

JUN 29 1984

In Reply Refer To:
Docket: 50-285

Omaha Public Power District
ATTN: W. C. Jones, Division Manager
Production Operations
1623 Harney Street
Omaha, Nebraska 68102

Gentlemen:

Enclosed is a copy of the Federal Emergency Management Agency state and local agency "Exercise Evaluation" for the Fort Calhoun Station radiological emergency response exercise held December 6-7, 1983.

Please review the report and be prepared to cooperate with state and local officials as necessary during their efforts to correct the exercise deficiencies.

Sincerely,

Original: _____ By
E. H. Johnson

E. H. Johnson, Acting Chief
Reactor Project Branch 2

Enclosure:
As Stated

cc: w/enclosure
W. G. Gates, Manager
Fort Calhoun Station
P.O. Box 399
Fort Calhoun, Nebraska 68023

Harry H. Voight, Esq.
LeBoeuf, Lamb, Leiby & MacRae
1333 New Hampshire Avenue, NW
Washington, DC 20036

bcc to DMB (IE35)

bcc distrib. by RIV:

RPB2 Resident Inspector
Section Chief (RPB2/A) R. Bangart, DRS&S
RIV File R. Denise, DRS&P
KANSAS STATE DEPT. HEALTH
NEBRASKA STATE DEPT. HEALTH

J. Collins, RA

R. Hall, EP&RPB

J. Montgomery

C. Hackney

EPS *AM*
JLMontgomery/rc
6/23/84

EPSC *AM*
JBBaird
6/23/84

EP&RPB
REHall
6/20/84

DRS&S
RLBangart
6/28/84

RPB2 *700* AI 84-369
EHJohnson
6/28/84

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PDR ADOCK 05000285
F PDR

IE35
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Federal Emergency Management Agency

Washington, D.C. 20472

MAY 3 1984

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

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

SUBJECT: Exercise Report of the December 6-7, 1983, Full
Scale Joint Exercise of the Offsite Radiological
Emergency Preparedness Plan for the Fort Calhoun
Nuclear Power Station

Attached are two copies of the Exercise Report of the December 6-7, 1983, full scale joint exercise of the offsite radiological emergency preparedness plans for the Fort Calhoun Nuclear Power Station. The States of Nebraska and Iowa participated in the exercise along with the Nebraska Counties of Dodge and Washington, and the Iowa Counties of Harrison and Pottawattamie. The report dated March 15, 1984, was prepared by Region VII of the Federal Emergency Management Agency (FEMA). This exercise report reflects the comments from the Regional Assistance Committee review.

FEMA Region VII staff furnished a copy of the report to the States of Nebraska and Iowa and will request a schedule of actions for correction of deficiencies. As soon as we receive and analyze the States' responses, we will send you the results.

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

Attachment
As Stated

~~54-598-279~~

EXERCISE EVALUATION



December 6-7, 1983, Exercise of the
Radiological Emergency Response Plans of the
State of Nebraska, Dodge and Washington
Counties, and the State of Iowa,
Harrison and Pottawattamie Counties for the
Omaha Public Power District's
FORT CALHOUN NUCLEAR POWER STATION
at Blair, Washington County, Nebraska

March 15, 1984

Federal Emergency Management Agency

Region VII

PATRICK J. BREHENY
Regional Director

911 Walnut Street
Kansas City, MO 64106

Handwritten signature/initials

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

FOR THE

FORT CALHOUN NUCLEAR STATION

Blair, Washington County, Nebraska
Omaha Public Power District, Licensee

EXERCISE CONDUCTED
December 6-7, 1983

PARTICIPANTS:

State of Iowa
County of Harrison
County of Pottawattamie

State of Nebraska
County of Dodge
County of Washington

(All jurisdictions with inhalation
pathway responsibilities participated)

prepared by
Federal Emergency Management Agency
Region VII

March 15, 1984

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ABBREVIATIONS AND ACRONYMS

BLUEBIRD	Nebraska State Patrol Mobile Emergency Communications Center
CD	Civil Defense
CRUSH	Nebraska Civil Defense Portable Operations Center
EARO	Emergency Assessment and Recovery Operations
EBS	Emergency Broadcast System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
FAA	Federal Aviation Administration
FCNPS	Fort Calhoun Nuclear Power Station
FCP	Field Command Post
HCEOC	Harrison County Emergency Operations Center
IAC	Information Authentication Center
ISEOC	Iowa State Emergency Operations Center
KI	Potassium Iodide
LOCA	Loss of Coolant Accident
MRC	Media Release Center
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)
OES	Office of Disaster Services
OPPD	Omaha Public Power District
PCOOC	Pottawattamie County Emergency Operations Center
PIO	Public Information Officer
RAC	Regional Assistance Committee
SOP	Standard Operating Procedure
TLD	Thermoluminescent Dosimeter

EXERCISE SUMMARY

NEBRASKA OPERATIONS

The State EOC was an excellent facility and activation and staffing occurred in a timely manner. The exercise indicated that a need to review the state plan may be necessary with regard to identification of minimum staffing needs and documentation of the State EOC interaction with the Field Command Post (FCP). Management of the State EOC was good and communications functioned well. Timely coordination of communications existed between the State EOC, the FCP and Washington County; this corrected an earlier identified deficiency. Dose assessment and protective action recommendations were overall well coordinated between the State EOC, the FCP and CRUSH. However, Iowa and Nebraska needed to coordinate decision making for implementing consistent protective actions on either side of the Missouri River boundary. Protective action instructions were effectively conveyed to the public; familiar geographical boundaries would be more understandable in descriptions to the public.

The CRUSH mobile unit performed well as a communication link. Dose calculations performed at CRUSH were performed acceptably. However, delays in receipt of data from the utility made independent dose calculations too late for useful state decision making. In one instance, incorrect data was transmitted to the state by the utility resulting in dose projections that were significantly different than the utility's. No apparent attempt was made at CRUSH or the State EOC to resolve this data discrepancy. Radiological exposure control was good except demonstration of the availability of permanent record dosimeters was needed. Also, the predetermined conditions for use of radioprotective drugs by emergency workers need to be reviewed. Scenario source term data were not compatible with the plume measurement source term data provided to the field teams. Also, this data was not in the proper form.

The Bluebird communications facility functioned as planned and no communications or message interpretation problems were identified. Overall, decision making, message flow, and management were well demonstrated and no deficiencies or areas for improvement were identified.

The two field monitoring teams (Nebraska State Team and the Cooper Nuclear Power Station Team) were activated promptly. Neither team was briefed on plant or meteorological conditions nor were they kept informed of these conditions throughout the exercise. Communications equipment functioned well between both the field teams and CRUSH. The Nebraska team was well-equipped, however, one counter did not work. The Cooper team was also suitably equipped except one radiation monitoring instrument was not operational. Charcoal cartridges were not available for air sampling. Technical operations were generally performed well by both field teams. Additional training will improve use of some instruments and some field procedures need to be clarified

in the plan or SOPs. Both teams had adequate dosimetry and displayed generally good knowledge in radiological exposure control procedures. Overall, it was indicated that the field teams were not used as effectively as they could have been to track the plume. Samples from additional monitoring points would be useful to create worthwhile field team exercises.

Activities at the Dana College Coliseum decontamination center were primarily simulated and considered to be acceptable. Additional state health physics personnel may be needed for extended operations. A full demonstration of decontamination capabilities should be carried out in a future exercise.

The University of Nebraska Medical Center performed professionally and had excellent facilities to care for the injured-contaminated (simulated) individual that was brought to the medical center by the Blair Rescue Squad. On the other hand, adequate communications, protective equipment, and training are needed for the Blair Rescue Squad.

Nebraska County Operations

Emergency operations management, communications equipment and staffing, public alerting and notification, and facilities were good at the Washington County EOC. Additional training and review of plan procedures are needed in the notification of staff and conveying correct emergency classification level information. Several special issues regarding school evacuations and needs of the mobility-impaired were identified and need to be resolved. Direct-read dosimeters were available in satisfactory numbers. However, permanent record dosimeters were not available and a review of procedures for reading dosimeters is suggested.

Operations in Dodge County consisted of exercising the County EOC and a decontamination center. The Dodge County EOC was an acceptable facility for emergency response operations. Emergency operations management, appropriate public notification activities, and radiological exposure control were all effectively carried out. The Dodge County relocation center also performed well in registering, monitoring, decontaminating, and providing congregate care of evacuees. Overall, some review of procedures would help to refine some of the already acceptable activities demonstrated at the two Dodge County sites during the exercise.

IOWA OPERATIONS

The Iowa State EOC was well-managed and decision-making procedures followed those prescribed in the plan. Alert and notification of the EOC staff was done promptly. Participation by state and volunteer agencies was good but three agencies identified in the plan did not participate. All EOC staff displayed adequate training and knowledge. Facilities at the EOC were satisfactory, although not all of the recommended visual aids were posted.

Further, the state and OPPD should agree on a common map designating and identifying radiological monitoring sites. Protective action recommendations for the plume and ingestion pathways were made. Provisions for the prompt broadcast of EBS messages following siren activation requires improvement. Dose assessment functions were effectively carried out. However, the decision to administer KI to emergency workers in the field was made late and was not justified by projected doses made at the forward command post.

Field monitoring teams were mobilized promptly from Iowa City and Ames. The teams were well-equipped, however one team had no power supply for their air sampler. Procedures for collecting air samples had been modified to correct deficiencies identified in prior exercises. More training is required for members of the field monitoring teams in determining the need for decontamination of emergency personnel, supplies, and equipment. The Blue team also requires training in the proper collection procedures for, and determination of radioiodine concentrations in the field.

Coordination of the field radiological monitoring teams was done from the forward command post located at the Harrison County EOC. The team coordinator managed the operation well, but was handicapped by inadequate communications to the field, conflicting maps of the locations of field monitoring sites, and the lack of an administrative interface with the county EOC. The latter was most evident in poor message handling and plant condition briefings.

The Missouri Valley Hospital has recently been added as a resource hospital for accepting radiologically contaminated persons with injuries. For this exercise, the simulated injured person was diverted to the University of Nebraska Medical Center. No medical support activities were observed. Hospital personnel were familiar with the appropriate procedures, but needed experience because they have not been exercised. Further, the hospital did not have adequate radiological monitoring instruments.

Iowa County Operations

The Harrison County EOC was activated promptly. However, several persons with no emergency responsibility under the current plan were also called in. In general, the staff displayed adequate knowledge and training. Round-the-clock staffing capability was demonstrated. Command and control functions were not effectively demonstrated since the Office of Disaster Services (ODS) representative officially in charge was occupied with communication functions. The EOC facilities were generally adequate and all recommended visual aids were posted. All efforts put forth by the EOC to alert the public was done promptly and well. Traffic control points were effectively implemented. The county needs to learn the locations of mobility-impaired persons and develop procedures for their prompt evacuation.

The Pottawattamie County EOC's primary function was public notification. As such, the entire EOC was not activated. All key managerial staff were on duty and were well-trained for their assigned duties. The director of communications was effectively in charge. The facilities were adequate and the center could support extended operations. However, no maps or displays indicating evacuation routes, relocation centers, access control points or population distribution were present. Communications equipment functioned well. The EOC responded to a greater degree than was expected under the exercise scenario. Traffic control points were activated, route-alerting was simulated, and an omission in the state plan regarding the number of residences in the 2-mile EPZ was identified. However, this strong performance in the field brought out the need for extensive training in the use of dosimeters and provisions for the use of potassium iodide.

COMBINED STATE FUNCTIONS

The EOF was promptly and adequately staffed with key personnel. However, no support staff were available to relieve officials of routine telephone calls and to properly handle messages. The Iowa representatives need training in their duties. Space and equipment for EOF staff were very limited. The room was overcrowded and no displays or maps of required information were available. Additional training is recommended in management and decision-making responsibilities, emphasizing familiarization with procedures in the plan.

Activation of the information authentication center (IAC) was promptly demonstrated by PIOs from the utility, Nebraska Civil Defense, and the NRC. The state of Iowa was not represented at the IAC. The facilities at the IAC were adequate. The IAC was also well-equipped with communications equipment. Periodic briefings were held at the IAC throughout the day. On occasion, the content of emergency messages transmitted to the media release center were found to be erroneous or in conflict with instructions contained in the public information brochure.

The media release center (MRC) was effectively activated by representatives from the utility and each of the states. The facilities at the MRC were adequate, however, maps and displays to facilitate dissemination of information were small and generally inadequate. Communications equipment were sufficient and operated well. Media kits providing reporters with background information were available. The participants were well-trained and knowledgeable. Media briefing sessions were conducted and a technical liaison from the utility was present to answer technical questions. The rumor control lines were activated and the operators were well-trained. Rumor control operators were also kept up to date through continuous interaction with the MRC staff.

1 INTRODUCTION

1.1 EXERCISE BACKGROUND

A radiological emergency exercise was conducted on December 7, 1983, to evaluate the adequacy of state and local emergency plans and response capabilities in States of Iowa and Nebraska in the event of an emergency at the Fort Calhoun Nuclear Station located near Blair, Nebraska. The plans evaluated included the Radiological Emergency Response Plans for Nuclear Power Plant Incidents of, respectively, the state of Nebraska and Washington County (NE), and the Nuclear Incident Reception Plans of Dodge and Sarpy Counties (NE). Also evaluated were the Iowa Emergency Plan, the Harrison County (IA) Radiological Contingency Plan, and the Pottawattamie County (IA) Radiological Emergency Plan. The current Harrison and Pottawattamie County plans are not in compliance with NUREG-0654, II criteria and therefore are inadequate as emergency plans. The state of Iowa has assumed responsibility for emergency management and has adapted the Compensatory Measures Plan to Chapter 12 of the State Plan. The Compensatory Measures Plan will provide guidance to the counties until the appropriate county plans are finalized.

The exercise was conducted jointly by the Omaha Public Power District and the States of Iowa and Nebraska (and associated local governments). All relevant jurisdictions in the States of Iowa and Nebraska participated, except for two counties with reception and care responsibilities (Crawford County, IA and Sarpy County, NE) that were not exercised in those locations. However, the Sarpy County EOC was activated (for communications purposes only), and was not observed during the exercise.

An exit interview was conducted with the participants at 10:00 a.m., December 8, 1983, in the Douglas County EOC in Omaha, Nebraska. Details of the evaluators findings were presented at this exit interview. A public briefing was conducted following the exit interview at 3:00 p.m. in Room B-14 of the Federal Building in Council Bluffs, Iowa. At this briefing, highlights of the exercise evaluators' findings were presented by both the RAC Chairman and the NRC Team Leader. State and local officials were invited to participate in the briefing.

This report represents the findings of the evaluators specific to the objectives identified in Sec. 1.4. While various problem areas may be identified as needing corrective attention, the principal focus of the report is on the success of the participating agencies in accomplishing these objectives and in establishing whether past deficiencies have been corrected. Because this was the first exercise conducted under revised state and local plans for several jurisdictions in both Iowa and Nebraska, it serves as a baseline against which to determine whether, over the course of time, offsite response organizations will have fulfilled all 35 "core objectives" identified by FEMA Headquarters.

This report shall be provided to the States of Iowa and Nebraska in order they it may act on the recommendations contained herein to improve the emergency response capabilities of both State and local governments. Sixty days from the date of receipt of this document, State and local governments should submit to the Regional Director, FEMA VII, their comments on the report and any proposal for remedial action concerning the problems identified in Sec. 3 of this document.

1.2 EXERCISE EVALUATORS

Observations and evaluations of the exercise were performed by members of the Region VII, Regional Assistance Committee, FEMA Regional staff and qualified Federally employed and contracted evaluators. The following is a complete list of evaluators, their agency affiliations, and their evaluation assignments:

<u>Evaluator</u>	<u>Agency</u>	<u>Assignment</u>
M. Carroll	FEMA ¹	Iowa FCP (at Harrison Co. Sheriff's Dept.)
B. Brinck	EPA ²	Iowa FCP (Rad Team Ops.)
E. Jenkins	FEMA	EOF
G. Jacobson	FDA ³	Iowa State EOC
K. Waller	FEMA	Iowa State EOC
J. Opelka	ANL ⁴	Blair Rescue Squad/UNMC Radiation Center
R. Honkus	INEL ⁵	Iowa Field Team
W. Biedenfeld	HHS ⁶	Iowa Field Team
B. Salmonson	INEL	Iowa Field Team
P. Stahlschmidt	FEMA	Media Release Center
S. Kinser	FEMA	Pottawattamie Co. Sheriff's Dept.
L. Wilborn	NRC ⁷	EOF - Iowa Operations (North Omaha Station)
D. Nevitt	USDA ⁸	Nebraska State EOC
S. Kouba	DOE ⁹	Nebraska State EOC
R. Leonard	FEMA	Washington County EOC
T. Hogan	FEMA	Washington Co. EOC
B. Scott	FEMA	Dodge Co. EOC
G. McClure	FEMA	Nebraska EOF/IAC
M. Browne	DOT ¹⁰	Nebraska EOF/IAC
J. Keller	INEL	Nebraska State FCP (Accident Assessment)
L. Wilborn	NRC	Iowa EOF North Omaha Station
J. Meyers	DOT	Nebraska State FCP (Police)
C. Herzenberg	ANL	Nebraska Field Team
N. Chipman	INEL	NPPD Field Team (Cooper N5)

¹FEMA Federal Emergency Management Agency

²EPA Environmental Protection Agency

- ³FDA Food and Drug Administration
- ⁴ANL Argonne National Laboratory
- ⁵INEL Idaho National Engineering Laboratory
- ⁶HHS U.S. Department of Health and Human Services
- ⁷NRC Nuclear Regulatory Commission
- ⁸USDA U.S. Department of Agriculture
- ⁹DOE U.S. Department of Energy
- ¹⁰DOT U.S. Department of Transportation

1.3 EVALUATION CRITERIA

The exercise evaluations presented in Sec. 2 are based on applicable planning standards and evaluation criteria set forth in Section II of NUREG-0654/FEMA-REP-1, Rev. 1 (November, 1980). Following the overview narrative for each jurisdiction, deficiencies are presented with accompanying recommendations. Deficiencies can be presented in two categories. The first category includes those deficiencies that would cause a finding that off-site emergency preparedness was not adequate to provide reasonable assurance that appropriate measures can and will be taken to protect the health and safety of the public living near the site in a radiological emergency. These are "Class A" deficiencies that lead to a negative finding. A negative finding must be based on at least one deficiency of this type. There were no deficiencies in this category at this exercise of the Fort Calhoun Nuclear Power Station.

The second category includes "Class B" deficiencies where demonstrated (and observed) performance during the exercise was considered faulty and corrective actions are considered necessary, but other factors indicate that reasonable assurance could be given that, in the event of a real radiological emergency, appropriate measures can and will be taken to protect the health and safety of the public.

1.4 EXERCISE OBJECTIVES

The State of Iowa, in a communication to FEMA Region VII dated August 19, 1983, identified the following formal objectives for the state, to be accomplished at the December 7, 1983 emergency response exercise for the Fort Calhoun Nuclear Station.

OBJECTIVE	RELEVANT NUREG-0654 CRITERIA
1) INITIATE AND DEMONSTRATE the notification and warning activities of the appropriate action levels continuing throughout escalation and de-escalation, including recovery and reentry time.	E.2, E.5-E.7
2) INITIATE AND DEMONSTRATE the public information/ education activities at the appropriate emergency action level, continuing throughout escalation and deescalation.	E.5, E.7, G.3.a, G.4, (all)
3) ACTIVATE AND DEMONSTRATE radiological monitoring off-site with proper interface between State and monitoring teams and readiness to request federal assistance if necessary.	C.1.b, C.3, I.8, I.9, I.11
4) PERFORM one assessment and make subsequent protective action guide recommendations.	I.10, J.9
5) ACTIVATE AND DEMONSTRATE functions of the fixed Iowa forward control post.	E.2, E.6, H.3, H.4
6) ACTIVATE AND DEMONSTRATE telephone coordination and implement hardcopy data transmission for public information and radiological data purposes during the exercise.	E.7, F (all)
7) ACTIVATE Iowa State EOC with operational and decision-making functionalities.	A.1.d, E.2, H.3, H.4
8) ACTIVATE AND DEMONSTRATE, as appropriate, bi-state coordination on radiological data collection and analysis; recommendations and implementations of protective actions; and dissemination of warning and public information.	A.3, E.5-E.7, F.1.b, G.4 (all), H.12, I.7, I.10, J.9, J.10 (all)

The State of Nebraska, in a communication to FEMA VII dated 19 September 1983, reported the intention of affected state and local government(s) in Nebraska to test (demonstrate) the following support capabilities at the December 7, 1983 emergency response exercise for the Fort Calhoun Nuclear Station.

STATE RESPONSE

RELEVANT
NUREG-0654
CRITERIA

- | | |
|---|--------------------------------|
| 1) Deployment and operation of the State Field Command Post to include local and long-range communications. | E.2, F.1 (all), H.4 |
| 2) Notification and follow-up contacts with State, Federal and private agencies having responsibilities under the Nebraska Plan. | A.1 (all), A.3, E.1, F.1 (all) |
| 3) Demonstration of reaction times and supporting resources estimates for key state and selected federal agencies. | C.1.b, C.1.c, E.2 |
| 4) State field radiological monitoring activities field health hazard assessment, and coordination of protective action recommendations with Governor's Authorized Representative and State EOC - to include State aerial radiological monitoring to roughly define the parameters of the airborne plume. | I.8, I.10, I.11, J.9, J.10.m |
| 5) Assumption of operational status and functioning of State EOC as well as coordination with agencies and field elements, including inter-state coordination between State EOCs. | A.3, E.2, F.1.b, H.4 |
| 6) State EOC coordination of simulated federal technical and non-technical support under the National Radiological Emergency Preparedness Plan (NREPP), including message flow and simulated support by NRC, DOE and FEMA. | C.1.b, C.4, F.1.c |
| 7) State CD support for the jointly operated Information Authentication Center (IAC) and Media Release Center (MRC). | E.5, E.7, G.3.a, G.4 (all) |
| 8) Agricultural agency response, as coordinated by the USDA State Emergency Board acting in conjunction with the State Department of Agriculture, to support the protective measures determined by the State Health Department. | A.2.a, A.3, C.1.b, J.11 |

RELEVANT
NUREG-0654
CRITERIA

LOCAL RESPONSE

- | | |
|--|-----------------------------------|
| 1) Initial notification receipt and alerting of key people. | E.1, E.2 |
| 2) Communications and coordination with all involved agencies. | A.1.b, A.3, F (all),
G.4 (all) |
| 3) Activation of local Emergency Operating Centers (EOCs). | E.2, E.6, H.3, H.4 |
| 4) Practice of coordinated access control and security by selected law enforcement agencies. | J.10.j |
| 5) Increased readiness measures for potential operation of a relocation center, including possible testing of facilities and locations at alternate sites. | H.4, J.10.h, J.12 |
| 6) Decontamination station operation, including evaluation of facilities and locations to be considered as alternate sites. | H.4, K.5.b |
| 7) Coordination of public information activities, including preparations for notification of the public with actual notification being simulated. | E.5-E.7, G.3.a, G.4
(all) |
| 8) Provision of fire and rescue support as required by plant. | A.2.a, A.3, (B.9) |
| 9) Transport and reception of simulated radiation casualties. | A.2.a, (B.9), L.1, L.4 |

1.5 EXERCISE SCENARIO

Initial conditions included a severe ice storm in progress in the EPZ, which knocked out power in two major transmission lines. There was a major power outage in the Blair area. The plant was operating at full power along a third unaffected 345 KV transmission line because the ice storm had caused a grid emergency. Unknown to anyone, damage to a steam pressure vent valve leading from containment had opened a hole in the valve allowing air to pass into the vent line. An explosion of the UF₆ storage area subsequent to receipt of a threatening telephone call initiated a notification of UNUSUAL EVENT on the night of December 6. After turning over the investigation of the

incident to the Washington County Sheriff's Department, the UNUSUAL EVENT was to have been terminated.

At 6:00 a.m. the following morning, a seized rotor led to a pressure "spike" followed by short-term failure of the steam bypass valves. Although most valves reseal properly, the still unknown leak in the damaged vent valve resulted in increasing radiation activity in containment. This led to a "puff" release sometime after 6:30 a.m., causing declaration of an ALERT. Following failure of offsite power to the plant, radioactive leakage continued increasing, and led to declaration of SITE AREA EMERGENCY sometime after 9:10 a.m. During this time period, a plant technician sustained a heart attack while drawing a sample of primary coolant, resulting in his (simulated) contamination and need for offsite decontamination/ambulance transport. Also, the plant sustained a small break LOCA which, coupled with failure of all onsite a.c. power due to a piston seizure in the diesel generator, precipitated declaration of a GENERAL EMERGENCY at approximately 11:00 a.m. on December 7. Release of radioactive gases to the environment terminated at about 2:00 p.m. following discovery and plugging of a steam line leak upstream of the defective valve, with subsequent downgrading of the event leading to exercise termination by about 4:30.

Table 1 shows the timeline for notification and receipt of information concerning changes in emergency classification levels at each of the offsite facilities activated for this exercise.

Table 1 Selected Events, Times, Locations

	Nebraska State EOC	Iowa State EOC	MRC	EOF	IAC	Washington County, Ne.	Dodge County, Ne.	Harrison County, Ia.	Pottawattamie County, Ia.
Alert	6:24	6:20	6:27	N.O.	6:20	6:47	N.O.	7:26	7:45
Notification	N.O.	6:20	N.O.	6:30	6:55	6:53	6:24	7:29	8:41
EOC Activated	N.O.	8:00	8:05	9:20	N.O.	N.O.	N.O.	11:10	not activated
EOC Staffed	8:49	8:30	10:02	9:00	8:36	8:10	9:42	11:08	8:00
Site Area Emergency	9:25	9:26	9:27	9:27	9:27	9:28	9:32	9:26	9:31
Sirens	N.O.	9:35	N.O.	9:27	N.O.	9:33	9:42	9:26	9:34
Shelter Message	11:09	9:35	11:25	10:45	N.O.	11:17	N.O.	11:25	11:10
Evacuate 2 mi	11:43	11:25	11:25	N.O.	N.O.	11:45	N.O.	11:25	11:12
Evacuate 5 mi	12:45	N.O.	1:21	12:45	N.O.	N.O.	N.O.	12:59	12:42
Evacuate 10 mi	1:05	12:38	N.O.	1:33	N.O.	N.O.	N.O.	2:08	12:59
Gen. Emergency	11:09	11:11	11:09	11:09	11:10	11:10	11:09	11:05	11:12
Sirens	N.O.	11:12	N.O.	N.O.	N.O.	N.O.	N.O.	11:09	9:34
EBS Broadcast	N.O.	10:05	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.
Downgrade	N.O.	N.O.	4:55	4:20	N.O.	N.O.	N.O.	N.O.	4:29

N.O. - not observed.

1.6 MILESTONES FOR EXERCISE OBJECTIVES AND CRITIQUES

Indicated below are milestones for exercise observations and critiques with scheduled and actual completion dates.

Activity	Scheduled	Actual	Comment
State and licensee jointly submit exercise objectives to FEMA and NRC regional offices	Sept. 23	Sept. 19	IA, NE
FEMA and NRC regional offices discuss and meet with licensee/state as necessary and prepare response	Oct. 7	Oct. 18	
State and licensee scenario developers submit exercise scenario to FEMA and NRC regions for review	Oct. 24	Oct. 24	Inadequate scenario detail for emission and met data
FEMA and NRC regions notify state and licensee of scenario acceptability	Nov. 2		Informally discussed
FEMA and NRC regions develop specific post exercise critique schedule with the state and advise FEMA and NRC headquarters	Nov. 7	Nov. 30	Informally discussed earlier; letter sent (11/30)
RAC chairman and NRC team leader meet to develop observer action plan	Nov. 22		Informally discussed
Meeting in the exercise area, of all federal observers both onsite and offsite to finalize assignments, and give instructions	Dec. 6	Dec. 6	
Exercise	Dec. 6 & 7	Dec. 6 & 7	
FEMA and RAC observers caucus to collate observations. NRC observers also caucus to collate observations.	Dec. 7	Dec. 7	
RAC chairman and NRC team leader meet, as soon after their respective caucuses as practical, to coordinate federal participation in critique	Dec. 8	Dec. 8	
Joint RAC/NRC critique	Dec. 8	Dec. 8	

1.7 STATE AND LOCAL RESOURCES

Indicated below is a list of organizations which planned to participate in the exercise.

Omaha Public Power District

Federal Government

1. Nuclear Regulatory Commission, Region III

State of Iowa

1. Iowa Office of Disaster Services
2. Iowa State Department of Health
3. Iowa National Guard
4. Iowa Department of Public Safety (Iowa Highway Patrol)
5. Iowa Department of Water, Air & Waste Management
6. Iowa Department of Transportation
7. University Hygienic Laboratory
8. Office of the Governor, State of Iowa
9. Office of the Attorney General, State of Iowa
10. Iowa Department of Social Services
11. Iowa Department of Agriculture
12. Iowa Commission on Aging
13. Iowa Conservation Commission
14. Iowa Commerce Commission

Counties

1. Harrison/Pottawattamie County Municipal Civil Defense and Disaster Services
2. Harrison/Pottawattamie County Health Departments
3. Harrison/Pottawattamie County Sheriff's Departments
4. Harrison/Pottawattamie County Highway Engineering Departments
5. Harrison/Pottawattamie County Red Cross
6. Harrison/Pottawattamie County Board of Supervisors

State of Nebraska

1. Office of the Governor
2. Civil Defense Agency
3. Department of Health

4. State Patrol
5. Department of Aeronautics
6. Commission on Aging
7. Department of Agriculture
8. University of Nebraska
9. Department of Economic Development
10. Department of Education
11. Educational Television Commission
12. State Fire Marshall
13. Game and Parks Commission
14. National Guard
15. Commission on Indian Affairs
16. Department of Insurance
17. Department of Public Institutions
18. Department of Public Welfare
19. Department of Roads
20. Department of Veterans Affairs
21. Department of Environmental Control

Nebraska Counties

1. Washington County Civil Defense
2. Washington County Sheriff
3. Washington County Chairman of Commissioners
4. City of Blair: Mayor and City Administrator
5. Washington County Chamber of Commerce
6. Douglas and Dodge County REACT
7. Blair Rescue Squad
8. Douglas County Civil Defense
9. Douglas County Fire Department
10. Douglas County Board
11. Douglas County Sheriff
12. Dodge County Civil Defense
13. City of Fremont Police Department
14. City of Fremont Civil Defense
15. City of Fremont Fire Department

Volunteer Agencies

American Red Cross
Salvation Army

2 EXERCISE EVALUATION

This section presents the exercise evaluation grouped by State and county. For each jurisdiction, there is an overview section, a list of deficiencies, and NUREG-0654 Criteria Element-by-Element (Planning Standard) review. Planning standards are designated by letters, corresponding to the NUREG-0654 letter designations. The evaluation includes only those planning standards which are appropriate for off-site emergency response activities. The evaluation criteria are fully described in Sec. 1.3 of this report. However, it should be reiterated that there were no deficiencies that would lead to a negative finding at this exercise of the Fort Calhoun Nuclear Power Station. All deficiencies observed are in the second category. This category includes deficiencies, with accompanying recommendations, where demonstrated (and observed) performance during the exercise was considered faulty and corrective actions are considered necessary, but other factors indicate that reasonable assurance could be given that, in a real radiological emergency, appropriate measures can and will be taken to protect the health and safety of the public.

2.1 NEBRASKA OPERATIONS

2.1.1 State EOC

Overview

The State EOC was activated and staffed in a timely manner according to established internal procedures. However, in a few cases the written call up list was not up to date. A representative of the State Police, Department of Games and Parks, Department of Agriculture, Department of Health, Civil Defense, and the American Red Cross were present as well as a logging clerk. A capability for 24-hour staffing was demonstrated by the presentation of a roster for two shift operation. These shifts have been used and found to be adequate during natural disaster emergencies and corrects a previously identified deficiency. The exercise indicated that actions taken by the State of Nebraska were adequate to protect the health and safety of the public. However, the State plan fails to adequately describe the minimum staff necessary to operate the EOC. Also, the state plan does not indicate how the State EOC interacts with the field command post (FCP) in making dose assessment calculations and protective action recommendations.

Management of the State EOC was good. The operations officer utilized the public address system to keep EOC staff informed. The staff was involved in decision making and this was accomplished in an effective manner. Several copies of the plan were available. The operations officer informed the county

EOCs of emergency classification status changes immediately upon receipt from the utility. Security measures were not provided at the entrances to the EOC.

The facilities at the State EOC were excellent. The EOC can be operated on a continuous basis through the use of a backup generator, bunks, showers, and a kitchen. Displays were adequate and a clearly visible status board was kept up to date. The plume EPZ map was divided into sectors as specified in NUREG-0654. An overlay system was used to identify sheltering and evacuation areas and to display meteorological conditions.

Communications consisted of telephone, civil defense national radio systems, and a high speed telecopier; there were no difficulties with the communications equipment during the exercise. Ham radio operators were also available, if required. Conferencing was also available between the EOCs in Nebraska and Iowa, the media release center and the EOF. There was timely coordination between the State EOC, the FCP, and the Washington County EOC. This demonstration corrects a previously identified deficiency.

Dose assessment and protective action recommendations were coordinated between EOC, the FCP, and CRUSH. The FCP served as the central point for the receipt and analysis of radiological monitoring data received from field teams dispatched by the State. The majority of all detailed calculations related to dose assessment were performed in the FCP. The radiological health representative in the State EOC checked calculations using simple empirical graphs and/or equations. In most cases, data provided by the utility, and in some cases, existing weather and road conditions, were used to make plume pathway protective action decisions. Ingestion pathway decisions were made in a similar manner.

Due to the small amount of radioiodine released, only emergency workers within the plume EPZ were advised to take KI.

Protective action recommendations made by Nebraska and Iowa could cause confusion between Nebraska and Iowa residences if the two states independently recommend different protective actions. This particular problem was demonstrated during the exercise when, at the same time in the exercise, the State of Iowa was recommending evacuation of population and the State of Nebraska was recommending only placing livestock on stored feed. This problem becomes more significant when the population on both sides of the Missouri River are listening to the same Emergency Broadcast Station (EBS) for instructions. Residences of Nebraska and Iowa would benefit if the two states would define an equivalent basis and decision chain for making protective actions relative to siren activation, sheltering, evacuation, etc.

Local Civil Defense personnel actions to activate the siren systems were initiated by a utility recommendation that was relayed to the local level by the State EOC. This same recommendation initiated actions to notify the area EBS station. Following the test signal made by the EBS station, an announcement was conveyed relating to the Fort Calhoun exercise. The EBS

message was made in less than 15 minutes after receiving the initial utility's recommendation. Protective action instructions to the public were prepared as a joint venture by the State EOC and the FCP. Instructions made by the state, in most cases, used NUREG-0654 sector designations rather than geographical boundaries which would be more familiar to local residents.

The county has responsibility for evacuation and access control with assistance from various state agencies. During the exercise, the state patrol assisted with access control points and representatives at the EOC were available to monitor traffic flow using aircraft. The FAA was notified by the Department of Aeronautics to restrict air space and the Coast Guard was notified to blockade water traffic on the Missouri River.

Dairy farms were instructed to go on stored feed at the Alert stage as a precautionary measure. Listings and maps of dairy farms, food processing plants, and produce crop farms were available. In addition, updated statistical data on crops could be made available. An underground water supply in the involved area precluded any necessity for water supply protective actions.

The states' media activities were implemented at the media release center (MRC) and the information authentication center (IAC). The IAC was located at the EOF and a State PIO was stationed there. Press releases were telefaxed to the State EOC.

The exercise objectives did not include recovery and reentry functions. Therefore, Nebraska's demonstration of this activity was extremely limited. Actions taken at the State EOC were made in response to input from state field operations.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed at the State EOC during this exercise.

Deficiencies and Recommendations

1. Deficiency: The written State plan fails to adequately describe the minimum number of personnel to operate the EOC and how the State EOC interacts with the Field Command Post personnel in making dose assessment calculations and protective action decisions (NUREG-0654, II, A.1.b, A.2.a).

Recommendation: It would be beneficial if the State plan was clarified in order to allow maximum flexibility of existing conditions and available state resources.

2. Deficiency: A potential problem between the radiological health decision makers in Nebraska and Iowa exists in how protective actions recommendations are made for sectors adjacent to and overlapping the Missouri River.

Recommendation: When the plume travels across the Missouri River, residents of Iowa and Nebraska would benefit if the two states would define an equivalent basis and decision chain for making protective actions relative to siren activation, sheltering, evacuation, etc.

3. Deficiency: Protective action instructions to the public were provided using NUREG-0654 sector designations rather than familiar geographical boundaries.

Recommendation: Use of familiar geographical boundaries in describing areas affected by protective actions and recommendations would be more clearly understandable to local residents.

2.1.2 State Civil Defense Portable Operations Center - CRUSH

Overview

The CRUSH is a mobile van that primarily performs a communication function for the various response organizations. It provides the main communications link between the field command post and the state EOC. CRUSH has capability for communications with local governments and the EOF. The mobile unit also provides an operational area for the Governor's representatives and an area for staff to perform dose assessment calculations.

The communications equipment was excellent and well-trained personnel performed all of the necessary communication activities. Telephone connections and AC power were provided and a backup power generator was available. The radio equipment included several frequencies. A repeater was available on the frequency used by the field monitoring teams, thus "dead" spots were eliminated. Additional hand-held radios were also available if needed.

The dose calculations were performed at CRUSH in an acceptable manner following procedures recommended by EPA. The calculations were made in a timely fashion after the data was received from the utility by CRUSH. Delays of up to 45 minutes in receiving the utility data were encountered. Thus, independent dose calculations by the state were too late for useful decision making. On one occasion, incorrect data was supplied to CRUSH from the utility, thus state dose projections were significantly different from the

utility. No apparent attempt was made to resolve this data discrepancy problem. Also, because the projected plume track was not plotted, inefficient use of the field monitoring teams was evident.

The staff at CRUSH and one of the field teams were issued simulated TLDs. The use of simulated TLDs created concerns as to whether a sufficient number of TLDs were actually available when clearly an insufficient number of simulated TLDs were distributed. Direct-read dosimeters were available and KI was administered to the field monitoring teams. The order for the use of KI came late in the emergency phase. If KI was to be used, it should have been administered 1 to 2 hours earlier and should have been based on a source term sufficiently high to warrant such use.

Significant problems were encountered with the scenario data. The source terms used during the exercise were not compatible with the plume measurement data provided to the field teams. In addition, information provided to the field teams was not in the proper form; the information provided was not field data, the data consisted of calculations derived from field data.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative were observed at CRUSH during this exercise.

Deficiencies and Recommendations

1. Deficiency: Delays of up to 45 minutes were encountered in the receipt of utility data at CRUSH. On one occasion incorrect data was supplied to CRUSH from the utility, resulting in state dose projections that were significantly different from the utility's. No apparent attempt was made by the state to resolve this data discrepancy (NUREG-0654, II, I.8, I.10).

Recommendation: The cause of the delays in receipt of data needs to be identified and a remedy implemented. Additional training and/or a review of procedures in verifying accuracy of utility data is needed.

2. Deficiency: The lack of sufficient simulated TLDs raises concerns as to whether a sufficient number of TLDs could actually be made available in a real emergency (NUREG-0654, II, K.3.a).

Recommendation: The use of simulated TLDs as a means to display capability is not recommended. It is suggested that permanent-record dosimetry availability be demonstrated in future exercises.

3. Deficiency: The order for the use of KI occurred late in the exercise; KI should have been administered 1 to 2 hours earlier and should have been based on source terms sufficiently high to warrant its use (NUREG-0654, II, J.10.f).

Recommendation: The predetermined conditions under which decisions are made to administer radioprotective drugs to off-site emergency workers should be reviewed.

4. Deficiency: The source terms used during the exercise were not compatible with the field data provided. Also, field data supplied to the field teams were not in the proper form; the data provided were calculations derived from field data (NUREG-0654, II.I).

Recommendation: Assure that source terms used during the exercise are compatible with the field data provided and make provisions to ensure that field data supplied to field teams are in the proper form. The final scenario should be provided to FEMA to review for completeness and accuracy at least 45 days prior to the exercise.

2.1.3 State Patrol Mobile Communications Facility - Bluebird

Overview

The Bluebird unit is part of the State Field Command Post complex and provides alternate communications for CRUSH as well as support for law enforcement operations in the plume EPZ. Bluebird maintains radio or mobile telephone contact with CRUSH. This operation was performed as planned and no communications or message interpretation problems were identified. All appropriate maps and SOPs were available and the Bluebird team demonstrated effective knowledge of operating procedures. The Bluebird team simulated many activities, including refueling patrol autos, the Bluebird bus, and power generators. Twenty-four hour staffing of the Bluebird bus and patrol officers was evident and an individual was being trained during the exercise to add future staffing flexibility and depth. Overall, decision making, message flow and management were well demonstrated and no deficiencies were identified.

2.1.4 Field Monitoring Teams

Two teams were involved in field monitoring in Nebraska. An overview and deficiencies and recommendations are provided below for each team from the state of Nebraska and from the Cooper Nuclear Power Station.

2.1.4.1 Nebraska Team

Overview

The early phases of field team mobilization seem to have been conducted expeditiously. Team members were notified from a written call list, which included home and work telephone numbers and a listing of backup personnel. Team members arrived at the EOF from Lincoln in 1.5 hours. A 4-wheel drive vehicle with equipment packed was ready for rapid deployment. However, before deployment the team was not briefed on current plant or meteorological conditions. Communications between the Nebraska field team and CRUSH were established immediately by use of UHF and VHF radios. This communications link was maintained throughout the exercise and generally functioned well.

The Nebraska field team was well-equipped. The four-wheel drive was suitable for most terrain but experienced an electrical problem which required that it be jump started whenever the engine was turned off. The field team had a checklist for equipment which was contained in the vehicle. According to team members the equipment had been calibrated in March or April, 1983. Radiation monitoring equipment included a hand-held 0-2000 mR/hr survey meter, a 0-50R/hr full range ionization chamber instrument, and a sodium iodide scintillation counter with multichannel analyzer, which was not functional. Air sampling equipment operated on power from the vehicle and both charcoal and silver zeolite cartridges were available. Additional sampling equipment included a soil or snow sampling shovel, plastic collection bags, containers, writing materials, identification labels, and plastic jugs for water and milk samples.

Field team technical operations were performed reasonably well. The team did not perform calculations in the field. Instrument readings were transmitted by radio to the health physicist at CRUSH who was to perform the calculations. The team was generally familiar with the area being monitored. The team had their G-M counter activated and the battery checked, but did not use a radioactive source for on-the-spot calibration. Team members used the instruments correctly to obtain ground and air readings. An air sample was collected using equipment in the vehicle. The team also drove to a stationary air sampler near the plant and simulated a cartridge change. A snow sample was collected and placed in a plastic bag rather than in a leakproof container. Overall, the team members were reasonably well acquainted with their equipment, but some minor confusion in operation of the instruments occurred. The team had not had an adequate opportunity to become

familiar with their sodium iodide gamma spectrometry system prior to the exercise.

Radiological exposure control equipment was good. Each team member had both a mid-range (0-20 R) and a high range (0-100 R) dosimeter; these dosimeters were read and recorded with acceptable frequency. A survey meter was kept operating in the vehicle to provide a continuous indication of counting rate, thus providing an indication if they were moving into the plume. A charger for the dosimeters was available. Film badges were available but TLDs were simulated. Simulated KI was taken when instructions from CRUSH indicated to do so. Additional equipment available included anti-contamination suits, boots, gloves, and air tanks with respirators. There was indication of a need to familiarize the team members with maximum dose allowed without authorization and what procedures should be carried out if an excess dose was received.

Overall, the scenario did not well utilize or effectively test the Nebraska field team. Instrument readings were taken from only one monitoring point. This was not a field team inadequacy, the team performed well as directed. However, the field team was not directed properly to obtain useful plume information. Furthermore, a controller with cue cards was not assigned to the field team, thus, the only source of exercise data was an incomplete listing of whole body dose rate and iodine concentration that was available to the federal observer.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed for the Nebraska field radiological monitoring team.

Deficiencies and Recommendations

1. Deficiency: Before deployment, the field team was not briefed on current plant or meteorological conditions (NUREG-0654,II.F.).

Recommendation: Briefing of the field team prior to deployment would better enable the team to respond to radiological conditions as they change.

2. Deficiency: The sodium iodide scintillation counter was not fully functional and was not used during the exercise. The field vehicle experienced an electrical starting problem. Also, equipment available to the team was not consistent with the plan (NUREG-0654,II.H.10).

Recommendation: The causes of any instrument malfunctions should be identified and remedial actions taken to ensure that this instrument and all equipment, including vehicles, are working properly; field teams should have adequate opportunity to become fully familiar with new equipment prior to an exercise. The plan or equipment available needs to be adjusted to reflect consistency.

3. Deficiency: A snow sample was placed in a plastic bag rather than a properly sealed container to prevent its loss by leakage.

Recommendation: A review of procedures and equipment needs for snow sampling is suggested.

4. Deficiency: Low range dosimeters were not available and familiarization was not evident with regard to maximum dose allowed without authorization, and what procedures should be implemented if an excess dose was received (NUREG-0654, II, K.3.a, K.5.a).

Recommendation: Low-range dosimeters are needed for field team members. Also, additional training is needed on understanding maximum doses allowed without authorization and procedures to be implemented if an excess dose is received.

5. Deficiency: The Nebraska field team was not directed properly to obtain useful plume information (NUREG-0654, II.I.8).

Recommendation: Samples from additional monitoring points are needed to obtain useful information on the plume. A controller needs to be assigned to the field teams to input essential data that will allow complete and worthwhile field team exercising.

2.1.4.2 Cooper Nuclear Power Station Team

Overview

The field monitoring team consisted of professional staff from the Cooper Nuclear Power Station. The team was notified at about 7:30 a.m., was dispatched from the Cooper Station at approximately 8:00 a.m. and arrived at the EOF at 9:40 a.m. Prior to their deployment the field team was not briefed

on plant or meteorological conditions nor were they kept informed of these conditions throughout the exercise.

The Cooper field team communicated with CRUSH by radio. The radio and antenna were installed in their vehicle upon their arrival at their deployment point. A hand-held portable radio was available, but the field team did not obtain one. Overall, communications were very good with no dead spots noted. However, when the field team went to the decontamination center they were not in communication with CRUSH for about 20 minutes.

The field vehicle was adequate for the team members and equipment and was suitable for all expected terrain and weather conditions. Radiation monitoring instruments were available. All appropriate air sampling equipment was available except for charcoal cartridges. Plastic bags, writing materials, and identification labels were available for soil and water sampling. Equipment was not available for taking water or milk samples.

The field team completed an operational check of the equipment; batteries were installed and instruments were source-checked. A large map clearly indicated color-coded predetermined sampling points. Access to the sample locations was good. However, because sampling occurred at only two monitoring points and these were not in the plume, the monitoring team was not used effectively for tracking the plume. The team took ground readings at the two monitoring points and recorded them on a form. An air sample was taken and the calibration curve on the air pump was used to determine the time to take a 5 ft³ air sample. Silver zeolite cartridges were available in the kit; a blank cartridge was used for the exercise. Counting (simulated) outside the plume was done with an Eberline E-140 with an HP210 pancake head. Conversion from mR/hr to μ Ci/cc was accomplished using a chart and interpolating between table values. This method was not described in the plan.

The Cooper monitoring team had anti-contamination clothing and full-face respirators with charcoal cartridges. The team members were issued KI (simulated), however, it was administered too late in the exercise. Only low-range (0-1 R) dosimeters were available; mid- to high-range dosimeters were not available. Overall, the monitoring team was thoroughly trained in the use of dosimetry equipment.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed for the field radiological monitoring team from the Cooper Nuclear Power Station.

Deficiencies and Recommendations

1. Deficiency: Prior to field team deployment, the Cooper team was not briefed on plant or meteorological conditions nor was the team kept informed of these conditions throughout the exercise. The team also was not in communication with CRUSH while it was at the decontamination center (NUREG-0654, II.F).

Recommendation: Field teams should be briefed on plant conditions prior to deployment and communications should be maintained throughout the exercise.

2. Deficiency: The Cooper field team did not have charcoal cartridges for air sampling. Equipment was not available for water and milk sampling. The team also did not acquire a hand-held portable radio (NUREG-0654, II. H.7,10).

Recommendation: Monitoring and communication equipment should be available to accomplish the assigned field monitoring responsibilities of the Cooper team.

3. Deficiency: Conversions from mR/hr to $\mu\text{Ci/cc}$ was accomplished using a chart and interpolating between table values; this method was not in the plan (NUREG-0654, II. I.7).

Recommendation: Review the plan or procedures regarding this activity and make changes and/or revisions as appropriate.

4. Deficiency: Only low-range (0-1 R) dosimeters were available. Permanent record devices were simulated (NUREG-0654, II, K.3.a).

Recommendation: Provide the field team with mid- and high-range dosimetry. Availability and use of permanent record devices should be demonstrated in a future exercise.

5. Deficiency: The monitoring team was not used effectively for tracking the plume because only two non-plume monitoring points were sampled (NUREG-0654, II, I.8).

Recommendation: Samples from additional monitoring points within the plume need to be taken to effectively track the plume. The plan should be reviewed to assure proper use and management of the field teams.

2.1.5 Radiological Laboratory

Overview

The radiological laboratory did not actually participate in the exercise, but laboratory operations were reviewed prior to the exercise at the request of the state. The radiological laboratory equipment was sufficient to perform the sample analyses. Equipment included a multichannel analyzer, a TLD reader, an alpha and beta counter, a liquid scintillation spectrometer, and semi-conductor detectors. The TLD system was not operational. Except for a liquid scintillation system, no other backup equipment were present. Equipment was calibrated using EPA quality control standards.

The staff consists of one part-time chemist plus a consultant on call. Two additional chemists are available with minimal radiochemistry training for back up. One additional trained and experienced individual would be desirable to provide two shifts of two persons each. The staff training was adequate, but participation in drills or exercises would provide needed experience.

A commercial telephone was available to communicate with the EOF. Communication between the laboratory and the field monitoring teams could be relayed through the EOF.

Procedures for identification and quantitative measurement of gamma-emitting radioisotopes using the multichannel analyzer were discussed. No technical operations were observed at the radiological laboratory during this exercise so that performance was not demonstrated. Overall, considerable improvements have been made since the previous observation.

Deficiencies That Would Lead to a Negative Finding

There were no deficiencies that would lead to a negative finding observed at the radiological laboratory during this exercise.

Deficiencies and Recommendations

1. Deficiency: The radiological laboratory should be able to demonstrate a capability to function over a prolonged period (NUREG-0654, II, A.4).

Recommendation: One additional trained and experienced individual would be desirable to provide two shifts of two persons each.

2. Deficiency: Backup equipment for analyzing media samples were not present (NUREG-0654, II, H.10).

Recommendation: Provisions and arrangement for backup equipment should be made. Sufficient analytical equipment may be available through the use of backup laboratories.

3. Deficiency: No technical operations were observed at the radiological laboratory during this exercise (NUREG-0654, II, N.2.d).

Recommendation: The exercise should include analysis of sample media and a demonstration of communications and record keeping.

2.1.6 Dana College Coliseum Decontamination Center

Overview

The Dana College Coliseum was used as the decontamination center because the primary site, the Blair High School, was not available for use. The operation of the center was simulated. Evacuee monitoring points were identified, sufficient monitoring equipment was available and pathways for contaminated and non-contaminated persons were shown. Methods were described for decontamination and shower facilities were available. Provisions for disposing of contaminated waste and for temporary replacement clothing were evident. Decontamination of vehicles was not demonstrated. It was indicated that in warm weather, a parking lot would be used for decontamination and that an indoor bay at the fire station would be used in winter.

Deficiencies That Would Lead to a Negative Finding

No deficiencies were observed at the decontamination center that would lead to a negative finding.

Deficiencies and Recommendations

1. Deficiency: The availability of State health physics personnel over an extended period of time was not demonstrated (NUREG-0654, II, K.3.a).

Recommendation: State health physics personnel should be assigned to provide 24-hour capability.

2. Deficiency: Activities presented at the decontamination facility were simulated.

Recommendation: A demonstration of decontamination center capabilities should be carried out in a future exercise.

2.1.7 University of Nebraska Medical Center and the Blair Rescue Squad

Overview

The Blair Rescue Squad provided ambulance service for the transfer of an injured-contaminated (simulated) individual from the plant to the University of Nebraska Medical Center (UNMC). Appropriate radio communications between the ambulance service and the hospital were not evident. The ambulance service personnel were also not provided with appropriate protective equipment, dosimeters, and radiation monitoring equipment. The ambulance crew was also not trained in radiological activities.

The utility informed the UNMC that the Blair Rescue Squad would be transporting an individual to the hospital. The hospital was fully prepared and facilities were excellent to handle injured-contaminated individuals. Several medical doctors and health (radiation) physicists were present and properly attired. Procedures for dealing with injured-contaminated persons were thoroughly demonstrated. Contaminated areas were isolated from non-contaminated areas and equipment was available for analysis of smears, whole body (internal) measurements, and thyroid scans. Overall, the health activities and professional performance at the hospital were excellent.

Deficiencies That Would Lead to a Negative Finding

There were no deficiencies that would lead to a negative finding observed at the University of Nebraska Medical Center.

Deficiencies and Recommendations

1. Deficiency: The Blair Ambulance Crew was not provided with radiation monitoring equipment, dosimetry, protective clothing, adequate communications, and radiation training (NUREG-0654, II, L.).

Recommendation: All appropriate equipment should be provided to rescue squads and ambulance services involved in the transport of injured-contaminated individuals. Training is also needed in all aspects of radiation control.

2.2 NEBRASKA COUNTY OPERATIONS

2.2.1 Washington County

Overview

The Washington County EOC had adequate furniture, space, lighting and telephones to carry out the assigned emergency response functions. Backup power was available and is tested monthly. The emergency classification level was posted and a status board was available; however, the status board was not kept updated. Appropriate maps were either posted or available in planning documents.

The Nebraska State Patrol notified the County Sheriff dispatcher of the Alert classification. The dispatcher conveyed this information to the County CD Director. The CD Director understood the message to be an Unusual Event rather than an Alert. Thus, a delay in staff activation occurred. All appropriate organizations were represented at the EOC. In general all staff displayed good training and knowledge in their respective emergency response functions. It was indicated that 24-hour staffing would require backup support for the CD Director and the County PIO.

Emergency operations management was effectively carried out by the CD Director with coordination with the state liaison to the EOC and the County Sheriff. Appropriate staff were involved in decision making. Plans, written procedures and checklists were available, logs were kept, and internal message handling was efficient. Security measures for control of access to the EOC were good.

The Washington County EOC was properly equipped and demonstrated good communications capabilities. All appropriate primary and backup communications links were available and used effectively. It was not totally clear as to the degree to which the HAM and REACT volunteer organizations would be utilized in an actual emergency.

The EOC staff, in coordination with the county communications center (County Sheriff Dispatch) demonstrated good capability to alert the public on a timely basis. Public alerting included siren activation and transmission of an initial message to the EBS station, and overall activation of the system within 15 minutes of the receipt of the Site Area Emergency declaration.

Further instructions in response to the need for protective actions following the General Emergency declaration were formulated and released by the information authentication center and the media release center. The County EOC provided descriptions of areas affected by protective actions by landmarks that were understandable to the public.

Special evacuation issues were identified and related to the availability of buses for school evacuations, communications between the school superintendent and the EOC, the alerting and availability of bus drivers, and expectations of evacuation of school children by parents rather than by buses. A system was not in place for the identification of noninstitutionalized mobility-impaired individuals or provisions for their transportation. Similarly, procedures have not been established for notifying institutions and acquiring necessary means of transportation for individuals included therein.

The County appeared to have an adequate supply of mid-range dosimeters. Permanent record dosimeters were not available. Instructions were issued along with the self-reading dosimeters that indicated reading and reporting of dosimeters by the field personnel on an hourly basis. These readings were reported to the Blair Police Chief or the County Sheriff.

Reentry activities were adequately addressed following receipt of recommendations and directions from the State.

Deficiencies That Would Lead to a Negative Finding

There were no deficiencies that would lead to a negative finding at the Washington County EOC.

Deficiencies and Recommendations

1. Deficiency: A misunderstanding of the emergency classification existed between the County Sheriff Dispatcher and the CD Director. This caused a delay in staff notification and activation (NUREG-0654, II, D.3,4).

Recommendation: Additional training in notification procedures and a review of verification procedures is suggested.

2. Deficiency: It was not clear to what extent the HAM and REACT volunteer radio operators would be available at the EOC in the event of an actual emergency (NUREG-0654, II, A.2.a).

Recommendation: The county plan should include a description of the extent that these volunteer organizations will participate in an actual emergency. Appropriate letters of agreement would help to define the extent of availability.

3. Deficiency: Special issues relating to the evacuation of schools and the mobility-impaired have not been adequately addressed (NUREG-0654, II, J.10.c, J.10.d).

Recommendation: Procedures which need to be defined for the evacuation of schools include: the extent to which buses will be used, coordination and communication between the EOC and the school superintendents, alerting and availability of bus drivers, and expectations of parents picking their children up at the schools. Activities which need to be addressed in the evacuation of mobility-impaired include a system for the identification of noninstitutionalized individuals. Provision for their evacuation plus notification of institutions, is needed.

4. Deficiency Low-range (0-200 mR) and permanent record dosimeters were not available. Dosimeters were read on an hourly basis, this is not frequent enough under certain circumstances (NUREG-0654, II, K.3.a).

Recommendation: Low-range, direct-read and permanent record dosimeters are needed. The interval between readings of the dosimeters is dependent upon the dose rate to which the workers are exposed. An interval of 15 minutes or even more frequent could be required in high radiation fields (greater than 1 R/h). Changes to instructions provided with dosimeters should be considered.

2.2.2 Dodge County

Overview

Dodge County activated the County EOC and a relocation center. These two operations were performed separately, with the relocation/congregate care/decontamination activities taking place apart from the EOC and at a site alternate to the principal location.

The Dodge County EOC had sufficient furniture, space, and lighting for emergency operations. Portable equipment would be brought in to support

extended operations. Noise was controlled and backup power was available and demonstrated. The emergency classification level was clearly visible and posted at the status board. The status board was kept up to date and all appropriate maps were posted or available. The communications system was exceptional with at least one person on duty at all times.

Emergency operations management was handled by the emergency coordinator. All messages received prompt responses. Staff briefings were held periodically and appropriate staff were involved in decision making. Security provisions were also evident. Overall, the staff displayed excellent training and knowledge from demonstrating activation and staffing procedures to performing emergency response activities throughout the exercise.

Sirens and EBS messages were carried out (simulated) in a timely manner. Several subsequent EBS messages were provided; these were coordinated with the IAC (simulated) and messages were monitored over the radio.

The Police Chief (also the County CD Director) coordinated radiological exposure control activities and performed the duties commendably. Low- and mid-range dosimeters were available in sufficient quantities. The availability of permanent record dosimeters was not observed.

Activities at the Dodge County relocation center included registering, monitoring, decontaminating, and congregate care of evacuees. The center was opened by 11:00 a.m. with the Red Cross and volunteer personnel handling registration operations. A police officer and two communication operators were also on duty. Police directed incoming automobiles to an area where they would be monitored. Two individuals checked evacuees as they entered the registration building. Evacuees were then directed to the registration area where the registration coordinator and volunteers processed the evacuees. The individuals performed well, however, registration cards were not forwarded with evacuees when they proceeded to the congregate care area. This was corrected immediately when evacuees arrived at the congregate care area. A call back to the registration area confirmed that evacuees had been registered. Overall, the registration and congregate care functions were carried out effectively and accommodations for medical and congregate care were sufficient.

Proper procedures were used to check evacuees and vehicles for contamination. The outer clothing, including shoes as well as exposed hair and skin were well checked on each evacuee. Two showers were available and additional portable showers were also available. Any contaminated clothing or materials would be placed in a sealed container. All areas of automobiles potentially in contact with radiation (tires, air filters, pedals, and exterior surfaces) would be checked and decontaminated if necessary using fire hoses for exterior surfaces and interior areas would be cleaned. This process would be repeated if necessary. Wastewater would flow into the sewer system and would not be disposed of in streams or into the groundwater.

Overall, activities were performed well at the Dodge County EOC and the relocation center. Procedures were generally adequate and equipment appeared to be satisfactory. It is suggested that some additional training, in the form of a refresher course or an exercise review session, be conducted to refine the already acceptable procedures demonstrated during the exercise.

Deficiencies That Would Lead to a Negative Finding

There were no deficiencies that would lead to a negative finding observed at the Dodge County EOC.

2.3 IOWA STATE OPERATIONS

2.3.1 State EOC

Overview

Alert and notification of the Iowa State EOC (ISEOC) was done promptly. The Fort Calhoun Nuclear Power Station (FCNPS) contacted the state public radio initially, who in turn notified the ISEOC. The communication network is continuously monitored. Notification to activate the ISEOC was received at 0620 hours. Staff mobilization procedures were demonstrated using an up-to-date, written call list. The Alert notification was initiated during the period when some staff members were enroute to work. As a result, notification was not complete until the participants arrived at work. The center was staffed and operational within 2 hours of the initial notification. A total of 10 agencies were represented at the ISEOC. Three agencies identified in the plan were not represented during the exercise: the American Red Cross, the Iowa Department of Aging, and the Iowa Department of Water, Air, and Waste Management.

All ISEOC staff displayed adequate training and knowledge. Round-the-clock staffing was demonstrated using shift changes for the Departments of Commerce, Agriculture, and Conservation. One representative was prepositioned at the EOF to function as liaison with the ISEOC and to act as a public information officer (PIO).

The ISEOC was well-managed and decision-making procedures followed those described in the plan. The ISEOC staff and all agency personnel functioned well as an integrated unit.

Facilities at the ISEOC were satisfactory. With kitchen, sleeping, shower, and emergency backup power facilities, the ISEOC can function over extended periods. The status board was clearly visible to all participants and kept up to date. Other displays, including maps of the plume EPZ,

evacuation routes, access control points, and radiological monitoring sites, were posted. However, different identification of radiological monitoring sites by the utility and state led to some confusion. Maps of population density by evacuation area, and relocation centers were not posted.

Installation of speaker phones for the operations staff and radiological monitoring teams greatly enhanced the telephone communications and overall coordination. In general, all communications systems identified in the plan were operational and functioned well. A telefax linking the media release center (MRC) and the ISEOC was slow. However, the utility installed a dedicated telefax line from the EOF to the ISEOC which produced timely and high quality copies.

Dose assessment functions were effectively carried out. Expected doses were derived from plant release data and field readings. Field data were reported promptly. Dose calculations were performed by hand and using simulation models. The plume was correctly defined and plotted on a map. Periodic estimates of total population exposure were made.

Protective action recommendations for the plume and ingestion pathways were made. All pertinent factors were considered in making these recommendations including plant status, evacuation times, and meteorology. The protective action recommendations were promptly reviewed and updated as conditions changed. The recommendations were not well-coordinated between Iowa and Nebraska. Emergency public instructions were developed in the ISEOC. Prescribed Emergency Broadcast System (EBS) messages were clear and appropriate to the situation. To avoid confusion, Iowa issued protective action orders using well-known, local landmarks rather than just sectors.

The ISEOC played a primary role in public alerting when the Site Area Emergency was declared at 0926. Formal and informal briefings were conducted regarding the appropriate protective action recommendations. Iowa also discussed current developments with Nebraska officials. Iowa elected to recommend via EBS in-house sheltering. The siren system was activated at 0935, but the EBS message broadcast was delayed until 1005.

The decision was made to order evacuation of the 2-mile radius at 1112. The highway patrol notified all families individually by dispatching a patrol car to conduct the house-to-house notification. Only 26 people were affected within the 2-mile EPZ and everyone was contacted within 20 minutes. An EBS message was also prepared. At 1238, evacuation was ordered for the 10-mile EPZ. This increased the number of affected residents to 384, requiring evacuation to the relocation center. The location of mobility-impaired and special needs persons was known and checked. The highway patrol did an excellent job in conducting the evacuation and the control of access points. No problems were encountered with these activities.

Current information was available for dairy farms, food processing plants, water supply intakes, and detailed crop information. Recommendations

were prepared regarding ingestion pathway protective actions. The few cattle located within the 10-mile EPZ were to be sheltered and placed on stored feed. Representatives from the state Department of Agriculture were knowledgeable of the plan and were well-integrated into the EOC staff. Although agricultural play was limited, the representative volunteered briefings to the observers. He demonstrated accurate and enthusiastic responses to alternative situations requiring his involvement.

The decision to order potassium iodide (KI) for the radiological monitoring team was based on projected radioiodine releases and consistent with the plan. There was not an adequate supply of KI for other emergency workers, however. The EOF was contacted for additional KI for members of the highway patrol. The utility did not know if they had sufficient amounts at first, but quickly located and made available the amount requested. Personnel were adequately protected, but sufficient KI should be on hand according to the plan. The Iowa National Guard prepositioned KI nearby in the event troops were required to go into the area later. The state health official did an excellent job in decision making regarding reentry. The ISEOC thoroughly discussed the FCNPS recommendation to conduct recovery operations, despite no downgrade from the General Emergency classification level. As a result, Iowa delayed reentry and recovery activities until official dose readings were received confirming that the area was safe to reenter.

Deficiencies That Would Lead to a Negative Finding

There were no deficiencies that would lead to a negative finding observed at the ISEOC.

Deficiencies and Recommendations

1. Deficiency: All organizations having emergency responsibilities and identified in the plan did not participate in the exercise (NUREG-0654, II, N.1.b).

Recommendation: Each organization shall establish procedures for alerting, notifying, and mobilizing emergency response personnel.

2. Deficiency: The siren system was activated at 0935, but the EBS message broadcast was delayed until 1005 (NUREG-0654, II, E.5,6).

Recommendation: Procedures need to be developed to ensure prompt broadcast of EBS messages following siren activation.

3. Deficiency: Maps or displays of population density by evacuation area, and relocation centers were not posted (NUREG-0654, II, J.10.a,b).

Recommendation: Maps showing population distribution around the nuclear facility by evacuation areas, and maps showing relocation centers in host areas should be prepared and posted.

4. Deficiency: The current state plan was discovered to be in error identifying the number of families residing within the 2-mile EPZ in Pottawattamie County (NUREG-0654, II, J.10.b).

Recommendation: The plan should be updated to indicate the correct number of families residing within each emergency planning zone.

5. Deficiency: Designations for the same radiological monitoring site differed between the utility and the state. The difference apparently created some confusion (NUREG-0654, II, J.10.a).

Recommendation: The utility and the state should use a common designator for radiological monitoring sites.

6. Deficiency: An adequate supply of KI was not present for all emergency workers (NUREG-0654, II, J.10.e).

Recommendation: Provisions for the use of radioprotective drugs, including adequate quantities, storage, and means of distribution, particularly for emergency workers must be made.

7. Deficiency: No direct contact was made with the PCEOC after 1248 hours on the open line. The line remained operational, but no one confirmed the county's presence during this critical period of the exercise (NUREG-0654, II, Appendix 3, 2.b).

Recommendation: It is suggested that procedures for communications checks (e.g., a roll call) be developed to assure communications operation and receipt of messages.

8. Deficiency: The recommendation to administer KI was not based on the appropriate guidelines or justified based on the dose projections made by the field team coordinator. Further, the recommendation was made too late (NUREG-0654, II, J.10.e,f).

Recommendation: Closer coordination is required between the ISEOC and the forward command post. The ISEOC should involve the forward command post in decision making and recommendations.

2.3.2 Field Monitoring Activities

Overview

Field monitoring teams were mobilized from Iowa City and Ames. Additional staff were placed on standby to provide 24-hour capability. The team from Iowa City had traveled part way the previous day, but the Ames team traveled in real time. Upon notification each team mobilized and arrived at the Harrison County EOC promptly. The teams were fully equipped and ready for dispatch upon arrival. The teams were briefed on plant status and meteorology prior to deployment. However, after deployment, no further briefings were provided.

The teams (designated as Blue and Green) were well-equipped with the materials identified in the plan. Both teams had high- and low-range detectors and air sampling equipment. All equipment had been calibrated in October. Backup supplies and equipment were adequate. Procedures for collecting air samples had been modified to correct deficiencies identified in prior exercises.

The Blue team needed more training in emergency response and monitoring procedures. The Blue team members were not certain as to proper collection procedures and calculation of radioiodine concentrations in the field. Their iodine monitoring procedures had inadvertently been left with the Green team. Further, their air sampler operated only on AC, rendering it unavailable for use. A power supply for the AC-driven air pump needs to be procured.

The Green team was well-trained in their responsibilities and functions and performed them well. It is important to note that equipment and procedures used by the two teams are different. If Ames personnel were to be used on the Iowa City team, or vice-versa, cross training on equipment and procedures would be necessary.

The communication link to the field teams was indirect through the state police escort accompanying the team. No dead spots were encountered and the system functioned marginally. A direct communication link with the ISEOC would have been more convenient and effective. It was apparent that not all the team members were equally trained in the use of the hand-held field radios.

Dosimeters, including direct-reading and permanent record, were worn by all team members. Team members were aware of the procedures and adhered to them. However, additional emphasis should be placed on the regular reading and recording of dosimeter values. Adequate supplies of protective clothing and equipment were contained in the team kits. Team members knew the procedures for administering KI when directed to do so by the ISEOC. It was apparent during the exercise that the teams require more training in procedures for determining the need and means for decontamination of emergency personnel, supplies, equipment, and waste disposal.

Deficiencies That Would Lead to a Negative Finding

There were no deficiencies that would lead to a negative finding observed during the field monitoring activities.

Deficiencies and Recommendations

1. Deficiency: The Blue team was not certain of the proper collection procedures for, and calculations of radioiodine concentrations in the field. The written procedures had been misplaced (NUREG-0654, II. I.8, N.2.d, 0.4.c).

Recommendation: The Blue team requires more training in emergency response and radiological monitoring procedures. A check, prior to deployment, for all equipment and procedural manuals should be verified on a checklist.

2. Deficiency: The Blue team's air sampling equipment was non-operable because no power supply for the air pump was available (NUREG-0654, II. H.11, I.8).

Recommendation: The plan should specify and identify the requirement for an air sampler power supply in the checklist.

3. Deficiency: Following deployment, the radiological monitoring teams were not provided with periodic updates of plant status and meteorology (NUREG-0654, II. F).

Recommendation: The field team coordinator should transmit periodic updates of the plant status and current meteorological conditions to the radiological monitoring teams.

4. Deficiency: The radiological monitoring teams were not familiar with the equipment or procedures used by the other teams (NUREG-0654, II. I.8, 9, 11).

Recommendation: Additional training is recommended to familiarize radiological field monitoring team members with the different equipment and procedures in use.

5. Deficiency: All members of the field teams did not demonstrate adequate proficiency with hand-held field radios (NUREG-0654, II. F.1.d, N.2.a).

Recommendation: Further training in the use of field radio equipment is recommended for radiological monitoring team members.

6. Deficiency: Radiological field monitoring team personnel did not regularly read and record dose values from their personal dosimeters (NUREG-0654, II. K.3.b).

Recommendation: Procedures to ensure that dosimeters are read at appropriate frequencies and dose records are maintained should be established.

7. Deficiency: Radiological field monitoring teams were not proficient in determining the need and means for decontamination of emergency personnel, supplies, equipment, and contaminated waste disposal (NUREG-0654, II. K.5.a,b).

Recommendation: Field teams require additional training in the areas of determining the need and means for decontamination of emergency personnel, supplies, and equipment, and for disposal of contaminated wastes.

2.3.3 Forward Command Post-Radiation Team Operations

Overview

Coordination of the radiological field monitoring teams was done from the forward command post located at the Harrison County EOC (HCEOC). Response time of the team coordinator and the field teams was excellent. The field teams were dispatched from Iowa City and Ames. Additional staff were placed on standby. The field team coordinator, identified in the plan, managed his teams well. However, aside from a briefing upon deployment of the teams to the field, no other briefings were provided. The required self-reading and

permanent record dosimeters were available and provided to the field teams and other emergency response personnel. Records were made of the dosimeter readings. An adequate supply of potassium iodide (KI) was on hand. The team coordinator had a current copy of the plan and written procedures and checklists were effectively used. Messages were loosely recorded and were not generally distributed. Clerical support for the team coordinator would be desirable.

The team coordinator occupied a small room adjacent to, but separate from the HCEOC. Overall, the facilities for the team coordinator were minimal, but adequate. Interaction with the rest of the HCEOC was limited as the coordinator had to continually monitor the telephone. The status board and emergency classification level in the HCEOC were not visible to the coordinator. Information was generally received late as the team coordinator did not appear to be part of the flow of information within the HCEOC. The coordinator's role in the overall management structure may not be well-enough defined to provide a smooth interface with the rest of the operation.

Visual aids were lacking except for maps identifying the plume EPZ and the radiological monitoring points. Prelocated monitoring points were on a map used by the team coordinator and prepared by the state. Another map prepared by the utility indicated a different set of points. Some confusion arose because both maps used similar numbering systems, but points with the same designations were as far as nine miles apart. It is strongly recommended that a single map be prepared indicating and identifying all necessary points in a consistent manner.

The team coordinator received information from the utility and the ISEOC by telephone. Communications to the field teams was indirect and clumsy via telephone intercom to the sheriff's dispatcher, then to the state patrol radio system to a patrol car with a team member in it. A monitor (receive only) was difficult to understand and was located some distance from the team leader's position. This system is inadequate since it is vulnerable to the propagation of error and precludes lengthy briefings and updates. Overall, communication equipment and procedures for field team coordination requires upgrading.

Dose assessment was performed using plant release data and field readings. Field monitoring teams were promptly directed to the various field monitoring locations. The plume was correctly defined and all information was transmitted to the ISEOC. Calculations were made rapidly and checked using both hand calculations and programmable calculators. However, it was not obvious that the data were used in decision making.

Protective action recommendations were made for plume and ingestion pathway hazards at the ISEOC. The recommendations were reviewed and updated as conditions changed. The recommendations were not coordinated between the states at this location. Potassium iodide (KI) was recommended for emergency workers in the field, but not based on the appropriate guidelines. The use of

KI was not justified based on the dose projections made by the team coordinator. Further, the recommendation was made late and plant releases and air concentrations had declined by the time the radioprotective drug would have been used. The team coordinator had arranged for the necessary monitoring and sampling to provide data upon which recommendations could be based.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed in field team coordination or dose assessment functions during this exercise.

Deficiencies and Recommendations

1. Deficiency: Message handling and distribution were inadequate, resulting in the team coordinator not being current on the latest developments (NUREG-0654, II, A.3).

Recommendation: The importance and function of the field team coordinator should be clearly defined in the plan. Although the coordination of field teams is a state function, the interface with the HCEOC should be clarified. The field team coordinator should have adequate administrative authority to perform his function. Clerical support for the team coordinator would be desirable.

2. Deficiency: Visual aids were lacking except for maps of the plume EPZ and radiological monitoring sites. Maps of radiological monitoring sites were inconsistent in the location and identification of the sites (NUREG-0654, II, J.10.a).

Recommendation: The necessary visual aids and maps should be developed and posted in the dose assessment area. Further, the states and the utility should agree on a common map of radiological monitoring sites and identifiers for those sites.

3. Deficiency: Communication with the radiological monitoring teams was not adequate (NUREG-0654, II, F.1.d, I.8).

Recommendation: A direct form of communication between the field coordinator and the field monitoring teams should be established through upgraded equipment.

2.3.4 Medical Support

Overview

The Missouri Valley Hospital has recently been added as a resource hospital for accepting radiologically contaminated persons with injuries. For this exercise, a radiologically contaminated and injured person was to be sent to Missouri Valley Hospital. However, this person was diverted instead to the University of Nebraska Medical Center. As such, no medical support activities were observed. It was apparent that the hospital lacked survey equipment. A member of the radiological monitoring field team brought necessary equipment to the hospital.

Hospital personnel were interested in participating in the exercise and discussed procedures and injuries with the observer. Personnel appeared familiar with the appropriate procedures, but lacked experience because they have not been exercised.

It is recommended that the state of Iowa consider developing some form of triage methodology based on the level of contamination (if measurable) for contaminated individuals. In addition, a specific communication channel or system could be identified for use when contaminated individuals are not being transported by ambulance.

Deficiencies and Recommendations

1. Deficiency: The Missouri Valley Hospital did not have adequate radiological monitoring instruments (NUREG-0654, II, L.1,3).

Recommendation: Missouri Valley Hospital should acquire appropriate instruments to be able to radiologically monitor contaminated persons.

2. Deficiency: A practiced procedure for admitting radiologically contaminated, injured persons was not evident at the Missouri Valley Hospital (NUREG-0654, II, N.2.c).

Recommendation: Procedures should be developed and demonstrated for the treatment of radiologically contaminated victims at the Missouri Valley Hospital. Additional training of hospital staff may be necessary. Mercy Hospital in Cedar Rapids has a videotape of procedures which might prove useful. The staging of a medical drill would test procedures currently described.

2.4 IOWA COUNTY OPERATIONS

2.4.1 Harrison County EOC

Overview

The Harrison County EOC (HCEOC) was activated promptly. The call initiating activation was received from the utility at approximately 0730. The notification was verified and staff mobilization procedures were demonstrated. A call-up system was in place to contact staff members at any hour of the day. Notification of key staff members was actually conducted in Des Moines for this exercise. An up-to-date version of the state plan was not present at the HCEOC. Some confusion resulted when individuals with no current emergency responsibilities were notified and reported to the HCEOC. The HCEOC was fully staffed by approximately 1110 when the radiological monitoring teams arrived from Ames and Iowa City. In general, the staff displayed adequate knowledge and training for this exercise. Round-the-clock staffing capability was demonstrated through the presentation of a duty roster and double staffing.

The Civil Defense Director and the deputy sheriff were in charge of the HCEOC, initially. When the county commissioners arrived, they were fully briefed. Representatives from the Iowa Department of Transportation, State Police, and National Guard were briefed upon arrival and performed their assigned duties well. The CD Director and deputy sheriff relinquished their responsibilities to the state representatives, but leadership at the HCEOC was never clearly demonstrated. The Iowa ODS representative was officially in charge, but was primarily occupied with communication functions. The CD Director remained available for information concerning county matters, but his function was constrained by the plan.

The deputy sheriff kept everyone briefed with periodic updates. Message logs were maintained, but no distribution of messages was observed. Changes in emergency classification levels were announced and posted on the status board. The status board, in this case, was a blackboard. When it was filled, updates written on legal-sized sheets were attached to it. Often information was received out of sequence and back-fitted onto the board. As a result, confusion arose regarding the effective time versus time of receipt of messages. An improved status board and message handling procedures would be desirable at the HCEOC.

The HCEOC facilities were generally adequate, although space could be more efficiently used. The center could support extended operations by utilizing the jail's bunk, shower, and kitchen facilities located downstairs. Backup power was available for the jail facilities and radio room, only. Maps and displays of the plume EPZ, evacuation routes, relocation centers, access

control points, radiological monitoring points, and population by evacuation area were all posted.

Primary and backup communications with the ISEOC, PCEOC, contiguous states, licensee, and EOF were all operational and functioned well. Due to the lack of a telefax device, no hard copies of EBS messages, press releases, or other protective action messages were available. Although the HCEOC was informed of the content of current messages, a telefax would ensure consistency of content and enhance broader dissemination of information.

The HCEOC was responsible for sounding the siren alert system. The siren was sounded promptly, but in addition individual families were contacted by telephone. Further, a police officer was dispatched to perform route-alerting. All efforts put forth by the HCEOC to alert the public were well done. For this exercise, a very small population was affected. But, if an additional sector had been affected, greater reliance would have been placed on the siren systems and EBS broadcasts.

Activation of traffic control points were promptly ordered and estimates of expected traffic volume were made. Appropriate resources for removing stalled or wrecked cars were available, as well as supplies of salt and sand for potentially icy roads. According to EOC staff, the plan resources are adequate to handle all traffic and access control functions simultaneously. Since DOT, the National Guard, and state police are all involved in maintaining access control points and roadblocks, it is important that each is aware of consistent protective action decisions.

The HCEOC staff were not aware of the locations of mobility-impaired and special needs persons. A house-to-house search was discussed and it was suggested that the Harrison County van be used if the situation arose to evacuate such persons. Harrison County should compile a list of mobility-impaired and special needs persons. A letter of agreement might also be needed to use the county van.

Only high-range (0-200 R) dosimeters were available at the HCEOC. The supply of dosimeters, chargers, and record cards was more than adequate. Appropriate instructions were issued with the dosimeters, but the only person to use one was the sheriff's deputy who was to perform the house-to-house search. According to the plan, local equipment would not be used. The radiological monitoring team leader was aware of proper procedures concerning the use of KI and decontamination. The National Guard wanted to offer their services in future exercises or actual events to assist with radiological monitoring. They have sufficient equipment and trained staff. The National Guard could also provide a valuable backup to enhance extended operations and to reduce extended, personal exposure.

Only one press inquiry was received before the MRC was activated. The CD Director briefed the individual on the exercise, the emergency classification levels, and HCEOC responsibilities. The status board and other maps

and displays were also explained. The individual was informed of the location of the MRC in Omaha and indicated that it was being activated. Training is advised for the HCEOC spokesperson since some erroneous statements regarding agency responsibilities were made.

Deficiencies That Would Lead to a Negative Finding

There were no deficiencies that would lead to a negative finding observed at the HCEOC.

Deficiencies and Recommendations

1. Deficiency: Command and control of the HCEOC was not effectively demonstrated. The ODS representative officially in charge was occupied with communication functions (NUREG-0654, II, A.2.a).

Recommendation: The HCEOC should designate a deputy to manage the EOC during times when he is unavailable.

2. Deficiency: The HCEOC provided a press briefing during the exercise. The spokesperson was not adequately trained regarding contact with the press and specific agency responsibilities (NUREG-0654, II, G.3.a, 4.a).

Recommendation: The HCEOC should designate the points of contact and physical locations for use by the news media during an emergency and in compliance with the plan. Further, a spokesperson should be designated and trained to interact with the media.

3. Deficiency: The HCEOC staff were not aware of the locations of mobility-impaired and special needs persons (NUREG-0654, II, J.10.d).

Recommendation: The HCEOC should compile a list of mobility-impaired and special needs persons. Provisions should be developed for the protection or evacuation of these persons during a radiological emergency.

4. Deficiency: Only high-range (0-200 R) dosimeters were available for emergency workers (NUREG-0654, II, K.3.a).

Recommendation: Low-range (0-200 mR) pocket dosimeters and TLDs should be available for emergency workers who enter radiation fields.

5. Deficiency: A copy of the current state plan was not available. Confusion in personnel and responsibility resulted (NUREG-0654, II, A.2.a).

Recommendation: A copy of the current state plan should be maintained in the HCEOC. Key staff members should be thoroughly familiar with their respective responsibilities.

6. Deficiency: The HCEOC status board was not adequate. The board was too small to post the necessary plant status information.

Recommendation: The HCEOC should design a status board which will identify the current emergency classification level; include effective times for protective action decisions; and a brief description of protective actions in effect.

7. Deficiency: Some personnel reported to the HCEOC when they had no emergency responsibilities. Apparently the call list in use is no longer up to date (NUREG-0654, II, A.2.a).

Recommendation: An up-to-date call list identifying persons with emergency responsibilities consistent with the current plan should be prepared.

8. Deficiency: Hard copies of the content of EBS messages, press releases, and protective action recommendations were not available at the HCEOC because there was no telefax machine.

Recommendation: The procurement of a telefax link with the MRC and the ISEOC would enhance the consistent dissemination of emergency-related information to the HCEOC staff.

2.4.2 Pottawattamie County EOC

Overview

The Pottawattamie County EOC (PCEOC) was located at the Pottawattamie County sheriff's department. The PCEOC was not fully activated for this exercise. The primary functions of the PCEOC were (1) notification and alerting of key staff and (2) public notification and warning activities. The

organizations present at the PCEOC included the county CD Director, communications director, sheriff's department, and the Iowa State Police. Except for the Iowa State Police, all participants were on duty by 0800 hours. The PCEOC has a direct communication link with the utility which is monitored round-the-clock. A sheriff's dispatcher has a call-up list and procedures to notify PCEOC staff at any hour of the day. Except for the CD Director and communications director, a 24-hour staffing capability was demonstrated. All participants demonstrated adequate training and knowledge of their assigned duties.

The director of communications was in charge of the PCEOC, however, this is not clearly indicated in the plan. Appropriate staff were involved in decision making. Access was controlled to the communications area. Complete message logs were maintained. A copy of the current plan was available for reference, but the staff did not have written procedures or checklists.

Facilities at the PCEOC were adequate and the center could support extended operations with existing sleeping, shower, and kitchen facilities. The emergency classification level was posted on the status board and a map of the plume EPZ and associated sectors was displayed. However, no maps or displays were posted indicating evacuation routes, relocation centers, access control points, radiological monitoring points, or population density by evacuation area.

Communication equipment included landlines to the ISEOC, MRC, licensee, contiguous states, and local EOCs. An open conference line linked the PCEOC with the ISEOC, MRC, and HCEOC. No direct contact was made with the PCEOC after 1248 hrs on the open line. The line remained operational, but no one confirmed the county's presence during this critical period of the exercise. It is suggested that procedures for communications checks be developed. Other communications equipment included the sheriff's department radio network. No direct communication's capability with the EOF were observed.

Existing agreements require only that the Pottawattamie County sheriff activate the siren warning system. This was accomplished promptly when directed by the ISEOC. When the decision ordering the evacuation of the 2-mile EPZ was given, the PCEOC brought to the ISEOC's attention that four families would be involved, identifying an error in the plan. The PCEOC followed up with simulated telephone notification of the affected families. When notified to evacuate to five miles, actual calls to five off-duty sheriff's deputies were promptly made, simulating dispatch to the field. The PCEOC staff was aware of the location of mobility impaired persons, should their evacuation be necessary.

The PCEOC promptly activated traffic control points when ordered to do so. The county dispatched eight sheriff's deputies to help with the evacuation. This response was apparently under existing county procedures, separate from the radiological emergency plan. According to PCEOC staff, sufficient personnel and vehicles were available to cover all traffic and

access control functions simultaneously. In addition, necessary materials and equipment were available to keep evacuation routes clear in the event of bad weather or to remove stalled or wrecked vehicles.

Further announcements received over the ISEOC open line extended the evacuation to the 10-mile EPZ and indicated that KI was being distributed to the state patrol officers working in the field. The sheriff's department had no information regarding the administration of KI. The sheriff's deputies were equipped with personal dosimeters, but apparently were not trained to read them. Observer inquiries revealed that dosimeter readings were to be made and recorded when the deputies returned from the field. No periodic readings were taken and no apparent knowledge of KI usage was demonstrated.

Deficiencies that would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed at the PCEOC.

Deficiencies and Recommendations

1. Deficiency: The director of communications was in charge of the PCEOC, but this role was not clearly in the plan (NUREG-0654, II. A.2.a).

Recommendation: The PCEOC should specify the function and responsibility for key individuals by title for command and control.

2. Deficiency: The PCEOC staff did not have specific written procedures or checklist for their respective assigned duties (NUREG-0654, II. A.1.b).

Recommendation: The PCEOC should develop written procedures or checklists to aid the emergency response staff in effectively performing their duties.

3. Deficiency: No maps or displays were posted indicating evacuation routes, relocation centers, access control points, radiological monitoring points, or population density by evacuation area (NUREG-0654, II. J.10.a,b).

Recommendation: The PCEOC should develop maps or displays identifying evacuation, preselected radiological sampling and monitoring points, relocation centers in host areas, and population distribution around the nuclear facility by evacuation area.

4. Deficiency: No direct communications capability with the EOF was observed (NUREG-0654, II. F.1.d).

Recommendation: Provision for communications between the licensee's near-site EOF and the PCEOC should be made.

5. Deficiency: The Pottawattamie County Sheriff's Department had no knowledge or procedures regarding the administration of KI (NUREG-0654, II. J.10.e, f).

Recommendation: Provisions for the use of radioprotective drugs, particularly for emergency workers should be made, including quantities, storage, means of distribution, and the predetermined conditions under which such drugs may be used by emergency workers.

6. Deficiency: The Pottawattamie County Sheriff's deputies were not trained in the use or periodic reading and recording of personal dosimeters (NUREG-0654, II. K.3.b).

Recommendation: The PCEOC should ensure that dosimeters are read at appropriate frequencies and provide for maintaining dose records for emergency workers.

2.5 COMBINED STATE OPERATIONS

2.5.1 Emergency Operations Facility

Overview

The notice to activate the emergency operations facility (EOF) was received at approximately 0630 hours via the Nebraska Highway Patrol dispatcher. Nebraska personnel, the mobile state civil defense operations center (CRUSH), and the state patrol mobile communications center (BLUEBIRD) all arrived at the EOF within two hours. Nebraska personnel tested their radio and telephone equipment, made necessary adjustments, and activated BLUEBIRD. The EOF was declared fully operational by 0920. Overall, the activation of the EOF was consistent with the plan, ahead of schedule, and professionally accomplished.

Nebraska provided adequate staffing at the EOF for the functions of operations, communications, information authentication, and health physics. A governor's representative was also present. Each staff member was well-trained and knowledgeable of their respective functions. However, the lack of clerical support to record and handle messages created a variety of

problems. The message log was poorly maintained and replies to requests for information were sometimes overlooked, or lacked sufficient content. Each staff member was forced to record and handle messages in addition to their regular duties.

The command and control functions of decision making and providing protective action recommendations were sometimes inconsistent with the plan. Such inconsistencies in decision making were observed on at least two occasions when: (1) the order to issue KI to emergency workers was made at approximately 1330 hrs, and (2) an order was given to reduce protective actions while the emergency classification level of the plant remained at General Emergency (between 1415 and 1510 hrs). In the first case, it was not clear whether the decision was made at the EOF or the EOC, since there had been no such discussion observed at the EOF prior to the decision. In the second case, the decision was overridden and delayed. In each case, the decision making and protective action recommendations were not made according to the procedures specified in the plan. The record of protective action recommendations indicates nine actions were recommended or implemented. Some were implemented prior to EOF recommendation. The remainder were recommended in compliance with the plan.

Space and equipment for EOF personnel were set aside, but were limited. No visual aids were displayed and maps identifying EPZ sectors and evacuation routes were not present. The facility was normally an office and did not have adequate wall space for maps. As a result, the staff procured a map and spread it on the floor. Communications facilities were adequate and functioned well. The utility provided telephones and the state activated radio equipment to communicate the state and local EOCs, and with BLUEBIRD and CRUSH. A dedicated line was provided to communicate with the state radiation health team. Capability for conference calls was possible on the dedicated line and a telephone line between the EOF, Lincoln, and the Nebraska Civil Defense.

Dose assessment calculations and some protective action recommendations were made in the utility's emergency assessment and recovery operations (EARO) room and at CRUSH. The dose assessment procedures were not observed in the EOF. The health physicist was required to commute constantly between EARO and the EOF in performing his duties. During much of the exercise, the health physicist was in EARO, coordinating with the utility monitoring teams. In the EOF, he coordinated with the state and local governments and recommended protective actions. CRUSH duplicated the work of the EOF staff. The use of CRUSH strained the limited staff resources at the EOF and generated additional message traffic.

Iowa met exercise objectives by demonstrating the capability to mobilize representatives to coordinate and support emergency response efforts at the EOF. Generally, one Iowa representative would be dispatched to the EOF, but for this exercise two were present. Iowa maintains a file of individuals that may be contacted at any hour of the day to staff the EOF.

The Iowa staff did not display or demonstrate adequate knowledge or training in the functions they were to perform at the EOF. Messages were not consistently logged and frequently no one was available to respond to the phone. As a result, the representatives were not well-informed of information applicable to directing and controlling response functions.

The space available in the EOF for Iowa operations appeared adequate. Accommodations were reasonably comfortable with low noise levels. The only communications equipment for the Iowa representative was a commercial telephone. No backup communications were available.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed at the EOF during this exercise.

Deficiencies and Recommendations

1. Deficiency: Decision making and recommendations for protective actions were not always made according to the procedures specified in the plan (NUREG-0654, II. A.2.a).

Recommendation: Additional training is necessary in management and decision making responsibilities. Familiarization with the procedures in the plan should be emphasized.

2. Deficiency: The EOF was too small to be used effectively (NUREG-0654, II, H).

Recommendation: Adequate emergency facilities and equipment to support the emergency should be provided. The single office should be expanded.

3. Deficiency: Maps or displays indicating population distribution, sampling points, EPZ sectors, and relocation centers were absent (NUREG-0654, II, J.10.a,b).

Recommendation: Maps or displays indicating evacuation routes, evacuation areas, radiological sampling and monitoring points, relocation centers, and population distributions should be developed and posted.

4. Deficiency: No support staff were available to assist the emergency response personnel with message receipt or handling (NUREG-0654, II. A.4).

Recommendation: Arrangements should be made to have sufficient support staff at the EOF to relieve officials of routine telephone calls and to properly handle messages.

5. Deficiency: The Iowa representatives were not sufficiently trained to perform their function well. Message logging and handling was incomplete and telephones were sometimes left unanswered (NUREG-0654, II., A.2.a, 0.5).

Recommendation: Additional training should be provided for the EOF representatives to ensure they are knowledgeable in their duties.

6. Deficiency: Communications equipment was not adequate for the Iowa representatives (NUREG-0654, II., F.1.d).

Recommendation: The Iowa representatives should be provided with reliable primary and backup means of communication between the EOF and state and local EOCs and radiological monitoring teams.

2.5.2 Information Authentication Center

Overview

Public information officers (PIOs) from the utility, Nebraska Civil Defense, and the NRC were located at the EOF and operated the information authentication center (IAC). The state of Iowa was not represented at the IAC. The IAC has no direct contact with the media and releases information directly to the media release center (MRC) in accordance with the plan.

Activation of the IAC was promptly and effectively demonstrated. Key personnel were contacted through telephone pagers. When alerted, these individuals contact the rest of the staff. The IAC can be contacted at any hour of the day, and demonstrated a 24-hour staffing capability using double shifts. A full staffing capability was demonstrated at this exercise. The PIOs were all competent technically, and worked well as a unit.

The facilities at the IAC were adequate in terms of space, furniture, lighting, and communications equipment. Acoustics within the IAC were good. Maps and displays were available for reference. Only one manual typewriter was available in the IAC for utility staff. Nebraska representatives prepared and disseminated messages in longhand. The NRC brought portable word processing and telefax equipment for their use.

Commercial telephones were the primary communication links between the IAC and the state and local EOCs and the EOF. A telefax was used to transmit releases to the MRC. In addition, a 2-way radio was used to communicate with CRUSH. Overall, the IAC was well-equipped for communications functions.

Five major briefings were provided by the IAC. The briefings were accurate, complete, and understandable. The PIOs effectively exchanged and coordinated information to be released.

The Nebraska Civil Defense used prescribed emergency public messages but the PIO of the utility and the NRC representative drafted their own messages as situations arose. The messages were generally clear and understandable. However, on several occasions the content of the messages were found by the MRC to be erroneous or confusing. For example, in one message instructions for evacuation were provided when in fact, sheltering was the recommended protective action. In other cases, information in the messages was inconsistent with information contained in the public information brochure. In Nebraska releases, sectors for protective actions were identified, as illustrated in the brochure, but referral to the brochure was not made. At least two releases made by the NRC were not expected by the MRC, indicating a breakdown in coordination.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed at the IAC during this exercise.

Deficiencies and Recommendations

1. Deficiency: On occasion, the content of messages released by the IAC were found to be erroneous or confusing (NUREG-0654, II, E.4.1, E.5-7).

Recommendation: Provisions should be made for more careful authentication of the content of messages released to the media and the public.

2. Deficiency: The content of some messages released to the media was not clear and consistent with information contained in the public information brochure. Further, the brochure was not indicated as a source of information (NUREG-0654, II, E.6,7; G.1).

Recommendation: Provisions should be made to ensure protective action recommendations provided in the public information brochure and media releases are consistent. When protective action recommendations include EPZ identifiers, the message should (1) refer the public to a source where the sector boundaries are defined (e.g., the brochure), or (2) include the sector boundaries, identified clearly by geographic landmarks, in the messages, or (3) both.

2.5.3 Media Release Center

Overview

The media release center (MRC), located in the Omaha/Douglas County Civic Center was serving both Nebraska and Iowa, was promptly activated by representatives from the utility and each of the states. Each organization provided two PIOs. The MRC was fully operational by 0805 hrs. A regular notification system to activate the MRC at any hour of the day was demonstrated. The call up list identifies first and second shift personnel. The utility demonstrated a shift change while Nebraska provide a two-shift roster. Iowa's capability for demonstrating a shift change was limited since only two persons are available. In general, the PIOs demonstrated adequate training and knowledge of their assigned duties.

The MRC had adequate space, furniture, lighting, and typewriters. Additional equipment included a telefax (linked to the IAC) and a photocopy machine. Backup power was available at the MRC. Maps and displays to facilitate dissemination of information were small and generally inadequate. However, a letter of agreement with Nebraska indicates larger maps and wall charts will be installed in the near future. It was not known if the new visual aids will also cover the appropriate areas in Iowa. The PIOs were provided with a private conference area. Approximately 25-30 reporters could be accommodated in the MRC, but an additional capacity of 300 could be handled in the legislative chambers on another floor.

Communications equipment at the MRC were adequate and operated well. The utility had a dedicated line to the EOF. Iowa and Nebraska each used commercial telephones. Iowa maintained an open line to the state and local EOCs and the EOF. Secondary communication links in the form of a telefax were demonstrated to each state EOC and the EOF. Conferencing capability was possible between the MRC and the state and local EOCs and the EOF. Telephone lines and jacks were provided for reporters. Reporters would have been required to bring their own telephone unit to use the lines.

Media kits were available containing general background information on nuclear plants, the utility and the local area. These briefings were

conducted, but no media representatives were present. The PIOs held pre-briefing meetings to ensure coordinating. However, the NRC issued two news releases with no advance notice or coordination with the MRC. No indication of the source or location of the release was made (refer to Sec. 2.5.2). The media briefings were generally accurate and complete. A technical liaison from the utility was present to clarify technical matters. Hard copies of media briefings would have been posted and made available had any media representatives attended. Radio broadcasts were not monitored in the MRC because radio reception was poor within the building. As a result, the MRC was unable to keep track of information the public was actually receiving. No system was identified to rectify errors in information received by the public.

Public instructions were drafted at the IAC and transmitted to the MRC (refer to Sec. 2.5.2). Overall, the quality of public instruction and news releases was not adequate. The messages were generally too brief and contained errors on several occasions. Protective action areas were accurately described in terms of familiar boundaries and landmarks for Iowa, but only by EPZ sectors for Nebraska. Nowhere were the boundaries of the sectors defined, and no reference was made to the public information brochure which illustrates the sectors. Instructions provided for sheltering in Nebraska inadvertently and incorrectly gave evacuation measures instead. This error was never caught or corrected. The public information brochure was never referenced in the briefings, and no instructions for its use or acquisition were made.

The Emergency Broadcast System (EBS) and other electronic media were notified to broadcast the emergency instructions. The timing of public instruction was delayed and not well-coordinated with the public alerting process (refer to Sec. 2.3.1).

Two operators and four telephone lines were activated for rumor control functions during the exercise. Rumor control has the capability to handle 10 telephone lines simultaneously. The operators were well-prepared to answer questions as they were kept continually up to date through briefings. The rumor control number was publicized only once in an EBS message prepared by the utility. The states and the utility neglected to mention rumor control in their briefings. Two calls were received by rumor control providing valuable exercise feedback. These calls indicated that the sirens were weak in one area, however, this information was never passed on to the states or the EOF.

Deficiencies That Would Lead to a Negative Finding

No deficiencies that would lead to a negative finding were observed at the MRC during this exercise.

Deficiencies and Recommendations

1. Deficiency: Maps and displays to facilitate dissemination of information at the MRC were small and generally inadequate. Agreements have been reached with Nebraska to upgrade the MRC visual aids. It was not clear if the new visuals would include the affected portions of Iowa (NUREG-0654, II, G).

Recommendation: The new visual aids for the MRC should depict the entire planning area surrounding the Fort Calhoun facility, including affected portions of Iowa.

2. Deficiency: EBS broadcasts should be monitored in the MRC to evaluate the accuracy of the information the public is receiving. Procedures to correct erroneous information were not developed (NUREG-0654, II, E.4.1, G.2.c).

Recommendation: Installation of an antenna would enhance radio reception and allow for the monitoring of EBS messages. Procedures should be developed to correct erroneous broadcasts.

3. Deficiency: Overall, the quality of public instruction and news releases was inadequate (see also Sec. 2.5.2) (NUREG-0654, II, E.5,7, G.4.b).

Recommendation: More training in the authentication and quality of public information is suggested. Procedures for coordinating and reviewing the contents of public instructions are needed.

4. Deficiency: The timing of public instruction was delayed and not well-coordinated with the public alerting process (see also Sec. 2.3.1) (NUREG-0654, II, E.6; Appendix 3, B.2.a, B.3).

Recommendation: Procedures to expedite the broadcast of the EBS messages, closely following the activation of the alerting signal are needed.

3 SCHEDULE FOR CORRECTING DEFICIENCIES: December 6-7, 1983, EXERCISE

Section 2 of this report lists deficiencies based on the findings and recommendations of federal observers at the radiological emergency preparedness exercise for the Fort Calhoun Nuclear Power Station held on December 6-7, 1983. These evaluations are based on the applicable planning standards and evaluation criteria set forth in (NUREG-0654-FEMA-1, Rev. 1 (Nov. 1980) and objectives for the exercise agreed upon by the state, FEMA, and the RAC.

The Regional Director of FEMA is responsible for certifying to the FEMA Associate Director, State and Local Programs and Support, Washington, D.C., that any deficiencies that require corrective actions have been corrected and that such corrections have been incorporated into the plans as appropriate.

FEMA requests that both the state and local jurisdictions submit a schedule of actions they have taken or intend to take to correct these deficiencies. FEMA recommends that a detailed plan, including dates of completion for scheduling and implementing recommendations, be provided if corrective actions cannot be instituted immediately.

No deficiencies were observed at the state or county level that would cause a finding that off-site emergency preparedness was not adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of the site in the event of a radiological emergency.

Other deficiencies observed at the December 6-7, 1983, exercise for the FCNPS require that a schedule of corrective actions be developed. These other deficiencies are summarized in the following table.

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS

December 6-7, 1983

N/REC Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
A.1.b, A.2.a	<p><u>Nebraska State EOC</u></p> <p>1. The written State plan fails to adequately describe the minimum number of personnel to operate the EOC and how the State EOC interacts with the Field Command Post personnel in making dose assessment calculations and protective action decisions. It would be beneficial if the State plan was clarified in order to allow maximum flexibility of existing conditions and available state resources.</p>					
NR	<p>2. A potential problem between the radiological health decision makers in Nebraska and Iowa exists in how protective actions recommendations are made for sectors adjacent to and overlapping the Missouri River. When the plume travels across the Missouri River, residents of Iowa and Nebraska would benefit if the two states would define an equivalent basis and decision chain for making protective actions relative to siren activation, sheltering, evacuation, etc.</p>					

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

NUREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
NR	<p>3. Protective action instructions to the public were provided using NUREG-0654 sector designations rather than familiar geographical boundaries. Use of familiar geographical boundaries in describing areas affected by protective actions and recommendations would be more clearly understandable to local residents.</p> <p><u>State Civil Defense Portable Operations Center - CRUSH</u></p>					
I.8, I.10	<p>4. Delays of up to 45 minutes were encountered in the receipt of utility data at CRUSH. On one occasion incorrect data was supplied to CRUSH from the utility, resulting in state dose projections that were significantly different from the utility's. No apparent attempt was made by the state to resolve this data discrepancy. The cause of the delays in receipt of data needs to be identified and a remedy implemented. Additional training and/or a review of procedures in verifying accuracy of utility data is needed.</p>					

FT. CALHOON NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

NUREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
K.3.a	5. The lack of sufficient simulated TLDs raises concerns as to whether a sufficient number of TLDs could actually be made available in a real emergency. The use of simulated TLDs as a means to display capability is not recommended. It is suggested that permanent-record dosimetry availability be demonstrated in future exercises.					
1.10.f	6. The order for the use of KI occurred late in the exercise; KI should have been administered 1 to 2 hours earlier and should have been based on source terms sufficiently high to warrant its use. The predetermined conditions under which decisions are made to administer radioprotective drugs to off-site emergency workers should be reviewed.					

PT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

NREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response (A) Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
I	<p>7. The source terms used during the exercise were not compatible with the field data provided. Also, field data supplied to the field teams were not in the proper form; the data provided were calculations derived from field data. Assure that source terms used during the exercise are compatible with the field data provided and make provisions to ensure that field data supplied to field teams are in the proper form. The finalized scenario should be provided to FEMA for review with respect to completeness and accuracy at least 45 days prior to the exercise.</p> <p><u>Nebraska Radiological Monitoring Team</u></p>					
F	<p>8. Before deployment, the field team was not briefed on current plant or meteorological conditions. Briefing of the field team prior to deployment would better enable the team to respond to radiological conditions as they change.</p>					

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

NUREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
H.10	<p>9. The sodium iodide scintillation counter was not fully functional and was not used during the exercise. The field vehicle experienced an electrical starting problem. Also, equipment available to the team was not consistent with the plan. The causes of any instrument malfunctions should be identified and remedial actions taken to ensure that this instrument and all equipment, including vehicles, are working properly; and field teams should have adequate opportunity to become fully familiar with new equipment prior to an exercise. The plan or equipment available needs to be adjusted to reflect consistency.</p>					
NR	<p>10. A snow sample was placed in a plastic bag rather than a properly sealed container to prevent its loss by leakage. A review of procedures and equipment needs for snow sampling is suggested.</p>					

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS

December 6-7, 1983

NUREC Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
K.3.a, K.5.a	11. Low range dosimeters were not available and familiarization was not evident with regard to maximum dose allowed without authorization, and what procedures should be implemented if an excess dose was received. Low-range dosimeters are needed for field team members. Also, additional training is needed on understanding maximum doses allowed without authorization and procedures to be implemented if an excess dose is received.					
I.8	12. The Nebraska field team was not directed properly to obtain useful plume information. Samples from Additional monitoring points are needed to obtain useful information on the plume. A controller needs to be assigned to the field teams to input essential data that will allow complete and worthwhile field team exercising.					

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

NUREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
F	<p><u>Cooper NPS Radiological Monitoring Team</u></p> <p>3. Prior to field team deployment, the Cooper team was not briefed on plant or meteorological conditions nor was the team kept informed of these conditions throughout the exercise. The team also was not in communication with CRUSH while it was at the decontamination center. Field teams should be briefed on plant conditions prior to deployment and communications maintained throughout the exercise.</p> <p>H.7,10 14. The Cooper field team did not have charcoal cartridges for air sampling. Equipment was not available for water and milk sampling. The team also did not acquire a hand-held portable radio. Monitoring and communication equipment should be available to accomplish the assigned field monitoring responsibilities of the Cooper team.</p> <p>I.7 15. Conversions from mR/hr to $\mu\text{Ci/cc}$ was accomplished using a chart and interpolating between table values; this method was not in the plan. Review the plan or procedures regarding this activity and make changes and/or revisions as appropriate.</p>					

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS

December 6-7, 1983

NUREC Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
K.3.a	16. Only low-range (0-1 R) dosimeters were available. Permanent record devices were simulated. Provide the field team with mid- and high-range dosimetry. Availability and use of permanent record devices should be demonstrated in a future exercise.					
I.8	17. The monitoring team was not used effectively for tracking the plume because only two non-plume monitoring points were sampled. Samples from additional monitoring points within the plume need to be taken to effectively track the plume. The plan should be reviewed to assure proper use and management of the field teams.					
	<u>Radiological Laboratory</u>					
A.4	18. The radiological laboratory should be able to demonstrate a capability to function over a prolonged period. One additional trained and experienced individual would be desirable to provide two shifts of two persons each.					

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

Element	RAC Remediation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
H.10	<p>19. Backup equipment for analyzing media samples were not present. Provisions and arrangement for backup equipment should be made. Sufficient analytical equipment may be available through the use of backup laboratories.</p>					
N.2.d	<p>20. No technical operations were observed at the radiological laboratory during this exercise. The exercise should include analysis of sample media and a demonstration of communications and record keeping.</p>					
K.3.a	<p>Dana College Coliseum Decontamination Center</p> <p>21. The availability of State health physics personnel over an extended period of time was not demonstrated. State health physics personnel should be assigned to provide 24-hour capability.</p>					
NR	<p>22. Activities presented at the decontamination facility were simulated. A demonstration of decontamination center capabilities should be carried out in a future exercise.</p>					

FT. CALHOUN NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS

December 6-7, 1983

NREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
I.	<p><u>University of Nebraska Medical Center and the Blair Rescue Squad</u></p> <p>23. The Blair Ambulance Crew was not provided with radiation monitoring equipment, dosimetry, protective clothing, adequate communications, and radiation training. All appropriate equipment should be provided to rescue squads and ambulance services involved in the transport of injured-contaminated individuals. Training is also needed in all aspects of radiation control.</p> <p><u>Washington County</u></p>					
D, 3, 4	<p>24. A misunderstanding of the emergency classification existed between the County Sheriff Dispatcher and the CD Director. This caused a delay in staff notification and activation. Additional training in notification procedures and a review of verification procedures is suggested.</p>					

FT. CALHOON NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS

December 6-7, 1983

NUREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
A.2.a	25. It was not clear to what extent the HAM and REACT volunteer radio operators would be available at the EOC in the event of an actual emergency. The county plan should include a description of the extent that these volunteer organizations will participate in an actual emergency. Appropriate letters of agreement would help to define the extent of availability.					
1.10.c, 1.10.d	26. Special issues relating to the evacuation of schools and the mobility-impaired have not been adequately addressed. Procedures which need to be defined for the evacuation of schools include: the extent to which buses will be used, coordination and communication between the EOC and the school superintendents, alerting and availability of bus drivers, and expectations of parents picking their children up at the schools. Activities which need to be addressed in the evacuation of mobility-impaired include a system for the identification of non-institutionalized individuals. Provision for their evacuation plus notification of institutions, is needed.					

FT. CALHOON NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

NUREC Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
K.3.a	<p>27. Low-range (0-200 mR) and permanent record dosimeters were not available. Dosimeters were read on an hourly basis, this is not frequent enough under certain circumstances. Low-range, direct-read and permanent record dosimeters are needed. The interval between readings of the dosimeters is dependent upon the dose rate to which the workers are exposed. An interval of 15 minutes or even more frequent could be required in high radiation fields (greater than 1 R/h). Changes to instructions provided with dosimeters should be considered.</p>					
N.1.b	<p><u>Iowa State EOC</u></p> <p>28. All organizations having emergency responsibilities and identified in the plan did not participate in the exercise. Each organization shall establish procedures for alerting, notifying, and mobilizing emergency response personnel.</p>					

FT. CALHOON NUCLEAR POWER STATION EXERCISE-REMEDIAL ACTIONS
December 6-7, 1983

NUREG Element	RAC Recommendation Corrective Action	State (S)/County (C) Response (ACTION)	Proposed Completion Date	FEMA Evaluation of State/County Response	Response (A) Adequate (A) Inadequate (I)	Remedial Action Complete (C) Incomplete (I)
E.5, 6	29. The siren system was activated at 0935, but the EBS message broadcast was delayed until 1005. Procedures need to be developed to ensure prompt broadcast of EBS messages following siren activation.					
J.10.a, J.10.b	30. Maps or displays of population density by evacuation area, and relocation centers were not posted. Maps showing population distribution around the nuclear facility by evacuation areas, and maps showing relocation centers in host areas should be prepared and posted.					
J.10.b	31. The current state plan was discovered to be in error identifying the number of families residing within the 2-mile EPZ in Pottawattamie County. The plan should be updated to indicate the correct number of families residing within each emergency planning zone.					
J.10.a	32. Designations for the same radiological monitoring site differed between the utility and the state. The difference apparently created some confusion. The utility and the state should use a common designator for radiological monitoring sites.					

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1.10.e	33. An adequate supply of KI was not present for all emergency workers. Provisions for the use of radio-protective drugs, including adequate quantities, storage, and means of distribution, particularly for emergency workers must be made.					
App. 3, 2.b	34. No direct contact was made with the PCEOC after 1248 hours on the open line. The line remained operational, but no one confirmed the county's presence during this critical period of the exercise. It is suggested that procedures for communications checks (e.g., a roll call) be developed to assure communications operation and receipt of messages.					
1.10.e, 1.10.f	35. The recommendation to administer KI was not based on the appropriate guidelines or justified based on the dose projections made by the field team coordinator. Further, the recommendation was made too late. Closer coordination is required between the ISEOC and the forward command post. The ISEOC should involve the forward command post in decision making and recommendations.					

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	<p><u>Field Monitoring Activities</u></p>					
I.8, N.2.4, O.4.c	<p>36. The Blue team was not certain of the proper collection procedures for, and calculations of radioiodine concentrations in the field. The written procedures had been misplaced. The Blue team requires more training in emergency response and radiological monitoring procedures. A check, prior to deployment, for all equipment and procedural manuals should be verified on a checklist.</p>					
H.11, I.8	<p>37. The Blue team's air sampling equipment was nonoperable because no power supply for the air pump was available. The plan should specify and identify the requirement for an air sampler power supply in the checklist.</p>					
F	<p>38. Following deployment, the radiological monitoring teams were not provided with periodic updates of plant status and meteorology. The field team coordinator should provide periodic updates of plant status and meteorology to field teams.</p>					

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I.8, I.9, I.11	39. The radiological monitoring teams were not familiar with the equipment or procedures used by the other teams. Additional training is recommended to familiarize radiological field monitoring team members with the different equipment and procedures in use.					
F.1.4, N.2.a	40. All members of the field teams did not demonstrate adequate proficiency with hand-held field radios. Further training in the use of field radio equipment is recommended for radiological monitoring team members.					
K.3.b	41. Radiological field monitoring team personnel did not regularly read and record dose values from their personal dosimeters. Procedures to ensure that dosimeters are read at appropriate frequencies and dose records are maintained should be established.					

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K.5.a, K.5.b	<p>42. Radiological field monitoring teams were not proficient in determining the need and means for decontamination of emergency personnel, supplies, equipment, and contaminated waste disposal. Field teams require additional training in the areas of determining the need and means for decontamination of emergency personnel, supplies, and equipment, and for disposal of contaminated wastes.</p> <p><u>Forward Command Post-Radiation Team Operations</u></p>					
A.3	<p>43. Message handling and distribution were inadequate, resulting in the team coordinator not being current on the latest developments. The importance and function of the field team coordinator should be clearly defined in the plan. Although the coordination of field teams is a state function, the interface with the HCEOC should be clarified. The field team coordinator should have adequate administrative authority to perform his function. Clerical support for the team coordinator would be desirable.</p>					

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I.10.a	44. Visual aids were lacking except for maps of the plume EPZ and radiological monitoring sites. Maps of radiological monitoring sites were inconsistent in the location and identification of the sites. The necessary visual aids and maps should be developed and posted in the dose assessment area. Further, the states and the utility should agree on a common map of radiological monitoring sites and identifiers for those sites.					
F.1.4, 1.8	45. Communication with the radiological monitoring teams was not adequate. A direct form of communication between the field coordinator and the field monitoring teams should be established through upgraded equipment. <u>Medical Support</u>					
I.1.3	46. The Missouri Valley Hospital did not have adequate radiological monitoring instruments. Missouri Valley Hospital should acquire appropriate instruments to be able to radiologically monitor contaminated persons.					

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N.2.c	<p>47. A practiced procedure for admitting radiologically contaminated, injured persons was not evident at the Missouri Valley Hospital. Procedures should be developed and demonstrated for the treatment of radiologically contaminated victims at the Missouri Valley Hospital. Additional training of hospital staff may be necessary. Mercy Hospital in Cedar Rapids has a videotape of procedures which might prove useful. The staging of a medical drill would test procedures currently described.</p> <p><u>Harrison County EOC</u></p>					
A.2.a	<p>48. Command and control of the HCEOC was not effectively demonstrated. The OBS representative officially in charge was occupied with communication functions. The HCEOC should designate a deputy to manage the EOC during times when he is unavailable.</p>					

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G.3.a, G.4.a	49. The HCEOC provided a press briefing during the exercise. The spokesperson was not adequately trained regarding contact with the press and specific agency responsibilities. The HCEOC should designate the points of contact and physical locations for use by the news media during an emergency and in compliance with the plan. Further, a spokesperson should be designated and trained to interact with the media.					
I.10.4	50. The HCEOC staff were not aware of the locations of mobility-impaired and special needs persons. The HCEOC should compile a list of mobility-impaired and special need persons. Provisions should be developed for the protection or evacuation of these persons during a radiological emergency.					
K.3.a	51. Only high-range (0-200 R) dosimeters were available for emergency workers. Low-range (0-200 mR) pocket dosimeters and TLDs should be available for emergency workers who enter radiation fields.					

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A.2.a	52. A copy of the current state plan was not available. Confusion in personnel and responsibility resulted. A copy of the current plan should be maintained in the HCEOC. Key staff members should be thoroughly familiar with their respective responsibilities.					
NR	53. The HCEOC status board was not adequate. The board was too small to post the necessary plant status information. The HCEOC should design a status board which will identify the current emergency classification level; include effective times for protective action decisions; and a brief description of protective actions in effect.					
A.2.c	54. Some personnel reported to the HCEOC when they had no emergency responsibilities. Apparently the call list in use is no longer up to date. An up-to-date call list identifying persons with emergency responsibilities consistent with the current plan should be prepared.					

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Nr	<p>55. Hard copies of the content of EBS messages, press releases, and protective action recommendations were not available at the HCEOC because there was no telefax machine. The procurement of a telefax link with the MRC and the ISEOC would enhance the consistent dissemination of emergency-related information to the HCEOC staff.</p>					
	<p><u>Pottawattamie County EOC</u></p>					
A.2.a	<p>56. The director of communications was in charge of the PCEOC, but this role was not clearly in the plan. The PCEOC should specify the function and responsibility for key individuals by title for command and control.</p>					
A.1.b	<p>57. The PCEOC staff did not have specific written procedures or checklist for their respective assigned duties. The PCEOC should develop written procedures or checklists to aid the emergency response staff in effectively performing their duties.</p>					

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I.10.a, I.10.b	58. No maps or displays were posted indicating evacuation routes, relocation centers, access control points, radiological monitoring points, or population density by evacuation area. The PCEOC should develop maps or displays identifying evacuation, preselected radiological sampling and monitoring points, relocation centers in host areas, and population distribution around the nuclear facility by evacuation area.					
F.1.d	59. No direct communications capability with the EOF was observed. Provision for communications between the licensee's near-site EOF and the PCEOC should be made.					
I.10.e, I.10.f	60. The Pottawattamie County Sheriff's Department had no knowledge of procedures regarding the administration of KI. Provisions for the use of radioprotective drugs, particularly for emergency workers should be made, including quantities, storage, means of distribution, and the predetermined conditions under which such drugs may be used by emergency workers.					

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K.3.b	<p>61. The Pottawattamie County Sheriff's deputies were not trained in the use or periodic reading and recording of personal dosimeters. The PCEOC should ensure that dosimeters are read at appropriate frequencies and provide for maintaining dose records for emergency workers.</p> <p><u>Emergency Operations Facility</u></p>					
A.2.a	<p>62. Decision making and recommendations for protective actions were not always made according to the procedures specified in the plan. Additional training is necessary in management and decision making responsibilities. Familiarization with the procedures in the plan should be emphasized.</p>					
H	<p>63. The EDF was too small to be used effectively. Adequate emergency facilities and equipment to support the emergency should be provided. The single office should be expanded.</p>					78

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1.10.a, 1.10.b	64. Maps or displays indicating population distribution, sampling points, EPZ sectors, and relocation centers were absent. Maps or displays indicating evacuation routes, evacuation areas, radiological sampling and monitoring points, relocation centers, and population distributions should be developed and posted.					
A.4	65. No support staff were available to assist the emergency response personnel with message receipt or handling. Arrangements should be made to have sufficient support staff at the EDF to relieve officials of routine telephone calls and to properly handle messages.					
A.2.a, 0.5	66. The Iowa representatives were not sufficiently trained to perform their function well. Message logging and handling was incomplete and telephones were sometimes left unanswered. Additional training should be provided for the EDF representatives to ensure they are knowledgeable in their duties.					

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F.1.d	<p>67. Communications equipment was not adequate for the Iowa representatives. The Iowa representatives should be provided with reliable primary and backup means of communication between the EOP and state and local EOCs and radiological monitoring teams.</p> <p><u>Information Authentication Center</u></p>					
E.4.1, K.5-7	<p>68. On occasion, the content of messages released by the IAC were found to be erroneous or confusing. Provisions should be made for more careful authentication of the content of messages released to the media and the public.</p>					

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E.6, E.7, G.1	<p>69. The content of some messages released to the media was not clear and consistent with information contained in the public information brochure. Further, the brochure was not indicated as a source of information. Provisions should be made to ensure protective action recommendations provided in the public information brochure and media releases are consistent. When protective action recommendations include EPZ identifiers, the message should (1) refer the public to a source where the sector boundaries are defined (e.g., the brochure), or (2) include the sector boundaries, identified clearly by geographic landmarks, in the messages, or (3) both.</p>					

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<p>G</p> <p>E.4.1, G.2.c</p>	<p><u>Media Release Center</u></p> <p>70. Maps and displays to facilitate dissemination of information at the MRC were small and generally inadequate. Agreements have been reached with Nebraska to upgrade the MRC visual aids. It was not clear if the new visuals would include the affected portions of Iowa. The new visual aids for the MRC should depict the entire planning area surrounding the Fort Calhoun facility, including affected portions of Iowa.</p> <p>71. EBS broadcasts should be monitored in the MRC to evaluate the accuracy of the information the public is receiving. Procedures to correct erroneous information were not developed. Installation of an antenna would enhance radio reception and allow for the monitoring of EBS messages. Procedures should be developed to correct erroneous broadcasts.</p>					

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E.5.7, G.4.b	72. Overall, the quality of public instruction and news releases was inadequate (see also Sec. 2.5.2) More training in the authentication and quality of public information is suggested. Procedures for coordinating and reviewing the contents of public instructions are needed.					
E.6; App.3, B.7.a, B.3	73. The timing of public instruction was delayed and not well-coordinated with the public alerting process (see also Sec. 2.3.1). Procedures to expedite the broadcast of the EBS messages, closely following the activation of the alerting signal are needed.					