U.S. Department of Homeland Security
One Independence Mall, Sixth Floor
615 Chestnut Street
Philadelphia, PA 19106-4404

FEMA

JAN 2 0 2009

NRC Headquarters Document Control Desk
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Enclosed is the final report for the Susquehanna Steam Electric Station (SSES) Radiological Emergency Preparedness Exercise that was held on October 21, 2008.

If you have any questions, please contact Darrell Hammons at (215) 931-5546.

Sincerely,

Jonathan Sarubbi
Regional Administrator

Enclosure

AX45
NSIR

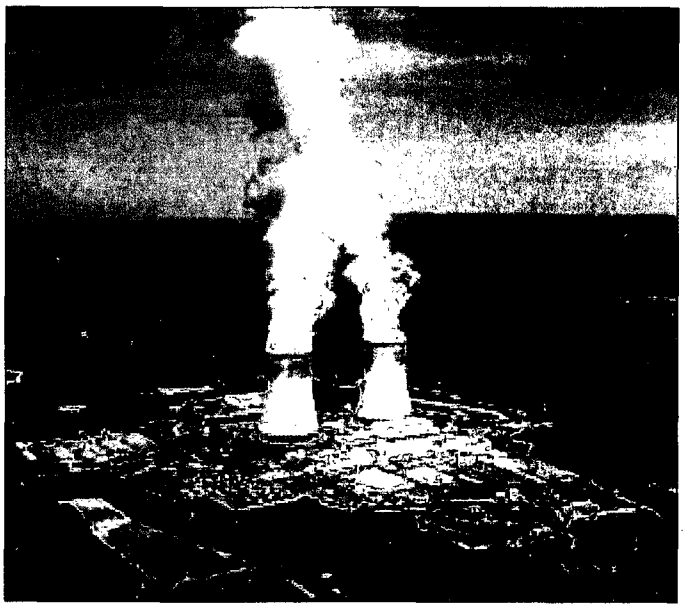
Susquehanna Steam Electric Station Exercise – October 21, 2008

Final Report – Radiological Emergency Preparedness Program

January 9, 2009

FEMA

FEMA Region III



FEMA

Final Exercise Report

Susquehanna Steam Electric Station

Licensee:	**Pennsylvania Power and Light Company**
Exercise Date:	**October 21, 2008**
Report Date:	**January 9, 2009**

U.S. DEPARTMENT OF HOMELAND SECURITY

RADIOLOGICAL EMERGENCY PREPAREDNESS

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

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

I. Executive Summary

On October 21, 2008, a full-scale plume exercise was conducted in the 10-mile plume exposure pathway, emergency planning zone (EPZ) around the Susquehanna Steam Electric Station (SSES) by the Federal Emergency Management Agency (FEMA), Region III. Out-of-sequence demonstrations were conducted on October 21 and 22, 2008. 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 September 19, 2006.

FEMA wishes to acknowledge the efforts of the many individuals in the Commonwealth of Pennsylvania; its two risk counties (Columbia, Luzerne) and risk municipalities (Beaver Township, Berwick Borough, Briar Creek Borough, Fishing Creek Township, Hunlock Township, Nescopeck Township, Nuangola Borough, Salem Township, and Sugarloaf Township); and the seven support counties (Lackawanna, Lycoming, Montour, Northumberland, Schuylkill, Union, and Wyoming) who were evaluated at this exercise.

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

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

- *Reception Center:* Conducted on October 22, 2008 between 1900 and 2130 hours in Lackawanna, Lycoming, Northumberland, Schuylkill, Union, and Wyoming Counties.

- *Mass Care, Monitoring and Decontamination:* Conducted on October 22, 2008 between 1900 and 2130 hours in Lackawanna, Lycoming, Northumberland, Schuylkill, Union, and Wyoming Counties.

- *Emergency Worker Monitoring and Decontamination:* Conducted on October 22, 2008 between 1900 and 2130 hours in Columbia, Luzerne County

- *Schools:* Conducted on October 22, 2008 between 0900 and 1100 hours in Columbia and Luzerne Counties.

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies identified. Four Areas Requiring Corrective Action (ARCAs) were identified as a result of this exercise; one of the ARCAs was successfully re-demonstrated during the exercise.

Five ARCAs from a previous exercise were successfully demonstrated at this exercise. Five new planning issues were identified during the exercise. In addition six planning issues from prior exercises were resolved and 2 planning issues remain unresolved (see Appendix 5 for resolution 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 October 21, 2008 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 Susquehanna Steam Electric Station (SSES). 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 October 21, 2008 exercise to test the off-site emergency response capabilities in the area surrounding Susquehanna Steam Electric Station (SSES). 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

The SSES is located in northeastern Pennsylvania on the Susquehanna River in Salem Township, Luzerne County. The plant is owned and operated by Pennsylvania Power & Light Company. Two boiling water reactors generate an electrical output of 1,194 megawatts each. Unit 1 began commercial operation on June 8, 1983, and Unit 2 on February 12, 1985.

The site encompasses 2,566 acres and is divided into two parts. The principal portion, containing the major operating equipment and buildings, is located 3,000 feet west of the river. The other portion houses the water intake apparatus located near U.S. Route 11. Route 11 passes through the site in a north/south direction, providing both primary and secondary access to the plant. The plant occupies approximately 100 acres of the site. The coordinates are approximately 41° 5'30" north and 76° 8'55" west.

The topography of the plant site is hilly, with elevations ranging from 500 feet above mean sea level (MSL) at the river to about 1,100 feet above MSL at the northwest corner of the site. The plant grade is 670 feet above MSL. The minimum exclusion distance is 1,800 feet; all land within the exclusion area is owned by SSES. The surface soil in the area is considered to be glacial outwash and glacial till soils, which are typical of uplands and terraces. The bedrock consists primarily of red shale of the catskill formation.

The immediate vicinity of the plant is rural, surrounded by farms and undeveloped land. A total of 112 sirens are used for notification of the public; the sirens were installed for coverage of the plume exposure pathway. The nearest population center is Shickshinny Borough (Luzerne County), with a population of 959, located about four miles north of the plant. The nearest population center with more than 20,000 people is the City of Hazleton, with a population of 23,329, located 13 miles to the southeast.

The Berwick Airfield in Salem Township, Luzerne County, serves private aircraft and lies approximately five miles west of the plant. The airfield presents no risk to the plant. The closest major airport is the Wilkes-Barre/Scranton Airport, located 28 miles northeast of the site.

The 10-mile EPZ contains an estimated population of 68,511 according to 2000 census data.

B. Exercise Participants

The following agencies, organizations, and units of government participated in the SSES out-of-sequence activities on October 21-22, 2008, or the exercise on October 21, 2008.

COMMONWEALTH OF PENNSYLVANIA

Nuclear Regulatory Commission
Pennsylvania Bureau Radiological Protection
Pennsylvania Department of Agriculture
Pennsylvania Department of Environmental Protection
Pennsylvania Department of General Services
Pennsylvania Department of Health
Pennsylvania Department of Military and Veteran Affairs
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania National Guard
Pennsylvania Office of Administration
Pennsylvania Office of Personnel and Resources Services
Pennsylvania Office of State Fire Commissioner
Pennsylvania Power and Light Company
Pennsylvania Public Utilities Commission
Pennsylvania State Police
Pennsylvania Turnpike Commission
Susquehanna Steam Electric Station

RISK JURISDICTIONS

Columbia County

Beaver Township
Benton Volunteer Fire Department
Berwick Borough Ambulance
Berwick Fire Department
Berwick Police Department
Borough of Berwick Borough Council
Borough of Berwick Communications Officer
Borough of Berwick Deputy Emergency Management Director
Borough of Berwick Emergency Management Director
Borough of Berwick Security Officer
Columbia County 911
Columbia County Agriculture
Columbia County Commissioner
Columbia County Department of Aging

Columbia County Emergency Management Agency
Columbia County Graphic Information Systems
Columbia County Information Technology
Columbia County Police
Columbia County Public Works
Columbia County Schools
Federal Emergency Management Agency
Fishing Creek Township Supervisors
Orangeville Borough Volunteer Fire Department
Orangeville Borough Volunteer Fire/Police
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania Emergency Management Agency
Pennsylvania State Police

Luzerne County

Children Services Center
Community Counseling
Emergency Medical Services
Hanover Township Fire Police
Hunlock Creek Fire Company
Hunlock Emergency Management Agency
Hunlock Township Board of Supervisors
Luzerne County 911
Luzerne County Emergency Management Agency
Luzerne County Engineer's Office
Luzerne County Mental Health
Luzerne County Sheriff's Department
Luzerne County Transportation
Nescopeck Fire and Rescue
Nuangola Emergency Management Agency
Nuangola Fire Department
Nuangola Mayor and Borough Council
Nuangola Police Department
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania State Police
Rice Township Police Department
Shickshinny Police Department
Sugarloaf Emergency Management Agency
Sugarloaf Fire Company/Emergency Medical Services
Sweet Valley Volunteer Fire/EMS Company
Wilkes-Barre Police Department

SUPPORT JURISDICTIONS

Lackawanna County

Carbondale Township Emergency Management Agency
Community Medical Center
Dunmore Fire Department
Federal Emergency Management Agency
Lackawanna Commissioner's Office
Lackawanna County Emergency Management Agency
Lackawanna Planning Commission
Pennsylvania Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania State Agriculture Extension
Pennsylvania Power and Light Company
Public Safety for the City of Scranton
Taylor Borough Emergency Management Agency

Lycoming County

Lycoming County Agricultural Agency
Lycoming County Commissioners
Lycoming County Department of Public Safety
Lycoming County Department of Public Services
Lycoming County Department of Resource Management
Lycoming County Disaster Communications Team
Lycoming County Emergency Management Agency
Lycoming County Local Emergency Planning Committee
Montgomery Borough Emergency Management Agency
Montgomery Emergency Management Agency
Montoursville Police Department
Muncy Township Emergency Management Agency
Muncy Township Fire Police
Muncy Township Fire/Ambulance Company
Muncy Township Police
Pennsylvania Emergency Management Agency
Williamsport Emergency Management Agency

Montour County

Danville Area School District School Services Officer
Montour County Commissioners
Montour County Emergency Management Agency
Montoursville Fire Department
Pennsylvania Emergency Management Agency

Northumberland County

Northumberland County Emergency Management
Northumberland County Public Safety
PEMA Liaison Officer

Schuylkill County

Pennsylvania Department of Corrections (Schuylkill County and Frackville)
Pennsylvania Emergency Management Agency
Quakake Fire Department
Schuylkill County 911
Schuylkill County Emergency Management Agency
Schuylkill County Geographic Information System
Schuylkill County Radiological Officer
Schuylkill County Transportation System
Susquehanna Steam Electric Station
Tamaqua Area School District
Tamaqua Fire Department (South Ward and Citizens Fire Co)
U.S. Department of Agriculture

Union County

Penn State University Extension Service
Pennsylvania Emergency Management Agency
Union County 911
Union County Commissioners
Union County Emergency Management
Union County Public Safety
William Cameron Engine Company

Wyoming County

Tunkhannock Fire Department
Wyoming County Dept. of Health
Wyoming County Emergency Management Agency
Wyoming County Emergency Management Staff

PRIVATE/VOLUNTEER ORGANIZATIONS

The following private and volunteer organizations participated in the SSES 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.

Amateur Radio Emergency Services (ARES) and Radio Amateur Civil Emergency Services (RACES), including the following clubs:
- Columbia-Montour Amateur Radio Club
- Endless Mountains Amateur Radio Group
- Lackawanna County Amateur Radio Civil Emergency Services
- Luzerne County RACES
- Lycoming County Radio Amateur Civil Emergency Service
- Schuylkill Amateur Responder Association
- Union County ARES/RACES

American Red Cross, including the following local chapters:
- American Red Cross of Lackawanna County
- Hanover Red Cross
- Northcentral Pennsylvania Chapter
- Pennsylvania American Red Cross
- Schuylkill and East Northumberland Chapter
- Scranton Chapter
- Union County Chapter
- Wayne/Pike Chapter
- Wyoming County Chapter

Berwick Fire Department
Bloomsburg Fire Department
Bloomsburg University
Bower Bus Company
Boy Scout Troop 42 – Scranton, PA
Bucknell University Security
Community Medical Center
Lycoming Radiological Monitoring Team
Many Volunteer Emergency Operations Center Staff
Martini, Inc. (School Bus Provider)
Schuylkill County Fire Chief's Association
Union County Community Emergency Response Team

C. Exercise Timeline

Table 1, on the following page, presents the times at which key events and activities occurred during the SSES exercise on October 21, 2008. Also included are times notifications were made to the participating jurisdictions/functional entities.

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: *October 21, 2008 Susquehanna Steam Electric Station*

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken											
		PA State EOC	EOF	JIC	AA State BRP	Media Ops Center	**Columbia County EOC**	Beaver Twp. EOC	Berwick Boro./Briar Creek Boro. EOC	Fishing Creek Twp	**Luzerne County EOC**	Hunlock Twp. EOC	Nescopeck Twp. EOC
Unusual Event		N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	1721	1737	1721	1739	1737	1751	1728	N/A	1737	1749	1728	1735	1740
Site Area Emergency	1850	1909	1850	1910	1902	1853	1900	1913	1907	1909	1857	1901	1904
General Emergency	2010	2026	2010	2028	2024	2014	2022	2037	2033	2031	2019	2030	2030
Simulated Radiation Release Started	2010	2010	1956	2007	1950	2006	2017	2028	2025	2026	2019	2030	2026
Simulated Radiation Release Terminated		Ongoing at termination											
Facility Declared Operational		1700	1820	1740			1749	1825	1800	1807	1730	1820	1810
Governor's Declaration of State of Emergency		1930	2110	1943		2110	2144	N/R	1937	1948	2014	N/R	2054
Local Declaration of State of Emergency		N/A	-	N/A		N/R	1915	1925	1921		1730	N/R	N/A
Exercise Terminated		2150	2145	2150	2150	2145	2150	2135	2151	2135	2149	2124	2111
Precautionary Actions: restrict airspace		1919	1935	1935	N/R	2113	2027	2037	2036	2036	2010	2022	2024
restrict rail traffic		1930	1935	1935	N/R	2113	2027	2037	2036	2036	N/R	2022	2024
restrict water traffic		1930	1935	1935	N/R	2113	2027	2037	2036	2036	2010	2022	2024
shelter livestock, feed & Water		1926	1935	1935	1935	2113	1936	2025	1937	1936	2010	2022	2024
1st A&N Decision (State [made]; local [received]) Tune radio/TV to EAS station		1930	N/A	1935	N/R	N/R	1930	1940	1930	1935	1935	1935	1940
1st Siren Activation		1940					1940				1940		
1st EAS		1943					1943				1943		
2nd A&N Decision (State [made]; local [received]) Shelter: Mercy Specialty & Berwick Hospital Evacuate 360° to 10 miles		2050	N/R	2050	2114	2106	2043	2100	2058	2100	2050	2055	2054
2nd Siren Activation		2103					2100				2100		
2nd EAS Message		2103					2103				2103		
KI Administration Decision: Emergency Workers advised to take KI General Public advised to take KI		2050	2053	2050	N/R	2114	2050	2102	N/R	2122	2050	2055	2054

Legend: N/A – Not Applicable N/R – Not Received

TABLE 1. EXERCISE TIMELINE

DATE AND SITE: *October 21, 2008 Susquehanna Steam Electric Station*

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken								
		Nuangola Boro. EOC	Salem Twp. EOC	Sugarloaf Twp. EOC	Lackawanna County EOC	Lycoming County EOC	Northumberland County EOC	Schuylkill County EOC	Union County EOC	Wyoming County EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alert	1721	1724	N/A	1746	1804	1747	1743	1809	1806	1820
Site Area Emergency	1850	1903	N/A	1903	1912	1908	1857	1911	1909	1957
General Emergency	2010	2030	N/A	2030	2042	2034	2036	2036	2036	2036
Simulated Radiation Release Started	2010	2026	N/A	2040	2021	2034	2036	2036	2036	2036
Simulated Radiation Release Terminated	N/A	Ongoing at termination								
Facility Declared Operational		1743	N/A	1805	1912	1817	1755	1928	1855	1849
Governor's Declaration of State of Emergency		N/R	N/A	2055	2013	2011	2117	2014	2010	2110
Local Declaration of State of Emergency		N/A	N/A	N/A	N/A	1924	N/A	N/A	1915	N/A
Exercise Terminated		2120	N/A	N/R	2153	2153	2148	2110	2153	2200
Precautionary Actions: restrict airspace		2024	N/A	2014	2023	2014	2023	2023	2013	2023
restrict rail traffic		2024	N/A	2014	2023	2014	2013	2023	2013	2023
restrict water traffic		2024	N/A	2014	2023	2014	2013	2023	2013	2023
shelter livestock, place on stored feed		N/R	N/A	2014	2023	2014	2013	2021	2013	2023
1st A&N Decision (State [made]; local [received]) Tune radio/TV to EAS station		1937	N/A	1937	1919	1935	1935	1935	1935	1935
1st Siren Activation										
1st EAS										
2nd A&N Decision (State [made]; local [received]) Shelter: Mercy Specialty & Berwick Hospital		2053	N/A	2055	2055	2059	2042	2042	2042	2042
Evacuate 360° to 10 miles										
2nd Siren Activation										
2nd EAS Message										
KI Administration Decision: Emergency Workers advised to take KI General Public advised to take KI		2053	N/A	2055	2052	2052	2052	2052	2052	2052

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 October 21, 2008, 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 Susquehanna Steam Electric Station (SSES).

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
A^1	ARCA(s) assessed, but successfully re-demonstrated
R	Resolved ARCA(s) from prior exercises

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: October 21, 2008 Susquehanna Steam Power 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
STATE/COMMONWEALTH																																
Pennsylvania EOC (observed only)																																
State JIC (observed only)																																
Accident Assessment Center (BRP) (observed only)																																
Emergency Operations Facility (observed only)																																
Media Operations Center (Utility)																												M				
Mobile Command Vehicle (observed only)																																
State Field Monitoring Team A Eastern Region				M	M							M	M								M		M									
State Field Monitoring Team B Eastern Region				M	M							M	M								M		M									
State Traffic/Access Control Point (Bloomsburg Barracks)				M	M							M	M			M	M															
RISK JURISDICTIONS																																
Columbia County																																
Columbia County EOC	M		M	M	M	M			M			M	M	M	M	M	M								M			M				
Emergency Worker Mon/Decon Station (Columbia Montour Vo-Tech School)					M							M																	M/R	M/R		
Beaver Township EOC	M		M	M	M	M			M			M	M	M	M	M	M								M							
Berwick Borough/Briar Creek Borough EOC	M		M	M	M	M			M			M	A	M	A	M	M								M							
Berwick/Briar Creek Back-up Route Alerting				M	M							M	M														A					
Fishing Creek Township EOC	M		M	M	M	M			M			M	M	M	M	M	M								M							
Luzerne County																																
Lucerne County EOC	M		M	M	M	M			M			M	M	M	M	M	M								M			M				
Emergency Worker Mon/Decon Station (Sweet Valley Fire Co., Ross Township)					M							M																	M	M		
Hunlock Township EOC	M		M	M	M	M			M			A[1]	M	M	M	M	M								M							
Hunlock Township Back-up Route Alerting				M	M							M	M														M					
Nescopack Township EOC	M		M	M	M	M			M			M	M	M	M	M	M								M							
Nuangola Borough EOC	M		M	M	M	M			M			M	M	M	M	M	M								M							
Salem Township EOC			R																													
Sugarloaf Township EOC	M	M	M	M	M	M			M			M	M	M	M	M	M								M							

LEGEND: M = Met (no Deficiency or ARCA(s) assessed)
R = Resolved ARCA(s) from prior exercises
A = ARCA(s) assessed
U = Unresolved ARCA(s) from prior exercise
A^1 = ARCA(s) assessed but successfully re-demonstrated
Blank = Not scheduled for demonstration

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: October 21, 2008 Susquehanna Steam Power 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
SUPPORT JURISDICTIONS																																
Lackawanna County																																
Lackawanna County EOC	M	M	M	M	M																							M				
Reception Center (Big Lots Center)					M							M																	M		M	
Mass Care – Mon/Decon Center (Middle Valley HS)					M							M																	M			
Lycoming County																																
Lycoming County EOC	M		M	M	M																							M				
Reception Center (Lycoming Mall)					M							M																	M			
Mass Care – Mon/Decon Center (Montoursville HS)					M							M																	M		M	
Montour County																																
Montour County EOC	M		M	M	M																											
Northumberland County																																
Northumberland County EOC	M	M	M	M	M																							M				
Reception Center, Mon/Decon Center & Mass Care (Shikellemy HS, Sunbury)					M							M																	M/R		M/R	
Schuylkill County																																
Schuylkill County EOC	M		M	M	M																							M				
Reception Center (Marion HS)					M							M																	M			
Mass Care – Mon/Decon Center (Tamaqua Jr/Sr HS Complex)					M							M																	M		M	
Union County																																
Union County EOC	M	M	M	M	M																							M				
Reception Center (Montandon ES, Montandon)					M							M																	M			
Mass Care – Mon/Decon Center (Lewisburg Area MS)					M							M																	M		M	
Wyoming County																																
Wyoming County EOC	M	M	M	M	M																							M				
Reception Center & Mass Care (Tunkahannock MS Complex)					M																										M	
Mon/Decon Center (Tunkahannock MS Complex)					M							M																	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
A^1 = ARCA(s) assessed but successfully re-demonstrated
Blank = Not scheduled for demonstration

TABLE 2. SUMMARY RESULTS OF EXERCISE EVALUATION

DATE AND SITE: October 21, 2008 Susquehanna Steam Power 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
SCHOOLS																																
Columbia County																																
Benton Area SD															M																	
Benton Area MS															M																	
Berwick Area SD															M																	
Nescopeck ES															M																	
Salem ES															M																	
Bloomsburg Area SD															M																	
Bloomsburg Area MS															M																	
Central Columbia Area SD															M																	
Central Columbia HS															M																	
Columbia Montour Vo-Tech															M																	
Luzerne County																																
Crestwood SD															M																	
Rice ES															M																	
Greater Nanticoke Area SD															M																	
Greater Nanticoke Education Center															M																	
KM Smith ES															M																	
Hazelton Area SD															M																	
Drums ES															M																	
Northwest Area SD															M																	
Huntingdon Mills ES															M																	
West Side Vo-Tech School															M																	
Wilkes-Barre Vo-Tech School															M																	

LEGEND: M = Met (no Deficiency or ARCA(s) assessed)
A = ARCA(s) assessed
A^1 = ARCA(s) assessed but successfully re-demonstrated
R = Resolved ARCA(s) from prior exercises
U = Unresolved ARCA(s) from prior exercise
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 COMMONWEALTH OF PENNSYLVANIA

1.1 Pennsylvania Emergency Operations Center (observed only)

a. **MET:** None

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 State Joint Information Center (observed only)

a. **MET:** None

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 Accident Assessment Center – Bureau of Radiation Protection (observed only)

a. **MET:** None

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 (observed only)

a. MET: None

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 Media Operations Center (Utility Joint Information Center)

a. MET: 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

1.6 Mobile Command Vehicle (observed only)

a. MET: None

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 Field Air Monitoring Team A – Eastern Region

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

1.8 State Field Air Monitoring Team B – Eastern Region

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

1.9 State Traffic/Access Control Point

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 Columbia County

2.1.1 Columbia 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: None

f. PRIOR ARCAs – UNRESOLVED: None

2.1.2 Columbia County Emergency Worker Monitoring/Decontamination Station

a. MET: 1.e.1 3.a.1 6.1.a
6.b.1

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs – RESOLVED: Two

Issue Number: 63-06-6.a.1-A-01

Condition: The Emergency Worker Monitoring and Decontamination Station did not adequately demonstrate the following activities:

Proper monitoring techniques – Survey instrument probe speed was too fast, the probe was held too far away from the body, and the monitoring path width was too wide.

Monitoring was casually accomplished without adequate attention to a monitoring pattern and detail.

No thyroid monitoring was done.

No actual or simulated distribution of decontamination supplies to monitored individuals.

Contamination control of portal monitor – monitor was not periodically checked for contamination.

No whole-body 4-minute survey for contaminated individuals was completed. Monitors surveyed only hands and arms.

Corrective Action Demonstrated: Two potentially contaminated individuals were observed being monitored with a Ludlum 2241 instrument with a pancake probe. Two different radiological monitors performed monitoring. Each performed a whole body survey of the contaminated emergency worker. The monitors used appropriate probe speed, appropriate proximity to the person being monitored (probe within one-inch) and each paid careful attention to performing a complete survey of the individual.

Thyroid monitoring of the throat area of two simulated contaminated individuals was successfully demonstrated by monitors using a Ludlum 2241 instrument with the pancake probe in accordance with the Columbia County Radiological Emergency Response Plan.

Decontamination supplies (cloths, gloves, and tape) were used during decontamination of individuals. Use of modesty clothing was simulated.

The portal monitor was covered with a paper sheet to protect against the monitor becoming contaminated and facility monitoring personnel stated that portal monitor would be surveyed for contamination every 30 minutes.

All monitoring of potentially contaminated workers (who had been found to be contaminated by the portal monitor) were whole body surveys, not limited surveys of only hands and feet.

Issue Number: 63-06-6.b.1-A-02

Condition: The Emergency Worker Monitoring and Decontamination Station did not adequately demonstrate the following vehicle monitoring and decontamination activities:

Proper monitoring techniques – The probe was held too far away from the vehicle and the monitoring path width was too wide. Monitoring was casually accomplished without adequate attention to a monitoring pattern and detail.

Vehicle interior was not monitored

Corrective Action Demonstrated: The Emergency Worker Monitoring and Decontamination Station successfully demonstrated vehicle monitoring techniques in accordance with the Columbia County Radiological Emergency Response Plan (RERP). The radiological monitor used a Ludlum 2241 instrument with a pancake probe to monitor one emergency vehicle. The monitor used appropriate monitoring techniques, holding the probe within one-inch of the tires, wheel wells, and other parts of the vehicle surface using an appropriate scan rate. The monitor opened the doors of the vehicle and monitored indoor areas including the floor, seats, door handles, and steering wheel. Areas of the vehicle selected for monitoring were as specified in the RERP. The width of the monitoring path was appropriate.

f. PRIOR ARCAs – UNRESOLVED: None

2.1.3 Beaver Township 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	
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:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

2.1.4 Berwick Borough/Briar Creek Borough Emergency Operations Center

a. **MET:** 1.a.1 2.a.1 3.a.1 5.a.1
1.c.1 2.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:** Two (3.b.1, 3.c.2)

Issue Number: 63-08-3.b.1-A-01

Condition: The Emergency Operations Center (EOC) received notification from the Columbia County EOC over the radio and telephone that Emergency Workers were to ingest potassium iodide (KI). However, these messages were not passed forward to the Emergency Management Coordinator.

Possible Cause: The Communication Officer (CO), who is stationed outside the main EOC room, apparently did not receive all messages.

References: NUREG-0654, J.10.e
Berwick/Briar Creek Borough Radiological Response Plan

Effect: Emergency workers in the 10-mile Emergency Planning Zone could have been exposed to radioactive iodine without the protection of KI.

Recommendation: The CO should be trained to obtain, log, and distribute all messages. The Emergency Management Coordinator should be kept informed about important messages affecting the emergency workers and the public.

Commonwealth Response: The Commonwealth agrees with the above recommendation. The Communications Officer will be provided additional training to obtain, log, and distribute all important messages and shall demonstrate during the next scheduled biennial exercise.

Issue Number: 63-08-3.c.2-A-02

Condition: The Emergency Medical Services Representative did not provide Fire/Rescue personnel with contact information for all hearing impaired individuals for their use in route alerting and failed to notify or address other special needs individuals.

Possible Cause: The Medical Services Representative was not cognizant of his responsibilities with respect to special needs individuals.

References: NUREG-0654, J.10.c, d, g
Berwick/Briar Creek Borough Radiological Response Plan, V.E and X.F

Effect: Some hearing impaired and other special needs individuals, including visually impaired, wheelchair-bound, and transportation dependent individuals, might not have been alerted to the evacuation decision and would not have received timely transportation assistance.

Recommendation: The Medical Services Representative should receive training in the position's responsibilities and activities as specified in the Berwick/Briar Creek Borough Radiological Response Plan and standard operating procedures.

Commonwealth Response: The Commonwealth agrees with the above recommendation. The Emergency Medical Services Representatives will be retrained to ensure they are competent in the use of the Berwick/Briar Creek Borough Radiological Response Plan and standard operating procedures and shall demonstrate during the next scheduled biennial exercise.

d. NOT DEMONSTRATED: None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

2.1.4.1 Berwick/Briar Creek Back-up Route Alerting

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

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** One (5.a.3)

Issue Number: 63-08-5.a.3-A-03

Condition: The crew that demonstrated the Berwick Borough/Briar Creek Borough (BBC) backup alert route (Zone 1) ran the route simulating the use of the vehicle's siren, emergency lights and public address system. After completing the route, the crew was asked to demonstrate the vehicle's emergency notification equipment. The siren and emergency lights tests were satisfactory. However, the volume of the public address system was insufficient to provide adequate carrying power of the message. The volume was not much louder than ordinary conversation level. Several minutes were spent attempting to raise the volume without success. The crew was advised that if the volume could be raised, a re-demonstration could occur. Eventually, the BBC Emergency Management Director and the Fire/Rescue Officer were informed and agreed that the volume could not be improved.

Possible Cause: A mechanical malfunction within the public address system is the most likely cause.

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

Effect: Without sufficient volume, any emergency message delivered over the vehicle's public address system could not be understood at any distance beyond 30 feet of the truck. This could delay intended recipients from taking the proper course of action and might also lead to more confusion as to why the fire engine is passing by with lights on and intermittent siren soundings.

Recommendation: It is recommended that the BBC authorities correct the insufficient volume of the public address system.

Commonwealth Response: The Commonwealth agrees with the above recommendation. The mechanical malfunction within the public address system for this vehicle has been repaired and tested. This vehicle will be available for demonstration during the next scheduled biennial exercise.

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs – RESOLVED: None

f. PRIOR ARCAs – UNRESOLVED: None

2.1.5 Fishing Creek Township 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	
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: None

f. PRIOR ARCAs – UNRESOLVED: None

2.2 Luzerne County

2.2.1 Luzerne 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:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

2.2.2 Luzerne County Emergency Worker Monitoring/Decontamination

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 Hunlock Township Emergency Operations Center

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

b. **DEFICIENCY:** None

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

Issue Number: 63-08-3.a.1-A-04

Condition: The Hunlock Township Radiological Officer lacked sufficient knowledge to conduct the radiological briefing for emergency workers and did not have the "standardized" radiological briefing material provided by the Commonwealth of Pennsylvania. He was not

knowledgeable on the use of the electronic dosimeters, did not know the correct exposure limits, and was unaware of the requirements and cautions regarding ingestion of potassium iodide (KI).

Possible Cause: The Radiological Officer was new and lacked familiarity with procedures regarding radiological exposure.

References: NUREG-0654, K.3.a; K.3.b
SOP-I (Radiological Protection Services Officer) of the Hunlock Township Radiological Emergency Response Plan of 1996, 2008 revision

Effect: Emergency workers were not informed of their exposure limits and the requirements and cautions regarding ingestion of KI.

Recommendation: Provide additional training to the Radiological Officer.

Corrective Action Demonstrated: The Radiological Officer was provided retraining regarding SOP-I and given an opportunity to read material associated with dosimetry and KI. He successfully re-demonstrated an adequate radiological briefing.

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs – RESOLVED: None

f. PRIOR ARCAs – UNRESOLVED: None

2.2.3.1 Hunlock Township Back-up Route Alerting

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

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

2.2.4 Nescopeck Township 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
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:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

2.2.5 Nuangola Borough 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
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:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

2.2.6 Salem Township Emergency Operations Center

a. **MET:** 1.c.1

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** One

Issue Number: 63-06-1.c.1-A-03

Condition: According to the Salem Township Radiological Emergency Response Plan Standard Operating Procedures, personnel filling each of nine key functions are responsible for assuring around the clock shift scheduling for their function to assure continuity of response.

The positions of Public Works Officer and Transportation Officer were not filled. In addition, only the Emergency Management Coordinator (EMC) and Police Services Officer positions had names designated for the second shift. The EMC doubled the duties of the Medical Officer to include those of the Transportation Officer. This position was filled by a recruit from the Fire Department not trained for either position. In addition, the plan's Notification and Resource Manual did not include contact names for Public Works officials.

Corrective Action Demonstrated: A 24-hour staffing roster for Salem Township EOC was provided by Luzerne County Emergency Management Agency.

f. **PRIOR ARCAs – UNRESOLVED:** None

2.2.7 Sugarloaf Township Emergency Operations Center

a. **MET:**

1.a.1	2.a.1	3.a.1	5.a.1
1.b.1	2.c.1	3.b.1	
1.c.1		3.c.1	
1.d.1		3.c.2	
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 Lackawanna County

a. **MET:** 1.a.1 5.b.1
1.b.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

3.1.1 Reception Center (Big Lots Center)

a. **MET:** 1.e.1 3.a.1 6.a.1
6.c.1

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

3.1.2 Mass Care – Monitoring/Decontamination Center (Middle 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

3.2 Lycoming County

a. **MET:** 1.a.1 5.b.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

3.2.1 Reception Center (Lycoming 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

3.2.2 Mass Care – Monitoring/Decontamination Center (Montoursville High School)

a. **MET:** 1.e.1 3.a.1 6.a.1
6.c.1

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

3.3 Montour County

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

3.4 Northumberland County

a. **MET:** 1.a.1 5.b.1
1.b.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

3.4.1 Reception Center, Monitoring/Decontamination Center, and Mass Care (Shikellemy High School, Sunbury)

a. **MET:** 1.e.1 3.a.1 6.a.1 6.c.1

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** Two

Issue Number: 63-06-6.a.1-A-04

Condition: No "range of readings" sticker was affixed to the side of the survey instrument indicating acceptance criterion for a source check.

Corrective Action Demonstrated: All four Ludlum survey meters had range of readings stickers affixed to the side of the instrument indicating acceptable values for source checks with the Cs-137 sources, also affixed to the side of the meter. Source checks of two meters were observed and were within the acceptable range indicated.

Issue Number: 63-06-6.a.1-A-05

Condition: Contrary to the Extent of Play, the same player demonstrated all 3 monitoring tasks at the facility: portal monitor, survey meter monitoring of the contaminated individual, and vehicle monitoring. In an actual event one individual would not be able to perform required tasks simultaneously.

Corrective Action Demonstrated: During the out-of-sequence evaluation of the monitoring and decontamination exercise for the Susquehanna Nuclear Power Plant on October 22, 2008, at the Chief Shikellemy Elementary School, three monitoring teams of two individual each were used. One individual performed the monitoring tasks with the other recording the readings. After contamination was indicated on an evacuee by the portal monitor, one team performed a complete survey of the evacuee and after

locating the contaminated area sent the evacuee with escort to the appropriate decontamination area. A separate monitoring team was located at both the male and female decontamination areas, but no females were monitored during this exercise. The controller stated that the monitor teams had been well trained, which was indicated by their observed monitoring techniques.

f. PRIOR ARCAs – UNRESOLVED: None

3.5 Schuylkill County

a. MET: 1.a.1 5.b.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

3.5.1 Reception Center (Marion High School)

a. MET: 1.e.1 3.a.1 6.a.1

b. DEFICIENCY: None

c. AREAS REQUIRING CORRECTIVE ACTION: None

d. NOT DEMONSTRATED: None

e. PRIOR ARCAs – RESOLVED: None

f. PRIOR ARCAs – UNRESOLVED: None

3.5.2 Mass Care – Monitoring/Decontamination Center (Tamaqua Jr./Sr. High School Complex)

a. **MET:** 1.e.1 3.a.1 6.a.1
6.c.1

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

3.6 Union County

a. **MET:** 1.a.1 5.b.1
1.b.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

3.6.1 Reception Center (Montandon Elementary School, Montandon)

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

3.6.2 Mass Care – Monitoring/Decontamination Center (Lewisburg Area Middle School)

a. **MET:** 1.e.1 3.a.1 6.a.1
6.c.1

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

3.7 Wyoming County

a. **MET:** 1.a.1 5.b.1
1.b.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

3.7.1 Reception Center & Mass Care (Tunkahannock Middle School Complex)

a. **MET:** 1.e.1 6.c.1

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

3.7.2 Monitoring/Decontamination Center (Tunkahannock Middle School Complex)

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

4.0 SCHOOL DISTRICTS

4.1 Columbia County

4.1.1 Benton Area School District and Benton Area 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

4.1.2 Berwick Area School District and Nescopeck 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

4.1.3 Salem Elementary School (Berwick 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

4.1.4 Bloomsburg Area School District and Bloomsburg Area 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

4.1.5 Central Columbia Area School District and Central Columbia 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

4.1.6 Columbia Montour Vo-Tech

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 Luzerne County

4.2.1 Crestwood School District and Rice 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 Greater Nanticoke Area School District and Greater Nanticoke Education 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

4.2.3 KM Smith Elementary School (Greater Nanticoke 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

4.2.4 Hazleton Area School District and Drums 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

4.2.5 Northwest Area School District and Huntingdon Mills 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

4.2.6 West Side Vo-Tech

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

4.2.7 Wilkes-Barre Vo-Tech

a. **MET:** 3.c.2

b. **DEFICIENCY:** None

c. **AREAS REQUIRING CORRECTIVE ACTION:** None

d. **NOT DEMONSTRATED:** None

e. **PRIOR ARCAs – RESOLVED:** None

f. **PRIOR ARCAs – UNRESOLVED:** None

APPENDIX 1:
Acronyms and Abbreviations

A&N	Alert and Notification
ACP	Access Control Point
ALARA	As Low As Reasonably Achievable
ARC	American Red Cross
ARC 3031	American Red Cross document *Mass Care – Preparedness and Operations*
ARCA	Area Requiring Corrective Action
ATL	Assistant Team Leader
ATWS	Anticipated Transient Without Scram
BBC	Berwick Borough/Briar Creek Borough
BRP	Bureau of Radiation Protection
CFR	Code of Federal Regulations
CO	Communication Officer
cpm	Counts per minute
DEP	Department of Environmental Protection
DHS	Department of Homeland Security
DILs	Derived Intervention Levels
DRD	Direct Reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alerting System
EBS	Emergency Broadcast System
EMC	Emergency Management Coordinator
ENC	Emergency News Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPA	(U.S.) Environmental Protection Agency
EPZ	Emergency Planning Zone
ES	Elementary School
FEMA	Federal Emergency Management Agency
FR	Federal Register
FRERP	Federal Radiological Emergency Response Plan
HPCI	High Pressure Coolant Injection
HS	High School
ICF	ICF International
IPZ	Ingestion Pathway Emergency Planning Zone

JIC	Joint Information Center
KI	Potassium Iodide
mR/h	Milliroentgen(s) Per Hour
MS	Middle School
MS-1	Medical Services Drill
MW	Megawatt
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1 (Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants), November 1980
ORO	Offsite Response Organization
PAD	Protective Action Decision
PAG	Protective Action Guidance
PAR	Protective Action Recommendation
PEMA	Pennsylvania Emergency Management Agency
PRD	Permanent Record Dosimeter
R	Roentgen(s)
RAC	Regional Assistance Committee
Rem	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
R/hr	Roentgens per hour
SAE	Site Area Emergency
SD	School District
SEOC	State Emergency Operations Center
SOP	Standard Operating Procedure
SSES	Susquehanna Steam Electric Station
TCP	Traffic Control Point
TL	Team Leader
TSC	Technical Support Center
TWP	Township

APPENDIX 2:
Exercise Evaluators and Team Leaders

The following is a list of personnel who evaluated the Susquehanna Steam Electric Station exercise on October 21 & 22, 2008. Evaluator Team Leaders are indicated by "(TL)" after their organization's name. Alternate Evaluator Team Leaders are indicated by "(ATL)" after their organization's name. Evaluators scheduled to assess the School Exercise (morning of 22 October) also evaluated Reception, Care, and Monitoring and Decontamination facilities (evening of 22 October). The organization that each evaluator represents is indicated by the following abbreviations:

DHS	Department of Homeland Security
EPA	U.S. Environmental Protection Agency
NRC	U.S. Nuclear Regulatory Commission
ICF	ICF International

OBSERVERS-AT-LARGE	EVALUATOR	ORGANIZATION
Chief, CNPPD, Philadelphia Field Office	Darrell Hammons	DHS
Project Officer	Bart Freeman	DHS
ICF Regional Coordinator	Roger Kowieski	ICF

PLUME EXERCISE – October 21, 2008

COMMONWEALTH OF PENNSYLVANIA		
EVALUATION SITE	**EVALUATOR**	**ORGANIZATION**
Pennsylvania EOC *The SEOC will participate, but will not be evaluated* PEMA JIC *will participate, but will not be evaluated*	**John Price** Robert Black	**DHS (TL)** ICF
Emergency Operations Facility (EOF) *The EOF will participate, but will not be evaluated (evaluated for Limerick '07)*	Gary Goldberg	ICF
Medial Operations Center (Utility JIC) (East Mountain Business Center)	Paul Nied	ICF
Accident Assessment (State EOC – BRP) *The AAC will participate, but will not be evaluated*	Reggie Rodgers	ICF (TTL)
Mobile Command Vehicle *Mobile Command Vehicle will play in support of Field Monitoring Team, but will not be evaluated.*	Ronald Biernacki	ICF
State Field Monitoring Team A, Eastern Region	James Hickey	ICF
State Field Monitoring Team B, Eastern Region	Paul Cormier	ICF

COMMONWEALTH OF PENNSYLVANIA – Cont.		
RISK JURISDICTIONS		
EVALUATION SITE	**EVALUATOR**	**ORGANIZATION**
Columbia County		
Columbia County EOC	Roy Smith	ICF (TL)
	Alan Bevan	ICF
	Frank Cordaro	ICF
Beaver Township EOC	Thomas Essig	ICF
Berwick Borough/Briar Creek Borough EOC	Walter Gawlak	ICF
Route Alerting	Dave Petta	ICF
Fishing Creek Township EOC	Clark Cofer	ICF
Luzerne County		
Luzerne County EOC	**Joe Suders**	**DHS (TL)**
	Wendy Swygert	ICF (ATL)
	Marcus Aquino	EPA
	Robert Vork	ICF
	Alexis Kacho	ICF
Hunlock Township EOC	Dick Wessman	ICF
Back-up Route Alerting	Earnest Boaze	ICF
Nescopeck Township EOC *TCP evaluated at EOC via interview*	Don Calsyn	ICF
Nuangola Borough EOC	Jon Christiansen	ICF
Salem Township EOC *Municipality will submit 24 hr staffing roster to clear issue*	Wendy Swygert	ICF
Sugarloaf Township EOC *TCP evaluated at EOC via interview*	Nancy Johnson	ICF

SUPPORT JURISDICTIONS	John Price, DHS (TL)	
Lackawanna Co. EOC	Robert Lemeshka	ICF
Lycoming Co. EOC	Mark Dalton	DHS
Northumberland Co. EOC	George McDonald	ICF
Schuylkill Co. EOC	James McClanahan	ICF
Union Co. EOC	Sam Nelson	ICF
Wyoming Co. EOC	William O'Brien	ICF
Montour Co. EOC *Out-of-Sequence*		

OUT OF SEQUENCE DEMONSTRATIONS
MASS CARE RECEPTION, MONITORING AND DECONTAMINATION, MASS CARE
- October 22, 2008

Wednesday, 22 October 2008 **1900 – 2130**		
EVALUATION SITE	**EVALUATOR**	**ORGANIZATION**
Columbia County		
Emergency Worker Mon/Decon Station, Columbia Montour Vo-Tech	Earl Shollenberger	ICF
Luzerne County		
Emergency Worker Mon/Decon Station, Sweet Valley Fire Company	Dave Stuenkel	ICF
Lackawanna County		
Reception Center – Big Lots Mass Care Center – Mid Valley High School	Robert Black	ICF
Mon/Decon & Mass Care Center – Mid Valley High School	Nicholas DePierro	ICF
Lycoming County		
Reception Center – Lycoming Mall	Harold Spedding	ICF
Mon/Decon & Mass Care Center – Montoursville High School	Gary Goldberg	ICF
Northumberland County		
Reception Center	James McClanahan	ICF
Mon/Decon & Mass Care Center – Shikellamy High School	W. Morrison Jackson	ICF
Schuylkill County		
Reception Center – Marion High School Mass Care – Tamaqua Jr/Sr High School Complex	Bruce Swiren	ICF
Mon/Decon & Mass Care – Tamaqua Jr/Sr High School Complex	Michael Petullo	ICF
Union County		
Reception Center – Montandon Elementary School Mass Care Center – Lewisburg Middle School	Carl Wentzell	ICF
Mon/Decon & Mass Care Center – Lewisburg Middle School	Bart Ray	ICF
Wyoming County		
Reception Center & Mass Care Center – – Tunkhannock Middle School	David White	ICF
Mon/Decon – Tunkhannock Middle School	Ronald Biernacki	ICF (TTL)

OUT OF SEQUENCE DEMONSTRATIONS
SCHOOL DISTRICTS AND SCHOOLS - October 22, 2008

Wednesday, 22 October 2008 **0900 - 1100**		
EVALUATION SITE	**EVALUATOR**	**ORGANIZATION**
Columbia County School Districts – Gary Goldberg – TL (Schools)		
Benton Area S.D. Benton Area Middle School	Reggie Rodgers	ICF
Berwick Area S.D. Nescopeck Elementary School Salem Elementary School	Nicholas DePierro Bruce Swiren	ICF ICF
Bloomsburg Area S.D. Bloomsburg Area Middle School	Gary Goldberg	ICF
Central Columbia Area S.D. Central Columbia High School	W. Morrison Jackson	ICF
Columbia Montour AVTS	Mike Petullo	ICF
Luzerne County School Districts – Gary Goldberg – TL (Schools)		
Crestwood S.D. Rice Elementary School (O/S EPZ)	Bart Ray	ICF
Greater Nanticoke Area S.D. Greater Nanticoke Education Center KM Smith Elementary School	Ronald Biernacki Earl Shollenberger	ICF ICF
Hazelton Area S.D. Drums Elementary School	Dave Stuenkel	ICF
Northwest Area S.D. Huntington Mills ES	Carl Wentzell	ICF
West Side AVTS	David White	ICF
Wilkes-Barre AVTS	Harold Spedding	ICF

OUT OF SEQUENCE DEMONSTRATIONS
MONTOUR COUNTY EMERGENCY OPERATIONS CENTER –
October 22, 2008

Wednesday, 22 October 2008 **1000 – 1200**		
EVALUATION SITE	**EVALUATOR**	**ORGANIZATION**
Montour County EOC	Sean Howley	ICF

OUT OF SEQUENCE DEMONSTRATIONS
PA STATE POLICE TRAFFIC & ACCESS CONTROL – October 22, 2008

Wednesday, 22 October 2008 **1000 - 1200**		
EVALUATION SITE	**EVALUATOR**	**ORGANIZATION**
PSP Bloomsburg Barracks	Tracey Green	ICF

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 July 10, 2008.

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.

SUSQUEHANNA STEAM ELECTRIC STATION
2008 RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE
METHOD OF OPERATION

1. **Susquehanna Steam Electric Station (SSES)**

   The facility normally uses off-watch section personnel to participate in the exercise. The plant's simulated events, radiation readings, and emergency classifications will trigger offsite exercise actions. A pre-approved exercise scenario will be used. The SSES will notify the State EOC, the Bureau of Radiation Protection and Risk Counties of emergency classifications.

2. **Bureau of Radiation Protection (BRP)**

   Personnel from the Pennsylvania Bureau of Radiation Protection (BRP) will be present and participate in the following aspects of the exercise as follows:

   Plume Exercise – Nuclear facility EOF – (NOT Evaluated)
   Plume Exercise – Field Sampling Teams & Command Vehicle – **(10/21/2008)**

   BRP personnel working in the SEOC will NOT be evaluated as participants

3. PEMA Operations at State EOC / PEMA Headquarters

This "Method of Operation" Document includes activities for the Full-Scale Plume Exercise **10/21/2008**, and the "Out of Sequence" Activities **10/22/2008**.

A. Plume Exercise – (10/21/2008)

PEMA Bureau of Operations and Training staff, augmented by designated PEMA personnel from the Fire Commissioner's Office, the Bureau of Administration, Technical Services, Plans, plus Emergency Preparedness Liaison Officers (EPLO's) with accompanying response team members from designated state departments/agencies, including representatives from the USDA State Emergency Board will comprise initial operations at the State Emergency Operations Center (EOC). The State EOC will participate but will NOT be evaluated during this exercise.

B. Plume Exercise – "Out of Sequence" Activities – (10/22/2008)

PEMA Bureau of Operations and Training staff, augmented by designated PEMA personnel will disseminate exercise related messages to the participating Counties for dissemination to the participating School Districts during the morning of 10/22/2008. The State Emergency Operations Center (EOC) and County EOC's will participate however NOT be evaluated during the "Out of Sequence" component. PEMA personnel will serve as "observers" at the identified School Districts.

NOTE: The Montour County EOC will be evaluated during the school district exercise during the morning of 10/22/2008.

C. "Out of Sequence" Activities – (10/22/2008)

PEMA personnel will serve as "Observers" at the various field exercise locations during the evening "Out-of-Sequence" component **10/22/2008**. An exercise coordinator will remain in the State EOC. The State Emergency Operations Center (EOC) and Counties will NOT be evaluated during the evening "Out of Sequence" component.

4. PEMA Area Office Operations

The PEMA Area Offices (Hamburg -Eastern Area and Harrisburg - Central Area) will not be activated nor evaluated during this exercise. Selected staff of the Area Offices will serve as Liaison Officers to Risk and Support Counties as assigned. Liaison Officers are exercise participants.

5. Counties Designated to Participate

A. Plume Phase Exercise: (10/21/2008)

The two risk counties (Columbia and Luzerne), in coordination with PEMA, will demonstrate the capability to mobilize appropriate staff, activate their respective

Emergency Operations Centers and implement emergency response operations to include sheltering and/or evacuation. County government will provide direction and coordination to risk municipalities. The seven support Counties (Lackawanna, Lycoming, Montour, Northumberland, Schuylkill, Union and Wyoming) will participate in their assigned support roles. Actual sheltering or evacuation of the general public will be simulated.

6. PEMA Liaison Officers

Liaison officers will be present at the participating risk / support county EOC's, the SSES Emergency Operations Facility (EOF) and the Emergency News Center (ENC) to provide assistance, guidance, and support. These liaison officers will participate as players in the plume phase exercise on **10/21/2008**.

7. Controllers

Controllers will be supplied by the utility and will be present at the emergency worker monitoring/decontaminating stations and the mass care monitoring/ decontamination centers **10/22/2008**. Controllers are not players. Controllers will provide pre-approved injects and information to the players, as appropriate, regarding radiological readings during the monitoring of personnel. Live radioactive sources will not be used. ***Exception:*** *individuals tasked with the setupof portal monitoring equipment will use a standard 1 micro curie Cesium 137 source for the purpose of conducting operational tests. Additionally, appropriate test sources will be available and used to verify the operation of the monitoring / survey instruments per manufacturer's recommendations.*

8. PEMA Observers

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

9. Department of Homeland Security (FEMA/REP) Evaluators

A. Plume Exercise:

Out of Sequence Period: (10/22/2008) Federal evaluators will be present at the identified "out-of-sequence" demonstration sites per Attachment A, Section I.1 and I.A.5 These include the identified Public School Districts and the Pennsylvania State Police location.

Plume Phase Exercise: (10/21/2008) Evaluators representing the federal government will be present at the identified risk and support county EOC's to evaluate player

response to the actual and simulated events in the exercise scenario. Additionally, one-third of the risk municipalities in Columbia and Luzerne counties will be federally evaluated. As required, a "floating-evaluator" will be made available for the purpose of evaluating any ORO locations not scheduled to have a federal evaluator, but having a prior issue Attachment A, Section I.A.2 and I.A.3

Out of Sequence Period: (10/22/2008) Federal evaluators will be present at identified Reception Centers, Emergency Worker Monitoring and Decontamination Stations and Mass Care / Shelters and Mass Care Monitoring and Decontamination Centers, as identified in Attachment A, Section I.B.1, I.B.2 and I.B.3.

10. Demonstration Windows

In order to provide for more effective demonstrations, as well as to permit the release of volunteers from exercise play at a reasonable hour, periods of time (Demonstration Windows) have been designated during which specified actions will be accomplished / demonstrated.

The "demonstration windows" for this exercise are:

A. Plume Phase Exercise

The out-of-sequence MS-1 hospital demonstration was federally evaluated at Geisinger Wyoming Valley Medical Center, Luzerne County, April 7, 2007.

The out-of-sequence exercise window for school demonstrations will be from **9:00 - 11:00 a.m. on Wednesday, 10/22/2008.**

The out-of-sequence demonstration of reception centers, mass care centers, monitoring / decontamination centers and emergency worker stations will be conducted from **7:00 - 9:30 p.m. on Wednesday, October 22, 2008**. Locations are specified within Attachment A, Section II.

The out-of-sequence interview of Pennsylvania State Police traffic control / access control points will be from **10:00 a.m. - 12:00 noon on Wednesday, 10/22/2008.**

All demonstrations will commence promptly and, barring any complications, not continue beyond the time of the designated demonstration window.

County and municipal EOC operations will be conducted on **10/21/2008 with the exception of Montour County which will be evaluated during the out of sequence school phase on 10/22/2008.** (Please refer to the Extent of Play Demonstration Tables, Attachment A)

B. Post Plume Exercise

NOTE: The post-plume exercise was conducted August 2004 for the SSES.

11. Stand-down

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

A. Upon completion of all requirements and after having informed the FEMA / REP evaluator that all evaluation areas have been demonstrated and/or completed, the risk municipality EOC's may request approval from their county EOC to "stand-down".

B. Support counties may likewise request approval from the State EOC to terminate the exercise upon completion of all evaluated objectives.

C. The risk county EOC's will remain operational until the exercise is officially terminated by the State. **The Lead exercise controller at the SEOC will coordinate an exercise termination message and have it communicated via a SEOC Watch Officer.**

12. General Concepts

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

13. Re-demonstrations

During the out of sequence demonstrations on **10/22/2008**, or the plume phase demonstrations on **10/21/2008**, any activity that is not satisfactorily demonstrated may be re-demonstrated by the participants during the exercise, provided it does not negatively interfere with the exercise. Refresher training may be provided by the players, observers, and/or controllers. Evaluators are not permitted to provide refresher training. Re-demonstrations will be negotiated between the players, observers, controllers, and evaluators. PEMA may advise the RAC Chair prior to initiating any re-demonstrations. It is permissible to extend the demonstration window, within reason, to accommodate the re-demonstration. Activities corrected from a re-demonstration will be so noted.

SUSQUEHANNA STEAM ELECTRIC STATION
2008 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 is 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: **Lackawanna, Wyoming, Union County EOCs**

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. The utility JIC will be evaluated for this drill.

- *Actual calls (or pager notifications) will be made to the municipal EOC personnel for the Plume Phase exercise,* ***10/21/2008*** *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 and for the purpose of this exercise, Montour County EOC).*

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: NOTE: Lackawanna, Union and Wyoming counties have new EOCs and will require baseline evaluations. These evaluations may be completed anytime prior to the exercise.

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:

Sub-element 1.d – Communications Equipment – N/A

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:

The plant will communicate to the risk counties via the State EOC utilizing the Automatic Ring Down system (ARD), and Support Counties will communicate with the State EOC via SEVAN. PASTAR will serve as backup in both cases.

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, including air sampling flow meters (field teams only), 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 the calibration frequency may 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 dosimeters 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 *(Direct Reading Dosimeters)* should be inspected for electrical leakage at least annually and replaced, if necessary. CDV-138s, due to their documented history of electrical leakage problems, should be inspected for electrical leakage at least quarterly and replaced if necessary. This leakage testing will be verified during the exercise, through documentation submitted in the Annual Letter of Certification, and/or through a staff assistance visit.

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

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

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

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

PEMA Negotiated Extent of Play:

In Pennsylvania CDV-700s are calibrated per manufactures recommendations (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.

KI extension letters will be available to the evaluator.

NOTE: OROs located within the SSES EPZ are in the process of "phasing-in" electronic Direct Reading Dosimeters with the intent to "phase-out" aging and failure prone ion-chamber type Direct Reading Dosimeters. Both styles (electronic and the pocket ion-chamber DRDs) may be found to be available within the SSES EPZ. Both types are acceptable provided leakage testing or appropriate documentation is available.

EVALUATION AREA 2
Protective Action Decision-Making

Sub-element 2.a - Emergency Worker Exposure Control

INTENT

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

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

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to ensure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, K.4; J.10.e, f)

EXTENT OF PLAY

OROs authorized to send emergency workers into the plume exposure pathway EPZ should demonstrate a capability to meet the criterion based on their emergency plans and procedures. Responsible OROs should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of pre-authorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels. As appropriate, OROs should demonstrate the capability to make decisions on the distribution and administration of KI as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established Protective Action Guides (PAGs) for KI administration.

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

PEMA Negotiated Extent of Play:

Radiological briefings (either verbal or via video) will be provided to address exposure limits and procedures to replace those approaching exposure limits and how permission to exceed limits is obtained from the municipality and county. Emergency workers will also be briefed on when to take KI and on whose authority. Distribution of KI will be simulated.

The completion of a "Dosimetry-KI Report Form" will be demonstrated.

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; 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:

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

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

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

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

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

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

PEMA Negotiated Extent of Play:

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 were 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 pubic 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:

The State EOC will not be evaluated during this exercise; however, this element will be demonstrated during the plume phase exercise as a control mechanism.

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

INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate protective action decisions to mitigate exposure from the ingestion pathway.

During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surrounding areas. Any such contamination would likely occur during the plume phase of the accident and, depending on the nature of the release, could impact the ingestion pathway for weeks or years.

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

Relocation: OROs should demonstrate the capability to estimate integrated dose in contaminated areas and to compare these estimates with PAGs, apply decision criteria for relocation of those individuals in the general public who have not been evacuated but where projected doses are in excess of relocation PAGs, and control access to evacuated and restricted areas. Decisions are made for relocating members of the evacuated public who lived in areas that now have residual radiation levels in excess of the PAGs.
Determination of areas to be restricted should be based on factors such as the mix of radio nuclides in deposited materials, calculated exposure rates vs. the PAGs, and field samples of vegetation and soil analyses.

Re-entry: Decisions should be made regarding the location of control points and policies regarding access and exposure control for emergency workers and members of the general public who need to temporarily enter the evacuated area to perform specific tasks or missions.

Examples of control procedures are: the assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; questions regarding the individual's objectives and locations expected to be visited and associated time frames; availability of maps and plots of radiation exposure rates; advice on areas to avoid; and procedures for exit including: monitoring of individuals, vehicles, and equipment;
decision criteria regarding decontamination; and proper disposition of emergency worker dosimetry and maintenance of emergency worker radiation exposure records.

Responsible OROs should demonstrate the capability to develop a strategy for authorized re-entry of individuals into the restricted zone, based on established decision criteria. OROs should demonstrate the capability to modify those policies for security purposes (e.g., police patrols), for maintenance of essential services (e.g., fire protection and utilities), and for other critical functions. They should demonstrate the capability to use decision-making criteria in allowing access to the restricted zone by the public for various reasons, such as to maintain property (e.g., to care for farm animals or secure machinery for storage), or to retrieve important possessions. Coordinated policies for access and exposure control should be developed among all agencies with roles to perform in the restricted zone. OROs should demonstrate the capability to establish policies for provision of dosimetry to all individuals allowed to re-enter the restricted zone. The extent that OROs need to develop policies on re-entry will be determined by scenario events.

Return: Decisions are to be based on environmental data and political boundaries or physical/geological features, which allow identification of the boundaries of areas to which members of the general public may return. Return is permitted to the boundary of the restricted area that is based on the relocation PAG.

Other factors that the ORO should consider are, for example: conditions that permit the cancellation of the Emergency Classification Level and the relaxation of associated restrictive measures; basing return recommendations (i.e., permitting populations that were previously evacuated to reoccupy their homes and businesses on an unrestricted basis) on measurements of radiation from ground deposition; and the capability to identify services and facilities that require restoration within a few days and to identify the procedures and resources for their restoration. Examples of these services and facilities are: medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

PEMA Negotiated Extent of Play:

This sub-element will NOT be evaluated during this exercise. This element was demonstrated during the Post Plume Exercise conducted during the week of August 16, 2004.

EVALUATION AREA 3
Protective Action Implementation

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

INTENT

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

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.a, b)

EXTENT OF PLAY

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

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

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

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

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

PEMA Negotiated Extent of Play:

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

OROs should also demonstrate the use of all applicable dosimetry forms.
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 turn back values. Emergency workers who are assigned to low exposure rate areas, e.g., at counting laboratories, emergency operations centers, and communications centers, may have individual permanent record 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. In order to demonstrate an understanding of the use of the dosimetry equipment, KI and associated forms; the location need only remove and distribute / issue a maximum of six (6) units of dosimetry from their inventory. Simulation PRDs with mock serial numbers may 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 radio protective 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 radio protective 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.

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 will contact in the event of an emergency in accordance with plans and procedures.

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

INTENT

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

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

EXTENT OF PLAY

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

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

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

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

PEMA Negotiated Extent of Play:

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

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

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

***PEMA Negotiated Extent of Play*:**

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. (Risk counties only).

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

INTENT

This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to implement protective actions, based on criteria recommended by current Food and Drug Administration guidance, for the ingestion pathway zone (IPZ), the area within an approximate 50-mile radius of the nuclear power plant. This sub-element focuses on those actions required for implementation of protective actions.

Criterion 3.e.1: The ORO demonstrates the availability and appropriate use of adequate information regarding water, food supplies, milk, and agricultural production within the ingestion exposure pathway emergency planning zone for implementation of protective actions. (NUREG-0654, J.9, 11)

EXTENT OF PLAY

Applicable ORO's should demonstrate the capability to secure and utilize current information on the locations of dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points to implement protective actions within the ingestion pathway EPZ. ORO's should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of these criteria 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:

Not demonstrated during this exercise. This element was demonstrated during the SSES Post Plume Exercise conducted during the week of August 16, 2004.

Criterion 3.e.2: Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production. (NUREG-0654, J.9, 11)

EXTENT OF PLAY

Development of measures and strategies for implementation of IPZ protective actions should be demonstrated by formulation of protective action information for the general public and food producers and processors. This includes either pre-distributed public information material in the IPZ or the capability for the rapid reproduction and distribution of appropriate reproduction-ready information and instructions to pre-determined individuals and businesses. ORO's should demonstrate the capability to control, restrict or prevent distribution of contaminated food by commercial sectors.

Exercise play should include demonstration of communications and coordination between organizations to implement protective actions. Actual field play of implementation activities may be simulated. For example, communications and coordination with agencies responsible for enforcing food controls within the IPZ should be demonstrated, but actual communications with food producers and processors may be simulated.

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:

Not demonstrated during this exercise. This element was demonstrated during the SSES Post Plume Exercise conducted during the week of August 16, 2004.

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

INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should demonstrate the capability to implement plans, procedures, and decisions for relocation, re-entry, and return. Implementation of these decisions is essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a commercial nuclear power plant.

Criterion 3.f.1: Decisions regarding controlled re-entry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)

EXTENT OF PLAY

Relocation: OROs should demonstrate the capability to coordinate and implement decisions concerning relocation of individuals, not previously evacuated, to an area where radiological contamination will not expose the general public to doses that exceed the relocation PAGs. OROs should also demonstrate the capability to provide for short-term or long-term relocation of evacuees who lived in areas that have residual radiation levels above the PAGs. Areas of consideration should include the capability to communicate with OROs regarding timing of actions, notification of the population of the procedures for relocation, and the notification of, and advice for, evacuated individuals who will be converted to relocation status in situations where they will not be able to return to their homes due to high levels of contamination. OROs should also demonstrate the capability to communicate instructions to the public regarding relocation decisions. ORO's should also demonstrate the capability to provide for short-term or long-term relocation of evacuees who lived in areas that have residual radiation levels above the (first -, second -, and fifty-year) PAG's.

Re-entry: OROs should demonstrate the capability to control re-entry and exit of individuals who need to temporarily re-enter the restricted area, to protect them from unnecessary radiation exposure and for exit of vehicles and other equipment to control the spread of contamination outside the restricted area. Monitoring and decontamination facilities will be established as appropriate.

Examples of control procedure subjects are: (1) the assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; (2) questions regarding the individuals' objectives and locations expected to be visited and associated timeframes; (3) maps and plots of radiation exposure rates; (4) advice on areas to avoid; and procedures for exit, including monitoring of individuals, vehicles, and equipment, decision criteria regarding contamination, proper disposition of emergency worker dosimetry, and maintenance of emergency worker radiation exposure records.

Return: OROs should demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase. OROs should demonstrate the capability to identify and prioritize services and facilities that require restoration within a few days, and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.

Communications among OROs for relocation, re-entry, and return may be simulated; however all simulated or actual contacts should be documented. These discussions may be accomplished in a group setting.

OROs should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, 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 demonstrated during this exercise. This was demonstrated during the SSES Post-Plume Exercise conducted the week of August 16, 2004

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:

Pennsylvania Department of Environmental Protection (DEP), Bureau of Radiation Protection (BRP) field teams will be evaluated during this exercise. The muster area will be located at the SESS EOF.

Department of Environmental Protection (DEP), Bureau of Radiation Protection (BRP) field teams are equipped with the necessary instrumentation and supplies. Evaluators will meet the field teams from the DEP South Eastern Regional Office at ***the rear of the SSES East Mountain Business Center (EOF) at 3:30 p.m. on October 21, 2008,*** *to observe instrumentation checks and equipment inventory verification prior to deployment.*

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.

OROs 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.

PEMA Negotiated Extent of Play:

Field Team Control will be performed within or near the 10 mile EPZ using the DEP Radiological Rapid Response Vehicle (R3V). The R3V will be located at the rear of the SSES East Mountain Business Center (EOF). Field Team control is expected to initially be out of sequence with the plume timeline. During the exercise the field teams will be directed to take measurements in locations to provide information sufficient to characterize the plume and impacts. In addition to field team measurements, remote detectors will be located by the field teams near the expected plume pathway, these detectors will automatically transmit data to the R3V. These detectors will be used to keep field team dose ALARA. A FEMA Evaluator will be located at the R3V location, arriving at the same time as the Field Teams, expected to be at 1430 on October 21, 2008.

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.

OROs 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:

Measurements will be made by Department of Environmental Protection (DEP), Bureau of Radiation Protection (BRP), in accordance with the BRP Standard Implementing Procedures (IPs). Two mobile monitoring teams from BRP DEP South Eastern Regional Office will demonstrate ambient radiation monitoring and radioiodine and particulate sampling. Field teams will be equipped with appropriate dosimetry and KI. Both teams will be evaluated by FEMA. Each team will be directed to monitoring locations and perform actual radiation measurements at each location. Measurements may consist of truck installed radiation monitor or hand-held radiation instruments. An actual air sample will be taken at the first location that meets the requirements for taking an air sample (≥ 1 mR/hr) as directed. Teams will then take additional simulated air samples, as directed, at additional locations, if conditions are appropriate for radioiodine sampling and relay information to the Radiological Rapid Response Vehicle (R3V). In place of silver zeolite cartridges, charcoal cartridges will be used for the exercise. All measurements will be forwarded to theR3V immediately upon obtaining data. Evaluators will meet the field teams at the rear of the SSES East Mountain Business Center (EOF) at 2:30 pm on October 21, 2008.

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 IPZ 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 element will NOT be demonstrated during this exercise. This was demonstrated during the Post Plume Exercise the week of August 16, 2004.

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 SSES exercise. This element was demonstrated during the 2007 TMI 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 (OROs) 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. All subsequent actions to broadcast stations will be simulated. Broadcast of the message(s) or test message(s) is

***NOT** required and **NOT** requested. Counties may elect to provide Subsequent News Bulletins or County Specific EAS messages to their EAS stations.*

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.

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

One municipality per risk county will demonstrate route alerting of the hearing impaired residents within their jurisdiction. (Please refer to Attachment A, Section II.4)

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:

This element is not applicable. The SSES EPZ does not have any Alert and Notification System "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 assign 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.

To demonstrate the monitoring process, a minimum of six individuals posing as simulated evacuees should be monitored per monitoring facility. As an option, it will be acceptable to monitor one individual six times.

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

***At each reception center**, a minimum of three volunteer evacuees will be processed, briefed, issued the appropriate strip map or directions, and instructed to proceed to a mass care center*

designated for demonstration of monitoring, decontamination, and registration. A sample of the appropriate strip maps or directions will be made available for the demonstration.

*One mass care center and one mass care monitoring/decontamination center will be demonstrated per support county during the out-of-sequence window county (**Exception** – Montour County does not operate any mass care centers). The support 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 within the facility and space management for monitoring and decontamination. Procedures will be demonstrated to evidence the separation of contaminated and non-contaminated (clean) individuals.*

***At the evacuee monitoring/decontamination center,** a minimum of six (6) volunteer evacuees will be monitored (or one volunteer evacuee may be monitored six times). 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**, one emergency worker 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. Personal Record Dosimeters (PRD's) will be simulated.

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.

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. The evaluator will request that vehicle decontamination procedures be explained after the vehicle (with simulated contamination) has been monitored. One radiological survey

meter, will be issued to each vehicle 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.

Decontamination capabilities, and provisions for vehicles and equipment that cannot be decontaminated, will be simulated and conducted by interview. Water will NOT be used.

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:

Each of the support counties (Exception – Montour County) will demonstrate the operation of one mass care center during the out-of-sequence window. Floor plans with flow diagrams of the mass care centers will be available 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 II.2)".

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 October 22, 2008, by an exercise evaluator, 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 10/22/2008.

American Red Cross risk and support county chapters:

Greater Berwick Chapter
344 Market Street
Berwick, PA 18603
(570)-752-7221
Fax: (570)-759-6895
E-mail: nihoffk@epix.net

Bloomsburg Chapter
119 E. 7th Street
Bloomsburg, PA 17815
(570)-784-1395
FAX: (570)-784-1577
E-mail: blmrdcrs@sunlink.net

Wyoming County Chapter
49 E. Tioga Street
Tunkhannock, PA 18657
(570)-836-2626
FAX: (570)-836-3691
E-mail: redcross@epix.net

Lycoming County Chapter
Mrs. Joy Hanner
320 East 3rd Street
Williamsport, PA 17701
(570)-326-9131
FAX: (570)-326-2514
E-mail: jhanner@ncparedcross.org

Scranton Chapter
545 Jefferson Avenue
Scranton, PA 18510
(570)-344-7281
FAX: (570)-344-6534
E-mail: bhaber@neparc.org

ARC in Schuylkill and Eastern Northumberland County
1402 Laurel Boulevard
Pottsville, PA 17901
(570)-622-9550
FAX: (570)-622-9654
E-mail: redcross@infi.net

Upper Northumberland County Chapter
560 Mahoning Street
Milton, PA 17847
(570)-742-4171
E-mail: darc@evenlink.net

Union County Chapter
249 Farley Circle
P.O. Box 82
Lewisburg, PA 17837
(570)-524-0400
FAX: (570)-524-0462
E-mail: unionarcdis@yahoo.com

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 en route, 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

NOTE: This sub-element was evaluated at Geisinger Wyoming Valley Medical Center (Luzerne County), April 7, 2007.

ATTACHMENT A

Susquehanna Steam Electric Station 2008
Extent of Play Demonstration Tables

I. PLUME PHASE EXERCISE –

A. Activities – 10/22/2008

1. Risk Public School Districts with schools located within the EPZ and those districts situated outside the EPZ, but with students living within the EPZ, will participate and be evaluated by the Department of Homeland Security. Each identified District Administration Office will be evaluated. When a school system is comprised of multiple buildings (High School, Middle School, Elementary School), the affected buildings (those with students from the EPZ) will be evaluated on a rotational basis to coincide with the six-year exercise cycle.

Time: Out of Sequence – 9:00 – 11:00 AM

COUNTY	SCHOOL DISTRICT	SCHOOL(s) participating in the 2008 exercise
Columbia	Berwick Area School District	Nescopeck ES and Salem ES
Columbia	Benton Area School District	Benton Area Middle School
Columbia	Bloomsburg Area School District	Bloomsburg Area Middle School
Columbia	Central Columbia School District	Central Columbia High School
Columbia	Columbia Montour AVTS (Vo-Tech)	Columbia Montour AVTS
Luzerne	Crestwood Area School District	Rice Elementary School
Luzerne	Greater Nanticoke Area School District	Greater Nanticoke Education Center
And	KM Smith Elementary School	Luzerne
Hazleton Area School District	Drums Elementary	Luzerne
Northwest Area School District	Huntington Mills ES	Luzerne
West Side AVTS	West Side AVTS	Luzerne
Wilkes Barre AVTS	Wilkes Barre AVTS	

NOTE: Montour County EOC will be evaluated during this phase.

2. County Emergency Operations Centers (EOCs)
Time: Per Scenario

DEMONSTRATION FOR EOC MOBILIZATION
FOR COUNTIES (Plume Phase Exercise)

COUNTY	DATE	Time
Columbia	10/21/2008	Per scenario
Luzerne	10/21/2008	Per scenario
Lackawanna	10/21/2008	Per scenario
Lycoming	10/21/2008	Per scenario
*Montour	***10/22/2008***	***09:00 – 11:00***
Northumberland	10/21/2008	Per scenario
Schuylkill	10/21/2008	Per scenario
Union	10/21/2008	Per scenario
Wyoming	10/21/2008	Per scenario

* NOTE: Montour County EOC will be evaluated during the schools exercise on 10/22/2008.

3. Municipal Emergency Operations Centers (EOC)
Time: Per Scenario

NOTE: Only the agencies in BOLD will be evaluated for this exercise

DEMONSTRATION FOR EOC MOBILIZATION FOR MUNICIPALITIES (Plume Phase Exercise)

RISK COUNTY	MUNICIPALITY	DATE
Columbia	**Beaver Township**	10/21/2008
	Berwick Borough/ Briar Creek Borough*	10/21/2008 Active Police Dept, Berwick Boro only
	Briar Creek Township	Active Police Dept
	Fishing Creek Township	10/21/2008
	Mifflin Township	
	North Centre Township	
	South Centre Township	
Luzerne	Black Creek Township	
	Butler Township/ Conyngham Borough*	Active Police Dept
	Conyngham Township	
	Dorrance Township	
	Hollenback Township	
	Hunlock Township	10/21/2008
	Huntington Township/ New Columbus Borough*	
	Nanticoke City	Active Police Dept
	Nescopeck Borough	Active Police Dept
	Nescopeck Township	10/21/2008
	Newport Township	Active Police Dept
	Nuangola Borough	10/21/2008
	Shickshinny Borough	Active Police Dept
	Slocum Township	
	Sugarloaf Township	10/21/2008 Active Police Dept
	Union Township	
	Salem Township	

* Joint EOCs

4. One backup route alerting will be demonstrated by one municipality in each risk county during scenario exercise.

Columbia	**Berwick/Briar Creek Borough**	10/21/2008
Luzerne	**Hunlock Township**	10/21/2008

5. Traffic and Access Control Points

a. The Pennsylvania State Police will brief at the PSP **Bloomsburg Barracks,** Those attending the briefing will not actually deploy to the TCP/ACPs.

b. The PSP briefing will be performed out of sequence in a demonstration window of **10:00 a.m. to 12:00 noon on Wednesday, 10/22/2008**.

c. Each municipal / regional police force with a TCP assigned in its plan will demonstrate all preparation duties including TCP responsibilities and radiological briefing. Dispatch of persons to the TCP site will not occur during the exercise.

d. Municipal and county staffs will be prepared to brief the FEMA evaluator on actions to be taken should there be an impediment to evacuation on a designated route. This will be demonstrated anytime during the exercise.

B. October 22, 2008

1. Reception Centers (Out of Sequence)

DEMONSTRATION of Reception Centers

COUNTY	DATE	Time
Lackawanna	10/22/2008	7:00 p.m. – 9:30 p.m.
Lycoming	10/22/2008	7:00 p.m. – 9:30 p.m.
Northumberland	10/22/2008	7:00 p.m. – 9:30 p.m.
Schuylkill	10/22/2008	7:00 p.m. – 9:30 p.m.
Union	10/22/2008	7:00 p.m. – 9:30 p.m
Wyoming	10/22/2008	7:00 p.m. – 9:30 p.m

COUNTY	Reception Center Location
Lackawanna	Big Lots
Lycoming	Lycoming Mall
Northumberland	Shikellemy High School, Sunbury
Schuylkill	Marion HS
Union	Montandon Elementary School – Montandon
Wyoming	Tunkhannock Middle School, Tunkhannock

2. Mass Care Centers and Monitoring / Decontamination Centers (Out of Sequence)

COUNTY	DEMONSTRATION of Mass Care Centers DATE	Time
Lackawanna	10/22/2008	7:00 p.m. – 9:30 p.m.
Lycoming		7:00 p.m. – 9:30 p.m.
Northumberland		7:00 p.m. – 9:30 p.m.
Schuylkill		7:00 p.m. – 9:30 p.m.
Union		7:00 p.m. – 9:30 p.m.
Wyoming	10/22/2008	7:00 p.m. – 9:30 p.m.

COUNTY	Mass Care Center Locations	Quantity
Lackawanna	Mid Valley High School	1
Lycoming	Montoursville High School	1
Northumberland	Shikellemy High School, Sunbury	1
Schuylkill	Tamaqua Junior / Senior High School Complex	1
Union	Lewisburg Middle School	1
Wyoming	Tunkhannock Middle School Complex	1

3. Emergency Worker Monitoring / Decontamination Stations (Out of Sequence)

Time: 7:00 – 9:30 PM

Columbia	Columbia Montour Vo-Tech	10/22/2008
Luzerne	Sweet Valley Fire Company, Ross Township	10/22/2008

II. POST PLUME EXERCISE

Not Applicable for this Exercise. The Post-Plume Exercise was conducted in conjunction with the SSES 2004 exercise.

Attachment B
2006 SESS
Listing of Prior Issues (Pennsylvania)

Reference #	FACILITY EVALUATED	CRITERIA	Current Status
1	Montour Vo-Tech School, Columbia	63-06-6.a.1-A-01	redem 10/22/08
2	Montour Vo-Tech School, Columbia	63-06-6.b.1-A-02	redem 10/22/08
3	Salem Township Emergency Operations Center	63-06-1.c.1-A-03	redem 10/22/08
4	Mass Care – Monitoring/Decontamination Center (Shikellamy High School, Sunbury)	63-06-6.a.1-A-04 63-06-6.a.1-A-05	redem 10/22/08
5	Luzerne County Emergency Operations Center	63-06-5.b.1-P-01	resolved
6	Public Emergency Information Materials (Columbia County)	63-06-5.b.1-P-02	resolved
7	Columbia Emergency Worker Monitoring/Decontamination Station	63-06-6.a.1-P-04	resolved
8	Briar Creek Township Route Alerting	63-06-5.a.1-P-05	resolved
9	Luzerne County Emergency Operations Center	63-06-5.b.1-P-06	resolved
10	Salem Township Emergency Operations Center	63-06-1.b.1-P-07	resolved
11	Northumberland County Reception Center	63-06-6.a.1-P-08	resolved
12	Berwick School District	63-03-3.c.2-P-09	resolved
13	Columbia-Montour Area Vocational Technical School	63-06-3.c.2-P-10	resolved
14	Greater Nanticoke Area School District	69-06-3.c.2-P-11	resolved
15	North West Area School District	63-06-3.c.2-P-12	resolved
16	North West Area School District	63-06-3.c.2-P-13	resolved
17	Luzerne County	63-04-5.a.1-P-04	resolved
18	Accident Assessment Center (Bureau of Radiation Protection)	63-04-2.a.1-P-02	resolved

Note: 1 Salem Township EOC staff to provide FEMA evaluator roster of EOC personal only.

Reference 1

Emergency Worker Monitoring/Decontamination Station (Montour VoTech School, Columbia County)

AREAS REQUIRING CORRECTIVE ACTION:

Issue No.: 63-06-6.a.1-A-01

Condition: The Emergency Worker Monitoring and Decontamination Station did not adequately demonstrate the following activities:

Proper monitoring techniques – Survey instrument probe speed was too fast, the probe was held too far away from the body, and the monitoring path width was too wide.

Monitoring was casually accomplished without adequate attention to a monitoring pattern and detail.

No thyroid monitoring was done.

No actual or simulated distribution of decontamination supplies to monitored individuals.
Contamination control of portal monitor – monitor was not periodically checked for contamination.

No whole-body 4-minute survey for contaminated individuals was completed. Monitors surveyed only hands and arms.

Possible Cause: It appears that monitoring and decontamination staff were not trained and experienced in the plans and procedures for the facility, or in monitoring processes in general.

References: NUREG-0654, J.10.h; J.12; K.5.a
Columbia County Emergency Response Plan, Appendix 13, Attachment A
Columbia County Emergency Response Plan, Appendix 13, Attachment D

Effect: Individuals actually contaminated with radioactive materials would not be discovered, identification of contamination could not have been accurate or complete, the portal monitor could be rendered useless, and adequate backup surveys would not be performed.

Recommendations:

Establish a training program for workers at this facility.
Consider adding a more appropriate tool for protecting the portal monitor from contamination, such as a sticker pad designed for contamination control.

Response: Please accept the following response regarding the identified Area Requiring Corrective Action, and add this statement to the Final Report.

Schedule of Corrective Actions for issue 63-06-6.a.1-A-01:

The Columbia County Emergency Management Agency is conducting meetings and training sessions for the Radiological Monitoring and Decontamination teams assigned to staff and operate the Columbia County Emergency Worker Monitoring and Decontamination Facility at the Columbia Montour Vo-Tech School. This training includes personnel monitoring in accordance with the County Plan and State Guidance materials.

The Columbia County Emergency Management Agency is working in consultation with the Pennsylvania Department of Environmental Protection, Bureau of Radiation Protection regarding contamination control methods related to the portal monitor.

This facility and its operation will be demonstrated during the 2008 SSES Full-Scale Exercise scheduled for the week of October 20, 2008.

Reference 2

Emergency Worker Monitoring/Decontamination Station (Montour Vo-Tech School, Columbia)

Issue No.: 63-06-6.b.1-A-02

Condition: The Emergency Worker Monitoring and Decontamination Station did not adequately demonstrate the following vehicle monitoring and decontamination activities:
Proper monitoring techniques – The probe was held too far away from the vehicle and the monitoring path width was too wide. Monitoring was casually accomplished without adequate attention to a monitoring pattern and detail.
Vehicle interior was not monitored

Possible Cause: It appears that monitoring and decontamination staff were not trained and experienced in the plans and procedures for vehicle monitoring. The Standard Operating Procedures were not utilized.

References: NUREG-0654, K.5.b
Columbia County Emergency Response Plan, Appendix 13, Attachment F

Effect: Vehicle monitoring would be incomplete and contaminated vehicles could be released.

Recommendation: Establish a training program for workers at this facility regarding vehicle monitoring.

Response: Please accept the following response regarding the identified Area Requiring Corrective Action, and add this statement to the Final Report.

Schedule of Corrective Actions for issue 63-06-6.b.1-A-02:

1. The Columbia County Emergency Management Agency is conducting meetings and training sessions for the Radiological Monitoring and Decontamination teams assigned to staff and operate the Columbia County Emergency Worker Monitoring and Decontamination Facility at the Columbia Montour Vo-Tech School. This training includes vehicle monitoring in accordance with the County Plan and State Guidance materials.

This facility and its operation will be demonstrated during the 2008 SSES Full-Scale Exercise scheduled for the week of October 20, 2008.

Reference 3

Salem Township Emergency Operations Center

Issue No.: 63-06-1.c.1-A-03

Condition: According to the Salem Township Radiological Emergency Response Plan Standard Operating Procedures, personnel filling each of nine key functions are responsible for assuring around-the-clock shift scheduling for their function to assure continuity of response.

The positions of Public Works Officer and Transportation Officer were not filled. In addition, only the Emergency Management Coordinator (EMC) and Police Services Officer positions had names designated for the second shift. The EMC doubled the duties of the Medical Officer to include those of the Transportation Officer. This position was filled by a recruit from the Fire Department who was not trained for either position. In addition, the plan's Notification and Resource Manual did not include contact names for Public Works officials.

Possible Cause: The Township did not request assistance to assure sufficient personnel to sustain around the clock response capability. The plan was not sufficiently updated to identify alternate officials to fill key positions.

References: NUREG-0654, J.9; J.10.d, e.

Effect: Important functions identified in the plan could be missed without the focus of a key player familiar with that function. For example, the Police Services Officer was aware that the township had fuel stored at a township facility, but didn't know how to get it to where it might be needed during an evacuation if an evacuee ran out of gas.

Recommendation: Update the Notification and Resources Manual to accurately reflect staff and train them for assigned key positions. Train the EMC to ask the county for assistance in filling unmet personnel needs.

Response: Please accept the following response regarding the identified Area Requiring Corrective Action, and add this statement to the Final Report.

1. The Salem Township Notification and Resource Manual will be updated to include contact information for all required staff.

2. The Salem Township Emergency Management Coordinator will be trained to exercise the provisions available within the Incident Command System (ICS) and either a) assign any unfilled staff position responsibilities to an available / trained staffer; or b) utilize the provisions of the Pennsylvania Emergency Management Agency Code and request additional resources through the County EMA to fulfill the unmet need.

Schedule of Corrective Actions for issue 63-06-1.c.1-A-03:

This organization (Salem Township) will be requested to demonstrate the indicated item(s) during the 2008 SSES Full-Scale Exercise scheduled for the week of October 20, 2008. The State will request DHS to have these specific items reviewed by an evaluator during the 2008 exercise.

Reference 4

Mass Care – Monitoring/Decontamination Center (Shikellamy High School, Sunbury)

Issue No.: 63-06-6.a.1-A-04

Condition: No "range of readings" sticker was affixed to the side of the survey instrument indicating acceptance criterion for a source check.
Possible Cause: Information on expected readings for a source check in the instruments' various ranges was not available on the instrument or elsewhere at the facility.

References: NUREG-0654, J.10.h; J.12; K.5.a.
Effect: Instruments may indicate contamination above the action level when none was present, or more seriously, falsely indicate contamination level below the action level.

Recommendation: The expected readings with the check source should be provided on a sticker on the side of the instrument.

Response: Please accept the following response regarding the identified Area Requiring Corrective Action (Issue No.: 63-06-6.a.1-A-04).

Representatives of the Pennsylvania Emergency Management Agency (PEMA) and the Department of Environmental Protection / Bureau of Radiation Protection (BRP) visited the Northumberland County Emergency Management Agency, 911 Greenough Street, Sunbury, PA on Friday October 27, 2006. During that visit, the Northumberland County representative responsible for the County Radiological Instrumentation was provided with instruction and was witnessed while he affixed "range of reading" labels to the sides of the two instruments. Please refer to Attachment A of this document.

The Pennsylvania Emergency Management Agency (PEMA) respectfully requests that Issue No.: 63-06-6.a.1-A-04 be re-classified as "corrected" and indicated as such in the Final Report.

Schedule of Corrective Actions for issue 63-06-6.a.1-A-04:

The Pennsylvania Emergency Management Agency certifies that this issue has been corrected as of October 27, 2006.

Issue No.: 63-06-6.a.1-A-05

Condition: Contrary to the Extent of Play, the same player demonstrated all 3 monitoring tasks at the facility: portal monitor, survey meter monitoring of the contaminated individual, and vehicle monitoring. In an actual event one individual would not be able to perform required tasks simultaneously.

Possible Cause: This could be due to an inadequate number of trained personnel. A roster of trained personnel was not available

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

Effect: During a real emergency requiring the monitoring and decontamination of evacuees, there may not be an adequate number of trained personnel to process all evacuees

Recommendation: Demonstrate a full functionality of the facility by staffing all positions simultaneously.

Response: Please accept the following response regarding the identified Area Requiring Corrective Action, and add this statement to the Final Report.

A review of those present (per exercise attendance roster for September 20, 2006), indicates that a sufficient number of personnel were present and available.
Additional "function based" training will be encouraged for the personnel who may be called upon to staff the facility.

Northumberland County will be encouraged to conduct a functional "non-evaluated" exercise at the Shikellamy High School with all positions staffed simultaneously.

Northumberland County will be encouraged to participate in the 2008 Susquehanna Steam Electric Station exercise and demonstrate the Shikellamy High School Mass Care Monitoring and Decontamination Center with all positions staffed simultaneously and evaluated.

Schedule of Corrective Actions for issue 63-06-6.a.1-A-05:

Northumberland County will be requested to demonstrate the full operation of the Shikellamy High School Mass Care Monitoring and Decontamination Facility during the 2008 SSES Full-Scale Exercise scheduled for the week of October 20, 2008.

Planning Issues

Reference 5

Luzerne County Emergency Operations Center

Issue No.: 63-06-5.b.1-P-01

Condition: The Luzerne County Radiological Emergency Response Plan does not include information in appropriate procedural sections regarding the distribution and use of KI for the general public.

Possible Cause: The Luzerne County Radiological Emergency Response Plan (RERP) does not include information on the use of KI by the general public in appropriate Plan sections. Appendix 10, Protective Response, does not contain information regarding the use of KI by the general public. Limited information regarding the use of KI by the general public is incorrectly included in Appendix 13, Section 6.E.4, Radiological Exposure Control for Emergency Workers. Appendix 13 states that KI is made available to the general public in the Emergency Planning Zone by the Pennsylvania Department of Health. Appendix 13, Attachment B, PA Department of Health Policies on KI, does not address the use of KI by the general public (it addresses emergency workers and special populations). Information regarding the use of KI (by the general public) is not included in Appendix 13, Section 5, Radiological Exposure Control for the General Public.

References: Luzerne County Radiological Emergency Response Plan (RERP), Appendix 4, Public Information; Appendix 10, Protective Response; Appendix 13, Radiological Exposure Control.

Effect: Local officials could be confused regarding the current policy regarding the distribution and use of KI for the general public.
Recommendation: Update the Luzerne County RERP to include appropriate information regarding the use of potassium iodide by the general public.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

During the next plan review, the Luzerne County RERP will be updated to include the appropriate information regarding the use of potassium iodide by the general public. The Pennsylvania Emergency Management Agency will provide copies of the "Potassium Iodide

Administration Plan" as developed by the Pennsylvania Department of Health (PaDOH) to all risk Radiological Emergency Response Counties statewide. PEMA will provide appropriate language for incorporation in the affected County plans. A copy of the PaDOH material is provided as Attachment B.

Schedule of Corrective Actions for issue 63-06-5.b.1-P-01:

The Luzerne County plan will be updated during the next review cycle.

Copies of the PaDOH Potassium Iodide Administration Plan will be available in the Luzerne County EOC within 120 days of the September 19, 2006 SSES Exercise (NLT December 31, 2006).

An Errata Sheet indicating the reference to the PaDOH Potassium Iodide Plan will be provided to Luzerne County EMA to be inserted within Appendix 10 of the current plan (NLT December 31, 2006).

Reference 6

Public Emergency Information Materials

Issue No.: 63-06-5.b.1-P-02

Condition: The Columbia County emergency information section of the local telephone directory (blue pages) does not include information regarding the use of potassium iodide (KI) by the general public.

Possible Cause: The emergency information section of the telephone directory has not been updated to include information regarding the use of potassium iodide by the general public.

Reference: Emergency Information Section of Columbia County telephone directory(ies).

Effect: Public confusion regarding the use of KI could easily arise due to unavailability of information. Public Inquiry phone lines may be inundated with calls requesting information about KI. Including KI information in phone directories may preclude this.

Recommendation: Update the telephone directory to include appropriate information regarding distribution and use of potassium iodide for the general public.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report:

The Pennsylvania Emergency Management Agency has provided suggested language to the Susquehanna Steam Electric Station Emergency Planning Personnel and the other Nuclear Utilities statewide, for the update of their Public Emergency Information Materials including the

telephone directories. Telephone directories are updated on a variety of schedules depending upon the telephone company and their telephone book vendors. Every effort is being made to have the KI information for the general public appear in the next publication of the telephone directories.

Reference 7

Columbia Emergency Worker Monitoring/Decontamination Station

Issue No.: 63-06-6.a.1-P-04

Condition: The procedure does not include a facility layout plan.

Possible Cause: The plan has not been reviewed for completeness.

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

Effect: Contaminated individuals did not have decontamination supplies available to them.

Recommendation: Design a specific layout to include supply staging area and include that layout in the standard operating procedures of the facility and the county emergency response plan.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

The Columbia County Emergency Management Agency has developed and provided a copy of the specific design and layout for the Columbia County Emergency Worker Monitoring and Decontamination Station.

Reference 8

Briar Creek Township Route Alerting

Issue No.: 63-06-5.a.1-P-05

Condition: The printed card used to inform hearing impaired individuals of an incident at the Susquehanna Steam Electric Station (SSES) contained possible confusing terminology. The card states "There is an Alert at the Susquehanna Steam Electric Station (SSES)." This message was issued during a Site Area Emergency. It is believed that the term "alert" was meant to describe that there was a situation at SSES and not meant to identify an Emergency Classification Level (ECL).

Possible Cause: It is a misuse of the word Alert.

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

Effect: Possible confusion by hearing impaired individuals of the emergency situation.

Recommendation: It is recommended that the card for the hearing impaired individuals replace the statement "There is an Alert at the Susquehanna Steam Electric Station" with the following statement "There has been an incident at the Susquehanna Steam Electric Station."

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

New materials have been developed and additional copies will be provided to the Briar Creek Township Emergency Management Agency. Copies will be available for their use within the allotted 120 days. Please refer to Attachment F. Delivery of the materials to the Briar Creek EMA will occur no later than December 31, 2006.

Reference 9

Luzerne County Emergency Operations Center

Issue No.: 63-06-5.b.1-P-06

Condition: The Luzerne County pre-made media kit and the emergency information section of the local telephone directory (blue pages) do not include information regarding the use of potassium iodide (KI) by the general public.

Possible Cause: The emergency information section of the telephone directory has not been updated to include information regarding the use of potassium iodide by the general public.

Pre-made media kits with additional emergency information were available for media representatives. The media kits include information regarding evacuation (e.g. transportation, special needs, pets, what to take with you when evacuating, etc); however, they have not been updated to include information regarding distribution or use of KI by the evacuating public.

References: NUREG-0654, G.1; G.5;
Luzerne County Media Kit;
Emergency Information Section of Luzerne County telephone directory(ies).

Effect: Public confusion regarding the use of KI could easily arise due to unavailability of information. Public Inquiry phone lines may be inundated with calls requesting information about KI. Including KI information in phone directories and media kits may preclude this.

Recommendation: Update the media kit and telephone directory to include appropriate information regarding distribution and use of potassium iodide for the general public.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

The Pennsylvania Emergency Management Agency has provided suggested language to the Susquehanna Steam Electric Station Emergency Planning Personnel and the other Nuclear Utilities statewide, for the update of their Public Emergency Information Materials including the telephone directories. Telephone directories are updated on a variety of schedules depending upon the telephone company and their telephone book vendors. Every effort is being made to have the KI information for the general public appear in the next publication of the telephone directories.

Reference 10

Salem Township Emergency Operations Center

Issue No.: 63-06-1.b.1-P-07

Condition: The Salem Township Emergency Operations Center (STEOC) was moved to a new location in 2005. This exercise was the first graded exercise at the current facility. Although the facility proved adequate to support the exercise, it is not the facility described in the Salem Township Luzerne County Radiological Emergency Response Plan (STLCRERP).

Possible Cause: The STLCRERP was not updated to include the new facility location.

Reference: NUREG-0654, H.3.

Effect: Emergency response personnel might report to the wrong location.
Recommendation: Update the plan to reflect the current location.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

The Salem Township Radiological Emergency Response Plan will be updated during the next review cycle.

Reference 11

Northumberland County Reception Center

Issue No.: 63-06-6.a.1-P-08

Condition: The Northumberland County Emergency Management Agency Nuclear/Radiological Incident Plan Appendix 3 page E-3-2, D., 2). b incorrectly identifies Northumberland County as

having Reception and Mass care centers co-located. Strip maps were actually provided and the only error occurs in the plan and not in actual operations.

Possible Cause: Clerical error

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

Effect: Untrained personnel could fail to provide strip maps.

Recommendation: Remove this sentence from the plan or move the Reception Center to the Mass Care Center and make the necessary plan changes.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

The Northumberland County Radiological Emergency Response Plan has been revised. The cited area has been corrected.

Reference 12

Berwick School District

Issue No.: 63-03-3.c.2-P-09

Condition: The current radiological emergency response plan for the Berwick School District does not include formal procedures for potassium iodide (KI) usage including storage, authorization, administration, and associated procedures.

Possible Cause: Failure to correctly update and maintain plans and procedures.

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

Effect: The school provides KI to all students located within the 10-mile Emergency Planning Zone. With no formalized instructions or procedures located in the emergency plan for its authorization or administration, officials may have opted to order the administration of KI to students at an inappropriate time (i.e., before authorization by the proper State Health Department official). Also, because there is risk-benefit considerations involved with the ingestion of KI, a number of persons may have suffered side effects without sufficient or proper justification.

Recommendation: Update the radiological response plan to include specific procedures for KI storage, authorization, associated documentation, and other factors pertaining to KI usage by students and staff of the school district.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.
The Berwick Area School District has been provided with "Appendix E – KI School Plan" for inclusion within their School District Radiological Emergency Response Plan.

Reference 13

Columbia-Montour Area Vocational Technical School

Issue No.: 63-06-3.c.2-P-10

Condition: The plan has not been reviewed and updated. The Business Manager is now Child Accounting/Transportation Specialist. All students now go from the Home Room to the Gymnasium where those that live outside the Emergency Planning Zone (EPZ) are dismissed, instead of being dismissed from the Home Room. The number of students living in the EPZ needs to be updated with the Transportation Contractors.

Possible Cause: The Radiological Emergency Response Plan for the Columbia-Montour Area Vocational Technical School for Incidents at the Susquehanna Steam Electric Station, page 3, section V, Policy Guidelines, paragraph D, states that the "Administrative Director will provide for periodic (at least annually) updating of this plan".

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

Effect: Since the plan is not current and titles and responsibilities may have changed, new EOC staff, using outdated plans and procedures may take incorrect action.
Recommendation: Review and update plan as required.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

The Principal of the Columbia Montour Area VoTech School has been informed of the requirement to update the plan and to furnish copies to the Columbia County Emergency Management Agency and the Pennsylvania Emergency Management Agency.

Reference 14

Greater Nanticoke Area School District

Issue No.: 69-06-3.c.2-P-11

Condition: The current radiological emergency response plan for the Greater Nanticoke Area School District does not include formal procedures for potassium iodide (KI) usage including storage, authorization, administration, and associated procedures

Possible Cause: Failure to correctly update and maintain plans and procedures.

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

Effect: The school provides KI to all students located within the 10-mile Emergency Planning Zone. With no formalized instructions or procedures located in the emergency plan for its authorization or administration, officials may have opted to order the administration of KI to students at an inappropriate time (i.e., before authorization by the proper State Health Department official). Also, because there is risk-benefit considerations involved with the ingestion of KI, a number of persons may have suffered side effects without sufficient or proper justification.

Recommendation: Update the radiological response plan to include specific procedures for KI storage, authorization, associated documentation, and other factors pertaining to KI usage by students and staff of the school district.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

Greater Nanticoke Area School District has been provided with "Appendix E – KI School Plan" for inclusion within their School District Radiological Emergency Response Plan.

Reference 15

North West Area School District

Issue No.: 63-06-3.c.2-P-12

Condition: The current radiological emergency response plan for the North West Area School District does not include formal procedures for potassium iodide (KI) usage including storage, authorization, administration, and associated procedures

Possible Cause: Failure to correctly update and maintain plans and procedures.

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

Effect: The school provides KI to all students located within the 10-mile Emergency Planning Zone. With no formalized instructions or procedures located in the emergency plan for its authorization or administration, officials may have opted to order the administration of KI to students at an inappropriate time (i.e., before authorization by the proper State Health Department official). Also, because there is risk-benefit considerations involved with the ingestion of KI, a number of persons may have suffered side effects without sufficient or proper justification.

Recommendation: Update the radiological response plan to include specific procedures for KI storage, authorization, associated documentation, and other factors pertaining to KI usage by students and staff of the school district.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

The Northwest Area School District has been most cooperative. The Pennsylvania Emergency Management Agency has provided the District with a revised draft Radiological Emergency Response Plan. The Superintendent has provided a statement regarding the status and the actions of the School District.

Reference 16

North West Area School District

Issue No.: 63-06-3.c.2-P-13

Condition: The current Plan (Radiological Emergency Response Plan for the Northwest Area School District for Incidents at the Susquehanna Steam Electric Station, dated November 2001) is outdated, with respect to approval signature, current numbers of students and staff, and day care procedures.

Possible Cause: Lack of annual update.

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

Effect: Operating from an outdated procedure could result in incorrect decisions by the staff.

Recommendation: Update the Plan signed by the current responsible official, provide current numbers of students and staff, and provide procedure applicable to day-care centers.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.
The Northwest Area School District has been most cooperative. The Pennsylvania Emergency Management Agency has provided the District with a revised draft Radiological Emergency Response Plan. The Superintendent has provided a statement regarding the status and the actions of the School District.

Reference 17

Luzerne County

Issue No.: 63-04-5.a.1-P-04

Condition: Route Alerting (Route #3) for Nanticoke City took approximately 1 ½ hours to complete.

Reason Unresolved: Nanticoke City was not scheduled for demonstration at this exercise.

Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

The Luzerne County EMA has indicated that they will work with the Nanticoke City EMA to review the Route Alert Sectors and based upon the analysis, the City may need to further divide the area into smaller and more manageable sectors.

Reference 18

UNRESOLVED PLANNING ISSUE

Accident Assessment Center (Bureau of Radiation Protection)

Issue Number: 63-04-2.a.1-P-02

Condition: The Bureau of Radiation Protection (BRP) Plan, BRP-ER-7.3.2.2, Rev. 1, 07/04, page 5, KI Administration, states, "BRP will recommend to DOH that KI be administered to the general public, emergency workers and special groups when a General Emergency is declared ... or a projected child thyroid dose of > 5 rem CDE." In contrast, the Commonwealth of Pennsylvania Plan, Appendix 5, Annex E, Section 6-C page E-5-5, Radiological Exposure Control, states, "KI should be taken only on the advice of the Secretary of the Pennsylvania Department of Health. The projected dose that triggers this advice is 25.0 Rem CDE to the adult thyroid." Also, in Appendix 5, Annex E, Section 3-B Pennsylvania Department of Health Policies on KI, pages E-5-38 and E-5-39, states, "Dose projection criterion [for recommending KI to emergency workers] is 25.0 rem CDE adult thyroid.

Reason Unresolved: Issue is still unresolved.

There have been no changes to either the BRP procedures or the State Plans. The Directors of the BRP, Health and PEMA have yet to agree on the resolution.
During the exercise the BRP used their procedures to make a recommendation for the ingestion of KI to the Health Department. The decision for the ingestion of KI was made when it was projected that the dose to the adult thyroid was 17 Rem CDE at 2 miles.
Response: Please accept the following response regarding the identified Planning Issue Corrective Action, and add this statement to the Final Report.

Significant efforts are underway for the conversion of the current State Radiological Emergency Response to Nuclear Power Plant Incidents, "Annex-E" to the National Plan format. With the advent of the National Response Plan and HSPD-5, The Commonwealth of Pennsylvania has

developed and the Governor has promulgated the State Emergency Operations Plan dated May 2005 which is based upon the NRP format. As such, the Commonwealth is developing the Commonwealth of Pennsylvania Nuclear / Radiological "Incident Specific Plan" to the May 2005 SEOP. The Bureau of Radiation Protection Nuclear Power Station Plan with revisions dated 3/06 supersedes the information contained within the 2002 version of "Annex-E".

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 Susquehanna Steam Electric Station (SSES) exercise on October 21, 2008.

The exercise scenario was submitted by the Commonwealth of Pennsylvania. The scenario was approved by the Federal Emergency Management Agency (FEMA) Region III on September 3, 2008.

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

Susquehanna Steam Electric Station
Exercise Scenario
October 21, 2008

The scenario starts with SSES Unit 1 at 100% power. Unit 2 is also at 100% power. Routine work is in progress in both units.

U1 turnover items:

1. "B" Turbine Building Chiller is out of service.
2. Reactor Coolant Injection Cooling quarterly surveillance will be conducted some time during this shift.
3. Containment nitrogen usage has increased slightly. A Containment Instrument Gas investigation is in progress

U2 turnover items:

1. System Engineering is pursuing resolution of the Electric Hydraulic Control standby pump auto-start issue.

Common turnover items:

1. "E" Diesel Generator has been substituted for the "C" Diesel Generator for "C" diesel overhaul. The "E" diesel is running for the supervising operator.

The scenario begins with a fire in the "E" diesel generator building.

A fire is detected in the "E" diesel bay. In the control room, both fire detections and fire suppression alarms are received. The Field Unit Supervisor/Fire Brigade Leader is dispatched to investigate. They report that a fire is burning at the "E" diesel itself. (A fuel oil leak has sprayed onto the diesel exhaust piping, igniting the fuel oil.) The fire brigade begins efforts to extinguish the fire, and a request for offsite fire fighting assistance is simulated. Other than the fire brigade leader, the fire brigade actions will be simulated.

As a result of the fire, an Alert is declared per EAL OA-6 and the required offsite notifications are made. In addition, the Nuclear Emergency Response Organization (NERO) is activated.

The fire is extinguished before the requested offsite assistance arrives. Investigations are begun to asses the damage resulting from the fire and to determine if the "C" diesel can be restored to service. The Pennsylvania Power and Light Emergency Response facilities are staffed.

Later, the main turbine trips as a result of a load reject. The reactor scrams, but many of the control rods do not insert. The Anticipated Transient Without Scram (ATWS) power level exceeds 5% power and the Alternate Rod Insertion system does not succeed in terminating the ATWS (hydraulic ATWS). The Stand-By Liquid Control system injects boron to the reactor vessel. Manual control rod insertion is in progress, and reactor water level is lowered to reduce reactor power level. No fuel damage has occurred and the main condenser remains available as a heat sink. Condensate/Feedwater is being used for Reactor inventory control.

Because of the ATWS condition, a Site Area Emergency is declared per EAL MS-3 and the required offsite notifications are made.

Assembly and accountability will be conducted for this exercise.

The Operations Support Center should dispatch the "O" team and request that a coolant sample be collected to identify extent of any potential fuel damage. (Note: actual valve manipulations and the drawing of a coolant sample will be simulated.) Coolant sample results will be provided to Emergency Operations Facility (EOF) engineering personnel for use in evaluating the extent of fuel damage. Offsite monitoring teams are dispatched from the EOF.

Later, a steam leak develops in the High Pressure Coolant Injection (HPCI) pump room. This leak raises HPCI room temperature to above the HPCI isolation set point. The HPCI steam supply isolation valves both fail to close and the HPCI room blow out panel opens. The transient associated with this steam leak produces about 2% fuel cladding damage. Offsite dose projection calculations indicate that the criteria for a General Emergency declaration have been met.

A General Emergency will be declared per EAL RG-1 or FG-1 and the required offsite notifications and Protective Action Recommendation (PAR) will be made. The reactor will be rapidly depressurized to reduce the driving force for the steam leak.

Reactor Building and Turbine Building ARM readings are provided throughout the event, as are Split Particulate Noble Iodine Gas readings. All of these data sources are used to asses the ongoing event and to project offsite doses.

The release to the environment will exceed the requirements for a General Emergency. Field Teams and remote Monitoring System data confirms the increased radioactive release rate. The plume will extend from the plant in the down wind direction. Exercise participants will be permitted to achieve success in isolating the HPCI steam leak.

Expected NERO priorities:

- Extinguish the fire/assess damage/recover the "C" diesel generator
- Achieve shutdown (Alternate Rod Insertion / Stand-by Liquid Control/Manual control rod insertion)
- Isolate the HPCI steam leak
- Assess offsite consequences
- Depressurize the reactor

When all objectives for the exercise have been met, the Lead Controller will terminate the drill. Critiques will then be held in each emergency response facility.

Exercise Timeline:
The following is a short version of the timeline for the 2008 SSES Biennial Exercise. This timeline identifies the approximate times the Performance Indicator evaluations will occur. This scenario is being run live from the simulator; all times are subject to change.

TIME (approximate)	EVENT
1700	Plant public address announcement starting the drill
1710	Fire alarm(s) are received in the control room (simulator)
1725	An Alert is declared per EAL OA-6 (PI opportunity)
1730	NERO is activated
1740	Offsite notifications for the Alert are made (PI opportunity)
1755	The fire at the "E" diesel is extinguished
1825	The TSC takes control of the emergency
1845	An ATWS occurs
1855	The EOF is ready to take control of the emergency
1900	A Site Area Emergency is declared per EAL MS-3 (PI opportunity)
1915	Offsite notifications for the Site Area Emergency are made (PI opportunity)
1945	A steam leak develops in the HPCI room
1953	HPCI fails to isolate
2001	HPCI blow out panel opens
2012	Dose projection calculations indicate doses above a Projective Action Guideline at the Emergency Planning Boundary
2020	The reactor is rapidly depressurized
2027	A General Emergency is declared per EAL RG-1 or FG-1 (PI opportunity)
2035	Offsite notifications for the General Emergency are made (PI opportunity)
2035	A PAR is provided to the senior state official (PI opportunity)
2105	HPCI steam leak is isolated
2200	The exercise is terminated

APPENDIX 5:
Planning Issues

This appendix contains the Planning Issues assessed during the October 21, 2008 exercise at Susquehanna Steam Electric Station (SSES) 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

Nuangola Borough Emergency Operations Center

Issue Number: 63-08-3.d.1-P-01

Condition: The Nuangola Borough Emergency Management Coordinator (EMC) identified an error in the Police Services Officers Standard Operating Procedure (SOP-D). The Traffic Control Points (TCP), identified in Attachment D-3, page 6 of 9, are not located within Nuangola Borough. The EMC stated the correct TCPs were located on the borough map displayed on the Emergency Operations Center (EOC) wall. The agencies assigned to control the flow of traffic at the TCPs were identified on another wall display.

Possible Cause: Verification of information provided during revision of the SOPs may not include a peer review by the Borough EMC.

Reference: NUREG-0654, J.10.g, j

Effect: Dispatch of police for traffic control operations could delay the flow of traffic during evacuation prior to staffing correct TCPs.

Recommendation: Prior to distribution of the plans and SOPs to the municipality, the Licensee should verify information with the Borough EMC.

Commonwealth Response: The Commonwealth agrees with the above recommendation. These procedures are scheduled for comprehensive review and subsequent revision by the utility during the 2009 calendar year and will be utilized during the next scheduled biennial exercise.

Sugarloaf Township Emergency Operations Center

Issue Number: 63-08-1.b.1-P-02

Condition: The Sugarloaf Township EOC was relocated two months prior to this exercise. However, the address and floor plan for the Sugarloaf Township Emergency Operations Center (EOC) are incorrect.

Possible Cause: The plan was not updated.

References: Sugarloaf Township Radiological Emergency Response Plan Emergency Operations Plan (EOP), Section IV (c), page 2 – address for the EOC; EOP, Attachment A-4, page 11 – floor plan for the EOC is incorrect.

Effect: This could result in delayed activation and delivery of information.

Recommendation: Review and update all applicable portions of the plan.

Commonwealth Response: The Commonwealth agrees with the above recommendation. These procedures are scheduled for comprehensive review and subsequent revision during the 2009 calendar year and will be utilized during the next scheduled biennial exercise.

Sugarloaf Township Emergency Operations Center

Issue Number: 63-08-1.e.1-P-03

Condition: Not all sections of the Sugarloaf Township Radiological Emergency Response Plan (RERP) have been updated to indicate that dosimetry and potassium iodide (KI) is pre-distributed to the township. Portions of the RERP, SOP-I still indicate that dosimetry and KI will be delivered by the Luzerne County Emergency Operations Center to Sugarloaf Township at the Alert stage,

and the checklist for the Radiological Officer indicates that acknowledgement of receipt is required.

Possible Cause: Not all portions of the RERP were updated when this procedure was modified.

Reference: Sugarloaf Township RERP, SOP-I, pages 2 and 8

Effect: None

Recommendation: Review and update all applicable portions of the plan.

Commonwealth Response: The Commonwealth agrees with the above recommendation. These procedures are scheduled for comprehensive review and subsequent revision during the 2009 calendar year and will be utilized during the next scheduled biennial exercise.

Columbia County

Issue Number: 63-08-3.c.2-P-04

Condition: The Columbia County RERP, Change 6, 2008 in Appendix 14, Attachment B indicates the Host School for the Salem Elementary School as being the Mahoney-Cooper Elementary School. The correct listing should be the Liberty Valley Elementary School, which is reflected in the Berwick School District's plans.

Possible Cause: Change was made a few years ago, and this portion of the Columbia County Plan was not changed to reflect this.

Reference: NUREG-0654, P.4

Effect: Possible confusion at Columbia County EOC about location of host school for the Salem Elementary School.

Recommendation: Update Columbia County RERP in Appendix 14, Attachment B to reflect current host school.

Commonwealth Response: The Commonwealth agrees with the above recommendation. These procedures are scheduled for comprehensive review and subsequent revision during the 2009 calendar year and will be utilized during the next scheduled biennial exercise.

Luzerne County

Issue Number: 63-08-3.c.2-P-05

Condition: There is a discrepancy between the Luzerne County Radiological Emergency Response Plan (RERP), Appendix 14, "School Services," and the Hazleton Area School District (HASD) Emergency Plan, Annex L, "Evacuation." The Luzerne County RERP, Attachment A indicates there are a total of 1,200 evacuees from the entire school district, all of whom would be evacuated to McAdoo-Kelayres Elementary School, according to Attachment B. Annex L of the HASD plan indicates that there are 811evacuees who would be evacuated from Drums Elementary School to Freeland Elementary Middle School, and 1,157 evacuees who would be evacuated from Valley Elementary Middle School to McAdoo-Kelayres Elementary School.

Possible Cause: The Luzerne County Radiological Emergency Response Plan (RERP), Appendix 14, "School Services" has not been updated to include the most recent information.

References: NUREG-0654 J.10.d
Luzerne County Radiological Emergency Response Plan, Appendix 14, "School Services"
Hazleton Area School District Emergency Plan, Annex L, "Evacuation"

Effect: Parents and guardians of students might have been provided inconsistent or incorrect information about the host schools where they could pick-up their children if the Luzerne County Public Information Officer (PIO) used the information in the Luzerne County Radiological Emergency Response Plan.

Recommendation: The Luzerne County Radiological Emergency Response Plan, Appendix 14, "School Services" and, if necessary, the Hazleton Area School District Emergency Plan, Annex L, "Evacuation" should be revised to insure that information about the number of evacuees and the designated host schools are correct and consistent.

Commonwealth Response: The Commonwealth agrees with the above recommendation. These procedures are scheduled for comprehensive review and subsequent revision during the 2009 calendar year and will be utilized during the next scheduled biennial exercise.

PRIOR PLANNING ISSUES RESOLVED

State Emergency Operations Center

Issue No.: 63-06-5.b.1-P-01

Condition: The Columbia and Luzerne County Radiological Emergency Response Plans do not include information in appropriate procedural sections regarding the distribution and use of KI for the general public.

Corrective Action Demonstrated: The Columbia and Luzerne County Emergency Management Agency Radiological Emergency Response Plan 2008, Revision 1, Appendix 13, paragraph 6.C (5) has been revised to reflect how KI will be made available to the general public.

Columbia County Emergency Operations Center

Issue No.: 63-06-5.b.1-P-02

Condition: The Columbia County emergency information section of the local telephone directory (blue pages) does not include information regarding the use of potassium iodide (KI) by the general public.

Corrective Action Demonstrated: The Pennsylvania Emergency Management Agency has provided suggested language to the Susquehanna Steam Electric Station Emergency Planning Personnel and the other Nuclear Utilities statewide, for the update of their Public Emergency Information Materials including the telephone directories. Telephone directories are updated on a variety of schedules depending upon the telephone company and their telephone book vendors. Every effort is being made to have the KI information for the general public appear in the next publication of the telephone directories.

Luzerne County Emergency Operations Center

Issue No.: 63-06-5.b.1-P-03

Condition: The Luzerne County pre-made media kit and the emergency information section of the local telephone directory (blue pages) do not include information regarding the use of potassium iodide (KI) by the general public.

Corrective Action Demonstrated: The Luzerne County Emergency Management Agency included in the emergency information section of the local telephone directory (blue pages), the appropriate information for the general public regarding the use of potassium iodide (KI). In addition, Luzerne County pre-made media kits now include a one page information sheet addressing the use

of KI for the general public and will address its distribution to the general public in future media briefings.

Salem Township Emergency Operations Center

Issue No.: 63-06-1.b.1-P-04

Condition: The Salem Township Emergency Operations Center (STEOC) was moved to a new location in 2005. This exercise was the first graded exercise at the current facility. Although the facility proved adequate to support the exercise, it is not the facility described in the Salem Township Luzerne County Radiological Emergency Response Plan (STLCRERP).

Corrective Action Demonstrated: The Salem Township Radiological Emergency Response Plan has been updated during to reflect the correct location of the STEOC.

Columbia-Montour County Area Vocational Technical School

Issue No.: 63-06-3.c.2-P-05

Condition: The plan has not been reviewed and updated. The Business Manager is now Child Accounting/Transportation Specialist. All students now go from the Home Room to the Gymnasium where those that live outside the Emergency Planning Zone (EPZ) are dismissed, instead of being dismissed from the Home Room. The number of students living in the EPZ needs to be updated with the Transportation Contractors.

State Response: The Columbia Montour Area Vo-Tech School has updated the plan and furnished copies to the Columbia County Emergency Management Agency.

North West Area School District

Issue Number: 63-06-3.c.2-P-06

Condition: The current Plan (Radiological Emergency Response Plan for the Northwest Area School District for Incidents at the Susquehanna Steam Electric Station, dated November 2001) is outdated, with respect to approval signature, current numbers of students and staff, and day care procedures.

Corrective Action Demonstrated: The Northwest Area School District has adopted a revised Emergency Response Plan which incorporates up to date signatures, current student and staff populations,, and procedures for alerting local day care centers.

PRIOR PLANNING ISSUES UNRESOLVED

Luzerne County

Issue No.: 63-04-5.a.1-P-04 (Extent-of-Play Reference 17)

Condition: Route Alerting (Route #3) for Nanticoke City took approximately 1½ hours to complete.

Reason Unresolved: Nanticoke City was not scheduled for demonstration at this exercise. The Luzerne County EMA has indicated that they will work with the Nanticoke City EMA to review the Route Alert Sectors and based upon the analysis, the City may need to further divide the area into smaller and more manageable sectors.

Accident Assessment Center (Bureau of Radiation Protection)

Issue Number: 63-04-2.a.1-P-02 (Extent-of-Play Reference 18)

Condition: The Bureau of Radiation Protection (BRP) Plan, BRP-ER-7.3.2.2, Rev. 1, 07/04, page 5, KI Administration, states, "BRP will recommend to DOH that KI be administered to the general public, emergency workers and special groups when a General Emergency is declared ... or a projected child thyroid dose of > 5 rem CDE." In contrast, the Commonwealth of Pennsylvania Plan, Appendix 5, Annex E, Section 6-C page E-5-5, Radiological Exposure Control, states, "KI should be taken only on the advice of the Secretary of the Pennsylvania Department of Health. The projected dose that triggers this advice is 25.0 Rem CDE to the adult thyroid." Also, in Appendix 5, Annex E, Section 3-B Pennsylvania Department of Health Policies on KI, pages E-5-38 and E-5-39, states, "Dose projection criterion [for recommending KI to emergency workers] is 25.0 rem CDE adult thyroid.

Reason Issue Unresolved: The current Annex E is dated March 2002 and is undergoing review and revision to make it consistent with the new National Response Plan format as used in the Interim Change to the Emergency Operations Plan dated January 2008. For this reason Appendix 5 to Annex E has not changed.

However in order to address the Issue 63-04-2.a.1.P-02 the PEMA Bureau of Plans issued a letter to Darrell Hammons FEMA Region III dated April 16, 2007. The letter states that operationally the governing document on criteria used to make the decision on KI is the BRP Plan and procedure BRP-ER-7.3.2.2, Rev 1, 07/04. The BRP will recommend the ingestion of KI to the Secretary of Health when the criterion in the BRP procedure is satisfied. The Secretary of Health will make the decision. This procedure was demonstrated during the SSES exercise on

October 21, 2008. The Bureau of Plans has indicated that when Annex E, Appendix 5 is revised it will be consistent with the BRP procedure.