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FEMA

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

To Whom It May Concern:

Enclosed is a copy of the Final After Action Report/Improvement Plan for the school evacuation (EV-2) interview and medical services (MS-1) drill conducted on December 16, 2014, for the Fermi 2 Nuclear Power Plant. The State of Michigan, and Monroe and Wayne Counties participated in this exercise.

There were no Deficiencies identified for the State of Michigan or Monroe and Wayne Counties during the drill.

There were no Areas Requiring Corrective Action identified for the State of Michigan during the interview and drill.

There was one Area Requiring Corrective Action identified for Monroe County under Criterion 1.e.1 - Contrary to the Extent-of-Play for Criterion 1.e.1 and plans/procedures, Monroe County Ambulance staff was not issued potassium iodide (KI) as Monroe County Emergency Workers.

There was one Area Requiring Corrective Action identified for Wayne County under Criterion 3.a.1 - The Oakwood Southshore Medical Center (OSMC) Emergency Department Staff did not know how to zero their dosimeters, did not recognize their dosimeter charger, and were generally unfamiliar with dosimetry and its use.

There was one Plan Issue identified for Monroe County under Criterion 3.a.1 for the Monroe Public School District.

There were no prior issues identified in previous interviews or drills requiring corrective action.

A detailed discussion of these issues can be found in Sections 3 and 4 and Appendix A of the attached report.

Based on the results of the December 16, 2014 interview and drill, the offsite radiological emergency response plans and preparedness for the State of Michigan, and Monroe County, site-specific to the Fermi 2 Nuclear Power Plant can be implemented, and are adequate to provide

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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.

Pending successful re-demonstration of the Oakwood Southshore Medical Center (OSMC) medical service drill by Wayne County on August 25, 2015, it is anticipated that the Title 44 CFR, Part 350, approval of the offsite radiological emergency response plans and preparedness for the State of Michigan, and Monroe and Wayne Counties, granted on March 9, 1987, will remain in effect.

If you have any questions, please contact Karl Rabenhorst at (312) 408-5516 or Dwaine Warren at (312) 408-5342.

Sincerely,

Andrew Velasquez III
Regional Administrator

Enclosure

Enrico Fermi 2 Nuclear Power Plant

After Action Report/ Improvement Plan

Drill Date - December 16, 2014

Radiological Emergency Preparedness (REP) Program

FEMA

Published July 07, 2015

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Enrico Fermi 2 Nuclear Power Plant

After Action Report/Improvement Plan

Published July 07, 2015

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EXECUTIVE SUMMARY

On December 16, 2014, the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) Region V conducted one school (EV-2) interview and one medical services (MS-1) drill in the 10-mile plume exposure pathway Emergency Planning Zone (EPZ) around the Enrico Fermi 2 Nuclear Power Plant (FNPP). The purpose of the EV-2 interview was to assess the ability of off-site agencies to safely evacuate school children under the continuous supervision of teachers and administrators from a school to a host school serving as a relocation center. The purpose of the medical services drill was to assess the ability of offsite agencies to respond to a medical emergency involving a potentially radioactively contaminated member of the public.

Both the EV-2 interview and MS-1 drill were held in accordance with DHS/FEMA policies and guidance concerning the exercise of State and local radiological emergency response plans.

The following criteria, which are part of the DHS/FEMA Radiological Emergency Preparedness Program (REPP) Manual dated June 2013, were evaluated during the EV-2 Interview: Criterion 1.d.1 – Communications Equipment; Criterion 1.e.1 - Equipment and Supplies to Support Operations; Criterion 3.a.1 - Implementation of Emergency Worker Exposure Control; and Criterion 3.c.2 – Implementation of Protective Actions for Persons with Disabilities and Access/Functional Needs. The following criteria were evaluated during the MS-1 Drill: Criterion 1.d.1 – Communications Equipment; Criterion 1.e.1 - Equipment and Supplies to Support Operations; Criterion 3.a.1 - Implementation of Emergency Worker Exposure Control; and 6.d.1 – Transportation and Treatment of Contaminated Injured Individuals.

The DHS/FEMA wishes to acknowledge the efforts of personnel from the Michigan State Police's Emergency Management and Homeland Security Division, the Monroe County Emergency Management Division, the Wayne County Homeland Security and Emergency Management Department, the Monroe Public School District, Monroe Community Ambulance and Oakwood Southshore Medical Center who participated in the EV-2 interview and MS-1 drill. The interview and drill were conducted with representatives of the school district and medical services by DHS/FEMA staff.

Except where noted in this report, the State and local organizations demonstrated knowledge of, and adequately implemented, their emergency response plans and procedures.

There were no Deficiencies identified for the State of Michigan during the interview and drill.

There were no Deficiencies identified for Monroe County during the interview and drill.

There were no Deficiencies identified for Wayne County during the drill.

There were no Areas Requiring Corrective Action identified for the State of Michigan during the interview and drill.

There were no Areas Requiring Corrective Action identified for Monroe County during the interview.

There was one Area Requiring Corrective Action identified for Monroe County during the drill.

Monroe County received an Area Requiring Corrective Action under Criterion 1.e.1 - Contrary to the Extent-of-Play for Criterion 1.e.1 and plans/procedures; Monroe County Ambulance staff was not issued potassium iodide (KI) as Monroe County Emergency Workers.

There was one Area Requiring Corrective Action identified for Wayne County during the drill.

Wayne County received an Area Requiring Corrective Action under Criterion 3.a.1 - The Oakwood Southshore Medical Center (OSMC) Emergency Department Staff did not know how to zero their dosimeters, did not recognize their dosimeter charger, and were generally unfamiliar with dosimetry and its use. Per the Extent-of-Play, 'The use of dosimetry and KI will be demonstrated by hospital staff.' Potassium iodide (KI) was neither observed, nor mentioned by either the hospital staff or controllers. The Step-Off Pad indicated in the OSMC Radiological Emergency Area Diagram (OSMC RME Plan, Attachment 2) was neither used, mentioned nor observed in the equipment closet. Without the constant guidance provided by the Michigan Department of Environmental Equality (MDEQ) Health Physics Technicians who actively participated throughout the drill, it appeared improbable that the OSMC Emergency Department staff would have contained radiological contamination to the Decontamination Room.

Dedicated and hands-on practical training is required for all potential REA staff members regarding the Radiological Medical Emergency Plan, with emphasis on donning/doffing PPE;

theory and operation of personal dosimetry and personal exposure control; and radiological contamination mitigation, control and decontamination. This issue is scheduled to be resolved through a complete re-demonstration of the medical service drill on August 25, 2015.

There was one Plan Issue identified for Monroe County during the interview.

Monroe County received a Plan Issue under Criterion 3.a.1 - Per the Monroe Public School District (MPSD) Radiological Emergency Response Plan (RERP), evacuation of all three Tiers of risk schools requires between five hours (best case) and seven hours (worst case). Once students have been evacuated, bus drivers are instructed to report to the staging area for distribution of dosimetry and KI and reassignment as emergency workers. If a release begins before the second or third tier risk schools have been evacuated, the bus drivers could exit the EPZ without dosimetry and KI, but would require dosimetry and KI to reenter the EPZ. The plan does not clearly define a process to ensure that dosimetry and KI will be issued to school bus drivers who need to re-enter the EPZ in order to evacuate students and staff which could potentially delay the evacuation of Tier 2 and 3 risk Schools.

There were no prior issues identified in previous interviews or drills requiring corrective action.

INTRODUCTION – EXERCISE BASIS

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all offsite nuclear planning and response. DHS/FEMA's activities are conducted pursuant to Title 44 of the Code of Federal Regulations (CFR) Parts 350 "Review and Approval of State and Local Radiological Emergency Plans and Preparedness", 351 "Radiological Emergency Planning and Preparedness" and 352 "Commercial Nuclear Power Plants: Emergency Preparedness Planning" (Commonly referred to as 44CFR350 through 352). These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

The FEMA Regulation 44 CFR 350 establishes the policies and procedures for DHS/FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local governments' participation in joint exercises with nuclear power plant licensees in their vicinity.

The DHS/FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

• Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans (RERPs) and procedures developed by State and local governments;

• Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments;

• Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and

• Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:

- U.S. Department of Agriculture;
- U.S. Department of Commerce;
- U.S. Department of Energy;
- U.S. Department of Health and Human Services;
- U.S. Department of the Interior;
- U.S. Department of Transportation;
- U.S. Environmental Protection Agency;
- U.S. Food and Drug Administration; and
- U.S. Nuclear Regulatory Commission.

Representatives of these agencies serve on the DHS/FEMA Region V Regional Assistance Committee (RAC), which is chaired by DHS/FEMA.

Formal submission of the RERPs for the Enrico Fermi 2 Nuclear Power Plant to FEMA Region V by the State of Illinois and involved local jurisdictions occurred on March 22, 1982. Formal approval of these RERPs was granted by FEMA on March 9, 1987, in accordance with 44 CFR 350.

The purpose of this After Action Report (AAR)/Improvement Plan (IP) is to present the interview results and findings based on the performance of the Offsite Response Organizations (OROs) during a radiological emergency at the Enrico Fermi 2 Nuclear Power Plant.

The findings presented in this AAR/IP are based on the evaluations of the Federal evaluation team, with final determinations made by the DHS/FEMA Region V RAC Chairperson, and approved by the DHS/ FEMA Headquarters.

The criteria utilized in the FEMA evaluation process are contained in:

• NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980; and

• FEMA "Radiological Emergency Preparedness: Exercise Evaluation Methodology; as published in the FEMA Radiological Emergency Preparedness Manual, dated June 2013.

Section 1 of this report, entitled "Exercise Overview", presents information pertaining to the team that planned and coordinated the interviews. This section also provides listing of all participating jurisdictions and functional entities that were evaluated.

Section 2 of this report, entitled "Exercise Design Summary", contains the purpose and design of the exercise and presents basic information and data relevant to the exercise scenario.

Section 3 of this report, entitled "Analysis of Capabilities", presents detailed information on the demonstration of applicable exercise criteria at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format.

Section 4 of this report, entitled "Conclusion", presents the DHS/FEMA summary of overall exercise conduct and results as evaluated against the requirements of 44 CFR 350.

EMERGENCY PLANNING ZONE (EPZ) DESCRIPTION

The Enrico Fermi 2 Nuclear Power Plant is comprised of approximately 1,120 acres of land

owned by DTE Energy. The plant operator is Detroit Edison Company. The site is bounded on the north by Swan Creek, on the east by Lake Erie, on the south by Pointe Aux Peaux Road, and on the west by Toll Road. Entrance to the site is from Enrico Fermi Drive (a private road owned by Edison) to the west, and from Pointe Aux Peaux Road to another private road owned by Edison to the south.

The plant is approximately six miles northeast of Monroe, Michigan; 30 miles southwest of downtown Detroit, Michigan; and 25 miles northeast of downtown Toledo, Ohio. The latitude of the site is 41° 57' 48" north and the longitude is 83° 15' 31" west. Site elevations range from the level of Lake Erie, on the eastern edge of the site, to approximately 25 feet above the lake level, on the western edge of the site.

The 10-mile EPZ includes parts of Monroe and Wayne Counties in Michigan; parts of Lake Erie; and the southern tip of Essex County, (Bay Point) Canada. Most of the 10-mile EPZ lies within Monroe County. Coordinated efforts occur between the two counties, which are divided into five Protective Action Areas. The following jurisdictions are located within the 10-mile EPZ: Ash Township, Carleton Village, Berlin Township, Estral Beach Village, Exeter Township, South Rockwood Village, Frenchtown Township, Monroe City, Monroe Township, Raisinville Township, Brownstown Township, Gibraltar City, Flat Rock City, and Rockwood City. The population in the 10-mile EPZ, based on the June 13, 2012 Michigan State Police Emergency Management and Homeland Security Protective Action Area Populations Map, is 97,825.

Land use within the EPZ is diverse. About 55 percent of the land is farmland; the majority of agricultural land is located in Monroe County. The portion of Wayne County nearest to Detroit is a growing residential suburb. Twelve state parks and recreational areas, and several light industries are located within the 10-mile EPZ.

There are three major roads within 10 miles of the plant, Interstates 75 and 275, and U.S. Route 24. Their closest approach to the plant is 4.1 miles, 4.2 miles and 5.8 miles, respectively. Five railroad lines operate within 10 miles of the plant. These include the Canadian National Railroad, the Norfolk Southern Railroad, the Chesapeake and Ohio Railroad, the Detroit Toledo and Ironton Railroad, and the Detroit and Toledo Shore Line Railroad. There are no major airports within 15 miles of the site.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

Enrico Fermi 2 Nuclear Power Plant

Type of Exercise

Drill

Exercise Date

December 16, 2014

Program

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type

Radiological Emergency

1.2 Exercise Planning Team Leadership

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1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Enrico Fermi 2 Nuclear Power Plant drill:

State Jurisdictions
- Michigan State Police/Emergency Management and Homeland Security Division
- Michigan Department of Environmental Quality

Risk Jurisdictions
- Monroe County Emergency Management Division
- Monroe Public School District
- Wayne County Homeland Security and Emergency Management Department.

Private Organizations

Oakwood Southshore Medical Center

Monroe Community Ambulance

DTE Energy

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

The DHS/FEMA Region V Office conducted one EV-2 interview and one MS-1 drill on December 16, 2014 to assess the capabilities of local emergency preparedness organizations in implementing their Radiological Emergency Response Plans (RERP) and procedures to protect the health and safety of students and school staff and transportation and care for potentially contaminated patients during a radiological emergency involving the Enrico Fermi 2 Nuclear Power Plant. The purpose of this report is to present the results and findings of the EV-2 interview conducted in the Monroe Public School District in Monroe County and the MS-1 drill conducted at the Oakwood Southshore Medical Center in Wayne County.

2.2 Exercise Objectives, Capabilities and Activities

Identified REP Criteria selected to be demonstrated are listed in Table 3.1 - Summary of Drill Evaluation.

2.3 Scenario Summary

The date for the EV-2 interview and MS-1 drill was submitted by the State of Michigan on November 26, 2014 and accepted by DHS/FEMA Region V on November 26, 2014.

A scenario was not utilized for the EV-2 interview. However, a FEMA-approved EV-2 School Questionnaire was referenced to assist with the interview.

The final extent-of-play agreement for the MS-1 drill was submitted by the State of Michigan on December 12, 2014.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Drill Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities that participated in the December 16, 2014 EV-2 interview and MS-1 drill to evaluate the offsite emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the Enrico Fermi 2 Nuclear Power Plant.

Each jurisdiction and functional entity was evaluated based on its discussion/demonstration of criteria delineated in the FEMA REP Program Manual, dated June 2013. Detailed information on the exercise criteria used in these interviews are found in Appendix E of this report.

Presented below are definitions of the terms used in this report relative to the criteria demonstration status:

• M – Met: The status of a REP exercise Evaluation Area Criterion indicating that the participating ORO demonstrated all demonstration criteria for the Evaluation Area Criterion to the level required in the extent-of-play agreement with no Deficiencies, Areas Requiring Corrective Action (ARCA) or Plan Issues assessed in the current exercise and no unresolved prior ARCAs.

• D – Deficiency: An observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant.

• A – ARCA – An observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety. Listing of the demonstrated exercise criteria under which one or more ARCAs was/were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of any ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.

• P – Plan Issue – An observed or identified inadequacy in the ORO's emergency plan or

implementing procedures, rather than in the ORO's performance.

• N – Not Demonstrated – Exercise criteria that were not demonstrated as scheduled during this exercise and the reason(s) they were not demonstrated.

• Prior ARCAs - Resolved – Descriptions of ARCAs assessed during previous exercises that were resolved and the corrective actions demonstrated, in this exercise.

• Prior ARCAs - Unresolved – Descriptions of ARCAs assessed during prior exercises that were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next exercise.

3.2 Summary Results of Drill Evaluation

The matrix presented in Table 3.1, on the following pages, presents the status of all exercise criteria from the FEMA REP Program Manual, dated June 2013, which were scheduled for discussion/ demonstration during the EV-2 interviews by all participating jurisdictions and functional entities. The criterion status box is blank if it was not scheduled for discussion/demonstration.

This subsection provides information on the evaluation of each participating jurisdiction and functional entity in a jurisdiction-based, issues-only format.

The DHS/FEMA has developed a standardized system for numbering exercise issues. This system is used to achieve consistency in numbering exercise issues among DHS/FEMA Regions and site-specific exercise reports within each Region. It also is used to expedite tracking of exercise issues on a nationwide basis.

The identifying number of Deficiencies, Areas Requiring Corrective Action (ARCA), and Plan Issues includes the following elements, with each element separated by a hyphen (-).

• Plant Site Identifier – A two-digit number, corresponding to the Utility Billable Plant Site Code (23 for Fermi 2 Nuclear Power Plant).

• Exercise Year – The last two digits of the year the interviews were conducted. Criterion

Number – An alpha and two-digit number corresponding to the criteria numbers in the six Exercise Evaluation Areas described in the FEMA REP Program Manual, dated June 2013.

- Issue Classification Identifier – (D = Deficiency, A = ARCA, P = Plan Issue).

- Exercise Identification Number – A separate two or three-digit indexing number assigned to each issue identified in the exercise.

Table 3.1 - Summary of Drill Evaluation

DATE: 2014-12-16 SITE: Enrico Fermi 2 Nuclear Power Plant, MI M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		MON-MCA-MS1T	WAY-Oakwood SS MC-MS1F	MON-Monroe PS-EV2
Emergency Operations Management				
Mobilization	1a1			
Facilities	1b1			
Direction and Control	1c1			
Communications Equipment	1d1	M	M	M
Equipment and Supplies to Support Operations	1e1	A	M	M
Protective Action Decision Making				
EW Exposure Control Decisions	2a1			
PARs	2b1			
PADs	2b2			
PADs for Disabled/Functional Needs	2c1			
Ingestion PADs	2d1			
RRR Decisions	2e1			
Protective Action Implementation				
EW Exposure Control Implementation	3a1	M	A	P
KI Public/Institutionalized	3b1			
PAD Implementation Disabled/Functional Needs	3c1			
PAD Implementation Schools	3c2			M
TACP Establishment	3d1			
Impediments	3d2			
Implement Ingestion PADs	3e1			
Ingestion Pathway Decisions	3e2			
Implementation of RRR Decisions	3f1			
Field Measurement and Analysis				
RESERVED	4a1			
Field Team Management	4a2			
Field Team Operations	4a3			
Field Team Sampling	4b1			
Laboratory Operations	4c1			
Emergency Notification and Public Info				
Initial Alert & Notification	5a1			
RESERVED	5a2			
Backup Alert & Notification	5a3			
Exception Area Alerting	5a4			
Subsequent Information & Instructions	5b1			
Support Operations/Facilities				
Reception Center Operations	6a1			
EW Monitoring & Decontamination	6b1			
Congregate Care	6c1			

Contaminated Injured Transport & Care	6d1	M	M	

3.3 Criteria Evaluation Summaries

3.3.1 Risk Jurisdictions

3.3.1.1 Monroe Community Ambulance

In summary, the status of DHS/FEMA criteria for this location is as follows:

a. MET: 1.d.1, 3.a.1, 6.d.1.

b. AREAS REQUIRING CORRECTIVE ACTION: 1.e.1.

ISSUE NO.: 23-14-1e1-A-02

CRITERION: Equipment, maps, displays, dosimetry, potassium iodide, and other supplies are sufficient to support emergency operations.

CONDITION: Contrary to the Extent-of-Play for Criterion 1.e.1 and plans/procedures, Monroe County Ambulance staff was not issued potassium iodide (KI) as Monroe County Emergency Workers.

POSSIBLE CAUSE: Per both plans/procedures and noted in the Extent-of-Play for Criterion 1.e.1, KI was missing as part of the listed required resources/equipment.

REFERENCE: NUREG-0654/FEMA-REP-1, J.10.e and Extent-of-Play agreement.

EFFECT: The emergency workers were not provided any thyroid uptake protection (KI) from radioiodine despite being assigned to a mission that required entry into the FNPP 10-mile EPZ.

RECOMMENDATION: Ensure that KI is issued to Monroe County Emergency Workers per plans/procedures and as identified in Extent-of-Play agreements.

c. DEFICIENCY: None

d. PLAN ISSUES: None

e. NOT DEMONSTRATED: None

f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.2 Wayne County - Oakwood Southshore Medical Center - Medical Service - Facility

In summary, the status of DHS/FEMA criteria for this location is as follows:

a. MET: 1.d.1, 1.e.1, 6.d.1.
b. AREAS REQUIRING CORRECTIVE ACTION: 3.a.1.

ISSUE NO.: 23-14-3a1-A-01

CRITERION: The Offsite Response Organizations issue appropriate dosimetry, potassium iodide (KI), and procedures, and manage radiological exposure to emergency workers in accordance with the plans/procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. Appropriate record-keeping of the administration of KI for emergency workers is maintained.

CONDITION: The Oakwood Southshore Medical Center (OSMC) Emergency Department Staff did not know how to zero their dosimeters, did not recognize their dosimeter charger, and were generally unfamiliar with dosimetry and its use. The hospital's entire supply of dosimeters was stored in two Ziploc® sandwich bags on the top shelf of the equipment closet between a spool and a loose coil of rope used to mark the Radiological Exclusion Area (REA) in the ambulance bay. The shock sensitive instruments had no protective packaging and a 5+ foot drop to the tiled floor could have rendered them inoperable. Per the Extent-of-Play, 'The use of dosimetry and KI will be demonstrated by hospital staff.' Potassium iodide (KI) was neither observed, nor mentioned by either the hospital staff or controllers. Initially, the medical staff donned smocks rather than coveralls as Personal Protective Equipment for entry into the Decontamination Room. When advised to change into coveralls, the medical staff taped the ends of the arms and legs so thoroughly that they were difficult to remove at the end of the drill. To make it easier for the HP Tech to monitor her for contamination, one of the nurses moved while being monitored and touched the survey meter probe with her coveralls, requiring additional monitoring and potential decontamination of the monitoring equipment. The Step-Off Pad indicated in the OSMC Radiological Emergency Area Diagram

(OSMC RME Plan, Attachment 2) was neither used, mentioned nor observed in the equipment closet. Without a 'buddy system' or chair to facilitate PPE removal, the medical staff attempted to remove the tape sealing their coveralls at their ankles while standing on their other foot. One person inadvertently leaned against the wall and required additional monitoring, requiring additional monitoring and possibly decontamination. Shock sensitive direct reading dosimeters were dropped into a trash bag while being collected at the end of the drill and the medical staff did not know that placing the bag of dosimeters in the Radiological Waste bag would result in additional exposure being indicated on the dosimeters and most likely result in contamination which would delay their reuse.

POSSIBLE CAUSE: The Oakwood Southshore Medical Center (OSMC) Emergency Department's participation appeared to be a realistic demonstration of an actual, no-notice, response. The attending physician reported that she had stopped in on her day off and was asked to assist with the drill. Real-world patients, arriving in ambulances from every jurisdiction supported by the hospital, in addition to walk-in patients, were admitted throughout the course of the Drill. The nursing staff demonstrated a very positive, 'can do' attitude and indicated that managing multiple, concurrent crises is what Emergency Departments do. Both Treatment/Decon Nurses were competent and demonstrated enough basic knowledge to suggest that they had received some radiological training. The hospital's radiology staff did not appear to participate, so the Charge Nurse acted as the Dosimetry Control Officer and personally performed all support functions outside of the Treatment/Decontamination Room. Radiological emergency response, contamination control and dosimetry training appeared minimal. The Charge Nurse referred to the Radiological Emergency Area Diagram, referred to and periodically briefed portions of the Radiological Medical Emergency (RME) Plan procedures to the medical staff and maintained Personnel Dosimetry Log form, but no one else referred to any plans, procedures or checklists, etc. The dosimeters were not zeroed (realistic), which caused confusion and without pre-packaged dosimetry kits and individual briefing cards, checklists, etc., the participants struggled to figure out what they needed. Survey meters, dosimetry, barrier rope and tape, personal protective equipment, reference binders, Rad Waste bags, etc., were stored in the Radiological Emergency Equipment Storage Cabinet/Closet, but were not organized in a way that facilitated the response. A copy of the current OSMC RME Plan was not provided to FEMA.

REFERENCE: NUREG-0654/FEMA-REP-1 Criteria J.10.e, K.3.a, b, K.4; FEMA REP Program Manual of June 2013, Part II, NUREG Criterion K.3.a, paragraph b. "Dosimeters" and paragraph c. "Dose Control and Limits."; EPA 400-R-92-001, Protective Action Guide Manual, Table 2.2; and EPA Interim PAG Manual of March 2013

EFFECT: Without the constant guidance provided by the Michigan Department of Environmental Equality (MDEQ) Health Physics Technicians who actively participated throughout the drill, it appeared improbable that the OSMC Emergency Department staff would have contained radiological contamination to the Decontamination Room. Despite the MDEQ assistance, numerous errors were observed, some of which were not detected, and would most likely have resulted in contamination being spread outside of the Decontamination Room.

RECOMMENDATION: Review the Radiological Medical Emergency Plan and consider replacing the Michigan Department of Environmental Equality (MDEQ) Health Physics Technicians with hospital radiology department staff who can be regularly trained and integrated into the REA team and will be readily available on short notice. Use radiology department staff to issue dosimetry and maintain exposure records, which is their area of expertise and would permit the Charge Nurse to focus supervising and coordinating the REA operations. Consider repurposing MDEQ resources to provide training and oversight support rather than providing the primary contamination control. Consider reorganizing the REA staff to better distribute the workload and span-of-control. Consider reorganizing the Radiological Emergency Equipment Storage Cabinet so that, much like an operating room, essential items are stored in a way that facilitates a timely and orderly response, e.g. store coveralls, booties, face masks and head covers sequentially on the same shelf and/or post inventory sheets, checklists and visual aids on the inside of the Radiological Emergency Equipment Storage Cabinet doors. Develop pre-packaged individual dosimetry kits containing a DRD, OSLD, instruction card(s) and potassium iodide (if actually issued). Store dosimetry kits and the dosimeter charger(s) in a covered, plastic storage box/bin which is protected from drop, impact and crush hazards. Implement a 'buddy system' for donning/doffing personal protective equipment (PPE) and/or provide something for people to sit on while

removing their PPE. Conduct dedicated and hands-on practical training for all potential REA staff members on the Radiological Medical Emergency Plan, with emphasis on donning/doffing PPE; theory and operation of personal dosimetry and personal exposure control; and radiological contamination mitigation, control and decontamination. Redemonstrate this criterion within 120 days of the publication of the final After Action Report/Improvement Plan.

c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.3 Monroe County - Monroe Public Schools - EV-2 Interview

In summary, the status of DHS/FEMA criteria for this location is as follows:

a. MET: 1.d.1, 1.e.1, 3.c.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: 3.a.1.

ISSUE NO.: 23-14-3a1-P-03

CRITERION: The Offsite Response Organizations issue appropriate dosimetry, potassium iodide (KI), and procedures, and manage radiological exposure to emergency workers in accordance with the plans/procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. Appropriate record-keeping of the administration of KI for emergency workers is maintained.

CONDITION: Per the Monroe Public School District (MPSD) Radiological Emergency Response Plan (RERP), evacuation of all three Tiers of risk schools requires between five hours (best case) and seven hours (worst case). Appendix 3 – Transportation Coordinator, Section III, Site Area Emergency (School in Session), states on page 44, 'Once students have been evacuated, instruct bus drivers to report to staging area at Monroe Community College for distribution of dosimetry and KI

and reassignment.' If a release begins before the second or third tier risk schools have been evacuated, the bus drivers could exit the EPZ without dosimetry and KI, but would require dosimetry and KI to reenter the EPZ. The plan does not clearly define a process to ensure that dosimetry and KI will be issued to school bus drivers who need to re-enter the EPZ in order to evacuate students and staff and eliminate potential confusion and unnecessary delay in the evacuation of Tier 2 or 3 risk schools, caused by school bus drivers arriving at a Traffic and Access Control Point during a GE without proper dosimetry, KI and emergency worker training.

POSSIBLE CAUSE: The Plan's underlying assumption is that all risk schools will be evacuated prior to any radiological release and declaration of a General Emergency. The possibility of a GE occurring in less than five to seven hours does not appear to have been considered.

REFERENCE: NUREG-0654/FEMA-REP-1 Criteria J.10.e, K.3.a, b, K.4, and FEMA REP Program Manual of June 2013, Part II, NUREG Criterion K.3.a & b.

EFFECT: It is possible that school bus drivers who arrive at the staging area during a GE might inadvertently attempt to re-enter the EPZ in order to evacuate Tier 2 or 3 risk schools without proper dosimetry, KI and emergency worker training and would be turned back by Traffic and Access Control Point personnel because they lacked required emergency worker personal protective equipment required to enter the EPZ during a GE.

RECOMMENDATION: Add an action item to the 'General Emergency (School in session), If Evacuation is recommended or ordered' on page 44 directing that dosimetry, KI and Emergency Worker Training be provided to school bus drivers who arrive at the MCC transfer point/staging area during a GE (i.e. before they re-enter the EPZ). This would eliminate potential confusion and unnecessary delay in the evacuation of Tier 2 or 3 risk schools, caused by school bus drivers arriving at a Traffic and Access Control Point during a GE without appropriate emergency worker personal protective equipment and training. Overall, the MPS RERP is a well-conceived plan. However, several minor clerical errors in page and paragraph numbering (apparently introduced through successive updates) were observed in the Table of Contents and various attachments. Additionally, Appendix 3, Attachment

C, Emergency Worker Control Criteria refers to Roentgen equivalent man (rem) and Roentgen (R) interchangeably; the Michigan Department of Environmental Quality (MDEQ) is revising their exposure limit language and the plan should adopt the new MDEQ language. The plan review Staff Assistance Visits (SAVs) scheduled for the spring of 2015 would provide an opportunity to identify & correct these minor inconsistencies.

e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

SECTION 4: CONCLUSION

There were no Deficiencies identified for the State of Michigan during the interview and drill.

There were no Deficiencies identified for Monroe County during the interview and drill.

There were no Deficiencies identified for Wayne County during the drill.

There were no Areas Requiring Corrective Action identified for the State of Michigan during the interview and drill.

There were no Areas Requiring Corrective Action identified for Monroe County during the interview.

There was one Area Requiring Corrective Action identified for Monroe County during the drill.

Monroe County received an Area Requiring Corrective Action under Criterion 1.e.1 - Contrary to the Extent-of-Play for Criterion 1.e.1 and plans/procedures; Monroe County Ambulance staff was not issued potassium iodide (KI) as Monroe County Emergency Workers.

There was one Area Requiring Corrective Action identified for Wayne County during the drill.

Wayne County received an Area Requiring Corrective Action under Criterion 3.a.1 - The Oakwood Southshore Medical Center (OSMC) Emergency Department Staff did not know how to zero their dosimeters, did not recognize their dosimeter charger, and were generally unfamiliar with dosimetry and its use. Per the Extent-of-Play, 'The use of dosimetry and KI will be demonstrated by hospital staff.' Potassium iodide (KI) was neither observed, nor mentioned by either the hospital staff or controllers. The Step-Off Pad indicated in the OSMC Radiological Emergency Area Diagram (OSMC RME Plan, Attachment 2) was neither used, mentioned nor observed in the equipment closet. Without the constant guidance provided by the Michigan Department of Environmental Equality (MDEQ) Health Physics Technicians who actively participated throughout the drill, it appeared improbable that the OSMC Emergency Department staff would have contained radiological contamination to the Decontamination Room.

Dedicated and hands-on practical training is required for all potential REA staff members

regarding the Radiological Medical Emergency Plan, with emphasis on donning/doffing PPE; theory and operation of personal dosimetry and personal exposure control; and radiological contamination mitigation, control and decontamination. This issue is scheduled to be resolved through a complete re-demonstration of the medical service drill on August 25, 2015.

There was one Plan Issue identified for Monroe County during the interview.

Monroe County received a Plan Issue under Criterion 3.a.1 - Per the Monroe Public School District (MPSD) Radiological Emergency Response Plan (RERP), evacuation of all three Tiers of risk schools requires between five hours (best case) and seven hours (worst case). Once students have been evacuated, bus drivers are instructed to report to the staging area for distribution of dosimetry and KI and reassignment as emergency workers. If a release begins before the second or third tier risk schools have been evacuated, the bus drivers could exit the EPZ without dosimetry and KI, but would require dosimetry and KI to reenter the EPZ. The plan does not clearly define a process to ensure that dosimetry and KI will be issued to school bus drivers who need to re-enter the EPZ in order to evacuate students and staff which could potentially delay the evacuation of Tier 2 and 3 risk Schools.

There were no prior issues identified in previous interviews or drills requiring corrective action.

APPENDIX A: IMPROVEMENT PLAN

Issue Number: 23-14-1e1-A-02	Criterion: 1e1
ISSUE: Contrary to the Extent-of-Play for Criterion 1.e.1 and plans/procedures, Monroe County Ambulance staff was not issued potassium iodide (KI) as Monroe County Emergency Workers.	
RECOMMENDATION: Ensure that KI is issued to Monroe County Emergency Workers per plans/procedures and as identified in Extent-of-Play agreements.	
CORRECTIVE ACTION DESCRIPTION: Monroe County will re-demonstrate issuing potassium iodide (KI) to the Monroe County Ambulance staff along with the Emergency Worker Kit that would be received. Per their email of July 2, 2015, the Michigan State Police has proposed that the re-demonstration be conducted at 0900 on August 25, 2015 at the South Shore Hospital.	
CAPABILITY: Responder Safety and Health	PRIMARY RESPONSIBLE AGENCY: Monroe County Emergency Management
CAPABILITY ELEMENT: Systems and Equipment	START DATE: 2015-03-05
AGENCY POC: Mark Hammond 734-240-3135	ESTIMATED COMPLETION DATE: 2015-08-25

Issue Number: 23-14-3a1-P-03	Criterion: 3a1
ISSUE: Per the Monroe Public School District (MPSD) Radiological Emergency Response Plan (RERP), evacuation of all three Tiers of risk schools requires between five hours (best case) and seven hours (worst case). Appendix 3 – Transportation Coordinator, Section III, Site Area Emergency (School in Session), states on page 44, 'Once students have been evacuated, instruct bus drivers to report to staging area at Monroe Community College for distribution of dosimetry and KI and reassignment.' If a release begins before the second or third tier risk schools have been evacuated, the bus drivers could exit the EPZ without dosimetry and KI, but would require dosimetry and KI to reenter the EPZ. The plan does not clearly define a process to ensure that dosimetry and KI will be issued to school bus drivers who need to re-enter the EPZ in order to evacuate students and staff and eliminate potential confusion and unnecessary delay in the evacuation of Tier 2 or 3 risk schools, caused by school bus drivers arriving at a Traffic and Access Control Point during a GE without proper dosimetry, KI and emergency worker training.	
RECOMMENDATION: Add an action item to the 'General Emergency (School in session), If Evacuation is recommended or ordered' on page 44 directing that dosimetry, KI and Emergency Worker Training be provided to school bus drivers who arrive at the MCC transfer point/staging area during a GE (i.e. before they re-enter the EPZ). This would eliminate potential confusion and unnecessary delay in the evacuation of Tier 2 or 3 risk schools, caused by school bus drivers arriving at a Traffic and Access Control Point during a GE without appropriate emergency worker personal protective equipment and training. Overall, the MPS RERP is a well-conceived plan. However, several minor clerical errors in page and paragraph numbering (apparently introduced through successive updates) were observed in the Table of Contents and various attachments. Additionally, Appendix 3, Attachment C, Emergency Worker Control Criteria refers to Roentgen equivalent man (rem) and Roentgen (R) interchangeably; the Michigan Department of Environmental Quality (MDEQ) is revising their exposure limit language and the plan should adopt the new MDEQ language. The plan review Staff Assistance Visits (SAVs) scheduled for the spring of 2015 would provide an opportunity to identify & correct these minor inconsistencies.	
CORRECTIVE ACTION DESCRIPTION: Monroe County will update the Monroe Public School District Plan to reflect the changes requested by FEMA by August 2015.	
CAPABILITY: Citizen Evacuation and Shelter-in-Place	PRIMARY RESPONSIBLE AGENCY: Monroe County Emergency Management Agency
CAPABILITY ELEMENT: Planning	START DATE: 2015-03-05
AGENCY POC: Mark Hammond 734-240-3135	ESTIMATED COMPLETION DATE: 2015-08-31

Issue Number: 23-14-3a1-A-01	Criterion: 3a1

ISSUE: The Oakwood Southshore Medical Center (OSMC) Emergency Department Staff did not know how to zero their dosimeters, did not recognize their dosimeter charger, and were generally unfamiliar with dosimetry and its use. The hospital's entire supply of dosimeters was stored in two Ziploc® sandwich bags on the top shelf of the equipment closet between a spool and a loose coil of rope used to mark the Radiological Exclusion Area (REA) in the ambulance bay. The shock sensitive instruments had no protective packaging and a 5+ foot drop to the tiled floor could have rendered them inoperable. 'Per the Extent-of-Play,'The use of dosimetry and KI will be demonstrated by hospital staff.' Potassium iodide (KI) was neither observed, nor mentioned by either the hospital staff or controllers. Initially, the medical staff donned smocks rather than coveralls as Personal Protective Equipment for entry into the Decontamination Room. When advised to change into coveralls, the medical staff taped the ends of the arms and legs so thoroughly that they were difficult to remove at the end of the drill. To make it easier for the HP Tech to monitor her for contamination, one of the nurses moved while being monitored and touched the survey meter probe with her coveralls, requiring additional monitoring and potential decontamination of the monitoring equipment. The Step-Off Pad indicated in the OSMC Radiological Emergency Area Diagram (OSMC RME Plan, Attachment 2) was neither used, mentioned nor observed in the equipment closet. Without a 'buddy system' or chair to facilitate PPE removal, the medical staff attempted to remove the tape sealing their coveralls at their ankles while standing on their other foot. One person inadvertently leaned against the wall and required additional monitoring, requiring additional monitoring and possibly decontamination. Shock sensitive direct reading dosimeters were dropped into a trash bag while being collected at the end of the drill and the medical staff did not know that placing the bag of dosimeters in the Radiological Waste bag would result in additional exposure being indicated on the dosimeters and most likely result in contamination which would delay their reuse.

RECOMMENDATION: Review the Radiological Medical Emergency Plan and consider replacing the Michigan Department of Environmental Equality (MDEQ) Health Physics Technicians with hospital radiology department staff who can be regularly trained and integrated into the REA team and will be readily available on short notice. Use radiology department staff to issue dosimetry and maintain exposure records, which is their area of expertise and would permit the Charge Nurse to focus supervising and coordinating the REA operations. Consider repurposing MDEQ resources to provide training and oversight support rather than providing the primary contamination control. Consider reorganizing the REA staff to better distribute the workload and span-of-control. Consider reorganizing the Radiological Emergency Equipment Storage Cabinet so that, much like an operating room, essential items are stored in a way that facilitates a timely and orderly response, e.g. store coveralls, booties, face masks and head covers sequentially on the same shelf and/or post inventory sheets, checklists and visual aids on the inside of the Radiological Emergency Equipment Storage Cabinet doors. Develop pre-packaged individual dosimetry kits containing a DRD, OSLD, instruction card(s) and potassium iodide (if actually issued). Store dosimetry kits and the dosimeter charger(s) in a covered, plastic storage box/bin which is protected from drop, impact and crush hazards. Implement a 'buddy system' for donning/doffing personal protective equipment (PPE). and/or provide something for people to sit on while removing their PPE. Conduct dedicated and hands-on practical training for all potential REA staff members on the Radiological Medical Emergency Plan, with emphasis on donning/doffing PPE; theory and operation of personal dosimetry and personal exposure control; and radiological contamination mitigation, control and decontamination. Redemonstrate this criterion within 120 days of the publication of the final After Action Report/Improvement Plan.

CORRECTIVE ACTION DESCRIPTION: The Wayne County Department of Homeland Security & Emergency Management's action plan is to train a three (3) deep team, conduct two (2) drills and then re-demonstrate. Per their email of July 2, 2015, the Michigan State Police has proposed that the re-demonstration be conducted at 0900 on August 25, 2015 at the South Shore Hospital.

CAPABILITY: Emergency Triage and Pre-Hospital Treatment	PRIMARY RESPONSIBLE AGENCY: Wayne County Department of Homeland Security & Emergency Management
CAPABILITY ELEMENT: Training	START DATE: 2015-03-04
AGENCY POC: Timothy McGillivary 734-728-3711	ESTIMATED COMPLETION DATE: 2015-08-25

APPENDIX B: DRILL EVALUATORS AND TEAM LEADERS

DATE: 2014-12-16, SITE: Enrico Fermi 2 Nuclear Power Plant, MI

LOCATION	EVALUATOR	AGENCY
Monroe Community Ambulance	*Clinton Crackel	FEMA RV
Wayne County - Oakwood Southshore Medical Center - Medical Service - Facility	Karl Rabenhorst	FEMA RV
Monroe County - Monroe Public Schools - EV-2 Interview	*Clinton Crackel Karl Rabenhorst	FEMA RV FEMA RV
* Team Leader		

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