

## ENCLOSURE

*Fort Calhoun Station*

*1992 Emergency Preparedness Exercise*

### SCOPE and OBJECTIVES

NOTE: Page numbers included with this enclosure (1-4 through 1-17) correspond to the 1992 Exercise Scenario Manual and are not reflective of specific page numbers to this individual transmittal.

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CONDUCT of EXERCISE  
SCOPE and PARTICIPANTS

The scope of the exercise and a listing of participants is provided under this heading. The list of participants is further broken down to utility, state and local facilities and service agencies and includes addresses for each.

CONDUCT of EXERCISE  
SCOPE and PARTICIPANTS (cont)

SCOPE

As an assurance that the health and safety of the general public is protected in the event of an accident at the Fort Calhoun Station (FCS), the Omaha Public Power District (OPPD) conducts an annual emergency preparedness exercise. Exercises simulate accident conditions and radiological hazards that require major portions of utility, state and local emergency response plans and procedures to be implemented. Emergency responses are evaluated by all participants, and the Nuclear Regulatory Commission. Exercise accident sequences, and the severity and characteristics of radiological hazards are held in confidence prior to conducting the exercise.

The exercise scenario is sufficient to require complete activation of the OPPD emergency response organization for accident mitigation. The accident scenario will require evaluation and decision making on protective actions for the general public surrounding FCS. Additionally, requirements for an annual communications drill between the utility and states are included in the exercise.

Evaluations of the emergency response to situations presented by the exercise scenario help provide an assessment of the adequacy of utility, state and local radiological emergency plans and procedures. In addition, conduct of the exercise is valuable in determining whether adequate resources, and trained personnel assigned emergency response responsibilities are available to protect the health and safety of the general public in the event of an emergency at FCS.

PARTICIPANTS

The following utility, state and local emergency response facilities and service agencies will participate in 1992 exercise activities.

Omaha Public Power District

Control Room (CR) Simulator; Fort Calhoun Station

Technical Support Center (TSC); Fort Calhoun Station

Operations Support Center (OSC); Fort Calhoun Station

Emergency Operations Center (EOC); North Omaha Station, 24th & Craig Ave., Omaha, NE

CONDUCT of EXERCISE  
SCOPE and PARTICIPANTS (cont)

PARTICIPANTS (cont)

State of Nebraska

State Emergency Operations Center<sup>1</sup>; State Civil Defense Hardened Facility, 1300 Military Rd., Lincoln, NE

Washington County Emergency Operations Center<sup>1</sup>; Basement of Law Enforcement Bldg., 1535 Colfax St., Blair, NE

State of Iowa

State Emergency Operations Center<sup>1</sup>; Level A, Rm. 29, Hoover State Office Bldg., 1301 E. Walnut St., Des Moines, IA

Harrison County Emergency Operations Center<sup>1</sup>; County Sheriff's Office, 105 S. First Ave., Logan, IA

Pottawattamie County Emergency Operations Center<sup>1</sup>; Basement of Pottawattamie County Courthouse, 227 S. 6th St., Council Bluffs, IA

NOTE <sup>1</sup>: State and County EOCs will participate to the extent of notifications only.

## CONDUCT of EXERCISE OBJECTIVES

Exercise objectives are provided under this heading. Objectives provide a basis for scenario development and a means to evaluate responses by the emergency response organization.

The Omaha Public Power District radiological emergency preparedness exercise objectives for the Fort Calhoun Station are based on Nuclear Regulatory Commission (NRC) requirements provided in 10CFR50.47, "Emergency Plans", and 10CFR50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities". Additional guidance provided in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", was utilized in developing the objectives.

Objectives are grouped according to functional area of emergency response. Additionally, objectives have been cross referenced to major or parent Emergency Plan Implementing Procedures used in demonstrating the objective, and to any related open weaknesses from prior exercises.

CONDUCT of EXERCISE  
OBJECTIVES (cont)

General Objectives:

Accident Assessment, Classification and Mitigation

1. Demonstrate the ability to assess plant conditions.

<sup>1</sup>NUREG-0654 ref: D.1-2; H.5; I.1  
<sup>2</sup>Major EPIP ref: OSC-14; RR-10,18,19  
<sup>3</sup>Weakness ref: none

2. Demonstrate the ability to identify projected trends and potential consequences.

<sup>1</sup>NUREG-0654 ref: D.1-2; H.5; I.1  
<sup>2</sup>Major EPIP ref: OSC-1,14; RR-10,18,19  
<sup>3</sup>Weakness ref: 285/9108-03

3. Demonstrate the ability to classify the event per EPIP-OSC-1.

<sup>1</sup>NUREG-0654 ref: D.1-2; H.5; I.1  
<sup>2</sup>Major EPIP ref: OSC-1,14; RR-10,18,19  
<sup>3</sup>Weakness ref: none

4. Demonstrate the ability to provide technical support for operations in accident assessment and mitigation.

<sup>1</sup>NUREG-0654 ref: B.7.a-b  
<sup>2</sup>Major EPIP ref: TSC-1,8; RR-11,13,84  
<sup>3</sup>Weakness ref: none

Notification and Mobilization

5. Demonstrate the ability to alert and notify OPPD emergency response personnel in a timely manner.

<sup>1</sup>NUREG-0654 ref: A.1.e; B.1,5,7.a; E.2; F.1.e  
<sup>2</sup>Major EPIP ref: OSC-2  
<sup>3</sup>Weakness ref: none



CONDUCT of EXERCISE  
OBJECTIVES (cont)

Notification and Mobilization (Cont)

6. Demonstrate the ability to mobilize OPPD emergency response personnel within the time frames specified in the Emergency Plan.

<sup>1</sup>NUREG-0654 ref: J.1,4  
<sup>2</sup>Major EPIP ref: OSC-2  
<sup>3</sup>Weakness ref: none

7. Demonstrate the ability of OPPD to notify federal, state and county agencies within the time frames specified in the Emergency Plan.

<sup>1</sup>NUREG-0654 ref: A.1.e; B.4,7.c; E.1-4; F.1; J.7; N.2.a  
<sup>2</sup>Major EPIP ref: OSC-2; EOF-23,24  
<sup>3</sup>Weakness ref: none

8. Demonstrate the ability to alert, advise and direct onsite non-essential personnel.

<sup>1</sup>NUREG-0654 ref: J.1,4  
<sup>2</sup>Major EPIP ref: OSC-2  
<sup>3</sup>Weakness ref: none

Emergency Response

9. Demonstrate the ability to direct and coordinate emergency responses.

<sup>1</sup>NUREG-0654 ref: A.1.d; B.2-7.a-b  
<sup>2</sup>Major EPIP ref: OSC-14; RR-10,18,19,21  
<sup>3</sup>Weakness ref: none

10. Demonstrate the ability to transfer emergency direction from the Control Room (CR), to the TSC, and finally to the EOF, or from the Control Room directly to the EOF.

<sup>1</sup>NUREG-0654 ref: A.1.d; B.3-5  
<sup>2</sup>Major EPIP ref: EOF-13  
<sup>3</sup>Weakness ref: none

CONDUCT of EXERCISE  
OBJECTIVES (cont)

Emergency Response (Cont)

11. Demonstrate the ability to provide initial and continuous accountability of onsite individuals, including search and rescue operations.

<sup>1</sup>NUREG-0654 ref: J.5  
<sup>2</sup>Major EPIP ref: OSC-9  
<sup>3</sup>Weakness ref: none

Radiological Assessment and Control

12. Demonstrate the ability to provide radiological monitoring and decontamination capabilities for onsite non-essential personnel.

<sup>1</sup>NUREG-0654 ref: J.3-4; K.7  
<sup>2</sup>Major EPIP ref: EOF-10; RR-87  
<sup>3</sup>Weakness ref: none

13. Demonstrate the ability to provide onsite contamination controls, including decontamination capabilities and area access controls.

<sup>1</sup>NUREG-0654 ref: K.5,6  
<sup>2</sup>Major EPIP ref: EOF-10; RR-87  
<sup>3</sup>Weakness ref: 285/9108-01

14. Demonstrate the ability to continuously monitor and control emergency worker exposures.

<sup>1</sup>NUREG-0654 ref: K.1.a-g,2,3.a-b  
<sup>2</sup>Major EPIP ref: OSC-9,20; EOF-11,21; RR-22,87  
<sup>3</sup>Weakness ref: 285/9108-01

15. Demonstrate the ability to monitor, assess, and correlate onsite radiological conditions.

<sup>1</sup>NUREG-0654 ref: H.5.b,c,9; I.1-3; N.2.d,e.1  
<sup>2</sup>Major EPIP ref: OSC-20; EOF-6,22; RR-22,87  
<sup>3</sup>Weakness ref: 285/9108-03



CONDUCT of EXERCISE  
OBJECTIVES (cont)

Radiological Assessment and Control (Cont)

16. Demonstrate the ability to collect, analyze and evaluate simulated radiological samples and surveys.

<sup>1</sup>NUREG-0654 ref: H.5.b,7; N.2.d,e.1

<sup>2</sup>Major EPIP ref: OSC-20; TSC-8; EOF-6,11,20,22; RR-22,87

<sup>3</sup>Weakness ref: none

17. Demonstrate the ability to assess core damage.

<sup>1</sup>NUREG-0654 ref: I.3; M.1

<sup>2</sup>Major EPIP ref: TSC-8; RR-11,13

<sup>3</sup>Weakness ref: none

18. Demonstrate the ability to make the decision whether to issue emergency workers radioprotective drugs, KI.

<sup>1</sup>NUREG-0654 ref: J.6.c

<sup>2</sup>Major EPIP ref: EOF-21; RR-22,24,25

<sup>3</sup>Weakness ref: none

19. Demonstrate the ability to determine source terms and dose projections, evaluate dose projections against protective action guides and determine appropriate onsite and offsite protective actions.

<sup>1</sup>NUREG-0654 ref: H.6a,8; I.3-7,9-10; J.10.m

<sup>2</sup>Major EPIP ref: EOF-6,7,20,22

<sup>3</sup>Weakness ref: none

20. Demonstrate the ability to make timely protective action recommendations to offsite agencies.

<sup>1</sup>NUREG-0654 ref: I.5-11, J.7

<sup>2</sup>Major EPIP ref: EOF-6,7,20,22

<sup>3</sup>Weakness ref: none

CONDUCT of EXERCISE  
OBJECTIVES (cont)

Emergency Response Facility Specific Objectives:

21. Emergency Operations Facility (EOF):

- a. Demonstrate the adequacy of the Emergency Plan and Emergency Plan Implementing Procedures both in terms of management control and workability of the procedures for the EOF.
- b. Demonstrate the adequacy of communication links between CR, TSC, government emergency facilities, field teams and the EOF.
- c. Demonstrate the effectiveness and availability of appropriate emergency equipment and supplies.
- d. Demonstrate the adequacy of security access control.
- e. Demonstrate activation and staffing of the EOF in a timely fashion.
- f. Demonstrate the functional adequacy of the EOF.

<sup>1</sup>NUREG-0654 ref: B.5; G.3; H.1-3,6-9,12; J.6.a-c,10.a-bE.2; F.1,2,3

<sup>2</sup>Major EPIP ref: OSC-2,15,21; TSC-1; EOF-1,11,22,23; RR-17,28, RR-65,66,97

<sup>3</sup>Weakness ref: none

22. Technical Support Center (TSC):

- a. Demonstrate the adequacy of the Emergency Plan and Emergency Plan Implementing Procedures both in terms of management control and workability of the procedures for the TSC.
- b. Demonstrate the adequacy of communication between the OSC, EOF, inplant response teams, and the TSC.
- c. Demonstrate the effectiveness and availability of appropriate emergency equipment and supplies.
- d. Demonstrate the adequacy of security access control.
- e. Demonstrate activation and staffing of the TSC in a timely fashion.
- f. Demonstrate the functional adequacy of the TSC.
- g. Demonstrate the ability to perform core damage assessment and to project core uncover.

<sup>1</sup>NUREG-0654 ref: B.5; G.3; H.1-3,6-9,12; J.6.a-c,10.a-bE.2; F.1,2,3

<sup>2</sup>Major EPIP ref: OSC-2,15,21; TSC-1; EOF-1,11,22,23; RR-17,28, RR-65,66,97

<sup>3</sup>Weakness ref: none

CONDUCT of EXERCISE  
OBJECTIVES (cont)

Emergency Response Facility Specific Objectives: (Cont)

23. Control Room (CR)

- a. Demonstrate the adequacy of the Emergency Plan and Emergency Plan Implementing Procedures both in terms of management control and workability of the procedures for the Control Room.
- b. Demonstrate the adequacy of information flow between the OSC, EOF, inplant response teams, and the Control Room.
- c. Demonstrate the effectiveness and availability of appropriate emergency equipment and supplies.
- d. Demonstrate the functional adequacy of the Control Room.

<sup>1</sup>NUREG-0654 ref: B.5; G.3; H.1-3,6-9,12; J.6.a-c,10.a-bE.2; F.1,2,3

<sup>2</sup>Major EPIP ref: OSC-2,15,21; TSC-1; EOF-1,11,22,23; RR-17,28, RP-65,66,97

<sup>3</sup>Weakness ref: none

24. Operations Support Center (OSC):

- a. Demonstrate the adequacy of the Emergency Plan and Emergency Plan Implementing Procedures both in terms of management control and workability of the procedures for the OSC.
- b. Demonstrate the adequacy of communication links between inplant teams, the TSC and the OSC.
- c. Demonstrate the effectiveness and availability of appropriate emergency equipment and supplies.
- d. Demonstrate activation and staffing of the OSC in a timely fashion.
- e. Demonstrate the functional adequacy of the OSC.
- f. Demonstrate the adequacy of security access control.
- g. Demonstrate the adequacy of OSC habitability surveys.

<sup>1</sup>NUREG-0654 ref: B.5; G.3; H.1-3,6-9,12; J.6.a-c,10.a-bE.2; F.1,2,3

<sup>2</sup>Major EPIP ref: OSC-2,15,21; TSC-1; EOF-1,11,22,23; RR-17,28, RR-65,66,97

<sup>3</sup>Weakness ref: 285/9108-01

CONDUCT of EXERCISE  
OBJECTIVES (cont)

Scenario

25. Demonstrate the ability to provide an exercise scenario and controller organization that permits testing a major portion of the emergency plan and allows for realism and free play.

<sup>1</sup>NUREG-0654 ref: N.1.a-b

<sup>2</sup>Major EPIP ref: none

<sup>3</sup>Weakness ref: none

Evaluation

26. Demonstrate the ability to conduct a post-exercise critique to identify areas requiring additional improvement.

<sup>1</sup>NUREG-0654 ref: N.4,5

<sup>2</sup>Major EPIP ref: none

<sup>3</sup>Weakness ref: none

FOOTNOTES

<sup>1</sup>References related emergency planning objectives provided as guidance in NUREG-0654/FEMA-REP-1 Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" as based on NRC requirements provided in 10 CFR 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities".

<sup>2</sup>References major OPPD-FCS Emergency Plan Implementing Procedure(s) used in demonstrating the objective. Other procedures may be applicable but will generally be referenced by, or branched from, the major procedure.

<sup>3</sup>References applicable open deficiencies from the 1991 exercise as listed in NRC docket 50-285/9108 (see the following for a summary of deficiencies).

CONDUCT of EXERCISE  
OBJECTIVES (cont)

ELEMENTS NOT TO BE DEMONSTRATED IN 1992

- Alternate severe weather scenario (unless actual severe weather exists, i.e. thunderstorms)
- Exceeding emergency worker protective action guidelines (PAGs)
- Contaminated/injured personnel response
- Offsite fire fighting assistance
- Backup communication equipment
- Shift changes
- Recovery/reentry activities
- Use of offsite laboratory analysis
- Notification and alerting of the public
- Public Information
- Protective actions (evacuation, shelter)
- Reception and care
- Exposure control (access and traffic control, use of KI, record keeping)
- Unannounced Exercise initiation
- Health Physics drill - plant sampling
- Participation by state and local governments
- Inplant post-accident sampling
- Source term determination - alternate (un-monitored release)
- Long term recovery organization
- Activation of OPPD-NPPD assistance
- Calculations involving total population exposures



CONDUCT of EXERCISE  
OBJECTIVES (cont)

1991 Exercise Weakness Summary

Operations Support Center

- 285/9108-01 Complete habitability surveys, including contamination smears were not performed routinely in the Operations Support Center during an approximate two hour period following indications of core damage and subsequent release to the environs. Even though announcements were made to prevent eating, drinking and smoking, contamination smears were not conducted between 1200 and 1400 hours to validate habitability requirements of the OSC. Failure to exercise proper radiological controls in the OSC was identified as an exercise weakness.

Emergency Operations Facility

- 285/9108-02 There was one instance of field monitoring teams using an older map containing obsolete information. The use of maps containing obsolete information to describe a field team's location is considered an exercise weakness. This weakness was corrected by the licensee and closed in NRC Inspection Report 92-08.
- 285/9108-03 Failure to accurately detect, assess, and correlate plant conditions with radiological releases and dose assessment functions was identified as an exercise weakness.

Although the containment purge line was correctly assumed as the release path due to increasing stack radiation monitor readings, efforts to determine the flow specifics needed for accurate dose projections were ineffective. As a consequence, overly conservative assumptions were used yielding higher than actual dose projections.

Contributing factors to this weakness included:

- a) Inadequate damage assessment following a simulated short circuit in panel AI-44. This delayed assessment resulted in approximately 40 minutes passing before validation that containment isolation valves PCV-742-C and PCV-742-D had opened as a result of the short.



CONDUCT of EXERCISE  
OBJECTIVES (cont)

- b) Failure to properly identify stack flow rate via available indications in the Control Room. A general determination was made in several locations that since no auxiliary building fans were operating, stack flow was zero. This forced the Dose Assessment Specialist in the EOF to perform dose assessment using conservative estimated flow rates. This dose assessment resulted in overly conservative projections.
- c) Lack of stack flow rate data on the Emergency Response Facility Computer System (ERFCS), which would allow dose assessment personnel in the TSC and EOF direct access to current data, eliminating a communication link.
- d) In that conservative stack flow was utilized, several refinements to the release rates used within the EAGLE system were made based on manipulating the dose program to match known field team survey results. However, these results were accurate only within an order of magnitude. A formalized method to use EAGLE to incorporate field data and provide "back calculations" of release rates and/or source terms would provide this function in a more timely and consistent manner.