



Beaver Valley Power Station

After Action Report/ Improvement Plan

Exercise Date - April 20, 2010

Radiological Emergency Preparedness (REP) Program



FEMA

Published July 29, 2010

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EXECUTIVE SUMMARY

During the week of April 20, 2010, a full-scale plume exercise was evaluated in the 10-mile plume exposure pathway, emergency planning zone (EPZ) around the Beaver Valley Power Station (BVPS) by the Department of Homeland Security/Federal Emergency Management Agency, Region III/National Preparedness Division/Radiological Emergency Preparedness Program (DHS/FEMARIII/NPD/REPP), Philadelphia, Pennsylvania. The purpose of the exercise and the out-of-sequence demonstrations was to assess the level of State and local preparedness in responding to a radiological emergency. The exercise and out-of-sequence demonstrations were held in accordance with DHS/FEMARIII/NPD/REPP 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 during the week of June 22, 2008.

FEMA wishes to acknowledge the efforts of the many individuals in the State of West Virginia and its one risk county (Hancock), who were evaluated at this exercise.

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

This report contains the final evaluation of the biennial exercise involving a radioactive plume release from the Beaver Valley Power Station and the evaluation of the following out-of-sequence activities:

Emergency Worker, Monitoring and Decontamination: Conducted on April 19th between 1900 and 2100 hours in Hancock County.

Reception Center, Mass Care and Monitoring/Decontamination of the Public: Conducted on April 20th between 1900 and 2100 hours in Hancock County.

Traffic/Access Control: Conducted on April 20th at 1500 hours in Hancock County.

Except where noted in this report, the State and local organizations demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There was one (1) Deficiency, three (3) Areas Requiring Corrective Action (ARCA) (one (1) of which was successfully redemonstrated), and five (5) new Planning Issues identified during the exercise. Two (2) Planning Issues from a previous exercise were re-evaluated; one (1) was resolved.

The Deficiency was re-demonstrated and the criteria requirements met on July 7, 2010.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

Beaver Valley Power Station

Type of Exercise

Plume

Exercise Date

April 20, 2010

Program

Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type

Radiological Emergency

1.2 Exercise Planning Team Leadership

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1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the Beaver Valley Power Station exercise:

State Jurisdictions

WEST VIRGINIA EMERGENCY OPERATIONS CENTER

Pennsylvania Emergency Management Agency Liaison

West Virginia Bureau of Radiological Health, Department of Public Health

West Virginia Bureau of Public Health - Office of Environmental Health Services -
Radiation Toxins and Indoor Air

West Virginia Department of Homeland Security and Emergency Management

West Virginia Department of Environmental Protection
West Virginia Department of Health
West Virginia University Agricultural Extension Service

Risk Jurisdictions

HANCOCK EMERGENCY OPERATIONS CENTER

Hancock County 911 Center
Hancock County Commissioner
Hancock County Health Department
Hancock County Office of Emergency Management
Hancock County Sheriff
Hancock County Sheriff Reserves

Lawrenceville Volunteer Fire Department

Marshall University

New Cumberland City Police Department
New Cumberland Volunteer Fire Department
New Manchester Volunteer Fire Department
Weirton City Fire Department

WV SCHOOL DISTRICTS AND SCHOOLS

Oak Glen School District

Private Organizations

Amateur Radio Emergency Services (ARES)
American Red Cross - Hancock County Chapter
American Red Cross - River Valley Chapter
American Red Cross - Wheeling Chapter
First Energy / Beaver Valley Power Station (BVPS)
Radio Amateur Civil Emergency Services (RACES) - NOVERA

Federal Jurisdictions

Federal Emergency Management Agency (FEMA)
Nuclear Regulatory Commission (NRC)

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 April 20, 2010, to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the Beaver Valley Power Station. 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.

This report is provided to the NRC and participating States. State and local governments utilize the findings contained in this report for 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 3 of this report, entitled “Analysis of Capabilities,” 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 and includes recommendations for corrective actions. This section also includes 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.

Section 4, “Conclusion,” is the overall assessment of the exercise and the participants’ ability to protect the public.

Appendix A, “Improvement Plan” includes descriptions of any Deficiencies, Areas Requiring Corrective Action (ARCAs), and Planning Issues assessed during this exercise, recommended corrective actions, and the State and local governments’ schedule of corrective actions for each identified exercise issue.

Appendix B, “Exercise Time Line,” is a tabular depiction of the exercise events and the sequential time of occurrence.

Appendix C, “Exercise Evaluators and Team Leaders,” is a table that shows the names of evaluators, the locations to which they were assigned, and the organization for which the work.

Appendix D, "Acronyms and Abbreviations," is a glossary of terminology used in this report.

Appendix E, “Exercise Plan,” is a description of the exercise criteria scheduled for evaluation, the method of demonstration, and the extent to which participants will perform their assigned activities.

The following is a basic description of the Plume Pathway Emergency Planning Zone (EPZ): BVPS is located in western Pennsylvania on the southern bank of the Ohio River in Beaver County, Pennsylvania. The site is located near Shippingport Borough, about 1 mile from

Midland, Pennsylvania, on 501 acres of fairly level terrace owned by the FirstEnergy Nuclear Operating Company. The latitude for the site is 40°37'18" north; the longitude is 80°26'02" west. Two pressurized water reactors are located on the 17 acres of the parcel occupied by the power station. The operating licenses for the facility were granted in July 1976 (Unit 1) and August 1987 (Unit 2); commercial operations began at the site during October 1976 (Unit 1) and November 1987 (Unit 2). Unit 1 generates an output of 810 megawatts (MW); the Unit 2 output is 833 MW. One hundred and ten sirens cover the plume EPZ; 85 of the sirens are in Pennsylvania. Steep slopes that contributed to the development of river mill towns, where most of the industry and residences are located, characterize the general topography of the region. The region is part of the large industrial complex centered on Pittsburgh, Pennsylvania. The terrain rises from the Ohio River to a maximum elevation of 1,160 feet above mean sea level (MSL). Drainage is predominantly toward the river. The soils in the area are made up of alluvial sands and gravel. The bedrock geology consists of sedimentary formations composed of shale and sandstone. No faults are located under or near the facility. The Ohio River is about 664 feet above MSL, and the plant grade is 735 feet above MSL. The climate is a humid continental type. The average annual temperature for the area is about 50 °F. Annual precipitation is approximately 36 inches.

The area around the plant is mostly agricultural or undeveloped. The nearest community is Shippingport Borough, Pennsylvania, which is the parent borough for the site and has a population of 237. The nearest major population center of more than 25,000 people is Pittsburgh, which has a population of 334,563 and lies 22 miles to the southeast. The maximum population distribution, including residents and transients, is 94,023 in the 10-mile EPZ.

Four major industries employ a total of 8,000 persons within 10 miles of the plant. Two small airfields (Beaver County and Herron Airport) are also in the 10 mile EPZ. Runways at both airports are oriented so that the extensions do not pass over the plant. No major thoroughfares exist in the immediate vicinity. The main line of the Conrail Railroad runs parallel to the plant along the north bank of the Ohio River.

2.2 Exercise Objectives, Capabilities and Activities

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

2.3 Scenario Summary

There are two nuclear units at the Beaver Valley Power Station, Pennsylvania. Both are Pressurized Water Reactors. Each reactor is equipped with three Steam Generators(S/G) referred to as A, B and C S/G. BVPS Unit 2 will be participating in the exercise.

At 1515 on April 20, 2010, BVPS Unit 2 is operating at 100 percent power. A motor driven auxiliary feed water pump is out of service owing to replacement of a relay. This is one of the systems that can be used to maintain water level in the steam generators. Also, the Reactor Coolant System (RCS) radioactivity level is elevated owing to minor fuel clad leakage. Slightly elevated levels of radio iodine are present in the reactor coolant and this is within the operating technical specification limit.

The weather forecast is partly cloudy with light winds at 5 miles per hour (mph) from the East. Temperature highs today will be in the 50's.

At 1515, the exercise begins. At 1530 there is an explosion in the air supply system to one of the two Unit 2 emergency diesel generators (EDG-2). At 1547, an ALERT is declared by the Shift Manager in accordance with Emergency Action Level (EAL) 4.2, "explosion in any of the areas that is affecting safety related systems". Winds are from 82 degrees at 3 mph. There is no radioactive release as a result of this event. Unit 2 continues to operate at 100 percent power.

At 1615 a control rod will drop into the core. The pressure and temperature transient produced in the reactor system and the nuclear fuel rods by the dropped control rod will cause the initial fuel clad defect to expand significantly leading to a rise in RCS radioactivity level. This is observed by the operators as a reactor coolant letdown system radiation monitor alarm. Access to some plant spaces may be restricted due to elevated exposure rates. At 1730, a second dropped control rod will occur. This will add to the amount of fuel clad defects and RCS radioactivity level.

The crew will manually shut down (trip) the reactor. Upon the reactor trip, for scenario purposes a series of somewhat unrelated mechanical and electrical equipment failures occur. The end result is that all of the many ways to provide feed water to the S/G are not available at this time. With total S/G feed water flow less than 340 gallons per minute (gpm) and the water level in all steam generators less than or equal to 12%, the indicators for a Site Area Emergency will be met

based on EAL 1.1.1 and 1.2.1, Critical Safety Function (CSF) Status – Heat Sink CSF Red Path (Potential LOSS) i.e., the ability to use the S/G to cool the reactor is severely limited. A Site Area Emergency should be declared by approximately 1746.

Based on the maintenance crew actions and priorities, at approximately 1751, emergency diesel generator EDG 2-1 may be returned to service and the failed electrical 2AE bus is re-energized. This will provide a source of feed water to the S/G via one of the motor driven Auxiliary Feed Water pumps.

At 1830, the “B” steam line isolation valve will inadvertently fail shut causing the “B” atmospheric steam dump (relief) valve to fail open. The result is that “B” S/G is now open to the atmosphere outside of the reactor containment building. Attempts to close the “B” atmospheric steam dump valve or the manual isolation valve will be unsuccessful. A non radioactive or at worst mildly radioactive steam release to the atmosphere is occurring.

At 1850 an 800 gpm steam generator tube rupture occurs in the “B” steam generator. Radioactive reactor coolant water enters the B S/G through the ruptured tube and flashes to steam. The radioactive steam escapes through the stuck open atmospheric steam relief valve. An airborne radiological release requiring off-site protective actions begins. This is a monitored, unfiltered release pathway. The B main steam line radiation monitor will be reading approximately $3.1E7$ micro curie per second (uCi/sec), which is well above the indicator threshold of $1.32E7$ uCi/sec for EAL 7.1, Table 7.1 column 4. As a result, the indicator for General Emergency (GE) will be met based on EAL 7.1 “Exclusion Area Boundary dose resulting from an actual or imminent Release of gaseous radioactivity that exceeds 1000 mR TEDE or 5000 mR child thyroid CDE for the actual or projected duration of the release.” By approximately 1905, a General Emergency should be declared. A Protective Action Recommendation is issued by BVPS as “Evacuate 0-5 miles 360° AND SHELTER the remainder of the 10 mile EPZ AND advise the general public to administer KI in accordance with the state plan.” The wind speed is 5 mph and the wind direction is from the east to the west. Based on crew actions and priorities, at approximately 1915, repairs to the steam driven Auxiliary Feed Water pump may be completed. Efforts will continue to secure the release from “B” steam generator.

At 1950, additional tube failures occur in the “B” steam generator which increases the size of the tube rupture to approximately 1200 gpm. As a result, a rapid increase in the release rate and a resultant reading on monitor of approximately $9.0E7$ uCi/sec is observed. A new dose projection calculation will be performed with the higher release rate. At approximately 2005, an expanded Protective Action Recommendations of, “Evacuate 0 10 miles 360° AND advise the general public to administer KI in accordance with the state plan” is issued by BVPS. The wind speed is

5 mph and the wind direction is from the east to the west.

At 2100, significant vibration will cause the “B” atmospheric steam relief valve to shut, terminating the radioactive release to the environment.

At 2115 the 2010 Beaver Valley Evaluated Exercise will end if all objectives are met.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Exercise Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities that participated in the April 20, 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 Beaver Valley Power Station (BVPS).

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 E 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.

3.2 Summary Results of Exercise Evaluation

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 ARCAs assessed and no unresolved ARCAs from prior exercises)

A ARCA(s) assessed

D Deficiency

P Plan Issue

N Not Demonstrated

Exercise criterion that required re-demonstration appear on Table 3.1 as M (Met); however, the ARCA and the Corrective Action Demonstrated will still be reflected in Section 3.3, Criteria Evaluation Summaries, of this report. Planning Issues that are resolved before the report is published are noted in Section 1, Executive Summary, but are not included in the report.

Table 3.1 - Summary of Exercise Evaluation

DATE: 2010-04-20 SITE: Beaver Valley Power Station, PA M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		WVEOC	WVPC	WVAAC	WVFAMT	HC EOC	HC PIC	HC TCP/ACP CCH	HC LFD BuRA	HCRC WHS	HC MDC WHSC	HC MCC WHS	HCEWMDC NCFD	HC HCSD OGMS
	Emergency Operations Management													
Mobilization	1a1	P	M	M		M	M							
Facilities	1b1													
Direction and Control	1c1	M		A		M								
Communications Equipment	1d1	M	M	M	A	M	M	M	M					
Equip & Supplies to support operations	1e1	M	M	M	M	M	M	M	M	M	M	M	M	
Protective Action Decision Making														
Emergency Worker Exposure Control	2a1	M		P		M								
Radiological Assessment and PARs	2b1	M		M										
Decisions for the Plume Phase -PADs	2b2	M		M		M								
PADs for protection of special populations	2c1	M				M								
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	M	M		M	
Implementation of KI decision	3b1	M			M	M		M	M					
Implementation of protective actions for special populations - EOCs	3c1					M								
Implementation of protective actions for Schools	3c2					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				P									
Field Teams obtain sufficient information	4a2			P		M								
Field Teams Manage Sample Collection Appropriately	4a3				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	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						
Emergency information and instructions for the public and the media	5b1	M	P			M	M							
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 West Virginia Jurisdictions

3.3.1.1 State of West Virginia Emergency Operations Center

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

ISSUE NO.: 03-10-1a1-P-06

CRITERION: OROs use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner.

CONDITION: The State Emergency Operations Center (EOC) staff did not contact, or mobilize, representatives from the American Red Cross, West Virginia State Police, or the Department of Transportation, as required in Annex Fourteen (14) of the West Virginia Emergency Operations Plan at the “Site Area Emergency” ECL. The Extent of Play (EOP) did not state that the participation of these agencies would be simulated.

POSSIBLE CAUSE: Personnel from the West Virginia Department of Homeland Security and Emergency Management determined that the participation of the designated agencies were not required as part of this exercise, even though full staffing is expected should an actual emergency classification of “Site Area Emergency” be made by Beaver Valley Power Station (BVPS).

REFERENCE: NUREG-0654, A.4; D3.4; E.1.2

EFFECT: The EOP did not clearly reflect the decision by the State to forego the involvement of certain agencies in exercise play. The State made such a decision, as they deemed the lack agency participation as not being critical to state response to the simulated emergency.

RECOMMENDATION: All agencies noted in Annex Fourteen (14) of the West Virginia Emergency Response Plan should either be involved actively in the exercise process or negotiate with the Federal Emergency Management Agency (FEMA) specifically excusing designated State agencies from participation in the EOP agreement.

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

3.3.1.2 West Virginia Public Information Center

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

ISSUE NO.: 03-10-5b1-A-08

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

CONDITION: The West Virginia Public Information Officer (PIO) did not provide a comprehensive media briefing on the current status of the simulated emergency at the Beaver Valley Power Station (BVPS) and the response by State and County emergency management officials.

POSSIBLE CAUSE: The West Virginia PIO was new to the commercial nuclear power plant emergency response process. Specific training had not been provided to the individual.

REFERENCE: NUREG 0654, G.2

EFFECT: Incomplete information was provided to the public regarding the current status of the simulated emergency, actions being taken by State and County emergency responders, and specific actions the public should take.

CORRECTIVE ACTION DEMONSTRATED: A comprehensive media briefing was conducted, addressing all key items of interest.

- c. DEFICIENCY: None
- d. PLAN ISSUES: 5.b.1.

ISSUE NO.: 03-10-5b1-P-07

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

CONDITION: There are discrepancies between public information documents regarding evacuee destinations and school evacuation, as indicated by the examples below:

Page 9-3, Annex 9, Suggested News Releases, titled “Information Update for Hancock County,” gives evacuation information for residents of various sections of the County. The fourth paragraph states: “Persons in the areas near Wiley Ridge Road should proceed South on Wiley Ridge Road to Route 2; South on Route 2 to Pennsylvania Avenue (Route 105); East on Pennsylvania (Route 105) to the Mass Care Center.” The name and location of the Mass Care Center is not identified.

Page 9-3, Annex 9, Suggested News Releases, titled “Evacuation Announcement for Hancock County.” This is a stock Emergency Alert System (EAS) message meant to be updated in an actual emergency. The fifth paragraph states: “All persons located in this area should proceed to the designated mass care center in Weirton, West Virginia, at this time.” Another stock EAS message, titled “Evacuation Announcement,” on an unnumbered page used the same wording. However, on an unnumbered page of Annex 9, titled “Annex Information Update,” evacuees who need to shelter are instructed to go to Mountaineer Park and be assigned to one of the site care centers. The documents should provide identical instructions.

Annex 9, Suggested News Releases, two documents, titled Annual Information

Update and School Evacuation Announcement, on unnumbered pages, gives inconsistent information regarding school children. The Annual Information Update states that New Cumberland Elementary students will be taken to Weir High School. However, the School Evacuation Announcement states: “Special education children, who live inside the 10-mile zone and attend New Cumberland Elementary School, will be held at New Cumberland Elementary School until picked up by parents.”

POSSIBLE CAUSE: Public information materials have not been reviewed for accuracy.

REFERENCE: NUREG 0654, G.2

EFFECT: Incorrect information could be provided to the public regarding protective actions to be taken.

RECOMMENDATION: Review public information material to ensure consistent directions are provided to the general public.

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

3.3.1.3 West Virginia Accident Assessment Center

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

ISSUE NO.: 03-10-1c1-A-03

CRITERION: Key personnel with functional roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible.

CONDITION: Personnel from the West Virginia Bureau of Public Health (BPH) did not fill the command and control functions in the Accident Assessment Area pursuant to their plans and procedures.

POSSIBLE CAUSE: Trained personnel were not available to staff the function.

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

EFFECT: The lack of command and control of the Dose Assessment Area can result in no input into the West Virginia Protective Action Recommendation (PAR) and Protective Action Decision process.

RECOMMENDATION: Provide qualified West Virginia BPH staff to perform the key Accident Assessment functions.

- c. DEFICIENCY: None
- d. PLAN ISSUES: 4.a.2.

ISSUE NO.: 03-10-4a2-P-08

CRITERION: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, I.8., 11., J.10.a)

CONDITION: The Field Monitoring Team (FMT) did not have a procedure for ensuring that samples transferred to other locations are handled in a way to maintain sample integrity and did not have a chain of custody form.

POSSIBLE CAUSE: No chain of custody plans and procedures.

REFERENCE: NUREG 0654, I.9

EFFECT: When the validity of sample results is in question laboratory decisions based on the sample results are subject to question.

RECOMMENDATION: Add a section on sample handling and transfer to the FMT procedures with a chain of custody form.

- e. NOT DEMONSTRATED: None

- f. PRIOR ISSUES - RESOLVED: None
- g. PRIOR ISSUES - UNRESOLVED: 2.a.1.

ISSUE NO.: 03-06-2a1-P-02

ISSUE: The exposure control system in place for West Virginia is confusing and inconsistent and does not list exposure limits in the proper units. There is also no information concerning the limits for declared pregnant workers. While the present system does give the reporting succession for worker exposures, it does not explicitly name who may authorize exposures above the established limits.

The guidelines are visually confusing: there is a table of “exceptions” that appears, at first glance, to list the exposure limits. The statement above the table “the PAG for all Emergency Workers (EWs) is 5 Rem, except for the following:” is easily overlooked. The instructions about which EWs are allowed up to 25 Rem while inside the plume exposure EPZ is unclear (specific job functions would be helpful). There is no information concerning limits for declared pregnant workers.

The limits are listed in “Rem” without any indication on how this value is determined. The direct-reading dosimeters (DRDs) have units of R (exposure), not Rem (dose). The limits given are the normal dose limits (total effective dose equivalent (TEDE), which is the sum of the effective dose equivalent (EDE) from external exposure and the committed effective dose equivalent (CEDE) from inhalation of contaminated air). DRDs can only measure the EDE portion of the TEDE. Initially, West Virginia personnel assume that there is no dose from inhalation of contaminated air (i.e., there are only noble gases in the release, no radioiodines and no particulates). If Beaver Valley Power Station dose assessment personnel provide information about the EDE/TEDE ratio being something other than 1, then a new limit based on this ratio is calculated (this calculation is not proceduralized). For releases that have a significant non-noble gas component over a short duration, this method could result in an actual dose higher than the 5 Rem dose limit before the new limit could be determined.

REASON UNRESOLVED: The State of WV should consider revising or clarifying their procedures so that:

-
1. The EW dose limits (Annex 15 Tab 4) are consistent with the US EPA guidance in EPA-400-R-92-001.

 2. The Turn Back values that are usually read on the direct reading dosimeters (DRD) should be in the same radiation units as shown on the DRD that is in Roentgen.

 3. The definition of EDE in the EDE/TEDE ratio should be corrected to be External Effective Dose Equivalent (and not Effective Dose Equivalent). This is consistent with the US EPA definition and, is the parameter calculated by the MIDAS and RASCAL dose projection models for use in the EDE/TEDE ratio. EDE is the sum of the cloud shine and ground shine external dose equivalent.

 4. The use of electronic dosimeters or pencil dosimeters with a range of 0 to 5R or 0 to 2R should be considered to accommodate the possibility of EDE/TEDE ratios as low as 1/20 and to read the Turn Back exposure values for the State of WV pregnant emergency workers.

 5. The policy for pregnant workers should be made consistent. The Hancock County Plan does not allow pregnant emergency radiation workers. However, the WV State Plan allows for pregnant emergency radiation workers with the appropriate dose limit of 0.5 rem. Also, a practical problem exists in the inability to read the Turn Back Value of 0.25R on the 0 to 20 R DRD.

The State of West Virginia Emergency Response Plan (WV ERP), Annex 15 Tab 4, dated April 2008, contains pre-authorized dose limits and turn-back values for the various categories of Emergency Worker assignments. Although it is stated on the top of the Table that the dose limit for all workers is 5 rem TEDE, different dose limits are provided for the different EW assignments as exceptions. A dose limit of 10 rem TEDE is assigned for EW taking care of special populations or at special facilities; for those assigned to tasks in the plume EPZ it is 25 rem TEDE. These dose limits contained in the W VA Plan are different from the 5 rem TEDE recommended limit for EW contained in USEPA Guidance EPA-400-R-92-001. Based on USEPA guidance the 10 rem and 25 rem dose values can be used as exposure upgrades for the identified different assignments and, this requires authorization when it appears that the 5 rem dose limit will be exceeded and other

options are not available.

In the WV ERP the Turn Back values stated: for EW is one half (1/2) of the dose limit given in the radiation units of rem. These should be provided in the radiation units of Roentgen as read on the DRD and not in units of rem. The EDE to TEDE ratio is applied to the Turn Back value only and not to the dose limit that should not change. For example, if the EDE/TEDE ratio is 1/2 and the EW dose limit is 5 rem, the Turn Back Value as read on the DRD is 1.25 R (2.5 Roentgen (R) x 1/2). A smaller EDE/TEDE ratio such as 1/10, would pose a practical problem as the Turn Back Value corresponding to the dose limit of 5 rem would now be 0.25 R and this is not easily read on a 0 to 20 R dosimeter. The use of electronic dosimeters or 0 to 5R range pencil dosimeters is recommended.

3.3.1.4 West Virginia Field Air Monitoring Team

- a. MET: 1.e.1, 3.a.1, 3.b.1, 4.a.3.
- b. AREAS REQUIRING CORRECTIVE ACTION: 1.d.1.

ISSUE NO.: 03-10-1d1-A-04

CRITERION: At least two communications systems are available, at least one operates properly, and communication links are established with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1.,2.)

CONDITION: Only one communication system was demonstrated for the West Virginia Field Monitoring Team (FMT), cell phones.

POSSIBLE CAUSE: Other systems were not activated (i.e., Radio Amateur Civil Emergency Services [RACES] and Field Team Center).

REFERENCE: NUREG-0654, F.1, 2

EFFECT: Failure of cell phones would have caused the inability of the Field Team to complete require actions.

RECOMMENDATION: Follow existing plans to have at least a primary and secondary communication system operable.

- c. DEFICIENCY: None
- d. PLAN ISSUES: 4.a.1.

ISSUE NO.: 03-10-4a1-P-04

CRITERION: Field teams are equipped to perform field measurements of direct radiation exposure (cloud & ground shine) and to sample airborne radioiodine and particulates (NUREG-0654, H.10., I.8., 9., 11.)

CONDITION: The West Virginia Field Monitoring Team (FMT) procedures call for a “response” check on all instruments, but not a source check. The WVFMT did not properly check the operation of the Eberline E-140, as a check source for these instruments in the low range was not available.

POSSIBLE CAUSE: Plans and procedures are inadequate to verify instrument operability.

REFERENCE: NUREG 0654, H.10; I.7, 8, 9

EFFECT: Improperly operating instruments can result in invalid measurements and erroneous data, which can subsequently contribute to improper protective action decisions.

RECOMMENDATION: Supply the FMT with an appropriate check source and affix a sticker to each instrument with the expected range of values to be obtained with the check source. Amend the WVFMT procedures to include a requirement to properly source check all instrument being used.

ISSUE NO.: 03-10-4a1-P-09

CRITERION: Field teams are equipped to perform field measurements of direct radiation exposure (cloud & ground shine) and to sample airborne radioiodine and particulates (NUREG-0654, H.10., I.8., 9., 11.)

CONDITION: The West Virginia Field Monitoring Team (FMT) procedures call for a “response” check on all instruments, but not a source check. The WVFMT could not properly check the operation of the RO-20 at the high range as an appropriate check source for this instrument in the high range was not available.

POSSIBLE CAUSE: Plans and procedures are inadequate to verify instrument operability.

REFERENCE: NUREG 0654, H.10; I.7, 8, 9

EFFECT: Improperly operating instruments can result in invalid measurements and erroneous data, which can subsequently contribute to improper protective action decisions.

RECOMMENDATION: Amend the WVFMT procedure to provide a safe method for source checking, not response checking the RO-20 at the high range. A suggested method would be to incorporate into the plans on how to check a high range meter, such as side by side comparison with an equivalent instrument in a higher dose rate field.

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

3.3.2 Risk Jurisdictions

3.3.2.1 Hancock County Emergency Operations Center

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 3.a.1, 3.b.1, 3.c.1, 3.c.2, 4.a.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 Hancock County Public Information Center

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

3.3.2.3 Hancock County Traffic and Access Control, County Court House

- 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 Hancock County, Lawrenceville Fire Department, Back-up Route Alerting

- 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

3.3.2.5 Hancock County Reception Center, Weir High School Complex

- a. MET: 1.e.1, 3.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

3.3.2.6 Hancock County Monitoring and Decontamination Center, Weir High School Complex

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

ISSUE NO.: 03-10-6a1-D-01

CRITERION: Reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers. (NUREG-0654, J.10.h., K.5.b)

CONDITION: The offsite response organization (ORO) did not adequately demonstrate the ability to monitor and decontaminate evacuees and their vehicles in accordance with the plan.

POSSIBLE CAUSE: 1. Personnel participating in monitoring and decontamination activities were unsure of their roles and responsibilities and accepted tasks independently without knowledge of job functions and the skills required. This included technical inaccuracies on personnel and vehicle decontamination.

2. Personnel were unaware of what equipment and supplies were available to support

the operation of the Relocation Center. Staff were also unaware of additional resources available in storage or available through the county to include decontamination supplies (soap, shampoo, towels for drying) and post decontamination supplies for up to 2,200 people.

REFERENCE: NUREG 0654, J.10.h; H; K.5.b; Weirton Fire Departments “Vehicle and Personnel Monitoring at Reception Center/Mass Care Center” Issue 13 Rev. 1

EFFECT: Evacuees coming to this facility would encounter long delays in being monitored and would be in danger of being inadequately decontaminated due to the absence of sufficiently trained personnel.

CORRECTIVE ACTION DEMONSTRATED: This criterion was evaluated in a re-demonstration exercise conducted on July 7, 2010. The ORO established a Monitoring and Decontamination Station at Weir High School in accordance with Hancock County Plans and Procedures.

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

3.3.2.7 Hancock County Mass Care Center, Weir High School Complex

- a. MET: 1.e.1, 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

3.3.2.8 Hancock County Emergency Worker Monitor and Decontamination Station, New Cumberland Fire Department

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

3.3.2.9 Hancock County, Hancock County School District, Oak Glen Middle School

- 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

SECTION 4: CONCLUSION

The State of West Virginia and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There was one (1) Deficiency identified that was successfully re-demonstrated. There were three (3) Areas Requiring Corrective Action (ARCAs) identified as a result of this exercise; one (1) ARCA was successfully re-demonstrated. Five (5) new planning issues were identified and of the two (2) prior planning issues, one (1) was resolved. (ref. Appendix A: 'Improvement Plan' for details concerning all issues)

APPENDIX A: IMPROVEMENT PLAN

Issue Number: 03-10-1a1-P-06		Criterion: 1a1
<p>ISSUE: The State Emergency Operations Center (EOC) staff did not contact, or mobilize, representatives from the American Red Cross, West Virginia State Police, or the Department of Transportation, as required in Annex Fourteen (14) of the West Virginia Emergency Operations Plan at the "Site Area Emergency" ECL. The Extent of Play (EOP) did not state that the participation of these agencies would be simulated.</p>		
<p>RECOMMENDATION: All agencies noted in Annex Fourteen (14) of the West Virginia Emergency Response Plan should either be involved actively in the exercise process or negotiate with the Federal Emergency Management Agency (FEMA) specifically excusing designated State agencies from participation in the EOP agreement.</p>		
<p>CORRECTIVE ACTION DESCRIPTION: West Virginia will provide the Final Extent of Play negotiation indicating that the American Red Cross, West Virginia State Police, and Dartment of Transportation would not participate and would be simulated for the 2010 Exericse. This issue will be addressed in the next Annual Letter of Certification.</p>		
<p>CAPABILITY: Communications</p>	<p>PRIMARY RESPONSIBLE AGENCY: West Virginia Department of Homeland Security and Emergency Management</p>	
<p>CAPABILITY ELEMENT: Planning</p>	<p>START DATE: 2010-05-01</p>	
<p>AGENCY POC: Rob Jelasic 304-558-5803</p>	<p>ESTIMATED COMPLETION DATE: 2101-12-31</p>	

Issue Number: 03-06-2a1-P-02

Criterion: 2a1

ISSUE: The exposure control system in place for West Virginia is confusing and inconsistent and does not list exposure limits in the proper units. There is also no information concerning the limits for declared pregnant workers. While the present system does give the reporting succession for worker exposures, it does not explicitly name who may authorize exposures above the established limits.

The guidelines are visually confusing: there is a table of “exceptions” that appears, at first glance, to list the exposure limits. The statement above the table “the PAG for all Emergency Workers (EWs) is 5 Rem, except for the following:” is easily overlooked. The instructions about which EWs are allowed up to 25 Rem while inside the plume exposure EPZ is unclear (specific job functions would be helpful). There is no information concerning limits for declared pregnant workers.

The limits are listed in “Rem” without any indication on how this value is determined. The direct-reading dosimeters (DRDs) have units of R (exposure), not Rem (dose). The limits given are the normal dose limits (total effective dose equivalent (TEDE), which is the sum of the effective dose equivalent (EDE) from external exposure and the committed effective dose equivalent (CEDE) from inhalation of contaminated air). DRDs can only measure the EDE portion of the TEDE. Initially, West Virginia personnel assume that there is no dose from inhalation of contaminated air (i.e., there are only noble gases in the release, no radioiodines and no particulates). If Beaver Valley Power Station dose assessment personnel provide information about the EDE/TEDE ratio being something other than 1, then a new limit based on this ratio is calculated (this calculation is not proceduralized). For releases that have a significant non-noble gas component over a short duration, this method could result in an actual dose higher than the 5 Rem dose limit before the new limit could be determined.

RECOMMENDATION: Completely revise the exposure limit forms. Provide clear guidance on the emergency worker functions that correspond to the different limit levels. Provide information on the effects of radiation to fetuses and the recommended dose limits to pregnant workers. Establish administrative limits (DRD readings in R) below the legal limits (TEDE dose in Rem) that should ensure the legal limits are not exceeded. Develop a procedure to modify the administrative limits based on actual release conditions. Provide training on the exposure control system.

State Response: This issue is being reviewed and changes are being made both to Annex 15 of the State Plan and Tab 2 of the County Plan.

CORRECTIVE ACTION DESCRIPTION: This issue is still under review by the State of West Virginia and will be addressed in the next Annual Letter of Certification.

CAPABILITY:
Communications

PRIMARY RESPONSIBLE AGENCY:
West Virginia Dept of Homeland Security and
Emergency Management

CAPABILITY ELEMENT:
Planning

START DATE:
2010-05-01

AGENCY POC:
Rob Jelasic 304-558-5380

ESTIMATED COMPLETION DATE:
2010-12-31

Issue Number: 03-10-1c1-A-03		Criterion: 1c1	
<p>ISSUE: Personnel from the West Virginia Bureau of Public Health (BPH) did not fill the command and control functions in the Accident Assessment Area pursuant to their plans and procedures.</p>			
<p>RECOMMENDATION: Provide qualified West Virginia BPH staff to perform the key Accident Assessment functions.</p>			
<p>CORRECTIVE ACTION DESCRIPTION: West Virginia DHS/EM will train personnel on mobilization procedures and demonstrate full staffing of the Accident Assessment Area at the next biennial exercise.</p>			
<p>CAPABILITY: Communications</p>		<p>PRIMARY RESPONSIBLE AGENCY: West Virginia Department of Homeland Security and Emergency Management</p>	
<p>CAPABILITY ELEMENT: Planning</p>		<p>START DATE: 2010-05-01</p>	
<p>AGENCY POC: Rob Jelasic 304-558-5803</p>		<p>ESTIMATED COMPLETION DATE: 2012-06-19</p>	

Issue Number: 03-10-4a2-P-08		Criterion: 4a2	
<p>ISSUE: The Field Monitoring Team (FMT) did not have a procedure for ensuring that samples transferred to other locations are handled in a way to maintain sample integrity and did not have a chain of custody form.</p>			
<p>RECOMMENDATION: Add a section on sample handling and transfer to the FMT procedures with a chain of custody form.</p>			
<p>CORRECTIVE ACTION DESCRIPTION: West Virginia procedures for field monitoring teams is under review and revision. This issue will be addressed in the next Annual Letter of Certification.</p>			
<p>CAPABILITY: Communications</p>		<p>PRIMARY RESPONSIBLE AGENCY: West Virginia Department of Homeland Security and Emergency Management</p>	
<p>CAPABILITY ELEMENT: Planning</p>		<p>START DATE: 2010-05-01</p>	
<p>AGENCY POC: Rob Jelasic 304-558-5803</p>		<p>ESTIMATED COMPLETION DATE: 2010-12-31</p>	

Issue Number: 03-10-1d1-A-04		Criterion: 1d1	
<p>ISSUE: Only one communication system was demonstrated for the West Virginia Field Monitoring Team (FMT), cell phones.</p>			
<p>RECOMMENDATION: Follow existing plans to have at least a primary and secondary communication system operable.</p>			
<p>CORRECTIVE ACTION DESCRIPTION: West Virginia will re-demonstrate this criterion during the 2010 Ingestion Pathway Exercise on August 10, 2010.</p>			
<p>CAPABILITY: Communications</p>		<p>PRIMARY RESPONSIBLE AGENCY: West Virginia Department of Homeland Security and Emergency Management</p>	
<p>CAPABILITY ELEMENT: Planning</p>		<p>START DATE: 2010-05-01</p>	
<p>AGENCY POC: Rob Jelasic 304-558-5803</p>		<p>ESTIMATED COMPLETION DATE: 2010-08-10</p>	

Issue Number: 03-10-4a1-P-04		Criterion: 4a1	
<p>ISSUE: The West Virginia Field Monitoring Team (FMT) procedures call for a “response” check on all instruments, but not a source check. The WVFMT did not properly check the operation of the Eberline E-140, as a check source for these instruments in the low range was not available.</p>			
<p>RECOMMENDATION: Supply the FMT with an appropriate check source and affix a sticker to each instrument with the expected range of values to be obtained with the check source. Amend the WVFMT procedures to include a requirement to properly source check all instrument being used.</p>			
<p>CORRECTIVE ACTION DESCRIPTION: West Virginia will review and revise the procedures for field monitoring teams. This issue will be addressed in the next Annual Letter of Certification.</p>			
<p>CAPABILITY: Communications</p>		<p>PRIMARY RESPONSIBLE AGENCY: West Virginia Department of Homeland Security and Emergency Management</p>	
<p>CAPABILITY ELEMENT: Planning</p>		<p>START DATE: 2010-05-01</p>	
<p>AGENCY POC: Rob Jelasic 304-558-5803</p>		<p>ESTIMATED COMPLETION DATE: 2010-12-31</p>	

Issue Number: 03-10-4a1-P-09		Criterion: 4a1	
<p>ISSUE: The West Virginia Field Monitoring Team (FMT) procedures call for a “response” check on all instruments, but not a source check. The WVFMT could not properly check the operation of the RO-20 at the high range as an appropriate check source for this instrument in the high range was not available.</p>			
<p>RECOMMENDATION: Amend the WVFMT procedure to provide a safe method for source checking, not response checking the RO-20 at the high range. A suggested method would be to incorporate into the plans on how to check a high range meter, such as side by side comparison with an equivalent instrument in a higher dose rate field.</p>			
<p>CORRECTIVE ACTION DESCRIPTION: West Virginia field monitoring team procedures will be reviewed and revised. This issue will be addressed in the next Annual Letter of Certification.</p>			
<p>CAPABILITY: Communications</p>		<p>PRIMARY RESPONSIBLE AGENCY: West Virginia Department of Homeland Security and Emergency Management</p>	
<p>CAPABILITY ELEMENT: Planning</p>		<p>START DATE: 2010-05-01</p>	
<p>AGENCY POC: Rob Jelasic 304-558-5803</p>		<p>ESTIMATED COMPLETION DATE: 2010-12-31</p>	

Issue Number: 03-10-5b1-P-07		Criterion: 5b1
<p>ISSUE: There are discrepancies between public information documents regarding evacuee destinations and school evacuation, as indicated by the examples below:</p> <p>Page 9-3, Annex 9, Suggested News Releases, titled “Information Update for Hancock County,” gives evacuation information for residents of various sections of the County. The fourth paragraph states: “Persons in the areas near Wiley Ridge Road should proceed South on Wiley Ridge Road to Route 2; South on Route 2 to Pennsylvania Avenue (Route 105); East on Pennsylvania (Route 105) to the Mass Care Center.” The name and location of the Mass Care Center is not identified.</p> <p>Page 9-3, Annex 9, Suggested News Releases, titled “Evacuation Announcement for Hancock County.” This is a stock Emergency Alert System (EAS) message meant to be updated in an actual emergency. The fifth paragraph states: “All persons located in this area should proceed to the designated mass care center in Weirton, West Virginia, at this time.” Another stock EAS message, titled “Evacuation Announcement,” on an unnumbered page used the same wording. However, on an unnumbered page of Annex 9, titled “Annex Information Update,” evacuees who need to shelter are instructed to go to Mountaineer Park and be assigned to one of the site care centers. The documents should provide identical instructions.</p> <p>Annex 9, Suggested News Releases, two documents, titled Annual Information Update and School Evacuation Announcement, on unnumbered pages, gives inconsistent information regarding school children. The Annual Information Update states that New Cumberland Elementary students will be taken to Weir High School. However, the School Evacuation Announcement states: “Special education children, who live inside the 10-mile zone and attend New Cumberland Elementary School, will be held at New Cumberland Elementary School until picked up by parents.”</p>		
<p>RECOMMENDATION: Review public information material to ensure consistent directions are provided to the general public.</p>		
<p>CORRECTIVE ACTION DESCRIPTION: Hancock County Emergency Management will review and revise the cited public information documents. This issue will be addressed in the next Annual Letter of Certification.</p>		
<p>CAPABILITY: Communications</p>	<p>PRIMARY RESPONSIBLE AGENCY: Hancock County Emergency Management</p>	
<p>CAPABILITY ELEMENT: Planning</p>	<p>START DATE: 2010-05-01</p>	
<p>AGENCY POC: J.P. Jones 304-564-4040</p>	<p>ESTIMATED COMPLETION DATE: 2010-12-30</p>	

APPENDIX B: EXERCISE TIMELINE

Radiological Emergency Preparedness Exercises are driven by a technical scenario which is developed by a team of specialists at the nuclear power plant. This scenario includes a sequence of hypothetical events that could pose a safety hazard requiring offsite response officials to respond in a timely and efficient manner. As the scenario escalates Emergency Classification Levels escalate correspondingly. Offsite response officials implement protective actions expressly designed to ensure public safety. This section describes the times the events occurred and when the appropriate corresponding actions were taken.

Table 1 - Exercise Timeline
DATE: 2010-04-20, SITE: Beaver Valley Power Station, PA

Emergency Classification Level or Event	Time Utility Declared	WV EOC	WV PIC	WV AAC	HC EOC
Unusual Event	N/A	N/A	N/A	N/A	N/A
Alert	1541	1548	1548	1548	1548
Site Area Emergency	1744	1746	1746	1746	1751
General Emergency	1901	1905	1905	1905	1911
Simulated Rad. Release Started	1830	1854	N/A	N/A	1911
Simulated Rad. Release Terminated	2350	N/A	N/A	N/A	N/A
Facility Declared Operational		1617	1617	1617	1618
Declaration of State of Emergency		1821	1821	1821	1858
Exercise Terminated		2103	2103	2103	2120
Early Precautionary Actions:		1828	1828	1828	1815
1st A &N Decision:		1815	1815	1815	1815
1st Siren Activation		1825	1825	1825	1825
1st EAS or EBS Message		1828	1828	1828	1828
2nd A &N Decision:		1935	1935	1935	1935
2nd Siren Activation		1945	1943	1945	1945
2nd EAS or EBS Message		1948	1945	1948	1948
KI Administration Decision (Emergency Workers):		1935	1935	1935	1936
KI Administration Decision (General Public):		1935	1935	1935	1936

APPENDIX C: EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2010-04-20, SITE: Beaver Valley Power Station, PA

LOCATION	EVALUATOR	AGENCY
State of West Virginia Emergency Operations Center	Mark Dalton *Richard Kinard Robert Neff Lawrence Visniesky	ICF FEMA RIII REP FEMA RIII REP ICF
West Virginia Public Information Center	Richard McPeak	ICF
West Virginia Accident Assessment Center	Reggie Rogers *Martin Vyenielo	ICF FEMA
West Virginia Field Air Monitoring Team	James Hickey	ICF
Hancock County Emergency Operations Center	Marynette Herndon *Andrew Hower Albert Lookabaugh William O'Brien Bruce Swiren	ICF FEMA RIII ICF ICF ICF
Hancock County Public Information Center	Wendy Swygert	ICF
Hancock County Traffic and Access Control, County Court House	David Kayen	ICF
Hancock County, Lawrenceville Fire Department, Back-up Route Alerting	Gregg Dawkins	ICF
Hancock County Reception Center, Weir High School Complex	Marynette Herndon	ICF
Hancock County Monitoring and Decontamination Center, Weir High School Complex	Marynette Herndon	ICF
Hancock County Mass Care Center, Weir High School Complex	Marynette Herndon	ICF
Hancock County Emergency Worker Monitor and Decontamination Station, New Cumberland Fire Department	Marynette Herndon	ICF
Hancock County, Hancock County School District, Oak Glen Middle School	David Kayen	ICF
* Team Leader		

APPENDIX D: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AAC	Accident Assessment Coordinator
AAM	Accident Assessment Manager
ACP	Access Control Points
ARC	American Red Cross
ARCA	Areas Requiring Corrective Action
BVPS	Beaver Valley Power Station
DRD	Direct Reading Dosimeters
EAS	Emergency Alert System
ECL	Emergency Classification Level
EMD	Emergency Management Director
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
EW	Emergency Worker
EWDC	Emergency Worker Decontamination Center
FMT	Field Monitoring Team
FTL	Field Team Leader
GE	General Emergency
GEC	Gold Executive Conference
HCEMD	Hancock County Emergency Management Director
HCEOC	Hancock County Emergency Operations Center
HCRO	Hancock County Radiological Officer
JPIC	Joint Public Information Center
LE	Law Enforcement
NRC	Nuclear Regulatory Commission
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PI	Public Information
PIO	Public Information Officers
PM	Portal Monitor
PRD	Permanent Record Dosimeter
RACES	Radio Amateur Civil Emergency Service
REP	Radiological Emergency Preparedness

RO	Radiological Officer
SAE	Site Area Emergency
SEOC	State Emergency Operations Center
TCP	Traffic Control Points
TEDE	Total Effective Dose Equivalent
UHF	Ultra High Frequency
VFD	Volunteer Fire Department
WEAPONS	WV Electronic Automated Police Online Networking System
WFD	Weirton Fire Department
WV	West Virginia
WVFMT	West Virginia Field Monitoring Team

APPENDIX E: EXERCISE PLAN

This Annex contains the Exercise Plan or Extent of Play which details the criteria by which Operational Response Organizations were evaluated and the extent to which the players will participate. Negotiations were conducted between the Commonwealth of Pennsylvania and FEMA Region III to specifically identify evaluation criteria that would be demonstrated by performance, interview and explanation, and/or simulation as allowed by current guidance and regulations.

For efficiency, some criteria are evaluated "Out of Sequence" because these activities are not dependent upon the incident scenario. Some participants in the exercise performed activities that were not evaluated because they had demonstrated their capabilities during a previous exercise; however, their participation was necessary for direction and control and exercise continuity.

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EVALUATION AREA 1
Emergency Operations Management

Sub-element 1.a – Mobilization

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

INTENT

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

EXTENT OF PLAY

State:

- Personnel will be pre-positioned. This pre-positioning will be for all locations, to include EOC, field locations and any out-of-sequence demonstrations.
- EOC Twenty-four (24) Hour Staffing will be demonstrated by roster.

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EVALUATION AREA 1
Emergency Operations Management
Sub-element 1.a – Mobilization (continued)

EXTENT OF PLAY

County:

- Demonstrate the capability to receive notification of an emergency situation from the licensee, verify the notification. Contact, alert, and mobilize key emergency personnel in a timely manner (simulated).

- Personnel will be pre-positioned. This pre-positioning will be for all locations, to include EOC, field locations and any out-of-sequence demonstrations.

- EOC Twenty-four (24) Hour Staffing will be demonstrated by roster.

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

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EVALUATION AREA 1
Emergency Operations Management

Sub-element 1.b – Facilities

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

INTENT

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

EXTENT OF PLAY

State:

- Not Evaluated.

County:

- Not Evaluated.

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

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EVALUATION AREA 1
Emergency Operations Management

Sub-element 1.c - Direction and Control

Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible. (NUREG-0654, A.1.d; A.2.a, b)

INTENT

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

EXTENT OF PLAY

State:

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

County:

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

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

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EVALUATION AREA 1
Emergency Operations Management

Sub-element 1.d – Communications Equipment

Criterion 1.d.1: At least two communication systems are available, at least one operates properly, and communication links are established and maintained with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1, 2)

INTENT

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

EXTENT OF PLAY

State:

- Telephone and at least one additional communications system will be available for demonstration.
- If a communications system is not functional, and exercise performance is not affected, no exercise issue will be assessed.
- Demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations.

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EVALUATION AREA 1
Emergency Operations Management
Sub-element 1.d – Communications Equipment (continued)

EXTENT OF PLAY

County:

- Telephone and at least one additional communications system will be available for demonstration.
- If a communications system is not functional, and exercise performance is not affected, no exercise issue will be assessed.
- Demonstrate the capability to manage the communication systems and ensure that all message traffic is handled without delays that might disrupt the conduct of emergency operations.
- Out-of-sequence demonstrations will have communications available but will not demonstrate them.
- Communications associated with medical support facilities were demonstrated during the March 2009 MS-1 Federal Evaluated Exercise and will not be demonstrated.

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

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EVALUATION AREA 1
Emergency Operations Management

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

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

INTENT

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

EXTENT OF PLAY

State:

- Maps and displays will be utilized in the EOC.
- Radiological instruments will be operationally checked. A label indicating calibration should be on each instrument or verifiable by other means, such as a letter.
- Radiological instruments used by the State Field Team will be with the team in Hancock County. Dosimetry for the State Field Team will be issued by the County.
- KI is not used by the General Public.

County:

- The dosimetry is exchanged annually and documentation will be verified during the exercise.
- The County will demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers.

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EVALUATION AREA 1

Emergency Operations Management

**Sub-element 1.e – Equipment and Supplies to Support Operations
(continued)**

EXTENT OF PLAY

County:

- Adequate quantities of dosimetry and KI are available at the County EOC and will be confirmed by physical inspection. Available supplies of KI will be within the expiration date indicated on KI bottles or blister packs.
- Maps and displays will be utilized in the EOC.
- Hancock County does not pre-distribute dosimetry.
- Dosimetry “Training Kits” will be available at the field locations to demonstrate the use of dosimetry.
- KI is not used by the General Public.
- A Law Officer in the County EOC will discuss Traffic and Access Control. An actual control point will not be established.
- Traffic Control/Access Control Points supplies/equipment will be explained during the April, 2010 interview.

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

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EVALUATION AREA 2

Protective Action Decision-Making

Sub-element 2.a - Emergency Worker Exposure Control

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

INTENT

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

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

EXTENT OF PLAY

State:

- The decision for KI can be "**not** to administer KI".

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EVALUATION AREA 2
Protective Action Decision-Making
Sub-element 2.a - Emergency Worker Exposure Control (continued)

EXTENT OF PLAY

County:

- Demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of pre-authorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels. This will be done by interview.
- Demonstrate through interview with County Director or his designee, how KI would be distributed to EPZ Emergency Workers.

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EVALUATION AREA 2
Protective Action Decision-Making

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

Criterion 2.b.1: Appropriate protective action recommendations are based on available information on plant conditions, field monitoring data, and licensee and ORO dose projections, as well as knowledge of onsite and offsite environmental conditions. (NUREG-0654, I.8, 10 and Supplement 3)

INTENT

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

EXTENT OF PLAY

State:

None

County:

- None

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

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EVALUATION AREA 2

Protective Action Decision-Making

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

EXTENT OF PLAY

State:

- The State should have the capability to make both initial and subsequent PADs.
- Demonstrate the capability to make initial PADs in a timely manner.
- The dose assessment personnel may provide additional PARs based on the subsequent dose projections, field monitoring data, or information on plant conditions. The decision-makers should demonstrate the capability to change protective actions as appropriate based on these projections, if appropriate.
- The PAD should be coordinated between the 3 States. A coordinated PAD does not necessarily mean the same PAD.
- The PAD will be coordinated between the State of West Virginia and Hancock County.
- At least one PAD / PAR will be demonstrated.
- In West Virginia, KI is not given to the General Public.

County:

- None

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

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EVALUATION AREA 2

Protective Action Decision-Making

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

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

INTENT

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

EXTENT OF PLAY

State:

- None

County:

- Schools will be demonstrated out of sequence on April 20, 2010.
- Special populations will be demonstrated through interview with appropriate EOC staff.

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

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EVALUATION AREA 2
Protective Action Decision-Making

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

Criterion 2.d.1: Radiological consequences for the ingestion pathway are addressed and appropriate protective action decisions are made based on on the ORO planning criteria. (NUREG-0654, I.8., J.11)

EXTENT OF PLAY

State:

- During the April 22, 2010 Table-Top Exercise, lab results will be provided by the Controller. The State will demonstrate the ability to conduct dose projections, assess sample results, and recommend protective actions based on the assessments.

County:

- None

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

Criterion 2.e.1: Timely relocation, re-entry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO's plan and/or procedures. (NUREG-0654, A.1.b., I.10., M)

State:

- Relocation, Re-entry, and Recovery decision-making will be made by the West Virginia Task Force through Table-Top Exercise discussions. Discussions will be driven by Controller injects and State provided dose projections and assessments. This demonstration will take place on April 22, 2010 at a Table-Top Exercise.

County:

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- None.

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EVALUATION AREA 3
Protective Action Implementation

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

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

INTENT

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

EXTENT OF PLAY

State:

- None

County:

- Emergency Workers who are assigned dosimetry will demonstrate the procedures to monitor and record dosimetry readings. The workers may be interviewed by the evaluator to determine their knowledge of radiological exposure control, radiation exposure limits, turnback values and whom to contact in the event authorization is needed to exceed their limits.

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EVALUATION AREA 3

Protective Action Implementation

**Sub-element 3.a – Implementation of Emergency Worker Exposure Control
(continued)**

EXTENT OF PLAY

County:

- If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed.
- Emergency workers may use any available resources (e.g., written procedures and/or co-workers) in providing responses.
- Dosimetry “Training Kits” will be available at the field locations to demonstrate the use of osimetry. Area monitoring kits may be utilized.
- The supply of DRDs, PRDs and KI will be available in the Hancock County EOC.

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

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EVALUATION AREA 3
Protective Action Implementation

Sub-element 3.b – Implementation of KI Decision

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals (not the general public) is maintained. (NUREG-0654, J. 10. e)

INTENT

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

EXTENT OF PLAY

State:

- The State should demonstrate the capability to formulate and disseminate appropriate instructions on the use of KI for those advised to take it.
- A decision not to take KI is an acceptable decision.

County:

- The County will demonstrate the capability to make KI available to emergency workers. The County will demonstrate the capability to accomplish distribution of KI consistent with decisions made. Organizations should have the capability to develop and maintain lists of emergency workers who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. The ingestion of KI recommended by the designated health official is voluntary. For evaluation purposes, the actual ingestion of KI is not necessary.

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EVALUATION AREA 3

Protective Action Implementation

Sub-element 3.b – Implementation of KI Decision (continued)

- If the decision for administering KI to Emergency Workers is made, the administration of KI will be simulated.

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

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EVALUATION AREA 3
Protective Action Implementation

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

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

INTENT

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

EXTENT OF PLAY

State:

- None

County:

- The capability to provide for the needs of special populations in accordance with plans and procedures discussed through interview.
- Contact with special populations and reception facilities will be simulated.
- Telephone calls will not be made
- One transportation provider will be contacted; all other calls will be simulated.
- All simulated contacts should be logged.
- Route Alerting will be conducted Out of Sequence on April 19, 2010.
- Notification of special needs ⁶⁵ people will be simulated by the Route Alerting Fire Department or notification from EOC staff.

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Protective Action Implementation

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

- Notification of special populations will be procedurally explained.

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

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EVALUATION AREA 3
Protective Action Implementation

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

EXTENT OF PLAY

State:

- None

County:

- Demonstrate the capability to alert and notify the Hancock County School District of emergency conditions that are expected to or may necessitate protective actions for students.
- Contact with one of the Hancock County Public School will be demonstrated during the out-of-sequence school play.
- One Hancock County School will participate Out-of –Sequence.
- Transportation of school children, if necessary, will be simulated.
- One Bus Driver will be available, at the participating school, for an interview.
- The bus will not run the route to the Host School, but will explain the procedure.
- The implementation of canceling the school day, dismissing early, or sheltering will be simulated by describing to evaluators the procedures that would be followed. If evacuation is the implemented protective

EVALUATION AREA 3
Protective Action Implementation₆₇

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

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action, all activities to coordinate and complete the evacuation of students to the host school will be accomplished through an interview process.

- Communications will be verified by the Bus Driver by interview.
- Officials of the school will demonstrate the capability to develop and provide timely information to the HCEOC for use in messages to parents, the general public, and the media on the status of protective actions for schools.

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

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EVALUATION AREA 3
Protective Action Implementation

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

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

INTENT

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

EXTENT OF PLAY

State:

- None

County:

- During the April 20, 2010 exercise, HCEOC will demonstrate the capability to select, establish, and staff appropriate traffic and access control points, consistent with protective actions.
- Staffing of Traffic and Access Control Points will be simulated.
- The capability to provide instructions to traffic and access control staff will be demonstrated through an interview with the Law Enforcement Officer in the HCEOC during the exercise.
- The HCEOC will demonstrate the ability to control access to rail, water and air traffic, under its control by interview.
- Traffic Control / Access Control Points will be demonstrated Out of Sequence by interview in the HCEOC.

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

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EVALUATION AREA 3
Protective Action Implementation

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

EXTENT OF PLAY

State:

- None

County:

- The HCEOC will demonstrate the capability by interview, as required by the scenario, to identify and take appropriate actions concerning impediments to evacuation.
- Actual dispatch of resources to deal with impediments will be simulated, and logged.

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

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

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

State:

- During the April 22, 2010 Table-Top Exercise, the State will demonstrate the ability to implement any Protective Action Decisions (PADs) made by the West Virginia State Recovery Task Force.

County:

- During the April 22, 2010 Exercise, the Ingestion Counties will demonstrate the ability to implement any PAR's.

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EVALUATION AREA 3

Protective Action Implementation

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

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

EXTENT OF PLAY

State:

- Implementation of relocation, re-entry and return will be documented by the West Virginia State Recovery Task Force through Table-Top Exercise discussions. Discussions will be driven by Controller injects and State provided dose projections and assessments. This demonstration will take place during the Table-Top Exercise conducted on April 22, 2010.

County:

- During the April 22, 2010 Exercise, the Ingestion Counties will demonstrate the ability to implement State decisions. State decisions will be provided as injects by the controller.

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EVALUATION AREA 4
Field Measurement And Analysis

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

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10; I.7, 8, 9)

INTENT

This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (ORO) should have the capability to deploy field teams with the equipment, methods, and expertise necessary to determine the location of airborne radiation and particulate deposition on the ground from an airborne plume. In addition, NUREG-0654 indicates that OROs should have the capability to use field teams within the plume Emergency Planning Zone to measure airborne radioiodine in the presence of noble gases and to measure radioactive particulate material in the airborne plume.

In the event of an accident at a nuclear power plant, the possible release of radioactive material may pose a risk to the nearby population and environment. Although accident assessment methods are available to project the extent and magnitude of a release, these methods are subject to large uncertainties. During an accident, it is important to collect field radiological data in order to help characterize any radiological release. This does not imply that plume exposure projections should be made from the field data. Adequate equipment and procedures are essential to such field measurement efforts.

EXTENT OF PLAY

State:

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EVALUATION AREA 4

Field Measurement And Analysis

**Sub-element 4.a – Plume Phase Field Measurements and Analyses
(continued)**

EXTENT OF PLAY

State:

- One Field Team will be utilized.
- Field Team Equipment will be demonstrated at the first sample location. Equipment use will be simulated at all other locations.
- In-route readings will be taken.
- Field data will be provided to the field team by controller injects.
- The Field Team will play out of sequence.

County:

- None

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

Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, H.12; I.8, 11; J.10.a)

EXTENT OF PLAY

State:

- Responsible Offsite Response Organizations (ORO) will demonstrate the capability to brief teams on predicted plume location and direction, travel speed, and exposure control procedures before deployment. Communication with the field team will be maintained once they are deployed

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EVALUATION AREA 4

Field Measurement And Analysis

**Sub-element 4.a – Plume Phase Field Measurements and Analyses
(continued)**

EXTENT OF PLAY

State:

- A controller will provide Field team readings (provided that the virtual plume system is not in place).

County:

- None

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

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EVALUATION AREA 4

Field Measurement And Analysis

**Sub-element 4.a – Plume Phase Field Measurements and Analyses
(continued)**

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams will move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I. 9)

EXTENT OF PLAY

State:

- Field teams should demonstrate the capability to report measurements and field data pertaining to the measurement of airborne radioiodine and particulates and ambient radiation to the field team coordinator.

- The request for Federal resources will be simulated by the WVVEOC.

- A controller will provide Field Team readings (provided that the virtual plume system is not in place).

County:

- None

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

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EVALUATION AREA 4
Field Measurement And Analysis

EXTENT OF PLAY

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

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

State:

- On April 22, 2010, the Sample Collection Team will meet at the location of the Ingestion Table-Top Exercise. Field play will be demonstrated in the vicinity. The Field Team Center (FTC) will be available for observation by the evaluator. The Reception Site for sample collection will be established in the vicinity of the FTC. The Reception Site will process three (3) samples (one (1) each of soil, vegetation and water) (Chain-of-Custody is part of the field team processing procedures). Transportation of the samples to the Ohio Labs will be explained. No samples will be transported.
- One (1) Sample Collection Team will be assembled. The Radiological Monitor for the Sample Collection Team will also serve as one of the members of the Reception Site. Sample collection supplies will be available.
- Three (3) samples will be collected for processing (one (1) of each):

Soil
Vegetation
Surface Water

- Emergency Worker Decontamination (Objective 22) is a Plume Objective (first day). It will not be demonstrated during this field play.

County:

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EVALUATION AREA 4

Field Measurement And Analysis

**Sub-element 4.a – Plume Phase Field Measurements and Analyses
(continued)**

EXTENT OF PLAY

Sub-element 4.c - Laboratory Operations

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective actions decisions. (NUREG-0654, C.3., I.8., 9., J.11.)

State:

- This objective will be talked through at the State Table-Top Exercise. Labs will not be demonstrated. West Virginia does not have a laboratory, laboratory analysis is provided through an agreement with the State of Ohio. The Ohio Labs were evaluated during the October 24, 2006 Perry Federal Evaluated Exercise (FEMA V).

County:

- None

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EVALUATION AREA 5
Emergency Notification and Public Information

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

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. The initial instructional message to the public must include as a minimum the elements required by current FEMA REP guidance. (10 CFR Part 50, Appendix E.IV.D and NUREG-0654, E.5, 6,7)

INTENT

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

EXTENT OF PLAY

State:

- None

County:

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

- Siren activation will be explained. Sirens will not be sounded.

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EVALUATION AREA 5

Emergency Notification and Public Information

Emergency Notification and Public Information (continued)

EXTENT OF PLAY

County:

- Procedures to broadcast the message should be fully demonstrated as they would in an actual emergency up to the point of transmission. Broadcast of the message(s) or test messages will not be demonstrated. The alert signal activation will be simulated. The procedures will be demonstrated up to the point of actual activation.
- For Exercise purposes the NWS will be contacted, EAS message provided, but the EAS Radio Station will not be activated.
- The capability of the primary notification system to broadcast an instructional message on a 24-hour basis should be verified during an interview with the HCOEM Director or designee.

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

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EVALUATION AREA 5
Emergency Notification and Public Information (continued)

Criterion 5.a.2: [RESERVED]

Criterion 5.a.3: Activities associated with FEMA approved exception areas (where applicable) are completed within 45 minutes following the initial decision by authorized offsite emergency officials to notify the public of an emergency situation. Backup alert and notification of the public is completed within 45 minutes following the detection by the ORO of a failure of the primary alert and notification system. (NUREG-0654, E. 6, Appendix 3.B.2.c)

EXTENT OF PLAY

State:

- None

County:

- Route Alerting will be made during the Site Area Emergency. If no questions or problems arise, route alerting during the General Emergency will be talked through.
- One route will be actually run and alert and notification activities along the route will be simulated (that is, the message that would actually be used is read for the evaluator, but not actually broadcast).
- Actual testing of the mobile public address system will be conducted at the Fire Station.

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

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EVALUATION AREA 5
Emergency Notification and Public Information

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

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

INTENT

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

EXTENT OF PLAY

State:

- The State will ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The State should be prepared to disclose and explain the Emergency Classification Level (ECL) of the incident.
- Public inquiries will be demonstrated at the EOC.
- Trends in rumors will be identified, if applicable.
- Emergency information and instructions for the public and the media will be coordinated with the Joint Public Information Center.
- One News Briefing will be conducted at the EOC. It can happen any time after the Alert Declaration.

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EVALUATION AREA 5
Emergency Notification and Public Information (continued)

EXTENT OF PLAY

County:

- The County will ensure that emergency information and instructions are consistent with protective action decisions made by appropriate officials. The County should be prepared to disclose and explain the Emergency Classification Level (ECL) of the incident.
- Public inquiries will be demonstrated at the EOC.
- Trends in rumors will be identified, if applicable.
- One News Briefing will be conducted at the EOC. It can happen any time after the Alert Declaration.

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

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EVALUATION AREA 6
Support Operation/Facilities

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

Criterion 6.a.1: The reception center/emergency worker facility has appropriate space, adequate resources, and trained personnel to provide monitoring, decontamination, and registration of evacuees and/or emergency workers. (NUREG-0654, J.10.h; J.12; K.5.a)

INTENT

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

EXTENT OF PLAY

State:

- None

County:

- Reception Center will be conducted from 1900 to 2100 hours, April 20, 2010 at the Weir High School Complex.
- Mass Care Center, Monitoring / Decontamination Center will be conducted from 1900 to 2100 hours, April 20, 2010 at the Weir High School Complex.
- Decontamination of evacuees/emergency workers may be simulated and conducted by interview.
- The availability of provisions for separately showering should be demonstrated or explained.
- The staff should demonstrate provisions for limiting the spread of contamination.

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EVALUATION AREA 6
Support Operation/Facilities (continued)

EXTENT OF PLAY

County:

- Provisions should also exist to separate contaminated and uncontaminated individuals, provide changes of clothing for individuals whose clothing is contaminated, and store contaminated clothing and personal belongings to prevent further contamination of evacuees or facilities.
- Any individual found to be contaminated; procedures should be discussed concerning the handling of potential contamination of vehicles and personal belongings.
- Monitoring personnel should explain the use of action levels for determining the need for decontamination.
- Monitoring personnel should also explain the procedures for referring evacuees who cannot be adequately decontaminated for assessment and follow up.
- Contamination of the individual will be determined by controller inject and not simulated with any low-level radiation source.
- The capability to register individuals will be demonstrated.
- The Emergency Worker Decontamination Center will be conducted from 1900 to 2100 hours, April 19, 2010 at the New Cumberland FD.
- One monitoring station will be established.
- One decontamination area will be established.
- A total of six (6) people will be monitored at the Mass Care Center. At least one (1) will be contaminated.

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EVALUATION AREA 6
Support Operation/Facilities (continued)

EXTENT OF PLAY

County:

- Decontamination of personnel / equipment will be explained at all locations. Actual decontamination will be simulated.

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

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EVALUATION AREA 6
Support Operation/Facilities

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

Criterion 6.b.1: The facility/ORO has adequate procedures and resources for the accomplishment of monitoring and decontamination of emergency worker equipment, including vehicles. (NUREG-0654, K.5.b)

INTENT

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

EXTENT OF PLAY

State:

- None

County:

- The Emergency Worker Decontamination Center will be conducted during the exercise from 1900 to 2100 hours, April 19, 2010 at the New Cumberland Fire Department.
- One Emergency Worker will be monitored for contamination. Discussions on the need for decontamination will be made based on Controller injected radiation levels.
- Contamination control and record-keeping procedures will be demonstrated.
- Decontamination efforts will be procedurally explained, but actual decontamination will be simulated.
- The sequence for monitoring/decontamination efforts and the decision to refer individuals who cannot be decontaminated to medical facilities will be demonstrated during the exercise.

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EVALUATION AREA 6
Support Operation/Facilities (continued)

County: (continued)

- One vehicle will be monitored and decisions regarding the need for decontamination will be made as radiation levels are presented via Controller injects.
- Record-keeping procedures will be demonstrated.
- No vehicles will be washed, but decontamination procedures will be explained.
- Decontamination of personnel/equipment will be explained at all locations. Actual decontamination will be simulated.

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

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EVALUATION AREA 6
Support Operation/Facilities

Sub-element 6.c - Temporary Care of Evacuees

Criterion 6.c.1: Managers of congregate care facilities demonstrate that the centers have resources to provide services and accommodations consistent with American Red Cross planning guidelines. (Found in MASS CARE - Preparedness Operations, ARC 3031) Managers demonstrate the procedures to assure that evacuees have been monitored for contamination and have been decontaminated as appropriate prior to entering congregate care facilities. (NUREG-0654, J.10.h, J.12)

INTENT

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

EXTENT OF PLAY

State:

- None

County:

- Mass Care Center, Monitoring / Decontamination Center will be conducted from 1900 to 2100 hours on April 20, 2010 at the Weir High School Complex.
- Mass Care staff will demonstrate the capability to ensure that evacuees have been monitored for contamination, have been decontaminated as appropriate, and have been registered before entering the facility. This capability will be determined through an interview process.

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EVALUATION AREA 6
Support Operation/Facilities (continued)

EXTENT OF PLAY

County:

- Material will not be physically available at the facility (facilities). However, availability of such items will be verified by providing the evaluator a list of sources with locations and estimates of quantities.

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

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

Conducted on March 2009, at the Weirton Medical Center MS-1 Evaluated Exercise.

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