

BASIC RADIATION TRAINING

For Emergency Medical Services

Alabama Department of Public Health • Office of Radiation Control • 334.290.6244 • alabamapublichealth.gov/radiation

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2022



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CONTACTLESS SIGN-IN

USE YOUR PHONE'S CAMERA APP TO AIM AT THIS QR CODE, THEN SELECT THE LINK THAT APPEARS AUTOMATICALLY.



Or type in the URL below:

<https://bit.ly/adphsignin>

!!!PLEASE CLOSE YOUR BROWSER'S TAB ONCE DONE!!!

Basic Radiation Training

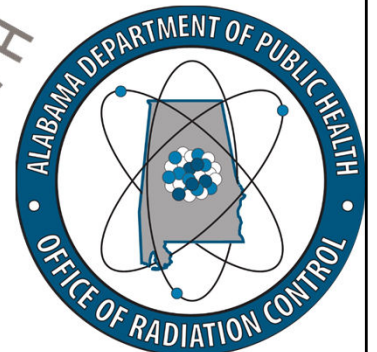
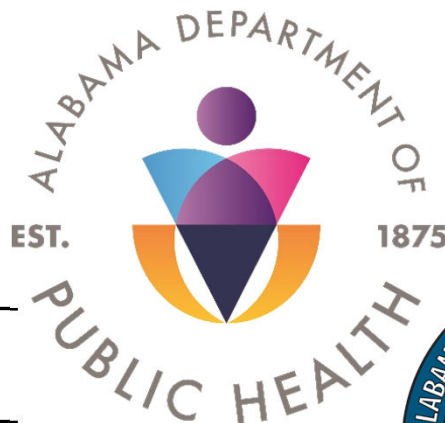
For Emergency Medical Services

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Date	Change	Performed by
04/01/2022	ALL: Added QR code & URL for signing into class	M. Hallman
	ALL: Added change log	
	ALL: Added QR code to cover to download book	
	ALL: Added blank for putting name/org./tel. # on cover	
	MORGAN: Priceville Jr. High changes to Priceville High School	
	MORGAN: First Response EMS is replaced by Decatur Morgan EMS	
	ALL: Refer all videos to ADPH ORC channel via QR code and URL	

Change Log

Videos

- ▶ All videos are now housed on our YouTube channel:



<https://bit.ly/ADPHORCYoutube>

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The Federal Emergency Management Agency (FEMA), an agency of the Department of Homeland Security (DHS), is required to interview a certain number of emergency workers, personnel and equipment monitors to ensure that they are aware of their radiation dose limits, equipment, and the basics of radiation. The training manual has the following features:
•Table of contents for looking up the answers for exercises, evaluations, real-time emergency situations

Formatting for this guide is as follows:

1. Information on the PowerPoint slide
2. Information below the PowerPoint slide in the Notes section
3. Information discussed in the Basic Radiation Training course by the instructor

Everything you need to know about protecting yourself from radiation can be found in this manual. Therefore, please place this manual in a readily accessible location. For example, law enforcement might place it in a patrol car, or firemen might place a copy in each fire engine.

EWS = Emergency Worker Station (where you get your equipment)

EWD = Emergency Worker Decontamination

CRC = Community Reception Center

MCF = Mass Care Facility (where people are sheltered after going through the CRC, a.k.a. "shelter")

Potassium Iodide (KI) will be administered for Emergency Workers at each EWS and to the general public in affected areas at each CRC.

Henry:

EWS = Henry County EMA Parking Lot

EWD = Houston County Farm Center

CRC = Houston County Farm Center

MCF = Westgate Recreation Center

Houston:

EWS = Houston County Farm Center

EWD = Houston County Farm Center

CRC = Houston County Farm Center

MCF = Westgate Recreation Center

Lauderdale:

EWS = Lauderdale County High School

EWD = Lauderdale County High School

CRC = Brooks High School

MCF = Florence High School

Lawrence:

EWS = Lawrence County EMA

EWD = Moulton Recreation Center

CRC = Moulton Recreation Center

MCF = Moulton Church of Christ, Moulton Elementary School, Moulton Middle School

Limestone:

EWS = Athens/Limestone County Rescue Squad

EWD = all CRCs

CRC = Ardmore High School, Elkmont High School

MCF = all CRCs

Madison:

EWS = N/A

EWD = N/A

CRC = Dr. Richard Showers Recreation Center ; Dublin Park Recreation Center, Madison ; UAH, Spragins Hall

MCF = all CRCs that are activated.

Morgan:

EWS = Morgan County EMA (however, some equipment is prepositioned)

EWD = Priceville High School

CRC = Priceville High School, Hartselle Intermediate School

MCF = Priceville High School, Hartselle Sparkman Civic Center

GUIDANCE FOR EMERGENCY MEDICAL SERVICES MANAGEMENT

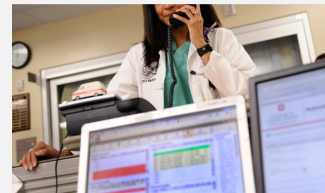


Radioactive materials are among the many kinds of hazardous substances Emergency Medical Service (EMS) personnel may have to deal with. It is prudent, as emergency personnel, to know your role in responding to a radiation accident should one occur in your community. Emergency Medical Service personnel should always follow procedures in order to handle radiation accidents properly.

As emergency workers, EMS personnel will perform duties such as life-saving activities and packaging and transporting potentially radioactively contaminated patients.

NOTIFICATION & COMMUNICATION

1. Immediately notify the receiving hospital of the possibility of a radioactively contaminated patient, and request information on any special entrance to the Emergency Department for the possibly contaminated patient.
2. Provide the receiving hospital...
 1. ...the estimated time of arrival
 2. ...the number of victims
 3. ...the medical status of each.
3. If during a drill, before each transmission, say “This is a drill.”

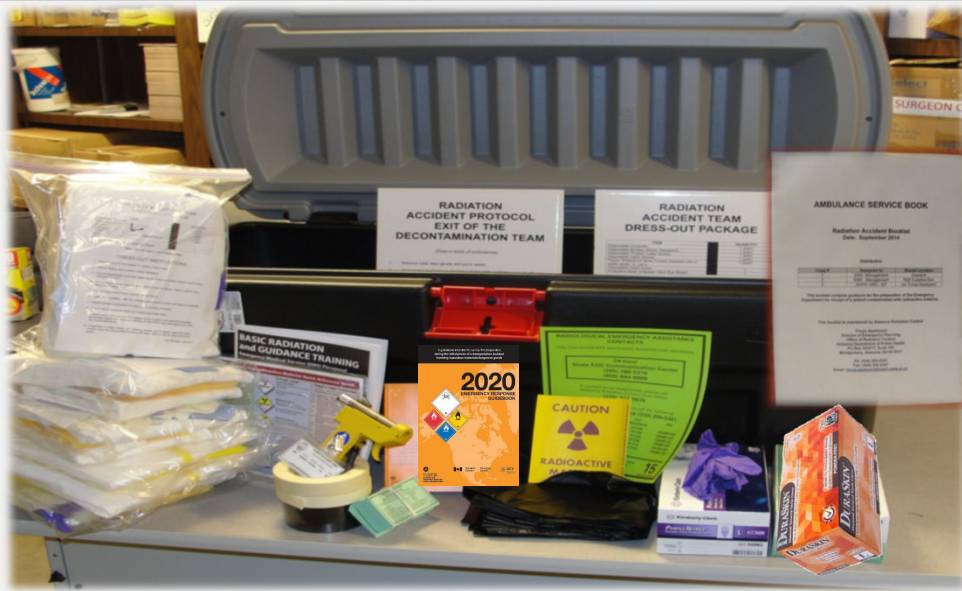


When the Emergency Medical Service (EMS) personnel are notified of an accident victim who is involved with or possibly contaminated with radioactive material, a planned course of action should be followed, and communication should be established immediately with the receiving hospital.

If any doubt about contamination exists, assume the victim is contaminated until proven otherwise. EMS dispatch should immediately notify the receiving hospital of the possibility of a potentially radioactively contaminated patient and request information on any special entrance to the emergency department for the possibly contaminated patient. Also provide the receiving hospital the estimated time of arrival, number of victims, and medical status of each.

If during a drill, before each transmission, say “This is a drill.”

RADIATION RESPONSE TOTE



Each ambulance service is provided with two copies of the “Radiation Accident Booklet” and a response tote. It is recommended that one book be kept with the radiation response tote and one book be placed with dispatch. The booklet is intended to provide a team leader guidance when assigning duties and equipment to Emergency Medical Service personnel during an event with a nuclear power plant. The booklet also has a guide for dressing and undressing personal protective clothing and preparing an ambulance for response.

PREPARING THE AMBULANCE FOR CONTAMINATION CONTROL



To prevent the spread of radiation contamination and to continue ambulance operations, EMS personnel should take the time to prepare their ambulance.

Four (4) things are needed to prepare an ambulance::

- sheets
 - masking tape
 - radiation-labeled garbage bag (or yellow radioactive waste plastic bag)
 - undress procedure poster
1. Cover the bench and floors of the ambulance with sheets. Tape seams along walls and doorway.
 2. Use tape to secure the sheets to prevent a tripping hazard.
 3. Close all doors and cabinets, and stow any unnecessary articles or items inside of the ambulance.
 4. Cover any equipment which may be used such as hand held radios with a clear bag .
 5. Additional sheets (use 3-sheet method) are needed for the preparation of wrapping/cocooning the patient for transport and to be used during the initial assessment at the accident scene.
 6. Include a radiation-labeled garbage bag (or yellow radioactive waste plastic bag) in the back of the ambulance. The bag is to be used as contamination control for radioactive waste (e.g. glove exchange, victim's clothing, etc.).
 7. Tape up the Undress (Doffing) procedure poster titled "Radiation Accident Protocol: Exit of the Decontamination Team" to the back door of the ambulance to assist in undressing when instructed by the hospital Radiation Safety Officer (RSO).
 8. Place a box of gloves (both base pair and outer pair) out for easy access.
 9. If additional bags are needed, then affix a radiation label to the bag.

RESPONSE TEAM PREPARATION



The purpose of protective clothing is to keep bare skin and personal clothing free of contaminants. EMS personnel should properly dress out in anti-C clothing and follow the instructions on the “Dress Out Instructions” poster or packet. It is been shown that dressing out together in tandem on each step is helpful to ensure that all steps are followed in the correct order. To assist with the response team preparation of anti-C clothing and equipment, place the “Dress-Out Instructions” poster on the wall and follow instructions to ensure all response team members are properly dressed out.

Anti-C clothing consists of coveralls, head cover, mask w/eye and mouth protection, gloves, and waterproof shoes covers (yellow). All open seams and cuffs should be taped using masking tape. Fold-over tabs at the end of each taped area will aid in removal. Two pairs (inner orange nitrile, outer nitrile of any color) of surgical gloves should be worn. The first pair of gloves (orange), called the “base pair,” should be secured by tape to the sleeve of the coveralls. The second pair of gloves should be easily removable and replaced if they become contaminated.

A direct-read dosimeter (DRD) should be assigned to each team member and attached to the *outside* of the anti-C clothing at the neck where it can be easily removed and read. A TLD badge should be worn *under* the anti-C clothing. EMS personnel responding to a radiological incident should implement the buddy system to read (monitor) DRDs at least every 30 minutes and record information on the Radiation Exposure Record.

The team leader will assign a person to distribute all radiation equipment to EMS personnel responding to an area that has been evacuated and is potentially contaminated with radioactive material. The Radiation Equipment Distribution Log is necessary for record keeping for the specific equipment issued to an individual and for the duration of the accident/incident.

Upon arrival at the hospital, EMS team should follow the “Exit Instructions” to ensure that undressing from the PPE is followed using the correct method. Be sure to help the person that is getting undressed if you are still in your PPE and designated as being in the “hot zone” that the hospital has laid out at the designated ambulance entrance.

SAFETY BRIEFING

- Equipment
- Dose limits
- PPE



All Emergency Workers will be issued the following equipment:

- **Radiation Exposure Record**
- **Thermoluminescent Dosimeter (TLD card)**
Fill out Radiation Exposure Record information
- **Low Range Pocket Dosimeter (0-200mR)**
Fill out Radiation Exposure Record information
Black
- **High Range Pocket Dosimeter (0-20R)**
Fill out Radiation Exposure Record information
Yellow
- **Maximum Radiation Dosage Limit Card (green card)**
- **Potassium Iodide (KI) will be issued by ADPH KI Nurse. DO NOT TAKE UNTIL TOLD TO DO SO BY EMA.**

- When reading your dosimeter, point toward a good light source. Read through the clip end. Keep the scale in the horizontal position to assure an accurate reading.
- Read your dosimeters at least every 30 minutes, and record on your radiation exposure record.
- The TLD card is your permanent record and cannot be read in the field.
- Read your dosimeters and record on the Radiation Exposure Record **at least every 30 minutes.**
 - Seek relief at 100mR (black dosimeter)
 - Do not wait until the dosimeter is on 100mR before requesting relief; call when it is *approaching* 100mR.
- Your TLD should be worn *under* your PPE and dosimeters should be worn on the trunk of the body on the outside of the PPE.
- If you reach the limit on your black low range dosimeter (200mR), use your yellow high range dosimeter (20R).
- Authorization to exceed emergency worker exposure guidelines must be obtained from the State Health Officer prior to any exposure limit being exceeded. This will be done through the local EMA office.
- Remember to stay in contact with your department's safety officer.
- If you have any questions, contact the local EMA office for assistance.

<read the green card dosimetry limits>

- Follow all donning and doffing directions when putting PPE on and taking PPE off.
- Do not eat, drink, chew gum, smoke, apply make-up, or put on lipstick/lip balm while on duty as an emergency worker.

FIELD OPERATIONS OVERVIEW



1. Dosimeters should be checked at least every 30 minutes and recorded on the Radiation Exposure Record.
2. Assess and treat life-threatening injuries immediately. **Assessing injuries should always take priority over decontamination.**
3. Place a sheet on the ground to prevent you (your knees) and your equipment from becoming possibly contaminated.
4. Exchange out gloves frequently (universal precautions) to prevent the spread of contamination.
5. Remove the victim's clothing, and prepare & transport the victim as soon as possible.
6. Place the victim's clothing in the prepared radiation labeled yellow garbage bag or a bag with a "Radioactive Material" label on it.
7. **Do not eat, drink, smoke, rub eyes or nose, apply lip balm/lipstick/makeup while conducting response operations.**

PREPARING THE PATIENT FOR FIELD DECON



1. Scene assessment: Are there any hazards? Read dosimeters at least every 30 minutes and record on the radiation exposure record (refer to the documents in the back of this book).
2. Perform a patient assessment: stable or unstable? If unstable, cocoon then “Load and Go”. Contact the hospital with any relevant information.
3. Place a blanket/sheet on the ground for trauma bag or equipment. The ground cover is to prevent items from being contaminated. It also provides a place to kneel down while assessing the patient.
4. Place a face shield or towel over the patient’s airways (if clear) to prevent inhalation of radioactive contaminants. This can be performed right before the removal of the patient’s clothes.
5. Use a large bag and remove the patient’s shoes. Seal and set aside. Change gloves.
6. Responders or equipment should **never intentionally** come in direct contact (knees or hands) with the ground. If this occurs, then consider yourself or the equipment to be contaminated. Use a clear bag to cover the item and affix a label with “radioactive material” before removing an item or equipment from the ground (e.g. dosimeters, stethoscope). If an item or article is not needed (e.g. shears), then leave it at the scene.
7. Responders and the entire inside and outside of the ambulance will be surveyed by personnel using a radiation survey instrument at the hospital or other designated location.

If during a drill, before each transmission say, “This is a drill.”

PATIENT DECONTAMINATION: CLOTHES REMOVAL AND COCOON

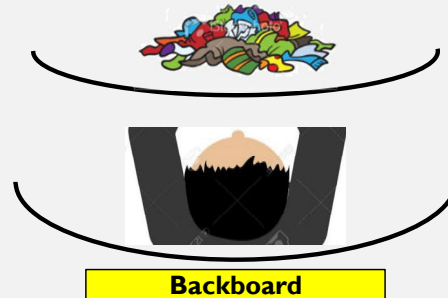


1. Start cutting slowly at the shoulder at same rate of speed, and go down to the wrist. Roll clothing inside out, and tuck it underneath the patient's exposed arms.
2. Start cutting slowly down the patient's side, and, with the free hand, grab the clothing. Roll the clothing while lifting it up and away from the patient's skin.
3. Continue cutting slowly all the way to the ankles, and roll the clothing down and away from the patient. Roll the clothes inside out and tuck underneath the patient. Change gloves.
4. One responder will log roll the patient while the other responder slowly folds the top sheet over the clothes. Be careful not to step onto the second sheet/blanket.
5. Now, log roll the patient to the opposite side, and fold the top sheet over the other seam.
6. Start rolling the top sheet from the head toward the feet, and place out away from the patient. Change gloves.
7. Conduct an assessment, and determine the mechanism of injury (MOI). Treat according to local policy and procedures.
8. Changes gloves as needed using "Universal Precautions" to prevent contamination spread from one location to another.
9. Wrap patient entirely with second sheet/blanket, and attach back board straps/mega mover. Use additional sheets/blankets to cocoon feet and head if needed. Change gloves.
10. Transfer patient from the ground to the stretcher. Be careful not to let straps from the stretcher touch the ground. Change gloves.
11. Read dosimeters, and record upon departure. Relay to hospital estimated time of arrival and include **"patient may be contaminated with radioactive material"**.

PATIENT DECONTAMINATION: 3-SHEET METHOD

3-Sheet Method

1. Top Sheet: Cocoon Clothes
2. Middle Sheet: Cocoon Patient
3. Bottom Sheet: Remains at Scene



1. Is the patient still stable? Is scene safe? If “Yes,” then proceed with response operations.
2. Prepare and fold 3-sheets/blankets as one article.
3. Slide a back board (or mega mover) below the second sheet. Follow policy and procedures on usage of backboard versus mega mover.
4. Place folded sheets/blankets beside patient and **SLOWLY** unfold the top and bottom of the sheet/blanket. This prevents material from becoming an airborne hazard.
5. Slowly unfold one side of sheet/blanket and place under log rolled patient. Do the same to the opposite side until patient is on top of the sheets/blankets.

If there is critical change in patient’s status, cocoon then “Load and Go”.

PATIENT TRANSFER UPON ARRIVAL AT HOSPITAL

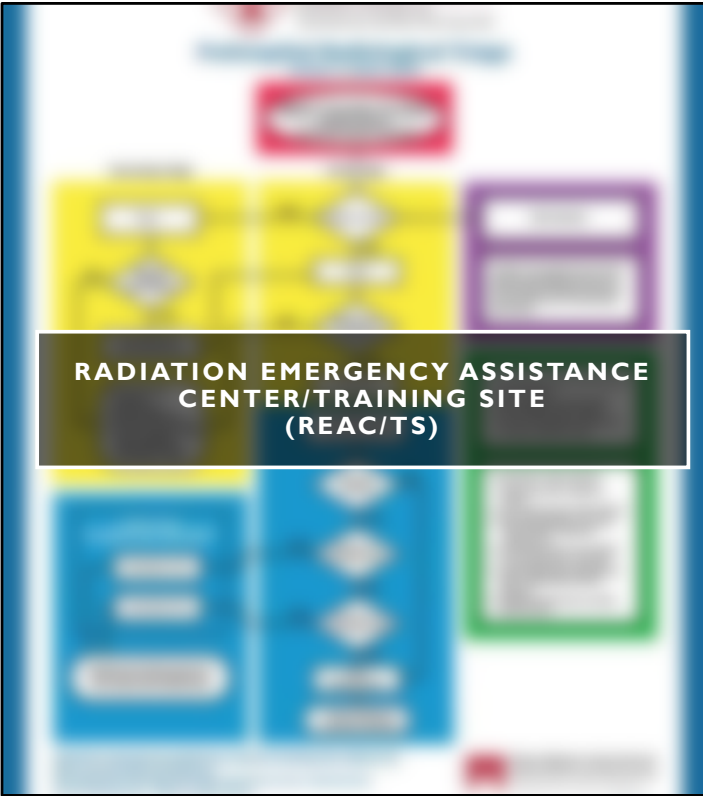


The hospital staff will meet the ambulance outside the emergency department or designated receiving area. A patient in stable condition should be transferred to a clean stretcher. A whole body radiation survey of the patient can be conducted prior to entering the decontamination room. The EMS personnel should remain with the ambulance. **Do not eat, drink, dip, apply lip balm/lipstick/make-up while awaiting release by the Radiation Safety Officer.**

To properly remove the anti-C clothing and equipment and to eliminate unnecessary cross contamination, when exiting the controlled area, place the "Radiation Accident Protocol Exit of the Decontamination Team" poster on the wall beside the decontamination room doorway and within view of the step off pad. Follow the step-by-step instructions on the guide. If a response member needs help with the removal of coveralls, remember to exchange gloves when finished with the task. A chair (metal or cover chair) may be used to assist with balance while doffing the personal protective equipment.

Before leaving the area, the ambulance and personnel shall be monitored for contamination. If contamination is found, a shower and change of clothing is required. A final survey by the hospital's Radiation Safety Officer (RSO) is required before leaving the area. If the ambulance is found to be contaminated, the ambulance will be directed to the emergency worker decon station to be decontaminated (cleaned).

Contact the county EMA or your point of contact in the county Emergency Operations Center (EOC) when activated for the locations of the Emergency Workers Decontamination Stations.




**RADIATION EMERGENCY ASSISTANCE
CENTER/TRAINING SITE
(REAC/TS)**



24-Hour Emergency Phone:
865-576-1005
Ask for REAC/TS

Normal Work Hours Phone:
865-576-3131

On the Web:
orise.orau.gov/reacts



Download the app!



The REAC/TS staff are available 24 hours a day/seven days a week to deploy and provide emergency medical consultation for incidents involving radiation anywhere in the world. REAC/TS is recognized for its expertise in the medical management of radiation incidents.

RADIOLOGICAL EMERGENCY ASSISTANCE CONTACTS

USE FOR INCIDENTS INVOLVING RADIOACTIVE MATERIAL

**24-hour
State EOC Communication Center
(205) 280-2310
(800) 843-0699**

If contact is not established, please call:
Alabama Radiation Control Duty Officer
(334) 324-0076

For additional contacts, please call the following:
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****Destroy all
Earlier Editions***

Alabama Department of Public Health
Office of Radiation Control
Prattville, AL

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