U.S. Department of Homeland Security
Region V
536 South Clark Street, Floor 6
Chicago, IL 60605

FEMA

NRC Headquarters Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

To Whom It May Concern:

Enclosed is one copy of the Clinton Power Station Medical Services (MS-1) Drill Report. The drill was conducted in Bloomington, Illinois, on October 23, 2008. Participants included members from the Illinois Emergency Management Agency, Bloomington Fire Department Ambulance Service, and the OSF St. Joseph's Medical Center.

No Deficiencies and no Areas Requiring Corrective Action were identified during this drill.

Based on the results of the October 23, 2008, MS-1 drill, the offsite radiological emergency response plans and preparedness for the State of Illinois and affected local jurisdictions, site-specific to the Clinton Power Station, can be implemented and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site.

Therefore, the Title 44 CFR, Part 350, approval of the offsite radiological emergency response plans and preparedness for the State of Illinois site-specific to the Clinton Power Station, granted on August 3, 1987, remains in effect.

Copies of this Report were transmitted to the DHS/FEMA National Office, Nuclear Regulatory Commission (NRC) Region III, NRC Office of Nuclear Security and Incident Response, and the State of Illinois.

If you have any questions, please contact William E. King, Chairman, Regional Assistance Committee, DHS/FEMA Region V, at (312) 408-5575.

Sincerely,

Edward G. Buikema
Regional Administrator

Enclosure (1)

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FEMA

Final Medical Services (MS-1) Drill Report

Clinton Power Station

Licensee:	Exelon Corporation
Exercise Date:	October 23, 2008
Report Date:	November 4, 2008

U.S Department of Homeland Security
Federal Emergency Management Agency
Region V

536 South Clark Street
Chicago, Illinois 60605 – 1521

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I. EXECUTIVE SUMMARY

On October 23, 2008, the U.S. Department of Homeland Security's (DHS) Federal Emergency Management Agency (FEMA), Region V, evaluated a Medical Services (MS-1) drill in the 10-mile plume exposure pathway Emergency Planning Zone (EPZ) around the Clinton Power Station (CPS). The purpose of the MS-1 drill was to assess the ability of off-site agencies to respond to a medical emergency involving a potentially radiological contaminated member of the public. The MS-1 drill was held in accordance with DHS/FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans.

DHS/FEMA wishes to acknowledge the efforts of the personnel from the State of Illinois Emergency Management Agency (IEMA), Bloomington Fire Department Ambulance Service, and the OSF St. Joseph's Medical Center who participated in the MS-1 drill.

The scenario for the MS-1 Drill was developed by personnel from the State of Illinois. The Clinton Nuclear Power Station had declared a general emergency. The emergency alert sirens had sounded, and the public was directed to evacuate affected areas and to report to reception centers set up in the local area. The scenario is based on an individual that was an evacuee driving to the Horton Field House. While in route to the reception center the individual's car over heats, the individual stops at the roadside, opens the car hood and gets her left arm sprayed with hot steam causing a second degree burn on the bottom of the left forearm. Another evacuee sees the accident and drives the person to the reception center. Radiological monitoring and, if necessary, decontamination, of evacuees is provided for at these facilities by staff from IEMA under the Illinois Plant for Radiological Accidents (IPRA). The individual enters the reception center holding her arm and explains the accident to reception staff members, while an ambulance is contacted to transport the individual to the hospital. The individual is surveyed while waiting for the ambulance and contamination is detected. The individual will be transported to OSF St. Joseph's Medical Center.

The State and local organizations demonstrated knowledge of their organizational emergency response plans and procedures and adequately implemented them. No issues were identified as a result of this drill.

II. DRILL NARRATIVES

Medical Services (MS-1) Transportation – Bloomington Fire Department Ambulance Service

On Thursday, October 23, 2008, a Medical Services (MS-1) Drill was conducted at the OSF St. Joseph's Medical Center, 2200 East Washington Street, Bloomington, Illinois. In accordance with the extent of play agreement, the ambulance and crew from the Bloomington Fire Department Ambulance Service, from Bloomington, Illinois, and an Illinois Emergency Management Agency (IEMA) Radiological Monitor (RM), assigned to provide services at the simulated reception center and in the ambulance, participated in the MS-1 Transportation drill.

The scenario for the MS-1 Drill was as follows: The Clinton Power Station had declared an Emergency Classification Level of General Emergency. The emergency alert sirens had sounded, and the public was directed to evacuate affected areas and to report to reception centers set up in the local area. An evacuee was driving to the Horton Field House Reception Center. While en-route to the reception center the individual's car over heated. The individual stopped at the roadside, opened the car hood and got his arm sprayed with hot steam causing a second degree burn on the bottom of the forearm. Another evacuee saw the accident and drove the person to the reception center. Radiological monitoring and decontamination of evacuees was provided for at these facilities by staff from IEMA under the Illinois Plan for Radiological Accidents (IPRA). The individual entered the reception center holding his arm and explained the accident to the receptions staff members. An ambulance was contacted to transport the individual to the medical center. The individual was surveyed while waiting for the ambulance and contamination was detected. The individual was transported to the OSF St. Joseph's Medical Center.

For demonstrations purposes, the IEMA RM readied the survey equipment that would be used during the drill and all equipment was inventoried by the evaluator. These actions occurred in an area adjacent to the Emergency Department at the OSF St. Joseph's Medical Center prior to the arrival of the victim and after the drill ended. Instruments were brought to the medical center by the IEMA RM in a silver case marked Hospital 1. The survey instrument used by the IEMA RM was a Ludlum 2241-3 digital scalar/rate meter with a Model 44-9 Pancake probe last calibrated on August 20, 2008, with the next calibration due on August 20, 2009. The IEMA RM checked the meter to ensure that batteries were installed. The probe was secured in a plastic bag to protect it from contamination. Additional bags and fresh batteries were available, if needed. Also available was a Bicron Micro-R meter, last calibrated on August 19, 2008, and due for calibration on August 19, 2009, headphones and two additional probes (Model 43-65 Alpha and Model4410 2x2 Nal).

The survey meter was turned on and allowed to warm up. The instrument passed an operational battery test and a source response check. A source was imbedded in the side of the carrying case used to transport the equipment. The source used was a 10uCi CS-137 Source dated November 2005. The operability check exposure rate and count rate were

recorded on a label affixed on a side of the instrument (Ludlum 2241-3 was 20.2-33.8 kcpm and the Bicron Micro-R meter was .9-1.5mR/hr).

The metal carrying case included a personal dosimetry kit. The kit included the following: a Dosimeter Corporation of America Model 622 Direct-Reading Dosimeter (DRD) with a range of 0-20 R (calibration records submitted with the Annual Letter of Certification); a permanent reading Landauer Optically Stimulated Luminescent Dosimeter (LD) with an effective date of July 2008 – June 2010; a Radiation Exposure Record card with space to record user information; an instruction sheet describing use and precautions for ingesting potassium iodide (KI); and 14 doses of iOSAT KI provided by Ambex in 130 mg tablets individually sealed with an expiration date of June 2007. A printed card inside the kit advised the user that the KI was tested and the drug was found to be viable so the expiration date was extended until June 2009. A copy of the extension letter would have be kept in the command vehicle located at the reception center from which the IEMA RM would be dispatched. A copy of the letter, which extended the expiration date to June 2009, was received by DHS/FEMA Region V.

The IEMA RM also carried a red duffel bag that contained additional equipment such as personal dosimetry, and other support supplies: disposable gloves, scrubs, hair covers, booties, plastic bags, scissors, forceps, smears, glassine envelopes, face masks, masking tape, yellow "Caution" tape, pens, writing paper and IEMA forms (Reception Center Monitoring/Action Log Form [IEMA 267 (8/05)]. A copy of this form was used during the drill to record patient survey information. During the drill, the IEMA RM wore booties, two pairs of gloves and personal dosimetry.

The IEMA RM explained that the IEMA protocol for the establishment of a reception center included taking background readings in areas used for monitoring and decontaminating evacuees prior to the set up of these areas. The State of Illinois has established a decontamination level of two times background. Reception center readings would be used for to determine patient treatment. For drill purposes, controller inject messages were used to determine these readings.

The drill commenced at 1309 hours, when an evacuee entered the reception center (simulated) went through a portal monitor (simulated) and set off the alarms on the monitor. The evacuee was holding his arm. He started to tell the IEMA RM about the accident and explain that he was in a lot of pain due to a burn on his arm. The IEMA RM determined that an ambulance was needed to transport the evacuee to the medical center for treatment of a contaminated wound. A controller inject simulated a call to the Bloomington Fire Department Central Dispatch and an ambulance was requested to respond to the reception center to transport the evacuee to the medical center. As the IEMA staff processed him through the radiological monitors they discovered that he was contaminated (simulated). As the victim was surveyed by the IEMA RM he indicated that he had an intense pain in his left arm. While waiting for the arrival of the ambulance, the IEMA RM monitored the evacuee using the Ludlum 2241-3 digital scalar/rate meter with pancake probe. The monitoring techniques used were slow and methodical, with proper positioning of the probe for personnel monitoring. Contamination was noted at various locations on the evacuee and

were reported by controller inject as they were earned by the monitor. Reading were as follows: 1200 cpm right side of neck, 1000 cpm pants at waist, 3000 cpm right palm, 2000 cpm left palm, 1200 cpm top left forearm and 1500 cpm bottom of left shoe. Contamination information was documented on a Reception Center Monitoring/Action Log Form.

At 1316 hours, the ambulance crew from the Bloomington Fire Department Ambulance Service arrived at the reception center. The ambulance used for the drill was equipped with a Motorola two-way radio system, which connected the ambulance crew to their 911 center and the medical center. The ambulance crew also had a regional medical channel for communication and cellular telephones that could be used as back-up systems. Drill records indicate that the ambulance crew contacted the OSF St. Joseph's Medical Center at 1309 hours, and informed the center that they were in route to attend to a contaminated patient and they would call in later with more information.

The IEMA RM gave the Emergency Medical Technicians (EMTs) a status of the patient's condition and information gathered prior to the ambulance arrival. The EMTs were informed that they would be treating and transporting a contaminated injured patient. The EMTs put on two pairs of disposable gloves and took caution in their approach to the victim.

The EMTs assessed the patient's level of consciousness, level of pain and vital signs. The victim was mobile. The vital signs obtained indicated the patient was alert and oriented; pulse 130; Blood Pressure (BP) 154/100; Pupils Equal, Round and Reactive to Light (PERRL); and the skin warm and moist. The patient stated he had a history of Chronic Obstructive Pulmonary Disease (COPD) and asthma, and was allergic to Demerol. During the assessment and treatment of the patient, the EMTs and IEMA RM were aware of the areas where they came in contact with the patient. The blood pressure cuff was disposed of in a plastic bag identified for contaminated materials. Frequent checks for contamination on the EMT's gloves and areas in close proximity to the patient were done by the IEMA RM.

As the EMTs were aware that the patient's hands were contaminated, they placed disposable gloves on each hand. The EMTs readied a gurney by draping it with two sheets. The patient walked to the gurney and lay down with assistance from the EMTs. The IEMA RM assisted with the removal of the contaminated right shoe. A bag was placed over the shoe and the shoe removed and contained with in the bag. The patient was mummy wrapped in each of the sheets and secured in place with three patient straps. The bag with the patients contaminated shoe was surveyed. As the outside of the bag was found to be free of contaminated materials, the bag was put on the gurney for transport to the hospital with the patient. It was stated that these contaminated items and the EMT's equipment would be disposed of at the medical center. The EMT's hands and feet were surveyed and the stethoscope and gurney were given a quick survey. All areas were found to be clean. The EMTs then moved the patient to the back of the ambulance and placed him into the ambulance.

For demonstration purposes, an ambulance crew member simulated that his gloves were contaminated. He demonstrated how to remove his gloves and put on clean gloves. He stated that the gloves would be left at the reception center for disposal.

At 1325 hours, the EMTs prepared to transport to the medical center. The EMT riding in the back of the ambulance provided medical care and gathered personal information from the patient, which he communicated to the medical center. Patient treatment received the highest priority. The ambulance crew departed the scene. The IEMA RM rode with the ambulance to the medical center. During the entire demonstration the ambulance crew and the IEMA RM remained aware of potentially contaminated areas, and conducted contamination surveys when contamination was suspected. The ambulance personnel change gloves and place them, and all used equipment, into a hazardous waste bag that indicated that the contents contained contaminated items. Again the EMT changed gloves (simulated) before touching either the patient or equipment when contamination was identified.

At 1328 hours, the EMT communicated the patient's condition with the OSF St. Joseph's Medical Center Emergency Department staff via the Motorola two-way radio in the ambulance. The EMT reported the ambulance was in route with a patient. Information relayed to the medical center included the reason for transfer to the medical center (burn to the right forearm), radiological contamination readings, location of contamination, level of consciousness, and vital signs. The EMTs reported an accurate assessment of the patient's respiratory rate, pulse, skin color, temperature, and blood pressure and patient's history, and treatment in progress. The EMTs gave an estimated time of arrival of between one to two minutes.

At 1329 hours, the Bloomington Fire Department Ambulance Service arrived at the OSF St. Joseph's Medical Center. Documentation indicated that the medical center was informed in advance of the patient's arrival that they would be receiving a contaminated patient picked up at the Horton Field House Reception Center.

The medical center Emergency Department Staff and another IEMA RM assigned to the medical center met the ambulance personnel in the receiving area. The ambulance pulled into the receiving area and the patient was removed from the ambulance. Medical center personnel were briefed on the patient's condition (by the ambulance crew) and the patient was transferred from the stretcher to a gurney using the proper lifting and communication techniques. The ambulance IEMA RM provided the patient's contamination information, which was recorded earlier on a Reception Center Monitoring/Action Log Form, to the OSF St. Joseph's Medical Center and IEMA RM assigned to the Center. The EMTs gave an accurate report of the patient and condition to the medical center staff.

After the patient was transferred to medical center personnel, the EMTs, equipment, and ambulance were surveyed for contamination by the IEMA RM. The ambulance crew and IEMA RM displayed a good awareness for the location of potential contamination. Also surveyed were all locations touched by the EMTs during treatment and monitoring of the patient during transport to the medical center. After survey, one EMT was allowed to retrieve the bag with contaminated materials from the back of the ambulance. Discussion ensued that indicated the bag would be left with hospital personnel for disposal with other generated contaminated waste. The EMT's gloves were surveyed after he touched the bag,

and were found clean. For demonstration purposes, the shoes of one EMT were found to be contaminated. The EMT discussed how he would remove his shoes, put on booties and dispose of the contaminated items. During the drill, all potentially contaminated clothing and equipment was bagged and simulated tagged for transfer to the appropriate receiving agency.

The IEMA RM discussed vehicle monitoring to include all door handles, steps leading into the vehicle, steering wheel, wheels and wheel wells, engine intake, radio, etc. It was stated that it would take about one hour to do a thorough monitoring of the vehicle. A swipe would be taken from any area found to be contaminated. The swipe would be bagged and the sample transferred later to the laboratory. Areas that could be decontaminated with simple cleaning would be cleaned at the medical center and allow the ambulance and crew to be released back into service. The EMTs were advised by the IEMA RM to go to the Emergency Worker Decontamination facility or to the Horton Field House Reception Center for a final monitoring after their mission ended. An IEMA RM would monitor the ambulance receiving area to ensure that the area was clean.

Through interview, the EMTs stated that they knew what locations are designated as monitoring and decontamination facilities in the local area. They would report to one of these locations, or they would call their dispatch center and be told where to go for decontamination in the event they needed this service. They were familiar with the hazards of radiation contamination and the precautions to take to avoid the spread of contamination. Through interview the ambulance crew demonstrated that they were aware of the primary route to the OSF St. Joseph's Medical Center and other medical centers in the area that could treat radiological exposed patients.

All activities described in the demonstration criterion were carried out in accordance with the plan, procedures, and extent of play agreement.

Medical Services (MS-1) Hospital – OSF St. Joseph's Medical Center, Bloomington, Illinois

The treatment of a contaminated injured individual was demonstrated out of sequence at the Order of St. Francis (OFS) St. Joseph Medical Center in Bloomington, Illinois on October 23, 2008, at 1300 hours, for the Clinton Power Station. The St. Joseph Medical Center had appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and medical services to a contaminated injured individual.

At 1309 hours, the Emergency Department Charge Nurse received a heads up notification from the Bloomington Fire Department ambulance informing the Emergency Department that they had been dispatched and was in route to response to the Reception Center to tend to an injured individual that may have been exposed to radioactive material. The notification was received over the Medical Emergency Radio Communications of Illinois (MERCI) communications console. This system incorporates all radio and telephone communications into a single console. There were two commercial telephone lines on the system. One line

was a dedicated telephone number for emergency response that was referred to as the "Bat Line." The other was an unlisted private telephone number that could also be used as needed. The radio system included capability for the State wide radio system with four channels for various local responses. One channel was used by the Bloomington Fire Department and other ambulance services in the area for notifications to the Emergency Department. The initial notification was received over the Bat Line.

The Charge Nurse contacted the medical center switchboard operator after the notification and requested that a "Code Orange Hazmat" announcement be made. At 1312 hours, a hospital wide announcement was made stating that there was a "Code Orange Hazmat Drill in the Emergency Department." The Charge Nurse and staff then initiated a call out for the Nuclear Medicine, Emergency Preparedness Coordinator, Emergency Department Manager, Emergency Department staff, Radiation Safety Officer, the Blooming Fire Department, and Security, in accordance with the Medical Center procedures.

Medical Center staff immediately began arriving in the Emergency Room. Some of the responders were all ready within the Emergency Department and others came from within the Medical Center. Several Bloomington Fire Department personnel were already present. The Fire Department had a training session just prior to the start of the drill. The Illinois Emergency Management Agency (IEMA) would have also been called but they were also pre-staged at the Emergency Department.

Security was present and through interview, would have secured the ambulance bay and redirected any traffic. However, since this was a drill actual barricades were not used and there was no traffic redirected during the drill. The Emergency Department had cones and barricade tape stored within the Decontamination Shower Room and would have been used if needed.

Key members of the Emergency Department staff and personnel manning the Medical Center's Incident Command Center were issued Motorola, Model CP200, 16 channel portable two way radios. Channel two was assigned as the common channel for this incident. The radios were used to relay information between the Incident Command Center, the Emergency Department personnel, and personnel tending to the patient. No problems were noted with the operation of the radios during the exercise.

Maintained on a wheeled cart kept in the Decontamination Shower Room were supplies consisting of barricade tape, cones, step off pads, tape, decontamination supplies, sterile water, wipes, plastic bags for radioactive waste, labels, markers, and protective clothing.

The cart was wheeled out of the Decontamination Room and was placed in an easily accessible location in the foyer of the ambulance receiving bay in to the Emergency Department. The Emergency Department personnel set up the Radiological Emergency Area using barricade tape and cones in accordance with procedures. A Hot Zone was established within the ambulance bay for receiving the patient and extended into the Decontamination Shower Room. A Warm Zone was set up within the Decontamination Shower Room adjacent to the Hot Zone and extended into the Emergency Department ambulance receiving entrance

foyer. A Cold zone was defined as any area outside of the established Hot and Warm Zones. A step off pad was located at the edge of the Warm Zone leading into the Cold Zone and a second step off pad was situated in the Cold Zone across the Warm/Cold Zone boundary adjacent to the step off pad in the Warm Zone. These were used as the exit point from the Hot and Warm Zones.

The Nuclear Medicine Technologist had brought a Ludlum Model 14C survey meter with a Ludlum model 44-9 pancake probe. This was calibrated on December 10, 2007. The instrument was checked for operability using a one micro-Curie Cesium 137 check source which was attached to the instrument. An operability check range of readings (0.9 – 1.2 mR/hr) was listed on the calibration sticker. The instrument correctly responded (1.0 mR/hr) to the check source when checked and functioned properly throughout the drill.

The Nuclear Medical Technician also had his personal occupational permanent record dosimeter (PRD) when he arrived at the Emergency Department. The PRD was a Landauer Luxel Optically Stimulated Dosimeter dated September 1 – October 31, 2008. These are exchange every two months. No other hospital staff had any dosimetry. This location is well outside of the Emergency Planning Zone and dosimetry is not required.

The IEMA Representative was present to provide technical assistance, who also had instrumentation. He had a Bicron MicroRem Meter calibrated on April 15, 2008. The calibration sticker had a range of readings (1.0-1.6 mRem/hr) for an operability check. The Cesium 137 check source was attached to the side of the instrument case. The instrument was checked for operability with a reading of 1.4 mRem/hr. The instrument was primarily used to monitor background readings and functioned without any problems throughout the exercise. The IEMA Representative also had a Ludlum Model 2241-3 survey meter with three separate probes, calibrated on April 16, 2008. The three probes were a Model 44-9 Pancake probe, a Model 4410 2x2 NaI probe, and a Model 43-65 Alpha probe. The instrument was checked for operability using the Model 44-9 pancake probe, which was used for monitoring the patient, equipment, and supplies throughout the exercise. The calibration sticker had a range of readings for each of the probes. The instrument functioned without any problems through the exercise.

The IEMA Representative also had a Dosimeter Corporation of America Direct Reading Dosimeter, Model 622 with a range of 0-20R (serial number 2090331). There was not a calibration sticker attached as all the calibration records were submitted with the annual Letter of Certification. The DRD was zeroed prior to use. Along with the DRD, the IEMA Representative also had a Landauer In Light Systems Optically Stimulated Dosimeter. This was dated July 2008 to June 2010 and is exchanged every two years.

The IEMA Representative had one packet of iOSAT with 14 tablets of 130 milligram of potassium iodide (KI). The packet had an expiration date of June 2007 but a card contained with the KI indicated the life had been extended and the letter of extension had been previously submitted to FEMA and was contained in the Annual Letter of Certification. The IEMA representative was knowledgeable of the reasons for taking KI, dosage and side effects. An iOSAT information sheet was included with the packet of KI. Hospital staff did

not have KI at this location, which is well outside of the Emergency Planning Zone.

During the setup of the patient receiving area, the Nuclear Medicine Technologist and the IEMA Representative measured the background readings. The measured background was 0.02 mR/hr or about 30 counts per minute. Both the Nuclear Medicine Technician and the IEMA Representative knew the level to determine if contamination was present as was twice background.

All personnel tending to the patient were dressed in protective clothing. All personnel donned booties, lab coat, double gloves, hats, masks and face shields. These were all stored in containers on the cart maintained in the Decontamination Shower Room.

The ambulance contacted the Charge Nurse to provide an update of the patient's medical condition, contamination readings and location of contamination. The Charge Nurse recorded the information and provided a briefing to the hospital staff prior to the arrival of the ambulance. The ambulance arrived in the ambulance bay at 1329 hours.

At 1331 hours, the patient was transferred by gurney from the back of the ambulance to the area marked at the Hot Zone in the Ambulance Bay. Inside the Hot Zone, the Medical Center staff wheeled another gurney to Hot Zone boundary adjacent to the ambulance gurney. The ambulance staff provided an update of the patients condition to the Medical Center staff. One of the ambulance crew members passed a "Reception Center Monitoring/Action Log Form" (which contained a body map showing the areas contaminated and the levels of contamination) to one of the Emergency Department nurses. The IEMA Representative monitored the form prior to the nurse taking possession to ensure it was not contaminated.

The Emergency Department doctor made an analysis of the patient to determine the extent of injuries. The injuries were determined not to be life threatening, so the patient was wheeled into the Decontamination Shower Room for monitoring and decontamination. The Emergency Department Doctor, in the Decontamination Shower Room continued monitoring the patient's conditions while the Nuclear Medicine Technologist began a radiological survey of the patient. The nurse that had obtained the Reception Center Monitoring/Action Log Form who was in the cold zone called out the areas in which contamination was previously detected. The Nuclear Medicine Technician verified the location and quantity of contamination. As areas of contamination were identified, other Emergency Department personnel began decontamination.

Contamination was present on left hand, left arm, left shoe, right palm, neck area and on the patient's pants. The shoe was removed and bagged. The pants were cut off and rolled inwards as they were cut to prevent the spread of contamination. The right hand was irrigated with sterile water and wiped dry. The water was collected in a plastic tub. The wipes were disposed of into a radiological waste container. After the first decontamination of the hand, the Nuclear Medicine Technician re-monitored the area. Contamination was detected and the area was again flushed with water and wiped dry. The area was monitored again and no contamination was detected.

Once the hand was determined to be clean, the (simulated) burn on the right forearm was treated and bandaged. There was no contamination present in the wound area.

The contaminated area on the neck was simply wiped with a wet wipe and it was determined to be clean by monitoring the area.

The left hand and arm were simply rinsed with water and wiped dry. No contamination was found after the decontamination in the areas previously determined to be contaminated.

The Decontamination Shower Room had two shower heads available with the capability to set the water temperature. A floor drain would collect all the water. However, it was indicted that the showers would only be used in extreme cases or when there was chemical contamination suspected. As such, in this demonstration all decontamination was by water flushes and wipes.

After the decontamination process and all contamination removed, a nasal swab was taken to determine if there was any internal contamination. The Nurse in the Cold Zone passed a sealed tube containing a swab to a Nurse within the Hot Zone. The Nurse held the tube as the Doctor removed the seal and withdrew the swab. The Doctor simulated taking a nasal swab and replaced the swab into the container. Care was taken to prevent the spread of any contamination throughout the process. The Nurse in the Cold Zone held an open plastic bag as the Nurse with the Hot Zone placed the tube with the swab into the bag. The tube was successfully transferred from the Hot Zone to the Cold Zone with precautions to prevent the spread of contamination.

Once all activities with the patient were completed, the Nuclear Medicine Technologist began to monitor the area, floor, equipment, supplies, gurney, and individuals for contamination. No additional contamination was detected.

The Doctor was the first worker to leave the Hot Zone. The Doctor demonstrated the proper technique in doffing the protective clothing to prevent the spread of contamination. The IEMA Representative provided detail instructions in the doffing process and monitored the Doctor as required. The Doctor removed gloves by pealing the gloves outward over the potentially contaminated areas. The hat, face shield and mask were removed and placed into a Radiological Waste Container. He was monitored for contamination and then the lab coat was removed taking care not to spread contamination. The Doctor was instructed to step onto the first step off pad. One foot was monitored and found to be free of contamination. He then stepped out onto the step off pad in the Cold Zone. The other foot was monitored and also found to be clean. The doctor then completely stepped out of the Hot Zone and into the Cold Zone. The Doctor's booties were removed and placed into the Radiological Wasted container as they were monitored.

A wheel chair was wheeled to the edge of the Cold Zone boundary. The patient was ambulatory and was therefore instructed to stand up off the gurney and walk over to the step off pad in the Hot Zone. The IEMA Representative monitored the patient and provided instruction to ensure he was contamination free and provided instructions on stepping from

the Hot Zone to the Cold Zone. Once in the Cold Zone the patient sat in the wheel chair and was transferred to another area for additional medical treatment. Care was taken to prevent the spread of contamination from the Hot Zone.

Once all activities were complete the Nuclear Medicine Technician and the IEMA Representative would have monitored the area, equipment and supplies to determine the need for additional support from the utility. In this case no additional contamination was detected.

All activities described in the demonstration criterion were carried out in accordance with the plan, procedures, and the extent of play agreement.

III. EXTENT OF PLAY AGREEMENT

EXTENT OF PLAY FOR OSF ST. JOSEPH'S MEDICAL CENTER MEDICAL DRILL

Introduction:
An offsite medical drill will be conducted to demonstrate the State of Illinois' concept of operations for handling contaminated injured individuals. This drill is structured to address MS-1 Hospital and Transportation criteria.

NOTE: Evaluators should be aware that while hospital personnel are encouraged to assume responsibility for monitoring, decontamination, and contamination control activities within their facility to the extent they are able to do so, they are advised to take direction from Illinois Emergency Management Agency (IEMA) personnel regarding these issues. The purpose of providing IEMA support is to ensure appropriate radiation protection protocols are observed.

Extent of Play:
Clinton Nuclear Power Station has declared a general emergency. The emergency alert sirens have sounded, the public has been directed to evacuate affected areas and to report to reception centers set up in the local area. The scenario is based on an individual that was an evacuee driving to the Horton Field House. While in route to the reception center the individual's car over heats, the individual stops at the roadside, opens the car hood and gets her left arm sprayed with hot steam causing a second degree burn on the bottom of the left forearm. Another evacuee sees the accident and drives the person to the reception center. Radiological monitoring and, if necessary, decontamination, of evacuees is provided for at these facilities by staff from IEMA under the Illinois Plant for Radiological Accidents (IPRA). The individual enters the reception center holding her arm and explains the accident to reception staff members, that an ambulance is contacted to transport the individual to the hospital. The individual is surveyed while waiting for the ambulance and contamination is detected. The individual will be transported to OSF St. Joseph's Medical Center.

1. An ambulance and EMS staff will be used to demonstrate loading, transporting and unloading the victim. EMS personnel will pick up the patient at a staged location close to the hospital. IEMA staff and the patient will be pre-staged for the ambulance arrival.

2. The ambulance crew will communicate with the receiving hospital regarding the medical status and contamination levels associated with the patient.

3. The IEMA radiological monitor will be available to conduct and/or supervise radiological monitoring and contamination control at the simulated reception center and during patient transport.

4. An IEMA radiological monitor and representative from nuclear medicine will provide radiological exposure control and monitoring of EMS and Hospital personnel.

5. Due to the nature of the injury/illness, final radiological decontamination efforts will be deferred until the patient has arrived at the hospital and has been medically stabilized.

6. The IEMA radiological monitor will assist with ingress and egress of radiological control areas and supervise the access into the radiological control area. A buffer zone will not be set up. Monitoring will be performed prior to personnel leaving the potentially contaminated patient treatment area. Protective clothing used by hospital personnel will be identical to that used for a chemical or biological agent in accordance with hospital protocol.

7. Upon arriving at the hospital, the supervision of contamination control and radiological monitoring and activities remain the responsibility of IEMA. Hospital nuclear medicine personnel that are trained and properly equipped to address monitoring functions will assist to the extent necessary with monitoring and contamination control activities.

8. The medical facility will demonstrate or describe their procedures for the medical treatment and necessary decontamination of a contaminated injured individual. Simple methods such as saline washes will be demonstrated for the removal of patient contamination. IEMA/Nuclear medicine personnel will survey the hospital and medical personnel to maintain contamination control. These methods will include taking swipes of floors and surfaces so that the hospital and ambulance can be cleared for normal operations.

9. The IEMA radiological monitor will inform hospital personnel of the appropriate samples needed to assess internal contamination.

10. Emergency medical personnel will be able to maintain their exposure below the limits specified in 10 CFR Part 20 because for this exercise, the dose rate from the patient is below 2 mr/hr.

11. After the Hospital is notified, Hospital personnel will prepare the area to receive the patient in accordance with their procedures and provide security as necessary. IEMA as a general practice would, if necessary, post radiation signs in accordance with the requirements as set forth in 10 CFR Part 20. In this drill, even though contamination levels are less than 5,000 cpm and all dose rates less than 2 mR/hr, hospital procedures do recommend posting of the treatment room. Therefore the treatment room will be posted in accordance with hospital procedures. Hospital security will control the area in accordance with the same policies and procedures used to provide isolation in the treatment of a chemical or biological agent.

12. Regardless of specific written hospital procedures for addressing radiation contamination, the supervision and advice provided by IEMA personnel should be the governing guidance for determining whether the patient's contamination situation is appropriately addressed.

The drill shall terminate when the controller verifies that the criteria under Evaluation Area 6, Sub-element 6.d and Evaluation Area 3, Sub-element 3.a.1, have been satisfied.