MEDICAL DRILL REPORT

RIVER BEND STATION

Licensee:	**Entergy Operations, Inc.**
Exercise Date:	**September 15, 1999**
Report Date:	**September 23, 1999**

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION VI

800 North Loop 288
Denton, Texas 76201-3698

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1. EXECUTIVE SUMMARY

On September 15, 1999, a medical drill was conducted in St. Francisville, Louisiana to satisfy the Federal guidance requiring annual medical drills around fixed nuclear power plants. West Feliciana Parish Hospital and West Feliciana Parish Emergency Medical Service (EMS) participated in the drill in cooperation with River Bend Station, which is operated by Entergy Operations, Incorporated. Both the hospital staff and the ambulance crew responded to a simulated accident at River Bend Station involving an injured and contaminated worker.

Two evaluators from the Federal Emergency Management Agency, Ernest Boaze and Marilyn Boots, observed the drill and this report presents their observations of the responders actions related to the simulated emergency. FEMA objectives 1 (activation/mobilization), 4 (communications), 5 (emergency worker exposure control), 20 (EMS transportation), and 21 (hospital, facilities, and treatment) were evaluated. All objectives were adequately demonstrated and there were no Deficiencies or Areas Requiring Corrective Action (ARCAs) identified during the drill.

II. EXERCISE EVALUATION AND RESULTS

A. West Feliciana Parish Emergency Medical Service

The West Feliciana Parish EMS is on call 24-hours a day at the West Feliciana Parish Hospital. The EMS staff responds to dispatch by the police department. The ambulance radio serves as the primary means of communication with a mobile telephone and portable radios as backups.

On September 15, 1999, the hospital received a call from River Bend Station (RBS) requesting pickup of an injured worker. The call was received over the regular telephone line to the hospital instead of the dedicated line from RBS. The Charge Nurse dispatched the ambulance crew in person at 8:32 a.m., as the radio dispatch from the Nurses' Station was not received on the EMS portable radio. The crew picked up a working portable radio before leaving the hospital. The ambulance crew consisted of a paramedic and an emergency medical technician (EMT). The ambulance left the hospital, and the driver made initial contact with the hospital staff at 8:34 a.m. The Charge Nurse contacted the ambulance at 8:41 a.m. seeking a report on the patient's condition. No report was yet available. The crew provided an initial patient report at 8:42 a.m. stating that the patient had a neck laceration and was possibly unconscious. At 8:55, the crew called with a patient update, reporting that there was contamination on the hands and neck of the patient and that he was responsive to pain. The crew estimated arrival at the hospital within 7 minutes. The ambulance arrived at 8:58 a.m.

A RBS Health Physicist Technician (HP) accompanied the patient in the ambulance to the hospital and into the radiological emergency area (REA). The patient was wrapped to control the spread of contamination. Upon arrival at the controlled entrance to the REA, the crew and HP briefed the hospital staff on the patient's condition and the transfer was efficiently accomplished. A second RBS HP arrived with the ambulance and assumed monitoring responsibilities for the ambulance crew, vehicle, parking area, and walkway to the REA.

The HP approached the crew waiting at the back of the ambulance, monitoring the Herculite covering the parking area where they were standing. No contamination above background was found. The HP completed monitoring the crew, which included a whole body survey. Contamination was found on the EMT's right hand (350 cpm), and the HP directed removal of the glove to avoid spreading the contamination. The HP remonitored the EMT's hand and found no further contamination. The HP removed the gloves for disposal with the items from the REA. The HP surveyed the gurney and moved into the ambulance. Contamination was found on the handset of the mobile phone (350 cpm). Using alcohol swipes, the HP was able to decontaminate the handset. No other contamination above background was found in the back of the ambulance. The HP continued surveying the parking area around the ambulance and then the Herculite on the walkway up to the REA. No contamination above background was found. The HP used an Eberline Model E-140N survey meter with pancake probe that was calibrated on June

25, 1999. The HP stated that the plant's survey meters were tested with a check source every night. The HP was very efficient and professional in exercising his responsibilities.

Dosimetry kits were stored on the ambulance. Prior to arrival at the plant, the paramedic zeroed the direct-reading dosimeters (DRDs), CDV-742 and CDV-730. Record logs were provided to the crew by the plant's medical staff at the patient pickup site. Each crewmember wore a Thermoluminescent dosimeter (TLD), and 2 DRDs, with ranges of 0-200 mR and 0-20 R. The HP collected the dosimetry and recorded all required information on the record log previously provided to the crew. The crew wore one set of gloves, but decided that wearing two sets would be preferable for subsequent potential radioactive events and drills.

After completing his monitoring, the HP sought approval from the hospital's Radiological Safety Officer (RSO) to release the ambulance. No RSO was designated, so the HP released the ambulance and crew to return to service at 9:22 a.m. The HP stated that he would then close and lock the outside door to the REA in order to enclose and contain any contamination.

The drill was terminated at 9:52 a.m. following conclusion of activities in the REA.

In summary, the status of FEMA exercise objectives for the West Feliciana Parish Emergency Medical Service is as follows:

a. **MET:** Objectives 1, 4, 5, and 20

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ISSUES – RESOLVED:** NONE

f. **PRIOR ISSUES – UNRESOLVED:** NONE

B. West Feliciana Parish Hospital

The medical drill was initiated with a telephone call from the River Bend Station at 8:26 a.m. The caller requested an ambulance for the transport of an injured and possibly contaminated individual. The injured employee was to be transported to West Feliciana Parish Hospital in St. Francisville, Louisiana. The caller did not provide patient vital signs or a callback telephone number.

Communications with the ambulance was accomplished using radio (primary) and cellular telephone (secondary). Both primary and secondary means of communication were tested and both worked properly. The ambulance crew communicated patient vital signs to the hospital while en route from the plant and gave the charge nurse an ETA.

The charge nurse immediately dispatched an ambulance with a crew of two to respond to the request for medical transport to the hospital. No calldown of responders was required, as they were all already on duty at the hospital. The hospital maintenance crew immediately began preparing the outside area and the REA for the arrival of the ambulance. All preparations were complete by approximately 8:40 a.m. A nurse zeroed and distributed dosimetry to herself, one doctor, and two other nurses. Initial readings were taken and recorded. Dose record cards contained the emergency worker name, date, serial number of the dosimeter, initial reading, time read, and ending reading. Each was issued a 0-200 mR DRD and a TLD. Ring dosimeters were available, but were not issued. All REA staff donned booties, gloves and anti-C clothing.

The ambulance arrived at the hospital at approximately 8:58 a.m. An HP from the plant accompanied the patient in the ambulance. The EMT briefed the doctor on the patient's condition and the HP briefed him on the location and level of contamination on the patient. Following the turnover briefing, the patient was moved into the REA and transferred to a clean hospital gurney.

The staff inside the REA included a doctor, two nurses, and a HP. The REA staff immediately began surveying the patient to ascertain the type and extent of injury and the location and magnitude of contamination. The hospital did not have a Radiological Safety Officer so the plant HP assisted with the radiological survey of the patient. He used an Eberline 7705 Survey Meter that was last calibrated on May 5, 1999. He also paid very close attention to the actions and movement of the REA staff so that the possibility of cross-contamination could be either eliminated or controlled. Any time a staff member came into contact with the contaminated area of the patient the HP did a survey to see if the staff member had picked up any contamination. If so, steps were taken to control cross-contamination. This was normally a change of gloves.

Emphasis was put on keeping any possible contamination in the REA and controlling any transfers of equipment or supplies between the Buffer Zone and the REA. The Buffer Zone Nurse did an excellent in directing all activities between the two areas. A portable Xray machine was used to demonstrate the control of contamination. An HP from the

plant assisted in the Buffer Zone to control cross-contamination. He surveyed anything that was passed from the REA to the Buffer Zone.
Following the decontamination and medical treatment, the patient was placed on another clean hospital gurney to be moved to a hospital room for further observation and treatment for his injuries. A clean covering was placed on the REA floor so that the clean hospital gurney could be brought into the REA without picking up contamination.

After the patient was transferred from the REA to the hospital area, the REA staff demonstrated their step-off procedures. The HP surveyed the REA for contamination, after which the drill was terminated. Had there been any contamination on the floor, RBS would have removed the carpet, disposed of it, and replaced it with new carpeting. Following the drill, a short critique was held in the hospital cafeteria.

In summary, the status of FEMA exercise objectives for the West Feliciana Parish Hospital is as follows:

b. **MET:** Objectives 1, 4, 5, and 21

b. **DEFICIENCY:** NONE

c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

d. **NOT DEMONSTRATED:** NONE

e. **PRIOR ISSUES – RESOLVED:** NONE

f. **PRIOR ISSUES – UNRESOLVED:** NONE

APPENDIX 1 SCENARIO AND TIMELINE

The following pages contain the objectives, scenario, and timeline as presented by the State of Louisiana Department of Environmental Quality and duplicated for this report.

RADIOLOGICAL EMERGENCY MEDICAL DRILL SCENARIO
RIVER BEND STATION
WEST FELICIANA PARISH HOSPITAL
AND
WEST FELICIANA AMBULANCE SERVICE

River Bend Station (RBS) will be conducting the annual FEMA Evaluated Medical Exercise at West Feliciana Parish Hospital on Wednesday, September 15, 1999. The Exercise will start at 8:00 AM, at the plant. The ambulance service providing transportation for the victim will be the West Feliciana Parish Ambulance Service. River Bend will need on FEMA evaluator for this demonstration. If you determine that two FEMA evaluators are necessary, that will be acceptable to us. The extent of play is as follows:

- The exercise will be initiated by a call to West Feliciana Parish Hospital by a River Bend Station Emergency Planner in the Control Room. The Hospital will be given the victim's name, sex, age, location, extent of injuries, and that the victim is contaminated.

- The Ambulance Service will pick up the Victim at the Sally Port entrance to the plant. RBS Emergency Planning personnel will perform Exercise Controller functions as well as support functions not evaluated by FEMA.

- Victim clothing removal will be simulated. Decontamination demonstrations will be preformed on a portion of the body normally unclothed.

- Intrusive bioassay samples will be simulated.

RADIOLOGICAL EMERGENCY MEDICAL DRILL SCENARIO
RIVER BEND STATION
WEST FELICIANA PARISH HOSPITAL
AND
WEST FELICIANA AMBULANCE SERVICE

I PROPOSED SCHEDULE

DATE:	September 15, 1999
TIME:	8:00 AM
LOCATION:	River Bend Station & West Feliciana Parish Hospital
INJURY/ILLNESS:	Fall victim

II PURPOSE

This simulated radiation medical emergency is being conducted in order to exercise the emergency medical response of West Feliciana Hospital and the responding West Feliciana Parish Ambulance Service.

III. EXERCISE OBJECTIVES

West Feliciana Parish Ambulance Service

Objective 1	MOBILIZATION OF EMERGENCY PERSONNEL - Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.
Objective 4	COMMUNICATIONS - Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.
Objective 5	EMERGENCY WORKER EXPOSURE CONTROL - Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Objective 20	MEDICAL SERVICES TRANSPORTATION - Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals.

WEST FELICIANA PARISH HOSPITAL

Objective 1	MOBILIZATION OF EMERGENCY PERSONNEL - Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.
Objective 4	COMMUNICATIONS - Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.
Objective 5	EMERGENCY WORKER EXPOSURE CONTROL - Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.
Objective 21	MEDICAL SERVICES FACILITIES - Demonstrate the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

Medical Drill Scenario
Contaminated, Injured Person

Approximate Time:

0800

Location:

- 65' Level, Radwaste Building

Description:

An individual investigating the radiation alarms in the Radwaste Building near Phase Separator Tank TK-6B slips, falls and is injured and contaminated with spilled resins and water. The individual will be found on the floor, unconscious, and bleeding slightly from a head wound. Based on the individual's condition and vital signs, the First Responders should make the decision to transport without decontamination. **(Note: This is no longer a NOUE)** Individual will be transported to the hospital where FEMA will observe hospital activities in accordance with the stated objectives.

Pre-Staging:

The Medical Drill Controller and the simulated casualty will be pre-staged in the Radwaste Building prior to 0800. It is intended that the victim be on the 65' level; however the Controller should be sure to avoid any actual radiation exposure in conducting this drill.

Sequence of Events:

0750 Tank TK-6B ruptures spilling a full tank of resins on the floor and in the floor drains. Area Radiation Monitors alarm.

0755 Radiation Protection (and Radwaste Operators) are dispatched to investigate the Monitor alarms.

0800 An individual slips, falls and is injured and contaminated.

0805 Activate First Responders.

0810 First Responders arrive and evaluate injury. Decision should be reached to transport as soon as possible, without prior decontamination. Injury and contamination data is provided on Attachments SS-1-1 and SS-1-2.

Controller Information:

No times have been established on the Messages. It is the Controller's responsibility to ensure that the drill proceeds as expected.

Ensure that the injured individual is discovered by about 0800.

Do not provide information concerning the injury or contamination levels until actions have been taken by the First Responders and Radiation Protection Technician to obtain the information.

The decision should be made to transport the individual immediately without prior decontamination. The Controller must ensure that this decision is made.

The victim will be transported to West Feliciana Parish Hospital by WFP Hospital Ambulance Service and the drill will be continued there according to procedure.

Observe and critique he entire drill, including the hospital portion, provide critique comments and any weaknesses or improvement items to the Manager Emergency Preparedness upon returning to the Site.

Restoration Guidelines:

The victim will be treated and decontaminated at the hospital. The attending physician will decide to keep the individual overnight for observation but otherwise the individual is in good condition and has been completely decontaminated.

End of Medical Drill

Medical Drill Scenario
Controller Information

Medical Drill Controller

When the First Responders arrive on the scene, provide information concerning the victim and the surroundings. Injury site is obvious from moulage.

-Several Radwaste area monitors are alarming.
- Victim is unconscious
- Clothing is wet in several places
- Resins are scattered all over the floor
- Attachment SS-1-1 provides medical information

First Responders should promptly request RP support, if not already present. If this is not done within a short time, prompt the team and note this as an improvement item.

When RP Tech monitors area the **general area exposure rate is 10 mR/hr.**

Victim will have to be moved out of immediate area before contamination surveys may be performed. Contamination survey data is provided on **Attachment SS-1-2**

Ensure that the RP Technician accompanying the injured individual to the hospital provides feedback to the Emergency Director or Recovery Manager on the victim's condition and contamination status. The simulator OSS number is 3354.

CONTROLLER MESSAGE

Accident Scene Radiological Information Number: FA-2

//

THIS IS A DRILL

DO NOT initiate actions affecting normal plant operations.

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RADIATION SURVEY RESULTS

- General Area Survey = As found.
- General contamination readings on injured man = <1 mR/hr.
- GENERAL AREA SMEARS = As found.
- Injured's pocket dosimeter = As found.
- AIR SAMPLE = As found.

Controller Note: Issue data message only after Health Physics Technicians have started survey.

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THIS IS A DRILL

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CONTROLLER MESSAGE

Medical Information Number: FA-3

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THIS IS A DRILL

DO NOT initiate action affecting normal plant operations.

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Phase 1
Discovery

Patient complains of moderate pain at injury site. Minimal bleeded noted.

Phase 2
First Aid Team Arrival

Pulse: 90, strong
Resp.: 24, regular
B.P.: 106/70
Skin: pale, warm, dry

Phase3
EMS Arrival

Vitals Unchanged

Phase 4
EMS Transport

Pulse: 88, strong
Resp.: 20, regular
B.P.: 112/74
Skin: color good
warm, dry

Phase 5
Hospital Arrival

Vitals Unchanged

Phase 6
Hospital Treatment

Pulse: 92, strong
Resp.: 122, regular
B.P.: 118/78
Skin: color good
warm, dry

//

THIS IS A DRILL

//

CONTROLLER MESSAGE

Hospital Radiological Data Number: FA-4

THIS IS A DRILL

DO NOT initiate actions affecting normal plant operations.

Patient Arrival

if not removed	Clothing:	<1 mR/hr.
	Hands:	<1 mR/hr.
	NECK WOUND	<1 mR/hr.
	Face: (right)	<1 mR/hr.

After 1st Decontamination

Clothing:	removed
Hands:	1,000 cpm
Face:	1,500 cpm
NECK Wound	3,000 cpm

After 2nd Decontamination

Hands:	Background
Face:	Backgound
NECK Wound	1,000 CPM

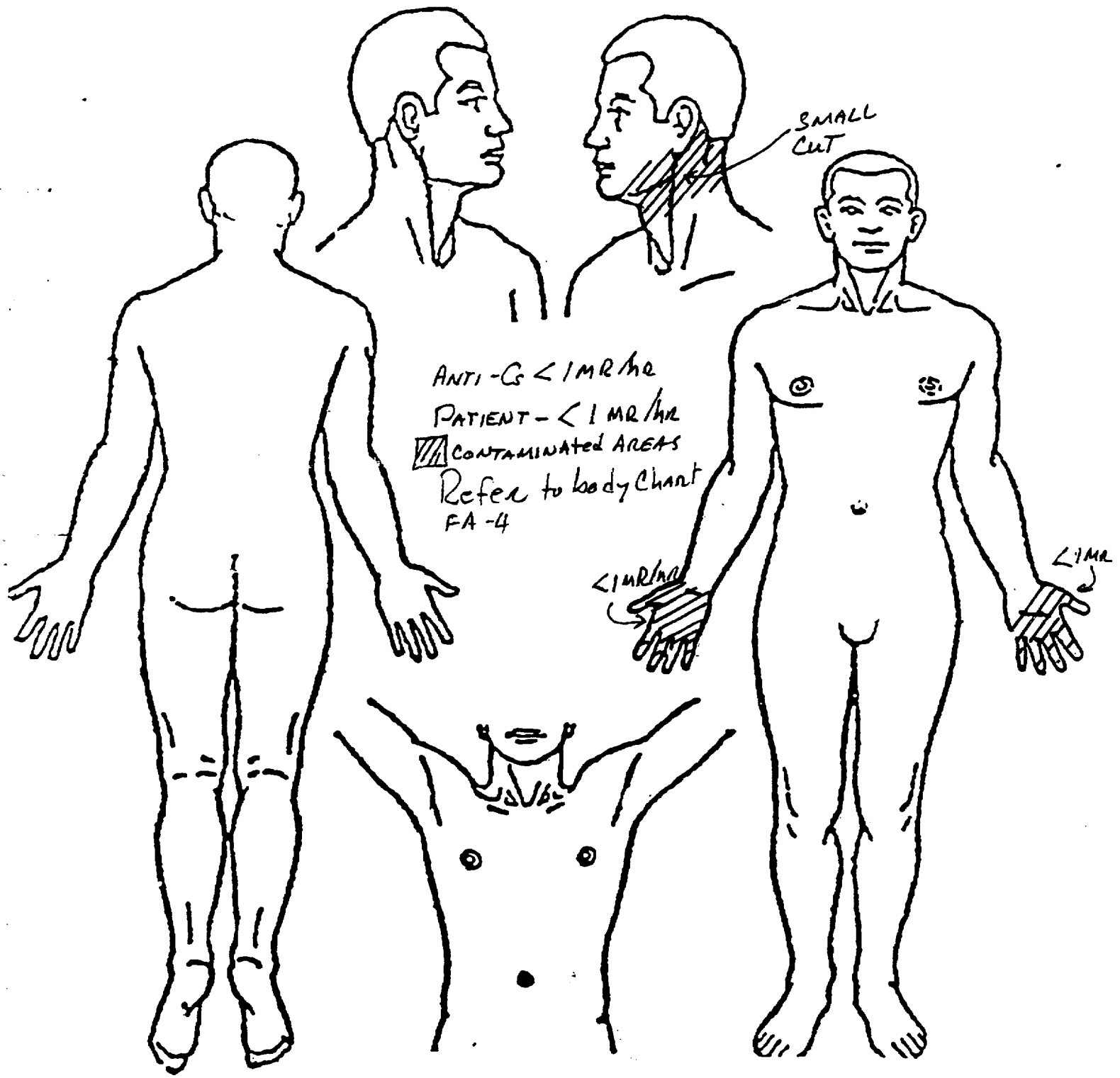
After 3rd Decontamination

All areas background 60 cpm

THIS IS A DRILL

PATIENT NAME _____ NUMBER FA-5

Directions: indicate levels of contamination on the corresponding body part.



CONTROLLER MESSAGE

Number: FA-6

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THIS IS A DRILL

DO NOT initiate actions affecting normal plant operations.

//

MEDICAL EXERCISE IS TERMINATED

Controller Note: Issue message only is authorized by Lead Controller.

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THIS IS A DRILL

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