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

FEMA

FEB 2 3 2010

NRC / NSIR Office
NRC Headquarters' Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Enclosed is the final report for the Peach Bottom Atomic Power Station Preparedness Exercise (Maryland) that took place during the week of January 25, 2010. This report contains results from the full-scale plume phase exercise on January 25-29, 2010.

No deficiencies were identified during the exercise. Two Areas Requiring Corrective Action (ARCAs) were identified; two of which were successfully re-demonstrated. One Area Requiring Corrective Action from a previous exercise was successfully resolved. No new planning issues were identified and there were no planning issues from previous exercises.

Based on the results of the exercise, the offsite radiological emergency response plans and preparedness for the State of Maryland and the affected local jurisdictions, site-specific to the Peach Bottom Atomic Power Station, are adequate to protect the public health and safety in the event of a radiological emergency at the site.

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

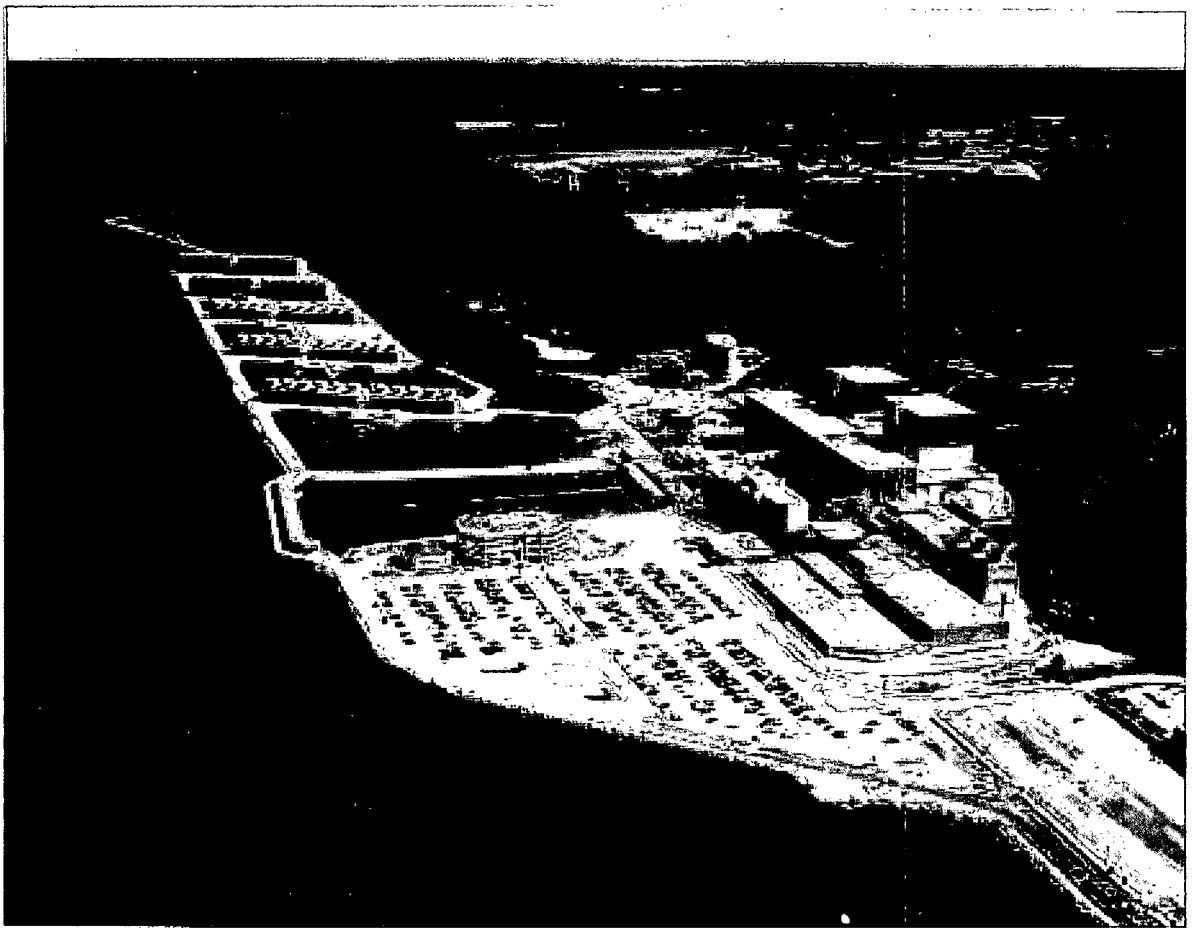
Sincerely,

Darrell Hammons

Darrell Hammons
Regional Assistance Committee
Chairperson, Region III

Enclosure

AX45
NRR
NSIR



Peach Bottom Atomic Power Station

After Action Report/ Improvement Plan

Exercise Date - January 26, 2010

Radiological Emergency Preparedness (REP) Program

FEMA

Published February 03, 2010

This page is intentionally blank.

Peach Bottom Atomic Power Station

After Action Report/Improvement Plan

Published February 03, 2010

Contents

This page is intentionally blank.

EXECUTIVE SUMMARY

During the week of January 25, 2010, a full-scale evaluated plume exercise was conducted in the 10-mile plume exposure pathway, Emergency Planning Zone (EPZ) around the Peach Bottom Atomic Power Station (PBAPS) by the Federal Emergency Management Agency (FEMA), Region III. Out-of- sequence demonstrations were conducted on the evening of January 25, 2010. The purpose of the exercise and the out-of-sequence demonstrations was to assess the State and local offsite response organization 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 April 22, 2008.

FEMA wishes to acknowledge the efforts of the many individuals in the State of Maryland; the risk jurisdictions of Harford and Cecil Counties which were evaluated this time as well as the State of Pennsylvania which was observed but not evaluated during 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 as volunteers providing vital emergency services twenty four (24) hours to the communities of which they live. Cooperation and teamwork of all the participants was observed during this exercise.

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

• Mass Care evaluations were also conducted as part of the out-of-sequence activities on January 25, 2010 in Harford County.

• Emergency Workers, Equipment, and Vehicles – Monitoring and Decontamination were conducted on January 25, 2010 in Harford County.

• School Interviews were conducted on January 26, 2010 in Harford and Cecil Counties.

• Traffic/Access Control interviews were conducted on January 26, 2010 at the Harford and

Cecil County EOC's.

The State of Maryland and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and two (2) Areas Requiring Corrective Action (ARCAs) identified as a result of this exercise; One of the ARCAs were successfully re-demonstrated during the exercise and one (1) additional re-demonstration on February 5, 2010. There was one (1) ARCAs from the previous exercise successfully demonstrated during this exercise.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name
Peach Bottom Atomic Power Station

Type of Exercise
Plume

Exercise Date
January 26, 2010

Program
Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type
Radiological Emergency

1.2 Exercise Planning Team Leadership

Robert Neff
Project Officer
FEMA
Site Specialist
614 Chestnut St
Philadelphia, Pennsylvania, 19603
215-931-5531
Robert.Neff@dhs.gov

Peter Thompson
Planner
Exelon Nuclear
Emergency Prepareness Offsite Coordinator
P.O. Box 388
Forked River, New Jersey, 08731
609-971-4154
peter.thompson@exeloncorp.com

Steven Mannix
Planner
Exelon Nuclear
Senior Operations Training Instructor
1848 Lay Road
Delta, , Pennsylvania, 17314
717-456-3227
Steven.Mannix@exeloncorp.com

Marty Westermann
Planner
Exelon Nuclear
Drill & Exercise Coordinator
200 Exelon Way
Kennett Square, Pennsylvania, 19348
610-765-5638
marty.westerman@execloncorp.com

John Price
Planner
FEMA
Senior Technological Hazards Specialist
614 Chestnut Street
Philadelphia, Pennsylvania, 19348

215-931-5570
John.Price@dhs.gov

1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Peach Bottom Atomic Power Station exercise:

State Jurisdictions

- Maryland Department of Agriculture and USDA
- Maryland Department of Education
- Maryland Department of the Environment
- Maryland Department of General Services
- Maryland Department of Health and Mental Hygiene
- Maryland Department of Human Resources
- Maryland Department of Information Technology
- Maryland Department of Natural Resources
- Maryland Department of Transportation
- Maryland Emergency Management Agency
- Maryland Energy Administration
- Maryland Health Department
- Maryland Institute for Emergency Services Systems
- Maryland Military Department of National Guard
- Maryland State Fire Marshall Office
- Maryland State Highway Administration
- Maryland State Police
- Maryland Transportation Authority Police
- Pennsylvania Emergency Management Agency
- State Fire Marshall Office

Risk Jurisdictions

- Cecil County 911 Center
- Cecil County Agriculture Officer
- Cecil County Communications
- Cecil County Conowingo Dam
- Cecil County Department of Emergency Services

Cecil County Department of Public Works
Cecil County Department of Social Services
Cecil County EMS
Cecil County EOC Support Staff (administrative, dispatch, custodial staff)
Cecil County Fire Services
Cecil County HAZMAT Teams
Cecil County Health Department
Cecil County Maintenance Supervisor
Cecil County Public Information Officer
Cecil County Public Schools
Cecil County Public School District, Conowingo Elementary School
Cecil County Radiological Officer
Cecil County Sheriff's Office
Cecil County Transportation Officer
City of Aberdeen Police Department
City of Bel Air Police Department
City of Harve de Grace Police Department
Fallston Volunteer Fire Company
Harford County Department of Community Services
Harford County Department of Health
Harford County Department of Parks & Recreation
Harford County Department of Public Works
Harford County Department of Social Services
Harford County Division of Emergency Operations
Harford County Department of Inspection, Licenses, and Permits
Harford County Health Department
Harford County Human Resources
Harford County Office on Aging
Harford County Office of Mental Health
Harford County Public Safety
Harford County Public School District, Harford Christian School
Harford County Public School District, Darlington Elementary School
Harford County Public School District, Dublin Elementary School
Harford County Sheriff Department

Harford Friends School

Private Organizations

American Red Cross, Central Maryland Chapter

Chaplain Corp

Exelon Nuclear

Radio Amateur Civil Emergency Services (RACES)

Union Hospital

Verizon

Federal Jurisdictions

US Department of Agriculture

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

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:

A. 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;

B. 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;

C. 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

D. 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 November 17, 2009, to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving Limerick Generating Station (LGS). The purpose of this exercise report is to present the exercise results and findings on the performance of the off-site response organizations (OROs) during a simulated radiological emergency.

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

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

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

A. 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;

B. FEMA Guidance Memoranda MS-1, "Medical Services," November 1986;

C. FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991;

D. 66 FR 47546, "FEMA Radiological Emergency Preparedness: Alert and Notification," September 12, 2001; and

E. 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).

Contained in this section is a basic description of the plume pathway emergency planning zone (EPZ).

A. Plume Emergency Planning Zone Description

Exelon Nuclear owns and operates the PBAPS. The station consists of one 40-megawatt (MW),

high-temperature, gas-cooled reactor (Unit 1), decommissioned in October 1974, and two operating boiling water reactors (Units 2 and 3) rated at 1,065 MW per unit. The operating licenses for the facility were granted in October 1973 (Unit 2) and July 1974 (Unit 3); commercial operation began at the site in July 1974 (Unit 2) and December 1974 (Unit 3).

The coordinates of the plant site are 39°45'32" north (latitude) by 76°16'9" west (longitude). The site consists of 620 acres located on the west shore of Conowingo Pond, a reservoir formed by the backwater of the Conowingo Dam on the Susquehanna River. The site is primarily in Peach Bottom Township, York County, Pennsylvania; a small portion of the property lies in Lancaster County in southeastern Pennsylvania near the mouth of Rock Run Creek. The minimum exclusion distance (distance from the center point of the reactor vessel to the site area boundary) specified for the PBAPS is 2,700 feet. Exelon Nuclear owns all the land within the exclusion area; there are no private residences on site.

The plant is located about 38 miles north-northeast of Baltimore, Maryland; 45 miles southeast of Harrisburg, Pennsylvania; and 20 miles south-southeast of Lancaster, Pennsylvania. The nearest communities are Delta, Pennsylvania, and Cardiff, Maryland, which are located approximately four and five miles west-southwest of the site, respectively. There are 97 sirens providing coverage for the 10-mile EPZ; 65 are in Pennsylvania.

Soils of the Manor-Glenelg Association predominate in the site area. These soils, which are generally underlain by schist or phyllite, are shallow to moderately deep and are found on moderate to very steep slopes. The general topography of the site is hilly, with elevations ranging from 110 feet to over 460 feet above mean sea level (MSL); the plant is 116 feet above MSL. The site is characterized by broad ridge tops and steep hillsides along the river.

The climate in this area of York County is mild but humid. Prevailing winds are from the west. The average rainfall is approximately 40.5 inches, and the average annual temperature is 52.8° Fahrenheit.

The area in the immediate vicinity of the plant is mostly agricultural. There are no commercial airports within a 10-mile radius. The closest major airport is in Harrisburg, about 50 miles northwest of the site. A smaller airport servicing commuter and private aircraft is located in Lancaster, about 25 miles north of the site. No public highways pass through the plant, and no major arterial highways pass near it. Access to the plant is by two roads: one, from the nearby

town of Delta, leads to the decommissioned Unit 1 area and Information Center; the other passes north of Delta and enters the plant area near Units 2 and 3.

The 10-mile EPZ for PBAPS, with a total risk population of approximately 57,645, covers the following jurisdictions:

- Chester County, Pennsylvania
West Nottingham Township

- Lancaster County, Pennsylvania
Drumore Township
East Drumore Township
Fulton Township
Little Britain Township
Martic Township
Providence Township
Quarryville Borough

- York County, Pennsylvania
Delta Borough
Peach Bottom Township
Fawn Township
Fawn Grove Borough
Lower Chanceford Township

- Cecil County, Maryland

- Harford County, Maryland

2.2 Exercise Objectives, Capabilities and Activities

Exercise objectives and identified Capabilities/REP Criteria selected to be exercised are discussed in Appendix D "Exercise Plan".

2.3 Scenario Summary

PEACH BOTTOM ATOMIC POWER STATION (PBAPS) REP EXERCISE FOR THE STATE OF MARYLAND, JANUARY 26, 2010

NOTE: All times given in the scenario are approximate.

The PBAPS Control Room Simulator, Emergency Operations Facility, Joint Information Center and Field Monitoring Teams will not be participating in the exercise. A PBAPS Control Cell in the Emergency Operations Facility will be providing at the appropriate times plant notifications and plant data to the State and Counties.

There are two units at the Peach Bottom Site in Delta, Pennsylvania. Both are Boiling Water Reactor Mark I design. Unit 2 will be participating in the exercise.

At 0800 on January 26, 2010, Unit 2 is operating at 100 percent power. The fan motor in the A Standby Gas Treatment System (SGTS) is out of service for repair and is not expected to be available till 1000 on January 27, 2010. Thus, one of the two redundant systems (A and B trains) for filtering the radioactive gases that might be released into the Secondary Containment (Reactor Building) in the event of an accident is not available.

The weather forecast is partly cloudy with light winds at 7 to 9 miles per hour (mph) from the WNW. Winds will shift and come from the ENE by mid day. Highs today will be in the mid 40's.
At 0800, Operations personnel are investigating an increasing Reactor Coolant System leak inside the Unit 2 Drywell (Primary Containment).

At 0815, when the leakage exceeds 50 gallons per minute an ALERT is declared by the Shift Manager in accordance with Emergency Action Level (EAL) FA-1, potential loss of the Reactor Coolant System (one of the three fission product barriers). Winds are from the WNW into the ESE at 7 mph. There is no radioactive release as a result of this event. Unit 2 continues to operate at 100 percent power.

At 0900, an unexpected electrical transient occurs followed by indications of a steam leak from the Reactor Water Clean Up (RWCU) System. All attempts by the operators to isolate this leak fail. Large quantities of steam from this leak are reported to be present in the Secondary Containment (Reactor Building). There are now two ongoing leaks, one in the Primary Containment (Drywell) and the other in the Secondary Containment (Reactor Building).

At 0915 a Site Area Emergency is declared in accordance with EAL FS-1 for the existing potential loss of the Reactor Coolant System (leakage inside the Drywell) and the Loss of the Containment Barrier (failure of the isolation valves in the RWCU System to close). Also, an elevated release is in progress from the Secondary Containment. The release is filtered through the SGTS, monitored and is from the elevated plant stack. Winds are from the NNW into the SSE at 8 mph with meteorology stability Class C. The operators manually shut the plant down at 0920.

At 1015 the leak inside the Primary Containment (Drywell) gets worse and becomes a loss of coolant accident. The reactor water level drops rapidly and the reactor fuel is briefly uncovered. Meanwhile, the elevated release as a result of the leakage in the RWCU system continues. Based on the readings at the stack monitors some damage to the fuel rods is indicated.

At 1030, a General Emergency is declared in accordance with EAL FG-1 due the loss of two fission product barriers (reactor coolant and containment) and, the potential loss of the third barrier (reactor fuel). Also, an elevated, monitored release is in progress. Winds are from the NNW to the SSE at 8 mph. Dose projection calculations indicate that the EPA and State of MD Protective Action Guides (PAG) for evacuation of the public are not exceeded. By 1045, based on plant conditions, the Station Emergency Director will make the protective action recommendation (PAR) to evacuate the 2 mile ring and the 2 to 5 mile area in the downwind sectors SE, SSE, S and SSW. Potassium Iodide is recommended for the public.

At 1145, the Station Operators determine that the SGTS filters have been steadily losing their effectiveness owing to moisture buildup. Field monitoring teams are reporting greatly increased levels of radioactive iodine and particulates in the plume. Also, at 1145 owing to a failure of plant equipment the reactor water level lowers unexpectedly to below the top of the reactor fuel before being recovered. This results in the loss of the fuel clad barrier. Also, the revised dose projections indicate that the EPA and State of MD PAG for the thyroid dose are exceeded out to

about 7 miles from the plant.

At 1215, the Station Emergency Director issues a revised PAR to evacuate the 5 mile ring and the 5 to 10 mile area in the downwind sectors SSE, S, SSW and SW. The issuance of KI to the public is recommended. The simulated radioactive release will continue till the end of the exercise.

At 1330, if all the exercise objectives have been met the exercise will be terminated.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Exercise Evaluation and Results

The matrix presented in Table 3.1, 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

(R) Resolved ARCA(s) from prior exercises

3.2 Summary Results of Exercise Evaluation

Contained in this section are the results and findings of the evaluation of all jurisdictions and locations that participated in the January 26, 2010, 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 Peach Bottom Atomic power Station (PBAPS).

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 D of this report.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Table 3.1 - Summary of Exercise Evaluation (2 pages)

DATE: 2010-01-26 SITE: Peach Bottom Atomic Power Station, PA M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		PA EOC	MD EOC	MD AAC MDE	MDE EEOF Ctsvl	MD SFMT A	MD SFMT B	CclCo EOC	CclCo BuRA	CclCo TACP	HrfrdCo EOC
Emergency Operations Management											
Mobilization	1a1	N	M	M				M			M
Facilities	1b1							M			
Direction and Control	1c1	N	M	M				M			M
Communications Equipment	1d1	N	M	M		M	M	M	M	M	M
Equip & Supplies to support operations	1e1	N	M	M		P	M	M	M	M	M
Protective Action Decision Making											
Emergency Worker Exposure Control	2a1	N	M	M				M			M
Radiological Assessment and PARs	2b1	N	M	M	M						
Decisions for the Plume Phase -PADs	2b2	N	M	M							
PADs for protection of special populations	2c1	N	M					M			M
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1	N									
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1	N									
Protective Action Implementation											
Implementation of emergency worker exposure control	3a1					M	M	M	M	M	M
Implementation of KI decision	3b1	N				M	M	M	M	M	M
Implementation of protective actions for special populations - EOCs	3c1	N						M			M
Implementation of protective actions for Schools	3c2	N						M			M
Implementation of traffic and access control	3d1		M					M		M	M
Impediments to evacuation are identified and resolved	3d2							M		M	M
Implementation of ingestion pathway decisions - availability/use of info	3e1										
Materials for Ingestion Pathway PADs are available	3e2										
Implementation of relocation, re-entry, and return decisions.	3f1										
Field Measurement and Analysis											
Adequate Equipment for Plume Phase Field Measurements	4a1					M	M				
Field Teams obtain sufficient information	4a2			M							
Field Teams Manage Sample Collection Appropriately	4a3					M	M				
Post plume phase field measurements and sampling	4b1										
Laboratory operations	4c1										
Emergency Notification and Public Info											
Activation of the prompt alert and notification system	5a1	N	M					M			M
Activation of the prompt alert and notification system - Fast Breaker	5a2										
Activation of the prompt alert and notification system - Exception areas	5a3							M	M		M
Emergency information and instructions for the public and the media	5b1	N	M					M			M
Support Operations/Facilities											
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1										
Mon / decon of emergency worker equipment	6b1										
Temporary care of evacuees	6c1										
Transportation and treatment of contaminated injured individuals	6d1										

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

DATE: 2010-01-26 SITE: Peach Bottom Atomic Power Station, PA M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		HrfrdCo BuRA	HrfrdCo TACP	HrfrdCo EWMDS FHS	HrfrdCo MDC FHS	HrfrdCo CCC PtrsnMHS	CclCo PSD CES	HrfrdCo PSD DES	HrfrdCo PSD DuES	HrfrdCo HCS	HrfdCo PS HFS
Emergency Operations Management											
Mobilization	1a1										
Facilities	1b1										
Direction and Control	1c1										
Communications Equipment	1d1	M	M								
Equip & Supplies to support operations	1e1	M	M								
Protective Action Decision Making											
Emergency Worker Exposure Control	2a1										
Radiological Assessment and PARs	2b1										
Decisions for the Plume Phase -PADs	2b2										
PADs for protection of special populations	2c1										
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1										
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1										
Protective Action Implementation											
Implementation of emergency worker exposure control	3a1	M	M	M	M						
Implementation of KI decision	3b1	M	M								
Implementation of protective actions for special populations - EOCs	3c1										
Implementation of protective actions for Schools	3c2						M	M	M	M	M
Implementation of traffic and access control	3d1		M								
Impediments to evacuation are identified and resolved	3d2		M								
Implementation of ingestion pathway decisions - availability/use of info	3e1										
Materials for Ingestion Pathway PADs are available	3e2										
Implementation of relocation, re-entry, and return decisions.	3f1										
Field Measurement and Analysis											
Adequate Equipment for Plume Phase Field Measurements	4a1										
Field Teams obtain sufficient information	4a2										
Field Teams Manage Sample Collection Appropriately	4a3										
Post plume phase field measurements and sampling	4b1										
Laboratory operations	4c1										
Emergency Notification and Public Info											
Activation of the prompt alert and notification system	5a1										
Activation of the prompt alert and notification system - Fast Breaker	5a2										
Activation of the prompt alert and notification system - Exception areas	5a3	M									
Emergency information and instructions for the public and the media	5b1										
Support Operations/Facilities											
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1			M	M						
Mon / decon of emergency worker equipment	6b1			M							
Temporary care of evacuees	6c1					M					
Transportation and treatment of contaminated injured individuals	6d1										

3.3 Criteria Evaluation Summaries

3.3.1 Maryland Jurisdictions

3.3.1.1 Maryland Emergency Operations Center

Criterion 1.a.1:
The Maryland Emergency Management Agency (MEMA) Emergency Operations Center (EOC) successfully demonstrated effective procedures for alerting, notifying, and mobilizing emergency personnel for the plume exercise on January 26, 2010.

At 0828, the Peach Bottom Atomic Power Station (PBAPS) notified the Maryland Joint Operations Center (MJOC) (MEMA's 24-hour Communications Watch Center) of an Alert Emergency Classification Level (ECL) over the direct ring down (dedicated phone line between PBAPS, PEMA, MEMA and the risk counties of Cecil and Harford) phone system. Since the call was over the dedicated line and was code identified, no further verification was required.

In accordance with Checklist 02.Alert, the MEMA Duty Officer was briefed on the Alert Emergency at PBAPS and directed the SEOC be mobilized to Level 3 at 0840. SEOC staff and State Agencies were notified via the Rapid Reach notification system. All contact numbers for key staff are pre-loaded in the system: pager, cell, home and business. Updates are requested annually and made as notified. Key staff was contacted by 0858, and the SEOC was fully operational by 0910. No further notifications were required.

Pre-positioning of personnel was not done, as this was a regular duty day and most staff was in their normal offices adjoining the SEOC. At 0910, the MEMA EOC was declared operational. A total of 45 individuals staffed the EOC. Key positions were staffed by the following organizations:

The Site Area Emergency (SAE) ECL was received at 0928, and declared by PBAPS at 0910. The General Emergency (GE) ECL was received at 1044, and declared by PBAPS at 1025.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.c.1:

The designated MEMA command and control staff successfully demonstrated the ability to direct and control emergency response operations in the event of a radiological emergency at the Peach Bottom Atomic Power Station (PBAPS). The Maryland Emergency Operations Center (SEOC) is located on the Camp Frettered Military Reservation in Reisterstown, MD. The Governor directs the State's response through the Maryland Emergency Management Agency (MEMA) Director.

During this exercise, two SEOC Incident Commanders (ICs) were responsible for coordination of the overall response and implementation of the MEMA Response Plan; implementing decisions regarding the use of state resources and for coordinating with other state agencies, response organizations, and the risk/host counties as required. The ICs worked together with the Operations Group chief and the Executive Policy Group to provide direction and control of activities in the SEOC and quickly implement protective action recommendations in accordance with plans, procedures and checklists.

The Maryland Department of Environment (MDE) representative provided technical advice on protective action recommendations and radiological exposure control.

Numerous briefings were conducted throughout the exercise, to keep EOC staff constantly informed of the changes in the emergency at PBAPS. As changes in the status of plant conditions unfolded, the IC held thorough discussions with SEOC staff and the Policy Group on the best course of action for the state to take due to changing plant conditions. Protective action recommendations were communicated via controlled conference calls with all affected decision-makers participating: PEMA; MEMA; MDE; Cecil and Harford (risk counties); the Governor's Office (simulated) and other key agencies/players as appropriate.

Computer work stations with the latest plans and procedures were available for all staff (including hard copy as requested). Message, Facsimile (fax), and Communications logs were maintained throughout the exercise.

The ICs provided appropriate direction and control throughout the SEOC response organization. The Operations Group chief worked to ensure all critical response organizations were staffed and operational after receipt of the Emergency Classification Level of Alert at 0828 (declared by

PBAPS at 1810). A formal briefing was given by one of the ICs at 0912 (after declaring the SEOC fully operational at 0910), to bring everyone up to speed on what was occurring. Briefings were also conducted after each Executive Policy Group meeting, to keep all agencies informed on plant status, emergency classification levels, critical activities and decisions.

As plant status changed and updates were necessary, the utility provided information to the SEOC and all affected counties over the direct ring-down phone system. A roll call system was used to ensure all parties received the information and had an opportunity to ask for clarification. Each utility message was documented, numbered and distributed to key staff.

An ECL of SAE was declared by PBAPS at 0910. An Executive Policy Group conference call was held at 0945 with impacted state agencies, Cecil/Harford counties and Pennsylvania. During this call, protective action recommendations were decided (at 0945) to notify the public of the emergency at PBAPS. It was decided to shelter livestock, companion animals, and poultry and place them on stored food and water, 0-10 miles, 360 degrees. Water, rail and air restrictions were also decided upon (0-5 miles and 5, 000 feet). The first siren activation was at 0955, and the EAS message sent out at 0958. This action closes previous issue number: 46-08-1c1-A-05

The Governor of Maryland signed an Executive Order for a Limited Declaration of a State of Emergency for counties within a 50 mile radius of PBAPS at 1034.

As a result of deteriorating conditions, the ECL was increased at PBAPS to General Emergency at 1025. A second Executive Policy Group conference call was held and at 1105, the protective action recommendation was decided to notify the public of evacuation within Cecil and Harford counties out to 10-miles and for the public and EWs to ingest KI. Sheltering and feeding of animals was extended to 50 miles in the downwind direction as part of the decision. The sirens were activated at 1115, followed by the EAS message at 1118.

The Public Information Officer attended the Executive Policy Group conference calls, facilitating the approval process for SEOC News Releases and ensuring the latest information was available for response to any 'rumor' calls.

Criterion 1.d.1:

The communications capabilities of the Maryland Joint Operations Center (MJOC) were successfully demonstrated in support of Maryland Emergency Management Agency (MEMA) emergency operations. As a 24-hour watch center for MEMA, the National Guard and other state agencies (after hours) the MJOC has state of the art communications capabilities.

The State of Maryland has installed an emergency prompt notification communication system which links together key on-site and off-site emergency facilities which would be activated in response to an emergency at Peach Bottom Atomic Power Station (PBAPS). This emergency system consists of dedicated line telephones and is operational as detailed in the MARYLAND EMERGENCY OPERATIONS PLAN, ANNEX Q, RADIOLOGICAL EMERGENCY PLAN, FIXED NUCLEAR FACILITIES, table 2.2, emergency Facility Communications at PBAPS, page 2-15. Off-site emergency centers on the system that responded during this exercise included the two Maryland EPZ (plume zone) county emergency Operation Centers (Cecil and Harford counties), the Maryland State EOC, the Maryland Department of Environment, and the Pennsylvania State EOC.

The primary means of communication between MEMA EOC and Peach Bottom Atomic Power Station (PBAPS) was the ring-down phone system. Commercial telephone and radio were also used to communicate with the counties.

In total, the MJOC contained the following communication systems:

* Telephone
  -Digital Public Branch Exchange
  -Direct ring down with Atomic Power Stations
  -Cellular
  -STE (secure)
  -VOIP (Voice Over Internet Protocol)
* Fax
* Email: desktop and mobile
* NAWAS (National Warning Service)
  -FEMA Regional
  -Maryland

-DC
* Satellite Phones
-Iridium System
-Skyterra System
* Two-Way Radio
-800 mhz
-Low & High Band
-VHF, UHF
-FEMA FNARS HF
* Text Notification system
* Pagers
* NOAA Weather Wire
* Amateur Radio
* Video Teleconferencing
-Secure and Unsecure mode (ISDN, IP)
* EMnet/EAS
* Overhead Paging within the building
* WebEOC
-logging
-chat
* TV
-Satellite receive only
-Local network-on the air
* Statewide highway camera and messaging system

Although not required by any communications failures during the exercise, the Communications Watch Center supervisor was interviewed concerning what would happen during a breakdown of the primary communications system. He demonstrated the NAWAS radio, and contacted Cecil and Harford county EOCs by that means.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:

The State of Maryland demonstrated equipment, maps, and displays that are sufficient to support emergency operations at the State Emergency Operations Center (SEOC) in Reisterstown, Maryland. The SEOC was equipped with five large screens that were used to project maps of the 10-mile Emergency Planning Zone (EPZ), WebEOC, a weather map, real time traffic, and the SEOC organization chart during the exercise. The EPZ map was also used to project the plume and record the Emergency Classification Level. A weather monitor displayed wind speed and direction. There were a few paper maps in the room, including a state highway map that were not suitable for reference during the exercise.

The decision room contained a state map and white board, while the communications room was equipped with a map of the EPZ.

Because emergency workers are not dispatched from the SEOC and the facility is beyond the 10-mile EPZ, dosimetry, potassium iodide, and survey instruments are not stored at the facility. Similarly, although the Maryland Department of Transportation coordinates overall transportation needs, the SEOC does not store or dispatch equipment to support access and traffic control.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.a.1:

The State of Maryland demonstrated use of a decision-making process to ensure that an exposure control system is in place for emergency workers, including provisions to authorize radiation exposure in excess of administrative limits or protective action guides, at the State Emergency Operations Center (SEOC) in Reisterstown, Maryland.

The State of Maryland's Radiological Emergency Plan provides a decision-making process for authorizing radiation exposure to emergency workers in excess of the 5 rem dose limit. The Maryland Department of the Environment (MDE), in consultation with the Maryland Department of Health and Mental Hygiene (DHMH), may authorize the State's emergency workers to exceed the 5 rem limit to protect valuable property (to 10 rem dose limit) or save lives (to 25 rem dose limit). County or local medical officials would be required to make decisions to

exceed exposures limits in the case of their own emergency workers.

Because emergency workers were not exposed to significant amounts of radiation during the exercise, the process for allowing emergency workers to exceed the 5 rem planned limit was not demonstrated. However, representatives from MDE and DHMH explained how the decision-making process would be implemented to protect the State's emergency workers in an actual event. The MDE Representative pointed to the process in the plan and explained that MDE's approach is to immediately replace emergency workers when they reached their limit with emergency workers who had little or no exposure. The decision would take into account projected does rates and actual field measurements. The Representative stated that State emergency workers, namely Maryland State Police and Maryland Department of Transportation workers, were unlikely to be engaged in missions posing significant radiation exposure in comparison to Harford and Cecil County emergency workers who were more likely to be exposed to the plume while undertaking their missions. MDE and DHMH Representatives would collaborate to provide guidance to the Counties in managing exposure to their emergency workers.

According to the Plan, MDE makes the decision to direct emergency workers to ingest potassium iodide (KI) with the concurrence of the MHMH. At 1044, Peach Bottom Atomic Power Station (PBAPS) notified the SEOC that it had declared a General Emergency (GE) Emergency Classification Level and issued a Protective Action Recommendation (PAR) that included evacuating sections of Cecil and Harford Counties and advising the general public in the evacuating areas to ingest KI. While a filtered release had been reported at 0928, PBAPS reported that an airborne release was in progress at the time the GE was declared. MDE and the Pennsylvania Emergency Management Agency (PEMA) subsequently participated in a conference call with the Emergency Operations Facility (EOF) to discuss the basis for the utility's PAR.

Following the conference call with the EOF, MDE, the Maryland Emergency Management Agency (MEMA), the Maryland Department of Agriculture (DA), Cecil and Harford Counties, and PEMA initiated a bridge conference call to discuss protective actions in light of the PBAPS PAR. MDE proposed that, in addition to the general public, emergency workers in the affected areas ingest KI. The basis for the recommendation was not articulated. At the time, a release was in progress, although the Maryland Bureau of Radiation Protection explained that, based on projected dose estimates, EPA Protective Action Guidelines had not been exceeded. Before the

call, the utility's Technical Representative at the SEOC had informed MDE and MEMA that conditions at the plant were deteriorating, notably that coolant levels had dropped below the tops of the fuel rods. Harford County proposed extending the scope of the proposed evacuation and ingestion of KI to 10 miles for 360 degrees around the plant. The use of KI by the public and emergency workers would also be extended to this area. The MDE's recommendation to include emergency workers in the direction to the general public to ingest KI under the PAR and Harford County's recommendation to increase the area in which KI would be ingested were agreed upon by MDE, MHMH, MEMA, DA, Harford and Cecil Counties, and PEMA at 1105.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.b.1:

The State of Maryland demonstrated the ability to make protective action decisions (PADs) based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of on-site and off-site environmental conditions, at the State Emergency Operations Center (SEOC) in Reisterstown, Maryland. According to the Maryland Radiological Emergency Plan, the Maryland Department of the Environment (MDE), through the Accident Assessment Center (AAC), is responsible for evaluating potential health effects and recommending the appropriate protective actions to the Secretary of MDE. During the exercise, PADs were developed by a senior team composed of participants from MDE, the Maryland Emergency Management Agency (MEMA), the Maryland Department of Health and Mental Hygiene, and the Maryland Department of Agriculture (DA). Cecil and Harford Counties provided additional recommendations during bridge conference calls to discuss protective actions. PADs were coordinated with the Pennsylvania Emergency Management Agency (PEMA) using a bridge conference line. In addition to coordinating with Maryland, PEMA offered PADs based on its own initiatives and procedures. PADs were presented to the Strategic Policy Group (SPG), composed of a representatives for the MDE Secretary and the Governor. The PADs were offered and discussed before the SPG in a decision room separated from the main operations room in the SEOC.

At 0930, the first bridge conference call was conducted to discuss preliminary protective actions. The DA proposed an agriculture advisory recommending that livestock, companion animals, and poultry be sheltered and placed on stored feed from 360 degrees for a distance of 10 miles from Peach Bottom Atomic Power Station (PBAPS). The MDE, MEMA, and Cecil and Harford

Counties concurred in the recommendation. When PEMA joined the conference call at 0938, PEMA concurred in the agriculture advisory and proposed restricting air space for 5000 feet and five miles around the plant, and rail and water restrictions for an area out to five miles. The Maryland jurisdictions accepted the recommended restrictions and presented them to the SPG. The MDE representative at the AAC did not recommend ingestion of potassium iodide (KI) by emergency workers at that time.

At 1000, the SPG and SEOC representatives discussed the need for a Governor's State of Emergency Declaration. The proposed declaration was limited to counties in the 50 mile ingestion pathway and was coordinated with PEMA, which had developed a similar Commonwealth Disaster Proclamation affecting three counties contiguous to the plant.

In concert with the notification of a General Emergency Emergency Classification Level at 1044, PBAPS issued a protective action recommendation (PAR) directing evacuation of the general public from two miles of the plant for 360 degrees and from two miles to five miles in sectors 4, 5, and 6. The PAR also suggested that the general public in evacuating sectors ingest KI. The SEOC senior team discussed the utility's PAR with the SPG, and the risk counties on the conference bridge line. MDE recommended that emergency workers, in addition to the general public, ingest KI in the affected areas. Harford County recommended that the evacuation of the public be extended to 10 miles, which would cover the entire County. Harford explained that the recommendation was based on the need for a smooth and orderly evacuation. Cecil County supported the recommendation.

The Bureau of Radiation Protection stated that the projected doses developed by BRP and the utility did not indicate an exceedance of the Environmental Protection Agency's Protective Action Guidelines at the time. MDE agreed to evacuate the area surrounding PBAPS to 10 miles if PEMA concurred with the decision.

DA recommended extending the agriculture advisory to 50 miles downwind and suspending harvesting and planting in the affected area. MDE, MEMA, and the risk counties concurred in the recommendation to the SPG.

At 1100, PEMA joined the conference call and concurred in the PADs for evacuating the public, recommending ingestion of KI by the general public and emergency workers in the affected areas, the extension of the agriculture advisory, and inclusion of restrictions on harvesting and

planting.

At 1202, the SEOC was notified that the wind was now blowing from 14 degrees. The utility addressed the wind shift and an increase in airborne radiation with a second PAR recommending evacuation from 360 degrees of the plant to a distance of five miles and from five to 10 miles in the South, Southeast, and Southwest sectors. The SEOC senior team agreed that their previous decisions were not affected by the PBAPS PAR. The DA recommended inclusion of the Southwest in the downwind areas addressed by the agriculture advisory. MDE, MEMA, and the risk counties concurred.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.b.2:

The Maryland Emergency Management Agency (MEMA), State Emergency Operations Center (SEOC) successfully demonstrated a decision making process involving consideration of appropriate factors and necessary coordination to make Protective Action Decisions (PADs) for the general public. The Maryland Department of Environment (MDE) was the state agency responsible for making PADs. Protective Action Decisions were made based on protective action recommendations (PARs) from the Peach Bottom Atomic Power Station (PBAPS), assessment of plant conditions, and in coordination with MEMA, the Pennsylvania Emergency Management Agency (PEMA), Cecil and Harford counties. Cecil and Harford counties have the authority to recommend Protective Actions, to expand the Governor's or the Secretary MDE's orders within the counties, or to direct Protective Actions in absence of orders from the Governor or Secretary MDE.

At 0945 hours, during the Site Area Emergency, Emergency Classification Level (ECL); MEMA contacted the Maryland Department of Environment, PEMA, Harford and Cecil counties to discuss the protective action recommendations made by Maryland Department of Agriculture to shelter animals and to put them on stored feed. The Maryland Department of Environment recommended that water, rail and air movement be restricted to 5 miles from the PBAPS; additionally, air space should be restricted 5000 feet above the PBAPS facility. Maryland Emergency Management Agency, PEMA, Cecil and Harford counties concurred with the MDE decision. The MEMA Emergency Operations Center coordinated the times for siren sounding and Emergency Alert System (EAS) messages at 0955 and 0958.

At 1044 hours, during the General Emergency ECL, PBAPS recommended a 0-2 miles 360 degree evacuation of the 10-mile Emergency Planning Zone (EPZ). Additionally PBAPS recommended that the General Public in the evacuated sectors should take potassium iodide (KI). At 1100 hours, MEMA contacted the MDE, PEMA, Cecil and Harford counties on the MEMA conference bridge to discuss the PAR. Based on current plant conditions, the MDE made the decision at 1105 to change the PAR to a 360 degree evacuation of the entire PBAPS 10-mile EPZ with concurrent ingestion of KI by the General Public. Maryland Emergency Management Agency, PEMA, Cecil and Harford counties concurred with the MDE decision. The MEMA Emergency Operations Center coordinated the times for siren sounding and Emergency Alert System (EAS) messages at 1115 and 1118 hours.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.c.1:

The Maryland Emergency Management Agency (MEMA), State Emergency Operations Center (SEOC) successfully demonstrated that protective actions decisions are made by the Maryland Department of Environment, as appropriate, for special population groups. The Maryland State Department of Education (MSDE) and the Department of Health and Mental Hygiene (DHMH) maintained contact with their counterparts at Cecil and Harford Counties to advise them of changing conditions at the Peach Bottom Atomic Power Station (PBAPS) and of Protective Action Decisions (PADs) affecting special populations within the Maryland portion of the PBAPS 10-mile Emergency Planning Zone (EPZ).

The following information was obtained through an interview with the MSDE and DHMH representatives at the Maryland Emergency Management Agency (MEMA), SEOC. Other than schools, all other special population groups are considered part of the general population; protective action for general population is addressed in detail in criterion 2.b.2. There is one high school, two middle schools, and four elementary schools in the EPZ. There are 14 nursing homes and three hospitals in the EPZ. There are no correctional facilities in the EPZ. Cecil and Harford Counties were responsible for direct contact with the schools in their respective areas and to provide support to schools, hospitals and nursing homes as required. Maryland State Department of Education and DHMH were prepared to coordinate additional support to the counties if requested. At the conclusion of the exercise there were no unmet needs or request of

resources from Cecil or Harford counties.

During the exercise, there was one precautionary evacuation (simulated) of the Conowingo Elementary School in Cecil County to Rising Star Middle School that occurred at 1013 during the Site Area Emergency (SAE) Emergency Classification Level (ECL). At 1118, all other schools were evacuated (simulated) at the General Emergency ECL. The evacuation of schools was initiated when the Emergency Alert System (EAS) message to evacuate the Maryland portion of the PBAPS 10-mile EPZ was broadcasted. The administering of Potassium Iodide (KI) for the general public and schools is coordinated at the county level.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.1:
The Maryland Emergency Management Agency (MEMA), State Emergency Operations Center (SEOC) successfully demonstrated the ability to establish appropriate traffic and access control and to provide accurate instructions to access control personnel during the Peach Bottom Atomic Power Station (PBAPS) exercise conducted on January 26, 2010.

The following information was obtained through an interview with the Maryland State Police and State Highway Administration representatives at the Maryland Emergency Management Agency (MEMA), SEOC. The Maryland State Police (MSP) was the state agency responsible for access control operations and coordinated state support agencies in establishing access control points. The MSP would provide supplemental personnel and equipment to assist in staffing designated access control points when requested. Cecil and Harford Counties are responsible for establishing access control points and the MSP provides additional support.

The State Highway Administration (SHA) would support the MSP by supplying access control equipment, such as road barricades, traffic cones, flashing arrow boards, and special signs, as needed. The SHA would provide additional personnel to assist in the manning of access control points, as necessary. The State Highway Administration had the ability to supply portable message boards for access control points and to print signs identifying specific evacuation routes.

Ten Access Control Points (ACPs) were pre-identified along the evacuation route in the 10 mile Emergency Planning Zone (EPZ); four ACPs in Harford County and six ACPs in Cecil County.

MSP works with local law enforcement staff proactively to maintain ACP's and provide continuous traffic flow.

At 0945, upon notification that an Emergency Classification Level (ECL) of Site Area Emergency existed at the Peach Bottom Atomic Power Station, the Maryland Department of Environment recommended that water, rail and air movement be restricted to 5 miles from the PBAPS. Additionally air space should be restricted 5000 feet above the PBAPS facility. The Department of Transportation began the process of restricting airspace, waterways and assisting with notification for railway restrictions.

The Maryland State Police would provide additional officers to staff traffic access/control points along the evacuation routes. Officers would be instructed to report to their respective staging areas at Fire Station #8 (Cecil County) and the Harford Emergency Operation Center to receive instruction on their assignments, obtain radiological briefing, dosimetry equipment and potassium iodide prior to dispatch to their access control point.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.a.1:
The Maryland State Emergency Operations Center (EOC) successfully demonstrated activities associated with primary alerting and notification of the public during the Peach Bottom Atomic Power Station plume exercise held on January 26, 2010. The Maryland State EOC is located outside of the 10-mile emergency planning zone in Reisterstown, MD, and is approximately 30 miles southwest of the plant.

Activities at the State EOC associated with primary alert and notification were limited to participation in bridge conference calls with Maryland Emergency Management Agency (MEMA), Maryland Department of Environment (MDE), Pennsylvania Emergency Management Agency, and Harford and Cecil counties. Cecil and Harford counties were responsible for siren sounding and issuance of the EAS messages. The Public Information Officer at the State EOC issued pre-scripted follow up messages to support EAS messages and protective action decisions.

A decision to activate the EAS system was made at 0945 hours, immediately after a Site Area

Emergency, Emergency Classification Level (ECL) was declared. The MEMA Emergency Operations Center coordinated the times for siren sounding and Emergency Alert System (EAS) messages at 0955 and 0958, respectively. Cecil and Harford counties were responsible for siren sounding and issuance of their county's EAS message. At 1002, the public information staff at the State EOC issued a follow up message with additional information (MEMA Release #02).

At 1105, the decision was made to once again initiate the alert and notification sequence to inform the public of the General Emergency ECL, the evacuation order and the recommendation to take potassium iodide. Using the bridge line, MEMA Emergency Operations Center coordinated the times for siren sounding and Emergency Alert System (EAS) messages at 1115 and 1118, respectively. As indicated above, Cecil and Harford counties were responsible for siren sounding and issuance of the EAS message to local radio stations. Public information staff at the State EOC issued three follow up messages with additional information (MEMA Releases # 04, 05 and 06).

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.b.1:

The Maryland State Emergency Operations Center (EOC) public information staff successfully demonstrated their ability to provide accurate emergency information and instructions to the public and news media during the Peach Bottom Atomic Power Station (PBAPS) plume exercise, held on January 26, 2010. The Maryland State EOC is located outside of the 10-mile emergency planning zone in Reisterstown, MD, and is approximately 30 miles southwest of the plant. The public information group included the Maryland State Public Information Officer (PIO), the State EOC Joint Information Center Manager, and three staff members. A PIO representative was also dispatched to the licensee's near site Joint Information Center (JIC).

Cecil and Harford counties were responsible for issuing Emergency Alert System (EAS) messages. The public information group at the Maryland EOC issued supplemental information in the form of media releases; they also responded to public and media telephone inquiries. In accordance with the extent-of-play, media briefings were not demonstrated at this location; media briefings were demonstrated at the Exelon Nuclear Joint Information Center. The PIO stated that media briefings could be held, if necessary in one of the facility classrooms. A book of background material was available to be used in media briefings. This book contained

information associated with various accident types including response to an incident at the Peach Bottom Atomic Power Station and information regarding pets during emergencies. Although pre-printed media kits were not available at this location, the State JIC PIO Manager stated that he could copy the PBAPS section of the "Battle Book" for dissemination to the press.

The PIO ensured that the JIC Manager and public inquiry staff was well information on current plant conditions, and discussions and decisions being made in the EOC. The Public information staff kept each other informed of their actions and activities. Each staff member was experienced in multiple public information functions: public inquiry, updating Web EOC and drafting MEMA media releases for issuance to media outlets.

Six media releases were issued by the State Public Information Officer. In all instances, the public information staff worked diligently to ensure they were issued in a timely manner. Media releases were consistent with protective action decisions and supported information contained in county EAS and follow up messages. State media releases were intended to inform the public of state actions and support EAS follow up information contained in county media releases. State media releases contained information and instructions to assist the public in carrying out the protective actions decision provided to them. Language used was clear and understandable; familiar landmarks were used to describe the boundaries of evacuated areas in Cecil and Harford counties. Information relative to ingestion pathway decisions were included in media releases for sheltering animals and suspension of planting and harvesting. Plans/procedures did not require development of messages in non-English languages. Media releases stated that they were available in an alternative format upon request from a qualified individual with a disability.

Prior to dissemination, each media release was reviewed and approved by the PIO, the Emergency Operations Center Commander and any affected organizations. After approval, media releases were emailed to the Maryland Public Information Officer at the PBAPS JIC, a public information staff member responsible for updating Web EOC, PIOs in Cecil and Harford counties, the Exelon Nuclear PIO, and pre-defined media outlets (newspaper, radio stations and television stations). The content of each MEMA media release is summarized below:

Maryland Emergency Management Agency(MEMA) Release #01 was issued at 0917 hours: The release informed the public that an Alert ECL had been declared at the PBAPS. Individuals were advised to monitor EAS stations; the radio stations were listed. Telephone numbers were provided for MEMA public affairs, Cecil County and Harford County. Additional information

was provided to the media to include locations of reception centers and media inquiry telephone number for MEMA and the PIO.

MEMA Release #02 was issued at 1002 hours: The release indicates that a Site Emergency was declared at PBAPS as a result of loss or potential loss of two of three fission product barriers. Individuals were again advised to monitor EAS stations, review their emergency information brochure and also included public and media inquiry telephone numbers.

MEMA Release #03 was issued at 1043 hours: The media release informed farmers and pet owners within a 10-mile radius to shelter their animals and place them on stored feed and water. Additional information was provided regarding veterinary care. Individuals were reminded to monitor their EAS stations.

MEMA Release #04 was issued at 1204 hours: This release indicated that a General Emergency was declared at PBAPS and the Governor had declared a limited State of Emergency for specific counties. The release included all information required by current FEMA guidance. It said that an evacuation order has been issued for all sectors within 10-miles and 360 degrees of the plant. The general public and emergency responders should ingest potassium iodide. The Department of Agriculture advised that within 50- miles downwind from the plant, animals be sheltered (livestock, poultry and companion animals) and harvesting/planting be suspended. Evacuation zones in Harford and Cecil counties were described; EAS radio stations were included as well as shelter locations. Individuals were reminded to review their information calendars and telephone numbers were provided for additional information.

MEMA Release #05 was issued at approximately 1250: This media release was issued after a shift in the wind direction resulted in a change in downwind sectors. The Department of Agriculture advised adding the South-Southwest sector to the advisory issued for animals. It was noted after the release was issued, that the impacted area was not clearly described, resulting in issuance of MEMA Release #06.

MEMA Release #06 was issued at 1336 hours: This media release clarified the affected sectors for the agricultural advisory for animals. It was also noted that release #05 and 06 did not address expansion of the advisory for planting/harvesting crops. The exercise terminated before a new MEMA release could be issued.

The public information staff member responsible for updating Web EOC saved each media release in a MEMA shared hard drive and then posted an entry about the message on Web EOC. He indicated that the State and counties could access the shared directory and view or print the full media release.

A public inquiry hotline was established when the EOC was activated. The public inquiry area was staffed the MEMA JIC Manager and two additional individuals. The Public Information Officer and JIC Manager briefed public inquiry staff on a regular basis on plant conditions, emergency actions and instructions to the public. Public inquiry staff received eleven telephone calls from members of the general public. A MEMA PIO Phone/E-mail Query Sheet was filled out to document each call. Calls were handled in a professional manner and callers were treated with respect and an understanding for their concerns. Accurate information was provided in response to each caller's question. Call content was varied, with several questions regarding actions individuals should take for their pets. Callers were advised to stay tuned to their local radio stations and were provided the public inquiry contact number for their county to get up to date information regarding pets.

Several televisions were available for monitoring various television stations. One telephone call was received from an individual representing a radio station. The caller requested an interview with a State EOC official. The EOC JIC Manager indicated that the caller should go to the JIC in Coatesville for media briefings, but he would answer any questions over the telephone regarding the State's emergency response. The caller was given permission to record the call and rebroadcast over the radio. The caller declined the interview and indicated that he would call back.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

f. PRIOR ISSUES - RESOLVED: 1.c.1.

ISSUE NO.: 46-08-1c1-A-05

ISSUE: The Prompt Notification System (PNS) and Emergency Alert System (EAS) were not activated after the Site Area Emergency declaration at 0845 in accordance with 5.4.1.3 Step 3 of the Maryland State Radiological Emergency Response Plan. The Plan delineates actions that will be initiated at the State and/or County levels.

CORRECTIVE ACTION DEMONSTRATED: After receipt of Site Area Emergency Classification Level at 0928, the MEMA Executive Policy Group concurred with PEMA, Harford and Cecil Counties and made a decision to activate the PNS and EAS to notify the public of the emergency at PBAPS. This activation after the Site Area Emergency Declaration also advised the public to shelter livestock, companion animals and poultry and place them on stored feed and water 0-10 miles; 360 degrees.

g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.2 Maryland Accident Assessment Center, Maryland Department of the Environment

Criterion 1.a.1:
On January 26, 2010, the Maryland Department of Environment, Accident Assessment Center (MDE-AAC) successfully demonstrated alert, notification and mobilization of emergency personnel to activate the MDE-AAC. An Emergency Classification Level of Alert was received at MDE-AAC at 0830, a cascade notification was made and the Radiological Assessment Director declared the MDE-AAC operational at 0930 since all staff required were present and equipment tested. Each ECL notification was verified by MDE-AAC staff with the licensee.

These positions included the:

Secretary-MDE
Radiological Health Physics Leader
Radiological Assessment Director
Staffing for two Field Monitoring teams
Multiple dose assessment calculators

Multiple Communicators
Field Team Leader
WebEOC operator.

In addition MDE and Department of Natural Resource staff had arrived at the Exelon Emergency Operations Facility in Coatesville, PA. These individuals provided plant and related data to the MDE-AAC staff.

A Site Area Emergency was received at MDE-AAC at 0926.

A General Emergency was received at MDE-AAC at 1044.

A roster was provided showing the capability for 24 hour operation with relief individuals for all areas listed above.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.c.1:
The Secretary-MDE was present at the Maryland Department of Environment – Accident Assessment Center and was the senior MDE staff present. In most instances the Secretary would travel to the Exelon EOF for an incident at the Peach Bottom plant or remain at the MDE headquarters. The Secretary-MDE was the primary decision maker for the state of Maryland. The decisions made were timely and involved discussions with MDE-AAC staff, counties and the Commonwealth of PA.

In accordance with the MDE-AAC Concept of Operations, the Radiological Health Physics Leader is in charge of the emergency response, and the Radiological Assessment Director (RAD) assigns the task and duties necessary to evaluate the plant status. The RAD held multiple briefings as the Emergency Classification Level and changing plant conditions made these briefings necessary.

Plans and procedures were available and followed by MDE-AAC staff. Message logs were maintained. Key personnel in leadership roles made timely decisions during the exercise.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.d.1:

The primary communication system used during the exercise was the commercial hardwired telephone network. Notifications of Emergency Classifications were received at the MDE-AAC to a dedicated communicator, the calls coming from the Maryland Emergency Management Agency. Backup systems included, WebEOC, cell phones, Sat based radio system for Field Team Communications, fax machines and email.

The primary and all backup systems were functional at the commencement of the exercise and functioned correctly during the entire exercise.

Communications checks were performed at the start of the exercise to verify operability of these systems.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:

The Maryland Department of Environment Accident Assessment Center (MDE-AAC) was located at 1800 Washington Avenue, Baltimore, MD. This facility is well outside the plume phase emergency planning zone. For the Peach Bottom 2010 exercise the MDE-AAC remained fully operational for the duration of the exercise.

Since the facility was outside the plume phase emergency planning zone no dosimeters were issued to personnel.

The MDE-AAC was equipped with separate status boards for key events, meteorological data and field monitoring team's data. Maps showing the Peach Bottom emergency planning zone and plume direction were posted and updated as necessary.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.a.1:

The Maryland Department of Environment (MDE) Accident Assessment Center (AAC) is located in Baltimore MD and is well outside the 10 mile EPZ. No personnel dosimetry is required for this facility.

The Secretary of the MDE in accordance with procedure EP-304 authorizes the use of KI by emergency workers and the public. The recommendation is made by the MDE Radiation Health Protection (RHP) Leader based on data collected by the AAC.

After the General Emergency declaration, the RHP Leader in accordance with procedure MDE EP-304 Step III.B.4a recommended to the Secretary of the MDE that all emergency workers and the general public be given the instruction to take potassium iodide tablets (KI). The Secretary of the MDE discussed this proposed decision with MEMA and, Harford and Cecil Counties. This proposed decision was coordinated with the State of Pennsylvania at 1055 At 1105 the Secretary of MDE signed the Protective Action Decision Form with the box checked for emergency workers in the 10 mile EPZ to ingest KI.

A discussion was conducted with the Radiological Assessment Director (RAD) on the bases for using the turn back exposure rate of 1 R/hour instead of 100mR/hr as in MDE procedure EP-302. He stated that he chose to use the higher value to allow for the MDE teams to monitor the centerline of the plume in the event it was not done by the teams from the Peach Bottom Atomic Power Station. The MDE RAD instructed the field monitoring teams to use a turn back exposure value of 833 milli Roentgen during the briefing of the field monitoring teams. The RAD indicated that a ratio of 1/6 is used to avoid the emergency worker exceeding the TEDE of 5 rem when inhalation and ingestion dose is added to the external exposure as measured by the direct reading dosimeter.

Exposures in access of the turn back values are allowed under the direction of the RAD and in consultation with the RHP Leader. The Field Monitoring Team Leader received routine reports on the exposure readings from the teams. At one point when Team B realized that they were in the plume centerline because of a wind shift they were instructed to leave at once so as not to receive unnecessary exposures.

All activities were based on the plan and procedures and completed as they would have been in

an actual emergency except as noted in the extent of play agreement.

Criterion 2.b.1:

Protective action recommendations (PAR) were made by the Radiological Assessment Director (RAD) and the Radiation Health Protection (RHP) Leader in the Maryland Department of Environment (MDE) Accident Assessment Center (AAC) to the Secretary of the MDE. The PAR could be based on plant conditions, dose projections and / or field team data. The PAR from the licensee is also considered in this process. MDE procedure EP-304 was used. The MDE independently validates the licensee's dose projections using MDE procedure EP-301. Input to the PAR also comes from the Department of Agriculture and the Counties.

At 0935 after the Site Area Emergency declaration, the RHP Leader in the Maryland Department of Environment (MDE) Accident Assessment Center in accordance with procedure MDE-304 Step III.B.4a, Rev. 10 dated 02/2008, recommended to the Secretary of the MDE the shelter of livestock, companion animals and poultry in the 10 mile EPZ and placing them on stored feed and water. The Department of Agriculture also had input to this PAR. The Secretary discussed this proposed decision with MEMA and Harford and Cecil Counties. At 0946 the Secretary of MDE signed the Protective Action Decision.

There were two individuals in the AAC doing dose calculations. One Dose Calculator was using RASCAL which is the primary dose projection model for the AAC. The other Dose Calculator was using the licensee's dose model DAPAR. They each had an assistant who was checking their process. Both individuals initially were instructed by the RAD to run a number of what if calculations to check the operability of the models. The MDE procedure in use was EP-301.

Radiological releases began at 0915 from the leakage of radioactive steam into the reactor building. The release was being filtered by the standby gas treatment system, monitored and released from the main stack (elevated). At 0950 the AAC was notified by the MDE liaison in the EOF that a release rate of 3.5E+7 micro curies per cc was in progress. The RAD provided this information to the two dose assessment staff and asked for a dose projection. Both dose projection models indicated that the EPA PAG would not be exceeded off site. This was in reasonable agreement with the copy of the licensee DAPAR run which was faxed to the AAC. A PAR based on dose calculations was not necessary.

In this exercise the General Emergency was declared at 1025. The MDE was notified at 1044.

At 1025 the RAD received information that the release rate was now 8.0E+7 micro Curies per cc. The RASCAL and DAPAR models were run with this new input and they indicated that the EPA PAG would not be exceeded off site. This was in agreement with the licensee's DAPAR model calculations. There was a "what if" calculation done with the loss of containment sprays and the loss of the standby gas treatment system. It indicated that if this was to happen the EPA PAG would be exceeded beyond the site boundary.

At 1042, a licensee PAR based on plant conditions was provided by the EOF Emergency Director to the Secretary MDE. The field teams were observing plume readings. Dose projections indicated that the EPA PAG was not exceeded off site. The licensee PAR was to evacuate the 0 to 2 mile ring and evacuate the 5 to 10 mile areas in the SE, SSE, S and SSW sectors. The recommendation was for the administration of KI to the public in the evacuated areas. The RHP Leader and the RAD discussed the licensee PAR and indicated to the Secretary of the MDE that they agreed with it. The PAR was discussed with the Counties who preferred to evacuate the entire 10 mile EPZ. This more extensive PAR was included in the PAD signed by the Secretary at 1107.

At 1145 the MDE RAD was informed that the release rate was now 8E+8 micro Curies per cc. There was also indication that the standby gas treatment system had degraded and that there would be some iodine in the release. The initial dose projections with this revised release rate resulted in both the RASCAL and DAPAR models indicating that the thyroid PAG would be exceeded beyond the 10 mile EPZ. The RAD questioned the assumption of 20 percent of the release being iodine. The licensee DAPAR model calculation was received. They assumed that only 2 percent of the release was iodine. With this revised input the MDE RASCAL and DAPAR dose projections validated the licensee's dose projections that the EPA PAG for the thyroid would be exceeded out to about 6 miles from the plant.

At 1202 the licensee called the Secretary of the MDE and added to the earlier PAR the evacuation of the 0 to 5 mile ring and 5 to 10 miles downwind in sectors SSE, S, SSW and SW. This was as a result of the change in wind direction and the presence of iodine in the plume. A MDE AAC PAR was not necessary at this time as the decision to evacuate the entire plume EPZ had been made at 1107 hours.

At about 1210 the MDE was informed by the MDE liaison in the EOF that the licensee field

monitoring teams were confirming the presence of iodine in the plumes at the levels similar to their DAPAR dose projections. At 1311 the MDE field monitoring teams reported the presence of iodine in the plume at location 58 at the level of 1.0 E-9 micro Curies per cc. There was a discussion with the RAD as to whether this was below the detection limits. Team B also confirmed the presence of iodine in the plume at the junction of Route 1 and Route 136. Their values were much higher as they had taken their samples at a much later time. As of the end of the exercise they had yet to complete their calculations.

The RAD demonstrated through interview that he was capable of calculating an iodine thyroid dose using the information provided by the field teams.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.b.2:

The Secretary MDE was responsible for making the PAD. MDE procedure EP-304 was used. Attachment 1 was the form filled out and signed by the Secretary MDE to document the PAD. The signed form was then faxed to MEMA, the EOF and the two Counties. MEMA and the counties were responsible for implementing the PAD.

The State of MD PAD was developed by the Secretary MDE in a collaborative manner with the MDE Radiation Health Protection Leader, the MEMA, Harford and Cecil Counties. A conference bridge was used to reach consensus. The Secretary MDE was also responsible to coordinate the PAD associated with the sounding of the public alerting system and EAS messages with the decision maker in the Commonwealth of Pennsylvania. This was done prior to the final consensus being reached by both states and the involved counties using a second conference bridge. This overall PAD process for both states typically took about 20 to 30 minutes to complete. The Secretary of the MDE exhibited patience and used a collaborative approach during the PAD process with the Counties and the Commonwealth of Pennsylvania.

During this exercise the Secretary made three protective action decisions. The first PAD was effective at 0946 and included the shelter of livestock, companion animals and poultry in the 10 mile EPZ and placing them on stored feed and water. This was based on a PAR from the MDE AAC and the Department of Agriculture. Air space was restricted to 5 statute miles and 5000 feet of the plant. Waterways were to be restricted by the Department of Natural Resources and

the US Coast Guard. Rail restrictions were to be restricted by the Department of Transportation. The latter PADs were based on input from the Commonwealth of Pennsylvania. The A & N sequence was coordinated with the Commonwealth of PA and was to commence at 0945 (sirens at 0955 and EAS at 0958).

The second PAD was effective at 11:07 and included the evacuation of the public in the entire MD portion of the plume EPZ and instructing the general public and emergency workers in this area to ingest KI tablets. This was based on a less extensive evacuation PAR from the licensee but was extended to the entire EPZ based on input from the two counties that it would be easier logistically. Livestock, companion animals and poultry in the 0 to 50 mile distance from the plant and in downwind sectors SE, SSE, S and SSW were to be sheltered and placed on stored feed and water. Harvesting and planting was to be suspended in the same area. The Department of Agriculture provided input to this PAD. All, PAD s were coordinated with the Commonwealth of PA. The A & N sequence was coordinated with the Commonwealth of PA and was to commence at 1105 (sirens at 1115 and EAS at 1118).

The third PAD was effective at 12:10 and this was to extend the shelter of livestock, companion animals and poultry and placing them on stored feed and water in the 0 to 50 mile distance from the plant in downwind sectors SSE, S, SSW and SW. This was based on a PAR from the MD Department of Agriculture and the change in the wind direction. The two Counties decided to handle the implementation of this PAD through a News Bulletin instead of an A& N sequence.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 4.a.2:

At the Maryland Department of Environment (MDE), Accident Assessment Center (AAC) the Radiological Assessment Director (RAD) and the Field Monitoring Team Leader (FMTL) briefed the teams. He addressed the assignments, the mission, exposure turn back values and safety. The primary method of communication was to be the cell phone. The back up was the GETS card and coins for a pay phone. They only had one operating satellite phone and hence decided not to use it. Equipment inventory and operability checks were done.

There were two teams and the monitoring locations were pre-assigned. The intent was to have the teams go to pre-designated fixed monitoring locations that were from 3 to 10 miles from the

site which is the portion of the plume EPZ in the state of MD. The wind was blowing into Cecil County initially and the forecast was for the wind to shift to blow into Harford County later in the day. There was coordination of the monitoring locations and data with the State of PA and the licensee's teams. The MDE teams were to identify the edge of the plume and the licensee's teams were to provide the plume centerline data. MDE Team A was initially assigned to Cecil County locations 64 and 58 and MDE Team B was assigned to Harford County locations 69 and 63.

The Field Team Communicator maintained cellular phone communications with the teams. The teams were given regular status reports on the key events such as the changes in plant conditions, meteorology, the event classification, radiation releases and protective action decisions.

When the wind direction changed the field teams were redeployed to ensure that the appropriate monitoring locations were covered. The overall deployment strategy worked as both teams were able to identify the outer edges of the plume and take air samples. The licensee provided the plume center line data to the MDE through the MDE liaison in the EOF.

The Field Monitoring Team Leader received routine reports on the exposure readings from the teams. At one point when Team B realized that they were in the plume centerline because of a wind shift they were instructed to leave at once so as not to receive unnecessary exposures.

In this exercise the teams responded in real time. The MDE was informed of the Alert at 0830. The call out of the teams began at about 0840. They arrived at the MDE AAC in Baltimore at about 0900. After the AAC initial briefing on the event in progress the teams initiated their equipment checkout. The teams were briefed and given their assignments at about 1008. They left the AAC at about 1019. They began providing initial readings from the EPZ at about 1113. This provides an indication of a realistic response time for the MDE field monitoring teams to an event at the Peach Bottom station.

Overall the teams were effectively managed and kept well informed.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.1.3 Maryland Department of Environment Activities, Exelon Emergency Operating Facility, Coatesville, PA

Criterion 2.b.1:

Coordination of appropriate protective action recommendations based on available information on plant conditions, field monitoring data, and licensee and Off-Site Response Organization (ORO) dose projections, as well as knowledge of on-site and off-site environmental conditions was successfully demonstrated by the Maryland Department of the Environment (MDE) representatives at the Peach Bottom Atomic Power Station (PBAPS) Emergency Operating Facility (EOF) in Coatesville, Pennsylvania.

Three MDE representatives and one Maryland Department of Natural Resources (DNR) representative arrived at the PBAPS EOF at approximately 0906 hours. Facsimile and cellular communications were established with the MDE Accident Assessment Center (AAC) in Baltimore.

In accordance with plans and procedures, Protective Action Recommendations (PARs) for the State of Maryland are developed by the PBAPS Dose Assessment Team in the EOF. PARs are developed based on a PBAPS PAR flowchart and metrological and radiological data collected on-site and off-site. The MDE AAC independently validates the PBAPS dose projection using Radiological Assessment System for Consequence Analysis (RASCAL). The PAR is transmitted via telephone from the EOF to the Protective Action Decision (PAD) maker for Maryland, the MDE Secretary, by the Exelon Corporate Emergency Director. All PARs were communicated to the Commonwealth of Pennsylvania via conference call at the same time the Secretary of MDE was notified.

During the exercise, the PBAPS Dose Assessment Team utilized field monitoring data, release data, and metrological data to develop the PARs. The first PAR was communicated to the MDE Secretary and the Commonwealth of Pennsylvania at 1041 hours shortly after declaration of a General Emergency at PBAPS. The PAR was to evacuate 360 degrees, 0 to 2 miles; and evacuate 2 to 5 miles in sectors SE, SSE, S, and SSW. Additionally, it was recommended the public in the sectors being evacuated ingest potassium iodide (KI). A revised PAR was communicated to the MDE Secretary and the Commonwealth of Pennsylvania at 1200 hours. The revised PAR was based on the loss of the third fission product barrier at 1145 hours and a shift in wind direction. The PAR was to evacuate 360 degrees, 0 to 5 miles; and evacuate 5 to 10 miles in sectors SSE, S, SSW, and SW. Additionally, it was recommended the public in the sectors being evacuated ingest KI.

The EOF Dose Assessment Team and the MDE Representatives plotted the plume location on maps in the EOF based on monitoring data received from the Field Monitoring Teams (FMTs) and plant data.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.1.4 Maryland State Field Monitoring Team A

Criterion 1.d.1:

Maryland State Field Monitoring Team A (FMT A) communications equipment consisted of:

- State-issued Cellular Phones
- Personal Cellular Phones

FMT A performed telephone communications checks with the Field Monitoring Team Leader (FMTL) from its staging location at the Maryland Department of the Environment Accident Assessment Center at 1800 Washington Boulevard, Baltimore, MD. FMT A successfully conducted telephone checks with the FMTL at 1022.

During the exercise, the State-issued cellular phones served as primary communications and personal cellular phones served as backup. FMT A successfully used both primary and secondary communication systems throughout the exercise.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:
All Field Monitoring Team A (FMT A) personnel arrived at the Maryland Department of the Environment Accident Assessment Center staging area at 0855 and initiated their supply inventory of instrumentation, dosimetry, and other sampling materials at 0920. FMT A used an Emergency Equipment Checklist to verify the availability of supplies and equipment in the emergency supply kit and field team vehicle.

The following equipment was available in the FMT A emergency supply kit and monitoring vehicle:

Equipment and Supplies

- Coveralls
- Head Covers
- Water
- Radiation Signs and Rope
- Radioiodine Charcoal Sampling Cartridges
- Radioiodine Silver Zeolite Cartridges
- Stopwatch
- Paper Towels
- Plastic Wrap
- Duct Tape

- Sealable Bags
- Batteries D Cell
- Shoe Booties
- Disposable Gloves
- DC/AC Power Inverter
- Telephone Number List
- Calculator
- Flashlights
- Particulate Air Sample Filters
- Potassium Iodide (KI) Tablets
- Chain of Custody Tags
- Sample Data Forms
- Plume Area Maps

Radiological Monitoring Equipment and Check Sources

- Eberline E-520 Beta/Gamma Survey Meter (calibrated 7/20/09)
- Eberline PIC-6 (calibrated 5/10/09)
- Eberline RM-14 (calibrated 12/16/09)
- Eberline MS-2 with SPA-3 Detector (calibrated 4/28/09)
- Cesium-137 Check Source
- Barium-133 Check Source
- RADOS Electronic Dosimeter (calibrated 6/3/09)
- Permanent Record Dosimeters
- Portable air sampler with open face combination filter and cartridge holder (calibrated 5/5/09)
- Potassium Iodide (KI) – (expiration date February,2014)

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:

Field Monitoring Team A (FMT A) was well-equipped and supplied for its tasks. The vehicle was suitable for all terrain and conditions, and had sufficient workspace. Prior to departure from the Accident Assessment Center staging area, the back of the vehicle was set up to accommodate contamination control in conjunction with handling equipment and samples. The team was prepared with suitable maps and had ample space to view them in the vehicle.

Radiation survey instruments were inspected and checked in accordance with Maryland Department of the Environment (MDE) procedures and included a check of calibration dates, response check for meters and probes, and battery and source response tests. These instruments provided for low, medium and high range monitoring, in addition to monitoring personnel or materials for contamination.

FMT A personnel were given an initial radiological briefing by the Radiological Officer (RO) at 0955 prior to being dispatched to the first monitoring location. The RO first reported wind direction from 330 degrees, stability class C, and wind speed at 8 miles per hour. The remainder of the radiological briefing included placement and proper use of electronic dosimeters, turn-back values, and instruction on the administration of Potassium Iodide.

FMT A members used RADOS electronic dosimeters (0.1 mR – 999 R). Team members appropriately filled in their electronic personnel dosimetry form with name, social security number, agency name, and initial reading. Throughout the exercise, team members routinely checked their dosimetry and recorded readings on the personnel dosimetry form. All information on this form was relayed to the Field Monitoring Team Leader (FMTL) consistently in 30-minute intervals in accordance with MDE Procedure EP-302. The Administrative Turn-back Level of 1 R/hour was communicated in the radiological briefing. The secondary turn-back level of 833 mRem received on the electronic dosimeter based on an internal dose correction factor was also communicated. These methods and resources provided means to effectively manage radiological exposure to emergency workers. Team members were quizzed on and correctly identified the Administrative Turn-back Level.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:
Availability of Potassium Iodide (KI) and appropriate instructions was adequately demonstrated. The FMT A members were provided with three 130 mg IOSAT KI tablets prior to being dispatched from the Accident Assessment Center (AAC). The expiration date for the KI tablet supply was February, 2014.

At 1109, the AAC Communicator directed FMT A to take KI and each team member took one tablet at 1112 (simulated). By interview, it was confirmed that the team members were knowledgeable regarding the proper use and possible side effects of KI.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 4.a.1:
Field Monitoring Team A (FMT A) was equipped in accordance with the Emergency Equipment Checklist in Maryland Department of the Environment (MDE) Procedure EP-302. Monitoring equipment included the Eberline E-520 Beta/Gamma Survey Meter, Eberline PIC-6, Eberline RM-14, and Eberline MS-2 with SPA-3 Detector. These instruments provided the capability to monitor in low, medium and high radiation fields, in addition to monitoring for contamination. All instruments were in calibration and source checked prior to being used.

A Radeco Model H-809C air sampler was available for collecting particulate and iodine samples, using filter paper for particulates and a silver zeolite cartridge for collecting iodine.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 4.a.3:
Field Monitoring Team A (FMT A) received a radiological briefing from the Radiological Officer (RO) at 0955 prior to being dispatched to the first monitoring location. FMT A was first deployed to monitoring location #58 to take ambient radiation readings. En Route to monitoring point #58, FMT A was re-deployed to monitoring location #64 to take ambient readings in an effort to locate and characterize the plume.

FMT A members did not notice elevated survey meter dose rates while en route to monitoring location #64. As a consequence, the team did not adequately identify the location of the plume and communicate elevated dose rates and plume location to the Field Monitoring Team Leader (FMTL). FMT A members could have also unknowingly spent excessive time in the plume and exposed themselves to elevated dose levels. When the elevated dose rates were discussed with the team members they indicated that they ignored the meter readings because they thought the Controller was testing the Virtual Plume software and causing the elevated readings. The controller clearly stated that any testing was done and meter readings would indicate scenario data, prior to these elevated readings. The evaluator heard the controller inform the field teams that any data displayed after his earlier test would be valid scenario data.

FMT A arrived at monitoring location #64 at 1135 and performed ambient radiation survey measurements using open and closed window configurations on the E-520 survey meter at 3 feet and 3 inches above the ground. These measurements indicated background levels. At 1150, the team was directed to deploy to monitoring location #58 to take similar ambient radiation survey measurements. FMT A arrived at this location at 1210 and again measured background levels.

At 1215, FMT A was directed by the FMTL to initiate an air sample at monitoring location #58. A Radeco Model H-809C air sampler was available for collecting particulate and iodine samples, using filter paper for particulates and a silver zeolite cartridge for collecting iodine. The air sampling procedure was correctly followed in acquiring samples, setting the air sampler in an open location away from trees and upwind of the vehicle. The sample media was placed in a sealable plastic bag, sealed and labeled, and a Sample Data Form was completed. The outer bag was sealed and security tape placed over the seal. All samples were placed in a container in the vehicle for transport. FMT A utilized prescribed procedures in identifying appropriate sample locations and collecting representative samples. Procedures were properly followed in contamination control, packaging, labeling and securing samples.

FMT A members routinely checked their dosimetry and recorded readings on the exposure record form throughout the exercise. All information on this form was relayed to the FMTL consistently in 30-minute intervals in accordance with the Maryland Department of the Environment procedures.

A Garmin global positioning system (GPS) was used successfully in this exercise to identify field team monitoring locations. All measurements were taken in accordance with procedures.

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

a. MET: 1.d.1, 3.a.1, 3.b.1, 4.a.1, 4.a.3.

b. AREAS REQUIRING CORRECTIVE ACTION: 4.a.3.

ISSUE NO.: 46-10-4a3-A-01

CRITERION: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams must 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.8., 9., 11)

CONDITION: Maryland State Field Monitoring Team A (FMT A) members did not notice elevated survey meter dose rates while en route to its first preselected monitoring location.

POSSIBLE CAUSE: FMT A members were not attentive to the higher readings and audible signals of the survey meter when entering the plume.

Note: FMT A members indicated that they ignored the meter readings because they thought the Controller was testing the Virtual Plume software and causing the elevated readings.

REFERENCE: NUREG-0654, I.9

EFFECT: FMT A did not adequately identify the location of the plume and communicate elevated dose rates and plume location to the Field Monitoring Team Leader. FMT A members could have also unknowingly spent excessive time in the plume and exposed themselves to elevated dose levels.

CORRECTIVE ACTION DEMONSTRATED: RE-DEMONSTRATION

The initial errors with the instrumentation readings were believed due to a communications issue between the controller and the players. Once resolved, the

field team members correctly identified elevated dose rates along the travel route and plume pathway.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: 1.e.1.

ISSUE NO.: 11-07-1e1-P-01

ISSUE: The current "range of readings" criteria used to operationally check the Maryland Department of the Environment (MDE) Field Team's radiological survey instruments response to radioactive sources were established using too broad a range and does not assure proper operation of the instrument.

CORRECTIVE ACTION DEMONSTRATED:

g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.5 Maryland State Field Monitoring Team B

Criterion 1.d.1:

During the plume exercise, the State of Maryland Field Monitoring Team B (FMT B) demonstrated its capability to communicate with the Field Monitoring Team Leader (FMTL) who was located at the Accident Assessment Center (AAC) in Baltimore, Maryland. The primary method available to FMT B was cellular telephone. A cellular telephone was issued to FMT B as part of its emergency equipment inventory. The field team was provided land-line and cellular telephone numbers for the FMTL, as well as for other AAC personnel. For backup, each member of FMT B had a personal cellular telephone, an issued Government Emergency Service (GETS) Card and several quarters. The primary FMTL land-line and FMTL back-up cellular telephone numbers were both checked during FMT B's departure from the AAC. During the exercise, FMT B and the FMTL successfully exchanged field data and instructions by telephone without difficulty.All activities were based on the plans and procedures and completed as they

would have been in an actual emergency except as noted in the extent of play agreement.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:

The State of Maryland Field Monitoring Team B (FMT B) had appropriate quantities of radiological equipment and supplies. Equipment and supplies were issued from the Maryland Department of the Environment (MDE) Accident Assessment Center, Baltimore Maryland. Equipment was stored in plastic storage cases and carrying bags, and contained materials to support radiological field monitoring operations. Available equipment included a 4-person Ford van, a cellular telephone, dosimetry sets, maps and potassium iodide tablets. Simulated potassium iodide tablets were available for each of the two FMT B members, and actual KI was available in 3 foil-wrapped packages, each containing a 130-mg, IOSAT KI tablet that had been stored indoors at the MDE facility. The actual KI tablets had an expiration date of 2/2014. Additional supplies and equipment included individual protective clothing kits, radiation barriers, trash bags, calculator, flashlight, spare batteries, markers, pens, field monitoring procedures and forms. The complete inventory of equipment and supplies was provided in Attachment 4 of procedure EP-302, "Ambient Radiation Monitoring and Air Sampling".

Instrument cases were equipped with prescribed field monitoring devices. These included one Eberline E-520 meter with an HP-270 GM probe (calibrated 8/8/2009), and a PIC-6 beta-gamma survey instrument (calibrated 3/10/2009). Other field measurement and counting equipment included an Eberline RM-14/HP-210T count rate instrument and pancake probe (calibrated 5/9/2009), and an Eberline Model MS-2 Miniscaler with SPA-3 scintillation probe (calibrated 10/9/2009). Radiation checks sources (Cs-137, Ba-133) were provided for instrument radiation response checks and all radiation instruments were operationally checked prior to use.

Two RADOS Rad-60 digital alarming dosimeters and simulated thermoluminescent dosimeters (TLDs) were issued to FMT B. The digital alarming dosimeters were calibrated on 6/3/2009 and the TLDs were exchanged on 1/20/2010. Air sampling equipment consisted of one RADECO Model H-809C air sampler, timer, sample bags, labels and adequate supplies of charcoal and silver zeolite cartridges, and radioactive particulate filter media. The air sampler was calibrated on 7/23/2009. The air sampler was powered from a DC/AC inverter outlet on the side of the van.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:

Emergency worker exposure control for the State of Maryland Field Monitoring Team B (FMT B) was adequately demonstrated during the exercise. The team's radiation dosimetry and forms were issued at the Maryland Department of the Environment (MDE) Accident Assessment Center, Baltimore, Maryland. Each member of FMT B was issued a RADOS Model Rad-60 digital alarming dosimeter, a simulated thermoluminescent dosimeter (TLD), and an Emergency Worker Radiation Dose Record form. The form was properly filled out by each FMT B member. At 0950, the Radiological Assessment Director and Field Monitoring Team Leader (FMTL) briefed both of the State FMTs. The briefing included proper dosimetry, directions to read the digital dosimeter at least every 30 minutes, recording requirements and the authorized radiation exposure limit. The teams were provided "turn-back" values of 833 mR total exposure and 1 R/hr exposure rate. The "turn-back"exposure limit incorporated a dosimeter correction factor of 6. The teams were then provided current plant emergency and meteorological conditions prior to departure. An initial ambient radiation background level of 0.01 mR/hour was measured by FMT B while departing the MDE facility, and initial electronic dosimeter readings of 0.0 mR were recorded by each team.

Personnel on FMT B read their dosimeters every 20- 30 minutes, and were reminded by the FMTL to monitor their exposures while in the 10-mile Emergency Planning Zone.
At the end of the exercise, the actual accumulated digital dosimeter readings for each FMT B member was 0.0 mR. Under the release scenario exposure rates and stay times, the estimated FMT B exposure would have been approximately 10 mR.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:

Simulated potassium iodine (KI) was issued to Maryland State Field Monitoring Team B (FMT B) prior to deployment from the Maryland Department of the Environment (MDE) Accident Assessment Center, Baltimore, Maryland. Actual KI was also available in 3 foil-wrapped packages, each containing an IOSAT 130-mg tablet that had been stored inside the MDE facility. The supplies of actual KI tablets were within their current expiration date of 2/2014. Prior to

departure, FMT members were given their initial briefing by the Radiological Assessment Director and Field Monitoring Team Leader (FMTL). The FMT B team members were directed to not ingest their KI until being instructed to do so, and to properly record KI ingestion on the Emergency Worker Radiation Dose Record. By interview, the FMT B correctly explained their knowledge of the purpose for KI, the prescribed dosage, and potential side effects. Neither team member was allergic to KI.

During the exercise, FMT B was deployed to the southern portion of the 10-mile Emergency Planning Zone (EPZ). At 1106 while in transit, the FMTL notified FMT B of a KI protective action decision for emergency workers based upon the General Emergency classification and plant release. The team was directed to simulate ingesting KI. This was properly recorded by each team member on the Emergency Worker Radiation Dose Record form.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 4.a.1:
The State of Maryland Field Monitoring Team B (FMT B) was adequately equipped with appropriate instrumentation and supplies to perform field monitoring activities. The team was provided a pre-inventoried equipment kit, portable radiation survey and counting instruments, protective clothing, necessary forms, maps and communications equipment for conducting radiological surveys and data reporting.

The field monitoring devices included an Eberline E-520/HP-270 and a PIC-6 beta-gamma survey instrument. The FMT members were directed by procedure to use the E-520 meter for exposure rates up to 200 mR/hr. Higher exposure rates would require switching to the PIC-6 instrument. Information tags were attached to each instrument providing acceptable check source response ranges, associated check sources and photographs of the proper source check configuration. The ambient radiation instrumentation provided the ability to perform measurements in low and high radiation fields (ranging from 0.01 mR/hr to 1000 R/hr), to monitor surface contamination, and to measure gross radioactivity levels on air sampling media. The instruments were within their calibration due dates and were operationally checked prior to use. No operational problems were encountered with the monitoring instrumentation.

Air sampling equipment was provided and utilized to obtain an air sample within the plume for

airborne radioiodine and particulate activity. The air sampler was a RADECO Model H-809C that operated at approximately 2.5 cubic feet per minute to collect a total sample volume of 10 cubic feet. Sample media consisted of charcoal or silver zeolite cartridges and glass fiber particulate filters. Field air sample counting was accomplished using an Eberline RM-14/HP-210T count rate instrument and pancake probe, and an Eberline Model MS-2 Miniscaler with a SPA-3 scintillation probe.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 4.a.3:

The State of Maryland Field Monitoring Team B (FMT B) arrived at the State Accident Assessment Center (AAC) at 0852, following notification that the Peach Bottom Atomic Power Station had declared an Alert emergency classification level. The 2-person team consisted of personnel from the Maryland Department of the Environment (MDE). The team members received preliminary instructions from the Radiological Assessment Director and were then directed to obtain all needed equipment and prepare for deployment. Team members verified equipment inventories and performed pre-operational equipment checks beginning at 0910. Team members utilized the Attachment 4 inventory list contained in the current revision of MDE procedure EP-302, "Ambient Radiation Monitoring and Air Sampling". Proper radiation instrument response checks were performed using appropriate Cs-137 and Ba-133 check sources. The monitoring equipment included Eberline E-520/HP-270 and PIC-6 survey instruments, an Eberline RM-14/HP-210T count rate instrument and pancake probe and an Eberline Model MS-2 Miniscaler/SPA-3 scintillation probe. Information tags were attached to each instrument providing acceptable check source response ranges, associated check sources and photographs of the proper source check configuration. The RADECO Model H-809C portable air sampler was also checked to verify proper operation and flow rate. Appropriate dosimeters, forms and other sampling supplies and protective clothing were also obtained as required. At 0950, the Radiological Assessment Director and Field Monitoring Team Leader (FMTL) began a briefing of both FMT A and FMT B. Based on current plant and meteorological conditions, FMT B was instructed to deploy to pre-designated monitoring points #63 and #69, located downwind of the Peach Bottom Atomic Power Station. The FMT B van departed from the facility parking lot at 1008, and telephone communications checks were performed with the (FMTL) at 1013 and 1016.

While FMT B was en route, at 1035 the FMTL informed FMT B of the plant release and current meteorology. The FMT B was redirected to downwind monitoring points #62 (5 miles, south) and #67 (8 miles southeast). At 1052, the FMTL informed FMT B of the escalation to a General Emergency, and at 1106 instructed the FMT B members to simulate ingestion of KI. At 1108, FMT B crossed the intersection of Route 1 and Highway 136, and the team's E-520/HP-270 instrument indicated a closed window reading of 3 mR/hr. This location was approximately 8 miles south of the plant. The team immediately notified the FMTL for instructions, and also noted as they drove that the readings increased to 10 mR/hr (closed window) and 16 mR/hr (open window). The FMTL instructed FMT B to obtain an air sample at that location. Open and closed window readings were obtained at the beginning, middle and end of the 4-minute air sample and did not significantly change. The 3 foot open and closed-window readings were approximately 14 mR/hr and 8 mR/hr, and the 3 inch open and closed window readings were approximately 10 mR/hr and 8 mR/hr, respectively.

Following discussion with the FMT Controller, simulated wearing of protective coveralls was permitted, but gloves and disposable shoe covers were to be worn when taking measurements outside the vehicle. During outside monitoring and sampling activities, a member of FMT B demonstrated proper donning and removal of disposable gloves and shoe covers to minimize personal and vehicle contamination. At 1149 hours, the air sample was collected, and FMT B was requested to report to a low-background area by the FMTL. The team proceeded northwesterly along Highway 136, and then contacted the FMTL for further clarification. At 1220, the FMTL redirected FMT B to follow proceed east along Route 1, and away from the current plume direction. At 1235, FMT B arrived at a point approximately 5 miles east of the plume centerline where the ambient background was less than 0.02 mR/hr. The air sample was purged, and the cartridge and filter were removed from the sample head. The samples were carefully removed, bagged and labeled, and background and sample readings were then obtained. At 1320, FMT B telephoned the air sample readings (15200 net cpm radioiodine and 1700 net cpm particulate) to the FTC. At the request of the evaluator, FMT B also demonstrated additional open/closed window readings at this location. At 1330, the FMTL contacted FMT B and requested the team to return to the AAC. The team telephoned the FMTL at 1354 and provided calculated air sample concentrations for radioiodine and airborne particulates. All ambient radiation and air sample measurements were documented on the appropriate procedure attachments. While returning to the MDE facility, the team members discussed the sample transfer and chain-of-custody procedure. By interview, the FMT B members correctly identified the Harford County emergency monitoring and decontamination facility at the Fallston High

School where they would report if they or their equipment were found to be contaminated.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2 Risk Jurisdictions

3.3.2.1 Cecil County Emergency Operations Center

Criterion 1.a.1:
The Cecil County Department of Emergency Services effectively demonstrated the mobilization and activation of the Emergency Operations Center (EOC). Upon notification of an Alert at 0823 hours from Peach Bottom Atomic Power Station, the Cecil County 911 Center sent an automated page to the Emergency Operations Center Staff notifying them of the Emergency. Verifications of the Alert was required and conducted by the 911 Center. Notification for staffing the EOC was accomplished utilizing an automated call down system in accordance with procedures.

Although permitted to pre-position per the Extent of Play agreement, the EMA Director elected to respond real time in order to test response time of the EOC staff. The key positions for the EOC were filled in accordance with their plans and procedures by 0841 hours and the EOC was declared operational by the Acting Emergency Readiness Manager.

Follow up Emergency Classification Levels (ECLs) were provided via NARS (ring down) by the utility at Site Area Emergency (SAE) at 0922 hours and General Emergency (GE) at 1037 hours in which appropriate verifications of the escalations were made prior to taking action.

Key EOC positions were staffed to include the Emergency Readiness Coordinator, Operations Officer, Public Information Officer, Health/Medical Services, Mass Care Coordinator, Schools Representative, Transportation Officer, Agriculture, Public Works, Radiological Officer, Sheriff's Office, Fire Services and Radio Amateur Civil Emergency Services (RACES). Additional support staff was mobilized as needed to support the operation. The Cecil County Department of Emergency Services demonstrated sufficient staffing of positions during the exercise and provided a current shift change roster for 24-hour staffing for inspection and as indicated in their Emergency Operations Plan (EOP).

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.b.1:

The Cecil County Department of Emergency Services Emergency Operations Center (EOC) is located at 107 Chesapeake Boulevard, Suite 108, Elkton, Maryland. This facility is of modern design, approximately 3 years old, and includes a separate 911 Center equipped with seating for 10 dispatchers, and includes a designated 911 supervisor's office. A separate EOC is located adjacent to the 911 Center (and in the central portion of the building) with seating of the entire Emergency Support Function (ESF) staff and EMA Director, and up to approximately 60 personnel. A small conference room with seating for up to 12 personnel is connected to the EOC and is utilized for county elected officials, director, and key support staff to conduct meetings and private conference calls. Key staff members and the Director's offices are located along the outer walls of the building on opposing sides of the 911 Center and the EOC. The layout of the facility provides a functional and safe work environment to sustain a long term emergency.

Additionally, there were several fire extinguishers mounted throughout the facility along with an Automated External Defibrillator (AED). The EOC has more than adequate space, furnishings, lighting, kitchen, restrooms, shower facilities, and ventilation to support emergency operations. Back-up power is available through a Kohler Power System 360K diesel generator located in a secure area in the rear of the EOC that's tested weekly, along with a sufficient amount of fuel to sustain operations for up to 14 days. Two separate temperature controlled rooms contain telephone switch board equipment and main frame computer systems. An administrative room equipped with copier machine, fax machine, paper shredder, label maker, and generous amount of administrative supplies is located near the EOC for easy access by staff. The main entrance to the facility along with internal room entrances such as 911 Center are all accessed through the

use of a badge system and coded to each employee's level of access. Cameras are mounted and monitored both in and outside of the facility. The building is of brick and steel frame construction with high securing windows that can endure weather conditions expected to its geographical location.

Back-up facilities in the event of a relocation are available for both the 911 Center and the EOC at 129 East Main Street, Elkton, Maryland (911 Center), and Elk Mills 2 Facility, Appleton Road, Elkton, Maryland (EOC), and are both appropriately equipped to maintain and continue emergency operations.

Facilities were set up based on the plans and procedures and demonstrated as they would have been used in an actual emergency except as noted in the extent of play agreement.

Criterion 1.c.1:

The Cecil County Department of Emergency Services President of the Board of Commissioners is responsible for overall emergency response activities, with coordination of emergency response resting on the Director of Cecil County Department of Emergency Services (CCDES). These duties include the mobilizations of Emergency Operations Center (EOC) staff, decision making, and briefing local government officials during response activities. Oversight of emergency management functions for this exercise were delegated to the Emergency Readiness Manager to act on behalf of the Director, with additional delegation of (EOC) operations management given to the Assistant Fire Chief for the purpose of cross training staff. The (EOC) leadership demonstrated the ability to manage activities within the concepts of the National Incident Management System (NIMS), coordinate with outside response organizations, make timely and accurate decisions, and provide routine briefings to (EOC) staff members as demonstrated by an initial briefing at 0908 hours after the declaration of an Alert. Subsequent briefings upon escalations to Site Area Emergency (SAE), General Emergency (GE), and necessary updates were conducted at 0951, 1000, 1022, 1028, 1043, and 1109 hours. Briefings and updates were also provided periodically by each Emergency Support Function (ESF) position in regards to their individual disaster checklists.

A conference bridge was established and maintained throughout the exercise with the Pennsylvania Emergency Management Agency (PEMA), Maryland Emergency Management (MEMA), Maryland Department of Environment, and Harford and Cecil Counties for the purpose of coordinating siren activation times, Emergency Alert System (EAS) Broadcasts, and

determining Protective Action Decisions (PADs) after receipt of Protection Action Recommendations (PARs) from the utility. Protective Action Decision within the State of Maryland are made by the Governor, Secretary of Department of the Environment, and the President of the Cecil County Board of Commissioner's or designee with consideration as to the effect or potential effect of the disaster and its impact on the jurisdiction and population. During this exercise, Cecil County's Emergency Readiness Manager made appropriate (PADs) after discussion with staff and considerations of the overall affect on the county, approved (EAS) and media releases prepared by the Public Information Officer, and ensured dissemination of messages to both internal and external departments. An electronic log and numbering system was developed and maintained for all messages along with electronic and hard copies of the County Emergency Operations Plan (EOP) and procedures for each (EOC) staff member.

The (EOC) staff remained well informed, organized, and remained engaged with their specific responsibilities throughout the exercise. Electronic status logs were posted on a large screen on the (EOC) wall and also available on individual computer screens throughout the building.

All activities associated with direction and control were performed based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.d.1:

The Cecil County Department of Emergency Services (CCDES) was notified of an Alert at Peach Bottom Atomic Power Station at 0823 hours via the (NARS) (dedicated ring down) telephone which is their primary means of communication during a nuclear emergency. This method of communication simultaneously notifies the Pennsylvania Emergency Management Agency (PEMA), Maryland Emergency Management Agency (MEMA), and the risk counties of Pennsylvania and Maryland, including Cecil County.

Upon notification and verification of the Alert, the Cecil County 911 Center sent an automated page to the Emergency Operations Center (EOC) staff, in accordance with plans and procedures, and the EOC was declared operational by 0841 hours.

Back-up communications for (CCDES) is commercial telephone, which was utilized to notify additional (EOC) staff and remained in use throughout the duration of the exercise. Communications tests were conducted on both primary and back-up communications systems

prior the commencement of the exercise to verify workability, and with support organizations such as the Cecil County Sheriff's Office, medical facility, and risk school. There were no failures of either the primary or back-up communications system during the exercise. Redundant communications systems are in-place, such as the 154 MACOM dedicated radio, Blackberry devices for key staff, Mutual Aid 800 MHz Radio, Radio Amateur Civil Emergency Services (RACES), and Reverse 911. In addition, the Cecil County EOC is equipped with Web EOC (which provides an effective logging system with timely and accurate information for the entire EOC staff to use and remain informed), Fax machines, 37 Nortel Network (Delmarva Power 78) telephones, conference bridge availability, 14 Vostro 1500 laptop computers with Internet access, and 24/7 visual communications monitoring of roadways utilizing a Chart Camera System.

All activities associated with the management of communications capabilities were demonstrated based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:
The Cecil County Emergency Operations Center (CCEOC), located in the Offices of the Cecil County Department of Emergency Services (CCDES), is equipped and capable of sustaining emergency operations for an extended duration.

Two (2) hard copies of the Cecil County Radiological Emergency Response Plan for Incidents at the Peach Bottom Atomic Power Station (PBAPS), 2009, were available for staff to review and use as a reference. Additionally each staff member had hard copies of the specific Implementing Procedures for their Emergency Support Function. Copies of the Plan and the Implementing Procedures were available on the CCDES network. The EOC Manager, during status updates with the EOC staff, encouraged staff to use the Plan. Two (2) hard copy maps of the ten-mile Emergency Planning Zone (EPZ) were located in the operations area of the EOC. The maps identified the municipalities located within the EPZ, traffic and access control posts, siren locations, and evacuation routes. The EOC Manager displayed electronic maps on the front wall of the EOC. The electronic maps allowed for augmentation of overlays of pertinent response data, including but not limited to, Schools, Fire, EMS, Police Stations, Traffic and Access Control Posts, and Special Needs facilities. Staff had access to copies of specific maps needed for their mission in the Implementing Procedures.

Dosimetry was stored at the CCEOC and distributed to response organizations at the County and municipal level. The County had 200 Model 730 Direct Reading Dosimeters (DRDs) reading 0-20 R leak tested on February 3, 2009. The County also had 350 Permanent Record Dosimeters (PRDs) calibrated 1/01/09 available for emergency workers. The County had 34 CDV 700 survey meters, all within the prescribed four (4) year calibration cycle, available for emergency response.

The County had 1,176 Potassium Iodide (KI) tablets with an expiration date of January 2013 available for emergency workers.

The Cecil County Sheriffs Department representative advised there were 62 traffic barricades available from County and State inventories for the 40 Traffic and Access Control Posts located within the County.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play.

Criterion 2.a.1:
The Cecil County Radiological Officer (CCRO) understood decision chain for emergency workers to exceed the dose limits. The CCRO knew that authorizations ranged in tiers. The CCRO explained there were three tiers of exposure levels and the criteria associated with each.

The first tier covered extension of exposures to emergency workers from one (1) Rem to five (5) Rem. The CCRO explained the criteria for this range of exposure extensions. The first criteria asked was if the mission or task was essential for public safety. The second criteria tasked the emergency worker's supervisor to manage radiation exposures so that exposure is at a minimum for all emergency workers.

The second tier covered extensions from five (5) Rem to twenty-five (25) Rem. There were three criteria associated with extensions in this range. The first criteria asked if the mission or task was essential for public safety. The second criteria tasked the emergency worker's supervisor to manage radiation exposures so that exposure is at a minimum for all emergency workers. The third criteria required determination that another emergency worker, or group of emergency workers, with exposures less than five (5) Rem were not available for this mission in a timely manner.

The third tier of extension addressed exposures in excess of twenty-five (25) Rem. There were ten (10) criteria associated with this tier. The mission must be life saving where failure will result in loss of human life. No alternative solutions to the mission are viable. There must be a determination that other emergency workers could not perform the mission and remain below twenty-five (25) R. The volunteers should be healthy, preferably over the age of 45, and made aware of the potential health risks (including long-term effects). The volunteers should be persons whose normal duties might involve such missions. The mission must be accomplished in the least amount of "stay time." Women of reproductive capacity must be advised not to participate because of increased potential for genetic damage and fetal exposure. Volunteers must wear protective clothing, and air breathing apparatus, and take Potassium Iodide (KI).

The County Health Officer's representative stated they would consult with the CCRO during decision process to extend exposures beyond the authorized limits.

The County Health Officer's representative, stated the Maryland Department of Health and Mental Hygiene is responsible for the decision to order emergency workers to ingest Potassium Iodide (KI). The CCRO stated that emergency workers' briefings require them to wait for the County to announce that the Department of Health has authorized the use of KI. The County Department of Health may make the decision in the absence of instructions from the State.

The CCRO stated there was no correction factor for Direct Reading Dosimeters (DRDs) to adjust for the TEDE dose.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play.

Criterion 2.c.1:

The Cecil County Director of the Department of Emergency Services (CCDES) and the Cecil County School Department Emergency Operations Center (CCEOC) representative made appropriate decisions for precautionary actions for special needs populations.

Protective action decisions for special populations other than schools were concurrent with those made for the general population. The Cecil County Emergency Medical Services (CCEMS) representative at the CCEOC worked with the CCDES, who maintained a special needs list for

those residents requiring assistance.

There were five assisted living facilities located in Cecil County in the 10-mile Emergency Planning Zone (EPZ) of the Peach Bottom Atomic Power Station (PBAPS). The EOC Manager advised they were responsible for evacuation of their respective facilities. The EOC Manager stated if any of these facilities required assistance the County would favorably respond to a request for resources. There were no hospitals, or correctional facilities located in Cecil County in the PBAPS 10-mile EPZ.

The CCEMS list of special needs populations indicated that assistance was required in two (2) areas transportation and hearing-impaired notification.

A single school, Conowingo Elementary, was located within the 10-mile EPZ, which simulated a precautionary evacuation at 09:25, during the Site Area Emergency classification.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:
The Cecil County Department of Emergency Services (CCDES) successfully demonstrated its ability to implement Emergency Worker Exposure Control. The CCDES manages Exposure Control from the Cecil County Emergency Operations Center (CCEOC) located in Elkton, Maryland, outside of the ten-mile Emergency Planning Zone (EPZ) for the Peach Bottom Atomic Power Station (PBAPS); therefore emergency workers who are assigned to the CCEOC are not subject Exposure Control measures.

The Cecil County Radiological Emergency Response Plan for Incidents at the Peach Bottom Atomic Power Station (PBAPS) assigned implementation of Exposure Control to the Cecil County Radiological Officer (CCRO). The Cecil County Department of Health consults with CCRO on extension of emergency workers beyond the authorized limits. The staff members assigned to exposure control were familiar with their procedures and the interconnections of their respective assignments.

The CCRO made a Dosimetry Kit available for inspection. The Kit contained a Direct Reading Dosimeter (DRD) 0-20 R (within calibration due on 2/03/10), a Permanent Record Dosimeter

(PRD) for recording permanent exposure, and fourteen Potassium Iodide tablets (expiration date 2/13).

At 0900, the CCRO coordinated with the Cecil County Sheriff's Department for transportation of dosimetry kits and Potassium Iodide (KI) to Dosimetry Distribution Point at Station 8, Rising Sun.

At 0945, The CCRO confirmed the Dosimetry Kits and KI had arrived at the Dosimetry Distribution Point. The CCRO coordinated with the EOC Emergency Medical Services to ensure that emergency workers were briefed on exposure control and the PAGs. The CCRO confirmed distribution of the Dosimetry Kits and KI to all Emergency Workers. The CCRO noted that each emergency worker was assigned a Dosimetry Kit and KI.

The CCRO briefed a Sheriff's Officer assigned to Backup Route Alerting on exposure control and the Protective Action Guides (PAGs). The CCRO provided the Officer with a Dosimetry Kit. The CCRO explained how to read the dosimeter, then asked the Officer to demonstrate taking a reading. The CCRO instructed the Officer how to complete the Dosimetry/KI Form, where to record readings, when to take readings (every 30 minutes), where to record PRD information, and where to record ingestion of KI. The CCRO reviewed the use, dosage, and the possible reactions to KI for the Officer. The CCRO reviewed the authorized exposure limits and decision chain in the event an extension was required.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:

The Cecil County Department of Emergency Services (CCDES) successfully demonstrated its ability to implement the decision for Emergency Workers to ingest Potassium Iodide (KI). The State of Maryland opted to provide KI to the general public and Emergency Workers to block the intake of radioactive iodine into the thyroid gland. The County Radiological Officer (CCRO) stated the policy to provide KI to supplement the protective actions - the Cecil County Department of Health, in the absence of instructions from the State, may also authorize the use of KI. The CCRO explained the State pre-distributed KI to members of the general public.

At 0900, the CCRO coordinated with the Cecil County Sheriff's Department for transportation of

dosimetry kits and Potassium Iodide (KI) to Dosimetry Distribution Point at Station 8, Rising Sun.

At 0945, The CCRO confirmed the Dosimetry Kits and KI had arrived at the Dosimetry Distribution Point. The CCRO coordinated with the EOC Emergency Medical Services to ensure that emergency workers were briefed on exposure control and the PAGs. The CCRO confirmed the distribution of Dosimetry Kits and KI to all Emergency Workers. The CCRO explained each emergency worker was assigned a Dosimetry Kit and KI.

At 1108, the EOC Manager advised the staff of the Protective Action Decision to evacuate all areas 0 to 10 miles and for both Emergency Workers and the General Population to ingest KI. The CCRO and County Emergency Medical Services Representative coordinated a message at 1111 to all emergency workers, sent from the 9-1-1 Center on all frequencies, to ingest KI and make the proper record on the Dosimetry/KI Form.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play.

Criterion 3.c.1:
PADs were effectively implemented for special population groups within areas of Cecil County subject to protective actions.

At 0855, the Cecil County Emergency Medical Services (CCEMS) representative advised all Emergency Medical Services (EMS) Stations in the County of the Alert declared at the Peach Bottom Atomic Power Station (PBAPS). The CCEMS reviewed the list of special needs populations, which indicated that assistance was required in two (2) areas: transportation and hearing impaired notification.

At 0915, the CCEMS initiated and completed calls to the persons on the County list of special needs populations.

At 0933, the CCEMS dispatched ambulances to the Staging Area at Station 8, Rising Sun. The ambulance crews received Dosimetry Kits and Potassium Iodide (KI) and a briefing on Exposure Control and the Protective Action Guides (PAGs) at Station 8.

At 0939, the CCEMS and the Cecil County Transportation Officer (CCTO) reviewed the list of special populations and determined some additional transportation assets were required. The CCTO advised that six (6) standard buses and three (3) wheel chair accessible buses were available from Transportation for special needs evacuation. The CCTO stated that following completion of the evacuation of Conowingo School an additional wheel chair bus would be available.

At 0951, the CCEMS advised the Incident Commander (IC) at Staging Area at Station 8, to initiate Hearing Impaired notification.

At 0956, the CCEMS confirmed all emergency workers assigned to assist with special needs evacuations received Dosimetry Kits, KI, and a briefing. The CCEMS and CCTO determined at 1015 that adequate transportation resources were available for special needs evacuation.

At 1109, the CCEMS advised the IC at the Staging Area at Station 8 to initiate hearing impaired notification and evacuation of special needs populations.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.c.2:
The 12 public schools located in the Cecil County School District all operate under the Cecil County Public School Radiological Emergency Response Plan (RERP). The entire population of the Cecil County School District is 15,577 students. The Cecil County Transportation Officer has at his disposal 129 contract buses in addition to 12 buses that are county owned.

The Cecil County Public School RERP indicates that Conowingo Elementary School is the only school located in the Peach Bottom Atomic Power Station (PBAPS) 10 mile Emergency Planning Zone (EPZ).

The Cecil County School Superintendent, or his/her designee (School Site Specialist), occupies a seat in the Cecil County Emergency Operations Center (EOC), along with the Cecil County Transportation Officer (School District Employee).

During the conduct of the PBAPS Exercise on January 26, 2010, PBAPS notified the Cecil

County Department of Emergency Services (DES) of an Alert Emergency Classification Level (ECL) at 0823 due to an incident at PBAPS. The Cecil County EOC was activated and became operational. The Cecil County School Site Specialist and the Transportation Officer were present in the Cecil County EOC. An interview was conducted with these two individuals due to the simulation of field play by the Cecil County School District. The Cecil County School Site Specialist and the Transportation Officer were instructed to make all appropriate phone calls and ensure each conversation began and ended with the words "This is an exercise". The phone calls were placed to demonstrate knowledge of the Cecil County Public School RERP.

During the interview with the Cecil County School Site Specialist seated in the Cecil County EOC, the Specialist stated that the Cecil County Superintendent of Schools would be proactive and evacuate students at Conowingo Elementary School upon declaration of a Site Area Emergency (SAE) at PBAPS. The students are relocated to Calvert Elementary School. The Cecil County Transportation Officer located in the Cecil County EOC works in conjunction with the Cecil County School Site Specialist to arrange for transportation of the students. A complete list of available resources for use by the Transportation Officer can be found in Appendix 1 of the Cecil County Public School RERP. The evacuation (simulated) of Conowingo Elementary School occurred at 0927 hrs, after the declaration of a Site Area Emergency (SAE).

The process of evacuation includes teachers accompanying the students on the buses with a roster for accountability. A Law Enforcement Officer from the Cecil County Sheriff's Office goes to Conowingo Elementary School to assist in the orderly evacuation. When students are accounted for at Calvert Elementary School, parents are notified by radio station where the children are located and the process for picking up the children. A total of 501 students and 62 faculty were evacuated (simulated) during the exercise. The Cecil County School Site Specialist, along with the Transportation Officer located in the Cecil County EOC demonstrated this process with a series of phone calls.

A detailed description of the evacuation process can be found in the Cecil County Public School RERP on pages 14 and 15.
All afterschool activities were cancelled in the Cecil County School District at 1031.

In Cecil County, there is no requirement to maintain radio contact with bus drivers, as the bus drivers are not classified as emergency workers.

Parents can receive information regarding the status of their children by tuning into radio station WAMD, 970 AM which is the primary station for Emergency Alert System (EAS) messages in Cecil County. Alternate stations include: WBAL 1090 AM, WASA 1330 AM, WXCY 103.7 FM, and WOEL 89.9 FM.

Any students who attend school outside the PBAPS 10 mile EPZ, but live inside the 10 mile EPZ were held at their respective school for parental pick up. This action was demonstrated at 1122 by the Cecil County School Site Specialist located in the Cecil County EOC. Using a land line, she called the principals of the schools involved in this process. The school profiles can be viewed in the Cecil County Public School RERP in Appendix 3.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.1:
The Cecil County Sheriff's Office had the responsibility to coordinate and establish Traffic Control Points (TCP's) during the conduct of the Peach Bottom Atomic Power Station (PBAPS) Exercise held on January 26, 2010. Resources available included the Maryland State Police and Elkton Police Department.

Pre-identified TCP's are displayed in the Cecil County Plan 2009, in Annex F, Attachment 4. This map and Annex F, Attachment 1 (Traffic Control Points) was used during the PBAPS Exercise by the Cecil County Sheriff to position officers during exercise play (simulated). Officers were positioned (simulated) at a staging area at 0944 and assigned to a traffic control point based on wind conditions at that time. At 0955 all Law Enforcement Officers were deployed (simulated) to their designated TCP's. As wind direction shifted during the exercise, Law Enforcement was re-assigned to a different TCP location. The Cecil County Sheriff was in constant communication with the Maryland State Police and Elkton Police Department, with the assistance of his Duty Officer located across the hall from the 911 dispatcher in the Cecil County Sheriff's Office Complex.

The responsibility for water traffic, rail traffic, and air traffic is not assigned to the Cecil County Sheriff; therefore, it was not observed during the exercise.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.2:

During the conduct of the Peach Bottom Atomic Power Station (PBAPS) Exercise conducted on January 26, 2010, Cecil County was not required to demonstrate decisions involving impediment removal. However, an interview was conducted with the Cecil County Sheriff, located in the Cecil County Emergency Operations Center (EOC).

The Cecil County Sheriff's Duty Officer, located in the Cecil County Sheriff's Complex, maintains a list of businesses (supporting documentation) that would be called upon in the event of an impediment to evacuation needed to be moved during an incident at PBAPS.

The Cecil County Sheriff would also utilize the Cecil County Public Works equipment (dump trucks, front end loaders, chain saws, etc) to support this effort.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.a.1:

The coordination of siren sounding and EAS activation was evidenced throughout the exercise. The Public Information Officer was closely linked to the Deputy Director of Public Safety (DPS), thus ensuring he knew about the reason for initiating the ANS system, including the language needed for any EAS messages or follow-up public information announcements.

Conference calls were established to reach agreement on the timing of simulated siren system activation and commencement of an EAS message among the two states and five counties. Cecil County has a control system that has been designed to allow for a straightforward manner of activating the specific sirens under their purview. During this process, the PIO developed the language for the message and had it reviewed and concurred upon by either the DPS Deputy or the Emergency Readiness Manager. This course of action was followed for the public information announcements, as well.

An automated, computerized system, which included a verification mechanism, was utilized by the PIO for transmittal of messages to the County's designated EAS station. The EAS messages

addressed the key requirements of identifying the organization issuing the information; the fact that a simulated emergency existed at the Peach Bottom Atomic Power Station; specific protective actions that need to be taken and the appropriate group that they applied to; a reference to the Public Information Brochures, where additional information can be obtained (including evacuation routes, locations of Reception Centers, Host Schools; Transportation Assistance Numbers; and the instruction to stay tuned to the station for further information.

In addition to the two official EAS messages associated with the simulated siren sounding, Cecil County also issued two public information announcements relating to preventive actions associated with livestock and companion animals and one update on the monitoring, decontamination and sheltering of evacuating residents and the location where potassium iodide was available, if needed. These messages also provided the rumor control number.

Besides releasing the above material to the EAS station, copies were also provided (simulated) to print and broadcast media outlets, as well as PIO counterparts at MEMA and Harford County.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.a.3:
Backup A&N of the public within the area in Cecil County covered by Siren 75 was appropriately completed within 45 minutes following the detection of the simulated failure of the designated siren.

After the simulated initiation of the siren system during the Site Area Emergency, it was determined that Siren 75 had failed. The Deputy Director, Emergency Services, immediately informed County Sheriff representatives in the EOC that back-up route alerting was required for the area covered by the siren in question. Immediate contact was made with a Sheriff's deputy to commence route alerting. The Cecil County Route Alert Map Book is the resource used for such instances. The County broadcasts a pre-scripted message, contained in their procedures, informing residents of an emergency at Peach Bottom and directing them to tune to their EAS station for more detailed instructions.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.b.1:
Cecil County demonstrated the ability to provide accurate information and instructions to the public and news media in a timely manner.

Cecil County issued an initial EAS message as the result of a coordinated siren sounding during the Site Area Emergency.

As a follow-up to the EAS message addressing the General Emergency and resulting protective action decisions, Cecil County issued a Public Information Announcement, which provided additional details, to include the location of monitoring, decontamination and sheltering facilities and the availability of potassium iodide for the general public at that site. This information was distributed to the media and was also available for briefings attended by media representatives. The briefings provided a comprehensive summary of all material developed by Cecil County.

The County also instituted their rumor control process. Staff responded to a number of questions (10) and shared the subject with the PIO in order to confirm there were no obvious trends requiring follow-up information in their Public Information Announcements. Some callers were inquiring about issues specific to Harford County; they were provided that county's number.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.2 Cecil County Back-up Route Alerting

Criterion 1.d.1:
The Cecil County Sheriff's Office performs backup route alerting for the county in the event of siren failure. During the exercise the Sheriff's Office adequately performed and demonstrated the above referenced criterion.

Backup route alerting was performed by one Deputy using a patrol car equipped with a public address (PA) system, public safety radio, and cellular telephone. Upon receiving notification via cellular telephone from the Duty Officer that a siren failure had occurred at Siren 75, the Deputy departed Fire Station 8 to begin back-up route alerting for the Siren 75 failure area (Route 75). Redundant communications were demonstrated through the use of both radio and cellular telephone during the time the Deputy was deployed until the time he completed his mission. He also demonstrated the PA system at a remote location. No communications problems were encountered.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:
The Cecil County EOC and Sheriff's Office were sufficiently equipped with materials, equipment, and supplies to adequately support back-up route alerting.

An inspection of dosimetry at the Cecil County EOC revealed that a more than adequate and up-to-date supply was on hand to support the needs of back-up route alerting personnel. This included a total of 350 TLDs, 200 electronic DRDs, and 85 packets (14 doses/packet) of KI (total of 1,190 doses). The KI expiration date was noted as January 2013.

Distribution packets consisting of one DRD, one TLD, KI dose, and Dosimetry KI Report Forms are prepared by the Radiological Officer and distributed to back-up route alerting personnel at the time these personnel are briefed prior to deploying to the field.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:

Cecil County adequately demonstrated the above referenced criterion for the back-up route alert personnel. One back-up route alert deputy was used during the exercise and received appropriate exposure control briefings, equipment, and recording forms, as described below.

The Cecil County Emergency Services Director (ESD) makes the decision to dispatch back-up route alerting personnel. Per the Cecil County RERP, at the direction of the ESD, the Cecil County Sheriff's Office will be dispatched to conduct back-up route alerting when there is a known siren failure. During the exercise, the radiological briefing was conducted for one Deputy Sheriff who was assigned to conduct back-up route alerting. The radiological briefing began at 0905 and took approximately 20 minutes. During the briefing the Radiological Officer (RO) covered the following:

- Use of direct-reading dosimeters (DRDs) including zeroing out, checking them every 30 minutes during an emergency, and recording their readings on the Dosimetry-KI form;
- Radiation exposure limits (not to exceed 5R);
- Proper use of permanent record dosimeters (PRDs);
- Where, and to whom, to return dosimetry when mission is completed;
- Use of KI and when to take;
- Whom to contact with questions (their supervisor)

The Deputy was provided with a packet containing the following: one DRD, one PRD, one packet of KI, and a Dosimetry/KI Report Form to record readings and times of the issued equipment. Following the briefing, evaluators interviewed the Deputy to ensure that he understood the proper use of dosimetry, KI, and radiation exposure limits. The Deputy demonstrated his understanding of administrative exposure limits; maximum exposure limits; how to read, and frequency to check, dosimetry; KI dose and when to take; and whom to contact if he had questions (his supervisor). Upon receiving word at 1001 of the simulated failure of Siren 75, the Deputy departed to begin back-up route alerting. Immediately prior to departing, he checked his dosimetry, noted readings and the time on his form, and reported to his supervisor. At 1030, which, coincidentally was immediately after he completed demonstration of the back-up route alerting, he again checked his dosimetry, noted readings and the time on his form and reported to his supervisor. The Deputy arrived back at the Cecil County EOC at 1109 at which time he reported to the RO, submitted dosimetry and provided the completed Dosimetry/KI

Report Form to the RO for review.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:
The Cecil County EOC adequately demonstrated an adequate, potent supply of KI for the back-up route alert personnel; the need to implement the KI decision for back-up route alerting personnel was not demonstrated as the Deputy had already completed his route prior to the time the KI decision was handed down from the Department of Health.

The Cecil County EOC maintains an adequate supply of KI (1,190 doses total) to support the back-up route alert teams. The expiration date for the KI was noted as January 2013. The Deputy tasked with back-up route alerting was instructed on the use of KI during the radiological briefing. Through an interview following the briefing, he indicated his understanding on use of KI. This included dose, associated risks (e.g., allergic to shellfish/iodine), when to take KI (only when instructed by supervisor), and that his personal decision to take KI was voluntary. He was also provided with written material that provided additional instruction/information on KI use.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.a.3:
Cecil County is divided into 26 route alerting areas. The Cecil County Sheriff's Office is responsible for conducting back-up route alerting in these areas in the event of siren failure. The Sheriff's Office utilizes county patrol cars equipped with public address (PA) systems to conduct the back-up route alerting. If necessary, these vehicles can also use lights and sirens. The PA systems are used to broadcast a pre-scripted message which is read by a Deputy manning the vehicle. The pre-scripted route alert message is as follows: "There is an emergency at the Peach Bottom Atomic Power Station. Please tune to your EAS Station – WXCY – 103.7 FM."

In the event of siren failure, the Cecil County Emergency Services Director (ESD) is responsible for notifying the Route Alert Teams to initiate route alerting. This notification is effected through the Duty Officer to the appropriate Route Alert personnel based on the location of the siren failure. Notification may be done via public safety radio (installed in all Sheriff's Office

vehicles) or cellular telephone (all back-up route alert personnel are equipped with cellular telephones).

During the exercise, following the radiological briefing the Deputy responsible for route alerting departed the Cecil County EOC and deployed to Fire Station 8 where he stood by to be deployed to the back-up route alert area. Simulated siren failure occurred at 1000. At 1001, the Deputy received notification via his cellular telephone from the Duty Officer located at Cecil County Dispatch that Siren 75 had failed (simulated) and to commence back-up route alerting in that area immediately. The Deputy departed to Area 75 immediately and drove the entire route. While demonstrating the route, the Deputy read the pre-scripted route alert message aloud to the evaluator. The Deputy completed the route at 1029; therefore, it took a total of 29 minutes from the time of the simulated siren failure to the time he completed running the route. The Deputy maintained a speed of 15 mph while driving the route. Following completion of his mission, the Deputy demonstrated the operability of the PA system, which was not used during the actual demonstration of the route.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.3 Cecil County Traffic and Access Control Point

Criterion 1.d.1:

Primary communications for the Cecil County Sheriff's deputy assigned to traffic and access control is through the Sheriff's Office radio communications system. The deputy's patrol vehicle is equipped with a mobile data terminal and a multi frequency two-way radio linking him to the county's 9-1-1 dispatch center. In addition, the deputy carries a handheld two-way radio as back up to the vehicle's radio and a cellular telephone, which serves as an additional

communication link.

Radio communications between the Sheriff's Office dispatch center and mobile units were used frequently during the course of the exercise.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:
The Sheriff's deputy assigned to Traffic/Access Control was issued both a DRD and a TLD, along with instructions on how to read the DRD and record the readings. Fourteen potassium iodide tablets (expiration date of January 2013) were issued to the deputy at the beginning of his shift. All dosimetry, potassium iodide, instructions and logs were turned in at the end of his shift.

The deputy's vehicle was equipped with a case of highway flares for use in blocking and/or directing traffic. While no barricades were carried in the vehicle, 62 highway barricades were readily available from state and county Public Works resources for use in blocking highways and directing traffic.

Deputies assigned to Traffic/Access Control Points are also issued a map showing their location and a list delineating each location by intersection description, the location's number and whether it was a Traffic Control or Access Control Point, and the latitude and longitude of each location.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:
Sheriff's deputy assigned to Traffic/Access Control received a briefing from the Radiological Officer prior to starting the deputy's tour. During a subsequent interview by this evaluator, the deputy demonstrated a thorough knowledge of how to read the DRD and record the readings, that the readings were to be taken at the beginning and end of his shift and at 30 minute intervals during the shift, and that the readings were to be transmitted to the dispatch center. The deputy stated that when his DRD showed he had been exposed to 5 REM during his tour he was to

"advise the dispatch center and clear the area." He stated, however, that his supervisor could authorize him to remain in the area and exceed the 5 REM limit if it was for life saving measures and "OK'ed by health officials."

The deputy knew that he was to turn in both the DRD and TLD, the form on which he logged the readings and the issued potassium iodide (KI) at the end of his shift. He also knew the purpose of taking KI and that it should be taken only when instructed to do so by his supervisor.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:

The Radiological Officer briefed the Sheriff's deputy assigned to Traffic/Access Control on when to take potassium iodide (KI) then issued the deputy 14 KI tablets (expiration date 1-2013), an instruction sheet and form for recording when KI was taken. This briefing occurred prior to the deputy beginning his tour of duty.

During a subsequent interview by this evaluator the deputy demonstrated a thorough knowledge of the purpose of taking KI. He also stated that he should take it only when instructed to do so by his supervisor, that he would receive such instruction from his supervisor via radio from the dispatch center and that he was to record, on the form provided, when he ingested the KI. The deputy stated that he understood the decision to take KI would be made by local health department officials.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.1:

Subsequent to the county EOC being notified at 0823 of an ALERT at the Peach Bottom Atomic Power Station, the Cecil County Sheriff's Office duty captain instituted a recall of personnel. The recall was complete at 0949 and at 0952 the duty captain instructed that all Traffic Control and Access Control Points be staffed. This was relayed by telephone to the dispatch center. Deputies assigned to Traffic/Access Control Points are issued a map showing the locations and a list delineating each location by intersection description, the location's number and whether it was a Traffic Control or Access Control Point, and the latitude and longitude of each location.

During an interview by this evaluator, the deputy assigned to Traffic/Access Control knew that he was to direct individuals leaving the EPZ to the nearest reception center for monitoring. The deputy stated that his decontamination center was at Fire Station #8 in Rising Sun.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.2:

During an interview by this evaluator the Sheriff's Office duty captain in the EOC stated that impediments to traffic flow would be handled by the law enforcement unit closest to the site of the impediment and that any impediments would be cleared as quickly as possible using the resources available. This might include use of wreckers previously identified and normally used by state, county and local law enforcement agencies. However, if the impediment was the result of a fatal traffic accident traffic would be re-routed around the scene.

No impediments to traffic flow were noted during this exercise.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.4 Harford County Emergency Operations Center

Criterion 1.a.1:

The Harford County Department of Emergency Operations (DEO) successfully demonstrated the ability to use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner during the Peach Bottom Radiological Emergency Preparedness Exercise on January 26, 2010.

At 0820, Harford County 911 was contacted via a dedicated Peach Bottom Atomic Power Station phone line that the utility had declared an Alert Classification level FA1 at 0810. The 911 supervisor at the center completed and acknowledged a Peach Bottom Event Notification Form with relayed information at 0827 and immediately hand carried this form to the county Emergency Manager (EM) in the building. At 0829, the Emergency Manager took receipt of the form and made a public address announcement to the facility to activate the Emergency Operations Center (EOC) at 0830. If the emergency manager was not in the building, the 911 supervisor would have notified him via alphanumeric pager, voice pager, cellular phone, and/or email in accordance with county plans and procedures.

Staff working in the building immediately responded including emergency management, communications, and information technology. This staff started additional notification procedures to all rostered EOC staff using a web based notification system which places voice phone calls and emails to those registered.

Within 30 minutes, the EOC had representation from DEO, the Harford County EM serving as the County Executive representative, public information, Sheriff's Office, Fire and Emergency Medical Services, Health Department, and information technology. At 0857, the EM surveyed staff available in the EOC and declared the facility operational at 0902 with an opening EOC briefing. Additional state, county, utility, and non-profit agencies arrived at the EOC facility to supplement emergency operations throughout the Alert phase of the exercise.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.c.1:

The Harford County Emergency Manager (EM) and Emergency Operations Center (EOC) Staff successfully demonstrated the ability to provide direction and control to the overall response effort for which they were responsible during the Peach Bottom Radiological Emergency Preparedness exercise on January 26, 2010.

According to the Harford County Basic Plan, the Executive Group, headed by the Manager, Emergency Services, as designated by the County Executive, provided the direction and control of the response upon notification of an Alert from Peach Bottom Atomic Power Station. Assisting the Executive Group are the Operations Group, lead by the EOC Operations Officer, the Communications Group, reporting to the EOC Operations Officer, and the Administrative Group supporting the Operations Officer.

Upon receipt of the Alert level at the Peach Bottom Atomic Power Station, the EM immediately took control in the absence of the County Executive, directing EOC staff to activate additional resources, and continue the setup of the EOC. The EM also directed additional staff in the Operations Group to carry out certain tasks and complete pressing issues.

The EOC was kept informed by regular briefings in the EOC, starting at 0902 and continuing every half hour with additional briefings by the EM or the Operations Officer as needed to inform the staff of changes in Emergency Classification Level, activities which were ongoing, and status updates for key positions. Many of these briefings, the EM requested that a status update be given by each section staffed at the EOC so all parties were aware of the activities ongoing. Constant reminders were made for procedure changes in computer reporting systems, and reporting requirements for staff. Briefings occurred at the declaration of the Site Area Emergency, General Emergency, Recommended Protective Actions, and upon each activation of the Activation of Alert and Notification System. These briefings also included direction by the Manager Emergency Services as to the next steps for the EOC staff and directed each EOC group to report out on changing conditions and new information provided from their staffs. This enabled the entire EOC to be apprised of the challenges and the accomplishments of the EOC.

During coordination conference calls with the Maryland Emergency Management Agency, Maryland Department of the Environment, and adjacent risk county, Cecil, the EM had no hesitation to ask clarification questions to protective action recommendations, or suggest

additional recommendations. The EM also repeated back protective action and alert and notification times and procedures before agreeing to them during the Pennsylvania / Maryland coordination calls between MEMA, MDE, the Pennsylvania Emergency Management Agency, and Cecil County.

To ensure consistency of operations, the EM designated the Harford County Operations Officer continued his duties to facilitate EOC briefings while the EM was participating in conference calls showing delegation of authority. In addition, the EM made constant reminders to complete checklists, follow procedures, and report unmet needs to ensure that requirements and requests were being processed and completed in a timely manner.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.d.1:
The Harford County EOC successfully demonstrated that sufficient communications systems are available, operable, and that communications links were established and maintained with appropriate locations and in support of emergency operations.

The Harford County Emergency Operations Plan, Annex L outlines that the primary and preferred means of communications with the EOC will be via telephone. In addition, secondary communications can be facilitated with public service radios or amateur radio.

While in the EOC facility, several means of communications were available. Each workstation in the EOC facility had a multiline telephone through a PBX system to allow communications position to position, as well as to outside agencies and response organizations. Independent of the PBX system, several "red phones", or dedicated red colored phones were scattered about the EOC and 911 center with direct phone lines installed in case of multiline phone failure. Several positions also had direct line phones available to contact schools and other fixed facilities. Despite having most of the facility below grade, cell phone boosters were installed in the facility to allow cell phone voice and data communications throughout the EOC.

Fax machines were available at several locations in the EOC to send messages to media outlets, the state, agencies, and adjacent jurisdictions. Information technology had over 30 laptop computers scattered throughout the EOC, and in addition, six more were available out of mobile

caches to be utilized in large EOC activations. Computers were networked via a wireless access point and broken into a public and private domain network to ensure security of computer systems. Additional EOC responders also brought agency laptops to used to conduct operations. These computers were used to communicate to the County and State WebEOC systems, which displayed status logs and resource requests from all positions in the EOC and significant events statewide.

Radio communications were also available throughout the EOC via the County's 800Mhz Trunked Radio system. Key positions were given portable radios to talk directly with the 911 center as well as responders in the field including field teams and route alerting teams. Additional radio consoles were available at the Maryland State Police Desk and the Operations positions to have radio communications in the EOC facility directly. For locations where public service radios are not covered, Amateur Radio operators utilizing High Frequency (HF), 2-Meter, and 1.2 Mhz D-STAR digital radio were available to relay message traffic to the EOC both via voice and data. Amateur radio operators were sent to local hospitals to establish radio communications directly with the EOC.

All communications which were significant, such as those coming from field teams, utility dedicated line, public information lines, and rumor control had message forms associated, and the Emergency Manager reminded all staff to log significant communications in the WebEOC system.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:

Harford County had sufficient equipment, maps, displays, dosimetry, potassium iodide, and other supplies to support emergency operations, as demonstrated during the Peach Bottom Radiological Emergency Preparedness Exercise on January 26, 2010.

The Harford County Division of Emergency Operations is a multi-component agency. The Division is colocated in a building which is comprised of the 9-1-1 Communications and Dispatch Center, the Office of Emergency Management, and Hazardous Materials Response Team (HAZMAT). At the rear of this building is their Emergency Operations Center (EOC) which contains five rows of desks capable of providing work space for 52 formal positions. Each position has access to wireless internet, a multiline telephone, and adequate electrical

access for laptop computers. There are approximately 30 dedicated laptop county computers dedicated for use in the EOC in addition to several desktop computers used for displays and maps, as needed. There are also several other laptops available throughout the building for use if needed.

The EOC facility itself has two overhead projectors which display to two front status boards the county's WebEOC systems, as well as LCD displays located at the front two corners of the EOC as well as LCDS on each of four roof pillars in the room. In addition, the walls contain white boards, cork boards, and status boards displaying equipment status, wind speed and direction, 10-mile Emergency Planning Zone Maps, and EOC position information. Televisions are in the front of the room for media monitoring. The EOC has an overhead PA system which can be used in the EOC and building wide for announcements and status updates. Each display in the EOC can be switched to any one display in the room to show current information and status updates, as needed. Computer laser printers are throughout the room for use. Fax machines at the front and rear of the EOC allow for transmission of documents if email capabilities would fail. Several filing cabinets and books shelves in the room contain plans, position specific binders and checklists, resource information for Emergency Action Levels and Emergency Action Classifications, hazardous materials, map books, and transportation plans. Adjacent to the EOC is a conference room with seating for 12 people which contains a white board, two multiline speaker phones, computer, and on-wall LCD display.

A message room at the rear of the EOC contains a telecommunications drop and phone lines for the EOC facility. In addition, the room contains a cellular phone amplifier to ensure good cellular coverage in the building. Four stationary PCs with LCD screens as well as three televisions provide resources to pass message traffic to appropriate positions. A rack in the rear of the room contains DVD, VCR, and video matrix switches which can be broadcast into the EOC.

In addition to regular equipment checks conducted by DEO staff, the Emergency Manager instructed incoming staff to verify the functionality of computers and phone systems upon arrival. Office supplies were readily available throughout the building, including several locations which additional supplies if needed. These items included writing devices, message forms, spare paper, rulers, and staplers.

The county also maintained a sufficient quantity of Arrow Tech Model 730 0-20R direct reading

dosimeters, last calibrated 11 January 2010, and leak tested based on procedures outlined in the Harford County Emergency Operations Plan Annex 1 Tab G, including Dosimetry-Potassium Iodide (KI) reporting forms and thermoluminescent dosimeters. Direct Reading Dosimeter chargers were also available. The county also maintained a stock of blister pack of quantity 14 130mg pill KI packets expiration date January 2013, in the storage room for emergency workers dispatching to the field with instructions indicating dose and only to be taken when authorized by the County Health Officer.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.a.1:
During this exercise the Hartford County Emergency Management Staff successfully demonstrated their ability to use a decision making process to ensure an exposure control system.

The Maryland Secretary of the Department of the Environment (MDE) makes the decision to authorize KI to be used by emergency workers and the public. The Secretary also authorizes emergency workers to exceed the preauthorized exposure levels. The use of KI was discussed during a conference call between the MDE, Hartford, and Cecil Counties.

The Emergency Manager met with staff personal from Law Enforcement, Health, Fire, Radiation Protection, and Highways, prior to dispatching emergency workers into the Emergency Planning Zone (EPZ). Factors considered included alternate routes, weather, areas to be avoided i.e. road construction, vehicles breakdowns and accidents, and the exposure of personnel.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 2.c.1:
The Harford County Emergency Management Staff successfully demonstrated the ability to make the proper protective action decisions for special population groups.

The Secretary of the Maryland Department of Environment recommends Protective Actions for the counties. The counties must agree or discuss the issue further until an agreement is met. During this exercise special population groups were considered part of the general population.

Harford County special populations groups include has two hospitals, six nursing homes, forty-five assisted living facilities, five pubic schools, one private school, and seventy one day care centers within the ten mile EPZ. The hospitals, nursing homes and assisted living facilities are administered by the Health Department staff at the EOC, who are state employees assisted to Harford County, and the schools and day care centers are administered by the Department of Education. During the Alert ECL both groups simulated calling these special populations to alert them to the emergency, and to insure they would follow their respective EOP's. These who are Hearing Impaired are contacted in person by Deputies of the Harford County Sheriff's Department.

Depending on the weather/wind conditions, the entire EPZ of Harford County could be affected by the plume. The Harford County plan provides that both sheltering in place, and evacuation are alternatives for special population groups.

During this exercise PAD's were recommended that included both the general population and the special population groups. At 1037 hours the emergency escalation to the GE and an evacuation was ordered for 360 degrees out to ten miles The recommendation was made by the Secretary of the Department of Environment, and approved by Harford County. Again, the Health and Education staff simulated calling all special population groups and advising them of the upgraded emergency level and advised them to follow their EOP's and to comply with the evacuation orders.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:
Harford County Emergency Management Staff successfully demonstrated the ability to implement Emergency Worker Exposure Control.

The Secretary of the Maryland Department of Environment makes the decision to dispatch emergency workers via the Harford County Emergency Management Director. Depending upon the conditions of the emergency, these decisions are normally made during the Site Emergency Emergency Classification Level (ECL).

Prior to being dispatched, emergency workers reported to the Harford County HazMat Building located just behind the EOC where they were briefed by the Radiation Officer (RO). The RO explained that each emergency worker would be issued on Direct Reading Dosimeter (A Petolli-Tech 730, 0-20R) calibrated on 1/11/10, which had been pre-zeroed. He further stated it should be worn between the waist and the shoulder on the outside of their clothing. Each worker was shown how to "read" the dosimeter, and was advised to read it every 30 minutes and to report to his/her supervisor if the reading reached 5R. Under normal circumstances a worker would be replaced should their reading exceed 5R. The worker was further advised that only the Secretary of the Department of Environment would approve an exposure of over 5R. They were also told that the maximum dose was 25R, and anything over 25R would be for a lifesaving situation only, and then only by volunteers. The RO issued each worker with a 14 tablet blister pack of KI, manufactured by IOSAT, with an expiration date of 1/20/13. He explained fully the side effects of KI, and advised anyone allergic to either iodine or shellfish not to take the drug. Each worker was then issued a TLD Model 0811 with an expiration date of 8/1/10. This was also to be worn between the waist and shoulder on the outside of the clothing. The TLD would be returned to the manufacturer at the end of the workers assignment to be read. The proper forms for using the dosimetry were explained, and were properly filled out by each worker. In Harford County school bus drivers are not issued dosimetry at this time.

Two emergency workers were interviewed and both were fully knowledgeable in the used of KI and the issued dosimetry.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:
Harford County successfully demonstrated the ability to implement the KI Decision.

KI has been distributed to the public in Harford County over the past several years. Those to do not have KI can obtain it at Reception Centers that are opened during emergencies. Emergency Workers who are issued KI are fully briefed on the proper use of KI and its side effects, and are given report forms to be filled down when KI is ingested. Emergency workers in the field are informed to ingest KI via radio contact or telephone. The public is informed to take KI by the EAS radio messages.

During this exercise KI was issued to all emergency workers who may be required to enter the 10 mile EPZ. At the time of issuance, all workers are briefed by the Radiological Officer of the proper use of KI, it side effects, dosage, and how to record its use. The form used is a three copy report titled "Dosimetry-KI Report Form" which required the workers name, address, organization, social security number and signature. In addition to dosimeter readings, it has full instructions for the use of KI, and a form for listing the date, time, and amount taken for KI covering 14 days usage. There is a copy for the individual, the State, and the County. This form allows for tracking the individuals use of KI.

Emergency workers were interviewed and showed full knowledge of the procedures for ingestion of KI and the proper reporting of its use.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.c.1:
Harford County Emergency Management successfully demonstrated the ability to implement Protective Actions for Special Populations.

During this exercise the County Health Officer simulated calling the special population groups that fall under her jurisdiction including hospitals, nursing homes, assisted living facilities, and others who requires special attention. The Sheriff's Department had Deputies simulated personally calling upon every hearing impaired individual living within the ten mile EPZ, and the Harford County School Human Resource staff simulated phoning every licensed day care facility within the EPZ. The purpose of these calls was to inform these facilities of the emergency and to advise them to report any unmet needs, and to follow their respective EOPs. The county Transportation staff is responsible for insuring that adequate transportation is available, and telephoned school and commercial bus companies to put their equipment on standby. They learned that over 1400 vehicles including buses, handicapped accessible vehicles, and wheel chair capable vehicles and ambulances would be available if needed.

At 1115 hours the sirens were sounded, and at 1118 hours an EAS message was broadcast advising an evacuation was ordered for 360 degrees of the power plant out to ten miles. Each of the special populations was telephoned/contacted and advised to evacuate in accordance with their plan.

At 1235 hours it was reported the evacuation was completed and no unmet needs were reported.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.c.2:
The Harford County (HC) School Services Coordinator, working with the Transportation Officer and Human Resources Officer, demonstrated the ability to implement protective actions for the County's school population.

The Harford County Emergency Operations Plan identifies public and private schools located within the 10 mile Emergency Planning Zone (EPZ), and the two schools located outside the EPZ and have students who reside inside the EPZ. Day care centers are contacted by the HC Human Resources Officer. The Transportation Officer coordinates the bus and transportation requirements for the schools and the day care centers. The Transportation Officer has seventy one separate private bus companies providing transportation for the school system, including buses for approximately 900 special needs children. The Director of Community Services, who directs the HC Transit, is also prepared to provide buses to assist in the evacuation.

Each school participating in the exercise, (including Dublin Elementary School, Darlington Elementary School, Harford Friends, and Harford Christian located inside the EPZ) was notified of the Emergency Classification Level immediately following the receipt of the information in the Emergency Operations Center (EOC), and contacts with the other schools were simulated. The School Officer arrived in the EOC at 0855, apprised himself of the event status, and initiated notifications of the Alert classification at 0924 and the Site Area Emergency at 0935.
The Transportation Officer, acting proactively, placed the school buses on standby following the Site Area Emergency. This was accomplished by contacting three private bus companies at 1015, with contracted service for the schools that are located inside the EPZ. Attendance at each of the schools was provided to the School Services Coordinator by email. At 0948, the School Services Coordinator decided to direct the Transportation Officer to deploy the buses required for an evacuation to the appropriate school so that any ordered evacuation can be accomplished in a timely manner. The buses were reported as being in position at the appropriate school at 1000. Buses were then dispatched to the private schools, and a further evacuation was completed by 1200. The School Services Coordinator also reported at the 0945 EOC staff

briefing that consideration was being given to cancel all after school activities in the County.

Following the declaration of the General Emergency and subsequent decision to activate, the School Services Coordinator ordered the evacuation of schools within the 10 mile EPZ, and to shelter those students who reside in the EPZ but attend school in a non-risk area. The notifications were accomplished between 1110 and 1115 by telephone notification to each affected school. Simultaneously, the Human Resources Officer notified all day care centers of the event status and recommended that they implement their emergency plans and evacuate the 10 mile EPZ.

By interview, the School Services Coordinator stated that in addition to following any evacuation decision, he has the authority to order a precautionary evacuation separate from the public in response to event or school logistic conditions.

The exercise was terminated at 1306.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.1:
The Harford County (HC) Sheriff's Office, supported by the Maryland State Police (MSP), Bel Air MD, Havre de Grace MD, Aberdeen MD Police Departments, and the HC Department of Public Works (DPW), successfully demonstrated the establishment of traffic and access control to support emergency response operations.

The HC Sheriff's Office is responsible for traffic and access control supporting evacuations due to an emergency at the Peach Bottom Atomic Power Station. The MSP, Bel Air Police Department, Havre de Grace Police Department, and the Aberdeen Police Department support the HC Sheriff's Office with manpower and resources as required to support operations. The DPW provides equipment, including barricades, cones, and signs, to support traffic and access control at both pre-designated and established locations as necessary. A list of designated traffic and access control points to support evacuation operations is established and maintained in the Harford County Emergency Operations Plan, Appendix 1, Tab 1.

At 1015, all police officers of Harford County were placed on standby and directed to proceed to

staging areas in the event the emergency situation at the Peach Bottom Atomic Power Station escalated. The DPW reported that equipment for traffic and access control is ready for deployment. Coordination between the DPW and the HC Sheriff's Office was conducted initially at 1036, and throughout the response by representatives in the Emergency Operations Center. Following notification of the General Emergency and the subsequent evacuation order, at 1045 the HC Sheriff's Office directed its officers to man the designated traffic and access control points. The DPW was requested to provide equipment to support operations. Traffic and access control points were reported as manned at 1055. The MSP provided manpower to assist the State Highway Administration at two locations. No additional support was required from other law enforcement organizations.

The exercise was terminated at 1306.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.2:
The Harford County (HC) Sheriff's Office, supported by the Maryland State Police (MSP), Bel Air MD, Havre de Grace MD, Aberdeen MD Police Departments, and the Harford County Department of Public Works (DPW), successfully demonstrated the identification and resolution of impediments to traffic and access control.

The HC Sheriff's Office is responsible for the removal of impediments to traffic and access control supporting evacuations due to an emergency at the Peach Bottom Atomic Power Station. The MSP, Bel Air Police Department, Havre de Grace Police Department, and the Aberdeen Police Department support the HC Sheriff's Office with manpower and resources as required to support operations. The Police Departments do not have any heavy equipment to remove vehicles or impediments. The Bel Air Police Department has approximately 25 vehicles with push bumpers for vehicle movement. By interview, the HC Sheriff's Office representative stated that they would remove impediments within the evacuated zone by using police vehicles to push impediments off the roadway if possible, or redirect traffic around the impediment.

If impediments are located outside of the evacuated zone, in addition to the use of police vehicles, the HC Sheriff's Office may request towing assistance from a private towing company. The HC Sheriff's Office and local Police Departments maintain a list of tow companies within

their jurisdiction. If a towing company is required, the representative within the Emergency Operations Center would contact their home office to request and coordinate the services of the towing company.

During this exercise, no impediments to traffic or access control were identified.

The exercise was terminated at 1306.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.a.1:
The Harford County Emergency Operations Center successfully demonstrated activities associated with primary alerting and notification of the public were completed in a timely manner following the initial decision to notify the public of an emergency situation. The Harford County Emergency Manger established clearly indicated the direct line of communication using two separate telephone bridge lines in the adjacent conference room to maintain uninterrupted communication with the Maryland Emergency Management Agency (MEMA) and the Pennsylvania Emergency management Agency (PEMA).

Harford County uses a web-based alert system called BlackBoard Connect CTY that is capable of alerting all or part of the Emergency management organization, general public, schools, industry, employees, etc depending on the staffing requirement or incident (i.e. hazmat, fire, natural hazards and technological). The system is also able to provide alerts and notification to any or all of the 92,000 residents in the county.

Sirens and Emergency Alert System time and messages were provided to AM & FM radio, cable companies, and television stations and documented in WebEOC in accordance with approved plan and procedures. Additional back–up pre-scripted back up messages were provide through the web-based notification system. Siren activations and EAS messages were delivered at the time agreed upon by Maryland Department of the Environment PEMA, Harford and Cecil Counties. Messages include the name of the commercial nuclear power plant, the affected unit, the activities surrounding the emergency and asked the general public to reference the Public Information Brochure for the Peach Bottom Atomic Power Station.

The first EAS concurrently agreed upon Maryland Department of the Environment, Pennsylvania Emergency Management Agency, Cecil and Harford Counties started the process started at 0945. The Protective Action Decision instructed to shelter livestock and poultry and place on stored feed and water for a 10 mile radius around the plant. Potassium Iodine was considered by no recommended at this time.

The County provided the Protective Action Decision to the pre-established media at 0950. The sirens were activated by Harford County as scheduled at 0955 and the message broadcast started at 0958. The notification was terminated at 1000. A Special News Bulletin was also simultaneously issued. Livestock and poultry were placed on store feed and water. Airspace was restricted for 5 mile around the plant to an altitude of 5,000 feet. Rail and water restrictions were also in place. Maryland Department of the Environment stated they would take the action to conduct the restriction in Maryland.

The Second Siren sounding was initiated at 1115 with the EAS message to follow at 1118. The notification was terminated at 1120. The PAD included the general public being instructed to ingest Potassium Iodine (KI), shelter livestock, poultry, companion animals and restrict harvesting and planting of crops 50 miles downwind. Emergency workers and special populations were also instructed to ingest KI.

Back-up route alerting was successful demonstrated within the 45 minute time requirement for a simulated failure of siren 61.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.a.3:

Harford County successfully demonstrated their ability to complete back up route alerting within 45 minutes following the initial decision to notify the public of an emergency situation during the Peach Bottom REP Exercise on January 26, 2010.

At 0955, the Harford County 911 Supervisor activated the sirens in the 10-Mile Emergency Planning Zone in the county in accordance with the established procedures. At 0956, the 911 supervisor received indication of a failure to siren 61 prompting the need to perform back up route alerting and notification The dispatch supervisor immediately notified the Emergency

Manager and Operations staff. The Emergency Manager directed back-up route alerting to be performed in the affected area. Three vehicles were deployed each with a sheriff's deputy. Each deputy was provided a complete radiological briefing, dosimetry, Potassium Iodide (KI), and understood their individual announcement strategy within the route.

In addition to route alerting, residents in the affected area who may have special needs have alternate notification and other alternate alert and notification methods available. These systems include telephone, email, and SMS text messaging through the Connect CTY system as well as the potential use of several other Civil Defense sirens in the EPZ at fire stations.

There are no exception areas within the 10 mile Emergency Planning Zone (EPZ) in Harford County.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as ted in the extent of play agreement.

Criterion 5.b.1:
Harford County Emergency Operations Center successful demonstrated their ability to provide accurate emergency information and instruction to the public and the news media in a timely manner. All Emergency Alert System (EAS) messages and Special News bulletins provided the media with information consistent with the protective action decision

Harford County declared state of emergency through executive order at 1118. The first EAS concurrently agreed upon Maryland Department of the Environment, Pennsylvania Emergency Management Agency, Cecil and Harford Counties started the process started at 0945. The County provided the Protective Action Decision to the pre-established media at 0950. The sirens were activated by Harford County as scheduled at 0955 and the message broadcast started at 0958. The notification was terminated at 1000. A Special News Bulletin was also simultaneously issued. Livestock and poultry were placed on store feed and water. Airspace was restricted for 5 mile around the plant to an altitude of 5,000 feet. Rail and water restrictions were also in place. Maryland Department of the Environment stated they would take the action to conduct the restriction in Maryland. Patterson Mill is the shelter of choice and is placed on standby. Daycare centers were instructed to keep children inside. The message included explaining the situation at the plant required no special action at this time; however all residents within a radius of 10 mile of the plant should stay tuned to the station for the latest information

and instructions and review the PIB. The EAS include a contact telephone number of 443-617-1954.

The Second Siren sounding was initiated 1115 with EAS message to follow at 1118. The notification was terminated at 1120. The PAD included the general public instructed to ingest Potassium Iodine (KI), and shelter livestock, poultry, companion animals and restrict harvesting and planting of crops 50 miles downwind. The EAS message released by the Harford County Executive and the Division of Emergency Operations which stated that a General Emergency was declared at the Peach Bottom Atomic Power Station. The Governor of Maryland has also ordered that persons living or working in a 10 mile are around the plant evacuate immediately. The message again encourages the general public to consult their public information brochure or visit the website www.harfordpublicsafety.org to determine if they are in the ten mile area and for instructions for evacuation and to follow the evacuation route for their area. The residents residing within the 10 mile of the power plant should take their KI now. KI is also so available at the reception center at the Fallston High School and Harford Community and College. Main evacuation routes are provided in the brochures for rapid movement out of the area. Evacuees were asked been asked to follow the main evacuation route for their area to either Fallston High School or Harford Community college.

The designated evacuation route are:

Route 24 (Rockspring Road)
Route 165 (Norrisville Road) to Route 24 (Rockspring road)
Route 646 (Prospect Road) to Route 543 (Ady Road)
Route 623 (Flintville Road) Castleton Road) to Route 136 (Whiteford Road)
Route 623 (Castleton Road) to Route 161 (Darlington Road)

The special bulletin also asked that persons affected by the evacuation advisory prepare to spend a minimum of three days away from home and should have with them sufficient quantities of clothing, sleeping bags or blankets, personal care items, baby supplies and prescription drugs for this period of time. Persons evacuating who need a place to stay will be provided with food and lodging after reporting to a a reception area. Pets may accompany their owners to the reception center, but w3ill not allowed inside public shelters. Animal control will register pets and then move them to an established county pet shelter. Residents who have house bound persons or invalids in their home and require assistance in moving them, or need transportation, should

contact the Harford County Rumor Control at 410-838-5800. Community members have been asked to assist the county by checking on persons who may live alone in their neighborhood and to assist them if possible. All farmers within the 50 mile radius should shelter livestock with stored food and water.

Persons planning to evacuate are reminded to:

Secure home and property
Turn off all lights and electrical appliances,
Turn down heating systems
Go to a reception center, obey all traffic laws and drive carefully,
Obey police and others who will be directing traffic and evacuation route,
Keep windows and air vents close while traveling

Emergency Classification Levels (ECL) were disclosed in each notification and message as well as instruction for the general public to review their Public Information Brochure and additionally, a informational web site was provided. All messages were timely in accordance with the established procedures with no delays.

All media and rumor inquiries were appropriate direct the to the Rumor Control group which verified and provided correct information or directed them where they could obtain information relative to the incident. All inquiries were tracked WebEOC. The media was able to be monitored in the operations center on several local and national channels.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.5 Harford County Back-up Route Alerting

Criterion 1.d.1:
Three Sheriff Deputies successfully demonstrated back-up route alerting using the appropriate communication systems.

Each vehicle had an 800 MHertz radio in the vehicle, 400 Mhertz personal portable radio, cellular telephone, and a computer with internet capability.

The Deputy demonstrated the radio in the vehicle to communicate with the Harford County Emergency Operation Center (EOC). A portable radio was used to maintain communication with the other two Deputies that were assisting him in demonstrating the backup route alerting criterion.

Both radio systems worked as designed. Therefore, there were no delays in the emergency response due to communication problems.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

Equipment available to the Deputies included two radios, a cellular telephone, a computer, flares, vehicle light bar, siren, public address system, two cameras, and radar system.

Each vehicle had County maps and route alerting maps.

Each Deputy had an Arrow Tech Model 730 direct reading dosimeter with a range of 0-20R, a dose record card, an instruction card, a TLD (simulated), and a blister pack of 14 potassium iodide (KI) pills.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:
This criterion was successfully demonstrated by the Radiological Officer (RO) at the Harford County Emergency Operations Center (EOC) and three Deputy Sheriffs.

The Deputy Sheriffs were going to be dispatched to backup route alerting later during the exercise. Prior to going to the field, the RO issued each Deputy an Arrow Tech direct reading dosimeter (DRD) Model 730 calibrated on January 11, 2010. The DRDs had been zeroed earlier by the RO. He demonstrated that they were registering zero before issuing them. He also issued each Deputy a TLD, a sheet of instructions, and a dose record on which DRD readings would be logged.

After issuing the dosimetry equipment, the RO briefed the Deputies on the purpose, proper use, how to wear them, and how often to read the DRDs. The Deputies were told to wear the DRDs and TLD between neck and waist on the outside of their clothing. He instructed them to read the DRDs every 30 minutes and log the reading. The RO instructed them that they should call their supervisor if their DRD approached or exceeded 5R. They could exceed the 5R dose if they had to remain in the field for protection of valuable property or life saving, they had to have authorization from a Health official.

The Deputies were briefed on the ALARA principle, which means as low as reasonably achievable. At end of shift or mission, the deputies were instructed to go to Fallston High School for monitoring and decontamination, if needed.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:
This criterion was successfully demonstrated by the three Deputies while performing the back up route alerting function.

Prior to being dispatched from the Harford Emergency Operation Center (EOC), the Deputies were issued a blister pack of potassium iodide (KI) containing 14 tablets. During the briefing

that followed, the Radiological Officer explained the purpose of KI, the proper dosage, and necessity of logging on the dose record form time and date of ingestion if they should take the KI. He instructed them that they should not take KI if they were allergic to seafood.

They were further told that they should only take the KI if the State Health Officer authorized it. During the back up route alerting demonstration, the Deputies were told over their radios by their supervisor at the Harford County EOC, at 1112, that KI was authorized and they may take it. The Deputy with whom I was riding simulated the ingestion of one tablet and recorded it on the dose record form.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 5.a.3:
The back up route alerting criterion was successfully demonstrated by a team of three Deputy Sheriffs dispatched from the Harford County Emergency Operations Center (EOC).

The Deputies were instructed to report to the EOC and pick up dosimetry and maps of the routes for back up route alerting. At 0843, the deputies were issued dosimetry and given a briefing by the Radiological Officer. Following the briefing, the Assistant Emergency Management Coordinator gave the Deputies each a map of route 61, which was made up of two segments called 61 East and 61 West. The Deputies were then sent back into the field to continue their normal patrols until they were notified by their Supervisor that they should implement the back up route alerting.

At 0959, the Deputies received a radio call from the Supervisor in the EOC that siren 61 had failed and they were to begin the back up route alerting.

The lead vehicle remained on the main roads and used a public address system to notify those that lived within approximately 200 yards of the road. The other two Deputies shared the responsibility of driving to those residences that were away from the main road more than approximately 200 yards. The public address system had a range of approximately 200 yards.

The Deputy in the lead vehicle, while in the vicinity of houses that were occupied, drove at 15 miles per hour or less and read a message that said:

"There is an emergency at the Peach Bottom Atomic Power Station. Please tune to your EAS Station WXCY at 103.7 FM."

The three Deputies were in constant communication with each other as well as the Supervisor at the EOC. The Supervisor prompted the Deputies at 30 minute intervals to read their dosimeters.

The deputies completed the first segment at 1030. The Controller inject was given at 0956. Three minutes lapsed before the Deputies were notified to start the route alerting. If the three minutes are added to the time of 29 minutes to complete the first leg, then the total time from being made aware of the siren failure at the EOC until completion of the leg was 32 minutes, inside the criterion required time of 45 minutes.

The second leg, which in a real incident would have been run by another three man team simultaneous with the playing team, took 28 minutes, including the three minutes of lapsed time already mentioned. This was in accordance with the extent of play agreement. Therefore both segments were completed well within the required time.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.6 Harford County Traffic and Access Control Point

Criterion 1.d.1:
In an interview with three Harford County Sheriff deputies and an actual inspection of their emergency vehicles and personnel gear they successfully demonstrated the communications capabilities required to manage and support emergency operations.

Primary communications consisted of an 800 MHz trunked radio system and a 400MHz Computer system. Additionally, the vehicles had AM/FM radio capability. Each individual carried a mobile 800 MHz unit and cellular telephone. Primary and secondary communication systems were used with no failure of any unit. Communication between the three vehicle units was continuous as well with the Harford County EOC and 911 dispatch center.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 1.e.1:
In an interview conducted on January 26, 2010 with the three Sheriff Department deputies representing Harford County Sheriff Department, they successfully demonstrated that the Sheriff Department has sufficient equipment and supplies to support operations.

Harford County Sheriff vehicles are outfitted with flares and tape. A central storage facility has 100 cones and 56 barriers available to support Traffic and Access Control Points (TCP/ACP). State Highway Patrol has 150 cones and 300 barriers available. Harford Public Works vehicles each have 12 cones and supplies of tape. County Public Works stores 500 – 600 cones and barricades at 5 district locations, additionally lighted directional boards are kept at their main staging area.

The Sheriff Department has sufficient facilities, equipment and supplies to support emergency operations. The Sheriff Department personnel demonstrated their ability to support emergency operations using essential equipment (cones, barriers, and signage), cellular telephones, Sheriff Department radios and computers, TCP/ACP individual plans and procedures, and dosimetry kits.

The Sheriff Department has detailed instructions concerning the installation of both City and Harford County TCP/ACPs. These instructions set forth the location of TCP/ACPs, barricades

and cones required and staffing requirements.

The Sheriff Department has sufficient quantities of KI tablets with related instructions and logs for recording ingestion.

The Sheriff Department has kits in accordance with plans and procedures. The Sheriff Department has sufficient quantities of Direct Reading Dosimeters (DRDs) (0-20 REM) (calibrated 1/11/2010), Thermoluminescent Dosimeters (TLDs) (calibrated 1/1/2010), KI tablets (expiration date 1/2013, 130 mg,) and DRD/KI Field Exposure Log for issuance to emergency workers that would be deployed to TCP/ACPs. The three Sheriff Department employees demonstrated an operational check on their respective kit to insure suitability for the exercise. Additionally, the Deputies had Electronic Dosimeters in each vehicle.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.a.1:
In an interview conducted on January 26, 2010 with three Sheriff Department deputies representing Harford County Sheriff Department, they successfully demonstrated capability to implement protective action criterion relating to emergency worker exposure control.

The Sheriff Department has kits in accordance with plans and procedures. The Sheriff Department has sufficient quantities of Direct Reading Dosimeters (DRDs) (0-20 REM) (calibrated 1/11/2010), Thermoluminescent Dosimeters (TLDs) (calibrated 1/1/2010), KI tablets (expiration date 1/2013, 130 mg,) and DRD/KI Field Exposure Log for issuance to emergency workers that would be deployed to TCP/ACPs. The three Sheriff Department employees demonstrated an operational check on their respective kit to insure suitability for the exercise. Additionally, the Deputies had Electronic Dosimeters in each vehicle.

The Sheriff Department personnel serving as emergency workers are instructed to report by radio readings every 30 minutes, any REM increments, shift change readings, termination of emergency operations readings. The Sheriff Department emergency workers verified that they had an emergency turnback value of 5 REM and a Must Leave value of 25 REM. Initial reporting was to Sheriff Department shift manager and then in turn to the Harford County Radiological Officer at the Emergency Operations Center (EOC).

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.b.1:
In an interview conducted on January 26, 2010 with three deputies from the Harford County Sheriff Department, Harford County Traffic and Access Control successfully demonstrated their capability to implement a KI ingestion decision.

The decision to ingest KI is made by the Maryland State Health Officer and relayed to Harford County Health Officer who in-turn passed the information to emergency workers. During the exercise there was a decision made in Protective Action Decision (PAD) #2 for emergency workers to ingest KI. The Radiological program manager had distributed a 14 pill packet of KI to each emergency worker as a part of their respective DRD/KI Kit. Each DRD/KI Kit contained a packet of KI, expiration date January 2013, instructions concerning KI, and a KI ingestion log.

All activities were based on plans procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.1:
In an interview conducted on January 26, 2010 with Harford County Sheriff Department, Maryland Highway Patrol, and cities of Aberdeen, Havre de Grace, and Bel Air Police representatives successfully demonstrated their ability to implement traffic and access control points.

Harford County Sheriff Department assisted by Maryland Highway Patrol and County Public Works has the responsibility in unincorporated areas for establishment of TCP/ACPs in the event of a PBAPS emergency. Sheriff Department maintains the ability to staff and equip TCP/ACPs, traffic monitoring, maintenance of law and order and reporting of personnel radiation levels. City of cities of Aberdeen, Havre de Grace, and Bel Air Police and assisted by Public Works Departments have the responsibility in their respective cities for the placement of barricade and cones at their TCP/ACPs. Pre-designated TCP/ACPs are established for PBAPS emergency conditions and a detailed description is available in Sheriff, Maryland Highway Patrol, Police and Public Works plans and procedures. Sheriff Department, Maryland State Patrol, Police and Public Works personnel are deployed to assigned TCP/ACPs after receiving a briefing on the

proper use of their DRD/KI Kit and reporting procedures. The kits consisted of the following, TLD, KI tablets (expiration date 1/2013, 130 mg,); KI information sheet; DRD/KI Field Exposure Log. The three Sheriff Department deputies demonstrated an operational check on their respective kit to insure suitability for the exercise.

At 1045 Harford County Sheriff representative dispatched State, County and respective cities to man TCP/ACPs at the perimeter of the 5 mile evacuation zone. All TCP/ACPs were manned by 1055. At 1112 the representative dispatched State, County and respective cities Emergency Workers from the 5 mile zone to the 10 mile evacuation zone perimeter. All TCP/ACPs were manned by 1130.

Additional highway heavy maintenance equipment can be provided by contracts with towing companies (State – 33 towing companies, Harford County – 33 towing companies, Bel Air – 9 towing companies, Havre de Grace – 2 towing companies, and Aberdeen – 2 towing companies). All agencies have extensive experience in the removal of day-to-day and evacuation impediments.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 3.d.2:
In an interview conducted on January 26, 2010 with Harford County Sheriff Department, Maryland Highway Patrol, and cities of Aberdeen, Havre de Grace, and Bel Air Police representatives successfully demonstrated their ability to respond to the removal of impediments to evacuation.

Harford County Sheriff Department, Maryland Highway Patrol and cities of Aberdeen, Havre de Grace, and Bel Air Police are responsible and coordinate the identification and removal of impediments in their respective jurisdictional areas. Harford County Sheriff Department, Maryland Highway Patrol and cities of Aberdeen, Havre de Grace, and Bel Air Police rely on the equipment of their respective Public Works Department and towing company contractors to remove the impediments to evacuation. Public Works Departments and towing company contractors have heavy equipment which is used day-to-day in the removal of trees, rocks, debris and vehicles from the PBAPS evacuation roadways. Harford County Sheriff Department, Maryland Highway Patrol and cities of Aberdeen, Havre de Grace, and Bel Air Police will use

their cars for the removal of light impediments.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.7 Harford County Emergency Worker Monitoring and Decontamination Station, Fallston High School

Criterion 3.a.1:

The exposure control for the emergency workers of the Harford County Radiological Monitoring and Decontamination Center (HCRMDC) was demonstrated out of sequence at the Fallston High School, located at 2301 Carrs Mill Rd., Fallston, MD 21047. In accordance with their plan and operating procedures, the HCRMDC staff, as directed by the site incident commander, set up several stations for monitoring and decontamination of evacuees, emergency workers and equipment. In the monitoring and decontamination areas, the HCRMDC staff was required to wear individual protective equipment (IPE) consisting of Tyvek shoe covers, double gloves-inner gloves taped to gown, polyethylene barrier gown and dust or face shield mask. However, only the HCRMDC emergency workers in charge of vehicle monitoring were suited up.

Each staff member who worked in the monitoring and decontamination areas inside the HCRMDC was issued a TLD and a direct reading dosimeter (DRD) (0-20 R). However, the HCRMDC staff who worked in the parking lot and were in charge of vehicle monitoring, were not issued and did not wear dosimeters throughout the exercise.

By the time the evaluators arrived at the facility at 1830 hours, the HCRMDC was operational and the staff was already briefed and issued the dosimeters. At the evaluators request, the briefing was repeated at the beginning of the exercise, by the site incident commander and the

HAZMAT team leader. The simulated briefing included information on reading and zeroing the DRD, position where they should be worn, and the requirement to read the DRD every 30 minutes. This information was included in the Individual Dosimetry Report Form that was filled out and signed by each emergency worker. The site incident commander also discussed the procedure of returning the dosimeters at the end of mission or shift to the respective emergency workers team leaders. Although the plan and operating procedures included several administrative and reporting limits, only the 5 rem limit (5R exposure limit on the DRD) was discussed. However, the other limits were included in the Individual Dosimetry Report Form that was filled out by each staff member who was issued a dosimeter kit. It was also found through interview that decontamination would be performed if either the portal monitors alerted or the survey meters indicated a reading above 0.1 mR/h.

Since the HCRMDC is located outside the 10-mile EPZ, no KI was distributed to the HCRMDC staff. However, KI supplies were available for the public at that location.

It was established through interview that the HCRMDC would be set up at the request of the Health Department representative in the Harford County EOC, at the Alert ECL.

The monitoring equipment consisted on 3 TPM 903A portal monitors and several hand-held Ludlum Model 3 survey meters. All instruments were operationally checked and worked well during the out of sequence exercise.

The HCRMDC operating procedure states that if the monitored person is an emergency worker, as indicated on the Registration Form, the thyroid must be checked for radioactive exposure, whether or not they alarm the portal monitor. In addition, the plan and procedures indicate that the individual being checked must be free of any contamination before this procedure is implemented. However, the HCRMDC staff started with the monitoring of emergency worker?s thyroid, before the person was sent to the portal monitor.

The emergency workers who staffed the monitoring and decontamination stations inside the HCRMDC were required to read their DRD at 2000 and 2030 hours through a public announcement.

However, the HCRMDC emergency workers in charge of vehicle monitoring in the parking lot, did not wear any dosimeters, although they wore IPEs, throughout the exercise. In addition, it

was established through interview that they did not know the time interval required to read the DRD nor any of the administrative limits, with the exception of the decontamination limit of 0.1 mR/h read on their hand-held survey meters. At the evaluator request, they were briefed again by their leader and another interview followed. During re-demonstration, they were aware of the time interval required for reading the DRD, but they still were hesitant on other administrative limits.

Criterion 6.a.1:

Monitoring and Decontamination of Evacuees and Emergency Workers was demonstrated out of sequence at the Harford County Radiological Monitoring and Decontamination Center (HCRMDC) located at Fallston High School, on 2301 Cars Mill Rd., Fallston, MD 21047. Only emergency workers received a thyroid screening.

Monitoring, decontamination and registration of emergency workers were accomplished by the Harford County Health Department, community services, Red Cross, RACES and HAZMAT personnel. Altogether, at least 52 persons participated and staffed the various stations at the center. There was adequate space for monitoring, decontamination and registration, and the facility was set up to separate contaminated and decontaminated or clean individuals. Appropriate signs, covered walkways, and step-off pads were in place to control and minimize contamination of the facility.

The monitoring equipment consisted on 3 TPM 903A portal monitors, each with a capacity of 300 persons/h, and several hand-held Ludlum Model 3 survey meters. One portal monitor served as the initial check of contamination and the other two were set up in the man/woman shower areas, to recheck for residual contamination.

All instruments were operationally checked and worked well during the out of sequence exercise. A 1 uCi source of Cs-137 was used to check the operability of the portal monitors.

Per the exercise extent of play, two emergency workers were monitored, among which one was found to be contaminated. The decontamination procedure was explained through interview.

The action level for decontamination was 0.1 mR/hr, as measured with the Ludlum survey meter. Monitors wore gloves and the instrument probes were covered with plastic. In addition, sheets indicating the action levels in which persons and their belongings are considered contaminated or

free from contamination, as well as tips for decontamination procedures, were posted on the walls.

Per the HCRMDC operating procedure, separate facilities were available for decontamination of male and female emergency workers, although only the male decontamination station was demonstrated. After decontamination, the contaminated person was re-monitored and if found contaminated, sent back to repeat the decontamination procedure two times. If still contaminated, the person was sent to the hospital while appropriate arrangements for its arrival were made.

Clean and decontaminated individuals were given a green bracelet. Other information filled in the registration forms included the name, address, telephone number, and results of monitoring and decontamination, if appropriate. A record was established for each evacuee or emergency worker.

The contaminated person's clothing and belongings were also processed at the HCRMDC. Contaminated clothes were contained in clearly marked bags while the valuable personal items were wiped off with a special cloth. If the decontamination action level was still exceeded, the belongings were placed in marked bags that included the name and other identifying information for their proprietor.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 6.b.1:

The monitoring and decontamination of emergency worker equipment was demonstrated out of sequence at the Harford County Radiological Monitoring and Decontamination Center (HCRMDC) located at Fallston High School, on 2301 Carrs Mill Rd., Fallston, MD 21047.

In accordance with their plan and procedures, the HCRMDC emergency workers set up one station to carry out the emergency worker equipment monitoring. The station was staffed by four HAZMAT emergency workers, forming two teams of one recorder and one monitor, and their leader.

The HAZMAT emergency workers had adequate resources to accomplish the equipment and

vehicle monitoring. Each team had one hand-held Ludlum Model 3 survey meter with a pancake probe to perform the monitoring.

The monitoring procedure was performed by surveying the vehicles front bumper, radiator grill, door handles and entire hood, roof and trunk. It was found through interview that the emergency workers will also monitor the interior of the vehicle if any of the occupants were found to be contaminated. The monitors performed the survey, one on each part of the vehicle, while one recorder filled out the information on a vehicle information form.

In accordance with their monitoring procedure, the probe was to be held at approximately 1 inch from the surface and moved at about 2 inch/second.

The emergency workers knew the exposure level of 0.1 mR/h on their survey meters as to determine whether the equipment was contaminated. Per the exercise extent of play, the monitoring team found one vehicle whose wheels were contaminated above this level.

It was found through interview that the vehicles in need of contamination will be sent to state recommended contractors for decontamination. Per the exercise extent of play, this activity was not observed.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

a. MET: 3.a.1, 6.a.1, 6.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: 3.a.1.

ISSUE NO.: 46-10-3a1-A-02

CRITERION: OROs issue appropriate dosimetry and procedures, and manage radiological exposure to emergency workers IAW plans and procedures. Emergency workers periodically and at the end of each mission read and record dosimeter reading. (NUREG-0654, K.3)

CONDITION: Several issues related to the implementation of emergency worker

exposure control were identified at the Harford County Radiological Monitoring and Decontamination Center (HCRMDC):

A. The HCRMDC operating procedures state that if the monitored person is an emergency worker, as indicated on the Registration Form, the thyroid must be checked for radioactive exposure, whether or not they alarm the portal monitor. In addition, the HCRMDC plan and procedure indicates that the individual being checked must be free of any contamination before this procedure is implemented.

However, the HCRMDC staff started with the monitoring of emergency worker's thyroid, before the person was sent to the portal monitor.

B. Per the HCRMDC operating procedures, emergency workers in the monitoring and decontamination areas are supposed to receive and wear a TLD and a DRD (0-20R).

However, the HCRMDC emergency workers who performed the vehicle monitoring were not issued and did not wear dosimeters throughout the exercise.

C.It was established through interview that HCRMDC emergency workers who performed the vehicle monitoring did not know the time interval required to read the DRD nor any of the administrative limits, with the exception of the decontamination limit of 0.1 mR/h read on their hand-held survey meters. At the evaluator request, they were briefed again by their leader and another interview followed. During re-demonstration, they were aware of the time interval required for reading the DRD, but they still were hesitant on other administrative limits.

POSSIBLE CAUSE: The HCRMDC emergency workers did not follow their plan and operating procedures and/or they were not trained properly.

REFERENCE: NUREG 0654, K.3.a, 3.b

EFFECT: Condition A has the potential to incorrectly identify a thyroid condition that actually may not exist if contamination present on the individual contributes to the survey meter reading.

Conditions B and C could have led to emergency workers exceeding the administrative exposure limit of 5 R during the monitoring process, while no record on the dose received would be available.

CORRECTIVE ACTION DEMONSTRATED: A re-evaluation of the referenced issue was performed on 02/05/10 at the Harford County EOC. Harford County Hazmat Personnel performed a radiological monitoring and decontamination demonstration utilizing a response vehicle, portal monitor and hand held survey equipment (Ludlum model 3 with 44-9 pancake probe). Prior to the monitoring, an accurate briefing was provided to the response team. The vehicle and emergency worker being monitored were surveyed in accordance with their procedures. Appropriate dosimetry (TLD and 0-20R DRD) was worn correctly and correct responses to questions pertaining to dose limits, reading intervals, and procedural compliance was accurately provided the evaluator.

c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2.8 Harford County Monitoring and Decontamination Center, Fallston High School

Criterion 3.a.1:

Appropriate dosimetry equipment and procedures were available to support monitoring and decontamination of evacuees which was conducted, out of sequence, on the evening of January 25, 2010 by the Hartford County Department of Health and the Hartford County Hazmat Team, at Fallston High School, 2301 Carrs Mill Road, Fallston, MD 21047.

Before being dispatched to their work stations at the Fallston High School EWs were issued dosimetry by the Radiological Officer (RO) and received a briefing. EWs signed for their dosimetry on an Individual Dosimetry Report Form. The form provided not only accountability for the equipment issued, but was to be used to record reading, every 30 minutes, from the direct reading dosimetry (DRDs) which the EWs were issued. The briefing to the EWs included radiation exposure limits, administrative reporting limits (5 R for EWs), proper use and wear of

the thermoluminescent (TLD) permanent record dosimetry (PRD), the use of the DRD, Arrow Tech Model 730 dosimeter of range 0-20 R, and the requirement to read the DRD every 30 minutes.

Additionally, the briefing included instructions on who to report readings to and where to return dosimetry at the conclusion of the out of sequence exercise. The DRD dosimetry was zeroed before issued, and last checked for leakage on October 13, 2009.

Even though a reception center, as stated in the extent of play, is considered a low exposure rate area, all personnel observed appeared knowledgeable about the purpose and use of dosimetry, the proper wear of the equipment, and were meticulous in reading their DRDs every 30 minutes. Twice during the out of sequence exercise, 2000 hours and at 2030 hours, it was noted that the Safety Officer reminded EWs to read their DRDs and record readings on their Individual Dosimetry Report Form.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

Criterion 6.a.1:
Monitoring, decontamination, and registration of evacuees was conducted, out of sequence, at Fallston High School, 2301 Carrs Mill Road, Fallston, MD 21047, on the evening of January 25, 2010 by the Hartford County Department of Health, the Hartford County Department of Community Services, and the Hartford County Hazmat Team. Commendably, a total of 57 personnel were available to support this out of sequence exercise, including three RACES operators with equipment.

There was more than adequate space for monitoring, decontamination, registration, and reception center operations at this large high school facility. There were appropriate signs leading into the facility to guide evacuees, and 57 attending personnel on hand was more than enough to insure that arriving evacuees were immediately waited upon. The large high school layout facilitated with ease the separation of contaminated and non-contaminated personnel.

Each evacuee who came into the facility was immediately greeted and registered at the door. The registration form filled out contained the individuals name, date of birth, and information about the vehicle the individual arrived in (color, year, make, model, tag number). After initial

registration information was attained the individual advanced to the monitoring station.

For the out of sequence exercise, three evacuees were processed through the portal monitor. At each step of the process, their registration form accompanied them. On the form was a box for the portal monitor to indicate "yes" or "no" by means of an "X" on whether or not the portal monitor had alarmed for the evacuee. The first evacuee (simulated) went through the monitoring process in less than five seconds and had no contamination. From the portal monitor, the evacuee (simulated) was escorted down a large hall to a desk staffed by two personnel. After verification of all the data on the individuals registration form, his card was filed away, and he was issued a yellow arm band to be worn on his left arm. After this process, he was escorted (simulated), out the back door of the high school, and into the school cafeteria where the Reception Center was located.

The Reception Center was staffed by the Hartford County Department of Community Services. At this location, evacuees would be asked about physical and mental health conditions, and whether or not they needed assistance with medications. Additionally, the Reception Center arranged the bus transportation for evacuees to the mass care center, which was approximately three miles away. A County Health Nurse was one of the key staff positions observed during the out of sequence exercise. In addition to assisting with the routine medical needs of the evacuees, she had on hand several one tablet doses of potassium iodide (KI), both 130mg and 65mg dose tablets. The shelf live of the KI on hand was August 2012.

Two portal monitors were set up to monitor evacuees. One was set up close to the entry point coming into the facility and functioned as the initial monitoring point separating the contaminated from the non-contaminated. The other portal monitor was set up inside the mens shower room and serve as a monitoring station to recheck contaminated personnel coming from the shower area to see if they were clean.

The initial entry point portal monitor was a Thermo Electric Corp TPM 903-A and has the capacity (factory designated) to monitor 300 personnel per hour, or 3,600 personnel within a twelve hour period, which far exceeds the 1200 designated capacity of the facility. The monitor was checked and worked correctly during the exercise. The action level for decontamination was 0.1 mR/hr above background. During the exercise three evacuees was observed going through the monitoring process. Two was noted (controller inject) as alarming the monitor, and consequently had to backup and go through twice. Even with the five trips through the monitor

by the three evacuees, it only took approximately 50 seconds of time to get through the portal monitor. Even given various circumstances of 2 out of 3 evacuees being contaminated, the portal monitor used seems fully capable of processing 3-4 people a minute, or 180-240 personnel an hour, which is more than enough to process the designated facility personnel capacity of 1200 within a twelve hour time limit.

For exercise purposes,and in accordance with the extent of play and the out of sequence exercise scenario,two evacuees(simulated)going through the portal monitor were designated by controller inject to be contaminated. These individuals,in accordance with the plans and procedures,went through the portal monitor twice,and then were immediately guided toward the mens shower area. They were separated from all others personnel,and through the interview process,in accordance with the extent of play and the out of sequence scenario,the EWs staffing the facility explained to the evaluator the processes for decontamination.

At the first station the individuals were told to take off (simulated) all personal belongings, and then proceeded into the shower facility where they were told to take off all clothes (simulate) except underwear. Then they were guided into the showering area where they were verbally given instructions on how to properly shower to eliminate contamination. When the initial showering was over the individuals again went through a portal monitor which was for the out of sequence exercise established immediately outside of the shower area. If the portal monitor did not alarm, the evacuees would be given clothing (a robe and foot coverings), proceed out the back way of the shower area,receive their yellow ribbon to wear on their left arm, and then escorted to the Reception Center in the high school cafeteria. If their personal belongings were not contaminated, the evacuees would be able to pick them up at the Reception Center before leaving by bus for the mass care center.

By the interview process, staffing personnel explained that if the first attempt at decontaminating the evacuee failed and he/she alerted at the portal monitor outside of the shower, then the evacuee would immediately go into a room to the right of monitoring machine, and there, the evacuee would be monitored using handheld equipment, referred to as Ludlum Monitoring on the registration form. Once the decontamination is pinpointed, the evacuee would be led back to the showers and guided through a second decontamination attempt focusing on the point identified via the hand held monitoring process as the primary location of the contamination on the body. After this process, the evacuee would again go through the portal monitor, and if still contaminated go into the room on the right, and repeat the same process as before with the hand

held monitor, and then redo the showering process again. If after this third showering process, the evacuee is still contaminated, then he/she would be evacuated to a medical facility for treatment.

Throughout the complete monitoring process the Registration Form following the evacuee. On the form were boxes to check if portal monitors alarmed, and a diagram of human body to be used for the First and Second (if needed) Ludlum Monitoring. The recorder had a place to indicate location on the diagram of where contamination was found, date and time, and serial number of the survey meter used to detect the contamination.

Separate facilities were available for decontamination of male and female evacuees, and facility staff indicated that all contaminated article would be sealed and picked up by the utility for proper disposition.

All activities described in the demonstration criteria were carried out in accordance with the plan, procedures, and extent-of-play agreement.

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

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

3.3.2.9 Harford County Congregate Care Center, Patterson Mill High School

Criterion 6.c.1:

The Harford County (HC), MD Department of Social Services (DSS) successfully demonstrated the ability to operate the Congregate Care Center (CCC) at the Patterson Mill High School (PMHS) located at 85 Patterson Mill Road, Bel Air, MD. The CCC has resources to provide services and accommodations consistent with American Red Cross (ARC) planning guidelines (MASS CARE – Preparedness Operations, ARC 3031).

The verification of the operation was performed by a walkdown of the facility and discussions

with the Shelter Manager (SM), the ARC of Central Maryland representative and CCC staff members. The walkdown began with a discussion with two staff members who were assigned to verify all evacuees had been monitored for contamination before they were allowed to enter the congregate care facility. A colored wrist band provided at the Reception Center is used to indicate if the evacuee is not contaminated. The walkdown also included a review of the floor plans, signs, arrows and registration of three simulated evacuees. The following areas were reviewed: shelter entrance, registration, Radio Amateur Civil Emergency Service (RACES) operations center, sleeping areas, showers, rest room, play room, cafeteria, community room, staff room, nurse station and mental health station. All required staff members were at their assigned positions.

Communication equipment included radios operated by the Harford County RACES and cellular phones. Hand held radios were used for internal communications.

A discussion with the SM, ARC representative and the HC Emergency Operations Center (EOC) representative indicated the following: The letter of agreement for use of Patterson Mill High School is located at the HCEOC. Each school used as a CCC accommodates 500 people. Food is prepared by the school cafeteria staff. A three-day food supply based on school population is maintained. Additional food can be arranged through the HCEOC and the American Red Cross. Supplies such as cots and blankets are warehoused locally and are available through the HCEOC and the American Red Cross. The Shelter Manager stated that the Department of Social Services had 180 trained personnel available to support 24 hour a day operation of the CCC.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.10 Cecil County Public School District, Conowingo Elementary School

Criterion 3.c.2:

During the Peach Bottom Radiological Emergency Preparedness Exercise on Tuesday, January 26, 2010, the Conowingo Elementary School officials implemented protective actions for the Conowingo Elementary School based on decisions made by the Social County Emergency Operations Center (EOC).

The evaluation was performed at the Conowingo Elementary School in sequence with the exercise. An interview with the school's Assistant Principal was performed in conjunction with the exercise.

At 0845, the Conowingo Elementary School, which has a total school population of 580, was notified of an Alert level at the Peach Bottom Atomic Power Station. The initial notification call originated from the Social County Emergency Operation Center. The notification call was made by the Public Information Officer who reported to the EOC from the Social County Public Schools District Office.

Notifications were made by telephone in accordance with the Social County Radiological Emergency Response Plan (RERP), Annex M. The Assistant Principal indicated that during normal school hours, the initial event notification is to the schools main office via commercial telephone. Cell phones are also used as a back up means to make notifications. Upon activation of the Social County EOC, a RACES operator was directed to the school to assist with communication between the school and the EOC.

The school maintained a copy of the Critical Emergency Response Team (CERT) procedures, an all hazards plan, which contained instructions for an event at the Peach Bottom Atomic Power Station. A copy of the schools Emergency Response Plan and Procedures (Revision 4) for events at Peach Bottom Atomic Power Station was also observed and used during the evaluation. The plan included information and instructions regarding accountability of students, transfer of students to the host school, sheltering of faculty and students and distribution of Potassium Iodide (KI).

An initial accountability of the students was completed at 0917. The accountability indicated that 501 students and 62 adults would need to be evacuated should the order to evacuate be given.

In accordance with the extent of play agreement, bus drivers are not considered emergency workers and are not issued, nor do they maintain dosimetry. The bus drivers are notified of the event via the commercial telephone and/or cell phone. There are a total of 13 buses on any given day dedicated to the Conowingo Elementary School. Wagner Bus Service, Marshall Bus Service, Hickman, and the school district provide buses to the school for normal and emergency situations. The Social County RERP indicates that 11 buses are needed for evacuation and a total of 140 are available as needed.

Following the accountability procedure performed during the exercise, it was determined that only 11 full size buses and one special needs bus were needed to complete an evacuation of the school during this exercise. The information was communicated to the Social EOC to arrange for necessary transportation.

Evacuated students are transported to the Rising Sun Middle School (host school) in accordance with the Social County Radiological Emergency Response Plan, Annex M. The Assistant Principal indicated that prior to an evacuation of the students to the host school, a team of teacher's would report to the host school with procedures and instructions in preparation for receiving the evacuated students.

The school nurse maintains responsibility for the distribution of KI. Sufficient supplies of KI, with an expiration date of April 20, 2012, were located in the nurses office. Appropriate procedures, authorization documentation, and a list of all school children were available to assist the nurse in performing that function. The school nurse indicated that the list of students is updated at the end of each marking period.

The plan also contains pre-made "Notice of Movement" signs that are to be posted on the entrance doors to the school to inform parents that the students have been evacuated and where parents, or authorized guardians, can pick up their children. Release authority forms, and lists of persons that are allowed to pick up students, are available in the plan book and were observed by the evaluator.

The Assistant Principal indicated that parents and/or legal guardians of the students are notified of the event via an automated, on line, call out system that can be activated via Internet or by telephone. The system is capable of dialing home, work, cell or any other number programmed

into the system. The system was not observed during the evaluation. Student parent/guardian lists were located in the procedures and were observed.

At 0950, the EOC reported to the Assistant Principle that there was no order to ingest KI and that the students were to be evacuated to the host school as the buses arrived. Upon completion of the simulated buses arriving and the evacuation, the interview/exercise was completed at the Conowingo Elementary School.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.11 Harford County Public School District, Darlington Elementary School

Criterion 3.c.2:

DES successfully demonstrated the ability to implement protective action decisions during an out of sequence event on January 26, 2010, as part of the Peach Bottom Atomic Power Station (PBAPS) Radiological Emergency Preparedness Exercise conducted by the Maryland Jurisdictions. Darlington Elementary School (DES) is part of the Harford County Public School District (HCPSD) located in the northeast corner of Harford County, Maryland. DES is located within the 10 mile Emergency Planning Zone.

DES has a population of 123 students from kindergarten through fifth grade and approximately 40 staff. Additionally, DES has two primary autistic classes consisting of 12 students. DES maintained current copies of emergency plans and procedures consisting of: Checklist for a Radiological Emergency at the PBAPS and Darlington Elementary School Critical Incident Plan 2009-2010". The Darlington Elementary School Critical Plan is updated twice each year by the principal, secretary and school nurse. In addition, each teacher contains a room specific "Go

Bag" with instructions on what to do during emergencies including emergencies related to PBAPS. The "Go Bag" contains a detailed check list of what to do in case of an Alert, SAE, or General Emergency (GE). The "Go Bag" also contains numerous items necessary during an evacuation.

In the case of an emergency at PBAPS, the HCPSD School Services Coordinator (SSC) will notify DES. Primary notification will be made by a dedicated line from the Harford County Emergency Operations Center (EOC). Land line telephone and cellular telephone can be used as a back-up system. Additionally, DES has a tone alert NOAA weather radio that is capable of receiving emergency messages from the state or county. This NOAA radio is checked on a weekly basis and is located in the principal's office. The tone alert was functional during the exercise.

Parents of all DES students are informed of the potential dangers associated with PBAPS through a Parent Student Handbook Calendar, letters from the principal and a Potassium Iodide (KI) Consent letter which is signed by each parent/guardian.

At 0921, the HCPSD SSC notified the DES principal through a dedicated telephone line that and Alert had been declared at PBAPS. This call was logged by the principal and per the extent of play agreement the following information was obtained through an interview with the DES principal. The principal would follow their check list for "ALERT". The principal would notify the staff/students through their public address system, instruct the custodial staff to secure the building, obtain current student/staff attendance, report attendance to the SSC (and do this every two hours), prepare to shelter in place, review food services capabilities, request school nurse to review special student medical supplies and KI procedures, monitor the EAS station (WXCY 103.7 FM), review check list for Site Area Emergency (SAE), and instruct teachers to follow procedures on their room specific "Go Bags".

At 0933, the HCPSD SSC notified the DES principal that a SAE had been declared at PBAPS. This call was logged by the principal and preparations were made for a potential evacuation to their host school. The principal would follow their check list for "SAE". The teachers would be instructed to refer to their "Go Bags" and follow the check list for an "SAE". The host school for DES in the event of an evacuation order is Meadowvale Elementary School (MES). At 0940, the principal made a call to MES requesting them to make preparations for a potential evacuation order. The principal notified the HCPSD SSC of current DES attendance.

Per the extent of play agreement the following information was obtained through an interview with the DES principal. In the event of a declaration of a General Emergency (GE) at PBAPS the principal would follow their check list for "General Emergency". This check list contains procedures for Shelter in place, evacuation and distribution of KI.

For shelter in place all outside activities would be terminated and students and staff would move to their assigned rooms or the cafeteria. The custodial staff would shut down the heating/ventilation/air conditioning systems and secure the building. Food service personnel would prepare drinks/snacks. Administrative personnel would gather emergency records and take to designated shelter area. Teachers would verify attendance and collect necessary materials including "Go Kits". The DES principal and teachers would follow their shelter in place check list.

The HCPSD SSC is responsible for coordinating student transfer to the host schools. The principal of DES would contact the HCPSD SSC and the Bus Company (Anderson Bus Company) to confirm student bus needs. The principal had current contact information for each.

Per the extent of play agreement, the role of the bus driver was conducted through an interview with the bus driver. Actual demonstration of the bus route was not demonstrated; however maps and route descriptions were available. The maps and route descriptions were accurate and understood by the bus driver. Bus drivers maintain a copy of the evacuation maps in their possession on the bus. Additionally, the bus driver was aware of alternate bus route directions in case of traffic back-ups. DES would provide a map to the bus driver if needed during and evacuation. DES would require 5 regular buses and 2 special need buses to accommodate the autistic students. According to the DES principal there are an adequate number of busses to accommodate their needs.

Risk county school plans do not require communications between the school and vehicles. However, DES bus drivers do have cellular telephones and a list of contact telephone numbers. Bus drivers are not considered emergency workers and do not require dosimetry.

In preparation for an evacuation, DES staff would gather; necessary forms (consent to release forms and KI forms), emergency binder ("Student Directory"), current staff and student rosters, and the absentee sheet for the day of the emergency. The custodial staff would assume

responsibility for securing the building and grounds, and complete a search of the building to ensure there are no students or staff remaining in the building.

During an evacuation at DES, all teachers would accompany students to their host school. Teachers would remain with the students until released to a parent/guardian. The parent/guardian must provide identification and sign a release form prior to leaving the host school. Individuals signing out children would be required to show proper identification. The principal and teachers would remain at the host school until every student has been properly signed out by the parent/guardian.

Notification of an emergency to the parents would be the responsibility of HCPSD. The principal of DES would send out a telephone message via Alert Now. Alert Now is an instant telephone communications to all parents. Parents can receive emergency information from through Alert Now quickly and efficiently.

KI and other student medication are stored in the nurse's office at DES. DES provides KI information and consent letters to all parents. This document gives general KI information to parents and provides a means for permission to be granted to DES to administer KI in case of an emergency at PBAPS. The order to ingest KI would come from the state. The nurse had a KI kit for every class with the consent forms signed by the parents. The nurse at DES maintains custody of the KI in her office. The KI in the kits had an expiration date of 4/12. The nurse had 65mg tablets with instructions to give one tablet to each student. The nurse had adult tablets for the staff which consisted of 130mg tablets with an expiration date of 2/14. Additionally, the nurse had liquid KI for people who could not ingest tablets. In the event of an evacuation, the nurse would take all daily medications, emergency medications, KI kit and water to the host school.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

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

3.3.2.12 Harford County Public School District, Dublin Elementary School

Criterion 3.c.2:

On January 26th 2010, during an in sequence scenario an interview was conducted with the Principal of the Dublin Elementary School in Street, Maryland, which is located in Harford County. The Principal retains a current copy of the Checklist for a Radiological Emergency at Peach Bottom for Harford Risk Schools document, in his office, under the dedicated direct phone line to the Harford Emergency Operations Center. This action checklist is available to the responsible staff in the absence of the principal.

The Principal received a phone call during the exercise, at 0920 hours from the Schools Representative who is the school district's Security Director, at the Harford County Emergency Operations Center, notifying the school of an Alert, Emergency Classification Level (ECL) at the Peach Bottom Atomic Power Station. The Principal reviewed his checklist and discussed the procedures, which would be set in place to secure (lock down) the school, begin to mobilize his staff and acquire an accurate student and staff population count. The Dublin school staff would use a combination of short-range 2-way radios and cell phones to maintain communication with each other and the School District Office, before, during and after an evacuation.

The Harford County school districts Transportation Officer coordinates the transportation needs for the district including The Dublin Elementary School's 256 students and 25 staff members. The Principal discussed the need for 6 busses to transport all of the students and staff to the host school, at Churchville Elementary School, in Harford County. The school does not have physically handicapped students who require and special needs transportation. During a interview with a representative bus driver, it was determined that each bus assigned by for the Dublin Elementary School evacuation would be equipped with a package containing clear directions to the host school, a map and an alternative route. The buses would be notified by the Harford County Public Schools Transportation Department and staged at in the parking lot of the Dublin Elementary School. Each bus driver is supplied by their employer with a cell phone for communications with their dispatcher and the Harford County Public School District, School Service Coordinator.

The Dublin Elementary School Nurse maintains a current supply of 260 Pediatric Potassium Iodine (KI) tablets (65mg Thyrosafe exp 4/12), 50 Adult KI tablets (130mg IsoStat exp 2/14) and two 30ml bottles of Liquid KI (65mg/ml Thyroshield exp 4/10) along with a file of signed parental consent forms. The Harford County Public Schools Health Services Practices and Procedures requires that KI only be administered when instructed to by the Harford County Department of Health through the school district Nursing Coordinator.

A phone call was received at 0930 hours raising the ECL of a Site Area Emergency, the Principal was able to describe in detail the preparation to apply any protective action order (i.e. evacuation or sheltering in place), once received. The Principle described how the Dublin Elementary School staff would implement an evacuation of students and staff to the host school. The students would be kept together on the busses and segregated at the host facility so that school staff could easily retain control of the students and take attendance. Records in the form of daily attendance, class rosters and forms for the authorization of student pick-up (sign out logs) and use of KI would be transported to the host facility with the students and are available in the main office of the school. All parents are informed in writing in the Student and Parent Handbook as well as through the "Alert Now" phone call notification system, to report to the host facility in order to pick up the evacuated students.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.13 Harford County, Harford Christian School

Criterion 3.c.2:

During an interview with the Principal of the Harford Christian School on January 26, 2010, the school Principal explained the school's All-Hazards Critical Incident Plan, which includes a Peach Bottom Annex that was developed with input from Harford County Emergency Management. The Principal was very familiar with the Peach Bottom Annex which appears to be well developed and includes sections on: 1.) Roles and Responsibilities, 2.) Transportation and Evacuation and, 3.) Potassium Iodide (KI) distribution.

The primary means of notification for emergencies at the Peach Bottom Atomic Power Station is via direct-line "Red Phone" from the Harford County Emergency Operations Center (EOC) to the school. Secondary notification is via commercial phone to the school office, and tertiary notification is via cell phone to key school officials. During the exercise the school did not receive exercise calls through the Red Phone system, but instead through the secondary (commercial phone) notification system.

The school received a phone call from the Harford County Emergency Operations Center at 0920 informing the school of the Alert Emergency Classification Level (ECL) being declared. The principal referred the school's plan and checklist for this and each subsequent notification of changes to the Emergency Classification Level. Teachers and staff are notified of emergencies and changes to the ECL via PA and Voice Message systems available throughout the school. School Transportation Coordinator and Nurse are put on stand-by at the Alert ECL.

The school maintains its own fleet of 10 large school buses. Only eight busses are needed to evacuate the entire school population of 435 students. All students are ambulatory and none require special transportation. Each bus is equipped with a cell phone and a map to the host shelter facility. A full-time bus maintenance technician and transportation manager work on-site, are notified at the Alert ECL and coordinate bus transportation to the host shelter. The pre-designated host shelter is the Upper Cross Roads Baptist Church in Baldwin, Maryland.

During evacuation students would be kept together on the busses and at the host facility by home-room assignment so that teachers could easily retain control of the students and take attendance. Teachers are provided with student emergency contact information sheets for all students assigned to their homerooms/busses.

In an interview with the school nurse, the nurse explained in detail the protocols for distribution of KI to students and staff. Lists of students and permission slips for administering KI are updated each year. Pre-sorted bags of KI are designated for each student homeroom and are assigned to respective busses during evacuation. About 500 doses of KI were noted during the inspection, all within expiration date.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.2.14 Harford County Public Schools, Harford Friends School

Criterion 3.c.2:

As part of the Peach Bottom Atomic Power Station (PBAPS) Radiological Emergency Preparedness (REP) Exercise, the privately owned and operated Harford Friends School, adequately demonstrated implementing protective actions for students and faculty during participation in the REP Exercise and associated interview that were conducted on 2010 January 26 from 0845 hours to 1300 hours at the Harford Friends School, 708 Highland Road, Street, PA, 21154.

The Harford Friends School was a small educational enterprise with 44 students (Grades 1-8) and a faculty of between 10-18 full and part time educators/administrative personnel. (10 were at school for the exercise.) The school was located on the second floor of a community building that also housed several Harford County Community Services activities. The school/facility was located inside the PBAPS 10-mile emergency planning zone (EPZ) approximately seven miles south, south, west of the PBAPS.

The Harford County Emergency Operations Plan (EOP) and the Harford County checklist, "Checklist for a Radiological Emergency at the Peach Bottom Atomic Power Plant for Risk Schools" provided guidance for all Harford County Risk Schools including the Harford Friends School. The standard checklists used at the school had been annotated with unique tasks for the Harford Friends School for getting the school ready to implement protective action decisions at the Alert, Site Area Emergency (SAE), and General Emergency (GE), Emergency Classification Levels (ECL). The checklists were used throughout the exercise by key school personnel.

The School Services Coordinator, located in the Harford County Emergency Operations Center (EOC), was the point of contact for providing ECL notifications, coordination of bus transportation and activation of the host school, unmet needs, and all related school information. Harford Friends School only communicated with the School Services Coordinator in the County EOC, the Bus Driver, and parents/guardians of students.

During the exercise, the School Services Coordinator notified the Harford Friends School of an Alert at PBAPS at 0920 hours. A dedicated (Red Phone) provided direct communications between the Harford County EOC and the school. Messages between the school and EOC were also transmitted by laptop computer over the Internet. Working out of his office, the Head of School (Principal) notified the faculty by telephone intercom, and checklists were used to implement required actions and completion times were annotated. Attendance was taken and reported to the School Services Coordinator in the County EOC. A Cobra two way radio system consisting of eight portable radios was activated and distributed to each classroom and administrative personnel to inform all faculty of the current status at the PBAPS and to check the status of protective action preparations.

At 0940 hours, notification of a SAE at the PBAPS was received at the school. The checklist items for a SAE were implemented including tuning an emergency radio to WXCY, 103.7 FM (local EAS station) at 0942 hours. A Tone Alert NOAA radio was also available in the Administrative Office.

A GE notification was received at the school at 1113 hours. The decision to evacuate versus shelter in-place was announced and the GE checklist was again used to complete required actions to prepare students and faculty for evacuation to the Forest Hills Elementary School located at 2407 Rocks Road, Forest Hills, MD. The distance between the schools was approximately 8 miles, and the travel time was about 15 minutes. Travel packets including student medical

records and essential school records were prepared for transport to the host school.

Potassium iodide (KI) was available for all students and faculty. KI (Thyrosafe, 65mg tablets in blister packaging, 3 - 20 tablet boxes, expiration date of 04/2012) was on hand and simulated to be issued and ingested by students and faculty after notification of the GE. A list of students with approval or opt out options for KI was used to ensure parental decisions were followed. (Six of 44 students were identified for exemption to use KI.)

Four individuals participated in the exercise and/or interview. The Head of School, a faculty member certified as a medical technician (School Nurse), and an administrative assistant participated for the school. A school bus driver from JDT Transportation, Inc. also participated in the interview. This was the first REP exercise for both the Harford Friends School faculty, and the school bus driver. All actively participated in the exercise/interview, and were knowledgeable of requirements that they had been trained on in December 2009.

The School Services Coordinator in the Harford Friends School EOC coordinated the dispatch of one 64 passenger bus from the JDT Transportation bus parking lot to the school. The bus arrived at the school at approximately 1000 hours. The bus driver had mobile radio and cell phone communications with the bus dispatcher but not with the risk or host schools. Communications from the Bus Driver through the Bus Dispatcher to the County EOC staff to the schools was available but not demonstrated. Maps showing the route and directions from Harford Friends School to the Forest Hills Elementary School were on the bus and reviewed during the interview. The Extent of Play Agreement indicated that Bus Drivers were not emergency workers and did not require dosimetry; however, the use of KI provided to the Bus Driver by the school was mentioned. The bus driver had not been briefed on KI by the Bus Company or County personnel. KI for the Bus Driver was available at the school but not demonstrated.

NOTE: As described above, the school bus arrived at the Harford Friends School at approximately 1000 hours while PBAPS was at the SAE ECL. However, the bus was parked out of view of the Head of School's 2nd floor office and was not observed by any of the school faculty. School buses are not used to bring students to the school because parents drop off and pick up their children. The Bus Driver did not come inside the building to alert the faculty of bus arrival. Had the school loaded students and faculty onto the bus in the estimated 20 minutes time frame and departed for the host school they would have been outside the PBAPS 10-mile EPZ and at the host school before notification to the school of the GE at 1113 hours. However, in that

circumstance the process of simulated distribution and ingestion of KI to students and faculty would not have been required. The scenario presented at the pre-exercise meeting indicated that the major release of radioactive iodine that would require evacuation of all areas inside the 5-mile ring, and 10-miles downwind to the SSE, S, SSW, and SW of the PBAPS occurred at 1145 hours.

Through interview, an Internet based e-mail notification system and/or a telephone tree would be activated by the Harford Friends School Head of School to notify all parents/guardians with school emergency information. This system would be used to notify of school evacuation and relocation to the host school in the event of an emergency at PBAPS. During the enrollment process used by the Harford Friends School, parents/guardians are provided with emergency information handouts containing ECL and evacuation order statements that would be used as instructions for student pick up in the event of an emergency at PBAPS.

All activities were based on the plans and procedures and completed as they would have been in an actual emergency except as noted in the extent of play agreement.

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

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

3.3.3 Pennsylvania Jurisdictions

3.3.3.1 Pennsylvania Emergency Operation Center

Criterion 1.a.1:

This criterian was evaluated at a previous exercise.

Criterion 1.c.1:
This criterian was evaluated at a previous exercise.

Criterion 1.d.1:
This criterian was evaluated at a previous exercise.

Criterion 1.e.1:
This criterian was evaluated at a previous exercise.

Criterion 2.a.1:
This criterian was evaluated at a previous exercise.

Criterion 2.b.1:
This criterian was evaluated at a previous exercise.

Criterion 2.b.2:
This criterian was evaluated at a previous exercise.

Criterion 2.c.1:
This criterian was evaluated at a previous exercise.

Criterion 2.d.1:
This criterian was evaluated at a previous exercise.

Criterion 2.e.1:
This criterian was evaluated at a previous exercise.

Criterion 3.b.1:
This criterian was evaluated at a previous exercise.

Criterion 3.c.1:

This criterian was evaluated at a previous exercise.

Criterion 3.c.2:

This criterian was evaluated at a previous exercise.

Criterion 5.a.1:

This criterian was evaluated at a previous exercise.

Criterion 5.b.1:

This criterian was evaluated at a previous exercise.

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

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

SECTION 4: CONCLUSION

The State of Maryland and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies and two (2) Areas Requiring Corrective Action (ARCAs) identified as a result of this exercise; one (1) of the ARCAs were successfully re-demonstrated during the exercise. One (1) additional ARCA's were redemonstrated and evaluated by the Regional FEMA staff on February 5, 2010. There were one (1) ARCAs from the previous exercise sucessfully re-demonstrated during this exercise. There were no(0)planning issues identified.

APPENDIX A: EXERCISE TIMELINE

Table 1 - Exercise Timeline
DATE: 2010-01-26, SITE: Peach Bottom Atomic Power Station, PA

Emergency Classification Level or Event	Time Utility Declared	PA EOC	MD EOC	MD AAC MDE	CcICo EOC	HrfrdCo EOC
Unusual Event	NA	NA	NA	NA	NA	NA
Alert	0810	0823	0823	0823	0823	0823
Site Area Emergency	0910	0922	0922	0922	0922	0922
General Emergency	1025	1036	1044	1044	1037	1036
Simulated Rad. Release Started	0910	0922	0922	0922	0922	0922
Simulated Rad. Release Terminated	NA	N/A	NA	Ongoing	NA	NA
Facility Declared Operational		0830	0910	0930	0841	0903
Declaration of State of Emergency		1000	1034	1000	1108	1106
Exercise Terminated		1329	1329	1313	1308	1306
Early Precautionary Actions:		NA	NA	NA	NA	NA
1st Protective Action Decision: Shelter animals and place on stored feed; Air, rail, and water restriction 0-5 miles		0945	0945	0945	0945	0945
1st Siren Activation		0955	0955		0955	0955
1st EAS or EBS Message		0958	0958		0958	0958
2nd Protective Action Decision: Evacuate Harford and Cecil County in 10 mile EPZ; Extend shelter animals to 50 miles downwind; Suspend planting and harveting 50 miles downwind		1105	1105	1105	1105	1105
2nd Siren Activation		1115	1115		1115	1115
2nd EAS or EBS Message		1118	1118		1118	1118
KI Administration Decision: 0-360 degrees in the 10 mile EPZ		1118	1105	1055	1118	1105

APPENDIX B: EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2010-01-26, SITE: Peach Bottom Atomic Power Station, PA

LOCATION	EVALUATOR	AGENCY
Pennsylvania Emergency Operation Center	Daniel Lerch	FEMA RIII REP
Maryland Emergency Operations Center	Marcy Campbell Clark Cofer Walter Gawlak Roy Smith	ICF ICF ICF ICF
Maryland Accident Assessment Center, Maryland Department of the Environment	Reggie Rogers *Martin Vyenielo	ICF FEMA
Maryland Department of Environment Activities, Exelon Emergency Operating Facility, Coatesville, PA	Todd Sniffin	ICF
Maryland State Field Monitoring Team A	Keith Earnshaw	ICF
Maryland State Field Monitoring Team B	Richard Watts	ICF
Cecil County Emergency Operations Center	Jon Christiansen *Richard Kinard Michael Petullo Joseph Suders	ICF FEMA RIII REP ICF FEMA RIII
Cecil County Back-up Route Alerting	Gregg Dawkins	ICF
Cecil County Traffic and Access Control Point	Thomas Hegele	ICF
Harford County Emergency Operations Center	Gary Goldberg Andrew Hower *Michael Shuler Harold Spedding	ICF FEMA RIII REP FEMA RIII REP ICF
Harford County Back-up Route Alerting	Ernest Boaze	ICF
Harford County Traffic and Access Control Point	James McClanahan	ICF
Harford County Emergency Worker Monitoring and Decontamination Station, Fallston High School	Adrian Miron	ICF
Harford County Monitoring and Decontamination Center, Fallston High School	Lawrence Visniesky	ICF
Harford County Congregate Care Center, Patterson Mill High School	Steve Denson	ICF
Cecil County Public School District, Conowingo Elementary School	Frank Cordaro	ICF
Harford County Public School District, Darlington Elementary School	William Palmer	ICF
Harford County Public School District, Dublin Elementary School	David Kayen	ICF
Harford County, Harford Christian School	Stephen Watts	ICF
Harford County Public Schools, Harford Friends School	George R MacDonald	ICF
* Team Leader		

This page is intentionally blank.