



Federal Emergency Management Agency

Region V

536 South Clark Street, 6th Floor
Chicago, IL 60605-1521

OCT 21 2003

Mr. Jim Caldwell, Regional Administrator
U.S. Nuclear Regulatory Commission Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Dear Mr. Caldwell:

Enclosed is the Final Report for the Radiological Emergency Preparedness Plume Pathway Exercise conducted on July 22, 2003, for the D. C. Cook Nuclear Power Plant.

No Deficiencies were identified for any jurisdiction. Three Areas Requiring Corrective Action (ARCA) were identified during this exercise and one ARCA resulting from a previous exercise remains unresolved.

Two ARCAs were identified for the State of Michigan. The first ARCA was identified under Criterion: 6.a.1 Monitoring and Decontamination of Evacuees relating to the capability to monitor the emergency planning zone population with unmodified CD V 700 survey instruments with side window detectors. The second ARCA, from a previous exercise, under Criterion 6.d.1 Transportation and Treatment of Contaminated Injured Individuals relating to the Department of Environmental Quality (DEQ) Technician's inability to control the spread of contamination to herself, provide adequate contamination control guidance to the Medic-1 Staff, or engage in proper monitoring techniques while surveying a potentially contaminated individual remains unresolved. One ARCA from a previous exercise was corrected under Criterion 1.e.1, Equipment and Supplies to Support Operations relating to personnel protective equipment available to the DEQ technician.

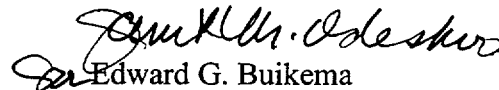
Two ARCAs were identified for Berrien County under the following criteria: Criterion 5.a.1 Activation of the Prompt Alert and Notification System relating to an inadvertent siren activation with no follow up Emergency Alert System message or New Release to explain siren sounding; and Criterion 6.a.1 Monitoring and Decontamination of Evacuees relating to the capability to monitor the emergency planning zone population with unmodified CD V 700 survey instruments with side window detectors. Two ARCAs from a previous exercise were corrected under the following criteria: Criterion 1.e.1 Equipment and Supplies to Support Operations relating to personnel protective equipment available to the Medic-1 Ambulance personnel; and Criterion 6.d.1 Transportation and Treatment of Contaminated Injured Individuals relating to the Medic-1 Ambulance personnel's ability to control the spread of contamination. A detailed description of each issue can be found in Part IV of the final report.

Based on the results of the July 22, 2003, exercise, the offsite radiological emergency response plans and preparedness for the State of Michigan and Berrien County, site-specific to the D. C. Cook Nuclear Power Plant, can be implemented. These plans are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public.

Therefore, Title 44 CFR, Part 350, approval of the offsite radiological emergency response plans and preparedness for the State of Michigan and Berrien County, granted on July 16, 1985, remains in effect. Copies of this report were transmitted to the Nuclear Regulatory Commission National Office, the Federal Emergency Management Agency National Office, and the State of Michigan.

If you have any questions, please let me know or have a member of your staff contact Woodie Curtis at (312) 408-5528 or Sandra Bailey at (312) 408-5353.

Sincerely,


Edward G. Buikema
Regional Director

Enclosure



Final Exercise Report

D. C. Cook Nuclear Power Plant

Licensee: American Electric Power

Exercise Date: July 22, 2003

Report Date: October 21, 2003

**FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION V**

536 South Clark Street, 6th Floor
Chicago, Illinois 60605-1521

TABLE OF CONTENTS

	Page
I. EXECUTIVE SUMMARY	1
II. INTRODUCTION.....	3
III. EXERCISE OVERVIEW	5
A. Plume Emergency Planning Zone Description	5
B. Exercise Participants.....	5
C. Exercise Timeline	7
IV. EXERCISE EVALUATION AND RESULTS.....	10
A. Summary Results of Exercise Evaluation	10
B. Status of Jurisdictions Evaluated	13
1. STATE OF MICHIGAN	15
1.1 Initial Notification Point	15
1.2 Emergency Operations Center	15
1.3 Technical Support Group	15
1.4 Dosimetry Distribution	16
1.5 Field Team Center Cell.....	16
1.6 Joint Public Information Center.....	16
1.7 Public Inquiry Hotline.....	17
1.8 Department of Environmental Quality (DEQ) - Berrien County Evacuee and Vehicle Monitoring and Decontamination	17
1.9 Michigan State Police - Traffic & Access Control Point.....	18
1.10 DEQ – Berrien County Emergency Worker/Vehicle Monitoring and Decontamination .	18
1.11 DEQ – Medical Services -1	18
2. RISK JURISDICTIONS	20
2.1 BERRIEN COUNTY	20
2.1.1 Initial Notification Point	20
2.1.2 Emergency Operations Center	20
2.1.3 Traffic and Access Control Point.....	21
2.1.4 Dosimetry Distribution	21

2.1.5	Joint Public Information Center	22
2.1.6	Public Inquiry Hotline.....	22
2.1.7	Emergency Alert System Radio Station.....	22
2.1.8	Congregate Care.....	23
2.1.9	Evacuee Monitoring and Decontamination.....	23
2.1.10	Public Reception	24
2.1.11	Evacuee Vehicle Monitoring and Decontamination	24
2.1.12	Emergency Worker/Vehicle Monitoring and Decontamination	25
2.1.13	Medical Services - 1.....	25

List of Appendices

APPENDIX 1 - ACRONYMS AND ABBREVIATIONS	27
APPENDIX 2 - EXERCISE EVALUATORS AND TEAM LEADERS	29
APPENDIX 3 - EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENT	31
APPENDIX 4 - EXERCISE SCENARIO.....	40

List of Tables

Table 1 - Exercise Timeline	8
Table 2 - Summary Results of Exercise Evaluation	11

1. EXECUTIVE SUMMARY

On July 22, 2003, an exercise was conducted in the plume exposure pathway emergency planning zones (EPZ) around the D. C. Cook Nuclear Power Plant by the Federal Emergency Management Agency (FEMA), Region V. The purpose of this exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local Radiological Emergency Response Plans (RERP's) and procedures.

The most recent exercise at this site was conducted on July 10-11, 2001. Qualifying emergency preparedness exercises were conducted on July 16, 1985, and August 8-9, 1989.

FEMA wishes to acknowledge the efforts of the many individuals in the State of Michigan and Berrien County who participated in the exercise.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities.

This report contains the evaluation of the biennial exercise and the evaluation of the following out-of-sequence activities:

State of Michigan	Department of Environmental Quality
	Evacuee & Vehicle Monitoring and Decontamination
	Emergency Worker & Vehicle Monitoring and Decontamination
	Medical Services-1
	Michigan State Police
Berrien County	Congregate Care
	Evacuee & Vehicle Monitoring and Decontamination
	Public Reception
	Emergency Worker & Vehicle Monitoring/Decontamination
	Medical Services-1

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. No Deficiencies were identified during this exercise. Three Areas Requiring Corrective Action (ARCA) were identified during this exercise and one ARCA resulting from a previous exercise remains unresolved. Two ARCAs were identified for the State of Michigan. The first ARCA was identified under Criterion: 6.a.1 Monitoring and Decontamination of Evacuees relating to the capability to monitor the emergency planning zone population with unmodified CD V 700 survey instruments with side window detectors. The second ARCA, from a previous exercise, under Criterion 6.d.1

Transportation and Treatment of Contaminated Injured Individuals relating to the Department of Environmental Quality (DEQ) Technician's inability to control the spread of contamination to herself, provide adequate contamination control guidance to the Medic-1 Staff, or engage in proper monitoring techniques while surveying a potentially contaminated individual remains unresolved. One ARCA from a previous exercise was corrected under Criterion 1.e.1, Equipment and Supplies to Support Operations relating to personnel protective equipment available to the DEQ technician.

Two ARCAs were identified for Berrien County under the following criteria: Criterion 5.a.1 Activation of the Prompt Alert and Notification System relating to an inadvertent siren activation with no follow up Emergency Alert System message or New Release to explain siren sounding; and Criterion 6.a.1 Monitoring and Decontamination of Evacuees relating to the capability to monitor the emergency planning zone population with unmodified CD V 700 survey instruments with side window detectors. Two ARCAs from a previous exercise were corrected under the following criteria: Criterion 1.e.1 Equipment and Supplies to Support Operations relating to personnel protective equipment available to the Medic-1 Ambulance personnel; and Criterion 6.d.1 Transportation and Treatment of Contaminated Injured Individuals relating to the Medic-1 Ambulance personnel's ability to control the spread of contamination.

II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all off-site nuclear planning and response. FEMA's activities are conducted pursuant to 44 Code of Federal Regulations (CFR) Parts 350, 351, and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

FEMA Rule 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local governments' participation in joint exercises with licensees.

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

- Taking the lead in off-site emergency planning and in the review and evaluation of RERPs and procedures developed by State and local governments;
- Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments;
- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, dated September 14, 1993); and
- Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:
 - U.S. Department of Agriculture;
 - U.S. Department of Commerce;
 - U.S. Department of Energy;
 - U.S. Department of Health and Human Services;
 - U.S. Department of the Interior;
 - U.S. Department of Transportation;
 - U.S. Environmental Protection Agency;
 - U.S. Food and Drug Administration; and
 - U.S. Nuclear Regulatory Commission.

Representatives of these agencies serve on the FEMA Region V Regional Assistance Committee (RAC), which is chaired by FEMA.

Formal submission of the RERPs for the D. C. Cook Nuclear Power Plant to FEMA Region V by the State of Michigan and involved local jurisdictions occurred on

January 23, 1986. Formal approval of these RERPs was granted by FEMA to the State of Michigan on June 15, 1987, under 44 CFR 350.

A REP exercise was conducted on July 22, 2003 by FEMA Region V, to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the D. C. Cook Nuclear Power Plant. The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (ORO) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region V RAC Chairperson, and approved by the Regional Director.

The criteria utilized in the FEMA evaluation process are contained 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", November 1980;
- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual", September 1991; and
- FEMA "Radiological Emergency Preparedness: Exercise Evaluation Methodology" as published in the Federal Register Notice/Vol. 67, No. 80, dated April 25, 2002.

Section III of this report, entitled "Exercise Overview", presents basic information and data relevant to the exercise. This section of the report contains a description of the plume pathway EPZ, a listing of all participating jurisdictions and functional entities, which were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

Section IV of this report, entitled "Exercise Evaluation and Results," presents detailed information on the demonstration of applicable exercise criteria at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and ARCAs assessed during this exercise, recommended corrective actions, and the State and local governments' schedule of corrective actions for each identified exercise issue; and (2) descriptions of unresolved ARCAs assessed during previous exercises and the status of the OROs' efforts to resolve them.

III. EXERCISE OVERVIEW

Contained in this section are data and basic information relevant to the July 22, 2003, exercise to test the off-site emergency response capabilities in the area surrounding the D. C. Cook Nuclear Power Plant. This section of the exercise report includes a description of the 10-mile plume pathway EPZ, a listing of all participating jurisdictions and functional entities that were evaluated, and a tabular presentation of the time of the actual occurrence of key exercise events and activities.

A. Plume Emergency Planning Zone Description

The D. C. Cook Nuclear Power Plant is located in the State of Michigan, Berrien County, and the City of Bridgman on the eastern shore of Lake Michigan.

The eastern half of the Primary 10-mile EPZ lies entirely within Berrien County. The following jurisdictions are located within the EPZ: Baroda Township, Baroda Village, City of Benton Harbor, Benton Township, City of Bridgman, City of Buchanan, Buchanan Township, Chikaming Township, Lake Township, Lincoln Township, Stevensville, Cronoko Township, Village of Berrien Springs, Royalton Township, City of St. Joseph, St Joseph Township, Village of Shoreham, Sodus Township, and Weesaw Township. The western half of the EPZ extends into Lake Michigan in an approximate 10-mile radius.

Within the 10-mile EPZ, located on Lake Michigan, are summer resorts offering camping facilities, light housekeeping cottages, tourist attractions, and the Warren Dunes State Park, which has a capacity of 22,000 people. The area has a population that varies from season to season. The permanent population is 52,954. Peak summer population is estimated to be 78,000 people. Seasonal fresh fruit and vegetable farming and processing takes place during the spring, summer, and fall months. A portion of the large seasonal work force is Spanish-speaking. Lake Michigan is the cooling water source for the plant. Transportation facilities include the CSX Railroad.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the D. C. Cook Nuclear Power Plant exercise on July 22, 2003.

STATE OF MICHIGAN

Department of Agriculture
Department of Community Health
Department of Consumer and Industry Services
Department of Environmental Quality
Department of Information Technology

Department of Military and Veterans Affairs
Department of Natural Resources
Department of State Police
Department of Transportation
Emergency Management Division
Family Independence Agency
Office of the Governor - Executive Office
Office of Services to the Aging
Special Operation Division

RISK JURISDICTION

BERRIEN COUNTY

Emergency Management Division
Executive Group – Chief Elected Official
Family Independence Agency
Fire Services
Health Services
Human Services
Intermediate School District
Michigan State Liaison
Office of Services to the Aging
Police Services
Road Commission
Sheriff's Department
Social Services

PRIVATE/VOLUNTEER ORGANIZATIONS

American Red Cross
Berrien Spring Fire Department
Coloma Fire Department
Coloma High School
Medic-1 Ambulance Service
Radio Amateur Civil Emergency Services
St. Joseph Hospital
EAS Radio Station – WSJM/WIRX

C. Exercise Timeline

Table 1, on the following page, presents the times at which key events and activities occurred during the D. C. Cook Nuclear Power Plant plume pathway exposure exercise on July 22, 2003. Also included are times that notifications were made to the participating jurisdictions/functional entities.

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: July 22, 2003 – D.C. Cook Nuclear Power Plant

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken			
		State of Michigan EOC	Technical Support Group	Berrien County EOC	Joint Public Information Center
Unusual Event	N/A	N/A	N/A	N/A	N/A
Alert	0825	0836	0839	0841	0836*
Site Area Emergency	0949	0950	0950	1002	0958*
General Emergency	1122	1128	1128	1130	1128
SIM Radiation Release Started	1118	1128	1118	1122	1128
SIM Radiation Release Terminated	N/A	N/A	N/A	N/A	N/A
Facility Declared Operational		0948	0948	1020	1045
Declaration of Local State of Emergency		1033	1033	1023	1100
Declaration of Governor's State of Emergency		0950	0950	1021	1055
Exercise Terminated		1320	1320	1320	1325
<u>Early Precautionary Actions: Agricultural Advisory</u>					
1) Dairy animals sheltered and put on stored feed and well water, and livestock sheltered and fed stored feed and well water in Area 1.		1003	1003	1028	1013
2) Food and Feed Facility Operator's Advisory in Area 1.		1128	1128	1148	1136
3) Dairy animals sheltered and put on stored feed and well water, and livestock sheltered and fed stored feed and well water in Areas 3 and 5.		1145	1145	1200	1151
4) Do not consume fish caught after 1122 hours within 5 miles of NPP.		1145	1145	1149	1209
5) Food and Feed Facility Operator's Advisory in Area 3.		1220	1220	1232	1245
6) Fruit and Vegetable Growers Advisory for Area 3.		1220	1220	1232	1245
1 st Protective Action Order: Evacuate Protective Action Area 1 Clear Marine Traffic and Lake Activities within 5 Miles of the Plant		1128	1128	1134	1140
1 st Siren Activation		1141	1141	1141	1141
1 st EAS Message		1148	1148	1148	1148

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken			
		State of Michigan EOC	Technical Support Group	Berrien County EOC	Joint Public Information Center
2 nd Protective Action Order: Evacuate Protective Action Areas 1 and 3 Clear Marine Traffic and Lake Activities within 5 Miles of the Plant		1218	1218	1225	1218
2 nd Siren Activation		1229	1229	1229	1229
2 nd EAS Message		1230	1230	1230	1230
KI Administration Decision: EWs to Ingest KI in Protective Action Areas 1, 2, and 3		1135	1135	1145	1155
KI Administration Decision: Institutional Individuals to Ingest KI in Protective Action Areas 1, 3, and 5		1138	1138	1238	1245

*Information received at Emergency News Center (ENC).

IV. EXERCISE EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities that participated in the July 22, 2003, exercise to test the off-site emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the D. C. Cook Nuclear Power Plant.

Each jurisdiction and functional entity was evaluated based on its demonstration of criteria delineated in exercise criteria contained in Federal Register Notice/Vol. 67, No. 80, dated April 25, 2002. Detailed information on the exercise criteria and the extent-of-play agreement used in this exercise are found in Appendix 3 of this report.

A. Summary Results of Exercise Evaluation

The matrix presented in Table 2, on the following page(s), presents the status of all exercise criteria from Federal Register Notice/Vol. 67, No. 80, dated April 25, 2002 that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise criteria are listed by number and the demonstration status of those criteria are indicated by the use of the following letters:

- | | | |
|-------|---|--|
| M | – | Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises) |
| D | – | Deficiency/(ies) assessed |
| A | – | ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s) |
| N | – | Not Demonstrated (Reason explained in Section IV.B.) |
| Blank | – | Not scheduled for demonstration |

Table 2. Summary Results of Exercise Evaluation

DATE AND SITE: July 22, 2003 – D. C. Cook Nuclear Power Plant (Sheet 1 of 2)

JURISDICTIONS/ FUNCTIONAL ENTITY	1. a. 1	1. b. 1	1. c. 1	1. d. 1	1. e. 1	2. a. 1	2. b. 1	2. b. 2	2. c. 1	2. d. 1	2. e. 1	3. a. 1	3. b. 1	3. c. 1	3. c. 2	3. d. 1	3. d. 2	3. e. 1	3. e. 2	3. f. 1	4. a. 1	4. a. 2	4. a. 3	4. b. 1	4. c. 1	5. a. 1	5. a. 2	5. a. 3	5. b. 1	6. a. 1	6. b. 1	6. c. 1	6. d. 1
STATE OF MICHIGAN																																	
Initial Notification Point	M			M																													
Emergency Operations Center	M		M	M	M	M		M	M							M											M			M			
Technical Support Group					M	M		M																									
Dosimetry Distribution MSP/EMD					M																												
Field Team Center Cell							M					M	M																				
Joint Public Information Center	M	M	M	M	M																									M			
Public Inquiry Hotline																													M				
DEQ - Evacuee & Vehicle M&D (Berrien County)												M																		A			
MI State Police TACP				M	M							M	M			M																	
DEQ - EW & Vehicle M&D (Berrien County)												M																		M	M		
DEQ – Medical Services-1					M																												U
RISK COUNTIES																																	
BERRIEN																																	
Initial Notification Point	M			M																													
Emergency Operations Center	M	M	M	M	M				M			M	M	M	M	M	M										A			M			
Traffic and Access Control Point				M	M							M	M			M																	
Dosimetry Distribution Point					M																												
Joint Public Information Center																														M			
Public Inquiry Hotline																														M			
EAS Radio Station																											M						

LEGEND: M = Met (No Deficiency or ARCA(s) assessed)
D = Deficiency assessed

A = ARCA(s) assessed (Not affecting health and safety of public)
U = Unresolved ARCA(s) from prior exercises

Blank = Not scheduled for demonstration
N = Not demonstrated as scheduled (Reason explained in Section IV.B.)

Table 2. Summary Results of Exercise Evaluation (Continued)

DATE AND SITE: July 22, 2003, D. C. Cook Nuclear Power Plant (Sheet 2 of 2)

JURISDICTIONS/ FUNCTIONAL ENTITY	1. a.	1. b.	1. c.	1. d.	1. e.	2. a.	2. b.	2. b.	2. c.	2. d.	2. e.	3. a.	3. b.	3. c.	3. c.	3. d.	3. d.	3. e.	3. e.	3. f.	4. a.	4. a.	4. a.	4. b.	4. c.	5. a.	5. a.	5. a.	5. b.	6. a.	6. b.	6. c.	6. d.
	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	2	1	2	1	1	2	3	1	1	1	2	3	1	1	1	1	1
Congregate Care																																M	
Evacuee M&D												M																		A			
Public Reception																														M			
Evacuee Vehicle M&D																														M			
EW & Vehicle M&D												M																		M	M		
Medical Services-1					M							M	M																				M

LEGEND: M = Met (No Deficiency or ARCA(s) assessed)
D = Deficiency assessed

A = ARCA(s) assessed (Not affecting health and safety of public)
U = Unresolved ARCA(s) from prior exercises

Blank = Not scheduled for demonstration
N = Not demonstrated as scheduled (Reason explained in Section IV.B.)

B. Status of Jurisdictions Evaluated

This subsection provides information on the evaluation of each participating jurisdiction and functional entity in a jurisdiction-based, issues-only format. Presented below are definitions of the terms used in this subsection relative to criteria demonstration status.

- **Met** – Listing of the demonstrated exercise criteria under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- **Deficiency** – Listing of the demonstrated exercise criteria under which one or more Deficiencies was assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Actions** – Listing of the demonstrated exercise criteria under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** – Listing of the exercise criteria that were not demonstrated as scheduled during this exercise and the reason(s) they were not demonstrated.
- **Prior Issues – Resolved** – Descriptions of ARCAs assessed during previous exercises that were resolved in this exercise and the corrective actions demonstrated.
- **Prior Issues – Unresolved** – Descriptions of ARCAs assessed during prior exercises that were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

The following are definitions of the two types of exercise issues that are discussed in this report.

- A **Deficiency** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant."
- An **ARCA** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering exercise issues among FEMA Regions and site-specific exercise reports within each Region. It is also used to expedite tracking of exercise issues on a nationwide basis.

The identifying number of Deficiencies and ARCAs includes the following elements, with each element separated by a hyphen (-).

- **Plant Site Identifier** – A two-digit number, corresponding to the Utility Billable Plant Site Codes.
- **Exercise Year** – The last two digits of the year the exercise was conducted.
- **Criterion Number** – An alpha and two-digit number corresponding to the criteria numbers in the six Exercise Evaluation Areas described in Federal Register Notice/Vol. 67, No. 80 dated April 25, 2002, which amends FEMA-REP 14, Radiological Emergency Preparedness Exercise Manual.
- **Issue Classification Identifier** – (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports. Plan Issues are reported to the State(s) via a letter from the Regional Director. Therefore, standardized issue numbers are not assigned to Plan Issues.
- **Exercise Identification Number** – A separate two- (or three-) digit indexing number assigned to each issue identified in the exercise.

1. STATE OF MICHIGAN

1.1 Initial Notification Point

- a. MET: Criteria 1.a.1 and 1.d.1
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ISSUES – RESOLVED: NONE
- f. PRIOR ISSUES – UNRESOLVED: NONE

1.2 Emergency Operations Center

- a. MET: Criteria 1.a.1; 1.c.1; 1.d.1; 1.e.1; 2.a.1; 2.b.2; 2.c.1; 3.d.1; 5.a.1; and 5.b.1
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ISSUES – RESOLVED: NONE
- f. PRIOR ISSUES – UNRESOLVED: NONE

1.3 Technical Support Group

- a. MET: Criteria 1.e.1; 2.a.1; and 2.b.2
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ISSUES – RESOLVED: NONE
- f. PRIOR ISSUES – UNRESOLVED: NONE

1.4 Dosimetry Distribution

- a. MET: Criterion 1.e.1
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ISSUES – RESOLVED: NONE
- f. PRIOR ISSUES – UNRESOLVED: NONE

1.5 Field Team Center Cell

- a. MET: Criteria 2.b.1; 3.a.1; and 3.b.1
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ISSUES – RESOLVED: NONE
- f. PRIOR ISSUES – UNRESOLVED: NONE

1.6 Joint Public Information Center – State Public Information Officer

- a. MET: Criteria 1.a.1; 1.b.1; 1.c.1; 1.d.1; 1.e.1; and 5.b.1
- b. DEFICIENCY: NONE
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE
- d. NOT DEMONSTRATED: NONE
- e. PRIOR ISSUES: NONE
- f. PRIOR ISSUES – UNRESOLVED: NONE

1.7 Public Inquiry Hotline

- a. **MET:** Criterion 5.b.1
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES - RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

1.8 Department of Environmental Quality (DEQ) - Evacuee and Vehicle Monitoring and Decontamination, Coloma High School, Berrien County

- a. **MET:** Criterion 3.a.1
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** Criterion 6.a.1

Issue No: 15-03-6.a.1-A-05

Condition: The capability to monitor 20% of the Emergency Planning Zone population allocated to the Coloma High School Public Reception/Decontamination Center was not met. The Counties use of unmodified CD V 700 survey instruments with side window detectors to monitor evacuees exceeded new time frames delineated in FEMA REP-22 “Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents” dated October 2002.

Reference: NUREG-0654, J.12; FEMA-REP-22 “Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents”, dated October 2002.

Recommendation: The State of Michigan has agreed to submit a plan within 30 days to DHS/FEMA to replace the CD V 700 instruments, used by the County, by years end with portal monitors, in order for the County to be able to meet FEMA REP-22 Evacuee Monitoring Guidelines. This issue will remain open until portal monitors are acquired and evaluated to assure evacuee monitoring capabilities are in place.

Schedule of Corrective Actions: On the date this report was published, an acceptable State Schedule of Corrective Actions was not available. According to conversations with the State on October 16, 2003, the State response will be provided by October 30, 2003.

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

1.9 Michigan State Police - Traffic & Access Control Point

- a. **MET: Criteria 1.d.1; 1.e.1; 3.a.1; 3.b.1; and 3.d.1.**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

1.10 DEQ – Emergency Worker (EW) and Vehicle Monitoring and Decontamination, Berrien Springs Fire Department, Berrien County

- a. **MET: Criteria 3.a.1; 6.a.1; and 6.b.1.**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

1.11 DEQ – Medical Services - 1

- a. **MET: Criterion 1.e.1.**

- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: Criterion 1.e.1**

Issue No.: 15-03-1.e.1-A-01

Description: Prior to the start of the drill, the DEQ Technician made the decision to simulate (rather than demonstrate) changing gloves and donning shoe covers. The quantity of on-hand supplies of PPE was inadequate. The lack of sufficient PPE for all player personnel responding to the incident in an area subject to contamination could have spread contamination to persons and equipment.

Corrective Action Demonstrated: The DEQ HP technician was equipped with a sufficient supply of disposable gloves and booties to limit/control the spread of contamination. In addition, the EMTs also were equipped with a separate supply of disposable gloves and booties that was sufficient to limit/control the spread of contamination

- f. **PRIOR ISSUES – UNRESOLVED: Criterion 6.d.1.**

Issue No.: 15-03-6.d.1-A-02

Description: The DEQ HP did not control the spread of contamination to herself, provide adequate contamination control guidance to the EMTs, or engage in proper monitoring techniques while surveying a potentially contaminated individual.

Reason ARCA Unresolved: The DEQ Technician did not use available procedures to advise or control the spread of contamination.

Recommendation: Provide additional training to State DEQ personnel on plans and procedures for controlling the spread of contamination and advising other emergency workers regarding implementation of their procedures.

Schedule of Corrective Actions: Training has been conducted with the technician involved as an immediate corrective action. DEQ will conduct training prior to December 31, 2003, for its staff, which will emphasize contamination control, best methods of providing guidance to local responders in areas where radiological contamination is present, and the importance of participating in drills as real events without simulating basic practices or techniques. This item will be redemonstrated during the Enrico Fermi 2 MS-1 Exercise, which is scheduled for

April 24, 2004.

2. RISK COUNTY

2.1 BERRIEN COUNTY

2.1.1 Initial Notification Point

- a. MET:** Criteria 1.a.1 and 1.d.1
- b. DEFICIENCY:** NONE
- c. AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. NOT DEMONSTRATED:** NONE
- e. PRIOR ISSUES – RESOLVED:** NONE
- f. PRIOR ISSUES – UNRESOLVED:** NONE

2.1.2 Emergency Operations Center

- a. MET:** Criteria 1.a.1; 1.b.1; 1.c.1; 1.d.1; 1.e.1; 2.c.1; 3.a.1; 3.b.1; 3.c.1; 3.c.2; 3.d.1; 3.d.2; and 5.b.1
- b. DEFICIENCY:** NONE
- c. AREAS REQUIRING CORRECTIVE ACTION:** Criterion 5.a.1.

Issue No: 15-03-5.a.1-A-06

Condition: At 0847 hours, upon notification of the Alert ECL, the County 911 Communications Dispatch Center personnel inadvertently simulated activation of the public warning sirens. No EAS message or News Release was issued to explain the sounding of the sirens.

Possible Cause: The County 911 Communications Dispatch Center personnel did not thoroughly understand that the public warning sirens are sounded only when directed by the appropriate Berrien County Authority. A timely follow-up EAS message or News Release, explaining the simulated siren sounding, was overlooked by management and staff.

Reference: NUREG-0654, E.5, 6, 7

Effect: When sirens are sounded, all sirens in the 10-mile EPZ sound at the same time to alert the general public of an incident at the D.C. Cook Nuclear Power Plant. The sounding of the sirens without an instructional message would cause unnecessary public concern and potentially could lead to evacuation of some members of the public.

Recommendation: Retrain County 911 Communications Dispatch Center personnel on the proper protocol to follow for sounding the public warning sirens. Provide training, add to procedures, or take other actions to ensure that management and staff are aware of the need to issue a timely instructional message following siren activation.

Schedule of Corrective Actions: Dispatch Center procedures have been modified to require contacting EAS stations to notify them when sirens are inadvertently activated for any reason. Dispatch personnel were trained on this revision immediately following the exercise. Corrective actions taken will be demonstrated during the next D. C. Cook REP Exercise.

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.3 Traffic and Access Control Point

- a. **MET: Criteria 1.d.1; 1.e.1; 3.a.1; 3.b.1; and 3.d.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.4 Dosimetry Distribution Point

- a. **MET: Criterion 1.e.1**
- b. **DEFICIENCY: NONE**

- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.5 Joint Public Information Center - County Public Information Officer

- a. **MET: Criterion 5.b.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.6 Public Inquiry Hotline

- a. **MET: Criterion 5.b.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: None**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.7 EAS Radio Station - WSJM

- a. **MET: Criterion 5.a.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**

- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES – RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

2.1.8 Congregate Care, Coloma High School

- a. **MET:** Criterion 6.c.1
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES – RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

2.1.9 Evacuee Monitoring and Decontamination, Coloma High School

- a. **MET:** Criterion 3.a.1
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** Criterion 6.a.1

Issue No: 15-03-6.a.1-A-07

Condition: The capability to monitor 20% of the EPZ population allocated to the Coloma High School Public Reception/Decontamination Center was not met. The Counties use of unmodified CD V 700 survey instruments with side window detectors to monitor evacuees exceeded new time frames delineated in FEMA REP-22 “Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents”, dated October 2002.

Reference: NUREG-0654, J.12; Federal Emergency Management Agency (FEMA) Radiological Emergency Procedure 22 (REP-22) “Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents”, dated October 2002.

Recommendation: The State of Michigan has agreed to submit a plan within 30 days to DHS/FEMA to replace the CD V 700 instruments, used by the County, by years end with portal monitors, in order for the County to be able to meet FEMA REP-22 Evacuee Monitoring Guidelines. This issue will remain open until portal monitors are acquired and evaluated to assure evacuee monitoring capabilities are in place.

Schedule of Corrective Actions: On the date this report was published, an acceptable State Schedule of Corrective Actions was not available. According to conversations with the State on October 16, 2003, the State response will be provided by October 30, 2003.

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.10 Public Reception, Coloma High School

- a. **MET: Criterion 6.a.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.11 Evacuee Vehicle Monitoring and Decontamination, Coloma High School

- a. **MET: Criterion 6.a.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**

- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.12 Emergency Worker and Vehicle Monitoring and Decontamination, Berrien Springs Fire Department

- a. **MET: Criteria 3.a.1; 6.a.1; and 6.b.1**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

2.1.13 Medical Services – MS-1, Medic-1 Ambulance Service

- a. **MET: Criterion 1.e.1; 3.a.1; 3.b.1; and 6.d.1.**
- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: Criteria 1.e.1 and 6.d.1**

Issue No: 15-03-1.e.1-A-03

Description: The Medic-1 Ambulance Service EMTs did not have their own on-hand supply of PPE. The lack of sufficient PPE for all player personnel responding to the incident in an area subject to contamination could have spread contamination to persons and equipment.

Corrective Action Demonstrated: The EMTs were equipped with an adequate supply of disposable gloves and booties to limit/control the spread of contamination. In addition, the DEQ HP technician also was equipped with a separate supply of disposable gloves and booties that was sufficient to limit/control the spread of contamination.

Issue No: 15-03-6.d.1-A-04

Description: The Medic-1 Ambulance Service EMTs did not receive adequate training with regard to the need to avoid/control the spread contamination to themselves and their equipment.

Corrective Action Demonstrated: The Medic-1 Ambulance Service EMTs implemented their contamination control procedures concerning the need to avoid/control the spread of contamination to themselves and their equipment in accordance with the drill scenario, plan, and extent of play agreement.

f. **PRIOR ISSUES UNRESOLVED:** NONE

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

The following is a list of the acronyms and abbreviations that were used in this report.

ACP	Access Control Point
AEP	American Electric Power
ALARA	As Low As Reasonable Achievable
ARCA	Area Requiring Corrective Action
ATWS	Anticipated Transient Without Scram
CDE	Committed Dose Equivalent
CFR	Code of Federal Regulations
Co.	County
cpm	counts per minute
DEQ	Department of Environmental Quality
EAL	Emergency Action Level
EAS	Emergency Alert System
e.g.	For Example
EMD	Emergency Management Division
EMT	Emergency Medical Technician
ENC	Emergency News Center
EOC	Emergency Operations Center
EPZ	Emergency Planning Zone
EV-2	School Evacuation Drill
EW	Emergency Worker
FEMA	Federal Emergency Management Agency
FIA	Family Independence Agency
FTC	Field Team Center
HP	Health Physics
HS	High School
ICF	ICF Consulting
JPIC	Joint Public Information Center
LOCA	Loss of Coolant Accident
KI	Potassium Iodide

M&D	Monitoring and Decontamination
MI	Michigan
mR	milliroentgen
mR/hr	milliroentgen per Hour
MS-1	Medical Services Drill
MSP	Michigan State Police
N/A	Not Applicable
NPP	Nuclear Power Plant
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	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, November 1980
ORO	Off-site Response Organization
PAD	Protective Action Decision
PAO	Protective Action Order
PAR	Protective Action Recommendation
R	Roentgen
R/hr	Roentgen per hour
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
RASCAL	Radiological Assessment System for Consequence Analysis
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
REA	Radiation Emergency Area
rem	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RWST	Refueling Water Storage Tank
SEOC	State Emergency Operations Center
SG	Steam Generator
TEDE	Total Effective Dose Equivalent
T/L	Team Leader
Vol.	Volume
WHUT	Waste Hold Up Tank

APPENDIX 2

EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who evaluated the D. C. Cook Nuclear Power Plant exercise on July 22, 2003. Evaluator Team Leaders are indicated by the letters “(TL)” after their names. The organization which each evaluator represents is indicated by the following abbreviations:

FEMA	Federal Emergency Management Agency
ICF	ICF Consulting

	<u>NAME</u>	<u>ORGANIZATION</u>
RAC Chairperson	Woodie Curtis	FEMA
Exercise Director	Bill King	FEMA

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
STATE OF MICHIGAN		
Initial Notification Point	Richard Grundstrom	ICF
Emergency Operations Center	Gary Naskrent (TL)	FEMA
	Cleven Lloyd	FEMA
Technical Support	Richard Grundstrom	ICF
Dosimetry Distribution	Richard Grundstrom	ICF
Field Team Center Cell	Richard Grundstrom	ICF
Joint Public Information Center	Jane Young	FEMA
Public Inquiry Hotline	Sharron McDuffie	FEMA
DEQ - Evacuee & Vehicle Monitoring and Decontamination, Coloma HS - Berrien County	Kevin Flynn	ICF
Michigan State Police – Traffic & Access Control Point	Dave Stuenkel	ICF

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
DEQ Emergency Worker Monitoring and Decontamination, Berrien Springs Fire Department Berrien County	David Jacobson	ICF
DEQ Medical Services - 1	Carl Bebrich	FEMA
BERRIEN COUNTY		
Initial Notification Point	Ed Sachs	FEMA
Emergency Operations Center	Sandra Bailey (TL) Richard Echavarria Carolyn Sturghill	FEMA FEMA FEMA
Traffic and Access Control Point Dosimetry Distribution	Clint Crackel Clint Crackel	FEMA FEMA
Joint Public Information Center, Public Inquiry Hotline EAS Radio, WSJM	Jane Young Sharron McDuffie Carl Bebrich	FEMA FEMA FEMA
Congregate Care	Ed Sachs	FEMA
Evacuee Monitoring Evacuee Decontamination Evacuee Registration Evacuee Vehicle Monitoring Decontamination - Coloma High School	Kevin Flynn David Jacobson Sharron McDuffie Dave Stuenkel	ICF ICF FEMA ICF
Medical Services – 1	Carl Bebrich	FEMA
Emergency Worker Monitoring and Decontamination	David Jacobson	ICF
Emergency Worker Vehicle Monitoring and Decontamination - Berrien Springs Fire Department	Richard Grundstrom	ICF

APPENDIX 3

EXERCISE CRITERIA AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the exercise criteria that were scheduled for demonstration in the D. C. Cook Nuclear Power Plant exercise on July 22, 2003, and the off-site extent-of-play agreement approved by FEMA Region V on July 2, 2003.

The exercise criteria, contained in FEMA "Radiological Emergency Preparedness Exercise Evaluation Methodology" as published in the Federal Register Notice/Vol.67, No 80, dated April 25, 2002, represent a functional translation of the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 1, Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, November 1980.

Because the exercise criteria are intended for use at all nuclear power plant sites, and because of variations among off-site plans and procedures, an extent-of-play agreement is prepared by the State and approved by FEMA to provide evaluators with guidance on expected actual demonstration of the criteria.

A. Exercise Criteria and Extent-of-Play

Listed below are the specific REP criteria scheduled for demonstration during this exercise.

D. C. COOK NUCLEAR POWER PLANT EXERCISE

Cook Exercise Objectives

July 22, 2003

Extent Of Play Agreements for Berrien County and the State of Michigan

Evaluation Area 1 - Emergency Operations Management

Criterion 1.a.1: OROs use effective procedures to alert, notify and mobilize emergency personnel and activate facilities in a timely manner.

The State Emergency Operations Center (SEOC) will be fully activated. State personnel will be mobilized in accordance with procedures with the exception of personnel reporting to the Berrien County EOC and the JPIC. Those reporting to the Berrien County EOC will be pre-positioned at the State Police 5th District Headquarters and will report when mobilized by the SEOC. Those reporting to the JPIC will begin participation 30 minutes after the arrival of Berrien County JPIC personnel. The Field Team Center and associated personnel will not be demonstrated for this exercise. A cell will be established to initiate exercise data inputs for SEOC players. Personnel involved in out of sequence demonstrations will be prestaged. A roster will be provided to demonstrate 24-hour staffing.

The Berrien County EOC will be fully activated. Personnel will be mobilized in accordance with procedures. Personnel involved in out of sequence demonstrations will be pre-positioned. Rosters will be provided to demonstrate 24-hour staffing.

Criterion 1.b.1: Facilities are sufficient to support the emergency response.

This objective will be demonstrated by Berrien County. The SEOC was demonstrated during the Palisades exercise on June 4, 2002. The State EOC is permanently set-up. The Berrien County EOC will be set-up in sequence with the exercise. The JPIC will be set-up in sequence with the exercise. This is the first exercise involving use of the new Cook JPIC, which is located in Buchanan, Michigan.

Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible.

This criterion will be demonstrated at the SEOC and Berrien County EOC.

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations.

This criterion will be demonstrated at the SEOC, Berrien County EOC, and the JPIC. If both the primary and back-up systems fail, this objective may be demonstrated by successful use of an alternate method of communication.

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI) and other supplies are sufficient to support emergency operations.

Equipment, maps, displays, and other supplies will be demonstrated to support emergency operations at the SEOC, JPIC, and Berrien County EOC. Personnel demonstrating traffic and access control points will demonstrate knowledge of where to secure traffic control equipment. The FTC will not be demonstrated. Potassium iodide and dosimetry are stored at the Berrien County Sheriff Department and at the MSP/EMD office in Lansing. The Michigan Department of Environmental Quality also maintains supplies of potassium iodide and dosimetry for use by its personnel.

Evaluation Area 2 - Protective Action Decision Making

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides.

The ability to make the decision to recommend the use of KI to emergency workers will be demonstrated by the SEOC. Authorization to exceed state exposure limits will be demonstrated. If the scenario does not provide an opportunity to demonstrate these items, a controller inject will be issued to demonstrate the ability to perform these actions.

This criterion may be re-demonstrated as approved on a case-by-case basis by the Chair of the Regional Assistance Committee.

Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data and licensee and ORO dose projections, as well as knowledge of on-site and off-site environmental conditions.

The Technical Support Group in the SEOC will evaluate licensee and FTC Cell provided information and complete an independent analysis of scenario data. Dose assessment evaluation will be conducted via interview with the individual performing the FTC Cell role at the MSP/EMD office in Lansing.

This criterion may be re-demonstrated as approved on a case-by-case basis by the Chair of the Regional Assistance Committee.

This criterion does not apply to Berrien County.

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PADs) for the general public (including the recommendation for the use of KI, if ORO policy).

This criterion will be demonstrated by the Executive Group in the SEOC in conjunction with applicable support staff.

This criterion may be re-demonstrated as approved on a case-by-case basis by the Chair of the Regional Assistance Committee.

This criterion does not apply to Berrien County.

Criterion 2.c.1: Protective action decisions are made, as appropriate, for special population groups.

This criterion will be demonstrated by the Executive Group in the SEOC in conjunction with applicable support staff through the decision to recommend the use of KI to institutionalized persons.

Lists of transportation dependent and special needs populations are kept by Berrien County. No personnel will be moved. Equipment lists and rosters will be available in the Berrien County EOC. No phone calls to transportation dependent persons will be made.

The School Services Representative in the Berrien County EOC will make phone contact with affected school districts if schools are in use. No scenario information will be discussed during these calls.

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO's planning criteria.

This criterion will not be demonstrated during this exercise.

Criterion 2.e.1: Timely re-location, re-entry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the OROs plan and/or procedures.

This criterion will not be demonstrated during this exercise.

Evaluation Area 3 - Protective Action Implementation

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plan and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart.

This criterion will be demonstrated by the State of Michigan and Berrien County during out of sequence reception center, decontamination center, and access control demonstrations when dosimetry is issued for use by emergency workers. The briefing

on dosimetry and KI use for the State of Michigan access control demonstration will be provided by a State Controller. The individual serving as the FTC Cell will demonstrate knowledge of State distribution and use of dosimetry and potassium iodide.

This criterion may be re-demonstrated immediately for credit, at the discretion of the evaluator.

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals (not the general public) is maintained.

This criterion will be demonstrated during the traffic and access control demonstrations for Berrien County and the State of Michigan. Dosimetry and KI for the State demonstration will be pre-staged since the Field Team Center is not being demonstrated for this exercise. Response personnel will demonstrate knowledge of when it is appropriate to take KI, but not actually ingest KI.

The KI will be distributed to emergency workers in Berrien County along with their dosimetry. The State will demonstrate this objective through decision-making and orders to the counties to implement appropriate Protective Action Orders.

Criterion 3.c.1: Protective action decisions are implemented for special population groups within areas subject to protective actions.

This criterion will be demonstrated in the Berrien County EOC via EOC staff discussions, which may include evacuation of hospitals, nursing homes, correctional facilities, mobility impaired individuals, and transportation dependent. These discussions will be documented in situation logs. Actual contacts to special population groups will not be made. Berrien County will contact a minimum of four providers of transportation services, which may include a public transit authorities, school systems for buses, ambulance services, or a fire/rescue services. An attempt will be made to contact a third of the total number of transportation providers. There will be no discussion of scenario information during these calls.

Criterion 3.c.2: OROs/School officials decide upon and implement protective actions for schools.

This criterion will be demonstrated in the Berrien County EOC as driven by the scenario.

An EV-2 interview will be conducted in Berrien County. Refer to the Table of Exercise Demonstrations for specific time and location.

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel.

Decisions related to traffic and access control will be demonstrated in the Berrien County EOC. Berrien County and the State of Michigan will demonstrate one traffic and access control point each. Demonstration locations will be determined during the

exercise at a time agreed upon by the FEMA evaluator, the State Controller, and the county emergency management coordinator. The State of Michigan demonstration will be initiated by a briefing from a State Controller and may be conducted out of sequence from the exercise. Staffing of the all other access and traffic control points will be simulated.

This criterion may be re-demonstrated immediately for credit, at the discretion of the evaluator.

Criterion 3.d.2: Impediments to evacuation are identified and resolved.

This will be demonstrated through discussions at the Berrien County EOC. Messages will be injected by the State Controller to drive this demonstration. Personnel will deal with the impediment by discussing the need for equipment, discussing its estimated time of arrival, etc. The State of Michigan will not demonstrate this objective. If the impediment posed involves road closures that would have been known to exercise participants during the course of normal operations, this information will be provided to the players as part of the initial conditions for the exercise.

This criterion may be re-demonstrated immediately for credit, at the discretion of the evaluator.

Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions.

This criterion will not be demonstrated during this exercise.

Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk and agricultural production.

This criterion will not be demonstrated during this exercise.

Criterion 3.f.1: Decisions regarding controlled re-entry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented.

This criterion will not be demonstrated during this exercise.

Evaluation Area 4 - Field Measurement and Analysis

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates.

This criterion will not be demonstrated during this exercise.

Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure.

This criterion will not be demonstrated during this exercise.

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media.

This criterion will not be demonstrated during this exercise.

Criterion 4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making.

This criterion will not be demonstrated during this exercise.

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions.

This criterion will not be demonstrated during this exercise.

Evaluation Area 5 - Emergency Notification and Public Information

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance.

The Berrien County Sheriff Department is the primary activation point for the public warning sirens. The Emergency Alert System is activated by the Berrien County Sheriff Department. To demonstrate this criterion, the State will provide information to Berrien County for release in the Emergency Alert System messages. An interview with WSJM personnel may be conducted by FEMA following transmittal of EAS messages.

This criterion may be re-demonstrated as approved on a case-by-case basis by the Chair of the Regional Assistance Committee.

Criterion 5.a.2: [RESERVED]

Criterion 5.a.3: Activities associated with FEMA approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system.

The Cook Plant EPZ does not contain any FEMA approved exception areas. If a siren failure occurs, Berrien County EOC staff will demonstrate actions to notify the public in areas where siren coverage is not adequate.

Criterion 5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner.

This will be demonstrated at the JPIC via dissemination of Emergency Alert System announcements in coordination with the SEOC and Berrien County EOC. All media briefings will be conducted at the JPIC.

A public inquiry hotline will be operated for Berrien County during the exercise by Cook Plant personnel based at the JPIC. Trending is performed by the Rumor Control Coordinator, who identifies trends and ensures appropriate information is provided to the public inquiry operators and the JPIC for inclusion in press briefings.

This criterion may be re-demonstrated as approved on a case-by-case basis by the Chair of the Regional Assistance Committee.

Evaluation Area 6 - Support Operation/Facilities

Criterion 6.a.1: The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers.

Berrien County will fully demonstrate separate emergency worker and public reception/decontamination centers out-of sequence from the exercise. Personnel will not go through alert, mobilization, activation, or shift changes. State DEQ HP personnel will provide assistance as requested during these demonstrations. The public reception center will demonstrate 1/3 of the monitoring teams required to monitor 20% of the population allocated to that facility within a 12 hour time period. Each team will monitor six individuals. The State of Michigan Field Team Center is not being demonstrated.

This criterion may be re-demonstrated immediately for credit, at the discretion of the evaluator.

Criterion 6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment including vehicles.

Berrien County will fully demonstrate an emergency worker decontamination center out of sequence with the exercise. Emergency vehicles will be monitored and decontaminated as appropriate. State DEQ HP personnel will provide assistance as requested during this demonstration. The State of Michigan Field Team Center is not being demonstrated.

This criterion may be re-demonstrated immediately for credit, at the discretion of the evaluator.

Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities.

Berrien County will fully demonstrate a congregate care center out of sequence with the exercise. This facility will be set up in advance of the demonstration. Personnel manning the center will not go through alert, mobilization, activation, or shift changes.

This criterion may be re-demonstrated immediately for credit, at the discretion of the evaluator.

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals.

This criterion was demonstrated during the MS-1 exercise on May 8, 2003.

This criterion may be re-demonstrated immediately for credit, at the discretion of the evaluator.

APPENDIX 4

EXERCISE SCENARIO

This appendix contains a summary of the simulated sequences of events that were used as the basis for invoking emergency response actions by OROs in the D. C. Cook Nuclear Power Plant exercise on July 22, 2003.

The plume exercise scenario was submitted by the State of Michigan and Nuclear Management Company, and approved by FEMA Region V on July 2, 2003.

During the exercises, controllers from the State of Michigan either gave or telephoned "inject messages", containing scenario events and/or relevant data, to those persons or locations who would normally receive notification of such events. These inject messages were the method used for invoking response actions by OROs.

SCENARIO NARRATIVE SUMMARY

The exercise begins with a SG level instrument failure. Once SG water level has been stabilized Main Condenser Vacuum begins lowering putting the plant in a transient. This is followed by a loss of all annunciators in the Control Room. An **ALERT** will be declared after the annunciators have been lost for > 15 minutes (EAL S-6). The crew will be allowed to restore annunciators if they choose to after the Alert classification has been in effect for 60 minutes.

After 60 minutes at the Alert classification, a small break loss of coolant accident will occur. The transient will cause reactor trip set points to be exceeded. The reactor will fail to trip automatically. When the crew attempts to perform a manual reactor trip, the reactor will again fail to trip. This will result in a **SITE AREA EMERGENCY** classification due to the ATWS (Anticipated Transient Without Scram), EAL S-1. The reactor will be tripped locally at the reactor trip breakers.

The crew will implement procedures for the ATWS and the loss of coolant accident. Radiation levels in containment will rise but remain less than 1000 R/hr due to failed fuel. After ~1.5 hours at a Site Area Emergency classification, a breach of containment will occur. This will allow a radioactive release from containment via the Containment Normal Sump to the Dirty Waste Holdup Tank. The Dirty Waste Hold Up Tank vents to the Unit 1 Unit Vent. The release may also be seen on the Unit 2 Unit Vent Radiation Monitors at reduced levels due to a normally open/throttled cross connect damper between the Unit 1 and Unit 2 Unit Vents. The release will result in a **GENERAL EMERGENCY** classification due to > 1 REM TEDE, .5 REM CDE Thyroid at the site boundary as indicated by dose assessment of radiation levels on the Unit Vent radiation monitors (EAL R-1), or the loss of all three fission barriers (EAL 1.2L, 2.3L, 3.2L). The Protective Action

Recommendation (PAR) will change ~ 1 hour after the initial release due to a wind direction change. The exercise will terminate once all exercise objectives have been evaluated and after the PAR change.

2003 D. C. COOK EMERGENCY RESPONSE TIMELINE

CLOCK TIME A.M. EDT	ELAPSED TIME	SCENARIO EVENT (S)
0737	-00:23	Start Simulator Met Data APP
0755	-00:05	Shift turnover complete.
0800	00:00	Steam Generator water level instrument fails low.
0805	00:05	Main Condenser Vacuum lowers 5%
0815	00:15	Loss of ALL Control Room Annunciators.
0830	00:30	Conditions met for Alert S-6
	Event Driven	When ALERT has been in effect for 60 minutes and a viable plan is prepared; the crew can be allowed to restore power to the Annunciators
0945	01:45	Small Break LOCA inside Containment with ATWS (Anticipated Transient Without Scram). Condition exists for Site Area Emergency S-1
0948	01:48	Reactor and Main Turbine local manual trip
0950	01:50	South S1 Pump trips.
	Event Driven	West Containment Spray Pump trips when RWST level is less than 60%.
	Event Driven	Crew begin Recirc from Containment when RWST at 20%
1115	03:15	Containment Sump contents pumped to the Waste Hold Up Tank (WHUT) through intermediate position Containment Isolation Valves. Release mechanism is through the WHUT vent to the Unit 1 Vent Stack. Conditions met for General Emergency (1.2L, 2.3L, 3.2L) or R 1 Offsite dose >1R TEDE or >5R Thyroid CDE
1115	03:15	Unit 1 Control Room notifies Unit 2 Control Room of a High Alarm on the Unit 1 Vent Stack Monitor.
1215	04:14	Wind direction change drives change in PAR.
~1300		Drill Terminates when all drill objective activities have been observed/evaluated.