



Comanche Peak Nuclear Power Plant Plume Pathway Exercise After Action Report/Improvement Plan

Date: July 26, 2023

Publication Date: October 3, 2023



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Executive Summary

On July 26, 2023, the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), Region 6, evaluated the Plume Pathway Emergency Radiological Response for the Comanche Peak Nuclear Power Plant, located near Glen Rose, Texas.

During the Plume Pathway Exercise, FEMA assessed the ability of state and local officials to implement plans and procedures to protect the public in the event of a radiological incident. This exercise is part of the FEMA Radiological Emergency Preparedness Program. This program ensures that adequate capabilities exist to prevent, protect against, mitigate the effects of, respond to, and recover from incidents involving commercial nuclear power plants. This exercise implemented the revised NUREG 0654/FEMA-REP-1, Rev. 2 document and the 2019 Radiological Emergency Preparedness Program Manual (RPM). The previous exercise at this site was conducted on September 21, 2022.

This report contains the final written evaluation of the exercise. The state and local organizations demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Level 1 Findings identified. There was one Level 2 Finding identified and corrected during the exercise. There was also one Plan Issue identified.

Section 1: Exercise Overview

Name	2023 Comanche Peak Nuclear Power Plant Plume Exercise
Dates	July 26, 2023
Purpose	The purpose of the Plume Exercise was to assess the level of preparedness of offsite response organizations to respond to a simulated radiological emergency.
Mission Area(s)	Protection Response
Core Capabilities	Operational Coordination Environmental Response/Health and Safety Situational Assessment Operational Communications Public Information and Warning On-Scene Security, Protection and Law Enforcement
Objectives	Emergency Operations Management Exposure Control Alert and Notification Detect, Measure, Sample, Analyze and Assess Operate
Threat or Hazard	Release of radiological materials from a commercial nuclear power plant.
Scenario	This exercise required coordinated decisions of offsite response organizations (OROs) to address a radiological hazard from an emergency at Comanche Peak Nuclear Power Plant (CPNPP). The OROs demonstrated the implementation of protective actions to preserve health and safety of the public due to a potential or actual offsite release of radioactive materials from CPNPP.
Participating Organizations	A complete list of participating agencies and organizations is attached in Appendix B.

Section 2: Analysis of Capabilities

2.1 Summary Results of Assessment

Table 1 below lists the assessment activity objectives, capability targets, selected core capabilities, and status of each capability target evaluated.

Each jurisdiction and functional entity were evaluated based on the demonstration of core capabilities and capability targets. The demonstration status of the capability targets is indicated using the following terms:

- **Met (M):** The jurisdiction or functional entity performed all activities under the objective/capability target to the level required per the work plan and/or the extent of play agreement, with no Level 1 or Level 2 Findings evaluated under that objective/capability target during the current activity and no unresolved prior Level 2 Finding(s).
- **Level 1 Finding (L1):** An observed or identified inadequacy of organizational performance during an assessment activity that could cause a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a Nuclear Power Plant.
- **Level 2 Finding (L2):** An observed or identified inadequacy of organizational performance during an assessment activity that is not considered, by itself, to adversely impact public health and safety.
- **Plan Issue (P):** An observed or identified inadequacy in the OROs emergency plan/implementing procedures, rather than in that of the OROs performance.
- **Not Demonstrated (N):** For a justifiable reason, the jurisdiction or functional entity did not perform assessment activities under the objective/capability target as specified in the extent of play agreement.
- **Not Applicable (N/A):** The objective/capability target does not apply to the jurisdiction.

Table 1. Summary Results of Capability Targets

Venue	Capability Target	Core Capabilities	Status
Objective 1: Emergency Management Operations			
Hurst DDC	1.1	Operational Coordination	M
	1.2	Operational Coordination, Environmental Response/Health and Safety	M
DSHS EOF	1.1	Operational Coordination	M
	1.2	Operational Coordination, Environmental Response/Health and Safety	M
	1.3	Operational Coordination, Environmental Response/Health and Safety, Situational Assessment	M
Joint Information Center	1.1	Operational Coordination	M
Granbury ISD	1.5	Operational Coordination, Environmental Response/Health and Safety	M
Tolar ISD	1.5	Operational Coordination, Environmental Response/Health and Safety	M
Hood County EOC	1.1	Operational Coordination	M
	1.2	Operational Coordination, Environmental Response/Health and Safety	M
	1.4	Operational Coordination, Environmental Response/Health and Safety, Situational Assessment	M
	1.5	Operational Coordination, Environmental Response/Health and Safety	M
Somervell County EOC	1.1	Operational Coordination	M
	1.2	Operational Coordination, Environmental Response/Health and Safety	M
	1.4	Operational Coordination, Environmental Response/Health and Safety, Situational Assessment	M
	1.5	Operational Coordination, Environmental Response/Health and Safety	M

Venue	Capability Target	Core Capabilities	Status
Objective 2: Exposure Control			
DSHS EOF	2.1	Operational Coordination, Environmental Response/Health and Safety	M
	2.2	Operational Coordination, Environmental Response/Health and Safety	M
DSHS FMT 1	2.2	Operational Coordination, Environmental Response/Health and Safety	M
DSHS FMT 2	2.2	Operational Coordination, Environmental Response/Health and Safety	M
Granbury ISD	2.2	Operational Coordination, Environmental Response/Health and Safety	M
Tolar ISD	2.2	Operational Coordination, Environmental Response/Health and Safety	M
Hood County EOC	2.1	Operational Coordination, Environmental Response/Health and Safety	M
	2.2	Operational Coordination, Environmental Response/Health and Safety	M
Somervell County EOC	2.1	Operational Coordination, Environmental Response/Health and Safety	M
	2.2	Operational Coordination, Environmental Response/Health and Safety	P
Objective 3: Alert and Notification			
Hurst DDC	3.1	Operational Coordination, Operational Communications	M
DSHS FMT 1	3.1	Operational Coordination, Operational Communications	M
DSHS FMT 2	3.1	Operational Coordination, Operational Communications	M
DSHS EOF	3.1	Operational Coordination, Operational Communications	M
	3.3	Public Information and Warning	M
Joint Information Center	3.1	Operational Coordination, Operational Communications	M



Venue	Capability Target	Core Capabilities	Status
	3.3	Public Information and Warning	M
Hood County EOC	3.1	Operational Coordination, Operational Communications	M
	3.2	Public Information and Warning	M
	3.3	Public Information and Warning	M
Somervell County EOC	3.1	Operational Coordination, Operational Communications	M
	3.2	Public Information and Warning	M
	3.3	Public Information and Warning	M
WBAP EAS Radio Station	3.2	Public Information and Warning	M
Objective 4: Detect, Measure, Sample, Analyze and Assess			
DSHS EOF	4.1	Environmental Response/Health and Safety	M
	4.5	Environmental Response/Health and Safety	M
DSHS FMT 1	4.2	Environmental Response/Health and Safety	M
DSHS FMT 2	4.2	Environmental Response/Health and Safety	M
Objective 5: Operate			
Hurst DDC	5.4	Operational Coordination, On-Scene Security, Protection, and Law Enforcement	M
Hood County EOC	5.4	Operational Coordination, On-Scene Security, Protection, and Law Enforcement	M
Somervell County EOC	5.4	Operational Coordination, On-Scene Security, Protection, and Law Enforcement	M

2.2 Results of Exercise Evaluation

Hurst Disaster District Center

Objective 1: Emergency Management Operations

Capability Target 1.1: Mobilization

Capability Target 1.2: Direction and Control

Objective 3: Alert and Notification

Capability Target 3.1: Communication

Objective 5: Operate

Capability Target 5.4: Traffic and Access Control

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 1.1, 1.2, 3.1, 5.4
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- a. PRIOR ISSUES - UNRESOLVED: None

Department of State Health Services Emergency Operations Facility

Objective 1: Emergency Management Operations

Capability Target 1.1: Mobilization

Capability Target 1.2: Direction and Control

Capability Target 1.3: Protective Action Recommendations

Objective 2: Exposure Control

Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process

Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification

Capability Target 3.1: Communication

Capability Target 3.3: Emergency Information and Instructions for Public and News Media

Objective 4: Detect, Measure, Sample, Analyze, and Assess

Capability Target 4.1: Field Monitoring Teams Management

Capability Target 4.5: Plume Phase Analysis and Dose Assessment

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 1.1, 1.2, 1.3, 2.1, 2.2, 3.1, 3.3, 4.1, 4.5
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

Department of State Health Services Field Monitoring Team 1

Objective 2: Exposure Control

Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification

Capability Target 3.1: Communication

Objective 4: Detect, Measure, Sample, Analyze, and Assess

Capability Target 4.2: Plume Phase Measurements and Sampling

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 2.2, 3.1, 4.2
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

Department of State Health Services Field Monitoring Team 2

Objective 2: Exposure Control

Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification

Capability Target 3.1: Communication

Objective 4: Detect, Measure, Sample, Analyze, and Assess

Capability Target 4.2: Plume Phase Measurements and Sampling

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 2.2, 3.1, 4.2
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

Joint Information Center

Objective 1: Emergency Management Operations

Capability Target 1.1: Mobilization

Objective 3: Alert and Notification

Capability Target 3.1: Communication

Capability Target 3.3: Emergency Information and Instructions for Public and News Media

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 1.1, 3.1, 3.3
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

Hood County Emergency Operations Center

Objective 1: Emergency Management Operations

Capability Target 1.1: Mobilization

Capability Target 1.2: Direction and Control

Capability Target 1.4: Protective Action Decisions for the Plume Phase

Capability Target 1.5: Protective Action Decisions Implementation for the Plume Phase

Objective 2: Exposure Control

Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process

Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification

Capability Target 3.1: Communication

Capability Target 3.2: Alert and Notification to the Public

Capability Target 3.3: Emergency Information and Instructions for Public and News Media

Objective 5: Operate

Capability Target 5.4: Traffic and Access Control

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 1.1, 1.2, 1.4, 1.5, 2.1, 2.2, 3.1, 3.2, 3.3, 5.4
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

Somervell County Emergency Operations Center

Objective 1: Emergency Management Operations

Capability Target 1.1: Mobilization

Capability Target 1.2: Direction and Control

Capability Target 1.4: Protective Action Decisions for the Plume Phase

Capability Target 1.5: Protective Action Decisions Implementation for the Plume Phase

Objective 2: Exposure Control

Capability Target 2.1: Emergency Worker Exposure Control Decision-Making Process

Capability Target 2.2: Emergency Worker Exposure Management

Objective 3: Alert and Notification

Capability Target 3.1: Communication

Capability Target 3.2: Alert and Notification to the Public

Capability Target 3.3: Emergency Information and Instructions for Public and News Media

Objective 5: Operate**Capability Target 5.4: Traffic and Access Control**

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 1.1, 1.2, 1.4, 1.5, 2.1, 3.1, 3.2, 3.3, 5.4
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: 2.2

ISSUE NUMBER: 14-23-2.2-L2-001

CAPABILITY TARGET: Emergency Worker Exposure Control Management

CONDITION: The Radiological Officer (RO) originally stated that a single thermoluminescent dosimeter (TLD) was to be placed with each direct reading dosimeter (DRD), which was not in accordance with plans and procedures. Emergency workers initially did not demonstrate a basic understanding of dosimetry in an interview following their briefing. The emergency workers did not understand the difference between the DRD and TLD and did not understand the administrative limits.

POSSIBLE CAUSE: Inadequate training, excessively long briefing scripts

PLANNING REFERENCES: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2.c, H.11, H.11.b, K.2.b, K.3, K.3.a, M.1.b, and O.1); Somervell County Plans – Annex D and Annex W MOP (Attachment B EOC Operation)

EFFECT: Each staff member located in the facility was not issued a TLD in accordance with procedures, and personnel not familiar with usage of dosimetry and administrative limits could lead to personnel being exposed to radiation without a record of exposure.

CORRECTIVE ACTION TAKEN: A timeout was called, retraining provided by the Controller, and successfully redemonstrated via interview.

- d. PLAN ISSUE: 2.2

ISSUE NUMBER: 14-23-2.2-P-001

CAPABILITY TARGET: Emergency Worker Exposure Control Management

CONDITION: The Radiological Officer (RO) stated that a handheld monitor would be utilized in the event of a failure of the portal monitor. The handheld device was a Thermo RadEye GX detector attached to a Ludlum Model 44-9 probe. The RO was unable to conduct an operational check of the device and stated that no procedures were available for use.

POSSIBLE CAUSE: Unavailable equipment procedures, personnel not familiar with equipment operations



PLANNING REFERENCES: NUREG-0654/FEMA-REP-1, Rev. 2 (C.2.c, H.11, H.11.b, K.2.b, K.3, K.3.a, M.1.b, and O.1); Somervell County Plans – Annex D

EFFECT: Utilization of equipment without proper procedures could result equipment being used that was actually malfunctioning, and not adequately monitoring personnel and possibly causing cross contamination with those working inside of the facility.

RECOMMENDATION: Recommendation to revise procedures to include all job aids for all equipment and provide refresher training on procedures upon revision.

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

WBAP Emergency Alert System Radio Station

Objective 3: Alert and Notification

Capability Target 3.2: Alert and Notification to the Public

In summary, the status of DHS/FEMA capability targets for this location are as follows:

- a. MET: 3.2
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

Appendix A: Exercise Timeline

2023 Comanche Peak plume exercise		Timeline Date: 07/26/2023					
Emergency Classification Level or Event	Time Declared by Utility	Time That Notification Was Received or Action Was Taken					
		Hurst DDC	WBAP	EOF	JIC	Hood EOC	Somervell EOC
Unusual Event (UE)	803	825		816		811	811
Alert	834	848		847	917	840	840
Site Area Emergency (SAE)	954	1010		954	1000	1003	1003
General Emergency (GE)	1057	1107	1115	1057	1057	1107	1107
Rad. Release Started	950	1057		950	1024	1003	1003
Rad. Release Terminated	n/a			n/a	n/a	n/a	n/a
Facility Declared Operational		830		921	917	922	904
Declaration of State of Emergency						1019	1100
Exercise Terminated		1244	1210	1240	1242	1241	1243
Early Precautionary Action Recommendations							
- Relocate School Children						840	951
- Restrict Boating Traffic							
- Restrict Air and Rail Traffic							
- Close Parks					1017		913
- Livestock Advisory							
- Precautionary Evacuation							1019
1st Siren		1119	1115			1119	1119
1st EAS Message			1121		1121	1121	1121
1st Protective Action Recommendation (PAR)				1125		1107	1107
1st Protective Action Decision (PAD)		1109			1007	1117	1019
2nd Siren						1221	
2nd EAS Message						1223	
2nd PAR				1208		1208	1208
2nd PAD						1217	n/a
KI Administration Decision				1102 5 miles; 1233 10 miles		1122 5 miles; 1238 10 miles	1140 5 miles; 1240 10 miles
		1106			1130		

Appendix B: Participating Organizations

Participating Organizations

Federal Organizations
FEMA Region 6
U.S. Nuclear Regulatory Commission
State Organizations
Texas Department of Emergency Management
Texas Department of Public Safety
Texas Department of State Health Services
Health and Human Services Commission
Emergency Medical Taskforce
Texas Department of Public Health
Texas A&M AgriLife
Brazos River Authority
Texas State Radio Amateur Civil Emergency Services
Texas Military Department
Risk Jurisdictions
Hood County Judge
Hood County Commissioner
Hood County Office of Emergency Management
Hood County Sherriff's Office
Hood County Radio Amateur Civil Emergency Services
Hood County Fire Department
Hood County Animal Issues
Hood County Public Information Office

Hood County Local Emergency Planning Commission
Hood County Department of Public Works
Hood County Emergency Medical Services
City of Granbury
City of Granbury Police Department
Lake Granbury Medical Center
Granbury Independent School District
Tolar Independent School District
Somervell County Judge
Somervell County Sheriff's Office
Somervell County Fire Department
Somervell County Office of Emergency Management
Somervell County 911 Dispatch
Somervell County Attorney
Somervell County Information Technology
Somervell County Public Information Office
Mayor of Glen Rose
Glen Rose Medical Center
Glen Rose School District
Fort Worth Police Department
Fort Worth Fire Department Office of Emergency Management
Tarrant County Office of Emergency Management
City of Frisco
McKinney Fire Department
Private Organizations
Comanche Peak Nuclear Power Plant (Luminant)
WBAP Radio Station

Appendix C: Planning and Evaluation Team

Planning Team

Planners		
Title/Position	Name	Agency
Regional Assistance Committee Chair	Oscar Martinez	FEMA Region 6
Federal Planning Team Lead Senior Site Specialist	Timothy Pflieger	FEMA Region 6
State Planning Team Lead Emergency Planner	Robin Phillips	DSHS
Licensee Planning Team Lead Emergency Preparedness Manager	Jay Webster	CPNPP

Evaluation Team

Team Leaders and Evaluators		
Venue/Location	Evaluation Team/Team Lead	Agency
Hurst DDC	Robert McWilliams *	FEMA HQ
DSHS EOF	Kevin Robinson * Gregory Voss	FEMA Region 2 FEMA Region 7
DSHS FMT 1	Michael DeBonis *	FEMA Region 2
DSHS FMT 2	George Brozowski *	EPA
Joint Information Center	Linda Gee * Syndi Buice	FEMA Region 6 FEMA Region 6
Hood County EOC	Brian Hasemann * Deshun Lowery Melisa Ogrodnik	FEMA Region 2 FEMA Region 4 FEMA Region 6
Somervell County EOC	Andrew Chancellor * Cody McKown	FEMA Region 7 FEMA Region 7



	Misty Chance	FEMA Region 6
Granbury ISD	Miriam Weston Haas	FEMA Region 2
Tolar ISD	Miriam Weston Haas	FEMA Region 2
WBAP EAS Radio Station	Bart Ray *	CADMUS
* Team Leader		

Appendix D: Acronyms and Abbreviations

Acronym	Description
CAMPEDE	Comanche Peak Assessment Model Projecting Dose Evaluation
CDE	Committed Dose Equivalent
CFO	Chief of Field Operations
CPM	Counts Per Minute
CPNPP	Comanche Peak Nuclear Power Plant
DC	District Coordinator
DDC	Disaster District Center
DHS	Department of Homeland Security
DPS	Department of Public Safety
DSHS	Department of State Health Services
DRD	Direct Reading Dosimeter
EAS	Emergency Alert System
ECL	Emergency Classification Level
EMC	Emergency Management Coordinator
EMP	Emergency Management Procedure
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Extent of Play
EPA	Environmental Protection Agency
EPD	Electronic Personal Dosimeter
EPZ	Emergency Planning Zone
ERZ	Emergency Response Zone
EW	Emergency Worker
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
FTL	Field Team Leader
GE	General Emergency
GISD	Granbury Independent School District
GRISD	Glen Rose Independent School District
HCEOC	Hood County Emergency Operations Center
HF	High Frequency
IC	Incident Commander



Acronym	Description
JEOC	Joint Emergency Operations Center
JIC	Joint Information Center
KI	Potassium Iodide
ORO	Offsite Response Organizations
OSL	Optically Stimulated Luminescent
PA	Public Announcement
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
PNO	Public Notification Officer
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimeter
RACES	Radio Amateur Civil Emergency Services
RASCAL	Radiological Assessment System for Consequence Analysis
REP	Radiological Emergency Preparedness
RO	Radiological Officer
RPM	Radiological Emergency Preparedness Program Manual
SCEOC	Somervell County Emergency Operations Center
SAE	Site Area Emergency
SOC	State Operations Center
SP	Sampling Point
TACP	Traffic and Access Control Point
TDEM	Texas Department of Emergency Management
TEDE	Total Effective Dose Equivalent
THAN	Texas Health Alert Network
TISD	Tolar Independent School District
TLD	Thermoluminescent Dosimeter
TS	Technical Specialist
UE	Unusual Event
UHF	Ultra-High Frequency
VHF	Very High Frequency
VPN	Virtual Private Network
YMCA	Young Men's Christian Association

Appendix E: Extent of Play Agreement and Scenario

OBJECTIVES AND CAPABILITY TARGETS

FEMA REP EVALUATION OBJECTIVE 1: EMERGENCY OPERATIONS MANAGEMENT

FEMA REP Capability Target 1.1 – Mobilization

Evaluation Criteria: Individuals with roles in support of emergency operations are identified, alerted, and mobilized in a timely manner. (NUREG-0654/FEMA-REP-1, Rev. 2: A.1, A.1.a, e A.1.b, A.3, A.4, A.5, C.1, C.2, C.2.a, C.2.b, C.3, E.1, E.1.a, E.3, F.1.c, H.6, O.1)

Locations:

- Department of Public Safety (DPS) Disaster District (4A) Emergency Operations Center (DDC), Joint EOC – Fort Worth, TX
- DSHS RCP at Comanche Peak Emergency Operations Facility (EOF), Glen Rose, TX
- Joint Information Center (JIC), Granbury, TX
- Hood and Somervell County Emergency Operations Center (EOC), Somervell – Glen Rose, TX; Hood – Granbury, TX

Core Capabilities: Operational Coordination

Extent of Play:

- DSHS RCP Personnel will pre-stage at the RCP staging area at 200 Deputy Larry Miller Drive Granbury, TX
- Regardless of the scenario, no facilities/activities will relocate during this exercise.
- Four (4) Field Monitoring Teams will be deployed for training purposes. Only (2) teams will be evaluated. Drill evaluators may be required to travel in separate vehicles due to space restrictions in DPS vehicles; handheld radios to monitor communications will be provided if space does not allow for them to ride with FMTs.
- Disaster District Committee personnel not stationed at DD 4A EOC may be pre-staged.
- To allow for maximum amount of play, DSHS-RCP and DSHS-JIC staff will pre-stage in the area.
- An extra dispatcher will be placed on duty to handle the regular workload. Non-local TDEM personnel will be pre-staged in the area.

FEMA REP Capability Target 1.2 –Direction and Control

Evaluation Criteria: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible (NUREG-0654/FEMA-REP-1, Rev. 2: A.1, A.1.a, A.1.b, A.1.c, A.2, A.3, A.5, C.2, C.2.a, C.2.b, C.3, D.4, E.1, H.6, O.1)

Locations:

- Department of Public Safety (DPS) Disaster District 4A Emergency Operations Center (DDC), Joint EOC – Fort Worth, TX

- DSHS RCP at Comanche Peak Emergency Operations Facility (EOF), Glen Rose, TX
- Hood and Somervell County Emergency Operations Center (EOC), Somervell – Glen Rose, TX; Hood – Granbury, TX (See EMPG evaluation requirement below)

Core Capabilities: Operational coordination; Environmental Response/Health and Safety

Extent of Play: Correction on the spot requested for equipment and supplies.

FEMA REP Capability Target 1.3 – Protective Action Recommendations

Evaluation Criteria: Appropriate protective action recommendations (PARs) are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of on-site and off-site environmental conditions (NUREG-0654/FEMA-REP-1, Rev. 2: D.4, J.7, J.8, J.8.b, J.9, O.1)

Locations:

- DSHS RCP at EOF

Core Capabilities: Operational Coordination; Situational Assessment; Environmental Response/Health and Safety

Extent of Play:

- If EOF has been staffed by DSHS RCP at this time, it will be the only facility evaluated for this capability target.
- The DSHS EOF controller may inject simulated field monitoring data to the Accident Assessment Coordinator for the purpose of dose projection validation; this will only be utilized if the offsite release timeline would cause a large delay in dose assessments capabilities to validate dose projections.
- If the scenario does not warrant a discussion on protective actions for the protection of persons with disabilities and access/functional needs, then the criteria shall be accomplished through an interview with the evaluator.

FEMA REP Capability Target 1.4 – Protective Action Decisions for the Plume Phase

Evaluation Criteria: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PADs) for the general public. (NUREG-0654/FEMA-REP-1, Rev. 2: D.1.b, D.4, J.6, J.7, J.8, J.8.b, J.10, J.10.a, J.10.b, J.11.c-g, O.1)

Locations:

- Hood and Somervell County EOC

Core Capabilities: Operational Coordination; Situational Assessment; Environmental Response/Health and Safety

Extent of Play:

- The protective actions that result from this decision-making process will not be implemented. No members of the public will be relocated.
- If the scenario is not sufficient to drive the decision to recommend KI for EW, the criteria will be demonstrated in both counties by interview and injects at the end of the exercise.
- Protective actions for access/functional needs individuals will be considered at the EOC; however, actual demonstration of protective actions will not be performed.
- EOC staff will demonstrate this criterion through discussion and showing the evaluator a roster of access/functional needs individuals in the 10-mile emergency planning zone.

FEMA REP Capability Target 1.5 – Protective Action Decision Implementation for the Plume

Evaluation Criteria: Implement decisions for those populations and areas subject to plume phase protective actions. (NUREG-0654/FEMA-REP-1, Rev. 2: A.4, C.2.a, G.1, J.11, J.11.a, J.11.b, J.11.c, J.11.e, J.11.g, O.1)

Locations:

- Hood and Somervell County EOC
- Granbury and Tolar ISDs

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety

Extent of Play:

- The State of Texas does not provide KI to the general public.
- The local County EOC Command and Control Team will discuss issuance of KI.
- Should a County PAD include ingestion of KI for persons with disabilities and access/functional needs, this will be accomplished via message inject or, if dose projections do not reach 5R for those populations, it will be accomplished via interview.
- Correction on the spot is requested for school bus driver interview, EW radiological briefing information, and dosimetry use.

FEMA REP EVALUATION OBJECTIVE 2: EXPOSURE CONTROL**FEMA REP Capability Target 2.1 –Emergency Worker Exposure Control Decision-Making**

Evaluation Criteria: 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 emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654/FEMA-REP-1, Rev. 2: C.2.c, H.11, K.2, K.2.b, K.3, K.3.a, M.1.b, M.8, O.1)

Locations:

- DSHS RCP at EOF
- Hood and Somervell County EOC

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety

Extent of Play:

- Ingestion of KI will be simulated during the exercise.
- If the scenario does not warrant a discussion on either the authorization to administer KI or Emergency Worker (EW) exposure exceeding administrative limits, then the criterion will be accomplished through an inject at the EOF. Decision making for KI and EW exposure level above administrative limits is done at the EOF and the local EOC.

FEMA REP Capability Target 2.2 – Emergency Worker Exposure Control Management

Evaluation Criteria: The OROs issue appropriate dosimetry, and procedures, and manage radiological exposure to emergency workers in accordance with the plans/procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. OROs maintain appropriate record-keeping of the administration of KI to emergency workers. (NUREG-0654/FEMA-REP-1, Rev. 2: C.2.c, H.11, H.11.b, K.2.b, K.3, K.3.a, M.1.b, O.1)

Locations:

- DSHS RCP at EOF
- DSHS RCP Field Monitoring Teams
- Hood and Somervell County EOC
- Granbury and Tolar ISDs

Core Capabilities: Operational Coordination; Environmental Response/Health and Safety

Extent of Play:

- Exercise TLDs will be used for the exercise. TLDs for real events are packaged in the Emergency Planner box at the staging area. DSHS Emergency Planners can show evaluator real TLDs at staging area. If the decision is made to have emergency workers ingest KI, actual ingestion of KI will not be done.
- Distribution and actual ingestion of KI to emergency workers will be simulated by using copies of the Patient Packet insert or copies of the packet to represent actual KI supplies.
- A group radiological safety briefing will be done morning of exercise, prior to deployment to operational areas. County radiological officers may provide this briefing to County EWs separately at the EOC. Staff demonstrating the route alerting will count as one of the EWs.
- Correction on the spot is requested for Emergency Worker radiological briefing information and dosimetry use.

FEMA REP EVALUATION OBJECTIVE 3: ALERT AND NOTIFICATION**FEMA REP Capability Target 3.1 – Communications**

Evaluation Criteria: 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. (NUREG-0654/FEMA-REP-1, Rev. 2: E.1.a, E.3, F.1, F.1.a, F.1.b, F.1.c, F.3, O.1)

Locations:

- DDC
- DSHS RCP at EOF
- DSHS RCP Field Monitoring Teams (FMTs)
- JIC
- Hood and Somervell County EOCs

Core Capabilities: Operational Coordination; Operational Communications

Extent of Play:

- A controller phone cell will be established to ensure appropriate communications are accomplished and to ensure fluid exercise play.

FEMA REP Capability Target 3.2 – Alert and Notification of the Public

Evaluation Criteria: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized off-site 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 REP guidance. (NUREG-0654/FEMA-REP-1, Rev. 2: E.2, E.4, E.5, F.3, O.1)

Locations:

- WBAP Radio Station
- Hood and Somervell County EOC

Core Capabilities: Public Information and Warning

Extent of Play:

- Siren activation will be simulated by the County Sheriff's Office Dispatcher; and alert radio activation will be simulated by the WBAP Radio Station.
- Simulation of the siren and alert radio activation will be in real time sequence with the transmission of the EAS message. The sirens will be sounded at the appropriate time in the exercise in accordance with the decision and the EAS message will follow the siren sounding.
- Route alerting will be performed by completing routes.

- Emergency Alert System (EAS) message content will be determined by the Emergency Management Director and communicated to the EAS source by the EOC Administrative Assistant; however, broadcasts will be simulated.

FEMA REP Capability Target 3.3 – Emergency Information and Instructions for the Public and News Media

Evaluation Criteria: Accurate emergency information and instructions are provided to the public and the news media in a timely manner. (NUREG-0654/FEMA-REP-1, Rev. 2: E.2, E.4, E.5, G.1, G.2, G.3, G.3.a, G.4, G.5, O.1)

Locations:

- DSHS EOF
- JIC
- Hood and Somervell Counties EOC

Core Capabilities: Public Information and Warning

Extent of Play:

- Utility and State representatives will demonstrate the ability to provide emergency information and instructions to the public consistent with the scenario.
- Controllers will inject public phone team messages, media phone team messages and news briefing messages.
- Rumor control will be demonstrated at the JIC.

FEMA REP EVALUATION OBJECTIVE 4: DETECT, MEASURE, SAMPLE, ANALYZE, AND ASSESS

FEMA REP Capability Target 4.1 – Field Monitoring Teams Management

Evaluation Criteria: Field teams (2 or more) are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654/FEMA-REP-1, Rev. 2: H.11, H.13, I.5, I.6, I.9, I.10, M.7, M.8, O.1)

Locations:

- DSHS RCP at EOF

Core Capabilities: Environmental Response/Health and Safety

Extent of Play:

- Correction on the spot is requested for field monitoring teams management at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted

FEMA REP Capability Target 4.2 – Plume Phase Measurements and Sampling

Evaluation Criteria: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams should 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 sample media. (NUREG-0654/FEMA-REP-1, Rev. 2: H.9, H.11, H.11.a, H.11.b, H.12, H.13, I.2, I.5, I.6, I.7, I.8, I.9, I.10, O.1)

Locations:

- DSHS RCP FMTs

Core Capabilities: Environmental Response/Health and Safety**Extent of Play:**

- Activated charcoal filters will be used in lieu of Silver Zeolite filters for exercise purposes.
- The field team plume tracking, field measurements, air sampling, and field analysis criteria demonstration can occur out of sequence of the exercise scenario, before the exercise, at a time agreed upon by the EOC controller and FEMA evaluator due to heat.
- Each graded field team will at least once demonstrate proficiency in the use of PPE (gloves & booties) as required by procedure. Due to heat considerations, suits will not be worn in the field.
- The ability to don and remove PPE will be demonstrated by 1 field team member at an agreed upon time and location prior to or following the exercise.
- Field Monitoring Team Equipment not required to demonstrate exercise objectives may be left at the DSHS Staging Area to allow for additional space within the vehicles.
- Correction on the spot requested for plume phase measurements and sampling.

FEMA REP Capability Target 4.5 – Plume Phase Analysis and Dose Assessment

Evaluation Criteria: Dose assessment considers all available information including plant conditions, environmental conditions, field monitoring data, sample analysis results, and dose projection calculations. (NUREG-0654/FEMA-REP-1, Rev. 2: A.3, H.13, I.6, I.8, I.10, K.3, O.1)

Locations:

- DSHS RCP at EOF

Core Capabilities: Environmental Response/Health and Safety**Extent of Play:**

- If EOF has been staffed by DSHS RCP at this time, it will be the only facility evaluated for this criterion.

FEMA REP EVALUATION OBJECTIVE 5: OPERATE**FEMA REP Capability Target 5.4 – Traffic and Access Control**

Evaluation Criteria: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654/FEMA-REP-1, Rev. 2: H.12, J.8, J.8.b, J.10, J.10.a, J.11.c, J.11.e, J.11.f, J.14.d, J.14.e, M.1.b, O.1)

Locations:

- Hood and Somervell County EOC
- DDC

Core Capabilities: Operational Coordination; On-Scene Security, Protection, and Law Enforcement

Extent of Play:

- A group radiological safety briefing will be done morning of exercise, prior to deployment to operational areas. In accordance with County procedures, the County ROs will provide a radiological briefing to the County EWs.
- A Law Enforcement Officer (from the Sheriff's Department) assigned to T/ACP will discuss the knowledge of their role and responsibilities by interview with the evaluator. This interview can occur out of sequence of the exercise scenario, but during the exercise, at a time agreed up on by the EOC controller and FEMA evaluator.
- Correction on the spot requested for EW radiological briefing information and dosimetry use at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to ensure that exercise play is not interrupted.

General Extent of Play:

- With regard to last-minute additions or changes to any previously approved Extent-of-Play, all suggested changes, including decisions due to inclement weather, must be forwarded to the RAC Chair for approval.
- As a statement of fact, no ORO will deliberately deviate from its plans and procedures with the intent of avoiding responsibility.
- The exercise may be suspended or terminated due to a real emergency situation.
- *Correction-on-the-spot is defined in the 2019 FEMA REP Program Manual on page 176.

SCENARIO NARRATIVE

This exercise is for Comanche Peak Nuclear Power Plant (CPNPP), Unit 1 and Unit 2. Crew 13 receives the watch with both units at 100% RTP. Initial conditions: RHR PUMP 1-01 is out of service for emergent control circuit troubleshooting. Information received during hot turnover is that the clearance has been released and venting of seal cooler is in progress.

The exercise is scheduled to begin on Wednesday, July 26, 2023 at 0730 hours.

METEOROLOGICAL CONDITIONS

Wind speed is 10 MPH from 195 degrees. Current temperature is 95°F. Stability Class is “E”

EVENT SUMMARY

~0735 EVENT 1 – STATION SERVICE WATER PUMP 1-02 trips due to motor fire (**UE, HU4.1**). The Crew recognizes the loss of safety function for RHR (LCO 3.0.3) and prepares for shutdown.

~0810 EVENT 2 – The second event begins with CONDENSATE PUMP 1-01 tripping. A reactor trip will be required, but the reactor will fail to trip. When the reactor trip breakers are opened per FRS-0.1A, four (4) control rods will fail to insert. (**ALERT, SA6.1**).

~0920 EVENT 3 – The third event is a LOCA and FUEL FAILURE. Containment radiation levels increase to 60 R/hr over ten minutes. NO escalation is required (**ALERT, FA1.1**).

NOTE: RHR pump 1-01 breaker will be restored prior to initiation of event 4.

~0945 EVENT 4 – The fourth event occurs when the crew transitions to Cold Leg Recirculation at 33% in the RWST. As soon as 1-8811A (CNTMT SMP TO RHR PMP 1-01 SUCT ISOL VLV) is opened it fails, causing leakage in RM 1-065 (TRAIN A VALVE ISOLATION TANK RM). This is beginning of the rad release indicated by X-RE-5570A (SOUTH VENT STACK WIDE RANGE GAS MONITOR), X-RE-5570B (NORTH VENT STACK WIDE RANGE GAS MONITOR) and X-CV-06 alarm (SFGD BLDG UNIT 1, window 4.1, RHR & CS VLV ISOL TK/HX/VLV RM TRN A, ionization detector). Both PVF684 and PVF685 go to 2E6 (each) over 5 mins. A **SITE AREA EMERGENCY** due to a loss of two barriers (**FS1.1**) **or** due to radiation levels (**RS1.1**) is declared.

~1100 EVENT 5 – Rad levels increase to greater than 2.0E+7 through PLANT VENT STACK WRGM. Both PVF684 and PVF685 going to 2E7 (each) over 5 mins. A **GENERAL EMERGENCY (RG1.1)** is declared.

INITIAL PAR: EVACUATE – 2A, 4B, 4A, 1B, 1A

SHELTER – N/A

SECTORS – ABC

~1200 EVENT 6 – Rad levels increase to greater than 8.0E+7 through PLANT VENT STACK WRGM. Both PVF684 and PVF685 going to 8E7 (each) over 5 mins. A subsequent PAR due to increasing radiation levels will be warranted based on dose assessment results

SUBSEQUENT PAR: EVACUATE – 2A, 4B, 4A, 1B, 1A, 1C, 1D, 4E, 2G



SHELTER – N/A
SECTORS – ABC

EVENT 7 – Exercise is terminated.

Appendix F: Improvement Plan

This Improvement Plan has been developed as a result of the Comanche Peak Nuclear Power Plant plume exercise conducted on July 26, 2023.

Capability Target	Core Capabilities	Issue/Summary	Corrective Action	Primary Responsible Organization	Organization POC	Start Date	Completion Date
2.2	Operational Coordination; Environmental Response/ Health and Safety	14-23-2.2-L2-001 The RO did not issue a TLD to each person in the EOC. Emergency workers could not recall briefing information.	Redemonstrated during exercise	Somervell County	n/a	07/26/2023	07/26/2023

Capability Target	Core Capabilities	Issue/Summary	Corrective Action	Primary Responsible Organization	Organization POC	Start Date	Completion Date
2.2	Operational Coordination; Environmental Response/ Health and Safety	14-23-2.2-P-001 The RO was unable to conduct an operational check of the survey meter and procedures for use were unavailable.	Recommendation to revise procedures to include all job aids for all equipment and provide refresher training on procedures upon revision.	Somervell County	Brian Jones	08/01/2023	



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