



Beaver Valley Power Station

After Action Report/ Improvement Plan

Exercise Date - August 10, 2010

Radiological Emergency Preparedness (REP) Program



FEMA

Published

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Beaver Valley Power Station After Action Report/Improvement Plan

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EXECUTIVE SUMMARY

During the week of August 8, 2010 the 2010 Beaver Valley Power Station Post Plume exercise was conducted in the State of West Virginia encompassing the risk and support jurisdictions within the 50-mile Ingestion Planning Zone surrounding the plant. The purpose of the exercise was to assess the level of State and local preparedness in responding to a Post Plume 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 Post Plume exercise was conducted during the week of May 11, 2004.

This report contains the final evaluation results of the exercise. The evaluation included activities at the West Virginia Emergency Operations Center, the Holiday Inn in Weirton for the four Counties in West Virginia involved in Post Plume Exercise evaluations, and Coonskin Park for Post Plume Sampling evaluations. The Counties of Hancock, Brooke, Ohio and Marshall were evaluated. A total of 7 evaluators were utilized for the entire exercise, which consisted of Region III REP staff. There were a total of 3 locations participating, with 49 evaluated criteria. The week's activities included the Counties, Field Sampling and State evaluations.

A preliminary findings discussion occurred at the end of each day's activities for the areas evaluated. In the final analysis, there were no deficiencies, no areas requiring corrective action (ARCAs) and no planning issues. The State of West Virginia and local organizations demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. Cooperation and teamwork of all the participants was evident during this exercise.

FEMA wishes to acknowledge the efforts of the many individuals in the State of West Virginia 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.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name

Beaver Valley Power Station

Type of Exercise

Ingestion

Exercise Date

August 10, 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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FENOC

Offsite Coordinator

Beaver Valley Power Station

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724-682-5774

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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 Bureau of Rad Health

West Virginia Department of Homeland Security and Emergency Management

West Virginia Depart of Environment

West Virginia Department of Agriculture

West Virginia Department of Health

DOE FRMAC

West Virginia Division of Natural Resources
Brooke County Health Department
Brooke County Office of Emergency Management
Marshall County Health Department
Marshall County Agricultural Extension Agency
Marshall County Office of Emergency Management
Ohio County Office of Emergency Management
Ohio Valley Medical Center
Hancock County Emergency Management
Wheeling-Ohio County Health Department
Wheeling-Ohio County 911 Communications Center
WVU Extension Service-Ohio County Extension Office
Wheeling Hospital
New Cumberland Police Department
WVU Extension Service-Hancock County Extension Office
Hancock County Health Department

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.

The purpose of this exercise report is to present the exercise results and findings on the performance of a nuclear radiological incident Post Plume by off-site response organizations (OROs).

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.

The Post Plume exercise extends response efforts to a 50 mile EPZ in order to evaluate efforts to protect the health and safety of the public as a result of radiological contamination to the environs.

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

August 10, 2010

Lead-In Scenario – Ingestion Pathway

On Monday August 9, 2010 an emergency occurred at the Beaver Valley Power Station Unit 2 that resulted in a significant release of radioactive material off-site. Evacuation of the 10 mile Emergency Planning Zones in West Virginia, Pennsylvania, and Ohio were conducted. The release of radioactive material has stopped and the Unit 2 reactor is now cooled down and depressurized. State and Federal resources are currently assessing the location and extent of deposition of radioactive material in Hancock, Brooke, Ohio, and Marshall County. The following timeline provides detailed information regarding the events that took place, the resources activated, and the response activities initiated to minimize the potential risk to public health and safety.

Monday, August 9, 2010 (Event Day 1)

Weather: Monday was sunny with a high of 86 °F. Winds were from the east from 3 to 7mph. No precipitation occurred within the 50 mile EPZ.

2055 BVPS Unit 2 declared an “Alert”

2105 WV DHSEM is notified and begins to activate. Hancock County EOC is notified and begins to activate.

2135 A small loss of coolant accident occurs inside the Unit 2 containment building. (loss of one fission product barrier – no release off-site)

2150 WV OES Assessment Room is operational. The WV State Recovery Task Force (SRTF) is operating in the WVEOC.

2154 Hancock County EOC is operational

2205 Communications with the affected states, counties, and the utility have been established using the PEMA Line and the Gold Executive Conference Line.

2218 Conditions continued to degrade and BVPS Unit 2 declares a “Site Area Emergency”

2220 WV Field Monitoring Teams are in route to Hancock County.

2230 Governor Manchin formally declares a State of Emergency

2235 Precautionary actions for the agricultural community in Hancock are recommended. Farmers are instructed to shelter livestock and place all animals on stored feed and protected water sources.

2238 Air, rail, and water traffic inside the 10 mile EPZ are restricted.

2240 The simulated relocation of school children from the 10-mile EPZ portion of Hancock County is initiated.

2332 BVPS Unit 2 declares a General Emergency.

2355 Governor Manchin recommends evacuation for the 10 mile EPZ and recommends the public residing in the 10 mile EPZ take KI tablets per DHHR supplied instructions. Hancock County concurs and implements this as a Protective Action Decision (PAD).

0000 Date change August 10, 2010.

0025 Precautionary actions for the agricultural community in Brooke, Ohio, and Marshall are recommended. Farmers are instructed to shelter livestock and place all animals on stored feed and protected water sources.

0040 A penetration leading through the containment fails initiating a significant release of radioactive material to the environment.

0142 Containment pressure is reduced to atmospheric pressure. The release of radioactive material to the environment has ended.

0700 Federal, State, County, and utility staff begin to coordinate and share collected data for

presentation to decision-makers. The WV SRTF begins to receive detailed data from NARAC predictive plots, AMS fly-over, and WV State Field Monitoring Teams.

1200 The WV SRTF supplies Hancock, Brooke, Ohio, and Marshall County with a map showing the areas that may exceed established contamination limits for food and water.

1215 The WV SRTF informed Hancock, Brooke, Ohio, and Marshall County that emergency worker dose limits are now being controlled in accordance with 10CFR20.1201 limits, as occupational dose with an annual limit of 5 rem. Emergency worker dose limits are no longer controlled by EPA-400 Table 2-2. KI is not required for emergency workers entering areas with radioactive contamination.

1230 Commence with Activities

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 10-11, 2010 Post Plume Radiological Emergency Preparedness (REP) exercise. The exercise was held to test the offsite emergency response capabilities of local governments in the 50-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: 2010-08-10 SITE: Beaver Valley Power Station, PA M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		WVRTF	WVINGAAC	WV SFST A	HC EOC	BkC EOC	MaCo EOC	OC EOC
Emergency Operations Management								
Mobilization	1a1	M	M		M	M	M	M
Facilities	1b1							
Direction and Control	1c1	M	M		M	M	M	M
Communications Equipment	1d1			M				M
Equip & Supplies to support operations	1e1	M		M	M	M	M	M
Protective Action Decision Making								
Emergency Worker Exposure Control	2a1	M	M					
Radiological Assessment and PARs	2b1							
Decisions for the Plume Phase -PADs	2b2							
PADs for protection of special populations	2c1							
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1		M					
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1		M					
Protective Action Implementation								
Implementation of emergency worker exposure control	3a1			M	M	M	M	M
Implementation of KI decision	3b1			M	M			
Implementation of protective actions for special populations - EOCs	3c1							
Implementation of protective actions for Schools	3c2							
Implementation of traffic and access control	3d1							
Impediments to evacuation are identified and resolved	3d2							
Implementation of ingestion pathway decisions - availability/use of info	3e1	M			M	M	M	M
Materials for Ingestion Pathway PADs are available	3e2	M			M	M	M	M
Implementation of relocation, re-entry, and return decisions.	3f1	M			M			
Field Measurement and Analysis								
Adequate Equipment for Plume Phase Field Measurements	4a1							
Field Teams obtain sufficient information	4a2							
Field Teams Manage Sample Collection Appropriately	4a3							
Post plume phase field measurements and sampling	4b1			M				
Laboratory operations	4c1							
Emergency Notification and Public Info								
Activation of the prompt alert and notification system	5a1							
Activation of the prompt alert and notification system - Fast Breaker	5a2							
Activation of the prompt alert and notification system - Exception areas	5a3							
Emergency information and instructions for the public and the media	5b1	M			M	M	M	M
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1							
Mon / decon of emergency worker equipment	6b1							
Temporary care of evacuees	6c1							
Transportation and treatment of contaminated injured individuals	6d1							

3.3 Criteria Evaluation Summaries

3.3.1 West Virginia Jurisdictions

3.3.1.1 West Virginia Recovery Task Force

- a. MET: 1.a.1, 1.c.1, 1.e.1, 2.a.1, 3.e.1, 3.e.2, 3.f.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

3.3.1.2 West Virginia Ingestion Accident Assessment Center

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

3.3.1.3 West Virginia State Field Sampling Team A and Reception Center

- a. MET: 1.d.1, 1.e.1, 3.a.1, 3.b.1, 4.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 Risk Jurisdictions

3.3.2.1 Hancock County Emergency Operations Center

- a. MET: 1.a.1, 1.c.1, 1.e.1, 3.a.1, 3.b.1, 3.e.1, 3.e.2, 3.f.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

3.3.2.2 Brooke County Emergency Operations Center

- a. MET: 1.a.1, 1.c.1, 1.e.1, 3.a.1, 3.e.1, 3.e.2, 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 Marshall County Emergency Operations Center

- a. MET: 1.a.1, 1.c.1, 1.e.1, 3.a.1, 3.e.1, 3.e.2, 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

3.3.2.4 Ohio County Emergency Operations Center

- a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 3.a.1, 3.e.1, 3.e.2, 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

SECTION 4: CONCLUSION

The State of West Virginia and local organizations demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no deficiencies, no areas requiring corrective action (ARCAs) and no planning issues. Cooperation and teamwork of all the participants was evident during this exercise.

APPENDIX A: EXERCISE TIMELINE

The following timeline describes the sequence of daily evaluated events, locations and functions for the West Virginia Post Plume Phase Ingestion Pathway Exercise participants encompassing the counties of Hancock, Brooke, Ohio and Marshall within the 50-Mile Emergency Planning Zone for Beaver Valley Nuclear Power Station (BVPS).

Offsite Response Functions to be Demonstrated:

- Return, Re-Entry and Relocation - Decision Making (State)
- Communications (State and Counties)
- Return, Re-Entry and Relocation – Implementation (Hancock County)
- Protective Action Implementation (Hancock, Brooke, Ohio & Marshall Counties)
- Field Sampling and Worker Monitoring (State)

Field Play: State Function

- All field team exercise play for the State will be demonstrated in the Charleston area;
- One Sample Collection Team will participate;
- The Sample Collection Point will be established by State;
- The Chain-of-Custody for samples will be demonstrated;
- Shipments of samples will be simulated;
- Due to possible elevated temperatures in August, donning of personal protective equipment will be simulated and discussed.

- Facilitators will provide for the State play and ingestion counties play.

An exercise facilitator is someone who provides information, requests certain tasks be performed, and initiates discussion among participants to help them demonstrate required objectives without actually performing tasks or taking actions required of drill participants. The role of a facilitator is much more active than that of a controller, used during early phase drills and exercises.

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

- The State Field Play will be demonstrated on August 10, 2010.

-
- The State EOC Play will be demonstrated on August 11, 2010.
 - IP County play will be demonstrated on August 10, 2010.

Termination

- The Lead County Facilitator will coordinate the Exercise Termination for the Ingestion County Play.
- The Lead State Facilitator in the WVEOC will coordinate the Exercise Termination for the WVEOC Play.
- The Lead State Facilitator with the WV Field Team will coordinate the Exercise Termination for the WV Field Play.
- Termination will be based on the completion of the objectives. The termination can happen sooner than the identified end time.

Locations:

West Virginia State EOC: WV Division of Homeland Security and Emergency Management
Building 1 - Main Capitol Building
Room EB-80 (east wing basement)
1900 Kanawha Boulevard E.
Charleston, WV 25305-0360

WV Field Play:

Coonskin Park

2000 Coonskin Drive

Charleston, WV 25311

Directions: Exit 99 off I-64, Route 114 North (Greenbrier Street) 2.5 miles, turn left on Coonskin Drive, Park entrance 1 mile

Ingestion Counties

Holiday Inn

350 3 Springs Drive

Weirton, WV 26062

APPENDIX B: EXERCISE EVALUATORS AND TEAM LEADERS

Beaver Valley Power Station 2010-08-10

West Virginia Recovery Task Force
1a1,1c1,1e1,5b1 Joseph Suders FEMA RIII
2a1,3e1,3e2,3f1 *Martin Vyeniolo FEMA RIII

West Virginia Ingestion Accident Assessment Center
1a1,1c1,2a1 Joseph Suders FEMA RIII
2d1,2e1 *Martin Vyeniolo FEMA RIII

West Virginia State Field Sampling Team A and Reception Center
1d1,1e1,3a1,3b1,4b1 *Robert Neff FEMA RIII

Hancock County Emergency Operations Center
1a1,1c1,1e1,3a1,3b1,3e1,3e2,3f1,5b1 *Andrew Hower FEMA RIII

Brooke County Emergency Operations Center
1a1,1c1,1e1,3a1,3e1,3e2,5b1 *John Price FEMA RIII

Marshall County Emergency Operations Center
1a1,1c1,1e1,3a1,3e1,3e2,5b1 *Barton Freeman FEMA RIII

Ohio County Emergency Operations Center
1a1,1c1,1d1,1e1,3a1,3e1,3e2,5b1 *Michael Shuler FEMA RIII

* Team Leader

DATE: 2010-08-10, SITE: Beaver Valley Power Station, PA

LOCATION	EVALUATOR	AGENCY
West Virginia Recovery Task Force	Joseph Suders *Martin Vyeniolo	FEMA RIII FEMA RIII
West Virginia Ingestion Accident Assessment Center	Joseph Suders *Martin Vyeniolo	FEMA RIII FEMA RIII
West Virginia State Field Sampling Team A and Reception Center	*Robert Neff	FEMA RIII
Hancock County Emergency Operations Center	*Andrew Hower	FEMA RIII
Brooke County Emergency Operations Center	*John Price	FEMA RIII
Marshall County Emergency Operations Center	*Barton Freeman	FEMA RIII
Ohio County Emergency Operations Center	*Michael Shuler	FEMA RIII
* Team Leader		

APPENDIX C: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
ALARA	As Low As Reasonably Achievable
BVPS	Beaver Valley Power Station
DRL	Derived Response Levels
EMC	Emergency Management Coordinator
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPZ	Emergency Planning Zone
GIS	Geographic Information System
IPX	Ingestion Pathway Exercise
JIC	Joint Information Center
JIO	Joint Information Officer
JPIC	Joint Public Information Center
PAD	Protective Action Decision
PAG	Protective Action Guides
PIO	Public Information Officer
REI	Radiological Emergency Information
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RO	Radiological Officer
SAE	Site Area Emergency
SEOC	State Emergency Operation Center
SRTF	State Recovery Task Force
UC	Unified Command

APPENDIX D: 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 State of West Virginia 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.



STATE OF WEST VIRGINIA

EXERCISE CRITERIA AND EXTENT-OF-PLAY

BVPS Exercise August 10-11th, 2010

**REVISION - D
July 15, 2010**

REAL LIFE EMERGENCIES TAKE PRIORITY OVER EXERCISE PLAY

WV IPX Exercise (August 10-11th , 2010) - Extent of Play

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WV IPX Exercise (August 10-11th, 2010) - Extent of Play

INTRODUCTION

The following locations will be activated for this exercise

State

WV State EOC, WV Field Team (Sample Reception) Center (all located in Charleston)

County Jurisdictions

Hancock, Brooke, Ohio, Marshall EOCs all being co-located for exercise at Holiday Inn, Weirton, WV

Out of Sequence Demonstrations

- Ingestion County decisions will be conducted on August 10, 2010.
- State Recovery Task-Force (WVEOC) demonstrated on August 11, 2010
- State Field Team will be demonstrated on August 10, 2010
- Redundant communications between the state and counties can be demonstrated out-of-sequence on August 11, 2010.

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

INGESTION PATHWAY

EXERCISE CRITERIA AND EXTENT-OF-PLAY

The Ingestion Pathway portion of the BVPS Exercise will be conducted on August 10th and 11th, 2010.

The following extent of play outlines the Evaluation Areas and the expected activities for objectives related to the Ingestion Pathway. All activities will be demonstrated in accordance with plans and procedures, except as indicated in the West Virginia Extent of Play for each evaluation criterion.

Extent of Play by Evaluation Area

The following evaluation areas, sub-elements and evaluation criterion are consistent with FEMA's exercise evaluation methods as reflected in the Interim REP Program Manual dated August 2002. All activities will be demonstrated in accordance with plans and procedures, except as indicated in the Extent-of-Play evaluation criterion. Generic extent of play text from the REP Manual is quoted verbatim for each evaluation criterion and has been placed in italics. All generic extent of play elements quoted are not applicable to this exercise and will not be demonstrated for evaluation purposes during the Ingestion Pathway Exercise. The inclusion of such text is only for reference purposes.

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

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 OROs should have the capability to alert, notify, and mobilize emergency personnel and to activate and staff emergency facilities.

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

State of West Virginia Negotiated Extent-of-Play: WV holds that the criterion listed in this sub-element was successfully demonstrated by both the Hancock County and the State during the plume exercise held on April 20, 2010. During the Ingestion Pathway Exercise, Alert, Notification and Mobilization will not be demonstrated since the State and County are already mobilized for the event. All appropriate personnel determined to be needed during this phase of the event will be pre-positioned at the prescribed locations. Activities during this phase will be based on plans and procedures and completed as they would be in an actual emergency unless otherwise noted or indicated in the extent of play agreement.

Locations To Be Evaluated: [State and Holiday Inn, Weirton for Counties.](#)

Outstanding Issues: None for Ingestion Pathway Exercise.

WV IPX Exercise (August 10-11th, 2010) - Extent of Play**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)**

Intent: This sub-element is derived from NUREG-0654, which provides that OROs have facilities to support the emergency response.

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

State of West Virginia Negotiated Extent-of-Play

This will not be evaluated: All county and state EOCs have been previously evaluated and have had no substantial changes or relocations.

Locations Evaluated: N/A

Outstanding Issues

None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

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.,2.a.,b.)

Intent: This sub-element is derived from NUREG-0654, which provides that OROs have the capability to control their overall response to an emergency.

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

State of West Virginia Negotiated Extent-of-Play: All activities will be based on the plans and procedures and completed as they would be in an actual emergency with the exception that all Ingestion Counties will be co-locating at one facility for purposes of the exercise. The Hancock and Brooke County staffs will exercise together as will the Ohio and Marshall County staffs. Communication between the the two groups will be simulated as if it were actual phone (or fax, etc) communication between different locations. The two groups (Hancock/Brooke and Ohio/Marshall) will not assist each other without simulating a communication.

Evaluation Locations: WV State EOC and Holiday Inn, Weirton for Counties.

Outstanding Issues: None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

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

State of West Virginia Negotiated Extent-of-Play: All activities will be based on the plans and procedures and completed as they would be in an actual emergency. The state will send test messages to the Field Team on day of field play (August 10th) requesting a response. A positive response will serve as proof of alternative communications. The SFT will also demonstrate field communications with the State Sample Reception Center as appropriate. The State EOC will demonstrate communication with the Ohio County EOC out-of-sequence

Locations To Be Evaluated: State Field Team/Ohio County (Out-of-Sequence)

Outstanding Issues: None

Note: This was successfully demonstrated during the 2010 Plume Exercise for both the SEOC and Hancock County and will not be re-demonstrated for evaluation by the SEOC and County except as noted above.

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

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., J.10.a.b.e.f.j.k., 11, K.3.a.)

Intent: This sub-element is derived from NUREG-0654, which provides that OROs have emergency equipment and supplies adequate to support the emergency response.

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

All instruments, should be inspected, inventoried, and operationally checked before each use. They should be calibrated in accordance with the manufacturer's recommendations. A label indicating such calibration should be on each instrument or verifiable by other means. Note: Field team equipment is evaluated under 4.a.1;

Sufficient quantities of appropriate direct-reading and permanent record dosimetry and dosimeter chargers should be available for issuance to all categories of emergency workers that could be deployed from that facility.

Responsible OROs should demonstrate the capability to maintain inventories of KI sufficient for use by emergency workers.

Quantities of dosimetry and KI available and storage location(s) will be confirmed by physical inspection at storage location(s) or through documentation of current inventory submitted during the exercise, provided in the Annual Letter of Certification submission, and/or verified during a Staff Assistance Visit.

State of West Virginia Negotiated Extent-of-Play: County demonstrated KI during Plume Exercise. County personnel will discuss with evaluator (if prompted) how to obtain additional supplies of KI. - Appropriate documents, maps, displays, dosimetry, potassium iodide (KI), and other supplies to needed for IPX will be available in all locations.

Locations Evaluated: [SEOC, State Field Team Center and Holiday Inn, Weirton for Counties.](#)

Outstanding Issues: None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

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 insure 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.)

Intent: This sub-element is derived from NUREG-0654, which provides that an 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: Responsible OROs should demonstrate the capability to make decisions concerning the authorization of exposure levels in excess of pre-authorized levels and to the number of emergency workers receiving radiation dose above pre-authorized levels. As appropriate, OROs should demonstrate the capability to make decisions on the distribution and administration of KI, as a protective measure, based on the ORO's plan and/or procedures or projected thyroid dose compared with the established protective action guides (PAGs) for KI administration.

State of West Virginia Negotiated Extent-of-Play: All activities will be based on plans and procedures and completed as they would be in an actual emergency except as indicated below.

This was demonstrated by Hancock County during the 2010 Plume Phase Exercise

Location Evaluated: [State EOC](#)

Outstanding Issues: None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.d - Radiological Assessment & Decision Making for Ingestion Exposure

Criterion 2.d.1: Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO planning criteria. (NUREG-0645 I.8. J.11.)

Intent: This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate protective action decisions to mitigate exposure from the ingestion pathway. During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surrounding areas. Any such contamination would likely occur during the plume phase of the accident and, depending on the nature of the release, could impact the ingestion pathway for weeks or years.

Extent-Of-Play: *It is expected that the Offsite Response Organizations (ORO's) will take precautionary actions to protect food and water supplies, or to minimize exposure to potentially contaminated water and food, in accordance with their respective plans and procedures. Often such precautionary actions are initiated by the ORO's based on criteria related to the facility's Emergency Classification Levels (ECL). Such actions may include recommendations to place animals on stored feed and to use protected water supplies.*

The ORO should use its procedures (for example, development of a sampling plan) to assess the radiological consequences of a release on the food and water supplies. The ORO's assessment should include the evaluation of the radiological analyses of representative samples of water, food, and other ingestible substances of local interest from potentially impacted areas, the characterization of the releases from the facility, and the extent of areas potentially impacted by the release. During this assessment, ORO's should consider the use of agricultural and watershed data within the 50-mile EPZ. The radiological impacts on the food and water should then be compared to the appropriate ingestion PAGs referenced in the ORO's plan and/or procedures. (The plans and/or procedures may contain PAGs based on specific dose commitment criteria or based on criteria as recommended by current Food and Drug Administration guidance.) Timely and appropriate recommendations should be provided to the ORO decision-makers group for implementation decisions. As time permits, the ORO may also include a comparison of taking or not taking a given action on the resultant ingestion pathway dose commitments.

The ORO should demonstrate timely decisions to minimize radiological impacts from the ingestion pathway, based on the given assessments and other information available. Any such decisions should be communicated and, to the extent practical, coordinated with neighboring and local ORO's. ORO's should use Federal resources, as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating.

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State of West Virginia Negotiated Extent-of-Play: All activities will be based on the plans and procedures and completed as they would be in an actual emergency.

Location Evaluated: State EOC

Outstanding Issues: None

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EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

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

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 plans and procedures. (NUREG-0654, A.1.b. I.10.,M)*

Intent: This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) have the capability to make decisions on relocation, Reentry, and return of the general public. These decisions are essential for the protection of the public from the direct long-term exposure to deposited radioactive materials from a severe accident at a nuclear power plant.

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

***Re-Entry:** Decisions should be made regarding the location of control points and policies regarding access and exposure control for emergency workers and members of the general public who need to temporarily enter the evacuated area to perform specific tasks or missions. Examples of control procedures are: the assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; questions regarding the individual's objectives and locations expected to be visited and associated time frames; availability of maps and plots of radiation exposure rates; advice on areas to avoid; and procedures for exit including: monitoring of individuals, vehicles, and equipment; decision criteria regarding decontamination; and proper disposition of emergency worker dosimetry and maintenance of emergency worker radiation exposure records. Responsible ORO's should demonstrate the capability to develop a strategy for authorized Reentry of individuals into the restricted zone, based on established decision criteria.*

ORO's should demonstrate the capability to modify those policies for security purposes (e.g., police patrols), for maintenance of essential services (e.g., fire protection and utilities), and for other critical functions. They should demonstrate the capability to use decision making criteria in allowing access to the restricted zone by the public for various reasons, such as to maintain property (e.g., to care for farm animals or secure machinery for storage), or to retrieve important possessions. Coordinated policies for access and exposure control should be developed among all agencies with roles to perform in the restricted zone. ORO's should demonstrate the capability to establish policies for provision

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of dosimetry to all individuals allowed to re-enter the restricted zone. The extent that ORO's need to develop policies on Reentry will be determined by scenario events.

Return: *Decisions are to be based on environmental data and political boundaries or physical/geological features, which allow identification of the boundaries of areas to which members of the general public may return. Return is permitted to the boundary of the restricted area that is based on the relocation PAG. Other factors that the ORO should consider are, for example: conditions that permit the cancellation of the Emergency Classification Level and the relaxation of associated restrictive measures; basing return recommendations (i.e., permitting populations that were previously evacuated to reoccupy their homes and businesses on an unrestricted basis) on measurements of radiation from ground deposition; and the capability to identify services and facilities that require restoration within a few days and to identify the procedures and resources for their restoration. Examples of these services and facilities are: medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.*

State of West Virginia Negotiated Extent-of-Play: All activities will be based on the plans and procedures and completed as they would be in an actual emergency. Hancock County will be the only county to demonstrate Relocation, Re-Rentry, and Return through tabletop discussion.

Locations Evaluated: [State EOC \(decisions\)](#)

Outstanding Issues: 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.)

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 dosimeters and permanent record dosimeters; provide for direct-reading dosimeters to be read at appropriate frequencies by emergency workers; maintain a radiation dose record for each emergency worker; and provide for 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: *OROs should demonstrate the capability to provide appropriate direct-reading and permanent record dosimetry, dosimetry chargers, and instructions on the use of dosimetry to emergency workers.*

For evaluation purposes, appropriate direct-reading dosimetry is defined as dosimetry that allows individual(s) to read the administrative reporting limits (that are pre-established at a level low enough to consider subsequent calculation of Total Effective Dose Equivalent) and maximum exposure limits (for those emergency workers involved in life saving activities) contained in the OROs plans and procedures. Each emergency worker should have the basic knowledge of radiation exposure limits as specified in the ORO's plan and/or procedures. Procedures to monitor and record dosimeter readings and to manage radiological exposure control should be demonstrated. During a plume phase exercise, emergency workers should demonstrate the procedures to be followed when administrative exposure limits and turn-back values are reached. The emergency worker should report accumulated exposures during the exercise as indicated in the plans and procedures. OROs should demonstrate the actions described in the plan and/or procedures by determining whether to replace the worker, to authorize the worker to incur additional exposures or to take other actions. If scenario events do not require emergency workers to seek authorizations for additional exposure, evaluators should interview at least two emergency workers, to determine their knowledge of whom to contact in the event authorization is needed and at what exposure levels. Emergency workers may use any available resources (e.g. written procedures and/or co-workers) in providing responses. Although it is desirable for all emergency workers to each have a direct-reading dosimeter, there may be situations where team members will be in close proximity to each other during the entire mission and adequate control of exposure can be affected for all members of the team by one dosimeter worn by the team leader. Emergency workers who are assigned to low exposure rate areas, e.g., at reception centers, counting laboratories, emergency operations centers, and communications centers, may have individual direct-reading dosimeters or they may be monitored by dosimeters strategically placed in the work area. It should be noted that, even in these situations, each team member must still have their own

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permanent record dosimeter. Individuals without specific radiological response missions, such as farmers for animal care, essential utility service personnel, or other members of the public who must re-enter an evacuated area following or during the plume passage, should be limited to the lowest radiological exposure commensurate with completing their missions.

State of West Virginia Negotiated Extent-of-Play: All activities will be based on the plans and procedures and completed as they would be in an actual emergency except as noted below. Counties would conduct appropriate RAD Briefings in accordance with their plans and procedures. State assistance would be provided if requested by counties in accordance with established protocol. Hancock County successfully demonstrated this sub-element during the plume phase exercise held on April 20, 2010. Interviews during the county table top exercise may be utilized to explain their procedures. Appropriate dosimetry and procedures will be issued at the WV Field Team/Sample Reception Center and radiological exposure to field team members will be managed in accordance with the plans and procedures.

Locations Evaluated: [State Field Team/Sample Collection Center and Holiday Inn, Weirton for Counties.](#)

Outstanding Issues: None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

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, E. 7., J. 10. e., f.)

Intent: This sub-element is derived from NUREG-0654, which provides that OROs 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, 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: *ORO should demonstrate the capability to make KI available to emergency workers, institutionalized individuals, and, where provided for in the ORO plan and/or procedures, to members of the general public. OROs should demonstrate the capability to accomplish distribution of KI consistent with decisions made. Organizations should have the capability to develop and maintain lists of emergency workers and institutionalized individuals who have ingested KI, including documentation of the date(s) and time(s) they were instructed to ingest KI. The ingestion of KI recommended by the designated ORO health official is voluntary. For evaluation purposes, the actual ingestion of KI is not necessary. OROs should demonstrate the capability to formulate and disseminate appropriate instructions on the use of KI for those advised to take it. If a recommendation is made for the general public to take KI, appropriate information should be provided to the public by the means of notification specified in the ORO's plan and/or procedures. Emergency workers should demonstrate the basic knowledge of procedures for the use of KI whether or not the scenario drives the use of KI. This can be accomplished by an interview with the evaluator.*

State of West Virginia Negotiated Extent-of-Play: All activities will be based on the plans and procedures and completed as they would be in an actual emergency except as noted below. This is typically a county function and occurs during the Plume Phase. This sub-criteria was successfully demonstrated by Hancock County during the plume exercise on April 20, 2010. If needed, a discussion with Hancock County on their plans and procedures for use of KI can be held during the County Ingestion Pathway Table Top Exercise held in Weirton. The State recommends the use of KI to the County and the County implements the decision. The State has procedures in place for State Field Team Members active in the ingestion zone.

Locations To Be Evaluated: [State Field Team/Sample Reception Center Holiday Inn, Weirton for Hancock County.](#)

Outstanding Issues: None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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.

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

Extent-Of-Play: *Applicable ORO's should demonstrate the capability to secure and utilize current information on the locations of dairy farms, meat and poultry producers, fisheries, fruit growers, vegetable growers, grain producers, food processing plants, and water supply intake points to implement protective actions within the ingestion pathway EPZ. ORO's should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.*

State of West Virginia Negotiated Extent-of-Play: *County activities associated with demonstration will be performed or discussed in tabletop exercise format at Holiday Inn, Weirton. If State assistance is requested through established procedures for implementation of specific protective actions then the SEOC will implement or assist as needed. All activities will be based on the plans and procedures and completed as they would be in an actual emergency.*

Locations Evaluated: *Holiday Inn, Weirton for Counties and SEOC.*

Outstanding Issues: None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

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

Criterion 3.e.2 *Appropriate measures, strategies, and pre-printed instructional material are developed for implementing protective action decisions for contaminated water, food products, milk, and agricultural production.*

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

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

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

State of West Virginia Negotiated Extent-of-Play: *County activities associated with demonstration will be performed or discussed in tabletop exercise format at Holiday Inn, Weirton. If State assistance is requested through established procedures for implementation of specific protective actions then the SEOC will implement or assist as needed. All activities will be based on the plans and procedures and completed as they would be in an actual emergency. Communication and coordination with State Agencies or other entities for food control as well as with food producers and processors will be simulated.*

Locations Evaluated: *Holiday Inn, Weirton for Counties and SEOC.*

Outstanding Issues: None

WV IPX Exercise (August 10-11th, 2010) - Extent of Play

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-Element 3.f—Implementation of Relocation, Reentry, and Return Decisions

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

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

Extent-Of-Play: Relocation: *ORO's should demonstrate the capability to coordinate and implement decisions concerning relocation of individuals, not previously evacuated, to an area where radiological contamination will not expose the general public to doses that exceed the relocation PAGs. ORO's should also demonstrate the capability to provide for short-term or long-term relocation of evacuees who lived in areas that have residual radiation levels above the (first-, second-, and fifty-year) PAGs.*

Areas of consideration should include the capability to communicate with ORO's regarding timing of actions, notification of the population of the procedures for relocation, and the notification of, and advice for, evacuated individuals who will be converted to relocation status in situations where they will not be able to return to their homes due to high levels of contamination. ORO's should also demonstrate the capability to communicate instructions to the public regarding relocation decisions.

Re-Entry: *ORO's should demonstrate the capability to control Reentry and exit of individuals who need to temporarily re-enter the restricted area, to protect them from unnecessary radiation exposure and for exit of vehicles and other equipment to control the spread of contamination outside the restricted area. Monitoring and decontamination facilities will be established as appropriate. Examples of control procedure subjects are: (1) The assignment of, or checking for, direct-reading and non-direct-reading dosimetry for emergency workers; (2) questions regarding the individuals' objectives and locations expected to be visited and associated timeframes; (3) maps and plots of radiation exposure rates; (4) advice on areas to avoid; and procedures for exit, including monitoring of individuals, vehicles, and equipment, decision criteria regarding contamination, proper disposition of emergency worker dosimetry, and maintenance of emergency worker radiation exposure records.*

Return: *ORO's should demonstrate the capability to implement policies concerning return of members of the public to areas that were evacuated during the plume phase. ORO's should demonstrate the capability to identify and⁴⁴ prioritize services and facilities that require restoration within a few days, and to identify the procedures and resources for their restoration. Examples of these services and facilities are medical and social services, utilities, roads, schools, and intermediate term housing for relocated persons.*

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Communications among ORO's for relocation, Reentry, and return may be simulated; however all simulated or actual contacts should be documented. These discussions may be accomplished in a group setting. ORO's should use Federal resources as identified in the FRERP, and other resources (e.g., compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of West Virginia Negotiated Extent-of-Play: Hancock County activities associated with demonstration of this sub-element will be performed or discussed in tabletop exercise format at Holiday Inn, Weirton. If assistance is needed from the state in implementation of this criteria, then Hancock County may request help from the state through established procedures. Assistance on the implementation of specific relocation, re-entry and return decisions request of the SEOC will be acted on as needed. All activities will be based on the plans and procedures and completed as they would be in an actual emergency. All communications among OROs will be simulated.

Locations Evaluated: Hancock County EOC (Simulated at Holiday Inn, Weirton for the exercise) and SEOC

Outstanding Issues: None

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EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

Sub-element 4.b – Post Plume Phase, Field Measurements & 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.

Intent: This sub-element is derived from NUREG-0654, which provides that OROs should have the capability to assess the actual or potential magnitude and locations of radiological hazards in the IPZ for Relocation, Re-Entry and Return measures. This sub-element focuses on the collection of environmental samples for laboratory analyses that are essential for decisions on protection of the public from contaminated food and water and direct radiation from deposited materials.

Extent-Of-Play: *The ORO's field team should demonstrate the capability to take measurements and samples, at such times and locations as directed, to enable an adequate assessment of the ingestion pathway and to support re-entry, relocation, and return decisions. When resources are available, the use of aerial surveys and in-situ gamma measurement is appropriate. All methodology, including contamination control, instrumentation, preparation of samples, and a chain-of-custody form for transfer to a laboratory, will be in accordance with the ORO's plan and/or procedures.*

Ingestion pathway samples should be secured from agricultural products and water. Samples in support of relocation and return should be secured from soil, vegetation, and other surfaces in areas that received radioactive ground deposition. ORO's should use Federal resources as identified in the FRERP, and other resources (for example, compacts, utility, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating in the exercise.

State of West Virginia Negotiated Extent-of-Play: All field team exercise play for the state will be demonstrated in the Charleston area. The collection of one sample of soil, water and vegetation will be demonstrated. Use of Chain-of-Custody will be demonstrated. **Worker decontamination will not be demonstrated** (successfully demonstrated during Plume evaluated exercise). Actual shipments to the lab will not occur and will only be discussed. Drivers for field teams will be state personnel, which is a substitution of county personnel prescribed by plan. This is due to exercise artificiality.

Locations Evaluated: State Field Sampling Team – Charleston Area

Outstanding Issues: None

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EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

Sub-element 4.c – Laboratory Operations

Criterion 4.c.1: The laboratory is capable of performing required radiological analyses to support protective action decisions.

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

Extent-Of-Play: *The laboratory staff should demonstrate the capability to follow appropriate procedures for receiving samples, including logging of information, preventing contamination of the laboratory, preventing buildup of background radiation due to stored samples, preventing cross contamination of samples, preserving samples that may spoil (for example, milk), and keeping track of sample identity. In addition, the laboratory staff should demonstrate the capability to prepare samples for conducting measurements. The laboratory should be appropriately equipped to provide analyses of media, as requested, on a timely basis, of sufficient quality and sensitivity to support assessments and decisions as anticipated by the ORO's plans and procedures. The laboratory (laboratories) instrument calibrations should be traceable to standards provided by the National Institute of Standards and Technology. Laboratory methods used to analyze typical radionuclides released in a reactor incident should be as described in the plans and procedures. New or revised methods may be used to analyze atypical radionuclide releases (for example, transuranics or as a result of a terrorist event) or if warranted by circumstances of the event. Analysis may require resources beyond those of the ORO. The laboratory staff should be qualified in radioanalytical techniques and contamination control procedures.*

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

State of West Virginia Negotiated Extent-of-Play: All activities will be based on plans and procedures and completed as they would be in an actual emergency. [This criterion will not be demonstrated as the State of Ohio operates the actual lab where samples are sent. FEMA V has evaluated the laboratory where samples are evaluated. The Ohio Labs were evaluated during the October 24, 2006 Perry Federal Evaluated Exercise \(FEMA V\).](#)

Location Evaluated: N/A

Outstanding Issues: None

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EVALUATION AREA 5 - EMERGENCY INFORMATION AND PUBLIC NOTIFICATION

Sub- element5.b – Emergency Information and Instructions for the Public and the Media

Criterion 5.b.1: ORO's 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.)

Intent: This sub-element is derived from NUREG-0654, which provides that Offsite Response Organizations (OROs) 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: *Subsequent emergency information and instructions should be provided to the public and the media in a timely manner (will not be subject to specific time requirements). For exercise purposes, timely is defined as "the responsible ORO personnel/representatives demonstrate actions to disseminate the appropriate information/instructions with a sense of urgency and without undue delay." If message dissemination is to be identified as not having been accomplished in a timely manner, the evaluator(s) will document a specific delay or cause as to why a message was not considered timely.*

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

The emergency information should be ~~at~~ inclusive by including previously identified protective action areas that are still valid, as well as new areas. The ORO's should demonstrate the capability to ensure that emergency information that is no longer valid is rescinded and not repeated by broadcast media. In addition, the ORO's should demonstrate the capability to ensure that current emergency information is repeated at pre-established

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

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

ORO's should demonstrate the capability to provide timely, accurate, concise, and coordinated information to the news media for subsequent dissemination to the public. This would include demonstration of the capability to conduct timely and pertinent media briefings and distribute media releases as the situation warrants. The ORO's should demonstrate the capability to respond appropriately to inquiries from the news media. All information presented in media briefings and media releases should be consistent with protective action decisions and other emergency information provided to the public. Copies of pertinent emergency information (for example, Emergency Alert System [EAS] messages and media releases) and media information kits should be available for dissemination to the media. ORO's should demonstrate that an effective system is in place for dealing with calls to the public inquiry hotline. Hotline staff should demonstrate the capability to provide or obtain accurate information for callers or refer them to an appropriate information source. Information from the hotline staff, including information that corrects false or inaccurate information when trends are noted, should be included, as appropriate, in emergency information provided to the public, media briefings, and/or media releases.

State of West Virginia Negotiated Extent-of-Play: All activities will be based on the plans and procedures and completed as they would be in an actual emergency.

Location Evaluated: [WV SEOC and Holiday Inn, Weirton for Counties.](#)

Outstanding Issues: None

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