



# Cooper Nuclear Station After Action Report/ Improvement Plan

Exercise Date – July 31, 2018  
Radiological Emergency Preparedness (REP) Program



FEMA

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**Unclassified**  
Radiological Emergency Preparedness Program (REP)

**After Action Report/Improvement Plan**  
**Cooper Nuclear Station**

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## Cooper Nuclear Station

# After Action Report/Improvement Plan

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## EXECUTIVE SUMMARY

On July 31, 2018, the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) Region VII conducted a biennial exercise in the plume emergency planning zone (EPZ) around the Cooper Nuclear Station. In addition, out-of-sequence drills were conducted on May 23rd, June 18th, July 11th, August 7th, and August 15th, of 2018. The purpose of the exercise and drills was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and drills were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures.

The previous exercise at this site was conducted on June 14, 2016. The qualifying emergency preparedness exercise was conducted on April 6, 1983.

FEMA wishes to acknowledge the efforts of all who participated in and supported the exercise and drills. Along with the States of Missouri and Nebraska, Atchison County in Missouri and Nemaha and Richardson Counties in Nebraska contributed to the success of this exercise. The efforts of the Nebraska Public Power District (NPPD) staff should also be commended for their work on the scenario development and exercise preparation.

Protecting the public health and safety is the full-time job of some exercise participants and an additionally assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their community. The cooperation and teamwork of all the participants were evident during this exercise. A special thank you to all of the wonderful volunteers who participated in this community service.

The state and local organizations demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Level 1 findings as a result of this exercise. One Level 2 finding was discovered during the out-of-sequence Medical Services drill with the Midwest Medical Transport Service. This finding was corrected during the drill and is closed. Additionally, there were two planning issues identified; one with the Nebraska State Emergency Operations Center and one with the Midwest Medical Transport Service. The planning issue identified during the out-of-sequence drill on May 23, 2018, with the Midwest Medical Transport Service was also identified during the exercise on July 31, 2018, at the Nemaha County Emergency Operations Center and subsequently at the Nebraska State Emergency Operations Center. For simplicity, the planning issue has only been listed under the demonstration for Midwest Medical Transport Service. Both planning issues have been corrected with new procedures and forms.

There is one open Level 2 Finding from a previous exercise in 2014. Due to the nature of the location and scenario type, the Level 2 Finding at the Nebraska Forward Staging Area will be re-demonstrated at a later date.

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For this exercise, the final protective action decision (PAD) in Missouri was: the evacuation of Subarea 1, which included the City of Watson. The final PAD in Nebraska was: the sheltering-in-place of Subareas 11, 12, 13-East, 13-West and 14. The PAD in Nebraska included the cities of Brownville, Nemaha, and Shubert. Approximately 1,090 residents were affected by the PADs.

## SECTION 1: EXERCISE OVERVIEW

### 1.1 Exercise Details

**Exercise Name**

Cooper Nuclear Station

**Type of Exercise**

Radiological Emergency

**Exercise Date**

July 31, 2018

**Program**

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

**Scenario Type**

Plume Phase

### 1.2 Exercise Planning Team Leadership

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### 1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Cooper Nuclear Station exercise:

#### State Jurisdictions

Missouri Department of Health and Senior Services  
Missouri State Emergency Management Agency  
Missouri State Highway Patrol  
Nebraska Department of Administrative Services  
Nebraska Department of Agriculture  
Nebraska Department of Correctional Services  
Nebraska Department of Environmental Quality  
Nebraska Department of Health and Human Services  
Nebraska Department of Natural Resources  
Nebraska Department of Transportation  
Nebraska Emergency Management Agency  
Nebraska Game and Parks Commission  
Nebraska National Guard  
Nebraska State Fire Marshal's Office  
Nebraska State Patrol  
Nebraska Wesleyan University, Physics Department  
University of Missouri Extension Office, Atchison County

#### Risk Jurisdictions

Atchison County Commissioners  
Atchison County Emergency Management  
Atchison County Sheriff's Office  
Atchison County Health Department  
Atchison County Roads and Bridges Department  
Falls City Fire Department  
Falls City Police Department  
Nemaha County Commissioners  
Nemaha County Sheriff's Office  
Nemaha County Health Department – Southeast District



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Nemaha County Emergency Management  
Nemaha County 911 Center  
Richardson County Clerk's Office  
Richardson County Commissioners  
Richardson County Emergency Management Agency  
Richardson County Road Department  
Richardson County Sheriff's Office  
Richardson County Treasurer's Office  
Richardson County Volunteers  
City of Tarkio Police Department

**Support Jurisdictions**

Atchison-Holt Ambulance Service  
Community Hospital Fairfax  
Community Medical Center, Falls City  
Falls City Ambulance Squad  
Falls City Public Schools  
Midwest Medical Transport Service  
Nemaha County Hospital  
Missouri Region H Homeland Security Regional Response System  
Rockport R-II School District  
Sac & Fox Nation of Missouri in Kansas and Nebraska  
Shubert Fire Department  
Verdon Fire Department  
University of Nebraska Medical Center

**Private Organizations**

American Red Cross  
Nebraska Public Power District - Cooper Nuclear Station  
Omaha Public Power Division

**Federal Organizations**

Federal Emergency Management Agency (FEMA)  
National Weather Service (NWS)

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## **SECTION 2: EXERCISE DESIGN SUMMARY**

### **2.1 Exercise Purpose and Design**

Cooper Nuclear Station's (CNS) Emergency Plan describes CNS's capability to respond effectively to a radiological emergency at the site, and provides a detailed description of CNS's interaction with Federal, State, and local government agencies as well as private organizations. The Emergency Plan provides for continuous emergency preparedness including the conduct of annual exercises and preparatory drills.

The purpose of the July 31, 2018, plume phase exercise (PPX) was to activate and evaluate portions of the State of Missouri, State of Nebraska, Atchison County, Nemaha County, and Richardson County emergency plans and associated implementing procedures, in accordance with 44 CFR 350. Further, these exercises and drills tested the CNS emergency response community's ability to assess and respond to emergency conditions and coordinate efforts with other agencies for protection of the health and safety of the public. The conduct and evaluation of this exercise provided additional training for emergency response organization personnel and a means to further enhance CNS emergency response capability.

The scenario was designed to provide a simulated radiological release from CNS to prompt emergency management personnel from the surrounding offsite response organizations to test their response plans. The scenario was utilized by the exercise controllers/evaluators as the control mechanism for the conduct of the exercise. CNS Emergency Planning personnel developed the scenario with input from designated trusted agents from Missouri and Nebraska Emergency Management and Health staff. The scenario was initially reviewed by a Health Physicist from the FEMA Technological Hazards Program headquarters, prior to final review and approval by FEMA Region VII.

The scenario, as driven by the CNS Control Room Simulator, depicted a simulated sequence of events which resulted in escalating conditions of sufficient magnitude to warrant mobilization of state and local agencies to respond to the simulated emergency. Whenever practical, the exercise incorporated provisions for "free play" on the part of the participants.

### **2.2 Exercise Objectives, Capabilities and Activities**

Cooper Nuclear Station (CNS) exercises and drills are conducted to test and provide the opportunity to evaluate emergency plans, associated implementing procedures, facilities, and equipment. This exercise tested the CNS offsite response organizations' ability to assess and respond to emergency conditions as well as coordinate efforts with other agencies for protection of the health and safety of the public.

The CNS Emergency Preparedness Exercise & Drill Program objectives are based on the Federal requirements delineated in 44 CFR 350, as well as on the priorities and procedures detailed in the emergency preparedness plans for the State of Missouri, State of Nebraska, Atchison County,

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Nemaha County, and Richardson County. Additional guidance provided in NUREG-0654, NUREG-0696, and NUREG-0737, was utilized in developing these objectives.

The objective of the exercise was to test the implementation of the plans and procedures of participating agencies, along with the capability of these agencies to conduct operations in accordance with these plans. This objective is further defined by the criteria evaluated for each participating location.

The exercise included participation by the State of Missouri, State of Nebraska, Atchison County, Nemaha County, Richardson County, and other associated offsite response organizations. A summary of the specific criteria evaluated for each of the participating organizations is listed in Table 3.1.

### 2.3 Scenario Summary

The following scenario was provided by Cooper Nuclear Station (CNS) Emergency Preparedness and approved by Department of Homeland Security/FEMA for use during the plume exercise which took place on July 31, 2018.

#### Initial Conditions

The scenario began with the power plant at 100% power with some scheduled maintenance on Core Spray Pump B, for upper and lower oil reservoir sight glass replacement. Drywell Zone 2C High Temperature annunciator was locked and reading 150°F and steady.

Weather conditions for this scenario began with the National Weather Service issuing a severe thunderstorm watch for Nemaha, Otoe and Richardson Counties in Nebraska and Atchison County in Missouri. This storm cell had produced damaging winds, hail and had spawned several tornadoes. It was forecast to enter the area in the next 4-12 hours.

#### Sequence of Events

At 0740, The Control Room received annunciator FP-1/F-1, RX BLDG 976'/1001' EAST ZONE 26 indicating a fire on 976' East. A Non-Licensed Operator (NLO) was dispatched to the scene. Based on the information provided by the controller to the NLO, the Control Room declared an ALERT under emergency action level (EAL) HA2.1.

At 0903, the Nebraska State Patrol (Nemaha County) reported a train stalled on the railroad tracks on Highway 136 prior to entry into Auburn.

At 0907, the Missouri State Highway Patrol (Atchison County) reported a fire in the grain elevator located on Highway 136 prior to the railroad tracks. The road had a roadblock established preventing the flow of traffic on Highway 136.

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At 0915, reactor power, pressure and level oscillations were initiated. Low reactor pressure caused a Group 1 isolation, which resulted in an automatic scram. A Site Area Emergency (SAE) was declared under EAL SS2.1 due to an Anticipated Transient Without Scram (ATWS) conditions and manual actions taken at Panel 9-5 in the Control Room being unsuccessful, at 0927.

At 0917, the Nebraska State Patrol (Richardson County) reported an overturned cattle truck on Highway 67, 0.25 miles from Shubert, NE. There were no injuries; but the semi was blocking the road and there were cattle roaming freely in the area.

At 0938, Heat Capacity Temperature Limit (HCTL) was exceeded. A General Emergency (GE) was declared under EAL SG2.1 due to ATWS conditions and average torus water temperature and RPV pressure not being able to be maintained within HCTL, at 0945.

At 0945, due to the instabilities caused by power oscillations and the subsequent ATWS, fuel damage occurred.

At 1123, there was a High Pressure Coolant Injection (HPCI) steam line break causing a radioactive release.

At approximately 1207, there was a wind shift from  $\sim 355^\circ$  to  $\sim 42^\circ$  which required a change in the Protective Action Requirements (PARs).

The drill was terminated at approximately 1314.

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## **SECTION 3: ANALYSIS OF CAPABILITIES**

### **3.1 Exercise Evaluation and Results**

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities that participated in the out-of-sequence drills on May 23<sup>rd</sup>, June 18<sup>th</sup>, July 11<sup>th</sup>, August 7<sup>th</sup>, and August 15<sup>th</sup>, of 2018, and the full-scale plume exercise held on July 31, 2018. These drills and exercise tested the offsite emergency response capabilities of state and local governments in the 10-mile plume emergency planning zone surrounding the Cooper Nuclear Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of the criteria delineated in FEMA's Radiological Emergency Preparedness Program Manual, dated January 2016.

### **3.2 Summary Results of Exercise Evaluation**

Table 3.1 presents all the exercise criteria which were successfully demonstrated during this exercise and drills, at all participating jurisdictions and functional entities. Any findings and/or planning issues are addressed in Section 3.3: Criteria Evaluation Summaries. The types of findings/issues are:

M – Met, No new Findings or previously unresolved issues

L1 – Level 1 Finding

L2 – Level 2 Finding

P – Planning Issue

N – Not Demonstrated

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Table 3.1 - Summary of Exercise Evaluation (2 pages)

DATE: 2016-06-14 SITE: Cooper Nuclear Station, NE M: Met, L2: Level 2 Finding, L1: Level 1 Finding, P: Planning Issue, N: Not Demonstrated		MO State EOC	MO Dose Assess	MO FTC	MO Field Team A	MO Field Team B	MO JIC	MO FCP/GAR	Atchison County EOC	RockPort R-II Schools	Atchison-Holt EMS	Comm, Hosp Fairfax	Nebraska State EOC	NE Dose Assess	NE FTC	NE RMT # 1	NE RMT # 2
Emergency Operations Management																	
Mobilization	1a1	M	M	M	M	M	M	M	M				M	M	M	M	M
Facilities	1b1																
Direction & Control	1c1	M						M	M				M				
Communications Equipment	1d1	M	M	M	M	M	M	M	M				M	M	M	M	M
Equipment and Supplies	1e1		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Protective Action Decision Making																	
EW Exp. Control Decisions	2a1		M					M	M					M			
PARs	2b1		M					M						M			
PADs	2b2		M					M	M					M			
PADs for Disabled/Functional Needs	2c1							M	M								
Ingestion PADs	2d1																
RRR Decisions	2e1																
Protective Action Implementation																	
EW Exp. Control Implementation	3a1			M	M	M			M		M	M			M	M	M
KI Public/Institutionalized	3b1							M	M								
PAD Imp. Disabled/Functional Needs	3c1																
PAD Imp. Schools	3c2									M							
TACP Establishment	3d1								M				M				
Impediments to Evacuation	3d2								M				M				
Implementation of Ingestion PADs	3e1																
Ingestion Strategies and Information	3e2																
Imp. of RRR Decisions	3f1																
Field Measurement and Analysis																	
RESERVED	4a1																
Field Team Management	4a2			M											M		
Field Team Operations	4a3				M	M										M	M
Field Team Sampling	4b1																
Laboratory Operations	4c1																
Emergency Notification and Public Info																	
Initial Alert & Notification	5a1								M				P				
RESERVED	5a2																
Backup Alert & Notification	5a3								M				M				
Exception Area Alerting	5a4																
Subsequent Public Information	5b1							M	M	M			M				
Support Operations/Facilities																	
Reception Center Operations	6a1																
EW Monitoring & Decon	6b1																
Congregate Care	6c1																
Contaminated Injured Transport & Care	6d1										M	M					



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Table 3.1 - Summary of Exercise Evaluation (Continued, page 2/2)

DATE: 2016-06-14 SITE: Cooper Nuclear Station, NE M: Met, L2: Level 2 Finding, L1: Level 1 Finding, P: Planning Issue, N: Not Demonstrated		NE JIC	NPPD Call Center	NE FCP/GAR	Nemaha EOC	Richardson EOC	Midwest Transport	Nemaha Hospital	Richardson RC	U.N. Medical Center	NWS - Pleasant Hill	NWS - Valley
Emergency Operations Management												
Mobilization	1a1	M		M	M	M			M			
Facilities	1b1								M			
Direction & Control	1c1			M	M	M			M			
Communications Equipment	1d1	M		M	M	M			M			
Equipment and Supplies	1e1	M		M	M	M	L2	M	M	M		
Protective Action Decision Making												
EW Exp. Control Decisions	2a1			M	M	M						
PARs	2b1			M								
PADs	2b2			M	M	M						
PADs for Disabled/Functional Needs	2c1			M	M	M						
Ingestion PADs	2d1											
RRR Decisions	2e1											
Protective Action Implementation												
EW Exp. Control Implementation	3a1				M	M	P	M	M	M		
KI Public/Institutionalized	3b1			M	M	M						
PAD Imp. Disabled/Functional Needs	3c1											
PAD Imp. Schools	3c2											
TACP Establishment	3d1				M	M						
Impediments to Evacuation	3d2				M	M						
Implementation of Ingestion PADs	3e1											
Ingestion Strategies and Information	3e2											
Imp. of RRR Decisions	3f1											
Field Measurement and Analysis												
RESERVED	4a1											
Field Team Management	4a2											
Field Team Operations	4a3											
Field Team Sampling	4b1											
Laboratory Operations	4c1											
Emergency Notification and Public Info												
Initial Alert & Notification	5a1				M	M					M	M
RESERVED	5a2											
Backup Alert & Notification	5a3				M	M						
Exception Area Alerting	5a4											
Subsequent Public Information	5b1	M	M	M	M	M						
Support Operations/Facilities												
Reception Center Operations	6a1								M			
EW Monitoring & Decon	6b1								M			
Congregate Care	6c1											
Contaminated Injured Transport & Care	6d1						M	M		M		

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### 3.3 Criteria Evaluation Summaries

#### 3.3.1 Missouri State Jurisdictions

##### 3.3.1.1 Missouri State Emergency Operations Center

The Missouri State Emergency Operations Center (SEOC), located in Jefferson City, MO, was partially activated during the July 31, 2018, Cooper Nuclear Station (CNS) exercise. All three criteria at this location were adequately demonstrated in accordance with the plans, procedures, and extent of play agreement. The State of Missouri utilized status boards to maintain an accurate and up-to-date picture of actions taken. The staff worked as a team to complete the mission assignments.

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

- a. MET: 1a1, 1c1, 1d1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

##### 3.3.1.2 Missouri Dose Assessment

During the July 31, 2018, CNS Exercise, the Missouri Department of Health and Senior Services (DHSS) conducted Missouri Dose Assessment from the Cooper Emergency Operations Facility (EOF) in Auburn, NE. All six criteria were demonstrated adequately and in accordance with the plans, procedures, and extent of play agreement. The Missouri DHSS staff functioned as a well-trained and highly experienced team. Each individual displayed in-depth knowledge and expertise in executing their mission.

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

- a. MET: 1a1, 1d1; 1e1, 2a1, 2b1, 2b2
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

##### 3.3.1.3 Missouri Field Team Coordination

During the July 31, 2018, CNS Exercise, the Missouri Department of Health and Senior Services (DHSS) conducted Field Team Coordination from the Cooper EOF in Auburn, NE. All five criteria were demonstrated adequately and in accordance with the plans, procedures, and extent of play agreement. The Missouri Field Team Coordinator (FTC) did a great job of communicating with the Nebraska and utility field team coordinators. The FTC also made sure that the field teams were informed of all changes to conditions and paid particular attention to safety given the dangerous weather conditions.

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

- a. MET: 1a1, 1d1, 1e1, 3a1, 4a2
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

**3.3.1.4 Missouri Radiological Field Team A**

Missouri Radiological Field Team A, consisted of Missouri DHSS team members, prepositioned in Tarkio, Missouri for the July 31, 2018, CNS Exercise. Field Team A demonstrated all five criteria adequately and in accordance with plans, procedures, and the extent of play agreement. The team members demonstrated excellent use of procedures and dedicated 3-way communication of all radio transmissions.

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

- a. MET: 1a1, 1d1, 1e1, 3a1, 4a3
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

**3.3.1.5 Missouri Radiological Field Team B**

Missouri Radiological Field Team B, consisted of Missouri DHSS team members, prepositioned in Tarkio, Missouri for the July 31, 2018, CNS Exercise. Field Team B demonstrated all five criteria adequately and in accordance with plans, procedures, and the extent of play agreement. The team members demonstrated effective use of job aids and the documentation of procedural steps made it easy for the team to perform all tasks properly.

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

- a. MET: 1a1, 1d1, 1e1, 3a1, 4a3
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

**3.3.1.6 Missouri Joint Information Center**

The Missouri Joint Information Center (JIC) was co-located with the Nebraska Public Power District (NPPD) JIC and Nebraska JIC at the Cooper EOF in Auburn, Nebraska. All four criteria were demonstrated adequately in accordance with plans, procedures, and the extent of play agreement during the July 31, 2018, CNS Exercise. The Public Information Officer

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(PIO) and staff demonstrated excellent use of ICS-214 forms to document actions and demonstrated a very effective method of using social media to supplement the emergency messages being broadcast to the public.

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

- a. MET: 1a1, 1d1, 1e1, 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### 3.3.1.7 Missouri Forward Command Post/GAR

The Missouri Governor's Authorized Representative (GAR) was co-located with the Nebraska GAR at the Cooper EOF in Auburn, Nebraska. The Missouri GAR adequately demonstrated all 10 criteria in accordance with plans, procedures, and the extent of play agreement. The GAR demonstrated a high level of expertise and leadership during the July 31, 2018, CNS Exercise. The Missouri GAR ensured that all decisions were coordinated with the Nebraska GAR, state and local government stakeholders, and the Missouri DHSS before releasing PARs to Atchison County. The GAR delivered timely and thorough updates to the EOF, SEOC and Atchison County, which included current situational information, and protective action recommendations and decisions for emergency response activities.

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

- a. MET: 1a1, 1c1, 1d1, 1e1, 2a1, 2b1, 2b2, 2c1, 3b1, 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

## 3.3.2 Missouri Risk Jurisdictions

### 3.3.2.1 Atchison County Emergency Operations Center

The Atchison County Emergency Operations Center (EOC), located in Tarkio, Missouri, was fully activated for the Cooper Nuclear Station (CNS) Exercise on July 31, 2018. Personnel at the Atchison EOC adequately demonstrated the 14 criteria in accordance with plans, procedures, and the extent of play agreement. The Emergency Management Director and Deputy Director were proactive in focusing the EOC on actions that needed to be taken and anticipating future actions. The EOC staff demonstrated excellent use of backup communications without any loss of situational awareness when primary systems failed.

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

- a. MET: 1a1, 1c1, 1d1, 1e1, 2a1, 2b2, 2c1, 3a1, 3b1, 3d1, 3d2, 5a1, 5a3, 5b1

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- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### 3.3.2.2 Rock Port R-II School District

The Rock Port R-II School District, located in Rock Port, Missouri, participated in an out-of-sequence evaluation on June 18, 2018. Through an interview, two criteria were adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. The outgoing Superintendent, the newly hired Superintendent, the High School Principal, and the Transportation Director participated in the demonstration. All staff were knowledgeable of the details of their emergency plan and were extremely well organized.

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

- a. MET: 1e1, 3c2
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### 3.3.3 Missouri Support Jurisdictions

#### 3.3.3.1 Atchison-Holt Ambulance Service

The Atchison-Holt Ambulance Service, out of Tarkio, Missouri, participated in an out-of-sequence medical drill with the Community Hospital Fairfax on May 23, 2018. All three criteria were demonstrated adequately in accordance with plans, procedures, and the extent of play agreement. Ambulance crew members demonstrated excellent teamwork and a strong knowledge of contamination control procedures.

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

- a. MET: 1e1, 3a1, 6d1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

#### 3.3.3.2 Community Hospital Fairfax

Community Hospital Fairfax, located in Fairfax, Missouri, participated in an out-of-sequence medical drill with the Atchison-Holt Ambulance Service on May 23, 2018.

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All three criteria were adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. The hospital staff were knowledgeable and exhibited excellent team work while treating the patient. The staff demonstrated effective contamination control and decontamination procedures.

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

- a. MET: 1e1, 3a1, 6d1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### 3.3.4 Nebraska State Jurisdictions

#### 3.3.4.1 Nebraska State Emergency Operations Center

The Nebraska State Emergency Operations Center (SEOC), located in Lincoln, Nebraska, was fully activated during the July 31, 2018, Cooper Nuclear Station (CNS) exercise. Eight of nine criteria at this location were adequately demonstrated in accordance with the plans, procedures, and extent of play agreement.

NEMA staff were very well organized and trained and continuously maintained connectivity with all relevant participating agencies.

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

- a. MET: 1a1, 1c1, 1d1, 1e1, 3d1, 3d2, 5a1, 5a3, 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: One

ISSUE NO.: 16-18-5a1-P-01

#### CONDITION:

At 0849, a Nebraska Emergency Management Agency (NEMA) Watch Officer stated that he received a phone call from the National Weather Service (NWS) Office in Valley, Nebraska, confirming that NWS Valley had broadcast the Emergency Alert System (EAS) message. The NEMA Watch Officer informed the NEMA NWS Communicator of the notification. At 0854, the NEMA NWS Communicator called the NWS Valley and asked who had requested the broadcast of the EAS message. The NWS Valley replied that they had received a phone call from NEMA at 0844, and the NEMA person said that the Cooper Nuclear Station (CNS) was at a Site Area Emergency and requested that NWS Valley simulate broadcast of the EAS message. A NEMA Watch Center Communications Officer stated that she had followed the script for the NEMA Watch Center and noted that when she called the NWS Valley, NWS Valley had requested the password. The NEMA NWS Communicator also received a phone call from the Nemaha

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County Emergency Management Director (EMD) questioning whether CNS was at a Site Area Emergency and who had called the NWS Valley and requested the broadcast of the EAS message. The Nemaha County EMD was told that NEMA had contacted the NWS Valley. The Nemaha County EMD advised the NEMA NWS Communicator that Nemaha County had not contacted the NWS Valley to request broadcast of the EAS message.

**POSSIBLE CAUSE:**

Both the NEMA Watch Center Communications Officer and the NEMA NWS Communicator located in the State Emergency Operations Center (SEOC) followed a script to contact the NWS Valley. According to the Memorandum of Understanding with the NWS Valley, NEMA will contact the NWS Valley and provide a courtesy notification when the CNS declares an Alert emergency classification. Nemaha County has the responsibility to contact the NWS Valley if CNS declares a Site Area Emergency and to request broadcast of the EAS message. The second phone call to the NWS Valley from NEMA created confusion that led to the broadcast of the EAS message before it was needed to be broadcast. CNS did not declare a Site Area Emergency until 0927.

REFERENCE: NUREG-0654/FEMA-REP-I CRITERION E.5, 6, 7

**EFFECT:**

The effect was that the EAS message would have been broadcast prior to the risk counties sounding sirens and before the Joint Information Center was prepared to provide information and instructions for the public. Without follow-on instructions, the public would likely become confused and frustrated. These reactions would likely result in a rush of public inquiry calls prior to the Public Inquiry Call Center being activated. Without access to the necessary information, the public could have developed a lack of confidence for the emergency management officials and created a sense of panic.

**RECOMMENDATION:**

It is recommended that NEMA coordinate the scripts and procedures for the various positions and ensure that only one position is responsible for contacting the NWS Valley. These scripts and procedures should be coordinated with the NWS Valley and Nemaha and Richardson counties. Training should be conducted for all the watch standers to ensure the intended actions listed in the amended scripts and procedures are realized.

**STATE OF NEBRASKA RESPONSE:**

NEMA concurs with the recommendation provided and did recognize and address this issue immediately following the exercise. The Watch Center concept is a critical function that we have been gradually implementing into our notifications and procedures for all events over the last year. Although the positions are clearly identified for the Watch Center, the responsibilities may not be, as was highlighted. In conclusion, it was determined that the Watch Officer standers would be responsible for monitoring events outside of an issue at the Power Plant (weather, derailments, hazmat incidents, etc. statewide), while the NEMA NWS Communicator would assume the responsibility

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specifically with the plant and NWS. Procedures will be tested and further discussed at the December 18, 2018, Cooper drill.

**CORRECTIVE ACTION DEMONSTRATED:**

On October 3, 2018, the new procedures were reviewed and described by NEMA staff to the FEMA Cooper Site Specialist. The new procedures delineate who is responsible for contacting the NWS Valley.

ISSUE 16-18-5a1-P-01 is now closed.

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

**3.3.4.2 Nebraska Dose Assessment**

During the July 31, 2018, CNS Exercise, the Nebraska Department of Health and Human Services (DHHS) conducted Nebraska's Dose Assessment from the Cooper Emergency Operations Facility (EOF) in Auburn, Nebraska. All six criteria were demonstrated adequately and in accordance with the plans, procedures, and extent of play agreement. The decisions made by the Nebraska DHHS team were based on sound reasoning and very appropriate for situation presented during the exercise. The DHHS staff exhibited a good grasp of the technical issues and coordinated effectively with the Nebraska GAR and NEMA staff.

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

- a. MET: 1a1, 1d1, 1e1, 2a1, 2b1, 2b2
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

**3.3.4.3 Nebraska Field Team Coordination**

During the July 31, 2018, CNS Exercise, the Nebraska Department of Health and Human Services (DHHS) conducted Nebraska's Field Team Coordination from the Cooper EOF in Auburn, Nebraska. All five criteria were demonstrated adequately and in accordance with the plans, procedures, and extent of play agreement. The Nebraska DHHS team exhibited great teamwork and maintained a strong awareness for the safety of the field teams operating during an impending severe weather event.

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

- a. MET: 1a1, 1d1, 1e1, 3a1, 4a2
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None



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

#### 3.3.4.4 Nebraska Radiological Monitoring Team # 1

Nebraska Radiological Monitoring Team 1 prepositioned at the Cooper EOF in Auburn, Nebraska, for the CNS Exercise on July 31, 2018. All five criteria were demonstrated in accordance with plans, procedures, and the extent of play agreement. The team worked well together and displayed excellent contamination control procedures.

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

- a. MET: 1a1, 1d1, 1e1, 3a1, 4a3
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

#### 3.3.4.5 Nebraska Radiological Monitoring Team # 2

Nebraska Radiological Monitoring Team 2 prepositioned at the Cooper EOF in Auburn, Nebraska, for the CNS Exercise on July 31, 2018. All five criteria were demonstrated in accordance with plans, procedures, and the extent of play agreement. The team members demonstrated strong knowledge of their procedures and equipment.

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

- a. MET: 1a1, 1d1, 1e1, 3a1, 4a3
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

#### 3.3.4.6 Nebraska Joint Information Center

The Nebraska Joint Information Center (JIC) was staffed by personnel from NEMA, DHHS, the Nebraska Department of Correctional Services, the Nebraska State Fire Marshal's Office, and the University of Nebraska Medical Center. The Nebraska JIC is co-located with the Missouri JIC and NPPD JIC at the Cooper EOF in Auburn, Nebraska. All four criteria were demonstrated adequately in accordance with plans, procedures, and the extent of play agreement. The Nebraska JIC staff utilized an extensive catalogue of news release templates that allowed them to quickly and efficiently modify a message template to incorporate additional information as directed by the Nebraska GAR.

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

- a. MET: 1a1, 1d1, 1e1, 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

**3.3.4.7 Nebraska Public Power District Call Center**

The Nebraska Public Power District (NPPD) Call Center handles the public inquiry telephone lines for the States of Missouri and Nebraska in response to an event at the Cooper Nuclear Station (CNS). The one criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. NPPD staff exhibited good teamwork and proficient use of the software program to efficiently track the disposition of each incoming call.

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

- a. MET: 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

**3.3.4.8 Nebraska Forward Command Post/GAR**

The Nebraska Governor's Authorized Representative (GAR) is co-located with the Missouri GAR at the Cooper EOF in Auburn, Nebraska. All ten criteria were adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. The Nebraska GAR coordinated well with the Nebraska DHHS staff, the Nebraska State EOC, the risk counties and the Missouri GAR. The Nebraska GAR provided timely and informative updates to the Nebraska State EOC.

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

- a. MET: 1a1, 1c1, 1d1, 1e1, 2a1, 2b1, 2b2, 2c1, 3b1, 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

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### 3.3.5 Nebraska Risk Jurisdictions

#### 3.3.5.1 Nemaha County Emergency Operations Center

The Nemaha County Emergency Operations Center (EOC), located in Auburn, Nebraska, was fully activated during the July 31, 2018, CNS Exercise. All fourteen criteria were adequately demonstrated in accordance with the plans, procedures, and extent of play agreement. The Nemaha EOC staff exhibited great communication, collaboration and teamwork that led to timely decisions and actions.

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

- a. MET: 1a1, 1c1, 1d1, 1e1, 2a1, 2b2, 2c1, 3a1, 3b1, 3d1, 3d2, 5a1, 5a3, 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

#### 3.3.5.2 Richardson County Emergency Operations Center

The Richardson County Emergency Operations Center (EOC), located in Falls City, Nebraska, was fully activated for the CNS Exercise on July 31, 2018. All fourteen criteria were adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. The Richardson EOC demonstrated exceptional coordination among the staff and excellent use of checklists to maintain situational awareness.

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

- a. MET: 1a1, 1c1, 1d1, 1e1, 2a1, 2b2, 2c1, 3a1, 3b1, 3d1, 3d2, 5a1, 5a3, 5b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### 3.3.6 Nebraska Support Jurisdictions

#### 3.3.6.1 Midwest Medical Transport Service

The Midwest Medical Transport Service, out of Auburn, Nebraska, participated in an out-of-sequence medical drill with the Nemaha County Hospital on May 23, 2018.

Two of three criteria were demonstrated adequately in accordance with plans, procedures, and the extent of play agreement. The ambulance crew members

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demonstrated a strong knowledge of contamination control techniques during transport of the patient.

During the May 23, 2018, out-of-sequence drill, one Level 2 Finding and one Planning Issue were discovered at the Midwest Medical Transport Service. The Level 2 Finding under Criteria 1.e.1 was adequately re-demonstrated on May 23, 2018, and is closed. The planning issue under Criteria 3.a.1 was partially corrected on July 30, 2018, but remains open for the reasons specified below. Additional information on these findings is provided below.

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

- a. MET: 1e1, 3a1, 6d1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: One

ISSUE NO.: 16-18-1e1-L2-01

**CONDITION:**

The Thermoluminescent dosimeters (TLDs) and the potassium iodide (KI) were not provided in the kits issued to the Midwest Medical Transport Service.

**POSSIBLE CAUSE:**

The Nebraska Emergency Management Agency (NEMA) and the Nemaha County Emergency Management Agency did not coordinate the delivery of the new TLDs and KI to ensure that they were placed into the kits issued to Midwest Medical.

REFERENCE: NUREG-0654/FEMA-REP-I CRITERION H.7,10; I.7, 8, 9; J.10.a, b, e; J.11, 12; K.3.a; K.5.b

**EFFECT:**

Ambulance crews from Midwest Medical could have been dispatched without the proper emergency worker protections or delayed the response to acquire the proper emergency worker protections from Nemaha County.

**CORRECTIVE ACTION DEMONSTRATED:**

After stopping the drill, the Nemaha County Emergency Management Director located the missing TLDs and KI and placed them in the kit issued to Midwest Medical. The drill was re-started and the ambulance crew adequately re-demonstrated that the proper equipment was provided.

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- d. PLANNING ISSUES: One

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**CONDITION:**

The Nebraska Allowable Exposures for Emergency Workers card, dated 10/99, listed a turn back dose of 100 mR and the Nebraska Radiological Emergency Worker Individual Dose Record, dated DEC 2006, did not list the correct electronic direct reading dosimeter (DRD) and also listed a call in dose of 100 mR. The dose rates listed contradict the dose rates established in the Nebraska State Plan and the Midwest Medical Plan, which list an administrative dose limit of 500 mR to call in to the supervisor and a turn back dose limit of 1 R. The Nebraska Emergency Worker Individual Dose Record form dated January 2015 also does not list the electronic dosimeters. This form was also found at the Nemaha County Emergency Operations Center.

**POSSIBLE CAUSE:**

The Nebraska Allowable Exposures for Emergency Workers card was updated in January 2015 with the correct dose limits. This card was not exchanged for the old card. The Nebraska Emergency Worker Individual Dose Record form was not updated when the electronic dosimeters were included in the Midwest Medical inventory to use as DRDs.

**REFERENCE:** NUREG-0654/FEMA-REP-I CRITERION K.3.a, b; K.4

**EFFECT:**

The ambulance crew was confused about which DRDs they were supposed to use and how to record their doses. This could have resulted in the crew not properly recording their doses, leading to the crew possibly exceeding their dose limits. In addition, referring to the information on the form and card could have caused confusion about when to call in their dose rate readings and when to turn back.

**RECOMMENDATION:**

A new Radiological Emergency Worker Individual Dose Record Form dated January 2015 was provided that listed the correct administrative dose limits. However, the form does not list the DRDs that were provided. It is recommended that the Record Form be amended to list all DRDs that could be provided to emergency workers. This new form should replace all other versions of the Nebraska Emergency Worker Individual Dose Record form and be distributed to all locations as needed.

**STATE OF NEBRASKA RESPONSE:**

NEMA concurs with the recommendation provided. Immediately following the exercise, NEMA REP Planners were in contact with representatives of Nemaha County and discussed the corrective actions that must take place to address and correct the issue. NEMA conducted a site visit on August 2, 2108, to verify the outdated worker cards were removed and an effort to replace with the new and corrected versions is taking place. A revised Dose Record Form was created and is in the process of printing and distribution to the respective counties. This issue has been addressed and corrected.

**CORRECTIVE ACTION DEMONSTRATED:**

This planning issue has been partially corrected, but will remain open until the issue

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above is adjudicated. A new Radiological Emergency Worker Individual Dose Record Form dated January 2015 and a Nebraska Allowable Exposures for Emergency Workers card dated JAN 2015 was provided that listed the correct administrative dose limits.

On October 3, 2018, a copy of the new Dose Record Form was provided by NEMA that corrects all issues identified.

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

### 3.3.6.2 Nemaha County Hospital

The Nemaha County Hospital, located in Auburn, Nebraska, participated in an out-of-sequence medical drill with the Midwest Medical Transport Service on May 23, 2018. All three criteria were demonstrated adequately in accordance with plans, procedures, and the extent of play agreement. The Hospital staff was very experienced and showed a keen awareness of their capabilities and limitations.

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

- a. MET: 1e1, 3a1, 6d1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### 3.3.6.3 Richardson County Reception Center and Emergency Worker Decontamination Station

The Richardson County Reception Center and Emergency Worker Decontamination Station, located in Falls City, Nebraska, participated in an out-of-sequence drill on August 7, 2018. All eight criteria were demonstrated adequately in accordance with plans, procedures, and the extent of play agreement. The staff, representing several local agencies and many volunteers, was enthusiastic and was diligent in following the position specific procedures and checklists.

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

- a. MET: 1a1, 1b1, 1c1, 1d1, 1e1, 3a1, 6a1, 6b1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

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### **3.3.6.4 University of Nebraska Medical Center**

The University of Nebraska Medical Center, located in Omaha, Nebraska, participated in an out-of-sequence medical drill on July 11, 2018. All three criteria were demonstrated adequately in accordance with plans, procedures, and the extent of play agreement. The Hospital staff was very knowledgeable and enthusiastic. The hospital plans, procedures and facility preparations were exceptional.

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

- a. MET: 1e1, 3a1, 6d1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

### **3.3.7 Federal Jurisdictions**

#### **3.3.7.1 National Weather Service, Pleasant Hill, Missouri**

The National Weather Service (NWS), located in Pleasant Hill, Missouri, participated in an out-of-sequence drill on August 15, 2018. The one criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. Utilizing job aids, the Warning Coordination Meteorologist and the Atchison County Emergency Management Director exhibited great coordination and expert knowledge of the procedures to activate the Emergency Alert System (EAS).

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

- a. MET: 5a1
- b. LEVEL 1 FINDINGS: None
- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

#### **3.3.7.2 National Weather Service, Valley, Nebraska**

The National Weather Service (NWS), located in Valley, Nebraska, participated in an out-of-sequence drill on July 11, 2018. The one criterion was adequately demonstrated in accordance with plans, procedures, and the extent of play agreement. Through interview, the staff on duty were very knowledgeable and provided an excellent explanation of the Emergency Alert System (EAS) activation procedures.

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

- a. MET: 5a1
- b. LEVEL 1 FINDINGS: None

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- c. LEVEL 2 FINDINGS: None
- d. PLANNING ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

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**SECTION 4: CONCLUSION**

Based on the results of the July 31, 2018, Plume Phase Exercise, the offsite radiological emergency response plans and preparedness for the States of Missouri and Nebraska and affected local jurisdictions are deemed adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public in the event of a radiological emergency. Therefore, 44 CFR Part 350 approval of the offsite radiological emergency response plans and preparedness for the States of Missouri and Nebraska, site-specific to the Cooper Nuclear Station, will remain in effect.

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## **APPENDIX A: IMPROVEMENT PLAN**

All issues from this exercise have been corrected.

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## APPENDIX B: EXERCISE TIMELINE

Table 1, on the following pages, presents the times recorded for various activities and decisions at each of the evaluated locations during the Cooper Nuclear Station plume exercise held on July 31, 2018. A disparity in times is normal given the need for message transmissions and decision-making at the various locales.

### MISSOURI EXERCISE TIMELINE

Date & Site: July 31, 2018

Cooper Nuclear Station Plume Exercise

Emergency Classification Level of Event	Time Utility Declared	Time that notification was received or action was taken							
		Missouri State EOC	Missouri FCP/EOF GAR	Missouri IIC	Dose Assessment	Field Team Coord	Field Monitoring Team - A	Field Monitoring Team - B	Atchison County EOC
Unusual Event (NOUE)									
Alert	0753	0759	0757	0800	0757		0814	0814	0800
Site Area Emergency (SAE)	0927	0934	0947	0928	0927	0927	0930	0930	0932
General Emergency (GE)	0945	0954	1001	0945	0946	0947	0949	0949	0952
Radiation Release Started	1130	1130	1130	1151	1123	1215	n/a	n/a	1142
Radiation Release Terminated			n/a	n/a	n/a		n/a	n/a	
Facility Declared Operational		n/a	0827	0853	0905	0907	0910	0910	0810
Governor Declared State of Emergency		1042	1042	1057	1120				
1st Protective Action Decision - (Precautionary) -- SAE, Parks, Sacred Good, Shelter Sub-Area 1			0942		0939				0945
Siren Activation			0951	0951	0951				0951
Initial EAS Message			0954		0954				0954
SNB Follow-up to EAS Message			0955		0955				1001
2nd Protective Action Decision - EAS Sub-Area 1			1001		1001				1006
Siren Activation			1012	1012	1012				1012
EAS Message			1015	1020	1015				1015
SNB Follow-up to EAS Message			1016		1016				1020
RI Recommended to Emergency Workers			1004		1006	1010	1006	1006	n/a
Exercise Terminated				1313	1314	1314	1316	1316	1314

\*Reminder: time of notification is when operator hangs up the phone or fax is received

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**NEBRASKA EXERCISE TIMELINE**

Date & Site: July 31, 2018

Cooper Nuclear Station Plume Exercise

Emergency Classification Level or Event	Time Utility Declared	Time that notification was received or action was taken									
		Nebraska State EOC	Nebraska FCP/EOF GAR	Nebraska JIC	Dose Assessment	Field Team Coord.	Field Monitoring Team 1	Field Monitoring Team 2	NPPD Call Center	Nemaha County EOC	Richardson County EOC
Unusual Event (NOUE)											
Alert	0753	0806		0842					0830	0802	0803
Site Area Emergency (SAE)	0927	0937	0927	0931	0927				0947	0934	0935
General Emergency (GE)	0945	0947	1001	0946	1001	1000	1000	1000	1026	0955	0954
Radiation Release Started	1215	1147	1130	1151	1042	1205	1205	1205	1245	1145	1144
Radiation Release Terminated			1314	on going						n/a	
Facility Declared Operational		0757	0925	0935	0940				0900	0816	0835
Governor Declared State of Emergency		0953	0947	1030	1120					0937	1038
1st Protective Action Decision - (Precautionary) - Closure of Parks										0818	
2nd Protective Action Decision - (shelter sub-areas 11, 12, 13e, 13w, and 14)			1001		1001					1001	
Siren Activation			1012	1012	1012					1005	1005
EAS Message			1015		1015					1007	1009
SNB Follow-up to EAS Message			1016		1016					1010	1010
KI Recommended to Emergency Workers		1036	1010	n/a	1018	1019	1019	1019			
Initial Embargo Decision		1241	1230	1242	1230	1316	1317	1317	1310		1235
Exercise Terminated		1314	1314	1320	1314				1313		1314

\*Reminder: time of notification is when operator hangs up the phone or fax is received

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## APPENDIX C: EXERCISE EVALUATORS AND TEAM LEADERS

SITE: Cooper Nuclear Station

LOCATION	EVALUATOR	AGENCY
Missouri State Emergency Operations Center - Cooper	*Paul Ringheiser	ICFI
Missouri Dose Assessment	*Ken Wierman	FEMA HQ
Missouri Field Team Coordination	*Nan Williams	FEMA R6
Missouri Radiological Field Team A	*Chuck Hooper	EPA R7
Missouri Radiological Field Team B	Michael Howe	FEMA HQ
Missouri Joint Information Center	*Tom Hegele Kathryn Duran	ICFI FEMA R3
Missouri Forward Command Post/GAR	*Lisa Rink Bill McDougall	FEMA HQ FEMA R3
Nebraska State Emergency Operations Center	*Henry Christiansen	ICFI
Nebraska Dose Assessment	*Tom Essig	ICFI
Nebraska Field Team Coordination	*Nan Williams	FEMA R6
Nebraska Radiological Monitoring Team # 1	*Jeff Clark	FEMA R7
Nebraska Radiological Monitoring Team # 2	Tim Pflieger	FEMA R6
Nebraska Joint Information Center	*Gary Bolender Kathryn Duran	ICFI FEMA R3
Nebraska Forward Command Post (GAR)	*Paul Anderson Bill McDougall	FEMA R9 FEMA R3
NPPD Call Center	*John Zeidler	ICFI
Atchison County Emergency Operations Center	*Dan Kanakares Barbara Thomas LaShawn Halsey	FEMA R7 FEMA R1 FEMA HQ
Atchison-Holt Ambulance Service	*Greg Voss	FEMA R7
Fairfax Community Hospital	*Norm Valentine	FEMA R7
Rock Port R-II Schools	*Greg Voss	FEMA R7
Nemaha County Emergency Operations Center	*Andy Chancellor Brad DeKorte Lenora Borchardt	FEMA R7 FEMA R6 ICFI
Richardson County Emergency Operations Center	*Sharron McDuffie Taneeka Hollins Rosemary Samsel	FEMA R7 FEMA R1 ICFI
Midwest Medical Transport Service	*Greg Voss	FEMA R7
Nemaha County Hospital	*Norm Valentine	FEMA R7
University of Nebraska Medical Center	*Greg Voss	FEMA R7
Richardson County Reception Center & Emergency Worker Decon	*Greg Voss Norm Valentine Jeff Clark Dan Kanakares	FEMA R7 FEMA R7 FEMA R7 FEMA R7
National Weather Service, Pleasant Hill, Missouri	*Greg Voss	FEMA R7
National Weather Service, Valley, Nebraska	*Greg Voss	FEMA R7

\* Team Leader

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## APPENDIX D ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
CFR	Code of Federal Regulations
CNS	Cooper Nuclear Station
DHS	Department of Homeland Security
DHHS	Department of Health and Human Services – Nebraska
DHSS	Department of Health and Senior Services – Missouri
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EMD	Emergency Management Director
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
EW	Emergency Worker
FEMA	Federal Emergency Management Agency
FTC	Field Team Coordinator
GAR	Governor's Authorized Representative
GE	General Emergency
ICFI	FEMA Contractor
ICS	Incident Command System
JIC	Joint Information Center
KI	Potassium Iodide
mR	Milliroentgen/millirem
MPH	Miles Per Hour
NEMA	Nebraska Emergency Management Agency
NOUE	Notice of Unusual Event
NPPD	Nebraska Public Power District
NRC	Nuclear Regulatory Commission
NWS	National Weather Service
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
PPX	Plume Phase Exercise
R	Roentgen/rem

**Unclassified**  
Radiological Emergency Preparedness Program (REP)

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RC	Reception Center
REM	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RMT	Radiological Monitoring Team
RPV	Relief Pressure Valve
SAE	Site Area Emergency
SEMA	State Emergency Management Agency – Missouri
SEOC	State Emergency Operation Center
SNB	Special News Broadcast
TACP	Traffic and Access Control Point
TLD	Thermoluminescent Dosimeter