

APR 23 1986

In Reply Refer To:  
Docket: STN 50-482

Kansas Gas and Electric Company  
ATTN: Glenn L. Koester  
Vice President - Nuclear  
P. O. Box 208  
Wichita, Kansas 67201

Gentlemen:

Attached is a copy of the exercise report of the November 20, 1985, joint exercise of the offsite radiological emergency exercise for the Wolf Creek Generating Station. The Federal Emergency Management Agency (FEMA) identified a deficiency and several inadequacies as requiring corrective action. It is requested that representatives from Kansas Gas and Electric and the appropriate state agencies coordinate to complete the necessary corrective action in a timely manner.

If you have any further questions, please contact this office.

Sincerely,

"Original Signed by:"

J. E. Gagliardo, Chief  
Reactor Projects Branch

cc w/o report:  
Richard W. Krimm, Assistant Associate  
Director  
Office of Natural and Technological  
Hazards Program  
Federal Emergency Management Agency  
Washington, D.C. 20472

cc w/report:  
Kansas Gas and Electric Company  
ATTN: Otto Maynard, Manager  
of Licensing  
P. O. Box 309 (Sharp Road)  
Burlington, Kansas 66839

Forrest Rhodes, Plant Superintendent  
Wolf Creek Generating Station  
P. O. Box 309  
Burlington, Kansas 66839

8605050041 860423  
PDR ADOCK 05000482  
F PDR

Kansas Radiation Control Program Director

bcc: (see next page)

RIV:EP&SPS  
CAHackney  
4/16/86

C:EP&SPS  
LAYande  
4/16/86

D:DRS&S  
RLBangart  
4/17/86

C:RPS  
DRHunter  
4/22/86

C:RPB  
JEGagliardo  
4/23/86

AI 86-158

*Handwritten:* #004  
1/1  
~~Not RIV~~

bcc distrib. by RIV w/report  
DMB (A045)  
Resident Inspector  
Section Chief (RPB/B)  
C. A. Hackney  
RIV File

bcc distrib. by RIV w/o report:  
RPB  
Myron Karman, ELD, MNBB (1)  
R. D. Martin, RA  
DRSP  
R&SPB  
RSB  
MIS System  
RSTS Operator  
D. Weiss, LFMB (AR-2015)  
G. F. Sanborn



# Federal Emergency Management Agency

Washington, D.C. 20472

**MAR 17 1986**

MEMORANDUM FOR: Edward L. Jordan  
Director  
Division of Emergency Preparedness  
and Engineering Response  
U.S. Nuclear Regulatory Commission

FROM: *Richard W. Krimm*  
Richard W. Krimm  
Assistant Associate Director  
Office of Natural and Technological  
Hazards Programs

SUBJECT: Exercise Report of the November 20, 1985, Exercise  
of the Offsite Radiological Emergency Preparedness  
Plans for the Wolf Creek Generating Station.

Attached is a copy of the Exercise Report of the November 20, 1985, joint exercise of the offsite radiological emergency preparedness for the Wolf Creek Generating Station, Coffee County, Kansas. The joint exercise was full participation for the State of Kansas and Coffee and Anderson Counties. The report dated February 5, 1986, was prepared by the Federal Emergency Management Agency (FEMA) Region VII.

FEMA Region VII has identified a deficiency regarding the Anderson County procedures for registration and radiological monitoring of evacuees. The State of Kansas, Division of Emergency Preparedness, has agreed to provide training and other technical support to the County as well as conduct a remedial exercise. The State has also agreed to complete its remedial action not later than 60 days from the date of the exercise report. When this office has received and analyzed the report from the Region on the remedial action taken by the State and the County, we will send you a copy.

In the November 20, 1985, exercise, there were other inadequacies identified as requiring corrective actions. The State of Kansas has received a copy of the exercise report and will be preparing schedules of corrective actions. When they are received and analyzed we will send you copies.

If you have any questions, please contact Mr. Robert S. Wilkerson, Chief, Technological Hazards Division, at 646-2861.

Attachments  
As Stated

50-482

8603210145 860317  
PDR ADOSK 05000482  
F PDR

# EXERCISE EVALUATION



**November 20, 1985, Exercise of the  
Radiological Emergency Response Plans  
of the State of Kansas and Coffey County  
for the  
Kansas Gas & Electric's**

**WOLF CREEK GENERATING STATION**

**at Burlington, Coffey County, Kansas**

February 5, 1986

**Federal Emergency Management Agency**

JOHN P. COLEMAN

Acting Regional Director

911 Walnut

Region VII

8603210149 860317  
PDR ADDCK 05000482  
PDR

Kansas City, MO. 64106

EXERCISE EVALUATION OF THE IMPLEMENTATION OF STATE  
AND LOCAL RADIOLOGICAL EMERGENCY RESPONSE PLANS

CONDUCTED NOVEMBER 20, 1985

for the

WOLF CREEK GENERATING STATION

Burlington, Kansas  
Kansas Gas & Electric, Licensee

PARTICIPANTS:

State of Kansas

County of Coffey

(All affected jurisdictions participated)

February 5, 1986

prepared by  
Federal Emergency Management Agency  
Region VII Kansas City, MO

## CONTENTS

ABBREVIATIONS AND ACRONYMS.....	iv
EXERCISE SUMMARY.....	vi
1 INTRODUCTION.....	1
1.1 Exercise Background.....	1
1.2 Exercise Evaluators.....	2
1.3 Evaluation Criteria.....	3
1.4 Exercise Objectives.....	4
1.5 Exercise Scenario.....	11
1.6 State and Local Resources Used in this Exercise.....	13
2 EXERCISE EVALUATION.....	14
2.1 Kansas State Operations.....	14
2.1.1 Emergency Operations Facility.....	14
2.1.2 Media Release Center.....	15
2.1.3 State Emergency Operations Center.....	16
2.1.4 State Forward Staging Area.....	19
2.1.5 Dose Assessment and Field Team Coordination.....	20
2.1.6 Radiological Field Monitoring Teams.....	23
2.2 Coffey County Operations.....	25
2.2.1 Coffey County Emergency Operations Center.....	25
2.2.2 Coffey County Road & Bridge Department.....	28
2.2.3 Anderson County Relocation/Reception Center.....	30
2.2.4 Medical Emergency.....	32
3 SCENARIO.....	34
4 SUMMARY OF DEFICIENCY AND AREAS REQUIRING CORRECTIVE ACTION....	35

## ABBREVIATIONS AND ACRONYMS

ANL	Argonne National Laboratory
ARC	American Red Cross
ASCS	Agricultural Stabilization and Conservation Service
CCEOC	Coffey County Emergency Operations Center
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
DPM	Disintegrations Per Minute
EBS	Emergency Broadcast System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
FHNWR	Flint Hills National Wildlife Refuge
FSA	Forward Staging Area
GPM	Gallons Per Minute
HEPA	High Efficiency Particulate
HHS	U.S. Department of Health and Human Services
INEL	Idaho National Engineering Laboratory
KG&E	Kansas Gas & Electric
KI	Potassium Iodide
LOCA	Loss-of-Coolant Accident
MRC	Media Release Center

NaH	Sodium Hydroxide
NRC	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 (1980).
PAG	Protection Action Guide
PAR	Protective Action Recommendation
PHS	Public Health Service
PIO	Public Information Officer
RAC	Regional Assistance Committee
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
SEOC	State Emergency Operations Center
USDA	U.S. Department of Agriculture
WCGS	Wolf Creek Generating Station



**EXERCISE SUMMARY**

The purpose of an exercise is to determine the ability of appropriate off-site agencies to respond to an emergency covered by State and local Radiological Emergency Response Plans. The evaluation of such an effort will, of necessity, tend to focus on the negative aspects of the exercise, on inadequacies in planning, preparedness and performance.

This focus of attention of the negative should not be taken to mean that there were not a great many positive accomplishments, as well. Indeed, there were; however, in the interest of brevity, only inadequacies will herein be summarized.

FEMA classifies exercise inadequacies as deficiencies or areas requiring corrective actions. Definitions of these categories follow.

Deficiencies are demonstrated and observed inadequacies that would cause a finding that off-site emergency preparedness was not adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power facility in the event of a radiological emergency.

Areas requiring corrective actions are demonstrated and observed inadequacies of State and local government performance, and although their correction is required, they are not considered, by themselves, to adversely impact public health and safety.

In addition, FEMA identifies areas recommended for improvement, which are problem areas observed during an exercise that are not considered to adversely impact public health and safety. While not required, correction of these would enhance an organization's level of preparedness.

During this exercise one Deficiency and 15 Areas Requiring Corrective Action were identified. The deficiency, the most serious of the inadequacies, occurred at the Anderson County Relocation/Reception Center. Anderson County failed to demonstrate adequate procedures for radiological monitoring and decontamination of evacuees. Basic standard operating procedures were not available and the procedures demonstrated were inappropriate. The inadequate procedures would result in contaminated individuals not being identified and allowing cross-contamination to occur to other individuals at the mass care center. Because of the potential impact of the deficiency on emergency preparedness, appropriate remedial action is required to promptly correct this deficiency. Pursuant to the 44 Code of Federal Regulations, Part 350.9 and Guidance Memorandum EX-1, detailed procedures and checklists for the monitoring and decontamination activity must be prepared for Anderson County. In addition, training in monitoring and decontamination concepts and procedures must be provided to the monitors and their response capabilities must be demonstrated. This action must be completed no later than 60 days after the date of this report.

A summary of the deficiency and the inadequacies observed during this exercise are listed below. FEMA requests that the State of Kansas, Division of Emergency Preparedness submit a "Schedule of Corrections" summarizing the measures they intend to take to correct these items and the dates the measures will be accomplished. This must be submitted no later than 60 days of receipt of the exercise report.

## DEFICIENCY

### COUNTY OPERATIONS

#### Anderson County Relocation/Reception Center

Basic standard operating procedures for radiological monitoring and decontamination were not available and the procedures demonstrated were inappropriate. (NUREG-0654, J.12, K.5.a.)

### AREAS REQUIRING CORRECTIVE ACTION

#### KANSAS STATE OPERATIONS

##### Media Release Center

1. The State and County PIO's did not remain in the media room until all the briefings were concluded. As a result, subsequent media questions concerning evacuation could not be addressed as the PIO responsible for the statement was not available. (NUREG-0654, G.4.a.)

##### Dose Assessment and Field Team Coordination

2. One zone was inadvertently left out of the initial protective action recommendation to evacuate. (NUREG-0654, P.5.)
3. State personnel at the EOF did not have appropriate dosimetry for measuring the administrative limit of 25R. (NUREG-0654, K.3.a.)
4. Recommendations made to the field team members to take KI were inconsistent. The State ordered team members to take KI, whereas, the utility did not. As each field team consists of a State, County, and utility staff person, uniform criteria for use in decision making must be developed. (NUREG-0654, J.10.f)
5. Field team measurements were not reviewed by the field team coordinator to assure consistency with other data available. The incorrect measurements submitted by the field teams delayed procedures and the subsequent protective action recommendations for recovery and reentry to the public. (NUREG-0654, M.1.)
6. Round-the-clock staffing capability was not demonstrated for the dose assessment/field team coordination staff. (NUREG-0654, A.4.)

Radiological Field Monitoring Teams

7. The radiological monitoring equipment utilized by the field teams was somewhat different from the equipment listed in the State Plan. This was identified as an inadequacy during the previous exercise conducted November 7, 1984. (NUREG-0654, P.4.)
8. Field Team Number 3 made an error in converting instrument counts into air concentrations (uCi/cc). The subsequent discovery of this error by the field team was not immediately reported to the EOF. (NUREG-0654, I.9.)

COUNTY OPERATIONSCoffey County Emergency Operations Center (CCEOC)

9. The Emergency Broadcast System (EBS) message did not include information on the evacuation of the school and nursing home in Waverly. (NUREG-0654, E.5.)
10. The initial call from the Coffey County EOC to the Flint Hills National Wildlife Refuge for the notification of the Site Area Emergency did not include protective action recommendations (route alerting). (NUREG-0654, E.6.)
11. The ability to make the decision whether to issue potassium iodide (KI) to emergency workers and the ability to administer KI was an objective during this exercise. However, this was not demonstrated. (NUREG-0654, J.10.f., J.10.e.)

Anderson County Relocation/Reception Center

12. Appropriate dosimetry was not provided to the radiological monitors. permanent (TLD) dosimeters were not available and only high range dosimetry was utilized. (NUREG-0654, K.3.a.)
13. Radiological monitoring and registration were not properly segregated at the Garnett High School. Movement from the monitoring and decontamination station to registration could easily occur. (NUREG-0654, J.12.)

Medical Emergency

14. The Coffey County ambulance crew was not aware of the procedures for reading and recording dose amounts. (NUREG-0654, K.3.a.)
15. The Coffey County ambulance crew was not aware of potassium iodide (KI), nor the procedures for its use. (NUREG-0654, J.10.c.)

It should be noted that eight of the eleven inadequacies identified during the previous exercise conducted November 7, 1984, were corrected during this exercise. The remaining inadequacies repeated during this exercise, Numbers 2, 6, and 8 are identified in their respective sections of this report and must be included as objectives to be demonstrated during the next exercise.

## 1 INTRODUCTION

### 1.1 EXERCISE BACKGROUND

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume lead responsibility for all off-site nuclear planning and response.

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

- \* Taking the lead in off-site emergency planning and in the review and evaluation of radiological emergency response plans developed by State and local governments.
- \* Determining whether such plans can be implemented on the basis of observation and evaluation of exercises of the plans conducted by State and local governments.
- \* Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:
  - U.S. Department of Commerce (DOC)
  - U.S. Nuclear Regulatory Commission (NRC)
  - U.S. Environmental Protection Agency (EPA)
  - U.S. Department of Energy (DOE)
  - U.S. Department of Health and Human Services (HHS)
  - U.S. Food and Drug Administration (FDA)
  - U.S. Public Health Service (PHS)
  - U.S. Department of Transportation (DOT)
  - U.S. Department of Agriculture (USDA)
  - U.S. Department of the Interior (DOI)

Representatives of these agencies serve as members of the Regional Assistance Committee (RAC), which is chaired by FEMA.

Formal submission of the radiological emergency response plans for the Wolf Creek Generating Station (WCGS) to the RAC by the State of Kansas and affected local jurisdictions was followed by a critique and evaluation of these plans.

A joint radiological emergency preparedness exercise was conducted for WCGS on November 20, 1985. The results of that exercise are presented in this report. The exercise was conducted between the hours of 0800 and 1600 on November 20, 1985, to assess the capability of State and County emergency preparedness organizations to: (1) implement their radiological emergency preparedness plans and procedures, and (2) protect the public during a radiological emergency at the Kansas Gas & Electric WCGS. The plans evaluated included the "Kansas Nuclear Facilities Incidents Response Plan" and "Coffey County Contingency Plan for Incidents Involving Commercial Nuclear Power". This was the second exercise held for WCGS.

An observer team consisting of personnel from FEMA Region VII, the RAC and FEMA's contractors evaluated the November 20, 1985, exercise. FEMA Region VII assigned 19 Federal observers to evaluate the activities in the State of Kansas and affected local jurisdictions.

Following the exercise, these Federal observers met to compile their evaluations. Team leaders consolidated the evaluations of individual evaluators and furnished them to the RAC Chairman. An Exit Interview with the State and local governments and the utility was conducted by the RAC Chairman and Exercise Team Leaders at 1200 on Thursday, November 21, 1985, to discuss the results of the exercise. A public critique of the exercise for exercise participants and the general public was held jointly by the RAC Chairman and the NRC, Region IV, Emergency Preparedness Analyst at 1600 on Thursday, November 21, 1985, at the Coffey County Courthouse, Burlington, Kansas.

The findings presented in this exercise report are based on the evaluations of the Federal observers, and have been reviewed by FEMA Region VII. FEMA requests that State and local jurisdictions submit a schedule of remedial actions for correcting the inadequacies discussed in this report. The Regional Director of FEMA is responsible for certifying to the FEMA Associate Director of State and Local Programs and Support, Washington, D.C., that all negative findings observed during the exercise have been corrected and that such corrections have been incorporated into State and local plans, as appropriate.

## 1.2 EXERCISE EVALUATORS

Nineteen Federal observers evaluated off-site emergency response functions. These individuals, their affiliations, and their exercise assignments are given below:

<u>OBSERVER</u>	<u>AGENCY</u>	<u>ASSIGNMENT</u>
Wolf Biedenfeld	HHS/PHS	Medical Emergency
Robert Bissell	FEMA	Exercise Overview
Bill Brinck	EPA	Field Team Coordination/Dose Assessment
Kay Carder	FEMA	Coffey County Access Control
Marlee Carroll	FEMA	Exercise Overview
John Coleman	FEMA	Regional Office Coordination
Anthony Foltman	ANL	Anderson Co. Decon. Center
Anna Hart	USDA	Kansas State EOC
Tom Hogan	FEMA	Coffey Co. EOC
Rochelle Honkus	INEL	Field Monitoring Team
Gerald Jacobson	HHS/FDA	State Forward Staging Area
Richard Leonard	FEMA	Exercise Overview
Jim Levenson	ANL	Coffey County EOC
Gary McClure	FEMA	State & Utility Liaison
Warren Pugh	FEMA	Anderson Co. Relocation/ Reception Center

Dennis Remboldt	DOT	Coffey County Access Control
Brad Salmonson	INEL	Field Monitoring Team
Tim Seidel	FEMA	Media Release Center
Ron McCabe	FEMA	Kansas State EOC

ANL = Argonne National Laboratory  
DOT = U.S. Department of Transportation  
EPA = U.S. Environmental Protection Agency  
FEMA = Federal Emergency Management Agency  
HHS = U.S. Department of Health and Human Services  
    FDA = Food and Drug Administration  
    PHS = Public Health Service  
INEL = Idaho National Engineering Laboratory  
USDA = U.S. Department of Agriculture

### 1.3 EVALUATION CRITERIA

The evaluation criteria for this exercise were:

1. 44 Code of Federal Regulations, Part 350.9.
2. NUREG-0654/FEMA-REP-1, Rev. 1 (All applicable requirements).
  - 2.a. The thirty-five standardized objectives developed as a summary of observable elements contained a NUREG-0654.
3. The State of Kansas Annex A, Nuclear Facilities Incidents Response Plan to Assistance R, Nuclear Emergency of the State Disaster Emergency Plan (Revised June, 1985).
4. Coffey County Contingency Plan for Incidents Involving Commercial Nuclear Power (Revised June, 1985).
5. Anderson County Crisis Relocation Plan - November, 1981.

#### 1.4 EXERCISE OBJECTIVES

The licensee, Kansas Gas & Electric (KG&E), the State of Kansas and Coffey County planned a coordinated exercise of their respective emergency plans for both the on-site and off-site support agencies on November 20, 1985. The exercise involved activation and participation of the staff and response facilities of WCGS as well as emergency organizations and emergency facilities of the State of Kansas, Coffey County, and Anderson County.

The exercise was intended to demonstrate many, but not necessarily all, of the WCGS capabilities to respond to a wide range of emergency conditions. The scenario was designed to activate the State and local radiological emergency response plans for WCGS and KG&E's radiological emergency response plan through their various levels. The exercise demonstrated a number of primary emergency preparedness functions. At no time was the exercise permitted to interfere with the safe operations of the WCGS, and the plant management, at its discretion, could have suspended the exercise for any period of time necessary to ensure this goal.

Free play was encouraged and the exercise controllers interfered only if operator or player action prematurely terminated the exercise or deviated excessively from the drill schedule.

Exercise objectives included full-scale participation from the State of Kansas and Coffey County. State activities included the activation of the Radiological Field Monitoring Teams, participation at the Media Release Center (MRC) and communication and information with Coffey County and KG&E organizations. The Kansas State Emergency Operations Center in Topeka was activated to support KG&E and Coffey County play. In addition, the State Forward Staging Area (FSA) was activated. The Coffey County Emergency Operations Center was fully activated, including participation of the County Road and Bridge Department. The alert and notification system, consisting of sirens, and activation of the Emergency Broadcast System (EBS), was simulated during this exercise. Kansas Gas & Electric, in a communication to FEMA Region VII dated September 4, 1984, identified the following formal exercise objectives to be accomplished at the November 20, 1985, emergency response exercise for the WCGS.

#### Emergency Operations Facility

##### OBJECTIVE NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.

- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations and organizations.

Media Release Center

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations and organizations.
- 24 Demonstrate ability to brief the media in a clear, accurate and timely manner.
- 25 Demonstrate ability to provide advance coordination of information released.
- 26 Demonstrate ability to establish and operate rumor control in a coordinated fashion.

Kansas State EOC

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities.
- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations, and field personnel.



- 12 Demonstrate ability to implement protective actions for ingestion pathway hazards.
- 13 Demonstrate ability to coordinate with Coffey County to alert the public within the 10-mile EPZ and disseminate an initial instructional message within 15 minutes.
- 16 Demonstrate the organizational ability and resources necessary to deal with impediments to evacuation.
- 17 Demonstrate the organizational ability and resources necessary to control access to an evacuated area.
- 32 Demonstrate ability to identify the need for, request and obtain Federal assistance.
- 35 Demonstrate ability to determine and implement appropriate measures for controlled recovery and reentry.

State Forward Staging Area

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities.
- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations and organizations.
- 17 Demonstrate the organizational ability and resources necessary to control access to an evacuated area.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.

Dose Assessment and Field Team Coordination

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.

- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities.
- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 10 Demonstrate ability to project dosage to the public via plume exposure, based on plant and field data, and to determine appropriate protective measures, based on PAG's, available shelter, evacuation time estimates, and all other appropriate factors.
- 11 Demonstrate ability to project dosage to the public via ingestion pathway exposure, based on field data, and to determine appropriate protective measures, based on PAG's and other relevant factors.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 21 Demonstrate the ability to make the decision based on predetermined criteria whether to issue KI to emergency workers and/or the general population.
- 35 Demonstrate ability to determine and implement appropriate measures for controlled recovery and reentry.

Radiological Field Monitoring Teams

OBJECTIVE  
NUMBER

- 5 Demonstrate ability to communicate with all appropriate locations, organizations, and field personnel.
- 6 Demonstrate ability to mobilize and deploy field monitoring teams in a timely fashion.
- 7 Demonstrate appropriate equipment and procedures for determining ambient radiation levels.
- 8 Demonstrate appropriate equipment and procedures for measurement of airborne radioiodine concentrations as low as  $10^{-7}$  uCi/CC in the presence of noble gases.
- 9 Demonstrate appropriate equipment and procedures for collection, transport and analysis of samples of soil, vegetation, snow, water, and milk.

- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 22 Demonstrate ability to supply and administer KI, once the decision has been made to do so.

Coffey County Emergency Operations Center

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities.
- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations, and field personnel.
- 12 Demonstrate ability to implement protective actions for ingestion pathway hazards.
- 13 Demonstrate ability to alert the public within the 10-mile EPZ, and disseminate an initial instructional message, within 15 minutes.
- 14 Demonstrate ability to formulate and distribute appropriate instructions to the public, in a timely fashion.
- 15 Demonstrate the organizational ability and resources necessary to manage an orderly evacuation of all or part of the plume EPZ.
- 16 Demonstrate the organizational ability and resources necessary to deal with impediments to evacuation, as inclement weather or traffic obstructions.
- 17 Demonstrate the organizational ability and resources necessary to control access to an evacuated area.
- 18 Demonstrate the organizational ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ.

- 19 Demonstrate the organizational ability and resources necessary to effect an orderly evacuation of schools within the plume EPZ.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 21 Demonstrate the ability to make the decision, based on predetermined criteria, whether to issue KI to emergency workers and/or the general population.
- 22 Demonstrate the ability to supply and administer KI, once the decision has been made to do so.
- 35 Demonstrate ability to determine and implement appropriate measures for controlled recovery and reentry.

Coffey County Road and Bridge Department

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities
- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations, and field personnel.
- 13 Demonstrate ability to alert the public within the 10-mile EPZ, and disseminate an initial instructional message, within 15 minutes.
- 16 Demonstrate the organizational ability and resources necessary to deal with impediments to evacuation, as inclement weather or traffic obstructions.
- 17 Demonstrate the organizational ability and resources necessary to control access to an evacuate area.
- 18 Demonstrate the organizational ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ.

- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.

Anderson County Relocation/Reception Center

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations, and field personnel.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 27 Demonstrate adequacy of procedures for registration and radiological monitoring of evacuees.
- 28 Demonstrate adequacy of facilities for mass care of evacuees.
- 29 Demonstrate adequate equipment and procedures for decontamination of evacuees, equipment, and vehicles.

Medical Emergency

OBJECTIVE  
NUMBER

- 5 Demonstrate ability to communicate with all appropriate locations, organizations, and field personnel.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 30 Demonstrate adequacy of ambulance facilities and procedures for handling contaminated individuals.
- 31 Demonstrate adequacy of hospital facilities and procedures for handling contaminated individuals.

## 1.5 EXERCISE SCENARIO

The scenario for the exercise consists of a sequence of events resulting in a release of radioactivity of sufficient magnitude to warrant the declaration of a General Emergency. The plume travels in a northeast direction from the plant. Protective Action Recommendations result in the evacuation of residents within rural Coffey County and Waverly, Kansas. Ingestion pathway protective recommendations will be implemented in all of East Coffey County and portions of West Anderson and South Franklin Counties.

### Narrative Summary

This Field Exercise scenario is based on a large break loss-of-coolant accident (LOCA), breach of containment, and subsequent fuel cladding failure due to mechanical stress.

Initial conditions establish that the area is in a very low reserve electrical power situation. The plant has been operating at or above 90% of full power for the last 30 days. The unit is currently operating at 100% full power.

The unit is one hour into a six-hour technical specification requiring it be in hot standby due to an unidentified 15 gpm reactor coolant system (RCS) leak. A repair team consisting of one health physics technician and one mechanical maintenance technician was sent into the containment building to identify the leak. A relief valve in the letdown system is leaking and is isolated upon isolating letdown.

The initiating event for the scenario occurs when a mechanical maintenance technician falls while replacing a seal water injection filter in the auxiliary building. He sustains head and leg injuries. Upon being surveyed by a health physics technician, contamination levels are determined to approach 300,000 dpm/100 cm<sup>2</sup>. A Notification of an UNUSUAL EVENT is declared based on reports of a contaminated/injured individual.

Meanwhile, upon exiting the containment building the repair team that had been searching for the unidentified RCS leak is trapped in the containment personnel hatch and is unable to open either hatch door. The problem is located in the interlock mechanism. The control room authorizes the trapped mechanic to attempt freeing the interlock mechanism using tools stored in the hatch.

A short while later, the control room receives a reactor coolant pump (RCP) vibration danger alarm and verifies RCP B vibrations at 22 mils. The reactor is manually tripped. Within minutes positive indications are received of a LOCA as safety injection systems actuate and function normally. The leak rate stabilizes at 3000 gpm. An ALERT is declared upon loss of one fission product barrier.

Conditions further degrade when the trapped personnel in the containment personnel hatch fail both hatch doors open causing a breach of containment. A SITE AREA EMERGENCY is declared on the loss of two fission product barriers.

One hour later the control room receives an alarm and audible verification from the reactor vessel loose parts monitor. Within minutes radiation levels within containment indicate significant fuel damage. A GENERAL EMERGENCY is declared based on the loss of three fission product barriers.

A release path for radioactive effluents is provided to the atmosphere through the open containment personnel hatch and the emergency exhaust system. However, the release is monitored and filtered. The minimum off-site protective action at this point should be the sheltering of subzone A0 and downwind sectors to five miles.

Later the emergency ventilation high efficiency particulate (HEPA) filter pre-heaters fail causing the loss of iodine and particulate filtration efficiency. The unit vent iodine and particulate monitors rapidly go offscale, thereby indicating a significant off-site release of iodine and particulates. As containment spray is actuated to clear the containment building of iodine and particulate, an electrical breaker fails preventing the actuation of the pump. Based on dose projections, off-site protective actions should be upgraded to the evacuation to five miles and shelter to ten miles in downwind sectors.

Sometime later, an emergency repair and damage control team repairs the faulty breaker, and the containment spray pump is actuated. Airborne radioactivity levels decrease due to the scrubbing action of the sodium hydroxide (NaOH) spray. Repair personnel are soon able to gain access to the containment personnel hatch and complete repairs on the hatch doors, thereby terminating the release.

Field Exercise play terminates with substantial discussions on recovery and reentry procedures and practices.

Meteorological

It is a clear day with winds out of the west at 4 mph. The ambient temperature is 60°F.

A list of major events with planned and actual times follows:

<u>Planned</u> <u>Time</u>	<u>Event</u>	<u>Actual</u> <u>Time</u>
0805	Unusual Event	0755
0850	Alert	0858
1020	Site Area Emergency	1021
1125	General Emergency	1150
1145	Release to Environment	1150
1435	Release is Terminated	1423
1600	Exercise Terminated	1620

## 1.6 STATE AND LOCAL RESOURCES

Indicated below is a list of organizations which planned to participate in the November 20, 1985 exercise.

### State of Kansas

1. Division of Emergency Preparedness
2. Department of Health and Environment
3. Highway Patrol
4. Department of Transportation
5. Board of Agriculture
6. National Guard
7. Department of Social and Rehabilitation Services
8. Fish and Game Commission
9. Department of Administration

### Coffey County

1. Emergency Operations Office
2. Sheriff's Office
3. Board of Commissioners
4. Highway Engineering Department
5. Health Department
6. Fire Department
7. Radiological Department
8. Ransom Memorial Hospital
9. Coffey County Ambulance Service

### Anderson County

1. Civil Defense Office
2. Sheriff's Office



## 2 EXERCISE EVALUATION

### 2.1 KANSAS STATE OPERATIONS

#### 2.1.1 Emergency Operations Facility (EOF)

The following objectives were to be demonstrated at the EOF: 1, 2, 4, and 5.

The ability to mobilize staff and activate facilities promptly was fully demonstrated. The State of Kansas dispatched seven representatives to the Emergency Operations Facility; three from the Division of Emergency Preparedness and four from the Department of Health and Environment. Round-the-clock staffing was demonstrated by shift change or double staffing. On-coming staff were briefed and generally displayed adequate training and knowledge. Based on the above, Objectives Number 1 and 2 were fully demonstrated.

Objective Number 4, Adequacy of Facilities and Displays to Support Emergency Operations was fully demonstrated. There were adequate space, tables, and telephones. All necessary maps, status boards and other visual aids were clearly displayed.

The ability to communicate with all appropriate locations, organizations and field personnel was adequately demonstrated. However, it was noted that it was difficult at times for the EOF staff to establish communication links with other response organizations. The primary communication system utilized is a commercial telephone line. Because of overloaded circuits, some delays in communications occurred. In addition, during a real emergency, telephone lines would be exceptionally crowded, more so than during an exercise, and could make it impossible to establish communication links. A secondary system is available and could be utilized, if necessary. However, it was not demonstrated during this exercise. It is recommended that a dedicated telephone line be established between the Emergency Operations Facility, Coffey County EOC, and the State EOC. This would be a more reliable system and enhance overall communications.

The inadequacy identified during the previous exercise concerning the lack of verification of implementation of protective action recommendations was resolved during this exercise.

Summary: The one inadequacy identified during the previous exercise was corrected during this exercise.

There were no inadequacies observed at the EOF that would require corrective action.

#### Area Recommended For Improvement

A dedicated telephone line should be established between the EOF, Coffey County EOC, and State EOC. This would be a more reliable system and enhance overall communications.

### 2.1.2 Media Release Center (MRC)

The following objectives were to be demonstrated at the MRC: 1, 2, 4, 5, 24, 25, and 26.

The MRC was activated during the alert stage with full staffing completed at 1115. Objective Number 1, Mobilization and Facility Activation, was fully demonstrated. The organizations represented at the MRC were the Kansas Division of Emergency Preparedness, Coffey County Emergency Preparedness and the Kansas Gas and Electric Company. Round-the-clock staffing was demonstrated for all organizations at the facility, fully demonstrating Objective Number 2.

Objective Number 4, Adequacy of Facilities and Displays, was fully demonstrated. There was sufficient space, furniture, and lighting to accommodate approximately two hundred media representatives. A separate media work area for conducting interviews was available, which reduced the noise and traffic volume during briefings. Maps and displays were available to facilitate dissemination of emergency conditions and were consistently kept current.

The ability to communicate with all appropriate locations and organizations was fully demonstrated. Secondary communication levels were demonstrated to Coffey County EOC and the Emergency Operations Facility. A reliable hard copy device was available. Approximately twenty telephones were available for media use. Emergency information was obtained rapidly by all the Public Information Officer's (PIO's). Based on the above, Objective Number 5 was fully demonstrated.

Objective Number 24, ability to brief the media in a clear, accurate, and timely manner, was demonstrated with one exception. During media briefings, the State and County PIO's would immediately leave after their respective briefings. This did not allow the media to ask questions that might arise based on the briefings made previously. For example, in one instance the State PIO stated that at 1059 the State was "getting people out". The County PIO briefing followed, but there was no mention of the "evacuation". When the County PIO was subsequently questioned about the evacuation, an answer could not be provided, as the County PIO could not explain the State PIO's remarks and the State PIO had left the MRC. If all PIO's remain available until the completion of all briefings, any questions that might arise could be answered. In future exercises, all PIO's (State, County, and utility) must remain available until the media briefing is complete. The exception noted above also impacted the ability to provide advance coordination of information released, Objective Number 25. Otherwise, all information was quickly verified prior to release. A moderator was used to introduce participants and was available to field questions from the media. Press packets were distributed and contained information on the utility, local area, and radiation. As a result, Objectives Number 24 and 25 were not fully demonstrated.

The ability to establish and operate rumor control was adequately demonstrated by Kansas Gas and Electric. The rumor control number was announced during each press briefing and was available in the public information pamphlets that have been distributed throughout the EPZ. Approximately twenty-one individuals are available to staff this function. Based on the above facts, Objective Number 26 was adequately demonstrated.

Summary: There were no inadequacies identified during the previous exercise that required corrective action or subsequent demonstration for reevaluation during this exercise.

Objectives Number 24 and 25 was not fully demonstrated during this exercise.

#### Area Requiring Corrective Action

1. The State and County PIO's did not remain in the media room until all the briefings were concluded. As a result, subsequent media questions concerning evacuation could not be addressed as the PIO responsible for the statement was not available. (NUREG-0654, G.4.a)

#### 2.1.3 State Emergency Operations Center (SEOC)

The following objectives were to be demonstrated at the SEOC: 1, 2, 3, 4, 5, 12, 13, 16, 17, 32, 35.

The call to activate the Kansas State EOC was received at 1021 from the utility. The call was verified and staff mobilization procedures were demonstrated with full staffing completed at 1115. Round-the-clock staffing capability was demonstrated by double staffing and/or presentation of a roster. All staff displayed adequate training and knowledge. Based on the above facts, Objectives Number 1 and 2 were fully demonstrated.

The ability to make decisions and to coordinate emergency activities, Objective Number 3, was fully demonstrated. Periodic briefings were held to update and involve the staff. A State representative was dispatched to the Emergency Operations Facility to act as a liaison between the State and utility.

Objective Number 4, Adequacy of Facilities and Displays to Support Emergency Operations, was fully demonstrated. Status boards were clearly visible and kept up-to-date on significant events. All appropriate maps and displays were posted or available.

The ability to communicate with all appropriate locations, organizations and field personnel, Objective Number 5, was adequately demonstrated. Commercial phone lines were the primary communication system between the State EOC and the other response organizations. A backup communication system was available and demonstrated. It was noted that the communication link was broken at times or the lines were busy. A recommendation that dedicated telephone lines be established between the Emergency Operations Facility, Coffey County EOC, and the State EOC was made in Section 2.1.1, Emergency Operations Facility, of this report.

The ability to implement protective actions for ingestion pathway hazards, Objective Number 12, was fully demonstrated. Current information was available concerning locations of dairy farms, food processing plants, and water intake points. The Kansas Board of Agriculture and the United States Department of Agriculture (USDA), Agriculture Stabilization and Conservation Service (ASCS) have staff available to work individually with farmers and food processing workers. The Department of Agriculture notably demonstrated the ability to interpret data, plan and implement protective actions for ingestion pathway. It was noted that the protective action recommendations to place dairy animals on stored feed did not include recommendations to shelter the animals. It should not be assumed that animals given stored feed will be sheltered. It is recommended that protective action recommendations to place dairy animals or stored feed also include recommendations for sheltering.

Public alerting and notification activities conducted at the SEOC were limited to contacting the EBS station to transmit prescribed messages prepared by Coffey County. The messages were timely transmitted, fully demonstrating Objective Number 13 for the State level.

Evacuation and access control were effectively coordinated at the SEOC. The Kansas Highway Patrol and the Kansas Department of Transportation adequately demonstrated the ability and resources necessary to control road, air, water, and rail traffic into the affected area. Estimates of expected traffic volume were discussed with activation of traffic control points promptly ordered. Resources are available to assist in keeping evacuation routes clear during inclement weather. Based on the above facts, Objectives Number 16 and 17 were fully demonstrated at the State level.

The ability to identify the need for and request Federal assistance, Objective Number 32, was adequately demonstrated.

Objective Number 35, ability to determine and implement appropriate measures for controlled recovery and reentry, was partially demonstrated. An error in field team data did not allow a complete demonstration of recovery and reentry. The field teams reported contamination levels much higher than the scenario source term data. As a result, the exercise terminated before the contamination levels decreased to a point that recovery and reentry activities could occur. The EOC Director discussed the support functions that the facility would provide, if necessary. However, recovery and reentry information was not provided to other response organizations. This will not be identified as an inadequacy at the State level, but will be addressed in Section 2.1.5, Dose Assessment and Field Team Coordination, of this report.

Summary: There were no inadequacies identified during the previous exercise that required corrective action or subsequent demonstration for reevaluation during this exercise.

There were no inadequacies observed at the State EOC that would require corrective action.

Area Recommended For Improvement

Protective action recommendations to place dairy animals on stored feed should also include recommendations to shelter the animals. It should not be assumed that animals given stored feed will be sheltered.

#### 2.1.4 State Forward Staging Area (FSA)

The following objectives were to be demonstrated at the FSA: 1, 2, 3, 4, 5, 17, and 20.

The FSA was activated at 0755 during the Alert stage with full staffing completed at 1108. Organizations represented at the FSA were the Kansas Highway Patrol, Kansas National Guard and the Coffey County Sheriff's Department. All staff demonstrated adequate training and knowledge. Round-the-clock staffing was demonstrated for all FSA participants. Based on the above facts, Objectives Number 1 and 2 were fully demonstrated.

Objective Number 3, Emergency Operation Management was fully demonstrated with good interaction among the various organizations present. Periodic briefings were held to update the staff concerning the emergency status.

Objective Number 4, Adequacy of Facilities and Displays, was fully demonstrated. Backup power was demonstrated for the State Patrol Communications Van as the power cord used for connection to a AC power source was missing. The National Guard staff utilized status boards very effectively.

The ability to communicate with all appropriate organizations, Objective Number 5, was adequately demonstrated. The Kansas National Guard and Highway Patrol both provided mobile communication vans. The National Guard and the Highway Patrol radios were used as the primary communication system. Also available for backup communications were telephone land lines installed subsequent to the exercise conducted in 1984. The Kansas Highway Patrol communications van was used as the field control point for establishing roadblocks. Communications at times were hand carried back and forth between the National Guard and the Highway Patrol vans. Conference line capability between the State EOC, Coffey County EOC, and the Emergency Operations Facility utilizing the telephone land lines available would be an improvement, but is not required.

The organizational ability and resources necessary to control access to an evacuated area was fully demonstrated. Resources are available to cover all traffic and access control functions simultaneously. As protective action areas changed in the course of the exercise, staff at access control points were promptly informed and reassigned. Based on the above, Objective Number 17 was fully demonstrated.

The ability to continuously monitor and control emergency worker exposure was adequately demonstrated. An adequate supply of self-reading and permanent dosimetry, including chargers and record keeping cards, was available. However, the Highway Patrol and National Guard had low range dosimetry only. Mid or high range dosimetry was not available. As emergency workers are at risk of exposure to all levels of radiation, high or low range dosimetry should be available. For example, the Highway Patrol could be asked to respond to an auto accident at a location inside the EPZ. This could possibly require traversing the plume to perform rescue efforts. The low range dosimetry would not be adequate in areas where the exposure rates are high. In light of the above, it is recommended that mid or high range dosimetry should be provided to all organizations at the FSA. This would prevent emergency workers from exceeding their protective action guides (PAGs).

It should be noted that the ability to supply and administer potassium iodide (KI) to emergency workers was not an objective during this exercise. However, the staff at the FSA were not aware of KI and the proper procedures concerning its use. As stated above, this was not an objective to be demonstrated during this exercise and, therefore, will not be shown as an inadequacy. However, this must be shown as an objective during the next exercise and must be demonstrated.

The inadequacy noted during the previous exercise concerning the change in the FSA location and the subsequent failure to notify all cognizant organizations, was corrected. The revised State Plan submitted in July, 1985, contained procedures to assure that changes to the State Plan are disseminated to all interested organizations.

Summary: The one inadequacy noted during the previous exercise was corrected in the revised State Plan submitted in June, 1985.

There were no inadequacies observed at the FSA that would require corrective action.

#### Areas Recommended For Improvement

Conference line capability should be established at the FSA between the State EOC, Coffey County EOC and the Emergency Operations Facility utilizing the telephone land lines that were installed last year. This would establish a direct line of communication and would allow both the National Guard and Highway Patrol vans access to the same communication system. This would eliminate the current system which requires messages to be hand carried between the National Guard and Highway Patrol vans.

The Kansas Highway Patrol and National Guard should be provided with mid or high range dosimetry as their emergency response functions could require them to enter the EPZ. Low range dosimetry would not be adequate in areas where the exposure rates are likely to be high and could result in emergency workers exceeding their PAGs.

#### 2.1.5 Dose Assessment and Field Team Coordination

The following objectives were to be demonstrated: 1, 2, 3, 4, 10, 11, 20, 21, and 35.

Notification of the staff was initiated at 0815 with staffing completed at 1005 at the Emergency Operations Facility (EOF). All staff members generally displayed excellent training and knowledge. Round-the-clock staffing was simulated by contacting the State EOC to request that backup personnel be alerted. However, the adequacy of backup personnel was not established. Round-the-clock staffing must be demonstrated at the next exercise. Based on the above facts, Objective Number 1 was fully demonstrated; Objective Number 2 was partially demonstrated.

The ability to make decisions and to coordinate emergency activities, Objective Number 3, was fully demonstrated. There was excellent coordination between the State and utility staff members.

Objective Number 4, Adequacy of Facilities and Displays, was fully demonstrated. Status boards were clearly visible and kept up to date; radiological monitoring points and radiological data were promptly posted. There were sufficient furniture, space, lighting, and telephones.

The ability to project dosage to the public via plume exposure based on plant and field data and determine appropriate protective measures, Objective Number 10, was demonstrated with one exception. One subzone (A2) was not included in the initial protective action recommendation (PAR) to evacuate. The criteria established by the utility requires any evacuation recommendations to include PARs for all subzones within the 3 downwind sectors to 10 miles. It appears as if this subzone was simply overlooked initially. As this criteria is conservative in nature, the effect on the health and safety of the public was minimal. However, additional training must be provided to assure the protective action recommendations are consistent with the criteria established by the utility.

Dose assessment methods used were commendable and consistent with the State Plan. Backup calculation methods were also demonstrated. This corrected an inadequacy identified during the previous exercise.

Objective Number 11, ability to project dosage to the public via ingestion pathway exposure based on field data, was fully demonstrated. Protective action recommendations were promptly reviewed and updated as conditions changed.

The ability to continuously monitor and control emergency worker exposure was demonstrated with one exception. The dosimetry provided to State personnel was inconsistent. For example, all were provided 0-200mR; some with 0-200R; some with 0-5R. Dosimetry was not appropriate for the administrative limit for exposure, as none of the staff was equipped to measure the State limit of 25R. This was noted as an inadequacy during the previous exercise. Based on the above, Objective Number 20, was not fully demonstrated. Dosimetry provided to State personnel must be consistent and be appropriate for measuring the State limit of 25R.

The ability to make the decision, based on predetermined criteria, whether to issue KI to emergency workers was not fully demonstrated. Recommendations to the field team members to take KI were inconsistent. KI was ordered for State and County field team members based on dose projections. The utility did not agree, based on actual exposures, as calculated from field team measurements. Consequently, the State ordered team members to take KI, but the utility did not. As each field team consists of a State, County, and utility staff person, this inconsistency could cause much anxiety among team members and should be resolved. Uniform criteria for use in decision making concerning the issuance of KI to field teams must be developed. All field team members should receive the same recommendations. Based on the above facts, Objective Number 21 was not fully demonstrated.

Off-site recovery and reentry measures were not fully demonstrated at the EOF. The exercise play continued well into post-exercise time because



of a mistake in field team data. The field teams reported contamination levels much higher than the scenario source term data. Consequently, recovery and reentry data was provided to the Kansas Department of Health and Environment staff late in the exercise. This resulted in some discussions among the staff. However, decisions were not subsequently communicated to all response organizations, as the exercise was near termination. As a result, no provisions or arrangements were made to provide the public with recovery and reentry information such as safety precautions during recovery and reentry and possible health effects of low-level exposure. Obviously, the incorrect field readings reported by the field team to the EOF delayed recovery and reentry procedures and the subsequent protective action recommendations. Results of the field team measurements must be reviewed by the field team coordinator to assure they are consistent with other data available. Based on the above facts, Objective Number 35 was not fully demonstrated.

Summary: Two of the three inadequacies noted during the previous exercise have been corrected during this exercise. The inadequacy concerning inappropriate dosimetry for State personnel remains unresolved.

Objectives Number 2, 10, 20, 21, and 35 were not fully demonstrated during this exercise.

#### Areas Requiring Corrective Action

2. One subzone was inadvertently left out of the initial protective action recommendation to evacuate. (NUREG-0654, P.5.)
3. State personnel at the EOF did not have appropriate dosimetry for measuring the administrative limit of 25R. (NUREG-0654, K.3.a.)
4. Recommendations made to the field team members to take KI were inconsistent. The State ordered team members to take KI, whereas, the utility did not. As each field team consists of a State, County, and utility staff person, uniform criteria for use in decision making must be developed. (NUREG-0654, J.10.f.)
5. Field team measurements were not reviewed by the field team coordinator to assure consistency with other data available. The incorrect measurements submitted by the field teams delayed procedures and the subsequent protective action recommendations for recovery and reentry to the public. (NUREG-0654, M.1.)
6. Round-the-clock staffing capability was not demonstrated for the dose assessment/field team coordination staff. (NUREG-0654, A.4.)

### 2.1.6 Radiological Field Monitoring Teams

The following objectives were to be demonstrated by the Field Teams: 5, 6, 7, 8, 9, 20, and 22.

Three field teams were utilized consisting of three members each. Each team consisted of a representative from the utility, State and County. Two field teams were evaluated by the Federal Emergency Management Agency (FEMA) and one by the Nuclear Regulatory Commission (NRC). Comments contained in this section are based on the FEMA evaluations only.

Field team activation and mobilization was adequately demonstrated for both teams at the Emergency Operation Facility (EOF). Prior to deployment, both teams were briefed on current plant and meteorological conditions, exposure control, equipment check procedures and division of responsibilities. This corrects an inadequacy identified during the previous exercise conducted November 7, 1984. Based on the above. Objective Number 6 was fully demonstrated for both teams.

The appropriate equipment and procedures for determining ambient radiation levels were fully demonstrated. Equipment was available for obtaining soil, vegetation, water and milk samples. Recent calibration of the equipment was performed and documented. However, as noted during the previous exercise, the equipment listed in the State Plan for the field teams is somewhat different from the kits supplied by the utility, e.g., CDV-700's and Eberline RC-2A's were in the kits, but not listed in the State Plan. The State Plan must be modified to reflect the actual equipment utilized. Based on the above facts, Objective Number 7 was fully demonstrated, but with the need for a Plan change.

Objective Number 8, appropriate equipment and procedures for measurement of airborne radiiodine concentrations in the presence of noble gases, was fully demonstrated for Field Team Number 2. Field Team Number 3 gave an excellent demonstration of their ability to locate the plume boundaries and the plume centerline. This corrects an inadequacy identified during the previous exercise. However, Field Team Number 3 made an error in converting instrument counts into air concentrations ( $\mu\text{Ci/cc}$ ). This resulted in air concentrations of a considerably high magnitude. The mistake was subsequently discovered by the field team by use of the mathematical equation. However, the corrected results were not immediately reported to the Emergency Operations Facility (EOF). The field team members assumed that the dose assessment staff at the EOF would identify the error and make the appropriate changes. Consequently, as the contamination levels were much higher than the scenario source term data, reentry and recovery could not be fully demonstrated. The exercise terminated before the level of contamination decreased to a point where reentry and recovery procedures could be fully demonstrated. Obviously, errors discovered by the field teams must be reported promptly to the dose assessment staff, as inaccurate readings will have an effect on the extent and timeliness of protective action recommendations. Based on the above, Objective Number 8, was not fully demonstrated for Field Team Number 3.

The appropriate equipment and procedures for collection, and transport of samples of soil, vegetation, snow, water, and milk, Objective Number 9, was adequately demonstrated.

The ability to communicate with all appropriate locations, organizations and field personnel was adequately demonstrated for both teams. Radio contact was maintained throughout the exercise. Hand held radios were the primary source of communications. An additional radio was available for backup communication. Based on the above, Objective Number 5 was adequately demonstrated.

The ability to continuously monitor and control emergency worker exposure was adequately demonstrated. Both field teams had the appropriate dosimetry. Potassium Iodide (KI) was also available. Both teams were aware of the procedures for the use of KI. The lack of adequate protective measures was identified as an inadequacy during the previous exercise. Based on the above, Objectives Number 20 and 22 were adequately demonstrated.

Summary: Three of the four inadequacies identified during the previous exercise have been corrected during this exercise. The equipment utilized by the field teams does not accurately reflect what is listed in the State Plan. This inadequacy remains unresolved.

Objectives Number 7 and 8 were not fully demonstrated during this exercise.

#### Areas Requiring Corrective Action

7. The radiological monitoring equipment utilized by the field teams was somewhat different from the equipment listed in the State Plan. This was identified as an inadequacy during the previous exercise conducted November 7, 1984. (NUREG-0654, P.4.)
8. Field Team Number 3 made an error in converting instrument counts into air concentrations (uCi/cc). The subsequent discovery of this error by the field team was not immediately reported to the EOF. (NUREG-0654, I.9.)

## 2.2 COFFEY COUNTY OPERATIONS

### 2.2.1 Coffey County Emergency Operations Center (CCEOC)

The following objectives were to be demonstrated at the CCEOC: 1, 2, 3, 4, 5, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, and 35.

The ability to mobilize staff and activate facilities promptly was fully demonstrated. The CCEOC received notification of the Alert at 0913, EOC staffing was complete at 1020. Round-the-clock staffing capability was demonstrated by shift change. The EOC staff was well trained and displayed much enthusiasm during this exercise. Based on the above facts, Objectives Number 1 and 2 were fully demonstrated.

Objective Number 3, Ability to Make Decisions and to Coordinate Emergency Activities, was fully demonstrated. Periodic briefings were held to update the staff concerning the status of the emergency. The briefings were informative and involved all appropriate staff members. Decision making was strongly demonstrated.

The adequacy of facilities and displays to support emergency operations was fully demonstrated. The EOC is new and has all the necessary resources and supplies to operate on a 24 hour basis and is admirably suited for a radiological emergency response. Maps, displays and other graphics were excellent. The plume EPZ, evacuation routes, relocation centers, access control points, radiological monitoring points were all displayed and updated promptly. All the maps and displays are uniform throughout the emergency response organizations for the Wolf Creek plant. This is commendable, as it greatly reduces confusion when updates and changes are made. Based on the above, Objective Number 4 was fully demonstrated.

The ability to communicate with all appropriate locations, organizations and field personnel, Objective Number 5, was adequately demonstrated. Primary and secondary communication systems were demonstrated to the State EOC, utility, Emergency Operations Facility (EOF), Media Center, local schools, and hospital. A conferencing system was not available. The only provision now includes multiple handsets for the Emergency Management Coordinator and the RADEF Officer. A recommendation that dedicated telephone lines be established between the State EOC, Coffey County EOC and the EOF was made in Section 2.1.1, Emergency Operations Facility, of this report.

The ability to implement protective actions for ingestion pathway hazards, Objective Number 12, was adequately demonstrated. Current information was available on the location of dairy farms, food processing plants and water supply intake points. Final protective action recommendations were made to place dairy animals on stored feed out to 10 miles in the appropriate sectors.

The ability to alert the public within the 10-mile EPZ and disseminate an initial instructional message within 15 minutes, Objective Number 13, was fully demonstrated. At 1025 the utility notified Coffey County that a Site Area Emergency was declared. Siren activation was simulated at 1039. A simulated call was subsequently made to the EBS at 1040.

Objective Number 14, ability to formulate and distribute appropriate instructions to the public in a timely fashion, was demonstrated with two exceptions. The EBS message concerning the evacuation of Waverly did not include sufficient information on the evacuation of the school and nursing home. The message indicated the school and nursing home were evacuated, but did not include information as to where and when the students and nursing home residents may be picked up by their parents or guardians. However, prescribed messages were available containing this information, but were not utilized. Procedures must be established to assure that all appropriate information is included during the preparation of the EBS message. It should be noted that this was identified as an inadequacy during the previous exercise. The State and County Plans were subsequently amended to include school evacuation procedures in the EBS messages. However, as stated above, the prescribed messages were not utilized.

The second area of concern was with the emergency notification of the Flint Hills National Wildlife Refuge (FHNWR). Per the County Plan, a call was made to the FHNWR informing that office of the Site Area Emergency. However, the County did not instruct them to begin route alerting. The County Plan states that the FHNWR Manager or alternate will be notified of the class of emergency at the plant and the protective action to be implemented. Further conversation with the FHNWR manager confirmed that he will not initiate route alerting until the County requests it. As route alerting at the FHNWR was not an objective during this exercise, this will not be identified as an inadequacy. However, in the future, the call to the FHNWR Office to initiate the route alerting must include protective action recommendations (route alerting), per the County Plan. Therefore, this must be included as an objective to be demonstrated at the next exercise. Based on the above facts, Objective Number 14 was not fully demonstrated.

The final protective action recommendations made by the Coffey County EOC were to evacuate subzones A0, A1, B1, C1 within 2 to 5 miles and evacuate A2, B2, C2 within 5 to 10 miles. As the plume traveled northeast from the plant, the protective action recommendations were appropriate.

The organizational ability and resources necessary to manage an orderly evacuation of all or part of the plume EPZ was fully demonstrated. Activation of traffic control points were promptly ordered. Resources are available at the County Shop to keep evacuation routes clear during inclement weather. The Kansas National Guard was requested to supply additional personnel and resources, if required. Appropriate actions were taken to control access to the affected area. Based on the above, Objectives Number 15, 16, and 17 were fully demonstrated.

The organizational ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ, Objective Number 18, was fully demonstrated. An extensive listing of mobility-impaired individuals including the specific type of assistance required is maintained by the County. This aspect of evacuation was well planned and thoroughly demonstrated.

The organizational ability and resources necessary to effect an orderly evacuation of schools within the EPZ, Objective Number 19, was admirably demonstrated. Coffey County Emergency Preparedness in conjunction with the school district have prepared detailed plans and procedures for school evacuation. These procedures were actually demonstrated at the Burlington, Kansas High School during this exercise. The procedures require that all students are accounted for prior to evacuation. A task force, composed of instructors and other staff members, is assigned sections of the school. Each task force member checks their assigned classroom, restroom, gymnasium, etc., to assure the accountability of all students. A list of students with automobiles is maintained to allow these students to be released separately. They are instructed to follow EBS instructions, specific evacuation routes, and to rejoin the remaining students which are transported by school bus to the designated relocation areas. School buses are equipped with the appropriate dosimetry to be utilized by the bus drivers and radios to maintain communication.

The ability to make the decision, based on predetermined criteria, of whether to issue KI to emergency workers and the ability to supply and administer KI once the decision has been made, Objectives Number 21 and 22, was not demonstrated. The scenario did not allow the County EOC to demonstrate these objectives as the direction of the plume was northeast and moved away from the facility. Emergency workers were routed around the plume to avoid exposure.

Objective Number 20, Ability to Continuously Monitor and Control Emergency Worker Exposure, was fully demonstrated. All appropriate dosimetry was available. Instructions and record-keeping cards were issued with the dosimeters. The staff was aware of the procedures for reading and recording dosimeter values. This corrects an inadequacy identified during the previous exercise.

The ability to determine and implement appropriate measures for controlled recovery and reentry, Objective Number 35, was partially demonstrated. Procedures were developed to allow entry to evacuated areas for essential services, e.g., to milk dairy cows. However, relaxation of protective actions based on monitor data was not demonstrated. Consequently, there were no recovery and reentry decisions communicated to the response organizations. No arrangements were made to provide the public with information, such as safety precautions during recovery and health effects of low-level exposure. A mistake in field team data did not allow a complete demonstration of this objective. The field teams reported contamination levels much higher than the source term data. As a result, the exercise terminated before the contamination levels decreased to a point that recovery and reentry activities could occur.

Summary: One of the two inadequacies identified during the previous exercise was corrected during this exercise. The inadequacy concerning the failure of the EBS message to include information concerning the evacuation of schools was not resolved.

Objectives Number 14, 21, and 22, were not fully demonstrated during this exercise.

### Areas Requiring Corrective Action

9. The Emergency Broadcast System (EBS) message did not include information on the evacuation of the school and nursing home in Waverly. (NUREG-0654, E.5.)
10. The initial call from the Coffey County EOC to the Flint Hills National Wildlife Refuge for the notification of the Site Area Emergency did not include protective action recommendations (route alerting). (NUREG-0654, E.6.)
11. The ability to make the decision whether to issue potassium iodide (KI) to emergency workers and the ability to administer KI was an objective during this exercise. However, this was not demonstrated. (NUREG-0654, J.10.f., J.10.e.)

#### 2.2.2 Coffey County Road and Bridge Department (County Shop)

The following objectives were to be demonstrated at this facility: 1, 2, 3, 4, 5, 13, 16, 17, 18, and 20.

The call to activate the Coffey County Road and Bridge Department was received at 1012 from the Coffey County Emergency Operations Center. Activation and mobilization procedures were adequately demonstrated. The ability to fully staff facilities and maintain staffing around-the-clock was demonstrated. Based on the above fact, Objectives Number 1 and 2 were fully demonstrated.

The ability to make decisions and to coordinate emergency activities, Objective Number 3, was fully demonstrated. The County Shop Superintendent was very knowledgeable of the emergency response capabilities and responsibilities. An "Emergency Plan Handbook" has been developed for the Coffey County Shop staff members which outlines specific duties to be assumed during emergencies at the Wolf Creek Generating Station. Consequently, all personnel were familiar with their assigned emergency duties. This system is very efficient and commendable.

The adequacy of facilities and displays to support emergency operations, Objective Number 4, was fully demonstrated.

The ability to communicate with all appropriate locations, organizations and field personnel was adequately demonstrated. Primary and secondary communication links were established with the Coffey County EOC. All county vehicles are equipped with radios to maintain constant contact with the County Shop. Based on the above facts, Objective Number 5 was fully demonstrated.

The County Shop also played a role in public alerting, assuming the responsibility for notifying the hearing impaired within the EPZ. This was fully demonstrated during this exercise. A list is maintained of all individuals that are in this category. The County Shop staff members were directed to each location via the two-way radios in each vehicle. Route

maps were available to the staff for use during alerting. Based on the above facts, the County Shop's responsibility for alerting the hearing impaired, Objective Number 13 was fully demonstrated.

The ability and resources to deal with impediments to evacuation, such as inclement weather or traffic obstructions, Objective Number 16, was fully demonstrated. An adequate supply of vehicles and personnel were available to cover all traffic control functions. Resources were available to keep evacuation routes open and clear during inclement weather.

Objective Number 17, the organizational ability and resources necessary to control access to an evacuated area, was fully demonstrated. Activation of traffic control points was promptly ordered. Crews were dispatched to establish road blocks at various locations throughout the county. As emergency conditions changed, the road blocks were appropriately relocated.

The organizational ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ was fully demonstrated. Transportation assistance is provided for the local nursing homes, Coffey County Hospital and other individuals who request assistance through the County EOC. Lists of mobility impaired individuals and their respective locations are maintained at the County Shop. Based on the above, Objective Number 18 was fully demonstrated.

All required dosimetry was available to staff members of the County Shop. The staff demonstrated proper procedures for reading and recording dose amounts. All were aware of maximum dose levels without authorization. The staff was aware of decontamination procedures for personnel and vehicles.

Summary: There were no inadequacies identified during the previous exercise that required corrective action or subsequent demonstration for reevaluation during this exercise.

There were no inadequacies observed at the County Shop during this exercise that would require corrective action.



### 2.2.3 Anderson County Relocation/Reception Center

The following objectives were to be demonstrated at this facility: 1, 2, 5, 20, 27, and 28.

The ability to mobilize staff and activate facilities promptly was adequately demonstrated. Except for the Anderson County Civil Defense Director all other personnel resources were volunteers. Procedures are available to provide round-the-clock staffing with local volunteers, if required. Based on the above facts, Objectives Number 1 and 2 were adequately demonstrated.

Objective Number 5, ability to communicate with all appropriate locations, organizations and field personnel, was adequately demonstrated. Communication links could be established between the State EOC, Coffey County EOC, and the local hospital. The County Sheriff's Office provided the primary means of communication.

The ability to continuously monitor and control emergency exposure was partially demonstrated. The Anderson County emergency response organization has not provided appropriate dosimetry for the staff. Permanent (TLD) dosimeters were not available and only high range dosimetry (0-200R) was utilized. The County has not established PAG's for exposure. However, the State limit of 25R, which is also the limit under EPA protective action guidelines for emergency workers, cannot be accurately measured with high range (0-200R) dosimetry. Therefore, mid range self-reading (0-20R) dosimetry must be provided to assure accurate measurements to prevent monitors from exceeding PAG's. Procedures for frequent reading and reporting must also be provided. In addition, permanent record dosimetry (TLD) must also be provided to the monitors per NUREG-0654, K.3.a. Based on the above, Objective Number 20 was not fully demonstrated.

Objective Number 27, adequacy of procedures for registration and radiological monitoring of evacuees, was not demonstrated. Anderson County radiological monitoring procedures are deficient and are not adequate to protect the health and safety of the public. Basic standard operating procedures were not available and the procedures demonstrated were inappropriate. Specifically:

- \* The monitor failed to make a source check of the instrument (CDV-700) to insure its operability.
- \* The probe was used with its window closed and was not protected from contamination with plastic.
- \* The probe was moved very rapidly over the evacuee at a rate faster than the response time of the meter to detect contamination. The monitor missed two lantern mantle sources planted on the evaluator, even though he was aware of their existence.
- \* The monitor repeatedly touched the evacuee's clothes with the probe, risking contamination and loss of use of the instrument.

- \* Action levels for decontamination were not known.
- \* Procedures for undressing and showering for decontamination were not known.
- \* Procedures were not evident for remonitoring.
- \* Decontamination of evacuee vehicles was not demonstrated.

The inadequate monitoring and decontamination procedures, as stated above, would result in contaminated individuals not being identified and fostering cross-contamination of other individuals at the mass care center.

Therefore, remedial action is required. Detailed procedures and checklists for the monitoring and decontamination activity must be prepared for Anderson County. In addition, training in monitoring and decontamination concepts and procedures must be provided to the monitors and their response capabilities must be redemonstrated. Per Guidance Memorandum EX-1, "if the remedial actions are not conducted prior to the preparation and forwarding of the exercise report, they should be completed as soon as possible, but not later than 60 days after the date of this report". The State of Kansas, Division of Emergency Preparedness, in correspondence dated December 12, 1985, has agreed to provide training and conduct the remedial exercise by the due date as stated above.

The primary facilities to be used for registration and radiological monitoring of evacuees is the Garnett High School. There was not proper segregation of monitoring and registration activities at this facility. The space set aside for arriving evacuees was not segregated from the monitoring and registration area. A hall within the High School is to be utilized for this entire function. Movement of evacuees from the monitoring and decontamination station to registration could easily occur which would result in cross contamination of evacuees and facilities.

The adequacy of facilities for mass care of evacuees was fully demonstrated. Overflow facilities are available within the County, if required. The facility was adequate in terms of sleeping accommodations, toilets, drinking water, and parking. The Garnett High School cafeteria and American Red Cross (ARC) can provide food supplies. The shelter was staffed and equipped to handle handicapped evacuees. A nursing station could be established, if necessary, with quick access to hospital care. Based on the above, Objective Number 28 was adequately demonstrated.

It should be noted that the Garnett High School, where the registration and radiological monitoring of evacuees occur, could be utilized as a mass care center. However, the school is not currently listed as a resource. As soon as the evacuees were monitored and registered they could simply be co-located in the high school gymnasium as well as other areas in the school. This would be advantageous as the evacuees would not have to be transported to another facility. The high school has a capacity to house approximately 400 to 500 evacuees and is equipped with a cafeteria. It is recommended that the high school be utilized as the primary mass care center with the other facilities to be utilized for overflow.

**Summary:** As the Anderson County Relocation/Reception Center was not evaluated during the previous exercise conducted November 7, 1984, there were no inadequacies identified that required corrective action or subsequent demonstration for reevaluation during this exercise.

Objectives Number 20 and 27 were not fully demonstrated during this exercise.

### Deficiency

Basic standard operating procedures for radiological monitoring and decontamination were not available and the procedures demonstrated were inappropriate. (NUREG-0654, J.12., K.5.a.)

### Areas Requiring Corrective Action

12. Appropriate dosimetry was not provided to the radiological monitors. Permanent (TLD) dosimeters were not available and only high range dosimetry was utilized. (NUREG-0654, K.3.a.)
13. Radiological monitoring and registration were not properly segregated at the Garnett High School. Movement from the monitoring and decontamination station to registration could easily occur. (NUREG-0654, J.12.)

### Area Recommended For Improvement

The Garnett High School could be utilized as a mass care center. This facility could accommodate approximately 400 to 500 evacuees and is equipped with a cafeteria. As monitoring and registration occur at this facility, transportation of evacuees to another location would not be required.

#### 2.2.4 Medical Emergency

The following objectives were to be demonstrated: 5, 20, 30, and 31.

The Coffey County Ambulance Service participated in this medical drill. The ambulance crew demonstrated procedures to restrict the spread of contamination. Injuries were treated and the patient was transported in accordance with appropriate standards. Objective Number 30 was adequately demonstrated.

The ability to communicate with all appropriate organizations, Objective Number 5 was adequately demonstrated. However, the ambulance does have a problem communicating with the hospital. The radio in the ambulance is not compatible with the radio system at Ransom Memorial Hospital. Consequently, the ambulance crew must relay a message through another ambulance service (Ottawa) to reach the hospital. If medical consultation was required during transit, it would be difficult or impossible to contact the hospital, if the other ambulance service was not available or currently transmitting themselves. It appears all of the Coffey County ambulances

are equipped with the same radio system. It is recommended that a radio system be installed in the ambulances that is compatible with Ransom Memorial Hospital.

The ability to continuously monitor and control emergency worker exposure, Objective Number 20, was not fully demonstrated. Appropriate dosimetry was available and distributed to the ambulance crew. However, they were not aware of the procedures for reading and recording dose amounts. For example, one crew member was not aware of the difference between a low range (0-200mR) and a high range (0-200R) dosimeter. Also, the ambulance crew was not aware of what potassium iodide (KI) was or the procedures for its use. Obviously, the ambulance crew have not received sufficient training in exposure control. This lack of awareness of the use of dosimetry and KI increases the risk of emergency workers incurring exposure amounts in excess of PAGs. Training should be provided in all aspects of emergency worker exposure control.

Objective Number 31, adequacy of hospital facilities and procedures for handling contaminated individuals was fully demonstrated. Ransom Hospital has the necessary equipment and qualified staff to treat contaminated injuries and to perform decontamination procedures. Procedures for handling radioactive wastes, including contaminated wash water was adequately demonstrated. All appropriate dosimetry was issued. Proper procedures were demonstrated to prevent cross contamination of the patient and staff.

The hospital staff was well trained and willing to participate in the exercise. Questions raised by the staff indicated they are committed to quality performance in the event of a real emergency.

Summary: There were no inadequacies identified during the previous exercise that required corrective action or subsequent demonstration for reevaluation during this exercise.

Objective Number 20 was not fully demonstrated during this exercise.

#### Areas Requiring Corrective Action

14. The Coffey County ambulance crew was not aware of the procedures for reading and recording dose amounts. (NUREG-0654, K.3.a.)
15. The Coffey County ambulance crew was not aware of potassium iodide (KI) nor the procedures for its use. (NUREG-0654, J.10.c.)

#### Area Recommended For Improvement

The Coffey County Ambulance Service should install radios that are compatible with Ransom Memorial Hospital. If medical consultation is required during transit, the current system of relaying communications through another ambulance system is cumbersome and at times could be impossible.

### 3 SCENARIO

The data contained in the scenario was adequate to drive the objectives, but did not accurately reflect what would actually occur. Using the scenario source term and meteorological data, the radiiodine ground deposition activity was much lower than those indicated in the scenario radiological data. The more conservative approach by KG&E to use higher ground deposition values is commendable. However, the data does not accurately reflect what would actually occur. Consequently, in future exercises ground deposition activity and radioactive concentrations in the air will be expected to accurately reflect the source term data as contained in the exercise scenario. These concerns were expressed in a memorandum for FEMA Region VII to the Kansas Division of Emergency Preparedness on November 6, 1985.

#### 4 SUMMARY OF DEFICIENCY AND AREAS REQUIRING CORRECTIVE ACTIONS

##### DEFICIENCY

##### COUNTY OPERATIONS

##### Anderson County Relocation/Reception Center

Basic standard operating procedures for radiological monitoring and decontamination were not available and the procedures demonstrated were inappropriate. (NUREG-0654, J.12, K.5.a.)

##### AREAS REQUIRING CORRECTIVE ACTION

##### KANSAS STATE OPERATIONS

##### Media Release Center

1. The State and County PIO's did not remain in the media room until all the briefings were concluded. As a result, subsequent media questions concerning evacuation could not be addressed, as the PIO responsible for the statement was not available. (NUREG-0654, G.4.a.)

##### Dose Assessment and Field Team Coordination

2. One zone was inadvertently left out of the initial protective action recommendation to evacuate. (NUREG-0654, P.5.)
3. State personnel at the EOF did not have appropriate dosimetry for measuring the administrative limit of 25R. (NUREG-0654, K.3.a.)
4. Recommendations made to the field team members to take KI were inconsistent. The State ordered team members to take KI, whereas, the utility did not. As each field team consists of a State, County, and utility staff person, uniform criteria for use in decision making must be developed. (NUREG-0654, J.10.f)
5. Field team measurements were not reviewed by the field team coordinator to assure consistency with other data available. The incorrect measurements submitted by the field teams delayed procedures and the subsequent protective action recommendations for recovery and reentry to the public. (NUREG-0654, M.1.)
6. Round-the-clock staffing capability was not demonstrated for the dose assessment/field team coordination staff. (NUREG-0654, A.4.)

##### Radiological Field Monitoring Teams

7. The radiological monitoring equipment utilized by the field teams was somewhat different from the equipment listed in the State Plan. This was identified as an inadequacy during the previous exercise conducted November 7, 1984. (NUREG-0654, P.4.)

8. Field Team Number 3 made an error in converting instrument counts into air concentrations (uCi/cc). The subsequent discovery of this error by the field team was not immediately reported to the EOF. (NUREG-0654, I.9.)

#### COUNTY OPERATIONS

##### Coffey County Emergency Operations Center (CCEOC)

9. The Emergency Broadcast System (EBS) message did not include information on the evacuation of the school and nursing home in Waverly. (NUREG-0654, E.5.)
10. The initial call from the Coffey County EOC to the Flint Hills National Wildlife Refuge for the notification of the Site Area Emergency did not include protective action recommendations (route alerting). (NUREG-0654, E.6.)
11. The ability to make the decision whether to issue potassium iodide (KI) to emergency workers and the ability to administer KI was an objective during this exercise. However, this was not demonstrated. (NUREG-0654, J.10.f., J.10.e.)

##### Anderson County Relocation/Reception Center

12. Appropriate dosimetry was not provided to the radiological monitors. permanent (TLD) dosimeters were not available and only high range dosimetry was utilized. (NUREG-0654, K.3.a.)
13. Radiological monitoring and registration were not properly segregated at the Garnett High School. Movement from the monitoring and decontamination station to registration could easily occur. (NUREG-0654, J.12.)

##### Medical Emergency

14. The Coffey County ambulance crew was not aware of the procedures for reading and recording dose amounts. (NUREG-0654, K.3.a.)
15. The Coffey County ambulance crew was not aware of potassium iodide (KI), nor the procedures for its use. (NUREG-0654, J.10.c.)

It should be noted that eight of the eleven inadequacies identified during the previous exercise conducted November 7, 1984, were corrected during this exercise. The remaining inadequacies repeated during this exercise, Numbers 2, 6, and 8 are identified in their respective sections of this report and must be included as objectives to be demonstrated during the next exercise.