Exercise Report

Fort Calhoun Nuclear Station

Licensee:	**Omaha Public Power District**
Exercise Date:	**August 10, 1999**
Report Date:	**November 15, 1999**

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION VII
2323 GRAND BLVD., SUITE 900
KANSAS CITY, MISSOURI 64108-2670

JOHN A. MILLER, REGIONAL DIRECTOR

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Table of Contents

List of Appendices

List of Tables

I. EXECUTIVE SUMMARY

On August 10, 1999, an exercise was conducted in the plume emergency planning zone (EPZ) around the Fort Calhoun Nuclear Station by the Federal Emergency Management Agency (FEMA), Region VII. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was 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 3 and 4, 1997. The qualifying emergency preparedness exercise was conducted on July 22, 1981.

FEMA wishes to acknowledge the efforts of the many individuals who participated in this exercise. In the State of Nebraska, the Risk County of Washington and the Host County of Dodge participated along with the State government. In the State of Iowa, the Risk Counties of Harrison and Pottawattamie and the Host County of Crawford participated along with the State government. The efforts of the utility 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 of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. A special thank you is extended to those wonderful volunteers. Cooperation and teamwork of all the participants were evident during this exercise.

This report contains the final evaluation of the biennial exercise.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There was one Area Requiring Corrective Action (ARCA) identified in Nebraska and one Deficiency and four Areas Requiring Corrective Action identified in Iowa as a result of this exercise. The Deficiency was corrected by plan changes submitted by Iowa on November 5, 1999. During the exercise, two of the five ARCAs were corrected.

There were 12 ARCAs identified during previous exercises that were corrected during this exercise. These included ten (10) ARCAs identified during the previous Fort Calhoun Nuclear Station exercises conducted June 3 and 4, 1997 and February 29, 1996. In addition, two ARCAs identified during the Cooper Nuclear Station exercise conducted June 9, 1998, were corrected during this exercise. One ARCA remains unresolved from the previous Fort Calhoun Nuclear Station exercise.

The final protective action decision (PAD) during the emergency phase was an evacuation of subareas 1, 3, 4, and 5 including the city of Fort Calhoun, the Blair Industrial Park, and the Boyer Chute Recreational Area. Also evacuated were a portion of Douglas County (subarea 5) in

Nebraska, and subareas 10, 14, and the southern portion of 13, including the town of Loveland, in Iowa. Approximately 5,672 residents in Nebraska and 588 in Iowa were affected by the evacuation.

II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume lead responsibility for all offsite nuclear planning and response. FEMA's activities are conducted pursuant to 44 Code of Federal Regulations (CFR) Parts 350, 351, and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

FEMA Rule 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local governments' participation in joint exercises with licensees.

FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

* Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans (RERP) and procedures developed by State and local governments.

* Determining whether such plans and procedures can be implemented on the basis of evaluation of exercises of the plans and procedures conducted by State and local governments.

* Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA (Federal Register, Vol. 58, No. 176, September 14, 1993).

* Coordinating the activities of the following Federal agencies with responsibilities in the radiological emergency planning process:

  - U.S. Department of Commerce
  - U.S. Nuclear Regulatory Commission
  - U.S. Environmental Protection Agency
  - U.S. Department of Energy
  - U.S. Department of Health and Human Services
    - U.S. Food and Drug Administration
    - U.S. Public Health Services
  - U.S. Department of Transportation

- U.S. Department of Agriculture
- U.S. Department of the Interior

Representatives of these agencies serve on the FEMA Region VII Regional Assistance Committee (RAC), which is chaired by FEMA.

Formal submission of the RERPs for the Fort Calhoun Nuclear Station to FEMA Region VII by the States of Iowa and Nebraska and involved local jurisdictions occurred on June 29, 1984. Formal approval of these RERPs was granted by FEMA on December 17, 1984, for Nebraska and on May 20, 1987, for Iowa under 44 CFR 350. The alert and notification system was approved by FEMA on April 27, 1989.

A REP exercise was evaluated on August 10, 1999, by FEMA Region VII to assess the capabilities of State and local offsite emergency preparedness organizations in implementing their RERPs and procedures to protect the public during a radiological emergency involving the Fort Calhoun Nuclear Station. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (OROs) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region VII RAC Chairperson and approved by the Regional Director.

The criteria utilized in the FEMA evaluation process are contained in:

* NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

* FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991.

* FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991.

Section III of this report, entitled "Exercise Overview," presents basic information and data relevant to the exercise. This section of the report contains a description of the plume pathway EPZ, a listing of all participating jurisdictions and functional entities which were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

Section IV of this report, entitled "Exercise Evaluation and Results," presents basic information on the demonstration of applicable exercise objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues only format. This section also contains: (1) descriptions of all Deficiencies and ARCAs assessed during this exercise, recommended corrective actions, and the State and local governments' schedule of corrective actions for each identified exercise

issue and (2) descriptions of ARCAs assessed during previous exercises and the status of the OROs' efforts to resolve them.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the August 10, 1999, exercise to test the offsite emergency response capabilities in the area surrounding the Fort Calhoun Nuclear Station. This section of the exercise report includes a description of the plume EPZ, a listing of all participating jurisdictions and functional entities which were evaluated, and a tabular presentation of the time of the actual occurrence of key exercise events and activities.

A. Plume EPZ Description

The Fort Calhoun Nuclear Station is located along the west bank of the Missouri River, in Washington County, Nebraska.

The topography of the 10-mile EPZ varies from relatively flat east and south of the site, to rolling hills to the west and north of the site.

The 10-mile EPZ contains a total population of 18,424 within four counties: Washington (includes the towns of Blair, Fort Calhoun, and Kennard) and Douglas Counties in Nebraska, and Harrison (includes the towns of Missouri Valley, Modale, and California Junction) and Pottawattamie (includes the town of Loveland) Counties in Iowa. The land use within the EPZ is predominantly diversified agricultural production. There are four recreational areas in the EPZ: Wilson Island State Park, Fort Atkinson, Boyer Chute Recreation Area, and Desoto National Wildlife Refuge. Various forms of transportation serve the area. Interstate Highway 29 passes eight miles to the east and northeast of the site, U.S. Highway 75 passes within one mile to the south, and U.S. Highway 30 passes within two miles to the north and west. The Union Pacific Railroad passes approximately two and one half miles to the north and there is seasonal boat traffic on the Missouri River.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the Fort Calhoun Nuclear Station exercise on August 10, 1999.

STATE OF NEBRASKA

Governor's Office
State Emergency Management Agency
National Guard
Department of Agriculture

Health & Human Services/Regulations & Licensure
State Highway Patrol
Department of Roads
Game and Parks Commission

RISK JURISDICTION (NEBRASKA)

WASHINGTON COUNTY

Board of Supervisors
Emergency Management Office
Mayors of Fort Calhoun and Blair
Region 5/6 Emergency Management Coordinator
Radiological Officer
Public Information Officer
Sheriff's Department
Blair Fire Department
Blair Police Department
Blair School District
Fort Calhoun School District

HOST JURISDICTIONS (NEBRASKA)

DODGE COUNTY

Fremont Fire Department
Emergency Management Office
Radiological Officer

PRIVATE/VOLUNTEER ORGANIZATIONS (NEBRASKA)

American Red Cross
Radio Amateur Civil Emergency Service

STATE OF IOWA

Emergency Management Division
Adjutant General/ National Guard
Department of Public Health
Department of Public Safety
Department of Human Services
Department of Natural Resources

Department of Transportation
Department of Agriculture and Land Stewardship
Department of Elder Affairs
Iowa State Extension Service
Iowa State Patrol
National Weather Service

RISK JURISDICTIONS (IOWA)

HARRISON COUNTY

Board of Supervisors
Emergency Management Office
Sheriff's Department
County Engineer
County Human Services
Missouri Valley School District
St. Patrick's Catholic School
Mondamin Fire and Rescue Department

POTTAWATTAMIE COUNTY

Emergency Management Office
Board of Supervisors
Sheriff's Department
County Conservation Department
County Health Office
County Road and Bridge Department

SUPPORT JURISDICTION (IOWA)

CRAWFORD COUNTY

Emergency Management Office
Denison Volunteer Fire Department

PRIVATE/VOLUNTEER ORGANIZATIONS (IOWA)

American Red Cross
Radio Amateur Civil Emergency Service

C. Exercise Timeline

Table 1, on the following pages, presents the time at which key events and activities occurred during the Fort Calhoun Nuclear Station plume exercise held on August 10, 1999. Also included are times that notifications were made to the participating jurisdictions/functional entities.

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: August 10, 1999, Fort Calhoun Nuclear Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken											
		Nebraska EOC	Dose Asmt/ FTC	Joint Information Center	EOF/FCP	Wash Cty EOC			Iowa EOC	Dose Assmt	Joint Information Center	Harrison Cty EOC/ FCP	Pott Cty EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A
Alert	0737	0753	0746	0740	0749	0748			0749	0737	0740	0750	0749
Site Area Emergency	0900	0909	0912	0912	0910	0908			0909	0900	0912	0909	0912
General Emergency	1100	1103	1101	1105	1102	1104			1106	1100	1104	1108	1110
Rad. Release Started	1100	1119	N/O	N/O	N/O	N/O			1115	1118	1145	N/O	1131
Rad. Release Terminated	N/A	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A
Facility Declared Operational		0958	0935	0945	0845	0835			0800	N/O	0829	0920	0831
Exercise Terminated		1330	1330	1335	N/O	1330			1400	1331	1335	1315	1330
1st Protective Action Decision: NE – Initial SAE Notification IA - Initial SAE Notification and Evacuate: Subarea 10, dairy animals on stored feed and water		N/A	N/A	N/A	N/A	0909			0916	N/A	N/A	0915	0915
1st Siren Activation		N/A	N/A	N/A	N/A	0914			N/A	N/A	N/A	0928	0920
1st EAS Message		N/A	N/A	N/A	N/A	0919			N/A	N/A	N/A	0920	0920
2nd Protective Action Decision: NE – Evacuate: Subarea 1 IA - Evacuate: Subareas 10, 14 and southern portion of 13		N/A	N/A	N/A	1020	1055			1120	N/A	N/A	1118	1118
2nd Siren Activation		N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A	1140	1140
2nd EAS Message		1116	N/A	N/A	N/A	N/A			N/A	N/A	N/A	1145	N/A

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: August 10, 1999, Fort Calhoun Nuclear Station

Emergency Actions and Events	Time That Notification Was Received or Action Was Taken											
	Nebraska EOC	Dose Asmt/ FTC	Joint Information Center	EOF/FCP	Wash Cty EOC			Iowa EOC	Dose Assmt	Joint Information Center	Harrison Cty EOC/ FCP	Pott Cty EOC
3rd Protective Action Decision: NE – Evacuate: Subareas 1 and 4	N/A	N/A	N/A	1059	1112			N/A	N/A	N/A	N/A	N/A
3rd Siren Activation	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A
3rd EAS Message	1149	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A
4th Protective Action Decision NE - Evacuate: Subareas 1, 3, 4 and 5	N/A	N/A	N/A	1121	1140			N/A	N/A	N/A	N/A	N/A
4th Siren Activation	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A
4th EAS Message	1203	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A	N/A
KI to Emergency Workers	1128	1120	N/O	1126	1136			1128	1130	1130	1130	1125
Emergency Declaration for Federal Assistance	0924											

LEGEND: **N/A - Not Applicable** **N/O – Not Observed**

IV. EXERCISE EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities which participated in the August 10, 1999, exercise to test the offsite emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the Fort Calhoun Nuclear Station.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria contained in exercise objectives delineated in FEMA-REP-14, REP Exercise Manual, September 1991. Detailed information on the exercise objectives and the extent-of-play agreement for this exercise is found in Appendix 3 of this report.

A. Summary Results of Exercise Evaluation

The matrix presented in Table 2, on the following pages, presents the status of all exercise objectives from FEMA-REP-14 which were scheduled for demonstration during this exercise, at all participating jurisdictions and functional entities. Exercise objectives are listed by number and the demonstration status of those objectives is indicated by the use of the following letters:

M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)

D - Deficiency assessed

A - Area Requiring Corrective Action (ARCA) assessed or unresolved ARCA(s) from prior exercises)

N - Not Demonstrated (Reason explained in subsection B)

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: August 10, 1999, Fort Calhoun Nuclear Station

JURISDICTION/LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
STATE OF NEBRASKA																																
State Emergency Operations Center			M								M																					
Dose Assessment/Field Team Coordination	M	M		M			M		M																							
Radiological Monitoring Teams	M			M	M	M		M						M																		
Joint Information Center												M																				
Emergency Operations Facility/Field Command Post	M	M	M	M					M		M																					
RISK JURISDICTION (NEBRASKA)																																
WASHINGTON COUNTY																																
Emergency Operations Center	M	M	M	M	M					M	M			A	M	M	M															
EAS Station (KFAB Radio)										M	M																					
Blair School District – Gerald Otte Middle School				M	M									M		M															
Blair School District – Jr/Sr High				M	M									M		M															
Fort Calhoun School District – Elementary				M	M									M		M															
SUPPORT JURISDICTIONS (NEBRASKA)																																
Dodge County Reception & Care Center	M		M	M	M													M	M			M									
Dana College Emergency Worker Decon	M		M	M	M									M								M							M		

LEGEND:

M = Met (No Deficiency or ARCAs assessed)
A = ARCA(s) assessed (Not affecting health and safety of public)
D = Deficiency(ies) assessed
N = Not Demonstrated as scheduled
Blank = Not Scheduled For Demonstration

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: August 10, 1999, Fort Calhoun Nuclear Station

JURISDICTION/LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
STATE OF IOWA																																
State Emergency Operations Center	M	M	M	M					M			M	M				M															
Dose Assessment	M	M		M			A 2		M																					M		
Field Team Coordination	M	M		M			M																									
Radiological Monitoring Teams	M			M	M	M		M						M																		
Joint Information Center	M	M		M								M																				
RISK JURISDICTIONS (IOWA)																																
HARRISON COUNTY																																
Emergency Operations Center/FCP	A	M	M	M	A					M	M			M	M	M	D A															
EAS Station (KFAB Radio)										M	M																					
Missouri Valley Schools – Primary				M	M									M		M																
St. Patrick's Catholic School				M	M									M		M																
Emergency Worker Decon – Missouri Valley	M		M	M	M																	M										
POTTAWATTAMIE COUNTY																																
Emergency Operations Center	M	M	M	M	M					M	M			M	M		M															
SUPPORT JURISDICTIONS (IOWA)																																
Denison Reception & Care Center	M		M	M	M													M	M													

LEGEND:
M = Met (No Deficiency or ARCAs assessed)
A = ARCA(s) assessed (Not affecting health and safety of public)
D = Deficiency(ies) assessed
N = Not Demonstrated as scheduled
Blank = Not Scheduled For Demonstration

B. Status of Jurisdictions Evaluated

This subsection provides information on the evaluation of each participating jurisdiction and functional entity, in a jurisdiction based, issues only format. Presented below is a definition of the terms used in this subsection relative to objective demonstration status:

Met - Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this exercise, and under which no ARCAs assessed during prior exercise remain unresolved.

Deficiency - Listing of the demonstrated exercise objectives under which one or more Deficiencies were assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.

Area Requiring Corrective Actions (ARCA) - Listing of the demonstrated exercise objectives under which one or more ARCAs were assessed during the current exercise. Included is a description of the ARCA(s) assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.

Not Demonstrated - Listing of the exercise objectives which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.

Prior ARCAs - Resolved - Description of ARCAs assessed during previous exercises which were resolved in this exercise and the corrective actions demonstrated.

Prior ARCAs - Unresolved - Descriptions of ARCAs assessed during prior exercises which were not resolved in this exercise. Included is the reason the ARCAs remain unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

The following are definitions of the two types of exercise issues which are discussed in this report.

* A **Deficiency** is defined in FEMA-REP-14 as " . . . an observed or identified inadequacy of organizational performance in an exercise that could cause a finding 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."

* An **ARCA** is defined in FEMA-REP-14 as " . . . an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering exercise issues between FEMA Regions and site-specific exercise reports within each Region. It is also used to expedite tracking of exercise issues on a nationwide basis.

The identifying number for Deficiencies and ARCAs includes the following elements, with each element separated by a hyphen (-).

* **Plant Site Identifier** - A two-digit number corresponding to the Utility Billable Plant Site Codes.

* **Exercise Year** - The last two digits of the year the exercise was conducted.

* **Objective Number** - A two-digit number corresponding to the objective numbers in FEMA-REP-14.

* **Issue Classification Identifier** - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.

* **Exercise Issue Identification Number** - A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

1. STATE OF NEBRASKA

1.1 State Emergency Operations Center And KFAB Radio Station. The State EOC is located in the Nebraska Military Department complex in Lincoln, Nebraska. The Emergency Alerting System Station, KFAB Radio, is located in Omaha, Nebraska. Credit for objective numbers 1, 2, and 4 was granted for the successful demonstration during the Cooper Nuclear Station June 9, 1998, exercise.

a. MET: Objectives 3 and 11

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. **PRIOR ARCAs - RESOLVED:** Objective 11

Issue No.: 25-97-11-A-01 (Corrected at the Cooper Nuclear Station June 9, 1998, exercise)

f. **PRIOR ARCAs - UNRESOLVED:** None

1.2 Dose Assessment and Field Team Coordination. This function is located in the utility Emergency Operations Facility (EOF) in Omaha, Nebraska.

a. **MET:** Objectives 1, 2, 4, 7, and 9

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

1.3 Radiological Monitoring Teams. During this exercise the field teams were dispatched from the Health and Human Services office in Lincoln, Nebraska.

a. **MET:** Objectives 1, 4, 5, 6, 8, and 14

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

f. **PRIOR ARCAs - RESOLVED:** Objectives 6 and 8

Issue No.: 16-98-06-A-01 (Identified at the Cooper Nuclear Station June 9, 1998, exercise.)

Description: Field Team Number One did not demonstrate adequate contamination control during and after sample handling operations. One Team member served as both sample handler and data recorder. A survey of the Team member was not conducted after sample handling nor did the individual change gloves as necessary. This resulted in cross contamination of many items in the field team vehicle. In

addition, the Team members never surveyed each other, or the vehicle, in accordance with their procedures.

Corrective Action Demonstrated: Appropriate contamination control was demonstrated during this exercise. Sample handling and data recording was conducted by separate team members. Team members surveyed each other and their vehicle.

Issue No.: 16-98-08-A-02 (Identified at the Cooper Nuclear Station June 9, 1998, exercise.)

Description: Field Team Number One demonstrated incorrect sample counting procedures as follows:

- The Field Team failed to follow their procedures for operation of the Eberline MS-2 Mini Scaler. Their initial particulate sample count was taken with the instrument test switch inappropriately in the "in" position. This error was not discovered until the team was in the process of counting the cartridge filter. As a result, the Team had to recount both the particulate and cartridge filters. Sample results could not be reported until 30 minutes after the samples were removed from the air sampler.

- The cartridge filter count was not conducted in accordance with the Field Team's procedures. The filter was counted with the outlet of the filter closest to the detector head. However, the procedures require the inlet side of the filter to be next to the detector.

- The Field Team did not record all required data on their sample bags. Specifically, the dose rate on contact for the filters was not properly recorded on the bags. (NUREG-0654 I.7, I.8, I.9 and I.11)

Corrective Action Demonstrated: The appropriate use of equipment and procedures for sample counting was demonstrated during this exercise. Procedures for operating equipment were followed and dose rate data was properly recorded on the sample bags.

f. PRIOR ARCAs - UNRESOLVED: None

1.4 Joint Information Center. This function is located in the Omaha Public Power District Plaza Building in Omaha, Nebraska. Credit for objective numbers 1, 2, 4, and 13 were granted for the successful demonstration during the Cooper Nuclear Station June 9, 1998, exercise.

a. MET: Objective 12

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: None

f. PRIOR ARCAs - UNRESOLVED: None

1.5 Emergency Operations Facility/Field Command Post (EOF/FCP). This function is located in the utility EOF in Omaha, Nebraska.

a. MET: Objectives 1, 2, 3, 4, 9, and 11

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: Objectives 2, 3, and 11

Issue No.: 25-97-02-A-02

Description: EOF/FCP Staff failed to update the status board in a timely manner which created confusion regarding the protective action decisions (PADs) provided to State and local agencies. In addition, this created confusion for the utility in determining appropriate protective action recommendations. Specifically, at 0850 the utility recommended the protective action to place animals on stored feed and covered water within a 10-mile radius of the plant. At that time the status board read "on stored feed" only. The status board was not updated until 1317. This was a four hours and 27 minute delay from the time the utility made the recommendation to place animals on stored feed and covered water within a 10-mile radius. (NUREG-0654, J.10.a, J.10.b, J.11., N.1.a.)

Corrective Action Demonstrated: The GAR's staff updated the status board in a timely manner. The information provided was adequate and accurate.

Issue No.: 25-97-03-A-03

Description: The GAR failed to coordinate protective actions with Washington County. Specifically, the following concerns were identified:

- The GAR authorized inaccurate EAS messages and press release #1 on day 2 of the exercise, which included incorrect landmark descriptions. EAS messages 2, 3, and 4 included the Blair Airport as a landmark; however, the airport no longer exists. The correct landmark description should have indicated the Blair Golf Course. In addition, the direction of the landmark for the Blair Airport was conflicting; i.e., southeast versus southwest. (A.1.d., A.2.a., A.2.b., N.1.a.)

- Failure to coordinate PADs. During the recovery and reentry portion of the exercise, the GAR and Radiological Health staff made the decision, at 0834, to return half of the population in the City of Blair. However, the Washington County EOC was not aware of the decision until receiving a press release. Washington County did not initially agree with the decision to return half of the population. Rather, they would have recommended the return of all or none of the population. (A.1.d., A.2.a. A.2.b., N.1.a.)

- Failure to inform emergency workers to take KI. At 1046, the GAR and HHS staff made the decision to have all emergency workers in the EPZ take KI. However, at 1054, the GAR briefed the communicator that workers in a 2-mile radius and sectors R and A out to 5-miles were to take KI. (A.1.d., A.2.a., A.2.b., N.1.a.)

Corrective Action Demonstrated: The GAR coordinated protective action decisions with the Washington County EOC and authorized the release of EAS messages and press releases that contained accurate information, including correct landmark descriptions.

During the exercise the HHS staff made the decision to recommend the use of KI to emergency workers and notified the appropriate facilities of the decision.

Issue No.: 25-97-11-A-04

Description: Iowa and Nebraska press releases contained conflicting information. Specifically, the State of Nebraska press releases stated that airspace in the 10-mile radius of the plant was closed, the Missouri River was closed to all traffic, and railroads were shut down. Iowa's press releases indicated that airspace was closed up to 1,000 feet in the 10-mile radius, the river was closed to all but barge traffic, and railroads were allowed to operate. (NUREG-0654 A.1.b., E.5., 7., G.4.a., c.)

Corrective Action Demonstrated: The Iowa and Nebraska representatives at the EOF coordinated press releases; thereby assuring conflicting information was not released to the public.

f. PRIOR ARCAs - UNRESOLVED: None

2. RISK JURISDICTION

2.1 Washington County

2.1.1 Emergency Operations Center. The County EOC is located in the Law Enforcement and Detention Facility in Blair, Nebraska.

a. **MET:** Objectives 1, 2, 3, 4, 5, 10, 11, 15, 16, and 17

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** Objective 14

Issue No.: 25-99-14-A-01

Description: The recommendation for emergency workers to take KI was not provided to personnel in the field in a timely manner. The State informed Washington County at 1136 that the Nebraska Health Department recommended emergency workers take KI. However, the EOC staff was not informed of this recommendation until 1247. This resulted in a delay of over one-hour from the time of the recommendation until all emergency workers were appropriately notified. (NUREG-0654, J.10.e., f., N.1.a.)

Recommendation: The Washington County plan must be revised to clearly indicate who is responsible to ensure that all EOC staff and emergency workers are notified of important information such as the recommendation to take KI. It is suggested that the responsibility of notifying emergency workers to take KI be included under the Health and Medical position on page F-16 of the Washington County plan. The revised process of information dissemination, including the recommendation for KI, must be demonstrated during the next biennial exercise.

Schedule of Corrective Actions: The Washington County plan will be revised. The process of notifying emergency workers to take KI will be demonstrated during the next biennial exercise.

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** Objective 5

Issue No.: 25-96-05-A-02

Description: Several of the CDV-138s exhibited electrical leakage problems. There was no evidence they had been tested for electrical leakage as required. (NUREG 0654, K.3.a.)

Reason ARCA Unresolved (from 1997 FCNS exercise): Approximately half of the CDV-138's exhibited electrical leakage problems with readings as high as 90 mR.

Recommendation (from 1997 FCNS exercise): Analysis should be performed to determine why faulty DRDs were not removed from inventory. The capability to ensure that DRDs had been tested for electrical leakage must be demonstrated during the next biennial exercise.

Schedule of Corrective Actions: The State Radiological Systems Manager does perform electrical leakage tests on the equipment prior to exchanging it out. Additional checks will be accomplished to ensure that CDV-138s leakage is identified and those DRDs will be replaced. This is an additional check above and beyond the quarterly inspection requirement.

Corrective Action Demonstrated: Documentation at the EOC indicated the 0-200 mR dosimeters were calibrated in June 1999 and had been leak tested quarterly. During the exercise, most dosimeters checked did not exhibit electrical leakage problems and the few that did were not issued to EOC staff or emergency workers.

Issue No.: 25-97-05-A-05

Description: Four EOC staff members (three amateur radio operators and one sheriff's dispatcher) were not issued direct-reading dosimeters. (NUREG-0654 K.3.a.)

Corrective Action Demonstrated: All EOC staff members were issued direct-reading dosimetry along with a record keeping card, information on exposure limits and KI, and instructions on periodically reading dosimeters.

f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.2 Blair School District: Gerald Otte Middle School. This school is part of the Blair School District and is located in Blair, Nebraska. The population of this school is approximately 512 students and 58 faculty and other staff members. An interview was conducted out of sequence from the exercise with the District Superintendent, School Principal, and Transportation Director.

a. **MET:** Objectives 4, 5, 14, and 16

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.3 Blair School District: Junior/Senior High. This school is part of the Blair School District and is located in Blair, Nebraska. The population of this school is approximately 986 students and staff members. An interview was conducted out of sequence from the exercise with the District Superintendent, School Principal, and Transportation Director.

a. **MET:** Objectives 4, 5, 14, and 16

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.4 Fort Calhoun School District: Elementary. This school is part of the Fort Calhoun School District and is located in Fort Calhoun, Nebraska. The population of this facility is approximately 223 students and staff members. An interview was conducted out of sequence from the exercise with the School District Superintendent and Transportation Coordinator who is also a bus driver.

a. **MET:** Objectives 4, 5, 14, and 16

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

3. SUPPORT JURISDICTIONS

3.1 Dodge County

3.1.1 **Dodge County Reception and Care Center.** This function is located at the Fremont Senior High School in Fremont, Nebraska. Congregate Care Facilities demonstrated were: The Christian Field Community Center, the City Auditorium, Lincoln Elementary, Washington Elementary, and Grant Elementary. This facility was demonstrated out-of-sequence from the exercise on August 9, 1999.

a. **MET:** Objectives 1, 3, 4, 5, 18, 19, and 22

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** Objectives 18 and 22

Issue No.: 25-97-18-A-06

Description: The monitoring procedures demonstrated were improper. Specifically, three monitors failed to maintain the probe opening towards the evacuees' bodies. In addition, one monitor placed his fingers over the probe opening. Since the efficiency of the probe depends on the probe being directed toward the person being monitored, without any obstructions, contamination could not have been detected. (NUREG-0654, H.10., I.8., J.9., J.12.j.)

Corrective Action Demonstrated: The monitors demonstrated appropriate monitoring techniques by properly placing the probe opening towards the evacuees' bodies and without any obstruction over the opening.

Issue No.: 25-97-22-A-07

Description: Due to the inadequacy identified for Issue No. 25-97-18-A-06 above, this objective was not adequately demonstrated as it would also apply to the monitoring of emergency workers. (NUREG-0654, H.10., I.8., J.9., J.12.j.)

Corrective Action Demonstrated: With the successful demonstration of Issue No. 25-97-18-A-06 above, this issue is closed.

f. **PRIOR ARCAs - UNRESOLVED:** None

3.1.2 **Dana College Emergency Worker Decon.** This function is located at Dana College in Blair, Nebraska. This facility was demonstrated out-of-sequence from the exercise on August 10, 1999.

a. MET: Objectives 1, 3, 4, 5, 14, 22, and 30

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: None

f. PRIOR ARCAs - UNRESOLVED: None

4. STATE OF IOWA

4.1. State Emergency Operations Center. The State EOC is located in the STARC Armory in Johnston, Iowa.

a. **MET:** Objectives 1, 2, 3, 4, 9, 12, 13, and 17

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** Objective 12

Issue No.: 25-97-12-A-8 (Corrected at the Duane Arnold Energy Center October 21, 1998, exercise)

f. **PRIOR ARCAs - UNRESOLVED:** None

4.2 Dose Assessment. This function is located in the STARC Armory in Johnston, Iowa.

a. **MET:** Objectives 1, 2, 4, 9, and 30

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** Objective 7

Issue No.: 25-99-07-A-02

Description: The Dose Assessment staff did not successfully complete any dose projections during the exercise. They attempted to calculate a dose projection using the source term estimates provided in Emergency Notification Forms 7 and 8, but the team had difficulty reconciling the results provided locally by the Midas system with the results produced in the EOF using the Eagle system. As a result, there is no assurance that the protective actions taken were adequate.

Recommendation: Additional training should be provided to Dose Assessment staff to emphasize maintaining close contact with the EOF and assuring that dose projections are performed as soon as practicable using consistent source terms. This must be demonstrated at the next exercise.

Schedule of Corrective Actions: The Dose Assessment staff will demonstrate dose projections at the next regularly scheduled biennial exercise.

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: None

f. PRIOR ARCAs - UNRESOLVED: Objective 7

Issue No.: 25-96-07-A-08

Description: The Iowa Department of Public Health (IDPH) dose projections did not agree with the utility's dose projections. There was as much as a factor of one hundred difference in the dose projections. The IDPH dose assessment staff recognized the discrepancy between their dose projections and the utility's dose projections; however, they were not able to identify the cause of the discrepancy during the exercise. (NUREG-0654, I.10.)

Reason ARCA Unresolved (from 1997 FCNS exercise): The IDPH dose projections did not agree with the utility's dose projections. Again, there was as much as a factor of one hundred difference in the dose projections. Although the previous recommended corrective action to determine the root cause of the problem has been followed up on, and determined to be related to the correction of the Eagle delta T information before entering this data into the MIDAS dose projection, there were still some problems. The implementation of the corrective action was not successfully demonstrated by the IDPH dose assessors until late in the exercise when it was pointed out by the evaluator that something appeared to be incorrect with respect to the stability class. A formula for converting the Eagle delta T data in units of centrigrade was attached to the MIDAS computer; however, it was not used correctly. The formula required division and the IDPH dose assessor multiplied instead of dividing. Also, there was uncertainty by the IDPH dose assessors on how to reconcile the integrated doses when the dose projections were for different periods of time.

Recommendation (from 1997 FCNS exercise): Provide additional training to the IDPH dose assessors. Emphasis should be on the MIDAS model with respect to plume transport time to receptor locations and how this affects the integrated dose.

Schedule of Corrective Actions (from 1997 FCNS exercise): The discrepancies between the MIDAS and EAGLE and dose projections is a recognized problem. When the operator enters atmospheric temperature in centigrade, the units in which OPPD reports, and uses the input screen rather than the spreadsheet, the program reads the temperature as Fahrenheit, and calculates the metric equivalent. Since there is no current maintenance contract, the program cannot be repaired until OPPD converts to MIDAS.

During the evaluated exercise the operator chose the temperature and was using the relationship ΔT (Fahrenheit) = 1.8 x ΔT (centigrade). Data flow was sporadic and inaccurate and there were acknowledged differences between the power plant and state projections. The issue was not raised since all protective actions had been taken as a result of plant conditions and the dose projection program was used to "map" plume passage.

The operator was using the correct procedures for the program and the difference in the projections was more than a matter of projection times.

It is our understanding along with the Iowa Department of Public Health that the utility is in the process of converting to the MIDAS system. Upon the conversion, this dose projection problem should be eliminated and will be demonstrated during the next biennial exercise.

Reason ARCA Unresolved (from 1999 FCNS exercise): The Dose Assessment staff had difficulty reconciling the results produced locally by the Midas system with the results produced in the EOF using the Eagle system. One contributor to the problem was that the dose assessment staff could not easily reconcile the different time periods used to integrate doses. The Eagle system integrates doses over 8 hours and the Midas system integrates doses over 4 hours. The dose assessment staff was not able to readily correct these differences between the dose projection modeling codes. Because the dose assessment function did not produce a dose projection to successfully compare with the Eagle dose projection, and because the dose assessment function was not able to reconcile the integrated doses when the dose projections were for different periods of time, this ARCA remains open.

Recommendation: Develop an action plan to address the specific comments provided from the last three exercises to reconcile the differences between the Eagle and Midas computer models. The most logical plan would be for the utility and the State to convert to the same system. The revised process must be demonstrated during the next biennial exercise.

Schedule of Corrective Actions: The Dose Assessment staff will demonstrate the ability to determine and investigate dose projections which differ by greater than a factor of ten between the licensee and the Dose Assessment staff. This capability will be demonstrated at the next Fort Calhoun biennial exercise.

4.3 Field Team Coordination. This function was performed at the utility EOF in Omaha, Nebraska.

a. **MET:** Objectives 1, 2, 4, and 7

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

4.4 Radiological Monitoring Teams. The field teams were dispatched from the utility EOF in Omaha, Nebraska.

a. **MET:** Objectives 1, 4, 5, 6, 8, and 14

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

4.5 Joint Information Center. This function is located in the Omaha Public Power District Energy Plaza Building in Omaha, Nebraska.

a. **MET:** Objectives 1, 2, 4 and 12

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

5. RISK JURISDICTIONS

5.1 Harrison County

5.1.1 Emergency Operations Center/Forward Command Post (FCP). The County EOC and the State FCP are located in the County Sheriff's Office in Logan, Iowa.

a. **MET:** Objectives 2, 3, 4, 10, 11, 14, 15, and 16

b. **DEFICIENCY:** Objective 17

Issue No.: 25-99-17-D-01

Description: After the Site Area Emergency notification was received at 0909, the protective action decision was made to evacuate subarea 10. Although subarea 10 was ordered evacuated, three access control points were left uncontrolled for 2 ½ hours. This would have allowed individuals to access subarea 10, potentially resulting in them becoming contaminated. This occurred because the plan does not clearly define the responsible official for access control. When the Site Area Emergency and protective actions were decided, the Sheriff was not in the Emergency Operations Center. At this point, assistance in manning and operating access control points had not been requested of the State Highway Patrol. It was apparent that the absence of the Iowa State Patrol had an effect, as evidenced by discussions between the Sheriff and Engineer as to whether local assets were available to establish access control points. The Sheriff and staff in the Forward Command Post did establish one access control point, but did not consider the three other access points into the area. When the Highway Patrol did arrive at the Forward Command Post, the Sheriff briefed them and then left the EOC instead of remaining to coordinate the Patrol's activities as would be appropriate for the official primarily responsible for access control. The Highway Patrol did not review beyond the status of the briefing to verify the adequacy of access control points already established or determine if other roads should be identified for closure. The actions by the Sheriff in turning this primary/lead responsibility for traffic and access control over to the Highway Patrol is not in accordance with the plan.

The General Emergency notification was received at 1109 and the protective action decision was made to expand the evacuated area to include part of subarea 13 and subarea 14. Following this expansion of protective actions, all access control points were appropriately covered. Thus, the ability to identify, man, and operate access control points was eventually demonstrated. It was noted that by the time of the General Emergency, the Highway Patrol had arrived and had taken over primary responsibility for access control. However, this does not resolve the lack of timeliness demonstrated by the 2 ½ hour delay earlier. Further, the demonstration was inconsistent with the Plan, which indicates the Sheriff as the primary responsible official for access control.

The Harrison County plan is inconsistent regarding who has lead authority for establishing traffic and access control points. Page 11-J-4, paragraph 3.c. and Attachment A-2, states that the Sheriff has primary responsibility for access control. However, pages II-A-3, paragraph B.3. and II-A-4, paragraph D.2., do not indicate primary responsibility but rather a coordination responsibility for the Sheriff, the Highway Patrol and the County Engineer. In addition, the Sheriff and County Engineer have responsibilities that are nearly identical. (NUREG-0654, J.10.i.)

Recommendation: The Harrison County plan must be revised to clearly indicate what agency has the primary responsibility for traffic and access control. Furthermore, the plan must be changed to reflect assistance in traffic and access control by specific county and state agencies.

Based on the appropriate closure of all roads surrounding the evacuated area during the General Emergency, with the Highway Patrol taking the lead, it is evident that access control can be accomplished to protect the health and safety of the public. Therefore, a remedial exercise is not required. However, there must be training on the plan as to lead responsibilities and training provided to that lead agency.

Draft plan and procedure changes to correct this Deficiency must be submitted to this office no later than November 5, 1999, and all plan and procedure changes must be approved no later than December 12, 1999.

Schedule for Corrective Action: This Deficiency was corrected by changes to the Harrison County plan submitted by Iowa on November 5, 1999. The plan was revised to clearly identify the Iowa State Patrol as having the primary responsibility for traffic and access control for Harrison County. As a result, all plan changes will be thoroughly covered in training for the State of Iowa and Harrison County response organizations.

c. **AREAS REQUIRING CORRECTIVE ACTION:** Objectives 1, 5, and 17

Issue No.: 25-99-01-A-03

Description: The Highway Patrol representative that reports to the Forward Command Post (FCP) did not receive notification until after the Site Area Emergency at 0909. This contributed to three access control points being left uncontrolled (see issue 25-99-17-D-01 above) until after the General Emergency. According to the plan, the Highway Patrol would be notified at the ALERT (0744) to report to the FCP. That notification was not made; therefore, the Highway Patrol did not arrive at the FCP until 1004. All FCP personnel must be notified in a timely manner so they will be available to support access control requirements for the emergency. (NUREG-0654, E.2.; H.4.)

Recommendation: Review and revise all notification procedures to insure that all personnel are notified in a timely manner. Submit revised procedures to FEMA for review and approval. This objective must be demonstrated during the next biennial exercise.

Schedule of Corrective Action: The notification procedures in place are adequate. The Iowa State Patrol was notified at 0804 per State Patrol notification sheets. Apparently, the staff taking the notification call did not relay the message to the appropriate individuals. The State will stress the in-house follow-through of notification with all State agencies at the next State EOC training session. This objective will be demonstrated during the next biennial exercise.

Issue No.: 25-99-05-A-04

Description: Individuals who would perform traffic and access control were not knowledgeable regarding dose limits or location of the evacuees reception center. According to the extent of play agreement dated June 15, 1999, two individuals who would perform traffic and access control were to be interviewed at the Harrison County EOC. However, the individuals were not present. Therefore, three EOC staff who would send individuals out to perform this responsibility were interviewed. The individuals interviewed indicated their exposure levels were ".5 rem" and "5 rem" and thought the evacuee center was either at the Missouri Valley DOT building or "anywhere north of Highway 30." These exposure limits are not in accordance with the plan nor can they be read on a dosimeter and the evacuee reception center is located in Denison, Iowa. (NUREG-0654, J.10.g.j.k..; K.3.b.4)

Recommendation: Not applicable. See Corrective Action Demonstrated for this ARCA.

Corrective Action Demonstrated: On the scene training regarding exposure limits and location of where dosimetry is stored was performed by the State Radiological Officer who was functioning as the Dosimetry Control Officer during the exercise. Based on the above training and the Extent of Play letter, this ARCA is closed.

Issue No.: 25-99-17-A-05

Description: Due to portions of the inadequacy identified for Issue No. 25-99-05-A-04 above, this objective was not adequately demonstrated due to the individuals interviewed lacking the knowledge of emergency worker monitoring and decontamination and evacuee reception center locations.

Recommendation: Not applicable. See Corrective Action Demonstrated for this ARCA.

Corrective Action Demonstrated: On the scene training regarding locations for emergency worker monitoring and decontamination and evacuee reception centers was performed by the State Radiological Officer who was functioning as the Dosimetry Control Officer during the exercise. Based on the above training and the Extent of Play letter, this ARCA is closed.

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: Objective 11

Issue No.: 25-97-11-A-9

Description: The notification that a General Emergency was declared was not provided to the public. At 1025, the Harrison County EOC/Forward Command Post received notification of the change in Emergency Classification Levels (ECLs) from Site Area Emergency to General Emergency. However, the EOC did not prepare or disseminate to the radio station an EAS message informing the public of the change in ECLs. It is noted there were no changes in Protective Action Recommendations and that the State Public Information Officer did provide this information to the public in a press release. (NUREG-0654, E.7.)

Corrective Action Demonstrated: The notification of a General Emergency was received in the EOC at 1109. After evaluating the PARs and revising the EAS message, the EAS message was released to the radio station at 1133. The information contained in the revised EAS General Emergency message was accurate.

f. PRIOR ARCAs - UNRESOLVED: None

5.1.2 Missouri Valley Primary School. This school is part of the Missouri Valley School District, located in Missouri Valley, Iowa. The population of this facility is 389 students and 29 faculty. This facility was evaluated through an interview on September 8, 1999 with the school principal and transportation director/bus driver.

a. MET: Objectives 4, 5, 14, and 16

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: None

e. PRIOR ARCAs - UNRESOLVED: None

5.1.3 St. Patrick's Catholic School. This school is part of the Missouri Valley School District, located in Missouri Valley, Iowa. The population of this facility is 70 students and 8 faculty. This facility was evaluated through an interview on September 8, 1999 with the school principal and transportation director/bus driver.

a. **MET:** Objectives 4, 5, 14, and 16

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** None

f. **PRIOR ARCAs - UNRESOLVED:** None

5.1.4 Missouri Valley Emergency Worker Decontamination Station. This function is located at the Iowa Department of Transportation facility in Missouri Valley, Iowa. The Mondamin Fire and Rescue Unit provide staffing. The facility demonstrated this function out-of-sequence of the exercise on September 8, 1999.

a. **MET:** Objectives 1, 3, 4, 5, and 22

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs - RESOLVED:** Objective 22

Issue No.: 25-97-22-A-12

Description: There was no clear vehicle path identified to minimize contaminated vehicle flow over or into the designated clean area. The foot traffic pattern from the clean vehicle parking area crossed the contaminated vehicle traffic path. Inside the facility, clean and contaminated footpath boundaries were not clearly marked. (NUREG-0654, K.5.b.)

Corrective Action Demonstrated: The Mondamin Fire and Rescue personnel demonstrated the redesign of the vehicle and facility flow path. The flow path for contaminated vehicles entering the facility grounds would be in the opposite direction

of clean vehicles. Individuals in contaminated vehicles would park and enter the transportation facility using an entrance that would not require them to cross the path used by clean vehicles. Clean and contaminated footpath boundaries were identified. With the redesign of the vehicle and emergency worker flow paths, possible contamination of both should be eliminated.

f. PRIOR ARCAs - UNRESOLVED: None

5.2 Pottawattamie County

5.2.1 Emergency Operations Center. The County EOC is located in the County Courthouse in Council Bluffs, Iowa.

a. MET: Objectives 1, 2, 3, 4, 5, 10, 11, 14, 15, and 17

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: None

f. PRIOR ARCAs - UNRESOLVED: None

6. SUPPORT JURISDICTIONS

6.1 Crawford County

6.1.1 Denison Reception and Care Center. This function is located at the Denison High School in Denison, Iowa. Participants included the Denison Volunteer Fire Department, Crawford County Emergency Management Agency and the American Red Cross.

a. MET: Objectives 1, 3, 4, 5, 18, and 19

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs - RESOLVED: Objective18

Issue No.: 25-96-18-A-15

Description: The monitors demonstrated inappropriate monitoring techniques. In the initial monitoring area, in one of the three monitoring lanes and to a lesser degree in a second lane, the monitors held the probe too far from the surface. At those distances, the detection of the levels of contamination specified in the plan is not possible. In both the male and female decontamination areas, probe movement was also too fast and often too far from the surface being monitored. (NUREG-0654, J.9., 10.h., 12.)

Corrective Action Demonstrated: The monitors maintained an appropriate pace and distance from the probe to the surface (evacuee) being monitored.

f. **PRIOR ARCAs - UNRESOLVED:** None

Appendix 1 - Acronyms and Abbreviations

The following is a list of the acronyms and abbreviations, which were used in this report.

ANL	Argonne National Laboratory
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
CFR	Code of Federal Regulations
CPM	Counts Per Minute
DOT	U.S. Department of Transportation
EAS	Emergency Alerting System
ECL	Emergency Classification Level
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPZ	Emergency Planning Zone
EWD	Emergency Worker Decontamination
FCP	Field (Forward) Command Post
FEMA	Federal Emergency Management Agency
FEMA-REP-14	FEMA Radiological Emergency Preparedness Exercise Manual
FEMA-REP-15	FEMA Radiological Emergency Preparedness Exercise Evaluation Methodology
GAR	Governor's Authorized Representative

IDPH	Iowa Department of Public Health
INEEL	Idaho National Engineering & Environmental Laboratory
JIC	Joint Information Center
KI	Potassium Iodide
mR	Milliroentgen
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (NUREG-0654/FEMA-REP-1, Rev. 1).
OPPD	Omaha Public Power District
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
R	Roentgen
RAC	Regional Assistance Committee
RCS	Reactor Coolant System
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
SEOC	State Emergency Operations Center
TLD	Thermoluminescent Dosimeter
USDA	U.S. Department of Agriculture

Appendix 2 - Exercise Evaluators and Team Leaders

The following is a list of the personnel who evaluated the Fort Calhoun Nuclear Station exercise on August 10, 1999. The letters "TL" after their names indicates evaluator Team Leaders. The organization, which each evaluator represents, is indicated by the following abbreviations:

FEMA	- Federal Emergency Management Agency
ANL	- Argonne National Laboratory
INEEL	- Idaho National Engineering & Environmental Laboratory
DOT	- U.S. Department of Transportation
EPA	- U.S. Environmental Protection Agency
USDA	- U.S. Department of Agriculture

* Indicates locations evaluated out-of-sequence during the August 1999 exercise.

EVALUATION SITE	EVALUATOR	ORGANIZATION
STATE OF NEBRASKA		
State EOC	Diane Harrell - TL	FEMA
Dose Assessment/Field Team Coordination	Joe Keller	INEEL
Field Monitoring Teams	Daryl Thome Phil Kier	ANL ANL
Joint Information Center	Bob Rospenda	ANL
EAS Station - KFAB	Rosemary Maxwell – IA/NE	FEMA
Emergency Operation Facility/ Field Command Post (GAR)	Tonya Leibold- TL Linda Lewis	FEMA USDA
Washington County EOC	Norm Valentine, TL Larry Robertson	FEMA FEMA R4
Blair School District and Fort Calhoun School District*	Norm Valentine - TL Larry Robertson	FEMA FEMA R4
Dodge County Reception Center*	Harry Harrison, TL Bill Serrano	ANL ANL

	Norm Valentine	FEMA
Emergency Worker Decon*	Norm Valentine – TL	FEMA
(Dana College)	Larry Robertson	FEMA R4
STATE OF IOWA		
State EOC	Joe Schulte – TL	FEMA
	Rebecca Thomson	ANL
Dose Assessment	Gerry Gibeault	INEEL
Joint Information Center	Bill Metz	ANL
Field Team Coordination	Harry Harrison	ANL
Field Monitoring Teams	Garianne Howard	EPA
	Bill Serrano	ANL
Harrison County EOC/	Jane Young - TL	FEMA
Forward Command Post	Kathy Dodd	FEMA
Pottawattamie County EOC	Jim Donley - TL	FEMA
	Debbie Waggoner	DOT
Missouri Valley Emergency Worker Decontamination*	Connie Wisniewski	FEMA
Denison Reception and Care	Joe Keller – TL	INEEL
Center*	Garianne Howard	EPA
	Connie Wisniewski	FEMA
Missouri Valley Schools - Primary*	Connie Wisniewski	FEMA
St. Patrick Catholic School*	Connie Wisniewski	FEMA
Emergency Worker Decon* Missouri Valley	Connie Wisniewski	FEMA

Appendix 3 - Exercise Objectives and Extent of Play Agreement

This appendix lists the exercise objectives which were scheduled for demonstration during the Fort Calhoun Nuclear Station plume exercise on August 10, 1999, and the extent-of-play agreements approved by FEMA Region VII on June 15, 1999, for the States of Nebraska and Iowa.

The exercise objectives, contained in FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991, represent a functional translation of planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

The Expected Demonstration includes any significant modification or change in the level of demonstration of each exercise objective.

EXERCISE OBJECTIVES and EXTENT-OF-PLAY

Objective 1: Mobilization of Emergency Personnel

Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations.

Expected Demonstration: All telephone calls to mobilize personnel or place them on standby must be actually made. Prepositioning of staff is not authorized, except by approval of a written request. The Iowa request to preposition the following emergency personnel was approved: Iowa EOF Emergency Management Division and Public Health Liaisons, Media Release Center representatives, Harrison and Pottawattamie County EOC Liaisons, and field monitoring teams and coordination group. Prepositioned individuals must not arrive at their assigned facilities prior to one-hour following the declaration of the Alert. In addition, double staffing, for training purposes, will be allowed. However, the double-staffed primary individual can participate during the exercise. Double staffed individuals in training may only observe.

For Nebraska, the demonstrations at the Dodge County Reception Center, Emergency Worker Decontamination Station at Dana College and Blair and Fort Calhoun School Districts will occur out of sequence and all personnel at these facilities may be prepositioned.

For Iowa, the demonstrations at the Denison Reception Center, Missouri Valley Emergency Worker Monitoring and Decontamination Station, Missouri Valley Primary School and St. Patrick's Catholic School will occur out of sequence and all personnel at these facilities may be prepositioned.

Current rosters must be presented identifying the individuals who will maintain around the clock operation at all evaluated facilities.

For Nebraska, credit has been granted for this objective for the State Emergency Operations Center (SEOC) and Joint Information Center (JIC) as a result of the successful demonstration during the June 8, 1998, Cooper Nuclear Station exercise. However, the appropriate staff must mobilize and participate during the exercise.

Objective 2: Facilities - Equipment, Displays, and Work Environment

Demonstrate the adequacy of facilities, equipment, displays, and other materials to support emergency operations.

Expected Demonstration: All facilities must be fully set up as they would be to support an actual emergency. This would include the availability of operational telephones and other equipment as required for response to an emergency.

For Nebraska, credit has been granted for this objective for the SEOC and JIC as a result of the successful demonstration during the June 8, 1998, Cooper Nuclear Station exercise.

Objective 3: Direction and Control

Demonstrate the capability to direct and control emergency operations.

Expected Demonstration for Iowa: The State EOC, FCP, and Harrison and Pottawattamie Counties, and Denison Reception and Care must demonstrate the criteria listed under this objective as they would in an actual emergency.

Expected Demonstration for Nebraska: The State EOC, FCP, Washington County, Fremont Reception and Care, and Emergency Worker Decon at Dana College must demonstrate the criteria listed under this objective as they would in an actual emergency.

Objective 4: Communications

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

Expected Demonstration: Demonstration of the primary and all backup communication links identified in the plans is required. All evaluated facilities and field teams are required to demonstrate the capability to access at least one communication system that is independent of the commercial telephone system.

For Nebraska, credit has been granted for this objective for the SEOC and JIC as a result of the successful demonstration during the June 8, 1998, Cooper Nuclear Station exercise.

Objective 5: Emergency Worker Exposure Control

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

Expected Demonstration: Emergency workers must wear appropriate direct-reading and permanent record dosimetry and have access to a dosimetry charger in accordance with the current state and local plans and procedures. In addition, they must demonstrate basic knowledge of dosimetry, radiation exposure limits, and turn back exposure limits through an interview process. Procedures to monitor and record dosimeter readings and to manage radiological exposure control must be demonstrated.

For Nebraska, category three emergency workers located at the Dodge County Reception and Care Center are required to have TLDs only, in accordance with the plans.

Objective 6: Field Radiological Monitoring

Demonstrate the appropriate use of equipment and procedures for determining field radiation measurements.

Expected Demonstration: Each of the deployed field monitoring teams must take radiation measurements at a minimum of six pre-selected reference points. A demonstration of an operational check of the instruments utilizing a check source is required. Information on the proper reading or range of readings should be attached to or accompany each instrument. Radiological detection instruments, equipment, and protective clothing as stated in the States' Radiological Emergency Response plans should be available for the demonstration.

For Iowa, deployment of field teams will occur from the EOF in Omaha, Nebraska.

For Nebraska, deployment of field teams will occur from the State Department of Health & Human Service Office in Lincoln, Nebraska.

Objective 7: Plume Dose Projection

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering.

Expected Demonstration: The dose assessment sections for the States of Iowa and Nebraska must demonstrate the criteria listed under this objective as they would in an actual emergency.

Objective 8: Airborne Radioiodine and Particulate Activity Monitoring

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.0000001) microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

Expected Demonstration: The field teams from the States of Nebraska and Iowa must demonstrate the criteria listed under this objective as they would in an actual emergency. Transfer of field samples is not a requirement during this exercise.

Objective 9: Plume Protective Action Decision Making

Demonstrate the capability to make timely and appropriate protective action decisions (PAD).

Expected Demonstration: The States of Iowa and Nebraska must demonstrate the criteria listed under this objective as they would in an actual emergency.

Objective 10: Alert and Notification

Demonstrate the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone (EPZ) and disseminate instructional messages to the public on the basis of decisions by appropriate state or local officials.

Expected Demonstration: The 15-minute clock will begin when the offsite authorities make the decision to notify the public of a Site Area Emergency. When that occurs, the offsite organization will have 15 minutes to activate the alert system and disseminate an initial EAS message.

The initial EAS message needs simply to identify the emergency classification level and include instructions to stay tuned to the radio station. Within the aforementioned 15 minutes, actual contact with the EAS station and dissemination of the initial message to the radio station must be demonstrated.

An evaluator will be assigned at the EAS station (KFAB) to observe the stations' procedures for broadcasting the messages. We expect to see actual receipt of the messages from the State or County EOCs. Following receipt at the station, procedures to broadcast the message must be fully demonstrated up to the point of transmission. Actual broadcast of the message or EAS test messages is not required. The 15-minute clock stops when the broadcast (simulated) of the EAS message by the radio station is initiated. The FEMA evaluator will remain at the EAS station until the termination of the exercise to observe receipt and broadcast procedures for all EAS and Public Information messages. Copies of these messages will be requested from the facility.

The procedures for siren activation must be demonstrated up to the point of actual activation and must be completed within the 15-minute time frame. Actual siren activation may be simulated.

Objective 11: Public Instructions and Emergency Information

Demonstrate the capability to coordinate the formulation and dissemination of accurate information and instructions to the public.

Expected Demonstration: The 15-minute requirement will not be applied to subsequent protective action instructions provided to the public after the initial notification. However, subsequent messages should be disseminated in a timely manner. The procedures for providing the messages to the radio station remain the same as indicated for objective number 10. Messages should be all inclusive by including previously identified areas as well as new areas. Procedures must be demonstrated, if appropriate, to ensure that EAS messages and Public Information messages containing Protective Action Recommendations that have been changed are rescinded and not repeated by the EAS station. In addition, procedures must be demonstrated to ensure that EAS messages and Public Information messages containing current PARs are repeated at pre-established intervals.

Objective 12: Emergency Information - Media

Demonstrate the capability to coordinate the development and dissemination of clear, accurate, and timely information to the news media.

Expected Demonstration: The States of Iowa and Nebraska must demonstrate the criteria listed under this objective as they would in an actual emergency. Media briefings for both states will occur at the Joint Information Center at the OPPD Energy Plaza in Omaha, Nebraska.

Objective 13: Emergency Information - Rumor Control

Demonstrate the capability to establish and operate rumor control in a coordinated and timely manner.

Expected Demonstration: For Iowa, per the Iowa State plan, rumor control will be established at the Iowa SEOC. Each rumor control staff member must demonstrate the capability to respond to an average of at least six calls per hour throughout the emergency phase. The staff should demonstrate the capability to monitor the contents of broadcast media coverage of the emergency situation. Any trends in rumors identified by the rumor control staff must be addressed in news releases or in media briefings. At least one message should address a false or misleading rumor for which measures should be taken.

For Nebraska, credit has been granted for this objective for the Joint Information Center as a result of the successful demonstration during the June 8, 1998, Cooper Nuclear Station exercise.

Objective 14: Potassium Iodide (KI)

Demonstrate the capability and resources to implement potassium iodide (KI) protective actions for emergency workers and institutionalized individuals.

Expected Demonstration: Although the decision to recommend the use of KI is not due for demonstration during this exercise, it is possible that the scenario could require it. If the decision to use KI is made, the instructions must be appropriately disseminated to all personnel including those deployed (simulated) for traffic and access control and other missions. However, as this is a group B objective, if the decision to use KI is not required by the scenario, all emergency workers, at all facilities, will be expected to demonstrate this objective through appropriate knowledge of the procedures for the use of KI and verification of KI supplies. Actual administration of KI will be simulated. Verification of stored KI supplies will be accomplished during the exercise at facilities where KI must be demonstrated.

Objective 15: Implementation of Protective Actions - Special Populations

Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.

Expected Demonstration: Telephone calls to special facilities, individuals with special needs, and transportation providers may be simulated. However, all facilities, individuals, and transportation providers which are required to be notified must be clearly identified and the simulated contacts appropriately documented.

Objective 16: Implementation of Protective Actions - Schools

Demonstrate the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone (EPZ).

Expected Demonstration: The capability to evacuate schools are to be demonstrated by the Blair and Fort Calhoun School Districts in Nebraska and the Missouri Valley Primary School and St. Patrick's Catholic School in Iowa. An exercise evaluator will be assigned to interview the school superintendent (or other designated school official) and the principal for each school.

In addition, at least one school bus driver from each school district must be available for an interview to determine awareness of and preparedness for the evacuation of school children. This will include demonstration of objectives number 4, 5, and 14: communications, emergency worker exposure, and use of KI, respectively. The bus drivers must

have dosimetry and KI available for this demonstration. The interviews described above will be conducted out of sequence from the exercise.

During the emergency phase of the actual exercise for both States, all appropriate actions (e.g., notifications, EAS messages, etc.) must be demonstrated (simulated) by the EOC staffs for any schools affected by protective action recommendations. Actual telephone calls do not need to be made; however, all contacts which would be required, should be appropriately documented.

Objective 17: Traffic and Access Control

Demonstrate the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas.

Expected Demonstration: All access and traffic control points must be appropriately posted on maps in the EOCs. Deployment of traffic and access control personnel to assigned locations will be simulated. At least two individuals, who would perform traffic and access control, must be available at the Washington, Harrison, and Pottawattamie County EOCs for an interview to demonstrate knowledge of their roles and responsibilities concerning traffic and access control, as well as appropriate knowledge concerning dosimetry and potassium iodide procedures.

Objective 18: Reception Center - Monitoring, Decontamination, and Registration

Demonstrate the adequacy of procedures, facilities, equipment, and personnel for the radiological monitoring, decontamination, and registration of evacuees.

Expected Demonstration - Nebraska: At the Dodge County Reception Center, the number of evacuees required to be monitored within twelve hours is 1,843 (20% of the evacuees assigned to the center). According to the Dodge County plans, the Fremont Fire Department will provide monitors. Therefore, the monitors at this facility must represent that organization. Based on an average monitoring time of five minutes pursuant to the plan, 15 monitors would be required in order to monitor that number within twelve hours per FEMA-REP-14. Five (5) monitors (1/3 of total required) must demonstrate monitoring at this facility, to ensure that all evacuees assigned to this center could be monitored within 12 hours. In addition to the five (5) monitors performing evacuee monitoring, at least two (2) additional monitors for the remonitoring of evacuees (male and female) following decontamination efforts must be available. Therefore, a total of seven (7) monitors would be required for evacuee monitoring at this facility.

The facilities utilized for monitoring and decontamination of evacuees must be fully activated and setup to receive evacuees for evaluation. This would include full staffing of personnel required to accomplish monitoring, decontamination, and registration of evacuees and vehicles. At least six simulated evacuees per initial monitor (total of 30) must be processed to demonstrate monitoring, decontamination, and registration capabili-

ties. The actual number of simulated evacuees can be fewer than 30 as each simulated evacuee can be monitored more than once. The monitoring sequences for each simulated evacuee will be timed by the evaluators in order to determine whether the reception center can adequately meet the 12-hour requirement referenced above.

Monitoring and decontamination procedures should be initiated for at least one male and one female evacuee. Decontamination procedures may be simulated.

The individuals who perform monitoring must demonstrate an operational check of the instruments, utilizing a check source prior to monitoring. Information on the proper reading or range of readings should be attached to or accompany the instrument. The evaluators will observe the issuance of dosimetry and instrument checks.

Vehicle monitoring and decontamination teams must be present. The vehicle monitoring area must be set up and demonstrated. This will include monitoring of both the interior and exterior of at least two vehicles. Monitoring of the air filter will not be required. Actual decontamination of vehicles will not be required; however, the vehicle decontamination area must be set up. This portion of the objective may be accomplished by interview including demonstration of appropriate knowledge of decontamination action levels.

All organizations that, per the plans, provide resources in support of registration center activities must be present for the evaluation at the Dodge County Reception Center. This would include the Dodge County Sheriff, Fremont Fire and Police Departments, Dodge County Civil Emergency Management Agency and/or Dodge County REACT.

Expected Demonstration - Iowa: At the Denison Reception Center, the number of evacuees required to be monitored within twelve hours is 1,467 (20% of the evacuees assigned to the center). According to the Crawford County plans, the Denison Volunteer Fire Department will provide monitors. Based on a monitoring time of two (2) minutes pursuant to the plan, five (5) (two person) monitoring teams would be required in order to monitor that number within twelve hours per FEMA-REP-14. Two (2) monitoring teams (1/3 of total required) must demonstrate monitoring at this facility, to ensure that all evacuees assigned to this center could be monitored within 12 hours. In addition to the four (4) (two (2) teams x two (2) persons) performing initial evacuee monitoring, at least two (2) monitors for the remonitoring of evacuees (male and female) following decontamination efforts must be available. Therefore, a total of six (6) monitoring personnel would be required for evacuee monitoring at this facility.

The facilities utilized for monitoring and decontamination of evacuees, must be fully activated and setup to receive evacuees for evaluation. This would include full staffing of personnel required to accomplish monitoring, decontamination, and registration of evacuees and vehicles. At least six simulated evacuees per initial monitoring teams (total of 12) must be processed into the center to allow for demonstration of monitoring, decontamination, and registration capabilities. The actual number of simulated evacuees

can be fewer than 12 as each simulated evacuee can be monitored more than once. The monitoring sequence for each simulated evacuee will be timed by the evaluators in order to determine whether the reception center can adequately meet the 12-hour requirement referenced above.

Monitoring and decontamination procedures must be initiated for at least one male and one female evacuee. Decontamination procedures may be simulated.

The individuals who perform monitoring must demonstrate an operational check of the instruments, utilizing a check source prior to monitoring. Information on the proper reading or range of readings should be attached to or accompany the instrument. An evaluator will observe the instrument checks. Actual issuance of dosimetry will not be observed by the evaluators; however, the individual responsible for issuing the dosimetry will be interviewed by an evaluator.

Vehicle monitoring and decontamination teams must be present. The vehicle monitoring area must be setup and demonstrated. This will include monitoring of both the interior and exterior of at least two (2) vehicles. Monitoring of the air filter will not be required. Vehicle monitoring will be accomplished concurrently with evacuee monitoring. Actual decontamination of vehicles will not be required; however, the vehicle decontamination area must be set up. This portion of the objective will be accomplished by interview including demonstration of appropriate knowledge of decontamination action levels. All organizations that, per the plans, provide resources in support of registration center activities must be present for the evaluation at the Denison Reception Center. This would include the Crawford County Emergency Management, Sheriff's Department, Denison Volunteer Fire Department and Police Department, and the American Red Cross.

Objective 19: Congregate Care

Demonstrate the adequacy of facilities, equipment, supplies, personnel, and procedures for congregate care of evacuees.

Expected Demonstration - Nebraska: In order to demonstrate this objective, the Christian Field Community Center, the City Auditorium, Lincoln Elementary, Washington Elementary, and Grant Elementary schools will be evaluated on the adequacy of facilities providing congregate care. These facilities will be required to be open to allow a cursory review by the FEMA evaluator. Floor plans for each facility are to be made available to assist the FEMA evaluator. The FEMA evaluator will conduct a walk-through of these facilities to determine, through observation and inquiries, the adequacy of the physical facilities, equipment, personnel, supplies, and procedures. It is not necessary to set up congregate care operations as they would be in an actual emergency. Congregate care staff should demonstrate the capability to ensure that evacuees have been monitored for contamination and are uncontaminated before entering the facility. Per the plans, the American Red Cross provides resources and support for

the congregate care center. Therefore, a representative from this organization must be present during the evaluation.

Expected Demonstration - Iowa: Congregate Care functions will not be evaluated during this exercise since both the primary and backup (Denison High School and Junior High School) were evaluated during the last exercise. However, setup of the registration area is required and, as stated in objective number 18, all organizations that provide resources in support of registration center activities must be present.

Objective 22: Emergency Worker Monitoring and Decontamination

Demonstrate the adequacy of procedures for the monitoring and decontamination of emergency workers, equipment, and vehicles.

Expected Demonstration for Nebraska: This objective will be demonstrated at the Emergency Worker Decontamination Station located at Dana College in Blair, Nebraska. Appropriate procedures for monitoring and decontamination must be demonstrated for a minimum of at least three (3) emergency workers.

According to the Annual Letter of Certification, Blair Fire Department personnel have been trained in radiological monitoring. A sufficient number of personnel from this organization must be present to demonstrate monitoring and decontamination. These individuals must demonstrate an operational check of the instruments, utilizing a check source, prior to monitoring. Information on the proper reading or range of readings should be attached to or accompany the instrument. The evaluators will observe issuance of dosimetry and instrument checks.

Demonstration of vehicle monitoring and decontamination will be the same as previously described for objective number 18.

Expected Demonstration for Iowa: This objective will be demonstrated at the Iowa Department of Transportation maintenance garage in Missouri Valley by the Mondamin Fire Department personnel. Appropriate procedures for monitoring and decontamination must be demonstrated for a minimum of at least three (3) emergency workers.

The individuals who perform monitoring must demonstrate an operational check of the instruments, utilizing a check source, prior to monitoring. Information on the proper reading or range of readings should be attached to or accompany the instrument. The evaluator will observe issuance of dosimetry and instrument checks.

Demonstration of personnel and vehicle monitoring and decontamination will be the same as previously described for objective 18.

Objective 30: Continuous, 24-Hour Staffing

Demonstrate the capability to maintain staffing on a continuous, 24-hour basis through an actual shift change.

Expected Demonstration for Nebraska: This objective will be demonstrated, by interview, at the Dana College Emergency Worker Decontamination station for the County Radiological Officer.

Although objective 30 is not due for demonstration at Washington County during this exercise, they have requested that second shift personnel be allowed to double staff their positions for training purposes, if available. This request is approved. However, second shift personnel are not allowed to make decisions or be involved in the exercise. They may only observe.

Expected Demonstration for Iowa: Twenty-four (24) hour staffing must be demonstrated by an actual shift change of all key staff, pursuant to the plans. Double staffing will not be allowed as an acceptable demonstration of this objective. The shift change must occur to allow the second shift individual to demonstrate the capability to perform the appropriate responsibilities required of the position. Therefore, the time for the shift change will be dictated by controller input. First shift personnel cannot accept a different assignment on the second shift. Incoming personnel must receive an adequate turnover briefing before relieving outgoing personnel. This will apply only to the Dose Assessment position.

In addition, Radiological Monitoring Teams are due to demonstrate a shift change no later than the year 2000. However, the Iowa Emergency Management Division staff has requested that this demonstration take place either at the Duane Arnold Energy Center or Quad Cities Nuclear Power Station exercises scheduled in 2000.

Appendix 4 - Exercise Scenario

This appendix contains a summary of the simulated sequence of events - Exercise Scenario - which was used as the basis for invoking emergency response actions by OROs in the Fort Calhoun Nuclear Station exercise conducted on August 10, 1999.

This original exercise scenario was submitted by Omaha Public Power District on June 11, 1999, and approved by FEMA Region VII on July 30, 1999.

During the exercise, controllers from Omaha Public Power District gave "inject messages," containing scenario events and/or relevant data, to those persons or locations who would normally receive notification of such events. These inject messages were the method used for invoking response actions by OROs.

SCENARIO SUMMARY:

0700	INITIAL CONDITIONS: The Plant is operating in Mode 1 at 100% power. The Monitor Tank (WD-22A) is being released to the overboard discharge tunnel. "B" Charging pump is out of service for packing replacement.
0725	Commencing Exercise activities.
0730	An **Alert** will be declared while releasing a Monitor Tank. The Process Monitor RM-55 will exceed 10 times Technician Specifications during the release and the release will not automatically isolate due to a relay failure that prevents the shutdown of the Monitor Tank Pumps and automatic shutting of the Overboard Discharge Flow Control Valve.
0815	Security will receive a bomb threat for the Administration Building, the threat is that a bomb will go off at 0900 hours in the Administration Building; however, the bomb is actually placed in the Auxiliary Building.
0845	A bomb explodes in Room 81 of the Auxiliary Building. This will result in loss of all feed water to the steam generators. This will result in core uncovery. All fire detectors in Room 81 will alarm due to steam from the feed header leak.
0915	After verification of the 0845 event a **Site Area Emergency** is declared.
0937	Containment Monitors increasing due to Safety Valves lifting and a Quench Tank Rupture Disk breaking.
0952	Bubble forms in the reactor vessel after sub-cooling is lost.

1040 The reactor core is uncovered.

1105 Core damage has occurred.

1135 Tubes in Steam Generator RC-2A will rupture causing an off-site radiological release when the MS-291 Steam Generator Safety Valve fails to reset. A **General Emergency** will be declared.

1330 Exercise terminated.