After Action Report

Sequoyah Nuclear Power Plant
Radiological Emergency Preparedness Exercise
Exercise Date: October 3, 2018

February 5, 2019

FEMA

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Executive Summary

On October 3, 2018, the U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) Region IV, Radiological Emergency Preparedness Program staff evaluated a plume-exposure-pathway exercise for the 10-mile emergency planning zone of the Sequoyah Nuclear Plant. The evaluations of out-of-sequence activities conducted June 26-28, 2018, are also included in this report.

The Sequoyah Nuclear Plant is located in Soddy-Daisy, Tennessee, 18 miles north of Chattanooga in Hamilton County. The emergency planning zone encompasses portions of Hamilton and Bradley Counties. The plant is operated by the Tennessee Valley Authority.

The purpose of the exercise was to assess the level of state and local preparedness in responding to a radiological incident at the Sequoyah Nuclear Plant. It was conducted in accordance with FEMA policies and guidance concerning the exercise of state and local radiological emergency response plans and procedures. The previous federally evaluated exercise at this site was conducted on September 14, 2016. The qualifying emergency preparedness exercise was conducted on June, 1980.

Officials and representatives from participating agencies and organizations demonstrated knowledge of their emergency response plans and procedures and successfully implemented them during the exercise. All jurisdictions met their exercise objectives and demonstrated the corresponding core capabilities identified in Section 2.2 of this report. FEMA did not identify any level 1 or level 2 findings during this exercise.

One highlight of the exercise was Hamilton County's emphasis on monitoring and decontamination of evacuees with access and functional needs as well as companion animals. It was also noted that the coordination and teamwork between state response agencies and the Tennessee Valley Authority was excellent, which contributed to a unified and informed response. These highlights demonstrate the commitment of exercise participants to improve their preparedness.

FEMA wishes to acknowledge the efforts of the many individuals who planned for and participated in the exercise to make it a success.

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Section 1: Exercise Overview

1.1 Exercise Details

Exercise Name
2018 Sequoyah Nuclear Plant Radiological Emergency Preparedness Exercise

Type of Exercise
Functional Exercise

Exercise Date
October 3, 2018

Exercise Off-Scenario/Out-of-Sequence Dates
June 26-28, 2018

Locations
See the extent-of-play agreements in Appendix C for exercise locations.

Program
U.S. Department of Homeland Security, Federal Emergency Management Agency, Radiological Emergency Preparedness Program

Mission
Response

Scenario Type
Full-Participation Plume-Phase Radiological Emergency Preparedness Exercise

1.2 Exercise Planning Team Leadership

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1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the 2018 Sequoyah Nuclear Plant exercise.

State Jurisdictions:

State of Tennessee
- Military Department, Tennessee Emergency Management Agency
- Department of Public Safety
- Department of Environment and Conservation, Division of Radiological Health; Division of Air Pollution
- Department of Health and Human Services
- Department of Transportation
- Department of Agriculture, Division of Forestry
- Tennessee Wildlife Resources Agency

Risk Jurisdictions:

Hamilton County
- Office of Emergency Management
- Chattanooga-Hamilton County Health Department
- Sheriff's Office
- Department of Education
- Public Works
- City of Chattanooga
- Chattanooga Police Department
- Collegedale Police Department
- Chattanooga Fire Department
- Tri Community Volunteer Fire Department
- Emergency Medical Services
- Tax Assessor
- Disaster Animal Response Team
- Amateur Radio
- Tri State Mutual Aid
- Erlanger's LIFE FORCE Communications Center
- University of Tennessee Chattanooga

Bradley County
- Emergency Management Agency
- Sheriff's Department
- City of Cleveland Police Department
- Fire and Rescue
- Emergency Medical Service
- Department of Education
- Human Services
- Health Department
- Road Department
- Public Works
- Cleveland City Schools
- Auxiliary Communications Services

Host Jurisdictions

Sequatchie County
- Tennessee Department of Health
- Sequatchie County Emergency Management Agency
- Sequatchie County Police Department
- Dunlap Police Department
- Dunlap Fire Department
- Fredonia Volunteer Fire Department
- Long Oak Volunteer Fire Department
- Puckett Emergency Medical Service
- Sequatchie County Health Department
- Marion County Health Department

Federal Agencies:

- Tennessee Valley Authority
- U.S. Nuclear Regulatory Commission

Private Organizations:

- American Red Cross
- Salvation Army
- Blue Cross Blue Shield
- Catholic Health Initiative Memorial Hospital
- Erlanger Life Force
- Tenova Healthcare

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Section 2: Exercise Design Summary

2.1 Exercise Purpose and Design

The Federal Emergency Management Agency (FEMA) administers the Radiological Emergency Preparedness (REP) Program pursuant to the regulations found in Title 44 Code of Federal Regulations (CFR) parts 350, 351, 352, 353 and 354. 44 CFR 350 codifies sixteen planning standards that form the basis for radiological emergency response planning for state, tribal, and local governments impacted by the emergency planning zones established for each nuclear power plant site in the United States. United States nuclear regulatory commission regulations also codify the sixteen planning standards for the licensee. 44 CFR 350 sets forth the mechanisms for the formal review and approval of state, tribal, and local government radiological emergency response plans and procedures by FEMA. One of the REP Program cornerstones established by these regulations is the biennial exercise of offsite response capabilities. During these exercises, affected state, tribal, and local governments demonstrate their abilities to implement their plans and procedures to protect the health and safety of the public in the event of a radiological emergency at the nuclear plant.

The results of this exercise, together with review of the radiological emergency response plans, and verification of the periodic requirements set forth in NUREG-0654/FEMA-REP-1, along with supplements, through the annual letter of certification and staff assistance visits, enabled FEMA to provide a statement with the transmission of this final after action report to the U.S. Nuclear Regulatory Commission, 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.

Formal submission of the radiological emergency response plans for the Sequoyah Nuclear Plant to Federal Emergency Management Agency Region IV by the State of Tennessee occurred on June 20, 1980. In accordance with 44 CFR 350, formal approval of those procedures was granted on August 7, 1980.

2.2 Exercise Core Capabilities and 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 (HSEEP) 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 Tennessee and the participating counties. The core capabilities scheduled for demonstration 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.

Situational Assessment: Provide all decision makers with decision-relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.

Public Information and Warning: Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.

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.

On-Scene Security, Protection, and Law Enforcement: 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 engaged in lifesaving and life-sustaining operations.

Critical Transportation: 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.

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.

These core capabilities, when successfully demonstrated, meet the exercise objectives. The objectives for this exercise were as follows:

1. Demonstrate the ability to alert, notify, and mobilize response personnel and facilities; provide direction and control, make precautionary and protective action decisions and implement those decisions. (Operational Coordination; On-Scene Security, Protection & Law Enforcement; Critical Transportation)

2. Demonstrate the ability to manage radiological field monitoring teams and perform plume-phase field measurements and analysis. (Situational assessment; Environmental Response/Health & Safety)

3. Demonstrate the ability to activate the prompt alert and notification system and provide accurate emergency information and instructions to the public and news media in a timely manner. (Public Information and Warning)

4. Demonstrate the ability to receive, monitor, decontaminate, register, and provide for the temporary care of evacuees and emergency workers. (Mass Care)

2.3 Exercise Scenario

The following is a brief summary of the scenario developed by the utility to drive exercise play. Actual exercise times and events may have differed from those described below.

The exercise begins at 0800. At 0801, Steam Generator #3 develops a tube leak. By 0804, the leakage meets the criteria for declaration of an Unusual Event. The operations crew begins reactor shutdown procedures. At 0825, there is a steam generator tube rupture, which meets the criteria for an Alert based on emergency action level FA1 for loss of the reactor coolant barrier.

At 0945, Reactor Coolant Pump #2 trips on a locked rotor. Parts from the pump enter the reactor, causing fuel damage. Steam Generator #3 faults into containment and containment pressure rises. At 0951, the 1A Containment Spray Pump trips, meeting the criteria for a Site Area Emergency, based on emergency action level FS1 for potential loss of the containment barrier.

At 1015, the containment radiation levels indicate the loss of the fuel cladding barrier, which meets the criteria for a General Emergency based on emergency action level FG1. The protective action recommendation is to evacuate two miles around (zones A-1, B-1, C-1, D-1) and shelter five miles downwind (B-2, B-5, and C-2). The wind direction is from 328 degrees.

At 1030, containment will breech into the annulus, with the start of a radiological release. At 1115, the wind will shift slightly (from 333 degrees). The protective action recommendation evaluation determines that no additional zones are affected. However, Zone B-2 will no longer be in the downwind sector.

At 1235, the two-mile evacuation time has elapsed, requiring a protective action recommendation evaluation. The updated protective action recommendation is to evacuate the affected downwind zones at five miles including zones A-1, B-1, C-1, D-1, B-5, and C-2 and shelter B-2 (previously in the downwind sector). At 1300, the drill is terminated if all objectives are met.

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Section 3: Analysis of Capabilities

3.1 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 3, 2018, plume-exposure-pathway exercise and out-of-sequence activities of June 26-28, 2018.

Each jurisdiction and functional entity was evaluated based on the demonstration of core capabilities and the underlying 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 assessed and no unresolved findings from prior exercises)
- 1: Level 1 finding assessed
- 2: Level 2 finding assessed or an unresolved level 2 finding(s) from a prior exercise
- P: Plan issue
- N: Not demonstrated

3.2 Summary Results of Exercise Evaluation

The Homeland Security Exercise and Evaluation Program evaluation methodology is 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 Federal Emergency Management Agency Region IV Radiological Emergency Preparedness Program evaluations. The core capability summaries below provide an overall combined assessment of state and local jurisdictions based upon their collective demonstrated performance as it relates to the specific core capability. Section 3.3 of this report contains each jurisdiction's standalone capability summary.

Operational Coordination: Key leadership personnel from the participating agencies established and maintained a unified and coordinated operational structure that provided effective and responsive direction and control. The overall decision-making process integrated critical stakeholders, enabling protective actions and subsequent decisions to be made in a sensible manner without undue delay. Some information relevant to decision making, such as the potassium iodide decision and the radiological release, was not clearly communicated to risk counties in a timely manner. This caused confusion for the risk counties, but did not have a significant impact on the response.

Situational Assessment: State dose assessment personnel provided decision makers relevant information regarding radiological and plant conditions. The Radiation Control Officer provided direction to the Division of Radiological Health team members. The team gathered information from changing plant and meteorological conditions to assess the radiological release. They performed dose projections and compared their results with utility dose projections and field team readings. This information allowed decision makers to understand the extent of the hazards, their cascading effects, and to make the appropriate protective action decisions.

Public Information and Warning: Alert and notification of the public was made using simulated siren activation and Emergency Alert System messages, followed by supplemental media releases and formal media briefings. Effective coordination among local public information officers, the state public information group, and the direction and control officer resulted in timely development, authorization, and distribution of public information. These processes enabled a coordinated, prompt, and reliable information message to be delivered to the public and media. Some pre-scripted messages contained outdated emergency instructions and will require updating. Route alerting was successfully demonstrated in Hamilton County.

Environmental Response/Health and Safety: Field monitoring teams were consistently informed of plant status, change in wind direction, and protective action decisions by the radiological monitoring coordination center. There was excellent coordination between the Tennessee Department of Environment and Conservation personnel and the Tennessee Valley Authority Field Monitoring Team Coordinators. All team members were experienced and worked collectively to ensure all tasks were accomplished.

On-Scene Security, Protection, and Law Enforcement: Evacuation traffic and access control was discussed with local law enforcement personnel. They were provided appropriate equipment and instructions to effectively implement traffic and access control. They were knowledgeable of their responsibilities during this type of incident as well as radiological exposure control equipment.

Critical Transportation: Administrators from Hamilton County Schools validated their ability to implement protective actions and safeguard students, staff, and faculty in the event of an incident at the Sequoyah Nuclear Plant during an out-of-sequence discussion. School officials were familiar within their plans and procedures. Protective actions were well defined, and there were sufficient transportation assets available to relocate the endangered schools.

Mass Care: Hamilton County and Sequatchie County demonstrated the ability to provide services and accommodations for evacuees during out-of-sequence activities. These activities included evacuee reception, radiological monitoring, decontamination, and registration of evacuees at the Sequatchie County High School, East Lake High School, and the Chattanooga High School Center for Creative Arts reception and

congregate care facilities. Capabilities to process contaminated pets and individuals with access and functional needs were self-assessed by the response organization to improve their ability to serve the communities.

3.3 Jurisdictional Summary Results of Exercise Evaluation

3.3.1 State of Tennessee

3.3.1.1 State Emergency Operations Center

Operational Coordination Capability Summary:

The Tennessee State Emergency Operations Center staff successfully demonstrated their ability to manage and coordinate an emergency incident involving multiple state, federal, county, and private stakeholders. The direction and control officer established an effective operational structure and processes that supported the mission and objectives. Staff members were allowed to preposition; however, a demonstration was conducted to notify personnel. Staff were observed receiving notifications in a timely manner. The notification system had the capability to identify those that responded and to continue notifying those that did not.

The facility had ample space, office equipment, supplies, and redundant communications systems to support this type of large-scale emergency response. A dedicated phone line was the primary method of communicating with the Sequoyah Nuclear Plant. Conference bridge lines were used to coordinate with stakeholders. Multiple backup forms of communications were available if needed.

The direction and control officer and the alternate direction and control officer provided multiple briefings to the staff. They utilized the Tennessee Valley Authority liaison during those briefings for technical explanations, and required the individual emergency support function's leadership to brief their activities. This provided situational awareness to all staff. The direction and control officers utilized a similar method over the coordination conference calls to transfer information to and from the counties, joint information center, field coordination center, and the Tennessee Valley Authority Central Emergency Coordinating Center.

The direction and control officer reviewed all emergency classification level changes as they came in. He discussed protective action recommendations with senior and technical staff, and the Tennessee Valley Authority liaison. He then developed a protective action decision and determined what pre-scripted emergency alert system messages would be sent to the public to implement the decisions. He initiated coordination conference calls to discuss his decision and requested the risk counties' concurrence. The decision for the general population and emergency workers not to ingest potassium iodide was confusing to local officials because they did not understand why field teams should take potassium iodide, and not their police officers who may be in the same area. All other decisions

were concurred upon, to include timing of siren sounding and the sending of the Emergency Alert System messages.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

Public Information and Warning Capability Summary:

The Tennessee State Emergency Operations Center staff demonstrated the capability to conduct primary alerting and notification of the public. Leadership and staff effectively used pre-scripted messages to coordinate and distribute state protective action decisions and response action information. Emergency Alert System messages were coordinated by decision line participants and appropriately prepared by the public information staff in a timely manner. Contact and confirmation with the local primary radio station was simulated. Message transmittals to the radio station and siren system activations were simulated as well.

Tennessee State Emergency Operations Center staff demonstrated the capability to provide accurate emergency information and instructions to the public and the news media in a timely manner. Effective coordination between the state public information group and the direction and control officer resulted in timely development, authorization, and distribution of accurate public information.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 5.a.1 and 5.b.1.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.1.2 Field Coordination Center

Operational Coordination Capability Summary:

The field coordination center director and his staff successfully demonstrated the Operational Coordination Core Capability in response to a radiological incident at the Sequoyah Nuclear Plant during this exercise. They established and maintained a unified, coordinated operational structure and process.

The director and his staff were pre-positioned but utilized established plans and procedures to alert, notify, and mobilize key emergency response personnel in order to activate the field coordination center. The director ensured the direction of state resources was in accordance with the standard guidance from the state emergency operation center by communicating with the direction and control officer and coordinating with Hamilton and Bradley Counties. The staff demonstrated knowledge of procedures and how to implement them.

The field coordination center was located within the Tennessee Air National Guard facility and there was sufficient space, equipment, and supplies to support emergency response operations. There was also ample space on the grounds to stage requested state and federal resources. There were redundant communications available to support operations including commercial telephone, cellular phones, internet, incident command software, and an 800-megahertz radio system. The commercial phones served as the primary means of communication with state radio as backup. All communications and conference lines were demonstrated during the exercise, and no failures were observed.

The field coordination center was located inside the emergency planning zone, and the issuance of dosimetry and potassium iodide to the field coordination staff was simulated. The extent of play agreement did not call for simulation of dosimetry and potassium iodide issuance. According to procedures, the field coordination center staff should receive dosimetry and potassium iodide before entering the facility.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.a.1, 1.d.1, 1.e.1, 3.a.1.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.1.3 Central Emergency Coordination Center

Operational Coordination Capability Summary:

The Tennessee Emergency Management Agency and the Division of Radiological Health of the Tennessee Department of Environment and Conservation provided liaisons to the Tennessee Valley Authority's Central Emergency Control Center in Chattanooga, Tennessee. The presence of these liaisons facilitated the essential flow of information between the Tennessee Valley Authority and the decisions makers of the respective response organizations operating in the state emergency operations center. The liaisons followed applicable procedures and performed their respective duties in an efficient and professional manner; this ensured that state and county decision makers were kept up to date with accurate and timely information.

The liaisons worked closely with Tennessee Valley Authority personnel to obtain the current plant conditions at the Sequoyah Nuclear Plant and to provide information on a timely basis to the state emergency operations center and other emergency response facilities. The respective liaisons also facilitated the flow of information to various queries and requests among the utility and state agencies. The Tennessee Emergency Management Agency liaison provided prompt information to Tennessee Valley Authority personnel regarding roadway conditions that might affect potential evacuation routes, including the clearing of a notional hazardous materials accident. The liaison also passed a request from the utility to the state emergency operations center that local law enforcement agencies were to be advised of an imminent evacuation of non-essential site personnel.

The Tennessee Department of Environment and Conservation liaison interacted with utility dose assessment personnel and ensured that the timely flow of information including meteorological and plant conditions, radiological monitoring, and the results of dose modeling to the state dose assessment staff operating at the state emergency operations center. The Tennessee Department of Environment and Conservation liaison also communicated information that allowed state and utility field teams to be effectively coordinated.

The liaisons from both agencies provided timely and substantive information to the state emergency operations center.

For this capability, the following Radiological Emergency Preparedness criterion was MET: 2.b.1.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.1.4 Dose Assessment

Situational Assessment Capability Summary:

Personnel from the Tennessee Department of Environment and Conservation, Division of Radiological Health successfully demonstrated dose assessment operations at the state emergency operations center in Nashville, Tennessee. The Division of Radiological Health personnel demonstrated the ability to provide staff and assess radiological, meteorological, and plant conditions in response to a radiological incident. The facility and the team had adequate equipment, communications, and supplies to support emergency operations.

The Division of Radiological Health team performed dose assessments and made protective action recommendations. The technical advisor and assistant entered meteorological and source term information into the dose projection software program. The radiation control officer made protective action recommendations based on technical information received from the technical advisor. The direction and control officer made protective action decisions based on information supplied from the Division of Radiological Health team.

The chief medical officer was responsible for authorizing the ingestion of potassium iodide for emergency workers and the public based on the thyroid committed dose equivalent calculations. The threshold value for ingestion was not reached in this exercise either by dose projections or by field team results; therefore, there was no authorization of potassium iodide ingestion for the general public or emergency workers. The Division of Radiological Health field teams had a standing order to ingest potassium iodide when entering the 10-mile emergency planning zone.

Throughout the exercise, the Division of Radiological Health team continuously monitored meteorological conditions and plotted the downwind direction and field team locations on the 10-mile emergency planning zone map. The Division of Radiological Health team performed dose assessments and compared results to Sequoyah Nuclear Plant dose projections and field team results with acceptable agreement. The Division of Radiological Health team had some difficulty in comparing the low state field team plume edge radiation levels and air sampling results with the dose assessment runs. The centerline values reported by the Sequoyah Nuclear Plant field teams were used as validation for the dose assessment runs. The radiation control officer instructed one state field team to obtain a centerline survey and air sample. The survey and sample results were compared with dose projections with acceptable agreement. All dose assessment results calculated during the exercise were less than protective action guidelines.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 2.b.1, 2.b.2.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.1.5 Radiological Monitoring Coordination Center

Environmental Response/Health and Safety Capability Summary:

The Tennessee Department of Environment and Conservation, Division of Radiological Health successfully demonstrated field team management at the radiological monitoring control center in Chattanooga, Tennessee, in response to the Sequoyah Nuclear Plant exercise. The radiological monitoring control center was co-located with the field coordination center. The facility had adequate equipment, communications capabilities, and supplies to support emergency operations.

The radiological monitoring control center was located in emergency planning zone sector C-7, and field team management personnel should have been issued dosimetry and potassium iodide. This equipment was available in the field coordination center and would have been issued in an actual emergency. It was noted that the provided direct-reading dosimeters had a range of 0-20 Roentgen and would not accurately measure the lower administrative radiation exposure limit used by the Division of Radiological Health.

The radiological monitoring coordinator, Division of Radiological Health Coordinator, and the Assistant Division of Radiological Health Coordinator worked as a team to develop a field monitoring strategy and direct the activities of five state field monitoring teams. The Army National Guard, 45th Civil Support Team had two additional teams available to support field monitoring activities. The Division of Radiological Health and Sequoyah Nuclear Plant field team coordination groups worked together to ensure they could collectively locate the plume, find the plume edges and centerline, and obtain air samples for radioactive particulates and iodine.

Throughout the exercise, the field team management group monitored meteorological conditions and adjusted field team survey strategy based on the changing wind direction. Field radiation survey measurements were immediately transmitted to the state emergency operations center for use in dose projection calculations and validation of protective actions.

The state field team strategy was to locate plume edges; the Sequoyah Nuclear Plant field teams would traverse the plume and locate the centerline. In some cases, combined field team management strategy appeared to be an inefficient use of available resources; three teams were used to locate the close in east edge, west edge and plume centerline. If state teams also traversed the plume, centerline measurements could have been obtained at multiple locations downwind. This strategy would support more timely and accurate dose projections. In one instance, the radiation control officer instructed one state field team to obtain a centerline survey and air sample to allow the state to accurately compare field measurements with dose projections.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.a.1, 1.d.1, 1.e.1, 2.a.1, and 4.a.2.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.1.6 Radiological Field Monitoring Teams

Environmental Response/Health and Safety Capability Summary:

The Tennessee Department of Environment and Conservation, Division of Radiological Health demonstrated the ability to provide guidance and resources for field monitoring teams to obtain appropriate field measurements and samples during a simulated radiological event. Ambient radiation measurements were made and recorded at appropriate locations, and radioiodine and particulate samples were collected and properly transferred for analysis.

The Tennessee Department of Environment and Conservation, Division of Radiological Health had effective procedures to alert, notify, and mobilize radiological field monitoring teams in a timely manner. The field monitoring teams had two communications systems that were successfully used to maintain communications with the radiation monitoring coordinator. Field monitoring team vehicles were equipped with

installed radios. One team's radio was inoperable; however, it had no impact on communications throughout the exercise.

The field monitoring teams had adequate equipment, maps, displays, monitoring instruments, dosimetry, potassium iodide, and other supplies to support emergency operations. The Division of Radiological Health issued appropriate dosimetry, potassium iodide, and procedures, and managed radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically, and at the end of each mission, read their dosimeters and recorded the readings on the appropriate exposure record. All dosimetry, survey instruments, and air samplers were within calibration dates and were properly checked to verify operation.

Ambient radiation measurements were made and recorded at appropriate locations, and radioiodine and particulate samples were collected in accordance with procedures. Field monitoring teams moved to an appropriate low background location to determine whether any significant amount of radioactivity had been collected on the sampling media. Each team used appropriate contamination control procedures throughout the exercise. Samples were packaged, labeled, and handled correctly and delivered to the sample drop off location at the end of the exercise.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.a.1, 1.d.1, 1.e.1, 3.a.1, and 4.a.3.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.2 Hamilton County

3.3.2.1 Emergency Operations Center

Operational Coordination Capability Summary:

The Hamilton County Office of Emergency Management staff established and maintained a unified and coordinated operational structure and process that integrated all critical stakeholders. The emergency operations center manager notified and mobilized emergency personnel to fully staff the Hamilton County Emergency Operations Center.

The Hamilton County Emergency Operations Center had multiple means of communications and adequate equipment to support the operation. A dedicated phone line was the primary means of incident notification from the Tennessee Emergency Management Agency. All subsequent notifications were received from the Tennessee Emergency Management Agency liaison located in the emergency operations center. A commercial conference line was used for coordination among stakeholders. Alternate communications included the digital National Warning System, cell phones, commercial phones, email, and 800-MHz radios. No communication failures were observed during the exercise. Electronic information boards, maps, and dry erase boards were located throughout the emergency operations center, making it easy for all personnel to maintain situational awareness. The facility had ample space, supplies, and equipment to support 24-hour emergency operations.

Protective action decisions were provided by the Tennessee Emergency Management Agency and were concurred upon during the coordination conference calls by Hamilton County after considering local factors. Emergency operations center staff implemented protective actions for emergency workers and the public. The Hamilton County radiological officer managed radiological exposure to emergency workers in accordance with procedures. Radiological equipment such as dosimetry, survey meters, and emergency worker exposure control kits were available for distribution to emergency workers. A radiological safety briefing had been prepared to provide a training refresher to all responders. The Hamilton County mass care emergency support function assessed the evacuation and support needs for individuals with access and functional needs within the county. The Hamilton County access and functional needs registry database was used to arrange adequate support resources based on the needs of those residents. The Hamilton County Schools representatives took appropriate steps to safely relocate schoolchildren. Law enforcement representatives coordinated with appropriate agencies to manage traffic and clear impediments to evacuation routes.

All response personnel in the Hamilton County Emergency Operations Center remained aware of incident status and worked together to protect the health and safety of the community.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, and 3.d.2.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

Public Information and Warning Capability Summary:

Hamilton County emergency management officials successfully demonstrated the ability to furnish prompt, accurate, and reliable information to the public and news media during a simulated radiological event at the Sequoyah Nuclear Plant. This capability was demonstrated at the Hamilton County Emergency Operations Center. Communications with the public and the media during this exercise was the responsibility of the Hamilton County Office of Emergency Management. The emergency operations center manager was assisted in the dissemination of information by the county public information representative within the emergency operations center. The county was represented in the joint information center by an additional Hamilton County Public Information Officer.

Emergency information was distributed from the Hamilton County Emergency Operations Center to the public through the joint information center. The public information officer in the emergency operations center coordinated with the public information officer located in the joint information center. News releases were reviewed and approved by leadership in the emergency operations center prior to being released to the media. Prior to the establishment of the joint information center, the Hamilton County Public Information Officer developed and issued a local news release to inform the public of a traffic accident that affected potential evacuation routes.

Hamilton County Office of Emergency Management and Tennessee Emergency Management Agency personnel effectively demonstrated a simulated activation of the siren system for the 10-mile emergency planning zone. Activation of the sirens could be accomplished at the Hamilton County Emergency Communications Center or at the state emergency operations center in Nashville, Tennessee. Hamilton County also had the capability to activate tone-alert radios that had been placed within certain establishments within the emergency planning zone; these included schools, licensed day care centers, assisted living facilities, and some major businesses. Activation of the primary notification system during this exercise was performed at the state emergency operations center after coordination on the decision line with Bradley and Hamilton Counties. Siren activations were immediately followed by the release of an Emergency Alert System message that gave clear, concise instructions to the public.

The Hamilton County Office of Emergency Management, with support from the Hamilton County Sheriff's Office, demonstrated the capability to conduct backup route alerting for residents located in the vicinity of siren #18 in Hamilton County. Personnel from the Hamilton County Office of Emergency Management and the Hamilton County Sheriff's Office were interviewed regarding their responsibilities, duties, and safety protocols related to back up route alerting. The Hamilton County Radiation Safety

Officer provided radiological and mission safety briefings to the law enforcement officer which described radiological exposure control and administrative reporting values. Route alerting was performed using a police vehicle equipped with a public address system. A pre-scripted message was used to alert the public to tune to media outlets.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 5.a.1, 5.a.3, and 5.b.1.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.2.2 Hamilton County School District

Critical Transportation Capability Summary:

Hamilton County Schools staff demonstrated their ability to implement protective actions for the students and staff of the schools located within the 10-mile emergency planning zone. An interview was conducted with the district's manager of safety and compliance and the transportation supervisor as an out-of-sequence activity on June 27, 2018. During the interview, school officials demonstrated their knowledge and ability to relocate and safeguard the students and staff, as well as notify parents of the 26 schools located within the emergency planning zone. School officials were familiar with their plans and procedures. Protective actions were well defined, and there were sufficient transportation assets available to relocate the endangered schools.

For this capability, the following Radiological Emergency Preparedness criterion was MET: 3.c.2.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.2.3 Reception and Congregate Care Centers

Mass Care Capability Summary:

Radiological monitoring, decontamination, and sheltering of evacuees was demonstrated out-of-sequence at the Chattanooga High Center for Creative Arts and the East Lake Academy of Fine Arts in Hamilton County, TN. Both reception and congregate care centers were set up with appropriate staff and resources to safely accommodate evacuees.

Chattanooga Fire Department personnel demonstrated the ability to perform radiological monitoring of vehicles and described decontamination procedures if contamination was present. The Hamilton County Health Department established administrative and operational monitoring stations outside the facilities and decontamination areas inside the facilities for evacuees. The American Red Cross of Southeast Tennessee, the Hamilton County Department of Human Services, and other local agencies demonstrated their ability to conduct evacuee registration and to establish and maintain a shelter to meet the congregate care needs of evacuees. Personnel from the Hamilton County Office of Emergency Management provided oversight for both facilities. They also provided all staff with refresher training and radiological safety briefings.

All participants were knowledgeable of their duties and performed them in accordance with procedures. Personnel wore appropriate dosimetry, and were familiar with dosimetry reading and recording requirements. Monitoring personnel were proficient in the use of radiological survey instruments and contamination levels were properly documented. Personnel demonstrated a good understanding of contamination action levels and decontamination procedures. Decontamination supplies were on hand to remove contamination, dispose of and document contaminated items, and provide temporary garments to evacuees. The sites were sufficiently sized and had appropriate facilities to accommodate monitoring and decontamination activities. Evacuees were processed in a timely fashion and were provided appropriate information and instructions.

Hamilton County took the exercise a step further to process contaminated evacuees with access and functional needs individuals and pets. American Sign Language interpreters were on hand to assist deaf evacuees. The Hamilton County Disaster Animal Response Team volunteers monitored, decontaminated, and housed pets during the demonstration. This was a fantastic demonstration and an excellent example of how to use these exercises to improve capabilities.

Mass care services were set up in accordance with county and American Red Cross shelter procedures. The facilities had ample space and reasonable accommodations for the expected evacuee population. The staff and volunteers were knowledgeable of their duties and displayed a commendable dedication to the health and welfare of the public.

For this capability, the following Radiological Emergency Preparedness criteria were

MET: 1.e.1, 3.a.1, 3.b.1, 6.a.1, and 6.c.1.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.3 Bradley County

3.3.3.1 Emergency Operations Center

Operational Coordination Capability Summary:

The Cleveland/Bradley County Emergency Management Agency staff demonstrated the capability to ensure the safety and health of emergency workers and the public in the event of a radiological emergency at the Sequoyah Nuclear Plant. Staffing rosters identified key personnel from supporting county agencies, and the director demonstrated procedures to alert and mobilize them to activate the emergency operations center in a timely manner using an automated calling system.

Communication systems, equipment, and supplies were sufficient to support operations. The primary notification system was dedicated phone line from the Tennessee Emergency Management Agency. Coordination with other stakeholders was accomplished using the coordination conference calls. Other communications systems included the digital National Warning System, commercial telephones, cell phones, email, 800-megahertz radio systems, and the Tennessee Radio Amateur Communications Service. Electronic displays, maps, and dry erase boards were located throughout the emergency operations center making it easy for all personnel to maintain situational awareness.

The Bradley County Radiological Officer validated, through interview and discussion, the ability to manage radiological exposure to emergency workers in accordance with established plans and procedures. Radiological equipment such as dosimetry, monitors, and emergency worker kits would be issued from the emergency operations center, where emergency worker briefings would be conducted to reiterate the process for recording emergency workers radiation exposure levels. The briefings would also cover instructions for issuance and ingestion of potassium iodide as directed.

Agency representatives were knowledgeable of appropriate dosimetry, potassium iodide, and procedures to ensure safe radiological exposure of emergency workers. County

health department representatives were prepared to make potassium iodide available to the public as required. The staff performed effective planning to evacuate persons identified with access or functional needs, and to evacuate schoolchildren and staff to safety. Law enforcement representatives provided details on traffic control points, clearing impediments, and the procedures for managing traffic control points. All agency representatives on the emergency operations center staff were knowledgeable, and effectively used checklists from county plans to ensure the safety of the public and emergency workers.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, and 3.d.2.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

Public Information and Warning Capability Summary:

Cleveland/Bradley County Emergency Management Agency staff, through a coordinated effort with the state and Hamilton County, assisted in alerting and notifying the public of an incident at Sequoyah Nuclear Plant in a timely manner, relaying the elements required by current guidance. All messaging was consistent with the protective action decisions.

The Cleveland/Bradley County Public Information Officer ensured accurate information was disseminated in the form of news releases and press briefings by coordinating with other public information officers at the joint information center. No official coordination or approval was observed at the emergency operations center; the staff relied upon the county public information officer to represent the county within the joint information center. Emergency management staff simulated using social media and an automated emergency messaging system to alert citizens of local actions. The Cleveland/Bradley County Emergency Management Director was responsible for approval of those messages prior to their release.

Two deputies from the Bradley County Sheriff's Department discussed procedures for backup route alerting and notification. The deputies validated their ability to manage the mission by explaining the entire process in accordance with plans and procedures.

For this capability, the following REP criteria were MET: 5.a.1, 5.a.3, and 5.b.1

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

On-Scene Security, Protection, and Law Enforcement Capability Summary:

The ability to implement traffic and access control, along with the clearance of impediments, was discussed with a Bradley County Sheriff's Department deputy. The deputy described the process for notification, issuance of exposure control equipment and its use, and duties associated with the mission. The deputy received a thorough radiological emergency safety briefing by the county radiological officer as part of the demonstration. Three forms of communication were available including an 800-megahertz handheld radio, a vehicle-mounted 800-megahertz radio, and a cell phone. Each patrol car was equipped with appropriate emergency equipment to support the mission.

Officer assignments included specific instructions for each traffic control point and the route to the reception center for the general population evacuating from that area. The assigned personnel would clear impediments to evacuation immediately. If impediment removal was outside of their ability, assistance would be requested and coordinated through the county. Organizations available to assist with impediment removal included contractual wrecker services, public works, and the Tennessee Department of Transportation.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.d.1, 1.e.1, 3.a.1, 3.d.1, 3.d.2.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.4 Sequatchie County

3.3.4.1 Reception and Congregate Care Center

Mass Care Capability Summary:

Staff from the Tennessee Department of Health, as well as Sequatchie County staff and volunteers, demonstrated their ability to establish and maintain a reception and congregate care center to provide monitoring, decontamination, and sheltering for evacuees. The reception and congregate care center had ample space, equipment, and trained personnel to perform the mission. Emergency workers wore personal protective equipment and were aware of administrative limits in the function of their responsibilities.

The volunteer firefighters responsible for monitoring and decontaminating vehicles were not available during the demonstration due to real world events. Although the processing of vehicles was demonstrated with on hand personnel, it was unorganized and not in accordance with plans. Response plans require more detail of the processing of vehicles for continuity of operations.

Tennessee Health Department staff monitored and decontaminated evacuees. Records were created and gathered for each evacuee arriving at the reception center. Evacuees were then monitored for contamination using appropriate survey techniques and directed to the correct location. One evacuee was fully decontaminated by taking a shower, which is normally a simulated activity. The Tennessee Health Department elected to fully decontaminate the evacuee in order to self-assess their procedures and make improvements where possible. Their commitment to preparedness was evident during the entire exercise.

Members of the American Red Cross of Southeast Tennessee, with the support of the Tennessee Department of Human Services and other agencies, demonstrated the registration and care of evacuees at the Sequatchie County High School congregate care center. The facility was setup in accordance with local procedures and agreements, and it had ample space and reasonable accommodations for its assigned purpose. Staff were well-trained and versed in their responsibilities in operating the facility. The processes demonstrated were logical and effective. The staff and volunteers were knowledgeable in their duties and displayed a commendable dedication to the physical and mental health of the public.

For this capability, the following Radiological Emergency Preparedness criteria were MET: 1.e.1, 3.a.1, 3.b.1, 6.a.1, and 6.c.1.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

3.3.5 Joint Information System / Center

Public Information and Warning Capability Summary:

The State of Tennessee and the risk counties of Hamilton and Bradley demonstrated the capability to provide coordinated, prompt, reliable, and actionable emergency information to the public and media in support of the Sequoyah Nuclear Plant.

The joint information center was activated in a timely manner in accordance with procedures. Its activation was a collaborative and joint decision between the State of Tennessee and the utility. Upon activation, the joint information center served as the central point of contact for the release and distribution of information to the public and media. The facility provided ample space and communication resources to support emergency operations. Primary and backup communications systems were fully functional with no failures observed. Equipment, maps, displays, and other supplies were sufficient to support emergency operations.

The ability to provide accurate and timely emergency information and instructions for the public and the media was successfully demonstrated. Coordinated news releases were prepared, reviewed, approved, and released in accordance with plans. Two joint media briefings were conducted during the exercise. Prior to each media briefing, spokespersons coordinated their messages and determined the order of speakers to prioritize critical emergency information. The spokespersons answered all questions asked of them by mock media and were able to fully discuss what precautionary and protective actions had been taken by their organizations. Rumor control was a joint operation between the utility and state. State and utility spokespersons were made aware of the calls received to address trends and rumors during the media briefings if needed. Media monitoring was performed by the utility at this facility.

For this capability, the following Radiological Emergency Preparedness criterion was MET: 5.b.1.

a. Level 1 Finding: None

b. Level 2 Finding: None

c. Not Demonstrated: None

d. Prior Level 2 Findings – Resolved: None

e. Prior Level 2 Findings - Unresolved: None

Section 4: Conclusion

Overall, the exercise was a success. Officials and representatives from the State of Tennessee, the risk counties of Hamilton and Bradley, Tennessee Valley Authority, and numerous other organizations participated in the exercise. State and local emergency response organizations demonstrated knowledge of their emergency response plans and procedures and successfully implemented them. The Federal Emergency Management Agency wishes to acknowledge the efforts of the many individuals who participated and made this exercise a success.

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Appendix A: Exercise Timeline

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken						
		SEOC	Dose	FCC	RMCC	Hamilton County	Bradley County	Joint Information*
Notice of Unusual Event	0814	0816	0824	0828	0825	0823	0825	
Alert	0833	0837	0841	0841	0841	0843	0843	
Site Area Emergency	0954	0957	1003	1002	1004	1003	1003	1002
General Emergency	1021	1028	1026	1035	1028	1035	1034	1025
Simulated Rad. Release Started	1034	1139	1031	1210	1101	1210	1210	1202
Simulated Rad. Release Ended	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Facility Declared Operational		0916	0916	0926	0926	0900	0954	1007
Exercise Terminated		1310	1315	1314	1314	1302	1304	1312
Declaration of State of Emergency Local				0841		1055	None	-
State		0901				-	-	0903*
Precautionary Actions: Relocate schools, stop river traffic, restrict air space		1017		1015		1017 1017 1017	0959 1017 1017	1045*
1st Protective Action Decision Stay tuned, Sound sirens, release EAS messages #7 & #5		1020		1020		1020	1020	1020
1st Siren Activation		1025		1025		1025	1025	1025
1st EAS Message: #7 & #5		1030		1030		1030	1030	1030
2nd Protective Action Decision: Evacuate: A1, B1, C1, D1; Shelter in place: B2, B5, C2		1049		1051	1048	1051	1051	1059*
2nd Siren Activation		1055		1055		1055	1055	1055
2nd EAS Message: #46 Modified & #103 Modified		1055		1055		1055	1055	1055
KI Decision Field Monitoring Teams Only		1215	1052 (Field team ingested/standing order 0925)	1215	1228	1216	1216	1215
General Public		N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Time press release was distributed

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Appendix B: Exercise Evaluators and Team Leaders

RAC Chair: Randy Hecht
Section Chief: JT Ackermann
Regional Coordinator: Jill Leatherman
Site Specialist: Matt Bradley
Exercise Support: Erin McCarty
Technical Lead: Joe Harworth
Public Information Lead: Glenda Bryson

Location / Venue	Evaluation Team	Core Capability(ies)
State of Tennessee: Director – Patrick Sheehan		
SEOC	Walt Cushman*, Lorenzo Lewis, Quintin Ivy PJ Nied (ICF)	Operational Coordination, Public Information and Warning
FCC	Robert Nash	Operational Coordination
CECC	John Pelchat (NRC)	Situational Assessment
Dose Assessment	Jill Leatherman	Situational Assessment
RMCC	Marcy Campbell (ICF)	Environmental Response/Health & Safety
Field Teams (2)	John Wills (ICF), Bart Ray (ICF)	Environmental Response/Health & Safety
Joint Information System	Glenda Bryson*, Tom Hegele (ICF) ICF	Public Information and Warning
Hamilton County: Director – Chris Adams		
EOC	Andrew Seward *, DeShun Lowery, Mark Dalton (ICF)	Operational Coordination, Public Information and Warning
Route Alerting (OOS)	Lorenzo Lewis	Public Information and Warning
RCCC (OOS)	Bradley, Lewis, Lowery, Nash, Dolder	Environmental Response/Health & Safety Mass Care
Schools (OOS)	DeShun Lowery	Critical Transportation
Bradley County: Director – Troy Spence		
EOC	Michael Dolder*, Gerald McLemore, Elisabeth Adkins	Operational Coordination Public Information and Warning On-Scene Security, Protection and LE
RCCC (OOS)	Matthew Bradley, Lorenzo Lewis, DeShun Lowery, Robert Nash, Michael Dolder	Environmental Response/Health and Safety Mass Care
Sequatchie County:		
RCCC (OOS)	Matthew Bradley, Lorenzo Lewis, DeShun Lowery, Robert Nash, Michael Dolder	Environmental Response/Health & Safety Mass Care

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Appendix C: Exercise Extent of Play Agreement

Exercise Evaluation Criteria

Capability: 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.

This capability will be demonstrated at the SEOC, FCC, CECC, Hamilton County and Bradley County EOCs.

Target: Emergency Operations Management

Critical Task: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner (Criterion 1.a.1).

Participants will be prepositioned in proximity to their assigned response location(s). Notification of responders will be demonstrated in accordance with plans and procedures.

All notifications to adjacent states, Federal government agencies and railroads will be simulated and verbalized to evaluators.

Critical Task: Key personnel with leadership roles for the Offsite Response Organizations (ORO) provide direction and control to that part of the overall response effort for which they are responsible (NUREG-0654 A.1.d; A.2.a, b; A.3; C.4, 6; Criterion 1.c.1).

In accordance with plans and procedures.

Critical Task: At least two communications 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 (Criterion 1.d.1).

In accordance with plans and procedures.

Critical Task: Equipment, maps, displays, monitoring instruments, dosimetry, KI, and other supplies are sufficient to support emergency operations (Criterion 1.e.1).

In accordance with plans and procedures. County SAVs were completed May 15th 2018.

Target: Protective Action Decision Making

Critical Task: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI (if appropriate), is in place for EWs including provisions to authorize radiation exposure in excess of administrative limits or PAGs (Criterion 2.a.1).

In accordance with plans and procedures.

Critical Task: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make PADs for the general public (including the recommendation for the use of KI, if ORO policy) (Criterion 2.b.2).

In accordance with plans and procedures at the SEOC and risk counties.

Critical Task: Protective action decisions are made, as appropriate, for groups of persons with disabilities and access/functional needs (Criterion 2.c.1).

This critical task will be demonstrated at the risk county EOCs in accordance with plans and procedures.

Target: Protective Action Implementation

Critical Task: OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to EWs in accordance with the plans/procedures. EWs periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. OROs maintain appropriate record-keeping of the administration of KI to EWs (Criterion 3.a.1).

In accordance with plans and procedures from a management perspective. Issuance of KI to emergency workers will be explained and completed during out of sequence activities.

Critical Task: KI and appropriate instructions are available if a decision to recommend use of KI is made. Appropriate record-keeping of the administration of KI for institutionalized individuals and the general public is maintained (Criterion 3.b.1).

If applicable this critical task will be demonstrated at the risk county EOCs from the management perspective and in accordance with plans and procedures. The issuance of KI will be simulated.

Critical Task: Protective action decisions are implemented for persons with disabilities and access/functional needs other than schools within areas subject to protective actions (Criterion 3.c.1).

This critical task will be demonstrated at the risk county EOCs from the management perspective and in accordance with plans and procedures by discussion with evaluator as

appropriate. Personal information relative to access and functional needs individuals will not be copied or removed from the EOC by the FEMA evaluation team.

Critical Task: OROs/School officials implement protective actions for schools (Criterion 3.c.2).

This critical task will be demonstrated at the risk county EOCs from the management perspective and in accordance with plans and procedures by discussion with evaluator as appropriate.

Critical Task: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (Criterion 3.d.1).

This critical task will be demonstrated at the risk county EOCs from the management perspective and in accordance with plans and procedures by discussion with evaluator as appropriate.

Critical Task: Impediments to evacuation are identified and resolved (NUREG-0654 J.10.k; Criterion 3.d.2). An inject creating an impediment will be created and provided, remaining in place during the evacuation long enough that re-routing of traffic is required and will also result in decision making and coordination of public messaging to communicate alternate routes of evacuation as applicable.

This critical task will be demonstrated at the risk county EOCs from the management perspective and in accordance with plans and procedures by discussion with evaluator as appropriate.

Capability: Situational Assessment

Provide all decision makers with decision-relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.

This capability will be demonstrated at the SEOC by Dose Assessment.

Critical Task: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for EWs including provisions to authorize radiation exposure in excess of administrative limits or PAGs (Criterion 2.a.1).

In accordance with plans and procedures.

Critical Task: Appropriate PARs are based on available information on plant condition, field monitoring data, and licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions (Criterion 2.b.1).

In accordance with plans and procedures.

Critical Task: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make PADs for the general public (including the recommendation for the use of KI, if ORO policy) (Criterion 2.b.2).

In accordance with plans and procedures.

Capability: Public Information and Warning

Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard and, as appropriate, the actions being taken and the assistance being made available.

This capability will be demonstrated at the SEOC, Hamilton County and Bradley County EOCs and Joint Information Center.

Target: Emergency Notification

Critical Task: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include, as a minimum, the elements required by current FEMA REP Guidance (Timely: The responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay) (Criterion 5.a.1).

Exceptions regarding the activation / sounding of the sirens and EAS messages: Sirens will not be sounded as part of this exercise; the process and procedures of such will be demonstrated up to the point of activation. Procedures for EAS messages will be followed but the EAS message will not be released or transmitted from / by the SWP. Exercise EAS messages will not be broadcasted to the public.

Critical Task: Backup alert notification of the public is completed within a reasonable time following the detection by the ORO of a failure of the primary alert and notification system (Criterion 5.a.3).

Backup route alerting will be demonstrated out of sequence by Hamilton Co. June 27, 2018.

Hamilton County and Bradley County participants will discuss backup route alerting with evaluators during the exercise.

Target: Public Information

Critical Task: Ensure OROs provide accurate emergency information and instructions to the public and the news media in a timely manner (The responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay) (Criterion 5.b.1).

This critical task will be demonstrated at the SEOC, risk County EOCs, and Joint Information Center.

The Joint Information Center (JIC) personnel, State/local and TVA, can be pre-positioned in area. Using a virtual joint information system, public information management will be demonstrated and provide the necessary public messaging until the JIC is activated and made operational in accordance with established procedures. Locally available State PIOs may be utilized in the JIC to supplement TEMA PIOs. There will be a minimum of two press conferences that offsite response organizations will participate in, providing accurate and pertinent protective action information to the public in accordance to the exercise response and in accordance with plans and procedures.

Capability: Environmental Response/Health and Safety

Ensure the availability of guidance and resources to address all hazards including hazardous materials, acts of terrorism, and natural disasters in support of the responder operations and the affected communities.

This capability will be demonstrated at the RMCC, by the radiological field monitoring teams and Hamilton County as applicable.

The following tasks will be demonstrated by DRH RMCC.

Critical Task: Field teams (two or more) are managed to obtain sufficient information to help characterize the release and to control radiation exposure (Criterion 4.a.2).

This critical task will be demonstrated at the RMCC in accordance with plans and procedures.

Critical Task: Equipment, maps, displays, monitoring instruments, dosimetry, KI, and other supplies are sufficient to support emergency operations (Criterion 1.e.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and Ki may be used.

Critical Task: OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to EWs in accordance with the plans/procedures. EWs periodically

and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. OROs maintain appropriate record-keeping of the administration of KI to EWs (Criterion 3.a.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and Ki may be used.

Critical Task: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low-background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media (Criterion 4.a.3).

In accordance with plans and procedures.

Critical Task: Equipment, maps, displays, monitoring instruments, dosimetry, KI, and other supplies are sufficient to support emergency operations (Criterion 1.e.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and KI may be used.

***Critical Task*:** OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to EWs in accordance with the plans/procedures. EWs periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. OROs maintain appropriate record-keeping of the administration of KI to EWs (Criterion 3.a.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and KI may be used.

Critical Task: The reception center facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees (Criterion 6.a.1).

Radiological monitoring, decontamination and registration facilities for evacuees will be set up in accordance with plans and procedures. The set up and operational checks of radiological monitoring instruments is an evaluative component and will be completed with an evaluator. Counties will have one-third of the resources available at the facility for this demonstration as necessary to monitor 20% of the population within a 12-hour period. The remaining two- thirds of the necessary resources will be demonstrated by the counties providing valid documentation reflecting how/where the equipment and staff will be procured/stored/respond from.

A minimum of six evacuees, of which at least one being a female and two of which will be contaminated (simulated) including the female, be available for monitoring, registration

and decontamination as applicable. A minimum for two evacuee vehicles, one of which will be contaminated (simulated) will be available for monitoring, registration and decontamination as applicable. Simulated contamination will be given by controller inject.

Physical decontamination of evacuees and vehicles may be simulated and in accordance with plans and procedures. Sequatchie County will physically decontaminate evacuees found to be contaminated; same in accordance with plans and procedures.

PPE will be available and will be used at the controller/evaluator's discretion.

Hamilton County, Bradley County and Sequatchie County Bradley County demonstration is for training only**.**

Capability: Critical Transportation

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.

This core capability will be demonstrated out of sequence on June 27, 2018 by Hamilton County.

Critical Task: OROs/School officials implement protective actions for schools (Criterion 3.c.2).

In accordance with plans and procedures by discussion with applicable representatives of the Hamilton County School District out of sequence on June 27, 2018. Location: Hamilton County Department of Education Service Center, 2501 Dodds Avenue, Chattanooga, TN

Capability: On-Scene Security, Protection and Law Enforcement

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 all traditional and atypical response personnel engaged in lifesaving and life-sustaining operations.

***Critical Task*:** Equipment, maps, displays, monitoring instruments, dosimetry, KI, and other supplies are sufficient to support emergency operations (Criterion 1.e.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and KI may be used. This critical task will be demonstrated on exercise day at the Bradley County EOC.

Critical Task: OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to EWs in accordance with the plans/procedures. EWs periodically

and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. OROs maintain appropriate record-keeping of the administration of KI to EWs (Criterion 3.a.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and KI may be used.

Critical Task: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel (Criterion 3.d.1).

In accordance with plans and procedures.

Critical Task: Impediments to evacuation are identified and resolved (Criterion 3.d.2).

In accordance with plans and procedures.

Capability Mass Care

Provide life-sustaining services to the affected population with a focus on hydration, feeding and sheltering to those who have the most need as well as support for reunifying families.

Hamilton County, Bradley County and Sequatchie County Bradley County demonstration is for training only**.**

This core capability will be demonstrated out of sequence by Bradley, Hamilton and Sequatchie Counties. At 5PM CT on Tuesday, June 26th Sequatchie County will demonstrate at Sequatchie County HS and will run water. Bradley County will demonstrate (for training purposes only) at 9AM on Wednesday, June 27th at Ocoee MS. Also at 9AM on June 27th Hamilton County will demonstrate at East Lake Academy; they will not run water. At 9AM on Thursday, June 28th Hamilton County will demonstrate at Chattanooga High School for Creative Arts and will not run water.

Critical Task: Equipment, maps, displays, monitoring instruments, dosimetry, KI, and other supplies are sufficient to support emergency operations (Criterion 1.e.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and KI may be used.

Critical Task: OROs issue appropriate dosimetry, KI, and procedures, and manage radiological exposure to EWs in accordance with the plans/procedures. EWs periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. OROs maintain appropriate record-keeping of the administration of KI to EWs (Criterion 3.a.1).

In accordance with plans and procedures. A prop for permanent record dosimetry and KI may be used.

Critical Task: KI and appropriate instructions are made available in case a decision to recommend use of KI is made. Appropriate record keeping of the administration of KI for institutionalized individuals and the general public is maintained (Criterion 3.b.1).

In accordance with plans and procedures. KI will not be distributed but procedures for distribution will be discussed.

Critical Task: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with planning guidelines. Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate before entering congregate care facilities (Criterion 6.c.1).

In accordance with plans and procedures. Each shelter is Red Cross certified and a limited demonstration of services will be provided. A valid and current LOA or MOU between the county and American Red Cross will be provided to the evaluation team either prior to the demonstration or at the time of the demonstration.