Federal Emergency Management Agency

Washington, D.C. 20472

APR 21 1994

Mr. Frank J. Congel
Director
Division of Radiation Safety
and Safeguards
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Congel:

Enclosed is a copy of the final exercise report for the December 1, 1993, exercise of the offsite radiological emergency response plans for the State of Kansas and affected local jurisdictions site-specific to the Wolf Creek Generating Station. The State of Kansas and the Counties of Coffey and Lyon fully participated in the exercise. This report was prepared by the Federal Emergency Management Agency (FEMA) Region VII staff and copies will be provided to the State of Kansas.

No Deficiencies were identified during the December 1, 1993, exercise. However, twenty Areas Requiring Corrective Action (ARCA) were identified during this exercise. Region VII staff will coordinate with the State of Kansas to correct the ARCAs on or before the next scheduled biennial exercise.

Based on the results of the December 1, 1993, exercise, the offsite radiological emergency response plans and preparedness for the State of Kansas and the affected local jurisdictions site-specific to the Wolf Creek Generating Station can be implemented and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site. Therefore, the Title 44 CFR, Part 350, approval of the offsite radiological emergency response plans and preparedness site-specific to the Wolf Creek Generating Station granted on April 4, 1989, will remain in effect.

If you should have any questions, please contact Ms. Margaret Lawless, Chief, State and Local Regulatory Evaluation and Assessment Branch, on (202) 646-3027.

Sincerely,

O. Megs Hepler III

O. Megs Hepler, III
Director
Exercises Division

Enclosure

May 4, 1994

MEMORANDUM FOR: Blaine Murray, Chief
Facility Inspection
Programs Branch
Region IV

FROM: Richard L. Emch, Jr., Acting Chief
Emergency Preparedness Branch
Division of Radiation Safety
and Safeguards
Office of Nuclear Reactor Regulation

SUBJECT: FEMA FINAL EXERCISE REPORT FOR THE DECEMBER 1, 1993, EXERCISE OF OFFSITE RADIOLOGICAL EMERGENCY RESPONSE PLANS FOR THE WOLF CREEK GENERATING STATION

Enclosed is a letter from Megs Hepler of the Federal Emergency Management Agency (FEMA) dated April 21, 1994, transmitting the subject report for the Wolf Creek Generating Station.

There were no Deficiencies identified during the December 1, 1993, exercise. There were, however, 20 Areas Requiring Corrective Action (ARCAs) identified during the exercise. FEMA Region VII staff will coordinate with the States of Kansas to correct the ARCAs on or before the next scheduled biennial exercise.

Please forward a copy of the enclosed FEMA letter and exercise report to the licensee and request that the licensee follow up with offsite officials on the ARCAs.

Original signed by R. Emch

Richard L. Emch, Jr., Acting Chief
Emergency Preparedness Branch
Division of Radiation Safety
and Safeguards
Office of Nuclear Reactor Regulation

Enclosure:
FEMA ltr. dtd. 04/21/94
w/report

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

CONDUCTED December 1, 1993

FOR THE

WOLF CREEK GENERATING STATION

Burlington, Coffey County, Kansas

PARTICIPANTS:

State of Kansas
Coffey County
Lyon County

(All Affected Jurisdictions Participated)

April 7, 1994

Prepared By
Federal Emergency Management Agency
Region VII
911 Walnut, Room 200
Kansas City, Missouri 64106

John A. Miller, Regional Director

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ABBREVIATIONS AND ACRONYMS

ANL	Argonne National Laboratory
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
ARFI	Area Recommended for Improvement
CCRBD	Coffey County Road and Bridge Department
CFR	Code of Federal Regulations
CTR	Center
DA/FTC	Dose Assessment/Field Team Coordination
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
EBS	Emergency Broadcast System
ECCS	Emergency Core Cooling System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPC	Emergency Preparedness Coordinator
EPZ	Emergency Planning Zone
FSA	Forward Staging Area
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
GAR	Governor's Authorized Representative
HHS/FDA	Health and Human Services/Food and Drug Administration

HHS/PHS	Health and Human Services/Public Health Service
IC	Information Clearinghouse
INEL	Idaho National Engineering Laboratory
JRR	John Redmond Reservoir
KDEP	Kansas Department of Emergency Preparedness
KDHE	Kansas Department of Health and Environment
KI	Potassium Iodide
LOCA	Loss of Coolant Accident
Mr	Milliroentgen
MRC	Media Release Center
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (NUREG-0654/FEMA-REP-1, Rev. 1).
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
PSIG	Per Square Inch Gauge
R	Roentgen
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
RHR	Residual Heat Removal
SRAM	State Radiological Assessment Manager
TLD	Thermoluminescent Dosimeter
USDA	U.S. Department of Agriculture
WCNOC	Wolf Creek Nuclear Operating Corporation

EXERCISE SUMMARY

The purpose of an exercise is to determine the ability of appropriate offsite 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 on the negative should not be taken to mean that there are not often a great many positive accomplishments, as well. Indeed, there are; however, in the interest of brevity, only inadequacies are discussed in this report.

The Federal Emergency Management Agency (FEMA) classifies exercise inadequacies as deficiencies or areas requiring corrective action. Definitions of these categories follow.

A deficiency is an observed or identified inadequacy of organizational performance in an exercise or drill that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant.

An area requiring corrective action (ARCA) is an observed or identified inadequacy of organizational performance in an exercise or drill that is not considered, by itself, to adversely impact public health and safety. The correction of an ARCA is required by the next scheduled biennial exercise.

In addition, FEMA identifies an area recommended for improvement (ARFI) as an aspect of emergency preparedness that could be improved. While not required, correction of an ARFI would enhance an organization's level of emergency preparedness.

It should be noted that there is a distinction between failure to fully demonstrate an objective and the declaration of an inadequacy. Limitations imposed by an exercise scenario, or the choice of one response option over another, could preclude a full demonstration, yet, not necessarily constitute an inadequacy.

The exercise described in this report was a one day exercise involving 20 federal and contract evaluators. The state of Kansas and the counties of Coffey and Lyon participated during this exercise. Fourteen facilities or functions were evaluated.

The scenario initially necessitated the evacuation of the John Redmond Reservoir (JRR) at the Site Area Emergency. At the

General Emergency subzones CTR, S-1, S-2, SW-1, SW-2, W-1, and W-2 were also evacuated. The affected areas included the cities of Burlington and New Strawn. Approximately, 3,662 individuals were evacuated (simulated).

There were no deficiencies identified during this exercise. However, twenty areas requiring corrective action and four areas recommended for improvement were identified. The areas requiring corrective action identified during the Wolf Creek Generating Station exercise are summarized as follows:

Two areas requiring corrective action were identified at the state Emergency Operations Center (EOC) as follows:

* The communications staff failed to notify the Kansas Highway Patrol at the Alert that the state EOC was being activated.

* The state EOC Communicator inappropriately instructed the EBS station to delay broadcast of the protective action message for 10 minutes.

Two areas requiring corrective action were identified for the Joint Radiological Monitoring Team function as follows:

* The "blue" field team assembled the air sampler in the plume which would have allowed the remaining sampling equipment in the kit to become contaminated.

* The second equipment kit for both field teams, containing supplies for environmental sampling, did not include sufficient bottles or plastic bags for handling the number of samples that were requested.

Two areas requiring corrective action were identified at the Media Release Center as follows:

* News release number 13 was not consistent with EBS message number 2.

* Pertinent information, regarding status of school children, day care facilities, and other special populations, was not provided during the second media briefing.

One area requiring corrective action was identified at the Forward Staging Area. Permanent record dosimetry was not available for staff.

Five areas requiring corrective action were identified at the Coffey County Emergency Operations Center as follows:

* The Sheriff's dispatcher inappropriately delayed notifying the Emergency Preparedness Coordinator of the Site Area Emergency for ten minutes.

* KI transporters were not immediately monitored for contamination upon their return to the Coffey County EOC.

* The National Guard representative and County Joint Radiological Monitor Team members were not issued dosimetry pursuant to the plan.

* The locations where residents and patients from nursing homes and Coffey County Hospital had been evacuated, were not provided in either an EBS message or media release.

* The Health and Medical Team and County Engineer provided inaccurate information as to where nursing home residents were to be evacuated.

Six areas requiring corrective action were identified at the Lyon County Reception Center as follows:

* The Radiological Officer provided staff with instructions concerning dosimetry that were not proper.

* The Coffey County jailers did not demonstrate proper procedures for monitoring prisoners.

* Monitoring procedures demonstrated by the Emporia Fire Department, for evacuees, were not adequate.

* After monitoring, clean evacuees were instructed to walk on the potentially contaminated walkway.

* Monitoring and decontamination of emergency workers were improper.

* A shift change for 24-hour staffing was not adequately demonstrated for the Radiological Officer position.

Two areas requiring corrective were identified at the Coffey County Hospital as follows:

* The Bicron rate meter did not have a check source or the appropriate range of expected reading for a known check source.

* The same contamination action limit was used for both the Bicron and CD V-700 survey instruments.

It should be noted that all eleven areas requiring corrective action identified during the previous exercises conducted

December 6, 1989, and August 7, 1991, and during the previous medical drill conducted April 1, 1992, were corrected.

A summary of the ARCAs observed during this exercise is located in Section 3 of this report. These inadequacies are explained in detail in Section 2 of this report under their respective facility or function.

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 offsite nuclear planning and response.

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

* Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans 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 developed by state and local governments.

* Coordinating the activities of the following 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 to the RAC, by the state of Kansas and affected local jurisdictions, was followed by a critique and evaluation of these plans.

Formal approval of these plans, including the Alert and Notification System, was granted by FEMA on April 4, 1989.

A radiological emergency preparedness full scale exercise was conducted for the Wolf Creek Generating Station (WCGS) on December 1, 1993, to assess the capability of state and counties emergency preparedness organizations to: (1) implement their radiological emergency preparedness plans and procedures and (2)

protect the public during a radiological emergency at the WCGS. The plans evaluated included the "State of Kansas, Appendix 12, Nuclear Facilities Incidents Response Plan to Annex N, Nuclear Emergencies of the State Emergency Operations Plan", the "Coffey County Contingency Plan for Incidents Involving Commercial Nuclear Power", their respective Implementing Procedures and the "Lyon County Radiological Emergency Response Plan".

1.2 EXERCISE EVALUATORS

Fifteen federal agency personnel and five FEMA contract staff evaluated the offsite emergency response functions. These individuals and their exercise assignments are as follows:

Observer	Agency	Assignments
Bob Bissell	FEMA	Overview/Lyon County Reception Center
Jim Donley	FEMA	Information Clearinghouse/ Media Release Center
Bob Dye	EPA	Dose Assessment/Field Team Coordination
John Elbert	HHS/PHS	Emergency Operations Facility
Craig Fiore	FEMA	Coffey County Emergency Operations Center
Ed Hakala	ANL	Forward Staging Area/Coffey County Ambulance
Garianne Howard	EPA	Dose Assessment/Field Team Coordination
Carl Hunckler	ANL	Coffey County Road & Bridge/ Lyon County Reception Center
Dewey Johnson	FEMA	Regional Office Liaison
Joe Keller	INEL	Joint Radiological Monitoring Teams/Lyon County Reception Center
Tonya Leibold	FEMA	Kansas State Emergency Operations Center
Linda Lewis	USDA	Kansas State Emergency Operations Center

Mindy McDaniel	FEMA	Information Clearinghouse/ Media Release Center
Diane Money	FEMA	EBS Station (WIBW Radio)
Brad Salmonson	INEL	Joint Radiological Monitoring Team/Coffey County Hospital
Joe Schulte	FEMA	Emergency Operations Facility/Coffey County Hospital
Norm Valentine	FEMA	Kansas State Emergency Operations Center
Connie Wisniewski	FEMA	Overview/USD-243 Waverly/Lyon County Reception Center
Bruce Young	ANL	Coffey County Emergency Operations Center/Lyon County Reception Center
Jane Young	FEMA	Coffey County Emergency Operations Center/Coffey County Ambulance

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)

3. The Exercise Evaluation Methodology: Thirty-three standardized objectives identified in FEMA-REP-14 and FEMA-REP-15 as a composite of exercise demonstrable elements contained in NUREG-0654.

4. State of Kansas, Appendix 12, Nuclear Facilities Incidents Response Plan to Annex N, Nuclear Emergencies of the State Emergency Operations Plan and Implementing Procedures, dated December 1992.

5. Coffey County Contingency Plan for Incidents Involving Commercial Nuclear Power and Implementing Procedures, dated December 1992.

6. Lyon County Radiological Emergency Response Plan, dated August 1993.

1.4 EXERCISE OBJECTIVES

The State of Kansas Department of Emergency Preparedness submitted offsite objectives for this exercise on May 18, 1993. The objectives were subsequently approved on June 3, 1993. This submission was within the timeframe required by FEMA.

The following objectives, which are part of the 33 standardized objectives contained in FEMA's Exercise Evaluation Methodology, were to be demonstrated during this exercise. The objectives demonstrated at each facility or function are referenced by number in the appropriate section of the report.

EXERCISE OBJECTIVES

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

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

3 Demonstrate the capability to direct and control emergency operations.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

20 Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals.

21 Demonstrate the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

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

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

31 Demonstrate the capability to provide offsite support for the evacuation of onsite personnel.

1.5 EXERCISE SCENARIO

The scenario was submitted to FEMA Region VII by the Wolf Creek Generating Station on July 6, 1993, which was within the guidelines established by FEMA. Following the review by our technical contractor, Idaho National Engineering Laboratory (INEL), amendments were required and submitted on September 17, 1993, and October 11, 1993. The scenario was subsequently approved by FEMA Region VII on October 18, 1993.

The scenario for the exercise consisted of a sequence of events which resulted in a release of radioactivity of sufficient magnitude to warrant the declaration of a General Emergency. This release, or plume, traveled in a southwesterly direction from the plant into Coffey County and the city of Burlington. The final protective action recommendation resulted in the evacuation of areas 0-10 miles downwind in subzones CTR, JRR, S-1, S-2, SW-1, SW-2, W-1, and W-2.

The following is a narrative summary from the scenario:

Initial conditions established that the plant was operating at 100% power prior to the release.

Plant operators received indications of a fire in switchgear room number 1. The fire was quickly extinguished; however, 4160 volt bus NB01 experienced damage and deenergized. Diesel generator "A" started, but was unable to reenergize the damaged bus.

A 1000 gpm Loss of Coolant Accident (LOCA) occurred at normal operating pressures. Shortly thereafter, the reactor tripped and a safety injection occurred. A Reactor Coolant System (RCS) cooldown was initiated, dropping the pressure and decreasing the leak rate.

An Alert was declared at 0822, based on the loss of the reactor coolant system boundary. Offsite notifications were made and site personnel were notified of the situation.

The Technical Support Center (TSC) was activated. Personnel began to staff the EOF, Wichita rumor control, KCP&L rumor control, and the Topeka Information Clearinghouse.

The size of the LOCA increased and the makeup capacity of the Centrifugal Charging Pump (CCP) "B" was exceeded. The SI accumulators discharged and the reactor vessel level indicating system (RVLIS) indicated water levels below the top of the core.

A Site Area Emergency was declared at 0950, based on inadequate core cooling conditions. Offsite notifications were made, and site personnel were notified. Personnel had staffed the EOF, and the county and state EOCs declared their facilities activated. Offsite protective action recommendations included evacuation of JRR.

Approximately four hours into the exercise, a spontaneous hydrogen burn caused the containment building pressure to spike to 47 pounds per square inch gauge (psig). The containment building breached at a failure of the containment building mini purge exhaust penetration.

A General Emergency was declared at 1036, based on the core not being covered with the RCS not intact and containment closure not set.

A filtered release path was provided to the environment through the containment building breach to the plant unit vent. The release was monitored and consisted almost entirely of noble gases. Offsite protective actions included evacuation of subzone "CTR" and evacuation 2-10 miles downwind.

The offsite portion of the exercise was terminated at 1527.

1.6 MEDICAL SCENARIO

An adult female member of the Joint Radiological Monitoring Team (JRMT) was gathering vegetation samples in the plume exposure pathway. She was stung by a bee and appeared to be experiencing an allergic reaction. During her confused state, she turned, stumbled, and fell. She sustained localized swelling, difficulty in breathing with painful constriction of the chest, a sprained ankle, and lacerations to her hand. Contamination was present on her clothing, the wound on her hand, and the back of her head.

1.7 STATE AND LOCAL RESOURCES

Indicated below is a list of organizations which participated in the December 1, 1993, exercise.

State of Kansas

1. Adjutant General's Department
2. Division of Emergency Preparedness
3. Department of Health and Environment
4. Highway Patrol
5. Department of Transportation
6. State Board of Agriculture
7. Army National Guard
8. Department of Wildlife and Parks

Coffey County

1. Emergency Preparedness Office
2. Sheriff's Office
3. Board of Commissioners
4. County Engineer
5. County Road and Bridge Department
6. Health Officer
7. Shelter Systems Officer
8. Radiological Officer
9. County Attorney
10. Coffey County Hospital
11. Coffey County Ambulance

Lyon County

1. Emergency Preparedness Office
2. Emporia Fire Department
3. Lyon County Sheriff
4. American Red Cross
5. Salvation Army
6. American Food Management
7. Emporia State University Police

Other

1. WIBW Radio, Topeka
2. USD-243, Waverly

2 EXERCISE EVALUATION

2.1 KANSAS OPERATIONS

2.1.1 State Emergency Operations Center

The following objectives were to be demonstrated at this facility: 1, 2, 3, 4, 9, 10, 11, and 17.

The State Emergency Operations Center (SEOC) is located in the State Defense building in Topeka, Kansas. The Emergency Broadcast System (EBS) Station (WIBW Radio) is located in Topeka, Kansas.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was not adequately demonstrated, resulting in an area requiring corrective action. The communications staff failed to notify the Kansas Highway Patrol at the Alert that the state EOC was being activated. The individual listed as the primary contact on the notification list was incorrect and the communications staff did not attempt to contact the alternate. This resulted in the failure of the Highway Patrol representative to mobilize to the state EOC until after declaration of the Site Area Emergency. The plans and procedures must be amended to include an accurate notification listing of staff.

The state EOC received notification of the Alert from the utility at 0830. Two communications staff members, along with the state EOC Director and the state EOC Duty Officer, contacted federal, state, and local agencies in a timely manner with the one exception noted above. The EBS station, WIBW, was placed on standby at the Alert. Personnel were mobilized to the state EOC and field locations beginning at 0833. The state EOC was operational at 0857 and fully staffed with the arrival of the Highway Patrol at 1030. The state EOC contacted the FEMA Regional Office at each change in emergency classification levels and protective action recommendations. This corrected an area requiring corrective action from the August 7, 1991, exercise.

Pursuant to the plan, the following agencies were represented at the state EOC: Kansas Division of Emergency Preparedness (KDEP); Adjutant General, Kansas National Guard; Kansas Highway Patrol; Kansas Board of Agriculture; and the state departments of Health and Environment, Transportation, and Wildlife and Parks.

Objective number 2, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was adequately demonstrated. The state EOC space was adequate to conduct all required emergency operations. State EOC status

boards were utilized and updated, as necessary. All maps and displays required by the plan were available and appropriately utilized.

Access to the facility was controlled by the National Guard. A generator was available to provide backup power for the state EOC. Computers, copiers, and facsimile machines were available to support operations. Copies of the state and local plans were available in the EOC.

Objective number 3, the capability to direct and control emergency operations, was adequately demonstrated. The Kansas Adjutant General, serving as the state EOC Director, and the KDEP Chief of Staff were effectively in charge of the emergency response. They issued instructions to staff, provided instructions on adherence to the plan, and conducted regular staff meetings. The staff, as appropriate, were involved in decision-making. The Adjutant General coordinated with the Coffey County EOC on protective action decisions and directed coordination with other state agencies as necessary.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. The state EOC established and maintained communications with the utility, Coffey County EOC, the Emergency Operations Facility (EOF), Forward Staging Area, the EBS station, and appropriate local, state, and federal agencies. Both primary and backup communication systems were demonstrated. Radio communications were established with the EBS station. Radio communications were also demonstrated between the state EOC and the EOF. Commercial telephone was the primary link with most other facilities.

Objective number 9, the capability to make timely and appropriate protective action decisions (PAD), was adequately demonstrated. Most protective action decisions were made at the Coffey County EOC and concurred with by the state EOC personnel. At the Site Area Emergency, a protective action decision to evacuate the John Redmond Reservoir (JRR) was automatically made pursuant to the plan. A protective action decision to shelter livestock and place them on stored feed was made by the Kansas Board of Agriculture at 1030, and coordinated with Coffey County EOC. Following the General Emergency declaration, a protective action decision was made jointly by Coffey County EOC and the state EOC at 1056, to evacuate subareas Center (CTR), JRR, S-1, S-2, SW-1, SW-2, W-1, and W-2. This protective action decision was primarily based upon plant conditions, projected dose based on release estimates and meteorological conditions, and protective action guides. Other factors considered included evacuation time estimates, available transportation, and potential risk from evacuation.

Objective number 10, the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone (EPZ) and disseminate instructional messages to the public on the basis of decisions by appropriate state or local officials, was adequately demonstrated. The state EOC was notified of the Site Area Emergency by the utility at 0957. Coffey County EOC made the decision to notify the public at 1009. The state EOC and Coffey County EOC coordinated the initial EBS message at 1010. The state EOC Communicator contacted the EBS station at 1013 and instructed personnel to broadcast the appropriate message at 1020. The Coffey County EOC Sheriff's dispatcher activated the sirens at 1019. All activities associated with initial alerting and notification of the public were completed within the required 15 minutes following the decision by offsite emergency officials.

Objective number 11, the capability to coordinate the formulation and dissemination of accurate information and instructions to the public, was not adequately demonstrated. The release of the second EBS messages by the radio station was delayed for 10 minutes by the State EOC Communicator for no apparent reason. Specifically, at 1045, the utility contacted the state EOC and Coffey County EOC with a protective action recommendation. At 1051, Coffey County EOC personnel made a protective action decision to evacuate subareas CTR, JRR, S-1, S-2, SW-1, SW-2, W-1, and W-2. The state EOC concurred with the recommendation at 1056. At 1101, the state EOC Communicator contacted the EBS station and completed dictating the message at 1105. However, the state EOC Communicator instructed EBS station personnel to delay broadcast of the message until 1115. This is a delay of 10 minutes from the time dictation of the message was completed until the dissemination of the message to the public. The plans should be amended to clearly indicate the immediate broadcast of an EBS message upon receipt of a message from the state EOC Communicator. This is an area requiring corrective action.

There were two EBS messages disseminated to the public during this exercise. The first was the notification of the Site Area Emergency as stated in objective number 10. The second message indicated in the proceeding paragraph, was released at the General Emergency and included protective actions for the public that appropriately described the affected subareas (as stated above) using familiar landmark descriptions. Pre-scripted messages were utilized and included appropriate information concerning evacuation routes, reception center locations, information for parents regarding school evacuations, and instructions for transportation-dependent individuals. The EBS station was appropriately instructed to repeat the message at 15-minute intervals until more current information was received.

Objective number 17, the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas, was adequately demonstrated. Following the protective action decision at 1056 to evacuate subareas CTR, JRR, S-1, S-2, SW-1, SW-2, W-1, and W-2, the Highway Patrol and National Guard appropriately established access control for the affected subareas. Access control for this protective action decision was established by 1140, with the National Guard manning forty-one access control points and the Highway Patrol seven access control points. At 1355, National Guard personnel at seven access control points were reassigned to access control points approximately four miles outside the EPZ boundary of subareas SW-2 and W-2. The National Guard personnel were relocated following a state EOC command group decision based upon indications from the EOF that the plume would extend beyond ten miles from the plant. The vacated access control points remained covered by roadblocks established by Coffey County Road and Bridge personnel; therefore, access to the evacuated subareas was controlled at all times.

An area recommended for improvement was identified. Access control points were appropriately manned. However, coordination between staff at the state EOC, Coffey County EOC, and the Forward Staging Area (FSA) was not conducted in a timely manner. The county National Guard liaison requested locations of manned access control points at 1323. This information was not received from the state EOC until 1419. In addition, the state EOC did not include all access control points. This created confusion in the EOC and FSA as to whether the access control points had been covered. It is recommended that state EOC staff provide prompt and accurate information to the staff at the Coffey County EOC and FSA.

Summary: Objective numbers 1 and 11 were not adequately demonstrated during this exercise, resulting in two areas requiring corrective action.

One area requiring corrective action identified during the exercise conducted August 7, 1991, regarding the state EOC failing to notify the FEMA Regional Office of any emergency classification levels, was corrected during this exercise.

Areas Requiring Corrective Action

1. The communications staff failed to notify the Kansas Highway Patrol at the Alert that the state EOC was being activated. (NUREG-0654, E.1., 2.; N.1.a.)

2. The state EOC Communicator inappropriately instructed the EBS station to delay broadcast of the protective action message for 10 minutes. (NUREG-0654, N.1.a.)

Area Recommended For Improvement

1. The state EOC did not provide access control information to the Coffey County EOC and FSA in a timely and accurate manner. It is recommended that state EOC provide prompt and accurate information to the staff at the Coffey County EOC and FSA.

2.1.2 Emergency Operations Facility

The following objectives were to be demonstrated at this facility: 1, 2, 3, 4, 5, 14, and 30.

The Emergency Operations Facility (EOF) is located in the Training Center near the plant.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. The state EOC received notification of the Alert at 0830. The state liaison staff departed for the EOF at 0900 and arrived at 1055. The Coffey County EOC liaison received notification of the Alert at 0850 and arrived at the Coffey County EOC at 0856. At 1016, the Coffey County liaison departed for the EOF and arrived at 1036.

Objective number 2, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was adequately demonstrated. The facility had sufficient equipment and components to support emergency operations. Access to the facility was controlled by the utility security staff. Appropriate maps and displays were available and utilized. Status boards were updated in a timely manner.

Objective number 3, the capability to direct and control emergency operations, was adequately demonstrated. The EOF utility Emergency Manager was effectively in charge at this facility. The state and county liaisons coordinated information with the radiological staff and relayed the information to the state and county EOCs. Message and activity logs were maintained. Copies of the state and county plans were available. Periodic briefings were conducted by the utility and both representatives were involved in decision-making as appropriate.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. Both primary and backup communication systems were adequately demonstrated and functional during the exercise. The primary system of communications was commercial telephone with backup communications provided by cellular telephone and radio. The state liaison used the cellular telephone while enroute to the EOF to keep apprised of the situation.

Communication links were established with the state and Coffey County EOCs. Both primary and backup communication systems were demonstrated without delay or equipment breakdown.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. Prior to departure for the EOF, both the state and county liaisons were issued two direct-reading dosimeters (0-200mR and 0-20R) permanent record dosimeters, exposure record forms, and instructions for the use of dosimetry, pursuant to the plans. The direct-reading dosimeters were read and recorded at thirty minute intervals. Each individual was familiar with their exposure limits, whom to contact if the limits were exceeded and procedures for the return of the dosimetry at the end of the emergency.

Objective number 14, the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, was adequately demonstrated. The utility would provide KI to individuals located at the EOF. There was an adequate supply of KI available and within the expiration date. Instructions were available for the use of KI which included the reason for taking KI, recommended dose and time period for ingestion, and possible side effects.

Objective number 30, the capability to maintain staffing on a continuous, 24-hour basis through an actual shift change, was adequately demonstrated. The state liaison and staff conducted a shift change at approximately 1230. Second shift personnel were prepositioned as agreed to in the extent of play agreement. The outgoing shift provided an adequate briefing to the incoming shift personnel. Both shifts demonstrated adequate knowledge of all emergency response functions. A roster identifying personnel for 24-hour staffing was provided.

Summary: There were no deficiencies or areas requiring corrective action identified during this exercise.

There were no areas requiring corrective action identified during the previous exercise conducted August 7, 1991, that required corrective action or subsequent demonstration for reevaluation during this exercise.

2.1.3 Dose Assessment and Field Team Coordination

The following objectives were to be demonstrated at this facility: 1, 2, 3, 4, 5, 7, 9, and 14.

Dose Assessment/Field Team Coordination was performed at the Emergency Operations Facility (EOF) located in the Training Center at the site.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. Notification was received from the state EOC that an Alert had been declared. The staff deployed from the Department of Health and Environment (KDHE) offices in Topeka, Kansas, at 0941. They arrived at the EOF at 1110. Their departure to the EOF was delayed due to a detour off Highway 75 (normal route of travel) which was damaged by flood waters. However, communications with the EOF was established enroute; protective action recommendations were made by cellular telephone. A 24-hour staffing roster was provided for this function.

Objective number 2, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was adequately demonstrated. All the necessary facilities and equipment were available and the displays were kept current. Copies of the current Kansas State Emergency Preparedness Operating procedures and plan were available. The status boards were updated in a timely manner. Access to the facility was controlled by utility security.

Objective number 3, the capability to direct and control emergency operations, was adequately demonstrated. The State Radiological Assessment Manager (SRAM) from the KDHE demonstrated excellent direction and control of the state's dose assessment activities. All staff were involved in decision-making.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. Both primary and secondary communications systems were demonstrated without delay. A backup cellular telephone was used while enroute to the EOF to keep apprised of the situation. Radio communications were demonstrated with the field teams. All communications were in accordance with the plan.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. Both the Dose Assessment and the Field Team Coordination staff were equipped with direct-reading dosimeters (0-200mR and 0-20R), permanent record dosimetry (TLD), exposure record forms, and instructions for the use of dosimetry. The direct-reading dosimeters were read and recorded at thirty minute intervals. All staff were knowledgeable of their exposure limits, procedures to follow if the limits were exceeded, and whom to contact for authorization to exceed the limits.

It was determined, by interview and pursuant to the plans, that an adequate supply of direct-reading dosimeters exists for second shift personnel. This corrected the area requiring corrective

action identified during the previous exercise, conducted August 7, 1991, when the second shift personnel arrived at the EOF without direct-reading dosimeters.

Objective number 7, the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering, was adequately demonstrated. Plume dose projections were performed effectively throughout the exercise. The system utilized was a computer-based program which allowed numerous input variables. The field monitoring teams provided accurate plume boundary data to the dose assessment staff. This corrected the area requiring corrective action identified during the previous exercise, conducted August 7, 1991 in which the dose assessment team was able to identify the plume location using the data provided. The plume location was then plotted on a map using pre-determined isopleths. However, this process could have been made easier and more accurate by using magic markers rather than the isopleths. By using the pre-determined isopleths, the plume shapes and leading edge can not accurately be defined. In addition, if the wind direction would have shifted, the pre-determined isopleths would have been useless. This is an area recommended for improvement.

Objective number 9, the capability to make timely and appropriate protective action decisions, was adequately demonstrated. The protective action recommendations were coordinated with all appropriate organizations. Timely protective action decisions were made following changes in the plant status. The initial protective action decision was made, via cellular telephone, while the SRAM team were enroute and then updated upon their arrival to the EOF. In determining protective action decisions, the appropriate protective action guides were used pursuant to the plan. Dose projections based on release estimates, meteorological conditions, plant conditions, and emergency action levels, were all considered in the decision-making process.

Objective number 14, the capability to implement potassium iodide (KI) protective actions for emergency workers and institutionalized individuals, was adequately demonstrated. At 1237, the utility made the recommendations for field teams to take KI and at 1245 for emergency workers and special populations unable to evacuate. There was an adequate supply of KI available and was within the expiration date. Instructions were available for the use of KI which included the reason for taking KI, recommended dose and time period for ingestion, and possible side effects.

Summary: There were no deficiencies or areas requiring corrective action identified during this exercise.

Two areas requiring corrective action, identified during the exercise conducted August 7, 1991, regarding second shift person-

nel arriving at the EOF without direct-reading dosimeters and the plume boundaries not accurately being defined, were corrected during this exercise.

Area Recommended For Improvement

2. The plume location was plotted on a map using isopleths. It is recommended that magic markers be utilized instead of the isopleths to allow for easier and accurate plotting of the plume.

2.1.4 Joint Radiological Monitoring Teams

The following objectives were to be demonstrated for this function: 1, 4, 5, 6, 8, and 14.

The Joint Radiological Monitoring Teams (JRMTs) assembled at the Emergency Operations Facility (EOF) located in the Training Center at the site. During this demonstration there were four JRMTs dispatched to the field; however, as stated in the extent of play agreement, only two JRMTs were evaluated.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. The JRMTs, per the plans, consisted of one individual each from the utility, Kansas Department of Health and Environment (KDHE), and Coffey County. The utility field teams consisted of two individuals which deployed at the Alert. The Coffey County team members arrived at the EOF at 1100 and the last KDHE team member arrived at 1119. The alert and mobilization of the Coffey County team members corrected an area requiring corrective action from the August 7, 1991, exercise. Both state and county teams were dispatched to join the utility field team members at 1147 and after contacting the utility field teams, were available to deploy to their field assignments at 1200.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. Both field teams were equipped with hand-held radios and vehicle mounted radios with four channels. The field monitoring teams maintained communications with the EOF. There were no malfunctions or breakdowns with the radio equipment.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. Upon arrival at the EOF, both state and county team members wore the appropriate dosimetry pursuant to the plan. State members were equipped with 0-200mR and 0-20R direct-reading dosimeters; the county members were equipped with

0-200mR and 0-200R. Also, both teams were equipped with permanent record dosimeters (TLD), exposure record forms, and instructions for the use of dosimetry. A dosimeter charger was available at the EOF or the county. The direct-reading dosimeters were read and recorded at one hour intervals pursuant to the plan. All staff were knowledgeable of exposure limits, procedures to follow if the limits were exceeded, and whom to contact for authorization to exceed the limits. At the conclusion of the radiological emergency, permanent record dosimeters would be returned to the EOF for processing.

Objective number 6, the appropriate use of equipment and procedures for determining field radiation measurements, was adequately demonstrated by both teams. Each field team had one Eberline RO-2 survey instrument and one Bicron rate meter with an HP-210 GM detector that were within calibration. Prior to deploying to the field, the EOF Coordinator performed an operational check on all instruments and verified proper instrument response utilizing a known check source. Each field team had a map showing preselected sampling locations and a procedures manual which described the location by landmarks.

The field teams were thoroughly briefed on meteorological conditions and monitoring locations prior to deployment. Both field teams took radiation measurements at a minimum of six predetermined monitoring locations. Proper measurement techniques were demonstrated and both open and closed window readings were made. All readings were transmitted to the EOF by radio. The plume was properly identified by the field teams.

Objective number 8, the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} (0.0000001) microcurie per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume, was not adequately demonstrated. Two areas requiring corrective action were identified and are as follows:

* The "blue" field team assembled the air sampler in the plume which would have allowed the remaining sampling equipment in the team kit to become contaminated. The plans and procedures must be amended to include instructions to address this issue.

* The second equipment kit for both field teams, containing the supplies for environmental sampling, did not include sufficient bottles or plastic bags for handling the number of samples that were requested.

Both field teams had the appropriate air sampling and counting equipment available. All instruments were within acceptable calibration limits and were operationally checked

before deployment into the plume area. Proper calibrations were indicated on labels and the counting instrument was checked for proper response.

Three air samples were collected by the "blue" field team. The first two air samples were collected prior to a plume release. The third sample was collected at a location where the gamma exposure rate was determined to be 100mR/hr. There was a significant difference between the open and closed window (gamma only and beta-gamma) measurements. This indicated that the field team was within the plume. The "red" field team collected two air samples. The first sample was abandoned during sampling due to the high radiation levels within the area. The second sample was collected in an appropriate location. After air samples were collected, both field teams transported the samples to a low background area prior to counting. The air samples were properly bagged and labeled prior to transport to the EOF for shipment to a laboratory.

Objective number 14, the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, was adequately demonstrated. At 1237, the utility made the recommendation for field teams to take KI. Subsequently, the state concurred with the recommendation at 1245. At 1249, the field teams were notified of the recommendation to take KI by the EOF Field Team Communicator. Field teams were equipped with a bottle of KI, instructions on the use of KI, and ingestion record forms. The KI had an expiration date of March 1996. Both field team members were knowledgeable of procedures for the use of KI. All field team members simulated ingestion of KI with one exception. The Coffey County field team member for the "blue" team elected not to take KI.

Summary: Objective number 8 were not adequately demonstrated during this exercise, resulting in two areas requiring corrective action.

There was one area requiring corrective action, identified during the exercise conducted August 7, 1991, concerning the failure of the Coffey County members to mobilize the Joint Radiological Monitoring Teams, that was corrected during this exercise.

Areas Requiring Corrective Action

3. The "blue" field team assembled the air sampler in the plume which would have allowed the remaining sampling equipment in the kit to become contaminated. (NUREG-0654, N.1.a.)

4. The second equipment kit for both field teams, containing the supplies for environmental sampling, did not include

sufficient bottles or plastic bags for handling the number of samples that were requested. (NUREG-0654, N.1.a.)

2.1.5 Information Clearinghouse

The following objectives were to be demonstrated at this facility: 1, 2, 4, 13, and 30.

The Information Clearinghouse (IC) is located at the Nickell Memorial Armory in Topeka, Kansas.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. The state Public Information Officer (PIO) received notification of the Alert at 0835 and arrived at the IC at 0907. The county PIO received notification of the Alert at 0828 and arrived at the IC at 1015. The IC was declared operational at 1018.

Objective number 2, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was adequately demonstrated. The IC is an adequate facility in relation to space, equipment, displays, and work environment to support emergency operations. Status board updates were posted in a timely manner.

Access to the facility was controlled by the Kansas National Guard.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. The primary system of communications was commercial telephone with conferencing capability. Twelve telephone lines were available for staff use. The IC established communications with the utility, state EOC, Coffey County EOC, Media Release Center, Emergency Operations Facility, and the Forward Command Post. Backup communications were cellular phone, facsimile machine, and computer.

Objective number 13, the capability to establish and operate rumor control in a coordinated and timely manner, was adequately demonstrated. Staff from the IC did not take calls directly from the public. The rumor control system was activated at the WCNOC office located in Wichita, Kansas. An 800 number was used for rumor control and was publicized in press briefings and news releases. Staff coordinated with the rumor control staff in Wichita to obtain current information on plant status, protective action recommendations implemented, and other issues to address rumors raised by the press during media briefings. There were thirteen trends in rumors identified during this exercise. These trends in rumors were appropriately addressed during media

briefings. The rumor control staff was provided current, accurate, and timely information by the state, local, and utility PIOs at the IC.

Objective number 30, the capability to maintain staffing on a continuous, 24-hour basis through an actual shift change, was adequately demonstrated. The state and county PIOs demonstrated a shift change at approximately 1230. Prior to the first shift PIOs departure, they provided a briefing to the second shift PIOs. The first shift PIOs demonstrated adequate knowledge of all emergency response functions. However, the second shift PIOs were unable to respond to basic media questions (e.g., which reception center would be open for evacuees, how parents and guardians would be notified of protective actions for school children, etc.) without researching their respective plans and procedures. It is recommended that additional training be provided to the second shift staff to enhance their knowledge of the plans and procedures. This is an area recommended for improvement. A roster identifying personnel for 24-hour staffing was provided.

Summary: There were no deficiencies or areas requiring corrective identified during this exercise for the Information Clearinghouse.

There were no areas requiring corrective action identified during the previous exercise, conducted August 7, 1991, that required corrective action or subsequent demonstration for reevaluation during this exercise.

Area Recommended For Improvement

3. The second shift PIOs were unable to respond to basic media questions concerning which reception center would be open for evacuees and how parents and guardians would be notified of protective actions for school children without researching their respective plans and procedures. It is recommended that additional training be provided to the second shift staff to enhance their knowledge of the plans and procedures.

2.1.6 Media Release Center

The following objectives were to be demonstrated at this facility: 1, 2, 4, and 12.

The Media Release Center (MRC) is located at the Nickell Memorial Armory in Topeka, Kansas along with the Information Clearinghouse (IC).

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field

operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. The state PIO received notification of the Alert at 0835. The state PIO notified all organizations pursuant to the procedures. The MRC was declared operational at 1018.

Objective number 2, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was adequately demonstrated. The MRC was an adequate facility in relation to space, equipment, displays, and work environment to support all anticipated emergency operations. Access to the facility was controlled by the Kansas National Guard. Appropriate maps and displays were utilized. A status board was available and updated in a timely manner.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. The primary system of communications was commercial telephone with conferencing capability. Backup communication was cellular telephone. The MRC established communications with the utility, state EOC, and the IC. There were no undue delays or breakdowns in equipment during this exercise.

Objective number 12, the capability to coordinate the development and dissemination of clear, accurate, and timely information to the news media, was not adequately demonstrated. There were two areas requiring corrective action identified and are as follows:

* News release number 13 was not consistent with EBS message number 2. The evacuation routes for subzones JRR and S-2 in the news release were incorrect. In addition, the evacuation route for subzone CTR was not included.

  There was an omission on page 1 and page 4, regarding the evacuation of school children and institutionalized individuals. The news release did not contain specific information to parents, guardians, and family members on where these individuals would be taken.

* Pertinent information was not provided during the second media briefing. The state PIO did not include specific information regarding evacuated schools, day care facilities, special populations, and transportation dependent individuals.

During this exercise, the state PIO provided the media with landmark descriptions of boundaries of protective action areas and appropriately provided data to the media when further information was requested. The state PIO provided the media with appropriate subzones in the description of the evacuated areas.

This corrected two areas requiring corrective action during the August 7, 1991, exercise. Five media briefings were provided utilizing EBS messages and state press releases. Copies of press releases and media kits were provided to the media. Copies of news releases and EBS messages were retained and accessible to staff members.

Summary: Objective number 12 was not adequately demonstrated during this exercise, resulting in two areas requiring corrective action.

There were two areas requiring corrective action, identified during the exercise conducted August 7, 1991, regarding failure to provide boundaries of the protective action areas, and failure to address media requests; and the failure to include a subzone in the description of the evacuated area during a media briefing, that were corrected during this exercise.

Areas Requiring Corrective Action

5. News release number 13 was not consistent with EBS message number 2. Evacuation routes were incorrect or not included in news releases. There was an omission on page 1 and page 4, regarding the evacuation of school children and institutionalized individuals. The news release did not contain specific information to parents, guardians, and family members on where these individuals would be taken. (NUREG-0654, E.7., G.4.a., N.1.a.)

6. Pertinent information was not provided during the second media briefing. The state PIO did not include specific information regarding evacuated schools, day care facilities, special populations, and transportation dependent individuals. (NUREG-0654, E.7., N.1.a.)

2.1.7 Forward Staging Area

The following objectives were to be demonstrated at this location: 1, 4, 5, 14, 17, and 30.

The Forward Staging Area (FSA) is located in a road side park along Highway 75, approximately 10.5 miles north of the plant site.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. This location served as a staging area for the Kansas National Guard, Kansas Highway Patrol, and Kansas Department of Wildlife and Parks, to assist with traffic and access control. The aforementioned

organizations, as required by the plan, were activated and fully mobilized by 0954.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. Both primary and backup systems were adequately demonstrated and functional during the exercise. The primary system of communications were radios (vehicle and hand-held). Two commercial telephone lines and a cellular phone served as backups. Communications were maintained with the state EOC, Coffey County EOC, the Emergency Operations Facility, Kansas Highway Patrol, and the Kansas National Guard.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was not adequately demonstrated. The FSA National Guard representative reported to the EOF to obtain KI and TLDs for all FSA staff and emergency workers. He was issued 80 bottles of KI; however, TLDs were not available. This is an area requiring corrective action.

Each representative was issued direct-reading dosimetry (0-200mR and 0-200R), an exposure record form, instructions for the use of dosimetry, an instruction sheet on the use of KI, a KI dose record form, and a dosimeter charger pursuant to the plan. Staff members were aware of their exposure limits and procedures to follow if the limits were exceeded. Direct-reading dosimeters were read and recorded at hourly intervals. The staff was aware of the appropriate location and individual they would return their dosimeters and all forms at the conclusion of the radiological emergency.

Objective number 14, the capability to implement potassium iodide (KI) protective actions for emergency workers and institutionalized individuals, was adequately demonstrated. An adequate supply of KI was available to the FSA staff and emergency workers with an expiration date of October 1995. Instructions were available on the use of KI. The state EOC recommended the use of KI for emergency workers and special populations remaining inside the EPZ at 1245. At approximately 1256, the FSA received notification of the KI recommendation.

Objective number 17, the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas, was adequately demonstrated. Traffic and access control points were accurately established by the National Guard and Highway Patrol. At 1008, traffic and access control staff received instructions to deploy to their assigned locations. Staff displayed accurate knowledge of protective actions, the need for and placement of traffic barriers, and location of reception centers. Although no traffic impediments occurred during this exercise, staff were knowledgeable of where to obtain the necessary resources.

Objective number 30, the capability to maintain staffing on a continuous, 24-hour basis through an actual shift change, was adequately demonstrated. The Kansas Department of Wildlife and Parks representative demonstrated a shift change at 1300. The demonstration of a shift change by this organization corrected an area requiring corrective action from the August 7, 1991, exercise. Prior to his departure, a briefing was provided to the second shift representative. Both shifts demonstrated adequate knowledge of all emergency response functions. A roster identifying personnel for 24-hour staff was available.

Summary: Objective number 5 was not adequately demonstrated during this exercise resulting in an area requiring corrective action.

There was one area requiring corrective action, identified during the exercise conducted August 7, 1991, concerning the failure of the Kansas Department of Wildlife and Parks to perform a shift change, that was corrected during this exercise.

Area Requiring Corrective Action

7. Permanent record dosimetry was not available for staff at the Forward Staging Area. (NUREG-0654, K.3.a., K.3.b., N.1.a.)

2.2 COUNTY OPERATIONS

2.2.1 Coffey County Emergency Operations Center

The following objectives were to be demonstrated at this facility: 1, 2, 3, 4, 5, 10, 11, 14, 15, 16, 17, and 31.

The Coffey County Emergency Operations Center (EOC) is located within the 10-mile emergency planning zone at the Coffey County Courthouse in Burlington, Kansas.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. The Coffey County EOC received notification of the Alert, from the utility, at 0828. Using a current personnel roster, key staff were notified by telephone and radio to report to the Coffey County EOC. The Coffey County EOC was declared fully activated at 0859. Full staffing of the Coffey County EOC was completed by 1015, with the arrival of the Kansas Department of Emergency Preparedness and National Guard liaisons in accordance with the plan. A 24-hour staffing roster was provided for this facility.

The Coffey County PIO was deployed to the state Media Release Center. The Joint Radiological Monitoring Team members and one county Commissioner were issued dosimetry and deployed to the Emergency Operations Center.

Organizations and/or staff represented at the Coffey County EOC were: Coffey County Board of Commissioners, Coffey County Emergency Preparedness Coordinator (EPC), Sheriff's Department, Sheriff's Dispatchers, Health and Medical Management Team, County Attorney, Wolf Creek Nuclear Generating Station, Kansas National Guard, Shelter Systems Officer, Radiological Officer, County Engineer, Kansas Department of Emergency Preparedness, and message and status board clerks.

Objective number 2, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was adequately demonstrated. The Coffey County EOC is an adequate facility in relation to space, equipment, displays, and work environment to support all anticipated emergency operations. A generator was available to provide backup power, as needed. Appropriate maps, including plume EPZ, access control and traffic control were available in the EOC. All pertinent information was clearly displayed and promptly updated on maps and status boards. Access to the facility was controlled by a sheriff's Deputy. Copies of the Coffey County plan and implementing procedures were available.

Objective number 3, the capability to direct and control emergency operations, was not adequately demonstrated. The Coffey County Commissioners, in conjunction with the Coffey County EPC were effectively in charge of the emergency response. The internal message-handling system was efficiently managed with information provided promptly to the staff with one exception. The Sheriff's dispatcher received notification, from the utility, of the Site Area Emergency at 0955. The dispatcher did not notify the EPC of the Site Area Emergency until 1005. This is a delay of ten minutes after receiving the emergency classification level and notifying the EPC. The delay was a result of the dispatcher calling the utility for verification of the wind direction. Several attempts to contact the utility were made by the dispatcher before obtaining verification. This is an area requiring corrective action.

Briefings were conducted to update the EOC staff on events. All staff, when appropriate, were involved in the decision-making. Protective action decisions were effectively coordinated with all appropriate organizations. Effective leadership was evident throughout the exercise.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. Both primary and secondary communication systems were demonstrated. Commercial telephones with conferencing capability and radios were the primary communication systems. Backup communications consisted of Automated Statewide Telecommunications and Records Access (ASTRA) and a facsimile machine. Coffey County EOC was able to communicate with the utility, state EOC, Forward Staging Area, Emergency Operations Facility, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Services, Kansas Department of Wildlife and Parks, and police and fire departments. All communications systems were in accordance with the plan.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was not adequately demonstrated. Two areas requiring corrective action were identified and are as follows:

* After delivering KI to the Coffey County Road and Bridge Department, KI transporters returned to the Coffey County EOC. These individuals were not immediately monitored for contamination upon entering the facility. Therefore, contamination of the facility and staff could have occurred. The Sheriff's Deputy, who provided access control to the EOC had been issued a survey instrument in accordance with the plans. The Deputy eventually surveyed the KI transporters; however, it was after they entered the EOC operations, bunk, and kitchen areas. The plans and procedures must be amended

to include instructions for monitoring KI transporters or other staff who enter the EOC after a release has occurred.

* The National Guard representative arrived at the Coffey County EOC without any dosimetry. This individual should have been issued a low range (0-200mR) direct-reading dosimeter prior to deploying to the Coffey County EOC in accordance with the state plan. However, dosimetry was not provided until his arrival at the county EOC when the Radiological Officer issued a high range (0-200R) direct-reading dosimeter and a permanent record dosimeter. In addition, the Joint Radiological Monitoring Team (JRMT) members were not issued the appropriate dosimeters as stated in the county plan. Members were issued a low (0-200mR) and high range (0-200R) direct-reading dosimeters. According to the procedures, the county JRMT members are to be issued low range (0-200mR or 0-50mR), mid range (0-5R or 0-20R), and high range (0-200R) direct-reading dosimeters.

All other Coffey County EOC staff members were provided with two direct-reading (0-200mR and 0-200R) dosimeters, permanent record dosimetry (TLD), exposure record forms, and instructions for the use of dosimetry pursuant to the plan. A record was made of the serial numbers for the TLD and dosimeters that were assigned to each emergency worker. Dosimeter chargers and dosimeters are checked quarterly and exchanged annually. Staff members read and recorded their dosimetry readings at hourly intervals. Emergency workers were knowledgeable of their exposure limits and procedures to follow if the limits were exceeded. They were aware to turn in their dosimetry at the conclusion of the emergency to the Coffey County Radiological Officer.

Objective number 10, the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone (EPZ) and disseminate instructional messages to the public on the basis of decisions by appropriate state or local officials, was adequately demonstrated. Coffey County EOC received notification, by telephone, of the Site Area Emergency at 0955. The call was received in the Sheriff's dispatch area adjacent to the EOC. At 1009, the decision to issue an instructional message with the protective action decision to evacuate the John Redmond Reservoir (JRR) was made by the county commissioners with input from the utility liaison and the State Radiological Assessment Manager. Coffey County EOC staff coordinated the initial EBS message with the state EOC staff at 1010 for broadcast at 1020. The sirens were activated (simulated) at 1019. All activities associated with initial alerting and notification of the public were completed within the required 15 minutes following the decision by offsite emergency officials.

Objective number 11, the capability to coordinate the formulation and dissemination of accurate information and in-

structions to the public, was not adequately demonstrated. The locations of where residents and patients from nursing homes and Coffey County Hospital had been evacuated, were not provided in either an EBS message or media release. The EBS message stated that additional information would be provided in a later broadcast concerning where nursing home residents had been evacuated; however, this was not done. As a result, relatives would not have known the location(s) where these individuals had been evacuated. This is an area requiring corrective action.

The two EBS messages coordinated with the state contained accurate information. The initial EBS message included the evacuation of JRR and instructed individuals to evacuate to the reception center in Emporia, Kansas. Areas affected by protective action decisions were described in terms of familiar landmarks and boundaries. The messages included evacuation routes, location of reception centers, information concerning schools, and other pertinent information and instructions. The final protective action included the evacuation of subzones CTR, S-1, S-2, W-1, W-2, SW-1, and SW-2 along with JRR which had previously been evacuated. This is west and south of the plant and included the towns of Burlington and New Strawn. Approximately 3,662 residents plus transients from the JRR and seven special facilities were evacuated including Burlington. The EBS station's procedures were to rebroadcast the messages at 15-minute intervals until current information became available.

Objective number 14, the capability and resources to implement potassium iodide (KI) protective actions for emergency workers and institutionalized individuals, was adequately demonstrated. A sufficient quantity of KI, approximately 191 bottles, was available at the Coffey County EOC for emergency workers and institutionalized populations. The KI was within the expiration date of March 1996. Coffey County EOC staff members and access/traffic control personnel were knowledgeable of the procedures for the authorization and use of KI. The state recommended the use of KI for all emergency workers and any sheltered special populations at 1255. At 1305, the Radiological Officer gave a briefing to the two KI transporters who deliver KI to field locations. After dispatching them to the field, the Radiological Officer presented the KI briefing to the entire EOC staff. An information sheet and ingestion record sheet were provided to each emergency worker. Within the Coffey County EOC, 26 emergency workers chose to take KI and recorded their ingestion (simulated) and signed the form. Six emergency workers chose not to take KI and signed the form indicating they declined. All institutionalized individuals were evacuated; therefore, KI ingestion was not needed for this population. At 1353, State Radiological Assessment Manager notified the Coffey County EOC and recommended those emergency workers who had not taken KI, not do so, since it had been determined there was no radioiodine involved in the plume release.

An area recommended for improvement was identified. By transporting KI to emergency workers, instead of distributing with the dosimetry packets, there is a delay in taking KI. Although weather conditions were ideal during the exercise, inclement weather could have delayed the KI runner from arriving at his/her destination in a timely manner. In addition, there is a possibility that an emergency worker could be missed completely. If KI is not administered before or immediately after acute ingestion or inhalation of the radioiodine, the effectiveness decreases. Therefore, it is recommended that KI be provided for the emergency workers when dosimetry packets are distributed.

Objective number 15, the capability and resources necessary to implement appropriate protective actions for special populations, was not adequately demonstrated. The Health and Medical Team and County Engineer provided inaccurate information as to where nursing home residents were to be evacuated. The Coffey County Road and Bridge Department was incorrectly instructed to evacuate the Golden Age Lodge Nursing Home to the Kansas National Guard Armory in Emporia, instead of the Emporia State University pursuant to the plans and procedures. The National Guard Armory is located directly across the street from the Emporia State University. Fortunately, since traffic and access control is provided at the Emporia State University, these individuals would have been directed to the appropriate facility. However, this is an area requiring corrective action.

All special facilities which included the Coffey County Hospital, Golden Age Lodge, Sunset Manor Nursing Home, Coffey County Jail prisoners, USD-244 Recreation Center, COF Training Services, and Meadows Nursing Home, were notified of emergency classification levels and protective action recommendations in a timely manner. Notifications were made by telephone by the Health and Medical Management Team. Receiving hospitals and Vintage Manor Nursing Home were contacted to verify the number of patients and residents they could receive. Transportation resources, including ambulances, funeral coaches, and National Guard trucks were contacted and the number of patients and residents each could transport was determined. The Golden Age Lodge and Meadows Nursing homes were evacuated (simulated) with a total of 21 residents evacuated to receiving hospitals and 77 residents evacuated to the Lyon County Reception Center. The Coffey County Hospital was evacuated with six patients transferred to receiving hospitals. In addition, 97 workers at the COF Training Services, a sheltered workshop for the handicapped, were evacuated to the Lyon County Reception Center using their own transportation. The County Engineer contacted additional bus resources for transport of transportation-dependent individuals.

Objective number 16, the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone (EPZ), was adequately

demonstrated. All public schools and day care facilities were notified by the Coffey County Sheriff's dispatchers at the Site Area Emergency and General Emergency classification levels. USD-244 Recreation Center was also contacted.

Objective number 17, the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas, was adequately demonstrated. Access control was adequately established following the Site Area Emergency and the protective action decision to evacuate JRR. When the protective action recommendation was expanded to include subzones CTR, S-1, S-2, SW-1, SW-2, W-1, and W-2,additional access control points were established. There was good coordination between the county sheriff and the county engineer on the placement of barriers and personnel. The National Guard liaison coordinated with the state EOC on access control point locations of the Highway Patrol and National Guard.

Objective number 31, the capability to provide offsite support for the evacuation of onsite personnel, was adequately demonstrated. The decision to evacuate CTR subzone was made at 1051. At 1121, the utility contacted the utility liaison at the Coffey County EOC. The utility liaison informed the Emergency Preparedness Coordinator that the utility would not require any offsite support for the evacuation of onsite personnel. The utility was implementing their evacuation plans and was able to implement onsite evacuation without the need of offsite resources. The Coffey County EOC would have been able to provide and arrange for resources to aid in onsite evacuation had it been requested by the utility.

Summary: Objectives number 3, 5, 11, and 15 were not adequately demonstrated during this exercise, resulting in five areas requiring corrective action.

There were no areas requiring corrective action identified during the previous exercise conducted August 7, 1991, that required corrective action or subsequent demonstration for reevaluation during this exercise.

Areas Requiring Corrective Action

8. The Sheriff's dispatcher inappropriately delayed notifying the EPC of the Site Area Emergency for ten minutes. (NUREG-0654, N.1.a.)

9. KI transporters were not immediately monitored for contamination upon their return to the Coffey County EOC. (NUREG-0654, N.1.a.)

10. The National Guard representative and County Joint Radiological Monitoring Team members were not issued dosimetry

pursuant to the plan. (NUREG-0654, H.10.; K.3.a., b.; N.1.a.)

11. The locations where residents and patients from nursing homes and Coffey County Hospital had been evacuated, were not provided in either an EBS message or media release. (NUREG-0654, E., N.1.a.)

12. The Health and Medical Team and County Engineer provided inaccurate information as to where nursing home residents were to be evacuated. (NUREG-0654, E.5., 7.; N.1.a.)

Area Recommended For Improvement

4. Currently, KI is transported to the emergency workers once the decision is made to take KI which delays taking the drug. It is recommended that KI be provided to the emergency workers when the dosimetry packets are distributed.

2.2.2 Coffey County Road and Bridge Department

The following objectives were to be demonstrated at this facility: 1, 2, 3, 4, 5, 14, 15, and 17.

The Coffey County Road and Bridge Department (CCRBD), also known as the "County Shop" is located in Burlington, Kansas.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. The CCRBD received notification of the Alert from the Coffey County Emergency Operations Center (EOC) at 0845. A current roster was available; however, all staff were on their normal job assignments at the time so the roster was not used. Staff was notified of the Alert via radio.

Objective number 2, the adequacy of facilities, equipment, displays, and other materials to support emergency operations, was adequately demonstrated. The CCRBD is an adequate facility in relation to space, equipment, displays, and work environment to support all anticipated emergency operations. Telephones, typewriter, computer, word processor, and copier machine were available to the staff. Appropriate maps including plume EPZ, access control and traffic control were available at this facility. A status sheet of events was maintained by the radio dispatcher.

Objective number 3, the capability to direct and control emergency operations, was adequately demonstrated. The CCRBD Supervisor was effectively in charge of the emergency response. Timely briefings were conducted to update the staff on status

changes that occurred. All staff, when appropriate, were involved in the decision-making. A copy of the Coffey County plan and procedures were available.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. Both primary and secondary communication systems were demonstrated. Radio was the primary means of communication with the traffic and access control teams, Joint Radiological Monitoring Teams, and the Sheriff's Department. Backup systems included a dedicated telephone line with conferencing capability, three commercial telephone lines, and cellular telephone. There were no undue delays caused by malfunctions or breakdowns during this exercise. All necessary communication links were established in accordance with the plan.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. All CCRBD staff and emergency workers who performed duties within the plume EPZ, were provided with two direct-reading (0-20R and 0-200R) dosimeters, a permanent record dosimeter (TLD), and exposure record forms. The emergency workers were aware of the need to take KI and the potential problems involved. A record was made of the serial numbers for the TLD and dosimeters assigned to each staff and emergency worker. Staff members read their dosimetry and recorded their exposure readings at thirty minute intervals. Emergency workers were knowledgeable of their exposure limits and procedures to follow if the limits were exceeded. They were aware to turn in their dosimetry at the conclusion of the emergency to their supervisor. The records and dosimetry would be transferred to the Coffey County Radiological Officer.

Objective number 14, the capability and resources to implement potassium iodide (KI) protective actions for emergency workers and institutionalized individuals, was adequately demonstrated. Coffey County EOC was notified, by the utility, of a plume release at 1235. At 1255, the state notified the Coffey County EOC of the recommended use of KI by emergency workers and special populations. At 1305, the Coffey County Radiological Officer briefed two KI runners prior to their departure to deliver KI to the CCRBD. The runner arrived at the CCRBD at 1326.

A sufficient quantity of KI (simulated) and forms were delivered to the CCRBD. Staff were knowledgeable of the procedures for the authorization and use of KI.

Objective number 15, the capability and resources necessary to implement appropriate protective actions for special populations, was adequately demonstrated. A current list of all pre-identified special needs and transportation dependent individuals

was maintained on a computer at the facility. Appropriate individuals were notified of the situation. The protective action taken for special needs included the evacuation of 69 individuals from the Golden Age Lodge Nursing Home in Burlington, Kansas. At 1110, a CCRBD staff person was dispatched to supervise the evacuation of the nursing home. Evacuation was completed at 1125.

Objective number 17, the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas, was adequately demonstrated. The CCRBD was responsible for deploying (simulated) personnel and equipment to traffic and access control points in the evacuated subzones. Coffey County Road and Bridge staff demonstrated the actual setup of barricades. The appropriate traffic and access control points were identified and established outside the affected area. Staff were knowledgeable about the appropriate procedures. They knew the need for and placement of traffic barriers, protective actions (i.e., evacuation and sheltering), evacuation of special facilities, early evacuation of special populations, and location of the Lyon County Reception Center.

Summary: There were no deficiencies or areas requiring corrective action identified during this exercise.

There were no areas requiring corrective action identified during the previous exercise conducted August 7, 1991, that required corrective action or subsequent demonstration for reevaluation during this exercise.

2.2.3 School - USD-243 (Waverly)

The following objectives were to be demonstrated for USD-243 (Waverly): 4, 5, 14, and 16.

The USD-243 (Waverly) school district, located within the 10-mile EPZ, has a population of approximately 230 students and 23 faculty and staff members. There are two schools in the district with three buses and drivers providing transportation to and from home and school. There are an additional three buses and drivers available, if needed. If the district received instruction to evacuate school children, the bus drivers would transport the students to the Anderson County Reception Center located in Garnett, Kansas. Upon completion, the bus drivers would provide transportation to evacuees.

This evaluation was conducted out of sequence from the exercise and accomplished by interview pursuant to FEMA's extent of play agreement. Present for the interview were the Superintendent, the Waverly Jr./Sr. High School principal, and the transportation director/bus driver.

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. The primary method of communications between Coffey County EOC and the school district would be commercial telephone. The school district would also receive information from the Emergency Broadcast System (EBS) radio station through a tone alert radio. All school buses are equipped with radios and bus drivers have direct contact with the school district.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. An adequate supply of dosimetry is located in the glove compartment on each bus and in the transportation director's office. During this interview, the transportation director had available a dosimetry packet which contained two direct-reading (0-200mR and 0-200R) dosimeters, a permanent record dosimeter (TLD), exposure record card, instructions on how to read and record the dosimetry pursuant to the plan. He was aware that self-reading dosimeters would be read and recorded every hour. He was knowledgeable of exposure limits, whom to contact for authorization to exceed the limits, and what actions to take if limits were exceeded. Dosimetry and forms would be turned in to the Coffey County Radiological Officer at the conclusion of the radiological emergency for processing.

Objective number 14, the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, was adequately demonstrated. The supply of KI available for bus drivers was verified at the Coffey County EOC. The transportation director was familiar with procedures for the authorization of KI and the use of KI. In addition, information on KI, its possible side effects, and a KI ingestion record form would be provided to the bus drivers.

Objective number 16, the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone (EPZ), was adequately demonstrated. The Superintendent, the Waverly Jr./Sr. High School principal, and the transportation director/bus driver were knowledgeable of their roles and responsibilities as stated in the plan. The superintendent and principal were aware that notification of the Site Area Emergency, General Emergency, and subsequent protective action instructions would be received from the Coffey County EOC over commercial telephone. Information would also be received via the tone alert radio from the EBS station. Parents would also be notified of protective action through the EBS station. The three individuals interviewed were aware of the appropriate actions to take upon notification to evacuate and that students would be transported to the Anderson County Reception Center in Garnett, Kansas.

The superintendent would notify, via telephone, the transportation director at the Site Area Emergency. Bus drivers would be available to transport evacuees after their responsibilities for the school children were fulfilled. The transportation director was knowledgeable of the appropriate evacuation routes.

Summary: There were no deficiencies or areas requiring corrective action identified during this exercise.

There were no areas requiring corrective action identified during the previous exercise conducted August 7, 1991, that required corrective action or subsequent demonstration for reevaluation during this exercise.

2.2.4 Lyon County Reception Center

The following objectives were to be demonstrated at the Lyon County Reception Center: 1, 3, 4, 5, 18, 19, 22, and 30.

This facility, located on the campus of the Emporia State University, participated out of sequence of the exercise as agreed in the extent of play agreement.

Objective number 1, the capability to alert and fully mobilize personnel for both emergency facilities and field operations and to activate and staff emergency facilities for emergency operations, was adequately demonstrated. Lyon County Reception Center staff was prepositioned pursuant to the extent of play agreement. Based on interviews with the staff, this facility would be activated by a telephone call from the Coffey County Radiological Officer pursuant to the plan. The facility was setup and ready to receive evacuees in approximately one hour. The Emporia Fire Department provides staff for the monitoring and decontamination of evacuees and emergency workers. Jailers from the Coffey County Sheriff's office provide monitoring and decontamination for prisoners in a building on campus which is separate from the areas used by the evacuees. A 24-hour roster was provided for all key staff positions.

Organizations represented at the Lyon County Reception Center were: Emergency Preparedness Office, Emporia Fire Department, Lyon County Sheriff's Department, Emporia State University Police Department, American Red Cross, Salvation Army, American Food Management, and Coffey County Sheriff's Department.

Objective number 3, the capability to direct and control emergency operations, was not adequately demonstrated. The Radiological Officer provided staff with instructions that were not proper. Emergency workers were instructed to complete a dosimetry record card contained in their dosimetry packets. However, the card clearly stated "For Radiological Officer Use

Only" and was intended to track electrical leakage. This is an area requiring corrective action.

The Lyon County Emergency Preparedness Coordinator (EPC) has overall responsibility for the staffing and operation of the registration center and delegates responsibilities to the Shelter Manager (ensuring supplies and staff are available and prepared for operation, and coordinating the use of facilities for mass feeding and care of evacuees requiring shelter) and the Radiological Officer (monitoring within reception and care).

Objective number 4, the capability to communicate with all appropriate emergency personnel at facilities and in the field, was adequately demonstrated. Both primary and backup communications were available. Commercial telephone is the primary system for the Lyon County Reception Center with radios as backup. Also present, was the amateur radio group.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. The radiological monitoring team members were provided a direct-reading dosimeter (0-200mR), a permanent record dosimeter (TLD), and an exposure record card. A record was made of the serial numbers for the TLD and dosimeters assigned to each staff member. Staff recorded initial direct-reading dosimeter readings on their exposure record cards. They were aware of the need to read their dosimeters at hourly intervals. Staff were knowledgeable of their exposure limits and procedures to follow if the limits were exceeded.

Objective number 18, the adequacy of procedures, facilities, equipment, and personnel for the radiological monitoring, decontamination, and registration of evacuees, was not adequately demonstrated. The Lyon County Reception Center is a more than adequate facility to perform monitoring of evacuees and emergency workers. However, three concerns were identified with monitoring techniques as follows:

* Monitoring procedures demonstrated by the Coffey County Jailers, for prisoners, were not adequate. Staff were not aware of the appropriate method of determining the background count rate, the probe was moved too rapidly for effective contamination detection, the probe was too far away from the prisoner, and the open window was directed away from the area being monitored. As a result, potentially contaminated prisoners would not have been adequately monitored and identified for decontamination.

* Monitoring procedures demonstrated by the Emporia Fire Department, for evacuees, were not adequate. The two monitoring teams required 23 and 18 minutes, respectively to monitor six evacuees. The total elapsed time included both

the actual monitoring of evacuees and the time necessary to get evacuees into a position to be monitored. For the monitoring function only, the two monitoring teams required 18.0 and 10.2 minutes, respectively to monitor the six evacuees. While the 2nd team was much closer to the target of 9 minutes, the times to monitor an individual evacuee varied by a factor of three which would have resulted in missing potential contamination on evacuees processed in the shortest times. Additional training is necessary to ensure that the team members are aware of the necessity of maintaining the target monitoring times and a consistent rate per evacuee. In addition, also contributing to the excessive time was poor evacuee flow management. A staff member directing evacuees to monitoring positions did not assure evacuees were in position and ready to be monitored. This resulted in delays and added to the overall monitoring times which would require additional staff to meet the 12-hour monitoring requirement. Better evacuee flow management could significantly shorten the overall processing times. It should be noted that additional staff were available, per the plan, to meet the additional requirement.

* After monitoring, clean evacuees walked on the potentially contaminated walkway. This occurred because the evacuees were required to step over the walkway path to have their hands stamped to indicate they were clean prior to entering the Reception Center.

Each monitoring team utilized a CDV-700 (with an earphone) which was within the appropriate calibration date. Instruments were checked for proper operation in accordance with the plan. Probes were covered with thin plastic to avoid contamination. Staff wore appropriate protective clothing (booties, gloves, and hoods).

There were two monitors in each decontamination area (male and female). The removal of contaminated clothing, use of shower facilities, and the separation and containment of contaminated clothing was simulated and described by the monitors. Contaminated individuals were remonitored after they were decontaminated. Staff was aware that decontamination attempts should be limited and that evacuees who could not be decontaminated would be referred to a medical facility.

Evacuees that were found clean were sent to the registration area to complete a form which contained information on where the evacuee would be staying, special needs, etc. Evacuees who required housing were directed to congregate care facilities located on the campus.

Evacuee vehicle monitoring and decontamination procedures were adequately demonstrated. One team member monitored the

vehicle while the other recorded the readings on the appropriate form. The monitor emphasized the grill, wheel and tire areas, bumpers, and the air filter on older model cars. Clean vehicles were marked with an adhesive sticker on the windshield. Contaminated vehicles were held in the area until they could be decontaminated. Based on an interview, the Emporia Fire Department staff were knowledgeable of vehicle decontamination procedures.

Objective number 19, the adequacy of facilities, equipment, supplies, personnel, and procedures for congregate care of evacuees, was adequately demonstrated. The Shelter Manager was assisted by the American Red Cross, Salvation Army, and American Food Management. Emporia State University has more than adequate space for the expected number of evacuees pursuant to the plan. The facility had sufficient sleeping accommodations, toilets, drinking water, feeding facilities, and parking spaces. The congregate care staff were aware of the procedures to ensure that evacuees had been monitored for contamination and were uncontaminated before entering the congregate care portion of this facility.

Objective number 22, the adequacy of procedures for the monitoring and decontamination of emergency workers, equipment, and vehicles, was not adequately demonstrated. These facilities and resources would also be utilized for decontamination of emergency workers. Because of the unsuccessful demonstration of objective number 18, monitoring and decontamination of evacuees, this objective was not adequately demonstrated.

Objective number 30, the capability to maintain staffing on a continuous, 24-hour basis through an actual shift change, was not adequately demonstrated. Pursuant to the extent of play agreement, this objective was to be demonstrated through an interview with both shifts for the following positions: Registration Coordinator, Shelter Manager, and Radiological Officer. Both shifts for the Registration Coordinator and Shelter Manager positions demonstrated adequate knowledge of their emergency roles and functions. However, a shift change did not occur for the Radiological Officer position. Both the first and second shift Radiological Officers participated throughout the monitoring demonstration. The activities of both individuals were required for the operation of the monitoring function. The 24-hour roster identifies only two Radiological Officer positions. Therefore, since both the first and second shift Radiological Officers are required throughout a 24-hour period, the plan does not provide for adequate 24-hour staffing for this position. Therefore, a shift change for 24-hour staffing was not adequately demonstrated for the Radiological Officer position. This is an area requiring corrective action.

Summary: Objectives number 3, 18, 22, and 30, were not adequately demonstrated during this exercise, resulting in six areas requiring corrective action.

There were no areas requiring corrective action identified during the previous exercise, conducted August 7, 1991, that required corrective action or subsequent demonstration for reevaluation during this exercise.

Areas Requiring Corrective Action

13. The Radiological Officer provided staff with instructions that were not proper. Emergency workers were instructed to complete a dosimetry record card contained in their dosimetry packets. However the card clearly stated "For Radiological Officer Use Only" and was intended to track electrical leakage. (NUREG-0654, K.3.a., N.1.a.)

14. The Coffey County jailers did not demonstrate proper procedures for monitoring prisoners. Staff were not aware of the appropriate method of determining the background count rate, the probe was moved too rapidly for effective contamination detection, the probe was too far away from the prisoner, and the open window was directed away from the area being monitored. (NUREG-0654, J.12., N.1.a.)

15. Monitoring procedures demonstrated by the Emporia Fire Department, for evacuees, were not adequate. Monitoring rates were not consistent and evacuee flow management was poor. (NUREG-0654, J.12., N.1.a.)

16. After monitoring, clean evacuees were instructed to walk on the potentially contaminated walkway. This occurred because the evacuees were required to step over the walkway to have their hands stamped to indicate they were clean prior to entering the reception center. (NUREG-0654, J.10.h., J.12., N.1.a.)

17. Monitoring and decontamination of emergency workers were improper. Due to the inadequacy identified for objective 18 for similar procedures, this objective was not adequately demonstrated. (NUREG-0654, K.5.b.)

18. A shift change for 24-hour staffing was not adequately demonstrated for the Radiological Officer position. Both the first and second shift Radiological Officers participated throughout the monitoring demonstration. The activities of both individuals were required for the operation of the monitoring function. Therefore, a shift change was not demonstrated. (NUREG-0654, A.4., N.1.a.)

2.3 MEDICAL SERVICES

2.3.1 Coffey County Ambulance

The following objectives were to be demonstrated for the Coffey County Ambulance: 5, 14, and 20.

The Coffey County Ambulance is located in Burlington, Kansas, (subzone SW-1) which is within the EPZ. This is the primary ambulance service for treating and transporting contaminated injured individuals. The demonstration was out of sequence from the exercise pursuant to the extent of play agreement.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. The ambulance crew was equipped with two direct-reading (0-200mR and 0-200R) dosimeters, a permanent record (TLD) dosimeter, an exposure record form, and instructions for the use of dosimetry pursuant to the plan. The crew members read and recorded their dosimetry at one hour intervals and were knowledgeable of their exposure limits and whom to contact if they exceeded their limits. They were aware of the requirement to return all dosimeters and forms to the Coffey County Radiological Officer at the conclusion of the radiological emergency.

Objective number 14, the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, institutionalized individuals, and, if the state plan specifies, the general public, was adequately demonstrated. The ambulance crew had an ample supply of KI available with an expiration date of March 1996. The crew was knowledgeable of the procedures for its authorization and use. Instructions on the use of KI were available and included the reason for taking KI, dosages, time period within which KI should be taken, and possible side effects.

Objective number 20, the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals, was adequately demonstrated. The Coffey County ambulance (paramedic and emergency medical technician) and a backup rescue vehicle (Emergency Medical Services supervisor) were dispatched to an emergency call from the Coffey County Sheriff's dispatcher.

The Coffey County ambulance crew demonstrated appropriate procedures for contamination control. The ambulance crew wore gloves and booties pursuant to the plan. Upon arrival at the scene, the ambulance crew conducted an immediate evaluation of the potentially contaminated injured individual. Patient monitoring was deferred to the hospital. Further contamination control procedures included frequent changes of rubber gloves,

wrapping of the patient in a blanket, lining the floor of the ambulance compartment, and placing protective covers under the individual and ambulance equipment. Storage bags were utilized for disposal of potentially contaminated items. The use of proper contamination control corrected an area requiring corrective action from the August 7, 1991, exercise.

The ambulance crew was aware of the primary and backup hospitals capable of handling contaminated patients. The crew was familiar with the appropriate route to the Coffey County Hospital, the primary hospital. Hospital personnel monitored the ambulance and crew prior to departure from the hospital. Both crew and ambulance were found to be not contaminated. Monitoring techniques were appropriate. If decontamination was required, the crew would be directed to the Coffey County Decontamination Center or the Lyon County Reception Center.

Summary: There were no deficiencies or areas requiring corrective action identified during this exercise for the Coffey County Ambulance.

There was one area requiring corrective action identified during the drill conducted April 1, 1992, concerning contamination of emergency equipment, that was corrected during this exercise.

2.3.2 Coffey County Hospital

The following objectives were to be demonstrated at this facility: 5, 14, and 21.

The Coffey County Hospital is located in Burlington, Kansas, (subzone SW-1) which is within the EPZ. This is the primary hospital for treating contaminated injured individuals. The demonstration was out of sequence from the exercise pursuant to the extent of play agreement.

Objective number 5, the capability to continuously monitor and control radiation exposure to emergency workers, was adequately demonstrated. Hospital staff were equipped with a direct-reading (0-200mR and 0-200R) dosimeters and a permanent record dosimeter (TLD). Staff members charged, if necessary, direct-reading dosimetry prior to use. They read and recorded their dosimetry at 30-minute intervals after the patient arrived. Readings were recorded and maintained for all emergency room staff by a staff recorder. All staff members were knowledgeable of their exposure limits and procedures to follow if the limits were exceeded. The TLDs and all records would be turned in to a WCGS health physicist. If the injured individual was a member of the general public, the TLD and records would be turned in to a Kansas Department of Health and Environment health physicist for processing and record keeping.

Objective number 14, the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, institutionalized individuals, and, if the state plan specifies, the general public, was adequately demonstrated. The Coffey County EOC maintains an adequate supply of KI for the Coffey County Hospital staff. Upon the direction of the Coffey County Radiological Officer, an individual would be dispatched to transport KI to the hospital when needed. The staff was knowledgeable of the procedures for its authorization and use.

Objective number 21, the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals, was not adequately demonstrated. Two concerns were identified and are as follows:

* A Bicron rate meter with a pancake GM detector and a CD V-700 were utilized for contamination surveys and were within the current calibration date. However, the Bicron rate meter did not have a check source or the appropriate range of expected reading for a known check source. The demonstrated procedure to check the operation of the Bicron instrument was by battery test which does not assure the detector to be operational.

* The same contamination action limit (100 cpm above background) was used for both the Bicron and CD V-700 survey instruments. An action level of 100 cpm for the CD V-700 instrument is not equal to a 100 cpm indicated on the Bicron instrument. This inconsistency could lead to items being released as uncontaminated, when monitored with the CD V-700, which could exceed the contamination level if the measurements were made with the Bicron instrument. The plans and procedures must be amended to include appropriate contamination action levels which differ between the two survey instruments.

One doctor, two trained nurses, one health physics technician, one x-ray technician, and other support staff participated in this exercise. The Coffey County ambulance crew contacted the hospital staff and informed them that they were enroute to an accident site involving a possible contaminated injured individual. Facility staff adequately demonstrated proper contamination control procedures. Within fifteen minutes of the initial call, staff prepared the emergency room to accept the injured individual. Equipment and supplies available to control contamination included: a controllable means for solid waste disposal, plastic bags, containers for contaminated swabs, skin wipes for contamination detection, appropriate solutions for decontamination of skin/wounds, and protective gloves. In addition, nonessential equipment and supplies were removed from the emergency room, remaining equipment and supplies were covered, staffing was

restricted to only essential personnel, and access to the radiological emergency area was controlled.

While enroute to the hospital, the Coffey County ambulance crew provided patient information which included physical condition of the individual, location of the accident scene, and estimated time of arrival.

Appropriate survey procedures were followed pursuant to the plan. Staff used the appropriate response range scale settings. Both instruments' detectors were covered with thin plastic to protect them from contamination. The audio headsets and speaker were used while conducting contamination surveys. The use of plastic coverings on the detectors and use of the headset and speaker corrected two areas requiring corrective action from the April 1, 1992, drill.

Hospital personnel monitored the ambulance and crew prior to departure from the hospital. Both crew and ambulance were found to be not contaminated. Monitoring techniques were appropriate. The hospital access corridor and ambulance gurney were properly monitored for decontamination which corrected an area requiring corrective action from the April 1, 1992, drill.

Summary: Objective number 21 was not adequately demonstrated during this exercise, resulting in two areas requiring corrective action.

There were three areas requiring corrective action identified during the drill conducted April 1, 1992, regarding the use of plastic coverings on the detectors, use of the headset and speaker with monitoring equipment, and monitoring of the hospital corridor and ambulance gurney prior to the ambulance crew departure, that were corrected during this exercise.

Areas Requiring Corrective Action

19. The Bicron rate meter did not have a check source or the appropriate range of expected reading for a known check source. (NUREG-0654, L.1., 3.; N.1.a.)

20. The same contamination action limit (100 cpm above background) was used for both the Bicron and CD V-700 survey instruments. (NUREG-0654, L.1., 3.; N.1.a.)

3 SUMMARY OF INADEQUACIES

AREAS REQUIRING CORRECTIVE ACTION

STATE OPERATIONS

State Emergency Operations Center

1. The communications staff failed to notify the Kansas Highway Patrol at the Alert that the state EOC was being activated. (NUREG-0654, E.1., 2.; N.1.a.)

2. The state EOC Communicator inappropriately instructed the EBS station to delay broadcast of the protective action message for 10 minutes. (NUREG-0654, N.1.a.)

Joint Radiological Monitoring Teams

3. The "blue" field team assembled the air sampler in the plume which would have allowed the remaining sampling equipment in the kit to become contaminated. (NUREG-0654, N.1.a.)

4. The second equipment kit for both field teams, containing the supplies for environmental sampling, did not include sufficient bottles or plastic bags for handling the number of samples that were requested. (NUREG-0654, N.1.a.)

Media Release Center

5. News release number 13 was not consistent with EBS message number 2. Evacuation routes were incorrect or not included in news releases. There was an omission on page 1 and page 4, regarding the evacuation of school children and institutionalized individuals. The news release did not contain specific information to parents, guardians, and family members on where these individuals would be taken. (NUREG-0654, E.7., G.4.a., N.1.a.)

6. Pertinent information was not provided during the second media briefing. The state PIO did not include specific information regarding evacuated schools, day care facilities, special populations, and transportation dependent individuals. (NUREG-0654, E.7., N.1.a.)

Forward Staging Area

7. Permanent record dosimetry was not available for staff at the Forward Staging Area. (NUREG-0654, K.3.a., K.3.b., N.1.a.)

Coffey County Emergency Operations Center

8. The Sheriff's dispatcher inappropriately delayed notifying the EPC of the Site Area Emergency for ten minutes. (NUREG-0654, N.1.a.)

9. KI transporters were not immediately monitored for contamination upon their return to the Coffey County EOC. (NUREG-0654, N.1.a.)

10. The National Guard representative and County Joint Radiological Monitoring Team members were not issued dosimetry pursuant to the plan. (NUREG-0654, H.10.; K.3.a., b.; N.1.a.)

11. The locations where residents and patients from nursing homes and Coffey County Hospital had been evacuated, were not provided in either an EBS message or media release. (NUREG-0654, E., N.1.a.)

12. The Health and Medical Team and County Engineer provided inaccurate information as to where nursing homes residents were to be evacuated. (NUREG-0654, E.5., 7.; N.1.a.)

Lyon County Reception Center

13. The Radiological Officer provided staff with instructions that were not proper. Emergency workers were instructed to complete a dosimetry record card contained in their dosimetry packets. However, the card clearly stated "For Radiological Officer Use Only" and was intended to track electrical leakage. (NUREG-0654, K.3.a., N.1.a.)

14. The Coffey County jailers did not demonstrate proper procedures for monitoring prisoners. Staff were not aware of the appropriate method of determining the background count rate, the probe was moved too rapidly for effective contamination detection, the probe was too far away from the prisoner, and the open window was directed away from the area being monitored. (NUREG-0654, J.12., N.1.a.)

15. Monitoring procedures demonstrated by the Emporia Fire Department, for evacuees, were not adequate. Monitoring rates were not consistent and evacuee flow management was poor. (NUREG-0654, J.12., N.1.a.)

16. After monitoring, clean evacuees were instructed to walk on the potentially contaminated walkway. This occurred because the evacuees were required to step over the walkway to have their hands stamped to indicate they were clean prior to entering the reception center. (NUREG-0654, J.10.h., J.12., N.1.a.)

17. Monitoring and decontamination of emergency workers were improper. Due to the inadequacy identified for objective 18 for similar procedures, this objective was not adequately demonstrated. (NUREG-0654, K.5.b.)

18. A shift change for 24-hour staffing was not adequately demonstrated for the Radiological Officer position. Both the first and second shift Radiological Officers participated throughout the monitoring demonstration. The activities of both individuals were required for the operation of the monitoring function. Therefore, a shift change was not demonstrated. (NUREG-0654, A.4., N.1.a.)

Coffey County Hospital

19. The Bicron rate meter did not have a check source or the appropriate range of expected reading for a known check source. (NUREG-0654, L.1., 3.; N.1.a.)

20. The same contamination action limit (100 cpm above background) was used for both the Bicron and CD V-700 survey instruments. (NUREG-0654, L.1., 3.; N.1.a.)