



# Comanche Peak Nuclear Power Plant Emergency Worker Monitoring & Decontamination Drill

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## Executive Summary

On April 6, 2023, the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), Region 6, evaluated the Hood County Decontamination Facility for the Comanche Peak Nuclear Power Plant, located near Glen Rose, Texas.

During the emergency worker monitoring and decontamination drill, 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 drill 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 drill implemented the revised NUREG 0654/FEMA-REP-1, Rev. 2 document and the 2019 Radiological Emergency Preparedness Program Manual (RPM).

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

## Section 1: Exercise Overview

Name	2023 Comanche Peak Nuclear Power Plant Emergency Worker Monitoring & Decontamination Drill
Dates	April 6, 2023
Purpose	The purpose of the emergency worker monitoring and decontamination drill 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 Planning
Objectives	Emergency Operations Management Exposure Control Operate
Threat or Hazard	Release of radiological materials from a commercial nuclear power plant.
Scenario	This drill 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 A.

## 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
<b>Objective 1: Emergency Operations Management</b>			
Hood County Decontamination Facility	1.2	Operational Coordination, Situational Assessment, Planning	M
<b>Objective 2: Exposure Control</b>			
Hood County Decontamination Facility	2.2	Operational Coordination, Environmental Response/Health and Safety, Planning	M
<b>Objective 5: Operate</b>			
Hood County Decontamination Facility	5.2	Operational Coordination, Environmental Response/Health and Safety, Planning	M

## 2.2 Results of Exercise Evaluation

### Hood County Decontamination Facility

Objective 1: Emergency Management Operations

Capability Target 1.2: Direction and Control

Objective 2: Exposure Control

Capability Target 2.2: Emergency Worker Exposure Control Management

Objective 5: Operate

Capability Target 5.2: Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles

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

- a. MET: 1.2, 2.2, 5.2
- b. LEVEL 1 FINDING: None
- c. LEVEL 2 FINDING: 5.2

ISSUE NUMBER: 14-23-5.2-L2-01

CAPABILITY TARGET: Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles

CONDITION: The survey meter radiological source check was not performed correctly. While directing staff to perform the survey meter source check, the Radiological Officer (RO) stated that the source check was satisfactory once the survey meter read 2500 counts per minute (CPM) when the probe was placed in contact with the Cs-137 check source, and not within a specific range of readings.

POSSIBLE CAUSE: Unfamiliarity with procedures.

PLANNING REFERENCES: NUREG-0654/FEMA-REP-1, Rev. 2 (K.4); Hood County Annex W, Tab D, Appendix 4, Procedures for Fire and Rescue Officials Under General Emergency

EFFECT: The survey meters might not be operating accurately without a proper radiological source check. This could lead to contamination going undetected and possibly spread to uncontaminated areas.

CORRECTIVE ACTION TAKEN: A timeout was called by the Controller and retraining was conducted. A proper source check was conducted on the survey meter.





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

## Appendix A: Participating Organizations

### Participating Organizations

<b>State Organizations</b>
Texas Department of State Health Services
<b>Risk Jurisdictions</b>
Hood County Office of Emergency Management
Hood County Community Emergency Response Team
Hood County Fire Marshall
Granbury Volunteer Fire Department
<b>Private Organizations</b>
Comanche Peak Nuclear Power Plant (Luminant)

## Appendix B: 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	Robin Phillips	DSHS
Licensee Planning Team Lead Emergency Preparedness	Jay Webster	CPNPP

### Evaluation Team

Team Leaders and Evaluators		
Venue/Location	Evaluation Team/Team Lead	Agency
Hood County Decontamination Facility	Misty Chance Elsa Lopez Melisa Ogrodnik Timothy Pflieger *	FEMA Region 6
* Team Leader		

## Appendix C: Acronyms and Abbreviations

Acronym	Description
ALARA	As Low As Reasonably Achievable
CERT	Community Emergency Response Team
CPNPP	Comanche Peak Nuclear Power Plant
CPM	Counts Per Minute
DSHS	Department of State Health Services
DHS	Department of Homeland Security
DRD	Direct Reading Dosimeter
EC	Emergency Coordinator
EOC	Emergency Operations Center
EPD	Electronic Personal Dosimeter
EPZ	Emergency Planning Zone
EW	Emergency Worker
FEMA	Federal Emergency Management Agency
KI	Potassium Iodide
NPP	Nuclear Power Plant
OIC	Officer in Charge
ORO	Offsite Response Organizations
OSL	Optically Stimulated Luminescent
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimeter
RCP	Radiation Control Program
RO	Radiological Officer
REP	Radiological Emergency Preparedness
RPM	Radiological Emergency Preparedness Program Manual
SOP	Standard Operating Procedure
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescent Dosimeter

## Appendix D: Extent of Play Agreement and Scenario

### OBJECTIVES, CAPABILITY TARGETS, AND EXTENT-OF-PLAY

#### 1 EMERGENCY OPERATIONS

##### 1.2 Direction and Control

Capability Targets: Individuals in leadership roles provide direction and control to the portion 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.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, and O.1)

Locations: Emergency Worker Decontamination Station at Granbury City Pool

Extent of Play:

- Given a simulated radioactive release from Comanche Peak NPP, the Hood County Emergency Coordinator will direct the Granbury VFD to establish the Emergency Worker Decontamination Facility at the Granbury City Pool.
- ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. COTS is only allowed for equipment/supplies for this capability target. Caution should be exercised to ensure that exercise play is not interrupted.

Core Capabilities: Operational Coordination; Situational Assessment; Planning.

#### 2 EXPOSURE CONTROL

##### 2.2 Emergency Worker Exposure Control Management

Capability Targets: Emergency workers manage radiological exposure and dose in accordance with the plans/procedures. (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: Emergency Worker Decontamination Station at Granbury City Pool

Extent of Play:

- Dosimeters and a simulated OSL/TLD will be issued to participating deputies and VFD personnel by Hood County EOC personnel. Emergency Worker Decontamination personnel will have their dosimeters, and simulated OSL/TLD issued by the Hood County EOC. Distribution of Potassium Iodide (KI) will be controlled through the Hood County EOC (distribution will be simulated). Participating deputies and VFD personnel will track/record their simulated dose and report totals to the Hood County Emergency Coordinator.

- ***Correction-on-the-spot*** will be considered at these locations at the discretion of and concurrence between the evaluator and the controller. COTS is only allowed concerning the radiological briefing information and dosimetry use. Caution should be exercised to ensure that exercise play is not interrupted.

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

## 5 OPERATE

### 5.2 Monitoring and Decontamination of Emergency Workers, Equipment, and Vehicles.

Capability Targets: Facilities, equipment, and procedures are in place and utilized to provide monitoring and decontamination of emergency workers and their equipment and vehicles. (NUREG-0654/FEMA-REP-1, Rev. 2: K.4 and O.1)

Locations: Emergency Worker Decontamination Station at Granbury City Pool

Extent of Play:

- Participating Hood County VFD personnel will establish the Emergency Worker Decontamination facility at the Granbury City Pool. Simulated contaminated sheriff deputy, Granbury VFD personnel, and their respective vehicles will be decontaminated at the facility.
- ***Correction-on-the-spot*** will be considered 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.

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

## SEQUENCE OF EVENTS (times variable based on flow of events)

0900 The Hood County Emergency Coordinator dispatches a Hood County Sheriff Deputy and the Granbury VFD to assist in the evacuation of residences in the Indian Harbor and Comanche Cove areas.

0915 The Hood County EOC contacts Granbury VFD to activate the Emergency Worker Decontamination Facility at the Granbury City Pool.

0930 The wind shifts while the Emergency Workers (deputy and VFD) are performing their assigned duties and moves the plume directly overhead.

0945 The Emergency Workers recognize that their personal dosimetry is showing increased exposure along with an audible alarm. They inform the EOC and are instructed to report to the EWDF.

1000 The Emergency Workers arrive at the EWDF.

1100 Drill terminated

## **SCENARIO NARRATIVE**

NOTE: The Sheriff Deputy and Granbury VFD will be pre-staged at the Hood County EOC.

The scenario is based on the premise that there has been a radiological release from Comanche Peak Nuclear Power Plant.

An evacuation has been ordered and the general public is exiting the 10-mile EPZ. In this scenario, a sheriff's deputy and volunteer fire person (the Emergency Workers) will be contaminated by the release plume as determined by their personal electronic dosimetry.

As part of sending the Emergency Workers to the field, the Hood County Emergency Coordinator will call have the Granbury VFD activate the Emergency Worker Decontamination Facility (EWDF).

The Emergency Workers notify the EOC of their situation and are instructed to report to the EWDF at the Granbury City Pool.

The Granbury VFD will establish the EWDF and upon arrival of the contaminated Emergency Workers, will survey the workers and their respective vehicles.

Decontamination efforts of the workers will take place first, once their contamination levels have been reduced to < 300 cpm or 0.1 mR/hr (beta/gamma) they will be released.

Decontamination of the affected portions of their vehicles will then be performed and the vehicles released when contamination levels are < 300 cpm or 0.1 mR/hr (beta/gamma).

Personnel or vehicles with contamination less than this amount will be considered clean and not require decontamination.

## Appendix E: Improvement Plan

This Improvement Plan has been developed as a result of the Comanche Peak Nuclear Power Plant emergency worker monitoring and decontamination facility drill conducted on April 6, 2023.

Capability Target	Core Capabilities	Issue/Summary	Corrective Action	Primary Responsible Organization	Organization POC	Start Date	Completion Date
5.2	Operational Coordination; Environmental Response/Health and Safety; Planning	<b>14-23-5.2-L2-01</b> The survey meter radiological source check was not performed correctly.	A timeout was called by the Controller and retraining was conducted. A proper source check was conducted on the survey meter.	Hood County	n/a	04/06/2023	04/06/2023





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