

MAR 24 1986

Docket No. 50-331

Iowa Electric Light and Power  
Company

ATTN: Mr. Lee Liu  
President and Chief  
Executive Officer

IE Towers  
P. O. Box 351  
Cedar Rapids, IA 52406

Gentlemen:

We have received the enclosed Federal Emergency Management Agency (FEMA) letter dated February 21, 1986, and associated exercise evaluations on the offsite emergency preparedness exercise conducted on October 29, 1985, for the State of Iowa and Benton and Linn Counties.

This exercise evaluation lists one deficiency for Linn County related to inadequate procedures for the evacuation of school children from the plume EPZ. This deficiency has been identified by FEMA as one which affects public health and safety. FEMA set a date of February 26, 1986, for the submittal of acceptable plans for correcting the deficiency. FEMA will make a final determination, based on the response, regarding the overall adequacy of corrective actions and the status of approval of offsite plans around the Duane Arnold Station under 44 CFR 350.

This is to notify you that we will determine an appropriate course of action under our regulations for the Duane Arnold Nuclear Generating Station after receiving the final FEMA evaluation of offsite preparedness. The exercise evaluation also lists some recommendations (which are referred to in the FEMA evaluation as areas requiring corrective action; e.g., those not affecting public health and safety) regarding the offsite agency responses. We request that you coordinate with State and local officials to ensure that the deficiency and areas requiring corrective action in offsite emergency preparedness identified in the FEMA exercise report are corrected in a timely manner.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosure will be placed in the NRC's Public Document Room.

*IE35  
delete  
RM*

8604010265 860324  
PDR ADOCK 05000331  
F PDR

Iowa Electric Light and Power  
Company

2 MAR 24 1986

Should you have any questions regarding this letter, please contact Mr. W. Snell  
of my staff at (312) 790-5513.

Sincerely,

**"Original signed by W.D. Shafer"**

W. D. Shafer, Chief  
Emergency Preparedness and  
Radiological Protection Branch

Enclosure: As stated

cc w/enclosure:

D. Mineck, Plant Superintendent  
Nuclear

W. Miller, Assistant Plant  
Superintendent Technical  
Support

DCS/RSB (RIDS)

Licensing Fee Management Branch

Resident Inspector, RIII

Thomas Houvenagle, Iowa State  
Commerce Commission

RIII

*[Signature]*  
Foster/jlk

3/21/86

YES

RIII

*[Signature]*  
Snell

3/21/86

yes (cover letter  
only)

RIII

*[Signature]*  
Boyd

3/24/86

RIII

*[Signature]*  
Shafer



# Federal Emergency Management Agency

Washington, D.C. 20472

FEB 21 1986

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

FROM:

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

SUBJECT: Exercise Report of the October 29, 1985, Exercise of the  
Offsite Radiological Emergency Preparedness Plans for  
the Duane Arnold Energy Center

Attached are two copies of the Exercise Report of the October 29, 1985, joint exercise of the offsite radiological emergency preparedness plans for the Duane Arnold Energy Center. This was a joint full participation exercise for the State of Iowa and Benton and Linn Counties. The report, dated January 7, 1986, was prepared by Region VII of the Federal Emergency Management Agency (FEMA).

There was one deficiency observed at the exercise. The ability and resources necessary to effect an orderly evacuation of schools within the 10-mile plume emergency planning zone (EPZ) was not adequately demonstrated. Procedures for the effective evacuation of school children from the plume EPZ within Linn County are not adequate or non-existent. FEMA Region VII has corresponded with the Director of the Iowa Office of Disaster Services concerning this deficiency, and has set a date of February 26, 1986, for the submittal of acceptable plans for the evacuation of school children. A copy of the Region VII letter is attached.

There were also inadequacies identified requiring corrective actions. The State is preparing a schedule of corrective actions. As soon as they are received and analyzed, we will send you a copy.

If you have any questions, please contact Mr. Robert Wilkerson, Chief, Technological Hazards Division, at 287-0200.

Attachments  
As Stated

~~245/23/258~~  
6PP



# Federal Emergency Management Agency

Region VII 911 Walnut Street Kansas City, Missouri 64106

*November 15, 1985*

MEMORANDUM FOR: John W. Crandall, State Director  
Iowa Office of Disaster Services

FROM: Patrick J. Breheny, Regional Director  
FEMA - Region VII

SUBJECT: Confirmation of Deficiency during October 29, 1985  
Exercise of the Duane Arnold Energy Center - Response  
Due 12-1-85

This memo is to confirm the discussions following the October 29, 1985 Duane Arnold Energy Center exercise when we identified the Linn County school radiological emergency preparedness as a deficiency.

Per Guidance Memorandum EX-1, copy attached, a deficiency is defined as a demonstrated and observed inadequacy that would cause a finding that offsite emergency preparedness was not adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power facility in the event of a radiological emergency. Because of the potential impact of deficiencies on emergency preparedness, they are required to be promptly corrected through appropriate remedial actions including remedial exercises, drills or other actions.

The Cedar Rapids School District has made great strides in fostering cooperation from school superintendents, as well as identifying schools, populations and bus drivers necessary to accomplish their mission. But more planning is required and bus drivers must receive training in personal dosimetry and their role in the Plan.

Plans must be completed for all Linn County School Districts which have students who reside within the 10 mile emergency planning zone (EPZ) and must include all schools, i.e., public, private and pre-schools/day care centers.

The distinction must be made between severe weather situations and radiological incidents. During radiological incidents, early release of students to return to areas within the 10 mile EPZ is not an acceptable option. This places both the students and their parents or guardians at increased risk of exposure.



Your office was notified that this approach was unacceptable in our correspondence of April 1, 1985 and yet the plans were not changed.

Therefore, in order to show correction of this deficiency in the exercise report, these plans must be submitted by December 18, 1985.

Per Guidance Memo EX-1, these plans "should be completed as soon as possible but not later than 60 days after the report is forwarded to FEMA Headquarters." This would be February 26, 1986. -- Please inform us by December 1, 1985 of your date for submittal.

If you have any questions, please feel free to contact Robert Bissell or Marlee Carroll at (816) 374-2161.

Attachment - GM EX-1

cc: Victor Root, Linn County EOC  
Monty Phillips, NRC III  
Dave Hingtgen, IE  
Robert Wilkerson, FEMA HQ  
Ken Green, FEMA HQ



# Federal Emergency Management Agency

Region VII 911 Walnut Street Kansas City, Missouri 64106

JAN 7 1986

MEMORANDUM FOR: Samuel Speck, Associate Director  
State & Local Programs & Support

FROM: Patrick J. Breheny, Regional Director, FEMA-Region VII

SUBJECT: Submission of the Exercise Report for the Evaluation of  
the Implementation of State and Local Radiological Emergency  
Response Plans for the Duane Arnold Energy Center

In compliance with 44 CFR Part 350 and GM EX-1, I hereby submit three copies of the Exercise Report, dated January 7, 1986, for the evaluation of the implementation of State and Local Radiological Emergency Response Plans for the Duane Arnold Energy Center, October 29, 1985.

A Table of Contents is provided to assist in your review. Further documentation and related materials are retained and may be requested from FEMA Region VII, which is the office of record for this exercise evaluation.

Also in compliance with GM EX-1, copies have been sent to the Iowa Office of Disaster Services.

Attachment



# Federal Emergency Management Agency

Region VII 911 Walnut Street Kansas City, Missouri 64106

JAN 7 1986

MEMORANDUM FOR: RAC Members  
Jim Levenson, Argonne National Laboratory  
Joe Keller, Idaho National Engineering Laboratory  
Ken Green, Region VII Project Officer, FEMA Headquarters

FROM: *Richard J. Leonard*  
Richard J. Leonard, Program Manager/RAC Chairman  
Natural & Technological Hazards Division

SUBJECT: Transmittal of Duane Arnold Energy Center Exercise  
Report - FYI

Attached for your information is a copy of the Exercise Report for the Duane Arnold Energy Center exercise conducted on October 29, 1985. We have also included copies of the transmittal letters for this report to Samuel Speck, FEMA Headquarters, and the Iowa State Office of Disaster Services.

As you can see, the Iowa State Office of Disaster Services has been requested to submit a schedule of corrections by March 8, 1986.

If you should have any questions, feel free to contact Bob Bissell at (FTS) 758-2161.

Attachments



# Federal Emergency Management Agency

Region VII 911 Walnut Street Kansas City, Missouri 64106

JAN 7 1986

MEMORANDUM FOR: Jack Crandall, Director  
IOWA Office of Disaster Services

FROM: Patrick J. Breheny, Regional Director, FEMA Region VII

SUBJECT: Transmittal of Duane Arnold Energy Center Exercise report.  
Response Due

Enclosed are the requested number of copies (12) of the Duane Arnold Energy Center Exercise Evaluation Report.

Schedules of corrections dealing with those inadequacies requiring corrective action are to be submitted by March 8, 1986.

Corrective action related to the deficiency is to be accomplished by February 26, 1986. Details are found in Section 2.2.1 of the report.

If you have any questions, please contact Bob Bissell at (816) 374-2161.

Attachments

# EXERCISE EVALUATION



**October 29, 1985, Exercise of the  
Radiological Emergency Response Plans  
of the State of Iowa,  
Benton and Linn Counties for the  
Iowa Electric Light and Power Company's  
DUANE ARNOLD ENERGY CENTER  
near Palo, Linn County, Iowa**

**Federal Emergency Management Agency**

January 7, 1986

**PATRICK J. BREHENY**

911 Walnut

**Regional Director Region VII**

**Kansas City, MO. 64106**

~~8/25/85/2/23~~  
H3PP

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

CONDUCTED OCTOBER 29, 1985

for the

DUANE ARNOLD ENERGY CENTER

Palo, Linn County, Iowa  
Iowa Electric Light and Power Co., Licensee

PARTICIPANTS:

State of Iowa  
County of Benton  
County of Linn

(All affected jurisdictions participated)

January 7, 1986

Prepared By  
Federal Emergency Management Agency  
Region VII Kansas City, MO



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## ABBREVIATIONS AND ACRONYMS

ANL	Argonne National Laboratory
ARC	American Red Cross
BCEOC	Benton County Emergency Operations Center
CD	Civil Defense
DAEC	Duane Arnold Energy Center
DOC	U.S. Department of Commerce
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DOT	U.S. Department of Transportation
EBS	Emergency Broadcast System
ENC	Emergency News Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPZ	Emergency Planning Zone
FCP	Forward Command Post
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
HPCI	High Pressure Coolant Injector
HHS	U.S. Department of Health and Human Services
IELP	Iowa Electric Light and Power Company
KI	Potassium Iodide
LCEOC	Linn County Emergency Operation Center
LCO	Limited Condition of Operation
LPCI	Low Pressure Coolant Injection
NARS	Nuclear Accident Reporting System

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 (1980).

ODS Iowa Office of Disaster Services

PAG Protective Action Guide

PHS Public Health Service

PIO Public Information Officer

RAC Regional Assistance Committee

RCIC Reactor Core Isolation Cooling

RHR Residual Heat Removal

SEOC Iowa State Emergency Operations Center

SGTS Standby Gas Treatment System

TLD Thermoluminescent Dosimeters

UHL University Hygienic Laboratory

USDA U.S. Department of Agriculture

## EXERCISE SUMMARY

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

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

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

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

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

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

The inadequacies observed during this exercise are listed below.

### DEFICIENCY

#### COUNTY OPERATIONS

##### Linn County Emergency Operations Center (LCEOC)

Procedures for the effective evacuation of school children from the EPZ are not adequate or non-existent. (NUREG-0654, E.6.)

### AREAS REQUIRING CORRECTIVE ACTION

#### IOWA STATE OPERATIONS

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

1. The ability to brief the media and provide advance coordination of information released was an objective at the State EOC during this exercise. However, this was not demonstrated. (NUREG-0654, G.3.a., G.4.b.)

2. Timely notification of the Governor's declaration of a "State of Emergency" was not made to Benton County. As the County Plan relies in part on receipt of the declaration to initiate school closings in the County, a more timely notification must be made. (NUREG-0654, A.2.a.)

#### Emergency Operations Facility (EOF)

3. Round-the-clock staffing was not demonstrated for Benton and Linn Counties. (NUREG-0654, A.4.)

#### Emergency News Center (ENC)

4. Round-the-clock staffing was not demonstrated for Benton County. (NUREG-0654, A.4.)
5. The State rumor control operator was not familiar with evacuation locations and routes. (NUREG-0654, G.4.c.)

#### Dose Assessment and Field Team Coordination

6. Round-the-clock staffing was not demonstrated for the University Hygienic Laboratory (UHL), Linn County Health Department and the Civil Air Patrol. (NUREG-0654, A.4.)

#### Radiological Laboratory

7. Written procedures are not available for analyzing snow samples. (NUREG-0654, I.8.)
8. The State Plan does not accurately reflect the actual equipment utilized by the University Hygienic Laboratory. (NUREG-0654, I.7.)
9. Permanent record dosimeters were not available for University Hygienic Laboratory staff. (NUREG-0654, K.3.a.)

#### Linn County Emergency Operations Center (LCEOC)

10. A helicopter was dispatched to visually locate the plume. However, the crew members did not have the equipment to locate the plume, nor did they have the required dosimetry or training. (NUREG-0654, I.8., K.3.a., O.4.g.)

#### Benton County Emergency Operations Center (BCEOC)

11. Round-the-clock staffing was not demonstrated for the Benton County PIO. (NUREG-0654, A.4.)
12. The County does not have a sufficient number of permanent record dosimeters (TLDs) for emergency workers. This has been identified as an inadequacy during the two previous exercises. (NUREG-0654, K.3.a.)

Johnson County Reception and Decontamination

13. Evacuees were not monitored prior to registration. Training must be provided with emphasis on contamination control regarding monitoring and registration of evacuees. (NUREG-0654, K.5.a., O.1.)
14. The fire department staff was not aware of what level of exposure constitutes the need for decontamination or the appropriate methods for monitoring as shown in the State Plan. (NUREG-0654, K.5.a.)



# 1 INTRODUCTION

## 1.1 EXERCISE BACKGROUND

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

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

- \* Taking the lead in off-site emergency planning and in the review and evaluation of radiological emergency response plans developed by State and local governments.
- \* Determining whether such plans can be implemented on the basis of observation and evaluation of exercises of the plans conducted by State and local governments.
- \* Coordinating the activities of federal agencies with responsibilities in the radiological emergency planning process:
  - U.S. Department of Commerce (DOC)
  - U.S. Nuclear Regulatory Commission (NRC)
  - U.S. Environmental Protection Agency (EPA)
  - U.S. Department of Energy (DOE)
  - U.S. Department of Health and Human Services (HHS)
  - U.S. Department of Transportation (DOT)
  - U.S. Department of Agriculture (USDA)
  - U.S. Food and Drug Administration (FDA)
  - 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 Duane Arnold Energy Center (DAEC) to the RAC by the State of Iowa and affected local jurisdictions was followed by a critique and evaluation of these plans.

A joint radiological emergency preparedness exercise was conducted for DAEC on October 29, 1985. The results of that exercise are presented in this report. The exercise was conducted between the hours of 0730 until 1630 on October 29, 1985, to assess the capability of State and County emergency preparedness organizations to; (1) implement their radiological emergency preparedness plans and procedures, and (2) protect the public during a radiological emergency at the Iowa Electric Light and Power Company's (IELP) DAEC. The plans evaluated included the Iowa Emergency Plan and Benton and Linn Counties Radiological Emergency Response Plans. Previous exercises for this facility were held on October 28, 1981, July 28, 1982, October 26, 1983, and August 1, 1984.

An observer team consisting of personnel from FEMA Region VII, the RAC, FEMA's contractors, and Federal and State agencies evaluated the October 29, 1985, exercise. FEMA Region VII assigned 20 Federal observers to evaluate the activities in the State of Iowa and affected local jurisdictions. Team leaders coordinated team operations.

Following the exercise, these Federal observers met to compile their evaluations. Team leaders consolidated the evaluations of individual team members and furnished them to the RAC chairman. A public critique of the exercise for exercise participants and the general public was held by the RAC chairman at 1400 on Wednesday, October 30, 1985, at the IELP Emergency News Center, Cedar Rapids, Iowa.

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

### 1.2 EXERCISE EVALUATORS

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

<u>OBSERVER</u>	<u>AGENCY</u>	<u>ASSIGNMENT</u>
Frank Beglov	FEMA	Exercise Overview
Bob Bissell	FEMA	Exercise Overview
Bill Brinck	EPA	Field Team Coordination
Kay Carder	FEMA	Linn County EOC
Marlee Carroll	FEMA	Linn County EOC
John Coleman	FEMA	Regional Office Coordination
Dee Demmitt	ANL	Forward Command Post
Caroline Herzenberg	ANL	Iowa State EOC
Tom Hogan	FEMA	Benton County EOC
Don Hulet	ANL	Field Monitoring Team
Eric Jenkins	FEMA	Iowa State EOC
Steve Kouba	DOE	Radiological Laboratory
Rich Leonard	FEMA	Exercise Overview
Jim Levenson	ANL	Emergency Operations Facility
Gary McClure	FEMA	Benton County EOC
Dorothy Nevitt	USDA	Iowa State EOC
Jim Opelka	ANL	Field Monitoring Team/Johnson County Decon
Eileen O'Hare	ARC	Reception Centers (Johnson, Dubuque and Buchanan Counties)
Tim Seidel	FEMA	Emergency News Center
Dick Sumpter	FEMA	Emergency Operations Facility

- ANL = Argonne National Laboratory
- ARC = American Red Cross
- DOE = U.S. Department of Energy
- EPA = U.S. Environmental Protection Agency
- FEMA = Federal Emergency Management Agency
- USDA = U.S. Department of Agriculture

### 1.3 EVALUATION CRITERIA

The evaluation criteria for this exercise were:

1. NUREG-0654/FEMA-REP-1, Rev. 1 (All applicable requirements).
  - 1.a. The thirty-five standardized objectives developed as a summary of observable elements contained in NUREG-0654.
2. Iowa Nuclear Power Plant Accident/Incident Plan - December, 1983 (All current revisions through December, 1984).
3. Benton County Radiological Emergency Response Plan - June, 1982 (All current revisions through January, 1985).
4. Linn County Radiological Emergency Response Plan - Revised July, 1985.

### 1.4 EXERCISE OBJECTIVES

The licensee, Iowa Electric Light and Power Company (IELP), the State of Iowa, and Benton and Linn Counties planned a coordinated exercise of their respective emergency plans for both the on-site and off-site support agencies on October 29, 1985. The exercise involved activation and participation of the staff and response facilities of DAEC, as well as emergency organizations and emergency facilities of the State of Iowa and Linn and Benton Counties.

The exercise was intended to demonstrate many, but not necessarily all, of the DAEC capabilities to respond to a wide range of emergency conditions. This scenario was designed to activate the radiological emergency response plans for DAEC and IELP's corporate radiological emergency response plan through their various levels. Although the scenario accurately simulates operating events, it was not intended to assess all of the operator's diagnostic capabilities, but rather to provide sequences that ultimately demonstrated the operator's ability to respond to events, and that resulted in exercising both on-site and off-site emergency procedures. The exercise demonstrated a number of primary emergency preparedness functions. At no time was the exercise permitted to interfere with the safe operations of DAEC, and the plant management at its discretion could have suspended the exercise for any period of time necessary to ensure this goal. Free play was encouraged and the referees interfered only if operator or player action prematurely terminated the exercise or deviated excessively from the drill schedule.

Federal agencies were to be notified during the exercise according to existing emergency response procedures. Federal agencies with radiological emergency preparedness responsibility did not actively participate in the play of this exercise. Federal representatives, however, did act as exercise evaluators.

Exercise objectives included full-scale participation from both Linn and Benton Counties, but only small-scale participation by the State of Iowa. State activities included the activation of the State Radiological Field Monitoring Teams, participation at the Emergency News Center (ENC), and communication and information with Linn and Benton Counties and IELP organizations. The State of Iowa in a communication to FEMA Region VII dated September 4, 1985, identified the following formal exercise objectives to be accomplished at the October 29, 1985, emergency response exercise for the DAEC.

Iowa State EOC

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities.
- 4 Demonstrate adequacy of facilities/displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations and field personnel.
- 10 Demonstrate ability to project dosage to the public via plume exposure, based on plant and field data, and determine protective measures, based on PAGs, available shelter, evacuation time estimates and other proper factors.
- 24 Demonstrate ability to brief the media in a clear, accurate and timely manner.
- 25 Demonstrate ability to provide advance coordination of information released.
- 35 Demonstrate ability to determine and implement appropriate measures for controlled recovery and reentry.
- 11 Demonstrate ability to project dosage to the public via ingestion pathway exposure, based on field data and to determine appropriate protective measures, based on PAGs and other proper factors.
- 12 Demonstrate ability to implement protective actions for ingestion pathway hazards.

- 17 Demonstrate the organizational ability and resources necessary to control access to an evacuated area.

State Forward Command Post

OBJECTIVE  
NUMBER

- 1 Demonstrate ability to mobilize staff and activate facilities promptly.
- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities.
- 4 Demonstrate adequacy of facilities/displays to support emergency operations.
- 5 Demonstrate ability to communicate with all proper locations, organizations and field personnel.
- 16 Demonstrate the ability and resources to deal with impediments to evacuation, such as inclement weather or traffic obstructions.
- 17 Demonstrate the ability and resources necessary to control access to an evacuated area.
- 20 Demonstrate ability to continuously monitor and control emergency workers exposure.
- 22 Demonstrate ability to supply and administer KI, once the decision has been made to do so.

Emergency Operations Facility/Emergency News Center

OBJECTIVE  
NUMBER

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

- 24 Demonstrate ability to brief media in a clear, accurate and timely manner.
- 25 Demonstrate ability to provide advance coordination of information released.
- 26 Demonstrate ability to establish and operate rumor control/coordination.

Field Team Monitoring and Coordination/Radiological Laboratory

OBJECTIVE  
NUMBER

- 4 Demonstrate adequacy of facilities and displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations and field personnel.
- 6 Demonstrate ability to mobilize and deploy field monitoring teams in a timely fashion.
- 7 Demonstrate appropriate equipment and procedures for determining ambient radiation levels.
- 8 Demonstrate appropriate equipment and procedures for measurement of airborne radioiodine concentrations as low as  $10^{-7}$  uCi/cc in the presence of noble gases.
- 9 Demonstrate appropriate equipment and procedures for collection, transport and analysis of samples of soil, vegetation, snow, water and milk.
- 10 Demonstrate ability to project dosage to the public via plume exposure, based on plant and field data, and to determine appropriate protective measures, based on PAGs, available shelter, evacuation time estimates, and all other appropriate factors.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 29 Demonstrate adequate equipment and procedures for decontamination of emergency workers, equipment and vehicles.

Linn County EOC

OBJECTIVE  
NUMBER

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



- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and coordinate emergency activities.
- 4 Demonstrate adequacy of facilities/displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations field personnel.
- 13 Demonstrate ability to alert the public within the 10-mile EPZ, and disseminate an initial instructional message within 15 minutes.
- 14 Demonstrate ability to formulate and distribute appropriate instructions to the public in a timely fashion.
- 15 Demonstrate the organizational ability and resources necessary to manage an orderly evacuation of all or part of the plume EPZ.
- 16 Demonstrate the ability and resources necessary to deal with impediments to evacuation, such as inclement weather or traffic obstructions.
- 18 Demonstrate the ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ.
- 19 Demonstrate the ability and resources necessary to effect orderly evacuation of schools within the plume EPZ.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 22 Demonstrate ability to supply and administer KI, once the decision has been made.
- 24 Demonstrate ability to brief the media in a clear, accurate and timely manner.
- 25 Demonstrate ability to provide advanced coordination of information released.

Benton County EOC

OBJECTIVE  
NUMBER

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

- 2 Demonstrate ability to fully staff facilities and maintain staffing around the clock.
- 3 Demonstrate ability to make decisions and to coordinate emergency activities.
- 4 Demonstrate adequacy of facilities/displays to support emergency operations.
- 5 Demonstrate ability to communicate with all appropriate locations, organizations and field personnel.
- 13 Demonstrate ability to alert the public within the 10-mile EPZ, and disseminate an initial instructional message within 15 minutes.
- 14 Demonstrate ability to formulate and distribute appropriate instructions to the public in a timely fashion.
- 16 Demonstrate the organizational ability and resources necessary to deal with impediments to evacuation, such as inclement weather or traffic obstructions.
- 18 Demonstrate the organizational ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ.
- 19 Demonstrate the organizational ability and resources necessary to effect an orderly evacuation of schools within the plume EPZ.
- 20 Demonstrate ability to continuously monitor and control emergency worker exposure.
- 22 Demonstrate ability to supply and administer KI, once the decision has been made to do so.
- 24 Demonstrate ability to brief the media in a clear, accurate and timely manner.
- 25 Demonstrate ability to provide advance coordination of information released.
- 35 Demonstrate ability to determine and implement appropriate measures for controlled recovery and reentry.
- 17 Demonstrate the organizational ability and resources necessary to control access to an evacuated area.

### Duane Arnold Reception Centers

The following three reception centers will be activated:

- \* Coralville - Johnson County
- \* Independence - Buchanan County
- \* Dubuque - Dubuque County

#### OBJECTIVE NUMBER

- |    |   |
|----|---|
| 1  | Demonstrate ability to mobilize staff and activate facilities promptly.   |
| 2  | Demonstrate ability to fully staff facilities.  |
| 27 | Demonstrate adequacy of procedures for registration and radiological monitoring of evacuees.                    |
| 28 | Demonstrate adequacy of facilities for mass care of evacuees.   |
| 29 | Demonstrate adequate equipment and procedures for decontamination of emergency workers, equipment and vehicles. |

#### 1.5 EXERCISE SCENARIO

The scenario for the exercise consists of a sequence of events resulting in a release of radioactivity of sufficient magnitude to warrant the declaration of a General Emergency. Initial conditions are established as follows:

- DAEC is at 100% power and full core flow and has been operating at these steady-state conditions for six weeks.
- The transfer of spent resin to Hittman for transport and off-site disposal is scheduled to begin at 0800, October 29, 1985, and requires approximately 14 hours for completion.
- Emergency diesel generator "B" is out of service for a major overhaul and repair/replacement of fuel injectors. A seven day LCO has been in effect since 0800, October 26, 1985. Required surveillances for today were started at 0600. Surveillances presently in progress are STP 45G002 (Standby Diesel Generators Daily Operability Test) on "A" diesel generator and STP 45A001-M (LPCI System Monthly Operability Tests) on the "A" loop of RHR.
- All electrical system line-ups are normal with no major electrical switchgear or transformers out of service.
- The outer drywell access door was damaged during the last refueling outage and is removed pending arrival of repair parts that have been on order for 6 months.

The initial sequence involves diesel generator "A" failing its daily operability test due to an inability to pick up rated load due to problems with the speed governor. It must be declared inoperable. This total loss of diesel generators will prompt the declaration of UNUSUAL EVENT.

Concurrently, indications are received that safety valve PSV-4403 is leaking by the seat. A short time later, a hose ruptures during the transfer of spent resin which results in water and resin being sprayed. The ruptured hose is quickly isolated, but the general area radiation level is approximately 1000 mR/hr in this uncontrolled area. This should cause the declaration of an ALERT. Additionally, the HP Technician at the scene will be minorly contaminated and require decontamination on-site.

Gradually worsening loop flow irregularities, indications of a degrading jet pump, are noted by the Control Room. During the performance of STP 45A001-M it is discovered that MOV 2000, containment spray inboard valve, is mechanically bound and will not move. This results in a partial loss of containment spray capability ("A" loop of RHR). Jet pump #12 catastrophically fails. Debris from the ramshead section is carried into the fuel region where it impinges on fuel cladding and lodges in flow channels. The resulting fuel damage results in a Group I main steam line isolation on three times normal high radiation. The reactor scrams and the main turbine trips. A severe reactor level transient occurs, however, level is quickly restored by successful HPCI and RCIC initiations. Indications are that an incomplete scram has occurred and power generation continues at approximately 3% to 4%. A SITE AREA EMERGENCY will be declared as Torus radiation levels rapidly increase to 400 R/hr due to the normal cycling of the relief valves with existing fuel damage.

Conditions in the reactor are stabilized and all control rods are eventually inserted. Safety valve PSV-4403, which has been leaking, finally fails open. Drywell pressure and temperature rapidly increase and drywell conditions warrant the declaration of a GENERAL EMERGENCY when it is discovered that "B" loop of RHR containment spray is also inoperable due to stripped gearing on MOV 1903 and the inability of the manual operator to engage the valve. A short time later, the inner drywell access door seal begins to leak and the radiological release through SGTS begins. The magnitude and direction of the plume will warrant a recommendation for the evacuation of a large portion of the City of Cedar Rapids. The release is terminated when MOV 1903 is repaired, containment spray capability is restored and the drywell is depressurized.

Plant conditions are stable and shutdown cooling is established. Off-site radiation levels decrease. The emergency may be de-escalated. Reentry and recovery operations are discussed.

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

<u>Planned Time</u>	<u>Event</u>	<u>Actual Time</u>
0805	Unusual Event	0815
0845	Alert	0846
1000	Site Area Emergency	1004
1105	General Emergency	1109
1130	Release to Environment	1130
1415	Release is Terminated	1353
1630	Exercise Terminated	1635

### 1.6 STATE AND LOCAL RESOURCES

Indicated below is a list of organizations which participated in the October 29, 1985, exercise.

#### State of Iowa

1. Office of Disaster Services
2. Department of Health
3. University of Iowa Hygienic Laboratory
4. Department of Agriculture
5. Department of Transportation
6. Conservation Commission
7. State Highway Patrol
8. Department of Human Services
9. Department of Aging
10. National Guard
11. Water, Air and Waste Management

#### Iowa Counties

1. Benton County:
  - (a) Municipal Civil Defense and Disaster Services
  - (b) Health Department
  - (c) Sheriff's Department
  - (d) Highway Engineering Department
  - (e) Red Cross
  - (f) Board of Supervisors
2. Linn County:
  - (a) Municipal Civil Defense and Disaster Services
  - (b) Health Department
  - (c) Sheriff's Department
  - (d) Highway Engineering Department
  - (e) Red Cross
  - (f) Board of Supervisors

City of Cedar Rapids

1. Mayor and City Council
2. Police Department
3. Fire Department
4. Traffic Engineering
5. Superintendent of Schools



## 2 EXERCISE EVALUATION

### 2.1 IOWA STATE OPERATIONS

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

The following objectives were to be demonstrated at the SEOC: 1, 2, 3, 4, 5, 10, 11, 12, 17, 24, 25, and 35.

The SEOC received a call from the utility on the Nuclear Accident Reporting System (NARS) at 0815 notifying it of the ALERT classification. Staff mobilization procedures were demonstrated with full staffing of the facility completed by 0930. The organizations represented at the SEOC were: Department of Public Safety, Department of Human Services, Department of Transportation, Department of Health, Department of Aging, Department of Agriculture, Iowa National Guard, State Highway Patrol, Conservation Commission, Water, Air and Waste Management, Commerce Commission, and Attorney General. The American Red Cross was the only organization not represented at the State EOC. Round-the-clock staffing was demonstrated by shift change and/or presentation of a roster. Based on the above facts, Objectives Number 1 and 2 were adequately demonstrated. The 1984 exercise inadequacy regarding the off-hours Duty Officer's unfamiliarity with plans and procedures could not be corrected during this exercise because the inadequacy occurred during non-working hours; this exercise was during working hours.

Decision-making and the ability to coordinate emergency activities was partially demonstrated (Objective Number 3). Periodic briefings were held to update and involve the staff in decision-making. There was good discussion between the Department of Health and the counties concerning protective actions. However, timely notification of the Governor's declaration of a "State of Emergency" was not made to Benton County. The County Plan states that the recommendation to close the schools will be made before the incident escalates to the level that could cause possible exposure to any radiological threat and/or reaches the condition that would warrant the Governor declaring a "State of Emergency" around the plant. The "State of Emergency" declaration was made at 1015. However, the State did not notify Benton County of the declaration until 1238. As the County Plan relies, in part, on receipt of the declaration to initiate school closings, a more timely notification of the declaration to the County must be made. Since the scenario did not require the evacuation of schools within Benton County (this was a non-scenario driven objective), the actual health and safety of the public was not affected. However, in the event that Benton County schools were to be evacuated, timely notification of the declaration should be made to assure that the schools are evacuated as soon as possible in order to reduce the danger of exposure.

The SEOC provided a positive work environment augmented by appropriate maps and displays that were updated in a timely manner. This was noted as an inadequacy during the previous exercise conducted in 1984. Based on the above, Objective Number 4 was adequately demonstrated.

The ability to communicate with all appropriate locations, organizations, and field personnel (Objective Number 5) was fully demonstrated. The NARS provided a simultaneous communication link between the State EOC, Linn County EOC, Benton County EOC, Emergency Operations Facility, and the Forward Command Post and was continuously monitored. Back-up communication to the EOF was demonstrated by the Civil Air Patrol through an aircraft/repeater located midway between Des Moines and Cedar Rapids. The system was relatively weak, but could be improved by using higher power radios at the EOF.

The ability to project dosage to the public via plume exposure based on plant and field data was adequately demonstrated. Field monitoring teams were promptly directed to define the extent of the plume, which was correctly defined. The dose assessment and radiological staff demonstrated the ability to think ahead about plant conditions and their implications for off-site effects. Ingestion pathway protective actions were adequately demonstrated. Appropriate recommendations were promptly made. There were, however, a few instances when some dose projections were not promptly available because of inadequacies in the computer software in use. The computer software system utilized by the State encountered some operability problems and should be modified prior to the next exercise. In light of the above, Objectives Number 10 and 11 were adequately demonstrated.

The SEOC had current information on the location of dairy farms and food processing plants. Water supply intake points are available from the State Office of Department of Water, Air and Waste Management. Appropriate recommendations were made to allow farmers in the secured area to milk cows. Various locations were designated to sample milk before shipment. Thus, coupled with the availability of detailed crop information available through the Agricultural Extension Agency, Objective Number 12 was fully demonstrated.

The organizational ability and resources necessary to control access to an evacuated area (Objective Number 17) was adequately demonstrated.

The ability to brief the media and provide advance coordination of information released was not demonstrated during this exercise. Space was set aside for press briefings at the SEOC, but no briefings were made. Objectives Number 24 and 25 were not demonstrated during this exercise.

The procedure for recovery and reentry (Objective Number 35) was adequately demonstrated. The dose assessment and radiological staff did not conduct recovery and reentry activities with the same level of assurance that they exhibited with respect to radiation exposures in the plume. However, the team worked rapidly and effectively under pressure while dealing with a rather demanding recovery and reentry scenario. It would be helpful to the staff for the State Plan to provide more detailed guidance on radiation response levels appropriate to recovery and reentry situations. These functions should be exercised more often and thoroughly in future scenarios. The State has had limited experience in this area because of previous scenario inadequacies. State involvement is limited with the bulk of recovery and reentry activities occurring at the county level. In light of the above, Objective Number 35 was adequately demonstrated at the State level.

Summary: One of the two inadequacies noted during the previous exercise has been corrected during this exercise. The 1984 exercise inadequacy regarding the off-hours Duty Officer's unfamiliarity with procedures could not be corrected during this exercise because the inadequacy occurred during non-working hours; this exercise was during working hours.

Objectives Number 3, 24 and 25 were not fully demonstrated during this exercise.

#### Area Requiring Corrective Action

1. The ability to brief the media and provide advance coordination of information released was an objective at the State EOC during this exercise. However, this was not demonstrated. (NUREG-0654, G.3.a., G.4.b.)
2. Timely notification of the Governor's declaration of a "State of Emergency" was not made to Benton County. As the County Plan relies in part on receipt of the declaration to initiate school closings in the County, a more timely notification must be made. (NUREG-0654, A.2.a.)

#### Area Recommended For Improvement

The computer software utilized by the State for calculating dose projections should be returned to the supplier for additional modifications to correct the weakness in the program.

### 2.1.2 State Forward Command Post (FCP)

The following objectives were to be demonstrated at the FCP: 1, 2, 3, 4, 5, 16, 17, 20, and 22.

The FCP was activated at 0902 at the ALERT stage. Mobilization procedures were demonstrated with full staffing completed at 0940, approximately forty minutes after initial activation. This is commendable, as none of the staff was prepositioned. The organizations represented at the FCP were the Iowa State Patrol, Iowa Conservation Department, Iowa Department of Transportation, and the Iowa National Guard. Round-the-clock staffing was demonstrated for all FCP participants. Consequently, Objectives Number 1 and 2 were fully demonstrated.

Objective Number 3, Emergency Operations Management, was fully demonstrated. Each organization demonstrated thorough knowledge of its responsibilities with good interaction among themselves. Objectives Number 4 and 5, Facilities and Communications, were also fully demonstrated.

The Iowa State Patrol and the Iowa Department of Transportation has available the appropriate resources necessary to deal with impediments to evacuations. Additional manpower and resources were also identified and could be made available, if required. Access control to the affected areas was also simulated. Based on the above facts, Objectives Number 16 and 17 were fully demonstrated.

The ability to continuously monitor and control emergency worker exposure was fully demonstrated. All appropriate dosimetry equipment and instructions were available to personnel. An adequate supply of potassium iodide (KI) was available, and the staff was familiar with proper procedures concerning its use. Consequently, Objectives Number 20 and 22 were fully demonstrated.

Summary: As the FCP was not evaluated during the previous exercise conducted August 1, 1984, there were no inadequacies identified that required corrective action or subsequent demonstration for reevaluation during this exercise.

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

### 2.1.3 Emergency Operations Facility (EOF)

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

Staffing of the EOF was completed by 1055 with mobilization procedures, Objective Number 1, fully demonstrated. During the previous exercise, this was noted as an inadequacy as the staff was prepositioned with no estimates on actual time requirements for travel. The organizations represented at the EOF were the Iowa Electric Light and Power Company, Iowa Office of Disaster Services (ODS), Iowa Department of Health, Civil Air Patrol, Linn County and Benton County. The working relationship between Iowa Electric

and the organizations represented at the EOF was excellent. Round-the-clock staffing was demonstrated for all organizations except Benton and Linn Counties. Both counties were not prepared for 24 hour staffing. Consequently, Objective Number 2 was only partially demonstrated for Benton and Linn Counties.

Objective Number 4, Adequacy of Facilities and Displays, was fully demonstrated. EOF staff had excellent maps, graphics and visual aids. The leading and trailing edge of the plume, meteorological data and protective action recommendations were all plotted and utilized.

Communications with State and local EOC's through the use of the administrative hot-line was adequately demonstrated. Both primary and secondary communication systems were demonstrated. This was noted as an inadequacy during the previous exercise. There was only one break in the communication link during the exercise when a headset was installed for the ODS staff person. The headset appeared to function well and was an improvement in lieu of a regular telephone. The Civil Air Patrol demonstrated backup communication at the EOF using hand held radios through an aircraft/repeater located midway between Des Moines and Cedar Rapids. The system was relatively weak simply because the hand held radios were only 4 watt radios. Higher power radios, which are available, would have resulted in better quality transmission. The Civil Air Patrol have four aircraft which are available for 24 hour coverage.

With the exception of the weak backup communication system, as stated above, Objective Number 5, Adequacy of Communications, was adequately demonstrated.

Summary: The three inadequacies noted during the previous exercise have been corrected during this exercise.

Objective Number 2 was not fully demonstrated during this exercise.

#### Areas Requiring Corrective Action

3. Round-the-clock staffing was not demonstrated for Benton and Linn Counties. (NUREG-0654, A.4.)

#### 2.1.4 Emergency News Center (ENC)

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

The ENC was activated during the alert stage with full staffing completed at 1100. Objective Number 1, Mobilization and Facility Activation, was fully demonstrated. The organizations represented at the ENC were the Iowa Office of Disaster Services, Iowa Electric Light and Power Company, Linn County and Benton County. Round-the-clock staffing was demonstrated for all the organizations at the facility with the exception of Benton County. The Public Information Officer (PIO) for Benton County had no knowledge of round-the-clock staffing for this position. As the Benton County PIO



has taken the lead in briefing the media concerning the status of an emergency, a serious void will exist in this function if round-the-clock staffing is not provided. Consequently, Objective Number 2 was only partially demonstrated for Benton County.

Objective Number 4, Adequacy of Facilities and Displays, was adequately demonstrated. There was sufficient space, furniture and lighting to accommodate approximately one hundred media representatives. A separate media work area away from the briefing room was provided which reduced the noise and traffic volume during briefings. Maps and displays were available to facilitate dissemination of emergency conditions, but were not used during the briefings.

The ability to communicate with all appropriate locations and organizations was fully demonstrated. Secondary communication links were demonstrated to the State EOC, local EOC's and the EOF. The absence of a secondary communication system was noted as an inadequacy during the previous exercise. Emergency information was obtained rapidly by all the PIO's. For example, at 0956 the Site Area Emergency was declared. The ENC was subsequently notified of the protective action recommendations, including the recommendation for sheltering at 1007. The use of a commercial telephone by the State PIO, instead of the administrative conference line previously used, gave additional time for interaction with the other PIO's. The conference line communication system was noted as an inadequacy during the previous exercise. If immediate verification of information was required, the State PIO could contact the State EOF liaison (located in the same building) who was monitoring the administrative conference line. Based on the above facts, Objective Number 5, Adequacy of Communications, was fully demonstrated.

Four briefings were given periodically throughout the day which were accurate, complete and free from technical jargon. A moderator was used to field questions and refer them to the appropriate individual, i.e., State, county or utility personnel. Geographical and zone descriptions were used during the briefings. Maps and displays were available, but were not utilized. It is recommended that speakers refer to the maps/displays to point out the affected areas where protective action recommendations are being implemented. Press packets distributed were understandable and easy to use. The ability to provide advance coordination of information released was demonstrated. Prior to issuance of any press release by the utility, the contents were verified with State and County PIO's. In several cases errors were discovered and corrected by this process. Based on the above facts, Objectives Number 24 and 25 were fully demonstrated.

The ability to establish and operate rumor control was demonstrated by the Iowa Electric Light and Power Company and the State Office of Disaster Services. The rumor control number was announced during each press briefing. The FEMA evaluator at the ENC elected to call both the utility and the State rumor control number, assuming the role of visiting relatives at a residence within the EPZ. The operator for the utility gave correct instructions and directions for evacuating to the relocation area. However, the operator for the State gave erroneous information. The evaluator was told to evacuate

to Vinton, which was the incorrect relocation area and would have taken the evaluator closer to the plant. Consequently, the operator's unfamiliarity with the evacuation locations and routes would have resulted in the evacuees traveling closer to the plant and possibly into the plume. Objective Number 26, Rumor Control, was not fully demonstrated for the State function.

Summary: The two inadequacies noted during the previous exercise have been corrected during this exercise.

Objectives Number 2 and 26 were not fully demonstrated during this exercise.

#### Areas Requiring Corrective Actions

4. Round-the-clock staffing was not demonstrated for Benton County. (NUREG-0654, A.4.)
5. The State rumor control operator was not familiar with evacuation locations and routes. (NUREG-0654, G.4.c.)

#### Area Recommended for Improvement

The staff at the ENC should utilize the maps and displays that are available when conducting press briefings. This would reduce any confusion that might arise over geographical or zone descriptions of areas affected by protective action recommendations.

#### 2.1.5 Dose Assessment and Field Team Coordination

The following objectives were to be demonstrated: 1, 2, 4, 5, 10, 20, 21, 22, and 35.

Notification of staff was initiated at 0835 with staffing completed at 0900 at the Linn County EOC, fully demonstrating Objective Number 1. Organizations represented at the EOC were the University Hygienic Laboratory (UHL), Linn County Health Department and the Civil Air Patrol. Round-the-clock capabilities were not demonstrated. As no roster of back-up staff was available there was no evidence that a 24 hour operation could be maintained. Based on the above facts, Objective Number 2 was not fully demonstrated.

Objective Number 4, Adequacy of Facilities and Displays, was fully demonstrated. Status boards were clearly visible and kept up to date; radiological monitoring points and radiological data were promptly posted. This corrects an inadequacy from the previous exercise.

Primary communication systems were adequately demonstrated. A backup communication system was available, but not demonstrated. The field team coordinator had excellent radio technique, and utilized the teams effectively. The 1984 exercise inadequacy regarding radio communications to the field teams was resolved during this exercise. Objective Number 5 was adequately demonstrated.

The ability to project dosage to the public via plume exposure based on plant and field data was adequately demonstrated with one exception. The portable computer utilized by the UHL is not yet fully operational, as the software requires some modifications. For example, the UHL staff could not at times easily determine centerline doses for use in comparing with protective action guides (PAG's). However, in light of the above, Objective Number 10 was adequately demonstrated.

The UHL staff properly made decisions to issue Potassium Iodide (KI) to emergency workers based on actual and expected release data. The staff subsequently demonstrated the ability to supply and administer KI once the decision had been made. Consequently, Objectives Number 21 and 22 were fully demonstrated.

The ability to continuously monitor and control emergency worker exposure, Objective Number 20, was fully demonstrated.

Objective Number 35, Recovery and Reentry, was adequately demonstrated. Relaxation of protective actions were made based on monitor data indicating safe levels of radioactivity. Reentry and recovery decisions were promptly communicated to all response organizations. Arrangements were made to provide the public with information on safety precautions during recovery. However, as the radioactivity level was somewhat high, the scenario allowed little time for reentry procedures. Future scenarios should allow sufficient time for comprehensive demonstration of reentry procedures. The concern over the high radioiodine ground deposition activity was noted in the scenario review (Section 3 of this report).

Summary: The four inadequacies noted during the previous exercise have been corrected during this exercise.

Objective Number 2 was not fully demonstrated during this exercise.

#### Areas Requiring Corrective Action

6. Round-the-clock staffing was not fully demonstrated for the University Hygienic Laboratory (UHL), Linn County Health Department and the Civil Air Patrol. (NUREG-0654, A.4.)

#### 2.1.6 Radiological Field Monitoring Teams

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

Mobilization of the field teams was adequately demonstrated. The two field teams each consisted of one member of the University Hygienic Laboratory and the Linn County Department of Health. Prior to deployment, both teams were briefed on current plant and meteorological conditions. Appropriate equipment and procedures for determining ambient radiation levels were demonstrated. Equipment was available for obtaining soil, vegetation,



water, and milk samples for both teams. The lack of basic environmental sampling equipment was identified as an inadequacy during the previous exercise for the green team. Based on the above facts, Objectives Number 6 and 7 were fully demonstrated.

The blue team adequately demonstrated appropriate equipment and procedures for measurement of airborne radioiodine in the presence of noble gases (Objective 8). In addition, the blue team demonstrated appropriate equipment and procedures for collection, transport, and analysis of samples of soil, vegetation, snow, water, and milk. The green team was not requested to perform these functions. Written procedures for use of equipment was available for both teams. Recent calibration of the equipment was performed and documented. Lack of written operating procedures and documentation of equipment calibration dates were identified as inadequacies during the previous exercise. Based on the above facts, Objectives Number 8 and 9 were fully demonstrated.

The ability to communicate with all appropriate locations, organizations and field personnel was adequately demonstrated for both teams. Each team utilized two vehicles; a van which carried the field teams and equipment and a auto which was used as the communications vehicle. Each van contained a radio that could transmit, however, the Linn County EOC did not have the equipment to receive the signal. Therefore, the auto contained the communications equipment and provided the link to the EOC, and the van could only monitor the communications. The green team utilized a small compact auto for the communications vehicle which would have difficulty negotiating some of the gravel roads during adverse weather conditions. Consideration should be given to using a more rugged vehicle for the green team. Also, installation of the appropriate primary and secondary communications system in the vans for both teams would eliminate the need for two vehicles. Based on the above facts, Objective Number 5 was adequately demonstrated.

Field Team Exposure Control (Objective 20) was fully demonstrated. Each team had adequate protective equipment, including anti-contamination suits, boots, gloves, tongs, and respirators. The teams had adequate dosimetry including TLD's. Dosimetry readings were recorded at 30 minute intervals. However, though record keeping cards were available, they were not used. Dosimetry readings were recorded at the Linn County EOC and State Hygienic Laboratory. Both teams were aware of the preestablished decontamination center they would utilize in the event of contamination.

Summary: The two inadequacies noted during the previous exercise have been corrected during this exercise.

There were no inadequacies observed that would require corrective action.

#### Areas Recommended For Improvement

A more rugged vehicle, such as a van or four wheel drive, should be provided to the green field team in lieu of the small compact car, as adverse wheather conditions could cause great difficulty to tranverse some roads.

Installation of primary and secondary communication systems in the vans would eliminate the need for two vehicles for each field team and simplify the communications system.

### 2.1.7 Radiological Laboratory

The following objectives were to be demonstrated: 9 and 20.

The appropriate equipment and procedures for collection, transport and analysis of samples of soil, vegetation, snow and milk (Objective Number 9) were partially demonstrated. There are no written procedures available to Laboratory personnel for analyzing snow samples. During winter months, when the ground is snow covered, there are no provisions for evaluating ground deposition of radioactive fallout. Written procedures for analyzing snow samples should be developed. Also, transportation of samples from the field collection point to the States analysis laboratory was not demonstrated.

The equipment in the laboratory was adequate to perform all types of analysis for each type of sample collected. However, the physical inventory of radiological detection instrumentation located in the Hygienic Laboratory does not agree with the written inventory listed in the State Plan. The State Plan should be revised to accurately reflect the Laboratory's physical inventory.

The staff generally displayed adequate training and knowledge. Maintenance and calibration procedures for the laboratory equipment were appropriate.

Based on the above facts, Objective Number 9 was partially demonstrated.

The ability to continuously monitor and control emergency worker exposure (Objective Number 20) was not adequately demonstrated. Permanent record dosimeters were not available. Appropriate instructions were not available for the use of the direct-read or permanent dosimetry. Laboratory personnel must be provided with TLD or film dosimeters, including the appropriate instructions and training in their use.

The ability to fully staff facilities and maintain staffing around the clock was not an objective during this exercise. Consequently, round-the-clock staffing capability was not demonstrated. However, the current list of back-up personnel is out of date and needs to be expanded. As this was not an objective, it will not be identified as an area requiring corrective action, but must be included as an objective during the next exercise scheduled for November, 1986.

Summary: As the Radiological Laboratory was not evaluated during the previous exercise conducted August 1, 1984, there were no inadequacies identified that required corrective action or subsequent demonstration for reevaluation during this exercise.

Objectives Number 9 and 20 were not fully demonstrated during this exercise.

Areas Requiring Corrective Action

7. Written procedures are not available for analyzing snow samples. (NUREG-0654, I.8.)
8. The State Plan does not accurately reflect the actual equipment utilized by the University Hygienic Laboratory. (NUREG-0654, I.7.)
9. Permanent record dosimeters were not available for the University Hygienic Laboratory staff. (NUREG-0654, K.3.a.)

## 2.2 COUNTY OPERATIONS

### 2.2.1 Linn County Emergency Operations Center (LCEOC)

The following objectives were to be demonstrated at the LCEOC: 1, 2, 3, 4, 5, 13, 14, 15, 16, 18, 19, 20, 22, 24, and 25.

The LCEOC received notification of the Alert at 1000; EOC staffing was completed at 1020. Staff mobilization procedures were demonstrated, as was round-the clock staffing for all EOC participants. The staff generally displayed adequate training and knowledge. Objectives Number 1 and 2 were fully demonstrated.

Decision-making and the ability to coordinate emergency activities (Objective Number 3) were also demonstrated with one exception. A helicopter was dispatched to visually locate the plume. However, the crew members had neither the equipment to locate the plume, nor the required dosimetry. As the plume cannot be seen in the atmosphere, as was assumed, the aircraft could have easily flown through it. Obviously, both the aircraft and the crew would have been exposed. Therefore, if the county is intending to utilize a helicopter to perform this type of function, it must be equipped with the appropriate equipment and its crew supplied adequate dosimetry and training. Based on the above facts, Objective Number 3 was not fully demonstrated.

The facilities were adequate, showing some improvement over the previous exercise. Status boards were clearly visible and kept up-to-date on significant events. All appropriate maps and displays were available. Objective Number 4 was fully demonstrated.

All relevant primary communication systems were demonstrated, as well as the back-up to the State EOC, Benton County EOC, EBS Station and the media center. A conference line was available and demonstrated between the State EOC, Benton County EOC, Linn County EOC and the EOF. Communication links were also established with the Superintendent of Schools, local hospital, ambulance service and radiological monitoring teams. Based on the above facts, Objective Number 5 was fully demonstrated.

Objective Number 13, ability to alert the public within the 10-mile EPZ, and disseminate an initial instructional message, within fifteen minutes was fully demonstrated. At 0959 the State EOC notified Linn County that a Site Area Emergency was declared at 0948. A simulated siren activation took place at 1004. The EBS message was prepared, with a simulated call to the EBS station also at 1004.

The ability to formulate and distribute appropriate instructions to the public in a timely fashion (Objective Number 14), was adequately demonstrated. Instructions were clear and appropriate to the situation and were periodically repeated. All combinations of subsectors have been predefined by geographic boundaries to facilitate message formulation. In addition, Cedar Rapids has available five helicopters with public address systems that could be used for alerting the public.

The organizational ability and resources necessary to manage an orderly evacuation of the plume EPZ and to deal with impediments to evacuation, such as inclement weather or traffic obstructions, were fully demonstrated. Activation of traffic control points were promptly ordered; estimates of expected traffic volume were discussed. The Iowa State Patrol and local Police Department would assist, if requested by the County Sheriff's Office. Based on the above facts, Objectives Number 15 and 16 were fully demonstrated.

Objective Number 18, organizational ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ was demonstrated to the extent possible. A comprehensive list of mobility-impaired individuals is not available. Linn County has attempted to obtain a list of all mobility-impaired individuals through various State and local service agencies. However, the agencies will not release the names and addresses of these individuals, citing the Privacy Act. Consequently, the County attempted to compile a list by sending questionnaires to residents within the EPZ requesting that individuals who are mobility-impaired and who require or request assistance in evacuation, return the card to the County. However, this was also unsuccessful. As a means of bridging the gap imposed by the Privacy Act, Red Cross and County Human Services representatives in the EOC serve as intermediaries between the EOC and the social service agencies. They perform the necessary notification to the agencies. Those agencies would contact the mobility-impaired individuals to determine if assistance is required and subsequently inform the County. The County has compiled a list of resources that could be used for evacuating mobility-impaired individuals. EBS messages contain a phone number for mobility-impaired individuals to call, if assistance is required. Based on the above facts, Objective Number 18 was adequately demonstrated.

The ability and resources necessary to effect an orderly evacuation of schools within the plume EPZ was not adequately demonstrated. School evacuation plans are only available for the Cedar Rapids schools. Plans are not available for all of the remaining Linn County school districts. The county response is that the children will simply be dismissed from school and told to go to their homes or other facility and remain inside. This is the same procedure that would be used for early release due to weather conditions or closings due to failure of utilities. An exception is that students would not be returned to areas which have been instructed to evacuate. They would be taken to a holding school outside of the 10 mile EPZ. However, care must be exercised to assure that students are not returned to their homes or other areas who live within, at a minimum, the effective 10 mile EPZ. This procedure would place both the students and their parents or guardians at increased risk of exposure if a wind shift was to occur during a release or conditions at the plant worsened. It should be noted that this was identified as an inadequacy during the August 1, 1984 exercise. The County anticipates that the plans for evacuation of all schools, per the criteria noted above, will be completed by February 26, 1986.

The Plan must distinguish between a severe weather policy and a radiological emergency. Therefore, based on the above facts, Objective Number 19 was not adequately demonstrated and a deficiency exists until appropriate plans are developed. The plans must include procedures to assure that children in public, private and pre-schools are not returned to their



homes that are located within the 10 mile EPZ, as stated above. A memorandum dated November 15, 1985, from FEMA Region VII to the Iowa State Office of Disaster Services confirms identification of this deficiency and requires remedial action no later than February 26, 1986.

Monitoring and control of emergency worker exposure (Objective Number 20) was adequately demonstrated. All appropriate dosimetry was available including mid-range dosimeters. The lack of mid-range dosimeters was identified as an inadequacy during the previous exercise. Dose record cards have been developed and were distributed with the dosimetry. An adequate supply of KI was available and the staff was aware of proper procedures concerning its use. Written instructions for use were also provided with the individual packages of KI. Objective Number 22 was fully demonstrated.

Objectives Number 24 and 25, ability to brief the media in a clear, accurate and timely manner and to provide advance coordination of information released, was demonstrated at the Emergency News Center. The county participation and subsequent evaluation is contained in Section 2.1.4 of this report.

Summary: One of the two inadequacies noted during the previous exercise was corrected during this exercise. The inadequacy concerning the effective evacuation of school children from the EPZ was not resolved.

Objectives Number 3 and 19 were not fully demonstrated during this exercise.

### Deficiency

Procedures for the effective evacuation of school children from the EPZ are not adequate or non-existent. (NUREG-0654, E.6.)

### Area Requiring Corrective Action

10. A helicopter was dispatched to visually locate the plume. However, the crew members had neither the equipment to locate the plume, nor the required dosimetry or training. (NUREG-0654, I.8., K.3.a., O.4.g.)

### 2.2.2 Benton County Emergency Operations Center (BCEOC)

The following objectives were to be demonstrated at the BCEOC: 1, 2, 3, 4, 5, 13, 14, 16, 17, 18, 19, 20, 22, 24, 25, and 35.

The BCEOC received notification of the Alert at 0855; EOC staffing was completed at 1000. Staff mobilization procedures were demonstrated, as well as round-the-clock staffing for all participants except the County Public Information Officer (PIO) and the Red Cross. The lack of 24 hour staffing capability was identified as an inadequacy during the previous exercise. Based on the above facts, Objective Number 1 was fully demonstrated and Objective Number 2 was partially demonstrated.

The ability to make decisions and to coordinate emergency activities (Objective Number 3) was adequately demonstrated.

Displays and facilities to support the emergency operations were excellent. Maps were posted showing the plume EPZ, evacuation routes, relocations centers, radiological monitoring points and population by evacuation area. This was identified as an inadequacy during the previous exercise. Based on the above facts, Objective Number 4 was fully demonstrated.

All relevant primary and secondary communications systems were demonstrated to all the appropriate organizations. The administrative hot line was lost several times during the exercise; however, it was reestablished quickly each time. Based on the above, Objective Number 5 was fully demonstrated.

The ability to alert the public within the 10-mile EPZ and disseminate an initial instructional message within 15 minutes, Objective Number 13, was adequately demonstrated. Linn County has the primary responsibility for this objective, which was adequately demonstrated during the Site Area Emergency. Benton County subsequently demonstrated their ability to perform public alerting and notification during the General Emergency classification. This demonstration was to correct an inadequacy identified during the previous exercise conducted August 1, 1984.

Objective Number 14, ability to formulate and distribute instructions to the public in a timely fashion was fully demonstrated. This was identified as an inadequacy during the previous exercise. It should be noted that the system utilized for drafting EBS messages was commendable. A personal computer was used to store all the prescribed EBS messages. This allowed the messages to be easily and quickly altered to correspond to the emergency situation at hand. A hard-copy of the message was printed and then telefaxed to the EBS station, Linn County EOC and the Emergency News Center.

The County Health Officer monitored the radiological conference line throughout the exercise, recording technical information concerning the release, plotted the plume and interacted frequently with the EOF on field monitoring data. This was commendable and would have been an excellent source of information, if the plume had a greater impact on Benton County and additional protective actions been requested.

The ability to deal with impediments to evacuation, such as inclement weather or traffic obstructions was adequately demonstrated, as was the organizational ability and resources necessary to control access to an evacuated area. Objectives Number 16 and 17 were adequately demonstrated.

The organizational ability and resources necessary to effect an orderly evacuation of mobility-impaired individuals within the plume EPZ was adequately demonstrated. As with Linn County, a comprehensive list of mobility-impaired individuals cannot be obtained from the four local service agencies within the County, each citing the "Privacy Act". Therefore, through written agreements, each service agency will contact their respective list of individuals to determine if assistance is required. The service agency will then notify Benton County of those who need assistance and the address

of each individual. Benton County's function is to notify these local agencies to begin contacting the individuals. Based on the above provisions, Objective Number 18 was adequately demonstrated.

The ability and resources necessary to effect an orderly evacuation of schools within the plume EPZ was adequately demonstrated. Procedures have been established and sufficient resources identified to perform this objective. The County Plan states that the recommendation to close the schools will be made before the incident escalates to the level that could cause possible exposure to any radiological threat and/or reaches the condition that would warrant the Governor declaring a "State of Emergency" around the plant. The "State of Emergency" declaration was made at 1015. However, the County did not receive verification of the declaration until 1238. Since the County Plan relies, in part, on receipt of the Governor's declaration to initiate school closings, a more timely notification of the declaration to the County should be made. This was identified as an inadequacy of the State EOC. In light of the above, Objective Number 19 was adequately demonstrated by the County.

Monitoring and control of emergency worker exposure (Objective Number 20) was adequately demonstrated with one exception. An adequate supply of TLDs was not available for the BCEOC staff. This was also noted as an inadequacy during the two previous exercises. The Benton County response for this inadequacy for the previous exercise held August 1, 1984, was that the TLDs will be in place the following exercise. The University Hygienic Laboratory is responsible for distribution, but it has not supplied the county with the appropriate amount as only five or six are currently on hand.

An adequate supply of KI was available and the staff was aware of the proper procedures concerning its use. Objective Number 22 was fully demonstrated.

Objectives Number 24 and 25, ability to brief the media in a clear, accurate and timely manner and to provide advance coordination of information released, was demonstrated at the Emergency News Center. The county participation and subsequent evaluation is contained in Section 2.1.4 of this report.

The ability to determine and implement appropriate measures for controlled recovery and reentry was adequately demonstrated. Procedures were discussed for allowing entry to evacuated areas for essential services, e.g., milk dairy cows, and relaxation of protective actions were based on field monitoring data indicating safe levels of radioactivity. Based on the above facts, Objective Number 35 was adequately demonstrated.

Summary: Three of the five inadequacies noted during the previous exercise were corrected during this exercise. The lack of 24-hour staffing for Benton County EOC participants was corrected with the exception of the PIO. The lack of permanent record dosimeters for emergency workers was not corrected.

Objectives Number 2 and 20 were not fully demonstrated during this exercise.



### Areas Requiring Corrective Action

11. Round-the-clock staffing was not demonstrated for the Benton County PIO. (NUREG-0654, A.4.)
12. The county does not have a sufficient number of permanent record dosimeters (TLDs) for emergency workers. This has been identified as an inadequacy during the two previous exercises. (NUREG-0654, K.3.a.)

#### 2.2.3 Johnson County Reception and Decontamination

The following objectives were to be demonstrated for this facility: 1, 2, 27, 28, and 29.

Activation and staffing, Objectives Number 1 and 2 were adequately demonstrated for reception, registration and mass care, as well as radiological monitoring and decontamination. The organizations represented at this facility were: American Red Cross, Iowa City Fire Department, Johnson County Sheriff's Office, Johnson County Civil Defense Agency, and University Hygienic Laboratory. Round-the-clock staffing capabilities were demonstrated with presentation of a roster.

The adequacy of procedures for registration and radiological monitoring of evacuees (Objective Number 27) was not adequately demonstrated. The evacuees were allowed to proceed to registration without being monitored. Obviously, if some of the evacuees were contaminated, the entire registration area would be exposed. In addition, the registrars were completing dose records, which should be performed by monitoring personnel. The staff performing this function was not adequately trained and did not have sufficient experience in these procedures. Based on the above facts, Objective Number 27 was not adequately demonstrated.

The facilities were adequate for mass care of evacuees. The shelter could accommodate approximately 2,200 evacuees with overflow facilities available. The facility was adequate in terms of sleeping accommodations, toilets, drinking water, secure storage and parking. The school system could provide food supplies. In addition, the shelter was staffed and equipped to accommodate handicapped evacuees. Appropriate communication levels were established between the local EOC and the Emergency Medical Facility. Based on the above facts, Objective Number 28 was fully demonstrated.

Equipment and procedures for decontamination of emergency workers, equipment and vehicles (Objective Number 29), were partially demonstrated. The fire department staff was not aware of what level of exposure constitutes the need for decontamination or the appropriate methods for monitoring, as shown in the State Plan. The lack of experience and training contributed to this inadequacy. However, the University Hygienic Laboratory personnel were familiar with these techniques. The facility, equipment, and personnel would allow for monitoring and decontamination of approximately 60 people and 20 vehicles per hour. Based on the above facts, Objective Number 29 was not adequately demonstrated.

Summary: As the Johnson County Reception and Decontamination Center was not evaluated during the previous exercise conducted August 1, 1984, there were no inadequacies identified that required corrective action or subsequent demonstration for reevaluation during this exercise.

Objectives Number 27 and 29 were not fully demonstrated during this exercise.

Areas Requiring Corrective Action

13. Evacuees were not monitored prior to registration. Training must be provided with emphasis on contamination control regarding monitoring and registration of evacuees. (NUREG-0654, K.5.a., O.1.)
14. The fire department staff was not aware of what level of exposure constitutes the need for decontamination or the appropriate methods for monitoring, as shown in the State Plan. (NUREG-0654, K.5.a.)

#### 2.2.4 Buchanan County Reception and Decontamination

The following objectives were to be demonstrated for this facility: 1, 2, 27, 28, and 29.

Activation and staffing, Objectives Number 1 and 2, were adequately demonstrated for this facility. The organizations represented at this center were: American Red Cross (ARC), Buchanan County Fire Department, Buchanan County Civil Defense Agency, Buchanan County Mental Health Institute and the University Hygienic Laboratory. Round-the-clock staffing capabilities were demonstrated with presentation of a roster.

Objective Number 27, registration and radiological monitoring of evacuees, was adequately demonstrated. Evacuees were checked for radiological contamination prior to registration. Four teams were available for monitoring evacuees and vehicles.

The facilities for mass care of evacuees were adequate. The shelter could accommodate approximately 4,200 evacuees with overflow facilities available. There were adequate sleeping accommodations, toilets, drinking water, secure storage, and parking. The local school system is capable of supplying food supplies. Also, the shelter was staffed and equipped to accommodate handicapped evacuees. A nursing station was established with quick access to hospital care, if required. Communication links were established between the State and local EOC and emergency medical facilities. Objective Number 28 was fully demonstrated.

Equipment and procedures for decontamination of evacuees and vehicles (Objective Number 29), was adequately demonstrated. Procedures for handling radioactive wastes, including contaminated wash water, were also demonstrated. The facility, equipment, and personnel would allow for monitoring and decontamination of approximately 10 people and 8 vehicles per hour. Based on the above, Objective Number 29 was adequately demonstrated.

Summary: As the Buchanan County Reception and Decontamination Center was not evaluated during the previous exercise conducted August 1, 1984, there were no inadequacies identified that required corrective action or subsequent demonstration for reevaluation during this exercise.

There were no inadequacies observed at this center that would require correction action.

#### 2.2.5 Dubuque County Reception and Decontamination

The following objectives were to be demonstrated at this facility: 1, 2, 27, 28, and 29.

Activation and staffing, Objective Number 1 and 2, were adequately demonstrated for this facility. The organizations represented at this center were: American Red Cross (ARC), Dubuque County Fire Department, Dubuque County Civil Defense Agency and the University Hygienic Laboratory. Round-the-clock staffing capabilities were demonstrated with presentation of a roster.

Registration and radiological monitoring of evacuees were adequately demonstrated at this facility. Evacuees were properly monitored for contamination prior to registration. ARC shelter registration forms were used to segregate monitored evacuees from new arrivals to prevent any spread of contamination. All evacuees were checked for registration cards before being allowed entry to the registration center. Four teams were available to monitor evacuees and vehicles. Objective Number 27 was fully demonstrated.

Objective Number 28, facilities for mass care of evacuees, was adequately demonstrated. The shelter could accommodate approximately 1200 evacuees with overflow facilities available. The facility was adequate in terms of sleeping accommodations, toilets, drinking water, secure storage, and parking. Food supplies are available from the central school system. In addition, the shelter was staffed and equipped to accommodate handicapped evacuees. A communication link was established between the local EOC and hospital. Also, a nursing station was established at this facility. Based on the above facts, Objective Number 28 was adequately demonstrated.

Equipment and procedures for decontamination of evacuees and vehicles (Objective Number 29) were adequately demonstrated. Procedures for handling radioactive wastes, including contaminated wash water, were also demonstrated. The facility, equipment and personnel would allow for monitoring and decontamination of approximately 9 people and 15 vehicles per hour. Based on the above, Objective Number 29 was adequately demonstrated.

Summary: As the Dubuque County Reception and Decontamination Center was not evaluated during the previous exercise conducted August 1, 1984, there were no inadequacies identified that required corrective action or subsequent demonstration for reevaluation during this exercise.

There were no inadequacies observed at this center that would require corrective action.

### 3 SCENARIO

The data contained in the scenario was adequate to drive the objectives, but did not accurately reflect what would actually occur. Using the scenario source term and meteorological data, the radioiodine ground deposition activity was much higher than those indicated in the scenario radiological data. This made reentry and recovery procedures somewhat difficult at times. Consequently, in future exercises ground deposition activity and radioactive concentrations in the air will be expected to accurately reflect the source term data as contained in the exercise scenario. These concerns were expressed in a memorandum from FEMA Region VII to Iowa Office of Disaster Services on October 25, 1985.

4 SUMMARY OF DEFICIENCY AND AREAS REQUIRING CORRECTIVE ACTIONS

DEFICIENCY

COUNTY OPERATIONS

Linn County Emergency Operations Center (LCEOC)

Procedures for the effective evacuation of school children from the EPZ are not adequate or non-existent. (NUREG-0654, E.6.)

AREAS REQUIRING CORRECTIVE ACTION

IOWA STATE OPERATIONS

State Emergency Operations Center (SEOC)

1. The ability to brief the media and provide advance coordination of information released was an objective at the State EOC during this exercise. However, this was not demonstrated. (NUREG-0654, G.3.a, G.4.b.)
2. Timely notification of the Governor's declaration of a "State of Emergency" was not made to Benton County. As the County Plan relies in part on receipt of the declaration to initiate school closings in the County, a more timely notification must be made. (NUREG-0654, A.2.a.)

Emergency Operations Facility (EOF)

3. Round-the-clock staffing was not demonstrated for Benton and Linn Counties. (NUREG-0654, A.4.)

Emergency News Center (ENC)

4. Round-the-clock staffing was not demonstrated for Benton County. (NUREG-0654, A.4.)
5. The State rumor control operator was not familiar with evacuation locations and routes. (NUREG-0654, G.4.c.)

Dose Assessment and Field Team Coordination

6. Round-the-clock staffing was not demonstrated for the University Hygienic Laboratory (UHL), Linn County Health Department and the Civil Air Patrol. (NUREG-0654, A.4.)

Radiological Laboratory

7. Written procedures are not available for analyzing snow samples. (NUREG-0654, I.8.)



8. The State Plan does not accurately reflect the actual equipment utilized by the University Hygienic Laboratory. (NUREG-0654, I.7.)
9. Permanent record dosimeters were not available for University Hygienic Laboratory staff. (NUREG-0654, K.3.a.)

#### COUNTY OPERATIONS

##### Linn County Emergency Operations Center (LCEOC)

10. A helicopter was dispatched to visually locate the plume. However, the crew members did not have the equipment to locate the plume, nor did they have the required dosimetry or training. (NUREG-0654, I.8., K.3.a., O.4.g.)

##### Benton County Emergency Operations Center (BCEOC)

11. Round-the-clock staffing was not demonstrated for the Benton County PIO. (NUREG-0654, A.4.)
12. The County does not have a sufficient number of permanent record dosimeters (TLDs) for emergency workers. This has been identified as an inadequacy during the two previous exercises. (NUREG-0654, K.3.a.)

##### Johnson County Reception and Decontamination

13. Evacuees were not monitored prior to registration. Training must be provided with emphasis on contamination control regarding monitoring and registration of evacuees. (NUREG-0654, K.5.a., O.1.)
14. The fire department staff was not aware of what level of exposure constitutes the need for decontamination or the appropriate methods for monitoring, as shown in the State Plan. (NUREG-0654, K.5.a.)