



FEMA

April 24, 2013

Mr. Mark Satorius
Regional Administrator
U.S. NRC Region III
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4351

Dear Mr. Satorius:

Enclosed is a copy of the final report for the December 5, 2012, exercise of the offsite radiological emergency response plans site-specific to the Quad Cities Nuclear Power Station (QCNPS). The State of Iowa, and Clinton and Scott Counties participated in this exercise and out-of-sequence evaluations. The report was prepared by the Federal Emergency Management Agency (FEMA) Region VII staff. The final report will be provided to the State of Iowa.

No Deficiencies were identified. There was one Area Requiring Corrective Action (ARCA) and three planning issues identified for Iowa jurisdictions/organizations as a result of this exercise.

Based on the results of the exercise and out-of-sequence evaluations, the offsite radiological response plans and preparedness for the State of Iowa and the affected local jurisdictions site-specific to the QCNPS, can be implemented and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site. Therefore, the Title 44 CFR, Part 350 approval of the offsite radiological emergency response plans and preparedness for the State of Iowa, site-specific to the QCNPS, granted on March 26, 1986, will remain in effect.

If you have any questions or concerns regarding the report, please contact Mr. Ronald L. McCabe at 816-283-7007 or by email ron.mccabe@fema.dhs.gov.

Sincerely,

A handwritten signature in cursive script that reads "Beth Freeman".

Beth Freeman
Regional Administrator

Enclosure

RECEIVED APR 30 2013

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Quad Cities Nuclear Power Station

After Action Report/ Improvement Plan

Exercise Date - December 05, 2012

Radiological Emergency Preparedness (REP) Program



FEMA

Published April 23, 2013

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Quad Cities Nuclear Power Station After Action Report/Improvement Plan

Published April 23, 2013

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EXECUTIVE SUMMARY

On December 5, 2012, the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), Region VII, conducted an exercise in the plume emergency planning zone (EPZ) around the Quad Cities Nuclear Power Station (QCNPS). In addition, out-of-sequence drills were conducted on October 25 and December 6, 2012. The purpose of the exercise and drills 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 and procedures.

The previous exercise at this site was conducted on November 17, 2010. The qualifying emergency preparedness exercise was conducted on March 26, 1986.

DHS/FEMA wishes to acknowledge the efforts of many individuals who participated in this exercise. In the State of Iowa the counties of Clinton and Scott participated along with the State government. The efforts of the utility should also be commended for their work on the scenario development and exercise preparation.

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. Cooperation and teamwork of all the participants were evident during this exercise.

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. One Area Requiring Corrective Action (ARCA) was identified as a result of this exercise, and three Planning Issues were identified. Two previous ARCAs were satisfied during this exercise and are now closed; one from the previous QCNPS exercise conducted on November 17, 2010, and one from the previous Duane Arnold Energy Center exercise conducted on May 16, 2012. The one new ARCA remains open, and should be demonstrated during the next biennial exercise. This report contains the evaluation of the biennial full-scale exercise and the out-of-sequence drills.

The Final protective action decision (PAD) during the exercise was the evacuation of portions of

both Clinton and Scott Counties in Iowa. In Clinton County, sub-area 1 (approximately 2 mile radius from the plant), sub-area 5, and sub-area 11 were evacuated. In Scott County, sub-area 2 (approximately 2 mile radius from the plant) was evacuated. The evacuated area included the towns of Folletts, Camanche, and Clinton. The evacuation also included the Upper Mississippi National Wildlife Refuge, the Princeton State Wildlife Management Area, and the Rock Creek County Park. Residents were directed to Reception Centers at North Scott High School in Eldridge and Northeast High School in Goose Lake. Approximately 31,295 Iowa residents and transients were affected by the evacuation.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

Quad Cities Nuclear Power Station

Type of Exercise

Plume

Exercise Date

December 05, 2012

Program

Department of Homeland Security/FEMA Radiological Emergency Preparedness
Program

Scenario Type

Radiological Emergency

1.2 Exercise Planning Team Leadership

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1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Quad Cities Nuclear Power Station exercise:

State Jurisdictions

- Iowa Department on Aging
- Iowa Department of Agriculture and Land Stewardship
- Iowa Department of Corrections
- Iowa Department of Inspections and Appeals
- Iowa Department of Natural Resources
- Iowa Department of Public Health
- Iowa Department of Transportation
- Iowa Homeland Security and Emergency Management
- Iowa National Guard
- Iowa State Patrol
- Iowa State University Extension and Outreach
- Iowa State University Department of Environmental Health and Safety
- Iowa Utilities Board
- University of Iowa Hygienic Laboratory

Risk Jurisdictions

City of Clinton Mayor
City of Camanche Mayor
Clinton County Area Education Agency
Clinton County Board of Supervisors
Clinton County Department of Human Services
Clinton County Emergency Management Agency
Clinton County Engineer
Clinton County Health Department
Clinton County Public Information Officer
Clinton County Sheriff's Office
Clinton Police Department
Camanche Police Department
North Scott Community School District
Scott Emergency Communication Center
Scott County Emergency Management Agency
Scott County Facility and Support Services
Scott County GIS Office
Scott County Health Department
Scott County Secondary Roads
Scott County Sheriff's Office

Support Jurisdictions

American Red Cross
Genesis Medical Center
KROS 1340 AM Radio Station
MEDIC Emergency Medical Services
Radio Amateur Civil Emergency Service (RACES)
Salvation Army
WOC 1420 AM Radio Station

Private Organizations

Exelon Nuclear

Federal Jurisdictions

National Weather Service
Nuclear Regulatory Commission

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

Quad Cities Nuclear Power Station (QCNPS) Emergency Plans describe QCNPS's capability to respond effectively to a radiological emergency at the site, and provides a detailed description of QCNPS's interaction with Federal, State, and local government agencies and private organizations. The Emergency Plans provide for continuous emergency preparedness including the conduct of an annual exercise and preparatory drills.

The purpose of this exercise was to activate and evaluate portions of the Iowa State Emergency Plan, and the Clinton and Scott County Emergency Plans, and associated implementing procedures, in accordance with 44 CFR 350. The conduct and evaluation of this drill provided additional training for emergency response organization personnel and a means to further enhance QCNPS emergency response capability.

The Scenario Manual was designed to provide the basis for the conduct of a simulated radiological accident scenario at the Quad Cities Nuclear Power Station, located near Cordova in Rock Island County, Illinois, through which the capabilities and effectiveness of the emergency response plans for Quad Cities Nuclear Power Station, the State of Iowa, Clinton and Scott Counties can be evaluated. The Scenario Manual was utilized by the Exercise Controllers/Evaluators as the control mechanism for the conduct of the drill.

The scenario was developed by Quad Cities Nuclear Power Station. It was initially reviewed by ICF, a FEMA contractor, prior to the final review and approval by FEMA Region VII.

2.2 Exercise Objectives, Capabilities and Activities

Quad Cities Nuclear Power Station Emergency Preparedness Exercises and Drills are conducted to test and provide the opportunity to evaluate emergency plans, associated implementing procedures, facilities, and equipment. This exercise tested the QCNPS emergency response organization's ability to assess and respond to emergency conditions and coordinate efforts with other agencies for protection of the health and safety of the public.

The scenario, as driven by the QCNPS Control Room Simulator, depicted a simulated sequence of events that resulted in escalating conditions of sufficient magnitude to warrant mobilization of

State and local agencies to respond to the simulated emergency. Whenever practical, the drill incorporated provisions for "free play" on the part of the participants.

The QCNPS, Emergency Preparedness Exercise & Drill Program objectives are based on the Federal requirements delineated in 44 CFR 350, and State of Iowa, Clinton County, and Scott County Radiological Emergency Preparedness plans. Additional guidance provided in NUREG-0654, NUREG-0696, and NUREG-0737, was utilized in developing these objectives.

This Exercise included full participation by the State of Iowa, and Clinton and Scott Counties. A summary of the specific areas evaluated for all the participating organizations are listed in Table 3.1.

The overall objective of the Exercise was to evaluate the integrated capability of a major portion of the basic elements existing within the onsite emergency plans and emergency response organizations.

2.3 Scenario Summary

The following is a summary of the actual scenario developed by the utility, Exelon Nuclear, for use in driving the exercise events.

INITIAL CONDITIONS

Weather Conditions - Current weather conditions are clear skies with temperatures currently about 35°F and gentle winds are out of the southwest.

System Load - The ComEd transmission system is normal, no PJM issued alerts or warnings.

Unit Common - No major evolutions scheduled.

NARRATIVE SUMMARY

>NORMAL OPERATIONS

0750-0804

The Operations crew will be briefed and is expected to take control of the exercise at 0750.

Unit 1 at approximately 983 MWe power:

- On-Line Risk is GREEN.
- Full power operations on a 125-day run.
- Power suppressed in area of control rod blade with boron leakage.
- 1B TBCCW pump OOS for overhaul, expected completion is 24hr.
- QCOS 9910-01 Security Diesel Generator Monthly Test Run in progress.

Unit 2 is at approximately 980 MWe power:

- On-Line Risk is GREEN.
- Full Power Operations on a 71-day run.
- No equipment OOS
- No surveillances due this shift

>ALERT

0805 – 0949

Unplanned loss of Control Room annunciators with power change greater than 25%. Loss of annunciators caused by loss of 125VDC MCC 1A2 ckt 7. [T=0 for ALERT] Recirc pumps will runback (to 52% speed) caused by loss of 1A Cond Booster Pump.

Expected Actions

The Control Room will dispatch a team to restore power to annunciators and investigate cause of 1A condensate Booster Pump trip.

The Shift Emergency Director (Shift Manager) is expected to declare an ALERT – MA6 UNPLANNED Loss of most or all safety system annunciation or indication in Control Room with either (1) a SIGNIFICANT TRANSIENT in progress, or (2) COMPENSATORY NONALARMINGINDICATIONS are unavailable. Condition 2.a Recirc runback >25% Reactor Power Change.

The Shift Emergency Director will activate the site and corporate ERO (PA and ERO pager activation).

State notifications will be completed via the NARS.

>Trip of 4KV Bus 14-1 with failure of U1 EDG to start
0850

This will result in ½ SCRAM, Reactor water cleanup system isolation, SBGTS auto start, Reactor Building ventilation isolation, loss of Bus 19, loss of 1B RPS bus.

Expected Actions

The crew will dispatch teams to investigate cause of Bus 14-1 trip, cause of U1 EDG failure to start, and initiate actions to restore 1B RPS from either normal or reserve supply. Control room will restore power to Bus 14-1 using the crosstie from 24-1. Control room will restore power to Bus 19 from either Bus 18 crosstie or Bus 14-1.

>Control Rod H8 Drift
0915

Control rod H8 will drift out, this will be a fuel failure precursor.

Expected Actions

Crew will reinsert the control rod H8 to 00, it will not stay in. The crew will insert a manual individual scram signal to the control rod in the simulator. This will be followed by an operator being dispatched to isolate 1-0305-105 the HCU isolation valve.

>Feed Water Transient Resulting in SCRAM.
0925

1B FW Reg valve fails FULL OPEN causing +48" trip of all 3 Reactor Feed Pumps, Turbine trip, and Reactor SCRAM. ALL MSIVs fail CLOSED during turbine trip.

Expected Actions

The crew will insert manual SCRAM during RPV level increase, isolate failed FW Reg Valve, and perform post SCRAM actions. This cold water transient causes further fuel failure. Drywell

radiation will be ramping up slowly. Off-gas and Main Steam Line radiation monitors will increase and then decrease (taper off) following the closure of the MSIVs.

>LOCA
0935

Relatively small leak inside drywell increases drywell pressure above 2.5 psig. Drywell radiation will increase above 100 R/hr and level off around 250 R/hr. This will meet the thresholds for RCS barrier failure for RC3 and RC5. The Loss of one fission product barrier is a concurrent ALERT.

Drywell sprays will not function.

Expected Actions

The TSC will identify the concurrent ALERT conditions. Ops crew will identify the failure of the Drywell sprays and ERO should investigate the DW spray failure.

>SITE EMERGENCY

Loss of Two Fission Product Barriers – DW Radiation >665 R/hr
0950

Drywell radiation increases to greater than $6.65E+2$ R/hr. This value exceeds the threshold for the Loss of the Fuel Clad barrier - FC5. The failure of the Fuel Clad concurrent with the previous Loss of the RCS barrier (RC3 - DW high pressure >2.5# due to RCS leakage or RC5 – Drywell radiation > 100 R/hr) meets the criteria for SITE AREA EMERGENCY - FS1 loss of 2 fission product barriers.

Expected Actions

The Station Emergency Director (TSC) is expected to classify and declared a SITE AREA EMERGENCY – FS1, based on the Loss of Fuel Clad (FC5) and the previous Loss of RCS RC3 or RC5). State notifications should be completed via the NARS.

The Station should initiate an Assembly (actual).

Following completion of the Assembly/Accountability, the TSC should initiate an evacuation of non-essential personnel if the conditions warrant (simulated).

>1A TBCCW Pump failure

0950

1A TBCCW Pump coupling will fail causing loss of all TBCCW. TBCCW low pressure alarm will annunciate and low system pressure will be shown on the control room pressure gage. The 1A TBCCW Pump control room indication will show the breaker still closed with the motor running.

Expected Actions

Crew will dispatch team to investigate and will discover a failed coupling and the motor running unloaded. The motor will be turned off. Actions will be initiated for loss of TBCCW to include securing all U1 equipment cooled by TBCCW including Reactor Feed Pumps, Condensate booster pumps, Circulating Water Pumps, CRD Pumps, EHC Pumps, 1A and 1B Service Air compressors, ½ and 1A Instrument air compressors. Repair of the coupling to be initiated using new coupling staged for the adjacent 1B TBCCW pump that is being rebuilt.

>GENERAL EMERGENCY

Penetration Failure - Loss of all 3 Fission Product Barriers

1105-1235

Drywell X-25 penetration bellows failure causes loss of containment as evidenced by drop in Drywell pressure concurrent with an increase Area radiation monitors. This meets the threshold for the Loss of the Containment barrier - CT3.1 - rapid unexplained drop in Drywell pressure; OR CT3.2 - Drywell pressure response not consistent with LOCA conditions; OR CT6.3 - UNISOLABLE primary system leakage outside drywell resulting in Secondary Containment temperature or radiation levels greater than QGA 300 Max Safe operating levels.

The Loss of the containment barrier with the previous Loss of the RCS and Fuel Clad barriers results in meeting the criteria for GENERAL EMERGENCY - FG1 - Loss of ALL three fission product barriers.

Expected Actions

The Station Emergency Director/TSC should classify a GENERAL EMERGENCY, based on EAL FG1 (Loss of ALL three Fission Product Barriers). All appropriate notifications should be made.

Protective Action Recommendations (PARs) [BASED on revised PAR Flowchart EP-AA-111-F-06 – Rev E6] for the public should be developed to evacuate a two-mile radius and downwind sub-areas out to five miles. PARs should be the evacuation of Illinois subareas 1, 2 and Iowa subareas 1, 2, 5 based on a wind direction from 225°.

>EXERCISE TERMINATION

~1235

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Exercise Evaluation and Results

Contained in this section are the results and findings of all jurisdictions and functional entities that participated in the December 5, 2012 Plume Exercise to test the offsite emergency response capabilities of the State of Iowa and local organizations in support of the Quad Cities Nuclear Power Station.

Included also are the results and findings of the evaluation of all jurisdictions and functional entities that participated in the out-of-sequence drills and activities on October 25, 2012, and December 6, 2012. Those out-of-sequence drills are incorporated into the 2012 sequence and, by extension, this report.

Each functional entity was evaluated on the basis of its demonstration of criteria delineated in the Radiological Emergency Preparedness Program Manual, dated April 2012.

3.2 Summary Results of Exercise Evaluation

The matrix presented in Table 2, on the following pages, presents the status of all exercise evaluation criteria, which were scheduled for demonstration during this exercise, at all participating jurisdictions and functional entities. Exercise evaluation criteria are identified by a number that identifies the evaluation area it is part of. The demonstration status of each criterion is indicated by the use of the following letters:

M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)

D - Deficiency assessed

A - Area Requiring Corrective Action (ARCA) assessed or unresolved ARCA(s) from prior exercises

P - Planning Issue

N - Not Demonstrated (Reason explained in subsection B)

Table 3.1 - Summary of Exercise Evaluation (2 pages)

		Iowa State EOC	IA Dose Assess,	Iowa FTC	IA Rad Tm # 1	IA Rad Tm # 2	Iowa FCP	IA Joint Info. Ctr	Clinton Cnty EOC	EAS - KROS	Clinton County LE Ctr
<p align="center">DATE: 2012-12-05 SITE: Quad Cities Nuclear Power Station, IA M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated</p>											
Emergency Operations Management											
Mobilization	1a1	M	M	M	M	M	M	M	M		
Facilities	1b1										
Direction & Control	1c1	M					M		M		M
Communications Equipment	1d1	M	M	M	M	M	M	M	M		M
Equipment and Supplies	1e1	M	M	M	M	M	M	M	M		M
Protective Action Decision Making											
EW Exp. Control Decisions	2a1		M	M			M		M		
PARs	2b1		M	M							
PADs	2b2	M	M						M		
PADs for Disabled/Functional Needs	2c1								M		
Ingestion PADs	2d1										
RRR Decisions	2e1										
Protective Action Implementation											
EW Exp. Control Implementation	3a1			M	M	M	M		M		M
KI Public/Institutionalized	3b1								M		M
PAD Imp. Disabled/Functional Needs	3c1								M		M
PAD Imp. Schools	3c2								M		
TACP Establishment	3d1	M					M		M		
Impediments to Evacuation	3d2	M					M		M		
Implementation of Ingestion PADs	3e1										
Ingestion Strategies and Information	3e2										
Imp. of RRR Decisions	3f1										
Field Measurement and Analysis											
RESERVED	4a1										
Field Team Management	4a2			M							
Field Team Operations	4a3				M	M					
Field Team Sampling	4b1										
Laboratory Operations	4c1										
Emergency Notification and Public Info											
Initial Alert & Notification	5a1								M	P	
RESERVED	5a2										
Backup Alert & Notification	5a3								M		
Exception Area Alerting	5a4										
Subsequent Public Information	5b1	M						M	M	M	
Support Operations/Facilities											
Reception Center Operations	6a1										
EW Monitoring & Decon	6b1										
Congregate Care	6c1										
Contaminated Injured Transport & Care	6d1										

Table 3.1 - Summary of Exercise Evaluation (Continued, page 2/2)

		Scott County EOC	EAS-WLLR/WOC	North Scott District	Genesis Med. Ctr.	Medic Emg. Med.
DATE: 2012-12-05						
SITE: Quad Cities Nuclear Power Station, IA						
M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated						
Emergency Operations Management						
Mobilization	1a1	M				
Facilities	1b1	M				
Direction & Control	1c1	M				
Communications Equipment	1d1	M				
Equipment and Supplies	1e1	M		M	M	M
Protective Action Decision Making						
EW Exp. Control Decisions	2a1	M				
PARs	2b1					
PADs	2b2	M				
PADs for Disabled/Functional Needs	2c1	M				
Ingestion PADs	2d1					
RRR Decisions	2e1					
Protective Action Implementation						
EW Exp. Control Implementation	3a1	M		M	M	P
KI Public/Institutionalized	3b1	M				
PAD Imp. Disabled/Functional Needs	3c1	M				
PAD Imp. Schools	3c2	M		M		
TACP Establishment	3d1	M				
Impediments to Evacuation	3d2	M				
Implementation of Ingestion PADs	3e1					
Ingestion Strategies and Information	3e2					
Imp. of RRR Decisions	3f1					
Field Measurement and Analysis						
RESERVED	4a1					
Field Team Management	4a2					
Field Team Operations	4a3					
Field Team Sampling	4b1					
Laboratory Operations	4c1					
Emergency Notification and Public Info						
Initial Alert & Notification	5a1	P	M			
RESERVED	5a2					
Backup Alert & Notification	5a3	M				
Exception Area Alerting	5a4					
Subsequent Public Information	5b1	A	M			
Support Operations/Facilities						
Reception Center Operations	6a1					
EW Monitoring & Decon	6b1					
Congregate Care	6c1					
Contaminated Injured Transport & Care	6d1				M	M

3.3 Criteria Evaluation Summaries

3.3.1 Iowa Jurisdictions

3.3.1.1 Iowa State Emergency Operations Center

The staff demonstrated excellent coordination and teamwork, and were very knowledgeable and professional in carrying out their duties. The Operations Officer provided excellent direction and control.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.b.2, 3.d.1, 3.d.2, 5.b.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.2 Iowa Dose Assessment

There was good communication and a good working relationship between the Iowa Department of Public Health (IDPH) Bureau Chief and the Deputy. Recent changes have resulted in additional Nuclear Power Plant information now being available to the IDPH staff. Good inter-agency communication was demonstrated between IDPH, the State of Illinois, and the utility.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 2.b.2.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.3 Iowa Field Team Coordination

There was excellent coordination with other off-site response organizations through the established open conference line. The staff was very knowledgeable and well trained, and demonstrated an excellent process of quality control with field data.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 3.a.1, 4.a.2.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.4 Iowa Radiological Monitoring Team # 1 - EPZ

Team members demonstrated an excellent knowledge of their equipment, procedures, and checklists.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 4.a.3.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: 3.a.1.

ISSUE NO.: 21-12-3a1-A-01

ISSUE: Radiological Monitoring Team Blue (RMT-1) did not demonstrate effective methods of exposure control; examples are provided below:

- The Blue RMT-1 field team did not check their dosimeters every 30 minutes and did not have the Dosimetry Record Forms on which to record dosimetry readings.
- The Blue RMT-1 Field team did not have access to their potassium iodide (KI) while driving to their monitoring location because it was in the kit in the back of the

vehicle. When instructed to ingest KI, they did not stop to get their KI. They did not fill out their Potassium Iodide Ingestion Information Card (pink card) or their Potassium Iodide Ingestion Record card (red card). When questioned about the cards they were not aware that they had the cards in their kit.

-Team members got out of and back into the vehicle in the plume exposure area without donning protective clothing.

CORRECTIVE ACTION DEMONSTRATED: RMT-1 members demonstrated adequate exposure control and had all records and procedures available. Team members simulated KI ingestion and communicated this to the RERT in an appropriate time frame. All members through interview demonstrated KI knowledge.

- g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.5 Iowa Radiological Monitoring Team # 2 - EPZ

The team was very experienced and worked well together. The use of pre-packaged sampling kits, containing everything needed for a single air sample, allowed the team to be very efficient in conducting sampling and analyzing tasks. It also ensured that the supplies were "clean" and reduced the potential for cross contaminating sample media.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.d.1, 1.e.1, 3.a.1, 4.a.3.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.6 Iowa Forward Command Post

Emergency workers had a good knowledge and understanding of the use of dosimetry and KI. The Department of Natural Resources staff had a good knowledge of the parks, wildlife areas, and waterways, and they did an excellent job in clearing and closing the affected parks and waterways.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 3.a.1, 3.d.1, 3.d.2.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.7 Iowa Joint Information Center

During the news conferences at the Joint Information Center, the Iowa Public Information Officer displayed an exceptional ability to combine the seriousness of the situation with a calm reassurance while providing critical information to Iowa citizens.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.d.1, 1.e.1, 5.b.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.2 Risk Jurisdictions

3.3.2.1 Clinton County Emergency Operations Center

Throughout the exercise there were very productive discussions between all the agencies represented in the Emergency Operations Center (EOC). The Radiological Equipment program and the Radiological briefing given to the EOC workers were both excellent.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.1, 5.a.3, 5.b.1.

-
- b. AREAS REQUIRING CORRECTIVE ACTION: None
 - c. DEFICIENCY: None
 - d. PLAN ISSUES: None
 - e. NOT DEMONSTRATED: None
 - f. PRIOR ISSUES - RESOLVED: None
 - g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.2 EAS Station - KROS

The radio station staff was very professional and they displayed a genuine concern for the health and safety of their community.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 5.b.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: 5.a.1.

ISSUE NO.: 51-12-5a1-P-01

CRITERION: 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 REP guidance.

CONDITION: After receiving a recorded message from the Clinton County Public Information Officer, the KROS 1340 AM radio station's automated system activates the EAS tones and broadcasts the recorded message within a few seconds. The EAS tones will alert subsequent broadcasting systems to also broadcast the recorded message. If the recorded message is longer than the 2-minute EAS time constraint, the recorded message will be automatically cut-off after 2-minutes by the subsequent broadcasting stations.

POSSIBLE CAUSE: The automated recording/broadcasting system requires specific codes to begin and end the message. These codes trigger the EAS tones and

automatically broadcast the newly recorded message and it replaces the previously recorded message. Because a special news broadcast message may contain more information and be longer than 2-minutes, it would be better not to tone out the EAS.

REFERENCE: NUREG-0654/FEMA-REP-1. E.7

EFFECT: The EAS tones will alert subsequent broadcasting systems to broadcast the recorded message. If the recorded message is a special news broadcast (SNB) message and is longer than the 2-minute EAS time constraint, the EAS system used by subsequent broadcasting stations will automatically cut the SNB message after 2-minutes. Therefore the message will not be broadcast in its entirety.

RECOMMENDATION: To program the automated recording/broadcasting system at KROS AM radio station to allow special news broadcast messages to record and automatically broadcast without first sending the EAS tones. Plans/procedures must be revised to indicate that the tones will NOT be broadcast in conjunction with the special news broadcast messages, but ONLY with the EAS messages. During an incident, all communications between the county and the radio station should confirm this same step in the process prior to any broadcast or simulated broadcast.

- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.3 Clinton County Law Enforcement Center

The staff demonstrated a good knowledge of local procedures.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.b.1, 3.c.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None

-
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.4 Scott County Emergency Operations Center

The Scott County GIS specialist was able to plot maps showing the actual void caused with the simulated siren failures. The maps contained exact addresses for the Sheriff's Office to utilize for backup route alerting in a very timely manner. This capability was noted as a "best practice" by the evaluator.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 3.d.1, 3.d.2, 5.a.3.
- b. AREAS REQUIRING CORRECTIVE ACTION: 5.b.1.

ISSUE NO.: 51-12-5b1-A-02

CRITERION: OROs provide accurate emergency information and instructions to the public and news media in a timely manner.

CONDITION: Following the initial broadcast of Special News Broadcast (SNB) S-2 at 1034, S-2 was never re-broadcast during the exercise. Through interview it was stated that it would not be rebroadcast or put into a loop. Later, during further discussion with the evaluator, it was stated that the message would be rebroadcast once an hour.

POSSIBLE CAUSE: Instructions to rebroadcast the Special News Broadcasts at least once within 15 minutes, that were contained on current messages within the Scott County Radiological Emergency Response Plan, were not followed.

REFERENCE: OROs provide accurate subsequent emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654/FEMA-REP-1, E.5, 7; G.3.a, G.4.a, c)

Scott County Radiological Emergency Response Plan, In Support of the Quad Cities Nuclear Power Station, revision date 09/2012

EFFECT: Members of the public that missed the initial broadcast of the Special News Broadcast may have been delayed in receiving important emergency information and instructions.

RECOMMENDATION: Appropriate EOC staff and radio station personnel should be trained on the requirements, per the plans and current messages included in the plans, to rebroadcast Special News Broadcasts in accordance with the plans. This must be redemonstrated during the next biennial exercise.

- c. **DEFICIENCY:** None
- d. **PLAN ISSUES:** 5.a.1.

ISSUE NO.: 51-12-5a1-P-03

CRITERION: 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 REP guidance.

CONDITION: The initial Emergency Alerting System (EAS) message number S-1 was not broadcast by the EAS radio station prior to the Scott County subsequent Emergency Information Message number 3. Message number 3 provided new emergency information for the evacuation of Scott County subarea 2 and related instructions for the public following the General Emergency emergency classification level (ECL).

POSSIBLE CAUSE: The Scott County EOC did not instruct the radio station to broadcast message S-1 prior to message S-3 as neither the county plan or the procedures require that the initial EAS message precede the subsequent emergency information messages with the exception of the very first alerting and notification sequence.

Through interview with the EOC staff, it was determined that S-1 would not be

broadcast because all subsequent EAS messages after the first broadcast of S-1 were considered follow up information despite the change in ECL and the evacuation change.

REFERENCE: 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 REP guidance. (NUREG-0654/FEMA-REP-1, E.5, 6, 7)

EFFECT: Although the public would have been alerted to the new emergency information by the siren activations (which were done prior to each new emergency information message), anyone watching or listening to an EAS station would not have been alerted to the new information with either an EAS message or the EAS message tones.

RECOMMENDATION: The Scott County plans and procedures should be revised as necessary to indicate that the initial EAS message (S-1) will be broadcast prior to each subsequent emergency information message, especially following any changes to either the emergency classification level or the protective action decisions. All plans/procedures for the primary alerting and notification of the public need to be incorporated in the official plans/procedures set submitted to FEMA for review and approval.

- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.5 EAS Station - WLLR/ WOC

The radio station staff are very knowledgeable of the new procedures established with Scott County, and are very capable of performing their responsibilities.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 5.a.1, 5.b.1.

-
- b. AREAS REQUIRING CORRECTIVE ACTION: None
 - c. DEFICIENCY: None
 - d. PLAN ISSUES: None
 - e. NOT DEMONSTRATED: None
 - f. PRIOR ISSUES - RESOLVED: 5.a.1.

ISSUE NO.: 51-10-5a1-A-05

ISSUE: The WOC staff failed to follow the procedures that require the verification of the emergency message facsimile after receipt at the radio station with staff at the Scott County Emergency Operations Center.

In addition to the verification issue above, the "EOC Davenport Iowa – EAS Messages Procedure" (v. April 26, 2010) directs staff in Bullet 1 to copy and distribute the emergency message facsimile to the sister station studios (e.g., WLLR). Bullet 2 directs the staff to verify the message with the Scott County EOC and Bullet 3 directs broadcasting the message. The issue is that Bullet 1 directs the distribution of the emergency messages to the sister stations (which will immediately broadcast them) prior to the verification required in Bullet 2.

CORRECTIVE ACTION DEMONSTRATED: The procedures utilized during the Quad Cities Nuclear Power Station Exercise in 2010 and the failure of WLLR/WOC Radio staff to follow those procedures for verification of the emergency message facsimile after receipt at the radio station with staff at the Scott County Emergency Operations Center (EOC) resulting in ARCA (51-10-5a1-A-05) have been rescinded and no longer require that operation to be performed at the radio station.

- g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.6 North Scott School District

The School Response Plan was user friendly. The staff was very knowledgeable of the plans and procedures.

In summary, the status of DHS/FEMA criteria for this location is as follows:

-
- a. MET: 1.e.1, 3.a.1, 3.c.2.
 - b. AREAS REQUIRING CORRECTIVE ACTION: None
 - c. DEFICIENCY: None
 - d. PLAN ISSUES: None
 - e. NOT DEMONSTRATED: None
 - f. PRIOR ISSUES - RESOLVED: None
 - g. PRIOR ISSUES - UNRESOLVED: None

3.3.3 Support Jurisdictions

3.3.3.1 Genesis Medical Center - Davenport

The medical center staff were very experienced and very knowledgeable of their duties.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.e.1, 3.a.1, 6.d.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: None
- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

3.3.3.2 Medic Emergency Medical Services

The staff demonstrated a good knowledge of their Radiological kit and equipment.

In summary, the status of DHS/FEMA criteria for this location is as follows:

- a. MET: 1.e.1, 6.d.1.
- b. AREAS REQUIRING CORRECTIVE ACTION: None
- c. DEFICIENCY: None
- d. PLAN ISSUES: 3.a.1.

ISSUE NO.: 51-12-3a1-P-04

CRITERION: The OROs issue appropriate dosimetry, KI, and procedures, and

manage radiological exposure to emergency workers in accordance with the plans/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. Appropriate record-keeping of the administration of KI for emergency workers is maintained.

CONDITION: Inconsistent ability to perform transportation of contaminated injured individuals due to the lack of a written procedure.

POSSIBLE CAUSE: Written procedures provide a documented set of instructions and records that can be used when personnel do not perform functions regularly or as a tool to ensure each step of a process is done accurately.

REFERENCE: NUREG-0654, FEMA REP-1, paragraph F.2, H.10, K.5.a, K.5.b, L.1, and L.4

EFFECT: Without a written procedure, personnel can make mistakes or miss critical steps in a process. Missing steps during the handling of a potentially contaminated individual can lead to cross contamination concerns.

RECOMMENDATION: A solid written procedure needs to be developed for this organization. The procedure should be incorporated into the official plans/procedures set submitted to FEMA for review and approval.

- e. NOT DEMONSTRATED: None
- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: None

SECTION 4: CONCLUSION

Based on the results of this exercise, the offsite radiological emergency response plans and preparedness for the State of Iowa and the affected local jurisdictions are deemed adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public in the event of a radiological emergency. Therefore, 44 CFR Part 350 approval of the offsite radiological emergency response plans and preparedness for the State of Iowa site-specific to Quad Cities Nuclear Power Station will remain in effect.

APPENDIX A: IMPROVEMENT PLAN

Issue Number: 51-12-5a1-P-01		Criterion: 5a1
<p>ISSUE: After receiving a recorded message from the Clinton County Public Information Officer, the KROS 1340 AM radio station's automated system activates the EAS tones and broadcasts the recorded message within a few seconds. The EAS tones will alert subsequent broadcasting systems to also broadcast the recorded message. If the recorded message is longer than the 2-minute EAS time constraint, the recorded message will be automatically cut-off after 2-minutes by the subsequent broadcasting stations.</p>		
<p>RECOMMENDATION: To program the automated recording/broadcasting system at KROS AM radio station to allow special news broadcast messages to record and automatically broadcast without first sending the EAS tones. Plans/procedures must be revised to indicate that the tones will NOT be broadcast in conjunction with the special news broadcast messages, but ONLY with the EAS messages. During an incident, all communications between the county and the radio station should confirm this same step in the process prior to any broadcast or simulated broadcast.</p>		
<p>CORRECTIVE ACTION DESCRIPTION: Both the radio station and Clinton County will revise and strengthen their plans/procedures to indicate that the tones will NOT be broadcast in conjunction with the special news broadcast messages, but ONLY with the EAS messages. Plans/procedures will also indicate that during an incident, all communication between the county and the radio station will confirm this same step in the process prior to any broadcast or simulated broadcast.</p>		
CAPABILITY: Emergency Public Information and Warning	PRIMARY RESPONSIBLE AGENCY: Iowa HSEMD	
CAPABILITY ELEMENT: Planning	START DATE: 2013-03-01	
AGENCY POC: Kathy Stodola 515-323-4320	ESTIMATED COMPLETION DATE: 2014-01-01	

Issue Number: 51-12-3a1-P-04		Criterion: 3a1
<p>ISSUE: Inconsistent ability to perform transportation of contaminated injured individuals due to the lack of a written procedure.</p>		
<p>RECOMMENDATION: A solid written procedure needs to be developed for this organization. The procedure should be incorporated into the official plans/procedures set submitted to FEMA for review and approval.</p>		
<p>CORRECTIVE ACTION DESCRIPTION: A written procedure for Medic Emergency Medical Services will be developed. The state will ensure annual training for the ambulance staff includes a detailed review of the new written procedure for transporting contaminated injured individuals.</p>		
CAPABILITY: Emergency Triage and Pre-Hospital Treatment	PRIMARY RESPONSIBLE AGENCY: Iowa HSEMD	
CAPABILITY ELEMENT: Planning	START DATE: 2013-03-01	
AGENCY POC: Kathy Stodola 515-323-4320	ESTIMATED COMPLETION DATE: 2014-01-01	

Issue Number: 51-12-5a1-P-03		Criterion: 5a1
<p>ISSUE: The initial Emergency Alerting System (EAS) message number S-1 was not broadcast by the EAS radio station prior to the Scott County subsequent Emergency Information Message number 3. Message number 3 provided new emergency information for the evacuation of Scott County subarea 2 and related instructions for the public following the General Emergency emergency classification level (ECL).</p>		
<p>RECOMMENDATION: The Scott County plans and procedures should be revised as necessary to indicate that the initial EAS message (S-1) will be broadcast prior to each subsequent emergency information message, especially following any changes to either the emergency classification level or the protective action decisions. All plans/procedures for the primary alerting and notification of the public need to be incorporated in the official plans/procedures set submitted to FEMA for review and approval.</p>		
<p>CORRECTIVE ACTION DESCRIPTION: The state will ensure annual training with Scott County personnel stresses the correct steps, sequence, and frequency for all special news broadcast messages.</p>		
<p>CAPABILITY: Emergency Public Information and Warning</p>	<p>PRIMARY RESPONSIBLE AGENCY: Iowa HSEMD</p>	
<p>CAPABILITY ELEMENT: Training</p>	<p>START DATE: 2013-03-01</p>	
<p>AGENCY POC: Kathy Stodola 515-323-4320</p>	<p>ESTIMATED COMPLETION DATE: 2014-01-01</p>	

Issue Number: 51-12-5b1-A-02		Criterion: 5b1
<p>ISSUE: Following the initial broadcast of Special News Broadcast (SNB) S-2. at 1034, S-2 was never re-broadcast during the exercise. Through interview it was stated that it would not be rebroadcast or put into a loop. Later, during further discussion with the evaluator, it was stated that the message would be rebroadcast once an hour.</p>		
<p>RECOMMENDATION: Appropriate EOC staff and radio station personnel should be trained on the requirements, per the plans and current messages included in the plans, to rebroadcast Special News Broadcasts in accordance with the plans. This must be redemonstrated during the next biennial exercise.</p>		
<p>CORRECTIVE ACTION DESCRIPTION: The state will ensure annual training with Scott County personnel stresses the correct steps for the broadcast frequency of special news broadcast messages.</p>		
<p>CAPABILITY: Emergency Public Information and Warning</p>	<p>PRIMARY RESPONSIBLE AGENCY: Iowa HSEMD</p>	
<p>CAPABILITY ELEMENT: Training</p>	<p>START DATE: 2013-03-01</p>	
<p>AGENCY POC: Kathy Stodola 515-323-4320</p>	<p>ESTIMATED COMPLETION DATE: 2014-01-01</p>	

APPENDIX B: EXERCISE TIMELINE

Table 1, on the following page, presents the time at which key events and activities occurred during the Quad Cities Nuclear Power Station exercise held on November 17, 2010. Also included are times that notifications were made to the participating jurisdictions/functional entities.

Table 1 - Exercise Timeline
DATE: 2012-12-05, SITE: Quad Cities Nuclear Power Station, IA

Emergency Classification Level or Event	Time Utility Declared	Iowa State EOC	IA Dose Assess.	Iowa FTC	IA Rad Tm # 1	IA Rad Tm # 2	Iowa FCP
Unusual Event				n/a			
Alert	0813	0830	0837	0910		0910	0920
Site Area Emergency	0954	1011	1016	1025	1025	1027	1017
General Emergency	1116	1126	1128	1130	1130	1130	1129
Simulated Rad. Release Started	1116	1126	1114	1130	1130	1130	
Simulated Rad. Release Terminated			1251	n/a			
Facility Declared Operational		0907	0940	1107			1107
Declaration of State of Emergency		0945	0948	n/a			0953
Exercise Terminated		1245	1251	1252	1253	1252	1253
Early Precautionary Actions: Parks		0928					0930
1st Protective Action Decision: Animals Stored Feed/Covered Water, Schools,		1020	1022				1037
1st Siren Activation							
1st EAS or EBS Message							
2nd Protective Action Decision: Evac Subareas 1, 2, 5, 11		1135	1135				1146
2nd Siren Activation							
2nd EAS or EBS Message							
3rd Protective Action Decision:							
3rd Siren Activation							
3rd EAS or EBS Message							
KI Administration Decision:		1135	1135	1134	1137	1136	1146

Table 1 - Exercise Timeline
DATE: 2012-12-05, SITE: Quad Cities Nuclear Power Station, IA

Emergency Classification Level or Event	Time Utility Declared	IA Joint Info. Ctr	Clinton Cnty EOC	EAS - KROS	Scott County EOC	EAS-WLLR/WOC
Unusual Event			n/a			
Alert	0813	0830	0828		0826	
Site Area Emergency	0954	0955	1012		1009	
General Emergency	1116	1119	1126		1123	
Simulated Rad. Release Started	1116	1113	1128		1123	
Simulated Rad. Release Terminated			n/a			
Facility Declared Operational		0945	0920		0915	
Declaration of State of Emergency		0953	0958	1020	0945	
Exercise Terminated		1251	1253	1304	1254	
Early Precautionary Actions: Parks		0927	0930		0927	
1st Protective Action Decision: Animals Stored Feed/Covered Water, Schools,		1025	1025	1027	1022	
1st Siren Activation			1025	1025	1025	
1st EAS or EBS Message			1025	1027	1027	1026
2nd Protective Action Decision: Evac Subareas 1, 2, 5, 11		1145	1145		1146	
2nd Siren Activation			1158	1158	1158	
2nd EAS or EBS Message			1158	1158	1200	1201
3rd Protective Action Decision:						
3rd Siren Activation						
3rd EAS or EBS Message						
KI Administration Decision:		1158	1136		1140	

APPENDIX C: EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2012-12-05, SITE: Quad Cities Nuclear Power Station, IA

LOCATION	EVALUATOR	AGENCY
Iowa State Emergency Operations Center	Mark Dalton *Rex Jennings Laurel Ryan	ICFI FEMA RVII FEMA RVII
Iowa Dose Assessment	*Chuck Hooper	EPA
Iowa Field Team Coordination	*Nan Calhoun	FEMA RVI
Iowa Radiological Monitoring Team # 1 - EPZ	*Jeff Clark	FEMA RVII
Iowa Radiological Monitoring Team # 2 - EPZ	*Marcy Campbell	ICFI
Iowa Forward Command Post	*Judy Dodgen	FEMA RVII
Iowa Joint Information Center	*Thomas Hegele	ICFI
Clinton County Emergency Operations Center	*Audie Canida Linda Gee Sharron McDuffie	FEMA RVII FEMA RVI FEMA RVII
EAS Station - KROS	*Meg Swearingen	ICFI
Clinton County Law Enforcement Center	*Audie Canida Linda Gee Sharron McDuffie	FEMA RVII FEMA RVI FEMA RVII
Scott County Emergency Operations Center	*Brad DeKorte Jill Leatherman Bill Webb	FEMA RVI ICFI FEMA RX
EAS Station - WLLR/ WOC	*Dan Feighert	FEMA RVIII
North Scott School District	*Norm Valentine	FEMA VII
Genesis Medical Center - Davenport	*Norm Valentine	FEMA VII
Medic Emergency Medical Services	*Audie Canida	FEMA RVII
* Team Leader		

APPENDIX D: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
ARCA	Area Requiring Corrective Action
ARES	Amateur Radio Emergency Service
CFR	Code of Federal Regulations
DHS	Department of Homeland Security
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Levels
EDACS	Enhanced Digital Access Communication System
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPD	Electronic Personal Dosimeter
EPZ	Emergency Planning Zone
EW	Emergency Workers
FCP	Forward Command Post
FEMA	Federal Emergency Management Agency
GE	General Emergency
GIS	Geographic Information System
IHSEMD	Iowa Homeland Security Emergency Management Division
ISD	Independent School District
ISP	Iowa State Patrol
JIC	Joint Information Center
KI	Potassium Iodide
MAS	Medic Ambulance Service
NARS	Nuclear Accident Reporting System
ORO	Off-Site Response Organization
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
PPE	Personal Protective Equipment
QCNPS	Quad Cities Nuclear Power Station
RACES	Radio Amateur Civil Emergency Service

Unclassified
Radiological Emergency Preparedness Program (REP)

After Action Report/Improvement Plan

Quad Cities Nuclear Power Station

REA	Radiation Emergency Area
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RERT	Radiological Emergency Response Team
RMT	Radiological Monitoring Team
RO	Radiological Officer
SAE	Site Area Emergency
SCEOC	Scott County Emergency Operations Center
SEOC	State Emergency Operations Center
SNB	Special News Broadcast
TACP	Traffic and Access Control Point
TEDE	Total Effective Dose Equivalent
TSC	Technical Support Center

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