation will be initiated in accordance with SOP 1501.

<u>Equipment / Supplies</u>	<u>Quantity</u>
Anti-C Suits	2
Chairs	sufficient number
Clip Boards	2
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	2
Gloves (non latex)	1 box
Hand Held Survey Meter, with extra batteries	1
Masking tape (wide)	1 roll
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Pen, pencils	1 box each
Pencil sharpener	1
Plastic bags, large, for Rad waste	1 box
Station Sign	1
Table (large folding)	1
Talcum Powder	1
Tape Dispenser, Rolls of Tape	1 & 2
Waste Container, Rad (w/plastic liner)	1
Zip lock bags, large, clear (meter covers)	1 box

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.9 Station P7, Personnel Redress Area, see Att. 900-B1

Personnel: 2 DNG (1 male, 1 female), THIS IS CLEAN AREA

DNG male and female personnel will alternate as male and female EWs enter and utilize the Redress Area.

4.3.9.1 Decontaminated EWs will be directed to the Redress Area and provided with clean temporary clothing.

4.3.9.2 These EWs will exit Station P7 via the hallway door, turn right and exit the main doors on Readiness Center's east side. EWs will walk around the north side of Readiness Center and enter the north side rear door to the Drill Area and Station P8.

<u>Equipment / Supplies</u>	<u>Quantity</u>
Chairs	3
Clip Boards	2
Clothing, temporary, including footwear	100 sets
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	2
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Partition Privacy Screen (folding)	1
Pen, pencils	1 box each
Pencil sharpener	1
Plastic Bags (large, self-tie)	3 boxes
Rubber Bands	1 box
Station Sign	1
Table (small folding)	1
Tape Dispenser, Rolls of Tape	1 & 2
Waste Container (w/plastic liner)	1

4.3.10 Station P8, Personnel Records Area, see Att. 900-B1

Personnel: 3 DNG (Dose Record Keepers), THIS IS A CLEAN AREA

Located in the large Drill Floor Area, west end of Readiness Center.

See SOP 900-A, 12.1 for Personnel Registration/Decontamination Form (Att. 900-A3) distribution. See SOP 900-A, 12.2 for Property Receipt Form (Att. 900-A4) distribution.

4.3.10.1 Review all EW forms and complete as necessary.

(Att. 900-A3, Att. 900-A4) DNG will retain all remaining copies of forms. EWs will be given the Gold copy of Att. 900-A3, and the Pink copy of Att. 900-A4.

4.3.10.2 Collect, verify readings and record all personal dosimetry and DLRs. Complete EW SOP 801, Att. 801-B2 and B3.

4.3.10.3 Maintain a log of all EWs processed.

4.3.10.4 Maintain a log containing the status of all EW vehicles and their availability for reassignment.

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

4.0 FACILITY OPERATIONS (Continued)

4.3 (Continued)

4.3.10 Station P8, Personnel Records Area (Continued)

<u>Equipment / Supplies</u>	<u>Quantity</u>
Chairs	several
Clip Boards	2
Communication Radio	1
EW Kits, per SOP 801, Att. B4 & B5	3
File Cabinet	1
Log of EWs processed	1
Log of EWs vehicle status	1
Pads (writing) (8 ½ x 11, 5 x 8)	2 each
Partition Screen (folding)	1
Pen, pencils	1 box each
Pencil sharpener	1
Plastic Bags (large, self-tie)	3 boxes
Rubber Bands	1 box
Station Sign	1
Table (large folding)	1
Tape Dispenser, Rolls of Tape	1 & 2
Waste Container (w/plastic liner)	1

4.4 Re-supply

Personnel: 2 DNG (at least 1 Decontamination Specialist)
 Protective clothing must be available for use when required to re-supply in a contaminated area or when evacuating contaminated materials.

4.4.1 Supply: forms, office supplies, clothing, towels, soap, plastic bags, booties etc.

4.4.2 Remove contaminated clothing and other Rad waste to storage area.

4.5 Operation Center

Personnel: 4 DNG (OIC, Operations Officer, Communication NCO and NCOIC)

4.5.1 Maintain Communications with all stations.

4.5.2 Coordinate with all stations and facility operations.

4.6 Relief Squad

Personnel: Available DNG personnel to relieve personnel at any station for short periods of time.

5.0 DEACTIVATION OF EMERGENCY WORKER DECONTAMINATION, MIDDLETOWN READINESS CENTER

5.1 DEMA will inform the DNG EOC to deactivate the Emergency Worker Decon at Middletown.

5.2 All DNG personnel involved in operation of the decontamination facility will be monitored for any contamination and decontaminated as necessary.

SOP 900-B: DECONTAMINATION FACILITY OPERATIONS / MIDDLETOWN READINESS CENTER (Continued)

5.0 DEACTIVATION OF EMERGENCY WORKER DECONTAMINATION, MIDDLETOWN READINESS CENTER (Continued)

5.3 All facility equipment and supplies are packed in the original containers and placed in the storage area. Radiation monitoring equipment is consolidated and (if necessary) prepared for transfer to DEMA for repair and recalibration.

5.3.1 The Senior Officer/NCO checks the equipment and supplies inventory list and prepares a memorandum for transmittal to DEMA for replenishment of necessary items.

5.3.2 The Senior Officer/NCO arranges for the storage, i.e., filing of yellow copies of the Equipment Registration/Decontamination Record (Att. 900-A7) and Personnel Registration/Decontamination Form (Att. 900-A3) and directs facility personnel to report to their normal duty assignments.

