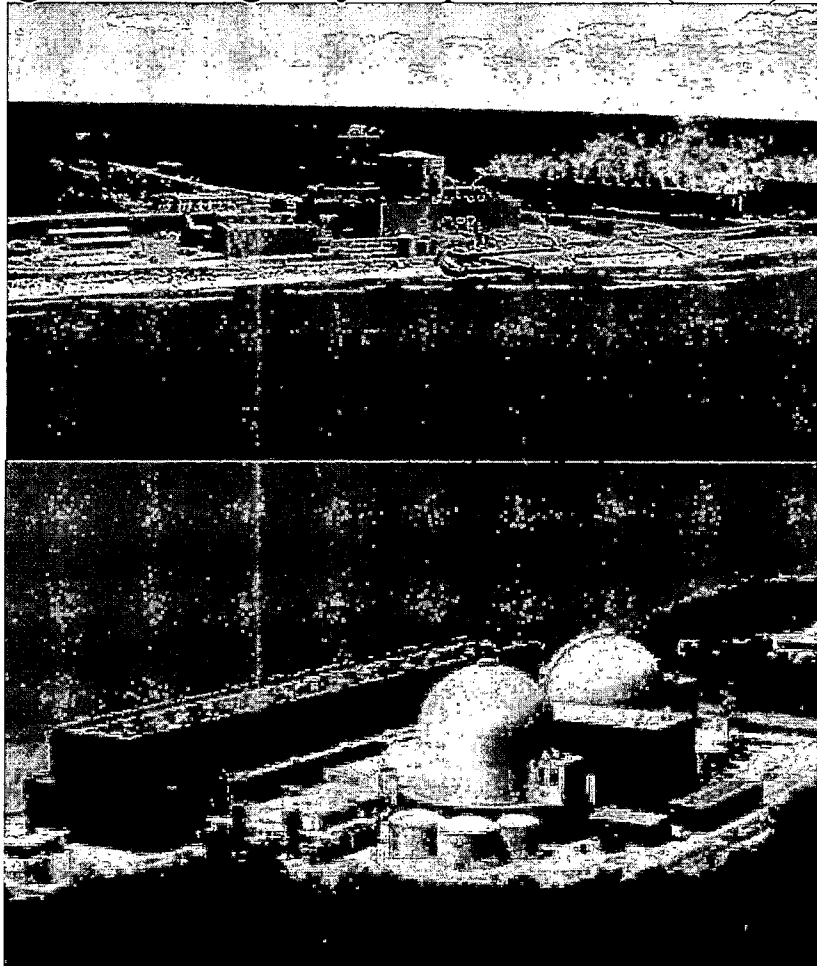


Medical Service Drills After Action Report/ Improvement Plan

Exercise Dates – October 2 and 18, 2018

Radiological Emergency Preparedness (REP) Program



Palisades Nuclear Power Plant
D.C. Cook Nuclear Plant



FEMA

Published December 18, 2018

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CONTENTS

CONTENTS iii

EXECUTIVE SUMMARY 1

SECTION 1: Drill Overview 3

 1.1 EXERCISE DETAILS 4

 1.2 Exercise Planning Team Leadership 5

 1.3 Participating Organizations 6

SECTION 2: Exercise Design Summary 7

 2.1 Exercise Purpose and Design 7

 2.2 FEMA Core Capabilities and Exercise Objectives 7

SECTION 3: Analysis of Capabilities 11

 3.2 Exercise Evaluation and Results 13

 Table 3.2.1 – Summary of Exercise Evaluation – MS1 Drills 14

 3.3 Jurisdictional Summary of Exercise Evaluation Results 15

 3.3.1 Risk Jurisdiction – Bronson South Haven Hospital, South Haven MI 15

 3.3.1.1 Bronson South Haven Hospital (Transportation) 15

 3.3.2 Risk Jurisdiction – Lakeland Niles Hospital, Niles, MI 16

 3.3.2.1 Lakeland Niles Haven Hospital (Transportation) 16

 3.3.2.2 Lakeland Niles Haven Hospital (Medical) 16

SECTION 4: Conclusion 17

APPENDIX A: Exercise Evaluation Team 19

APPENDIX B: Acronyms and Abbreviations 21

APPENDIX C: Extent-Of-Play Agreements 23

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EXECUTIVE SUMMARY

On October 2 and 18, 2018, the Department of Homeland Security, Federal Emergency Management Agency (DHS/FEMA) Region V Radiological Emergency Preparedness Program staff evaluated a plume exposure pathway Medical Service Drills (MS-1) in the emergency planning zone (EPZ) for the Palisades and D.C. Cook Nuclear Power Plants (PNPP/DCCNP).

The PNPP plant is located in northwestern Van Buren County, Michigan, on the shore of Lake Michigan, approximately five miles south-southwest of South Haven. The 10-mile Plume Exposure Pathway EPZ of the PNPP encompasses parts of Allegan, Berrien, and Van Buren Counties, with the major portion of the zone falling within Van Buren and Berrien Counties.

The DCCNP is located in the State of Michigan, Berrien County, in the City of Bridgman on the eastern shore of Lake Michigan. The 10-mile Plume Exposure Pathway EPZ of the DCCNP encompasses parts of Allegan and Berrien Counties, with the major portion of the zone falling within Van Buren and Berrien Counties.

The purpose of the MS-1 Drills were to assess the ability of offsite agencies to respond to a medical emergency involving a radiological-contaminated member(s) of the public. The MS-1 Drills were held in accordance with DHS/FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans. Evaluation drills were conducted for the following locations:

- Bronson South Haven Hospital – October 2, 2018
- Lakeland Niles Hospital – October 18, 2018

Officials and representatives from the State of Michigan, the risk counties of Van Buren, and Berrien, and the licensee participated in this exercise. State and local officials demonstrated knowledge of their emergency response plans and procedures and successfully implemented them. The DHS/FEMA Region V evaluation team identified no Level 1 or Level 2 Findings, and no Plan Issues.

The DHS/FEMA wishes to acknowledge the efforts of the many individuals who participated in the exercise and made it a success. Approximately 100 individuals participated in the offsite portion of the exercise, of which about one-third were local volunteers. The professionalism and teamwork of the participants was evident throughout all phases of the exercise.

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Radiological Emergency Preparedness (REP) Program

After Action Report/Improvement Plan

Michigan Medical Evaluation Drills

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SECTION 1: Drill Overview

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 Preparedness 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 DHS/FEMA dated December 7, 2015 (Federal Register, Vol. 82, No. 88, May 9, 2017); 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.

Medical Service Drills (MS-1) were conducted on October 2 and 18, 2018 to assess the ability of offsite agencies to respond to a medical emergency involving a radiological-contaminated member(s) of the public. The MS-1 Drills were held in accordance with DHS/FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans. Evaluation drills were conducted for the following locations: Van Buren and Berrien Counties.

The findings presented in this report are based on the evaluations of the Federal evaluation team, with final determinations made by the DHS/FEMA Region V RAC Chair, 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 P-1028 REP Program Manual, dated January 2016.

1.1 EXERCISE DETAILS

EXERCISE NAME

2018, Palisades Nuclear Power Plant/D.C. Cook Nuclear Plant Out-of-Sequence Medical Service Drills for surrounding risk counties.

TYPE OF EXERCISE

Medical Service Drills

EXERCISE DATE

October 2 and 18, 2018

LOCATIONS

See Appendix E for Extent-Of-Play Agreement Locations

SPONSORS

Michigan State Police Emergency Management & Homeland Security Division
7150 Harris Drive
Dimondale, Michigan 48821

PROGRAM

Department Of Homeland Security, Federal Emergency Management Agency Radiological Emergency Preparedness Program

MISSION

Response

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 exercise:

STATE ORGANIZATIONS

Michigan State Police Emergency Management & Homeland Security Division

RISK COUNTY ORGANIZATIONS

Bronson South Haven Hospital

Covert Township Fire Department Lisbon Fire Department

Lakeland Niles Hospital

PRIVATE ORGANIZATIONS

Southwest Michigan Community Ambulance Service (SMCAS)

Palisades Nuclear Power Plant

D.C. Cook Nuclear Plant

FEDERAL ORGANIZATIONS

Federal Emergency Management Agency

SECTION 2: Exercise Design Summary

2.1 EXERCISE PURPOSE AND DESIGN

The DHS/FEMA administers the Radiological Emergency Preparedness (REP) Program pursuant to the regulations found in Title 44 Code of Federal Regulation (CFR) parts 350, 351, and 352. Title 44 CFR Part 350 names 16 planning standards that form the basis for radiological emergency response planning for state, tribal, and local governments impacted by the EPZs established for each nuclear power plant site in the United States. Title 44 CFR Part 350 sets forth the mechanisms for the formal review and approval of state, tribal, and local government radiological emergency response plans and procedures by DHS/FEMA. One of the REP Program requirements established by these regulations is the biennial exercise of offsite response capabilities. During these exercises, DHS/FEMA evaluates state, tribal, and local government plans, procedures, and actions to protect the health and safety of the public in the event of a radiological emergency at the nuclear plant.

The DHS/FEMA provides a statement with the transmission of this Draft AAR/IP to the United States NRC that the affected state, tribal, and local plans and preparedness are: (1) adequate to protect the health and safety of the public living in the vicinity of the nuclear power facility by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency; and (2) capable of being implemented. The report and statement are based on the results of this exercise, review of the radiological emergency response plans and procedures, and verification of the periodic requirements set forth in *"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980 (NUREG-0654/FEMA-REP-1, Rev. 1)* through the annual letter of certification and staff assistance visits.

Formal submission of the RERP for the Palisades Nuclear Power Plant to FEMA Region V by the State of Michigan occurred on December 9, 1980. Formal approval of these RERPs was granted by DHS/FEMA July 6, 1982, under 44 CFR 350.

Formal submission of the RERP for the Palisades Nuclear Power Plant and D.C. Cook Nuclear Plant to FEMA Region V by the State of Michigan occurred on January 23, 1986. Formal approval of these RERPs was granted by DHS/FEMA on June 15, 1987, under 44 CFR 350.

2.2 FEMA CORE CAPABILITIES AND EXERCISE OBJECTIVES

Core Capabilities-based planning allows for exercise planning teams to develop exercise objectives and observe exercise outcomes through a framework of specific action items. Using the Homeland Security Exercise and Evaluation Program methodology, the exercise objectives meet the Radiological Emergency Preparedness Program requirements and encompass the emergency preparedness evaluation areas. The critical tasks to be demonstrated were negotiated with the State of Michigan and its risk counties. The Core Capabilities demonstrated during this exercise were:

Operational Coordination: Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of Core Capabilities. Mobilize all critical resources and establish command, control, and coordination structures within the affected community, in other coordinating bodies in surrounding communities, and across the Nation, and maintain as needed throughout the duration of an incident. Enhance and maintain command, control, and coordination structures consistent with the National Incident Management System (NIMS) to meet basic human needs, stabilize the incident, and transition to recovery.

Environmental Response/Health and Safety: Conduct appropriate measures to ensure the protection of the health and safety of the public and workers, as well as the environment, from all-hazards in support of responder operations and the affected communities. Identify, assess, and mitigate worker health and safety hazards, and disseminate health and safety guidance and resources to response and recovery workers. Minimize public exposure to environmental hazards through assessment of the hazards and implementation of public protective actions. Detect, assess, stabilize, and clean up releases of oil and hazardous materials into the environment, including buildings/structures, and properly manage waste. Identify, evaluate, and implement measures to prevent and minimize impacts to the environment, natural and cultural resources, and historic properties from all-hazard emergencies and response operations.

Mass Care Services: Provide life-sustaining and human services to the affected population, to include hydration, feeding, sheltering, temporary housing, evacuee support, reunification, and distribution of emergency supplies. Move and deliver resources and capabilities to meet the needs of disaster survivors, including individuals with access and functional needs. Establish, staff, and equip emergency shelters and other temporary housing options (including accessible housing) for the affected population. Move from congregate care to non-congregate care alternatives and provide relocation assistance or interim housing solutions for families unable to return to their pre-disaster homes.

Public Health, Healthcare, and Emergency Medical Services: Provide lifesaving medical treatment via Emergency Medical Services and related operations and avoid additional disease and injury by providing targeted public health, medical and behavioral health support, and products to all affected populations. Deliver medical countermeasures to exposed populations. Complete triage and initial stabilization of casualties, and begin definitive care for those likely to survive their injuries and illnesses. Return medical surge resources to pre-incident levels, complete health assessments, and identify recovery processes.

Operational Communications: Ensure the capacity for timely communications in support of security, situational awareness, and operations, by any and all means available, among and between affected communities in the impact area and all response forces. Ensure the capacity to communicate with both the emergency response community and the affected populations and establish interoperable voice and data communications between Federal, tribal, state, and local first responders.

The Core Capabilities and their associated Evaluation Criteria selected for demonstration by the jurisdictions establish the assessment objectives for the exercise. These Core Capabilities, when successfully demonstrated, meet the exercise objectives.

The objectives for this exercise were as follows:

Objective 1: Demonstrate the ability to provide direction and control and make protective action decisions through the state emergency operations centers, county emergency operations centers, and field activities by exercise play and discussion of plans and procedures.

Objective 2: Demonstrate the ability to make protective action decisions affecting state and county emergency workers and the public through exercise play and discussion of plans and procedures.

Objective 3: Demonstrate the ability to implement protective actions for state and county emergency workers and the public through exercise play and discussion of plans and procedures.

Objective 4: Demonstrate the ability to activate the prompt alert and notification system utilizing the primary notification system and the emergency alert system through exercise play and discussion of plans and procedures.

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Radiological Emergency Preparedness (REP) Program

After Action Report/Improvement Plan

Michigan Medical Evaluation Drills

Objective 5: Demonstrate the effectiveness of plans, policies, and procedures in the joint information centers and the joint information system for public and private sector emergency information communications through exercise play and discussion of plans and procedures.

Objective 6: Demonstrate the ability to monitor, decontaminate, register, and shelter evacuees through exercise play and discussion of plans and procedures.

Objective 7: Demonstrate the ability to provide dose projection and protective action decision making for the plume phase.

Objective 8: Demonstrate the capacity for timely communications in support of security, situational awareness, and operations in accordance with the plan, procedures, and Extent-of-Play Agreement, among and between affected communities in the impact area and all response forces.

Objective 9: Demonstrate the capacity to stabilize critical infrastructure functions, minimize health and safety threats, and efficiently restore and revitalize systems and services to support a viable, resilient community. Demonstrate the capacity to provide transportation (including infrastructure access and accessible transportation services) for response priority objectives, including the evacuation of people and animals, and the delivery of vital response personnel, equipment, and services into the affected areas.

Collectively, these nine Objectives successfully demonstrated the Core Capabilities and Evaluation Criteria selected by the jurisdictions in accordance with NUREG-0654/FEM-REP-1 and the REP Program Manual (FEMA P-1028, dated January 2016).

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After Action Report/Improvement Plan

Michigan Medical Evaluation Drills

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SECTION 3: Analysis of Capabilities

3.1 SUMMARY RESULTS OF EXERCISE EVALUATION

This section provides a combined assessment of state and local jurisdictions based upon their collective demonstrated performance under the core capabilities associated with the exercise evaluation criteria described in Appendix E Extent-of-Play Agreements. It employs an integration of the Homeland Security Exercise Evaluation Program and REP Program evaluation methodologies – an analytical process used to assess the demonstration of specific capabilities during an exercise. A capability provides a means to perform one or more critical tasks under specified conditions and to specific performance standards. Core capabilities form the foundation of the National Preparedness System. The REP Program evaluation criteria provide the conditions and performance standards for establishing reasonable assurance that State and Local authorities can protect public health and safety in response to a nuclear power plant accident.

An overall summary of demonstrated capabilities is presented in Section 3.2 and Table 3.2.1 of this report. The organizations, locations, and evaluation criteria selected by the State and counties are described in Appendix E, Extent-of-Play Agreements, which were approved by DHS/FEMA on September 10, 2018 (Palisades) and September 18, 2018 (D.C. Cook).

The results of the assessment are summarized below by Core Capability, as demonstrated during the October 2 and 18, 2018 Drills.

Operational Coordination: Key leadership personnel established and maintained a unified and coordinated operational structure which provided effective and responsive command, direction and control and coordination within and between the affected jurisdictions to meet basic human needs and stabilize the incident.

Critical stakeholders were appropriately integrated within the overall decision-making process, which enabled protective action recommendations to be evaluated in an appropriate and timely manner. This process included input from both relevant critical stakeholders and support personnel and took into account the safety and well-being of emergency workers and the general public and protecting property and infrastructure protective action decisions were made without undue delay.

Situational Assessment: Decision makers were provided with decision-relevant information regarding the nature and extent of the simulated radiological and other hazards, any cascading effects, and the status of the response. The Michigan State Police Emergency Management & Homeland Security Division, and the Michigan Department of Health demonstrated proficiency in the use of dose assessment software to calculate dose projections independent of the Palisade and D.C. Cook Nuclear Power Station's dose projections. The staff calculated hypothetical dose projections based on plant conditions, possible release scenarios, and Controller-injected field monitoring team data. Leadership was prepared to gather and deliver enhanced information to reinforce lifesaving and life-sustaining activities, if needed, and engage governmental and private sector resources within and outside of the affected area to meet basic human needs and stabilize the incident, as necessary.

Public Information and Warning: The jurisdictions as a whole demonstrated the ability to deliver coordinated, prompt, reliable and actionable information to the whole community through the use of clear, consistent and accessible means. Accurate initial information and follow-up on instructions were made with the formulation of news releases being reviewed from the Joint Information System and briefings conducted at the Joint Information Center. Alert and notification of the public and media was completed in a timely manner by simulated means of sounding of sirens, Emergency Alert System messaging, warning in state parks, news releases and media briefings. The simulated release of

information via the aforementioned public information modes were consistent with protective action decisions and contained applicable and specific instructions relative to those decisions.

Environmental Response/Health and Safety: Appropriate measures were taken to ensure the protection of the health and safety of the public and workers, as well as the environment in support of responder operations and the affected communities. The availability of guidance and resources to address hazardous radiological materials was integrated in support of responder operations and the affected communities. State Liaisons at the Emergency Operations Facilities communicated well with the State Emergency Operations Center to ensure that state protective action recommendations and county protective action decisions and responses were coordinated properly. Leadership identified, assessed, and mitigated worker health and safety hazards and disseminated health and safety guidance and resources to responders in accordance with the scenario, plans and procedures, and the extent-of-play agreements.

On-Scene Security and Protection: State and local law enforcement agencies demonstrated the capability to ensure a safe and secure environment through law enforcement and related security and protection operations for people and communities located within affected areas and also for response personnel who could have been directed to engage in lifesaving and life-sustaining operations. The implementation of traffic and access control was appropriately assessed and coordinated in a timely manner. On-scene security at EOCs, schools, reception centers and other facilities met protection requirements and eliminated or mitigated the risk of damage to persons, property, and the environment.

Critical Transportation: Officials demonstrated the capability to provide infrastructure access and accessible transportation services for response priority objectives, including the evacuation of people and animals and the delivery of vital response personnel, equipment, and services into the affected areas. School officials effectively demonstrated the ability to implement protective actions for affected local schools.

Mass Care Services: Congregate care center staff demonstrated the ability to provide life-sustaining services to affected populations with a focus on family reunification, feeding and sheltering. The American Red Cross, which manages all shelter operations under the REP Program, demonstrated the ability to provide resources, services and accommodations consistent with planning guidelines. They also demonstrated knowledge of the process, and to determine whether evacuees had been monitored for contamination and determined to be acceptable before entering congregate care facilities.

Public Health, Healthcare, and Medical Services: Qualified medical personnel successfully demonstrate the ability to provide targeted public health, medical, and behavioral health support and products to populations that might enter shelters and deliver medical countermeasures to exposed populations.

Operational Communications: Each applicable organization and location demonstrated the capacity for timely communications in support of security, situational awareness, and operations by primary and backup means, the ability to communicate with both the emergency response community and the affected populations, and to establish interoperable communications between Federal, state, and local all response groups and locations and between affected communities in the impact area.

3.2 EXERCISE EVALUATION AND RESULTS

This section contains the results and findings of the evaluation of all jurisdictions and functional entities that participated in the October 2 and 18, 2018, Medical Services Drills during out-of-sequence interviews and demonstrations.

Each jurisdiction and functional entity was evaluated based on their demonstration of Core Capabilities and their equivalent Radiological Emergency Preparedness Evaluation Criteria, as delineated in the Federal Emergency Management Agency Radiological Emergency Preparedness Program Manual dated January 2016. Exercise criteria are listed by number, and the demonstration status of those criteria are indicated by the use of the following terms:

- M: Met (no unresolved Level 1 or Level 2 findings were assessed, and there were no unresolved findings from prior exercises)
- Level 1 Finding was assessed
- Level 2 Finding was assessed or an unresolved Level 2 finding(s) from a prior exercise
- P: Plan Issue was assessed
- ND: Not Demonstrated
- NS: Not Selected (the Criterion was not selected for demonstration)

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Radiological Emergency Preparedness (REP) Program

After Action Report/Improvement Plan

Michigan Medical Evaluation Drills

Table 3.2.1 – Summary of Exercise Evaluation – MS1 Drills

DATE: October 2 and 18, 2018 SITE: Palisades Nuclear Power Plant D.C. Cook Nuclear Plant M: Met L1: Level 1 Finding L2: Level 2 Finding P: Plan Issue ND: Not Demonstrated NS: Not Selected	CRITERION	Bronson South Haven Hospital (Medical)	Bronson South Haven Hospital (Transportation)	Lakeland Niles Hospital (Medical)	Lakeland Niles Hospital (Transportation)
Emergency Operations Management					
Mobilization	1a1				
Facilities	1b1				
Direction and Control	1c1				
Communications Equipment	1d1	M	M	M	M
Equipment and Supplies to Support Operations	1e1	M	M	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	M	M	M
KI Public/Institutionalized	3b1				
PAD Implementation Disabled/Functional Needs	3c1				
PAD Implementation Schools	3c2				
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 and Facilities					
Reception Center Operations	6a1				
EW Monitoring & Decontamination	6b1				
Congregate Care	6c1				
Contaminated Injured Transport & Care	6d1	M	M	M	M

3.3 JURISDICTIONAL SUMMARY OF EXERCISE EVALUATION RESULTS

The following sections present a summary of the exercise pursuant to the Evaluation Criteria and Core Capabilities demonstrated at each jurisdiction's response locations. The sections are organized by Jurisdiction, Location, Evaluation Criterion, and Assessed Core Capability, as discussed in the Appendix E Extent-of-Play Agreements. The results of the assessments are summarized in Table 3.2.1.

3.3.1 Risk Jurisdiction – Bronson South Haven Hospital, South Haven MI

In summary, the status of DHS/FEMA-evaluated core capabilities and criteria for the Bronson South Haven Hospital (Van Buren County) is as follows:

- a. MET: All Core Capabilities and Evaluation Criteria identified in the DHS/FEMA-approved extent-of-play agreement.

3.3.1.1 Bronson South Haven Hospital (Transportation)

Criterion 1.d.1 – Core Capability: Operational Communications

Criterion 1.e.1 – Core Capability: Environmental Response/Health and Safety

Core Capability: Mass Care Services

Core Capability: Public & Private Services and Resources

Core Capability: Public Health and Medical Services

Criterion 3.a.1 – Core Capability: Operational Coordination

Core Capability: Environmental Response/Health and Safety

Criterion 6.d.1 – Core Capability: Environmental Response/Health and Safety

Criterion 1.e.1 – Core Capability: Environmental Response/Health and Safety

Core Capability: Mass Care Services

Core Capability: Public & Private Services and Resources

Core Capability: Public Health and Medical Services

Criterion 3.a.1 – Core Capability: Operational Coordination

Core Capability: Environmental Response/Health and Safety

Criterion 6.d.1 – Core Capability: Environmental Response/Health and Safety

- b. LEVEL 1 FINDINGS: NONE

- c. LEVEL 2 FINDINGS: NONE

- d. PLAN ISSUES: NONE

- e. PRIOR ISSUES – RESOLVED: NONE

- f. PRIOR ISSUES – UNRESOLVED: NONE

3.3.2 Risk Jurisdiction – Lakeland Niles Hospital, Niles, MI

In summary, the status of DHS/FEMA-evaluated core capabilities and criteria for the Lakeland Niles Hospital (Berrien County) is as follows:

- a. MET: All Core Capabilities and Evaluation Criteria identified in the DHS/FEMA-approved extent-of-play agreement.

3.3.2.1 Lakeland Niles Haven Hospital (Transportation)

Criterion 1.d.1 – Core Capability: Operational Communications

Criterion 1.e.1 – Core Capability: Environmental Response/Health and Safety

Core Capability: Mass Care Services

Core Capability: Public & Private Services and Resources

Core Capability: Public Health and Medical Services

Criterion 3.a.1 – Core Capability: Operational Coordination

Core Capability: Environmental Response/Health and Safety

Criterion 6.d.1 – Core Capability: Environmental Response/Health and Safety

3.3.2.2 Lakeland Niles Haven Hospital (Medical)

Criterion 1.d.1 – Core Capability: Operational Communications

Criterion 1.e.1 – Core Capability: Environmental Response/Health and Safety

Core Capability: Mass Care Services

Core Capability: Public & Private Services and Resources

Core Capability: Public Health and Medical Services

Criterion 3.a.1 – Core Capability: Operational Coordination

Core Capability: Environmental Response/Health and Safety

Criterion 6.d.1 – Core Capability: Environmental Response/Health and Safety

- b. LEVEL 1 FINDINGS: NONE
- c. LEVEL 2 FINDINGS: NONE
- d. PLAN ISSUES: NONE
- e. PRIOR ISSUES – RESOLVED: NONE
- f. PRIOR ISSUES – UNRESOLVED: NONE

SECTION 4: Conclusion

There were no Level 1 or Level 2 Findings and no Plan Issues identified for Van Buren or Berrien County.

Based on the results of the exercise, the planning and preparedness for the State of Michigan and affected local jurisdictions provide reasonable assurance that appropriate measures can be taken to protect public health and safety. Therefore, Title 44 CFR Part 350, approval of the offsite radiological emergency response plans and preparedness for the state of Michigan, remains in effect.

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APPENDIX A: Exercise Evaluation Team

DRILL DATE: October 2, 2018

SITE: Palisades Nuclear Power Plant

Exercise Management	Name	Agency/ Organization
Chair, Regional Assistance Committee	Sean O'Leary	DHS/FEMA
Exercise Director	Dwaine Warren	DHS/FEMA
Michigan Site Specialist/Evaluator	Alvin Blake	DHS/FEMA
Evaluator	James King	DHS/FEMA

DRILL DATE: October 18, 2018

SITE: D.C. Cook Nuclear Plant

Exercise Management	Name	Agency/ Organization
Chair, Regional Assistance Committee	Sean O'Leary	DHS/FEMA
Exercise Director	Dwaine Warren	DHS/FEMA
Michigan Site Specialist/Evaluator	Alvin Blake	DHS/FEMA
Evaluator	James King	DHS/FEMA

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Radiological Emergency Preparedness (REP) Program

After Action Report/Improvement Plan

Michigan Medical Evaluation Drills

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APPENDIX B: Acronyms and Abbreviations

ACRONYM	DESCRIPTION
AAR	After Action Report
Ag	Agricultural
ANS	Alert and Notification System
ARC	American Red Cross
ARES	Amateur Radio Emergency Service
B/Up	Back-Up
CCC	Congregate Care Center
CEDE	Combined Effective Dose Equivalent
CFR	Code of Federal Regulations
cpm	counts per minute
Cs	Cesium
DC	Dosimetry Coordinator
DCL	Dosimetry Control Log
DCO	Dosimetry Control Officer
DHS	Department of Homeland Security
DOE	Department of Energy
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EMA	Emergency Management Agency
EMD	Emergency Management Director
EMHSD	Emergency Management Homeland Security Division
EMS	Emergency Medical Service
EMT	Emergency Medical Technician
EOC	Emergency Operation Center
EOF	Emergency Operations Facility
EPT	Exercise Planning Team
EPZ	Emergency Planning Zone
EW	Emergency Worker
EWDC	Emergency Worker Decontamination Center
FBI	Federal Bureau of Investigation
FD	Fire Department
FEMA	Federal Emergency Management Agency
FMTs	Field Monitoring Teams
g	gram(s)
GE	General Emergency
gpm	gallons per minute
KI	Potassium Iodide

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Radiological Emergency Preparedness (REP) Program

After Action Report/Improvement Plan

Michigan Medical Evaluation Drills

ACRONYM	DESCRIPTION
M/D	Monitoring/Decontamination
MARCS	Multi-Agency Radio Communications System
μCi/ml	micro (10 ⁻⁶) Curies per milliliter
mg	milligram
MHz	Megahertz
min	minute(s)
MPH/mph	miles per hour
μR	micro (10 ⁻⁶) R/micro Roentgen
NRC	Nuclear Regulatory Commission
OOS	Out-of-Sequence
ORO	Offsite Response Organizations
OSLD	Optically Stimulated Luminescence Dosimeter
PAA	Protective Action Area
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PDAFNs	Persons with Disabilities and Access/Functional Needs
ppm	parts per million
PRD	Permanent Record Dosimeter
R	Roentgen
RA	Radiological Advisor
RAC	Regional Assistance Committee
RADEF	Radiological Defense
RC	Reception Center
RCM	Reception Center Manager
RCS	Reactor Containment System
RDO	Radiological Defense Officer
rem	radiation exposure man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RESA	Regional Education Service Agency
RIMC	Radiological Instrumentation, Maintenance and Calibration
RO	Radiological Officer
SAE	Site Area Emergency
SEOC	State Emergency Operations Center
SIP	Shelter-in-Place
SOG	Standard Operating Guideline
SOP	Standard Operating Procedure
TEDE	Total Effective Dose Equivalent
THD	Technological Hazards Division
TLD	Thermoluminescent Dosimeter
UHF	Ultra-High Frequency
VHF	Very High Frequency

APPENDIX C: Extent-Of-Play Agreements

EXTENT OF PLAY AGREEMENT FOR THE MEDICAL SERVICES EXERCISE

October 2, 2018

Location: Bronson South Haven Hospital
955 S. Bailey Ave.
South Haven, MI 49090

Transportation Provider: SHAES/EMS

Lead Controller: MSP/EMHSD Staff

Ambulance Controller: MSP/EMHSD Staff

Victim: Provided by Palisades

South Haven Area Emergency Services/EMS Staff (SHAES): SHAES Staff

Bronson South Haven: Hospital Emergency Department Staff

Criteria that can be re-demonstrated immediately for credit, at the discretion of the evaluator, include the following: For Transportation: 1.d.1, 3.a.1 and 6.d.1; for the Hospital, 1.d.1, 1.e.1, 3.a.1 and 6.d.1. Criteria may be re-demonstrated, as agreed by the MSP/EMHSD Controller and FEMA Evaluator(s).

EVALUATION AREA 1 - EMERGENCY OPERATIONS MANAGEMENT

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations.

SHAES/EMS will use 2-way radios to communicate with Bronson South Haven Hospital. Other communication systems that can be used include commercial telephone or cell phones.

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI) and other supplies are sufficient to support emergency operations.

Bronson South Haven Hospital will adequately demonstrate the ability to support operations, with adequate resources. The availability of dosimetry and KI for hospital personnel will be demonstrated during this exercise, SHAES/EMS staff will also be issued dosimetry and KI as field team members.

EVALUATION AREA 3 - PROTECTIVE ACTION IMPLEMENTATION

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plan and 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.

The use of dosimetry and KI will be demonstrated by ambulance crew. For the purpose of this drill the ambulance Van Buren County will simulate issuing dosimetry and KI to the ambulance crew in lieu of the emergency worker decontamination center.

For purposes of this exercise, if there is no medical need to bring equipment into and out of the treatment room, swabs will be taken at the injury locations and passed out of the room to demonstrate movement of equipment and supplies into and out of the controlled area.

EVALUATION AREA 6.d – TRANSPORTATION AND TREATMENT OF CONTAMINATED INJURED INDIVIDUALS

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals.

The hospital will demonstrate procedures for limiting exposure to hospital staff, decontaminating a patient, and restricting access to the area where the patient is being treated and monitored.

SHAES/EMS will demonstrate the capability to transport a contaminated, injured individual to Bronson South Haven Hospital. The ambulance crew will pick up a contaminated injured patient at Covert Fire Department (simulated location of accident). SHAES/EMS staff will utilize universal precautions and good housekeeping practices to minimize the spread of contamination focusing on treating the patient's medical condition.

SHAES/EMS will call in the information regarding the patient to Bronson South Haven Hospital so they can prepare for receipt of a contaminated patient.

Bronson South Haven Hospital will implement their plan for receipt, isolation and treatment of an injured contaminated patient. Two hospital staff members will demonstrate proper donning and doffing of full personal protective equipment (PPE). Upon completion of this portion of demonstration PPE requirements may be relaxed with the concurrence of the lead controller and FEMA evaluator. Medical personnel will utilize universal precautions and good housekeeping practices to minimize the spread of contamination, and will focus on treating the patient's medical condition. Simple decontamination efforts will be

demonstrated after the patient has been medically stabilized. Hospital personnel will demonstrate their knowledge of who to call for assistance in Radiological Accidents (e.g., REAC/TS).

The drill will conclude with hospital representatives demonstrating the removal of protective clothing and surveying of the emergency room and hospital personnel. Termination will be at the discretion of the Lead Controller, MSP/EMHSD Controller and FEMA Evaluator(s) based on successful demonstration of objectives.

Following the conclusion of the drill, a short critique will be held.

**EXTENT OF PLAY AGREEMENT
FOR THE
MEDICAL SERVICES EXERCISE**

October 18, 2018

Location: Lakeland Niles
31 N Niles Ave
Niles, MI 49120

Transportation Provider: Southwestern Michigan Community Ambulance Service (SMCAS)

Lead Controller: Kristi Davis

MSP/EMHSD SMCAS/EMS Controller: Shasta Heintzelman

Medical Controller: Kristi Davis

Victim: D.C. Cook

Rad Player ER: D.C. Cook RPT

SMCAS EMS Staff:
Lakeland Niles Hospital Emergency Department Staff

Criteria that can be re-demonstrated immediately for credit, at the discretion of the evaluator, include the following: For Transportation: 1.d.1, 3.a.1 and 6.d.1; for the Hospital, 1.d.1, 1.e.1, 3.a.1 and 6.d.1. Criteria may be re-demonstrated, as agreed by the Lead Controller, MSP/EMHSD Controller and FEMA Evaluator(s).

EVALUATION AREA 1 - EMERGENCY OPERATIONS MANAGEMENT

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations.

SMCAS will use 2-way radios to communicate with Lakeland Niles Hospital. Other communication systems that can be used include commercial telephone or cell phones.

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI) and other supplies are sufficient to support emergency operations.

Lakeland Niles Hospital will demonstrate the ability to support operation of the facilities with adequate resources. Dosimetry will be issued and tracked during the exercise.

SMCAS staff will be issued dosimetry and KI by controllers in the field.

EVALUATION AREA 3 - PROTECTIVE ACTION IMPLEMENTATION

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plan and 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.

The use of dosimetry and KI will be demonstrated by the ambulance crew. For the purpose of this drill, the Berrien County will issue dosimetry and KI. Ingestion of KI will not occur.

Movement of samples, equipment, and materials moving into and out of the treatment room will be monitored consistent with radiological postings to ensure cross contamination of clean areas does not occur. All items leaving the radiologically controlled area must be clearly identified according to procedures.

EVALUATION AREA 6.d – TRANSPORTATION AND TREATMENT OF CONTAMINATED INJURED INDIVIDUALS

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals.

The hospital will demonstrate procedures for limiting exposure to hospital staff, decontaminating a patient, and restricting access to the area where the patient is being treated and monitored.

SMCAS will demonstrate the capability to transport a contaminated, injured individual to Lakeland Niles Hospital. The ambulance crew will pick up a contaminated injured patient near the D.C. Cook Nuclear Plant. Should inclement weather conditions exist, the Lead Controller may simulate the outdoor accident scene and begin the drill from an indoor location. SMCAS/EMS staff will utilize universal precautions and good housekeeping practices to minimize the spread of contamination focusing on treating the patient's medical condition.

SMCAS will call in the information regarding the patient to Lakeland Niles Hospital identifying the need for receipt of a contaminated injured patient.

Lakeland Niles Hospital will implement station protocols and procedures for receipt, isolation and treatment of an injured contaminated patient. Two hospital staff members will demonstrate proper donning and doffing of full personal protective equipment (PPE) required for a radiologically contaminated injured patient. Upon completion of this portion of demonstration PPE requirements may be relaxed with the concurrence of the lead controller

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Radiological Emergency Preparedness (REP) Program
After Action Report/Improvement Plan Michigan Evaluation Drills

and FEMA evaluator. Medical personnel will utilize universal precautions and good housekeeping practices to minimize the spread of contamination, and will focus on treating the patient's medical condition. Simple decontamination efforts will be demonstrated after the patient has been medically stabilized. Hospital personnel will demonstrate their knowledge of who to call beyond D.C. Cook for assistance in Radiological Accidents (e.g., MDEQ, REAC/TS).

The drill will conclude with hospital representatives and D.C. Cook RPT supervising the removal of protective clothing and surveying of the emergency room and hospital personnel. RPT will also advise on the proper procedure for release or disposal of contaminated material. Termination will be at the discretion of the Lead Controller, MSP/EMHSD Controller and FEMA Evaluator(s) based on successful demonstration of objectives.

Following the conclusion of the drill, a short critique will be held.

U.S. Department of Homeland
Security
Region V
536 South Clark Street, Floor 7
Chicago, Illinois 60605



FEMA

DEC 27 2018

Emmitt McGowan
Deputy State Director of Emergency Management/Homeland Security
Michigan State Police
Emergency Management and Homeland Security Division
P.O. Box 30634
Lansing, MI 48909

Dear Captain McGowan:

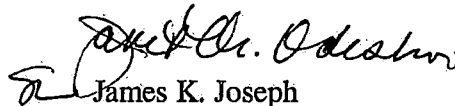
Enclosed is the Final After Action Report/Improvement Plan for the Palisades Nuclear Power Plant and D.C. Cook Nuclear Plant radiological emergency preparedness Medical Evaluation Drills conducted on October 2 and 18, 2018.

There were no findings or plan issues identified during this exercise.

Based on the results of the exercise, the planning and preparedness for both the State of Michigan and the affected local jurisdictions continue to provide reasonable assurance that appropriate measures can be taken to protect the public health and safety. Therefore, Title 44 CFR 350 approval of the offsite radiological emergency response plans and preparedness program remain in effect.

If you have any questions, please contact Sean O'Leary, Chair, Regional Assistance Committee, at (312) 408-5389.

Sincerely,


James K. Joseph
Regional Administrator

Enclosure

cc: DHS/FEMA Headquarters
NRC Region III
NRC Headquarters Document Control Desk