

RECEPTION CENTER

DOSIMETRY ISSUE / RETURN

1. PURPOSE

1.1 Objective

The purpose of this procedure is to provide guidance for the issue of dosimetry to Reception Center emergency workers.

2. PREREQUISITES

2.1 Discussion

This procedure is to be used by trained personnel assigned to issue dosimetry to emergency workers at the Reception Center during monitoring and decontamination operations.

The State DESPP Division of Emergency Management and Homeland Security provides Emergency Worker Dosimetry Packets to Host Communities for Reception Center emergency workers that perform radiological functions.

2.2 **Responsibilities**

2.2.1 Ensure that dosimetry has current calibration dates (sticker) showing that it has been calibrated within the last twelve month period.

2.2.2 Ensure that dosimetry issued is properly controlled during distribution and collection to emergency workers. This includes completing the Dosimetry Report, and the maintenance of required logs.

2.2.3 Provide a Radiological Briefing (Attachment 4) for all radiological emergency workers on the proper procedures for personal dosimetry.

3. INSTRUCTIONS

- 3.1 Refer To Attachment 1, “Dosimetry Issue Checklist,” and PERFORM the actions listed.
 - Use Attachments 3-9 as appropriate and indicated in Attachment 1.
- 3.2 The Reception Center will stay in operation on a 24 hour basis until all evacuees are processed, or when the emergency is terminated. Workers should be scheduled to work in two rotating shifts as necessary. Dosimetry must be issued and/or recovered at the beginning and end of each shift.

4. ATTACHMENTS

- 4.1 Attachment 1, “Dosimetry Issue Checklist”
- 4.2 Attachment 2, “Host Community Emergency Worker Dosimetry Packet” contents.
- 4.3 Attachment 3, “Box-type (CDV-750) and Pistol Grip Dosimeter Chargers”
- 4.4 Attachment 4, “Dosimetry Briefing Sheet,” “Radiological Briefing Acknowledgement Form,” and “Emergency Worker Dosimetry Log.”
- 4.5 Attachment 5, “Dosimetry Report”
- 4.6 Attachment 6, “Pregnancy Declaration Form”
- 4.7 Attachment 7, “Radiation Exposure Guidelines” card
- 4.8 Attachment 8, “Direct Reading Dosimeter (DRD) Instructions”
- 4.9 Attachment 9, “Permanent Record Dosimeter (PRD) Description”

5. SUMMARY OF CHANGES

- 5.1 Replaced Guidelines card picture of CD V700 with same of Ludlum model 3 with CPM dial face in Attachment 7.
- 5.2 Changed “read dosimeter” time interval on Guidelines Card to “every 30 minutes.”

Attachment 1
(Sheet 1 of 4)
Dosimetry Issue Checklist

DOSIMETRY PREPARATION AND ISSUE

Initials

1. REPORT to the Reception Center as directed for briefing and assignment. _____

2. IF assigned to issue dosimetry, OBTAIN box of dosimetry packets from the local Emergency Management Director, or storage area. _____

3. Check the calibration date on the dosimetry box to ensure it has been calibrated within the past year
 - If the calibration date is older than one year, inform the Radiation Officer/Lead.

NOTE

Only the lower range 5R low range dosimeters (e.g. OCP-5 and CDV-725) need to be distributed to host community emergency workers, 200 R dosimeters may be left in packet. However, it is important that all emergency workers have PRDs for record keeping purposes.

4. CHECK to see that dosimetry has stickers to show calibration within the last 12 month period. _____

5. LOCATE pistol grip charger(s) or PREPARE box-type dosimeter charger (CDV-750) shown in Attachment 3 (located in CDV-777 Kit) in order to re-zero dosimeters. _____
 - IF the CDV-750 dosimeter charger fails to operate, REPLACE the battery or light bulb. (A spare bulb is inside the case).

Attachment 1

(Sheet 2 of 4)

Dosimetry Issue Checklist

6. REZERO (charge) enough Dosimeters (DRDs) (see Attachment 3) to provide one to each emergency worker assigned to work in the controlled area. _____
- If a dosimeter cannot be zeroed in three attempts, replace it with another dosimeter.
7. MAKE SURE Emergency Worker Dosimetry packets contains the following:
- CDV-725 or OCP-5 (0-5R) Direct Reading Dosimeter (Attachment 8, Sheets 1 and 2).
 - CDV-742 (0-200R) Direct-Reading Dosimeter (Att. 8 sheet 3) (Note: the CDV-742 is not used in the Host Community)
 - Permanent Record Dosimeter (PRD) (Attachment 9)
 - Dosimetry Report Form (Attachment 5)
 - Radiation Exposure Guidelines (card) (Att. 7)
 - Dosimetry Briefing Sheet (Att. 4 sheet 1)

NOTE: also included in the Dosimetry box (but not in individual packets):

- Emergency Worker Potassium Iodide (KI) Report (not necessary for Host Community Workers)
- Pregnancy Declaration Form (Att. 6)
- Emergency Worker Dosimetry Issue Log (Att. 4, sheet 3)
- Briefing Acknowledgement Form (Att. 4, sheet 1)
- One “Control” PRD, not for distribution. (Leave control PRD in the dosimetry box. (See Att. 9, Permanent Record Dosimeter description.)

Attachment 1
(Sheet 3 of 4)
Dosimetry Issue Checklist

8. ISSUE a dosimetry packet to each emergency worker when dosimeters have been charged. Complete a Dosimetry Report for each person and record the dosimetry serial numbers on the form. (**Note: issuing personnel may also elect to have workers complete their own forms.**) After zeroing dosimeters, record 0 in the Start Value block on the form. Do not detach yellow copy—this is done when dosimetry is returned. _____

9. PROVIDE A COMPLETE VERBAL BRIEFING to all radiological emergency workers on the purpose and proper procedures for the use of personal dosimetry using the “Dosimetry Briefing Sheet” (Attachment 4 sheet 1) located in the dosimetry packet. _____

10. Obtain signatures from all workers on the Dosimetry Briefing Acknowledgement Sheet (Att. 4, Sheet 2) _____

11. Obtain signature of female workers wishing to declare their pregnancy on the “Pregnancy Declaration Form” (Attachment 6). _____

12. ENSURE emergency workers wear PRDs and DRDs on the upper body. These may be attached to bead necklaces provided in the dosimetry packet. (Attachment 2)
 - The “Radiation Exposure Guidelines for Emergency Workers” card should be attached to the necklace for quick reference.

13. COMPLETE a “Dosimetry Report” form (Att. 5) for each Emergency Worker including _____
 - Worker personal information
 - DRD and PRD serial numbers
 - DRD Start reading (should be zero) (0). _____

Attachment 1

(Sheet 4 of 4)

Dosimetry Issue Checklist

14. RECORD each worker’s name, dosimetry information, and assignment on the “Emergency Worker Dosimetry Log” (Att. 4, sheet 3), and have the worker SIGN and date the form. (Issuing staff may also elect to have workers complete the form, but should verify the information when the workers sign.)
15. INFORM the Radiological Officer/Lead when all dosimetry has been distributed. _____

DOSIMETRY RETURN

16. COLLECT and RETAIN dosimetry from EPZ or State Emergency Workers who come to the Host Community Reception Center. _____
- BAG and LABEL by town/agency and keep SEPARATE from Reception Center dosimetry.
17. COLLECT and RETAIN dosimetry, if a shift change occurs, from off-going shift members at time of shift-change. **If the emergency lasts for longer than one shift, the dosimetry should be reissued to the same individual when returning to the next shift to record total accumulated dose.** _____
18. After the emergency is terminated, ENSURE that the Dosimetry Report is completed for each worker, with correct readings in the Reading After blocks. Return the yellow copy of the Dosimetry Report Form (Attachment 5) to the worker upon return of dosimetry. _____
19. COLLECT and MONITOR returned dosimetry with a Ludlum 3 survey meter prior to returning them to storage or the State DEMHS Radiological Instrument Maintenance Facility. NOTE: this is not necessary if workers have been monitored by portal monitors. _____
- Contaminated instruments should be labeled, bagged and separated from clean instruments.
 - Ensure that the *control* Permanent Record Dosimeter is forwarded to State DEMHS. _____
20. FORWARD completed paperwork, with entire Emergency Worker Packets to the local Radiological Officer/Lead for return to the State DESPP Division of Emergency Management & Homeland Security _____
- The State Department of Public Health retains PRD records on emergency workers.

Attachment 2
(Sheet 1 of 1)

Host Community Emergency Worker Dosimetry Packet Contents



Permanent Record Dosimeter
PRD



Direct Reading Dosimeter
low range (0-5R)



CD V-742
(0-200R)
(Not used in Host
Communities)

Dosimetry Briefing Sheet
(Att. 4, sheet 1)

Dosimetry Report
(Attachment 5)

**Rad Exposure
Guidelines card**
(Att. 7)

Host Community Procedure – All
Connecticut Radiological Emergency Response Plan

Attachment 4
(Sheet 1 of 7)
DOSIMETRY BRIEFING SHEET

PURPOSE OF DOSIMETRY	Provide a method for emergency workers to measure their exposure to radiation. Direct-reading Dosimeters (DRD) can be used as the field instrument. Permanent Record Dosimeters (PRD) provide a permanent record of radiation exposure that must be read in a laboratory.
WEARING A DOSIMETER	Use only one dosimeter (usually between the shoulder and waist, on the back and/or in the pocket).
HOW TO READ DRD'S	Keep horizontal and point at a light source (other than the sun). Look through clip and read into the position of handle on the scale.
WHEN TO READ DRD'S	Read when issued and every 15 to 30 minutes thereafter.
WHEN TO REPORT READINGS	Report readings to your supervisor when he/she issues RMR (RMR-100).
FOUR-BACK CHECK	The FOUR-BACK CHECK is 10% of the Maximum Exposure Limit or 0.75R (7.5mR only). Emergency workers must have their own personal dosimeter. If dosimeter readings indicate exposure, workers should not exceed RMR-100 for the entire shift of the assignment.
MAXIMUM EXPOSURE LIMIT	The MAXIMUM EXPOSURE LIMIT is 5R (50mR only). Dosimeter readings must not exceed this limit unless they were received a pre-authorized mission limit or are otherwise authorized. If dosimeter readings indicate emergency workers should not exceed RMR-100 for the entire shift of the assignment.
POST-ASSIGNMENT (P.A.)	Post-assignment (P.A.) is included in the dosimetry packet (only for workers to use when the DRD, CD, or badge is stored from the end of assignment). Take P.A. when directed by your supervisor or when recommended for the general public. Do not take P.A. if you are allergic to iodine.
DOSIMETRY REPORT FORM	Keep this report with you at all times when wearing dosimetry. Submit this report to the Reading Station (RS) at the Reading Station or to the DRD/CD/RS REPORT.
ACKNOWLEDGEMENT	If personnel should acknowledge this briefing on the Radiological Briefing Acknowledgment Form. Form will return to the Reading Station (RS) and be included in the Frequency Declaration Form.
COMPLETION OF ASSIGNMENT	Upon completing your assignment, when dosimetry is issued, a new record of exposure time is provided. Unacknowledged readings of radiation are not included in the dosimetry and acknowledgment. If it is necessary, workers can get an emergency worker's own dosimetry will be collected then.

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Host Community Procedure – All
Connecticut Radiological Emergency Response Plan

Attachment 5 (Sheet 1 of 1)
DOSIMETRY REPORT

WORKER PERSONAL INFORMATION (Please Print)

Name: _____ SSN: _____
 Title: _____ Sex: _____ Age: _____
 Occupation: _____
 City: _____ State: _____

CD V-742 (0-200 R)

Dosimeter Serial #	Reading Before (R)	Reading After (R)	Minimum Total (R)
	R	R	R
	R	R	R
	R	R	R

CD V-742 (0-200 R) (Host Community Workers Only)

Dosimeter Serial #	Reading Before (R)	Reading After (R)	Minimum Total (R)
	R	R	R
	R	R	R
	R	R	R

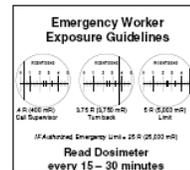
Permanent Record Dosimeter

Dosimeter Serial #	Date Issued	Date Read

Issued By: _____
 Returned To: _____
 Date Returned: _____
 Date Returned: _____

Original - File Follow - Destroy

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Attachment 3
(Sheet 1 of 2)
Dosimetry Chargers

(CDV-750) BOX CHARGER

Charging Assembly Adjustment Knob



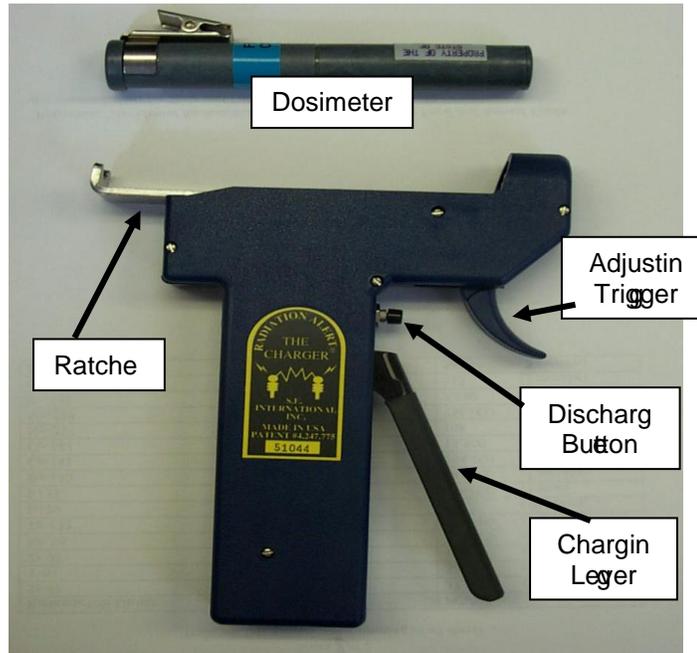
↑
Fastener
(Large screw in center of cover)

BOX CHARGER (CDV-750)

1. INSTALL one “D” cell battery. (OBSERVE polarity)
2. PLACE dosimeter charger on a firm, flat surface.
3. REMOVE cap from the charging contact.
4. PLACE the charging pin end of the dosimeter on the charging contact and press down firmly.
5. ROTATE the control knob of the dosimeter charger until the hairline is on zero or slightly above.
6. REMOVE the dosimeter and VERIFY setting.
7. IF unable to zero the dosimeter on the first attempt, PLACE on the dosimeter charger, and ADJUST the setting, as necessary.

Attachment 3
(Sheet 2 of 2)
Dosimetry Chargers

PISTOL GRIP CHARGER



PISTOL GRIP CHARGER

1. REMOVE both end caps from the dosimeter (only on OCP-5).
2. LIFT the ratchet adjustment and adjust so the opening is slightly shorter than the dosimeter.
3. SQUEEZE the adjusting trigger to extend the opening.
4. PLACE the DRD in the opening and release the adjusting trigger.
5. LOOK through the dosimeter and gently squeeze the charging lever until the dosimeter reads zero.
6. If the line will not move, DEPRESS the discharge button and attempt to zero using the charging trigger again.
7. SQUEEZE the adjusting trigger to remove the dosimeter.

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Attachment 4
 (Sheet 1 of 3)

DOSIMETRY BRIEFING SHEET

<i>PURPOSE OF DOSIMETRY</i>	Provides a method for emergency workers to measure their exposure to radiation. Direct-Reading Dosimeters (DRD) can be read in the field. Permanent Record Dosimeters (PRD) provide a permanent record of radiation exposure but must be read in a laboratory.
<i>WEARING A DOSIMETER</i>	Clip onto outer clothing preferably between the shoulders and waist. Use beaded necklace, if provided.
<i>HOW TO READ DRDs</i>	Keep horizontal and point at a light source (other than the sun). Look through clip end and note the position of hairline on the scale.
<i>WHEN TO READ DRDs</i>	Read when issued and every 15 to 30 minutes thereafter.
<i>WHEN TO REPORT READINGS</i>	Report readings to your supervisor when hairline reaches 0.4R (400 mR) .
<i>TURN-BACK VALUE</i>	The TURN-BACK VALUE is 75% of the Maximum Exposure Limit or 3.75R (3,750 mR) . Emergency workers must leave their current location upon receiving this amount of exposure, unless they have received a predetermined mission limit or are otherwise authorized.
<i>MAXIMUM EXPOSURE LIMIT</i>	The MAXIMUM EXPOSURE LIMIT is 5R (5,000 mR) . Emergency workers must not exceed this limit unless they have received a predetermined mission limit or are otherwise authorized. <u>If declared pregnant, female emergency workers should not exceed 500 mR for the entire term of the pregnancy.</u>
<i>POTASSIUM IODIDE (KI)</i>	Potassium iodide (KI) is included in the dosimetry packet (only for workers in or going into the EPZ). KI blocks the thyroid from the uptake of radioactive iodine. Take KI when directed by your supervisor or when recommended for the general public. Do not take KI if you are allergic to iodine.
<i>DOSIMETRY REPORT FORM</i>	Keep this report with you at all times when wearing dosimetry. Record the “start” reading in the <i>Reading Before</i> block. At the completion of the assignment, record the end reading in the <i>Reading After</i> block on the DOSIMETRY REPORT.
<i>ACKNOWLEDGEMENT</i>	All personnel should acknowledge this briefing on the Radiological Briefing Acknowledgement Form . Female workers wishing to declare their pregnancy must sign the Pregnancy Declaration Form .
<i>COMPLETION OF ASSIGNMENT</i>	Upon completing your assignment, return dosimetry to location where issued or if you have been in potentially contaminated areas proceed to the nearest Host Community for monitoring and decontamination . Tell Host community workers you are an emergency worker and your dosimetry will be collected there.

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Attachment 4
(Sheet 2 of 3)
Radiological Briefing Acknowledgement Form

The undersigned individuals have attended a **dosimetry briefing** and have been advised of information such as: purpose of dosimetry; wearing dosimetry; reading Direct-Reading Dosimeters (DRDs); maximum exposure limits (including special instructions for pregnant/potentially pregnant emergency workers); turn-back values; reporting and recording readings; and what to do upon completion of assignment.

PRINT NAME	SIGNATURE	REPRESENTING

Date: _____

Page _____ of _____

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Attachment 5 (Sheet 1 of 1)
DOSIMETRY REPORT

WORKER PERSONAL INFORMATION (Please Print)

Name		SSN	
Home Address			
City	State	Zip	Phone
Organization		Signature	

OCP-5 (0-5 R)

Dosimeter Serial #	Reading Before (R)	Reading After (R)	Mission Total (R)
	R	R	R
	R	R	R

CDV-725 (0-5 R)

Dosimeter Serial #	Reading Before (R)	Reading After (R)	Mission Total (R)
	R	R	R
	R	R	R

CDV-742 (0-200 R) (Host Community Workers Omit)

Dosimeter Serial #	Reading Before (R)	Reading After (R)	Mission Total (R)
	R	R	R
	R	R	R

Permanent Record Dosimeter

Dosimeter Serial #	Date Issued	Time Issued
Issued By:		
Returned To:		
	Date Returned	Time Returned

Original – File Yellow - Individual

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Attachment 6
(Sheet 1 of 1)
Pregnancy Declaration Form

PREGNANCY DECLARATION FORM

NRC Regulatory Guide 8.13
Regarding Instruction Concerning Prenatal Radiation
Exposure for Female Radiation Workers

I, _____, have read and/or been advised
(Print name)

of the contents of NRC Regulatory Guide 8.13.

I understand that **if I am pregnant, or if I suspect I may be pregnant**, I can notify my Supervisor and declare myself pregnant. If declared pregnant, female emergency workers should not exceed 500 mR for the entire term of the pregnancy. If declared pregnant, I understand that my emergency assignment or emergency responsibilities may be changed during my pregnancy, to limit my exposure.

I declare myself pregnant:

Signature: _____

Date: _____

I do not declare myself pregnant:

Signature: _____

Date: _____

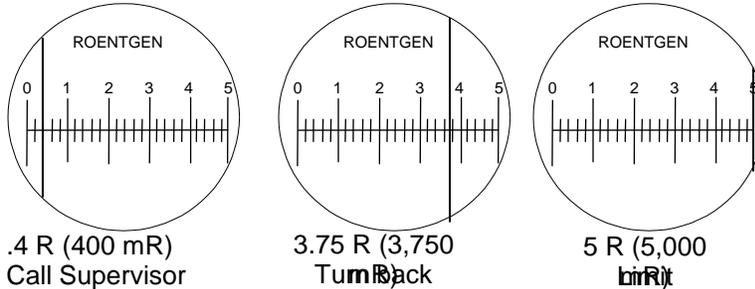
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Attachment 7

(Sheet 1 of 1)

Radiation Exposure Guidelines Card

**Emergency Worker
Exposure Guidelines**



IF Authorized, Emergency Limit = 25 R (25,000 mR)

**Read Dosimeter
every 30 minutes**

Ludlum Model 3

CPM (counts per minute) scale for
contamination

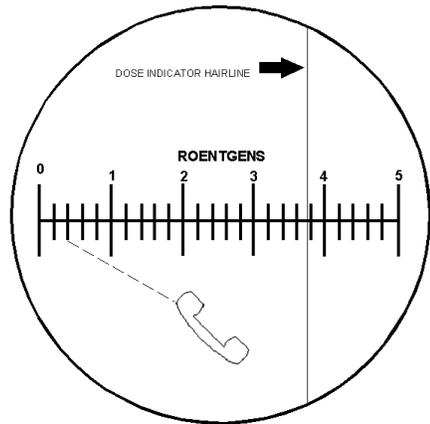
- CCPM is CPM above background
- Limit for **personnel**
100 ccpm
- Limit for vehicles
300 ccpm
- 1" per second, 1" from surface



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Attachment 8
(Sheet 1 of 3)
Direct Reading Dosimeter (DRD) Instructions

OCP-5



Turn-Back Value is
3.75R

Maximum Exposure
Limit is 5R

OCP-5

The range of this dosimeter is 0-5 Roentgens with major divisions at each Roentgen. Each Roentgen is subdivided into five minor divisions of 0.2 Roentgen (200 milliRoentgens).

A telephone symbol is located at the 0.4 Roentgen (400 milliRoentgens) marking. This alerts the emergency worker to **call in** for exposure guidance if specific exposure limits have not previously been provided.

Both end caps must remain in place on the dosimeter during use. The charging end cap must be partially removed to charge the dosimeter, but must be in place during use.

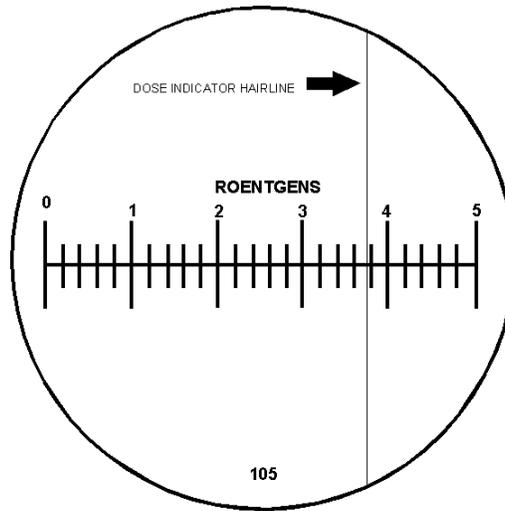
The Turn-Back value is the total accumulated external exposure limits or exposure rates, at which the emergency worker should leave the area without further consultation or direction unless a pre-determined mission exposure limit has been issued. The TURN-BACK VALUE is 3.75 Roentgen (3,750 milliRoentgens).

The MAXIMUM EXPOSURE LIMIT is 5 Roentgen (5,000 milliRoentgens). Emergency workers must not exceed this limit unless they have received a predetermined mission limit or are otherwise authorized.

Dosimeters should be read at least every 15 to 30 minutes.

Attachment 8
(Sheet 2 of 3)
Direct Reading Dosimeter (DRD) Instructions

CDV-725



Turn-Back Value is
3.75R

Maximum Exposure
Limit is 5R

CDV-725

The range of this dosimeter is 0-5 Roentgens with major divisions at each Roentgen. Each Roentgen is subdivided into five minor divisions of 0.2 Roentgen (200 milliRoentgens).

The second minor division after 0 is 0.4 Roentgen (400 milliRoentgens). This alerts the emergency worker to **call in** for exposure guidance if specific exposure limits have not previously been provided.

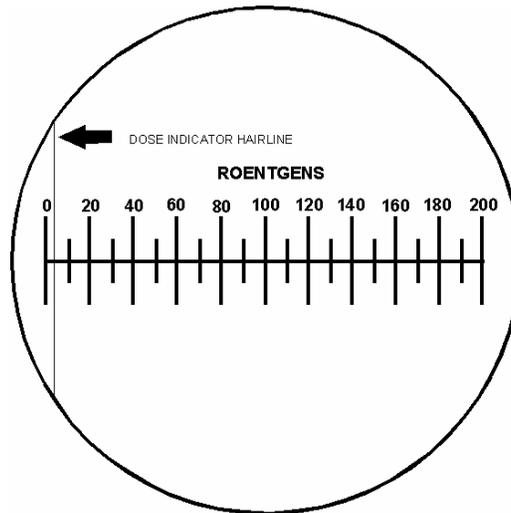
The **TURN-BACK VALUE** is 3.75 Roentgen (3,750 milliRoentgens). This is the limit at which the emergency worker should leave the area without further consultation or direction unless a pre-determined mission exposure limit has been issued.

The **MAXIMUM EXPOSURE LIMIT** is 5 Roentgen (5,000 milliRoentgens). Emergency workers must not exceed this limit unless they have received a predetermined mission limit or are otherwise authorized.

Dosimeters should be read at least every 15 to 30 minutes.

Attachment 8
(Sheet 3 of 3)
Direct Reading Dosimeter (DRD) Instructions

CDV- 742



Turn-Back Value is
3.75R

Maximum Exposure
Limit is 5R

CDV-742

The range of this dosimeter is 0-200 Roentgens with major divisions at each 20 Roentgens. Each 20 Roentgens is subdivided into one minor division of 10 Roentgens.

The Turn-Back value is the total accumulated external exposure limits or exposure rates, at which the emergency worker should leave the area without further consultation or direction unless a pre-determined mission exposure limit has been issued.

The TURN-BACK VALUE is 3.75 Roentgen (3,750 milliRoentgens).

The MAXIMUM EXPOSURE LIMIT is 5 Roentgen (5,000 milliRoentgens). Emergency workers must not exceed this limit unless they have received a predetermined mission limit or are otherwise authorized.

Dosimeters should be read at least every 15 to 30 minutes.

NOTE: The CDV-742 dosimeter, although included in the Dosimetry Packets, is not used by Host Community Emergency Workers.

Attachment 9
(Sheet 1 of 1)



Permanent Record Dosimeter (PRD) Description

PRD Badge

The Permanent Record Dosimeter (PRD) will accurately register the radiation exposure, or dose, the emergency worker receives in a radiation area. It will register “gamma”, or “X”, radiation, and also has a hole in each side of the plastic case for “beta” radiation. The PRD is **NOT** a direct-reading dosimeter, and cannot be read by the worker. The PRD must be returned to the DESPP DIVISION OF EMERGENCY MANAGEMENT AND HOMELAND SECURITY for read-out. Do **NOT** attempt to open holder.

Note: A Control PRD Badge is included in the box containing PRD Badges. The Control PRD Badge is clearly identified and is not to be issued to workers.