

GASTON COUNTY, NC

EMERGENCY MEDICAL SERVICES GUIDANCE

**This guidance can be altered and modified when
needed for specific conditions and situation**

**In support of North Carolina Emergency Response Plans
for Catawba and McGuire Nuclear Sites**

**On line edition of guidance is current
for the nuclear plan**

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I. Purpose

To establish guidance for radiological monitoring, contamination control, exposure control, records, injuries and communications relative to radiological matters.

II. Scope

This Guidance establishes recommendation procedures and responsibilities of EMS (Emergency Medical Service) personnel for response to a contaminated injured person within the 10-mile EPZ (Emergency Planning Zone) of the Catawba Nuclear Station. * In this Guidance the term "injured person" refers to individuals with external injuries, acute internal conditions or some combination thereof.

III. Guidance

A. Radiological monitoring and contamination control will be conducted by trained EMS personnel and/or a certified radiological monitor.

B. The EMS crew will be dispatched to a Staging Area Located outside the 10-mile EPZ by the County EOC. From Staging Area, EMS will be dispatched to locations within the 10-mile EPZ by the County EOC, as required.

C. EMS personnel will be provided protective clothing, dosimeters, TLD's, and KI (Potassium Iodide) at the Staging Area.

D. EMS personnel should cover the floor and interior wall of the Ambulance with sheets for contamination control.

E. An operational check should be conducted on all Radiological Instruments. Background radiation levels should be determined and recorded. Dosimeters should be charged and reading recorded on a dose card.

F. When dispatched to incident location, EMS personnel should record dispatch information, dress in protective clothing, check floor covering, and dosimeters.

G. Upon arrival, look for other hazards and perform and record a radiological survey to determine radiation level at scene.

*** REMEMBER THE PRIMARY RESPONSIBILITY OF THE FIRST MEDICAL TEAM ON THE SCENE IS TO RESCUE AND PROVIDE EMERGENCY MEDICAL TREATMENT. IF PERSONNEL ARE AVAILABLE RADIOLOGICAL SURVEY MAY BE COMPLETED.**

H. Place a protective cover on the ground beside the injured person to provide contamination control area for treatment and equipment.

- I. Provide Basic and Advanced Life Support as needed.
- J. Cover open wounds with clean dressing and elastic bandage; DO NOT USE ADHESIVE.
- K. Treat injured person as potentially contaminated until proven otherwise.
- L. If possible, conduct a radiological survey on injured person and record results on Personnel Monitoring Documentation Form. It may not be possible to survey injured person until being moved to Ambulance due to ground contamination. Survey injured person again outside the EPZ and record results.
- M. Cut-away outside clothing, place in plastic bag and label contaminated.
- N. Confine contamination, cover stretcher/backboard and pillow with clean sheet; wrap injured person in sheet.
- O. After placing injured person in Ambulance, remove outer-gloves, place in plastic bag and replace with clean pair of gloves.
- P. At scene communicate to hospital concerning contaminated injured person. Enroute to Emergency Department communicate information on medical and radiological data to hospital.
- Q. At hospital, follow Emergency Department protocols concerning transfer of contaminated patients.
- R. Do not eat, drink, or smoke while in a Radiation Control Area, or until released.
- S. Before returning to regular service, EMS personnel, equipment and ambulance, must be monitored and if necessary be decontaminated.
- T. Final survey of EMS crew and dosimeter reading must be recorded. EMS personnel should be cleared by the Radiation Safety Officer before returning to service, or leaving the Control Zone.

IV - Supplies

- A. Minimum supplies and equipment necessary for Radiological Monitoring and Contamination Control for EMS personnel are:
 - 1. Plastic, sheets or drop cloth, to cover floor, stretcher, ground, etc.
 - 2. Tyvek disposable coveralls, dust masks, surgical gloves, safety glasses, shoe covers (booties), duct tape for securing openings in protective clothing.
 - 3. Forms, pencils, etc. for recording radiological data.
 - 4. Two 0-20 R or 0-5 R self-reading dosimeters.

5. One dosimeter charger.
6. Two TLD's (Thermoluminescent Dosimeter).
7. One Radiological Survey Instrument.
8. Baggies and disposable gloves.
9. Plastic bags or containers for suspected contaminated articles.
10. Labels for tagging personnel belongings and bags.
11. Clean sheets.

B. Radiological monitoring instruments are provided through the Gaston County Emergency Management Office and will be issued at the Staging Area.

C. For situations where responders work together as a team in close proximity to each other or there are not sufficient dosimeters for each individual, a direct reading dosimeter and a TLD may be worn by the team leader or a designated team member or for Category (2) Emergency Workers placed in a strategically selected work area (example: radiological monitors at a reception center) shall be so monitored.

V - EXPOSURE CONTROL AND POTASSIUM IODIDE DISTRIBUTION / ADMINISTRATION

A. Exposure control measures will be utilized to assure that the accumulated doses of emergency workers remains as low as reasonably achievable and not to exceed the EPA Protective Action Guide of:

- 1 Rem Call In Value
- 2.5 Rem Turn Back Value
- 5 Rem for life saving or protection of large populations when lower dose is not practicable
- >5 Rem for life saving or protection of large populations only on a voluntary basis to persons fully aware of the risks involved

DO NOT USE PREGNANT ADULTS AS EMERGENCY WORKERS

B. The following devices will be used to maintain adequate exposure control.

1. 0-20R or 0-5R self reading dosimeters, TLD.

(a) Emergency workers shall:

- (1) Keep dosimeters on your person while on duty.
- (2) Charge dosimeters before initial use and record reading.
- (3) Read dosimeter every 30 minutes; if movement is indicated, read every 10-15 minutes.
- (4) If accumulated doses exceed 1R, notify supervisor and await instructions.
- (5) If reading is off-scale for any dosimeter; record, notify supervisor, charge dosimeter and await instructions.

VI - RADIATION EXPOSURE LIMITS - EMERGENCY ONLY

- (a) Call In value: 1R
- (b) Turn Back value: 5R
- (c) By Special Approval: Up to 5R
- (d) Volunteer ONLY for life saving or protection of large populations:
>5R.
- (9) Complete all record forms and keep personal record of accumulated dose, and notify Supervisor of each increase in your accumulated exposure at end of work shift or as directed.
- (10) At conclusion of assignment:
 - (a) Read dosimeter.
 - (b) Record date, time, and actual reading.
 - (c) Subtract initial reading from final reading.
 - (d) Record the resultant exposure.
 - (e) Add A.1.a.10.d to accumulated exposure.
 - (f) Record the accumulated exposures.
 - (g) Compare to guides and limits listed in A.1.a.8.

- (h) Charge dosimeter.
 - (i) Complete any record forms and keep personal Exposure Record.
2. Thermoluminescent Dosimeters (TLD's) will be distributed to emergency workers by Gaston County Emergency Management Office. TLD's will be returned to by the Emergency Management Office at the conclusion of the incident. TLD's will be read and dose levels analyzed by the North Carolina Division of Radiation Protection (DRP).
3. Emergency workers wearing self-reading dosimeters and TLD's shall:
- a. Wear the self-reading dosimeter and TLD on the front of the body between the neck and waist.
 - b. Wear the self-reading dosimeter outside clothing, including protective clothing to allow easy access for reading dosimeter.
 - c. Wear TLD on the first layer of clothing. The TLD should not be worn outside protective clothing.
 - d. Wear TLD with front side facing away from body. The company name and serial number will be printed on the front side. The TLD should be attached with the spring loaded clip in such a manner to secure the TLD during normal work activities.
 - e. Be assigned the same TLD for the duration of the radiation incident or until a switchout for a new TLD is recommended by the appropriate agency. The transfer of a TLD to another emergency worker is prohibited.
 - f. Wear a simulated TLD for exercises to simulate that portion of the emergency plan. TLD's will not be worn for exercises or drills.
- C. Potassium Iodide (KI) will be distributed to emergency workers as a blocking agent for the uptake of radioactive iodine by the thyroid.
1. Distribution:
- a. Will distribute KI to Emergency workers at predetermined staging areas.
2. Administration:
- a. It is the responsibility of the Director of Gaston County Health Department and/or State Health Director to recommend when KI should be self-administered. This

recommendation will be based on a suspected, projected, or confirmed total thyroid exposure of 25 Rem or greater.

- b. The dose amount will be provided at time of instruction
- c. Information of KI use and side effects on found in Attachment 1.

VII. Communications

A. Communications will be established between the EMS Ambulance and County EOC upon arrival at the Staging Area via Radio-equipped EMS vehicles.

B. The primary means of communications between EMS personnel and receiving Hospital is Radio-equipped EMS Vehicles.

VIII. Records

A. EMS personnel will maintain adequate records relative to individual exposure and personnel monitoring.

1. Individual exposure records will be maintained by each emergency worker. These records will be maintained on standard forms provided by the County Emergency Management Office and will be maintained in the manner prescribed by the training programs and as repeated in the instructions listed on the form.

2. Personnel monitoring records will be maintained by the Radiological Monitor team on each injured person. These records will be maintained on standard forms provided by the County Emergency Management Office and will be maintained in the matter prescribed by the training programs and as repeated in the instructions listed on the form.

B. The EMS Team will turn in all records and forms to the immediate supervisor. The supervisor will collect all forms and turn them into the County Emergency Management Office. All records and forms become a part of the official documentation of any accident or incident and will be maintained as such by the County Emergency Management Office.

IX. Protective Clothing Procedures For EMS

A. Protective clothing dressing procedures will be performed as follows:

- 1. Attach a TLD to the shirt or dress collar.
- 2. Don a tyvek suit and zip it up or tie it as required.
- 3. Don plastic shoe covers and tape them to the tyvek suit legs. Fold the end of the tape over

on itself to make a tab to grasp when removing the protective clothing.

4. Put on one pair of surgical gloves and tape them to the sleeves of the tyvek suit. Fold the end of the tape over itself to make a tab to grasp when removing the protective clothing.

5. Put on a second pair of surgical gloves over the first pair. DO NOT tape these to the suit. They will be removed if contaminated and a new pair put on to continue duties and maintain contamination control.

6. Attach 0-20 R or 0-5 R dosimeter to outside of tyvek suit.

B. EMS Protective clothing removal procedures will be performed as follows:

1. Stand in an area where the tyvek suit can be easily removed and is directly adjacent to the step-off pad.

2. Remove the dosimeters from the tyvek suit, record readings. Place dosimeters in a plastic bag.

3. Unzip or untie the tyvek suit.

4. Remove the tape around the inner pair of glove and booties and place in container.

5. Remove the outer pair of surgical gloves and place them in the container.

6. Pull the tyvek suit down by grabbing the inside and pulling it down toward the waist by rolling it inside out.

7. Roll the tyvek suit down (turning inside out) to the ankles.

8. Step out of the tyvek suit and shoe covers and step on the inside of the tyvek suit.

9. Step on the step-off pad and place the suit in the container.

10. Remove the inner gloves and place them in the container.

11. Be monitored before leaving the step-off pad.

12. Remove TLD and give it to your supervisor.

X. Monitoring a Contaminated Injured Person

A. Monitoring an injured person can be done simultaneously with other emergency medical procedures provided there is no interference with needed emergency care.

B. Monitoring an injured person guidelines will be performed as follows:

1. Use a hand held monitor or equivalent.
2. Utilize protective clothing (gloves, shoe covers, tyvek suits, etc.) to prevent personal contamination. Refer to the "Protective Clothing Procedures".
3. Before entering the injured person area, perform an operation check of the instrument.
4. Determine the background readings in the area and record. The Action Level is 300 Counts per Minute (CPM).
5. Ensure that the probe is fully covered with Saran wrap. Ensure that there is no loose hanging wrap.
6. Hold the probe approximately 1 (one) inch from the injured person's skin and systematically survey the entire body from head to toe. Move the probe slowly (approximately 1 (one) inch per second) and pay particular attention to wounds, orifices, body folds, hairy areas and hands.
7. Complete the Personnel Monitoring Documentation Form.

Attachments:

- 1 - Possible Side Effects of Use of KI

Attachment 1
POTASSIUM IODIDE INSTRUCTIONS
(KI)

KI will be distributed to emergency workers as a blocking agent for the uptake of radioactive iodine by the thyroid.

This compound has been determined to be effective in preventing long-term development of abnormalities of the human thyroid gland as a result of exposure to radioactive iodine.

KI should be taken under the following circumstances:

- a. When radioactive exposure is imminent or has actually occurred.
- b. When the level of radioactive iodine exposure to the thyroid gland is 25R or greater.

KI may be taken by all emergency workers except those who may be allergic to iodine salts (iodide).

Side effects to KI include:

- a. Skin rashes.
- b. Swelling of salivary glands.
- c. Iodism (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and possibly stomach upset and diarrhea).
- d. Over activity, under activity, or enlargement of the thyroid gland (goiter). (This side effect is rare.)

More serious allergic reactions to KI include:

- a. Fever and joint pain.
- b. Swelling of parts of face and body.
- c. Occasionally severe shortness of breath requiring immediate medical attention.

Side effects may occur when higher doses are taken for long periods of time. Only the recommended dose should be taken.

Dose:

- a. KI is supplied in a blister pack of 2 white, round, scored tablets containing 130 mg. KI.
- b. The dose should be one (1) tablet per 24 hours or as instructed.
- c. Self-administration of KI is voluntary