

Limerick Generating Station Exercise – November 15, 2005

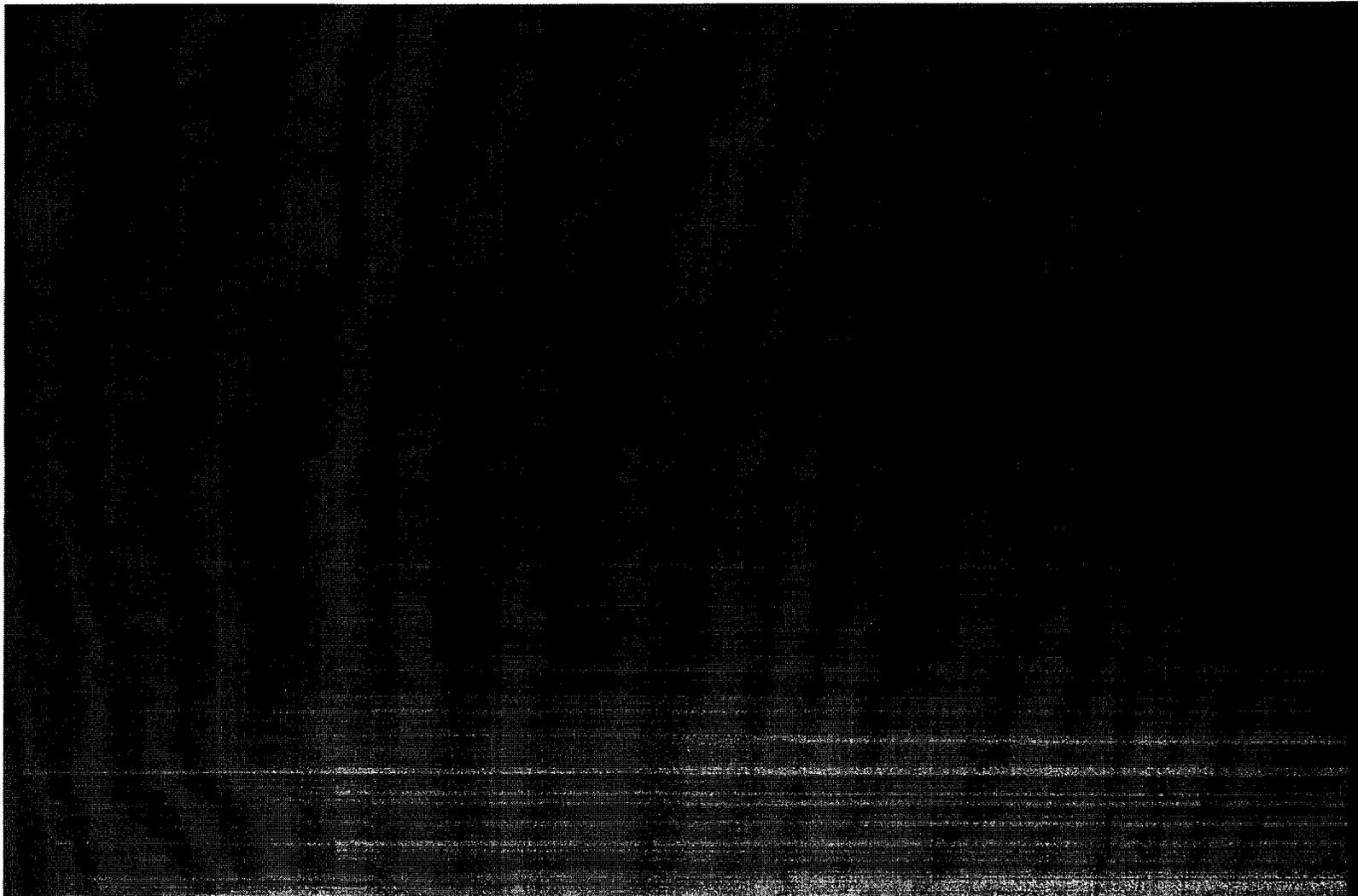
Final Report - Radiological Emergency Preparedness Program

January 18, 2006



FEMA

FEMA Region III





FEMA

Final Exercise Report

Limerick Generating Station

Licensee: **Excelon Nuclear**

Exercise Date: **November 15, 2005**

Report Date: **January 18, 2006**

**U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION III**

**ONE INDEPENDENCE MALL, 6TH FLOOR
615 CHESTNUT STREET
PHILADELPHIA, PENNSYLVANIA 19106-4404**

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I. Executive Summary

On November 15, 2005, an exercise was conducted in the 10-mile plume exposure pathway, emergency planning zone (EPZ) around the Limerick Generating Station (LGS) by the Department of Homeland Security Federal Emergency Management Agency (FEMA), Region III. Out-of-sequence demonstrations of reception center—monitoring, decontamination, and registration, congregate care, and emergency worker, equipment and vehicle—monitoring and decontamination activities, as well as the implementation of school protective actions, were also conducted on August 25, 2005 and November 16, 2005. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and out-of-sequence demonstrations were held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

The most recent prior full-scale exercise at this site was conducted on November 18, 2003.

FEMA wishes to acknowledge the efforts of the many individuals in the Commonwealth of Pennsylvania; the risk jurisdictions of Berks, Chester, and Montgomery Counties; the support jurisdictions of Bucks and Lehigh Counties; and 15 participating municipalities who were evaluated at this 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. Cooperation and teamwork of all the participants were evident during this exercise.

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

- *Reception Center – Monitoring, Decontamination, and Registration:* Conducted between 1700 and 1930 on November 16, 2005, in Berks, Bucks, Chester, Montgomery, and Lehigh counties.
- *Mass Care:* Conducted between 1700 and 1930 on August 25, 2005, in Bucks, Chester, and Montgomery counties, and between 1700 and 1930 on November 16, 2005, in Berks and Lehigh counties.
- *Emergency Workers, Equipment, and Vehicles – Monitoring and Decontamination:* Conducted between 1700 and 1930 on November 16, 2005, in Berks, Bucks, Chester, Lehigh, and Montgomery counties.
- *School Interviews:* Conducted between 0900 and 1100 on November 16, 2005, in Berks, Chester, and Montgomery counties.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and nine Areas Requiring Corrective Action (ARCA) identified as a result of this exercise. Three of these ARCAs were successfully re-demonstrated during the exercise. One ARCA from a previous exercise was successfully demonstrated at this exercise; four other ARCAs at locations not scheduled for demonstrated at this exercise were also resolved.

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 Tribal, State, and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local government participation in joint exercises with licensees.

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

- Taking the lead in offsite emergency planning and in the review and evaluation of Radiological Emergency Response Plans (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, September 14, 1993); and
- Coordinating the activities of the following Federal agencies with responsibilities in the radiological emergency planning process:
 - U.S. Department of Commerce,
 - U.S. Nuclear Regulatory Commission,
 - U.S. Environmental Protection Agency,
 - U.S. Department of Energy,
 - U.S. Department of Health and Human Services,
 - U.S. Department of Transportation,
 - U.S. Department of Agriculture,
 - U.S. Department of the Interior, and
 - U.S. Food and Drug Administration.

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

A REP exercise was conducted on November 15, 2005, by FEMA Region III 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 LGS. 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 III RAC Chairperson, and approved by the Acting Regional Director.

The criteria utilized in the FEMA evaluation process are contained in the following:

- 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 Guidance Memoranda MS-1, "Medical Services," November 1986;
- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991;
- 66 FR 47546, "FEMA Radiological Emergency Preparedness: Alert and Notification," September 12, 2001; and
- 67 FR 20580, "FEMA Radiological Emergency Preparedness: Exercise Evaluation Methodology," 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 emergency planning zone (EPZ), a listing of all participating jurisdictions and functional entities that 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 evaluation areas 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 Tribal, 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 November 15, 2005 exercise to test the off-site emergency response capabilities in the area surrounding the Limerick Generating Station (LGS). This section of the exercise report includes a description of the plume pathway EPZ, a listing of all participating jurisdictions and functional entities that were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

A. Plume Emergency Planning Zone Description

LGS is located in southeastern Pennsylvania on the Schuylkill River about 1.7 miles southeast of Pottstown Borough. The river passes through the site, separating the western portion, which is in East Coventry Township in Chester County, from the eastern portion, which is in Limerick and Lower Pottsgrove Townships in Montgomery County. The plant is owned and operated by Exelon Nuclear. Two boiling water reactors each generate an electrical output of 1,050 megawatts (MW). Unit 1 was issued a full-power license in August 1985; commercial operations began in February 1986. Unit 2 was issued a full-power license in August 1989 with commercial operations beginning in January 1990.

The site encompasses 595 acres and is divided into three (3) parts. The principal portion, where the major operating equipment and buildings are located, is on the east bank of the Schuylkill River. This portion is separated from the second segment, where the cooling water intake is located, near the main line of the Reading Railroad. The third portion lies on the west bank of the river, adjacent to Conrail railroad tracks. The site coordinates are approximately 40°13'27"N and 75°35'15"W.

The minimum exclusion distance for the LGS is 2,500 feet from the center of each reactor. The utility owns all the land within the exclusion area. No private residences are located within the exclusion area; however, some farming may be permitted.

There are 165 sirens installed to cover the 10-mile plume exposure pathway EPZ. These sirens are activated three (3) minutes before the Emergency Alert System (EAS) messages issued by the Commonwealth of Pennsylvania are broadcast.

Soils in this area are of the Reaville-Penn-Klinesville Association and are characteristic of rolling uplands. They are underlain by sedimentary rocks of the Brunswick Formation, consisting mostly of red shale with some fine-grained sandstone interbedding. The normal pool elevation of the Schuylkill River in this area is 200 feet above mean sea level (msl). The topography of the area is hilly, with elevations ranging from 100-300 feet above msl within five (5) miles of the site. The plant is approximately 217 feet above msl.

The climate in this area is dominated by prevailing westerly winds that produce humid, continental-type weather characterized by warm summers and moderately cold winters. Montgomery County is the warmest part of Pennsylvania, with an average annual temperature of 57°F. Annual precipitation is approximately 42 inches.

The area in the immediate vicinity of the plant is made up mostly of agricultural and other open land. The Pottstown Borough in Montgomery County is the nearest community and has a population of 21,859 based on the 2000 Census. The nearest major population center (more than 25,000 people) is Philadelphia that lies 25 miles to the southeast of the site.

Two major industries employ a total of 850 persons within two (2) miles of the plant. Two small airfields are also located nearby. A small private airfield is about one (1) mile to the northeast, but its runway is oriented so that the flight path does not pass over the plant. The Pottstown Municipal Airport is 4.3 miles northwest of the site. The LGS does not lie in the approach pattern for this airport.

No major thoroughfares are located in the immediate vicinity of the plant. The main line of the Reading Railroad runs along the north bank of the Schuylkill River and traverses the site about 500 feet from the plant.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the LGS out-of-sequence activities on August 25, 2005, and November 16, 2005, or the exercise on November 15, 2005.

COMMONWEALTH OF PENNSYLVANIA

Pennsylvania Army National Guard
Pennsylvania Department of Agriculture
Pennsylvania Department of Environmental Protection – Bureau of Radiation Protection
Pennsylvania Department of Environmental Protection – Bureau of Water Supply
Management
Pennsylvania Emergency Management Agency
Pennsylvania Emergency Management Agency (Controller)
Pennsylvania Fish and Boat Commission
Pennsylvania Game Commission
Pennsylvania State Police, Troop K
Pennsylvania Turnpike Commission

RISK JURISDICTIONS

BERKS COUNTY

Berks County Emergency Management Agency
Berks County Commissioner
Berks County Communication Center

Berks County Department of Facilities & Operations
Berks County District Court Administration
Berks County Emergency Ambulance and Rescue Service
Berks County Fire/Police
Berks County Intermediate Unit
Berks County Personnel Department
Berks County Planning Commission
Berks County Sheriff's Department
Berks Area/Reading Transportation Authority
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania National Guard
Pennsylvania State Police
Pennsylvania State University – Agricultural Extension Service
U.S. Department of Agricultural (USDA) – Farm Service Agency

COLEBROOKDALE TOWNSHIP

Colebrookdale Township Manager (and staff)
Colebrookdale Township Police Department
Colebrookdale Township Public Works Department

EARL TOWNSHIP

Earl Township Fire Company

UNION TOWNSHIP

French Creek State Park
Union Township Supervisors

CHESTER COUNTY

Chester County Commissioner
Chester County Department of Emergency Services
Chester County Fire Group
Chester County Department of Health
Chester County Sheriff's Office
Chester County Contracts and Purchasing
Chester County Department of Public Works
Chester County Hazardous Materials Response Team
Chester County Human Resources Department
Chester County Telecommunications Office
Chester County Geographic Information Systems Department
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania State Police

EAST PIKELAND TOWNSHIP

East Pikeland Township Police Department
East Pikeland Township Public Works Department

EAST VINCENT TOWNSHIP

East Vincent Police Department
East Vincent Public Works Department

NORTH COVENTRY TOWNSHIP

North Coventry Township Police Services
North Coventry Township Public Works

PHOENIXVILLE BOROUGH

Phoenixville Borough Emergency Management Agency
Phoenixville Fire Department
Phoenixville Police Department

UWCHLAN TOWNSHIP

Uwchlan Township Highway Department
Uwchlan Township Manager
Uwchlan Township Police Department
Uwchlan Township Public Works
Uwchlan Township Supervisors

MONTGOMERY COUNTY

Montgomery County Commissioners Office Communications Director
Montgomery County Department of Agriculture
Montgomery County Department of Health
Montgomery County Emergency Dispatch Services
Montgomery County Emergency Medical Services
Montgomery County Fire Academy
Montgomery County Hazmat Team
Montgomery County HAZMAT Team
Montgomery County Industrial Liaison
Montgomery County Office of Emergency Preparedness
Montgomery County Office of Public Safety
Montgomery County Parks and Heritage
Montgomery County Public Works Department
Montgomery County Sheriff's Office
Montgomery County Transportation Coordinator
Montgomery Intermediate Unit (Schools)
Pennsylvania Army National Guard
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania State Police

GREEN LANE BOROUGH/MARBOROUGH TOWNSHIP

Marlborough Township Department of Public Works
Marlborough Township Fire and Rescue Services
Marlborough Township Police Department

LIMERICK TOWNSHIP

Limerick Fire Department
Montgomery County RACES
Office of Emergency Management
Police Department

LOWER FREDERICK TOWNSHIP

Lower Frederick Township Police

NEW HANOVER TOWNSHIP

Fire Marshall
New Hanover Township Department of Public Works
New Hanover Township Emergency Management
New Hanover Township Police Department

PERKIOMEN TOWNSHIP

Assistant Township Building Inspector
Chairman, Perkiomen Township Board of Supervisors
Township Building Inspector
Township Manager

SCHWENKSVILLE BOROUGH

Schwenksville Borough Fire Department
Schwenksville Borough Police Department

TRAPPE BOROUGH

Office of the Emergency Management Coordinator
Trappe Borough Emergency Management Coordinator
Trappe Fire and Ambulance Company

WEST POTTS GROVE TOWNSHIP

Volunteers from West Pottsgrove Fire Department

SUPPORT JURISDICTIONS

BUCKS COUNTY

Bucks County Commissioner's Office
Bucks County Communications Division
Bucks County Emergency Management Agency
Bucks County Emergency Medical Services
Bucks County Fire Marshal

Bucks County Hazardous Materials Response Team
Bucks County Information Technology Department
Bucks County Public Information Department
Bucks County Public Works
Bucks County Sheriff's Department
Pennsylvania Emergency Management Agency

LEHIGH COUNTY

Centronia Ambulance Corps
Coplay Borough Emergency Management Coordinator
Eastern Pennsylvania EMS Council
Emmaus Fire Department
Lehigh County Agricultural Department
Lehigh County Department of Public Affairs
Lehigh County Emergency Management Agency
Lower Milford Fire Company
Pennsylvania State Police
Upper Saucon Ambulance Company
Upper Saucon Fire Department
USDA Farm Service

SCHOOLS

BERKS COUNTY

Boyertown Area School District
Earl Elementary School
Daniel Boone School District
Birdsboro Elementary School

CHESTER COUNTY

Downington Area School District
Pickering Valley Elementary School
Great Valley School District
Charlestown Elementary School
Owen J. Roberts School District
French Creek Elementary School
Phoenixville Area School District
Samuel K. Barkley Elementary School
East Pikeland Elementary School

MONTGOMERY COUNTY

Methacton Area School District
Woodland Elementary School
Perkiomen Valley School District
Perkiomen Valley Middle School

Pottsgrove School District
Pottsgrove High School
Pottstown School District
Pottstown High School
Souderton Area School District
Salford Hills Elementary School
Spring-Ford Area School District
West Center for Technical Studies
Upper Perkiomen School District
Upper Perkiomen Middle School

PRIVATE/VOLUNTEER ORGANIZATIONS

Amateur Radio Emergency Services (ARES)
American Red Cross
Amity Township Fire Department
Birdsboro Fire Company
Boyertown Ambulance
Civil Air Patrol
Colebrookdale Township Volunteer Fire Department – Station 17
Collegeville Fire Company No. 1
Critical Incident Stress Management Team (Montgomery Hospital)
Earl Township Fire Company
Eastern Salisbury Volunteer Fire Department
Friendship Fire Company
Gilbertsville Ambulance Squad 332
Gilbertsville Fire Company No. 1
Hamburg Fire Company
Horsham Township Volunteer Fire Department – Station 15
Kimberton Fire Company
Kulpstown Fire Department
Lehigh County Hazmat Team
Liberty Fire Company
Lionville Fire Company
Lower Frederick Regional Ambulance Corps
Lower Frederick Township Fire Company
Lower Salford Township Fire Department
Members of the East Vincent Township Community
Military Amateur Radio Service
Monarch Fire/Police Department
Montgomery County Fire Station 74 (Perseverance Volunteer Fire Company)
Montgomery County RACES
Montgomery Township Volunteer Fire Department – Station 18
New Hanover Volunteer Fire Company
NORCO Volunteer Fire Department
North Coventry Township Town Watch
Oley Fire Department

Perkiomen Township Fire Company
Pottstown Area Amateur Radio Club
Plymouth Fire Company # 43
Radio Amateur Civil Emergency Services (RACES)
Reading Radio Club
Salisbury Ambulance
Sassamansville Volunteer Fire Company
Souderton Fire Department
Southeast Pennsylvania Red Cross
Southern Berks Regional EMS
Telford Volunteer Fire Company
Trappe Fire Ambulance Company
Trappe Fire Company
Upper Frederick Township Fire Department
Uwchlan Ambulance Service
Valley Forge Volunteer Fire Company
Western Salisbury Volunteer Fire Department
West Whiteland Volunteer Fire Department

C. Exercise Timeline

Table 1, on the following page, presents the time at which key events and activities occurred during the LGS exercise on November 15, 2005. Also included are times notifications were made to the participating jurisdictions/functional entities.

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: November 15, 2005 Limerick Generating Station

Emergency Classification Level	Time Utility Declared	Time That Notification Was Received or Action Was Taken											
		PA State EOC	Accident Assessment	Berks County EOC	Colebrookdale Township EOC	Earl Township EOC	Union Township EOC	Chester County EOC	East Pikeland Township EOC	East Vincent Township EOC	North Coventry EOC	Phoenixville Borough EOC	Uwchlan Township EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	1631	1633	1644	1639	1750	1702	1707	1639	1650	1648	1650	1648	1648
Site Area Emergency	1844	1854	1848	1854	1902	1905	1903	1854	1901	1900	1904	1903	1901
General Emergency	1945	1952	1955	1954	2001	2006	2000	1852	2000	2000	2004	2004	2001
Simulated Radiation Release Started	1844	1852	1848	1852	N/A	N/A	N/A	1852	N/A	N/A	N/A	N/A	N/A
Simulated Radiation Release Terminated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Facility Declared Operational		1700	1700	1700	1730	1725	1741	1657	1712	1744	1719	1705	1714
Governor's Declaration of State Emergency		2000	2000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local Declaration of State Emergency		N/A	N/A	2045	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Exercise Terminated		2134	2134	2135	2039*	2137	2131	2136	2056	2126	2100	2054	2123
Precautionary Actions	Decision Time												
Restrict airspace	1910	1910	1914	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Restrict rail traffic	1922	1922	NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Restrict water traffic	1907	1935	NR	2026	N/A	N/A	N/A	1935	N/A	N/A	N/A	N/A	N/A
Shelter livestock, place on stored feed		1912	1930	1948	N/A	N/A	N/A	1935	N/A	N/A	N/A	N/A	N/A
1st A&N Decision (State [made]; local [received]) Tune radio/TV to EAS station		1909	NR	1909	1930	1929	1930	1909	1929	1929	1923	1929	1929
1st Siren Activation		1929		1929				1929					
1st EAS Message		1932											
2nd A&N Decision (State [made]; local [received]) Evacuate 360° to 10 miles		2007	2022	2007	2020	2025	2020	2007	2025	2026	2026	2027	2029
2nd Siren Activation		2025		2025				2025					
2nd EAS Message		2028											
KI Administration Decision: Emergency Workers and General Public advised to take KI Received at location		2003											
		2007	2008	2007	2020	NR	2030	2007	2025	2026	2026	2027	2039

Legend: N/A – Not Applicable *EOC Relocated NR – Not Received

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: November 15, 2005, Limerick Generating Station

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken										
		Montgomery County EOC	Green Lane/Marborough EOC	Limerick Township EOC	Lower Frederick EOC	New Hanover Township EOC	Perkiomen Township EOC	Schwenksville Borough EOC	Trappe Borough EOC	West Pottsgrove Township EOC	Bucks County EOC	Lehigh County EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	1631	1639	1655	1656	1658	1701	1654	1658	1655	1655	1700	1700
Site Area Emergency	1844	1854	1908	1903	1905	1904	1904	1905	1902	1905	1900	1900
General Emergency	1945	1952	2005	2007	2024	2005	2005	2005	2006	2007	1957	1957
Simulated Radiation Release Started	1844	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Simulated Radiation Release Terminated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Facility Declared Operational		1657	1734	1735	1730	1715	1733	1755	1808	1746	1700	1700
Governor's Declaration of State Emergency		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local Declaration of State Emergency		2101	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Exercise Terminated		2135	2100	2130	2115	2100	2115	2115	2120	2030	2135	2135
Early Precautionary Actions:	Decision Time											
Restrict airspace	1910	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Restrict rail traffic	1922	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Restrict water traffic	1907	1949	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Shelter livestock, place on stored feed		1957	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1st A&N Decision (State [made]; local [received]) Tune radio/TV to EAS station		1909	2005	1936	1935	1929	1937	2005	2006	2008	2022	2022
1st Siren Activation		1929										
1st EAS Message												
2nd A&N Decision (State [made]; local [received]) Evacuate 360° to 10 miles		2007	2030	2034	1953	2007	2035	2035	2025	2034	N/A	N/A
2nd Siren Activation		2025										
2nd EAS Message												
KI Administration Decision: Emergency Workers and General Public advised to take KI		2003										
Received at location		2007	2030	2034	2103	2032	2035	2035	2025	2035	N/A	N/A

Legend: N/A – Not Applicable *EOC Relocated NR – Not Received

IV. Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and locations that participated in the November 15, 2005, biennial REP exercise. The exercise was held to test the offsite emergency response capabilities of local governments in the 10-mile EPZ surrounding the LGS.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of the exercise evaluation area criteria contained in the FEMA REP Exercise Evaluation Methodology. Detailed information on the exercise evaluation area 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 pages, presents the status of the exercise evaluation area criteria from the FEMA REP Exercise Evaluation Methodology that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise evaluation area criteria are listed by number and the demonstration status of the criteria is indicated by the use of the following letters:

- M Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)
- A ARCA(s) assessed
- A¹ ARCA(s) assessed, but successfully redemonstrated
- R Resolved ARCA(s) from prior exercises

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: August 25, 2005 and November 15-16, 2005, Limerick Generating Station

JURISDICTION/LOCATION	1. a.	1. b.	1. c.	1. d.	1. e.	2. a.	2. b.	2. c.	2. d.	2. e.	3. a.	3. b.	3. c.	3. d.	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.
COMMONWEALTH OF PENNSYLVANIA																													
State EOC (Observed Only)																													
Accident Assessment (State BRP – Observed Only)																													
Emergency News Center (ENC)		M																									M		
Emergency Operations Facility (State BRP – Observed Only)																													
State Traffic/Access Control				M	M						M	M			M														
RISK JURISDICTIONS																													
BERKS COUNTY																													
Berks County EOC	M		M	M	M	M		M	M		M	A	M	M	M	M						M			M				
Emergency Worker Mon/Decon Station (Daniel Boone Complex)					M						M															M	M		
Reception and Mon/Decon Center (Boscov's Outlet)					M						M															M			
Monitoring/Decontamination Center (Hamburg HS)					M						M															M			
Mass Care Center (Hamburg HS)					M																								M
Colebrookdale Township EOC	M	M	M	M	M	M					M	M	M		M	M						M							
Earl Township EOC	M	M	M	M	M	M					M	M	M		M	M						M							
Earl Township Route Alerting				M							M	M										M							
Union Township EOC	M	M	M	M	M	M					M	M	M		M	M						M							
CHESTER COUNTY																													
Chester County EOC	M		M	M	M	M		M	M		M	M	M	M	M	M						M				A			
Emergency Worker Mon/Decon Station (Lionville MS)					M						M																M	M	
Reception Center (West Whiteland)					M						M																M		
Monitoring/Decontamination Center (West Whiteland)					M						M																M		
Mass Care Center (North Brandywine MS)					M																								M
East Pikeland Township EOC	M	M	M	M	M	M					M	M	M		M	M						M							
East Pikeland Township Route Alerting				M							M	M										M							
East Vincent Township EOC	M	M	M	M	M	M					M	M	M		M	M						M							
North Coventry Township EOC	M	M	M	M	M	M					A	A	M		M	M						M							
Phoenixville Borough EOC	M	M	M	M	M	M					M	M	M		M	M						M							
Uwchlan Township EOC	M	M	M	M	M	M					M	M	M		M	M						M							

LEGEND: M = Met (no Deficiency or ARCA(s) assessed)
R = Resolved ARCA(s) from prior exercises

A = ARCA(s) assessed
Blank = Not scheduled for demonstration

A¹ = ARCA assessed but successfully redemonstrated

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: August 25, 2005 and November 15-16, 2005, Limerick Generating Station

JURISDICTION/LOCATION	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				
MONTGOMERY COUNTY																																					
Montgomery County EOC	M		R	M	M	M		M	M			M	M	M	M	M	M										M			A ¹							
Emergency Worker Monitoring/Decontamination Station (Indian Valley MS)					A							M																		A ¹	M						
Reception Center (Metroplex)					M							M																		M							
Monitoring/Decontamination Center (Fire Academy)					M							M																		A ¹							
Mass Care Center (Sandy Run MS)					M																													M			
Mass Care Center (Upper Dublin School)					M																													M			
Mass Care Center (Upper Moreland MS)					M																													M			
Green Lane Borough/ Marborough Township EOC	M	M	M	M	M	M						M	M	M		M	M										M										
Limerick Township EOC	M	M	M	M	M	M						M	M	M		M	M										M										
Lower Frederick Township EOC	M	M	M	M	M	M						M	M	M		M	M										M										
New Hanover Township EOC	M	M	M	M	M	M						M	M	M		M	M										M										
Perkiomen Township EOC	M	M	M	M	M	M						M	M	M		M	M										M										
Schwenksville Borough EOC	M	M	M	M	M	M						A	A	M		M	M										M										
Trappe Borough EOC	M	M	M	M	M	M						M	M	M		M	M										M										
Trappe Borough Route Alerting				M								M	M														M										
West Pottsgrove Township EOC	M	M	M	M	M	M						M	M	M		M	M										M										
SUPPORT JURISDICTIONS																																					
BUCKS COUNTY																																					
Bucks County EOC	M		M	M	M																																
Reception Center (County Line Plaza)					M							M																					M				
Monitoring/Decontamination Center (County Line Plaza)					M							M																					M				
Mass Care Center (Palisades Junior/Senior HS)					M																													M			
LEHIGH COUNTY																																					
Lehigh County EOC	M		M	M	M																																
Reception Center (Emmaus HS)					M							M																					M				
Monitoring/Decontamination Center (Salisbury HS)					M							M																					M				
Mass Care Center (Salisbury HS)					M																													M			

LEGEND: M = Met (no Deficiency or ARCA(s) assessed)
R = Resolved ARCA(s) from prior exercises

A = ARCA(s) assessed
Blank = Not scheduled for demonstration

A¹ = ARCA assessed but successfully redemonstrated

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: August 25, 2005 and November 15-16, 2005, Limerick Generating Station

JURISDICTION/LOCATION	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	
SCHOOL DISTRICTS																																	
BERKS COUNTY																																	
Boyertown Area SD (Earl Elementary School)															M																		
Daniel Boone SD (Birdsboro Elementary School)															M																		
CHESTER COUNTY																																	
Downingtown Area SD (Pickering Valley Elementary School)															M																		
Great Valley SD (Charlestown Elementary School)															M																		
Owen J. Roberts SD (French Creek Elementary School)															M																		
Phoenixville Area SD (Barkley Elementary School)															M																		
MONTGOMERY COUNTY																																	
Methacton SD (Woodland Elementary School)															M																		
Perkiomen Valley SD (Perkiomen Valley Middle School)															M																		
Pottsgrove SD (Pottsgrove High School)															M																		
Pottstown SD (Pottstown High School)															A																		
Souderton Area SD (Salford Hills Elementary School)															M																		
Spring-Ford Area SD (West Center for Tech Studies)															M																		
Upper Perkiomen SD (Upper Perkiomen Middle School)															M																		

LEGEND: M = Met (no Deficiency or ARCA(s) assessed)
R = Resolved ARCA(s) from prior exercises

A = ARCA(s) assessed
Blank = Not scheduled for demonstration

A¹ = ARCA assessed but successfully redemonstrated

B. Status of Jurisdictions Evaluated

This subsection provides information on the evaluation of each participating 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 evaluation area 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 evaluation area criteria under which one or more Deficiencies were assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Action** – Listing of the demonstrated exercise evaluation area criteria under which one or more ARCAs were assessed during the current exercise. Included is a description of the ARCAs assessed during this exercise and the recommended corrective actions to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** – Listing of the exercise evaluation area criteria that were scheduled to be demonstrated during this exercise, but were not demonstrated and the reason they were not demonstrated.
- **Prior ARCAs – Resolved** – Descriptions of ARCAs assessed during previous exercises that were resolved in this exercise and the corrective actions demonstrated.
- **Prior ARCAs – Unresolved** – Descriptions of ARCAs assessed during prior exercises that were not resolved in this exercise. Included are the reasons the ARCAs remain 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 the 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 the 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 for 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.
- **Evaluation Area Criterion** – A letter and number corresponding to the criteria in the FEMA REP Exercise Evaluation Methodology.
- **Issue Classification Identifier** – (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- **Exercise Issue Identification Number** – A separate two digit indexing number assigned to each issue identified in the exercise.

1.0 COMMONWEALTH OF PENNSYLVANIA

1.1 Commonwealth of Pennsylvania EOC (Observed)

- a. **MET:** N/A
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

1.2 Accident Assessment (State BRP) (Observed)

- a. **MET:** N/A
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

1.3 Emergency News Center (ENC)

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

1.4 Emergency Operations Facility (State BRP) (Observed)

- a. **MET:** N/A
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

1.5 State Traffic/Access Control

- a. **MET:** 1.d.1 3.a.1
1.e.1 3.b.1
3.d.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.0 RISK JURISDICTIONS

2.1 Berks County

2.1.1 Berks County EOC

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.b.1 2.b.2 3.c.1 5.b.1
1.c.1 2.c.1 3.c.2
1.d.1 3.d.1
1.e.1 3.d.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (3.b.1)

Issue No.: 35-05-3.b.1-A-01

Condition: The decision by the Secretary of the Department of Health for emergency workers to ingest potassium iodide (KI) was not communicated to the Earl Township Emergency Operations Center (EOC).

Possible Cause: Neither the Municipal Liaison or the Radiation Officer at Berks County contacted Earl Township.

Reference: NUREG-0654, J.10.e

Effect: Emergency Workers could have had their thyroids unnecessarily exposed to radioactive iodine.

Recommendation: Procedures should include a prompt to verify that all municipal EOCs were contacted.

State Response: Additional measures, as needed, and training will be conducted to ensure this issue will be demonstrated during the next scheduled Limerick Generating Station exercise.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.2 Emergency Worker Monitoring/Decontamination Station (Daniel Boone Complex)

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

2.1.3 Reception and Monitoring/Decontamination Center (Boscov's Outlet)

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

2.1.4a Monitoring/Decontamination Center (Hamburg High School)

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

2.1.4b Mass Care Center (Hamburg High School)

- a. **MET:** 1.e.1 6.c.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.5 Colebrookdale Township EOC

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

2.1.6 Earl Township EOC

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.b.1 3.b.1
1.c.1 3.c.1
1.d.1 3.d.1
1.e.1 3.d.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None

- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.6a Earl Township Route Alerting

- a. **MET:** 1.d.1 3.a.1 5.a.1
3.b.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.1.7 Union Township EOC

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

2.2 Chester County

2.2.1 Chester County EOC

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

- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (5.b.1)

Issue No.: 35-05-5.b.1-A-02

Condition: The Chester County news release at 2103 did not specify that the general public and special populations should ingest potassium iodide (KI).

Possible Cause: At 2008, Pennsylvania Emergency Management Agency (PEMA) provided the Chester County Emergency Operations Center (EOC) with information that KI should be taken according to the State Plan. Further, at 2028, an Emergency Alert System (EAS) message reiterated that the Pennsylvania Secretary of Health recommends that emergency workers, special populations, and the general public take KI. The Chester County Public Information Officer (PIO) did not fully understand both the PEMA message to the Chester County EOC and the EAS message which instructed that the general public and special populations should also take KI. The PIO did not coordinate with PEMA or others to clarify or verify who should take KI and to determine if the Secretary of Health recommended the taking of KI. Also, approximately 30 minutes elapsed from the broadcast of the EAS message until PEMA sent the e-mail version of the EAS message to the Chester County PIO. As a result of the above, the Chester County PIO did accurately convey the KI information in the news release.

Reference: NUREG-0654, E.7

Effect: There could have been confusion by the general public and special populations because the County news release excluded KI information contained in the EAS message. Also, inaccurate information regarding KI could have been given to citizens calling the Chester County Rumor Control.

Recommendation: The PIO should assure the Chester County news releases are accurate by clarifying any potentially confusing information through discussions with PEMA or other members of the Chester County EOC. They should monitor TV and radio EAS re-broadcasts.

Timely e-mails from PEMA of EAS messages should be provided to the County.

State Response: Additional measures and training, as needed, will be addressed to ensure this “Area Requiring Corrective Action” will be demonstrated during the next scheduled Limerick Generating Station exercise.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.2.2 Emergency Worker Monitoring/Decontamination Station (Lionville Middle School)

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

2.2.3a Reception Center (West Whiteland)

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

2.2.3b Monitoring/Decontamination Center (West Whiteland)

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

2.2.4 Mass Care Center (North Brandywine Middle School)

- a. MET: 1.e.1 6.c.1
- b. DEFICIENCY: None
- c. AREAS REQUIRING CORRECTIVE ACTION: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ARCAs - RESOLVED: None
- f. PRIOR ARCAs - UNRESOLVED: None

2.2.5 East Pikeland Township EOC

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

2.2.5a East Pikeland Township Route Alerting

- a. **MET:** 1.d.1 3.a.1 5.a.1
3.b.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.2.6 East Vincent Township EOC

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

2.2.7 North Coventry Township EOC

- a. **MET:** 1.a.1 2.a.1 3.c.1 5.a.1
1.b.1 3.d.1
1.c.1 3.d.2
1.d.1
1.e.1
- b. **DEFICIENCY:** None

- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (3.a.1 and 3.b.1)

Issue No.: 35-05-3.a.1, 3.b.1-A-03

Condition: Emergency Workers did not receive a radiological briefing.

Possible Cause: Neither designated nor alternate Radiological Officers (RO) were familiar with procedures, roles, and responsibilities of the municipal radiological officer.

Reference: NUREG-0654, K.3.a, b

Effect: Emergency workers were not made aware of the proper use of dosimetry and exposure control limits.

Recommendation: Ensure that the RO and designated alternates are provided training on their procedures, roles, and responsibilities.

State Response: Additional training will be conducted to ensure this "Area Requiring Corrective Action" will be demonstrated during future exercises.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.2.8 Phoenixville Borough EOC

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.b.1 3.b.1
1.c.1 3.c.1
1.d.1 3.d.1
1.e.1 3.d.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None

- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.2.9 Uwchlan Township EOC

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

2.3 Montgomery County

2.3.1 Montgomery County EOC

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
 1.c.1 2.b.2 3.b.1 5.b.1
 1.d.1 2.c.1 3.c.1
 1.e.1 3.c.2
 3.d.1
 3.d.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (5.b.1 Re-demonstrated)

Issue No.: 35-05-5.b.1-A-04 (Re-demonstrated)

Condition: The County Public Information Officer (PIO) issued a news media release (Release #3) advising (in paragraph 2) that an SAE had been declared and that there was “an airborne non-routine radiological release in progress above Federally-approved operating limits.” The same news media release erroneously advised (in

paragraph 5) that “the control rods in the Unit #1 reactor are in place and there has been no release of radiation.”

Possible Cause: The PIO did not delete paragraph 5 which had been issued in release # 2 and was erroneously carried over to release # 3.

Reference: NUREG-0654, E.5, 7; G.3.a, G.4.c

Effect: The issuance of conflicting information in this release could cause confusion among the public and emergency workers/off-site response organizations.

Recommendation: That greater care be exercised in the preparation, review and issuance of news media releases.

Corrective Action Demonstrated: A successful re-demonstration of this element was accomplished through the issuance of a corrected media release #3 which was expeditiously redrafted and issued within five minutes of the original.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** 1 (1.c.1)

Issue No.: 35-03-1.c.1-A-01

Condition: All municipalities in Montgomery County reported problems receiving information from the County Emergency Operations Center (EOC). For example, Colledgeville Borough did not receive messages regarding precautionary actions, plant conditions, weather data, press releases, or faxes. Lower Pottsgrove Township did not receive messages regarding plant conditions or precautionary actions. Pottstown Borough did not receive messages regarding weather data, plant conditions, precautionary actions or press releases.

Possible Cause: The County used Radio Amateur Civil Emergency Service (RACES)/Amateur Radio Emergency Services (ARES) as the primary means of communication instead of following the Montgomery County Radiological Emergency Response Procedure which states that the Montgomery County Emergency Management Communication System (800 MHz radio) is the primary means of communication in the County.

References:

- NUREG-0654, A.2.a
- Montgomery County RERP, Annex E, Revision 1, July 2003, Appendix 2, Paragraph 4.g, Page E-2-3

Effect: The municipalities might not carry out functions necessary to protect the health and safety of their citizens.

Recommendation: The County procedure should be followed regarding the use of communications to ensure the receipt of pertinent information.

Corrective Action Demonstrated: All updates of emergency information and decisions and were immediately passed to the municipalities over the County Communication system (800 MHz radio), as the primary means of communication in the County. Similar information was passed by commercial telephone and over the Radio Amateur Civil Emergency Services (RACES) radios to RACES operators located in each Municipality. Municipalities reported timely receipt of all information.

f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.2 Emergency Worker Monitoring/Decontamination Station (Indian Valley Middle School)

- a. **MET:** 3.a.1 6.a.1
6.b.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** 2 (1.e.1, 6.a.1 Re-demonstrated)

Issue No.: 35-05-1.e.1-A-05

Condition: There were insufficient equipment and supplies available on the Montgomery County HAZMAT trailer to support operation of the Indian Valley Middle School Emergency Worker Monitoring and Decontamination Station.

Possible Cause: Equipment and supplies are stored at the Montgomery County Emergency Operations Center and have not been distributed to the mobile facility.

Reference:

- NUREG-0654, K.3.a, b
- Montgomery County Plan Appendix 13, Attachment C, Inventory and Maintenance Procedures, August 2005
- FEMA-REP-21/March 1995: Contamination Monitoring Standard for a Portal Monitor Used for Radiological Emergency Response

Effect:

- No permanent record dosimeters (PRDs) were available for the Category C Emergency Workers staffing the Monitoring and Decontamination Station; therefore, their exposure could not be measured as required.
- The minimum number of survey instruments was provided. When one of the instruments failed its operational check, a back-up instrument was not available for vehicle monitoring.
- One portal monitor was available for personnel monitoring. When it failed its operational check, there was no back-up available and there were no extra survey meters available.

Recommendation: Ensure that there are sufficient equipment and supplies in the County HAZMAT trailer to carry out the required functions.

State Response: This “Area Requiring Corrective Action” will be demonstrated during the next scheduled Limerick Generating Station exercise. Sufficient equipment and available supplies for use is being addressed to include the proper distribution of drill kit dosimetry and staff training as required.

Issue No.: 35-05-6.a.1-A-06 (Re-demonstrated)

Condition: The setup of the HAZMAT decontamination trailer at the Indian Valley Middle School Emergency Worker Monitoring and Decontamination Station did not allow easy decontamination of hands without spreading the decontamination to other body parts.

Possible Cause: The Montgomery County HAZMAT trailer does not have a wash basin for hand washing.

Decontamination methods other than shower wands are not available.

Reference: NUREG-0654, J.10.h; J.12; K.5.a

Effect: While attempting to use the normal shower sprays to decontaminate hands, the waste water spread the contamination to the worker's legs and feet.

Recommendation: Equip the HAZMAT trailer with a wash basin or other decontamination methods for use on isolated areas of decontamination.

Corrective Action Demonstrated: The decontamination of an emergency worker's hands was accomplished by having the worker stand outside the shower and insert his arms through the curtains. Although this allowed the hands to be decontaminated without spreading the contamination to other body parts, it was very cumbersome and required that the decontamination team manipulate the shower head remotely.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.3a Reception Center (Metroplex)

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

2.3.3b Monitoring/Decontamination Center (Fire Academy)

- a. **MET:** 1.e.1 3.a.1 6.a.1
- b. **DEFICIENCY:** None

- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (6.a.1 Re-demonstrated)

Issue No.: 35-05-6.a.1-A-07 (Re-demonstrated)

Condition: The monitoring technique demonstrated at the Montgomery County Monitoring and Decontamination center was unsatisfactory. The probe of the CDV 700 was held too far from the contaminated individual (4" to 5").

Possible Cause: The monitoring team was inexperienced.

Reference: NUREG – 0654, J.10.h; J.12; K.5.a

Effect: Contamination on the individual could not be detected.

Recommendation: Provide additional training and practice opportunities.

Corrective Action Demonstrated: The monitoring team supervisor provided team members with retraining on the contaminated survey procedure. The team re-demonstrated the individual contamination survey maintaining a probe distance of ½" to 1". The re-demonstration was performed correctly.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.4a Mass Care Center (Sandy Run Middle School)

- a. **MET:** 1.e.1 6.c.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.4b Mass Care Center (Upper Dublin School)

- a. **MET:** 1.e.1 6.c.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.4c Mass Care Center (Upper Moreland Middle School)

- a. **MET:** 1.e.1 6.c.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.5 Green Lane Borough/ Marborough Township EOC

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

2.3.6 Limerick Township EOC

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

2.3.7 Lower Frederick Township EOC

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

2.3.8 New Hanover Township EOC

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.b.1 3.b.1
1.c.1 3.c.1
1.d.1 3.d.1
1.e.1 3.d.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.9 Perkiomen Township EOC

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

2.3.10 Schwenksville Borough EOC

- a. **MET:** 1.a.1 2.a.1 3.c.1 5.a.1
 1.b.1 3.d.1
 1.c.1 3.d.2
 1.d.1
 1.e.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (3.a.1 and 3.b.1)

Issue No.: 35-05-3.a.1, 3.b.1-A-08

Condition: The Schwenksville EOC Radiological Officer briefing was not adequate and did not include radiological monitoring requirements, dosimetry, monitoring procedures, potassium iodide (KI) use, precautions for the ingestion of KI, KI reporting requirements, and other radiological briefing requirements.

Possible Cause: The Radiological Officer had not been trained for radiological responsibilities and in the use of and precautions for KI ingestion.

Reference: NUREG-0654, K.3.a, b

Effect: Emergency workers did not receive adequate instruction in the use of dosimetry and KI ingestion, and would not be aware of the procedures to manage the control of radiological exposure and the procedures and precautions in ingesting KI.

Recommendation: Provide training in the use of dosimetry and emergency procedures to the Schwenksville Radiological Officer.

State Response: Additional training will be conducted to ensure this "Area Requiring Corrective Action" will be demonstrated during future exercises.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.11 Trappe Borough EOC

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

2.3.11a Trappe Borough Route Alerting

- a. **MET:** 1.d.1 3.a.1 5.a.1
3.b.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

2.3.12 West Pottsgrove Township EOC

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

3.0 SUPPORT JURISDICTIONS

3.1 Bucks County

3.1.1 Bucks County EOC

- a. MET: 1.a.1
1.c.1
1.d.1
1.e.1**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

3.1.2a Reception Center (County Line Plaza)

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

3.1.2b Monitoring/Decontamination Center (County Line Plaza)

- a. MET: 1.e.1 3.a.1 6.a.1**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**

- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

3.1.3 Mass Care Center (Palisades Junior/Senior High School)

- a. **MET:** 1.e.1 6.c.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

3.2 Lehigh County

3.2.1 Lehigh County EOC

- a. **MET:** 1.a.1
1.c.1
1.d.1
1.e.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

3.2.2 Reception Center (Emmaus High School)

- a. **MET:** 1.e.1 3.a.1 6.a.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None

- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

3.2.3a Monitoring/Decontamination Center (Salisbury High School)

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

3.2.3b Mass Care Center (Salisbury High School)

- a. **MET:** 1.e.1 6.c.1
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.0 SCHOOL DISTRICTS

4.1 Berks County School Districts

4.1.1 Boyertown Area School District (Earl Elementary School)

- a. MET: 3.c.2**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

4.1.2 Daniel Boone School District (Birdsboro Elementary School)

- a. MET: 3.c.2**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

4.2 Chester County School Districts

4.2.1 Downingtown Area School District (Pickering Valley Elementary School)

- a. MET: 3.c.2**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**

- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.2.2 Great Valley School District (Charlestown Elementary School)

- a. **MET:** 3.c.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.2.3 Owen J. Roberts School District (French Creek Elementary School)

- a. **MET:** 3.c.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.2.4 Phoenixville Area School District (Barkley Elementary School)

- a. **MET:** 3.c.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.3 Montgomery County School Districts

4.3.1 Methacton Area School District (Woodland Elementary School)

- a. MET: 3.c.2**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

4.3.2 Perkiomen Valley School District (Perkiomen Valley Middle School)

- a. MET: 3.c.2**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

4.3.3 Pottsgrove School District (Pottsgrove High School)

- a. MET: 3.c.2**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

4.3.4 Pottstown School District (Pottstown High School)

- a. **MET:** None
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (3.c.2)

Issue No.: 35-05-3.c.2-A-09

Condition: The primary and secondary communications systems between the County Emergency Operations Center and the Pottstown School District Administration Center were inoperable.

Possible Cause: Lack of proper equipment maintenance.

Reference: NUREG-0654, J.10.c.d.g

Effect: Communication with the district's schools would not have existed or been greatly reduced.

Recommendation: Ensure that responsible officials follow established procedures for communication equipment maintenance.

State Response: School District staff acknowledges the importance of proper functioning communications systems. The School District will adhere to the equipment maintenance needs. This "Area Requiring Corrective Action" will be demonstrated during the next Limerick Generating Station exercise.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.3.5 Souderton Area School District (Salford Hills Elementary School)

- a. **MET:** 3.c.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.3.6 Spring-Ford Area School District (West Center for Tech Studies)

- a. **MET:** 3.c.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

4.3.7 Upper Perkiomen School District (Upper Perkiomen Middle School)

- a. **MET:** 3.c.2
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

APPENDIX 1

Acronyms and Abbreviations

A&N	Alert and Notification
ACP	Access Control Point
ALARA	As Low As is Reasonably Achievable
ARC	American Red Cross
ARCA	Area Requiring Corrective Action
BRP	Bureau of Radiation Protection
CFR	Code of Federal Regulations
CRD	Control Rod Drive
DECON	Decontamination
DRD	Direct Reading Dosimeter
EAS	Emergency Alert System
ECL	Emergency Classification Level
EMS	Emergency Medical Service
ENC	Emergency News Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	U.S. Environmental Protection Agency
EPLO	Emergency Preparedness Liaison Officer
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
FR	Federal Register
FRERP	Federal Radiological Emergency Response Plan
FTC	Field Team Coordinator
GE	General Emergency
HS	High School
KI	Potassium Iodide
LGS	Limerick Generating Station
mph	Miles Per Hour
mR/hr	milli-Roentgen(s)/hr
MS	Middle School

MS	Medical Services
msl	Mean Sea Level
MSO	Maximum Safe Operating
MW	Megawatt(s)
N/A	Not Applicable
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
OEP	Office of Emergency Preparedness
OOS	Out of Service
ORO	Offsite Response Organization
OSC	Operations Support Center
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PEMA	Pennsylvania Emergency Management Agency
PIO	Public Information Officer
PRD	Permanent Record Dosimeter
R	Roentgen(s)
R/hr	Roentgen(s) per hour
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
RDCS	Rod Drive Control System
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RHR	Residual Heat Removal
RO	Radiological Officer
RWCU	Reactor Water Clean Up
SAE	Site Area Emergency
SSES	Susquehanna Steam Electric Station
TCP	Traffic Control Point
TL	Team Leader
TLD	Thermoluminescent Dosimeter
TSC	Technical Support Center
USDA	U.S. Department of Agriculture

APPENDIX 2

Exercise Evaluators and Team Leaders

The following is a list of the personnel who evaluated the Limerick Generating Station exercise on November 15, 2005, and the out-of-sequence demonstrations on August 25, 2005 and November 16, 2005. 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
NRC	Nuclear Regulatory Commission

<u>POSITION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
RAC Chairman	Darrell Hammons	FEMA
Project Officer	Angela Hough	FEMA
ICF Regional Coordinator	Roger Kowieski	ICF

I. Biennial Plume Exercise — November 15, 2005

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Commonwealth of Pennsylvania		
Emergency Operations Center	Wayne Shych (TL)	FEMA
Accident Assessment	Melody Geer (Tech TL)	ICF
	Frank Bold	ICF
Emergency News Center	Paul Nied	ICF
Emergency Operations Facility	Sherri Minnick	NRC

RISK JURISDICTIONS

Berks County		
County EOC	Ken Wierman (TL)	FEMA
	Marcy Campbell	ICF
	Jon Christiansen	ICF
	William Vocke	ICF
Colebrookdale Township EOC	Ken Lott	ICF
Earl Township EOC	Glenn Kinnear	ICF
Earl Township - Route Alerting	Sam Nelson	ICF
Union Township	Richard Holtzman	ICF

Chester County

County EOC

John Price (TL)	FEMA
Rosemary Samsel	ICF
David Goldbloom-Helzner	ICF
Jerry Rossman	ICF
Robert Duggleby	ICF
Richard Smith	ICF
Henry Christiansen	ICF
Richard Wessman	ICF
Ernest Boaze	ICF
Steve Denson	ICF

East Pikeland Township EOC

East Pikeland Township - Route Alerting

East Vincent Township EOC

North Coventry Township EOC

Phoenixville Borough EOC

Uwchlan Township EOC

Montgomery County

County EOC

Al Henryson (TL)	FEMA
Roy Smith	ICF
Jan Jackson	ICF
Bill Wark	ICF
Larry Visniesky	ICF
Harold Spedding	ICF
John Flynn	ICF
Walter Gawlak	ICF
Robert Fernandez	ICF
Gary Goldberg	ICF
William Edmunson	ICF
David Henry	ICF
Charles Phillips	ICF

Green Lane Boro/Marborough Twp EOC

Limerick Township EOC

Lower Frederick Township EOC

New Hanover Township EOC

Perkiomen Township EOC

Schwenksville Borough EOC

Trappe Borough EOC

Trappe Borough Route Alerting

West Pottsgrove Township EOC

SUPPORT JURISDICTIONS**Bucks County**

County EOC

Michael Burns ICF

Lehigh County

County EOC

Gregg Dawkins ICF

II. Out-of-Sequence Demonstrations: November 16, 2005**9:00 a.m. – 11:00 a.m.****EVALUATION SITE****Commonwealth of Pennsylvania**

State Traffic/Access Control

EVALUATOR

Ed Wojnas

ORGANIZATION

ICF

RISK SCHOOLS**Berks County**Boyertown Area School District
(Earl Elementary School)

Bernis Hannah

ICF

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Daniel Boone Area School District (Birdsboro Elementary School)	Reggie Rodgers	ICF
Chester County		
Downington Area School District (Pickering Valley Elementary School)	Robert Lemeshka	ICF
Great Valley School District (Charlestown Elementary School)	George MacDonald	ICF
Owen J. Roberts Area School District (French Creek Elementary School)	Lynn Mariano	ICF
Phoenixville Area School District (Barkley Elementary School)	Tom McCance	ICF
Montgomery County		
Methacton Area School District (Woodland Elementary School)	Neill Howey	ICF
Perkiomen Valley School District (Perkiomen Valley Middle School)	Paul Nied	ICF
Pottsgrove School District (Pottsgrove High School)	Bart Ray	ICF
Pottstown Area School District (Pottstown High School)	Jerry Staroba	ICF
Souderton Area School District (Salford Hills Elementary School)	Dave Moffet	ICF
Spring-Ford Area School District (Western Center for Tech Studies)	Tracey Green	ICF
Upper Perkiomen School District (Upper Perkiomen Middle School)	Pat Taylor	ICF

III. Out-of-Sequence Demonstrations: November 16, 2005
7:00 p.m. – 9:30 p.m.

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
<u>RISK JURISDICTIONS</u>		
Berks County		
Emergency Worker Monitoring/ Decontamination Station (Daniel Boone Complex)	Ed Wojnas (Tech)	ICF
Reception Center (Boscov's Outlet Center)	Tom McCance	ICF
Mass Care/Monitoring & Decon Center (Hamburg High School)	Lyle Slagle (Tech)	ICF
Chester County		
Emergency Worker Monitoring/ Decontamination Station (Lionville Middle School)	Pat Taylor (Tech)	ICF

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Reception & Monitoring/Decon Center (West Whiteland Township Building)	David Schweller (Tech)	ICF
Montgomery County		
Emergency Worker Monitoring/ Decontamination Station (Indian Valley Middle School)	Reggie Rodgers (Tech)	ICF
Monitoring/Decon Center (Fire Academy)	Tracey Green (Tech)	ICF
<u>SUPPORT JURISDICTIONS</u>		
Bucks County		
Reception & Monitoring/ Decon Center (County Line Plaza)	James Reese (Tech)	ICF
Lehigh County		
Reception Center (Emmaus High School)	Dennis Wilford	ICF
Monitoring/Decontamination Center and Mass Care Center (Salisbury High School)	Raymond Wood (Tech)	ICF

**IV. Out-of-Sequence Demonstrations: August 25, 2005
4:00 p.m. – 7:30 p.m.**

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
<u>RISK JURISDICTIONS</u>		
Chester County		
Mass Care Center (N. Brandywine Middle School)	Wayne Shych	FEMA
Montgomery County		
Reception Center (Metroplex)	Wayne Shych	FEMA
Mass Care Center (Sandy Run Middle School)	Wayne Shych	FEMA
Mass Care Center (Upper Dublin School)	Wayne Shych	FEMA
Mass Care Center (Upper Moreland Middle School)	Wayne Shych	FEMA
Bucks County		
Mass Care Center (Palisades Jr/Sr High School)	Wayne Shych	FEMA

APPENDIX 3

Exercise Evaluation Area Criteria and Extent of Play Agreement

LIMERICK GENERATING STATION 2005 RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE

METHOD OF OPERATION

Revised Final 8/19/05

1. Limerick Generating Station (LGS)

The facility normally uses off-watch section personnel to participate in the exercise. The plant's simulated events, radiation readings, and emergency classifications will trigger offsite exercise actions.

2. Bureau of Radiation Protection (BRP)

Personnel will be present at the State EOC, the nuclear facility EOF and field locations; however, BRP field team personnel will not be evaluated.

3. PEMA Operations at State EOC

PEMA Bureau of Operations staff, augmented by designated PEMA personnel from the Fire Commissioner's Office, the Bureaus of Administration, Technical Services, Plans, plus Emergency Preparedness Liaison Officers (EPLOs) with accompanying response team members from designated State departments/agencies, including representatives from the USDA State Emergency Board, will comprise initial operations at the State EOC. The State EOC will not be evaluated.

4. PEMA Regional Office Operations

The State Area Offices at Hamburg and Harrisburg will not be activated and will staff control cells. Neither Area Offices will be evaluated.

5. Counties Designated to Participate

Berks, Chester, and Montgomery Counties, in coordination with PEMA, will demonstrate the capability to implement emergency response operations to include sheltering and/or evacuation. County government will provide direction and coordination to risk municipalities. Bucks and Lehigh Counties will participate in their assigned support roles.

6. PEMA Liaison Officers

Liaison officers will be present at the participating risk county EOC, the LGS Emergency Operations Facility (EOF), and Emergency News Center (ENC) to provide assistance, guidance, and support. These liaison officers will participate as players in the exercise.

7. Controllers

Exelon Nuclear Corp. will provide controllers at the monitoring/decontaminating stations, monitoring/ decontamination centers and BRP field team locations.

8. PEMA Observers

PEMA staff, qualified county emergency management personnel, and/or nuclear power plant personnel will be assigned if required to key locations for the purpose of observing, noting response actions and conditions, and recording observations for future use. Observers *will not take an active part in the proceedings*, but will interact with staff members to the extent necessary to fulfill their observer responsibilities. Coaching of players by observers is not permitted except to provide training to participants awaiting a re-demonstration. (Refer to paragraph 13)

9. FEMA Evaluators

Federal evaluators will be present at the risk and support county EOCs and risk municipal EOCs, and at appropriate field locations to evaluate player response to the actual and simulated events in the exercise scenario. FEMA will evaluate one-third of the risk municipalities in Berks, Chester, and Montgomery Counties.

10. Demonstration Windows

The demonstration windows are those periods of time designated in the exercise during which specified demonstrations will be accomplished out of sequence. The purpose of the windows is to provide for more effective demonstrations as well as permitting the release of volunteers from the exercise play at a reasonable hour. There will be out-of-sequence demonstrations during the exercise.

The out-of-sequence MS-1 hospital demonstration was evaluated at Reading Hospital on May 25, 2005.

The window for school demonstrations will be conducted out-of-sequence from 9:00 - 11:00 a.m. on November 16, 2005.

County and municipal EOC operations will be conducted on the evening of November 15, 2005.

The demonstration for reception centers, * mass care centers, monitoring/ decontamination centers and stations will be conducted out-of-sequence from 7:00 - 9:30 p.m. on November 16, 2005.

* Five mass care centers, three in Montgomery County and one each in Bucks and Chester Counties will receive "walk-down" baseline evaluations on Thursday, August 25, 2005. These five mass care centers will **not** be evaluated during the evening of November 16th as they are not co-located with monitoring decontamination centers. Mass care centers in Berks and Lehigh Counties will be evaluated on the evening of November 16th.

The out-of-sequence demonstration Pennsylvania State Police traffic control/access control points will be from 9:00 a.m. - 11:00 a.m. on November 16, 2005.

All demonstrations will commence promptly and, barring any complications, not continue past the end of the windows. **(Refer to extent of Play Demonstration Tables)**

11. Stand-down

All jurisdictions will request approval on a jurisdiction by jurisdiction basis prior to stand-down.

- a. Upon completion of all requirements and after having informed the FEMA evaluator that all evaluation areas have been demonstrated and/or completed, the risk municipality EOCs may request approval from their county EOC to terminate the exercise.
- b. Support counties may likewise request approval to terminate the exercise upon completion of all evaluated objectives from the state EOC.
- c. The risk county EOC will remain operational until the exercise is officially terminated by the State.

12. General Concepts

An emergency plan is drafted to address the generally expected conditions of an emergency. Not everything in the emergency plan may be applicable for a given scenario. The main purpose of an emergency plan is to assemble sufficient expertise and officials so as to properly react to the events as they occur. The responders should not be so tied to a plan that they cannot take actions that are more protective of the public. Therefore, if, by not following the plan, the responders protect the public equally as well as provided in the plan, it should be noted for possible modification of the plan, but not classified as a negative incident. Furthermore, if, by following the plan there is a failure to protect the public health and safety, it should be noted so that the plan can be modified and the appropriate negative assessment applied.

13. Re-demonstrations

During the out of sequence demonstrations or the plume phase demonstrations any activity that is not satisfactorily demonstrated may be re-demonstrated by the participants during the exercise provided it does not negatively interfere with the exercise. Refresher training can be provided by the players, observers, and/or controllers. Evaluators are not permitted to provide refresher training. Re-demonstrations will be coordinated between the players, observers, controllers, and evaluators with prior approval from the RAC Chair. It is permissible to extend the evaluation time to accommodate the re-demonstration. Activities corrected from a re-demonstration will be so noted.

LIMERICK GENERATING STATION
2005 RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE

EXTENT OF PLAY AGREEMENT

EVALUATION AREA 1

Emergency Operations Management

Sub-element 1.a – Mobilization

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to alert, notify, and mobilize emergency personnel and to activate and staff emergency facilities.

Criterion 1.a.1: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner. (NUREG-0654, A.4; D.3, 4; E.1, 2; H.4)

EXTENT OF PLAY

Responsible OROs should demonstrate the capability to receive notification of an emergency situation from the licensee, verify the notification, and contact, alert, and mobilize key emergency personnel in a timely manner. Responsible OROs should demonstrate the activation of facilities for immediate use by mobilized personnel when they arrive to begin emergency operations. Activation of facilities should be completed in accordance with the plan and/or procedures. Pre-positioning of emergency personnel appropriate, in accordance with the extent of play agreement, at those facilities located beyond a normal commuting distance from the individual's duty location or residence. Further, pre-positioning of staff for out-of-sequence demonstrations is appropriate in accordance with the extent of play agreement.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

State agencies, risk and support counties may be pre-positioned during the plume. Counties will discuss call-out procedures and provide 24-hour staffing lists. All risk municipalities will demonstrate call-outs. All out-of-sequence players and equipment will be pre-positioned.

Commonwealth personnel reporting to the EOF, ENC and TSC not anticipate admittance prior to activation of the utility sites. This does not apply to the PEMA satellite crew to the ENC.

Sub-element 1.b – Facilities

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have facilities to support the emergency response.

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654, H.3)

EXTENT OF PLAY

Facilities will only be specifically evaluated for this criterion if they are new or have substantial changes in structure or mission. Responsible OROs should demonstrate the availability of facilities that support the accomplishment of emergency operations. Some of the areas to be considered are: adequate space, furnishings, lighting, restrooms, ventilation, backup power and/or alternate facility (if required to support operations.)

Facilities must be set up based on the ORO's plans and procedures and demonstrated as they would be used in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

One-third of ORO facilities will be evaluated during this exercise in order to establish a baseline.

Sub-element 1.c – Direction and Control

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to control their overall response to an emergency.

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. (NUREG-0654, A.1.d; A.2.a, b)

EXTENT OF PLAY

Leadership personnel should demonstrate the ability to carry out essential functions of the response effort, for example: keeping the staff informed through periodic briefings and/or other means, coordinating with other appropriate OROs, and ensuring completion of requirements and requests.

All activities associated with direction and control must be performed based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or indicated in the extent of play agreement.

PEMA Negotiated Extent of Play: None

Sub-element 1.d – Communications Equipment

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) should establish reliable primary and backup communication systems to ensure communications with key emergency personnel at locations such as the following: appropriate contiguous governments within the emergency planning zone (EPZ), Federal emergency response organizations, the licensee and its facilities, emergency operations centers (EOC), and field teams.

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. (NUREG-0654, F.1, 2)

EXTENT OF PLAY

OROs will demonstrate that a primary and at least one backup system are fully functional at the beginning of an exercise. If a communications system or systems are not functional, but exercise performance is not affected, no exercise issue will be assessed. Communications equipment and procedures for facilities and field units should be used as needed for the transmission and receipt of exercise messages. All facilities and field teams should have the capability to access at least one communication system that is independent of the commercial telephone system. Responsible OROs should demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations. OROs should ensure that a coordinated communication link for fixed and mobile medical support facilities exists. The specific communications capabilities of OROs should be commensurate with that specified in the response plan and/or procedures. Exercise scenarios could require the failure of a communications system and the use of an alternate system, as negotiated in the extent of play agreement.

All activities associated with the management of communications capabilities must be demonstrated based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless otherwise noted above or in the extent of play agreement.

PEMA Negotiated Extent of Play: None

Sub-element 1.e – Equipment and Supplies to Support Operations

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have emergency equipment and supplies adequate to support the emergency response.

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H.7, 10; J.10.a, b, e, J.11; K.3.a)

EXTENT OF PLAY

Equipment within the facility (facilities) should be sufficient and consistent with the role assigned to that facility in the ORO's plans and/or procedures in support of emergency operations. Use of maps and displays is encouraged.

All instruments should be inspected, inventoried, and operationally checked before each use. Instruments should be calibrated in accordance with the manufacturer's recommendations. Unmodified CDV-700 series instruments and other instruments without a manufacturer's recommendation should be calibrated annually. Modified CDV-700 instruments should be calibrated in accordance with the recommendation of the modification manufacturer. A label indicating such calibration should be on each instrument, or calibrated frequency can be verified by other means. Additionally, instruments being used to measure activity should have a range of reading sticker affixed to the side of the instrument. The above considerations should be included in 4.a.1 for field team equipment; 4.c.1 for radiological laboratory equipment (does not apply to analytical equipment; reception center and emergency worker facilities' equipment under 6.a.1; and ambulance and medical facilities' equipment under 6.d.1.

Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers should be available for issuance to all categories of emergency workers that could be deployed from that facility. Appropriate direct-reading dosimetry should allow individual(s) to read the administrative reporting limits and maximum exposure limits contained in the ORO's plans and procedures.

Dosimetry should be inspected for electrical leakage at least annually and replaced, if necessary. CDV-138s, due to their documented history of electrical leakage problems, should be inspected for electrical leakage at least quarterly and replaced if necessary. This leakage testing will be verified during the exercise, through documentation submitted in the Annual Letter of Certification, and/or through a staff assistance visit.

Responsible OROs should demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers, as indicated on rosters; institutionalized individuals, as indicated in capacity lists for facilities; and, where stipulated by the plan and/or procedures, members of the general public (including transients) within the plume pathway EPZ.

Quantities of dosimetry and KI available and storage locations(s) will be confirmed by physical inspection at storage location(s) or through documentation of current inventory submitted during the exercise, provided in the Annual Letter of Certification submission, and/or verified during a Staff Assistance Visit. Available supplies of KI should be within the expiration date indicated on KI bottles or blister packs. As an alternative, the ORO may produce a letter from a certified private or State laboratory indicating that the KI supply remains potent, in accordance with U.S. Pharmacopoeia standards.

At locations where traffic and access control personnel are deployed, appropriate equipment (for example, vehicles, barriers, traffic cones and signs, etc.) should be available or their availability described.

All activities must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

In Pennsylvania CDV-700s are calibrated every 4-years.

Leakage testing verification and KI extension letters will be available to the evaluator upon request.

EVALUATION AREA 2

Protective Action Decision-Making

Sub-element 2.a – Emergency Worker Exposure Control

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to assess and control the radiation exposure received by emergency workers and have a decision chain in place, as specified in the ORO's plans and procedures, to authorize emergency worker exposure limits to be exceeded for specific missions.

Radiation exposure limits for emergency workers are the recommended accumulated dose limits or exposure rates emergency workers may be permitted to incur during an emergency. These limits include any pre-established administrative reporting limits (that take into consideration Total Effective Dose Equivalent or organ-specific limits) identified in the ORO's plans and procedures.

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. (NUREG-0654, K.4, J.10.e, f)

EXTENT OF PLAY

OROs authorized to send emergency workers into the plume exposure pathway EPZ should demonstrate a capability to meet the criterion based on their emergency plans and procedures.

Responsible OROs should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of pre-authorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels.

As appropriate, OROs should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established Protective Action Guides (PAGs) for KI administration.

All activities must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play: None

Sub-element 2.b – Radiological Assessment and Protective Action Recommendations and Decisions for the Plume Phase of the Emergency

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to use all available data to independently project integrated dose and compare the estimated dose savings with the protective action guides. OROs have the capability to choose, among a range of protective actions, those most appropriate in a given emergency situation. OROs base these choices on PAGs from the ORO's plans and procedures or EPA 400-R-92-001 and other criteria, such as, plant conditions, licensee protective action recommendations, coordination of protective action decisions with other political jurisdictions (for example, other affected OROs), availability of appropriate in-place shelter, weather conditions, and situations that create higher than normal risk from evacuation.

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 onsite and offsite environmental conditions. (NUREG-0654, I.8, 10 and Supplement 3)

This criterion will not be evaluated during this exercise.

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PAD) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9, 10.f, m)

EXTENT OF PLAY

ORO should have the capability to make both initial and subsequent PADs. They should demonstrate the capability to make initial PADs in a timely manner appropriate to the situation, based on notification from the licensee, assessment of plant status and releases, and PARs from the utility and ORO staff.

The dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. The decision-makers should demonstrate the capability to change protective actions as appropriate based on these projections.

If the ORO has determined that KI will be used as a protective measure for the general public under off-site plans, then the ORO should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure for the general public to supplement shelter and evacuation. This decision should be based on the ORO's plan and/or procedures or projected thyroid dose compared with the established PAG for KI administration. The KI decision-making process should involve close coordination with appropriate assessment and decision-making staff.

If more than one ORO is involved in decision-making, OROs should communicate and coordinate PADs with affected OROs. OROs should demonstrate the capability to communicate the contents of decisions to the affected jurisdictions.

All decision-making activities by ORO personnel must be performed based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play: *None*

Sub-element 2.c – Protective Action Decisions Consideration for the Protection of Special Populations

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to determine protective action recommendations, including evacuation, sheltering and use of potassium iodide (KI), if applicable, for special population groups (for example, hospitals, nursing homes, correctional facilities, schools, licensed day care centers, mobility impaired individuals, and transportation dependent individuals). Focus is on those special population groups that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Criterion 2.c.1: Protective action decisions are made, as appropriate, for special population groups. (NUREG-0654, J.9, J.10.d, e)

EXTENT OF PLAY

Usually, it is appropriate to implement evacuation in areas where doses are projected to exceed the lower end of the range of PAGs, except for situations where there is a high-risk environment or where high-risk groups (e.g., the immobile or infirm) are involved. In these cases, examples of factors that should be considered are weather conditions, shelter availability, availability of transportation assets, risk of evacuation vs. risk from the avoided dose, and precautionary school evacuations. In situations where an institutionalized population cannot be evacuated, the administration of KI should be considered by the OROs.

Applicable OROs should demonstrate the capability to alert and notify all public school systems/districts of emergency conditions that are expected to or may necessitate protective actions for students. Contacts with public school systems/districts must be actual.

In accordance with plans and/or procedures, OROs and/or officials of public school systems/districts should demonstrate the capability to make prompt decisions on protective actions for students. Officials should demonstrate that the decision making process for protective actions considers (that is, either accepts automatically or gives heavy weight to) protective action recommendations made by ORO personnel, the ECL at which these

recommendations are received, preplanned strategies for protective actions for that ECL, and the location of students at the time (for example, whether the students are still at home, en route to the school, or at the school).

All decision-making activities associated with protective actions, including consideration of available resources, for special population groups must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play: None

Sub-element 2.d – Radiological Assessment and Decision-Making for the Ingestion Exposure Pathway

This sub-element will not be evaluated during this exercise.

Sub-element 2.e – Radiological Assessment and Decision-Making Concerning Relocation, Re-entry, and Return

This sub-element will not be evaluated during this exercise.

EVALUATION AREA 3

Protective Action Implementation

Sub-element 3.a – Implementation of Emergency Worker Exposure Control

INTENT

This sub-element derives from NUREG-0654, which provides that OROs should have the capability to provide for the following: distribution, use, collection, and processing of direct-reading dosimetry and permanent record dosimetry; the reading of direct-reading dosimetry by emergency workers at appropriate frequencies; maintaining a radiation dose record for each emergency worker; and establishing a decision chain or authorization procedure for emergency workers to incur radiation exposures in excess of protective action guides, always applying the ALARA (As Low As is Reasonably Achievable) principle as appropriate.

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans 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. (NUREG-0654, K.3.a, b)

EXTENT OF PLAY

OROs should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimeter chargers, and instructions on the use of dosimetry to emergency workers. For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the ORO's plans and procedures.

Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated.

During a plume phase exercise, emergency workers should demonstrate the procedures to be followed when administrative exposure limits and turn-back values are reached. The emergency worker should report accumulated exposures during the exercise as indicated in the plans and procedures. OROs should demonstrate the actions described in the plan and/or procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take other actions. If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed and at what exposure levels. Emergency workers may use any available resources (for example, written procedures and/or co-workers) in providing responses.

Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission and adequate control of exposure can be effected for all members of the team by one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate areas, for example, at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own permanent record dosimetry. Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must re-enter an evacuated area following or during the plume passage, should be limited to the lowest radiological exposure commensurate with completing their missions.

All activities must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Radiological briefings will be provided to address exposure limits and procedures to replace those approaching limits and how permission to exceed limits is obtained from the municipality and county. Emergency workers will also be briefed on when to take KI and on whose authority. Distribution of KI will be simulated. The completion of a KI report form will be demonstrated.

OROs should also demonstrate the use of all dosimetry forms to emergency workers.

At any time, players may ask other players or supervisors to clarify radiological information.

In Pennsylvania, emergency workers outside of the EPZ do not have turnback values.

Emergency workers who are assigned to low exposure rate areas, e.g., at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be monitored by dosimeters strategically placed in the work area. In Pennsylvania this will be accomplished through the use of an area kit.

Standard issue of dosimetry and potassium iodide for each category of emergency worker is as follows:

Category A: 1 PRD, 1 DRD, and 1 unit of KI

Category B: 1 PRD and 1 unit of KI

Category C: 1 PRD

Sample kits will be pre-distributed to the municipalities for demonstration purposes. These sample kits will consist of 5-DRDs, charger, simulated PRDs and simulated KI, and instructions.

Sub-element 3.b – Implementation of KI Decision

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to provide radioprotective drugs for emergency workers, institutionalized individuals, and, if in the plan and/or procedures, to the general public for whom immediate evacuation may not be feasible, very difficult, or significantly delayed. While it is necessary for OROs to have the capability to provide KI to emergency workers and institutionalized individuals, the provision of KI to the general public is an ORO option and is reflected in ORO's plans and procedures. Provisions should include the availability of adequate quantities, storage, and means of the distribution of radioprotective drugs.

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 is maintained. (NUREG-0654, J.10.e)

EXTENT OF PLAY

Offsite Response Organizations (ORO) should demonstrate the capability to make KI available to emergency workers, institutionalized individuals, and, where provided for in the ORO plan and/or procedures, to members of the general public. OROs should demonstrate the capability to accomplish distribution of KI consistent with decisions made. Organizations should have the capability to develop and maintain lists of emergency workers and institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. The ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI is not necessary. OROs should demonstrate the capability to formulate and disseminate appropriate instructions on the use of KI for those advised to take it. If a recommendation is made for the general public to take KI, appropriate information should be provided to the public by the means of notification specified in the ORO's plan and/or procedures.

Emergency workers should demonstrate the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. This can be accomplished through an interview by the evaluator.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Pennsylvania plans call for pre-distribution of KI to the general public.

Evaluation of KI quantities emergency workers will be verified using inventory sheets and no KI will be removed from the storage location. Boxes will not be opened. KI questions will be addressed through interviews.

Monitoring/decontamination centers and stations personnel are not issued DRDs/KI since the centers/stations are located outside the EPZ.

Sub-element 3.c – Implementation of Protective Actions for Special Populations

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to implement protective action decisions, including evacuation and/or sheltering, for all special populations. Focus is on those special populations that are (or potentially will be) affected by a radiological release from a nuclear power plant.

Criterion 3.c.1: Protective action decisions are implemented for special populations other than schools within areas subject to protective actions. (NUREG-0654, J.10.c, d, g)

EXTENT OF PLAY

Applicable OROs should demonstrate the capability to alert and notify (for example, provide protective action recommendations and emergency information and instructions) special populations (hospitals, nursing homes, correctional facilities, mobility impaired individuals, transportation dependent, etc.). OROs should demonstrate the capability to provide for the needs of special populations in accordance with the ORO's plans and procedures.

Contact with special populations and reception facilities may be actual or simulated, as agreed to in the Extent of Play. Some contacts with transportation providers should be actual, as negotiated in the extent of play. All actual and simulated contacts should be logged.

All implementing activities associated with protective actions for special populations must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Lists of people with special needs are maintained at the municipal EOCs. Copies of these lists will not be provided to the evaluators however; evaluators will be able to inspect these lists during the exercise.

Initial contact with special populations and reception facilities will be actual (hospitals, nursing homes and correctional facilities). All subsequent calls will be simulated. Actual contacts (up to

two) will be made with transportation providers as per plan. All actual and simulated contacts should be logged.

**Criterion 3.c.2: OROs/School officials implement protective actions for schools.
(NUREG-0654, J.10.c, d, g)**

EXTENT OF PLAY

Public school systems/districts shall demonstrate the ability to implement protective action decisions for students. The demonstration shall be made as follows: At least one school in each affected school system or district, as appropriate, needs to demonstrate the implementation of protective actions. The implementation of canceling the school day, dismissing early, or sheltering should be simulated by describing to evaluators the procedures that would be followed. If evacuation is the implemented protective action, all activities to coordinate and complete the evacuation of students to reception centers, congregate care centers, or host schools may actually be demonstrated or accomplished through an interview process. If accomplished through an interview process, appropriate school personnel including decision making officials (e.g., superintendent/principal, transportation director/bus dispatcher), and at least one bus driver (and the bus driver's escort, if applicable) should be available to demonstrate knowledge of their role(s) in the evacuation of school children. Communications capabilities between school officials and the buses, if required by the plan and/or procedures, should be verified.

Officials of the school system(s) should demonstrate the capability to develop and provide timely information to OROs for use in messages to parents, the general public, and the media on the status of protective actions for schools.

The provisions of this criterion also apply to any private schools, private kindergartens and day care centers that participate in REP exercises pursuant to the ORO's plans and procedures as negotiated in the Extent of Play Agreement.

All activities must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Evacuation of students will be conducted through an interview process.

Role of the bus driver may be conducted through an interview with school or transportation officials if a bus driver is not available. Actual demonstration of the bus route is not required and will not be demonstrated.

Risk County school plans do not require communications between the school and vehicles.

Private schools, private kindergartens, and day care centers do not participate in REP exercises. However, OROs will be prepared to show evaluators lists of these facilities that they will contact in the event of an emergency in accordance with plans and procedures.

Sub-element 3.d – Implementation of Traffic and Access Control

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to implement protective action plans, including relocation and restriction of access to evacuated/sheltered areas. This sub-element focuses on selecting, establishing, and staffing of traffic and access control points and removal of impediments to the flow of evacuation traffic.

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654, J.10.g, j)

EXTENT OF PLAY

OROs should demonstrate the capability to select, establish, and staff appropriate traffic and access control points, consistent with protective action decisions (for example, evacuating, sheltering, and relocation), in a timely manner. OROs should demonstrate the capability to provide instructions to traffic and access control staff on actions to take when modifications in protective action strategies necessitate changes in evacuation patterns or in the area(s) where access is controlled.

Traffic and access control staff should demonstrate accurate knowledge of their roles and responsibilities. This capability may be demonstrated by actual deployment or by interview, in accordance with the extent of play.

In instances where OROs lack authority necessary to control access by certain types of traffic (rail, water, and air traffic), they should demonstrate the capability to contact the State or Federal agencies with authority to control access.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Traffic and access control will be demonstrated by interview – no deployment. A radiological briefing will be provided.

Criterion 3.d.2: Impediments to evacuation are identified and resolved. (NUREG-0654, J.10.k)

EXTENT OF PLAY

OROs should demonstrate the capability, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation. Actual dispatch of resources to deal with impediments, such as wreckers, need not be demonstrated; however, all contacts, actual or simulated, should be logged.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Upon request municipal and county staffs will be prepared to brief the evaluator on actions to be taken should there be an impediment to evacuation on a designated route.

Sub-element 3.e – Implementation of Ingestion Pathway Decisions

This sub-element will not be evaluated during this exercise.

Sub-element 3.f – Implementation of Relocation, Re-entry, and Return Decisions

This sub-element will not be evaluated during this exercise.

EVALUATION AREA 4 Field Measurement and Analysis

Sub-element 4.a – Plume Phase Field Measurements and Analyses

INTENT

This sub-element derives from NUREG-0654, which provides that OROs should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume emergency planning zone to measure airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume. In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. Adequate equipment and procedures are essential to such field measurement efforts.

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. (NUREG-0654, H.10; I.7, 8, 9)

EXTENT OF PLAY

Field teams should be equipped with all instrumentation and supplies necessary to accomplish their mission. This should include instruments capable of measuring gamma exposure rates and detecting the presence of beta radiation. These instruments should be capable of measuring a range of activity and exposure, including radiological protection/exposure control of team members and detection of activity on the air sample collection media, consistent with the intended use of the instrument and the ORO's plans and procedures. An appropriate radioactive check source should be used to verify proper operational response for each low range radiation measurement instrument (less than 1 R/hr) and for high range instruments when available. If a source is not available for a high range instrument, a procedure should exist to operationally test the instrument before entering an area where only a high range instrument can make useful readings.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

This sub-element will not be evaluated 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. (NUREG-0654, H.12; I.8., 11; J.10.a).

PEMA Negotiated Extent of Play:

This sub-element will not be evaluated 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. (NUREG-0654, I.9)

EXTENT OF PLAY

Field teams should demonstrate the capability to report measurements and field data pertaining to the measurement of airborne radioiodine and particulates and ambient radiation to the field team coordinator, dose assessment, or other appropriate authority. If samples have radioactivity significantly above background, the appropriate authority should consider the need for expedited laboratory analyses of these samples. OROs should share data in a timely manner with all appropriate OROs. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO plan and/or procedures.

ORO's should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, nuclear insurers, etc), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

This sub-element will not be evaluated during this exercise.

Sub-element 4.b – Post Plume Phase Field Measurements and Sampling

This sub-element will not be evaluated during this exercise.

Sub-element 4.c – Laboratory Operations

This sub-element will not be evaluated during this exercise.

EVALUATION AREA 5

Emergency Notification and Public Information

Sub-element 5.a – Activation of the Prompt Alert and Notification System

INTENT

This sub-element derives from NUREG-0654, which provides that OROs should have the capability to provide prompt instructions to the public within the plume pathway EPZ. Specific provisions addressed in this sub-element are derived from the Nuclear Regulatory Commission (NRC) regulations (10 CFR Part 50, Appendix E.IV.D.), and FEMA-REP-10, "Guide for the Evaluation of Alert and Notification systems for Nuclear Power Plants."

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. (10 CFR Part 50, Appendix E.IV.D and NUREG-0654, E.5, 6, 7)

EXTENT OF PLAY

Responsible Offsite Response Organizations (ORO) should demonstrate the capability to sequentially provide an alert signal followed by an initial instructional message to populated areas (permanent resident and transient) throughout the 10-mile plume pathway EPZ. Following the decision to activate the alert and notification system, in accordance with the ORO's plan and/or procedures, completion of system activation should be accomplished in a timely manner (will not be subject to specific time requirements) for primary alerting/notification. The initial message should include the elements required by current FEMA REP guidance.

Offsite Response Organizations (ORO) with route alerting as the primary method of alerting and notifying the public should demonstrate the capability to accomplish the primary route alerting, following the decision to activate the alert and notification system, in a timely manner (will not be subject to specific time requirements) in accordance with the ORO's plan and/or procedures. At least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent of play. Actual testing of the mobile public address system will be conducted at some agreed upon location. The initial message should include the elements required by current FEMA REP guidance.

For exercise purposes, timely is defined as "the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay." If message dissemination is to be identified as not having

been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

Procedures to broadcast the message should be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages is not required. The alert signal activation may be simulated. However, the procedures should be demonstrated up to the point of actual activation.

The capability of the primary notification system to broadcast an instructional message on a 24-hour basis should be verified during an interview with appropriate personnel from the primary notification system.

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Actual contact will take place with the radio stations as per county plans. All subsequent actions to broadcast stations will be simulated. Systems that use automatic sending technology may be demonstrated by interview.

One municipality per risk county will demonstrate route alerting for hearing impaired residents within their jurisdiction.

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. (NUREG-0654, E.6, Appendix 3.B.2.c)

EXTENT OF PLAY

Offsite Response Organizations (ORO) with FEMA-approved exception areas (identified in the approved Alert and Notification System Design Report) 5-10 miles from the nuclear power plant should demonstrate the capability to accomplish primary alerting and notification of the exception area(s) within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The 45-minute clock will begin when the OROs make the decision to activate the alert and notification system for the first time for a specific emergency situation. The initial message should, at a minimum, include: a statement that an emergency exists at the plant and where to obtain additional information.

For exception area alerting, at least one route needs to be demonstrated and evaluated. The selected route(s) should vary from exercise to exercise. However, the most difficult route should be demonstrated at least once every six years. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent of play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

Backup alert and notification of the public should be completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. Backup route alerting only needs to be demonstrated and evaluated, in accordance with the ORO's plan and/or procedures and the extent of play agreement, if the exercise scenario calls for failure of any portion of the primary system(s), or if any portion of the primary system(s) actually fails to function. If demonstrated, only one route needs to be selected and demonstrated. All alert and notification activities along the route should be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast) as agreed upon in the extent of play. Actual testing of the mobile public address system will be conducted at some agreed-upon location.

All activities for this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, except as noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

There are no exception areas in the LGS EPZ.

Sub-element 5.b – Emergency Information and Instructions for the Public and the Media

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to disseminate to the public appropriate emergency information and instructions, including any recommended protective actions. In addition, NUREG-0654 provides that OROs should ensure that the capability exists for providing information to the media. This includes the availability of a physical location for use by the media during an emergency. NUREG-0654 also provides that a system should be available for dealing with rumors. This system will hereafter be known as the public inquiry hotline.

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

EXTENT OF PLAY

Subsequent emergency information and instructions should be provided to the public and the media in a timely manner (will not be subject to specific time requirements). For exercise purposes, timely is defined as “the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay.” If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.

The ORO should ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The emergency information should contain all necessary and applicable instructions (for example, evacuation instructions, evacuation routes, reception center locations, what to take when evacuating, information concerning pets, shelter-in-place instructions, information concerning protective actions for schools and special populations, public inquiry telephone number, etc.) to assist the public in carrying out protective action decisions provided to them. The ORO should also be prepared to disclose and explain the Emergency Classification Level (ECL) of the incident. At a minimum, this information must be included in media briefings and/or media releases. OROs should demonstrate the capability to use language that is clear and understandable to the public within both the plume and ingestion pathway EPZs. This includes demonstration of the capability to use familiar landmarks and boundaries to describe protective action areas.

The emergency information should be all-inclusive by including previously identified protective action areas that are still valid, as well as new areas. The OROs should demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. In addition, the OROs should demonstrate the capability to ensure that current emergency information is repeated at pre-established intervals in accordance with the plan and/or procedures.

ORO should demonstrate the capability to develop emergency information in a non-English language when required by the plan and/or procedures.

If ingestion pathway measures are exercised, OROs should demonstrate that a system exists for rapid dissemination of ingestion pathway information to pre-determined individuals and businesses in accordance with the ORO’s plan and/or procedures.

ORO should demonstrate the capability to provide timely, accurate, concise, and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the situation warrants. The OROs should demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and media releases should be consistent with protective action decisions and other

emergency information provided to the public. Copies of pertinent emergency information (e.g., EAS messages and media releases) and media information kits should be available for dissemination to the media.

OROs should demonstrate that an effective system is in place for dealing with calls to the public inquiry hotline. Hotline staff should demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source. Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, should be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.

All activities for this criterion must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play: None

EVALUATION AREA 6

Support Operation/Facilities

Sub-element 6.a – Monitoring and Decontamination of Evacuees and Emergency Workers and Registration of Evacuees

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to implement radiological monitoring and decontamination of evacuees and emergency workers, while minimizing contamination of the facility, and registration of evacuees at reception centers.

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. (NUREG-0654, J.10.h; J.12; K.5.a)

EXTENT OF PLAY

Radiological monitoring, decontamination, and registration facilities for evacuees/ emergency workers should be set up and demonstrated as they would be in an actual emergency or as indicated in the extent of play agreement. This would include adequate space for evacuees' vehicles. Expected demonstration should include 1/3 of the monitoring teams/portal monitors required to monitor 20% of the population allocated to the facility within 12 hours. Before using monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation.

Staff responsible for the radiological monitoring of evacuees should demonstrate the capability to attain and sustain a monitoring productivity rate per hour needed to monitor the 20% emergency planning zone (EPZ) population planning base within about 12 hours. This monitoring productivity rate per hour is the number of evacuees that can be monitored per hour by the total complement of monitors using an appropriate monitoring procedure. A minimum of six individuals per monitoring station should be monitored, using equipment and procedures specified in the plan and/or procedures, to allow demonstration of monitoring, decontamination, and registration capabilities. The monitoring sequences for the first six simulated evacuees per monitoring team will be timed by the evaluators in order to determine whether the twelve-hour requirement can be met. Monitoring of emergency workers does not have to meet the twelve-hour requirement. However, appropriate monitoring procedures should be demonstrated for a minimum of two emergency workers.

Decontamination of evacuees/emergency workers may be simulated and conducted by interview. The availability of provisions for separately showering should be demonstrated or explained. The staff should demonstrate provisions for limiting the spread of contamination. Provisions could include floor coverings, signs and appropriate means (for example, partitions, roped-off areas) to separate clean from potentially contaminated areas. Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose

clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities. In addition, for any individual found to be contaminated, procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.

Monitoring personnel should explain the use of action levels for determining the need for decontamination. They should also explain the procedures for referring evacuees who cannot be adequately decontaminated for assessment and follow up in accordance with the ORO's plans and procedures. Contamination of the individual will be determined by controller inject and not simulated with any low-level radiation source.

The capability to register individuals upon completion of the monitoring and decontamination activities should be demonstrated. The registration activities demonstrated should include the establishment of a registration record for each individual, consisting of the individual's name, address, results of monitoring, and time of decontamination, if any, or as otherwise designated in the plan. Audio recorders, camcorders, or written records are all acceptable means for registration.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Expected demonstration should include a roster of the monitoring teams/portal monitors required to monitor 20% of the population allocated to the facility within 12 hours.

A minimum of six individuals per monitoring station should be monitored (or one person six times)....

Water from decontamination activities may go directly to a storm drain or other sewer or drain system or area normally designated for wastewater that has been used for bathing or washing of vehicles and or equipment.

At each reception center, a minimum of three volunteer evacuees will be processed, briefed, issued the appropriate strip map or directions, and instructed to proceed to a mass care center designated for demonstration of monitoring, decontamination, and registration. A sample of the appropriate strip maps or directions will be made available for the demonstration.

One mass care center and one monitoring/decontamination center per risk county will be demonstrated during the out-of-sequence window. All monitoring and decontamination teams will demonstrate monitoring, decontamination and registration procedures at one mass care center or reception center (as applicable) per county. The risk counties will provide space at designated mass care centers or reception center (as applicable) for operation of monitoring/decontamination centers. Schematics of these monitoring /decontamination centers will be available to show organization within the facility and space management for monitoring and for decontamination of the evacuating public. Procedures will be demonstrated to show

minimizing contamination of the facility and separation of contaminated and non-contaminated (clean) individuals.

At the evacuee monitoring/decontamination centers each team, consisting of a minimum of two persons (monitor and recorder), will monitor a minimum of six (6) volunteer evacuees or one (1) volunteer evacuee six times, complete the Monitoring/Decontamination Report Form (either by demonstration or explanation), and instruct the evacuees to proceed to the mass care registration points for further processing. The teams will demonstrate: radiological monitoring of at least one vehicle and the simulated decontamination of at least two evacuees, one unable to be decontaminated based on controller inject data. Discussions concerning processing of contaminated personnel will include capabilities and written procedures for showering females separate from males. A CD V-700, or other survey meter, will be issued to each team. For Portal Monitor Use refer to paragraph below. PRDs will be simulated.

At the emergency worker monitoring/decontamination stations each team, consisting of a minimum of two persons (monitor and recorder), will monitor one emergency worker, complete the Monitoring/Decontamination Report Form (either by demonstration or explanation.) Discussions concerning processing of contaminated personnel will include capabilities and written procedures for showering females separate from males. A CD V-700, or other survey meter, will be issued to each team. For Portal Monitor Use refer to next paragraph. PRDs will be simulated.

(Portal Monitor Use) Risk and Support counties may, during this exercise, utilize portal monitors to monitor simulated evacuees, emergency workers and/or vehicles. In the instances where a portal monitor is used a draft/interim procedure/guidelines may be used, for this evaluation. The monitoring/ decontamination team requirements will be based on the portal monitor capabilities as applicable based on the draft/interim procedure/guidelines, and manufactures recommendations.

Monitoring/decontamination centers and station personnel are not issued DRDs or KI since the centers and stations are outside the EPZ.

Radiation contamination data for the evacuees and vehicle will be provided by the controller and must be included in the scenario package. Set-up of the facility will be performed the same as for an actual emergency with all route markings and contamination control measures in place including step-off pads; with the exception of long runs of plastic covered with paper which will not be demonstrated, but the materials will be available and explained. Positioning of a fire apparatus on-site may be simulated if otherwise required.

Sub-element 6.b – Monitoring and Decontamination of Emergency Worker Equipment

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the capability to implement radiological monitoring and decontamination of emergency worker equipment, including vehicles.

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. (NUREG-0654, K.5.b)

EXTENT OF PLAY

The monitoring staff should demonstrate the capability to monitor equipment, including vehicles, for contamination in accordance with the Offsite Response Organizations (ORO) plans and procedures. Specific attention should be given to equipment, including vehicles, that was in contact with individuals found to be contaminated. The monitoring staff should demonstrate the capability to make decisions on the need for decontamination of equipment, including vehicles, based on guidance levels and procedures stated in the plan and/or procedures.

The area to be used for monitoring and decontamination should be set up as it would be in an actual emergency, with all route markings, instrumentation, record keeping and contamination control measures in place. Monitoring procedures should be demonstrated for a minimum of one vehicle. It is generally not necessary to monitor the entire surface of vehicles. However, the capability to monitor areas such as radiator grills, bumpers, wheel wells, tires, and door handles should be demonstrated. Interior surfaces of vehicles that were in contact with individuals found to be contaminated should also be checked.

Decontamination capabilities, and provisions for vehicles and equipment that cannot be decontaminated, may be simulated and conducted by interview.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Emergency worker station personnel will consist of a minimum of one monitor and one recorder and sufficient personnel to demonstrate monitoring of at least one vehicle. Schematics of these monitoring/decontamination stations will be available to show organization and space management within the facility. The evaluator will request that decontamination procedures be explained after the vehicle which has simulated contamination has been monitored. One CD V-700, or other survey meter, will be issued to each monitoring/decontamination team. One vehicle and/or piece of equipment will not be able to be decontaminated. Simulated radiation contamination data will be included in the scenario package, and injected by a controller. Set-up of the facility will be performed as closely as possible to that for an actual emergency with all route markings in place including step-off pads; with the exception of long runs of plastic covered with paper which will not be demonstrated, but the materials will be available and explained.

Decontamination capabilities, and provisions for vehicles and equipment that can not be decontaminated, will be simulated and conducted by interview.

Sub-element 6.c – Temporary Care of Evacuees

INTENT

This sub-element derives from NUREG-0654, which provides that Offsite Response Organizations (ORO) demonstrate the capability to establish relocation centers in host areas. The American Red Cross (ARC) normally provides congregate care in support of OROs under existing letters of agreement.

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. (Found in MASS CARE - Preparedness Operations, ARC 3031) Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate before entering congregate care facilities. (NUREG-0654, J.10.h, J.12)

EXTENT OF PLAY

Under this criterion, demonstration of congregate care centers may be conducted out of sequence with the exercise scenario. The evaluator should conduct a walk-through of the center to determine, through observation and inquiries, that the services and accommodations are consistent with ARC 3031. In this simulation, it is not necessary to set up operations as they would be in an actual emergency. Alternatively, capabilities may be demonstrated by setting up stations for various services and providing those services to simulated evacuees. Given the substantial differences between demonstration and simulation of this objective, exercise demonstration expectations should be clearly specified in extent-of-play agreements.

Congregate care staff should also demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability may be determined through an interview process.

If operations at the center are demonstrated, material that would be difficult or expensive to transport (for example, cots, blankets, sundries, and large-scale food supplies) need not be physically available at the facility (facilities). However, availability of such items should be verified by providing the evaluator a list of sources with locations and estimates of quantities.

All activities associated with this criterion must be based on the ORO's plans and procedures and completed, as they would be in an actual emergency, unless noted above or otherwise indicated in the extent of play agreement.

PEMA Negotiated Extent of Play:

Capabilities will be demonstrated through an interview process. Personnel, at a minimum, will consist of one manager and assistant for each mass care center opened.

Sub-element 6.d – Transportation and Treatment of Contaminated Injured Individuals

This sub-element will be evaluated at Reading Hospital on May 25, 2005.

APPENDIX 4

Exercise Scenario

Constellation Energy Group Emergency Scenario Summary Limerick Generating Station November 15, 2005

TIME	EVENT DESCRIPTION
	<p><u>LGS Initial Conditions:</u> Unit 1 – 100% power for the last 183 days. All Unit 1 systems and equipment are operable except as noted below.</p> <p>Unit 2 – 100% power for the last 238 days. All Unit 2 systems and equipment are operable except as noted below.</p> <p><u>Out-Of-Service (OOS) Equipment:</u> Unit 1 – HV-51-1F027A blocked and out of service for repair due to failing to open during ST-6-051-231-1.</p> <p>Unit 2 – None.</p>
	<p><u>On-coming Shift Actions/Duties:</u> Maintain 100% power on Units 1 and 2.</p> <p><u>Weather Conditions/Forecast:</u> Partly sunny today with light winds from the northwest. Highs today will be in the low-to-mid 50s. Probability of precipitation is 40%. The skies will become cloudy this evening with lows in the low 40s and winds shifting to the east at 5-10 mph. Probability of precipitation is 30% tonight. Fair and warm tomorrow. The high tomorrow will be 55-58 degrees.</p>
15:30	Drill begins
15:35	EVENT 1: Greater than 10 gpm Reactor Water Clean-Up (RWCU) UNIDENTIFIED leak inside drywell.
15:50	UNUSUAL EVENT DECLARATION (per MU7 – unidentified primary system leakage > 10 gpm into the Drywell)
16:00	EVENT 2: Rod Drive Control System (RDCS) becomes inoperable.
16:20	EVENT 3: Helicopter crash into the “A” Spray Network at the Spray Pond.
16:35	ALERT DECLARATION (per HA3 – Natural or Destructive Phenomena Affecting a Vital Area) – NOTE: Not a terrorist event
17:30	EVENT 4: The “1A” Control Rod Drive (CRD) pump trips due to low suction pressure.

TIME	EVENT DESCRIPTION
17:35	Technical Support Center (TSC), Operations Support Center (OSC), and Emergency Operations Facility (EOF) should be at minimum staffing and in the process of activating the respective facilities.
17:45	EVENT 5: "1B" Reactor Recirculation Pump high vibrations.
17:55	EVENT 6: RDCS restoration.
18:10	EVENT 7: 1B Reactor Recirculation pump shaft binds resulting in pump trip.
18:15	EVENT 8: "1B" Main Steam Line leak in the steam chase. Minor radiological release (non-routine airborne release) through ventilation system (filtered).
18:30	SITE AREA EMERGENCY (SAE) DECLARATION (per FS1 – Fission Product Barrier Matrix – Reactor Coolant System barrier – POTENTIAL LOSS; or, Reactor Coolant System barrier – LOSS; and, Primary Containment – LOSS)
19:00	EVENT 9: Onset of fuel damage. The cooling starved fuel bundles begin to fail and fuel damage begins to ramp in. Offsite release increases as fuel damage increases.
~19:00	EVENT: HV-51-1F027B, RHR B SUPPRESSION POOL SPRAY valve fails to open.
19:30	EVENT 9a: Further Fuel Degradation. Degradation continues to the point of exceeding the Fuel Clad barrier threshold (2.8% damage per Core Damage Assessment Model – CDAM) at approximately 1945.
19:35	EVENT 9b: Maximum Safe Operating (MSO) value for radiation in two (2) or greater areas of the plant.
19:50	<p>GENERAL EMERGENCY (GE) DECLARATION (per FG1 – Fission Product Barrier Matrix – Fuel Clad – LOSS; and Reactor Coolant System – LOSS; and Previous Primary Containment – LOSS). PAR from Licensee to State: Evacuate 5 mile radius and 10 miles in downwind sectors (SW, WSW, W, and WNW); Recommend KI for general public in evacuated areas; Advise remainder of the EPZ to monitor EAS messages.</p> <p>Expected PAD from State: Evacuate 10 mile radius; Recommend KI for general public and emergency workers in 10 mile radius.</p>
~21:30	Termination of Exercise.

APPENDIX 5

Prior Issues Resolved For Locations Not Scheduled For Demonstration at This Exercise

This appendix contains the resolution of ARCA's that were assessed during a prior ingestion exposure pathway exercise LGS and a prior plume exposure pathway exercise at Susquehanna Steam Electric Station (SSES).

Issue No.: LIMX88-06R (4.b.1)

Description: The water sampling teams were not fully briefed on the plume conditions and had no protective clothing, respirators, or radiation detection equipment. Also, they were not trained specifically for obtaining samples in a radiation situation/environment. (NUREG-0654, K.3.a)

Corrective Action Demonstrated: This issue was resolved at the August 17 - 19, 2004, SSES ingestion exposure pathway exercise. The water and soil sampling team, was fully briefed on the status of the emergency situation prior to their departure to obtain water and soil samples. The briefing included an area map showing the extent of plume deposition, radiological readings, and an outline of the restricted zone. Respirators and protective clothing are not required equipment for the sampling team, with the exception of protective gloves for sample handling, which were provided in the environmental sample kit. Thus, there was no protective clothing or respirators provided or required. Sampling team members were issued Direct Reading Dosimeters (DRD) and had TLD cards. The DRDs were individually assigned and the serial numbers were recorded as well as the readings taken. Radiation meters were used by the sampling team to take ambient readings. Sampling teams were experienced in taking and managing water and soil samples.

Issue No.: LIMX88-07R (4.b.1)

Description: There was no obvious control of the time the samples were to be obtained to assure they represented the radioactivity which would have been deposited in the river; i.e., to maximize the usefulness of the data obtained. (NUREG-0654, I.10)

Corrective Action Demonstrated: This issue was resolved at the August 17 - 19, 2004, SSES ingestion exposure pathway exercise. The water and soil sampling team recorded the time each sample was taken. The exact time of sampling was recorded throughout the chain of custody accounting.

Issue No.: LIMX88-08R (4.b.1)

Description: Agricultural sampling teams were not notified in a timely manner by the Pennsylvania Department of Agriculture to report to the dispatch point at the Montgomery County EOC. Since team members did not report until the termination of the exercise, no agricultural sampling procedures could be demonstrated. Also, a prior inadequacy regarding team members use of dosimetry cannot be cleared since a demonstration of proficiency was not performed. (NUREG-0654, I.8)

Corrective Action Demonstrated: This issue was resolved at the August 17-19, 2004, SSES ingestion exposure pathway exercise. The agricultural sampling team was notified to report to the Columbia County Agricultural Extension Office for the out-of sequence demonstration. The team reported at the required time (9:30 a.m.). All team members were issued an electronic dosimeter (MGP Instruments Model DMC 2000S) and a credit-card type thermoluminescent dosimeter (if not pre-assigned). The electronic dosimeters were checked every hour as required by procedure (BRP-ER-8.02, Rev. 1, 07/04). Team members recorded their dosimeter readings on the "Intermediate and Recovery Phase Personnel Monitoring" form as required by BRP-ER-8.02.

Issue No.: 63-00-1.e.1-A-01

Condition: Teams 1 and 2 could not find two preselected monitoring locations and had difficulty finding other monitoring locations since the Field Team Coordinator (FTC) and the two field teams were using different maps with different monitoring locations posted on the maps.

Possible Cause: The map used by Teams 1 and 2 was not the same as that used by the FTC. In addition, preselected locations were not related to identifying landmarks.

Reference: NUREG-0654, I.8 and J.10.a

Effect: The teams had difficulty in finding monitoring locations that interfered with their ability to perform their duties in a timely manner.

Recommendation: All maps used by the FTC and the field teams should be the same.

Corrective Action Demonstrated: Administratively resolved. The Field Teams used Global Positioning Systems for the LGS Exercise. This system enabled the teams to identify exactly their location at all times, to include sampling times. The teams are no longer dependent on maps and the finding of fixed monitoring locations.

APPENDIX 6

Planning Issues

This appendix contains the Planning Issues assessed during the November 15, 2005, exercise at LGS. Planning Issues are issues identified in an exercise or drill that do not involve participant performance, but rather involve inadequacies in the plan or procedures. Planning Issues are required to be corrected through the revision and update of the appropriate State and local RERPs and/or procedures in accordance with the following schedule:

- Within 120 days of the date of the exercise/drill when the Planning Issue is directly related to protection of the public health and safety.
- During the annual plan review and update (reported in the Annual Letter of Certification) when the Planning Issue does not directly affect the public health and safety. However, when the date for the annual plan review and update is imminent and the responsible organization does not have sufficient time to make the necessary revisions in the plans and/or procedures, the revised portion of the plans and/or procedures should be submitted in the subsequent annual plan review and update and reported in the Annual Letter of Certification.

Any requirement for additional training of responders to radiological emergencies necessitated by the revision and update of the plans and/or procedures must be completed within the timeframes described above in order for the Planning Issue to be considered resolved.

Berks County EOC

Issue No.: 35-05-3.a.1-P-01

Condition: Discrepancies exist between the dosimetry information on the emergency worker radiological briefing videotape and the Risk Township Radiological Emergency Response Plans.

Possible Cause: The emergency worker radiological briefing videotape states that 0-200 R Direct Reading Dosimeters (DRD) are no longer used. Workers are advised to disregard the 0-200 R DRD section of the Dosimetry-KI Report Form. The Township Radiological Emergency Response Plans include the following information, "A supply of 0-200 Roentgen DRDs has been established at the county and each risk municipality. These would be issued in the extremely unlikely event of a life-saving mission requirement in a known, high radiation area."

The videotape also includes a briefing on emergency worker exposure limits. The tape covers the requirement to obtain approval from the County Radiological Officer prior to exceeding 5 Rem. The Dosimetry-KI Report Form that was

provided to emergency workers in Colebrookdale Township states, "Do not exceed 25 R cumulative total", but does not provide instructions for the 5 R limit.

References:

- Emergency Worker Radiological briefing tape (provided by the Pennsylvania Emergency Management Agency)
- Colebrookdale Township Radiological Emergency Response Plan, section G.6, Municipal Emergency Workers
- Dosimetry-KI Report Form, PEMA BOP-REP-3 (4/97)

Effect: Emergency Workers may not be aware that they need a 0-200 R dosimeter to monitor their exposure when responding to life-saving activities in high exposure rate areas.

Recommendation: Update the videotape to reflect the 0-200 R DRD use information in the County's plan. Modify the Emergency Worker Dosimetry-KI Report form to include emergency worker actions for the 5 R limit.

State Response: The Commonwealth appreciates the information and will seek to address this issue during the next video update.

Berks County Emergency Worker Monitoring/Decontamination Center (Hamburg Junior-Senior High School)

Issue No.: 35-05-6.a.1-P-02

Condition: Evacuees arriving at the Registration Area of the Hamburg High School Mass Care Center were not "designated according to plan" nor provided "authorization to allow admittance" to the facility.

Possible Cause: The existing procedure does not specify how to designate uncontaminated individuals or what kind of authorization is needed. Therefore, nothing was provided to the evacuees.

References:

- NUREG-0654, J.12
- "Radiological Monitoring and Decontamination Center Hamburg Junior-Senior High School," Implementing Procedure, Section 7.L, June 2005

Effect: Without a positive means to assure that evacuees have been appropriately monitored and decontaminated, if necessary, the Mass Care Center could be contaminated by evacuees who, either knowingly or unknowingly, bypass the monitoring process.

Recommendation: Specify how uncontaminated evacuees will be designated and what will constitute "authorization to allow admittance" to a mass care

facility. Train both the monitoring and decontamination personnel and the Registration Area personnel on the revised procedure.

State Response: Plans and training will be addressed to ensure a positive method for identifying uncontaminated people for admittance to mass care centers.

Colebrookdale Township EOC

Issue No.: 35-05-1.c.1-P-03

Condition: There are discrepancies in the Colebrookdale Radiological Emergency Response Plan as to the location of the alternate Emergency Operation Center.

Possible Cause: The Colebrookdale Township Radiological Emergency Response Plan states, "The alternate EOC is located at the Earl Township Fire Company." Annex A states, "Completion of emergency tasks and after the general population has departed, direct EOC staff and municipal personnel to evacuate to the alternate EOC at the Earl Township Municipal Building on Schoolhouse Road off Route 73".

References:

- Colbrookdale Township Radiological Emergency Response Plan, section II.B.2.f, Municipal Government Emergency Operations
- Colbrookdale Township Radiological Emergency Response Plan, Annex A, Emergency Management Coordinator

Effect: The discrepancy in the alternate EOC location could cause confusion during EOC relocation activities.

Recommendation: Modify the Plan and Annex to reflect the correct location of the alternate EOC.

State Response: The discrepancy is noted. Plans will be addressed to ensure the alternate EOC location is clearly understood in all reference documents.

Montgomery County Emergency Worker Monitoring/Decontamination Station

Issue No.: 35-05-6.a.1-P-04

Condition: Female workers did not have a separate decontamination dressing/undressing and shower stall arrangement.

The County HAZMAT Decontamination trailer and tent were used and set up in the parking lot of the Indian Valley Middle School. The decontamination trailer had one row of shower stalls separated by curtains. The other half of the trailer was not in use.

Possible Cause: Plans and procedures were not in place to ensure that the County HAZMAT trailer is set up for a separate female decontamination process.

Reference: NUREG-0654, J.10.h; J.12; K.5.a

Effect: A lack of adequate decontamination capability for females can result in some female workers refusing the process.

Recommendation: Plans and procedures need to be in place to ensure that the County HAZMAT trailer be equipped to provide separate decontamination facilities for females.

State Response: The female half of the decontamination trailer was not used during this exercise demonstration. Plans will be reviewed to determine if added language is needed and that all personnel have the knowledge to explain the purpose of female half of the trailer even if not used during the exercise demonstrations.

Perkiomen Township EOC

Issue No.: 35-05-3.a.1-P-05

Condition: The Perkiomen Township Radiological Emergency Response Plan (RERP) specifies that the control Permanent Record Dosimeter (PRD) is to be delivered to the Schwenksville Emergency Operations Center (EOC) for pickup by Montgomery County Office of Emergency Preparedness (OEP). The Perkiomen Township Implementing Procedures indicate that the Control PRD was to be picked up by the county at Perkiomen Township EOC.

Possible Cause: The discrepancy in the instructions was caused by possible changes to the actual procedure to have the county pickup the PRD at Perkiomen. The pickup was demonstrated (discussed) at the training tabletop as indicated in the Implementing Procedures, but the RERP was not corrected.

Reference:

- NUREG-0654, K.3.a, b
- Perkiomen Township RERP, Annex E, II Basic Plan, G Radiological Exposure Control, 5 Control PRDs, Steps c and d, Revision 3, 2005.
- Perkiomen Township RERP, Annex G, Implementing Procedure – Oil and Hazardous Materials ICS Category: Operations ESF # 10, GE checklist, Revision 3, no date.

Effect: If the RERP is correct, the Control PRD would not have been picked up in a timely manner, which may cause a discrepancy in the baseline to determine individual exposure to radiation.

Recommendation: Correct the RERP to reflect that the Control PRD is to be picked up at the Perkiomen EOC by the county.

State Response: Plans will be corrected to clarify the appropriate Control PRD pickup/delivery procedures.

Daniel Boone Area School District

Issue No.: 35-05-3.c.2-P-06

Condition: Plans and procedures have not been updated to indicate that Daniel Boone Middle School has been moved. The Daniel Boone High School, instead of the Middle School, is now the host school for the students evacuated from other Daniel Boone Area schools.

Possible Cause: The new middle school was opened for the 2005 – 2006 school year.

Reference:

- NUREG -0654, J.10c, d, g
- Daniel Boone Area School District Procedure

Effect: Although the Superintendent's office personnel demonstrated they knew what to do, plans and procedures have not been changed. Different personnel may be confused if trying to follow the existing procedures during an emergency.

Recommendation: Update the School District plan and procedures to include the designation of the host school for evacuated students as the Daniel Boone High School.

State Response: The School District plans and procedures will be updated to identify the appropriate host school.