

Limerick Generating Station Exercise – August 7, 2007

Final Report – Radiological Emergency Preparedness
Program

October 22, 2007



FEMA

FEMA Region III





FEMA

Final Exercise Report

Limerick Generating Station

Licensee: **Exelon Nuclear**

Exercise Date: **August 7, 2007**

Report Date: **October 22, 2007**

**U.S. DEPARTMENT OF HOMELAND SECURITY/FEMA
RADIOLOGICAL EMERGENCY PREPAREDNESS**

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

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I. EXECUTIVE SUMMARY

On August 7, 2007, a full-scale plume exercise was conducted in the 10-mile plume exposure pathway, emergency planning zone (EPZ) around the Limerick Generating Station (LGS) by the Federal Emergency Management Agency (FEMA), Region III. Out-of-sequence demonstrations were conducted on July 23, 2007 and August 8, 2007. The purpose of the exercise and the out-of-sequence demonstrations 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 15, 2005.

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 14 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:

- *General Population Monitoring and Decontamination:* Conducted on August 8, 2007 in Berks County, Bucks County, Chester County, Lehigh County, and Montgomery County.
- *Mass Care:* Conducted on July 23, 2007 in Bucks County, Chester County, Lehigh County, and Montgomery County, and on August 8, 2007 in Berks County and Lehigh County.
- *Emergency Workers, Equipment, and Vehicles – Monitoring and Decontamination:* Conducted on August 8, 2007 in Berks County, Chester County, and Montgomery County.
- *School Interviews:* Conducted on August 7, 2007 in Berks County, Chester County, and Montgomery County and on August 8, 2007 in Berks County.
- *Traffic/Access Control:* Conducted on August 8, 2007 Pennsylvania State Police Troop K Skippack Barracks.

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 (ARCAs) identified as a result of this exercise; three of the ARCAs were successfully re-demonstrated during the exercise. Six of the ARCAs were successfully re-demonstrated at drills on September 25 and October 15, 2007. Six ARCAs from a previous exercise were successfully demonstrated at this exercise. Seventeen new planning issues were identified and six planning issues from a previous exercise were successfully demonstrated (see Appendix 5 for all planning issues).

II. Introduction

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume the lead responsibility for all off-site nuclear planning and response. FEMA's activities were 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.

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 Radiological Assistance Committee (RAC), which is chaired by FEMA.

A REP exercise was conducted on August 7, 2007, 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 Limerick Generating Station (LGS). The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (OROs) 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 FEMA Headquarters.

These reports are provided to the NRC and participating States. State and local governments utilize the findings contained in these reports for the purposes of planning, training, and improving emergency response capabilities.

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 Areas Requiring Corrective Action (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 ARCAs assessed during previous exercises and resolved at this exercise,

including the corrective action demonstrated, as well as ARCAs assessed during previous exercises and scheduled for demonstration at this exercise which remain unresolved.

The final section of the report is comprised of the appendices, which present the following supplementary information: acronyms and abbreviations, exercise evaluators and team leaders, exercise evaluation area criteria and extent of play agreement, and the exercise scenario. It also presents information on planning issues (both new planning issues identified during this exercise and resolved planning issues identified during previous exercises).

III. Exercise Overview

Contained in this section are data and basic information relevant to the August 7, 2007 exercise to test the off-site emergency response capabilities in the area surrounding Limerick Generating Station (LGS). This section of the exercise report includes 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.

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 July 23, 2007 and August 8, 2007, or the exercise on August 7, 2007.

STATE/COMMONWEALTH AGENCIES

Pennsylvania Department of Agriculture
Pennsylvania Department of Corrections
Pennsylvania Department of Education
Pennsylvania Department of Environmental Protection
Pennsylvania Department of Environmental Protection – Bureau of Radiation Protection
Pennsylvania Department of Environmental Protection – Emergency Response
Pennsylvania Department of Health
Pennsylvania Department of Military and Veterans Affairs
Pennsylvania Department of Public Welfare
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania Fish and Boat Commission
Pennsylvania Game Commission
Pennsylvania Office of Administration
Pennsylvania Public Utility Commission
Pennsylvania State Police
Pennsylvania Turnpike Commission

RISK JURISDICTIONS

Berks County

Amity Township Emergency Management Agency
Amity Township Emergency Medical Services
Amity Township Fire Department
Amity Township Manager
Amity Township Police Department
Amity Township Public Works
Amity Township Special Fire/Police
Amity Township Transportation Department
Amity Volunteer Fire Department
Bally Emergency Medical Services
Bartow Police Department
Bartow Volunteer Fire Department
Berks County Emergency Management Agency
Berks County Fire Department

Berks County Personnel
Berks County Public Works
Berks County Schools
Berks County Sheriffs Office
Kutztown Volunteer Fire Department
Oley Township Emergency Management Agency
Oley Valley Volunteer Fire Company
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania National Guard
Pennsylvania State Police
United States Department of Agriculture
Upper Alsace Township Volunteer Fire Department
Washington Township Board of Supervisors
Washington Township Emergency Management Agency
Washington Township Manager
Washington Township Public Works Department

Chester County

Chester County Department of Emergency Services
Chester County Emergency Services
Chester County Emergency Services HazMat Unit
Chester County Hazmat Team
Chester County Parks Service
East Nantmeal Township Emergency Management Agency
Elverson Emergency Fire Department and Emergency Medical Services
Liberty Fire Company
Lionville Fire Company
Ludwig's Corner Volunteer Fire Department
Montgomery County Office of Emergency Preparedness
North Coventry Fire Department
North Coventry Police Department
North Coventry Township Emergency Management Agency
Pennsylvania Emergency Management Agency
Spring City Borough
Twin Valley Fire Department
Upper Uwchlan Township Emergency Management Agency
Upper Uwchlan Township Manager
Upper Uwchlan Township Police Department
Upper Uwchlan Township Public Works
Upper Uwchlan Township Supervisors
Uwchlan Township Emergency Medical Services
Warwick Township Administrator
Warwick Township Board of Supervisors

Montgomery County

Collegeville Emergency Management Agency
Collegeville Fire Department
Collegeville Police Department
Douglass Township Highway Department
Douglass Township Office staff members
Douglass Township Police Department
Federal Emergency Management Agency
Friendship Fire Company
Gilbertsville Ambulance Service
Gilbertsville Fire and Rescue
Greater Philadelphia Search and Rescue
Lansdale Volunteer Medical Services Corporation
Montgomery County Commissioner's Office
Montgomery County Critical Incident Stress Management Team
Montgomery County Department of Public Safety
Montgomery County Department of Public Works
Montgomery County Dispatchers
Montgomery County District Attorney's Office
Montgomery County Emergency Management Services
Montgomery County Fire Police
Montgomery County Health Care Support Zone
Montgomery County Health Services
Montgomery County Office of Emergency Preparedness
Montgomery County Sheriff's Office
Montgomery County Volunteer Fire Fighters and Hazmat Technicians
North Penn Volunteer Fire Company
Oaks Volunteer Fire Department
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania Health Services
Pennsylvania State Police
Philadelphia Office of Emergency Management
Royersford Borough Administrative Staff
Royersford Borough Friendship Volunteer Fire Company
Royersford Borough Humane Volunteer Fire Company
Royersford Borough Police Department
Royersford Borough Public Works
Schwenksville Borough
Schwenksville Fire Department
Schwenksville Police Department
Skippack Board of Supervisors
Skippack Emergency Management Coordinator
Skippack Fire Company
Skippack Township City Manager

Skippack Township Public Works
Trapp Fire Department
Upper Providence Township Administration Office
Upper Providence Township Board of Supervisors
Upper Providence Township Emergency Management
Upper Providence Township Fire Department
Upper Providence Township Police Department
Upper Providence Township Public Works
Upper Salford Police Department
Upper Salford Township Volunteer Fire Company

SUPPORT JURISDICTIONS

Bucks County

Bucks County Emergency Management Agency
Bucks County Emergency Medical Services
Bucks County Fire Marshall
Bucks County Health Department
Bucks County Public Information Office
Bucks County Regional Health
Bucks County Sheriff's Office
Trevose Fire Company

Lehigh County

Bucks County Emergency Management Agency
Coopersburg Police Department
Eastern Pennsylvania Emergency Medical Services Council
Emmaus Volunteer Fire Department
Lehigh County Agricultural Extension
Lehigh County Emergency Management Agency
Lehigh County Public Works Department
Lehigh County Sheriffs Department
Lower Milford Volunteer Fire Department
Pennsylvania Emergency Management Agency
Pennsylvania State Police
Southern Lehigh School District
Upper Saucon Ambulance
Upper Saucon Volunteer Fire Department

SCHOOLS

Berks County

Boyertown Area School District
Boyertown Junior High School East
Colebrookdale Elementary School
Gilbertsville Elementary School
Pine Forge Elementary School

Daniel Boone Area School District
Amity Intermediate Center
Daniel Boone Middle School
Monocacy Kindergarten Center

Chester County

Downingtown Area School District
Pickering Valley Elementary School
Lionville Elementary School

Great Valley School District
Charlestown Elementary School

Owen J. Roberts School District
North Coventry Elementary School
Owen J. Roberts Middle School

Phoenixville Area School District
Phoenixville Middle School
Samuel K. Barkely Elementary School
Schuylkill Elementary School

Montgomery County

Methacton School District
Arrowhead Elementary School
Audubon Elementary School

Perkiomen Valley School District
Perkiomen Valley Middle School
Skippack Elementary School

Pottsgrove School District
Pottsgrove Middle School
Ringing Rocks Elementary School

Pottstown School District
E.B. Barth Elementary School
Rupert Elementary School

Souderton Area School District
Souderton Area Senior High School

Spring-Ford Area School District
Brooke Elementary School
Oaks Elementary School
Spring City Elementary School

Upper Perkiomen School District
Hereford Elementary School

PRIVATE/VOLUNTEER ORGANIZATIONS

The following private and volunteer organizations participated in the LGS exercise at many different locations throughout the area. We thank them and all those who volunteer their services to State, county, and municipal governments during emergencies.

Albert Einstein Medical Center
Amateur Radio Emergency Services (ARES) and Radio Amateur Civil Emergency Services (RACES), including the following clubs:
Bucks County Amateur Radio Emergency Services
Chester County Amateur Radio (RACES)
Lehigh Valley RACES
Montgomery County RACES
Washington Township RACES team
American Red Cross, including the following local chapters:
Berks County
Greater Lehigh Valley
Lower Bucks County
Southeastern Pennsylvania
Civil Air Patrol
Delaware Valley Health Care Central
Exelon Nuclear
Holy Redeemer Health System
Mercy Suburban Hospital
Reading General Hospital
Saint Joseph Hospital
Two Private Citizens without affiliation

C. Exercise Timeline

Table 1, on the following page, presents the times at which key events and activities occurred during the LGS exercise on August 7, 2007. Also included are times notifications were made to the participating jurisdictions/functional entities.

TABLE 1. EXERCISE TIMELINE
 DATE AND SITE: *August 7, 2007, Limerick Generating Station*

Emergency Classification Level or Event	Time Utility Declared	***** TIME THAT NOTIFICATION WAS RECEIVED *****										
		PA State EOC	Accident Assessment	Emergency News Center	Emergency Operations Facility	Berks County EOC	Amity Twp. EOC	Washington Twp. EOC	Chester County EOC	East Nantmeal Twp. EOC	North Coventry Twp. EOC	Spring City Boro. EOC
Unusual Event	1533	1542	1545	N/A	N/A	1554	N/A	N/A	1542	N/A	N/A	N/A
Alert	1635	1703	1703	1640	N/A	1642	1654	1654	1643	1646	1646	1646
Site Area Emergency	1811	1822	1822	1815	1811	1820	1828	1828	1821	1827	1823	1829
General Emergency	1923	1934	1934	1923	1923	1932	1940	1945	1934	1940	1945	1943
Simulated Radiation Release Started	1735	1740	1740	1735	1735	1748			N/A			
Simulated Radiation Release Terminated	N/A	N/A	N/A	N/A	N/A	N/A			N/A			
Facility Declared Operational		1705	1705	1813	1742	1701	1740	1748	N/A	1731	1733	1733
Governor's Declaration of State Emergency		2022	2022	2107	N/A	2113			2115			
Local Declaration of State of Emergency						2007			N/A			
Exercise Terminated		2130	2130	2130	2130	2133	2135	2138	2132	2125	2123	2122
Precautionary Actions: Restrict Airspace		1857	1857	N/A	N/A	1926			1927			
Restrict Rail Traffic		1848	1848	N/A	N/A	1927			1929			
Restrict Water Traffic		1910	1910	N/A	N/A	1928			1929			
Shelter Livestock, Place on Stored Feed		1859	1859	N/A	N/A	1957			1952			
1 st A&N Decision Time		1905	N/A	N/A	N/A	1905	1910	1910	1905	1928	1928	1928
1 st Siren Activation		1915				1915			1915			
1 st EAS Message		1918										
2 nd A&N Decision Time		2045	N/A	N/A	N/A	2045	2046	2046	2045	2047	2047	2047
2 nd Siren Activation		2055				2055			2055			
2 nd EAS Message		2058										
KI Administration Decision: Emergency Workers advised to take KI Action taken at Location		2027	2027	2049	N/A	2027	2041	2041	2029	2052	2044	2044
KI Administration Decision: General Public advised to take KI Action taken at Location		2027	2027	N/A	N/A	2027	2041	2041	2029	1952	2044	2044

Legend: N/A – Not Applicable

*EOC Relocated

NR – Not Received

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: August 7, 2007, Limerick Generating Station

Emergency Classification Level or Event	Time Utility Declared	***** TIME THAT NOTIFICATION WAS RECEIVED *****											
		Upper Uwchlan Twp. EOC	Warwick Twp. EOC	Montgomery County EOC	Collegeville Boro. EOC	Douglas Twp. EOC	Royersford Boro. EOC	Schwenksville Boro. EOC	Skippack Twp. EOC	Upper Providence Twp. EOC	Upper Salford Twp. EOC	Bucks Co. EOC	Lehigh Co. EOC
Unusual Event	1533	N/A	N/A	1552	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	1635	1655	1653	1650	1650	1650	1652	1650	1653	1650	1655	1724	1733
Site Area Emergency	1811	1833	1824	1827	1827	1827	1827	1827	1827	1827	1827	1851	1853
General Emergency	1923	1935	1939	1936	1946	1943	1949	1943	1941	1943	1941	1951	1959
Simulated Radiation Release Started	1735			1827								2023	1951
Simulated Radiation Release Terminated	N/A			N/A								N/A	N/A
Facility Declared Operational		1800	1717	1702	1717	1728	1738	1702	1717	1735	1723	1725	1900
Governor's Declaration of State Emergency				2114									
Local Declaration of State of Emergency				1950									
Exercise Terminated		2105	2051	2135	2025	2100	2130	2100	2113	2125	2100	2115	2108
Precautionary Actions:													
Restrict Airspace				1927								1957	1926
Restrict Rail Traffic				1927								1957	1928
Restrict Water Traffic				N/A								1929	1929
Shelter Livestock, Place on Stored Feed				1951								1951	1951
1 st A&N Decision Time		1930	1930	1905	N/R	2027	N/R	2030	2025	2025	2026	1905	1905
1 st Siren Activation				1915									
1 st EAS Message													
2 nd A&N Decision Time		2047	2047	2047	N/R	N/R	N/R	2050	2046	2046	2046	2055	2055
2 nd Siren Activation				2055									
2 nd EAS Message													
KI Administration Decision: Emergency Workers advised to take KI Action taken at Location		2027	2030	2027	2030	2029	2029	2030	2029	N/R	2029	2030	2030
KI Administration Decision: General Public advised to take KI Action taken at Location		2027	2030	2027	N/R	N/R	N/R	N/R	2029	N/R	N/R	2030	2030

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 August 7, 2007, biennial Radiological Emergency Preparedness (REP) exercise. The exercise was held to test the offsite emergency response capabilities of local governments in the 10-mile Emergency Planning Zone (EPZ) surrounding the Limerick Generating Station (LGS).

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of the exercise evaluation area criteria contained in the 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 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 Area Requiring Corrective Action (ARCA) assessed and no unresolved ARCAs from prior exercises)
- A ARCA(s) assessed
- A¹ ARCA(s) assessed, but successfully re-demonstrated
- R Resolved ARCA(s) from prior exercises

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: August 7, 2007 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				
Spring City Bor. EOC	M		M	M	M	M						M	M	M		M	M										M										
Spring City Bor. Route Alerting				M								M	M															A ¹									
Upper Uwchlan Twp. EOC	M		M	M	M	M						A ¹	M	M		M	M										M										
Warwick Twp. EOC	M		M	M	M	M						M	M	M		M	M										M										
MONTGOMERY COUNTY																																					
Montgomery County EOC (alternate EOC – Fire Academy)	M		A ¹	M	M	M					M	M	M	M	M	M	M										M			M							
Emergency Worker Mon./Decon. (Methacton HS)					M/R							M																			M	M					
Reception Center (Montgomery Mall)					M							M																			M						
Mon./Decon. Center (Montgomery Mall)					M							M																		M							
Mass Care (Enfield MS)																																		M			
Mass Care (Hatboro-Horsham Sr. HS)																																		M			
Mass Care (Keith Valley HS)																																		M			
Mass Care (Lower Moreland HS)																																		M			
Mass Care (Springfield Twp. HS)																																		M			
Collegeville Bor. EOC	M		M	M	M	M						M	M	M		M	M										M										
Douglas Twp. EOC	M		M	M	M	M						M	M	M		M	M										M										
Royersford Bor. EOC	M		M	M	M	M						M	M	M		M	M										M										
Royersford Bor. Route Alerting					M							M	M																M								
Schwenksville Bor. EOC	M		M	M	M	M						M/R	M/R	M		M	M										M										
Skippack Twp. EOC	M		M	M	M	M						M	M	M		M	M										A ¹										
Upper Providence Twp. EOC	M		M	M	M	M						M	M	M		M	M										M										
Upper Salford Twp. EOC	M		M	M	M	M						M	M	M		M	M										M										
SUPPORT JURISDICTIONS																																					
BUCKS COUNTY																																					
Bucks County EOC	M		M	M	M																																
Reception Center (Neshaminy Mall)					M							M																		M							
Mon./Decon. Center (Neshaminy Mall)					M							M																		A ¹							
Mass Care (Neshaminy MS)																																		M			
Mass Care (Pennsbury HS)																																		M			
Mass Care (Medill Bair HS)																																		M			
Mass Care (William Penn HS)																																		M			
Mass Care (Bensalem HS)																																		M			
Mass Care (Cecilia Snyder MS)																																		M			
Mass Care (Robert Shafer MS)																																		M			
Mass Care (Armstrong MS)																																		M			
Mass Care (Truman HS)																																		M			

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

A = ARCA(s) assessed
U = Unresolved ARCA(s) from prior exercise

A¹ = ARCA(s) assessed but successfully re-demonstrated
Blank = Not scheduled for demonstration

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: August 7, 2007 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		
Mass Care (Ben Franklin MS)																																		M	
Mass Care (Neil Armstrong MS)																																			M
Mass Care (Neshaminy HS)																																			M
LEHIGH COUNTY																																			
Lehigh County EOC	M		M	M	M																														
Reception Center (Southern Lehigh HS)					M							A ¹																		M					
Mon./Decon. Center (Southern Lehigh HS)					M							M																		A ¹					
Mass Care (Southern Lehigh HS)																																			M
Mass Care (Northern Lehigh Senior HS)																																			M
Mass Care (Northern Lehigh Junior HS)																																			M
Mass Care (Whitehall HS)																																			M
Mass Care (Whitehall-Coplay MS)																																			M
Mass Care (Northwestern Lehigh HS)																																			M
SCHOOLS																																			
BERKS COUNTY																																			
Boyerstown Area School District															M																				
Boyertown JSH East															M																				
Colebrookdale ES															M																				
Gilbertsville ES															M																				
Pine Forge ES															M																				
Daniel Boone Area School District															M																				
Amity Intermediate Center															M																				
Daniel Boone MS															M																				
Monocacy Kindergarten Center															M																				
CHESTER COUNTY																																			
Downingtown Area School District															M																				
Pickering Valley ES															M																				
Lionville ES															M																				
Great Valley School District															M																				
Charlestown ES															M																				
Owen J. Roberts School District															M																				
North Coventry ES															M																				
Owen J. Roberts MS															M																				
Phoenixville Area School District															M																				
Phoenixville MS															M																				
Samuel K. Barkely ES															M																				

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

A = ARCA(s) assessed
U = Unresolved ARCA(s) from prior exercise

A¹ = ARCA(s) assessed but successfully re-demonstrated
Blank = Not scheduled for demonstration

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.”

The Federal Emergency Management Agency (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 STATE/COMMONWEALTH

1.1 State Emergency Operations Center (Control Cell – Observed Only)

- 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 Bureau of Radiation Protection, Control Cell – Observed Only)

- 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

- a. MET: 1.d.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 Bureau of Radiation Protection)

- a. MET: 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

1.5 RV3 Field Team Coordinator

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

1.6a State Field Monitoring Team 1

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

1.6b State Field Monitoring Team 2

- a. **MET:** 1.d.1 3.a.1 4.a.1
1.e.1 3.b.1 4.a.3
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs – RESOLVED:** None
- f. **PRIOR ARCAs – UNRESOLVED:** None

1.7 State Traffic/Access Control

- a. **MET:** 1.d.1 3.a.1
1.e.1 3.b.1
3.d.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

2.0 RISK JURISDICTIONS

2.1 Berks County

2.1.1 Berks County Emergency Operations Center

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

Issue Number: 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).

Corrective Action Demonstrated: At 2027 hours, Berks County received the decision of the Pennsylvania Secretary of Health that KI was to be taken. By 2041 hours, all municipalities and townships, including Earl Township, were notified that KI was to be ingested by all emergency workers, the general public and institutionalized persons. The municipality liaison, radiological officer, and RACES transmitted the message to the municipality and township EOCs.

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

2.1.2 Emergency Worker Monitoring/Decontamination Center (Oley Valley High 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

2.1.3 Reception Center (Oley Valley 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

2.1.4a Monitoring/Decontamination Center (Antietam Junior & Senior 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 (Antietam Junior & Senior High School)

- a. **MET:** 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

2.1.5a Monitoring/Decontamination Center (Kutztown Area Senior 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

2.1.5b Mass Care (Kutztown Area Senior High School)

- a. **MET:** 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

2.1.6 Amity Township Emergency Operations Center

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
 1.c.1 3.b.1
 1.d.1 3.c.1
 1.e.1 3.d.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 Amity Township Route Alerting (Amity Fire Company)

- a. **MET:** 1.d.1 3.a.1 5.a.3
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 Washington Township Emergency Operations Center

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.c.1 3.b.1
1.d.1 3.c.1
1.e.1 3.d.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 Emergency Operations Center (Control Cell/ Observed Only)

- a. **MET:** N/A
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (5.b.1
Re-demonstrated)

Issue Number: 35-07-5.b.1-A-01 (Re-demonstrated)

Condition: A press release containing inaccurate information was prepared and distributed by the Chester County Emergency Operations Center. Specifically, the following inaccuracies were in the initial press release:

Peach Bottom Atomic Power Station was the identified site; and

The press release directed Emergency Workers, Special Populations, and General Public to take Potassium Iodide (KI) and “for only those people who are allergic to iodine to take KI.”

Additionally, the press release was issued at 1942, seven minutes prior to the Pennsylvania Department of Health issuing a message for emergency workers, special populations and the general public to take potassium iodide.

Possible Cause: Misread information from utility Protective Action Recommendation posted on status board.

Reference: NUREG-0654, E.7.

Effect: Emergency Workers, Special Populations, and General Public could have ingested Potassium Iodide (KI) when not needed.

Corrective Action Demonstrated: At 2004, Chester County prepared and distributed a revised press release correcting the inaccurate plant information and identifying who should take KI. This press release was distributed

subsequent to the Protective Action Decision issued by the Pennsylvania Department of Health (1949), thus remediating the issue.

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** 1

Issue Number: 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).

Corrective Action Demonstrated: During the Peach Bottom Atomic Power Station Full Scale Exercise on August 25, 2007 the Chester County Public Information Officer's Press Release at 2022 contained all necessary information on the ingestion of KI by the public and special populations.

f. **PRIOR ARCAs – UNRESOLVED:** None

2.2.2 Emergency Worker Monitoring/Decontamination Center (Elverson Fire Company)

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

2.2.3 Reception Center (Stetson Middle 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

2.2.4 Monitoring/Decontamination Center (Stetson Middle 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

2.2.5a Mass Care (North Brandywine Middle School)

- a. **MET:** 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

2.2.5b Mass Care (South Brandywine Middle School)

- a. **MET:** 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

2.2.5c Mass Care (Kennett High School)

- a. **MET:** 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

2.2.5d Mass Care (Kennett Middle School)

- a. **MET:** 1.b.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

2.2.5e Mass Care (Unionville High School)

- a. **MET:** 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

2.2.5f Mass Care (Charles Patton Middle School)

- a. **MET:** 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

2.2.6 East Nantmeal Township Emergency Operations Center

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

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

e. PRIOR ARCAs – RESOLVED: 1

Issue Number: 35-05-3.a.1, 3.b.1-A-03

Condition: Emergency Workers did not receive a radiological briefing.

Corrective Action Demonstrated: The Radiological Officer (RO) presented a thorough and comprehensive briefing of the police representative (simulating a policeman assigned to traffic control). The briefing covered the use of direct reading dosimetry, permanent record dosimetry, and the administration/consumption of potassium iodine (KI), along with the necessary records maintained by the user and the RO. Furthermore, the RO played the VCR tape used for a radiological briefing of the EOC staff.

f. PRIOR ARCAs – UNRESOLVED: None

2.2.8 Spring City Borough Emergency Operations Center

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

2.2.8a Spring City Borough Route Alerting

a. MET: 1.d.1 3.a.1
3.b.1

b. DEFICIENCY: None

- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (5.a.3 Re-demonstrated)

Issue Number: 35-07-5.a.3-A-02 (Re-demonstrated)

Condition: The Spring City Borough failed to complete the back-up route alerting upon being notified of the failure of a siren in the allotted 45 minute time period. The demonstration took 58 minutes to complete. The Fire Company declined an opportunity to re-demonstrate this criterion during the exercise.

Possible Cause: The fire company members that completed the demonstration had not received a radiological briefing before the failure of the siren notification was received. The fire chief thought that the forty-five (45) minute time requirement began once the actual route alert vehicle began the route.

References: NUREG-0654, E. 6, Appendix 3.B.2.c.

Effect: The notification to the public to tune to local Emergency Alert System stations for further information could be delayed longer than the 45 minutes recommended.

Recommendation: Members that are assigned to carry out back-up route alerting should receive radiological briefing and have equipment issued before sirens are sounded.

Corrective Action Demonstrated: On October 15, 2007, the Spring City Borough re-demonstrated back up route alerting for a failed siren. Upon notification of the Site Area Emergency, they gave a radiological briefing, instructing the team of their responsibilities. Upon notification of a failed siren in their jurisdiction, they dispatched the team for the failed siren. The total time for the team to complete this task was 36 minutes.

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

2.2.9 Upper Uwchlan Township Emergency Operations Center

- a. **MET:** 1.a.1 2.a.1 3.b.1 5.a.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:** 1 (3.a.1 Re-demonstrated)

Issue Number: 35-07-3.a.1-A-03 (Re-demonstrated)

Condition: Emergency workers were not shown how to read their direct reading dosimeters (DRDs) nor told that they should be read every 30 minutes. Emergency workers were told to read their dosimeters at the end of task performance, which could mean they would be exposed in the field for hours prior to and between readings of their DRD. Emergency workers were also never told where and to whom they return their dosimetry at the end of the emergency or their mission.

Possible Cause: Insufficient training for the new Radiological Officer (RO).

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

Effect: Emergency workers were not prepared to read their dosimetry in the field, thereby possibly leaving them susceptible to receiving a high dose of radiation. Without notifying the emergency workers where to return their dosimetry the emergency workers could be contaminated and return home without being monitored and decontaminated.

Recommendation: Training should be provided for the Radiological Officer and for all departments that have emergency workers in the field.

Corrective Action Demonstrated: During the September 25, 2007 re-demonstration, the Upper Uwchlan Radiological Officer performed a complete radiological briefing, to include explaining how often to read their direct

reading dosimeter and what to do with their equipment when they return from their assignment.

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

2.2.10 Warwick Township Emergency Operations Center

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.c.1 3.b.1
1.d.1 3.c.1
1.e.1 3.d.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 Emergency Operations Center (Alternate Emergency Operations Center – Fire Academy)

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

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

Issue Number: 35-07-1.c.1-A-04 (Re-demonstrated)

Condition: The State Department of Health issued the order for the general public, special populations, emergency workers, and institutionalized persons to ingest KI. The Montgomery County Incident Commander briefed his staff and the municipalities that only emergency workers, special populations, and institutionalized persons were included in the order to ingest KI. The general public was not mentioned by the incident commander.

Possible Cause: The Incident Commander was not on the conference call himself when the Protective Action Recommendation (PAR) was discussed. The Incident Commander directed the Plans Section Chief to represent him on the conference call when the PAR was being discussed. When the Plans Section Chief reported back to the Incident Commander on the State PAR, “evacuate 10-mile radius, except hospitals, and state prison which were to be sheltered, and the order for KI for emergency workers, everyone, institutionalized”. When reviewing the information he missed the reference to “everyone” as the general public. Also, he did not question that the general public was omitted from the order to ingest KI.

References: NUREG-0654, A.1.d; A.2.a, b.

Effect: Information to the municipalities and information relayed in press releases and media briefings was different from what the State and other counties were reporting.

Recommendation: The Incident Commander should ensure he is on any conference call where PARs are being discussed. He should check for written verification of the information.

Corrective Action Demonstrated: During the September 25, 2007 re-demonstration, the Montgomery County Office of Emergency Preparedness Incident Commander properly identified and instructed everyone who should ingest KI. The Public Information Officer (PIO) also provided a press release with all proper information as to who should ingest KI.

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

2.3.2 Emergency Worker Monitoring/Decontamination Center (Methacton High 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:** 1

Issue Number: 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.

Corrective Action Demonstrated: The equipment and supplies at the Montgomery County Emergency Worker Monitoring and Decontamination Station located on the grounds of Methacton High School were of sufficient quantities to adequately support Emergency Worker Monitoring and Decontamination operations. Radiological monitoring equipment consisted of one Bicron TPM-903 portal monitor, four Victoreen 190 portable survey meters (primary) with pancake probes and twelve CDV-700 portable survey meters used for back up. The calibration dates of the survey equipment were verified to be May, 2007. Due to the location of the decontamination station being outside of the Emergency Planning Zone, direct reading dosimeters and Potassium Iodide are not provided to the Emergency Workers. There were three hundred gowns on hand and additional supplies in storage, if needed. These gowns are to be provided to any worker

whose clothing was lost due to contamination. The contaminated vehicle quarantine area was sufficiently sized to accommodate a large number of vehicles. Rolls of paper and plastic were on hand to be spread along personnel walkways to prevent the potential spread of contamination. The walkways and vehicle staging areas were cordoned off by cones and tape. Receptacles were available for both contaminated and clean trash. The trailer, vehicle and personnel staging areas and standby emergency equipment were configured according to a diagram provided to the Monitoring Team Chief.

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

2.3.3 Reception Center (Montgomery Mall)

- 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

2.3.4 Monitoring/Decontamination Center (Montgomery Mall)

- 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

2.3.5a Mass Care (Enfield Middle School)

- a. **MET:** 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**

2.3.5b Mass Care (Hatboro-Horsham Senior High School)

- a. MET: 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**

2.3.5c Mass Care (Keith Valley High School)

- a. MET: 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**

2.3.5d Mass Care (Lower Moreland High School)

- a. MET: 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

2.3.5e Mass Care (Springfield Township High School)

- a. **MET:** 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

2.3.6 Collegeville Borough Emergency Operations Center

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
 1.c.1 3.b.1
 1.d.1 3.c.1
 1.e.1 3.d.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 Douglas Township Emergency Operations Center

- a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
 1.c.1 3.b.1
 1.d.1 3.c.1
 1.e.1 3.d.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 Royersford Borough Emergency Operations Center

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

2.3.8a Royersford Borough Route Alerting

- a. **MET:** 1.d.1 3.a.1 5.a.3
 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

2.3.9 Schwenksville Borough Emergency Operations Center

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

Issue Number: 35-05-3.a.1, 3.b.1-A-08

Condition: The Schwenksville Emergency Operations Center 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.

Corrective Action Demonstrated: This issue has been corrected. The Schwenksville Borough EOC Radiological Officer's (RO) briefing, in conjunction with a short radiological film that all emergency workers (EWs) viewed, was adequate and included radiological monitoring requirements, dosimetry, monitoring procedures, potassium iodide (KI) use, precautions for the ingestion of KI, KI reporting requirements, and other requisite radiological briefing requirements.

Instructions for use of KI, including the reasons for taking it and the possible side effects, were part of the demonstration briefing given by the RO to a member of the EOC staff. Administrative record keeping was demonstrated, and KI control forms were available in sufficient quantities to accompany KI distribution. The form has a place to record the date and time that KI is taken over a period of 14 days. Additionally, the RO strongly emphasized during his briefing, and several times during the exercise after the declaration of the General Emergency (GE), Emergency Classification Level (ECL) at 1943 hours

that KI is not to be taken by anyone until precise instructions to do so are issued.

The RO understood the decision making process for KI ingestion was at the State level. During the exercise a message was received at 2030 hours over the Montgomery County Emergency Preparedness Radio System (MCEPRS) EWs and special population personnel were to ingest KI. The RO quickly disseminated this information to all EWs, and reminded them to log in the time that they ingested (simulated) their first pill.

f. PRIOR ARCA_s – UNRESOLVED: None

2.3.10 Skippack Township Emergency Operations Center

a. MET: 1.a.1 2.a.1 3.a.1
1.c.1 3.b.1
1.d.1 3.c.1
1.e.1 3.d.1
3.d.2

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: 1 (5.a.1)
(Re-demonstrated)

Issue Number: 35-07-5.a.1-A-05 (Re-demonstrated)

Condition: Alert and notification of hearing impaired individuals was not successfully accomplished by Skippack responders in the Township Emergency Operations Center (EOC). Responders were unaware of the provisions of Section II.D.2.d (Hearing Impaired) and Attachment F (Residents With Special Medical Requirements) of Annex E (Radiological Emergency Response Plan for Incidents at Limerick Generating Station) or the use of the pre-scripted message form for hearing-impaired individuals (Attachment P of Annex E) and did not know that route alerting of these individuals was required after each sounding of the sirens.

Possible Cause: EOC responders were not aware of alert and notification procedures for hearing impaired individuals.

Reference: Annex E – Radiological Emergency Response Plan for Incidents at Limerick Generating Station.

Effect: Hearing impaired individuals would not have been informed of protective actions.

Recommendation: Conduct training for Skippack EOC responders on procedures for alert and notification of hearing impaired individuals.

Corrective Action Demonstrated: On September 25, 2007, the Radiological Officer for Skippack Township properly re-demonstrated the steps taken by the Radiological Officer in the event the sirens for Limerick Generating Station were sounded to notify the residents of a problem. Through an interview he explained the list of hearing impaired in the township. He also explained that the Public Works Department members would be issued dosimetry, given a radiological briefing, and explained their responsibilities. They were also told to report back to the EOC once their mission was accomplished and ensure they have completed their notification within a 45 minute time period.

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

2.3.11 Upper Providence Township Emergency Operations Center

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

2.3.12 Upper Salford Township Emergency Operations Center

a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.c.1 3.b.1
1.d.1 3.c.1
1.e.1 3.d.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 Emergency Operations Center

- 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

3.1.2 Reception Center (Neshaminy Mall)

- 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 Monitoring/Decontamination Center (Neshaminy Mall)

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

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

Issue Number: 35-07-6.a.1-A-06 (Re-demonstrated)

Condition: Inadequate monitoring techniques with hand held survey meter. Probe speed was 10 to 12 inches per second versus 4 inches per second specified in C2004-2. Probe distance was 1 to 3 inches versus plan requirement of 1 inch. During scanning of a vehicle two monitors did not maintain proper probe orientation or wear gloves to minimize the probability of monitor contamination.

Possible Cause: The individuals who performed the monitoring were not adequately trained in proper techniques for monitoring.

References: NUREG-0654, K.5.b;

PEMA Circular No. C2004-2, Emergency Management Guidance and Information.

Effect: There are two possible effects. Some contamination of an evacuee could go undetected and possibly be spread. The individual performing the monitoring could become contaminated from touching the vehicle being monitored.

Recommendation: Train the individual and other monitors in proper monitoring techniques including contamination control.

CORRECTIVE ACTION DEMONSTRATED: On September 25, 2007, the Bucks County Monitoring and Decontamination Center team properly re-demonstrated monitoring techniques using a hand held survey meter. The monitor began by installing batteries in a CDV 700 and performing correct operational check procedures. He began monitoring the subject at the top of the head and proceeded slowly and methodically down the body. The probe was protected by a plastic covering and held approximately 1 inch from the subject's skin and clothing throughout the process. The rate of progress was approximately 3 to 4 inches per minute. Controller injects were provided to advise the monitor when and where contamination was detected. The monitor then verified the presence and location of contamination by approaching the location from

different directions. The contamination was determined to be located between the neck and shoulder in the vicinity of the collar bone.

In a post monitoring interview the monitor explained that the subject would be decontaminated by first removing the shirt and re-monitoring the contaminated area. If contamination was found, the subject would shower and be monitored again. If contamination was still detected, the subject would be transported to an MS-1 hospital for treatment.

The monitoring team explained proper techniques for detecting contamination on a vehicle. The monitor explained they would begin with the interior of the vehicle on the driver's side, including the instrument panel, steering wheel, floor, pedal, and seats, and slowly sweep left to right and front to rear. This would be followed by monitoring the exterior of the vehicle beginning with the grill, left front wheel, wheel well, rocker panel, rear wheel and wheel well. The monitoring of the right side of the vehicle would then take place. If contamination was detected the vehicle would be placed in a segregated parking area for decontamination.

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

3.1.4a Mass Care Center (Neshaminy Middle School)

- a. **MET:** 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

3.1.4b Mass Care Center (Pennsbury High School)

- a. **MET: 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**

3.1.4c Mass Care Center (Medill Bair High School)

- a. **MET: 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**

3.1.4d Mass Care Center (William Penn High School)

- a. **MET: 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**

3.1.4e Mass Care Center (Bensalem High School)

- a. **MET: 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**

3.1.4f Mass Care Center (Cecilia Snyder Middle School)

- a. MET: 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**

3.1.4g Mass Care Center (Robert Shafer Middle School)

- a. MET: 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**

3.1.4h Mass Care Center (Armstrong Middle School)

- a. MET: 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

3.1.4i Mass Care Center (Truman High School)

- a. **MET:** 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

3.1.4j Mass Care Center (Ben Franklin Middle School)

- a. **MET:** 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

3.1.4k Mass Care Center (Neil Armstrong Middle School)

- a. **MET:** 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

3.1.4l Mass Care Center (Neshaminy High School)

- a. **MET:** 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 Emergency Operations Center

- 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 (Southern Lehigh High School)

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

- c. **AREAS REQUIRING CORRECTIVE ACTION:** 1 (3.a.1 Re-demonstrated)

Issue Number: 35-07-3.a.1-A-07 (Re-demonstrated)

Condition: The reception center emergency workers were issued Permanent Record Dosimeters (PRDs) with no briefing or guidance.

Possible Cause: Radiological officer was not present.

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

Effect: The PRDs were improperly worn, and the exposure measurement would not be accurate.

Recommendation: Provide emergency workers with a radiological briefing.

Corrective Action Demonstrated: On September 25, 2007, the Lehigh County Radiological Officer (RO) successfully re-demonstrated a radiological briefing for Reception Center staff. The RO presented a folder containing procedures, forms and simulated Permanent Reading Dosimeters (PRDs) that would be issued to the reception center staff. The RO conducted a radiological briefing informing participants of the purpose of the dosimeters, the proper procedures for completing the standard Dosimetry – Potassium Iodide Form, and the exposure limits allowed for Category “C” emergency workers. Participants were instructed to wear the PRD between the waist and shoulder and on the exterior of any clothing. The RO also explained the method of operations for the Reception Center Registrar. The Registrar is responsible for issuing dosimetry to Reception Center personnel and recording the corresponding names and serial numbers for the PRDs issued.

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

3.2.3 Monitoring/Decontamination Center (Southern Lehigh High School)

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

Issue Number: 35-07-6.a.1-A-08 (Re-demonstrated)

Condition: Contamination control was not maintained during monitoring of a simulated evacuee.

Possible Cause: The contamination control boundaries were not clearly defined and not completely understood by the monitoring personnel.

Reference: NUREG-0654, K.5.a.

Effect: Contamination could have been spread into areas designated as being free of contamination.

Corrective Action Demonstrated: The exercise controller stopped the process and retrained the monitoring teams on the location of the contamination boundaries and contamination control procedures. After this training the activity was successfully re-demonstrated.

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

3.2.4a Mass Care Center (Southern Lehigh High School)

- a. **MET:** 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

3.2.4b Mass Care Center (Northern Lehigh Senior High School)

- a. **MET:** 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

3.2.4c Mass Care Center (Northern Lehigh Junior High School)

- a. **MET:** 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

3.2.4d Mass Care Center (Whitehall High School)

- a. **MET:** 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

3.2.4e Mass Care Center (Whitehall-Coplay Middle School)

- a. **MET:** 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

3.2.4f Mass Care Center (Northwestern Lehigh High School)

- a. **MET:** 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 RISK SCHOOLS

4.1 Berks County

4.1.1 Boyerstown Area School District

- 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**

4.1.1a Boyerstown Junior High School East

- 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**

4.1.1b Colebrookdale 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**

4.1.1c Gilbertsville 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**

4.1.1d Pine Forge 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 Area School District

- 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**

4.1.2a Amity Intermediate Center

- 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

4.1.2b Daniel Boone 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

4.1.2c Monocacy Kindergarten Center

- 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

4.2.1 Downingtown Area School District

- 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

4.2.1a 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

4.2.1b Lionville 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

- 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

4.2.2a 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

- 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

4.2.3a North Coventry 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

4.2.3b Owen J. Roberts 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**

4.2.4 Phoenixville Area School District

- 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**

4.2.4a Phoenixville 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**

4.2.4b Samuel K. Barkely 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

4.2.4c Schuylkill 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

4.3.1 Methacton School District

- 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

4.3.1a Arrowhead 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

4.3.1b Audubon 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

- 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

4.3.2a Perkiomen Valley Middle School West

- 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

4.3.2b Skippack 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

4.3.3 Pottsgrove School District

- 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

4.3.3a Pottsgrove 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

4.3.3b Ringing Rocks 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

4.3.4 Pottstown School District

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

Issue Number: 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.

Corrective Action Demonstrated: Communications between the county and Pottstown School District Administration Center, including primary and secondary means, were established and demonstrated during the exercise.

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

4.3.4a E.B. Barth Elementary School

- a. **MET:** 3.c.2
- b. **DEFICIENCY:** None

- c. **AREAS REQUIRING CORRECTIVE ACTION: 1 (3.c.2 Re-demonstrated)**

Issue Number: 35-07-3.c.2-A-09 (Re-demonstrated)

Condition: The Principal at E.B. Barth Elementary School did not implement the emergency procedures until prompted 45 minutes after receiving direction.

During observation at the Pottstown School District (PDS), E.B. Barth Elementary School (EBBES) was notified by PDS at 0918 that an Alert had been declared at the Limerick Generating Station. Instructions were given to begin implementing the emergency procedure for Alert when school is not in session. The radio transmission from EBBES to PDS confirmed the message was received.

Upon arrival at 1003 at EBBES the only actions taken by the school principal were to take census of people at school. No other actions (such as securing the building or notifying staff) had occurred. When asked the status of completing the emergency procedure, the principal was unfamiliar with the procedure or any of the specified actions. He stated that when he took the census he was only responding to the request from the PDS.

Possible Cause: Lack of training.

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

Effect: The school children may not have been evacuated promptly.

Corrective Action Demonstrated: The Principal received on-the-spot training from the Pennsylvania Emergency Management Agency observer. When the scenario escalated to General Emergency, he was able to successfully implement the plan as required.

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

4.3.4b Rupert 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**

4.3.5 Souderton Area School District

- 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**

4.3.5a Souderton Area Senior 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**

4.3.6 Spring-Ford Area School District

- 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

4.3.6a Brooke 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

4.3.6b Oaks 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

4.3.6c Spring City 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

4.3.7 Upper Perkiomen School District

- 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

4.3.7a Hereford 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

APPENDIX 1:

Acronyms and Abbreviations

A&N	Alert and Notification
ACP	Access Control Point
ARC	American Red Cross
ARC 3031	American Red Cross document <i>Mass Care – Preparedness and Operations</i>
ARCA	Area Requiring Corrective Action
ARES	Amateur Radio Emergency Service
BRP	Bureau of Radiation Protection
CFR	Code of Federal Regulations
cpm	Counts per minute
CRD	Control Rod Drive
DEP	Department of Environmental Protection
DHS	Department of Homeland Security
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alerting System
ECL	Emergency Classification Level
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
ES	Elementary School
ESF	Emergency Support Function of the National Response Plan
EW	Emergency Worker
FEMA	Federal Emergency Management Agency
FR	Federal Register
FRERP	Federal Radiological Emergency Response Plan
GE	General Emergency
HAZMAT	Hazardous Materials
HPCI	High Pressure Coolant Injector
HS	High School
ICFI	ICF International
JIC	Joint Information Center

KI	Potassium Iodide
LGS	Limerick Generating Station
MCC	Mass Care Center
MCR	Main Control Room
MS	Middle School
msl	Mean Sea Level
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
ON	Off-Normal (Procedure)
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAG	Protective Action Guidance
PAR	Protective Action Recommendation
PEMA	Pennsylvania Emergency Management Agency
PIO	Public Information Officer
PRD	Permanent Record Dosimeter
R	Roentgen(s)
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Services
Rem	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RO	Radiological Officer
RPV	Reactor Pressure Vessel
R/hr	Roentgens per hour
SAE	Site Area Emergency
SD	School District
SOP	Standard Operating Procedure
SRV	Safety Relief Valve
TCP	Traffic Control Point
TL	Team Leader
TWP	Township

APPENDIX 2: Exercise Evaluators and Team Leaders

The following is a list of the personnel who evaluated the Limerick Generating Station exercise on August 7, 2007, and the out-of-sequence demonstrations on July 23, 2007 and August 8, 2007. Evaluator Team Leaders are indicated by the letters "TL" after their names. Technical Team Leaders are indicated by the letters "TTL" after their names. The organization that each evaluator represents is indicated by the following abbreviations:

DHS/FEMA Dept. of Homeland Security/Federal Emergency Mgmt. Agency
 ICFI ICF International
 NRC Nuclear Regulatory Commission

<u>OBSERVERS-AT-LARGE</u>	<u>NAME</u>	<u>ORGANIZATION</u>
RAC Chairman	Darrell Hammons	DHS/FEMA
Project Officer	Angela Hough	DHS/FEMA
ICFI Regional Coordinator	Roger Kowieski	ICFI

1. Biennial Plume Exercise — August 7, 2007

COMMONWEALTH OF PENNSYLVANIA		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Emergency Operations Center (Control Cell/Observed Only)	Al Henryson	DHS/FEMA – (TL)
Accident Assessment (State BRP –Control Cell/Observed Only)	Reggie Rodgers	ICFI- (TTL)
Emergency News Center	Thomas Hegele	ICFI
Emergency Operations Facility (State BRP)	Joe Keller	ICFI
R3V Field Team Coordinator	Daryl Thomé	ICFI
Field Monitoring Team 1	Jill Leatherman	ICFI
Field Monitoring Team 2	Richard Watts	ICFI

1. Biennial Plume Exercise — August 7, 2007 (cont.)

RISK JURISDICTIONS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
BERKS COUNTY		
County EOC	John Price	DHS/FEMA – (TL)
	Jon Christiansen	ICFI
	Henry Christiansen	ICFI
	Bart Ray	ICFI
	Jacques Singleton	FEMA
Amity Township EOC	Kim Wood	ICFI
	Sonia Eischen	ICFI
Amity Township Route Alerting (Earl EOC) (Amity Fire Co.)	William O'Brien	ICFI
Washington Township EOC	Bob Duggleby	ICFI
	Clark Cofer	ICFI
CHESTER COUNTY		
County EOC – (Control Cell/Observed Only)	Wayne Shych	DHS/FEMA – (TL)
	Deborah Bell	ICFI
East Nantmeal Twp. EOC	Wendy Swygert	ICFI
	James McClanahan	ICFI
North Coventry Twp. EOC	Michael Henry	ICFI
	Robert Fernandez	ICFI
Spring City Boro. EOC	Doug Himle	ICFI
Spring City Boro (Route Alerting)	Mark Dalton	ICFI
Upper Uwchlan EOC	Deborah Blunt	ICFI
	Sarah Everidge	ICFI
Warwick Twp. EOC	Gary Goldberg	ICFI
	David Stuhan	ICFI

1. Biennial Plume Exercise — August 7, 2007 (cont.)

RISK JURISDICTIONS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
MONTGOMERY COUNTY		
County EOC (Alternate EOC – Fire Academy)	Bart Freeman Rosemary Samsel Pat Taylor Ernest Boaze	DHS/FEMA – (TL) ICFI ICFI ICFI
Collegetown Boro. EOC	William Edmonson	ICFI
	Louis Sosler	ICFI
Douglas Twp. EOC	Keith Earnshaw	ICFI
	Dave Stuenkel	ICFI
Royersford Boro. EOC	Glenn Kinnear	ICFI
	George MacDonald	ICFI
Royersford Boro. Route Alerting	Thomas Essig	ICFI
Schwenksville Borough EOC	Lawrence Visniesky	ICFI
	Daniel Prevo	ICFI
Skippack Twp. EOC	Richard Wessman	ICFI
	Nick Lowe	ICFI
Upper Providence Twp. EOC	Harold Spedding	ICFI
	Jim Torgler	ICFI
Upper Salford Twp. EOC	Dennis Wilford	ICFI
	Don Calsyn	ICFI

SUPPORT JURISDICTIONS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
BUCKS COUNTY		
County EOC	Robert Lemeshka	ICFI
LEHIGH COUNTY		
County EOC	Richard Smith	ICFI

2. **Out-of-Sequence Demonstrations: July 23, 2007**

RISK JURISDICTIONS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
CHESTER COUNTY		
Mass Care (North Brandywine Middle School)	Wayne Shych	DHS/FEMA
Mass Care (South Brandywine Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Kennett High School)	Wayne Shych	DHS/FEMA
Mass Care (Kennett Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Unionville High School)	Wayne Shych	DHS/FEMA
Mass Care (Charles Patton Middle School)	Wayne Shych	DHS/FEMA
MONTGOMERY COUNTY		
Mass Care (Enfield Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Hatboro-Horsham Senior High School)	Wayne Shych	DHS/FEMA
Mass Care (Keith Valley High School)	Wayne Shych	DHS/FEMA
Mass Care (Lower Moreland School)	Wayne Shych	DHS/FEMA
Mass Care (Springfield Twp. High School)	Wayne Shych	DHS/FEMA
BUCKS COUNTY		
Mass Care (Neshaminy Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Pennsbury High School)	Wayne Shych	DHS/FEMA
Mass Care (Medill Bair High School)	Wayne Shych	DHS/FEMA
Mass Care (William Penn High School)	Wayne Shych	DHS/FEMA
Mass Care (Bensalem High School)	Wayne Shych	DHS/FEMA
Mass Care (Cecilia Snyder Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Robert Shafer Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Bensalem Middle School – Bensalem)	Wayne Shych	DHS/FEMA
Mass Care (Truman High School)	Wayne Shych	DHS/FEMA
Mass Care (Ben Franklin Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Neil Armstrong Middle School)	Wayne Shych	DHS/FEMA
Mass Care (Neshaminy High School)	Wayne Shych	DHS/FEMA

3. **Out-of-Sequence Demonstrations: August 7, 2007**
9:00 a.m. – 11:00 a.m.

RISK SCHOOLS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
BERKS COUNTY		
Boyertown Area School District	David White	ICFI
Boyertown Junior High School East	Steve Denson	ICFI
Colebrookdale Elementary School	Thomas Hegele	ICFI
Gilbertsville Elementary School	David White	ICFI
Pine Forge Elementary School	Clark Cofer	ICFI
CHESTER COUNTY		
Downington Area School District	Sean Howley	
Pickering Valley Elementary School	Ronald Biernacki	ICFI
Lionville Elementary School	Sean Howley	ICFI
Great Valley School District	Michael Burns	
Charlestown Elementary School	Michael Burns	ICFI
Owen J. Roberts Area School District	Michael Meshenberg	
North Coventry Elementary School	David Seebart	ICFI
Owen J Roberts Middle School	Michael Meshenberg	ICFI
Phoenixville Area School District	David Petta	
Phoenixville Middle School	David Petta	ICFI
Samuel K Barkely Elementary School	Sarah Everidge	ICFI
Schuylkill Elementary School	Bob Fernandez	ICFI

3. **Out-of-Sequence Demonstrations: August 7, 2007 (cont.)**
9:00 a.m. – 11:00 a.m.

RISK SCHOOLS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
MONTGOMERY COUNTY		
Methacton Area School District	Todd Sniffin	ICFI
Arrowhead Elementary School	Todd Sniffin	ICFI
Audubon Elementary School	Paul Cormier	ICFI
Perkiomen Valley School District	William Vocke	ICFI
Perkiomen Valley Middle School – West	Louis Sosler	ICFI
Skippack Elementary School	Dave Stuenkel	ICFI
Pottsgrove School District	Jim Torgler	ICFI
Pottsgrove Middle School	Dave Stuhan	ICFI
Ringling Rocks Elementary School	Jim Torgler	ICFI
Pottstown School District	Don Calsyn	ICFI
E.B. Barth Elementary School	Don Calsyn	ICFI
Rupert Elementary School	Marynette Herndon	ICFI
Souderton Area School District	Frank Cordaro	ICFI
Souderton Area Senior High School	Daniel Prevo	ICFI
Spring-Ford Area School District	Alan Bevan	ICFI
Brooke Elementary School	Alan Bevan	ICFI
Oaks Elementary School	Nick Lowe	ICFI
Spring-City Elementary School	James McClanahan	ICFI
Upper Perkiomen School District	Brad McRee	ICFI
Hereford Elementary School	Brad McRee	ICFI

4. **Out-of-Sequence Demonstrations: August 8, 2007**
7:00 p.m. – 9:30 p.m.

COMMONWEALTH OF PENNSYLVANIA		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
State Traffic/Access Control	Michael Burns	ICFI

RISK JURISDICTIONS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
BERKS COUNTY		
Emergency Worker Monitoring/ Decontamination Station (Oley Valley High School)	Harry Harrison	ICFI
Reception Center (Oley Valley High School)	David White	ICFI
Monitoring & Decon Center (Antietam Junior & Senior High School)	Brad McRee	ICFI
Mass Care (Antietam Junior & Senior High School)	Michael Meshenberg	ICFI
Monitoring & Decon Center (Kutztown Area Senior High School)	Alan Bevan	ICFI
Mass Care (Kutztown Area Senior High School)	David Petta	ICFI
CHESTER COUNTY		
Emergency Worker Monitoring/ Decontamination Station(Elverson Fire Co.)	David Seebart	ICFI
Reception Center (Stetson Middle School)	Sean Howley	ICFI
Monitoring & Decon Center (Stetson Middle School)	Ronald Biernacki	ICFI
MONTGOMERY COUNTY		
Emergency Worker Monitoring/ Decontamination Station(Methacton High School)	Paul Cormier	ICFI
Reception Center (Montgomery Mall)	Todd Sniffin	ICFI
Monitoring & Decon Center (Montgomery Mall)	Marynette Herndon	ICFI

SUPPORT JURISDICTIONS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
BUCKS COUNTY		
Reception Center (Neshaminy Mall)	William Vocke	ICFI
Monitoring & Decon Center (Neshaminy Mall)	Steve Denson	ICFI
LEHIGH COUNTY		
Reception Center (Southern Lehigh High School)	Kimberly Nagel	ICFI
Monitoring & Decon Center (Southern Lehigh High School)	Ray Wood	ICFI
Mass Care (Southern Lehigh High School)	Frank Cordaro	ICFI

5. **Out-of-Sequence Demonstrations: August 8, 2007**
9:00 a.m. – 11:00 a.m.

RISK SCHOOLS		
<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
BERKS COUNTY		
Daniel Boone Area School District	Ray Wood	ICFI– (TL)
Amity Intermediate Center	Kimberly Nagel	ICFI
Daniel Boone Middle School	Ray Wood	ICFI
Monocacy Kindergarten Center	Ray Wood	ICFI

APPENDIX 3:

Exercise Evaluation Area Criteria and Extent of Play Agreement

This appendix contains the extent of play agreement from the Commonwealth of Pennsylvania approved by the Federal Emergency Management Agency (FEMA) Region III on June 11, 2007.

The exercise evaluation area criteria, contained in the “FEMA Radiological Emergency Preparedness Exercise Evaluation Methodology”, 67 FR 20580, April 25, 2002, represent a functional translation of the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 1, “Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” November 1980.

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

LIMERICK GENERATING STATION **2007 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:

Pre-positioning of state emergency personnel (Liaison Officers) at the Emergency Operations Facility (EOF), the Utility Joint Information Center (JIC) and Risk and Support Counties is appropriate due to the commuting distance from the individual's duty location or residence. Risk municipalities will conduct call-outs to demonstrate the mobilization of key personnel.

- *Actual calls (or pager notifications) will be made to the municipal EOC personnel for the Plume Phase exercise per plans and procedures.*
- *In all instances, the demonstration of a shift change is **NOT** required. Twenty-four hour staffing will be demonstrated by means of a roster or staffing chart.*
- *All out-of-sequence players and equipment will be pre-positioned (School District personnel, Pennsylvania State Police ACP, Reception Centers, Emergency Worker Monitoring and Decontamination Stations and Monitoring and Decontamination Centers).*
- *Individuals working in state facilities and county EOCs may be pre-positioned for the plume phase.*

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: None

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:

Risk and Support Counties will communicate with the State EOC via SEVAN (primary) and e-mail (secondary.) PASTAR, State 800 MHz Radio System, and commercial telephone are available for back-up. The State EOC may communicate with the utility and the risk counties via dedicated telephone circuits, commercial "dial-up" lines, or other available means.

Risk Counties will communicate with their risk municipalities via public safety radio frequencies (EMA Radio), Commercial Telephone, Fax, or Amateur Radio Communications (ARES / RACES) or other available means.

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 location(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. Support counties do not have DRDs, or KI, but those responsible for reception centers and / or monitoring and decontamination centers will have PRDs.

Evaluation of KI quantities will be verified using inventory sheets. KI will not be removed from storage locations and boxes / packages will not be opened. KI questions will be addressed through interviews.

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

All DRDs "read" on units of Roentgens. The commonwealth, counties and municipalities do not use direct reading dosimeters which "read" in units of milli-Roentgens.

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

ORO's 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 ORO's 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, ORO's 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)

EXTENT OF PLAY

During the initial stage of the emergency response, following notification of plant conditions that may warrant offsite protective actions, the ORO should demonstrate the capability to use appropriate means, described in the plan and/or procedures, to develop protective action recommendations (PARs) for decision-makers based on available information and recommendations from the licensee and field monitoring data, if available.

When the licensee provides release and meteorological data, the ORO also considers these data. The ORO should demonstrate a reliable capability to independently validate dose projections. The types of calculations to be demonstrated depend on the data available and the need for assessments to support the PARs appropriate to the scenario. In all cases, calculation of projected dose should be demonstrated. Projected doses should be related to quantities and units of the PAGs to which they will be compared. PARs should be promptly transmitted to decision-makers in a prearranged format.

Differences greater than a factor of 10 between projected doses by the licensee and the ORO should be discussed with the licensee with respect to the input data and assumptions used, the use of different models, or other possible reasons. Resolution of these differences should be incorporated into the PAR if timely and appropriate. The ORO should demonstrate the capability to use any additional data to refine projected doses and exposure rates and revise the associated PARs.

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 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; J.10.f, m)

EXTENT OF PLAY

OROs 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

ORO's 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. A maximum of six (6) Dosimetry-KI report forms 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. The area kit process is explained in State, County and Municipal Plans.

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

All locations that have dosimetry equipment indicated within their Radiological Emergency Response Plan (RERP), will make the dosimetry equipment (and KI) available for inspection by the Federal Evaluator. Simulation PRDs with mock serial numbers will be used.

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:

Within Pennsylvania, the Pennsylvania Department of Health is responsible for distribution of KI to the general public located within the EPZ. Pre-distribution is accomplished on an annual basis. KI is not distributed to the general public at the time of an emergency.

Evaluation of emergency worker KI quantities will be verified using inventory sheets. KI will not be removed from storage locations and boxes will not be opened. KI questions will be addressed through interviews.

Personnel assigned to operate Monitoring / Decontamination centers and stations are not issued DRDs or KI since the centers/stations are located outside the EPZ. Each will be issued a simulated PRD with mock serial numbers. For purposes of demonstration, a maximum of six PRDs will be issued.

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:

The names, locations and contact information of identified individuals with identified special needs are maintained on a list at their respective municipal EOC (based upon residential jurisdiction). Copies of these lists will not be provided to the evaluators; however, evaluators will be allowed to inspect the lists during the exercise.

Initial contact, by the County, with special populations (hospitals, nursing homes and county correctional facilities) will be actual. All subsequent calls will be simulated. Actual contacts (up to two per risk county) will be made with transportation providers per their 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:

School Students will not be involved during the exercise. Actions and activities associated with the demonstration of Criterion 3.c.2 will be limited to the School District Administration key personnel and the County. Evacuation of students will be conducted through an interview process with School District personnel or the building principal.

The role of the bus driver may be conducted through an interview with school or transportation officials (or designee) if a bus driver is not available. Actual demonstration of the bus route is not required and will not be demonstrated. Maps or route descriptions will be available for illustration purposes.

Risk County school plans do not require communications between the school and vehicles. Bus drivers are not considered emergency workers and therefore do not require dosimetry.

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 would contact in the event of an emergency in accordance with plans and procedures. Any simulated contacts should be logged.

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

ORO 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:

Municipal Traffic and Access control will be demonstrated by interview at the applicable EOC of jurisdiction. The traffic / access control personnel will not be deployed to the traffic / access control point(s). If the designated assignment is a location within the EPZ, a radiological briefing will be provided to the assigned individuals.

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

EXTENT OF PLAY

ORO's 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:

ORO's 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 tow trucks, need not be demonstrated; however, simulated contacts will be logged.

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 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)

EXTENT OF PLAY

Responsible Offsite Response Organizations (ORO) should demonstrate the capability to brief teams on predicted plume location and direction, travel speed, and exposure control procedures before deployment.

Field measurements are needed to help characterize the release and to support the adequacy of implemented protective actions or to be a factor in modifying protective actions. Teams should be directed to take measurements in such locations, at such times to provide information sufficient to characterize the plume and impacts.

If the responsibility to obtain peak measurements in the plume has been accepted by licensee field monitoring teams, with concurrence from OROs, there is no requirement for these measurements to be repeated by State and local monitoring teams. If the licensee teams do not obtain peak measurements in the plume, it is the ORO's decision as to whether peak measurements are necessary to sufficiently characterize the plume. The sharing and coordination of plume measurement information among all field teams (licensee, federal, and ORO) is essential. Coordination concerning transfer of samples, including a chain-of-custody form, to a radiological laboratory should be demonstrated.

ORO's should use Federal resources as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (for example, compacts, utility, 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.

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 be evaluated during this exercise.

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

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to assess the actual or potential magnitude and locations of radiological hazards in the Ingestion Pathway Emergency Planning Zone and for relocation, re-entry and return measures. This sub-element focuses on the collection of environmental samples for laboratory analyses that are essential for decisions on protection of the public from contaminated food and water and direct radiation from deposited materials.

Criterion 4.b.1: The field teams demonstrate the capability to make appropriate measurements and to collect appropriate samples (e.g., food crops, milk, water, vegetation, and soil) to support adequate assessments and protective action decision-making. (NUREG-0654, I.8; J.11)

EXTENT OF PLAY

The ORO's field team should demonstrate the capability to take measurements and samples, at such times and locations as directed, to enable an adequate assessment of the ingestion pathway and to support re-entry, relocation, and return decisions. When resources are available, the use of aerial surveys and in-situ gamma measurement is appropriate. 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's plan and/or procedures.

Ingestion pathway samples should be secured from agricultural products and water. Samples in support of relocation and return should be secured from soil, vegetation, and other surfaces in areas that received radioactive ground deposition.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g., 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 be demonstrated during this exercise.

Sub-element 4.c – Laboratory Operations

INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to perform laboratory analyses of radioactivity in air, liquid, and environmental samples to support protective action decision-making.

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions. (NUREG-0654, C.3; J.11)

EXTENT OF PLAY

The laboratory staff should demonstrate the capability to follow appropriate procedures for receiving samples, including logging of information, preventing contamination of the laboratory, preventing buildup of background radiation due to stored samples, preventing cross contamination of samples, preserving samples that may spoil (e.g., milk), and keeping track of sample identity. In addition, the laboratory staff should demonstrate the capability to prepare samples for conducting measurements.

The laboratory should be appropriately equipped to provide analyses of media, as requested, on a timely basis, of sufficient quality and sensitivity to support assessments and decisions as anticipated by the ORO's plans and procedures. The laboratory (laboratories) instrument calibrations should be traceable to standards provided by the National Institute of Standards and Technology. Laboratory methods used to analyze typical radionuclides released in a reactor incident should be as described in the plans and procedures. New or revised methods may be used to analyze atypical radionuclide releases (e.g., transuranics or as a result of a terrorist event) or if warranted by circumstances of the event. Analysis may require resources beyond those of the ORO.

The laboratory staff should be qualified in radioanalytical techniques and contamination control procedures.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g., 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.

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:

*The Commonwealth of Pennsylvania has implemented a Statewide EAS Control system in cooperation with the Pennsylvania Association of Broadcasters per the State Emergency Communications Committee and Pennsylvania Emergency Alert System State EAS Plan (April 1, 2004). The State EOC (PEMA) is the initiating point for the activation of the EAS. Risk Counties have the control equipment for activation of sirens. Coordination will occur between the State EOC and the affected counties with respect to the Alert and Notification System (ANS) process. Sirens will be coordinated and the sounding simulated at the appropriate time with the simulated activation of EAS taking place approximately 3 minutes following the simulated activation of the sirens. Regular Broadcasting will not be interrupted on the EAS Stations. Broadcast of the message(s) or test message(s) is **NOT** required and **NOT** requested. Counties may elect to simulate county specific supplemental messages to their electronic local media.*

Following the decision to activate the alert and notification system, in accordance with the ORO's plan and/or procedures, ANS activation should be accomplished in a timely manner for primary alerting/notification. This action will NOT be subject to specific time requirements.

All actions to broadcast stations will be simulated. Systems that use automatic sending technology may be demonstrated by explanation during an interview.

Each evaluated municipality per risk county will demonstrate, by interview, route alerting of the hearing impaired residents within their jurisdiction. Hearing impaired notification teams will not be deployed.

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:

Back-up alert notification of the public due to a simulated siren failure will be demonstrated. (Refer to Attachment A, Section I. 4.) County liaisons will give an inject to the county coordinator, upon confirmation that sirens were sounded, that a particular siren has failed in the municipalities scheduled to demonstrate back-up route alerting. Notice of the siren failure will then be communicated to the appropriate municipalities so they can demonstrate their 45-minute pre-identified back-up route alert run as per Attachment A, Section I.A.4. Pennsylvania does not have any "exception areas."

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, G.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.

OROs 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.

OROs 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:

Subsequent emergency information and instructions should be provided to the public and the media in a timely manner. This will NOT be subject to specific time requirements. One media briefing will be demonstrated in each risk county.

Risk and Support Counties will receive and handle "Public Inquiry" messages via their individual "Public Inquiry" processes (In compliance with NIMS terminology, Rumor Control is now considered to be "Public Inquiry"). Counties will receive approximately ten (10) public inquiry calls from the State Exercise cell assigned this responsibility. Counties will be expected to receive and log the calls, identify any trends and take appropriate actions to include follow-up message development, distributions and/or briefings.

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:

Radiological monitoring demonstration sites should possess a roster of the monitoring personnel required to process 20% of the population allocated to the facility within a 12 hour period.

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.

Radiological monitoring of the public may be co-located at either reception centers or mass care centers depending on the county.

At each reception center (stand alone – non-mon/decon activity sites) 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. Note: Co-located facilities do not require strip maps or written directions.

Mass care centers and mass care monitoring/decontamination centers will be demonstrated per Attachment A during the out-of-sequence window. The counties will provide space at designated mass care centers for operation of monitoring/decontamination centers. Schematics

of these monitoring /decontamination centers will be available to show the organization and layout within the facility and space management for monitoring and decontamination. Procedures will be demonstrated to show the separation of contaminated and non-contaminated (clean) individuals to minimize cross contamination.

At the evacuee monitoring/decontamination centers (if using hand-held meters), a minimum of six (6) volunteer evacuees will be monitored (or one volunteer evacuee may be monitored six times). **Centers using portal monitors will not be required to demonstrate the timing aspect of processing six individuals – three (3) will suffice.** Suitable radiological monitoring instruments will be issued to and demonstrated by the initial monitoring team(s). A monitoring team consists of one monitor and one recorder equipped with one survey instrument. Those individuals found to be free of “contamination”, based upon scenario injects, will be directed to the mass care registration point for further processing. **Note:** Actual radiological sources will not be attached to or hidden upon the volunteer evacuees.

One of the simulated evacuees, based upon controller injects, will not be able to be decontaminated. Discussions concerning the processing of contaminated personnel will include capabilities and written procedures for showering females separate from males. Showering will be simulated, water will not be used. **Note: If portal monitors are used, the Portal Monitor Extent of Play described below shall be used.**

At the emergency worker monitoring/decontamination stations, two (2) emergency workers will be monitored. Discussions concerning processing of contaminated personnel will include capabilities and written procedures for showering females separate from males. Showering will be simulated, water will not be used. Suitable radiological monitoring instruments will be issued to the initial monitoring team. **Note: If portal monitors are used, the Portal Monitor Extent of Play described below shall be used.**

Portal Monitor Use: Risk and Support counties may, during this exercise, utilize portal monitors to monitor simulated evacuees and / or emergency workers. The monitoring / decontamination team requirements will be based on the portal monitor capabilities as applicable based on the procedure / guidelines, and the recommendations of the manufacturer. **Note:** PEMA Circular C2004-2 shall apply.

Monitoring/decontamination centers and Emergency Worker monitoring and decontamination station personnel are not issued DRDs or KI since the centers and stations are outside the EPZ. Category “C” Dosimetry applies. Simulated personal record dosimeters (PRDs) will be worn.

Radiation readings / contamination data for the evacuees and vehicle will be provided by the controller as appropriate based upon information contained 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. Long runs of plastic covered with paper will not be demonstrated, but the materials shall be available and explained. Positioning of a fire apparatus on-site may be simulated if otherwise required.

Note: Re-demonstrations may be performed as appropriate and time permitting.

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 radiological 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 clearly defined exit areas, per contamination control procedures and/or step-off pads (if used); 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.

Note: Re-demonstrations may be performed as appropriate and time permitting.

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:

Counties demonstrating the operation of mass care centers during the out-of-sequence window (Berks County) will provide floor plans of the mass care centers to show organization within the facility and space management during a real emergency. Mass care center locations are listed in the demonstration tables "Demonstration of Mass Care Centers (Attachment A, Section B.3)".

Personnel, at a minimum, will consist of one manager and one assistant for each mass care center opened during the out-of-sequence window. The responsible American Red Cross chapter will show the source and quantities, by job functional description, to be provided to mass care centers to support the 24-hour operation. The responsible Red Cross Chapter(s) will be visited, or telephonically contacted during business hours on August 8, 2007, by an exercise evaluator, or interviewed at the mass care center during the out-of-sequence evaluation to provide information regarding the 24-hour operation. Schematics of these mass care centers will be available, during the demonstration window, to show organization within the facility and space allocation for the registration and sheltering the evacuating public. Necessary signs, directional arrows and forms will be available and used to demonstrate registration, at a minimum, of three evacuees requiring emergency housing. Evacuees will be shown the location where they would be housed in an actual situation. Bedding, cots, food, etc. normally associated with mass care will not be moved to the site, but the sources of those items should be explained to FEMA evaluators. This out-of-sequence demonstration window will be from 7:00 PM – 9:30 PM on August 8, 2007.

Those facilities identified for the FEMA walk-down evaluations will be supported by a participating representative from the appropriate Red Cross Chapter(s). An interview process will be conducted to determine facility compliance of the above stated requirements.

American Red Cross risk and support county chapters:

Berks County Chapter
701 Centre Avenue
Reading PA 19601-2507
Adrian Grieve (610) 375-4383

Greater Lehigh Valley Chapter
2200 Avenue A
Bethlehem PA 18017-2181
Nina Johnson (610) 865-4400

(Montgomery, Chester & Bucks Counties)
Southeast Pennsylvania Chapter
23rd & Chestnut Streets

Philadelphia PA 19103
Richard Tesauro (215) 299-4889/4063

Lower Bucks County Chapter
1909 New Rodgers Rd.
Levittown PA 19056
Steve Huizar (215) 946-4870 x105

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

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO's) should have the capability to transport contaminated injured individuals to medical facilities with the capability to provide medical services.

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources, and trained personnel to provide transport, monitoring, decontamination, and medical services to contaminated injured individuals. (NUREG-0654, F.2; H.10; K.5.a, b; L.1,4)

EXTENT OF PLAY

Monitoring, decontamination, and contamination control efforts will not delay urgent medical care for the victim.

Offsite Response Organizations (ORO) should demonstrate the capability to transport contaminated injured individuals to medical facilities. An ambulance should be used for the response to the victim. However, to avoid taking an ambulance out of service for an extended time, any vehicle (e.g., car, truck, or van) may be utilized to transport the victim to the medical facility. Normal communications between the ambulance/dispatcher and the receiving medical facility should be demonstrated. If a substitute vehicle is used for transport to the medical facility, this communication must occur prior to releasing the ambulance from the drill. This communication would include reporting radiation-monitoring results, if available. Additionally, the ambulance crew should demonstrate, by interview, knowledge of where the ambulance and crew would be monitored and decontaminated, if required, or whom to contact for such information.

Monitoring of the victim may be performed prior to transport, done enroute, or deferred to the medical facility. Prior to using a monitoring instrument(s), the monitor(s) should demonstrate the process of checking the instrument(s) for proper operation. All monitoring activities should be completed, as they would be in an actual emergency. Appropriate contamination control measures should be demonstrated prior to and during transport and at the receiving medical facility.

The medical facility should demonstrate the capability to activate and set up a radiological emergency area for treatment. Equipment and supplies should be available for the treatment of contaminated injured individuals.

The medical facility should demonstrate the capability to make decisions on the need for decontamination of the individual, to follow appropriate decontamination procedures, and to maintain records of all survey measurements and samples taken. All procedures for the collection and analysis of samples and the decontamination of the individual should be demonstrated or described to the evaluator.

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.

Frequency for Evaluation of New Criteria.

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

This sub-element will be evaluated at Holy Redeemer Hospital, Montgomery County on November 8, 2007.

APPENDIX 4:

Exercise Scenario

This appendix contains a summary of the simulated sequence of events used as the basis for invoking emergency response actions by Offsite Response Organizations (OROs) during the Limerick Generating Station (LGS) exercise on August 7, 2007.

The exercise scenario was submitted by the Commonwealth of Pennsylvania and approved by the Federal Emergency Management Agency (FEMA) Region III on June 19, 2007.

The summary presented in this appendix is a compilation of exercise scenario materials submitted by the Commonwealth of Pennsylvania and Exelon Nuclear. Events at the plant site that are not pertinent to the ORO response have been omitted.

Exelon Nuclear Emergency Preparedness Narrative Summary Limerick Generating Station Biennial Exercise August 7, 2007

- 1500 Commence exercise.
- 1515 Report of fire, control enclosure 200' (fire alarms in main control room).
- 1520 The fire is located on elevation 200' involving a combustible material storage cabinet. Maintenance personnel were performing welding activities in the area of the cabinet and poor housekeeping in the area have created a fire hazard. The fire smolders and personnel are not in the area as the fire moves from oil-soaked rags to large amount of oil and flammable liquids stored in the area and the materials in the open cabinet. Fire alarms alert the Main Control Room (MCR) of the smoke and fire in the areas. The fire is limited to the materials in the storage cabinet and does not affect plant safety systems equipment and there is no visible damage to permanent structure. The fire is not extinguished within 15 minutes of the Control Room alarms.
- 1535 Unusual Event Declaration based on Emergency Alert Level (EAL) HU-6: Fire NOT extinguished within 15 minutes of detection, or EXPLOSION within PROTECTED AREA boundary.
- 1555 EVENT 2: "1A" CRD pump trip due to motor overcurrent. The crew will enter Off Normal (ON) procedure ON 107 "Control Rod Drive System Problems." Crew will take the actions per the ON procedure and start the "1B" Control Rod Drive (CRD) pump.

- 1620 EVENT 3: Catastrophic failure of the D11 Diesel Generator main bearing. The failure has caused significant damage to the structure south wall and equipment located in the D11 compartment. There is no damage to the associated diesels. Operations personnel were performing a run of the D11 Diesel Generator for post-maintenance testing.
- 1640 Alert Declaration based on HA-6: Fire or explosion affecting the operability of plant safety systems required to establish or maintain safe shutdown. EAL threshold: 1. Fire or explosion in any Table H2 area AND a) Affected safety systems parameter indications show degraded performance OR b) Plant personnel report visible damage to permanent structures or safety system equipment within the specified area.
- 1710 EVENT 4: Reactor trip signal and failure to Auto Scram leading to the declaration of an Alert. Alternate Rod Insertion (ARI) successfully inserts all control rods and the Rx is shutdown.
- Note: Reactor Scram due to momentary Rx pressure spike as a result of the “Max Combined Flow Output” momentary dropping and returning to normal value.
- 1720 EVENT 5: Bearing failure on “1B” Condensate Pump leads to rapid degradation of component/system performance. First indication is provided by receipt of the following control room annunciators for the “1B” Condensate Pump:
- Panel 107 REACTOR, 1-2, Vibration Alarm Alert
 - Panel 107 REACTOR, 1-3, Vibration Alert Danger.
- Note: This event may not occur if the crew has secured the “1B” Condensate Pump per direction of T-100. Following the loss of 11 Bus the crew will need to fill and vent the condensate system prior to starting this pump. The crew will not be able to re-start this pump in time.
- 1740 EVENT 6: Failure of “B” Recirc Pump Seals resulting in increasing Dry Well pressure. The operators enter procedure for High D/W Pressure that directs the pump to be secured and the suction/discharge valves closed. The suction valve (HV-043-1F023B) fails to close and the D/W leak continues toward 1.68#. “1B” Recirculation Pump first stage seal fails followed by the failure of the second stage failure. (Seal #1 fails then 3 minutes later Seal #2 fails.)
- 1755 EVENT 7: D/W pressure of >1.68# starts the High Pressure Coolant Injection (HPCI) pump. HPCI develops a steam leak in the HPCI room. The operators receive alarm indications of the steam leak in the room and attempt to isolate both steam isolation valves. The HPCI isolation valves fail to isolate. Fuel Failure starts at the time HPCI starts. Start of Airborne Non-Routine Release.
- 1810 Site Area Emergency based on EAL FS1: Loss of reactor coolant system barrier 2.B.2 AND Loss of primary containment barrier 3.D.1. EAL threshold value: 1. Drywell pressure > 1.68# and the rise is due to reactor coolant leakage AND 2. Failure of all

isolation valves in any one line to close and downstream pathway to the environment exist.

- 1820 EVENT 8: "1B" CRD Pump trip on low suction pressure. Crew will enter ON 107 "CRD System Problems." Crew will perform mini scenario to replace the suction filter. Pump will not be available.

Note: Due to increasing D/W pressure the crew may start a normal depressurization to about 500# Reactor Pressure. The crew should elect to use Safety Relief Valves (SRVs) for this RX depressurization.

- 1835 EVENT 9: Loss of 11 Bus and the start of a Reactor Pressure Vessel (RPV) leak (.2% LOCA). MCR will receive the following alarms:

- 126 Aux Bus A1 "11 Unit Aus Bus Neg Phase Sequence"
- 126 Aux Bus B1 "11 Unit Aus Bus Undervoltage"

MCR will lose the "1A" and "1C" Condensate Pumps on the loss of the 11 Bus. The crew will take actions per T-111 "Level Restoration."

- 1915 Reactor Level decreases below -161 inches and -186 inches due to the loss of High Pressure Feedwater systems. Operations personnel enter T-111 and T-112 emergency procedures and perform an emergency blowdown to restore Rx level. Rx Level at -161" and -186" warrant the declaration of a General Emergency.

- 1930 General Emergency Declaration based on FG 1
Fission Product Barrier Matrix

1. Fuel Clad Barrier – LOSS

a. Reactor Pressure Vessel Water Level

1. RPV level <186 inches

AND

Previous loss of reactor coolant system barrier. Drywell pressure >1.68# and the rise is due to reactor coolant leakage 2.b.1

AND

Previous loss of primary containment barrier. Failure of all isolation valves in any one line to close and downstream pathway to the environment exist 3.d.1.

- 2200 Termination of Exercise

APPENDIX 5: Planning Issues

This appendix contains the Planning Issues assessed during the August 7, 2007, exercise at Limerick Generating Station (LGS) and those outstanding from earlier exercises. 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 radiological emergency response plans (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.

NEW PLANNING ISSUES

Commonwealth of Pennsylvania

Issue Number: 35-07-3.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 a 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: Revise the radiological briefing videotape and Dosimetry-KI Report Form to reflect current information.

Schedule of Corrective Actions: The Commonwealth Emergency Operations Plan and the Commonwealth Nuclear Power Plant Incident Annex (Annex E) are currently undergoing revision including aspects related to dosimetry, forms, exposure limits, etc. The commonwealth and contributing stakeholders (REP counties and utilities) will work to address the apparent discrepancies. The videotape was not produced by the commonwealth. Future use and proposed modifications to the videotape and referenced materials are currently under review. In the interim, clarification statements have been provided to supplement the emergency worker radiological briefing (rad briefing). Modifications to the rad briefing will be available for inspection during the next annual plan review.

Berks County Monitoring/Decontamination Center (Antietam Junior & Senior High School)

Issue Number: 35-07-6.a.1-P-02

Condition: The Berks County Radiological Emergency Response Plan, SOP #13 for Antietam Senior High School Mass Care Center (MCC) for the mass care monitoring and decontamination center was not sufficient to enable effective contamination control.

Possible Cause: Schematics did not provide demarcation between clean and contaminated areas. Specifically, this included hallways for male and female transit to locker rooms for decontamination, and within the locker rooms. The locker room schematics did not include specific areas for step-off pads,

monitoring locations, and radwaste receptacles. Additionally, radioactive material signs, directional signs, and informational signs for evacuees, as well as stanchions and rope to delineate walkways were not available.

The Mass Care Decontamination Station Traffic Flow schematic did not indicate a location for initial vehicle monitoring or vehicle decontamination location. Currently, the Berks County Radiological Emergency Response Plan, Annex E, Appendix 13 specifies personnel and vehicle contamination limits with regard to loose and fixed contamination, including specification of the probe to be used for contamination monitoring. SOP #13 is not consistent with the Berks County Plan in that personnel and vehicle contamination limits do not specify loose and fixed contamination, and does not specify the probe to be used for contamination monitoring.

The vehicle contamination limit of 1,000 cpm, without reference to loose or fixed, could result in an evacuee becoming contaminated at levels above the 300 cpm individual contamination limit. For example, a vehicle is monitored at 900 cpm and determined to be clean. If this is loose contamination, then an evacuee could then re-enter the vehicle and become contaminated above the individual limit of 300 cpm.

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

Berks County Radiological Emergency Response Plan, SOP #13, Antietam SH MCC;

FEMA REP-22, Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents;

Berks County Radiological Emergency Response Plan, Annex E, Appendix 13, Attachment B, Tab 1.

Effect: Without adequate schematics, facility setup for mass care monitoring and decontamination could not be consistently established. This could lead to cross-contamination or re-contamination of evacuees.

Recommendation: Develop updated facility schematics within SOP #13 to reflect demarcation between clean and contaminated areas, including hallways for male and female transit to locker rooms for decontamination, within the locker rooms, and initial vehicle monitoring and decontamination locations.

Change vehicle contamination criteria within SOP #13 to be consistent with the Berks County Radiological Emergency Response Plan, Annex E, Appendix 13.

Schedule of Corrective Actions: Berks County RERP, SOP #13 has been revised to provide clarification through the inclusion of enhanced schematics and clarification of vehicle contamination criteria. Plans and procedures will be available for inspection during the next annual plan review.

Berks County Monitoring/Decontamination Center (Antietam Junior & Senior High School)

Issue Number: 35-07-6.a.1-P-03

Condition: The Berks County Radiological Emergency Response Plan, SOP #13 for Antietam Senior High School Mass Care Center (MCC) did not include direction or guidance to perform radiological monitoring instrument operational checks.

Possible Cause: Procedures are not included in plan.

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

Berks County Radiological Emergency Response Plan, SOP #13,
Antietam SH MCC.

Effect: Without this guidance, participants may not have an understanding of how to perform an instrument operability check.

Recommendation: Add a comprehensive instrument operability checklist to SOP #13.

Schedule of Corrective Actions: Appendix 15 “Survey Meter Operation Sheet” has been added to SOP #13. Plans and procedures will be available for inspection during the next annual plan review.

Berks County Monitoring/Decontamination Center (Kutztown Area Senior High School)

Issue Number: 35-07-6.a.1-P-04

Condition: The Berks County Radiological Emergency Response Plan, SOP #9 for Kutztown Senior High School Mass Care Center (MCC) for the mass care monitoring and decontamination center was not sufficient to enable effective contamination control.

Possible Cause: Schematics did not provide demarcation between clean and contaminated areas. Specifically, this included hallways for male and female transit to locker rooms for decontamination, and within the locker rooms. The locker room schematics did not include specific areas for step-off pads, monitoring locations, and radwaste receptacles. Additionally, radioactive material

signs, directional signs, and informational signs for evacuees, as well as stanchions and rope to delineate walkways were not available.

The Mass Care Decontamination Station Traffic Flow schematic did not indicate a location for initial vehicle monitoring or vehicle decontamination location. Currently, the Berks County Radiological Emergency Response Plan, Annex E, Appendix 13 specifies personnel and vehicle contamination limits with regard to loose and fixed contamination, including specification of the probe to be used for contamination monitoring. SOP #9 is not consistent with the Berks County Plan in that personnel and vehicle contamination limits do not specify loose and fixed contamination, and does not specify the probe to be used for contamination monitoring. Neither document is in compliance with FEMA REP-22, Table 3.

The vehicle contamination limit of 1,000 cpm, without reference to loose or fixed, could result in an evacuee becoming contaminated at levels above the 300 cpm individual contamination limit. For example, a vehicle is monitored at 900 cpm and determined to be clean. If this is loose contamination, then an evacuee could then re-enter the vehicle and become contaminated above the individual limit of 300 cpm.

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

Berks County Radiological Emergency Response Plan, SOP #9, Kutztown SH MCC;

FEMA REP-22, Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents;

Berks County Radiological Emergency Response Plan, Annex E, Appendix 13, Attachment B, Tab 1.

Effect: Without adequate schematics, facility setup for mass care monitoring and decontamination could not be consistently established. This could lead to cross-contamination or re-contamination of evacuees.

Recommendation: Develop updated facility schematics within SOP #9 to reflect demarcation between clean and contaminated areas, including hallways for male and female transit to locker rooms for decontamination, within the locker rooms, and initial vehicle monitoring and decontamination locations.

Change vehicle contamination criteria within SOP #9 to be consistent with the Berks County Radiological Emergency Response Plan, Annex E, Appendix 13.

Schedule of Corrective Actions: Berks County RERP, SOP #9 has been revised to provide clarification through the inclusion of enhanced schematics and

clarification of vehicle contamination criteria. Plans and procedures will be available for inspection during the next annual plan review.

Berks County Monitoring/Decontamination Center (Kutztown Area Senior High School)

Issue Number: 35-07-6.a.1-P-05

Condition: The Berks County Radiological Emergency Response Plan, SOP #9 for Kutztown Senior High School Mass Care Center (MCC) did not include direction or guidance to perform radiological monitoring instrument operational checks.

Possible Cause: Procedures are not included in plan.

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

Berks County Radiological Emergency Response Plan, SOP #9,
Kutztown Senior High School MCC.

Effect: Without this guidance, participants may not have an understanding of how to perform an instrument operability check.

Recommendation: Add a comprehensive instrument operability checklist to SOP #9.

Schedule of Corrective Actions: Appendix 15 “Survey Meter Operation Sheet” has been added to SOP #9. Plans and procedures will be available for inspection during the next annual plan review.

Douglas Township Emergency Operations Center

Issue Number: 35-07-1.e.1-P-06

Condition: The Radiological Equipment Distribution sheet provided with dosimetry at the Douglass Township was incomplete and inaccurate. It was dated July 2007 for distribution, but did not have any information about when the direct-reading dosimeters (DRDs) were last leak tested. Additionally, the sheet does not include the serial numbers of the permanent record dosimeters (PRDs).

The Radiological Equipment Distribution sheet indicated that the box contained 44 Model DCA-622 (0-20 R) DRDs and 18 Model CD V-742 (0-200 R) DRDs. An inspection of the inventory indicated that included 39 Model DCA-622 (0-20 R) DRDs; 5 Arrow-Tech Model 730, (0-20 R) DRDs 4 Model CD V-730 (0-20 R) DRDs, and 14 CD V-742 (0-200 R) DRDs. In summary, the box contained four fewer 0-200 R DRDs than indicated on the inventory list and four more 0-20 R DRDs than indicated on the inventory list.

Possible Cause: The individual DRDs do not have stickers indicating when they were last leak tested, making it difficult to document that they have been leak tested, without additional documentation. The inaccurate inventory list is possible due to the similarities in appearance of the Model CD V-742 (0-200 R) DRD and the Model CD V-730 (0-20 R) DRD.

Reference: Douglass County Radiological Emergency Response Plan (RERP), Attachment K, Emergency Worker Dosimetry-KI List

Effect: The potential use of DRDs that haven't been leak tested could increase the likelihood that DRDs would give erroneous readings and an over-estimation of someone's actual exposure. This could limit the availability of emergency workers who would be removed from their mission before their exposure limit had been reached.

Recommendation: Inventories should be checked against the Radiological Equipment Distribution sheet by a second person.

Schedule of Corrective Actions: The Douglass Township dosimetry inventory has been checked and adjusted as appropriate to be consistent with the Radiological Equipment Distribution Sheet.

Royersford Borough Emergency Operations Center

Issue Number: 35-07-1.e.1-P-07

Condition: The informational chart displayed on the Emergency Operations Center (EOC) wall was out of date. Specifically the Montgomery County rumor control number was incorrect.

Possible Cause: Failure of the Emergency Coordinator to update information and cross reference information found on the Exelon fact sheet for Limerick Generating Station (LGS) and the Royersford Borough Annex E.

References: NUREG-0654, H.7, 10; J.10.a, b, e; J.11; K.3.a.

Effect: Residents calling the Royersford EOC for information would be referred to an un-working number, instead of the correct number of 610-631-9700. This would result in delays in the public obtaining information, which may or may not be critical.

Recommendation: Update written materials frequently and cross-reference the information with other information documents related to LGS. Examples would be the Royersford Borough Annex E, Montgomery County Annex E, and LGS yearly information data, which is circulated to the public annually.

Schedule of Corrective Actions: As of 8/9/07, all Royersford EOC information charts and materials have been reviewed and updated. Outdated information materials have been discarded and/or replaced as appropriate.

Royersford Borough Route Alerting

Issue Number: 35-07-3.a.1-P-08

Condition: Attachment K to the Royersford RERP lists pre-distributed dosimetry, KI, and Area Kits being available at a number of locations in the Borough (Fire Companies, Police Station, Public Works, etc.). No such equipment was available at the Friendship Fire Company Station. According to the Friendship Fire Company Chief, this equipment for all of the listed locations has been consolidated in the Royersford EOC.

Possible Cause: Emergency Plan is not up to date.

Reference: NUREG-0654, H.11.

Effect: There was no observed consequence from the erroneous information in the Montgomery County Emergency Plan, since this particular aspect of the plan did not appear to be consulted during the exercise. Based on interview, exercise participants knew that all of the dosimetry, KI and Area Kits had been consolidated at the Royersford EOC.

Recommendation: The emergency plan should be updated to correct this discrepancy.

Schedule of Corrective Actions: Attachment K was reviewed and determined to be consistent with the EOC's understanding and intent. The term "pre-distribution" is recognized as equipment and materials that are "pre-distributed" to the local EOC. All participating organizations (municipal based fire companies, EMS units, Police, Public Works) understand they are to receive their distribution from their local EOC. The information in Attachment K will be further examined and clarified, if deemed appropriate, during the next annual plan review.

Lehigh County Reception Center (Southern Lehigh High School)

Issue Number: 35-07-6.a.1-P-09

Condition: There were no procedures for the reception center staff to follow.

Possible Cause: No procedures exist or not present at the reception center.

Reference: NUREG-0654, J.12.

Effect: Reception center staff did not know the scope of their responsibilities. They also did not know where to call when they were posed with a question they did not know how to answer. As they did not have procedures, they may be performing tasks that were to have been done by other personnel in the decontamination/monitoring/mass care/reception center facility.

Recommendation: Develop procedures for the reception center.

Schedule of Corrective Actions: Reception Center procedures were presented for inspection and use during the Lehigh County Radiological Officer briefing re-demonstration conducted on 9/25/07.

Berks County Schools – Daniel Boone Area School District

Issue Number: 35-07-3.c.2-P-10

Condition: The Daniel Boone Area School District Radiological Emergency Response Plan, in Attachment 1, page 2, states that Amity Intermediate School requires zero buses for evacuation.

Possible Cause: The Daniel Boone Area School District Radiological Emergency Response Plan has not been updated to reflect the estimated school population.

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

Effect: Sufficient buses may not arrive in a timely fashion to evacuate the school population if the numbers in Table 1 would be used to determine bus counts rather than the school census called in by the school principal to the district Superintendent.

Recommendation: Update the Daniel Boone Area School District Radiological Emergency Response Plan.

Schedule of Corrective Actions: The Daniel Boone Area School District RERP is currently under review and will be updated by January 1, 2008 to reflect the appropriate number of buses to support the Amity Intermediate School population. Plans and procedures will be available for inspection during the next annual plan review.

Berks County Schools – Daniel Boone Area School District, Amity Intermediate Center

Issue Number: 35-07-3.c.2-P-11

Condition: The Amity Intermediate Center Plan is not up to date in numerous places. Attachment 1, page 2, indicates the school requires zero buses for

evacuation. The principal indicated he would need approximately 15 buses to evacuate the school (estimated b/c he is still enrolling students for the upcoming year). The plan's Transportation Summary is from the 1998/1999 School year and Amity is not on the list at all.

In Tab 12, the maps for evacuation are illegible (text is VERY small and blurry). There are also no highlighted streets, indicating a route or turn-by-turn directions and there is no date on the map.

The "Notice of Movement" flyer reads that the school has been evacuated to the Daniel Boone Junior/Senior High School with the correct phone number. There is no longer a Daniel Boone Jr/Sr High School – it is only a Daniel Boone Sr. High School. There is also no address nor directions to the facility. The 'Notice of Movement' flyer is placed on the school doors indicating to parents where the students may be picked up.

In Tabs 1 and 2, the Phone list and the Emergency Contact list, are both from the 2003/2004 school year.

Possible Cause: The School implementation plans have not been updated on a regular basis.

References: NUREG-0654, J.10.d, g.

Effect: The effects of the plan not being updated are numerous and include buses not arrive in a timely fashion to evacuate the students and staff; staff and bus drivers may be unfamiliar with the evacuation route, and without readable maps, arrival at the Host Community could be delayed; parents arriving at Amity School may be unaware that the Daniel Boone Jr/Sr High School was recently renamed the Daniel Boone Sr. High School. They may not know where the Daniel Boone Sr. High School is located and this may cause concern or panic among the parents. Staff may have changed phone numbers or changed entirely and are not on the list. If the correct phone numbers are not in the plan, then they cannot be reached in a timely manner.

Recommendation: Update the school plans.

Schedule of Corrective Actions: The Daniel Boone Area School District RERP is currently under review and will be updated by January 1, 2008 to address all of the above enumerated effects as appropriate. Plans and procedures will be available for inspection during the next annual plan review.

Berks County Schools – Daniel Boone Area School District, Daniel Boone Middle School

Issue Number: 35-07-3.c.2-P-12

Condition: The Radiological Emergency Response Plan at Daniel Boone Middle School is from 2003 and does not include the fact that the school is now considered a risk school by the **Daniel Boone Area School District**.

Possible Cause: Daniel Boone Middle School has moved to a new school building since 2003. The new building is technically located outside the 10-mile EPZ, but is in close proximity to two other schools that are inside the 10-mile EPZ. The school district has opted to consider Daniel Boone Middle School as a risk school to avoid the confusion of having two risk schools located very close to a non-risk school. The Radiological Emergency Response Plan at the middle school has not been updated to reflect the change in status of the new middle school as a risk school from its previous designation as a non-risk school.

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

Effect: The school staff may have improperly identified the protective actions for the students at Daniel Boone Middle School or reported an inaccurate number for students requiring transport had school been in session. The condition did not produce a problem during this drill because no students were present at the school.

Recommendation: The plan and implementing procedures should be revised to account for the status of Daniel Boone Middle School as a risk school that would require evacuation.

Schedule of Corrective Actions: Berks County EMA provided notice and instruction to Daniel Boone School District to ensure replacement of the outdated 2003 RERF plan with the updated 2007 RERF plan for the Daniel Boone Middle School. The 2007 plan recognizes Daniel Boone Middle School as a risk school. The commonwealth appreciates Berks County EMA's assistance in addressing this issue with Daniel Boone School District.

Additionally, the Daniel Boone Area School District RERP is currently under review and will be updated by January 1, 2008 to ensure all necessary plan changes are addressed. Plans and procedures will be available for inspection during the next annual plan review.

Chester County Schools – Owen J. Roberts School District, North Coventry Elementary School

Issue Number: 35-07-3.c.2-P-13

Condition: The use of KI by adult school staff is not addressed in the school emergency procedures. There was no form for identifying the school staff who, at the last moment, decided to ingest a KI tablet.

Possible Cause: North Coventry Elementary school maintains 672 doses of KI. The school indicated that this was enough for both students and staff. Information was available for the students that did and did not have prior permission to take KI. However, there was no literature of dosage recommendation or potential side affects for distribution to the adult members of the school staff.

References: NUREG-0654, J.10.e, f.

Effect: Staff members deciding to ingest KI, would do so without understanding the medical risks from ingesting KI and may experience a negative reaction.

Recommendation: Provide information cards to adult staff members. Provide a log sheet or card that each individual must sign stating that they are accepting KI from the school district, and that they have been given information on the risks of ingesting KI.

Schedule of Corrective Actions: Pennsylvania Department of Health KI information was provided to Owen J. Roberts School District via Chester County EMA. The commonwealth appreciates Chester County EMA's assistance in addressing this issue with Owen J. Roberts School District. Plans and procedures will be available for inspection during the next annual plan review.

Montgomery County Schools – Pottsgrove School District, Pottsgrove Middle School

Issue Number: 35-07-3.c.2-P-14

Condition: The Pottsgrove Middle School does not address Potassium Iodide (KI) in the Radiological Emergency Response Plan.

Possible Cause: The Plan has not been updated to address implementation of KI.

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

Effect: The Principal described a process in place in the event KI is authorized for use. Staff might not understand the process during an emergency event without a procedure in place.

Recommendation: The Pottsgrove Middle School should address KI use in their Radiological Emergency Response Plan.

Schedule of Corrective Actions: Pennsylvania Department of Health KI information was provided to Pottsgrove School District via Montgomery County EMA. The commonwealth appreciates Montgomery County EMA's assistance in addressing this issue with Pottsgrove School District. Plans and procedures will be available for inspection during the next annual plan review.

Montgomery County Schools – Pottstown School District

Issue Number: 35-07-3.c.2-P-15

Condition: The school plans used by the Pottstown do not include any instructions regarding KI deployment.

Possible Cause: The Plan has not been updated to include instructions on KI deployment.

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

Effect: Inappropriate implementation of a protective action.

Recommendation: The Pottstown School District should include instructions for KI deployment in its Radiological Emergency Response Plan.

Schedule of Corrective Actions: Pennsylvania Department of Health KI information was provided to Pottstown School District via Montgomery County EMA. The commonwealth appreciates Montgomery County EMA's assistance in addressing this issue with Pottstown School District. Plans and procedures will be available for inspection during the next annual plan review.

Montgomery County Schools, Pottstown School District – Rupert Elementary School

Issue Number: 35-07-3.c.2-P-16

Condition: There are not enough KI tablets at the nurse's station for the approximately 300 students in the school.

Possible Cause: Only one 200 count bottle of 65mg KI tablets for the children and 42 sealed 130 mg KI tablets (3 blister packs of 14 tablets each) for adults were in the locked cabinet in the nurse's station for the 300 students and 13 teachers and adults normally at the school.

Reference: NUREG-0654, J.10.e.

Effect: Some children would not have received a KI tablet.

Recommendation: Obtain a sufficient supply of 65 mg KI tablets.

Schedule of Corrective Actions: Montgomery County EMA delivered KI to the Rupert Elementary School on 9/21/07 to ensure a sufficient supply of KI is available for students and staff. The commonwealth appreciates Montgomery County's efforts in facilitating the delivery of KI to the Rupert Elementary School.

Montgomery County Schools, Pottstown School District – Rupert Elementary School

Issue Number: 35-07-3.c.2-P-17

Condition: While the Principal is away from the school during normal class time, if an emergency is declared, a "Principal on Call" is available to report to the school and implement the procedures. During the "After School" program, from 3:30 until 5:30 each afternoon, the "Principal on Call" is not available for response. Further, the principal is not required to be at the school during The After School program as this is beyond his normal working hours.

Possible Cause: Rupert Elementary School has not identified any procedure for "After School" programs in its Radiological Emergency Plan.

References: NUREG-0645, J10, c, d, g.

Effect: There is no one available to implement protective actions during the "After School" program hours.

Recommendation: Designate and train backup personnel in the school for implementation and link the procedures such that off-hour activity information is known if needed.

Schedule of Corrective Actions: Montgomery County EMA is assisting Pottstown School District in a full plan review and update. Plans and procedures will be revised by school district officials, as appropriate, to address coverage and responsibilities of both in-session and out-of-session requirements. The commonwealth appreciates Montgomery County EMA's assistance and guidance in working with the Pottstown School District. Plans and procedures will be available for inspection during the next annual plan review.

PRIOR PLANNING ISSUES RESOLVED

Berks County Emergency Operations Center

Issue Number: 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.

Corrective Action Demonstrated: This issue has been resolved administratively at the county level. However, the issue is being reassigned to the State (see Prior Planning Issues Unresolved).

Berks County Mass Care (Antietam Junior & Senior High School and Kutztown Area Senior High School)

Issue Number: 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.

Corrective Action Demonstrated: This issue was correctly demonstrated at two Mass Care sites.

At Antietam Junior & Senior High School, upon arrival at the shelter all evacuees and their vehicles would be screened for possible contamination by members of the Lower Alsace Township Fire Department before being allowed to enter the registration area. Strict segregation between “clean” and “contaminated” individuals would be assured via doors, security personnel, tape, and other means. Only when an individual received a red “Bingo” stamp on their hand – either by being initially screened or after being decontaminated – would they be permitted into the main part of the shelter, the school gymnasium. This conforms to the Berks County RERP, Appendix 12.

At Kutztown Area Senior High School, a Berks County Mass Care Center (MCC) was established and operated contiguous to a Berks County Monitoring and Decontamination Point at the Kutztown Senior High School. Each evacuee was monitored upon arrival at the High School. Those evacuees who were “clean” (not exhibiting contamination) were stamped with red ink on the back of one hand and authorized to proceed to the MCC entrance. A MCC staff person met each evacuee at the entrance to the MCC and confirmed each evacuee was stamped before allowing the person to enter the MCC. The MCC Manager stated the any evacuee presenting without a hand stamp would not be allowed to enter the MCC and would be directed back to the monitoring area.

Colebrookdale Township Emergency Operations Center

Issue Number: 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.

Corrective Action Demonstrated: The Colebrookdale Township Radiological Emergency Response Plan for Incidents at the Limerick Generating Station was updated and revised in April 2007. Also, Implementing Procedure #1 to the Plan, Appendix 2 was updated. Both documents now show the location of the Colebrookdale Township alternate emergency operations center to be in the Earl Township Municipal Building, 19 Schoolhouse Road, in Earl Township. This resolves the prior issue of the two documents having different locations listed as the alternate EOC.

Montgomery County Emergency Worker Monitoring/Decontamination Station

Issue Number: 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.

Corrective Action Demonstrated: The personnel decontamination trailer was configured to support the whole body decontamination of male and female personnel simultaneously. The interior was divided in half lengthwise by a heavy gauge plastic curtain. Both sides were identically configured. This allows for the separate dressing/undressing and showering of male and female personnel. There were separate entrance and exit doors for males and females.

Perkiomen Township Emergency Operations Center

Issue Number: 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.

Corrective Action Demonstrated: The Perkiomen Township Radiological Emergency Response Plan was changed to comply with the Perkiomen Township Implementing Procedures. Plan reference pg. 36, II.G.5.

Daniel Boone Area School District

Issue Number: 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.

Corrective Action Demonstrated: Revision 3 of the Daniel Boone Area School District Radiological Emergency Response Plan dated May 8, 2007 corrects the location of the host school to Daniel Boone High School. The corrected information is stated in the preface and in Plan Attachment 1 page A1-3.