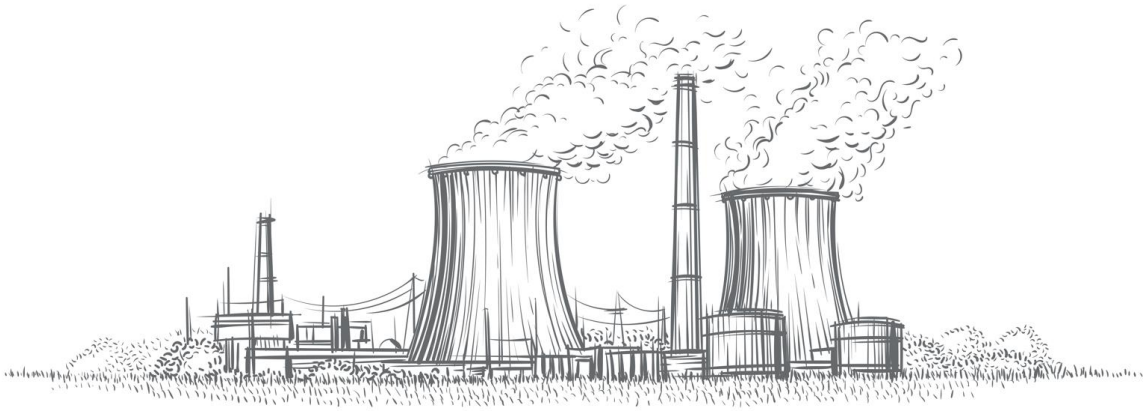
THE STATE OF OHIO

RADIOLOGICAL EMERGENCY

PREPAREDNESS (REP) PLAN



January 2022

This page intentionally left blank.

PLAN OVERVIEW

Introduction

1. The State of Ohio is within the 10-mile Emergency Planning Zone for Davis-Besse Nuclear Power Station (DBNPS) and Perry Nuclear Power Plant (PNPP) in Ohio, Beaver Valley Power Station (BVPS) in Pennsylvania, and the Fermi 2 Power Plant (Fermi 2) in Michigan.
2. Preparation for managing an incident at a nuclear power plant (NPP) is a joint cooperative effort by state, county and local governments, federal agencies, private and non-profit organizations and the utility company.
3. The Ohio REP Plan defines the State of Ohio's roles, responsibilities, and resources. It identifies the interface that must exist between involved agencies at all levels.
4. The Plan is supported by a set of Standard Operating Procedures (SOPs) with detailed instructions that explain when and how each of the response actions is to be performed.
5. The purpose of The Plan is to identify the ways and means to best protect citizens, their well-being, and property in the event of an emergency at a nuclear power plant.
6. The Plan and its related SOPs can be found on the Ohio Emergency Management Agency's (Ohio EMA) RADIOL and SEOC shared drives. The SEOC drive is available to all Ohio EMA personnel and to anyone logged into a computer in the State Emergency Operations Center (EOC) using the individual computer's dedicated State EOC login.
7. In the case of a Hostile Action Based (HAB) incident at a nuclear power plant, parts of this plan may be utilized in a way that does not follow typical actions. For instance, some Site Area Emergency typical actions may take place at an Alert.

This page intentionally left blank.

CONTENTS

This page intentionally left blank.

ACRONYMS

Acronym	Definition
AAR/IP	After Action Report/Improvement Plan
ALARA	As Low as Reasonably Achievable
ALC	Annual Letter of Certification
AMS	Aerial Measuring System
ANI	American Nuclear Insurers
ARIO	Advance Radiological Incident Operations
Bq	Becquerel
BVPS	Beaver Valley Power Station
CBP	Customs and Border Patrol
cc	cubic centimeters
CDE	Committed Dose Equivalent
CFR	Code of Federal Regulations
CMAC	Consequence Management Advance Command
CMHT	Consequence Management Home Team
CMRT	Consequence Management Response Team
C&O	Concept and Objectives Meeting
COVID-19	Coronavirus Disease 2019
cpm	counts per minute
cps	counts per second
CR	County Road
CST	Civil Support Team
DAS	Ohio Department of Administrative Services
DBNPS	Davis-Besse Nuclear Power Station
DHS	U.S. Department of Homeland Security
DIL	Derived Intervention Level
DOE	U.S. Department of Energy
DPS	Ohio Department of Public Safety
DRD	Direct Reading Dosimeter
DRL	Derived Response Level

Acronym	Definition
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
EM&HS	Emergency Management & Homeland Security
EMA	Emergency Management Agency
EMAC	Emergency Management Assistance Compact
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOP	Emergency Operations Plan
EPA (Federal)	Environmental Protection Agency
EPA (State)	Ohio Environmental Protection Agency
EPD	Electronic Personal Dosimeter
EPZ	Emergency Planning Zone
ERDS	Emergency Response Data System
ESF	Emergency Support Function
ESF-1	Transportation
ESF-2	Communications and Information Technology
ESF-3	Engineering and Public Works
ESF-4	Firefighting
ESF-5	Information and Planning
ESF-6	Mass Care
ESF-7	Resource Support and Logistics
ESF-8	Public Health and Medical Services
ESF-9	Search and Rescue
ESF-10	Oil, Gas, and Hazardous Materials
ESF-11	Food and Agriculture
ESF-12	Energy
ESF-13	Law Enforcement
ESF-14	Recovery and Mitigation
ESF-15	Emergency Public Information and External Affairs
FAA	Federal Aviation Administration

Acronym	Definition
FBI	Federal Bureau of Investigation
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
Fermi 2	Fermi 2 Power Plant (owned/operated by DTE Energy)
FMT	Field Monitoring Team
FNAMS	FEMA National Automated Message System
FNARS	FEMA National Radio System
FRMAC	Federal Radiological Monitoring and Assessment Center
FTC	Field Team Center
GE	General Emergency
HAB	Hostile Action Based
HP-SME	Health Physics Subject Matter Expert
HSEEP	Homeland Security Exercise and Evaluation Program
IA	Individual Assistance
IPM	Initial Planning Meeting
IPZ	Ingestion Planning Zone
IZRRAG	Ingestion Zone Recovery and Reentry Advisory Group
JFO	Joint Field Office
JIC	Joint Information Center
JIT	Just in Time
JPIC	Joint Public Information Center (specific to BVPS)
kg	Kilogram
KI	Potassium Iodide
LEADS	Law Enforcement Automated Data System
MARCS	Multi-Agency Radio Communication System
MCL	Maximum Contaminant Level
mR	milliRoentgen
mrem	millirem
MS	Microsoft
N/A	Not Applicable
NARAC	National Atmospheric Release Advisory Center
NAWAS	National Warning System

Acronym	Definition
NIMS	National Incident Management System
NNSA	National Nuclear Security Administration
NOAA	National Oceanographic and Atmospheric Administration
NOC	National Operations Center
NPP	Nuclear Power Plant
NRC	U.S. Nuclear Regulatory Commission
NRF	National Response Framework
NUREG	Nuclear Regulatory Commission Regulation
OAC	Ohio Administrative Code
OCA	Owner-Controlled Area
ODA	Ohio Department of Agriculture
ODAT	ODH Dose Assessment Team
ODH	Ohio Department of Health
ODH-BEHRP	Ohio Department of Health, Bureau of Environmental Health & Radiation Protection
ODH-LAB	Ohio Department of Health, Bureau of Public Health Laboratory
ODH-OHP	Ohio Department of Health, Office of Health Preparedness
ODI	Ohio Department of Insurance
ODJFS	Ohio Department of Jobs and Family Services
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Transportation
OhioMHAS	Ohio Department of Mental Health and Addiction Services
OHS	Ohio Homeland Security
OHNG	Ohio National Guard
ORC	Ohio Revised Code
ORO	Offsite Response Organization
OSHP	Ohio State Highway Patrol
OSLD	Optically Stimulated Luminescent Dosimeter
OSU-Ext	Ohio State University Extension
PA	Public Assistance
PAD	Protective Action Decision
PAG	Protective Action Guide

Acronym	Definition
PAR	Protective Action Recommendation
pCi	picoCurie
PNPP	Perry Nuclear Power Plant
PPE	Personal Protective Equipment
PRD	Permanent Record Dosimeter
PUCO	Public Utilities Commission of Ohio
QA	Quality Assurance
R	Roentgen
RAAC	Radiological Accident Assessment Concept Course
RAC	Regional Assistance Committee
RAD	Radiation Absorbed Dose
RAP	Radiological Assistance Program
RASCAL	Radiological Assessment System for Consequence Analysis
RAT	Radiological Assessment Team
REAC/TS	Radiological Emergency Assistance Center/Training Site
REM	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERO	Radiological Emergency Response and Operations Course
REVOC	Reentry Verification and Orientation Center
RIM&C	Radiological Instrument Maintenance and Calibration Facility
RRA	Resident Radiological Analyst
RZ	Restricted Zone
SAE	Site Area Emergency
SAIC	Strategic Analysis and Information Center
SME	Subject Matter Expert
SOP	Standard Operating Procedure
SR	State Road
STACC	Statewide Terrorism Analysis and Crime Center
SDWA	Safe Drinking Water Act
T/ACP	Traffic and Access Control Point
TSA	Transportation Security Administration
TEDE	Total Effective Dose Equivalent

Acronym	Definition
TLD	Thermoluminescent Dosimeter
URI	Unified RASCAL Interface
U.S.	United States
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDA-FSA	U.S. Department of Agriculture - Farm Service Agency
WVEM	West Virginia Emergency Management

I. NUREG-0654 CRITERIA A

Assignment of Responsibility

Primary responsibilities for emergency response by state and county agencies have been assigned. The responsibilities of various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continual basis.

Each agency having an operational role has specified its concept of operations and its relationship to the total response effort.

1. Overview

A. Purpose

This section provides an overview of the responsibilities each state agency has during a NPP incident.

B. Authority

The following are authorities the principle state agencies operate under:

1. Ohio Department of Public Safety (DPS)
    a. Ohio Emergency Management Agency (Ohio EMA)
        i. Ohio Revised Code (ORC) Title 55, Roads-Highways-Bridges; Chapter 5502, Department of Public Safety
        ii. Ohio Administrative Code (OAC) 4501:3, Emergency Management Agency Division
    b. Ohio Homeland Security (OHS)
        i. ORC Title 55, Roads-Highways-Bridges; Chapter 5502, Department of Public Safety
        ii. OAC 4501:5, Homeland Security Division
    c. Ohio State Highway Patrol (OSHP)
        i. ORC Title 55, Roads-Highways-Bridges; Chapter 5502, Department of Public Safety
        ii. OAC 4501:2, State Highway Patrol Division
2. Ohio Department of Agriculture (ODA)
    a. ORC Title 9, Agriculture-Animals-Fences; Chapter 901, Department of Agriculture
    b. ORC Title 37, Health-Safety-Morals; Chapter 3715, Pure Food and Drug Law
    c. OAC 901, Department of Agriculture

3. Ohio Department of Health (ODH)
    a. ORC Title 37, Health-Safety-Morals
        i. Chapter 3701, Department of Health
        ii. Chapter 3748, Radiation Control Program
    b. OAC 3701, Department of Health
4. Ohio Department of Natural Resources (ODNR)
    a. ORC Title 15, Conservation of Natural Resources
        i. Chapter 1501, Department of Natural Resources - General Provisions
        ii. Chapter 1533, Hunting; Fishing
        iii. Chapter 1547, Watercraft and Waterways
    b. OAC 1501, Department of Natural Resources
5. Ohio Department of Transportation (ODOT)
    a. ORC Title 55, Roads-Highways-Bridges; Chapter 5501, Department of Transportation
    b. OAC 5501, Department of Transportation
6. Ohio Environmental Protection Agency (Ohio EPA)
    a. ORC Title 37, Health-Safety-Morals; Chapter 3745, Environmental Protection Agency
    b. ORC Title 61, Water Supply-Sanitation-Ditches
        i. Chapter 6109, Safe Drinking Water
        ii. Chapter 6111, Water Pollution Control
    c. OAC 3745, Environmental Protection Agency
7. Ohio Governor's Office
    a. ORC Title 1, State Government; Chapter 107, Governor
    b. ORC Title 59, Veterans-Military Affairs; Chapter 5919, Ohio National Guard
    c. OAC 107, Office of the Governor
8. Adjutant General's Office/Ohio National Guard (OHNG)
    a. ORC Title 59, Veterans-Military Affairs; Chapter 5919, Ohio National Guard
9. Ohio State University (OSU) Extension
    a. ORC Title 3335, Ohio State University
        i. Section 3335.16, University Extension Division

ii. Section 3335.17, University Extension Division – Purposes

10. Public Utilities Commission of Ohio (PUCO)
    a. ORC Title 49, Public Utilities
    b. OAC 4901, Public Utilities Commission of Ohio
11. Miscellaneous
    a. ORC Title 1, State Government; Chapter 121, State Departments

---

C. Designated Authority for Federal Support Request

1. The Governor of Ohio has authorized designated Ohio EMA officials to request federal assistance and make requests for federal emergency and disaster declarations.
2. When warranted by plant conditions and other plant information, the Ohio EMA (on behalf of the Governor) will request federal assistance as needed. Ohio EMA may also request a Presidential Declaration of Emergency and/or Major Disaster when warranted by the extent of the incident, evacuations, or a radiological release from an affected plant. The Ohio EMA personnel authorized to request federal assistance from the Nuclear Regulatory Commission (NRC) and the Department of Energy (DOE) are the:
    a. Executive Director
    b. Assistant Director
    c. Preparedness Administrator
    d. Operations Administrator
    e. Radiological Branch Chief
3. The Ohio EMA personnel authorized to request federal assistance from the Federal Emergency Management Agency (FEMA) are the:
    a. Executive Director
    b. Assistant Director
    c. Administration Administrator
    d. Operations Administrator
    e. Preparedness Administrator

D. Utility

The utility will provide:

1. Timely notification to state, county, federal, and local agencies of emergency incidents.

2. Pertinent data from onsite and offsite radiological monitoring and current accident assessment data.
3. Timely and appropriate recommendations to counties and the State Emergency Operation Center (EOC) for offsite protective response actions in the plume exposure pathway.
4. Equipment needed by the state and federal responders at the Emergency Operations Facility (EOF). This equipment will be maintained by the utility.
5. Management and telecommunications equipment for the Utility's Joint Information Center (JIC).
6. A liaison to the State EOC to provide updates on plant status and to assist state officials in understanding technical information.

E. State

The State of Ohio develops and maintains emergency operations plans for its offsite response to radiological incidents involving the nuclear power plants.

F. Virtual Response

Since 2020, the Coronavirus Disease 2019 (COVID-19) has changed the way the world communicates. The State of Ohio demonstrated, while not ideal, virtual response to a nuclear power plant emergency is in the realm of possibility.

Microsoft (MS) Teams could be used as the chosen way to communicate amongst State employees and other organizations. Documents can be shared and discussed with someone down the hall, in another part of the state, or across the country.

While not all virtual endeavors were successful, MS Teams proved itself to be a valuable asset that has elements which will be incorporated into State response for years to come.

The current emergency response philosophy includes a blending of both in-person experience and virtual convenience. It is a scalable response and allows responders to move between the two, dependent upon the situation.

2. Office of the Governor

A. Responsibilities

The Office of the Governor:

1. Has the authority and responsibility for emergency response in the State of Ohio.

2. Through ORC 5502.22, designates the Executive Director of the Ohio EMA to act for the Governor to provide direction and control, and to carry out the state's emergency response to protect the public's health, safety, and property during an incident at a commercial nuclear power plant affecting Ohio.
3. Designates Ohio EMA as the planning and implementing agency for radiological response.
4. Authorizes designated officials at Ohio EMA to request federal radiological response assistance from appropriate federal agencies.
5. Issue orders, directives, and declarations appropriate to facilitate state support to local officials. The General Assembly has oversight of emergency declarations made by the Governor and any rules or directives issued by state agencies in relation to an emergency.
6. Provide representatives to State EOC and Utility JIC/JPIC, if the situation warrants.
7. Determine if the situation is beyond local resources or when the emergency at the nuclear power plant reaches the Site Area Emergency (SAE) level, consider if a "State of Emergency" exists to activate the Ohio National Guard (OHNG), to use state resources to assist local officials, and to suspend purchasing and contracting requirements.
8. Determine if the emergency is beyond the state's resources for recovery, request disaster recovery assistance from the President through FEMA, by requesting a federal "emergency" or "major disaster" declaration, or both, as appropriate for the incident.
9. Ensure the public is kept informed throughout the emergency.

3. Ohio DPS: Emergency Management Agency

A. Responsibilities

The Ohio Department of Public Safety (DPS), Emergency Management Agency (Ohio EMA) shall:

1. Provide the Executive Director to act for the Governor to provide direction and control, and to carry out the state's response to protect the public's health, safety, and property during an incident at a commercial nuclear power plant affecting Ohio.
2. Serve as the primary agency for: (Emergency Support Function) ESF-2, Communications and Information Technology; ESF-5, Information and Planning; ESF-6, Mass Care; ESF-7, Resource Support and Logistics; ESF-14, Recovery and Mitigation; and ESF-15, Emergency Public Information and External Affairs.

3. Maintain the State EOC in a state of readiness.
4. Assign the Radiological Branch Chief responsibility for maintaining 24-hour communication capabilities in conjunction with the Ohio EMA Watch Office and the Ohio State Highway Patrol (OSHP).
    a. In conjunction with OSHP's Dispatch Center, the Ohio EMA Watch will staff and maintain the state's primary point of contact for notification of nuclear power plant emergencies.
        i. This location is staffed 24-hours/day.
        ii. It is located at 2855 West Dublin-Granville Road, Columbus, OH.
        iii. Contact will be made by the utility through dedicated phone lines.
        iv. Backup communications are available through Multi-Agency Radio Communication System (MARCS) radios, commercial phones and cell phones.
        v. The Watch Chief is responsible for managing this emergency response function. They will maintain a personnel roster that is available upon request.
        vi. The Watch Office will notify the Radiological Branch Chief, or designee, and OSHP Dispatch, if notified of an emergency.
        vii. The Watch will also operate the National Warning System (NAWAS) for emergency communications.
5. Serve as the general coordination point for utility, private and non-profit organizations, federal, state, and local governments.
6. Request restriction of air, rail, and water traffic, as necessary.
7. Serve as a member of the Ingestion Zone Recovery & Reentry Advisory Group (IZRRAG).
8. Provide personnel to operate and staff the State EOC.
9. Designate a Public Information Officer(s) who will be located at the State JIC and/or Utility JIC/JPIC.
10. Provide resources and participate in exercises to test response plans.

B. Notification

In the event of a nuclear power plant emergency, at an Alert or higher Emergency Classification Level (ECL), Ohio EMA shall notify:

1. Key State partner agencies.
2. FEMA Region V and NRC Region III for events at all three NPPs.
3. The Province of Ontario and the State of Michigan for events at DBNPS.

4. FEMA Region II, NRC Region I, the Province of Ontario, and the State of Pennsylvania for events at PNPP.

C. Planning

The Ohio EMA shall:

1. Serve as the responsible agency for the development and maintenance of the State of Ohio Emergency Operations Plan (EOP), its Tabs, the Emergency Support Function (ESF) supporting documents, and the supporting Annexes.
2. Serve as the lead planning agency for the development and maintenance of The Ohio Radiological Emergency Preparedness (REP) Plan and Ohio EMA's procedures.
3. Assist and coordinate in the planning process to enable county officials to fulfill their responsibilities for pre-disaster planning, training, and emergency response.
4. Serve as the coordinating and planning agency for the statewide Emergency Alert System (EAS).
5. Maintain a personnel roster to contact and assign emergency response functions within the State EOC.
6. Determine which state agencies should perform specific tasks within their capabilities and ensure assignment of responsibilities.

D. Training

The Ohio EMA Radiological Branch will:

1. Conduct training courses developed by Ohio EMA.
2. With the assistance of the Planning, Training, and Exercise Branch, coordinate attendance for federal training programs.
3. Conduct training for health care facilities in radiation emergency response planning.
4. Develop radiation monitoring capability by training local responders.
5. Provide equipment to risk and host counties.

E. Communication

Ohio EMA, as the ESF-2 primary agency, will:

1. Coordinate communications for responding state agencies.
2. Provide emergency communications support and other equipment to augment existing communication resources in the affected area.
3. Audio-visual and telecommunications support will be provided for the State EOC.

F. Federal Coordination

Ohio EMA will:

1. Provide the necessary documentation and request assistance through a Presidential "emergency" or "major disaster" declaration, or both, as appropriate for the event, on behalf of the Governor.
2. Identify potential sites for possible use by Federal Radiological Monitoring and Assessment Center (FRMAC) personnel.
3. Upon request, arrange for transport of federal response teams and equipment into the operational area.

G. Executive Group

Ohio EMA coordinates the Executive Group, which consists of members of the Governor's cabinet and representatives of those departments directly involved in response to a NPP incident. It may also include any cabinet member from any other department the Governor may request to be present. The Executive Group shall:

1. Provide direction and control of offsite emergency activities for the State in consultation with the Governor.
2. Assist the Governor in approving and relaying Protective Action Recommendations (PARs) to the affected County Executive Group(s) based on information provided by the State Radiological Assessment Branch for the general public, institutionalized persons, and emergency workers.
3. Issue orders, directives, and advisories, in consultation with the Governor and/or through legislative authority, appropriate to the facilitation of state responsibilities to county officials.
4. Review and approve news releases and advisories before dissemination to the public.
5. Inform the affected adjacent states, the Province of Ontario, and 50-mile counties of ingestion pathway advisories during emergencies at the nuclear power plants.

H. Liaisons

Ohio EMA will provide:

1. Representatives to the Utility EOF, County EOC, and Utility JIC/JPIC.
2. A Resident Radiological Analyst (RRA) to live near and work full-time in each respective power plant's primary risk county as a permanently assigned liaison.

I. Dose Assessment

Ohio EMA will support the Ohio Department of Health – Bureau of Environmental Health & Radiation Protection (ODH-BEHRP) in the performance of dose assessment activities during the early, intermediate, and late phases of an emergency, when requested.

J. Dosimetry & KI

Ohio EMA will:

1. Assist in the distribution of Direct Reading Dosimeters (DRD), Thermoluminescent Dosimeters (TLD) or Optically Stimulated Luminescent Dosimeter (OSLD), and Potassium Iodide (KI) to state responders as part of the emergency worker exposure control program.
2. Ensure an arrangement is in place to provide for the reading of emergency worker permanent dosimeters by a processor accredited by the National Voluntary Laboratory Accreditation Program or other accreditation program in accordance with American National Standards Institute Standard N13.11-1983.
3. Distribute KI to emergency worker locations through the RRAs.

K. Field Monitoring Teams

Ohio EMA will:

1. Provide a Field Monitoring Team (FMT) Coordinator to coordinate the tracking and dispatching of the State's FMTs and Sample Teams.
2. Provide personnel to staff FMTs in conjunction with ODH.
3. Provide prompt field radiological measurements and assist in the development of, and provision for, accident assessment information, and the recommendation of protective, recovery, and reentry actions.

L. MS Teams

Ohio EMA will maintain individual "Teams" for BVPS, DBNPS, and PNPP. A series of channels will be available in each Team providing a "room" for each location to communicate (i.e., State EOC Operations Floor, Executive Rooms for the State and each involved risk County, Utility EOF, Utility JIC/JPIC, State JIC, and many more).

Some channels may be designed to be public where any "team member" can join (i.e., State EOC Operations Floor) or private and restricted to specific team members (i.e., County Executive Rooms). Team members may be added at any time, proactively or as necessary.

---

4. Ohio DPS: Homeland Security

A. Responsibilities

For a security related event, Ohio Department of Public Safety, Homeland Security (OHS) shall:

1. Furnish an activation order for the Statewide Terrorism Analysis and Crime Center (STACC) and the Strategic Analysis and Information Center (SAIC).
2. Provide personnel to staff the State EOC. This may include:
   a. OHS Executive Director
   b. OHS Security Point of Contact
3. Secure space at the State EOC for OHS and OSHP intelligence and investigatory efforts.
4. Notify uninvolved nuclear power plants for situational awareness of a potential or actual hostile action at another facility, enabling them to take necessary steps to protect their facility against multi-staged attacks.
5. Notify the Federal Bureau of Investigation (FBI) to ensure awareness and response.
6. Notify the Federal Aviation Administration (FAA) and Transportation Security Administration (TSA) for support in maintaining air domain awareness.
7. Notify the Customs and Border Patrol (CBP) Sandusky station for maritime awareness.

5. Ohio DPS: Information Technology

A. Responsibilities

Upon activation of the State EOC, ODPS Information Technology (IT), shall:

1. Provide trained IT personnel at the State EOC to help with any problems.
2. Provide trained IT personnel via the DPS Help Desk phone number to assist with problems.

6. Ohio DPS: Legal

A. Responsibilities

Upon activation of the State EOC, ODPS Legal, shall:

1. Address legal questions as they arise.
2. Provide legal counsel, draft proclamations and requests.
3. Participate in exercises to test response plans.

7. Ohio DPS: State Highway Patrol

A. Responsibilities

Ohio Department of Public Safety, State Highway Patrol (OSHP) shall:

1. Serve as the primary agency for ESF-13, Law Enforcement.
2. Operate the Law Enforcement Automated Data System (LEADS) to disseminate nuclear incident information to local authorities if warranted; provide an alternate for state notification, and confirm or secure information through its districts, posts or units regarding a radiological incident.
3. In conjunction with Ohio EMA's Watch Office, staff and maintain the state's primary point of contact for notification of nuclear power plant emergencies.
    a. This location is staffed 24-hours/day.
    b. It is located at 2855 West Dublin-Granville Road, Columbus, OH.
    c. Contact will be made by the utility through dedicated phone lines.
    d. Backup communications are available through Multi-Agency Radio Communication System (MARCS) radios, commercial phones and cell phones.
    e. The Dispatcher Supervisor is responsible for managing this emergency response function. They will maintain a personnel roster that is available upon request.
    f. OSHP Dispatch will contact the Radiological Branch Chief, or designee, and the Ohio EMA Watch Office, if notified of an emergency.
4. Provide for security at the State EOC.
5. Provide aerial transportation for authorized emergency personnel in coordination with ESF-1 Transportation.
6. Provide logistical support in air or ground transport of radiological samples and dosimeters, in accordance with ODH's RAD-REP-0355 Field Sample

Screening Station SOP, from Sample Screening to designated laboratories, as coordinated through ESF-1.

7. Instruct local posts to operate traffic and access control points and assist in traffic control and local law enforcement.
8. Provide transportation assistance, as necessary, to federal response teams.
9. Provide security for state properties and facilities, as needed.
10. Provide a liaison to the State EOC and a local liaison to county EOCs.
11. Coordinate access to the turnpike with the Ohio Turnpike and Infrastructure Commission, should it become necessary to use this route.
12. Provide aircraft to perform aerial perimeter/traffic control for the evacuated area, in coordination with ESF-1.

8. Ohio Department of Agriculture

A. Responsibilities

The Ohio Department of Agriculture (ODA) shall:

1. Serve as the primary agency for ESF-11, Food and Agriculture.
2. Direct a state-wide program for protection against radiological contamination of livestock, food, and crops.
3. Coordinate activities with federal and local counterparts.
4. Assist federal, state, and local counterparts in issuing advisories to the public on matters pertaining to agricultural products within the ingestion pathway.
5. Serve as the primary liaison for the United States Department of Agriculture (USDA) and the Food & Drug Association (FDA).
6. Provide for a statewide program to ensure health and safety with regard to the consumption of all food products.
7. Maintain a listing of all milk and milk product producers/processors, a general census of dairy stock, and other large amounts of food or agricultural products originating in the 50-mile Ingestion Planning Zone (IPZ).
8. Provide personnel to staff the State EOC.
9. Control through quarantine, confiscation, embargo, or destruction of contaminated crops and foods on the stalk or harvested.
10. Dispatch Sample Teams to sample including, but not limited to: milk, milk products, meat, and crops, during the intermediate phase.
11. Develop and maintain procedures for sampling of various media.

12. Serve as a member of the IZRRAG.

9. Ohio Department of Health

A. Responsibilities

ODH-BEHRP shall:

1. Serve as the primary state agency for radiation protection and associated functions as part of ESF-10, Oil, Gas, and Hazardous Materials, including:
    a. Oversight of health physics functions, such as, but not limited to: dose limits, contamination controls, access controls, posting, personal protective equipment (PPE), work plan, and as low as reasonably achievable (ALARA) evaluations;
    b. Coordination with other federal, state, and local agencies in the formulation of monitoring and sampling activities;
    c. Coordination with Ohio EPA in development of radioactive waste management plans; and
    d. Lead the direction and oversight of reentry, recovery, and mitigation activities.
2. Provide personnel to staff the State EOC.
3. Provide Subject Matter Experts (SMEs) to:
    a. ESF-5 – Utility EOF
    b. ESF-8 – ODH-Laboratory (ODH-Lab)
    c. ESF-15
        i. State JIC, including Public Inquiry support
        ii. Utility JIC/JPIC
4. Assist in the development of intermediate phase advisories.
5. Provide personnel to staff Field Monitoring Teams (FMT) in conjunction with Ohio EMA.
6. Provide Sample Screeners and equipment to screen and prepare radiological samples for transport to an approved radiological laboratory.
7. Provide a training individual to the Sample Screeners to analyze soil samples during the intermediate phase.
8. Ensure that proper standards for private water systems, sewage treatment systems, recreation areas, and indoor environments are maintained.
9. Provide a subject matter expert to serve as the Chair of the IZRRAG.

10. Provide Sample Teams to sample private water during the intermediate phase.
11. Develop and maintain procedures for sampling private water.
12. Provide necessary training to ODH emergency workers.

B. Dose Assessment

1. Provide personnel to support ESF-5, Information and Planning for:
   a. Radiological dose assessment.
   b. Development of protective action recommendations (PARs) for the public.
   c. Advising the Executive Group with regard to radiological safety issues.
   d. Serve as the primary radiological technical liaison agency.
2. ODH-BEHRP will develop and maintain procedures to perform dose assessment and related activities.
3. ODH-BEHRP is responsible for, with support from the Ohio EMA, the performance of dose assessment activities during the early, intermediate, and late phases of an emergency.
4. ODH-BEHRP will provide personnel to staff dose assessment at the State EOC.
5. Dose projections will be compared to the dose projections provided by the utility.
6. ODH-BEHRP will coordinate long-term dose assessment activities.

C. Dosimetry & KI

ODH-BEHRP will:

1. Apply criteria for the administration of KI which can be found in the ODH KI Directive, 10-BEHRP-01.
2. Be responsible for making the PAR for the administration of KI to emergency workers, institutionalized, and the general public then presenting it to the Ohio EMA Executive Director.
3. Make dose record forms available which may be used by state and county agencies.
4. Obtain KI from the NRC and provide it to the Ohio EMA RRAs to distribute to emergency worker locations in the counties.
5. Coordinate with an independent laboratory for shelf life extension of both public and emergency worker KI. Refer to ODH Memorandum, "Notice of Potassium Iodide (KI) Shelf Life Extension," dated September 28, 2021. This extension is good until June 20, 2022.

D. Dose Limits

ODH-BEHRP shall:

1. Recommend radiation dose limits for emergency workers.
2. Revise emergency workers' dose limits based on Dose Assessment projections.
3. Evaluate and approve or reject any requests for emergency workers to exceed dose limits.

E. ODH-LAB

Ohio Department of Health – Laboratory (ODH-LAB) shall:

1. Provide laboratory facilities and services for analysis of radiological environmental samples.
2. Ensure department lab personnel are trained in proper analytical techniques and procedures.

F. ODH-OHP

Ohio Department of Health – Office of Health Preparedness (OHP) shall:

1. Serve as the primary agency to ESF-8, Public Health and Medical Services.
2. Maintain listings of hospitals and other facilities for use during radiation incidents.
3. Coordinate provision of emergency medical supplies and health services to affected areas, as needed.
4. Provide personnel to staff the, desk at the State EOC.

10. Ohio Department of Natural Resources

A. Responsibilities

The Ohio Department of Natural Resources (ODNR) shall:

1. Serve as the primary agency for ESF-3, Engineering and Public Works and ESF-9, Search and Rescue.
2. Provide for alerting and evacuation of staff and visitors on ODNR owned, controlled or maintained recreational areas within the 10-mile Emergency Planning Zone (EPZ).
3. Provide access, evacuation assistance, and notification to Lake Erie islands by providing watercraft and aircraft, as needed.
4. Provide alternate pilots and aircraft for waterway notification of recreational boaters on Lake Erie, as well as personnel, watercraft and

equipment in order to augment United States Coast Guard (USCG) efforts. ODNR responders shall also assist in marina traffic control.

5. Provide ground transport of radiological samples and dosimeters, in accordance with ODH's RAD-REP-0355 Field Sample Screening Station SOP, from Sample Screening to designated laboratories, as coordinated through ESF-1.
6. Maintain information on waterways (e.g., lakes, streams and rivers).
7. Secure navigable or ODNR maintained waterways, as needed.
8. Provide personnel to staff the State EOC.
9. Provide liaisons to local unified command, if established.
10. Dispatch Sample Teams to the Field Team Center (FTC) for the sampling of fish and wildlife during the intermediate phase.
11. Develop and maintain procedures for the sampling of fish and wildlife.
12. Serve as a member of the IZRRAG.

11. Ohio Department of Transportation

A. Responsibilities

The Ohio Department of Transportation (ODOT) shall:

1. Serve as the primary agency for ESF-1, Transportation.
2. Determine and designate both available and prohibited routes of travel in the area affected by the radiological incident based on inputs from ESF-10 and ODOT resources.
3. Provide personnel, equipment, supplies, traffic control devices, and heavy equipment to support local traffic control efforts and remove impediments to evacuation.
4. Provide a liaison to the state and county EOCs.
5. Develop and maintain survey plans that project traffic flow patterns and capacities on evacuation routes.
6. Provide for aerial transportation for the state's personnel, as required.
7. Coordinate the transport of radiological samples and dosimeters, in accordance with ODH's RAD-REP-0355 Field Sample Screening Station SOP, from Sample Screening to designated laboratories or other designated destination.

12. Ohio Environmental Protection Agency

A. Responsibilities

Ohio Environmental Protection Agency (Ohio EPA) shall:

1. Serve as the primary agency for ESF-10, Oil, Gas, and Hazardous Materials (with the exception of radiological hazards for which ODH-BEHRP is the lead agency).
2. Coordinate activities with federal, state, and local counterparts.
3. Provide a district level representative to serve as the agency's liaison in the host county EOC.
4. Provide personnel to staff the State EOC.
5. Dispatch a representative to the State EOC to act as the Field Team Communicator during the emergency phase.
6. Sample public water supplies in the potentially affected area to determine if the water has radioactive contamination.
7. Ensure the public water suppliers run appropriate analysis with their contracted lab to determine that the Safe Drinking Water Act (SDWA) limits have not been exceeded.
8. Evaluate public wastewater treatment facilities for the affected area to ensure they are functional.
9. Coordinate radioactive waste management disposal locations and practices, as well as contaminated material disposal with ODH.
10. Dispatch Sample Teams to the Field Team Center (FTC) to take environmental samples during the intermediate phase.
11. Develop and maintain procedures for sampling the various media Ohio EPA is responsible for during the intermediate phase.
12. Serve as a member of the IZRRAG.

13. Ohio National Guard

A. Responsibilities

For Ohio National Guard (OHNG) support, other than the Civil Support Team (CST), a Governor’s Proclamation either in writing and/or verbal is required.

The OHNG shall:

1. Be called upon to provide support for a wide variety of missions during an emergency at a nuclear power plant affecting Ohio.
2. Assist local officials with notification, and public information.

3. Assist local officials in area patrol and traffic and access control activities through ESF-13.
4. Provide logistical support in air or ground transport of radiological samples and dosimeters, in accordance with ODH's RAD-REP-0355 Field Sample Screening Station SOP, from Sample Screening to designated laboratories, as coordinated through ESF-1.
5. Provide liaisons to the state and local EOCs.
6. Provide transportation assets and drivers for evacuation missions in the event that local resources are overwhelmed or cannot respond. This function is coordinated through ESF-1.
7. Provide appropriate transportation assets and drivers for medical evacuation missions in response to a radiological emergency at a nuclear power plant affecting Ohio through ESF-8.

14. Public Utilities Commission of Ohio

A. Responsibilities

As outlined in Section 4905 of the ORC, the jurisdiction, supervision, power, and duties of the PUCO extend to every public utility and railroad whose plant or property lies wholly within the state.

PUCO shall:

1. Serve as the liaison through ESF-1, Transportation, to the railroads.
2. Serve as the primary agency for ESF-12, Energy.
3. Coordinate overall information flow on status of public utilities in an affected area.
4. Ensure appropriate actions are taken in restoration of public utilities, including requiring competing companies to link telephone lines until permanent repairs can be affected, when communications are crucial to the disaster response activities.
5. Provide manpower and vehicles from districts to supplement other resources during an emergency.
6. Provide personnel to staff the State EOC.
7. Act as a referral service to provide State EOC phone numbers (through the Consumer Services Department) in the event Ohio EMA rumor control resources become overwhelmed.
8. Provide trained personnel and equipment to survey for radiation or contamination.

15. Additional State Agencies

A. For More Information

Refer to Attachment I-D and the State of Ohio Emergency Operations Plan (EOP) Emergency Support Functions (ESFs) for additional State Agency roles and responsibilities.

16. Federal Agencies

A. General Responsibilities

Refer to Attachment I-E and the National Response Framework (NRF) Emergency Support Functions (ESFs) Annexes and the Nuclear/Radiological Incident Annex (NRIA) for additional Federal Agency roles and responsibilities.

B. USCG

The USCG will:

1. Coordinate activities with ESF-9, Search and Rescue.
2. Broadcast an emergency notice to mariners, when requested.
3. Provide available resources (e.g., vessels, aircraft, and personnel), from the Ninth District USCG stations, to notify boaters on Lake Erie and to evacuate them, if necessary.
4. Coordinate with ODNR to notify boaters on Lake Erie and to evacuate them, if necessary.

17. Private and Non-Profit Organizations

A. General Responsibilities

Refer to Attachment I-F and the State of Ohio Emergency Operations Plan (EOP) Emergency Support Functions (ESFs) for additional organizations' roles and responsibilities.

Attachment I-A: Introduction to Attachments I-B – I-F

Attachment I-B A list of the Emergency Support Functions (ESFs) as they are currently structured in the Ohio Emergency Operations Plan (EOP).

Attachment I-C The State EOC Organization Chart. The block diagram indicates how each position's or ESF's relationship to the total emergency response effort directed by the Governor and Ohio EMA Executive Director. The agencies in each ESF are found in Attachments I-D, I-E, and I-F.

Attachment I-D A list of all the State Agencies found within the Ohio EOP's ESF documents that could be part of the overall response for the emergency and intermediate phases. Both the coordinating/primary agencies and support agencies are shown for each ESF. By referring to each ESF document, the responsibilities and concept of operations for each agency is detailed.

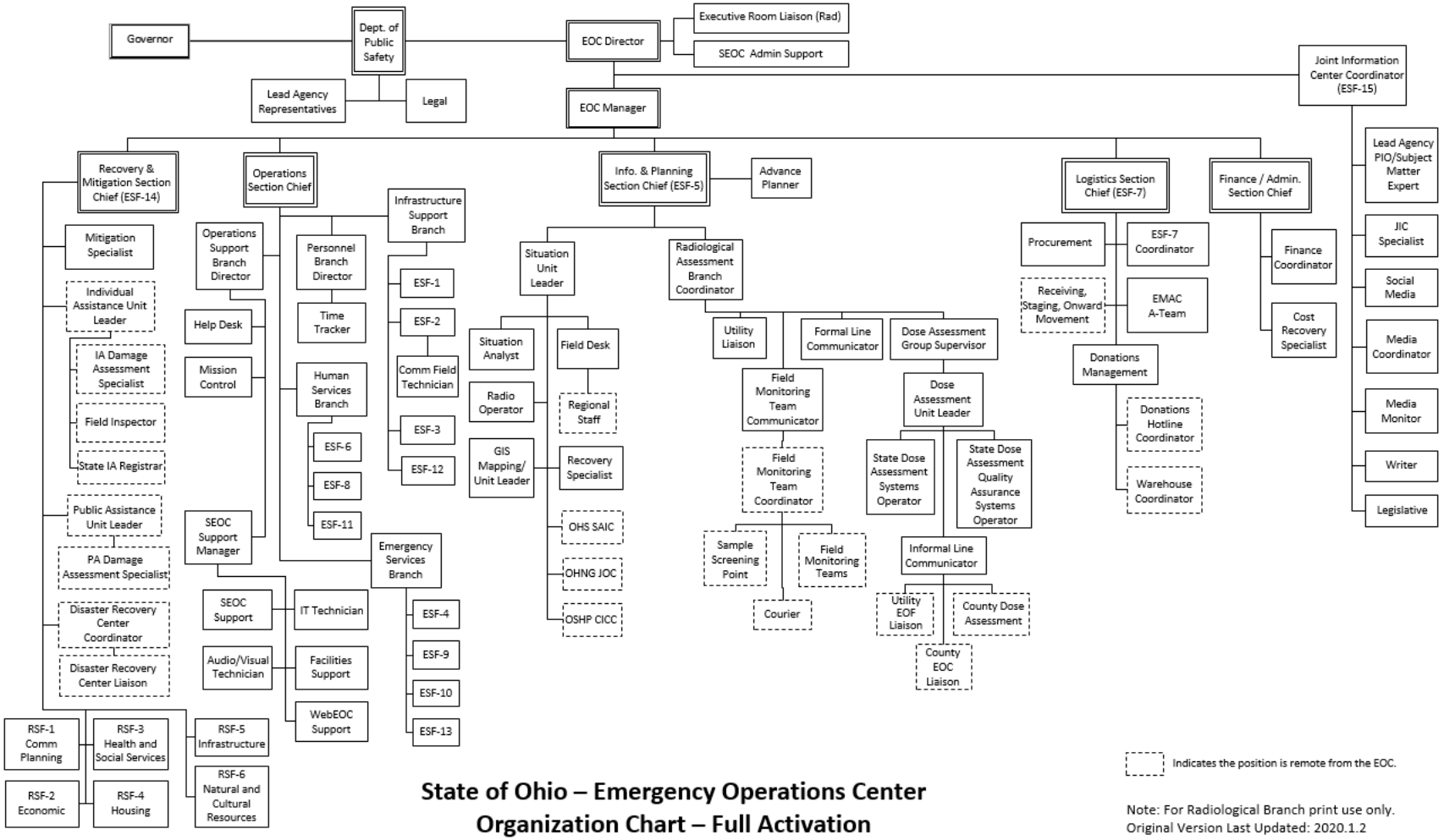
Attachment I-E A list of all the Federal Agencies found within the National Response Framework's (NRF) ESF Annexes that could be part of the overall response for the plume and ingestion exposure pathway EPZs. The coordinating, primary, and support agencies are shown for each ESF. By referring to each ESF document, the responsibilities for each agency is detailed. Note that ESF-14 of the NRF ESFs does not exactly align with the Ohio EOP ESF-14. Ohio's ESF-14 is Recovery and Mitigation. The NRF ESF-14 is Cross-Sector Business and Infrastructure. The agencies involved in the Nuclear/Radiological Incident Annex (NRIA) are also listed.

Attachment I-F A list of all the private and non-profit organizations found within the Ohio EOP's ESF documents that could be part of the overall response for the plume and ingestion exposure pathway EPZs. Both the supporting agencies and partner agencies are shown for each ESF. By referring to each ESF document, the responsibilities and concept of operations for each agency is detailed.

Attachment I-B: State of Ohio Emergency Support Functions (ESFs)

ESF	Function
ESF-1	Transportation
ESF-2	Communications and Information Technology
ESF-3	Engineering and Public Works
ESF-4	Firefighting
ESF-5	Information and Planning
ESF-6	Mass Care
ESF-7	Resource Support and Logistics
ESF-8	Public Health and Medical Services
ESF-9	Search and Rescue
ESF-10	Oil, Gas, and Hazardous Materials
ESF-11	Food and Agriculture
ESF-12	Energy
ESF-13	Law Enforcement
ESF-14	Recovery and Mitigation
ESF-15	Emergency Public Information and External Affairs

Attachment I-C: State EOC Organization Chart – Full Activation



Attachment I-D: State of Ohio Agency Support

State Agencies	Acronym	Emergency Support Functions														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Attorney General's Office	AGO					S[7]									S	S
Attorney General's Office/Bureau of Criminal Investigation	AGO/BCI					S								S		S
Civil Air Patrol, Ohio Wing	CAP	A[1]				S										S
Ohio Arts Council	OAC					S									PA[6]	S
Ohio Bureau of Motor Vehicles	BMV					S		S								S
Ohio Department of Administrative Services	DAS	S		S		S	C[3]D[5]	S	S						S	S
Ohio Department of Aging	ODAging					S	S								S	S
Ohio Department of Agriculture	ODA			A		S		S	S		S	(CP)[4]				S
Ohio Department of Commerce	DOC					S									S	S
Ohio Department of Commerce, Division of Industrial Compliance	DOC-IC			S		S					S					S
Ohio Department of Commerce, State Fire Marshal	DOC-SFM				(CP)	S			S		S			S		S
Ohio Department of Developmental Disabilities	DODD	S				S	S		S						PA	S
Ohio Department of Education	ODE					S	S								S	S
Ohio Department of Health	ODH			S		S	S	B[2]	(CP)		(CP)				S	S
Ohio Department of Higher Education	OBR					S									S	S
Ohio Department of Insurance	ODI					S									S	S

[1] A - ESF # Tab A Support Agency
[2] B - ESF # Tab B Support Agency
[3] C - ESF # Tab C Support Agency
[4] (CP) - Coordinating/Primary Agency
[5] D - ESF # Tab D Support Agency
[6] (PA) - Partner Agency
[7] S - Support Agency

State Agencies	Acronym	Emergency Support Functions														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ohio Department of Jobs and Family Services	ODJFS					S[7]	S								(PA)[6]	S
Ohio Department of Medicaid	ODM					S	S								S	S
Ohio Department of Mental Health and Addiction Services	Ohio MHAS					S	S		S						S	S
Ohio Department of Natural Resources	ODNR	S		(CP)[4]	S	S		S		(CP)	S			S	S	S
Ohio Department of Public Safety	ODPS					S	C[3]	S								S
Ohio Department of Rehabilitation and Correction	ODRC	S		S		S		S							(PA)	S
Ohio Department of Transportation	ODOT	(CP)		S	S	S		B[2]					S			S
Ohio Department of Transportation - Aviation	ODOT	A[1]				S[1]	C	S		S	S				S	S
Ohio Department of Veterans Services	ODVS					S									(PA)	S
Ohio Department of Youth Services	DYS					S										S
Ohio Development Services Agency	ODSA			S		S	S						S		S	S
Ohio Emergency Management Agency	Ohio EMA	S	(CP)	S	S	(CP)	(CP)	(CP)		S	S				(CP)	(CP)
Ohio Emergency Medical Services	OEMS					S			S							S
Ohio Environmental Protection Agency	Ohio EPA			S		S		B	S	S	(CP)				S	S
Ohio Emergency Medical Services	OEMS					S			S							S
Ohio Environmental Protection Agency	Ohio EPA			S		S		B	S	S	(CP)				S	S

[1] A - ESF # Tab A Support Agency
[2] B - ESF # Tab B Support Agency
[3] C - ESF # Tab C Support Agency
[4] (CP) - Coordinating/Primary Agency
[5] D - ESF # Tab D Support Agency
[6] (PA) - Partner Agency
[7] S - Support Agency

State Agencies	Acronym	Emergency Support Functions														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ohio Facilities Construction Commission	OFCC					S[7]									S	S
Ohio Geographically Referenced Information Program	OGRIP					S										S
Ohio Governor's Office	GO					S										S
Ohio Homeland Security	OHS					S	C[3]	S						S		S
Ohio Homeland Security/Ohio Public/Private Partnership	OHS/OP3					S									(PA)[6]	S
Ohio Housing Financing Agency	OHFA			S		S									S	S
Ohio Military Reserve	OHMR	S		S		S	S	A[1]								S
Ohio National Guard/Adjutant General	OHNG	S		S		S	C	S	S	S	S			S	(PA)	S
Ohio Public Works Commission	OPWC					S									S	S
Ohio Secretary of State	SOS					S									(PA)	S
Ohio State Highway Patrol	OSHP	S	A			S	CD[5]	S		S	S			(CP)[4]		S
Ohio State University Extension	OSU-Ext					S						S				S
Ohio Statewide Independent Living Council	OSILC			S		S	S								(PA)	S
Ohio Treasurer of State	TOS					S									(PA)	S
Ohio Water Development Authority	OWDA					S									S	S
Public Utilities Commission of Ohio	PUCO	S				S		B[2]			S		(CP)		(PA)	S

[1] A - ESF # Tab A Support Agency
[2] B - ESF # Tab B Support Agency
[3] C - ESF # Tab C Support Agency
[4] (CP) - Coordinating/Primary Agency
[5] D - ESF # Tab D Support Agency
[6] (PA) - Partner Agency
[7] S - Support Agency

Attachment I-E: Federal Agency Support

Federal Agencies	Acronym	Emergency Support Functions															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	NRIA[1]
American Red Cross[2]	ARC					S	P[4]					S[5]				S	
AmeriCorps	AmeriCorps			S		S	S									S	
Bureau of Alcohol, Tobacco, Firearms and Explosives (DOJ)[6]	ATF					S								C[3]P		S	
Center for Disease Control	CDC					S										S	S
Cybersecurity and Infrastructure Security Agency (DHS)	CISA		CP			S									CP	S	
Department of Commerce	DOC	S	S	S	S	S		S	S	S	S	S	S		S	S	
Department of Defense	DOD	S	S	S	S	S	S	S	S	CP	S	S	S	S	S	S	P
Department of Energy	DOE	S		S		S		S	S		S	S	CP		S	S	P
Department of Health and Human Services	HHS			S		S	S	S	CP	S	S	S			S	S	S
Department of Health and Human Services Assistant Secretary for Preparedness and Response	ASPR					S										S	S
Department of Homeland Security	DHS	S	S	S	S	S	S		S	S	S	S	S	S	S	CP	p
Department of Housing and Urban Development	HUD					S	S								S	S	
Department of Interior	DOI	S	S	S	S	S	S	S	S	S	S	P	S	S		S	S
Department of Justice	DOJ	S				S	S		S	S	S	S	S			S	
Department of Labor	DOL			S		S	S	S	S	S	S	S	S		S	S	S
Department of State	DOS	S		S	S	S			S		S	S	S		S	S	
Department of Transportation	DOT	CP		S		S	S	S	S	S	S	S	S		S	S	S
Department of the Treasury	TREAS					S	S							S	S	S	
Department of Veterans Affairs	VA			S		S	S		S							S	S

[1] The "primary" Nuclear/Radiological Incident Annex (NRIA) agency is determined by the situation.
[2] The Agency is listed in the Federal ESF documentation. However, it is a private or non-profit organization.
[3] C - Coordinating Agency
[4] P - Primary Agency
[5] S - Support Agency
[6] Agencies in () are the Federal Agency's Parent Agency

Federal Agencies	Acronym	Emergency Support Functions															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	NRIA[1]
Environmental Protection Agency	EPA			S[5]	S	S			S		C[3]P[4]	S	S		S	S	P
Extension Disaster Education Network[2]	EDEN					S						S				S	
Farm Services Agency (USDA)[6]	FSA					S										S	
Federal Bureau of Investigation (DOJ)	FBI					S										S	
Federal Communications Commission	FCC		S			S										S	
Federal Emergency Management Agency (DHS)	FEMA		P	P		CP	CP	CP		CP					P	P	S
Food and Drug Administration (HHS)	FDA					S										S	S
General Services Administration	GSA	S	S	S		S	S	CP	S		S	S			S	S	
Heritage Emergency National Task Force[2]	HENTF					S										S	
Historic Preservation, Advisory Council	HPAC					S						S				S	
National Aeronautics and Space Administration	NASA					S		S		S						S	
National Alliance on State Animal and Agricultural Emergency Programs[2]	NASAAEP					S						S				S	
National Animal Rescue and Sheltering Coalition[2]	NARSC					S						S				S	
National Archives and Records Administration	NARA					S						S				S	
National Assembly of State Animal Health Officials[2]	NASAHO					S						S				S	
National Association of State Directors of Agriculture[2]	NASDA					S										S	
National Center for Missing and Exploited Children[2]	NCMEC					S	S									S	
National Guard Service	ARNG					S								S		S	
National Nuclear Security Administration (DOE)	NNSA					S										S	S
National Oceanic and Atmospheric Administration (DOI)	NOAA					S										S	S

[1] The "primary" Nuclear/Radiological Incident Annex (NRIA) agency is determined by the situation.
[2] The Agency is listed in the Federal ESF documentation. However, it is a private or non-profit organization.
[3] C - Coordinating Agency
[4] P - Primary Agency
[5] S - Support Agency
[6] Agencies in () are the Federal Agency's Parent Agency

Federal Agencies	Acronym	Emergency Support Functions															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	NRIA[1]
National Park Service (DOI)[6]	NPS					S[5]				P[4]						S	
Natural Resources Conservations Service (USDA)	NRCS					S										S	
National Voluntary Organizations Active in Disaster[2]	VOAD					S	S									S	
Nuclear Regulatory Commission	NRC			S		S					S		S			S	P
Occupational Safety and Health Administration (DOL)	OSHA					S										S	S
Office of Personnel Management	OPM					S		S								S	
Other Federal Departments with Law Enforcement Officers	---					S								S		S	
Other Nongovernmental Organizations[2]	NGO					S	S									S	
Small Business Administration	SBA					S	S								S	S	
Social Security Administration	SSA					S	S									S	
Tennessee Valley Authority	TVA					S							S			S	
United States Agency for International Development	USAID					S			S	S						S	
United States Army (DOD)	USA					S										S	
United States Army Corps of Engineers (DOD)	USACE			C[3]P		S	S								S	S	S
United States Coast Guard (DHS)	USCG				S	S				P	P					S	P
United States Department of Agriculture	USDA	S	S	S		S	S	S	S	S	S	CP	S		S	S	S
United States Department of Agriculture - Rural Development	USDA-RD					S										S	
United States Fire Administration (DHS-FEMA)	USFA				CS	S										S	
United States Forest Service (USDA)	USFS				CP	S										S	
United States Postal Service	USPS	S				S	S		S			S				S	

[1] The "primary" Nuclear/Radiological Incident Annex (NRIA) agency is determined by the situation.
[2] The Agency is listed in the Federal ESF documentation. However, it is a private or non-profit organization.
[3] C - Coordinating Agency
[4] P - Primary Agency
[5] S - Support Agency
[6] Agencies in () are the Federal Agency's Parent Agency

Attachment I-F: Private and Non-Profit Organization Support

Private Agencies[1]	Acronym	Emergency Support Functions														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Amateur Radio Emergency Services	ARES					S[5]	D[3]									S
American Nuclear Insurers	ANI					S	S								S	S
American Red Cross	ARC					S	S	A[2]	S						S	S
Corporation for National Community Services	CNCS					S									(PA)[4]	S
Energy Harbor	EH					S										S
Ohio Commission on Service & Volunteerism	ServeOhio					S									(PA)	S
Ohio Fire Chiefs' Association	OFCA					S			S	S						S
Ohio Hospital Association	OHA					S			S						(PA)	S
Ohio Mortuary Operational Response Team	OMORT					S			S							S
Ohio Rail Development Commission	ORDC					S									(PA)	S
Ohio Rural Electric Cooperatives Association	OREC					S									S	S
Ohio State Historic Preservation Office	SHPO					S									S	S
Ohio Task Force One	OH-TF1					S				S						S
Ohio Voluntary Organizations Active in Disaster	VOAD					S	S	S							(PA)	S
The Salvation Army	TSA					S	S								(PA)	S

[1] The list details private or non-profit organizations that support response in the State of Ohio
[2] A - ESF-7 Tab A Support Agency
[3] D - ESF-6 Tab D Support Agency
[4] (PA) - Partner Agency
[5] S - Support Agency

II. NUREG-0654 CRITERIA C

Emergency Response Support & Resources

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

1. Sample Laboratories

A. Introduction

Samples will be transported to the appropriate laboratories for analysis. Transportation to laboratories may be performed by the OHNG, ODNR, or OSHP, in coordination with ESF-1.

B. State Laboratories

1. The primary laboratory available for the analysis of air, soil, milk, water, meat, fish, and vegetation field samples is the ODH-Lab, 8995 East Main Street Bldg. 22, Reynoldsburg, Ohio 43068.
2. Estimated transportation time from the Sample Screening Station is approximately three hours dependent upon where Sample Screening has been located.
3. Current capacity for environmental samples including log in and prep:
    a. Air filters – 70-80 per day – based on a five minute run time (if count time is adjusted, number per day will reflect that change)
    b. Air cartridge and other media – 30 per day – based on a twenty minute run time (if count time is adjusted, number per day will reflect that change)
4. Upon receipt of samples, the ODH-Lab will retain each sample's Chain of Custody in accordance with ODH policy.
5. A temporary storage location has been identified on the ODA's campus near the ODH-Lab. Refrigerated storage containers will be rented or leased as needed. Ancillary needs, such as a generator, will also be identified and procured.
6. The ODH-Lab is responsible for the maintenance of all radiological laboratory equipment. Laboratory equipment is calibrated annually or per manufacturer's recommendations. An equipment log is maintained by the ODH-Lab and is available upon request.
7. The ODH-Lab does not process Sr-90. FRMAC will be asked to assist in sending samples to Sr-90 capable laboratories.
8. The ODH-Lab will send the sample analysis results to the State Radiological Assessment Branch using RadResponder, if available. Backup methods include fax and telephone.

C. Federal Laboratories

1. Additional laboratory capabilities are available at Argonne National Lab, 9700 S. Cass Ave., Argonne, IL 60439.
2. Environmental Protection Agency (EPA)
    a. EPA has laboratories in Las Vegas that are capable of providing laboratory services and resources, including field monitoring teams.
    b. The EPA's National Air and Radiation Environmental Laboratory in Montgomery, Alabama has a fixed laboratory and a mobile counting facility. The fixed laboratory has the ability to do wet chemistry.

2. Price-Anderson Act

A. Description

The **Price-Anderson Act** (42 USC § 2210 as amended by P.L. 100-408) provides for prompt handling, investigation, and settlement of claims for legal liability arising out of or resulting from a nuclear power plant incident or precautionary evacuation. Price-Anderson is administered by the NRC to ensure the public that is affected by the event has adequate financial assistance to address most emergency needs.

1. In compliance with this Act, one insurance pool, American Nuclear Insurers (ANI), provide nuclear power reactor operators with nuclear energy liability coverage.
    a. In the event of a properly declared evacuation or precautionary evacuation, ANI will establish one or more claim offices near the area to provide emergency financial assistance for housing, food, and transportation to people who were evacuated as a result of the incident. Shadow evacuations are not eligible for emergency financial assistance from ANI.
    b. An ANI staff member will be deployed to the Utility JIC/JPIC to coordinate the release of information regarding claim office locations, appropriate documentation required, and procedures for obtaining assistance.
2. Covered environmental cleanup costs under Price-Anderson include costs directly incurred for monitoring, testing, cleanup, neutralizing, or containing contamination of the environment.
3. The state and/or local government will be reimbursed by the insurer for reasonable costs incurred by government while providing emergency food, shelter, transportation, or police services in evacuating the public. Coverage applies only to additional costs incurred during the period of time the evacuation order was in effect and for an additional 30 days immediately thereafter.

3. Robert T. Stafford Disaster Relief & Emergency Assistance Act

A. Description

The **Robert T. Stafford Disaster Relief and Emergency Assistance Act** (42 USC §§ 5121-5207) provides guidance to state and local organizations requesting a Presidential Declaration of Emergency or Major Disaster. Title V of the Act gives the President authority to take appropriate actions through the federal agencies to address the incident response and ensure that the full complement of federal resources can be brought to bear on the response (see NUREG-1457).

1. Direct or cost-shared financial assistance may be provided to state and local governments for actions associated with response to a nuclear incident.
2. Federal response assistance under the Stafford Act can be provided only in conjunction with a Presidential emergency or major disaster declaration.
3. Under a Presidential emergency declaration, federal assistance under the Stafford Act is limited to health and safety issues.
4. In cases of significant impact/damage to infrastructure and privately and publicly owned structures, a major disaster declaration will most likely be necessary. Requests for a major disaster declaration requires additional justification and completion of damage assessments.
5. The Stafford Act asserts there can be no duplication of benefits. For example, assistance that could be provided through insurance to impacted residents and local/state governments cannot be duplicated by assistance provided under the Stafford Act.

4. State Resources

A. Transportation

State EOC ESFs may be tasked with finding transportation resources, including drivers, to evacuate the public and institutionalized persons. Dependent upon the method of transportation, ESF-4 Firefighting, ESF-6, ESF-7, and/or ESF-13 may assist with obtaining or coordinating the transportation resources.

Non-routine use of school buses is addressed in OAC 3301-83-16.

B. For Federal Response

Upon request, ESF-7 will identify and procure any resources required to support the federal response (e.g., airfields, command posts, telephone lines, radio frequencies, and telecommunications centers).

C. Shortfalls

ESF-7 will perform an assessment of state resources. There are multiple avenues where resources may be obtained, including (but not limited to):

1. Private vendors
2. Federal government
3. Emergency Management Assistance Compact (EMAC): Through EMAC, states can share resources from all disciplines, because few, if any, individual states have all the resources they may need in all types of emergencies or the capability of delivering resources to the areas needed.

5. Utility Geographical Features

A. BVPS

BVPS is located 22 miles northwest of Pittsburgh, Pennsylvania. BVPS was constructed along the Ohio River at Shippingport, Pennsylvania.

The 10-mile EPZ incorporates the planning for all or part of the following counties: Columbiana County, Ohio; Beaver County, Pennsylvania; and Hancock County, West Virginia. The major topographic features are the Ohio River, the Beaver River, and numerous steep ridges and small valleys. The 2010 census approximates the total population to be 20,922. Large industries work three shifts per day and a majority of the employees live relatively close to their jobs. The Sub-Areas 1, 2, 3, and 4 are included within the 10-mile EPZ.

The 50-mile IPZ area includes the following states and their counties: Ohio (Belmont, Carroll, Columbiana, Harrison, Jefferson, Mahoning, Portage, Stark, and Trumbull); Pennsylvania (Allegheny, Armstrong, Beaver, Benango, Butler, Clarion, Fayette, Green, Lawrence, Mucer, Washington, and Westmoreland); West Virginia (Brooke, Hancock, Marshall, and Ohio).

B. DBNPS

DBNPS is located in northwestern Ohio on the south shore of Lake Erie, within Ottawa County, near Oak Harbor, approximately 21 miles east southeast of Toledo. The facility is located on 954 acres flanking Lake Erie; 733 acres of the site have been designated as protected wetlands called the Navarre Marsh; 582 acres of the site, consisting of dike marsh areas are leased to the U.S. Bureau of Sport Fisheries and Wildlife and form the Navarre unit of the Ottawa National Wildlife Refuge.

The area encompassing the 10-mile EPZ includes townships in Ottawa and Lucas Counties. The 2010 permanent population of the 10-mile EPZ was approximately 20,403. The lakeshore within the EPZ, with the exception of the plant site, is primarily devoted to recreational activities. The area is home to many marinas serving Lake Erie boaters and has a significant amount of land reserved for public use in the form of parks and wildlife refuges. Areas away from the lakefront are primarily agricultural in nature. Commercial centers exist in Oak Harbor and Port Clinton. Industrial activity can be found at the Erie Industrial Park in Erie Township, the Lakewinds Industrial Park in Salem Township, the City of Port Clinton, as well as in some smaller facilities throughout the EPZ.

The land-based portion of the 50-mile IPZ includes Crawford, Erie, Fulton, Hancock, Henry, Huron, Lorain, Lucas, Ottawa, Richland, Sandusky, Seneca, Wood, and Wyandot Counties in Ohio; Lenawee, Monroe, Washtenaw, and Wayne Counties in Michigan; and the Province of Ontario. The Lake Erie portion of the 50-mile IPZ includes Lucas, Ottawa, Erie, and Lorain Counties in Ohio; Monroe and Wayne Counties in Michigan; and the Province of Ontario.

C. PNPP

PNPP is located approximately seven miles northeast of Painesville, Ohio, and 35 miles east of Cleveland, Ohio.

The plant site occupies approximately 1100 acres on a lake plain 50 feet above Lake Erie's low-water datum. The terrain surrounding the plant is essentially flat within five miles of the lakeshore. Rising generally to the south, the terrain is a latticework of shallow, north-south streambeds and low, almost unnoticeable east-west ridges; the latter are remnants of ancient lakeshores. About five miles inland, the shoreline plane is abruptly cut by a 100-foot ravine formed by the Grand River. The terrain south of the river is more rolling, interrupted by north-south ravines of the tributaries of Grand, Kellogg, Big, Paine, and Mill creeks and several smaller streams. A large portion of the site covered by forest; 250 acres are devoted to the plant structural complex, while the remainder is open grassland.

The 10-mile EPZ encompasses land areas within three counties: Lake, Ashtabula, and Geauga. The 2010 census, estimates the permanent population to be 97,273 within the 10-mile EPZ, which includes seven Sub-Areas. The estimated peak summer population is 151,407 persons.

There are a number of beaches, parks, and campgrounds within the 10-mile EPZ that attract a sizable transient population during the summer. These areas are located along the Lake Erie shore and in the stream valleys. In particular, Headlands State Park and Geneva State Park draw large crowds.

Major highways that traverse the 10-mile EPZ are Interstate U.S. 90, State Route (SR) 84, and SR 20. Significant rail lines within the 10-mile EPZ are CSX, Norfolk and Western Railway, Baltimore and Ohio Railway, and

Painesville Railway. There are two airports in the 10-mile EPZ: Casement Airport in Painesville Township and Concord Airport in Concord Township. Neither airport serves commercial air-passenger traffic.

The 50-mile IPZ encompasses portions of five counties, including the Counties of Cuyahoga, Lorain, Portage, Summit, and Trumbull. The 50-mile IPZ also includes portions of three counties in Pennsylvania: Erie, Crawford, and Mercer Counties. The 50-mile IPZ also contains a portion of Canadian Lake Erie and a small peninsular area along the north side of Lake Erie that includes Rondeau Provincial Park in Ontario, Canada.

The land-based portion of the 50-mile IPZ includes Lake, Ashtabula, Geauga, Cuyahoga, Lorain, Portage, Summit, and Trumbull in Ohio; Erie, Crawford, and Mercer Counties in Pennsylvania; and the Province of Ontario. The Lake Erie portion of the 50-mile IPZ includes Lake, Ashtabula, Lorain, and Cuyahoga Counties in Ohio; Erie County in Pennsylvania; and the Province of Ontario.

D. Fermi 2

Enrico Fermi Nuclear Generating Station, Unit 2, is located in Newport, Michigan, approximately halfway between Detroit, Michigan and Toledo, Ohio.

The 10-mile EPZ encompasses land areas within two counties: Monroe and Wayne Counties in Michigan. It also includes portions of Lake Erie under the jurisdictions of Wayne and Monroe Counties in Michigan; Lucas County in Ohio; and the Province of Ontario. The 2010 census, estimates the permanent population to be 92,377 within the 10-mile EPZ, which includes seven Sub-Areas. Lucas County governs a small portion of Sub-Area 7 where there are no residents.

The estimated 50-mile population was 4,799,526. The land-based portion of the 50-mile IPZ includes Lucas, Ottawa, Wood, Fulton, Henry, Sandusky, Erie and Seneca Counties in Ohio; Oakland, Macomb, Livingston, Lenawee, Jackson, and Washtenaw in Michigan; and the Province of Ontario. The Lake Erie portion of the 50-mile IPZ includes Lucas, Ottawa, and Erie Counties in Ohio; Monroe and Wayne Counties in Michigan; and the Province of Ontario.

Attachment II-A: Federal Laboratory Response Times

Organization	Capabilities	Drive Times (Hours)		
		BVPS	DBNPS	PNPP
Argonne National Lab 9700 S. Cass Ave. Argonne, IL 60439	Alpha, beta, gamma, tritium & neutron monitoring	8	6	7.5
	Air, soil, water & vegetation sampling			
	Mobile laboratory with multi-channel analyzer, surface barrier (alpha) detector, NaI detector, liquid scintillation detector & gas proportional detector			

Attachment II-B: Federal Technical Assistance and Response Times

DOE Activity	Place of Origin	Operational Time	Assistance Provided
FRMAC	Las Vegas, NV Washington, D.C.	Asset Response Timeline CMHT: 0-2 hours CMAC: 6-12 hours CMRT: 12-24 hours	Coordinate radiological monitoring and assessment from federal agencies providing technical assistance
NARAC	Lawrence Livermore National Laboratory Livermore, CA	1-2 hours	Computer modeling of dose projections
AMS Aircraft	Las Vegas, NV or Washington, D.C.	4-8 hours	Flyover of the area to determine concentration of isotopes and yield early isopleths
Region V Radiological Assistance Program (RAP) Team	Chicago, IL	2-6 hours	Provide monitoring and sample teams
Mobile Laboratory	Chicago, IL	10 hours	Lab analysis of isotopic concentration in collected samples
REAC/TS	Oak Ridge, TN	24-36 hours	Provides direct support

Attachment II-C: Federal Radiological Monitoring and Assessment Center (FRMAC) Airport Accessibility

Plant	Airport	Aerial Monitoring Support (AMS)
BVPS	Pittsburgh International Airport 1000 Airport Blvd. Pittsburgh, PA Code: PIT	Pittsburgh International Airport 1000 Airport Blvd. Pittsburgh, PA Code: PIT
DBNPS	Eugene F. Krantz Toledo Express Airport 11013 Airport Hwy. Swanton, OH Code: TOL	Eugene F. Krantz Toledo Express Airport 11013 Airport Hwy. Swanton, OH Code: TOL
	Alternate: Cleveland Hopkins International Airport 5300 Riverside Dr. Cleveland, OH Code: CLE	
PNPP	Cleveland Hopkins International Airport 5300 Riverside Dr. Cleveland, OH Code: CLE	Lake County Executive Airport 1969 Lost Nation Rd. Willoughby, OH Code: LNN
	Alternate: Youngstown-Warren Regional Airport 1453 Youngstown Kingsville Rd. Vienna, OH Code: YNG	***Alternate:*** Cuyahoga County Airport 26300 Curtiss Wright Pkwy. Cleveland, OH Code: CGF

Attachment II-D: Potential Federal Radiological Monitoring and Assessment Center (FRMAC) and Field Team Center Locations

Plant	Location
BVPS	Greater Pittsburgh Airport Air National Guard Facility Pittsburgh, PA
DBNPS	U. S. Army Reserve Center 983rd Engineer Battalion 9825 Garden Road Swanton, OH
PNPP	Lake Catholic High School 6733 Reynolds Road Mentor, OH

This page intentionally left blank.

III. NUREG-0654 CRITERIA D

Emergency Classification System

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and state and local response plans call for reliance on information provided by the facility licensees for determinations of minimum initial offsite response measures.

1. Unusual Event

A. Definition

Licensee emergency classification level indicating that unusual events are in process or have occurred that indicate a potential degradation in the level of plant safety or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected, unless further degradation of safety systems occurs.

B. Actions

STEP	STATE ACTIONS	RESPONSE AGENCY
1.	Notify key response agencies.	Ohio EMA
2.	Provide news releases, if required.	Ohio EMA
3.	Maintain UNUSUAL EVENT status until closeout or escalation of emergency classification.	All Concerned Agencies

2. Alert

A. Definition

Licensee emergency classification level indicating that events are in process or have occurred that involve an actual or potential substantial degradation in the level of plant safety or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Releases are expected to be limited to small fractions of the Environmental Protection Agency protective action guide exposure levels.

B. Hostile Action Based

The State EOC Executive Group may choose to use the Supplemental Action Form – Actions Requiring Executive Approval to recommend advanced precautionary actions.

C. Disclaimer

Actions are unlikely to be performed in any one particular order. It will vary dependent upon personnel, event, and priorities. This list is not meant to be all-inclusive. Dependent upon circumstances, some response activities may occur virtually.

D. Actions

STEP	STATE ACTIONS	RESPONSE AGENCY
1.	Complete UNUSUAL EVENT actions.	All Concerned Agencies
2.	Consider activating:	Ohio EMA
a.	Dose Assessment	
b.	JIC	
c.	SEOC (i.e., assessment & monitoring, full, etc.)	
d.	Executive Room	
3.	Notify key response agencies.	Ohio EMA OHS (if security event)
4.	Dose Assessment to monitor plant data.	Radiological Assessment Branch
5.	Notify of an Alert ECL using eNotify:	Ohio EMA
a.	Key State partner agencies, both ESF primary agencies and support agencies	
b.	Contiguous governments	
c.	NRC Region III	
d.	FEMA Region V	
e.	**For PNPP only:**	Ohio EMA
i.	NRC Region I	
ii.	FEMA Region III	
6.	Consider dispatching representatives to:	Ohio EMA ODH Ohio EPA
a.	Utility EOF	Ohio EMA ODH-BEHRP
b.	Utility JIC/JPIC	Ohio EMA ODH-BEHRP
c.	County EOCs	Ohio EMA ODH-BEHRP Ohio EPA

7.		Consider prepare and hold FMTs at the RIM/C and/or dispatch to the staging area.	Executive Group Radiological Assessment Branch
8.		Consider dispatching MARCs radios with FMTs.	Ohio EMA
9.		Consider activating and deploying Sample Screeners to their staging area simultaneously with the FMTs.	Executive Group ODH
10.		**For DBNPS/PNPP/Fermi 2 only:**	
	a.	Consult with counties. Consider clearing EPZ waterways taking into consideration: • Plant ECL • Current and projected meteorological conditions • Time of day • Season of the year • Special events	Executive Group
	b.	If the decision to clear the waterways is made, contact USCG Sector Buffalo for PNPP or Sector Detroit for DBNPS/Fermi 2, and request they broadcast a message to mariners and provide resources for waterway notification.	ODNR
	c.	Dispatch state agency watercraft as necessary to clear waterways. Coordinate with USCG to assist clearing waterways.	ODNR
11.		Consider closing State and Federal parklands. Consult with counties prior to decision.	Executive Group ODNR
12.		**For DBNPS/PNPP/Fermi 2 only:** Request FAA restrict air space 10 miles to 10,000 feet.	ESF-1 ODOT Aviation
13.		Notify railroads for situational awareness only.	PUCO
14.		Provide news releases and information to the public. Any message issued as the result of a HAB incident will be vetted through the Incident Command (IC) or law enforcement for sensitive information before being released.	State JIC

FOR HOSTILE ACTION BASED EVENTS ONLY		
15.	Contact DOE to request mobilization of resources.	Ohio EMA
16.	Consider requesting a Governor's declaration.	Ohio EMA
17.	Maintain ALERT status until closeout, reduction, or escalation of emergency classification.	All Concerned Agencies

3. Site Area Emergency

A. Definition

Licensee emergency classification level indicating that events are in process or have occurred that involve actual or likely major failures in the plant functions needed for protecting the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Releases are not expected to exceed Environmental Protection Agency protective action guide exposure levels beyond the site boundaries.

B. Disclaimer

Actions are unlikely to be performed in any one particular order. It will vary dependent upon personnel, event, and priorities. This list is not meant to be all-inclusive. Dependent upon circumstances, some response activities may occur virtually.

C. Actions

STEP	STATE ACTIONS	RESPONSE AGENCY
1.	Complete actions under ALERT.	All Concerned Agencies
2.	If not previously activated, fully activate:	Ohio EMA
a.	Dose Assessment	
b.	SEOC	
c.	State JIC	
d.	Executive Room	
3.	Request all partner agencies provide representatives to the State EOC to coordinate response efforts.	Ohio EMA

4.	Notify of SAE ECL change using eNotify:		Ohio EMA
	a.	Contiguous governments	
	b.	NRC Region III	
	c.	FEMA Region V	
	d.	50-mile counties (send eNotify message and email with additional information)	
	e.	**For PNPP only:**	Ohio EMA
		i. NRC Region I	
		ii. FEMA Region III	Ohio EMA
5.	Dose Assessment to continue monitoring plant data.		Radiological Assessment Branch
6.	Consider requesting a Governor's Declaration of a "State of Emergency," if not already requested.		Governor's Office Executive Group
7.	Request DOE mobilization of resources, if not already completed.		Ohio EMA
8.	If not already performed, close State and Federal parklands.		ODNR
9.	**For DBNPS/PNPP/Fermi 2 only:** If not already completed, consult with the counties to clear the EPZ waterways.		Executive Group
	a.	If the decision to clear the waterways is made, contact USCG Sector Buffalo for PNPP or Sector Detroit for DBNPS/Fermi 2, and request they broadcast a message to mariners and provide resources for waterway notification.	ODNR
	b.	Dispatch state agency watercraft as necessary to clear waterways. Coordinate with USCG to assist clearing waterways.	
10.	Notify affected counties of Governor's Declaration.		Ohio EMA
11.	Consider requesting implementation of the National Response Framework and a Presidential Emergency Declaration with consideration of Price Anderson Act.		Executive Group Governor's Office
12.	Request railroads restrict traffic from entering the 10-mile EPZ. For BVPS, restrict traffic from entering the Ohio portion only of the 10-mile EPZ.		PUCO

13.	Except in the event of a "fast breaking event," issue the Agricultural Advisory to the 10-mile EPZ.		Executive Group ODA
	a.	"The Director of the Ohio Department of Agriculture recommends that as a precaution, livestock and poultry be brought inside and placed on stored feed and protected water in all townships and municipalities within 10 miles of the plant."	Executive Group ODA
	b.	Record effective time.	Executive Group
14.	If not already dispatched, send the FMTs to the staging area.		Executive Group Radiological Assessment Branch
15.	If not already dispatched, deploy the Sample Screeners to their staging area.		Executive Group ODH
16.	Consider deploying FMTs to monitor and survey.		Executive Group Radiological Assessment Branch
17.	Water supply issues: • ESF3/Ohio EPA may complete water intake shutoff within the 10-mile EPZ. • Inform the Executive Group of the affected areas. • Establish coordination call with affected counties.		Executive Group ESF-3/Ohio EPA
18.	Provide a PAR to the Executive Group for the public within the 10-mile EPZ to monitor EAS broadcasts.		Radiological Assessment Branch
19.	Consider the PAR from Dose Assessment.		Executive Group
	a.	Make changes to the PAR, if needed.	
	b.	When a PAR is approved, provide the information to the counties who will return their PAD.	
20.	Provide press releases and information to the public, as needed. Any message issued as the result of a HAB incident will be vetted through the Incident Command (IC) or law enforcement for sensitive information before being released.		State JIC
21.	Consider distributing radiological emergency information to farmers, food processors, and distributors in the 50-mile IPZ.		OSU Extension ODA

22.	Maintain SITE AREA EMERGENCY status until closeout, reduction, or escalation of emergency classification.	All Concerned Agencies

4. General Emergency

A. Definition

Licensee emergency classification level indicating that events are in process or have occurred that involve actual or imminent substantial core degradation or melting, with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can reasonably be expected to exceed Environmental Protection Agency protective action guide exposure levels offsite for more than the immediate site area.

B. Disclaimer

Actions are unlikely to be performed in any one particular order. It will vary dependent upon personnel, event, and priorities. This list is not meant to be all-inclusive. Dependent upon circumstances, some response activities may occur virtually.

C. Actions

STEP	STATE ACTIONS	RESPONSE AGENCY
1.	Complete actions under SITE AREA EMERGENCY.	All Concerned Agencies
2.	If not already issued, request a Governor's Declaration.	Ohio EMA Governor's Office
3.	Dose Assessment to continue monitoring plant data.	Radiological Assessment Branch
4.	Notify of GE ECL change using eNotify:	Ohio EMA
a.	Contiguous governments	
b.	NRC Region III	
c.	FEMA Region V	
d.	50-mile counties (send eNotify message and email with additional information)	
e.	**For PNPP only:**	Ohio EMA
i.	NRC Region I	
ii.	FEMA Region III	

5.	Dose Assessment to develop and present a PAR to the Executive Group based on plant conditions.		Radiological Assessment Branch
	a.	For actual or projected offsite release: consider recommending evacuation for the sub-areas within the 2-mile (360°) radius and 5-mile downwind sectors, unless: (1) very dangerous travel conditions exist, (2) there is assurance from the utility that the impending release(s) is a controlled release(s) of short duration (puff release) and the area near the plant cannot be evacuated before the plume arrives, (3) a security event has occurred and the actual impact is unknown or not immediately available, or (4) per the new EAL scheme (see NUREG-0654, Supp. 3, Fig. 1, note 3 & 5). In these four instances, sheltering may be the appropriate immediate protective action.	Radiological Assessment Branch
	b.	Using dose projection modeling, determine the need to extend distances. PARs may also be affected by other factors, such as no plant data available or a rapidly progressing event.	Radiological Assessment Branch
	c.	If there is a release, recommend the administration of Potassium Iodide (KI) to the public, institutionalized individuals, and emergency workers.	ODH-BEHRP
	d.	Advise the remainder of plume EPZ to listen to EAS.	Radiological Assessment Branch
6.	Consider the PAR from Dose Assessment which may include a precautionary evacuation of affected populations.		Executive Group
	a.	Make changes to the PAR, if needed.	
	b.	When a PAR is approved, provide the information to the counties who will return a PAD.	
7.	If not already completed, deploy FMTs to survey and sample.		Executive Group Radiological Assessment Branch
8.	Consider requesting a revision to Governor's Declaration, if necessary, to include downwind Ingestion Zone counties.		Executive Group Governor's Office

9.	When it is determined that the event is beyond the ability of state and local capabilities, consider requesting a Presidential Emergency Declaration and/or a Presidential Major Disaster Declaration with consideration of the Price Anderson Act.	Executive Group Governor's Office
10.	**For BVPS,** Pennsylvania will request FAA to restrict air space 10 miles and 10,000 feet.	PEMA
11.	Request railroads restrict traffic from entering and exiting the 10-mile EPZ. **For BVPS,** restrict traffic from entering and exiting the Ohio portion of the 10-mile EPZ.	PUCO
12.	West Virginia Emergency Management (WVEM) is responsible for securing water traffic on the Ohio River bordering the State of Ohio. ODNR will coordinate closure of private facilities on the State of Ohio side of the river. Note: If there are public facilities on the restricted section of the river, they should have already been secured by ODNR.	WVEM ODNR
13.	Provide FMT monitoring and sampling results to utility and DOE for joint accident assessment.	Radiological Assessment Branch
14.	Ingestion Zone Recovery and Reentry Advisory Group (IZRRAG) to meet to begin planning process for the transition to the Intermediate Phase and to request the meeting space is prepared for use.	IZRRAG
15.	If not already completed, distribute radiological emergency information to farmers, food processors, and distributors in the projected plume pathway within the 50-mile IPZ.	OSU Extension ODA
16.	Continuously assess information from utility and FMTs (utility, local, state, and federal) with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.	Radiological Assessment Branch
17.	Dose Assessment to develop and present additional PARs to the Executive Group based on changing plant conditions and meteorological data (i.e., wind direction changes).	Radiological Assessment Branch
18.	In the event of additional PARs, the Executive Group will follow the process noted for the initial GE PAR.	Executive Group

19.	Provide news releases and information to the public. Any message issued as the result of a HAB incident will be vetted through the Incident Command (IC) or law enforcement for sensitive information before being released.	State JIC OSHP
20.	After the release has stopped, and the plant is in a "stable" condition, convene the Ingestion Zone Recovery and Reentry Advisory Group (IZRRAG). Transition to the intermediate phase.	Ohio EMA IZRRAG

21.	When IZRRAG is convened, notify agencies of change in status:
	• State EOC
	• Contiguous governments
	• FEMA Region V
	• NRC Region III
	• 50-mile counties (send informational email)
	• **For PNPP only:**
	  ○ NRC Region I
	  ○ FEMA Region III
		Ohio EMA

22.	Maintain GENERAL EMERGENCY status until closeout or reduction of emergency classification.	All Concerned Agencies

5. Intermediate Phase

A. Definition

After the conditions of an incident that escalated to a General Emergency have stabilized, the source of radioactive release has been brought under control, and environmental radiological measurements are available for use as a basis for decisions on additional protective actions, then off-site response agencies transition to the Intermediate Phase. The Intermediate Phase extends until additional actions are completed. It may overlap both the Emergency and the Recovery Phase to some extent.

The Intermediate Phase consists of four major response efforts:

1. Initiating preliminary advisories to limit or prevent exposure within the 50-mile ingestion pathway.
2. Ensuring that people remaining within defined restricted areas are relocated.
3. Assisting people who need re-entry into impacted areas.
4. Return of the public to areas that were initially evacuated, but are now deemed safe enough for occupancy or use.

B. Disclaimer Actions are unlikely to be performed in any one particular order. It will vary dependent upon personnel, event, and priorities. This list is not meant to be all-inclusive. Dependent upon circumstances, some response activities may occur virtually.

C. Actions

STEP	ACTIONS	RESPONSE AGENCY
1.	Maintain GENERAL EMERGENCY status until closeout or reduction of emergency classification.	IZRRAG All Concerned Agencies
2.	FMTs to run a grid survey of the affected area.	Radiological Assessment Branch
3.	Determine a location for the Field Team Center (FTC). Consider co-locating with FRMAC upon arrival.	IZRRAG
4.	Conduct an Advanced Party Meeting with a FRMAC Liaison.	IZRRAG Executive Group State JIC Radiological Assessment Branch
5.	Ohio EPA to develop a 10-point sampling plan to obtain soil in the RZ.	IZRRAG/Ohio EPA
6.	Ohio EPA Radiological Assessment Teams (RAT) to enter area for 10-point soil samples.	Ohio EPA
7.	Initiate temporary bans and precautionary advisories based upon the deposition model.	Executive Group IZRRAG
8.	Refine the initial Restricted Zone (the evacuated area) based on the Derived Response Level (DRL) from the 10-point soil samples.	IZRRAG
9.	Provide a Relocation PAR to the counties.	IZRRAG Executive Group
10.	Receive revised Relocation PAD from counties.	Executive Group IZRRAG
11.	Assist/ensure local officials employ reentry control guidelines for Restricted Zones to protect public health & safety, but allow continued operation of critical utilities and safeguarding of farm livestock.	Radiological Assessment Branch IZRRAG Executive Group

12.	IZRRAG Sample Teams to muster at the FTC.	ODA ODH ODNR Ohio EPA Ohio EMA
13.	Continue to distribute radiological emergency information to farmers, food processors, and distributors in the ingestion pathway.	OSU Extension ODA
14.	After RZ is defined, deploy IZRRAG Sample Teams to sample outside of the RZ.	IZRRAG
15.	Establish liaison with the federal monitoring and assessment teams with FRMAC. Share state, local and utility survey and sampling results (as applicable), and request federal team radiation survey and sampling results.	IZRRAG
16.	Consolidate data collected in the emergency phase pertaining to:	IZRRAG
a.	Potentially affected areas based on plume path (using deposition model),	IZRRAG
b.	Levels of radiation within and bordering the affected areas,	IZRRAG
c.	Size of population evacuated, and	IZRRAG GIS
d.	Facilities impacted.	IZRRAG GIS
17.	Direct continued monitoring and sample analysis to define areas and hot spots requiring protective actions.	IZRRAG
18.	As sample results continue, ground truth is mapped and advisories are modified.	GIS IZRRAG
19.	Review and assess radiation surveys and sample results from federal, state, and local monitoring teams to determine whether previously evacuated populations may return to areas that were not significantly impacted by contamination.	IZRRAG Executive Group County Executive Group
20.	Issue a Return PAR to the counties.	IZRRAG Executive Group
21.	Receive a Return PAD from the counties.	Executive Group IZRRAG
22.	Continue to redefine the RZ as sample results are returned.	IZRRAG GIS

23.	Revise Relocation and Return PARs as the RZ is further refined.	IZRRAG Executive Group
24.	Receive Relocation and Return PADs from the counties.	Executive Group IZRRAG
25.	Continue data collection to record state and local costs from losses and response actions resulting from the plant release.	Ohio EMA
26.	Commence recovery planning; formulate initial recovery plans in cooperation with local agencies and the Federal Advisory Team.	IZRRAG Executive Group
27.	Transition to the Recovery phase when:	IZRRAG Executive Group
a.	Emergency conditions on-site have stabilized.	Utility
b.	Offsite radioactive release has ceased, and there is little or no potential for further unintentional offsite releases.	Utility
c.	The offsite contamination is characterized, its extent determined, and the immediate consequences are assessed.	IZRRAG
d.	Protective actions for public health, safety, and property, have been implemented.	IZRRAG
e.	An initial long-range monitoring plan has been developed in conjunction with the affected state and local governments and appropriate federal agencies.	IZRRAG

6. Recovery Phase

A. Definition

After emergency response operations have ceased and the intermediate actions have commenced, off-site response agencies will engage in recovery operations planning, including additional radiation surveys, sampling, and data collection. The Recovery Phase commences when recovery operations to reduce radiation levels in the environment to below acceptable levels are commenced, and ends when all recovery operations have been completed.

The Recovery Phase consists of actions taken to ensure a return of the environment to acceptable levels for return by the general public for occupancy or use in the affected areas. In transitioning to the Recovery Phase, the following must be completed:

1. On-site emergency conditions are stabilized.

2. Off-site release of radioactive material has ceased and there is little-or-no potential for further unintentional offsite releases.
3. Off-site contamination has been characterized, its extent has been determined, and immediate consequences have been assessed.
4. Immediate protective actions to ensure public health and safety have been accomplished.
5. An initial long-range monitoring plan has been developed in conjunction with impacted state- and local-level jurisdictions and appropriate Federal agencies.

B. Disclaimer

Actions are unlikely to be performed in any one particular order. It will vary dependent upon personnel, event, and priorities. This list is not meant to be all-inclusive. Dependent upon circumstances, some response activities may occur virtually.

C. Actions

STEP	**ACTIONS**	**RESPONSE AGENCY**
1.	If needed, establish a Joint Field Office (JFO)	Executive Group FEMA
2.	Establish a Debris Management working group	Executive Group ESF-3/ODNR
3.	Establish temporary then permanent boundaries to restricted areas that cannot be re-inhabited.	County Executive Group
4.	Establish criteria for security of restricted areas.	County Executive Group
5.	Establish controls for access and egress to restricted areas	County Executive Group
6.	Develop decontamination and restoration plans, including establishing decision levels that preclude decontamination due to excessive cost.	IZRRAG Executive Group County Executive Group
7.	Continue implementing re-entry for essential workers and others, as needed, using the guidelines in State and Local plans. Local officials will carry out re-entry using locally developed procedures in coordination with the state.	County Executive Group

8.	Develop a prioritized list of restoration activities for affected areas, identifying state and federal agencies available for assistance. Assist local officials with restoration projects.	IZRRAG Executive Group
9.	Provide return and/or relocation technical assistance for local and county governments aiding evacuated / relocated residents, businesses, and industries.	IZRRAG
10.	Determine needs for decontamination of possessions, vehicles, property, and people. Assist local officials to establish decontamination guidelines.	IZRRAG
11.	Determine temporary actions for contaminated property.	IZRRAG
12.	Develop plans and guidelines for disposal of contaminated property, food, and soils.	IZRRAG ESF-10/ODH ESF-10/Ohio EPA
13.	Establish guidelines for temporary reentry and permanent return into previously restricted areas.	IZRRAG
14.	Determine limitations on hunting and fishing; issue orders or protective action advisories as appropriate.	ODNR
15.	Develop a radiological dose assessment, total dose commitment, and integrated dose computation; assess the health effects to the public resulting from the accident.	IZRRAG
16.	Continue to monitor radioactive contamination of both humans and animals; make recommendations and issue advisories needed to control contamination.	IZRRAG Executive Group
17.	Continue to provide a liaison to monitor Federal agency actions. Coordinate state and local actions in order to limit duplication of efforts and to prevent conflicts.	Ohio EMA
18.	Coordinate state agencies in assistance to the FRMAC; coordinate long-term operational needs and transition from DOE to EPA lead.	IZRRAG
19.	Implement a system to track costs incurred in state, county, and local activities.	Ohio EMA

20.	Provide information for state and Federal assistance to affected public and government entities.	ESF-15/Ohio EMA
21.	Develop and maintain an ongoing public information outreach effort. Provide continuing information about the recovery actions, activities, and timetables to the public.	ESF-15/Ohio EMA
22.	Assist local officials in providing for needs of those contaminated individuals (residents and emergency workers) remaining at care centers, medical facilities, and FRMAC locations.	ESF-6/Ohio EMA
23.	Assist local officials in determining the relocation and housing needs of the evacuated population.	ESF-6/Ohio EMA
24.	Coordinate ANI insurance and Federal disaster assistance.	ESF-14/Ohio EMA
25.	With Federal assistance, provide support to persons, property and business owners, and government entities in the affected areas with respect to financial restitution for losses and costs.	ESF-14/Ohio EMA

This page intentionally left blank.

IV. NUREG-0654 CRITERIA E

Alert & Notification

Procedures have been established for notification by the licensee of state and local response organizations and for notification of emergency personnel by all response organization; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

1. General Notification

A. Overview

1. In the event of a declaration of a radiological emergency at a nuclear power plant, initial and follow-up notifications shall be made by the nuclear power plant to state and county agencies.
2. A determination as to the radiological emergency classification scheme and action levels shall be made per NRC Guidance Document NUREG-0654 Revision 1, Appendix 1, and Supplement 3.
3. Immediate notification of state and county governments shall be implemented.

   Note: If initial notification is made by the nuclear power plant via a means other than dedicated phone lines, state and county radiological response agencies will verify emergency notifications through confirming calls with the next highest, or initiating organization.
4. These organizations shall then begin alerting and mobilizing respective support agencies, if necessary.
5. At this time, the State of Ohio is notified by the State of Michigan in the event of an emergency classification being declared at Fermi 2.

B. Initial Notification Process

1. In the event of a radiological incident involving a nuclear power plant, the nuclear power plant has 15 minutes from the time of an emergency declaration to notify the State and local Offsite Response Organizations (OROs).
   a. The nuclear power plant will provide state and county response agencies with initial dose assessment projection, release rates and PAR information in an orderly, predetermined format.
   b. Updates or revisions of this information will also follow a predetermined format.
2. The primary means of notification between the nuclear power plants, county governments and the State of Ohio will consist of those systems that are agreed upon by the nuclear power plants and the governments involved.
3. In a majority of instances, the warning points will be at the office of the county sheriff or 911 centers and the OSHP Hub Dispatch located at the State EOC, which are manned 24 hours a day. OSHP Hub Dispatch will receive the initial notification of emergencies involving DBNPS, PNPP, BVPS, and Fermi 2 and will immediately contact Ohio EMA.
4. The initial notification may not come from the nuclear power plant. When another agency receives vital information such as hostile actions, it is important that lines of communications go both ways. It is expected that

the plant would require caller verification which they can do by contacting the agency's warning point directly by phone or radio.

C. Follow-up Process

1. Follow-up notifications may be made to locations other than the 24-hour point at an agency. For example, initial notification may be made to the 911 center, but once the county and state EOCs are activated, then communications will continue from there.
2. Secondary systems will consist of cell phones, MARCS radios, satellite phones, and two-way radio over amateur or governmental band radios. A "net" is to be established between the licensee and the local governmental warning point.

2. State and County Agency Notification

A. State Responders

1. The Radiological Branch Chief is responsible for notification of the Ohio EMA Executive Staff and State Dose Assessment agencies. The responsibility will be delegated when staffing allows. Contact will be made directly or via commercial telephone or cell phone.
2. The Ohio EMA Executive Staff will notify the Division Administrators and Branch Chiefs. Branch Chiefs would then notify their personnel needed to respond.
3. When requested, the Ohio EMA Watch Office will contact the lead and support agencies for the Emergency Support Functions (ESFs) for situational awareness or to staff the State EOC.
4. See Attachment IV-A and Attachment IV-B for detailed information flow.

B. State of Ohio and Federal Agencies

1. Upon receipt of notification of a nuclear power plant emergency, Ohio EMA will notify appropriate state and federal agencies in accordance with established procedures.
2. The affected nuclear power plant is responsible to notify the NRC, the coordinating agency under the National Response Framework (NRF). Ohio EMA will establish communications with the NRC during an incident, if appropriate. Consistent with the notification requirements of the NRF, the NRC will notify the National Operation Center (NOC).
3. When the State of Ohio learns of an incident that affects a nuclear power plant before notification from the nuclear power plant, such as a credible threat against the nuclear power plant learned through law enforcement or intelligence, the Ohio EMA will:

a. Contact the affected nuclear power plant and counties to notify them of the credible threat by available communication capabilities such as telephone, satellite phone, or MARCS radio.

b. Notify the Coordinating Agency (NRC or DHS), and the NOC, in accordance with the notification requirements of the NRF Nuclear/Radiological Incident Annex (NRIA).

C. Contiguous States

Upon notification of a radiological emergency, the Ohio EMA will inform contiguous states. The National Warning System (NAWAS) will be used as a secondary means of contacting these states. The FEMA National Radio System (FNARS) shall serve as a back up to NAWAS for contacting contiguous states.

D. Canada

Ohio EMA notification of radiological emergencies affecting Canada will be made to the Ontario Ministry of the Solicitor General by telephone. Should telephones be inoperable, Ohio EMA shall contact FEMA Region V by NAWAS or FNARS. FEMA Region V shall contact the Ontario Ministry of the Solicitor General through Camp Borden, which serves as the primary warning center for Canada.

E. IPZ Counties

1. For those counties located within the IPZ of a nuclear power facility, the primary means of notification is by email and commercial telephone.
2. Alternate methods can be used as necessary, to include but be not limited to fax, e-mail, MARCS, amateur radio, or cell phone.
3. Based upon wind direction, the counties will be identified and informed of the incident.
4. The counties will be provided a status update of the incident and advised of any protective action recommendations.

---

3. Public Notification

A. Notification

1. Press releases will be reviewed and approved by the Ohio EMA Executive Director or their designee.
2. Any message, press release, or news briefing as the result of a HAB incident should be vetted through the Incident Command (IC) or law enforcement for security sensitive information before being released to the public.

B. NOAA

National Oceanic and Atmospheric Administration (NOAA) may broadcast instructions to the public to refer to an EAS station for emergency information. NOAA may also directly broadcast emergency information to the public, if necessary.

C. Periodic Siren Testing

1. BVPS performs one full cycle annual test, quarterly growl tests, and weekly silent tests.
2. DBNPS performs an annual full cycle test, monthly tests, and weekly silent tests.
3. PNPP performs a full cycle test quarterly and bi-weekly quiet tests.

---

4. Mariner Notification

A. Lake Erie Notification

1. For recreational boaters and mariners operating within 10 miles of DBNPS or PNPP, the following notification methods shall be applied in the most effective and efficient manner to alert and notify them of a declared emergency and to clear the area:
    a. Broadcast Communications
        i. Marine Band Channel 16 (156.8 MHz)
        ii. AM/FM EAS Messages
    b. Vehicle-Mounted Public Address Systems
        i. Surface responders, from ODNR and the USCG, in watercraft shall utilize onboard public address systems to broadcast messages and/or give directions to boaters where to go after exiting the 10-mile EPZ.
2. Surface responders shall also use revolving lights to identify themselves as responders and to serve as markers where boaters should follow should there be a need to go to a designated “safe harbor” outside the EPZ.
3. For notifying boating traffic within the affected area on Lake Erie, recreational boaters and mariners will be directed to:
    a. Return to their port, marina or harbor from which they launched and evacuate by automobile or other transportation; or,
    b. Travel to a designated “safe harbor” outside the 10-mile EPZ by following traffic control directions from responding watercraft officers. The USCG shall broadcast a "Notice to Mariners" utilizing standard USCG broadcast procedures.

---

5. Ingestion Pathway Public Notification

A. 50-mile IPZ Notification

1. Local broadcast media will be relied upon to disseminate information to the public in the IPZ.
2. Individual notifications may be made at the discretion of the county EMA director through use of mobile public address systems and/or door-to-door notification by emergency services personnel.
3. Copies of the Radiological Emergency Information for Food Producers, Processors, and Distributors brochure shall be distributed to the 10-mile EPZ annually. This information will be available for dissemination to the 50-mile agricultural community at Site Area Emergency or General Emergency.
4. State and county authorities shall utilize electronic media and the Ohio State University (OSU) Extension Service to facilitate timely dissemination of ingestion pathway protective action recommendations to the public and the agricultural community.
    a. ODA maintains lists of individuals and organizations to which preprinted emergency information for agriculture producers is distributed.
    b. Preprinted emergency information for the agricultural community is stockpiled in each OSU Extension office in the counties that lie within the IPZ.

Attachment IV-A: State-Level Incident Notification Flow

A. Unusual Event

The nuclear power plant notifies the 24-hour communications for Ohio EMA through either OSHP Hub Dispatch or Ohio EMA's Watch Office who will receive the initial notification. They then immediately notify Ohio EMA's Radiological Branch Chief, or designee.[1] Ohio EMA notifies[2]:

1. Ohio EMA Radiological Branch and Executives
2. Office of the Governor
3. OSHP
4. ODH-BEHRP
5. Ohio EPA
6. OHS (for HAB related events)

B. Alert

After the nuclear power plant notifies Ohio EMA (through OSHP Hub Dispatch, Ohio EMA's Watch Office, or Dose Assessment), updated information is provided to those previously contacted. Ohio EMA additionally provides information to:

1. For emergencies at all utility locations
    a. Notified by Ohio EMA
        i. Dose Assessment-related Agencies
        ii. ESFs to staff the State EOC including ODNR, ODOT, and PUCO
        iii. Remainder of ESF agencies (for awareness only)
        iv. FEMA, Region V
        v. NRC, Region III
    b. Notified by ODNR
        i. State Land Managers
    c. Notified by PUCO
        i. Railroads
2. For DBNPS emergencies
    a. Notified by Ohio EMA

[1] There are times when an agency other than the nuclear power plant may make the initial notification to the plant. This is most likely to occur if a county or state agency receives information of hostile actions before they have reached the plant. Communications are allowed to be multi-directional.

[2] Personnel names and phone numbers are saved within WebEOC.

i. Ontario Ministry of the Solicitor General
ii. State of Michigan

b. Notified by ODNR
i. Federal Land Managers
ii. USCG Operations Center, Sector Detroit

c. Notified by ODOT
i. FAA

3. For PNPP emergencies

a. Notified by Ohio EMA
i. Ontario Ministry of the Solicitor General
ii. State of Pennsylvania
iii. FEMA, Region III
iv. NRC, Region I

b. Notified by ODNR
i. USCG Operations Center, Sector Buffalo

c. Notified by ODOT
i. FAA

C. Site Area Emergency

After the nuclear power plant notifies Ohio EMA (through OSHP Hub Dispatch, Ohio EMA's Watch Office, or Dose Assessment), Ohio EMA provides updated information to those previously contacted.

All ESFs are notified at Alert for situational awareness only. At SAE, they are notified of the ECL change and the activation of the State EOC, if not previously activated, through the use of eNotify. The counties in the 50-mile EPZ are notified at this time as well by eNotify and email.

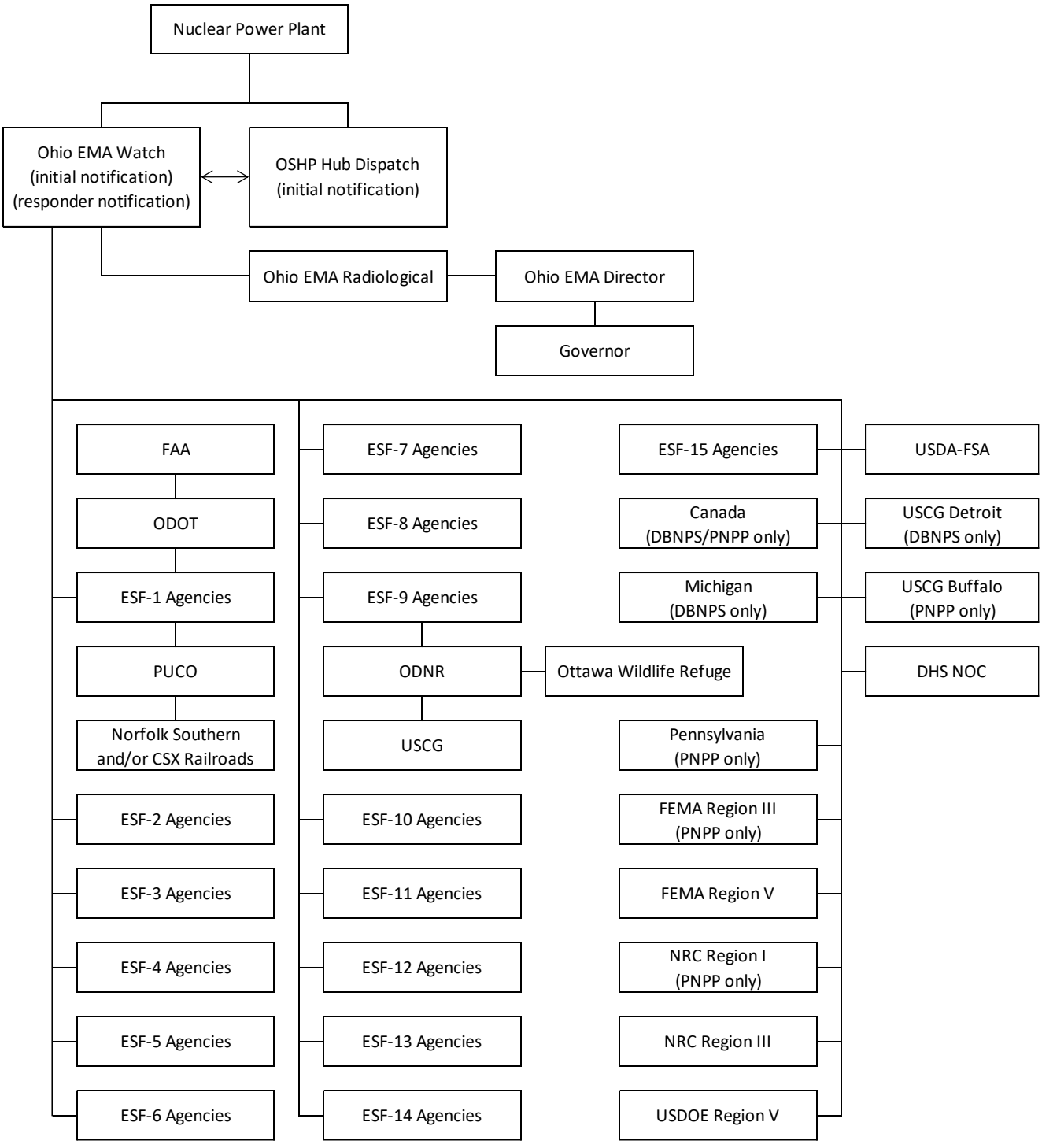
D. General Emergency

After the nuclear power plant notifies Ohio EMA (through OSHP Hub Dispatch, Ohio EMA's Watch Office, or Dose Assessment) of the ECL change to GE, Ohio EMA provides updated information to those previously contacted using eNotify. The counties in the 50-mile EPZ are updated by eNotify and email.

E. Termination

After the nuclear power plant notifies Ohio EMA (through OSHP Hub Dispatch, Ohio EMA's Watch Office, or Dose Assessment) of the event's termination, Ohio EMA notifies all agencies notified previously using eNotify. The counties in the 50-mile EPZ are updated by eNotify and email.

Attachment IV-B: State of Ohio Nuclear Incident Notification Flow



Attachment IV-C: State EOC Activation

	Emergency Phase				Intermediate Phase
Responding Agency	**Unusual Event[1]**	**Alert[2]**	**SAE[3]**	**GE[4]**	**IZRRAG[5]**
Ohio EMA	N[6]	P[7]	A[8]	N	A
Office of the Governor	N	N	N	N	
DPS		N	N	N	
ODA		N	A	N	A
ODH	N	P	A	N	A
ODNR		P	A	N	A
ODOT		P	A	N	
Ohio EPA	N	P	A	N	A
OHNG	N[9]	N	A	N	
OHS	N[9]	N	A	N	
OSHP	N[9]	N	A	N	
OSU-Ext		N	A	N	A
PUCO		P	A	N	
USDA-FSA		N	A	N	A
Other ESF partners		N[10]	A	N	

1 The State EOC may be partially or fully activated at any ECL if there are extenuating circumstances, such as a beyond design basis earthquake or a hostile action.

2 At Alert, the State EOC typically partially activates. The Executive Room, JIC, Assessment Room and/or Dose Assessment Room will be staffed.

3 Ohio EMA will fully activate the State EOC at SAE, if it has not been fully activated earlier.

4 With the State EOC fully activated during SAE, partner agencies would only receive an eNotify notification of the ECL escalation to General Emergency.

5 Key agencies are notified near the end of the Emergency Phase and asked to staff the IZRRAG room.

6 N - Designated agency personnel receive an eNotify notification.

7 P - These agencies are notified and ask to partially staff the State EOC.

8 A - These agencies are notified and ask to fully staff the State EOC.

9 Primary ESF-13, Law Enforcement, agencies receive an eNotify notification at Unusual Event for a Hostile Action Based (HAB) event.

10 All ESF partners are notified of any State EOC activation. If notification is for a partial activation of the State EOC, it will also notify partners that they may staff their desk at the State EOC if they need to do work for the event.

This page intentionally left blank.

V. NUREG-0654 CRITERIA F

Emergency Communications

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

1. Primary/Backup Communications

A. 24-Hour Availability

The State EOC has two 24-hour warning points, Ohio EMA's Watch Office and OSHP's Dispatch Center. They are available to accept event information received from the nuclear power plants over the phone lines reserved specifically for each individual plant. Commercial telephone, MARCS radio, fax, email, cell phones and satellite phones are available as alternate means of communications.

B. Contiguous/ Local/State/ Federal

Communications to contiguous, federal, state, and local governments are accomplished through commercial telephone, cell phone, satellite phones, or MARCS radio.

C. Responder Notification

Notification of responders and state agencies will be made using telephone, cell phone, or satellite phone.

D. Field Monitoring, Sample Screeners, & Sample Teams

Communication to FMTs, Sample Screeners, and Sample Teams is accomplished through MARCS radio, satellite phone, cell phone, or other cellular equipped device.

E. Emergency Operations Facility

Communication to the utility Emergency Operations Facility (EOF) is accomplished through commercial telephone, cell phone, or MARCS radio. Representatives at the EOF will communicate to the state and county Emergency Operation Centers (EOCs) and offices through commercial telephones with cell phone and MARCS radio as backup.

F. Mobile Communications Assets

Upon declaration of an Alert at a nuclear power plant, mobile communication assets may be dispatched to the affected area, providing redundancy to the existing MARCS radio links between the State EOC, county EOCs and utility EOF. In addition, it has the capability of establishing and maintaining emergency communication links with response/support agencies via MARCS radio systems, and serves as a secondary radio link with FMTs.

Assets may include:

1. Radio cache (800 MHz)
2. Satellite phones

3. Satellite trailer (data/wireless)
4. Satellite trailer (data/voice)
5. Portable radio tower

G. EOC/PIO

Communications between the PIO and the county EOC or the State EOC may be by telephone, cell phone, facsimile, email, or other available method.

H. ODNR/ USCG

1. In the event waterway clearing operations are in progress, each responding agency shall utilize departmental radio networks to establish and maintain communications between their headquarters and on-scene coordinators. At times, it may be necessary for an agency to use another's radio net in order to coordinate actions and response. This action is intended to be kept at minimum usage.
2. The Search-and-Rescue (SAR) Mission Commander utilizes U.S. Coast Guard (USCG) frequencies to communicate with:
    a. Headquarters, Ninth District (USCG)
    b. Sector Detroit (USCG)
    c. Sector Buffalo (USCG)
    d. USCG helicopter air crew
    e. USCG responding vessels and crew
3. The Ohio Department of Natural Resources (ODNR) Division of Parks and Watercraft Supervisor utilizes departmental radio frequencies to communicate with:
    a. Division of Parks and Watercraft responders
    b. Division of Wildlife responders
4. Upon a change in the emergency classification level at the nuclear power facility, responders shall be notified of this change through MARCS, telephone, or back-up communications and advised of actions to be taken, if any:
    a. Representatives at the State EOC shall notify the ODNR offices nearest the plant of the situation and coordinate with the Division of Watercraft Law Administrator or Northern Regional Manager.
    b. Agency regional offices shall notify their on-scene coordinator, who shall relay the message by radio to all responders.

I. Periodic Testing

Periodic testing is conducted to ensure that emergency communications systems are available when needed.

2. State EOC Communications

A. State EOC Responsibilities

The State EOC will:

1. Maintain State EOC/Ohio EMA 24-hour telephone number.
2. Receive and disseminate warnings.
3. Receive and transmit messages via telephone, email, instant messaging, network file shares, facsimile, radio, or other communications systems.
4. Provide equipment for:
    a. State Government
        i. Amateur (2 meter) Radio Net
        ii. Amateur (6 meter) Radio Net
        iii. Amateur (80 meter) Radio Net
        iv. Amateur Packet Radio
        v. ODNR Net
        vi. ODOT Net
        vii. EMA County Government Net
        viii. EMA Direction and Control
        ix. Emergency Alert System
        x. Military Support (OHNG) Net
        xi. OSHP Net
        xii. Fax Machine
        xiii. Law Enforcement Automated Data System (LEADS)
    b. Federal Government
        i. NOAA Weather Satellite Data System
        ii. FEMA - Various nets/data systems
        iii. FEMA National Automated Message System (FNAMS)
        iv. FEMA National Radio System (FNARS)
        v. Ohio NAWAS Warning Point
5. Provide closed-circuit and commercial television services to the operations and breakout rooms

3. Communications Equipment

A. MARCS Radio

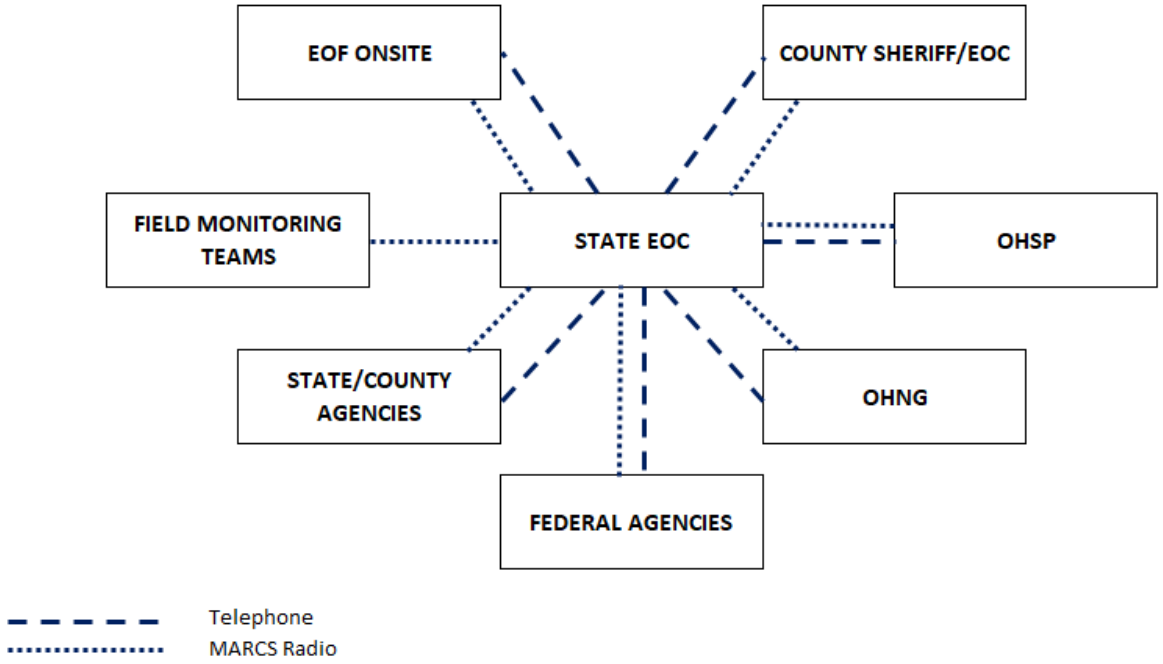
The Multi-Agency Radio Communication System (MARCS) talk groups that are available for a radiation emergency include the following:

- **<u>EMA Rad Talk Group</u> (primarily for FMTs, Sample Screeners, and Sample Teams)**
  - BVPS
  - DBNPS
  - PNPP
  - Columbiana County EOC
  - Lake County EOC
  - Ottawa County EOC
  - ODH
  - Ohio EMA
  - Ohio EPA
- **<u>NUCBV Talk Group</u> (Beaver Valley)**
  - BVPS Facility
  - BVPS JPIC
  - Columbiana County EOC
  - COMM Support
  - ODH
  - Ohio EMA Deployable
  - Ohio EMA Vehicles
  - Ohio EMA Watch Office
  - OSHP Hub Dispatch
- **<u>NUCDB Talk Group</u> (Davis Besse)**
  - DBNPS Facility
  - DBNPS JIC
  - Erie County EOC
  - Lucas County EOC
  - Ottawa County EOC
  - Sandusky County EOC
  - COMM Support

- ODH
- Ohio EMA Deployable
- Ohio EMA Vehicles
- Ohio EMA Watch Office
- OSHP Hub Dispatch

- **<u>NUCPERRY Talk Group</u> (Perry)**
  - PNPP Facility
  - PNPP JIC
  - Ashtabula County EOC
  - Geauga County EOC
  - Lake County EOC
  - COMM Support
  - ODH
  - Ohio EMA Deployable
  - Ohio EMA Vehicles
  - Ohio EMA Watch Office
  - OSHP Hub Dispatch

Attachment V-A: Primary & Secondary Communication Links



This page intentionally left blank.

VI. NUREG-0654 CRITERIA G

Public Information

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

1. Emergency Public Information (EPI)

A. Emergency Public Information (EPI) Guide

Each organization (county, state, and licensee) shall coordinate the annual review, production, and distribution of a public information packet on suggested actions to take in the event of an emergency involving nuclear power plants. Public information will be focused on both residents of the area and any transients who may be there. It is expected that this information will be available in EPZ residences at the time of an emergency. Updated information will be disseminated annually to the 10-mile EPZs through the mail.

This Emergency Public Information (EPI) Guide may contain:

1. Educational information on radiation, nuclear power plants, and Emergency Classification Levels.
2. Points of contact for additional information.
3. Protective measures (e.g., sheltering, evacuation, and radioprotective drugs).
4. Warning and notification procedures.
5. Emergency planning information for persons with disabilities and access/functional needs.
6. Emergency information for the agricultural community.
7. Public information phone numbers.
8. Information regarding service animals.
9. Reception and care centers.
10. Information on school relocation (by name and address).
11. EAS radio stations.
12. Transportation pickup points, if applicable.
13. Maps (e.g., evacuation routes and protective action areas)

B. Beaver Valley Power Station

BVPS publishes information that is mailed annually in an brochure format to residents within the 10-mile EPZ. Distribution of emergency preparedness information is accomplished on a direct basis from the licensee to Columbiana County addresses in the EPZ . In addition, the county EMA assists BVPS in identifying locations frequented by non-county residents within the 10-mile EPZ. BVPS sends transient information packets to each of these locations with additional packets available upon request.

C. Davis-Besse Nuclear Power Station

DBNPS publishes information mailed annually in brochure format to residents within the 10-mile EPZ. Besides direct mail, the brochures are also distributed through local governmental offices. EPI is also distributed via transient information pamphlets at public safety agencies, recreation centers, chambers of commerce, visitor information offices, and lodging facilities. Emergency information is also included in local telephone directories.

D. Perry Nuclear Power Plant

PNPP publishes information in a brochure format that is distributed to residents within the 10-mile EPZ on an annual basis. In addition, the county EMA distributes the information through governmental offices and other public-contact areas.

E. Transients

1. Transients are typically present in all jurisdictions under consideration. However, the likelihood of their presence is greater in those Ohio counties along Lake Erie due to tourist attractions.
2. Public information for transients is given below along with type, location, and responsible agencies.

Utility	Information Type	Locations	Responsible Organization
BVPS	Information Packets	Campgrounds, Hotels	Columbiana County EMA
DBNPS	Fliers	Campgrounds, Grocery Stores, Hotels, Marinas, Restaurants	Lucas and Ottawa County EMAs
PNPP	Signs, decals, handouts	Campgrounds, Hotels, Nurseries, Parks, Recreation Centers	Ashtabula, Geauga, and Lake County EMAs

2. Ingestion Pathway Zone (IPZ) Information

A. Annual Public Information

1. The Ohio Department of Agriculture shall coordinate the annual production and distribution of the Radiological Emergency Information for Food Producers, Processors, and Distributors brochure. This brochure will be mailed to the producers, processors, and distributors of food within a 10-mile radius and be deliverable within 24 hours out to a 50-mile radius of a nuclear power plant. The brochure can be found at the following web address: http://www.agri.ohio.gov/divisions/food-safety/home in the Resources section. This information shall include, but is not limited to:
   a. Radiation effects on the human food supply.
   b. Emergency and preventive action guidelines definitions.
   c. Preventive protective actions for food, soil, and livestock.
   d. Notification methods for the agricultural industry.
   e. Sources for obtaining further information.
2. Preparations shall be made to disseminate information for implementing protective actions within the entire affected IPZ. Distribution of this information shall be initiated at SAE or higher ECL. Information shall include:
   a. Educational information on the impact of radiation contamination on food.
   b. Points of contact for additional information.
   c. Information on protective measures.
3. Each county OSU-Extension office shall distribute the brochure by the most effective means to agriculture producers, processors, and distributors within their county.
4. The USDA-FSA shall provide a means of information farmers about protective actions through its county newsletter system. To view news releases, fact sheets and announcements, visit the USDA-FSA website at http://www.fsa.usda.gov.
5. The PNPP IPZ extends into Pennsylvania. Ohio EMA shall notify PEMA at an SAE or higher ECL and advise they consider distribution of their agricultural information to affected counties.
6. The DBNPS IPZ extends into Michigan. Ohio EMA shall notify Michigan State Police at an SAE or higher ECL and advise they consider distributio n of their agricultural information to the affected counties.
7. The DBNPS and PNPP IPZs extend into southwestern Ontario, Canada. Ohio EMA shall notify the Ontario Office of the Fire Marshal and

Emergency Management at an SAE or higher ECL and advise they consider distribution of their agricultural information to the affected areas.

3. State JIC – Utility JIC/JPIC

A. State JIC & Utility JIC/JPIC

1. The Ohio EMA Executive Director will authorize the State PIO to activate the State JIC at the State EOC. Utility officials will activate the Utility JIC/Joint Public Information Center (JPIC) as deemed appropriate, based upon their procedures or news media interest. DBNPS and PNPP maintain and operate Utility JICs. Only BVPS maintains and operates a Utility JPIC.
2. Development of press releases:
    a. Press releases will be developed at the State JIC by the state Public Information staff using information from Dose Assessment, the Executive Room, the Assessment Room, and any pertinent ESF partner.
    b. Press releases will be transmitted to the Ohio EMA spokesperson at the Utility JIC/JPIC for use during media briefings.
    c. Press releases can be transmitted via e-mail and/or fax. They may also be posted on the Ohio EMA website.
3. All media releases will be coordinated with the state PIO.
4. Content of releases/advisories
    a. All news releases relating to any incident will contain in the heading: the date, time and number of the news release, identification of the agency(ies) issuing the release, and the name of the involved facility.
    b. Initial hazard/notification data includes:
        i. Date/time of the incident;
        ii. Nature of radiation hazard;
        iii. Risks and protective actions, if any;
        iv. Actions undertaken by the utility, state, local, federal agencies;
        v. Description of incident.
    c. If the press release is an update of previously issued information, the item should contain any changes in conditions resulting from the incident and the protective actions to be taken.
    d. If the situation is the result of hostile action, news release content will be reviewed by law enforcement personnel at the State JIC prior to release.

i. If a PIO/spokesperson is unfamiliar with the technical content of a briefing, they should consult with a subject matter expert prior to the briefing.

B. Deactivation of JIC/JPIC

The State JIC and the Utility JIC/JPIC will be deactivated as the situatio n warrants, or when operational activities begin to decline. All participating agencies must jointly agree on the deactivation.

4. State JIC Responsibilities

A. Office of the Governor

The Office of the Governor shall:

1. Communicate directly with the Governor and the Ohio DPS Communication Office on JIC activities and issues.
2. Interface with utility and county government representatives in the Utility JIC/JPIC.
3. Provide information on the activities of the Governor, as necessary.

B. Ohio EMA

Ohio EMA shall:

1. Dispatch a State PIO to the Utility JIC/JPIC to represent the state, assist county public information efforts, and participate in media briefings.
2. Authorize the State PIO to activate the State JIC and Public Inquiry. The State JIC is established to address media inquiries relating to state activities.
3. Authorize the distribution of press releases at the State JIC.
4. Receive and disseminate information
   a. The PIO will obtain access to information about the emergency and the organizations' response efforts from the Utility JIC/JPIC, Dose Assessment, ESF-5, and the Executive Room. Any information received from one of these should be verified through at least one more source.
   b. The PIO will coordinate/communicate with the Assistant EOC Director, or their designee, for approval of media releases prior to seeking approval from the EOC Director. Approval of the EOC Director, or their designee, is required prior to dissemination of the information. In the case of a HAB event, law enforcement will review and approve the media release prior to submitting to the Assistant EOC Director.

5. Coordinate
    a. Ensure coordination among all participating state (and federal) agencies for the release of information.
    b. The Ohio EMA Executive Director shall coordinate information with the Governor's office.
    c. If the Utility JIC/JPIC has been established and a State PIO is onsite, the PIO at the State EOC will coordinate all information through the State PIO. Utility JIC/JPIC locations are listed in Attachment VI-A.
    d. Media briefings
        i. Maintain a designated media briefing area at the State EOC.
        ii. Briefings and interviews are coordinated by the State PIO/JIC.
        iii. Conduct periodic media briefings at the State EOC, as needed.
        iv. Major changes in status will be announced immediately to the media, even if further information is not readily available.
        v. Media briefings will also be conducted at the Utility JIC/JPIC.
6. Maintain a space with equipment for the State JIC.
    a. Location – The State JIC is located in Room 109 of the state EOC. Room 109 is separated from Room 106B by a moveable glass wall. If necessary, the JIC can be expanded by opening the wall between Rooms 106B and 109.
    b. Size – Room 106B is approximately 20 feet x 23 feet. Room 109 is approximately 20 feet x 18.5 feet.
    c. Equipment – no set-up for activation is required
        i. Room 106B – The room includes:
            1. A long rectangular table with chairs for ten to twelve with room to bring in additional chairs.
            2. One laptop computer and one telephone.
            3. Dual screens, each paired with an overhead projector.
            4. Four television monitors mounted on the walls.
            5. A white board that runs the length of the room.
        ii. Room 109 – The JIC includes:
            1. A table in a "dog-bone" configuration with six total stations, two on each side length-wise and one on each end.
            2. Each station includes a computer, monitor, telephone, chair, and rolling file cabinet. Four of the stations also have stand-up capability.

3. A separated stand-up station for the State PIO or JIC Coordinator with dual monitors, a computer, chair, rolling file cabinet, and a telephone.
4. A single screen with an overhead projector.
5. A "smart" board.
6. Five television monitors mounted on the walls.
7. Two white boards and four storage cabinets.

iii. Room 110 – The JIC's network printer/copier/fax machine is located on the State EOC Operations Floor outside of Room 106B.

C. Ohio DPS

Ohio DPS shall make available to Ohio EMA the expertise and assistance of the department's Communications Office.

D. ODH-BEHRP

ODH-BEHRP shall dispatch a Health Physicist Subject Matter Expert (HP-SME) to the Utility JIC/JPIC to act as a subject matter expert for state and local PIOs.

E. Other State Agencies

Other State agencies shall:

1. Coordinate with Ohio EMA at the State EOC, in accordance with established State JIC procedures, prior to the release of information.
2. Appoint a qualified information officer for the release of information through briefings. State agency PIO may be called upon to assist in the State JIC.
3. Coordinate information with Ohio EMA and combine it into a joint release, if appropriate.
4. Appoint pre-designated representatives to be present during media briefings upon request, or to answer questions beyond the expertise of the Ohio EMA Executive Director.

F. Utilities

The Utility shall:

1. Maintain and operate the Utility JIC/JPIC.
2. Activate the Utility JIC/JPIC when deemed appropriate, based upon their procedures or news media interest.
3. Appoint PIO(s) to liaise with state, federal and county information officers.

4. Participate in joint media briefings. All media briefings will be conducted jointly when the situation warrants.
5. Coordinate press releases with federal, state, and county representatives prior to distribution to the media.

G. Federal Agencies

Federal agencies shall:

1. Appoint representatives/information officer(s) to liaise with state, county, and utility information officers.
2. Coordinate the release of information with other participating agencies.
3. Adhere to the joint media center concept by co nducting briefings at the Utility JIC/JPIC. Briefings at remote locations (Joint Field Office [JFO], Federal Radiological Monitoring and Assessment Center [FRMAC], headquarters, regional headquarters) should be coordinated with federal agency representatives at the Utility JIC/JPIC.
4. The NRC shall:
    a. Be responsible for coordinating release of public information for the federal community.
    b. Serve as the coordinating agency under the National Response Framework (NRF) at a facility for incidents that are below the classification of General Emergency.
    c. Support DHS (if DHS assumes overall management of the federal response) under NRF and the National Incident Management System (NIMS), including acting as the coordinating agency for the NRF's Nuclear/Radiological Incident Annex.
5. FEMA will assist the federal coordinating agency in coordinating non-technical information among federal agencies.
6. When mutually acceptable, FEMA may assume responsibility from the coordinating agency for coordinating federal public information. Should this occur, it will usually be after the onsite situation has been stabilized and recovery efforts have begun.

H. Media Inquiries

A call center with a phone line for media inquiries will be set up. The PIO will return media calls.

I. Rumor Control

1. Public inquiry (rumor control) may be implemented by publicizing a telephone number for the State EOC through news releases, Twitter, and an State EOC website.

2. Should the Ohio EMA public inquiry hotline operators or resources become overwhelmed, PUCO consumer services may be used as a referral service to provide EOC phone numbers.
3. Public Inquiry personnel are trained to utilize supplied documentation to answer questions. Questions that cannot be answered are forwarded to the PIO or a related ESF agency.
4. The PIO is responsible for identifying trends, which are forwarded to the PIO to address through media briefings, news releases, and internet outlets.
5. Television, Twitter, and other internet outlets will be followed to determine if incomplete, inaccurate, or ambiguous information has been released to the public. The PIO will address this information by releasing complete and accurate information through media briefings, news releases, and internet outlets (e.g., Facebook, Twitter).

J. Hostile Action Based Events

1. During hostile action based (HAB) incidents, additional organizations will become involved with the response and the public information. These agencies will include local, state and federal law enforcement and intelligence gathering organizations.
2. Coordination will take place between law enforcement agencies and PIOs prior to release of information.
3. Sensitive information may need to be withheld from the public to protect the integrity of the criminal response.

---

5. Media Information

A. Training

1. Energy Harbor annually mails media kits to local media (television, radio, and newspaper) to orient them to both radiation and the REP program. Contents may include:
    a. Contacts for news media in the event of an emergency
    b. Overview of emergency response plans for nuclear power plants
    c. Energy Harbor brochure
    d. EPZ map
    e. Siren information
    f. Plant diagrams
    g. Emergency Public Information brochure or calendar
2. Tours are available upon request.

Attachment VI-A: Utility JIC/JPIC Locations

Utility	Location
BVPS JPIC	Pittsburgh Industrial Park, Bldg. #3 Spring Run Road Extension Coraopolis, Pennsylvania 15108
DBNPS JIC	Edison Plaza 300 Madison Avenue Toledo, Ohio 43604
PNPP JIC	Auburn Career Center 8140 Auburn Road Concord Twp., Ohio 44077

This page intentionally left blank.

VII. NUREG-0654 CRITERIA H

Emergency Facilities & Equipment

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

1. State EOC

A. General Information

The State EOC is located in the lower level of the State EOC at 2855 West Dublin-Granville Road, Columbus, Ohio. During an emergency, Ohio EMA shall ensure the State EOC remains operational 24 hours a day throughout the emergency period. The State EOC will be the Governor's central control site for the emergency operations of state government. An alternate State EOC is available at the Ohio State Highway Patrol Academy, 740 E 17th Avenue, Columbus, Ohio.

1. Functions
   a. Coordinate the actions and resources of state agencies in support of local response.
   b. Formulate PARs for consideration by county officials.
   c. Post and display information and operational data to enhance coordination between response organizations.
   d. Establish a central location for coordination of response efforts.
   e. Coordinate communications between federal, state, and county governments.
   f. Provide work space for personnel who staff the State EOC during emergencies.
2. Activation
   a. The State EOC may be activated at any time or ECL as deemed necessary by the Governor or his/her designee.
   b. The Dose Assessment Room will be staffed by representatives from various state agencies that will be appropriate for the situation.
   c. The principal executives of state agencies are responsible for the conduct of emergency functions assigned by law or by prior agreement. They will determine the number of personnel required to fulfill duties in the State EOC as outlined in this plan.
   d. Internal State EOC procedures will be maintained by Ohio EMA.
   e. Staffing should begin within the time frames indicated below:

ACTIVATION / NOTIFICATION TIMES	STAFFING TO COMMENCE WITHIN
7:00 a.m. - 4:30 p.m.	30 minutes
4:30 p.m. – 7:00 a.m.	75 minutes

   f. At the Site Area Emergency (SAE) and General Emergency (GE) ECLs, the State EOC will be fully staffed with the appropriate personnel in accordance with the NIMS standards.

g. State EOC readiness is maintained by the EOC Manager.

h. 24-hour operations

   i. Each organization is responsible for assuring its continuity of operations for a protracted period and the continuity of resources.

   ii. Ohio EMA

      1. The Operations Administrator has overall responsibility for the State EOC. Shifts will be determined at the time of the emergency by the Operations Administrator.

      2. The Logistics Branch Chief is responsible for resources and logistics.

      3. The Communications Branch Chief is responsible for audio-visual and communications.

      4. The Information Technology Supervisor is responsible for Information Technology.

      5. The Personnel Branch Director is responsible for maintaining the staff roster and staffing the State EOC. For 24-hour operations, a minimum of two shifts will be filled by the EOC staffing database, as needed.[3] Roster information will be maintained on the computer database at Ohio EMA.

i. The Dose Assessment Room may be activated at Alert or earlier. It will be considered operational when these key staff are present:

   i. State Dose Assessment Systems Operator

   ii. Radiological Assessment Branch Director

j. The Operations Room may be activated at Site Area Emergency or earlier. It will be considered operational when these key staff members are present:

   i. EOC Director

   ii. State EOC Manager

   iii. Information and Planning Section Chief

   iv. JIC Coordinator

   v. Dose Assessment

[3] Individual SEOC position procedures should detail both shift duties and shift change requirements, including briefing incoming staff.

B. State EOC Equipment

Equipment available includes:

1. Tables
2. Chairs
3. Fax/copier/scanner/printer machines
4. Commercial and satellite telephones
5. Dedicated telephones
6. MARCS radios
7. Televisions
8. Maps
9. Projectors
10. Computers
11. Headsets
12. Administrative supplies (e.g., pens, paper)
13. 1000 kW Onan-Cummins backup generator with 2 weeks supply of fuel

C. State EOC Security

Access to the Ohio EMA building is through locked doors and persons making entry must receive a visitor's badge. OSHP, along with Ohio EMA, is responsible for staffing the front door. State EOC staff have photo IDs which are keyed to the secured interior doors. Personnel with such an ID will be issued temporary keyed badges upon arrival in the State EOC.

2. Equipment – Maintenance

A. Ohio EMA Responsibilities

1. The Ohio EMA Radiological Instrument Maintenance and Calibration Lab (RIM&C) maintains and calibrates radiological instruments.
2. Radiological equipment will be calibrated annually or in accordance with the manufacturer recommendation.
3. Ohio EMA RIM&C will inspect, inventory, and operationally check the radiological equipment to be used by the FMTs quarterly and after each use.
4. The RRAs distribute the instruments in their areas of the state.
5. The radiological sets that are issued to county emergency services units will be returned to Ohio EMA RIM&C for calibration or exchanged for calibrated equipment annually.

a. This will be accomplished by the Ohio EMA RRA in each jurisdiction in which a plant is sited.

b. During training sessions for the OROs, the emergency responders are instructed to operationally check their equipment on a quarterly basis.

c. Problems with equipment are to be reported to the county EMA or the RRA.

d. This system ensures the responders are familiar with the instrumentation.

6. ESF-7 can provide for the replenishment of sampling kit supplies, purchase of additional supplies as necessary, and will coordinate the requisition of items obtainable from federal resources.

7. Ohio EMA maintains sufficient reserves of equipment to replace any that must be removed from operation.

B. Other Agency Responsibilities

Each sampling agency will be responsible for the maintenance of their own sampling kits.

---

3. Central Point for Data Processing

A. Responsibilities

Ohio EMA and ODH are responsible for assessing radiological data.

B. Data Receipt & Analysis

1. The State Radiological Assessment Branch will be the central point for receipt and analysis of all field monitoring data and coordination of sample media results.

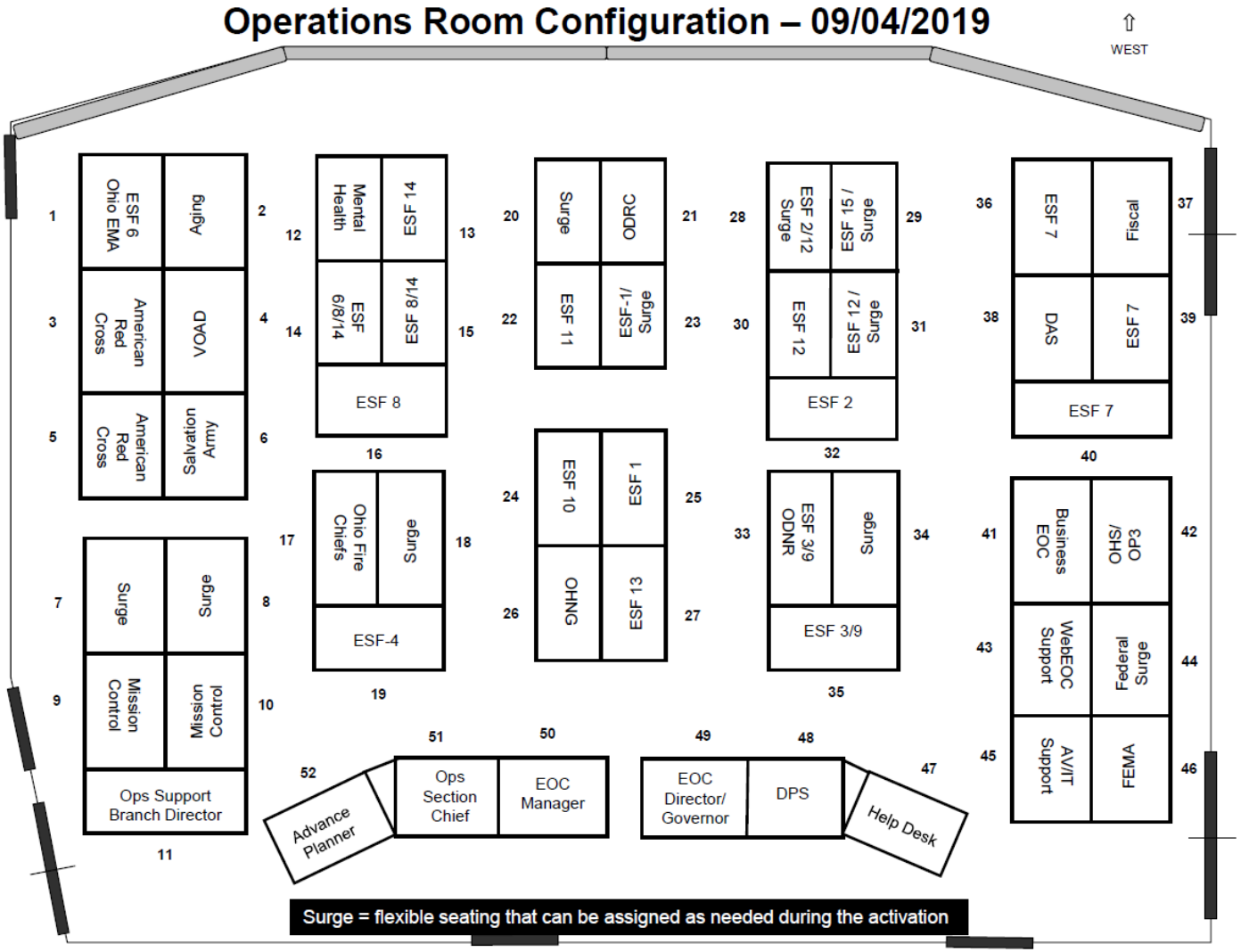
2. Field Monitoring Teams will communicate with the Field Monitoring Team Coordinator who will relay the information to the Field Team Communicator in the State Radiological Assessment Branch via commercial phone line, cell phone, or MARCS radio.

3. A Sample Courier is responsible for transporting samples to the Sample Screening Station. In the absence of a Courier, the Field Monitoring Teams will be responsible.

4. Once the samples have been processed, OSHP, ODNR, or OHNG are responsible, in coordination with ESF-1, for transportation of samples to the laboratory for analysis. (Note: For more information, refer to ODH's RAD-REP-0355 Field Sample Screening Station SOP.)

5. The laboratory will send the sample analysis results to the State Radiological Assessment Branch.

Attachment VII-A: State EOC Layout



Attachment VII-B: Vessels Available to Respond to Emergencies at DBNPS

Resource	Personnel	QTY	Vessel Type
USCG[4]			
Station Lorain	18	1	45 ft. vessel
		1	25 ft. vessel
Station Marblehead	35	1	47 ft. vessel
		2	33 ft. vessel
		1	20 ft. vessel (for ice rescues)
Station Toledo	31	1	45 ft. vessel
		2	25 ft. vessels
		1	24 ft. vessel
ODNR[5]			
Division of Parks and Watercraft			
Maumee Bay	5	1	27 ft. Boston Whaler
		1	26 ft. Boston Whaler
		1	32 ft. Boston Whaler
		1	21 ft. Boston Whaler
Sandusky	8	1	28 ft. Regulator
		1	29 ft. Mission Marine
		1	32 ft. Boston Whaler
Division of Wildlife, District 2			
Sandusky	5	2	25 ft. Boston Whaler
		1	21 Ft. Almar
Division of Wildlife, District 3			
Lorain	3	1	19 ft. Boston Whaler

[4] Response times for U.S. Coast Guard units are estimated to be 15 to 45 minutes.
[5] Response times for Ohio Department of Natural Resources are estimated to be 2 to 3 hours.

Attachment VII-C: Vessels Available to Respond to Emergencies at PNPP

Resource	Personnel	QTY	Vessel Type
USCG[6]			
Station Ashtabula	18	1	33 ft. vessel
		1	25 ft. vessel
Station Cleveland	35	1	45 ft. vessel
		2	25 ft. vessel
Station Fairport	22	1	47 ft. vessel
		1	25 ft. vessel
Station Lorain	18	1	41 ft. vessel
		1	25 ft. vessel
ODNR[7]			
Division of Parks and Watercraft			
Cleveland	8	2	27 ft. Boston Whaler
		1	35 ft. Boston Whaler
Geneva	5	1	27 ft. Boston Whaler
		1	35 ft. Boston Whaler
Division of Wildlife, District 3			
Fairport	2	2	26 ft. Boston Whaler
Lorain	1	1	18 ft. Boston Whaler

[6] Response times for U.S. Coast Guard units are estimated to be 15 to 45 minutes.
[7] Response times for Ohio Department of Natural Resources are estimated to be 2 to 3 hours.

Attachment VII-D: Emergency Phase Kits – Ohio EMA

TYPE	EQUIPMENT	QTY	LOCATION
Communications	Case – (1) 800 MHz Radio	1	2855 W Dublin-Granville Road Columbus, OH 43235
	Case – (12) 800 MHz Radios	1	
	Case – (24) 800 MHz Radios	1	
	Case – (1) Satellite Phone	1	
	800 MHz Radio	2	
	Case - (1) Satellite Phone	6	
	Cell Phones	5	
Radiological Monitoring Equipment	See FMT Inventory List[8]	3	2855 W Dublin-Granville Road Columbus, OH 43235
FMT Supplies		3	
Radiological Monitoring Equipment - Backup	See FMT Courier Inventory List[9]	1	2855 W Dublin-Granville Road Columbus, OH 43235
FMT Supplies		1	

[8] Inventory List located in SOP 658 Field Monitoring Team, Attachments 4 and 5.
[9] Inventory List located in SOP 660 Field Monitoring Team Courier, Attachments 3 and 4.

VIII. NUREG-0654 CRITERIA I

Accident Assessment

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

1. FMTs

A. Responsibilities

Ohio EMA and ODH will be responsible for field monitoring during an incident.

B. Activation & Notification

1. The Executive Group will determine at which ECL the Field Monitoring Teams should be activated.
2. Team members will be contacted by commercial phone, cell phone, or MARCS radio.

C. Composition

FMTs are composed of two trained radiological emergency workers. In the unlikely event of a nuclear power plant emergency taking place during a public health emergency, where social distancing is a necessity due to a pandemic, or a state-wide weather emergency such as a derecho, it is possible that an FMT could be limited to a single person for either safety reasons or staffing needs.

D. Shift Schedule

FMTs will work up to 12-hour shifts. Additional FMTs would be requested from ODH and then through the Emergency Management Assistance Compact (EMAC) system, if there is a prolonged event.

E. Transportation

The FMTs initially deployed will utilize available Ohio EMA vehicles for their monitoring and sampling duties.

F. Staging Areas

Utility	FMT Assembly Location
BVPS	Columbiana County EOC 215 Market Street Lisbon, OH
DBNPS	Fremont Airport 365 South SR 53 Fremont, OH
PNPP	Lake County EOC 8505 Garfield Road Mentor, OH

G. Deployment Times

Utility	Minimum Time from State EOC to FMT Staging Areas
BVPS	3.5 hours
DBNPS	2.5 hours
PNPP	3 hours

H. Direction

The Ohio EMA FMT Coordinator will direct FMTs to selected locations for staging, monitoring, air sampling, and where to meet the Courier. For traversal reference points, refer to Attachment VIII-A through Attachment VIII-F.

I. Centerline Readings

The FMTs will traverse the plume or the Restricted Zone to locate centerline measurements.

Note: If turn back values would be exceeded, State FMTs will not perform this function, federal or utility resources will be requested.

J. Radioiodine Concentration Readings

The FMTs have the capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as 10^{-7} μCi/cc under field conditions.

K. Equipment

For FMT equipment inventories, refer to Ohio EMA SOP 658 Field Monitoring Team, Attachments 4 and 5.

L. Number of Teams

The number of FMTs deployed during a shift will be dependent upon the number of additional personnel provided by agencies and other states. Initially, up to three FMT would be activated.

M. Chain of Custody

If RadResponder is operable, the ODH Sample Chain of Custody form will be utilized with each person signing when receiving a sample or relinquishing a sample. If RadResponder is not available, ODH Lab Sample Submission Form will be used with its Chain of Custody section.

2. Sample Screeners

A. Activation & Notification

1. The Sample Screeners should be activated and deployed simultaneously with the FMTs.
2. The Sample Screeners members will be notified by telephone by an On-call Supervisor.

B. Emergency Phase Responsibilities

1. The driver from ODH will transport the necessary equipment from Columbus to the chosen location. For Sample Screening locations, refer to Attachment VIII-G.
2. The Sample Screeners will set up the equipment and supplies to receive samples.
3. When samples arrive, they will be processed in accordance with the Sample Screeners' procedure. The Sample Screeners will:
   a. Revert to the use of paper documents, if RadResponder is not available.
   b. Enter sample information into RadResponder, if the FMTs did not enter the information prior to relinquishing the sample to the FMT Courier.
   c. All contamination checks of samples will be entered into RadResponder.
   d. Place nonconformance samples (i.e., samples with survey readings over 1 mrem/hr.) into a Radioactive Material Area until disposition can be determined.
   e. Ensure all samples are safely packaged for transport.
   f. Contact the FMT Coordinator for assistance in coordination of transportation of samples to the ODH Laboratory.

C. Intermediate Phase Responsibilities

1. ODH will provide a trained individual to analyze soil samples to determine a preliminary Derived Response Level (DRL). The DRL will be provided to Dose Assessment who will compare to projections and provide to the IZRRAG.
2. When samples arrive, they will be processed in accordance with the Sample Screeners' procedure. The Sample Screeners will:
   a. Revert to the use of paper documents, if RadResponder is not available.
   b. Enter sample information into RadResponder, if the Sample Teams did not enter the information prior to relinquishing the sample to Sample Screening.
   c. All contamination checks will be entered into RadResponder.

d. Place nonconformance samples (i.e., samples with survey readings over 1 mrem/hr.) into a Radioactive Material Area until disposition can be determined.

e. Ensure all samples are safely packaged for transport.

f. Contact the FMT Coordinator for assistance in coordination of transportation of samples to the ODH Laboratory.

D. Composition

ODH is responsible for staffing the Sample Screeners. Sample Screeners are composed of:

1. Four trained screeners
2. One driver for the pickup truck and trailer (Note: The driver may fill in as a screener.)
3. One individual trained to use the equipment to analyze soil samples (only present during the intermediate phase)

E. Shift Schedule

The Sample Screeners is expected to work the same hours as the FMTs and Sample Teams.

F. Transportation

ODH maintains a truck and trailer for incident response.

G. Situational Awareness

The Sample Screeners will inform the FMT Coordinator when they have left Columbus, arrived at the staging area, ready to accept samples, and when they have a shipment of samples ready for transport.

The FMT Coordinator will provide information to the Sample Screeners by phone or MARCS radio. Information will include, but is not limited to, ECL changes and meteorological data (i.e., wind shifts which may precipitate the need for the Sample Screeners to move to a different staging area).

H. Chain of Custody

If RadResponder is operable, the ODH Sample Chain of Custody form will be utilized with each person signing when receiving a sample or relinquishing a sample. If RadResponder is not available, ODH Lab Sample Submission Form will be used with its Chain of Custody section.

I. Transport of Samples

The Sample Screeners will contact either the FMT Coordinator or the FTC Coordinator when a shipment of samples is ready for transport. The FMT/FTC

Coordinator will contact the State EOC to request a courier from ODNR, OSHP, or OHNG be assigned.

J. Equipment

For Sample Screeners equipment, refer to procedure RAD-REP-0355 Field Sample Screening Station: Radiological Response.

3. Sample Teams

A. Ingestion Sampling

1. After the emergency phase of the incident, an FTC will be established near the ingestion zone (if possible in conjunction with FRMAC) to facilitate the dispatching of State Sample Teams into the ingestion zone.
2. State Sample Teams will report directly to the FTC to receive coordinated instructions and assignments for samples from their respective agencies.

B. Responsibilities

1. ODA will sample various foods including, but not limited to, meat and meat products, vegetables, fruit, poultry, animal feed, grain, milk and milk products, and honey products.
2. ODH will sample private water.
3. ODNR will sample fish and wildlife.
4. Ohio EPA will sample soil, public water, surface water, snow, and vegetation.

C. Activation & Notification

1. The IZRRAG will determine at what time Sample Teams should be activated.
2. Team members will be contacted by commercial phone, cell phone, or MARCS radio.

D. Composition

Sample Teams are composed of two trained individuals from the individual agencies.

E. Shift Schedule

Sample Teams will work during daylight hours.

F. Transportation

Each agency will utilize their available vehicles, both land-based and water-based.

G. Direction

1. Ohio EMA will staff the FTC Coordinator who will manage the operation of the FTC and brief the State Sample Teams.
2. IZRRAG will enter locations to sample for each agency into RadResponder.
3. Each agency will provide a Team Leader at the FTC to coordinate their agency's Sample Teams.

H. Equipment

For Sample Team equipment, refer to each agency's procedures as noted in Appendix D.

I. Chain of Custody

If RadResponder is operable, the ODH Sample Chain of Custody form will be utilized with each person signing when receiving a sample or relinquishing a sample. If RadResponder is not available, ODH Lab Sample Submission Form will be used with its Chain of Custody section.

4. Dose Assessment

A. Plume Phase

1. ODH is responsible, with support from Ohio EMA, for performing dose assessment calculations using one or more of the following: Unified Radiological Assessment System for Consequence Analysis (RASCAL) Interface (URI), RASCAL, Ohio EMA-developed spreadsheets, ODH-developed spreadsheets, or hand calculations.
    a. URI and RASCAL have the capability to project offsite dose from accidental releases from BVPS, DBNPS, and PNPP.
    b. The Energy Harbor e-Data system provides real time in-plant data, release data, and meteorological data for BVPS, DBNPS and PNPP by logging in through an internet connection. The plant data is available 24/7.
    c. The Emergency Response Data System (ERDS) is linked to the NRC Operations Center through an internet connection. If e-Data is unavailable, the Dose Assessment personnel may log into ERDS as a backup.

d. Meteorological Data

i. In addition to ERDS and e-Data, meteorological data will be furnished by the nuclear power plant from onsite meteorological stations.

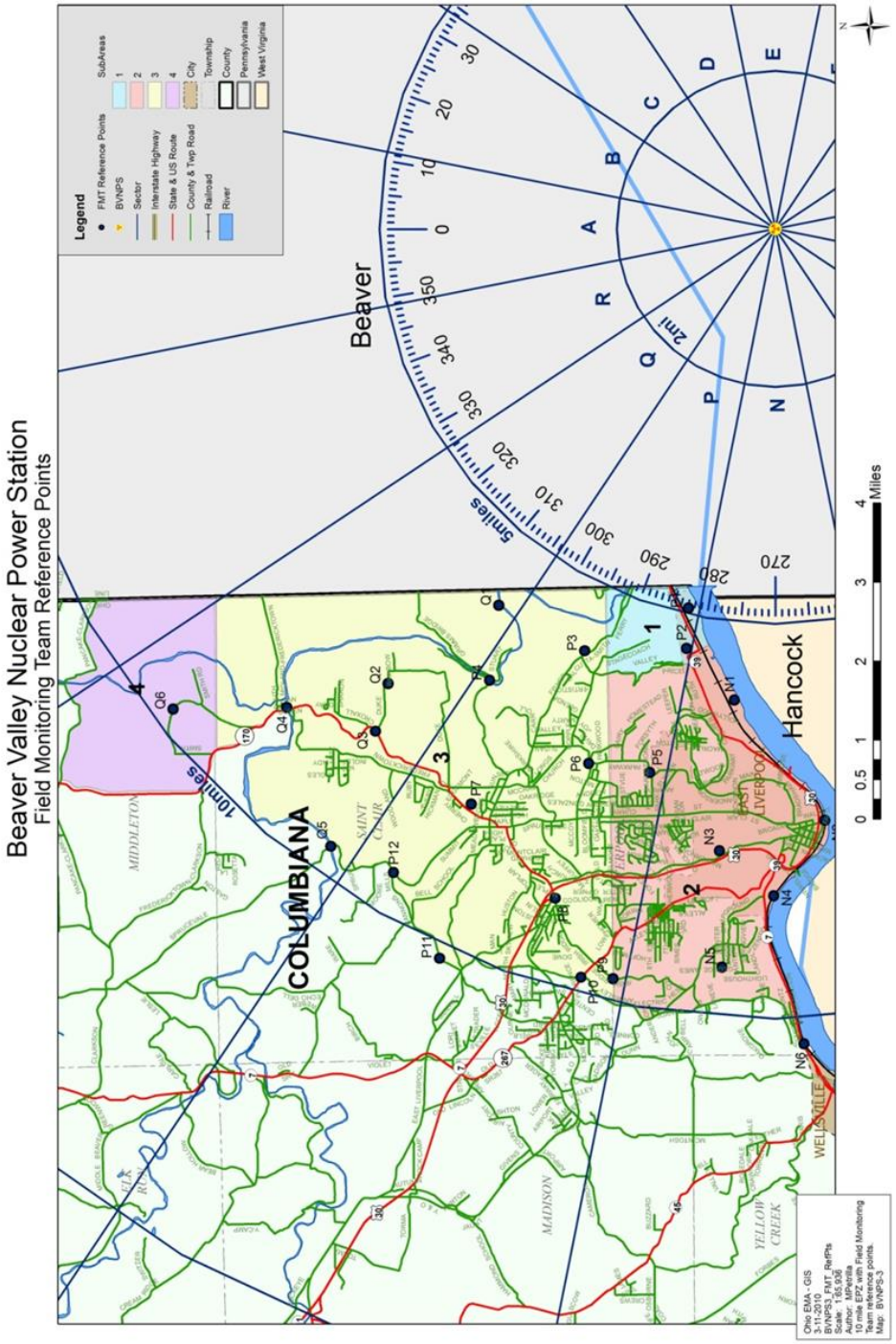
ii. National Weather Service (NWS) information is available in the State EOC. Additional information is available through the Watch Office.

2. Initial dose projection runs will be based on available information. Energy Harbor will provide the State Radiological Assessment Branch copies of their dose projection runs.
3. As the utility provides notification forms with actual release data, dose assessment will utilize the information to provide more accurate projections as subsequent runs.
4. ODH will perform a quality check on the inputs for each dose projection calculation.
5. Dose projections will be validated and PARs revised, as needed, based on FMT results.

B. Intermediate Phase

1. Sample results will be reported by the laboratory to the State Radiological Assessment Branch.
   a. Results may be provided through RadResponder.
2. Dose assessment staff will evaluate the results utilizing appropriate software and make recommendations based on Protective Action Guidelines (PAG).
   a. Environmental data will be used to develop the Restricted Zone boundaries to determine if relocation of the populace is necessary.
   b. Water, milk, meat, and vegetation results will be used to determine contamination levels to drive protective actions for the ingestion pathway.
3. ODH will coordinate the total population exposure estimate periodically.

Attachment VIII-A: FMT Traversal Reference Map – BVPS

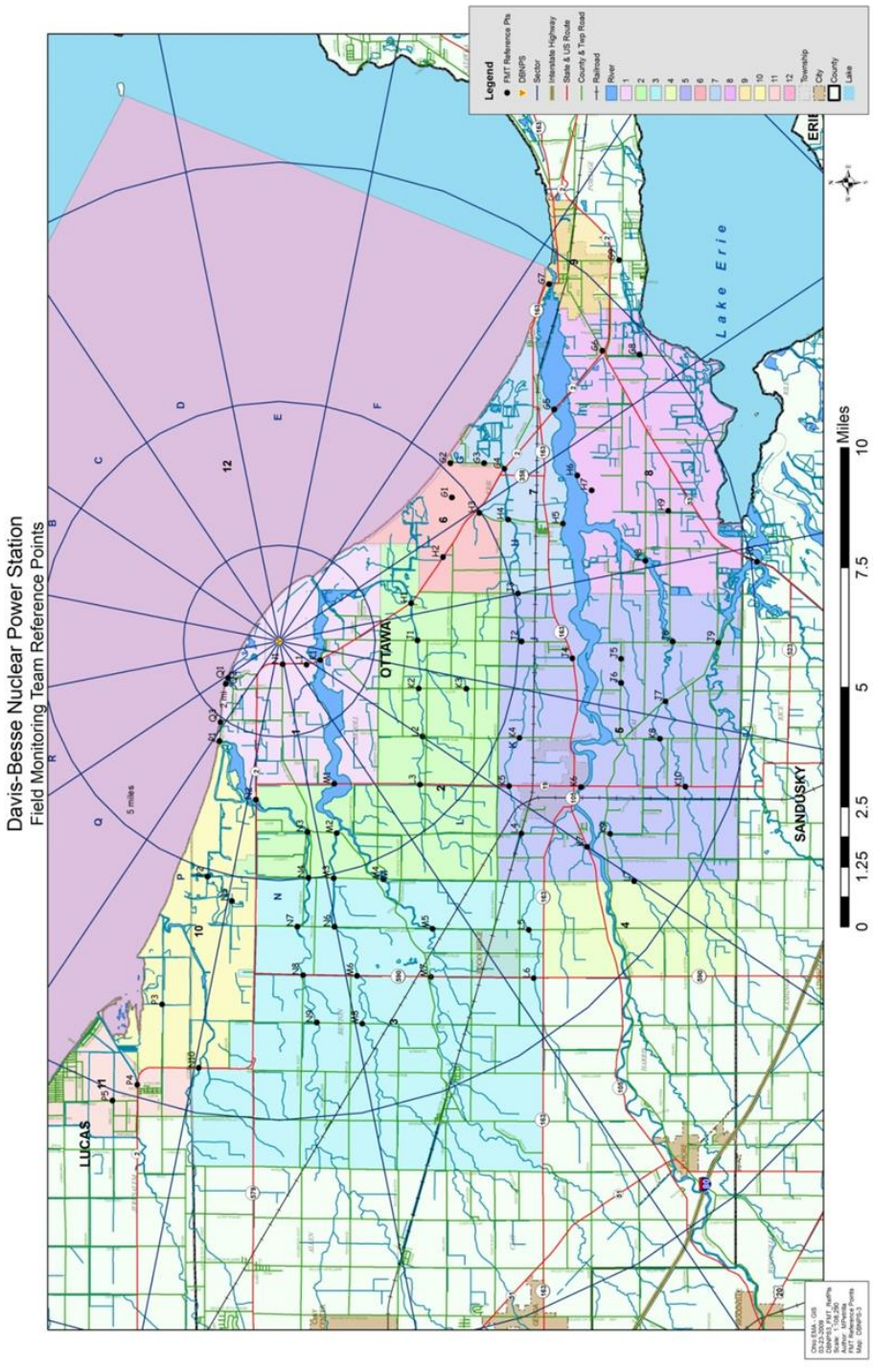


Attachment VIII-B: FMT Traversal Reference List– BVPS

BVPS SECTOR	NUMBER	LOCATION DESCRIPTION
N	1	Drive along Ohio Avenue as close to Ohio River as possible to the east end of Babbs Island. Go to the large factory along the river to Puritan Avenue (Columbiana Port Authority).
N	2	East Liverpool, at 2nd Street and Broadway to large white storage tanks at river south of railroad tracks
N	3	The first street south of Orchard and Parkway on west side of road (Rubicon Street)
N	4	Turn south off SR 7 by Vista Motel (Edwards Street). Follow road down into ravine (Leonard Street).
N	5	Pond at Johnny's Landing S.O.I. at west end of Center Street off Camp Ground Road
N	6	SR 7 and Kountz Avenue, by the Ohio River
P	1	East Liverpool waterworks on Michigan Avenue along Ohio River. Look for electric substation.
P	2	Pennsylvania Avenue at SR 39 and Bridge St. on north side of road
P	3	County Road (CR) 430, 0.25 miles north of Fisher Avenue
P	4	Grimms Bridge Road at Little Beaver Creek
P	5	Parkway or Thompson Park Road, just north of Armstrong Lane
P	6	McCoy Avenue between CR 428 and CR 435 (Tri- State Casting Club)
P	7	Farm pond on SR 170, 0.2 miles north of Calcutta

BVPS SECTOR	NUMBER	LOCATION DESCRIPTION
P	8	SR 11 at corner of CR 424 and Substation R Ridge Road on south side of road
P	9	Irish Ridge Road, 0.3 miles south of SR 267 (Lisbon Street)
P	10	Corner of SR 267, Lisbon Street and Long's Run, 0.35 miles north of CR 425
P	11	Cannons Mills Road and Long's Run, 0.35 miles north of CR 425
P	12	CR 428, 0.75 miles north of Calcutta where Long's Run crosses, just south of Cannons-Mills Road
Q	1	0.5 miles southeast of Grimms Bridge at end of road and Little Beaver Creek
Q	2	Duke Road, 0.6 miles southeast of SR 170 and Duke Road intersection
Q	3	Corner of SR 170 and Duke Road, 2 miles north of Calcutta
Q	4	SR 170 at bridge over Little Beaver Creek before entering Fredericktown
Q	5	CR 428 at bridge over Little Beaver Creek at Gretchen Locks Park area

Attachment VIII-C: FMT Traversal Reference Map – DBNPS



Attachment VIII-D: FMT Traversal Reference List – DBNPS

DBNPS SECTOR	NUMBER	SITE DESCRIPTION
G	1	Erie Township, Section 20 – Erie Industrial Park water tower pad
G	2	Erie Township, Section 21 – Camp Perry water tower pad
G	3	Erie Township, Section 28 – CR 171 (Camp Perry East Road); 0.7 miles north of SR 2
G	4	Erie Township, Section 33 – SR 2 and Lacarpe Creek
G	5	Erie Township, Section 34 – SR 2 Bridge (northwest end) and Portage River
G	6	Bay Township, Section 2 – SR 2 and SR 53 South; ditch Northwest of interchange
G	7	Port Clinton, Section 7 – SR 163, Northwest corner of drawbridge
G	8	Bay Township, Section 12 – T-118 (Wonnell Road); ditch 0.7 miles south of SR 53
G	9	Portage Township, Sections 7 and 8 – CR 123 (Fulton Street); ditch north of CR 133 (Lockwood Road)
H	1	Carroll Township, Section 24 – SR 2 and Rusha Creek
H	2	Erie Township, Section 19 – SR 2; ditch 0.3 miles northwest of CR 15 (Camp Perry Western Road)
H	3	Erie Township, Section 29 – CR 14 (Tettau Road); ditch southwest corner Lacarpe Cemetery
H	4	Erie Township, Section 32 – CR 14 (Tettau Road) and Lacarpe Creek
H	5	Erie Township, Section 5 – T-212 (Meachem Road) and Portage River

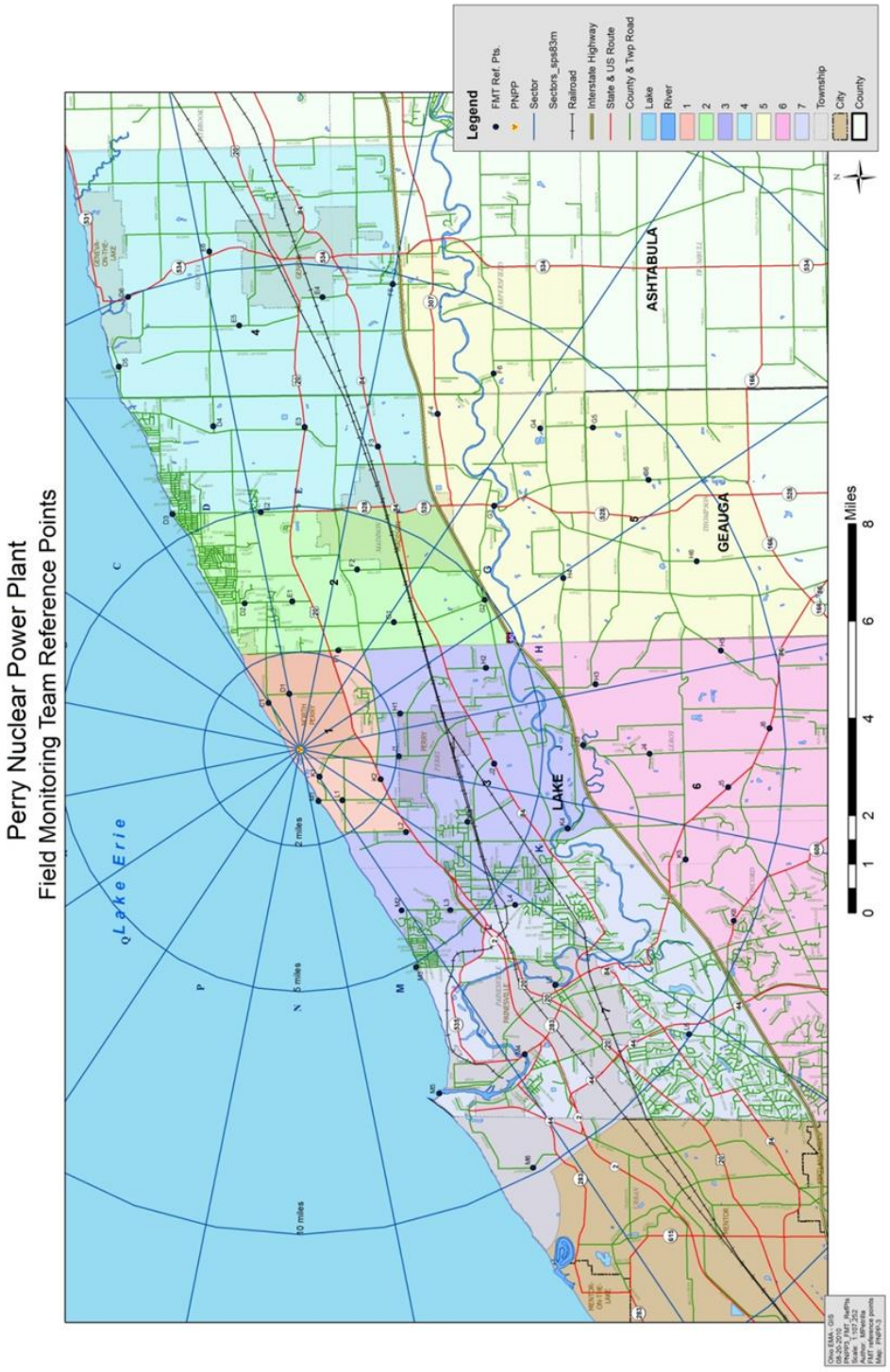
DBNPS SECTOR	NUMBER	SITE DESCRIPTION
H	6	Bay Township, Section 4 – Unnamed road; 0.9 miles north of CR 12 (Darr-Hopfinger-Road) and Portage River
H	7	Bay Township, Section 8 – End of gravel road in Little Portage River Wildlife Area; 0.7 miles north of CR 12 (Darr-Hopfinger Road)
H	8	Bay Township, Section 18 – CR 17 (Oak Harbor Southeast Road) and Little Portage River
H	9	Bay Township, Section 17 – T-27 (Mulcahy Road); ditch at intersection with T-112 (Little Portage East Road)
J	1	Carroll Township, Section 23 – CR 104 (Toussaint South Road) and Rusha Creek
J	2	Salem Township, Section 35 – CR 104 (Toussaint South Road) and Lacarpe Creek
J	3	Salem Township, Section 36 – CR 26(Carroll Erie Road) and Lacarpe Creek
J	4	Salem Township, Section 2 – SR 163; ditch 0.3 miles west of CR 104 (Toussaint South Road)
J	5	Bay Township, Section 7 – CR 18 (Portage River South Road); 0.5 miles north of CR 17 (Oak Harbor Southeast Road)
J	6	Salem Township, Section 11 – CR 18 (Portage River South Road) and Green Bayou; 0.2 miles E of T-226 (Gordon Road)
J	7	Salem Township, Section 15 – CR 36 (Mud Creek Road) and Little Portage River
J	8	Salem Township, Section 14 – T-217 (Muddy Creek North Road) and Little Portage River
J	9	Salem Township, Section 23 – T-217 (Muddy Creek North Road) and Muddy Creek
J	10	Sandusky County, Rice Township, Section 30 – SR 53 and Muddy Creek
K	1	Carroll Township, Section 11 – SR 2 and Toussaint River

DBNPS SECTOR	NUMBER	SITE DESCRIPTION
K	2	Carroll Township, Section 22 – T-101 (Leutz Road) and Rusha Creek
K	3	Carroll Township, Section 27 – T-101 (Leutz Road) and south branch of Rusha Creek; 0.2 miles north of T-97 (Bier Road)
K	4	Salem Township, Section 33 – T-102 (Behlman Road) and Lacarpe Creek
K	5	Salem Township, Section 32 – SR 19 and Lacarpe Creek
K	6	Salem Township, Section 5 – SR 19 and Portage River; 0.2 miles S of SR 163
K	7	Salem Township, Section 6 – SR 105 and Portage River; 0.3 miles W of T-92 (Toussaint-Portage Road)
K	8	Salem Township, Section 16 – T-169 (Woodrick Road) and Cottonwood Swale; 0.2 miles north of T-6 (Elmore Eastern Road)
K	9	Salem Township, Section 8 – T-111 (Portage South Road) and Wolf Creek; 0.2 miles S of T-18 (Portage River South Road)
K	10	Salem Township, Section 17 – SR 19 and Little Portage River
L	1	Carroll Township, Section 2 – SR 2; ditch 0.3 miles north of Toussaint River
L	2	Carroll Township, Section 21 – T-102 (Behlman Road) and Rusha Creek
L	3	Carroll Township, Section 20 – SR 19 and Rusha Creek
L	4	Salem Township, Section 31 – T-92 (Toussaint-Portage Road) and Lacarpe Creek
L	5	Benton Township, Section 35 – T-22 (Lickert-Harder Road) and Lacarpe Creek
L	6	Benton Township, Section 34 – SR 590 and Lacarpe Creek

DBNPS SECTOR	NUMBER	SITE DESCRIPTION
L	7	Harris Township, Section 12 – CR 42 (Harris-Salem Road) and Wolf Creek
M	1	Carroll Township, Section 8 – SR 19 and Toussaint River
M	2	Carroll Township, Section 7 – T-62 (Toussaint North Road) and Packer Creek
M	3	Benton Township, Section 12 – CR 23 (Benton-Carroll Road) and Packer Creek
M	4	Benton Township, Section 13 – CR 23 (Benton-Carroll Road) and Toussaint Creek
M	5	Benton Township, Section 23 – T-22 (Lickert-Harder Road) and Toussaint Creek
M	6	Benton Township, Section 15 – SR 590 and Packer Creek
M	7	Benton Township, Section 22 – SR 590 and Toussaint Creek; 0.1 miles S of CR 62 (Toussaint North Road)
M	8	Benton Township, Section 16 – T-21 (Stange Road) Packer Creek
N	1	Carroll Township, Section 2 – SR 2 and CR 24 (Duff Washa Rd)
N	2	Carroll Township, Section 5 – SR 2 and Turtle Creek Bay
N	3	Carroll Township, Section 7 – T-90 (Lemon Road) and Turtle Creek
N	4	Benton Township, Section 12 – CR 23 (Benton-Carroll Road) and Turtle Creek
N	5	Benton Township, Section 36 – Magee Marsh Entrance Road; 0.3 miles N of SR 2
N	6	Benton Township, Section 11 – T-22 (Lickert-Harder Road) and Packer Road

DBNPS SECTOR	NUMBER	SITE DESCRIPTION
N	7	Benton Township, Section 2 – T-22 (Lickert-Harder) Road and Turtle Creek
N	8	Benton Township, Section 3 – SR 590 and Turtle Creek
N	9	Benton Township, Section 9 – T-21 (Stange Road) and Turtle Creek
N	10	Benton Township, Section 29 – SR 2 and Crane Creek
P	1	Carroll Township, Section 34 – CR 237 (Locust Point Road) at mouth of Turtle Creek (Lake Erie)
P	2	Benton Township, Section 25 – Magee Marsh Entrance Road; ditch 1.5 miles N of SR 2
P	3	Jerusalem Township, Section 10 – CR 185 (Veler Road) and Canal; 1.7 miles E of SR 2
P	4	Jerusalem Township, Section 8 – SR 2 and Ward Canal
P	5	Jerusalem Township, Section 6 – CR 209 (Howard Road) and Canal; 0.5 miles N of SR 2
Q	1	Carroll Township, Section 35 – CR 252 (Sand Beach Road) and Lake Erie; 0.1 miles E of CR 128 (Russell Road)
Q	2	Carroll Township, Sect.35 – CR 128 (Russell Road) and Lake Erie
Q	3	Carroll Township, Section 34 – Long Beach Road at navigational light and Lake Erie

Attachment VIII-E: FMT Traversal Reference Map – PNPP



Attachment VIII-F: FMT Traversal Reference List – PNPP

PNPP SECTOR	NUMBER	SITE DESCRIPTION
C	1	Lake Erie at North Perry Village Park on Lockwood Road
D	1	Stream crossing, 2535 Antioch Road
D	2	Stream crossing on Haines Road; 0.2 miles south of Chapel Road
D	3	Lake Erie at Madison-on-the-Lake Township Park on Hubbard Road
D	4	Stream crossing on Cunningham Road; 0.1 miles east of Dock Road
D	5	Stream crossing on Lake Road; 0.3 miles west of Deer Lake Public Golf Course
D	6	Stream crossing, 4291 SR 534, at Kuhar's Restaurant
E	1	Stream crossing on Haines Road; 0.3 miles north of North Ridge Road
E	2	Stream crossing, 2327 Hubbard Road; 0.1 miles south of Cantebury Drive
E	3	Stream crossing on U.S. 20; 0.1 miles east of Dock Road
E	4	Stream crossing on Geneva Park Road (West Street); 0.05 miles south of U.S. 20
E	5	Stream crossing, 3448 Padanarum Road; 1.2 miles north of U.S. 20
E	6	Stream crossing on Maple Road; 0.1 miles east of SR 534
F	1	Stream crossing on Townline Road; 0.1 miles S of U.S. 20

PNPP SECTOR	NUMBER	SITE DESCRIPTION
F	2	Stream crossing on Dayton Road; 0.3 miles south of Middle Ridge Road
F	3	Stream crossing on SR 84; 0.3 miles east of Bates Road
F	4	Pond, 7666 Warren Road (SR 307); 0.3 miles west of County Line Road
F	5	Pond on LaFevre Road; 0.8 miles south of South Ridge Road (SR 84)
F	6	Pond, 6827 South River Road; 0.3 miles west of Atkins Road
G	1	Stream crossing on Wood Road; 0.4 miles north of railroad tracks
G	2	Pond on unnamed road at intersection of River and Wood Roads
G	3	Grand River at Klasen Road Metro Park under the SR 528 bridge
G	4	Pond at Camp Stigwandish Boy Scout Camp; 0.1 miles north of Ross Road
G	5	Stream crossing on Sidley Road; 0.1 miles south of Stocking Road
G	6	Stream crossing on Under Road (Ledge Road); 0.4 miles north of Thompson Road
H	1	Stream crossing, 3699 Call Road; 0.2 miles north of Davis Road
H	2	Stream crossing, 4637 Turney Road; 0.3 miles north of River Road
H	3	Stream crossing on Trask Road; 0.1 miles south of Balch Road
H	4	Stream crossing on Ford Road; 0.1 miles west of Clay Road (Fisher Road)

PNPP SECTOR	NUMBER	SITE DESCRIPTION
H	5	Stream crossing on Leroy-Thompson Road; 1.4 miles north of SR 86
H	6	Stream crossing, 6995 Dewey Road; 0.6 miles south of Leroy-Thompson Road
J	1	Stream crossing on Center Road at the Perry City Limits sign
J	2	Stream crossing on SR 84; 0.3 miles east of Shepard Road
J	3	Stream crossing, Paine and Taylor Roads intersection; 0.3 miles south of Seeley Road
J	4	Ditch, 6352 Paine Road; 0.7 miles north of Leroy Center Road
J	5	Stream crossing on SR 86; 1.2 miles southeast of Leroy Center Road
J	6	Stream crossing on SR 86 at cemetery; 0.9 miles east of SR 86 and Girdled Road intersection
K	1	3715 Parmly Road at NEWGreen Legacy Services, Inc. driveway
K	2	Stream crossing on U.S. 20, beneath high-tension wires; 1.0 miles west of Center Road
K	3	Stream crossing at Maine and Oregon Streets intersection, within Oakbrook Village development
K	4	Grand River on Seeley Road; 0.4 miles east of Vrooman Road
K	5	Stream crossing on Huntoon Road; 0.6 miles west of Vrooman, Leroy Center, and SR 86 intersection
K	6	Stream crossing on SR 608; 0.55 miles east of Painesville-Ravenna
L	1	Stream crossing at Clark and Perry Parks Roads intersection

PNPP SECTOR	NUMBER	SITE DESCRIPTION
L	2	Ditch, 3685 Blackmore Road; 0.1 miles north of U.S. 20
L	3	Stream crossing on Bacon Road; 0.3 miles north of Blase-Nemeth Road
L	4	Stream crossing on Bowhall Road (Bowhall); 0.2 miles south of the second set of railroad tracks
L	5	Grand River at Mill Street and East Main Street intersection
L	6	Stream crossing on Morley Road; 0.4 miles south of SR 84
M	1	Lake Erie at Perry Township Park on Perry Park Road
M	2	Stream crossing on Bacon Road; 0.1 miles north of Lake Road, near private gas storage tank
M	3	Lake Erie at Painesville-on-the-Lake Township Park on Hardy Road
M	4	Grand River at SR 535 bridge
M	5	Lake Erie at the Fairport Harbor Coast Guard Station, north of Headlands Road and SR 44
M	6	Marsh at Corduroy and Woodridge Roads intersection

Attachment VIII-G: Sample Screening Station Locations

Introduction

ODH-BEHRP shall establish and operate a Sample Screening Station to ensure sample container integrity and that no external contamination is present prior to transfer to the laboratory. The locations listed are suitable for both the emergency and intermediate phases.

BVPS

	Location	Distance from Site	Direction
1	Wellsville Fire Department 1202 Main Street Wellsville, OH	13 miles	W
2	Columbiana County Engineer Complex 235 S. Market Street. Lisbon, OH	20 miles	W
3	United Local School Complex 8143 SR 9 Hanoverton, OH	27 miles	WNW
4	Rogers Flea Market & Auctions 45625 SR 154 Rogers, OH	16 miles	NW
5	Kent State University at Salem 2491 SR 45 Salem, OH	27 miles	NW
6	Department of Natural Resources 3601 New Garden Road Salem, OH	28 miles	WNW

DBNPS

	Location	Distance from Site	Direction
1	Fremont Airport 365 South SR 53 Fremont, OH	18 miles	SSW
2	New Life Pentecostals 30470 Lemoyne Road Millbury, OH	20 miles	W
3	Storage of America 1825 Oak Harbor Road Fremont, OH	16 miles	S

DBNPS, continued

	Location	Distance from Site	Direction
4	Allen Township Hall 21030 W. Toledo Street Williston, OH	13 miles	W
5	Sandusky County Health Department 2000 Countryside Drive Fremont, OH	17 miles	S
6	Sports Complex Bardshar Road (next to 795 Bardshar Road) Sandusky, OH	20 miles	ESE

PNPP

	Location	Distance from Site	Direction
1	Lake Catholic High School 6733 Reynolds Road Mentor, OH	14 miles	WSW
2	Lake County EOC 8505 Garfield Road Mentor, OH	16 miles	SW
3	OSHP Post 28, Chardon 530 Center Road Chardon, OH	15 miles	SSW
4	South-Central Ambulance District 3100 U.S. 6 Rome, OH	20 miles	SSE
5	OSHP Post 4, Ashtabula 4860 North Ridge Road West Ashtabula, OH	16 miles	E

IX. NUREG-0654 CRITERIA J

Protective Response

A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by local governments and utility and must be updated on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with federal guidance, are developed and in place, and protective actions for the IPZ appropriate to the locale have been developed.

1. State Responsibilities

A. Ohio EMA

The Executive Director of Ohio EMA, acting for the Governor, is responsible for:

1. Requesting assistance by means of the NRF through the NRC or the DHS, and other assistance through FEMA or the DOE. (Under the NRF, DHS is the overall incident manager for deliberate attacks involving nuclear/radiological facilities.)
2. Developing and maintaining a series of plans for the prompt implementation of nuclear incident protective response that includes, but is not limited to:
   a. A warning notification process.
   b. Monitoring and assessment program.
   c. Planned sheltering and/or evacuations, as required.
   d. Other protective actions within the EPZ and IPZ.
3. Employing and training an RRA who is required to reside in the county where a nuclear power station is sited within 30 minutes of the county EOC. For the BVPS in Pennsylvania, the RRA shall reside within 30 minutes of the Columbiana County EOC. The RRA, under the direction of the Radiological Analyst Supervisor, will:
   a. Assist county governments in protective action guidance preparation and implementation.
   b. Train county response agencies in basic emergency radiological techniques (e.g., monitoring and decontamination) and use of Potassium Iodide (KI).
   c. Assist county governments in the maintenance of local plans and procedures.
   d. Pre-distribute dosimetry packets with KI for emergency workers whose duties are within the 10-mile EPZ and at each ORO's main office or staging area.
4. Ensuring plans and implementing actions are coordinated with agencies listed in Attachments I-D and I-F.
5. Coordinate state services, other public agencies and private relief organizations in the operations of reception and care centers.

B. ODH-BEHRP

1. ODH-BEHRP is responsible for supplying KI from the NRC and distributing it for use by emergency workers, institutionalized individuals,

and the general public through Ohio EMA, county EMAs, and local health agencies.

2. The ODH-BEHRP is responsible for maintaining the ODH KI Directive, 10-BEHRP-01 Distribution and Use of Potassium Iodide (KI) for the 10-mile Emergency Planning Zone Population.
3. ODH-BEHRP, with support from Ohio EMA, will provide personnel for the State Radiological Assessment Branch.
4. ODH-BEHRP will establish the criteria for the administration of protective actions in accordance with appropriate federal guidance and adopted state policies.
    a. ODH-BEHRP will assess available information from the affected nuclear power plant, including (1) plant conditions or (2) potential or actual release data.
    b. ODH-BEHRP will recommend actions to protect the general public or to mitigate the public's total exposure.
        i. These actions could include evacuation, sheltering in-place, relocation of persons with disabilities and access/functional needs, any combination of these actions, that the public take no actions at all, or other actions deemed appropriate by the ODH Director.
        ii. ODH-BEHRP may also recommend for the ingestion of KI by the public, institutionalized individuals, and emergency workers.
    c. ODH-BEHRP shall provide PARs to the Executive Group for the general public, emergency workers and institutionalized personnel.
    d. The recommendations shall be passed to appropriate local officials and emergency workers in the state and county EOCs for further dissemination over landlines and existing radio networks.

C. OSHP

1. The Ohio DPS will provide, through the OSHP, traffic regulation and control on state routes leading to and from areas of evacuation. OSHP may provide aircraft to perform aerial traffic/access control for the evacuated area, as coordinated through ESF-1 Transportation.
2. OSHP will support local authorities to:
    a. Manage the flow of traffic from the utility when the licensee evacuates non-essential onsite personnel.
    b. Determine locations on state routes requiring Traffic and Access Control Points (T/ACPs).
    c. Determine times for the establishment and maintenance of T/ACPs.
    d. Determine the number of officers required to man T/ACPs.
    e. Man T/ACPs with available staffing.

f. Reroute traffic, as needed, around impediments on evacuation routes.

3. OSHP, along with OHNG, ESF-13 Law Enforcement, and local law enforcement, will protect state properties and equipment.

D. ODOT

ODOT, as the primary agency of ESF-1, Transportation, has the responsibility for the development of general traffic survey plans, which project traffic flow patterns and capacities on evacuation routes. These are on file with Ohio EMA. ODOT shall also assist in:

1. Traffic control on evacuation routes.
2. Removal of road impediments.
3. Provisions of traffic control equipment, such as barriers, warning lights, or signs.
4. Provide real-time traffic updates via the Traffic Management Center (TMC).

E. ODA

ODA shall recommend as a precaution, livestock and poultry be brought inside and placed on stored feed and protected water in all townships and municipalities within 10- or 50-miles of the plant, when necessary.

F. ODNR

ODNR, as the primary agency of ESF-9, Search and Rescue, has the responsibility of ensuring Lake Erie is cleared of boating traffic. Lake clearing will be conducted in coordination with the USCG.

2. Methods of Accomplishment

A. Introduction

The State of Ohio agrees to adopt, as a basis for interagency planning and emergency protective actions, guidance contained in U.S. Environmental Protection Agency (EPA) Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA-400-R-92-001, May 1992; EPA PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents, March 2013; EPA PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents, EPA-400/R-17/001, January 2017 (refer to Appendix F: Ohio Implementation of the 2017 EPA PAG Manual for implementation exceptions); and U.S. Food and Drug Administration (FDA) Accidental Radioactive Contamination of Human and Animal Feeds: Recommendations for State and Local Agencies, August 13, 1998.

B. State Requirements

Actions to be taken to ensure full compliance with the agreed upon guidance above include the following as they apply to the EPZ:

1. The development of specific planning guidance for the 50-mile IPZ surrounding each facility.
2. The development of specific planning guidance for the recovery and reentry of contaminated offsite areas.
3. The means for the notification and evacuation of recreational boaters and mariners on Lake Erie waterways within the EPZ of DBNPS, Fermi 2, or PNPP.
    a. The affected counties and the state jointly decide to initiate waterway notification procedures.
    b. The decision to clear waterways shall be based on variables including, but not limited to, plant status, meteorological conditions, and seasonal activities.

3. Protective Action Decision-Making

A. Immediate Protective Actions

For an incident involving actual or significant potential for offsite consequences, it may be appropriate to immediately take protective actions (e.g., evacuation or shelter), without waiting for release rate information or environmental measurements.

In some incidents, sheltering may be the preferred protective action. Weather conditions, the direction of the plume, a HAB incident, or other circumstances may pose an undue risk to evacuation.

B. Subsequent Protective Actions

1. If additional information becomes available regarding potential or actual releases after the initial PADs have been made, the State Radiological Assessment Branch will provide additional PARs based on dose projections or plant conditions.
2. When field data becomes available, it is used to evaluate and, if needed, revise PARs based on ground truth.
3. In general, protective actions that have been implemented (e.g., evacuation) **SHOULD NOT BE REVERSED** based on revised dose assessments or early field measurements.

C. Notification

The Executive Group will notify applicable jurisdictions of any advisories or PARs.

4. Additional Support Measures

A. Traffic Control

Should conditions require, additional state assistance in the area of traffic control will be requested through ESF-1. Just in time (JIT) training and additional Personal Protective Equipment (PPE) may be required upon arrival at the designated staging area.

B. Hostile Impediments to Evacuation

1. In a HAB GE, OROs may determine that an initial recommendation to shelter in place rather than evacuation is the preferred path (e.g., more harm could be caused to individuals being evacuated if they are being moved into or through an area affected by a terrorist threat or act or an evacuation may disrupt the efforts to respond to a hostile action).
2. During a HAB incident, ESF-1 and ESF-13 will support the counties to ensure that inbound response resources do not become an impediment to evacuation and vice versa. This could include, but is not limited to, altering evacuation routes and/or provisions for removal of impediments to in-bound responders.
3. ESF-13 will provide support for both the Executive Room and the State JIC.

C. Watercraft Alerting & Lake Clearing

Provisions shall be made through coordination of the USCG and ODNR to alert and notify recreational boaters and mariners:

1. The minimum ECL to initiate watercraft notification and the clearing of Lake Erie is Alert. Watercraft notification is situational and may take place at a different ECL.
2. Direction and control of emergency responders shall be under that agency's on-scene coordinating official.
    a. The Search-And-Rescue (SAR) Mission Commander shall be in charge of all USCG response.
    b. The nearest Division of Parks and Watercraft Supervisor shall be in charge of the ODNR Watercraft Notification response.
3. Lake clearing objectives are:
    a. At Alert and SAE ECLs, boaters should return to the harbor or marina from which they launched and upon arrival, evacuate by car or public transport means.

b. At the GE ECL, boaters should go to a designated "safe harbor" outside the 10-mile EPZ. For designated "safe harbor" locations, refer to Attachments IX-B and IX-C.

c. ODNR will coordinate with USCG to assist in clearing the affected area and establishing a perimeter.

d. ODNR will conduct traffic control to and at marinas outside the 10-mile EPZ.

e. Notification of emergency information regarding a release will be transmitted by radio or other means from the State EOC, or affected county EOC, to the SAR Mission Commander and the Division of Parks and Watercraft Supervisor/ODNR Communications Center.

4. Responding agencies shall utilize the MARCS radio to communicate.
5. The following methods are conducted for waterway notification:
   a. Broadcast communications
      i. Marine band channel 16 (156.8 MHz).
      ii. NOAA weather radio.
   b. Public address systems.
6. Guidelines for watercraft notification efforts:
   a. Surface responders will directly notify boaters by public address system and issue waterway clearing instructions (e.g., return to port or travel to a designated "safe harbor" outside the 10-mile EPZ).
   b. Responding agencies will establish and maintain contact by radio or other means in order to receive situation updates from:
      i. County EOCs
      ii. State EOC
      iii. Ninth District USCG Headquarters (USCG only)
      iv. ODNR Communications Center (ODNR only)
7. Each responding watercraft shall have an operable CDV 777-1 radiation detection kit or equivalent rate meters.
8. Watercraft notification efforts will be conducted until it is reasonable to assume that all boaters have been notified. Responders may disengage from waterway clearing efforts as directed.

5. Map Responsibilities

A. Ohio EMA

1. Ohio EMA is responsible for the maintenance of maps showing:
   a. FMT radiological sampling and monitoring points
2. County plans include the following maps[10]:
   a. Evacuation routes
   b. Protective action sub-areas
   c. Reception centers
   d. Care centers
   e. Traffic and access control points
3. Maps will be updated when requests are received by the Ohio EMA GIS Operator, time permitting. Maps will be updated with the most current and accurate data.
4. Information regarding the population distribution at each the nuclear power plant is located in the utility's Evacuation Time Estimate reports, as listed in Appendix C. GIS will provide maps showing the affected population in each sub-area to the Executive Room during an emergency.
5. DHS' Homeland Security Information Network (HISN) is a secured network that may be utilized for BVPS, DBNPS, Fermi 2, and PNPP maps and layers. Layers include railroads, HSIN maps may include layers that cannot be found on the Ohio Geographically Referenced Information Program (OGRIP) web portal. Some of the IZRRAG member agencies have personnel who have access to the HSIN portal.
6. For both the emergency and ingestion phases, in addition to GIS' ability to manipulate ArcGIS maps, maps are also available to select a multitude of layers on the OGRIP web portal. Layers include agricultural concerns (e.g., dairies), water treatment plants, water wells, and more. OGRIP maps may include layers that cannot be found on the HSIN web portal. Each IZRRAG member agency has personnel who has access to the OGRIP portal.
7. The RadResponder website allows for mapping of grid surveys and sample locations.
8. Water supply maps may be available upon request.

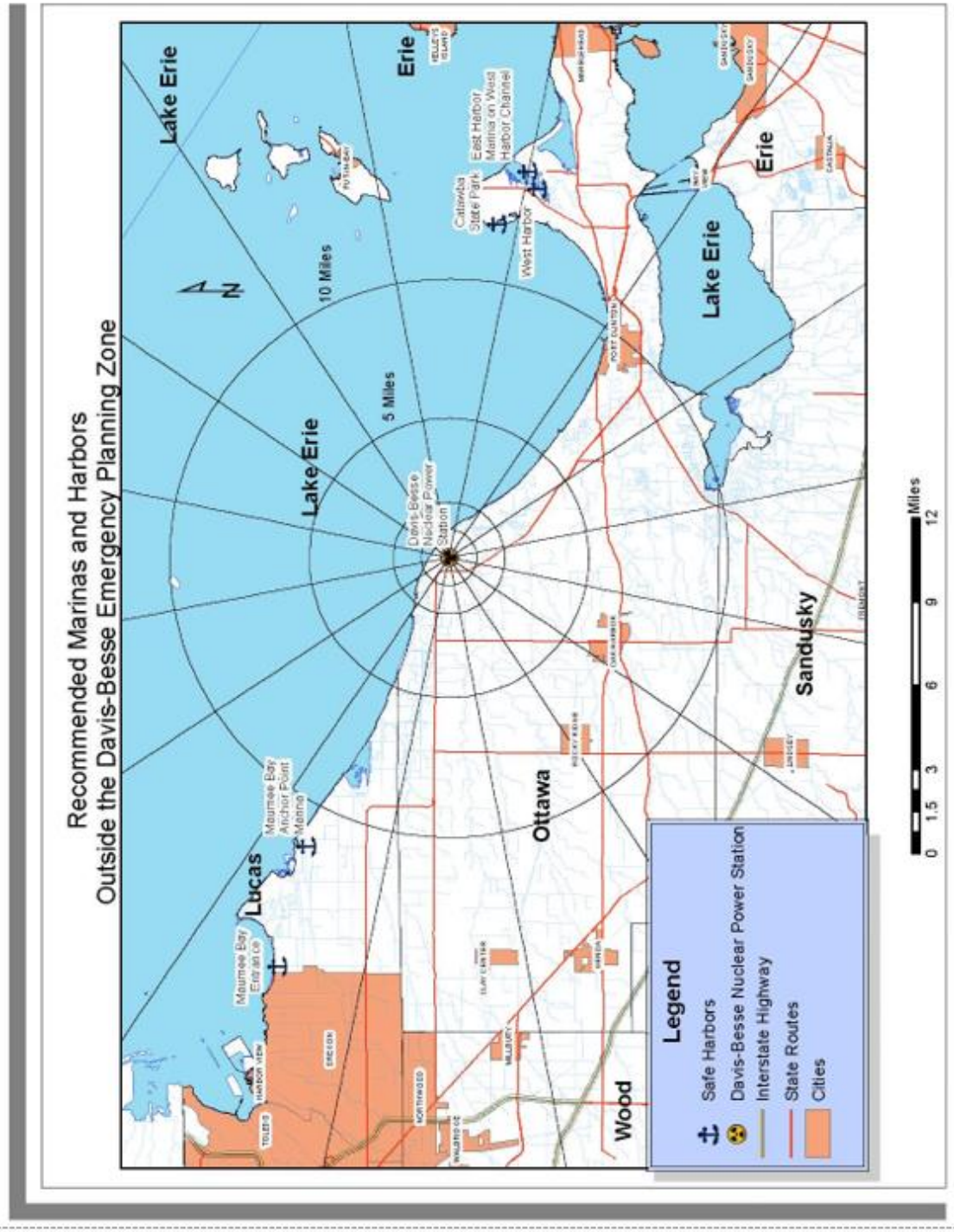
[10] Ohio EMA is responsible for the maintenance of the maps listed for Columbiana, Lucas, and Ottawa Counties. However, the maps are shown in the county plans.

Attachment IX-A: PAG Manual 2013: Table 1-1 Planning Guidance and Protective Action Guides for Radiological Incidents

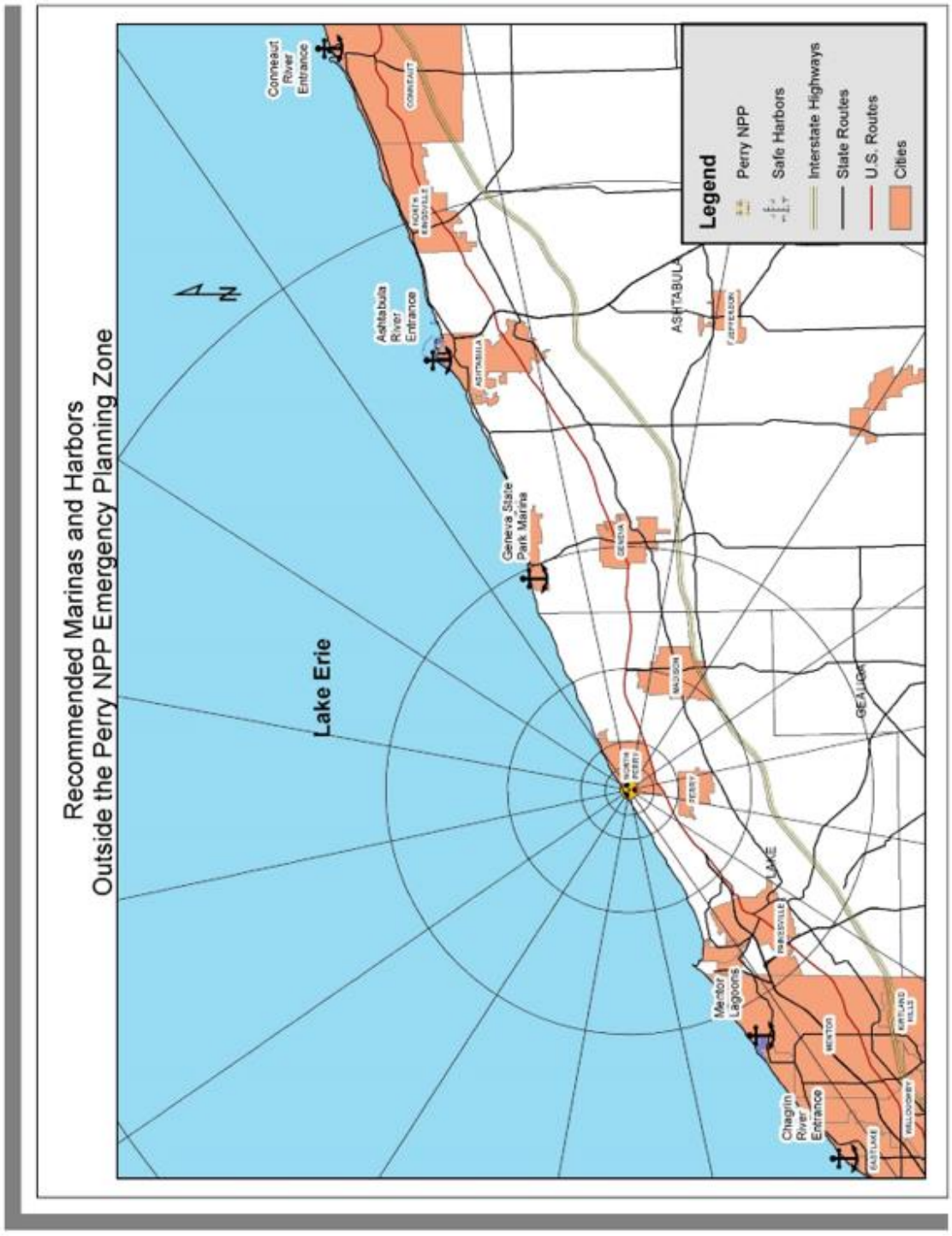
Phase	Protective Action Recommendation	Protective Action Guide / Planning Guide
Early	Sheltering-in-place or evacuation of the public[11]	1 to 5 rem TEDE projected dose/4 days[12]
	Administration of prophylactic drugs KI[13]	5 rem CDE projected child thyroid dose[14] from radioactive iodine
	Limit emergency worker exposure	5 rem/year (or greater under exceptional circumstances)[15]
Intermediate	Relocation of the public	2 rem projected dose first year. Subsequent years, 0.5 rem/year projected dose
	Food interdiction[16]	0.5 rem/year projected dose, or 5 rem/year to any individual organ or tissue, whichever is limiting
	Limit emergency worker exposure	5 rem/year
	Reentry	Operational guidelines[17] (Stay times and concentrations) for specific activities
Late	Cleanup	Brief description of planning process
	Waste disposal	Brief description of planning process

[11] Should begin at 1 rem; take whichever action (or combination of actions) that results in the lowest exposure for the majority of the population. Sheltering may begin at lower levels if advantageous.
[12] Projected dose - the sum of the effective dose from external radiation exposure (i.e., groundshine and cloudshine) and the committed effective dose from inhaled radioactive material.
[13] Provides thyroid protection from internal exposure to radioactive iodines only.
[14] Committed dose equivalent.
[15] When radiation control options are not available, or, due to the magnitude of the incident, are not sufficient, doses to emergency workers above 5 rem may be unavoidable. Any dose limit exceedance must be approved by ODH.
[16] For more information on food and animal feeds guidance, see "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies."
[17] For extensive technical and practical implementation information, see "Preliminary Report on Operational Guidelines Developed for Use in Emergency Preparedness and Response to a Radiological Dispersal Device Incident" (DOE 2009).

Attachment IX-B: "Safe Harbors" Outside the DBNPS 10-mile EPZ



Attachment IX-C: "Safe Harbors" Outside the PNPP 10-mile EPZ



This page intentionally left blank.

X. NUREG-0654 CRITERIA K

Radiological Exposure Control

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

1. Responsibilities

A. Purpose

To describe major state agency functions in the area of radiological monitoring and exposure control, contamination monitoring and radioactive contamination control.

B. Ohio EMA

The Ohio EMA shall:

1. Ensure appropriate DRDs are available for designated emergency workers.
    a. It is the responsibility of the respective county EMA Directors to provide the Ohio EMA with the number of emergency workers who need dosimetry.
    b. The Ohio EMA RRA assigned to each nuclear power facility area shall supervise the distribution of dosimetry packets. Packets should include:
        i. Direct-reading dosimeters (DRD) and a permanent record dosimeter (PRD), either a thermo-luminescent dosimeter (TLD) or an optically stimulated luminescent dosimeters (OSLD).
        ii. KI tablets.
2. Provide training on the use of dosimeters and radiological survey meters to state agencies and USCG personnel.
3. Inform FMTs about the health risks from receiving radiation doses, and the increased risk from doses up to and in excess of the EPA PAG Manual guidelines.
4. Provide the necessary record-keeping forms to state and county governments with instructions for use.
5. Provide training and equipment, with the exception of portal monitors, to facilitate the monitoring of evacuees at reception and care centers.
6. Instruct state agencies and USCG personnel to report to a decontamination facility for survey and wash down of their service equipment.
7. Ensure emergency workers submit their TLD or OSLD and Dosimetry Report Form for processing upon termination of their emergency duties.

C. ODH-BEHRP

ODH-BEHRP shall:

1. Issue recommendations to protect the general public, emergency workers, and institutionalized individuals.
2. Issue recommendations for the administration of KI to the general public, emergency workers, and institutionalized individuals.

3. Calculate dose to the general population as necessary and update, as needed, based upon:
    a. Measured exposure rates provided by field teams.
    b. Measured airborne radioactive material provided by field teams.
    c. Projected exposure or dose rates from data provided by licensee.
    d. Radiological contamination levels on monitored individuals.
    e. Radiological contamination levels identified in environmental samples.
4. Provide guidance for appropriate follow-up and treatment of affected citizens to county governments.
5. In coordination with the Ohio EPA and the utility, in order to reduce exposure to the public, determine a means for disposal of waste generated by the offsite radioactive decontamination process of the public, emergency workers, equipment, structures, and environment.
6. Request KI supplies from NRC for the general public and emergency workers.

D. Ohio EPA

Ohio EPA shall:

1. Determine the condition of public drinking water supplies (contaminated or uncontaminated) by using current federal guidance found in the SDWA or the EPA PAG Manuals and the Ohio Administrative Codes.
2. In coordination with the ODH-BEHRP and the utility, determine a means for the disposal of waste generated by the offsite radioactive decontamination process of the public, emergency workers, equipment, structures, and environment.
3. Provide a FMT Communicator and assist in tracking of the plume deposition.

---

2. Dosimetry

A. Issue of Dosimetry

1. Emergency workers shall be issued dosimetry before departing for the affected area. This may include state emergency workers, such as FMT members, Sample Screeners, communications support personnel, EOF Liaisons, and other personnel as deemed necessary by the state.
2. OHNG
    a. OHNG personnel providing assistance within the 10-mile EPZ during a radiological emergency at a nuclear power plant are considered

emergency workers. As a result, they will require dosimetry and KI be issued to them.

b. The KI and dosimetry packets for the OHNG will be issued by county officials at a designated staging or assembly area.

c. Additionally, OHNG personnel will receive a dosimetry briefing covering the mission, emergency worker exposure limits, and on the use of personal dosimeters.

d. The exception to these requirements may be OHNG members who are already trained and equipped to respond to radiological emergencies, such as the CST.

3. USCG

a. USCG responders are considered emergency workers.

b. USCG is responsible for the dosimetry of its personnel.

4. Each responder shall have a dosimetry packet made available to them which includes a permanent reading dosimeter, appropriate DRD(s) and KI.

5. It is not recommended that persons under the age of 18 act as emergency workers.

6. Locations with types and quantities of dosimeters available per location is maintained in the Annual Letter of Certification (ALC).

B. Record Keeping, Reading & Reporting

1. Each emergency worker shall complete and maintain a "Dosimetry Report Form," which shall be carried while in possession of radiation dosimetry and completed at the end of their mission. At a minimum, a new Dosimetry Report Form will be issued daily to each emergency worker.

2. All emergency workers must be in communication with their designated Dosimetry Coordinator by MARCS radio, cell phone, or commercial telephone.

3. All emergency workers shall report their DRD readings to their respective Dosimetry Coordinator at the designated intervals. The interval for reading dosimeters will be every 30 minutes unless directed otherwise.

4. Emergency workers will keep their assigned PRD throughout the emergency phase, unless their lead organization requests them earlier to verify an anomalous reading on a DRD or the Dosimetry Coordinator reissues all PRDs. PRDs will be returned to the Dosimetry Coordinator.

5. All DRDs will be returned to the Dosimetry Coordinator at the end of their shift.

6. PRDs will be returned to the vendor or appropriate laboratory for processing.

7. Copies of the emergency worker dose records shall be collected and maintained by each agency for an indefinite period.
    a. The emergency worker will retain a copy of their dose records.
    b. ODH will distribute a copy of each emergency worker's dose records to the Center for Disease Control.

3. Dose Limit Determination

A. Overview

1. While the emergency worker dose limit is 5 Rem TEDE[18], the initial dosimeter limit is 1R to account for inhalation dose which cannot be measured using a DRD. By selecting an appropriate value for the dosimeter limit, there can be reasonable assurance that after including the dose from inhalation, the TEDE to an emergency worker is unlikely to exceed the applicable limit.
    a. This limit is based on an initial ratio which may change based upon the radionuclide mixture released.
2. For the more probable reactor incident sequences, the TEDE to emergency workers who have taken KI is unlikely to exceed 5 times their measured external dose as shown on DRDs. Therefore, if the external dose measured by a DRD is limited to 1/5 of the applicable limit, the TEDE is unlikely to exceed the limit.
3. The TEDE calculation for emergency workers includes the contribution from thyroid dose due to inhalation of radioiodine. The ingestion of KI is not taken into account.

4. Exposure Limits

A. Exposure Control & Limits

1. In accordance with the EPA 2013 PAG Manual emergency workers assigned to life saving activities, the evacuation of large population groups, or the prevention of severe property damage or loss shall be advised that they are allowed to exceed normal regulatory limits for occupational exposure to radiation.
    a. The suggested limits given in the EPA PAG Manual only apply during the emergency phase of an event. See Attachment X-A.

[18] Counties may choose to utilize the 25 rem TEDE limit for their first responders inside the 10-mile EPZ until evacuation is complete, if the county considers their actions to be lifesaving activities.

b. All exposure received in the intermediate or late phase of an incident is considered occupational exposure and controlled in accordance with OAC 3701:1-38-12. The limit of 5 rem TEDE is in addition to and separate from the guidance given in the EPA PAG Manual for emergency response.

2. All doses shall be maintained per ALARA.

3. The limits suggested in the 2013 EPA PAG Manual are a summation of the external Effective Dose Equivalent and the Committed Effective Dose Equivalent from intake during an emergency response.

   a. These limits are not equivalent to the reading on a DRD. The DRD only measures the external exposure, not the total dose (internal plus external) an emergency worker may receive.

   b. By selecting an appropriate value for the measured external dose and restricting emergency workers to that limit, there can be reasonable assurance that after including the dose from inhalation, the TEDE to an emergency worker is unlikely to exceed the applicable limit. For this reason, dosimeter limits have been established.

4. The ODH-BEHRP may raise or lower the dosimeter limit based on the content of the release and the associated intake hazard.

   a. Many factors affect the TEDE that an emergency worker may receive. These factors, along with the potential exposure to the public avoided by the mission of the emergency worker, must be considered when making a decision to exceed these exposure limits.

   b. Doses to all workers during an emergency, to the extent practical, should be limited to 5 rem.

   c. The initial dosimeter limit for state emergency workers is 1R.

      i. This dosimeter limit for emergency workers entering the plume is determined in advance.

      ii. The limit is stated in terms of the external exposure measured by a DRD.

   d. To account for the inhalation dose, the dosimeter limit is set equal to the suggested dose limit for each class of activity recommended by the EPA.

   e. Any exceedance will be reviewed, approved/rejected and documented by ODH-BEHRP at the State EOC. It will then be documented by the Dosimetry Coordinator.

      i. Persons undertaking any operation in which the dose may exceed the 25 rem guidance in the EPA PAG Manual must do so only on a voluntary basis with full awareness of the associated risks.

ii. Information of the risk and threshold doses for health effects are to be provided to emergency workers who volunteer for higher dose exposure.

f. The actual TEDE dose received by emergency workers who have ingested KI will not include a large contribution from thyroid dose due to inhalation of radioiodine, because that contribution will be minimal if KI is administered prior to exposure.

5. Each emergency worker shall be provided with personnel dosimetry that includes a PRD and DRD(s) with a range suitable for measuring the maximum anticipated exposure. Exposure readings and task assignments shall be recorded for each emergency worker assigned to work in a radiological area. Refer to Attachment X-B.

6. Dosimetry Coordinators are responsible for monitoring emergency worker exposure levels, updating emergency workers with changes in their dosimeter limit, and taking the necessary actions to ensure emergency worker exposure is ALARA.

   a. It may be necessary to use such measures as routing vehicles around radiologically contaminated areas, minimizing time in a radiation area, and rotating team members to minimize exposure.

   b. If an emergency worker has reached the dose limit, the Dosimetry Coordinator should remove them from the area of exposure.

   c. If an emergency worker cannot be relieved, the Dosimetry Coordinator shall contact the ODH-BEHRP representative at the State EOC and request approval for the individual to exceed the dosimeter limit.

   d. Any exceedance will be documented by the Dosimetry Coordinator.

7. No emergency worker shall be assigned to an activity involving potential exposure to airborne radioactive material or radioactive contamination unless:

   a. Provisions are made for monitoring the emergency worker for radioactive contamination, and

   b. Facilities are provided for decontaminating the emergency worker.

8. Records shall be kept of the contamination monitoring and decontamination results for each worker who is monitored and/or decontaminated.

5. Potassium Iodide (KI)

A. Introduction

When taken as directed, KI is an effective supplemental means for minimizing radioiodine exposure to the thyroid; it does not provide protection from any other radionuclide. Evacuation is the primary means of minimizing exposure.

KI is a stable compound of iodine in the form of a salt. KI is useful for radiological emergency response as it can be taken orally to saturate the thyroid gland with non-radioactive iodine. It blocks the gland's ability to absorb radioactive iodine released following a nuclear reactor incident.

The State Radiological Assessment Branch recommends the use of KI for the public, institutionalized individuals, and emergency workers to the Executive Group who then may recommend the use to the counties.

B. KI Directive

Further KI information may be obtained through the Ohio Department of Health Potassium Iodide (KI) Directive, 10-BEHRP-01 Distribution and Use of Potassium Iodide (KI) for the 10-mile Emergency Planning Zone Population.

C. Maintenance

KI will be maintained per manufacturer instructions.

D. Extensions

In the event the State's KI supply expires before being exchanged, a letter for shelf life extension will be pursued. However, timely replacement of the KI is always the preferred method. Refer to the current ODH Memorandum, "Notice of Potassium Iodide (KI) Shelf Life Extension," dated September 28, 2021. This extension is good until June 20, 2022.

E. KI Supply

Quantities and storage locations provided by ODH and Ohio EMA are maintained in the ALC. The local health department distribute KI to the general public while Ohio EMA distributes KI to emergency workers.

F. Communication

The recommendation to take KI will be provided to the counties through the State EOC Executive Group. When the county approves the recommendation, the decision will be communicated to emergency workers through telephone, cell, radio, or other means of communication. The public will be notified through press releases and news briefings. State emergency workers will be notified from the State EOC by telephone, cell phone, radio, or other means of communication.

Attachment X-A: Emergency Worker Dosimeter Limit Protective Action Guidelines (PAG)

Emergency Worker[1] Dose Limits during the Emergency Phase[2]			
Activity	**Dose Limit (TEDE)[3]**	**Dosimeter Limit[4]**	**Condition**
Field Teams	5 rem	1 R	
Outside EPZ	5 rem	5 R	
Protecting valuable property (Special Facilities)	10 rem	2 R	Lower dose not practicable
Lifesaving or protection of large populations (Inside EPZ)	25 rem	5 R	Lower dose not practicable
Lifesaving or protection of large populations	> 25 rem		Only on a voluntary basis to persons fully aware of the risks involved

[1] Emergency Workers are limited to adults performing emergency services.
[2] The Emergency Phase ends when the release has terminated, the public is evacuated, and valuable property has been protected.
[3] Total Effective Dose Equivalent (TEDE) is the sum of external whole-body dose and internal doses. The dose limit is the TEDE accumulated over the duration of the emergency phase, and treated as a once-in-a-lifetime exposure. Eye lens dose should be limited to three (3) times and skin/extremities dose limited to ten (10) times the listed values.
[4] Dosimeters record only the external exposure component of TEDE. To reasonably ensure that the TEDE dose limits are not exceeded due to internal doses from inhalation, ingestion, injection, and absorption, a conversion factor may be applied. These values may be revised as more information, particularly the isotopes involved, becomes available during the incident.

Administrative Instructions during the Emergency Phase

1. Direct-Reading Dosimeters (DRDs) and Electronic Personal Dosimeters (EPDs) are to be read at intervals as prescribed by the Ohio Department of Health (ODH), but no less frequently than every 30 minutes.
2. Exposures, in 1R increments, are to be reported by the worker to the State Field Team Coordinator or Dosimeter Coordinator.
3. Personnel should not remain in areas exceeding 1 R/hr. unless performing lifesaving operations.
4. Emergency Workers, who are willing to voluntarily exceed 25 rem TEDE during lifesaving operations, must have their proposed activities evaluated by ODH to compare the risk versus the benefit.

Worker[1] Dose Limits during the Intermediate Phase[2]			
Activity	**Dose Limit (TEDE)[3]**	**Dosimeter Limit[4]**	**Condition**
All activities	5 rem	5 R	

[1] Workers are limited to adults performing essential services.
[2] The Intermediate Phase ends when reliable environmental measurements have become available and additional protective actions are no longer needed.
[3] Total Effective Dose Equivalent (TEDE) is the sum of external whole-body dose and internal organ and tissue doses. The dose limit is the TEDE allowed in one year. Intermediate Phase doses are treated separately from any doses accumulated during the Emergency Phase. Eye lens dose should be limited to three (3) times and skin/extremities dose limited to ten (10) times the listed value.
[4] Dosimeters record only the external exposure component of TEDE. To reasonably ensure that the TEDE limits are not exceeded due to internal doses from inhalation, ingestion, injection, and absorption, a reduction factor may be applied. These values may be revised as more information, particularly the isotopes involved, becomes available during the incident.

Administrative Instructions during the Intermediate Phase

1. Direct-Reading Dosimeters (DRDs) and Electronic Personal Dosimeters (EPDs) are to be read at intervals as prescribed by the Ohio Department of Health (ODH), but not less than every 30 minutes.
2. Personnel should not enter areas exceeding 1 R/hr.

Attachment X-B: Dosimetry Report Form Example

Ohio Department of Health

DOSIMETRY REPORT FORM

(Must be completed by anyone receiving dosimetry)

PERSONAL IDENTIFICATION (Please Print)			
Name (Last, First, MI)			Emergency Response Organization
Employee ID or SSN	DOB (mm/dd/yyyy)	Sex	Job Title
Home Mailing Address			Work Mailing Address
Home City/State/Zip			Work City/State/Zip
Home/Cell Phone Number ( )	Home E-Mail Address	Work Phone Number ( )	Work E-Mail Address

MISSION ASSIGNMENT				
DATE	TIME	ACTIVITY/LOCATION	TEDE Dose Limit (rem)	Initial/Revised Dosimeter Limit (R)

DOSIMETER RECORD								
Permanent Record Dosimeter (TLD/OSLD)		Date Issued	Time Issued		Date Returned	Time Returned	Date Of Reading	Final Reading
Serial								
Direct Reading Dosimeter		Date Issued	Time Issued	Initial Reading	Date Returned	Time Returned	Return Reading	Mission Total
Range	0-200R							
Serial								
Range	0-20R							
Serial								
Range	0-200mR*							
Serial								
Range	Electronic Dosimeter							
Serial								

*Few individuals will be issued these low range dosimeters.

RUNNING TOTAL OF EXPOSURE for current radiological incident				
Previous Running Total of Exposure	+	Current Mission Total	=	Running Total of Exposure
	+		=	

RECORD OF POTASSIUM IODIDE ADMINISTRATION					
DOSE	1	2	3	4	5
Date:					
Time:					

☐ I have read the warning and instructions for administering KI and understand the rationale for its use as well as potential side effects that may occur from its administration.

This record is correct and complete to the best of my knowledge.

Signature _____ Date _____

NOTE: WHEN COMPLETED THIS FORM CONTAINS PRIVACY ACT INFORMATION

DOSIMETRY REPORT FORM INSTRUCTIONS

CAUTION: Emergency workers shall be volunteers that have received information concerning the risks of radiation exposure, be at least 18 years of age, healthy and not allergic to iodine.

PRE-WORK INSTRUCTION:

1. Enter all your information in the Personal Identification section.
2. Enter the following information in the Dosimeter Record section: serial number, date issued for all dosimeters.
3. Record the applicable information in the Mission Assignment section.

Administrative Early-Phase Emergency Worker Dose and Dosimeter Limits		
Inside Emergency Planning Zone *County Response-Verify your Limits per your SOG	**TEDE Dose Limit**	**Initial / Default Dosimeter Limit**
Standard response functions	5 rem	1 R*
Protecting valuable property	10 rem	2 R*
Lifesaving or protection of large populations	25 rem	5 R*
Outside Emergency Planning Zone		
All activities	5 rem	5 R
Intermediate-Phase Occupational Dose and Dosimeter Limits (per year)		
Inside & Outside of the Restricted Zone		
All activities	5 rem	5 R

4. Read the Potassium Iodide (KI) information sheet accompanying the tablets and check the box indicating this has been completed.
5. Ensure your dosimeters have been zeroed.
6. Record any exposures from previous pages, if applicable, in the Running Total of Exposure section.
7. Place dosimeters and TLD/OSLD in your chest area outside of clothing. Place KI and Dosimetry Report Form inside the packet and carry it with you.

DURING MISSION OR SHIFT INSTRUCTION:

1. Listen for instructions concerning the following: dosimeter reading time intervals, changes to the dosimeter limit value and directions to take KI.
2. Read your dosimeters at the time interval directed or at least every 30 minutes.
3. Record any revisions to your Dosimeter Limit Value in the appropriate block of the Mission Assignment section
4. If applicable, record the date and time directed to take KI on your Record of Potassium Iodide Administration.
5. Report readings or discrepancies between dosimeters to your organization's dosimetry coordinator.
6. Do not exceed your Dosimeter Limit Value unless authorized by your organization's dosimetry coordinator.

COMPLETION OF MISSION, SHIFT, or TERMINATION OF INCIDENT INSTRUCTION:

1. Report to an Emergency Worker Monitoring and Decontamination Station.
2. Read your dosimeters and record information in the Dosimeter Record section:
   a. Date and time returned and ending reading.
   b. Calculate mission total (ending reading minus initial reading).
3. Record information in the Running Total of Exposure (previous running total of exposure plus this mission total).
4. Sign and date bottom of form and return all contents to your dosimetry coordinator.
5. Obtain the same packet for your next shift/mission & start a new Dosimetry Report Form.
6. If assigned a different coordinator, you are to take your running total dose with you.

Attachment X-C: Guidelines for Contamination Screening

DESCRIPTION	ACTION LEVEL	IF THRESHOLD IS EXCEEDED:
Maximum background reading for monitoring areas	per manufacturer	Move monitoring area to a location with acceptable background levels.
	300 cpm	Move monitoring area to a location with acceptable background levels.
Personnel/possession monitoring	1 μCi	The portal monitor will alarm. Send person to decontamination.
	3000 cpm	In head, neck, face, and chest area, decontaminate and refer to hospital for analysis.
	300 cpm	Send person to decontamination.
		After one decontamination attempt, try a second decontamination method.
		After two decontamination attempts, refer to hospital.
		After a decontamination attempt, impound contaminated possessions.
Public vehicle monitoring	1 μCi	The portal monitor will alarm. Impound vehicle.
	300 cpm	Impound vehicle. If time permits, attempt to decontaminate.
Emergency vehicle/equipment monitoring	300 cpm	Cover contaminated area with plastic, mark, and release for service.
	30,000 cpm	Impound if contaminated surface is in contact with personnel.
Decontamination areas	30,000 cpm	Decontaminate to reduce count rate. Secure area, post warning, and relocate to another area.

XI. NUREG-0654 CRITERIA L

Medical & Public Health Support

Arrangements are made for medical services for contaminated, injured individuals.

1. Medical Information

A. Hospitals

1. Ohio Department of Health – Office of Health Preparedness will maintain a listing of all hospitals to include:
   a. Primary hospitals
   b. Backup hospitals
   c. Hospitals within the state capable of providing medical support for any contaminated individual
2. The list of hospitals will provide the following details for each hospital:
   a. Name
   b. Location
   c. Type
   d. Capacity for ambulatory and non-ambulatory patients
   e. Any special radiological capabilities
   f. Monitoring equipment available
   g. Capability for analyzing samples

B. Bioassays

1. If a person's initial survey in the head, face, neck, and chest area is greater than 3000 cpm above background radiation levels, they are decontaminated and sent to a medical facility for a bioassay.

   NOTE: Medical emergencies take precedence over decontamination.
2. Per FEMA-REP-2, it is recommended that all emergency workers immersed in the plume undergo a bioassay and are monitored for internal contamination following their final mission.

Attachment XI-A Whole Body Counters Available

Agency	Response Time
REAC/TS Methodist Medical Center of Oak Ridge 990 Oak Ridge Turnpike Oak Ridge, TN 37831	12 hours
Argonne National Laboratory 9700 South Cass Avenue Argonne, IL 60439	12 hours

This page intentionally left blank.

XII. NUREG-0654 Criteria M

Recovery & Reentry Planning & Post-Accident Operations

General plans for recovery and reentry are developed by State and local organizations.

1. Ingestion Zone Recovery & Reentry Advisory Group (IZRRAG)

A. Overview

1. The Ingestion Zone Recovery and Reentry Advisory Group (IZRRAG) will form at the State EOC at a point after the initial plant event and the late stages of the emergency phase.
2. The IZRRAG will be comprised of representatives from the following:
   a. Ohio Department of Health (ODH) (IZRRAG Chair)
   b. Ohio Department of Agriculture (ODA)
   c. Ohio Emergency Management Agency (Ohio EMA)
   d. Ohio Environmental Protection Agency (Ohio EPA)
   e. Ohio Department of Natural Resources (ODNR)
3. The following agencies serve as support agencies for ODA in communicating with local level food producers and in determining bans of food products:
   a. Ohio State University (OSU) Extension
   b. USDA-FSA
4. An NPP Utility Liaison can be requested to advise the IZRRAG.
5. During the intermediate phase, the IZRRAG will consolidate data pertaining to:
   a. The potentially contaminated area based on projected plume path and radiation levels.
   b. Levels of radiation within, and bordering the initially defined areas, including potentially isolated hot spots.
   c. Size of the population involved in evacuation and relocation.
6. The IZRRAG will advise the Executive Group and provide PARs.
7. ODA will take actions delegated to the agency as found in ORC 3715 and ORC 941.

2. Protective Actions

A. Precautionary Actions

Precautionary actions taken prior to confirmation of contamination include, but are not limited to covering exposed products, moving animals to shelter, providing protected feed and water, and/or temporary embargoes.

B. Food

Potential protective actions for foodstuffs exceeding the Derived Intervention Levels (DILs) include, but are not limited to:

1. Normal food production and processing actions that reduce the amount of contamination in or on food to below the DILs (e.g., polishing grains).
2. Temporary embargo until radionuclides have decayed to acceptable levels.
3. Condemnation of foodstuff.

C. Animal Feed and Water

Protective actions when animal feeds are contaminated include, but are not limited to:

1. Providing uncontaminated feed and water .
2. Removing lactating dairy animals and meat animals from contaminated pastures.

D. Advisories

The agricultural community will be notified of advisories through media briefings, news releases, the OSU Extension, and the USDA-FSA.

3. Methods of Accomplishment

A. General

1. The primary function of IZRRAG will be to advise the Executive Group in regards to counties lying either wholly or partially within a 50-mile ingestion pathway (boundaries to follow easily identifiable points of reference such as county/township lines) on actions necessary for the protection of life and property. Major advisory categories include:
   a. Growing and non-growing season precautionary restrictions
   b. Evacuated areas opened for essential workers
   c. Livestock/Poultry
   d. Water

e. Produce/Fruit

f. Cultivation/Harvesting

g. Grain/Feeds

h. Fish/Wildlife

2. The State of Ohio agrees to adopt, as a basis for interagency planning and emergency protective actions, guidance contained in EPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA-400-R-92-001, May 1992; EPA PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents, March 2013; EPA PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents, EPA-400/R-17/001, January 2017 (refer to Appendix F: Ohio Implementation of the 2017 EPA PAG Manual for implementation exceptions); and FDA Accidental Radioactive Contamination of Human and Animal Feeds: Recommendations for State and Local Agencies, August 13, 1998.

3. Based on information from the Radiological Assessment Branch, IZRRAG will make recommendations for ingestion pathway protective actions to the individual agencies with responsibility for the wholesomeness of each food category. IZRRAG will:

   a. Make recommendations to the Executive Group.

   b. Make the recommendation, based on data obtained from projections of potential food and milk contamination, of a temporary ban on the sale of food from the area until data from actual food samples can be obtained.

B. Public Information

Information will be released to the public when it becomes available. Important topics include:

1. Public education and information for the use of food and water regarding:

   a. Type of contamination likely to occur.

   b. The need for and means of cleansing contaminated food (especially garden produce).

   c. The locations of emergency food and water distribution points and times for distribution of emergency supplies.

2. Information on the priorities for imposing curtailments and restrictions on the use of water (e.g., hospitals).

3. Information with regard to shortages, contamination, legal water usage, purification, and any other restrictions.

C. Milk & Dairy Products

1. In the event of a radiological incident resulting in an offsite release:
   a. The ODA, as the inspecting agency for all milk and milk products, maintains and will make available to the IZRRAG a current listing of milk producers, milk plants, transfer and receiving stations, and a general census of dairy stock within given pathways.
   b. The ODA will coordinate with agencies:
      i. With monitoring responsibilities for milk upon its arrival at a milk plant, transfer or receiving station.
      ii. Responsible for the sampling of milk currently under processing or stored for processing within the zone.
      iii. In the redirection for sale of milk and milk by-products considered safe for use after sampling.
   c. The IZRRAG may release advisories based on projections. They may establish temporary bans, before confirming the Derived Intervention Levels (DILs) have been exceeded.
2. In the event of offsite contamination above the PAGs for ingestion, the ODA, with input from the IZRRAG, will:
   a. Recommend a quarantine on the transfer, sale, or shipment of milk and dairy products within the IPZ.
   b. Recommend a ban on the use, sale, or transfer of unprotected animal feed.
   c. Recommend alternative uses for contaminated foods, milk, and milk products.
   d. Recommend and coordinate the destruction of contaminated foods.
   e. Coordinate with the agencies responsible for the importation of milk and dairy products from processors outside the IPZ.

D. Honey

The ODA, in consultation with the IZRRAG, will recommend the need for any restrictions or curtailments on the honey-producing industry.

E. Meat & Poultry Products

The Meat Inspection Division of the ODA will maintain and make available to the IZRRAG a current listing of meat producers and meat processing plants. The Wildlife Division of the ODNR will maintain a program of sampling of indigenous wildlife that may be harvested by the public during appropriate hunting seasons. The IZRRAG will recommend, based on data from samples taken by the ODA or ODNR, a ban on the use of meat or meat products from within the IPZ.

F. Animal Feed Products

1. As the state agency tasked with inspecting and licensing grain warehouses and feed mills, the ODA will sample feeds produced within the IPZ and will make available to the IZRRAG a current listing of feed mills as alternate sources of prepared feeds outside the IPZ.
2. The ODA will recommend controls in the distribution and use of animal feed in the natural and processed states.
3. The ODA, in consultation with the IZRRAG, will also recommend that uncovered stocks stored in bins or in the open have the outer or top layer of feed removed before use.

G. Other Farm Products

1. As the agencies responsible for the monitoring of other farm products, the ODA and the USDA will make available to the IZRRAG the following data specific to local situations:
   a. The number, type, size, and location of farms.
   b. The growing season and time of harvest for various crops grown on each farm.
   c. The end use of food produced on each farm (what percentage of the foods produced are sold for processing or sold at roadside stands).
   d. The distribution of food sold for processing (how and where the food is transported for processing and/or marketing).
2. The ODA, in consultation with the IZRRAG, will recommend actions for the protection of foods and produce to ensure public safety. This includes maintaining a program of sampling and analyzing crops and food processors and supervising the disposal of contaminated items.
3. The IZRRAG will provide recommendations on whether packaging protected foods within the affected area is still safe to eat.

H. Identification of Milk, Meat & Other Foods

1. Lists of meat, milk, and other food processing plants maintained by the USDA-FSA and ODA are available for each area surrounding the nuclear power plants.
2. The ODA maintains a list of dairy farms in each area.
3. The USDA-FSA maintains information on the types of crops being grown in any given county, which is updated annually.

I. Water Supplies

The Ohio EPA, in consultation with IZRRAG, will recommend actions to minimize radionuclides in water supplies for both public drinking water and agricultural/industrial users. IZRRAG may recommend:

1. Closing intakes from a contaminated river, lake, or reservoir water supply to allow diversion and use of only the uncontaminated water supplies already in the system.
2. Drawing water from the least contaminated reservoir levels, since radionuclides may not be homogeneously mixed in large reservoirs.
3. The chemical treatment of raw water at the treatment facility to reduce radionuclide concentrations to an acceptable level.
4. Allowing for the reduction of activity to an acceptable level for safe water consumption.
5. Restriction on the transport, application, and/or use of contaminated sludge from waste water treatment facilities to agriculture producers.
6. The proper disposal of contaminated sludge from waste treatment facilities to designated disposal sites.

J. Establishment of a Sampling Program

1. An FTC will be established at pre-determined locations and may co-locate with the Federal Radiological Monitoring and Assessment Center (FRMAC).
2. The FTC will be the central dispatch point for all State Sample Teams and will coordinate the dispatching of teams with the FRMAC.
3. Based on data received from the State Radiological Assessment Branch, the identification of sampling locations will be determined. IZRRAG will then forward these locations to the FTC Coordinator.
4. The 10-point sampling plan will be utilized to determine soil sample locations within the proposed Restricted Zone.
5. Sampling will be carried out by each agency per their procedures.
    a. ODA, OSU Extension, and the USDA-FSA will maintain contact information and addresses of farms in order to obtain permission to collect samples.
6. The Ohio EMA will coordinate with ESF-7 to acquire any needed sampling supplies and coordinate with the FRMAC for the requisition of items obtainable from federal resources. The National Response Framework (NRF) may be utilized to identify other federal assistance programs and resources.

---

4. Agency Responsibilities

A. General

The primary and secondary responsibilities for planning, coordinating and implementing protective actions for the public within the IPZ and the coordination of these responsibilities in an overall response effort rests with selected state, federal and private agencies as listed below.

B. Ohio EMA

The Ohio EMA shall:

1. Assist with dose assessment operations and provide a location in the State EOC equipped for these activities.
2. Maintain the State EOC for the use of agencies involved in the intermediate and late phases of the emergency.
3. Identify an off-site Field Team Center (FTC) which will include each agency's representative to direct their Sample Teams.
4. Coordinate transportation (via ESF-1) for samples to be delivered to a designated laboratory.
5. Ensure the plan incorporates FRMAC.
6. Ensure the notification of the county directors within the 50-mile IPZ.
    a. Upon declaration of a Site Area Emergency, an Ohio EMA representative in the State EOC will notify all counties located within the 50-mile IPZ of the affected facility. See Figure XII.A.
    b. Notification will be made via telephone, facsimile transmission, or e-mail to the affected 50-mile counties and confirmation of receipt of notification will be made.
    c. Updates will be provided periodically and as conditions warrant.
7. Provide GIS personnel to create maps showing various data.
8. Keep all involved response organizations informed of recovery phase plans being developed, how long they will take, and what final outcome is expected through conference calls, Situation Reports (SitReps), and briefings.
9. Coordinate with the adjacent states of Michigan, Pennsylvania and West Virginia and the Province of Ontario for ingestion pathway protective action recommendations during emergencies at the nuclear power plants.

C. ODA

The Ohio Department of Agriculture (ODA) shall:

1. Coordinate the annual production and distribution of information to agricultural producers, processors and distributors within a 10-mile radius of a nuclear power facility. This ag brochure will be available to producers, processors and distributors within a 50-mile radius at the time of an emergency. Both hard copies and online versions will be available.
2. Provide up-to-date key land use data (e.g., farming), dairies, food processing plants, nurseries, farm stands, and farmer markets to allow maps to be produced.
3. Maintain up-to-date lists of the names and locations of all facilities which regularly process milk products and other large amounts of food or agricultural products in the IPZ.
4. The Division of Food Safety will embargo food products as deemed necessary.
5. The Division of Animal Health will sample feeds and impose embargoes pertaining to the sale, transfer, and transport of livestock and poultry. They will provide information to practicing veterinarians and livestock owners on the effects of radiation on animals.
6. Division of Plant Health
    a. The Apiary Section will maintain a list of beekeepers and impose restrictions and/or cessation of the handling, processing, and sales of honey products.
    b. The Feeds and Fertilizer Section will maintain a list of feed mills and will sample at feed mills to test for radioactive contamination.
    c. The Plant Pest Control Section will sample nursery stock to test for radioactive contamination.
    d. The Seed Section will maintain seed crop control and inventory and inspect and sample seed to test for radioactive contamination. They will also determine, through coordination with the county cooperative extension service agents, types, sizes, and locations of commercial crops being grown.
7. The Division of Dairy will:
    a. Impose restrictions and/or cessation of the handling, processing, and sale of milk and manufactured milk products.
    b. Specify appropriate protective actions for dairy farms, processing plants, and other dairy related activities in the IPZ that are confirmed to have any detectable radiation levels greater than response levels set forth in FDA guidance.
    c. Disseminate action levels for the decontamination of dairy farms, processing plants and facilities.

D. ODH

1. The Bureau of Environmental Health and Radiation Protection will:
   a. Chair the IZRRAG.
   b. Utilize soil sample data to calculate Derived Response Levels (DRL). DRLs will assist IZRRAG in determining the Restricted Zone.
   c. Utilize water, milk, and vegetation sample data to calculate Derived Intervention Levels (DILs). DILs will determine which foodstuffs are consumable by the public. See Attachment XII-B.
   d. Coordinate with the local health departments any activities regarding the safety of private water supplies within the 50-mile IPZ.
   e. Perform long-range dose assessment activities to estimate total population exposure.
   f. Coordinate with Ohio EPA to approve the disposition of radioactively contaminated materials.
2. The ODH Laboratory will perform sample analysis and relay the information to the State Radiological Assessment Branch.

E. Ohio EPA

1. The Division of Drinking and Ground Water will:
   a. Provide technical coordination and assistance for the determination of contamination limits for established public drinking water supplies.
   b. Provide sampling of public drinking water supplies with FRMAC methodology for determination of radiological contamination by designated laboratories.
   c. Use dose estimates provided by Dose Assessment that were determined from radiological samples of public drinking water supplies and compare to the EPA SDWA Maximum Contaminant Levels (MCLs) (4 mrem for beta/gamma emitters) for radionuclides. In the event that the dose estimates exceed the MCLs, IZRRAG will consider and determine an alternate PAG and/or coordinate to provide alternate drinking water sources.
   d. Maintain a listing of existing cross connection capabilities in the 10-mile EPZ.
   e. Provide information on available water treatment facilities, locations, capacities for treatment, and community usage data.
   f. Maintain a listing of public drinking water intake locations.
2. Equip and maintain the Ohio EPA RAT to be capable of sampling of soil, forage (ground cover), snow, drinking water, and surface water.
3. The Division of Surface Water will:
   a. Advise local wastewater treatment plants in continued operations.

b. Sample industrial and municipal wastewater discharge.

c. Provide personnel and equipment in support of sampling stream waters.

4. The Division of Materials and Waste Management will provide a selection of appropriate sites and methods for storage and/or disposal of waste material, condemned food stuff, and other waste as determined with ODH-BEHRP to approve for radioactive contaminated material disposition.
5. The Division of Air Pollution Control will provide, in conjunction with FRMAC, the ability to determine resuspension of contaminated dust by long-term sampling.

F. ODNR

The Ohio Department of Natural Resources (ODNR) shall:

1. The Division of Soil and Water Resources will maintain a listing of locations of water intake points, including semi-public water sources, and maintain maps showing watersheds, water supply intake and water treatment plants.
2. The Division of Wildlife will sample indigenous fish and wildlife to test for radioactive contamination before entering the human food supply and will consider the impact of the migration of fish, aquaculture, game, and fowl. It will also suspend fishing, hunting, and trapping, as needed.
3. The Division of Forestry will sample to test for radioactive contamination of wood product harvesting and suspend timber harvesting and the burning of woody debris, as needed.

G. OSU Extension

The OSU Extension will serve as a support agency for ODA. It will inform all county extension agents of specific protective actions that the agricultural industry should be taking and will provide emergency information to farmers, food processors, and distributors.

H. USDA-FSA

The USDA-FSA will provide a list of food, feed, fertilizer, and grain facilities, including the availability of grain. It will also provide:

1. A list of farmers in the affected area including local information on crop production, acreage, status of harvest, and farm capability.
2. A means of informing farmers about protective actions through its county newsletter system.
3. Office space and clerical help for a local crisis center.

I. Utilities The Utilities shall provide the analysis results of area samples and may station a liaison at the State EOC during the recovery phase.

5. IZRRAG Responsibilities

A. IZRRAG

The IZRRAG will:

1. Establish a restricted zone and refine the zone as sample results are returned.
2. Establish recovery guidance in coordination with state and local officials to maximize restoration of affected areas as close as possible to their pre-incident conditions.
3. Advise the Executive Group on establishing priorities, plans, and procedures.
4. Work in cooperation and liaise with the Federal Advisory Team established per the NRF, Nuclear/Radiological Incident Annex (NUC-1).
5. Continue to monitor the spread of radioactive contamination by humans, animals, and resuspension. Recommendations and advisories will be made as necessary to prevent and/or control the spread of contamination, including controlling waterways and water runoff to prevent contaminating waterways outside the RZ.

B. Broad Recovery Issues

Broad recovery includes assistance and resources needed to return impacted areas to habitability, and maximize the return of areas without great risk to the public. The IZRRAG will:

1. In coordination with local officials:
   a. Establish locations of temporary, and then permanent boundaries to restricted areas that cannot be re-inhabited. The IZRRAG will recommend the location of these boundaries to the Executive Group.
   b. Establish criteria for security of restricted areas. Local officials, based on IZRRAG/Executive Group recommendations, will establish physical boundaries and security for restricted areas to control access to limit radiological exposure.
2. Coordinate state and local efforts:
   a. To reduce the extent of permanently restricted areas within established guidelines, using (1) accurate survey and sampling of affected areas, and (2) recommendation of the decontamination of select areas.
   b. To develop a prioritized list of restoration activities for affected areas.

c. Identifying state and federal agencies available for providing assistance.

d. To limit duplication of efforts and prevent conflicts in federal, state, county, and local recovery.

3. Assist the Executive Group in evaluating decontamination and restoration plans, including establishing decision levels that preclude decontamination due to cost and recoverability. Plans should include the types of decontamination methods and establish priorities in these efforts.

4. Provide return and/or relocation guidance for local and county governments aiding evacuated residents, businesses, and industries.

C. Decontamination

The IZRRAG will:

1. Assess the needs for decontamination of possessions, vehicles, property, and people. The IZRRAG will consider all existing guidance, the actual conditions, and the circumstances of an incident.

2. Coordinate all state and federal resources available to carry out these decontamination actions.

3. Establish decontamination priorities, plans, and procedures.

4. Advise the Executive Group on decontamination and restoration projects including, but not limited to:

   a. Decontaminating and restoring buildings and equipment used by government, fire, law enforcement, postal services, water treatment facilities, utility services, sewage treatment facilities, and trash disposal.

   b. Decontaminating and restoring buildings and equipment for hospitals, nursing homes, prisons, businesses, and industrial sites.

   c. Removing and disposing of materials, equipment, soils, livestock, food products, farm or garden produce, and other items which cannot be decontaminated or which have spoiled or perished while the area has been restricted.

   d. Decontaminating or otherwise restoring agricultural lands to productive use.

D. Debris Management

The IZRRAG, will:

1. Coordinate with local officials the appropriate actions relative to contaminated foods, land, and property.

2. Review conditions and provide guidance / recommendations for:

   a. Temporary storage of contaminated property for decontamination.

b. Temporary storage of contaminated food and food products, and a determination of whether it will be acceptable for human use/ consumption at a later time.

c. Long term disposition of contaminated food and food products.

d. Long term disposition and relocation of livestock.

3. Develop plans and guidelines for:

a. Conditions by which foods, food products, and soils may require disposal.

b. Disposal of contaminated soils, other property, and possessions.

c. Conditions by which restrictions on food consumption, marketing, and other economic/commercial activities may be relaxed.

4. Based on environmental measurements, determine limitations on hunting and fishing and recommend protective action advisories, as necessary.

5. Provide guidance on:

a. The types of property that can be economically decontaminated based on the property value and the levels of contamination.

b. Resources from organizations or contractors to assist in the decontamination effort.

E. Dose Assessment

Dose Assessment will:

1. Perform assessments of both the short term and long-term health effects to the public resulting from the incident.
2. Consider requesting assistance of other agencies or outside vendors to assist in these assessment functions.
3. Seek assistance from the affected nuclear power plant and federal agencies in this assessment.

---

6. Relocation

A. Ohio EMA

1. The Ohio EMA will coordinate with federal, state, local, and voluntary organizations to assist local officials in determining the relocation and housing needs of the relocated population.
2. Impact on the community

a. Ohio EMA, with other state and federal assistance, will make a detailed analysis of the numbers of people, homes, farms, businesses, etc. impacted by the event and the evacuation.

b. Federal assistance will be requested for relocated communities. The amount of financial assistance will be based on availability and federal declaration level.

3. Assistance

   a. Ohio EMA, with local official assistance, will determine the:

      i. Short-term needs that can be met by state and local governments not already addressed by ANI.

      ii. Long-term needs that may be required, and what level of assistance may be available.

   b. Ohio EMA, with federal assistance, will develop information centers to provide affected populations with the required information for assistance not already addressed by ANI.

B. IZRRAG

IZRRAG will:

1. Determine the area to be considered the Restricted Zone (RZ).

   a. The initial RZ will be the area evacuated during the Emergency Phase.

   b. Once soil sample results and the DRL are obtained, the RZ will be redefined as needed.

2. Communicate the RZ to the counties. Counties are then responsible for determining an RZ based on geo-political boundaries.

3. Continue to monitor and revise the RZ as necessary. The RZ may change many times during the course of the incident dependent upon time and decay. Recommendations for changing the boundary of the RZ over time are due to the decay of radioactivity, weathering, and/or recovery efforts.

---

7. Return

A. IZRRAG

IZRRAG will provide guidance:

1. For determining the area to be considered for public return.

   a. Recommendations will be based on environmental measurements of radiological conditions that are projected to result in 2 rem TEDE for the first year or 0.5 rem TEDE for the second and subsequent years.

2. On developing instructions to the public on how to reduce contamination that may remain (e.g., hose down the driveway, etc.).

B. Executive State Actions

If the state and county executives determine to return the population to previously evacuated areas, then areas of importance/concern include:

1. The notification of county officials to facilitate the re-establishment of essential public services, if necessary, before the return of evacuees (e.g. water, power, police, fire, etc.).
2. The public will be informed of those areas suitable for return and any advisories in place through media releases provided by the JIC.
3. If the ingestion PAG is exceeded in an area and return is implemented, then return should be preceded by public announcement of instructions, restrictions, and precautionary information (e.g., the washing of garden produce, etc.).

8. Reentry

A. Reentry Responsibilities

1. IZRRAG will, in coordination with local officials, establish:
   a. Conditions for temporary reentry into restricted areas.
   b. Reentry requirements.
2. Dose Assessment will determine dose and entry authorization guidelines for any emergency worker or member of the public who needs to enter affected areas.

B. Emergency Workers & Public

1. Reentry to evacuated areas shall, generally, be restricted to emergency workers, farmers, industrial workers, institutional workers, public service/utility workers, and others who apply and qualify for worker entry authorization.
2. County officials will prepare and implement procedures using IZRRAG dose guidance for reentry and monitor stay times of personnel who enter restricted areas.
3. People will be notified through the media by officials stating when reentry may begin. People will be requested to report to the Reentry Verification and Orientation Center (REVOC) or other specified location.

4. The general public that was evacuated will be required to request reentry at a REVOC. Reentry will be at the counties' discretion. Escorts may be required.
5. Dosimetry
    a. Persons allowed reentry will be issued a DRD before entering the RZ.
    b. When issued dosimetry, the person will receive JIT training on the use and reading of the DRD.
    c. The person will record a final reading before surrendering the DRD to the monitoring/decontamination station emergency workers upon exit.
6. Monitoring and decontamination
    a. When exiting the RZ, both emergency workers and the public will be monitored for contamination.
    b. If a person is contaminated, then decontamination will be performed by the county monitoring and decontamination station.

---

9. Recovery

A. Initiating Events

The Recovery Phase of the incident begins after:

1. The immediate emergency conditions on-site have stabilized.
2. Off-site release of radioactive material has ceased, and there is little or no potential for further unintentional off-site releases.
3. The off-site contamination is characterized, its extent determined, and the immediate consequences are assessed.
4. Immediate protective actions for public health and safety, and for property, have been implemented.
5. An initial long-range monitoring plan has been developed in conjunction with the affected state and local governments and appropriate federal agencies.

B. Ohio EMA

1. Ohio EMA will notify workers that recovery operations are to be initiated, how long they will take, and what final outcome is expected by general announcement in the State EOC, cell phone, telephone, or MARCS radio. Information will also be available in WebEOC and Situation Reports (SitReps). If changes will take place in the organizational structure, they will be announced at that time.
2. Ohio EMA will assist the federal agencies with long term operational needs.

3. As necessitated by the event, ESF-14, under the State Emergency Operations Plan, would coordinate Recovery Teams and strategies to assist local government in their recovery efforts.
4. Continuing Public Information
    a. Ohio EMA will develop and maintain an ongoing public information outreach effort.
    b. Ohio EMA will continue to provide information about the ongoing recovery actions, activities, and timetables to both the public and the media.

C. Federal Assistance

Under the NRF, state and local governments are primarily responsible for planning the recovery of the affected area.

1. The term "recovery," as used here, encompasses any action dedicated to the continued protection of the public and resumption of normal activities in the affected area.
2. Upon request, the federal government will assist state and local governments in developing and executing recovery plans.
3. Federal recovery planning generally will not take place until the initiating conditions of the incident have stabilized and immediate actions to protect public health, safety, and property are implemented.

10. Assistance & Restitution

A. General

Ohio EMA will:

1. With federal assistance, coordinate support to persons, business owners, and government entities in the affected areas with respect to financial restitution for losses and costs.
    a. Assistance and restitution may be available from the American Nuclear Insurers (ANI), from the federal government under the Stafford Act, or other state programs.
    b. Refer to the State of Ohio Emergency Operations Plan (Ohio EOP) and NUREG-1457 for additional information.
2. Provide information for state and federal assistance to affected public and government entities.
3. Establish and implement a system to track and recover costs incurred in state and local activities.

B. American Nuclear Insurers

American Nuclear Insurers:

1. Shall establish a liaison with the Utility JIC/JPIC and the State EOC to coordinate creation of and public notification about claim centers set up to handle claims and financial reimbursement.
2. May establish one main field office and satellite offices located outside the evacuation area. If more than one office is established, ANI shall designate a main office to coordinate with the state, counties, and the utility.

C. Damage Assessment

Ohio EMA, with federal assistance, will consider alternate assessment methods and criteria for determining the extent of damage or contamination, including those situations that prohibit normal inspections by walk-through, drive-by, or fly-over. These methods could include the use of radiological surveys and assessments for large areas, and combining these findings with the community impact analysis.

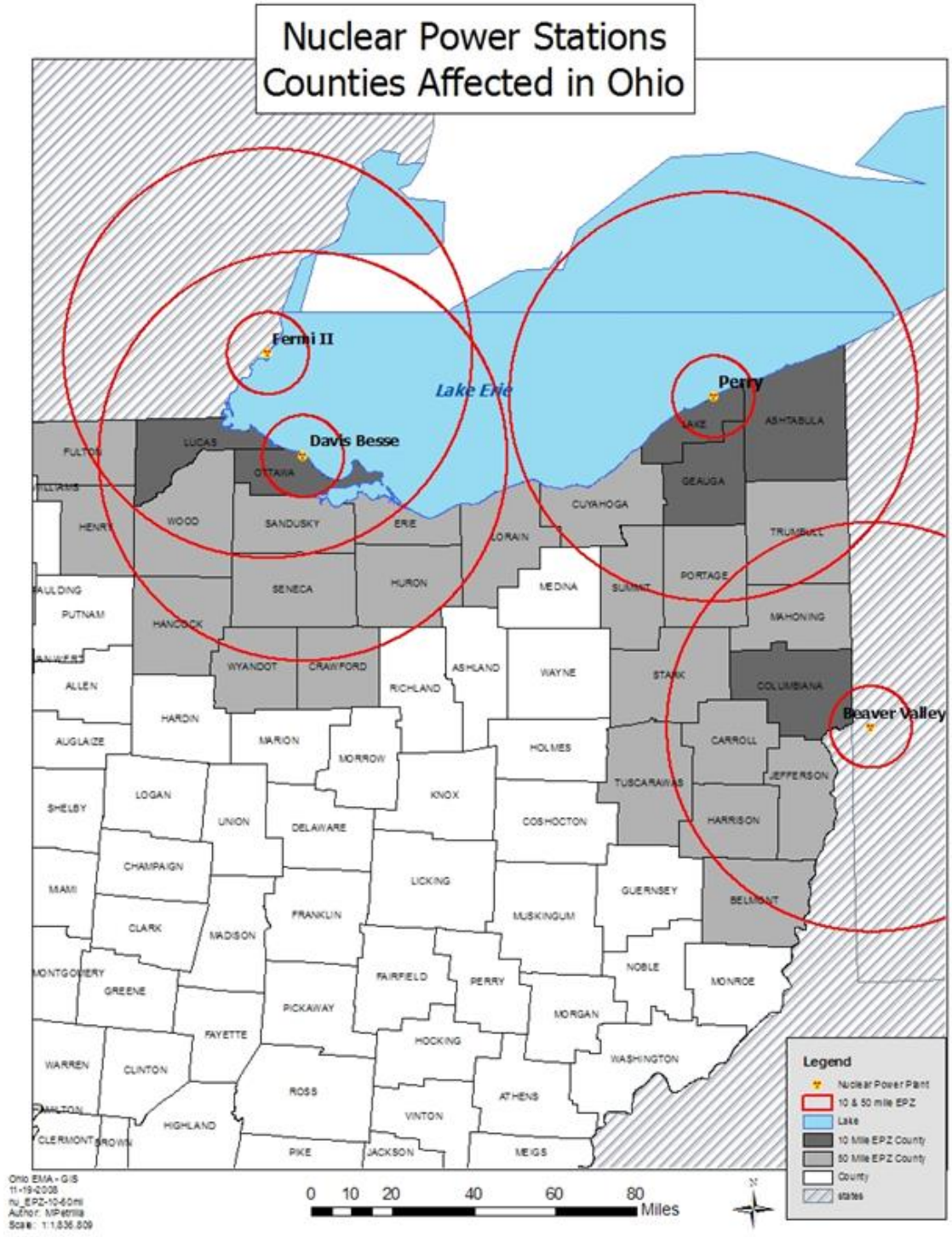
D. Individual Assistance

Individual Assistance (IA) is supplementary federal assistance provided under the Stafford Act to individuals, families, and businesses affected by a major disaster after all sources of private insurance have been exhausted. IA is provided directly by the federal government to recipient(s).

E. Public Assistance

Public Assistance (PA) is supplementary federal assistance provided under the Stafford Act to state and local agencies, or certain private, non-profit organizations. PA is administered by the state.

Attachment XII-A: 10- and 50-mile EPZs



Attachment XII-B: Recommended Derived Intervention Levels (DILs)[19]

Criterion for Each Radiological Group [(a),(b)]

All Components of the Diet

Radionuclide Group	(Bq/kg)	(pCi/kg)
Sr-90	160	4300
I-131	170	4600
Cs-134 + Cs137	1200	32,000
Pu-238 + Pu-239 + Am-241	2	54
Ru-103 + Ru-106[(c)]	$C_3/6800 + C_6/450 < 1$	$C_3/180000 + C_6/12000 < 1$

Notes:

(a) The DIL for each radionuclide group (except for Ru-103 + Ru-106) is applied independently. Each DIL applies to the sum of the concentrations of the radionuclides in the group at the time of measurement.

(b) Applicable to foods as prepared for consumption. For dried or concentrated products such as powdered milk or concentrated juices, adjust by a factor appropriate to reconstitution, and assume the reconstitution water is not contaminated. For spices, which are consumed in very small quantities, use a dilution factor of 10.

(c) Due to the large difference in DILs for Ru-103 and Ru-106, the individual concentrations of Ru-103 and Ru-106 are divided by their respective DILs and then summed. The sum must be less than one. C3 and C6 are the concentrations, at the time of measurement, for Ru-103 and Ru-106 respectively.

[19] FDA, Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies, 1998, Table 2

Attachment XII-C: PAG Manual 2013: Table 3-1 Protective Action Guides for Exposure to Deposited Radioactivity during the Intermediate Phase of a Radiological Incident

Protective Action Recommendation	PAG (Projected Dose)[20]	Comments
Relocate the general population[21]	≥ 2 rem in the first year; 0.5 rem in the second and subsequent years	Projected dose over one year
Apply simple dose reduction techniques[22]	< 2 rem	These protective actions should be taken to reduce doses to as low as practicable levels

[20] Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These PAGs may not provide adequate protection from some long-lived radionuclides.
[21] People previously evacuated from areas outside the relocation zone defined by the PAG may return to occupy their residences. Cases involving relocation of people at high risk from such action (e.g., patients under intensive care) may be evaluated individually.
[22] Simple dose reduction techniques include scrubbing or flushing hard surfaces, minor removal of soil from spots where radioactive materials have concentrated and spending more time than usual indoors or in other low exposure rate areas.

XIII. NUREG-0654 CRITERIA N

Exercise & Drills

Periodic exercises are conducted to evaluate major portions of emergency response capabilities, periodic drills are conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are corrected.

1. Overview

A. Purpose

To ensure maximum effectiveness is obtained from the planning effort, personnel must be trained in radiological emergency preparedness planning and the plans must be tested.

B. Overview

1. It is the responsibility of the Ohio EMA to ensure that county plans are tested and personnel are trained.
2. Each state agency noted in this plan shall participate in drills and exercises to ensure personnel can perform the roles specified and that timely, adequate response will occur.
3. Exercises will be conducted in accordance with FEMA and NRC rules and policy.
4. REP exercises will use the Homeland Security Exercise and Evaluation Program (HSEEP) methodology and guidance.
    a. Scheduling through the use of an annual FEMA Training and Exercise Planning Workshop (TEPW) and FEMA Multi-year Training and Exercise Plan (TEP).
    b. Planning and implementation in accordance with HSEEP guidelines.
    c. A properly formatted After-Action Report/Improvement Plan (AAR/IP).
    d. Tracking and implementation of corrective actions identified in the AAR/IP.

2. Eight Year Cycle

A. Plume Phase Requirements

Scenarios shall vary such that the major elements of emergency plans are exercised within an 8-year exercise cycle. Each scenario variation shall be demonstrated at least once during the 8-year exercise cycle and shall include, but not be limited to, the following:

1. Hostile action directed at the plant site involving the integration of offsite resources with onsite response;
2. An initial classification of or rapid escalation to a Site Area Emergency or General Emergency;
3. No radiological release or an unplanned minimal radiological release that requires the site to declare a Site Area Emergency, but does not require

declaration of a General Emergency. For this scenario variation the following conditions shall apply:

a. The licensee is required to demonstrate the ability to respond to a no/minimal radiological release scenario at least once within the 8-year exercise cycle. State and local response organizations have the option to participate jointly in this demonstration.

b. When planning for a joint no/minimal radiological release exercise, affected state and local jurisdictions, the licensee, and FEMA will identify ORO capabilities that may still need to be evaluated and agree upon appropriate alternative evaluation methods to satisfy FEMA's biennial requirements. Alternative evaluation negotiations include expansion of the exercise scenario, out of sequence activities, plan reviews, staff assistance visits, or other means as described in FEMA guidance.

c. If the OROs elect not to participate in the licensee's required minimal or no-release exercise, they will still be obliged to meet the exercise requirements as specified in 44 CFR 350.9.

Note: While partial participation is acceptable, the state must fully participate in at least one of each type of scenario in the 8-year cycle.

B. Ingestion Phase Requirements

1. At least one exercise every eight years must include a post-plume phase ingestion pathway and relocation/reentry/return exercise.
2. The State of Ohio will rotate ingestion exercises between DBNPS and PNPP. The state has the option to partially participate at BVPS.
3. OROs who do not participate during the state's Ingestion Pathway exercise will be required to demonstrate the criteria at least once an exercise cycle, via table top or other activity.
4. Protective actions will be consistent with EPA Protective Action Guide recommendations. Participants will demonstrate decision-making, implementation, and coordination with all appropriate jurisdictions.
5. A sufficient number of personnel will participate in the exercise in order to carry out measures required by the event scenario.

C. Optional Scenario Variations

1. Varied radiological release effects and meteorological conditions.
2. A broader spectrum of initiating/concurrent events may include:
   a. Natural disaster historically applicable to the area (e.g., tornado, earthquake, flooding).
   b. Site-specific all-hazards incidents (e.g., incident involving near-site facility, train derailment on or adjacent to site owner controlled area).

c. Seasonal factors impacting the PARs and decision process (e.g., transient populations, weather conditions, agricultural seasons).

3. Exercise Requirements

A. Conditions

Exercises are used to test plans, to familiarize personnel with the interrelationship of the various phases of the plan, to establish working relationships with other involved agencies, and to maintain a high degree of readiness.

1. Exercises at the state level will be as follows:
   a. The state shall conduct a full participation exercise biennially and shall partially participate in exercises held during off years.
      i. To comply with the REP Program Manual, the state will participate with each county in each scheduled exercise, although these may be on a partial participation basis due to the fact that the State of Ohio has more than one plant within its boundaries. During a partial participation exercise at a minimum the State of Ohio will demonstrate:
         1. Direction and control
         2. Communications
         3. Accident assessment
         4. Protective action decision making
   b. A drill (non-evaluated) often referred to as a "dry run," will be conducted approximately one month prior to all scheduled FEMA evaluated exercises.
   c. Preparation for all exercises should meet the following schedule:

180 days	Initial Planning Meeting (IPM) Concept and Objectives (C&O) Meeting
90 days	Submission of Objectives
60 days	Submission of Scenario

2. All exercises shall include mobilization of adequate state and county personnel and resources to verify the capability to respond to an accident scenario requiring a response, but need not include a population evacuation or otherwise cause the area population to respond in any manner.

4. Scenario Requirements

A. Requisites

Scenarios used in exercises are to be drafted in such a manner to reflect a realistic series of events, which may serve to develop, or evaluate, the professional response capabilities of the agency under evaluation. They should include the following major criteria to achieve all exercise goals and objectives:

1. The basic objectives of each drill and exercise and appropriate evaluation criteria;
2. Dates, times, places, and participating organizations;
3. The simulated event;
4. A time schedule of real and simulated initiating events;
5. A narrative summary describing the conduct of exercises or drills to include such things as use of protective clothing, deployment of radiological monitoring teams, and public information activities; and
6. A description of the arrangements for advance materials to be provided to official observers.

5. Exercise Evaluations & Critiques

A. Exercises

State agencies and private partner agencies will be evaluated according to FEMA REP methodology.

B. Federal

The FEMA review team will evaluate the state and county government plans. This should occur prior to the exercise. The scenario will be provided to FEMA representatives in advance to prepare the necessary reviews and evaluation procedures.

C. Local Governments

State agency personnel will assist as requested in the event that the county chooses to conduct a separate exercise. Local governments will critique their exercise as provided for in each county plan.

D. Critiques

1. Within five days of the completion of a FEMA-evaluated exercise, a briefing involving the exercise participants and federal observers shall be conducted by FEMA to discuss the preliminary results of the exercise.
2. If the exercise discloses any deficiencies in the ability of the state and county governments to implement the plans, the FEMA representatives shall make them known promptly in writing to appropriate state officials.

E. After Action Report (AAR)

A properly formatted After Action Report/Improvement Plan, as required by the REP Program Manual and HSEEP, will be developed after every federally evaluated exercise. Corrections will be tracked and implemented, if valid.

F. Corrections

1. It is the responsibility of state and county EMAs to ensure all emergency plans and procedural problems identified by participants or observers during exercises and drills and plan reviews are addressed, even if it means the issue is tabled due to valid reasons.
2. The process will include a description of the issue, the organization and individual, by title/position, responsible for implementing the chosen corrective action, and the timeframe for completing the corrective action.
3. The state and county EMAs will assist the participants with any revisions necessary to improve response.
4. Problems identified by federal agencies will be addressed to the Executive Director of Ohio EMA through FEMA, Region V, Regional Assistance Committee (RAC) Chairman.
5. It is the responsibility of the Executive Director of Ohio EMA to ensure a timely response to such correspondence.

6. Drills

A. Overview

Drills are supervised instruction periods aimed at testing, developing and maintaining skills in a particular operation. Drills are components of exercises and are evaluated by the instructor or evaluation team for the drill. See Attachment XIII-A.

B. Communication Drills

Each organization shall conduct communication drills, in addition to the biennial exercise at the frequencies indicated below:

1. Utility, state and county governments within the 10-mile EPZ shall be tested monthly. These will be initiated by the utility.
2. Federal emergency response organizations and states within the IPZ shall be tested quarterly.
3. The nuclear facility, state and county EOCs and FMTs shall be tested annually.
4. A message content check will be performed, if applicable.

C. Radiological Monitoring Drills

Radiological monitoring drills will be conducted annually. All sample media (water, vegetation, soil and air) will be collected. Provisions are made for communications and record keeping.

D. Health Physics Drills

The response to and analysis of simulated elevated airborne and liquid samples and direct radiation measurements in the environment will be evaluated during graded and dry run exercises and/or integrated drills with utility drills, in conjunction with the Ohio EPA and the ODH.

7. Tests

A. Phone Tests

Phone numbers contained within emergency procedures will be tested quarterly to confirm they are still correct and updated if necessary.

B. e-Notify Tests

The 50-mile counties e-Notify phone call and accompanying email will be tested:

1. At a minimum annually.
2. During the biennial dry run and exercise, using the distribution list of the plant being exercised.

Attachment XIII-A: Minimum Time Frame for Exercises and Drills

Type	Frequency
Power Plant Exercises	
Partial Participation/Full Participation	Biennially[23]
Ingestion Pathway	Once in an 8-Year Cycle
Hostile Action Based (HAB)	Once in an 8-Year Cycle
Communication Drills	
State/Federal Government	Quarterly
State/Local EOCs, EOF, Field Teams	Annually
State/Local/Utility Government	Monthly
State/Adjacent States/Nations (Canada)	Quarterly
Radiological Monitoring Drills	
Annually	
Health Physics Drills	
Semi-Annually	

[23] During a two-year period, a minimum of one Full Participation Exercise must be demonstrated.

Attachment XIII-B: State of Ohio Exercise Schedule

2022-2029	BVPS	DBNPS	PNPP
2022	6.7		9.27
	PP		FP^{HAB}
2023		5.2	
		FP^{HAB}	
2024	6.11		9.24
	$FP^{HAB/CRRR}$		PP
2025		5.13	
		PP	
2026	6.9		9.22-9.23
	PP		FP^{IPX}
2027		5.11	
		FP^{CRRR}	
2028	6.6		9.12
	FP		PP
2029		4.24	
		PP	

Legend	
CRRR	County RRR
FP	Full Participation
HAB	Hostile Action Based
IPX	Ingestion Pathway Exercise
PP	Partial Participation

This page intentionally left blank.

XIV. NUREG-0654 Criteria O

Radiological Emergency Response Training

Radiological emergency response training is provided to those who may be called on to assist in an emergency.

1. Responsibilities

A. Purpose

To establish guidelines for the conduct of training required for personnel responding to an incident at a commercial nuclear power plant affecting the State of Ohio.

B. Ohio EMA

The Ohio EMA shall:

1. Ensure training programs are conducted for Ohio EMA personnel as required by the REP Program.
2. Provide training programs for local government and private organizations. Training may be provided by the assigned RRA. The associated county EMA Director may choose to have this training provided by other personnel at their discretion.
3. Coordinate federal training programs with state and local agencies to ensure personnel are provided the opportunity to attend federal training programs when applicable.
4. Coordinate dose assessment training with ODH and the NPPs.
5. Coordinate with ODH to provide FMT training with annual training covering sampling procedures, contamination control, exposure limits, monitoring, and decontamination.
6. Provide an on-going review of the curriculum content and lesson plans for the training program.
7. Coordinate training for health care facilities in radiological emergency response and contamination control.
8. Be responsible for the initial and annual refresher training for its personnel. The agency is responsible for tracking the training of its employees.
9. Provide online training modules on the core concepts for basic radiation and nuclear power plant response.
10. Provide training videos on equipment typically used during a nuclear power plant response (e.g., Ludlum 3 survey meter).
11. Coordinate documentation in support of county Radiological Emergency Response plans and The Ohio REP Plan.

C. ODH

ODH shall:

1. Coordinate with Ohio EMA to complete FMT training with annual training covering sampling procedures, contamination control, exposure limits, monitoring, and decontamination.
2. Ensure that ODH laboratory personnel tasked with analysis of environmental samples are trained in proper analytical techniques and procedures.
3. Provide Sample Teams with annual training covering sampling procedures, contamination control, exposure limits, monitoring, and decontamination.
4. Provide initial and annual refresher training of its personnel. The agency is responsible for tracking the training of its employees.

D. Ohio EPA

Ohio EPA shall provide:

1. Sample Teams with annual training covering sampling procedures, contamination control, exposure limits, monitoring, and decontamination.
2. Initial and annual refresher training of its personnel The agency is responsible for tracking the training of its employees.

E. ODA

ODA shall provide:

1. Sample Teams with annual training covering sampling procedures, contamination control, exposure limits, monitoring, and decontamination.
2. Initial and annual refresher training of its personnel. The agency is responsible for tracking the training of its employees.

F. ODNR

ODNR shall provide:

1. Sample Teams with annual training covering sampling procedures, contamination control, exposure limits, monitoring, and decontamination.
2. Initial and annual refresher training of its personnel. The agency is responsible for tracking the training of its employees.

G. Other State Agencies

Each state agency is responsible for ensuring their personnel receive initial and annual refresher training. Each agency is responsible for tracking the training of its employees.

---

2. Training Requirements

A. Responsibilities

Training of personnel will be a joint effort where state personnel will provide the technical portion, local personnel will provide the local specifics, and utility personnel will provide utility specifics.

B. State Personnel

Training will be made available to:

1. Radiological Analysts
2. Personnel assigned to positions in the State EOC Executive Room during a radiological event
3. Early phase radiological FMTs, Couriers, and Sample Screeners
4. Personnel responsible for accident assessment
5. Intermediate phase Sample Teams and Sample Screeners from:
    a. Ohio Department of Agriculture
    b. Ohio Environmental Protection Agency
    c. Ohio Department of Natural Resources
    d. Ohio Department of Health
6. Personnel responsible for clearing waterways
7. Any personnel performing duties as a Dosimetry Coordinator
8. Personnel dispatched to the area, including the Public Information Officer
9. Any state personnel requiring dosimetry
10. Personnel responsible for the transmission of emergency information and instructions.

C. Initial & Refresher Training

All state personnel with emergency response duties during a nuclear power plant emergency shall receive initial training for their applicable position(s). All response positions require refresher training performed on an annual basis. Each individual agency is responsible for the training of their personnel and determining which courses are required as initial training and which are additionally required as annual refreshers.

D. Required Training

1. Each ORO shall participate in and receive training.
2. Training may be provided by the Radiological Branch staff, FEMA, Center for Domestic Preparedness (CDP), or other acceptable source.

3. Equivalent training is acceptable. For example, Counter Terrorism Operations Support (CTOS) classes would be an acceptable equivalent for certain training modules.
4. Positions and their required training are provided in Attachment XIV-F.

E. Just-in-Time (JIT) Training

State just-in-time training will be provided by Radiological Branch staff and individual state agencies.

F. Drills, Dry Runs, & Exercises

When circumstances allow, state agencies and partner organizations should participate in drills, dry-runs, and exercises, when requested.

3. Training Sources

A. State

1. State agencies requesting training will submit the request to Ohio EMA. Local agencies requesting training will submit the request to their county EMA Director/Coordinator, who will forward the request to Ohio EMA.
2. A listing and description of available training can be found on Ohio EMA's website, or may be obtained by contacting the Ohio EMA Preparedness Branch.
3. Refer to Attachment XIV-A for a listing of state training modules offered in support of nuclear power plant response. Availability of online modules is noted and can be located at https://learning.dps.ohio.gov/PSTC/.

B. Federal

1. State and local agencies requesting federal courses are required to complete the proper application and submit the request to the Ohio EMA Preparedness Branch.
2. A listing and description of course offerings may be found at the FEMA, DOE National Nuclear Security Administration (DOE/NNSA), and DHS' Center for Domestic Preparedness (CDP) websites.
3. Refer to Attachments XIV-B and XIV-C for a listing of federal courses offered in support of nuclear power plant emergency response.

C. Utility

The utility is required to provide site-specific emergency response training for those OROs that may be called upon to provide assistance during an incident within the owner-controlled area.

D. Commercial

A number of courses exist, offered by such providers as universities, national labs, and utilities, which may be used to supplement state and local training programs. Commercially offered courses vary widely in topic and date of availability. As a result, these courses will be announced when information is available.

Attachment XIV-A: State Training – Local and/or Web-Based

General

1. The Ohio EMA training modules are designed to provide a standard set of basic building blocks from which an informative class can be constructed to meet the unique needs of a variety of target audiences.
2. The modules selected should be based on the suggested target audience for each module. However, if the instructor thinks that there is a reasonable need to include a module not listed for that audience, the instructor may include the module as part of the class.
3. In addition to the modules presented to a specific group, the instructor will also include appropriate material that will educate the group on their specific responsibilities related to a nuclear power plant incident, including those duties and tasks specifically outlined in the group's SOP, if applicable.

Module 1

Basic Radiation Principles

Scope: To provide information on basic radiological principles and concepts, including the structure of an atom, the various types of ionizing radiation and the definitions of common terms.

Target Audience: Emergency workers who could potentially be exposed to elevated levels of ionizing radiation

Online Availability: This course is available online at the DPS Training Campus as WBT820.

Module 2A

Biological Effects - General

Scope: To provide basic information concerning the biological effects on the human body due to exposure to the different types and levels of radiation.

Target Audience: Emergency workers who could potentially be exposed to elevated levels of ionizing radiation

Online Availability: This course is available online at the DPS Training Campus as WBT801.

Module 2B **Biological Effects – Medical Personnel**

Scope:	To provide basic information concerning the biological effects on the human body due to exposure to the different types and levels of radiation.
Target Audience:	Hospital workers who could potentially be exposed to elevated levels of ionizing radiation
Location:	Courses are offered at hospitals.

Module 3 **Contamination Pathways**

Scope:	To provide information on the common pathways of radiological contamination and to define related terminology.
Target Audience:	Emergency workers who are expected to be exposed to radioactive contamination
Online Availability:	This course is available online at the DPS Training Campus as WBT802.

Module 4 **Exposure Control**

Scope:	To explain the basic principles in limiting a person's exposure to radiation and what the regulatory limits for exposure are.
Target Audience:	Emergency workers who could potentially be exposed to elevated levels of ionizing radiation
Online Availability:	This course is available online at the DPS Training Campus as WBT803.

Module 5 **Basics: Radiological Emergency Response**

Scope:	To provide information on the basics of the radiological emergency response plan, including the EPZ, ECLs, notifications, protective actions, and recommendations versus decisions.
Target Audience:	Emergency workers
Online Availability:	This course is available online at the DPS Training Campus as WBT804.

Module 6A **Instrumentation: Dosimetry**

Scope: To provide information on direct-reading dosimetry (DRD), including the various types available, their use, and the advantages and disadvantages of each.

Target Audience: Emergency workers who will be assigned dosimetry

Online Availability: This course is available online at the DPS Training Campus as WBT805.

Module 6B **Instrumentation: Survey Instruments**

Scope: To provide information on survey meters, including the different types available, their operation, and the advantages and disadvantages of each.

Target Audience: Emergency workers expected to use survey instruments in their duties

---

Module 6C **Instrumentation: Portal Monitors**

Scope: To provide information on the use of and the advantages and disadvantages of portal monitors.

Target Audience: Emergency workers expected to utilize portal monitors to screen for possible radioactive contamination

Online Availability: This course is available online at the DPS Training Campus as WBT808.

Module 6D **Instrumentation: Survey Instruments - General**

Scope: To provide information on survey meters, including the different types available, their operation, and the advantages and disadvantages of each.

Target Audience: Emergency workers expected to use survey instruments in their duties

Online Availability: This course is available online at the DPS Training Campus as WBT814.

Module 6E **Instrumentation: Dosimetry - UltraRadiac**

Scope: To provide information on the UltraRadiac, including operational checks and operations.

Target Audience: Emergency workers expected to use UltraRadiacs in their duties

Online Availability: This course is available online at the DPS Training Campus as WBT809.

Module 7A **Personal Protective Equipment (PPE) – Medical Personnel**

Scope: To provide personnel information on personal protective equipment (PPE) for radioactive contamination control, including the types of equipment/clothing available and how to use them.

Target Audience: Hospital personnel who are likely to work in areas with radioactive contamination

Location: Courses are offered at hospitals.

Module 7B **Personal Protective Equipment (PPE) – Fire/Police/Emergency Medical Services (EMS)**

Scope: To provide personnel information on personal protective equipment (PPE) for radioactive contamination control, including the types of equipment/clothing available and how to use them.

Target Audience: Fire, police, and EMS who are likely to come into contact with radioactive contamination

Online Availability: This course is available online at the DPS Training Campus as WBT815.

Module 7C **Personal Protective Equipment (PPE) – FMTs**

Scope: To provide personnel information on personal protective equipment (PPE) for radioactive contamination control, including the types of equipment/clothing available and how to use them.

Target Audience: FMTs who are likely to work in areas with radioactive contamination

Module 7D **Personal Protective Equipment (PPE) – Monitoring and Decontamination Facility**

Scope:	To provide personnel information on personal protective equipment (PPE) for radioactive contamination control, including the types of equipment/clothing available and how to use them.
Target Audience:	Monitoring and decontamination personnel who are likely to work in areas with radioactive contamination.
Online Availability:	This course is available online at the DPS Training Campus as WBT811.

Module 8A **Sampling Techniques - Early Phase**

Scope:	To provide information on the types of samples to be taken, the reasons for taking them and how to take them during the early phase of a nuclear power plant emergency.
Target Audience:	FMTs

Module 8B **Sampling Techniques - Intermediate Phase: EPA**

Scope:	To provide information on the soil and water samples to be taken, the reasons for taking them and how to take them during the intermediate phase of a nuclear power plant emergency.
Target Audience:	Ohio EPA Sample Teams

Module 8C **Sampling Techniques - Intermediate Phase: ODA**

Scope:	To provide information on the food and milk samples to be taken, the reasons for taking them and how to take them during the intermediate phase of a nuclear power plant emergency.
Target Audience:	ODA Sample Teams

Module 8D **Sampling Techniques - Intermediate Phase: ODNR**

Scope: To provide information on the fish and wildlife samples to be taken, the reasons for taking them and how to take them during the intermediate phase of a nuclear power plant emergency.

Target Audience: ODNR Sample Teams

Module 9A **Radiological Monitoring & Decontamination: Personnel (Monitoring)**

Scope: To provide information on the criteria for the use of survey instruments to detect radioactive contamination on people, the process to monitor the people, and the documentation of the process.

Target Audience: Emergency workers expected to utilize survey instruments to screen people for possible radioactive contamination

Online Availability: This course is available online at the DPS Training Campus as WBT812.

Module 9B **Radiological Monitoring & Decontamination: Personnel (Decontamination)**

Scope: To provide information on the method to decontaminate people, and the documentation of the decontamination.

Target Audience: Emergency workers whose duties include the decontamination of people

---

Module 9C **Radiological Monitoring & Decontamination: Vehicles/Equipment (Monitoring)**

Scope: To provide information on the criteria for the use of survey instruments to detect radioactive contamination on vehicles and equipment, the process to monitor the vehicles and equipment, and the documentation of the process.

Target Audience: Emergency workers expected to utilize survey instruments to screen vehicles or equipment for possible radioactive contamination

Online Availability: This course is available online at the DPS Training Campus as WBT813.

Module 9D **Radiological Monitoring & Decontamination: Public Vehicles (Decontamination)**

Scope:	To provide information on the method to decontaminate public vehicles, and the documentation of the method of decontamination.
Target Audience:	Emergency workers whose duties include the decontamination of vehicles owned by the public

Module 9E **Radiological Monitoring & Decontamination: Emergency Vehicles and Equipment (Decontamination)**

Scope:	To provide information on the method to decontaminate emergency vehicles and equipment, and the documentation of the method of decontamination.
Target Audience:	Emergency workers whose duties include the decontamination of emergency vehicles and equipment

Module 10 **Medical Transport**

Scope:	To provide information to emergency medical personnel on how to identify, treat, package and transport contaminated and injured patients to the hospital.
Target Audience:	EMS personnel who are expected to transport contaminated and injured patients

Module 11 **Hospital Radiation Exclusion Area (REA)**

Scope:	To provide information to hospital personnel on how to identify and treat contaminated, injured patients.
Target Audience:	Hospital personnel who are expected to treat contaminated, injured patients
Location:	Courses are offered at hospitals.

Module 12 **Potassium Iodide (KI)**

Scope: To provide information to emergency workers on the purpose for taking KI, what agency will recommend the distribution of KI, and when to take KI.

Target Audience: Emergency workers expected to take KI, as a protective measure, during the course of their duties

Online Availability: This course is available online at the DPS Training Campus as WBT806.

Module 13A **Protective Actions: Early Phase**

Scope: To provide information on the purpose of protective actions during the early phase of a nuclear power plant incident, the conditions that initial protective action recommendations are based, the criteria used for making protective action recommendations and the protective action decision-making process in the early phase.

Target Audience: Directors/Coordinators, Dose Assessment, IZRRAG members, FMTs, Sample Screeners, Sample Teams, and Public Information Personnel

---

Module 13B **Protective Actions: Intermediate Phase**

Scope: To provide information on reentry, relocation, return, and the purpose of protective actions during the intermediate phase of a nuclear power plant incident, the conditions that protective actions are based, and the protective actions in the intermediate phase.

Target Audience: Directors/Coordinators, Dose Assessment, IZRRAG Members, FMTs, Sample Screeners, Sample Teams, and Public Information Personnel

---

Module 14A **Early Phase Dose Assessment Overview: Non-Technical Personnel**

Scope: To provide an overview to non-technical personnel of the three phases of a nuclear power plant incident and the purpose of dose assessment for the early phase, including the basic steps in performing a dose assessment and the definitions of terms used in dose assessment.

Target Audience: Directors, Coordinators, Public Information Personnel, and EOC Personnel

Module 14B **Early Phase Dose Assessment Overview: Technical Personnel**

Scope:	To provide an overview to radiological technical personnel of the three phases of a nuclear power plant incident and the purpose of dose assessment for the early phase, including the basic steps in performing a dose assessment and the definitions of terms used in dose assessment.
Target Audience:	Dose Assessment, IZRRAG Members, FMTs, and Sample Teams

Module 15A **Intermediate Phase (I-Phase) Dose Assessment Overview: Non-Technical Personnel**

Scope:	To provide an overview to non-technical personnel of the three phases of a nuclear power plant incident and the purpose of dose assessment for the intermediate phase, including the basic steps in performing a dose assessment and the definitions of terms used in dose assessment.
Target Audience:	Directors, Coordinators, Public Information Personnel, and EOC Personnel

Module 15B **Intermediate Phase (I-Phase) Dose Assessment Overview: Technical Personnel**

Scope:	To provide an overview to radiological technical personnel of the three phases of a nuclear power plant incident and the purpose of dose assessment for the intermediate phase, including the basic steps in performing a dose assessment and the definitions of terms used in dose assessment.
Target Audience:	Dose Assessment, IZRRAG members, FMTs, and Sample Teams

Module 16 **IZRRAG Training**

Scope:	To provide information on the purpose of protective actions during the intermediate and recovery phases of a nuclear power plant incident, the conditions that decisions on protective actions are based, the criteria used for making protective action decisions and the protective action decision-making process in the different phases.
Target Audience:	IZRRAG members and Sample Teams

Module 17 **Basics: Plant**

Scope:	To provide information on how the major processes and components of U.S. designed nuclear plants generate electricity, possible accident scenarios and related protective actions.
Target Audience:	Emergency workers

Attachment XIV-B: FEMA Courses – Web-Based

IS-100.c **Introduction to Incident Command System**

Description: IS-100, Introduction to the Incident Command System, introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. This course describes the history, features and principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and the National Incident Management System (NIMS).

IS-200.c **ICS for Single Resources and Initial Action Incidents**

Description: IS-200 is designed to enable personnel to operate efficiently during an incident or event within the Incident Command System (ICS). IS-200 provides training on and resources for personnel who are likely to assume a supervisory position within the ICS.

Prerequisite: IS-100 Introduction to the Incident Command System is required.

IS-700.A, National Incident Management System (NIMS), An Introduction (recommended)

IS-302 **Modular Emergency Radiological Response Transportation Training (MERRTT)**

Description: This course includes the following topics: radiological basics, biological effects, hazard recognition (markings, labels, and placards), initial response actions, radioactive material shipping packages, on-scene patient handling, radiological terminology and units, assessing package integrity, radiation detection instrumentation, and radiological decontamination.

IS-700.b **National Incident Management System (NIMS) An Introduction**

Description: This course introduces and overviews the National Incident Management System (NIMS). NIMS provides a consistent nationwide template to enable all government, private sector, and nongovernmental organizations to work together during domestic incidents.

IS-800.d **National Response Framework, An Introduction**

Description: The course introduces participants to the concepts and principles of the National Response Framework.

Attachment XIV-C: FEMA/CDP Courses – Web-Based

AWR-923-W **Radiological Emergency Management (REM)**

Description: Radiological emergency management is a term that describes efforts to prevent, prepare for, respond to, and recover from events and to mitigate risk of future events that could result in significant radiation-related effects.

This course is designed to familiarize members of the general public with:

- Types of radiological emergencies
- Potential effects of radiological emergencies on the public
- Fundamental concepts related to how you can best ensure the safety of yourself and others during a radiological emergency

Target Audience: Anyone with a desire to learn about radiological emergency management

---

AWR-925-W **Radiological Accident Assessment Concepts (RAAC)**

Description: This course provides only an overview of key concepts that will be addressed in more depth in the classroom course.

In this course, you will learn how to assess the offsite radiological consequences to the public following a release of radioactivity from nuclear power reactors and non-reactor incidents, and how to use this assessment as a basis for recommending protective actions to decision makers.

Please note that this course will take approximately 16 hours to complete. It is recommended that you plan on taking the course in multiple sittings.

Target Audience: Those interested in attending the resident RAAC Course (PER-316)

AWR-928-W **Nuclear/Radiological Incident Annex (NRIA)**

Description: This course is designed to help you understand the Nuclear/Radiological Incident Annex (NRIA).

At the end of the first course, you will be able to:

- Describe the overall purpose of the NRIA and the policies that govern its use.
- Describe the roles and responsibilities of agencies involved in the management of nuclear/radiological incidents.
- Describe the types of incidents for which it would be activated and the concept of operations for a response.

This lesson should take approximately 120 minutes to complete.

AWR-930-W **REP Decision-Makers Course (RDMC)**

Description: This web-based course provides a basic awareness and understanding of a radiological event, and how the information supplied during the event may affect your decision-making process.

In this course you will:

- Learn basic information about radiation, radiation exposure, and radioactivity.
- Understand nuclear power plant operations, accidents, and emergency response.
- Understand the relationship between PAGs, PARs, and PADs.
- Identify incident phases and how emergency workers play a role in your protective action decisions.

Please note that this course will take approximately 8 hours to complete. It is recommended that you plan on taking the course in multiple sittings.

Attachment XIV-D: FEMA/CDP Courses – Local or Resident

AWR-317 **Radiological Emergency Preparedness (REP) Core Concepts Course (RCCC)**

Description: This course provides an overview of the NRC-licensed nuclear power plant off-site radiological emergency preparedness program. Addresses the REP Program history and sentinel events, federal regulatory policies, basic radiation principles, REP planning guidance (planning standards), REP demonstration guidance (exercise evaluation areas) and the REP Disaster Initiated Review (DIR) process.

Target Audience: Any member of an organized federal, state, local, or tribal radiological/hazardous materials response element who has responsibility for responding to or managing a radiological incident.

Prerequisite: AWR-923-W Radiological Emergency Management (REM)

AWR-327 **Radiological Emergency Preparedness (REP) Exercise Controller (RECC)**

Description: This course provides learners foundational knowledge on the preparation for, and conduct of, Radiological Emergency Preparedness (REP) exercise control, and presents an opportunity for participants to begin building controller skills. To prepare participants to control the flow (play) of scenario events to ensure an exercise is conducted in accordance with the exercise objectives and extent of play.

Target Audience: This course is designed for new and experienced controllers from Federal, State, tribal, local emergency management and utilities involved with offsite REP exercise/drill control for NRC-licensed commercial nuclear power plants.

Prerequisite: AWR-317 Radiological Core Concepts Course (RCCC)

AWR-351 **REP Post-Plume Awareness Course (RPPA)**

Description: The FEMA/NPD/THD/Radiological Emergency Preparedness (REP) Program has developed an instructor-led course that will help Federal, State, tribal and local emergency managers and planners more effectively meet the challenges presented to the

emergency responder community during a radiological incident at a NRC-licensed commercial nuclear power plant (NPP). The main purpose for the development of this abbreviated awareness-level course is to provide a precise training track which focuses on the specific needs of those 50-mile emergency planning zones jurisdictions responsible for addressing protective actions related to contaminated commercial food products during a radiological incident.

Target Audience: The primary target audience is the REP ingestion counties within the 10 to 50-mile EPZ who usually do not write their own plans but rely on State agency plans to identify procedures and capabilities to be implemented during a radiological incident that affects their jurisdiction.

A secondary target audience is State, local, and utility emergency managers and planners responsible for emergency operations plans and implementation procedures concerning ingestion protective actions response capabilities within the 50-mile EPZ.

Other beneficial parties: personnel from supporting agencies involved in response to a radiological incident at a NRC-licensed commercial nuclear power plant.

Prerequisite: None

AWR-352 **REP Plan Core Concepts (RPCC)**

Description: The FEMA/NPD/THD/Radiological Emergency Preparedness (REP) Program has developed an Instructor-Led course that will assist Federal, State, tribal and local emergency managers more effectively meet the planning challenges presented to the emergency responder community during a radiological incident at a NRC-licensed commercial nuclear power plant. This awareness-level 0.5-day course will focus specifically and be limited to the introduction of the existing REP planning methodology. This methodology goes beyond the planning guidance provided in Comprehensive Preparedness Guide -101 and incorporates the unique preparedness aspects of FEMA's REP Program.

Target Audience: State, local, and utility emergency managers and planners responsible for the development, review, and

maintenance of REP emergency operations plans and implementation procedures.

This abbreviated course is meant to satisfy the prerequisite course requirements in preparations for the MGT-453 REP Post-Plume Planning Course (RPPP) for Ingestion Counties which are not necessarily directly involved in response planning during the Plume Phase of a radiological incident at a NPP.

Prerequisite: AWR-317 REP Core Concepts Course (RCCC)

AWR-923-W Radiological Emergency Management (REM)

ICS-300 **Intermediate Incident Command System for Expanding Incidents**

Description: This course provides training for personnel who require advanced knowledge of the Incident Command System (ICS). This course expands upon information covered in the IS-100 and IS-200 courses.

Prerequisites: ICS-0100.c Introduction to the ICS

ICS-0200.c ICS for Single Resources and Initial Action Incidents;

IS-0700.b NIMS, An Introduction

IS-0800.d NRF, An Introduction

ICS-400 **Advanced Incident Command System for Command and General Staff—Complex Incidents**

Description: This course provides training for personnel who require advanced knowledge of the Incident Command System (ICS). This course expands upon information covered in the IS-100, IS-200 and ICS-300 courses.

Target Audience: Senior personnel expected to perform in a management capacity in an Area Command or Multi-Agency Coordination Entity.

Prerequisites: ICS-0100.c Introduction to the ICS

ICS-0200.c ICS for Single Resources and Initial Action Incidents

ICS-300: Intermediate ICS for Expanding Incidents

IS-0700.b NIMS, An Introduction

IS-0800.d NRF, An Introduction

MGT-445 **REP Plan Review (RPPR)**

Description: This course focuses on the review of REP emergency plans, specifically the NUREG 0654 FEMA-REP-1, Rev. 1 planning standards that address the public's health and safety. The REP Plume Plan Review Course will include training based on the Comprehensive Preparedness Guide (CPG) -101, familiarization of Hostile Action Based (HAB) plan review, annual plan review and the Annual Letter of Certification Review Guide process.

Target Audience: Emergency Managers and Public Health Professionals

Prerequisite: AWR-317 REP Core Concepts Course (RCCC)

IS-235.c Emergency Planning Course

MGT-453 **REP Post-Plume Plan Review Course (RPPP)**

Description: This course focuses on the review of offsite response organizations' radiological emergency preparedness (REP) plans and implementation procedures utilizing the 16 planning standards (from 44 CFR Part 350 and 10 CFR § 50.47) and associated evaluation criteria (from NUREG-0654 FEMA-REP-1, Rev.1 or Rev.2) which address protecting the health and safety of the public when responding during the post-plume phase of a radiological emergency at an NRC-licensed commercial nuclear power plant.

The scenario-driven classroom exercises will focus on the participants' organization Post-Plume (Intermediate) Phase plans and implementation procedures for response activities related to Relocation, Reentry, Return using EPA Protective Action Guidelines and the Ingestion Exposure Pathway protective actions following FDA guidelines.

Target Audience: Emergency Managers and Planners from Offsite Response Organizations with responsibilities within the entire 50-mile EPZ and REP Program Staff responsible for reviewing State and County plans and procedures.

Other beneficial parties include personnel from supporting agencies involved in response to a NPP incident.

Prerequisite: MGT-445 REP Plume Plan Review Course (RPPR) or AWR-352 REP Planning Core Concepts (RPCC)

PER-314 **Radiological Emergency Preparedness (REP) Exercise Evaluator (REEC)**

Description: Topics include regulations and guidelines for evaluating REP exercises, in preparation of, observations during, post-exercise activities, and techniques for exercise evaluation. This also includes the observation of video vignettes of REP exercises and the development of exercise narratives submitted for review by REP adjunct instructors

Target Audience: State, Local, and utility personnel who are involved in the development of off-site REP plans and exercises

Prerequisite: AWR-317 REP Core Concepts Course (RCCC)

MGT-445 REP Plan Review Course (RPPR) or AWR-352 REP Planning Core Concepts Course (RPCC)

PER-316 **Radiological Accident Assessment Concepts (RAAC)**

Description: This course addresses radiological consequences of accidents involving radiological materials. This includes accidents or incidents involving commercial power reactors, lost sources, dispersion devices, and transportation. The focus of the course is concepts involved in formulating protective action recommendations following a radiological accident, such as dose quantities, atmospheric dispersion, dose projection, protective action guides, and derived intervention levels. Participants engage in problem-solving sessions and a tabletop exercise. The participant is required to pass a final exam.

Target Audience: Enrollment is limited to local, State, and Federal technical radiological accident assessment staff. Private sector staff also may apply. This course is not intended for emergency management staff. This course requires familiarity with mathematical equations and exponential manipulations. Participants must bring a scientific calculator which they know how to use to perform the required calculations. Participants also should know how to use Microsoft Excel and the Nuclear Regulatory Commission computer code, RASCAL.

Prerequisite: AWR-925-W Radiological Accident Assessment Concepts (RAAC)

PER-904 **Radiological Emergency Response Operations (RERO)**

Description:	Radiological Emergency Response Operations is a five-day course includes lectures, hands-on training, and team exercises. Students learn the concepts, equipment, and procedures related to radiological incident response, including a commercial nuclear power facility. During the course, the responders work in teams to perform radiological emergency response operations in a realistic exercise environment. The course culminates with an exercise that implements the Incident Command system in response to an incident that requires team coordination.
Target Audience:	Any member of an organized state or local radiological/hazardous materials response element who has responsibility for responding to or managing a radiological incident
Prerequisite:	AWR-160 Weapons of Mass Destruction (WMD)/Terrorism Awareness for Emergency Responders IS-100.c Introduction to the ICS IS-200.c ICS for Single Resources and Initial Action Incidents IS-700.b NIMS, An Introduction IS-800.d NRF, An Introduction AWR-923-W Radiological Emergency Management (REM) Meet the requirements and standards of Hazardous Waste Operations and Emergency Response (HAZWOPER), 29 C.F.R. § 1910.120(q)(6)(ii), (2009) and/or National Fire Protection Association (NFPA) 472 Standard for Competence of Responders to Hazardous Materials/WMD Incidents, Chapters 5, 6, and 7.

PER-905 **Advanced Radiation Incident Operations (ARIO)**

Description: The Advanced Radiological Incident Operations course is a five-day course that provides participants with the advanced skills necessary to safely respond to and manage incidents involving radiological hazards. Participants apply these skills in tabletop exercises based on realistic radiological incident scenarios, set within the Incident Command System structure.

The ARIO course will focus on Emergency Operations Center responsibilities, coordination of the field monitoring teams, data collection, and developing recommendations for protective actions whereas the RERO course will focus on first responder hands-on equipment skills, and responsibilities as members of a field monitoring team during radiological Plume and Ingestion Pathway incidents.

Target Audience: Any member of an organized state or local radiological/hazardous materials response team who has responsibility for responding to or managing a radiological incident

Prerequisite: AWR-160 WMD/Terrorism Awareness for Emergency Responders

PER-904 Radiological Emergency Response Operations (RERO)

PER-240 WMD Radiological/Nuclear Responder Operations, or PER-241 WMD Radiological/Nuclear Course for HazMat Technicians

---

PER-918 **REP Field Operations Course (RFOC)**

Description: The REP Field Operations course is a 4-day, 32-hour training course offering lectures, hands-on training, and team exercises. Students review, discuss information, and practice skills necessary to effectively respond to a commercial NPP radiological incident. The REP Field Operations course culminates with a final team exercise integrating the field operations knowledge and skills learned during the course.

Topics for this course include:

- Radiological Concepts and Biological Effects of Ionizing Radiation
- Commercial NPP Incident Responses
- Introduction to Field Operations

- Radiological Exposure Control – Dose Limits and Dosimeters
- Instruments and Technologies
- Early Phase Air Sampling
- Surveying and Monitoring
- Intermediate Phase Sampling
- Demobilization – Emergency Worker Decontamination and Checking in Dosimetry
- Plume Drill and Intermediate Drill Exercises

Target Audience: The target audience for this course is any member (or potential member) of an organized State or local radiological FMT that may respond to an incident involving a commercial NPP.

Prerequisite: AWR-923-W Radiological Emergency Management (REM)

IS-100.c Introduction to the ICS

IS-200.c ICS for Single Resources and Initial Action Incidents

AWR-317 REP Core Concepts Course (RCCC) (highly recommended)

For Additional Courses See https://cdp.dhs.gov/find-training.

Attachment XIV-E: CTOS Classes – Web-Based or Resident

AWR-140 **Introduction to Radiological/Nuclear Weapons of Mass Destruction (WMD) Operations**

Description: This instructor-led course presents a radiological/nuclear WMD overview consisting of ionizing radiation fundamentals, terminology, health effects, and recognition factors. This information is requisite knowledge for responders performing the interdiction/prevention mission as well as first responders and other personnel who are likely to be the first to arrive on the scene of a radiological/nuclear incident. This fundamental knowledge of ionizing radiation and its effects is vital to responder safety, allowing performance of their mission while keeping the risk to themselves and the public as low as reasonably achievable.

Selection Criteria: Agricultural Safety, Emergency Management, Environmental Protection, Governmental Administrative, Public Health

Prerequisite: None

Online Availability: This course is available online at the CTOS Web Campus (https://www.nts-ctos.com) as AWR-140-W.

PER-332 **Population Monitoring at Community Reception Centers**

Description: This course trains emergency responders and non-uniformed support personnel to operate monitoring stations within the Community Reception Center (CRC) or similar reception centers in order to perform population monitoring and contamination reduction measures after a radiological or nuclear incident. Examples of incidents that would initiate the establishment of a CRC include a nuclear detonation such as an Improvised Nuclear Device (IND), Radiological Dispersal Device (RDD), an attack on a Nuclear Power Plant (NPP) or other incidents that expose the general population to radioactive contamination. Responders learn the basic operation of radiation detectors, dosimeters, portal monitors, personal protective equipment (PPE) selection, and decontamination procedures. Attendees are taught to conduct radiological surveys of personnel and vehicles.

Selection Criteria: Emergency Management, Emergency Medical Services, Fire Service, Governmental Administrative, Healthcare, Hazardous Materials, Law Enforcement, Public Health, Citizen/Community Volunteer, and other personnel who may be assigned radiological detection operations.

Prerequisite: None

PER-345

Radiation Instruments Operations

Description: This course trains emergency responders and non-uniformed support personnel in the individual skills needed to use radiation detection equipment and dosimetry during operating in the prevent or response radiological/nuclear mission fields. Responders will be trained to select the appropriate instrument for a specific mission and use the instrument in performance of that mission.

Responders learn the basic operation of radiation detectors, dosimeters, and portal monitors. Attendees are taught radiation detection activities using a variety of detection instruments. Attendees are encouraged to bring their own department's instruments if possible. This course uses radioactive material to provide realism.

Upon completion of this course, participants will distinguish between various radiation detection and measuring devices. The participant will:

- Identify basic radiation concepts
- Describe the characteristics of a Dosimeter
- Describe the characteristic of a Personal Radiation Detector (PRD)
- Describe the characteristics of a survey meter
- Describe the characteristics of a Radioisotope Identification Device (RIID)
- Describe the general characteristic and operation of a Portal Monitor

Selection Criteria: Emergency Management, Governmental Administrative, Public Health, and other personnel who may be assigned radiological detection operations.

Prerequisite: AWR-140 Introduction to Radiological/Nuclear WMD Operations

---

PER-348 **Operations Level Response to Radiological/Nuclear WMD**

Description:	The course provides an introduction to operations in a radiological/nuclear environment during incidents involving radiological Weapons of Mass Destruction (WMD). The curriculum includes detailed information on the radiological and nuclear threats facing our Nation, fundamentals of radiation, an introduction to radiological detection and survey instruments, protective measures that may be employed by first responders, personal protective equipment and decontamination. As part of the training, Participants will engage in drills designed to enhance their ability to perform the basic tasks required to safely and effectively execute their duties in a radiological WMD response mission.
Selection Criteria:	Public safety personnel and first responders who, in the course of their duties may participate in radiological/nuclear emergency response.
Prerequisite:	None
Length:	8 hours
Location:	To be determined when course is scheduled.

For Additional Courses See http://www.ctosnnsa.org/pages/schedule.htm.

Attachment XIV-F: Training Matrix

Traditional	1	2A	2B	3	4	5	6A	6B	6C	6D	6E	7A	7B	7C	7D	8A	8B	8C	8D	9A	9B	9C	9D	9E	10	11	12	13A	13B	14A	14B	15A	15B	16	17	Applicable SOPs
Web-Based	**820**	**801**		**802**	**803**	**804**	**805**		**808**	**814**	**809**		**815**		**811**					**812**		**813**					**806**										
Executive Directors, Coordinators, PIO (O.4.a)(O.4.j)						I																					I/A	I/A	I/A	I/A		I/A			I/A	I/A
Assessment (Dose) (O.4.b)						I																						I/A	I/A		I/A		I		I/A	I/A
IZZRAG (O.4.b) and Intermediate Phase (O.4.c)						I																						I	I/A		I/A		I	I	I	I/A
FMT/Sampling (O.4.c)	I*	I		I	I/A†	I	I/A	I/A	I/A		I/A			I/A		I/A#	I/A#	I/A#	I/A#	I	I/A	I/A		I/A			I/A				I/A		I	I	I	I/A
Dispatchers (O.4.j)	I					I																													I	I/A

* I - Initial Training
† I/A - Initial and Annual Refresher Training required
# WBT, if applicable
Available for local OROs only.

XV. NUREG-0654 Criteria P

Responsibility for the Planning Effort: Development, Periodic Review & Distribution of Emergency Plans

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

1. Overview

A. Purpose

The purpose of this section is to assure that responsibilities for plan development, review and distribution are established and that planners receive the proper training.

B. Authority

Ohio Revised Code, Chapter 5502

C. Responsibility

1. The Governor and Director of Public Safety have designated the Executive Director of Ohio EMA, as the individual with the overall authority and responsibility for radiological emergency response planning in Ohio at the state level.
2. The Executive Director of Ohio EMA, has designated the Radiological Branch Chief as the Emergency Planning Coordinator and as such, is responsible for:
   a. Developing and updating emergency plans,
   b. Coordinating these plans with other response organizations,
   c. Distributing plan updates annually, and
   d. Updating telephone numbers in emergency plans/procedures quarterly.

D. Annual Review

1. The Ohio EMA will review and certify the state plan, taking into account any changes identified through drills, exercises and plan reviews.
   a. This shall be done as often as necessary, but at least annually.
   b. Revised pages of the plan will be marked with change bars and dated to clearly show where changes have been made.
   c. In the event there is no change during the annual review, certification to this effect will be furnished to every plan holder.
   d. Once updated, changes and/or revisions will be furnished to every plan holder based upon original and subsequent distribution.
   e. Distribution of the state plan is made to all public and private entities having a response role.
2. Maps will be reviewed annually and changed when necessary.
3. Telephone listings associated with contacting affected agencies and response organizations are separate from the plan or procedures. These telephone listings should be reviewed and revised, if required, on an annual basis.

E. Training

The Radiological Branch Chief is responsible for ensuring Radiological Analysts and RRAs are adequately trained to perform REP program planning. Training will include, but will not be limited to, conferences, lectures, professional development courses, and on-the-job training.

F. Letters of Agreement

1. Letters of Agreement (LOAs) are reviewed annually to verify their validity. LOAs remain in effect until one party chooses to change or revoke the agreement.
2. LOAs include details on what services will be provided and how the agreements will be activated.
3. For a list of Letters of Agreement, see Appendix B.

Attachment XV-A: Plan Distribution List

Changes & Updates

1. The following is the distribution list of the Ohio REP Plan.
2. Changes to the distribution list should be addressed to the Ohio Emergency Management Agency, 2855 West Dublin-Granville Road, Columbus, Ohio 43235-2206, ATTN: Radiological Analyst.
3. Local reproduction and maintenance of notices of changes/updates to those copies are the responsibility of the primary receiving agency, as identified in this listing.
4. Changes and updates to this plan and a return-requested receipt will be sent to the listed agencies at least annually or as needed.

AGENCY	COPIES
STATE AGENCIES	
OHIO DEPARTMENT OF ADMINISTRATIVE SERVICES	
Director	1
Manager, State Business Continuity	1
OHIO DEPARTMENT OF AGRICULTURE	
Director	1
Chief, Division of Food Safety	1
Chief, Enforcement Division	1
Public Information Officer	1
OHIO DEPARTMENT OF HEALTH	
Director	1
Chief, Bureau of Environmental Health & Radiation Protection	1
Bureau of Environmental Health & Radiation Protection Library	1
Chief, Office of Public Health Preparedness	1
Communications	1
Supervisor, Health Physicist	1
Supervisor, ODH Laboratory	1
OHIO DEPARTMENT OF INSURANCE	
Director	1

AGENCY	COPIES
OHIO DEPARTMENT OF JOB AND FAMILY SERVICES	
Director	1
Manager, Business Continuity	1
OHIO DEPARTMENT OF NATURAL RESOURCES	
Director	1
Staff Officer	1
OHIO DEPARTMENT OF MENTAL HEALTH & ADDICTION SERVICES	
Director	1
OHIO DEPARTMENT OF PUBLIC SAFETY	
Director	1
Advisor, Policy & Legislative	1
Director, Communications	1
OHIO DPS: EMERGENCY MANAGEMENT AGENCY	
Executive Director	1
Assistant Director	1
Administrator, Administrative	1
Administrator, Communications	1
Administrator, Operations	1
Administrator, Preparedness	1
Chief, Fiscal Branch	1
Chief, Grants Branch	1
Chief, Logistics Branch	1
Chief, Mitigation Branch	1
Chief, Preparedness, Training & Exercise Branch	1
Chief, Radiological Branch	1
Chief, Recovery Branch	1
Chief, Regional Operations	1
Chief, Watch Office	1
Dose Assessment Room (115)	1
Executive Room (120)	1
Joint Information Center (109)	1

AGENCY	COPIES
OHIO DPS: EMERGENCY MANAGEMENT AGENCY (continued)	
Manager, EOC	1
Public Information Officer	1
Radiological Analysts	3
Resident Radiological Analysts	3
Supervisor, Central Regional Office	1
Supervisor, Northeast Regional Office	1
Supervisor, Northwest Regional Office	1
Supervisor, Radiological Analysts	1
Supervisor, Radiological Lab	1
OHIO DPS: EMERGENCY MEDICAL SERVICES	
Executive Director	1
OHIO DPS: HOMELAND SECURITY	
Executive Director	1
OHIO DPS: STATE HIGHWAY PATROL	
Highway Patrol Superintendent	1
Columbus Field Operations	1
Commander, Ashtabula Post (4)	1
Commander, Bowling Green Post (87)	1
Commander, Bucyrus District (17)	1
Commander, Chardon Post (28)	1
Commander, Findlay District (32)	1
Commander, Fremont Post (72)	1
Commander, Hub/STACC	1
Commander, Lisbon Post (15)	1
Commander, Sandusky Post (22)	1
Commander, Toledo Post (48)	1
Commander, Warren District (78)	1
Manager, State Dispatch	1
Supervisor, Columbus Dispatch	1
OHIO DEPARTMENT OF TRANSPORTATION	
Director	1

AGENCY	COPIES
OHIO DEPARTMENT OF TRANSPORTATION (continued)	
Coordinator, Emergency Response	1
Highway Management, District 4	1
Operations Engineer, District 11	1
Operations Engineer, District 2	1
Roadway Services Manager, District 12	1
OHIO DEPARTMENT OF YOUTH SERVICES	
Director	1
Deputy Director	1
OHIO ENVIRONMENTAL PROTECTION AGENCY	
Director	1
Chief, Division of Drinking & Ground Water (DDGW)	1
Chief, Division of Environment Response & Revitalization (DERR)	1
Chief, Division of Environmental Response, Investigation & Enforcement (DERIE)	1
Chief, Division of Materials and Waste Management (DMWM)	1
Chief, Division of Surface Water (DSW)	1
Chief, NE District	1
Chief, NW District	1
Environmental Specialist, DERR	1
Team Leader, Radiation Assessment Team (RAT)	1
OHIO NATIONAL GUARD	
Adjutant General	1
Director, J5	1
Joint Plans (J55)	1
OHIO STATE UNIVERSITY EXTENSION	
Director	1
OFFICE OF THE GOVERNOR	
Executive Assistant	1
Press Secretary	1

AGENCY	COPIES
PUBLIC UTILITIES COMMISSION OF OHIO	
Chair	1
Coordinator, Radiological	1
Supervisor, Field Staff, Service Monitoring & Enforcement	1
RISK & HOST COUNTIES	
ASHTABULA COUNTY, OHIO	
Director, County Emergency Management Agency	1
County Commissioners	1
County Health Department	1
County Sheriff	1
COLUMBIANA COUNTY, OHIO	
Director, County Emergency Management Agency	1
Chief Deputy Sheriff	1
County Commissioners	1
County Health Department	1
County Sheriff	1
ERIE COUNTY, OHIO (HOST)	
Director, Homeland Security and Emergency Management	1
County Commissioners	1
County Health Department	1
County Sheriff	1
GEAUGA COUNTY, OHIO	
Director, Emergency Management Agency	1
County Commissioners	1
County Health District	1
County Sheriff	1
LAKE COUNTY, OHIO	
Director, Emergency Management Agency	1
Coordinator/Planner, LEPC Information	1
County Commissioners	1
County Health Department	1
County Sheriff	1

AGENCY	COPIES
LUCAS COUNTY, OHIO	
Director, Emergency Management Agency	1
Operations Officer	1
OTTAWA COUNTY, OHIO	
Director, Emergency Management Agency	1
Deputy Director, Emergency Management Agency	1
SANDUSKY COUNTY, OHIO (HOST)	
Director, Emergency Management Agency	1
50-MILE EMERGENCY PLANNING ZONE OHIO COUNTIES	
BVPS PLANNING AREA	
Director, Belmont County Emergency Management Agency	1
Director, Carroll County Emergency Management Agency	1
Director, Harrison County Emergency Management Agency	1
Director, Jefferson County Emergency Management Agency	1
Director, Mahoning County Emergency Management Agency	1
Director, Portage County Emergency Management Agency	1
Director, Stark County Emergency Management Agency	1
Director, Trumbull County Emergency Management Agency	1
Director, Tuscarawas County Homeland Security and Emergency Management Agency	1
DBNPS PLANNING AREA	
Director, Crawford County Emergency Management Agency	1
Director, Erie County Emergency Management Agency	[24]
Director, Fulton County Emergency Management Agency	1
Director, Hancock County Emergency Management Agency	1
Director, Henry County Emergency Management Agency	1
Director, Huron County Emergency Management Agency	1
Director, Lorain County Office of Emergency Management Homeland Security	1
Director, Sandusky County Emergency Management Agency	[25]

[24] Erie County is listed under "Host Counties."
[25] Sandusky County is listed under "Host Counties."

AGENCY	COPIES
DBNPS PLANNING AREA (continued)	
Director, Seneca County Emergency Management Agency	1
Director, Wood County Emergency Management Agency	1
Director, Wyandot County Emergency Management Agency	1
PNPP PLANNING AREA	
Director, Cuyahoga County Emergency Management Agency	1
Director, Lorain County Office of Emergency Management Homeland Security	26
Director, Mahoning County Emergency Management Agency	27
Director, Portage County Emergency Management Agency	27
Director, Summit County Emergency Management Agency	1
Director, Trumbull County Emergency Management Agency	27
UTILITIES	
BEAVER VALLEY POWER STATION	
Supervisor, Emergency Planning	1
Senior Nuclear Specialist (Offsite)	1
DAVIS-BESSE NUCLEAR POWER STATION	
Supervisor, Emergency Planning	1
Senior Nuclear Specialist (Offsite)	1
Station Document Control	1
PERRY NUCLEAR POWER PLANT	
Supervisor, Emergency Planning	1
Senior Nuclear Specialist (Offsite)	1
ENERGY HARBOR	
Manager, Emergency Planning	1
DTE ENERGY – FERMI-2 NUCLEAR POWER PLANT	
Manager, Emergency Planning	1

[26] Lorain County is also within the 50-mile EPZ for DBNPS.
[27] Mahoning, Portage, and Trumbull Counties are also within the 50-mile EPZ for BVPS.

AGENCY	COPIES
CONTIGUOUS GOVERNMENTS	
PROVINCE OF ONTARIO	
Planning Officer, Ontario Ministry of the Solicitor General	1
STATE OF MICHIGAN	
Manager, Training, Exercise & Radiological Unit, Department of State Police, Emergency Management Division	1
REP Unit Supervisor, Department of Environment, Great Lakes, and Energy	1
COMMONWEALTH OF PENNSYLVANIA	
Chief, Nuclear Plants Division, Pennsylvania Emergency Management Agency	1
Director, Beaver County Emergency Services	1
STATE OF WEST VIRGINIA	
Director, Hancock County Office of Emergency Management	1
Manager, REP Program, West Virginia Emergency Management	1
FEDERAL AGENCIES	
FEDERAL EMERGENCY MANAGEMENT AGENCY, RII	
Technical Hazards Program Specialist	1
FEDERAL EMERGENCY MANAGEMENT AGENCY, RIII	
Emergency Management Specialist	1
FEDERAL EMERGENCY MANAGEMENT AGENCY, RV	
RAC Chair, Region V	2
Technical Hazards Program Specialist	1
Emergency Management Specialist	2
NUCLEAR REGULATORY COMMISSION, RI	
State Liaison Officer	1
NUCLEAR REGULATORY COMMISSION, RIII	
State Liaison Officer	1
U.S. ARMY CORPS OF ENGINEERS	
Emergency Management Specialist, Buffalo District	1
Huntington District EOC	1

AGENCY	COPIES
U.S. ARMY CORPS OF ENGINEERS (continued)	
Pittsburgh District EOC	1
U.S. COAST GUARD	
Commander, Ninth District	1
Marine Safety Unit, Sector Detroit	1
Response Unit, Ninth District	1
Sector Commander, Sector Buffalo	1
Sector Commander, Sector Detroit	1
U.S. DEPARTMENT OF AGRICULTURE – OHIO FARM SERVICE AGENCY	
Director	1
U.S. FISH AND WILDLIFE	1
Manager, Ottawa Wildlife Refuge	1
NON-PROFIT ORGANIZATIONS	
AMERICAN RED CROSS	
Division Disaster State Relations Director (DDSRD), Central Atlantic Division	1
Division Disaster State Relations Director, North Central Division	1
DDSRD Volunteer Partner	1
Disaster Program Manager, North Central Ohio	1
Regional Disaster Officer, Central & Southern Ohio	1
Regional Disaster Officer, Northern Ohio Region	1
Senior Disaster Program Manager, Central and Southern Ohio Region	1
Senior Disaster Program Manager, Northern Ohio Region	1

Appendix A: Glossary

Disclaimer Most definitions are given in the context as each term relates to this plan. Many of these definitions are verbatim from the REP Program Manual. The definitions list is not all-inclusive.

ACCESS CONTROL: This includes activities accomplished for the purpose of controlling entry or reentry into an area that has either been evacuated or is under a sheltering protective action decision to minimize the radiation exposure of individuals because of radiological contamination. This function is needed to prevent the general public from entering restricted areas (sheltered and/or evacuated) and permitting only emergency workers with essential missions and limited members of the general public to enter.

ACCIDENT ASSESSMENT: The evaluation of the actual and potential consequences of a radiological incident.

ACTIVATED: An EOC or other facility is considered activated as soon as notification of an incident is received and the Director/Commissioner/responsible representative makes the determination to activate the facility. The facility is not considered operational until it is ready to carry out full emergency operations with key decision-makers in place.

ADVISORY TEAM FOR ENVIRONMENT, FOOD, AND HEALTH (A-TEAM): includes representatives from the EPA, USDA, HHS (FDA), the CDC, and other Federal agencies as needed. The A-Team, supported by the FRPCC, develops coordinated advice and recommendations on environmental, food, health, and animal health matters for the Incident Command/Unified Command, the Joint Field Office, the Unified Coordination Group, the Federal agency with primary authority, and/or state and local governments, as appropriate. The A-Team uses information provided by the Interagency Modeling and Atmospheric Assessment Center, FRMAC, and other relevant sources. The A-Team makes protective action recommendations not decisions; provides coordinated technical and scientific advice through the state and Federal agency with primary authority; and bases its recommendations on science and best practices.

AFTER-ACTION REPORT (AAR): The AAR summarizes key exercise-related evaluation information, including the exercise overview and analysis of objectives and core capabilities.

ALERT: An ECL indicating that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be limited to small fractions of the EPA PAG exposure levels.

ANNUAL: This is considered to mean every calendar year, except in cases relevant to 10 CFR 50.54(t) where "annual" means 365 days.

ANNUAL LETTER OF CERTIFICATION (ALC): The ALC is used to facilitate monitoring of REP Program planning and preparedness. Each state that has a REP Program annually submits an ALC to the appropriate FEMA Regional Administrator. The ALC assists FEMA in making reasonable assurance findings and determinations regarding offsite radiological emergency plans/procedures and preparedness.

AS LOW AS REASONABLY ACHIEVABLE (ALARA): A philosophy followed to achieve making every reasonable effort to maintain exposures to ionizing radiation as far below the dose limits as practical. A practice to ensure consistency with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations. These means are in relation to utilization of nuclear energy and licensed materials in the public interest.

ASSESSMENT: This is the evaluation and interpretation of radiological measurements and other information to provide a basis for decision-making. Assessments can include projections of offsite radiological impact.

BACKGROUND RADIATION: The natural radiation that is always present in the environment. It includes cosmic radiation which comes from the sun and stars, terrestrial radiation which comes from the Earth, and internal radiation which exists in all living things. The typical average individual exposure in the United States from natural background sources is about 620 millirems per year.

BIENNIAL: This indicates every two calendar years.

CALIBRATION: It is the adjustment, as necessary, of a measuring device such that it responds within the required range and accuracy to known values of input.

CHAIN-OF-CUSTODY FORM: The documentation of the transfer of samples from one organization and individual to another with respect to the name of the organization and individual and dates of acceptance and/or transfer of samples.

COMMERCIAL NUCLEAR POWER PLANT (NPP): A facility licensed by the NRC to use a nuclear reactor to produce electricity.

COMMITTED DOSE EQUIVALENT (CDE): The dose equivalent to organs or tissues of reference that will be received from intake of radioactive material by an individual during the 50-year period following the ingestion.

CONCEPTS AND OBJECTIVES (C&O) MEETING: The formal beginning of the exercise planning process. It is held to identify the scope and objectives of the exercise. For less complex exercises and for organizations with limited resources, the C&O Meeting can be conducted in conjunction with the IPM.

CONCEPT OF OPERATIONS: This provides the delineation of an organization's roles and responsibilities and how the organization will function to accomplish those responsibilities.

CONTAMINATED: The condition resulting from the adhesion of radioactive particulates to the surface of structures, objects, soil, water, or living organisms (people, animals, or plants).

CONTAMINATION: Undesirable radioactive material (with a potentially harmful effect) that is either airborne or deposited in (or on the surface of) structures, objects, soil, water, or living organisms (people, animals, or plants).

CORRECTIVE ACTION: A concrete, actionable step that is intended to resolve emergency preparedness program gaps and shortcomings experienced in drills, exercises, or actual events.

COUNTING: Using an instrument to detect individual particles or gamma rays which interact with the detector on the instrument. For example, ambient radiation can be counted, or, alternatively, the radiation emitted by specific samples can be counted in units of counts per minute (cpm) or counts per second (cps).

CURIE (Ci): It is a unit used to measure the intensity of radioactivity in a sample of material, equal to 37 billion (3.7 x 1010) disintegrations per second.

DECONTAMINATION: A process used to reduce, remove, or neutralize radiological, chemical, or biological contamination to reduce the risk of exposure.

DECONTAMINATION STATION: A building or location suitably equipped and organized where personnel and material are cleansed of chemical, biological, or radiological contaminants.

DERIVED INTERVENTION LEVEL (DIL): Concentration derived from the intervention level of dose at which the FDA recommends consideration of protective measures. DILs correspond to the radiation concentration in food throughout the relevant time period that, in the absence of any intervention, could lead to an individual receiving a radiation dose equal to the PAG, or in international terms, the intervention levels of dose.

DERIVED RESPONSE LEVEL (DRL): The calculated concentration of a particular radionuclide in a particular medium (e.g., soil) that will produce a dose equal to a protective action guide.

DESIGNEE: A person assigned by a primary, assisting, or cooperating federal, state, local, or tribal government agency or private entity that has been delegated authority to make decisions affecting that agency's or organization's participation in incident management activities following appropriate consultation with the leadership of that agency.

DIRECT READING DOSIMETER (DRD): A small ionization detection instrument that indicates radiation exposure directly. An auxiliary charging device is usually necessary. DRDs can be read in real time by the user. A DRD is also referred to as a "pocket dosimeter."

DIRECTION AND CONTROL: The management of emergency functions within a particular context (e.g., emergency operations center) through leadership and use of authority.

DOSE: The quantity of energy absorbed from ionization per unit mass of tissue. The rad is the unit of absorbed dose.

DOSE EQUIVALENT: (1) A term used to express the amount of effective radiation when modifying factors have been considered. (2) The product of absorbed dose multiplied by a quality factor multiplied by a distribution factor. It is expressed numerically in rem. (3) The product of the absorbed dose in rad, a quality factor related to the biological effectiveness of the radiation involved and any other modifying factors.

DOSE RATE: The radiation dose delivered per unit time. The dose rate may be expressed numerically in rads per second or rads per hour (frequently expressed in rem per hour).

DOSIMETERS: Devices such as a thermoluminescent dosimeter (TLD), optically stimulated luminescent dosimeter (OSLD), and/or direct-reading ionization chamber for measuring and registering the total accumulated exposure to ionizing radiation. The devices come in various ranges and types.

DOSIMETRY COORDINATOR: The individual responsible for dispensing dosimetry packets to emergency workers and tracking their dose to ensure they do not exceed their dose limits.

EARLY PHASE: The beginning of a radiological incident for which immediate decisions for effective use of protective actions are required and must therefore be based primarily on the status of the radiological incident and the prognosis for worsening conditions. This phase may last from hours to days.

EFFLUENT: Liquid, gas or particulate discharges.

EMERGENCY CLASSIFICATION LEVEL (ECL): One of a set of names or titles established by the NRC for grouping off-normal events or conditions according to potential or actual effects or consequences and resulting onsite and offsite response actions. The four ECLs used for commercial NPPs, in ascending order of severity, are: Unusual Event, Alert, SAE, and GE.

EMERGENCY OPERATIONS FACILITY (EOF): A support facility for the management of overall licensee emergency response (including coordination with Federal, state, local, and tribal government officials), coordination of radiological and environmental assessments, and determination of recommended public protective actions.

EMERGENCY PLANNING ZONE (EPZ): A geographic area, as defined in 10 CFR 50.47(c)(2) (45 FR 55409, August 19, 1980) and 44 CFR 350.7(b) (48 FR 44338, September 28, 1983), surrounding a commercial nuclear power plant for which emergency planning is needed to ensure that prompt and effective actions can be taken by OROs to protect the public health and safety in the event of a radiological incident. The plume pathway EPZ is approximately 10 miles in radius, while the ingestion pathway EPZ has a radius of approximately 50 miles.

EMERGENCY RESPONSE DATA SYSTEM (ERDS): A direct near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected plant parameters.

EMERGENCY WORKER: An individual who has an essential mission to protect the health and safety of the public, and who could be exposed to ionizing radiation from the plume or from its deposition. Emergency workers may or may not be individuals normally exposed to ionizing radiation as a part of their occupations. Ultimately, state and local authorities designate what categories of workers are classified as emergency workers. Emergency workers may include law enforcement personnel, radiation monitoring personnel, firefighters, health services personnel, EOC personnel, and animal care specialists.

EVACUATION: The urgent removal of people from an area to avoid or reduce high-level, short-term exposure, from the plume or from deposited radioactivity. Evacuation may be a preemptive action taken in response to a facility condition rather than an actual release.

EVALUATION: The process of observing exercise performance to document strengths and opportunities for improvement in an entity's preparedness and response capability. Evaluation is the first step in the improvement planning process.

EXERCISE: An instrument to train for, assess, practice, and improve performance in prevention, protection, mitigation, response, and recovery capabilities. Exercises can be used for testing and validating policies, plans, procedures, training, equipment, and interagency agreements; clarifying and training personnel in roles and responsibilities; improving interagency coordination and communications; improving individual performance; identifying gaps in resources; and identifying opportunities for improvement.

EXPOSURE: The absorption of radiation or ingestion of a radionuclide . The exposure at a given point is a measurement of radiation in relation to its ability to produce ionization. The unit of measurement of the exposure is the roentgen. A measure of radiation dose received by a person, usually broken down and used to refer to whole-body exposure compared with exposure to the hands only.

EXPOSURE RATE: The rate of charge production from ionizing radiation per unit mass of air (e.g., the amount of gamma radiation that an individual would be exposed to in one hour as measured in air), commonly expressed in roentgens per hour (R/h) or milliroentgens per hour (mR/h).

FAST-BREAKING EVENT: an incident that develops potential or actual severe core damage within a short time. Such an incident results in an initial declaration of or rapid escalation (within 30 minutes) to a SAE or GE. Also referred to as a "rapid-escalating incident."

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA): The agency responsible for establishing Federal policies for and coordinating emergency planning, management, mitigation, and assistance functions of executive agencies. FEMA assists state, local, and tribal government agencies in their emergency planning. Its primary role is one of coordinating Federal, state, local, and tribal governments and volunteer response actions. FEMA is part of the Department of Homeland Security.

FEDERAL RADIOLOGICAL MONITORING AND ASSESSMENT CENTER (FRMAC): A center usually located at an airport near the scene of a radiological emergency from with the DOE Offsite Technical Director conducts the NRF response. This center need not be located near the onsite or Federal-state operations centers as long as its operations can be coordinated with them.

FIELD MONITORING TEAM (FMT) COORDINATOR: The individual who manages the functions of field teams and coordinates data with the dose assessment group located in EOCs and other operational facilities.

GENERAL EMERGENCY (GE): An ECL indicating that events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.

GEOGRAPHIC INFORMATION SYSTEM (GIS): A system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

HOST COUNTY: A geographical area that is at least 5 miles, and preferably 10 miles, beyond the boundaries of the plume exposure pathway EPZ (i.e., 15-20 miles from the commercial NPP) where functions such as congregate care, radiological monitoring, decontamination, and registration are conducted.

HOSTILE ACTION: An act directed toward an NPP or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force.

INCIDENT: An occurrence, natural or man-made, which requires a response to protect life or property. Incidents can include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.

INGESTION EXPOSURE PATHWAY: The principal exposure from this pathway would be from ingestion of contaminated water or foods, such as milk or fresh vegetables. The duration of potential exposure could range in length from hours to months to even years.

INGESTION EXPOSURE PATHWAY EMERGENCY PLANNING ZONE (IPZ): A geographic area, approximately 50 miles in radius, including and surrounding, a commercial NPP, within which the health and safety of the general public could be adversely affected through the ingestion of water or food which has been contaminated through exposure to radiation, primarily from the deposition of radioisotopes after a radiological incident.

INGESTION EXPOSURE PATHWAY EXERCISE: Exercises include mobilization of state and local government personnel and resources and implementation of emergency plans to demonstrate response capabilities to a release of radioactive materials requiring post-plume phase protective actions within the ingestion exposure pathway EPZ. These exercises are conducted at least once every eight years.

INGESTION PHASE – See **INTERMEDIATE PHASE**.

INSTITUTIONALIZED INDIVIDUALS: Individuals who reside in institutions, such as nursing homes or correctional facility, who may need to depend on others for assistance with taking protective actions. An institutionalized individual may or may not have access and functional needs.

INTERMEDIATE PHASE: The period beginning after the source and releases have been brought under control (has not necessarily stopped but is no longer growing) and reliable environmental measurements are available for use as a basis for decisions on protective actions and extending until these additional protective actions are no longer needed. This phase may overlap the early phase and late phase and may last from weeks to months.

ISOTOPE: Nuclides having the same number of protons in their nuclei and the same atomic number, but differing in the number of neutrons and atomic mass number. Some isotopes of a particular element may be radioactive while others are not.

JOINT INFORMATION CENTER (JIC): A central point of contact for all news media at the scene of the incident. News media representatives are kept informed of activities and events via public information officials from all participating federal, state, and local agencies, which, ideally, are collocated at the JIC.

JUST IN TIME TRAINING (JIT): Instructions provided to personnel immediately prior to performing the assigned task or function.

LATE PHASE: The period beginning when recovery actions designed to reduce radiation levels in the environment to acceptable levels are commenced, and ending when all recovery actions have been completed. This period may extend from months to years. A PAG level, or dose to avoid, is not appropriate for long-term cleanup.

LETTER OF AGREEMENT (LOA): A document executed between two or more parties outlining specific agreements relating to the accomplishment of an action. REP LOAs may cover personnel, equipment, or other types of emergency support, and may take the form of letters, contracts, purchase orders, or other procurement mechanisms.

LEVEL 1 FINDING: An observed or identified inadequacy of organizational performance during an assessment activity that could cause a determination that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a NPP.

LEVEL 2 FINDING: An observed or identified inadequacy of organizational performance during an assessment activity that is not considered, by itself, to adversely impact public health and safety.

LICENSEE: The utility or organization that has applied for or has received from the Nuclear Regulatory Commission (1) a license to construct or operate a commercial nuclear power plant, (2) an early site permit for a commercial nuclear power plant, (3) a combined license for a commercial nuclear power plant, or (4) any other NRC license that is now or may become subject to requirements for radiological emergency planning and preparedness activities.

MOBILIZATION: An act where an organization is actively progressing with the activation process and will able to carry out the essential emergency functions, as needed by scenario events and as set forth in emergency response plans/procedures, once activated is complete.

MONITORING: The act of detecting the presence of radiation and the measurement of radiation levels usually performed with a portable survey instrument. Monitoring may also be referred to as "surveying."

NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS): A systematic, proactive approach to guide all levels of government, non-governmental organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from the effects of incidents. NIMS provides stakeholders across the whole community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the National Preparedness System. NIMS provides a consistent foundation for dealing with all incidents, ranging from daily occurrences to incidents requiring a coordinated Federal response.

NATIONAL OPERATIONS CENTER (NOC): The primary national hub for situational awareness and operations coordination across the federal government for incident management. The NOC is a

standing 24/7 interagency organization fusing law enforcement, national intelligence, emergency response, and private sector reporting. The NOC facilitates Homeland Security information-sharing and operational coordination with other federal, state, local, tribal, and nongovernmental EOCs.

NATIONAL PREPAREDNESS GOAL: A DHS/FEMA doctrine describing what it means for the whole community to be prepared for the types of incidents that pose the greatest threat to the security of the Nation, including acts of terrorism and emergencies and disasters, regardless of cause. The goal itself is: "A secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk."

NATIONAL PREPAREDNESS SYSTEM (NPS): An organized process to achieve the National Preparedness Goal of a secure and resilient Nation.

NATIONAL RESPONSE FRAMEWORK (NRF): The guiding principles, roles, and structures that enable all domestic incident response partners to prepare for and provide a unified national response to disasters and emergencies. It describes how the Federal government, states, tribal governments, communities, and private sector work together to coordinate a national response. The framework builds upon the scalable, flexible, and adaptable concepts identified in NIMS, which provides a template for managing incidents.

NOTIFICATION: Distributing an instructional message, either through the EAS or some other system.

NOTIFICATION AND MOBILIZATION OF EMERGENCY PERSONNEL: The transmission of messages to emergency personnel informing them of an incident and directing them to report for emergency duty at their assigned duty stations.

NOTIFICATION OF THE PUBLIC: Distribution of an instructional message, either through the EAS or some other means (i.e., verbally, electronically, digitally, etc.).

NUCLEAR/RADIOLOGICAL INCIDENT ANNEX (NRIA): The document provides guidance and serves as a reference for federal agency planning efforts involving nuclear/radiological incidents. Other stakeholders (e.g., local, state, tribal, territorial, and insular area governments; NGOs; voluntary agencies; and the private sector) engaged in their own planning will find this document useful in enhancing their understanding of how the NRIA will be implemented and how their planning efforts can be complementary.

OFFSITE: Beyond the boundaries of the owner-controlled area around a commercial nuclear power plant.

OFFSITE RESPONSE ORGANIZATION (ORO): Any state or local governmental organization; private or voluntary organization; that is responsible for carrying out emergency response functions during a radiological emergency.

ONSITE: The owner-controlled area of a commercial nuclear power plant.

OPERATIONAL: The status of a facility (e.g., EOC, EOF, JIC, laboratory, etc.) when all key decision-makers, as identified in plans/procedures, are at their duty stations and capable of performing all emergency functions assigned to that facility.

OWNER CONTROLLED AREA (OCA): All areas contiguous to the commercial NPP that are owned or leased by the licensee (or by any of its associated business units) over which the licensee exercises control. The OCA is usually larger than, and encompasses, the exclusion area.

PERMANENT READING DOSIMETER (PRD): A device designed to be worn by a single individual for the assessment of radiation dose from external sources of radiation and evaluated by a processor accredited by the National Voluntary Laboratory Accreditation Program or other accreditation program in accordance with American National Standards Institute, Standard N13.11-2009, Personal Dosimetry Performance - Criteria for Testing. Film badges, TLDs, and OSLDs are examples of PRDs.

PLAN ISSUE: An observed or identified inadequacy in the ORO's emergency plan/implementing procedures, rather than in the ORO's performance.

PLANS/PROCEDURES: Includes radiological emergency preparedness and response plans that are associated with implementing procedures and other supporting and referenced materials. FEMA may review all of these documents to the extent necessary in order to determine whether they meet the intent of the requirements. FEMA uses the generic term "plans/ procedures" specifically for flexibility. OROs may either incorporate procedural detail into the main plans or into separate procedural documents at its discretion.

PLUME: Generally, a gaseous atmospheric release from an NPP, from a radiological incident, which may contain radioactive noble gases and volatile solids. While emergency plans/procedures must recognize the very low probability that particulates could be released in a serious incident, primary emphasis is given to the development of protective actions against the release of noble gases and volatiles, such as radio-iodines. This cloud is not visible to the eye, but can be measured, or "seen" with radiation measurement equipment.

PLUME EXPOSURE PATHWAY: The means by which whole body radiation exposure occurs as a result of immersion in a gaseous release of radioactive material. The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited materials, and (b) inhalation exposure from the passing radioactive plume. The duration of principal potential exposures could range in length from 30 minutes to days.

PLUME EXPOSURE PATHWAY EPZ: A geographic area, approximately 10 miles in radius, including and surrounding a commercial NPP within which the health and safety of the general public could be adversely affected by direct whole body external exposure to gamma radiation from the plume and from deposited materials, as well as inhalation exposure from the passing radioactive plume during a radiological incident.

PLUME EXPOSURE PATHWAY EXERCISE: These exercises are conducted biennially. These exercises include mobilization of licensee, state, and local government personnel and resources and implementation of emergency plans to demonstrate response capabilities within the plume exposure pathway EPZ.

POTASSIUM IODIDE (KI): A prophylactic compound containing a stable (i.e., non-radioactive) form of iodide that can be used effectively to block the uptake of radioactive iodine by the thyroid gland in a human being. Commonly referred to as a radioprotective drug.

PRECAUTIONARY PROTECTIVE ACTION: Any preventive or emergency protective actions implemented without the verification of radionuclide measurements by field monitoring or laboratory analysis.

PREVENTIVE PROTECTIVE ACTIONS: Protective actions to prevent or reduce contamination of milk, food, and drinking water such as covering water sources and providing dairy cows with stored feed. Preventive protective actions also include washing, brushing, scrubbing, or peeling fruits and vegetables to remove surface contamination.

PRIVATE SECTOR ORGANIZATION: An industry group or entity, volunteer group, quasi-governmental body, etc. having a role in emergency planning and preparedness.

PROCEDURES: An organization's documented implementing instructions for managing its internal response to emergencies and coordinating its external response with other organizations. The term "procedures" as used in this document includes implementing procedures, standard operating procedures, administrative procedures, maintenance procedures, and testing procedures.

PROJECTED DOSE: The prediction of the dose that a population or individual could receive.

PROTECTIVE ACTION: An action taken to avoid or reduce projected dose, isolate food to prevent its introduction into commerce and to determine whether condemnation or other disposition is appropriate, and/or prevent or reduce contamination of milk, food, and drinking water such as covering water sources and providing dairy cows with stored feed.

PROTECTIVE ACTION GUIDES (PAG): The projected dose to an individual, resulting from a radiological incident at which a specific protective action to reduce or avoid that dose is warranted.

PROTECTIVE ACTION RECOMMENDATION (PAR): An advisement from an NPP licensee and OROs with responsibilities to conduct radiological accident assessment to state and local government officials, concerning emergency response measures that should be taken to protect the public from exposure to radiation.

PUBLIC INFORMATION: Information provided to the general public on a periodic basis concerning what they should know about radiation and how to respond to a radiological emergency. This would include topics such as educational information about radiation, who to contact for additional information, and what their actions should be in an actual emergency.

RADIATION ABSORBED DOSE (RAD): The basic unit of absorbed dose radiation. One rad represents the absorption of 100 ergs per gram of the absorbing material or tissue (see Roentgen).

RADIATION AREA: Any area, accessible to personnel, in which radiation levels could result in an individual receiving a dose equivalent in excess of 5 milliRem in one hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

RADIATION WORKER: An individual who might come into contact with radioactive materials as a result of the incident and whose job assignment may be inside or outside the plume EPZ.

RADIOACTIVITY: The spontaneous decay or disintegration of an unstable atomic nucleus usually accompanied by the emission of ionizing radiation, generally alpha or beta particles, often accompanied by gamma rays from the nuclei of an unstable isotope.

RADIOISOTOPE: An unstable isotope of an element that decays or disintegrates spontaneously, emitting radiation. Approximately 5000 natural and artificial radioisotopes have been identified.

RADIONUCLIDE: A radioactive isotope of a particular element.

REASONABLE ASSURANCE: A determination that NRC licensee or applicant onsite plans and state, local, and tribal government and utility offsite plans and preparedness are adequate to protect public health and safety in the emergency planning areas of a commercial NPP.

RECOVERY: The process of reducing radiation exposure rates and concentrations of radioactive material in the environment to acceptable levels for return by the general public for unconditional occupancy or use after the emergency phase of a radiological emergency. More broadly, recovery is accomplished through the timely restoration, strengthening, and revitalization of infrastructure, housing, and a sustainable economy, as well as the health, social, cultural, historic, and environmental fabric of communities affected by a catastrophic incident.

RECOVERY PLAN: A plan to restore an incident-affected area or community.

REENTRY: Workers or members of the public going into a restricted zone on a temporary basis under controlled conditions.

RELEASE: Escape of radioactive materials into the environment.

RELOCATION: The removal or continued exclusion of people (households) from contaminated areas to avoid chronic radiation exposure.

RESTRICTED ZONE (RZ): An area of controlled access from which the population has been evacuated, relocated, or sheltered-in-place.

RETURN: Permanent resettlement in evacuation or relocation areas with no restrictions, based on acceptable environmental and public health conditions.

ROENTGEN (R): A unit of exposure of gamma (or X-ray) radiation in field dosimetry. One roentgen is essentially equal to one rad**.** A unit for measuring the amount of radiation energy imparted to a volume of air. The roentgen can be used only to measure X-rays or gamma rays.

SAMPLING: collecting specimens of materials (e.g., particles or radioiodine in the air, animal feed, vegetation, water, soil, or milk) at field locations.

SERVICE ANIMAL: Any dog that is individually trained to do work or perform tasks for the benefit of an individual with a disability, including a physical, sensory, psychiatric, intellectual, or other mental disability. Other species of animals, whether wild or domestic, trained or untrained, are not service animals for the purposes of this definition. The work or tasks performed by a service animal must be directly related to the handler´s disability. Examples of work or tasks include, but are not limited to, assisting individuals who are blind or have low vision with navigation and other tasks, alerting individuals who are deaf or hard of hearing to the presence of people or sounds, providing non-violent protection or rescue work, pulling a wheelchair, assisting an individual during a seizure, alerting individuals to the presence of allergens, retrieving items such as medicine or the telephone, providing physical support and assistance with balance and stability to individuals with mobility disabilities, and helping persons with psychiatric and neurological disabilities by preventing or interrupting impulsive or

destructive behaviors. The crime deterrent effects of an animal´s presence and the provision of emotional support, well-being, comfort, or companionship do not constitute work or tasks for the purposes of this definition.

SHELTER-IN-PLACE: A protective action that includes going indoors listening to an EAS radio or television station, closing all windows and doors, closing exterior vents, and turning off heating and air conditioning equipment using outside air.

SITE AREA EMERGENCY (SAE): An ECL indicating that events are in progress or have occurred which involve an actual or likely major failure of plant functions needed for protection of the public or hostile action that results in intentional damage or malicious acts: 1) toward site personnel or equipment that could lead to the likely failure of; or 2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

THERMOLUMINESCENT DOSIMETER (TLD): A type of dosimetry badge used to measure an individual's level of exposure to ionizing radiation. It is characteristic of thermoluminescent material that radiation produces internal changes that cause the material, when subsequently heated, to give off a measurable amount of light directly proportional to the radiation dose. This type of dosimeter cannot be read directly by the wearer; it must be read by a laboratory.

TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE): The sum of the deep dose equivalent (for external exposures) and for committed effective dose equivalent (for internal exposures).

TRAFFIC CONTROL: All activities accomplished for the purpose of facilitating the evacuation of the general public in vehicles along specific routes.

TRANSIENT POPULATION: A person or persons who do not permanently reside in the plume exposure pathway EPZ, but may be present during an emergency.

TURN-BACK VALUES: Accumulated exposure or exposure rates at which the emergency or radiation worker should leave the area without further consultation or direction.

UNUSUAL EVENT: An ECL indicating that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

WHOLE BODY COUNTER: Detection device that measures internal contamination.

Appendix B: Letters of Agreement

1. Energy Harbor
2. Michigan State Police, Emergency Management Division
3. ODH-Laboratory
4. ODNR
5. OSU Nuclear Reactor Laboratory
6. Pennsylvania EMA
7. Province of Ontario
8. USCG
9. USDA-FSA
10. West Virginia Office of Emergency Services

Letters of Agreement are on file at the Ohio Emergency Management Agency.

This page intentionally left blank.

Appendix C: References

Federal

1. NRC/FEMA
    a. Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, NUREG-0654/FEMA-REP-1, Rev. 1, November 1980
    b. Emergency Response Resources Guide for Nuclear Power Plant Emergencies, NUREG-1442/FEMA-REP -17, Rev. 1, July 1992.
2. U.S. Code of Federal Regulations, Title 10, Part 50, App. E; Title 44, Part 350, App. E
3. DHS
    a. National Response Framework, October 28, 2019
    b. Nuclear/Radiological Incident Annex, October 2016
4. FEMA
    a. Radiological Emergency Preparedness (REP) Program Manual, January 2016 and its associated references
    b. Contamination Monitoring Guidance for Portable Instruments Used for Radiological Emergency Response to Nuclear Power Plant Accidents. FEMA-REP-22/October 2002
5. FDA
    a. Accidental Radioactive Contamination of Human and Animal Feeds: Recommendations for State and Local Agencies, August 13, 1998
    b. Guidance on Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies. 2001
6. EPA
    a. Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA-400-R-92-001, May 1992
    b. PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents, March 2013
    c. PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents, EPA-400/R-17/001, January 2017
7. DOE
    a. FRMAC Operations Manual , DOE/NV/25946-080, May 2010
    b. FRMAC Radiation Monitoring, Volume 1, Operations, DOE/NV 25946-1554, July 2012
    c. FRMAC Monitoring, Volume 2, Radiation Monitoring and Sampling, DOE/NV 25946-1558, July 2012

d. FRMAC Assessment Manual, Volume 1 – Overview and Methods**,** SAND2019-0247 R**,** December 2018

e. FRMAC Assessment Manual, Volume 2 – Pre-assessed Default Scenarios**,** SAND2010-2575P, February 2010

State

1. Ohio Revised Code (ORC)
2. Ohio Administrative Code (OAC)
3. ODA, Radiological Emergency Information for Food Producers, Processors, and Distributors, 2020
4. State of Ohio Emergency Operations Plan
5. ODH KI Directive 10-BEHRP-01
6. ODH Memorandum, "Notice of Potassium Iodide (KI) Shelf Life Extension," September 28, 2021

Utility

1. Beaver Valley Power Station Emergency Preparedness Plan
2. Davis-Besse Nuclear Power Station Emergency Preparedness Plan
3. Emergency Plan for Perry Nuclear Power Plant Docket Nos. 50-440
4. Development of Evacuation Times for the Beaver Valley Nuclear Power Station; prepared for First Energy Nuclear Operating Company by KLD Engineering, P.C., December 2012
5. Development of Evacuation Time Estimate for the Davis-Besse Nuclear Power Station; prepared for First Energy Nuclear Operating Company by KLD Engineering, P.C., October 2012
6. Development of Evacuation Time Estimates for the Perry Nuclear Power Plant; prepared for First Energy Nuclear Operating Company by KLD Engineering, P.C., October 2012
7. Fermi 2 Radiological Emergency Response Preparedness Plan; Detroit Edison

Contiguous Governments

1. Michigan Department of Environment, Great Lakes, and Energy Nuclear Facilities Emergency Response Plan (NFEMP)
2. Michigan State Police/Emergency Management Homeland Security Division Publication 101, Michigan Emergency Management Plan (MEMP)
3. Commonwealth of Pennsylvania Emergency Operations Plan Annex E: Radiological Emergency Response to Nuclear Power Plant Incidents
4. West Virginia Radiological Emergency Preparedness Plan

5. Ontario Provincial Nuclear Emergency Response Plan
    a. Master Plan
    b. Implementing Plan for a Transborder Nuclear Emergency

County

1. Ashtabula County Radiological Emergency Response Plan
2. Beaver Valley Power Station Radiological Emergency Response Plan – Columbiana County
3. Geauga County Department of Emergency Services Radiological Emergency Response Plan for an Emergency at the Perry Nuclear Power Plant
4. Radiological Emergency Response Plan for an Emergency at the Perry Nuclear Power Plant – Lake County Emergency Management Agency
5. Lucas County Radiological Emergency Response Plan
6. Ottawa County Radiological Emergency Response Plan

This page intentionally left blank.

Appendix D: State Procedures

PROCEDURE	SECTION
ODA	
Standard Operating Procedures for a Contamination Incident Involving Nuclear Materials – Milk Sampling	I; VIII; XII
Standard Operating Procedures for a Contamination Incident Involving Nuclear Materials - Leafy Vegetation Sampling	I; VIII; XII
ODH	
HEA5413 Emergency Worker Dose Increase Worksheet	X
ODH-SOP-PWS-0001 IZRRAG Event – Private Water Systems Program Standard Operating Procedure	I; VIII; XII
RAD-REP-0349 ODH Dose Assessment Team (ODAT) Systems Operator: Emergency & Intermediate Phases	I; III; VII; IX; X; XI; XII
RAD-REP-0349V ODAT Dose Assessor: Emergency & Intermediate Phases (Virtual)	I; III; VII; IX; X; XI; XII
RAD-REP-0350 ODAT Group Supervisor/Unit Leader: Emergency Phase	I; III; VII; IX; X; XI
RAD-REP-0350V ODAT Group Supervisor/Unit Leader: Emergency Phase (Virtual)	I; III; VII; IX; X; XI
RAD-REP-0351 ODAT Quality Assurance (QA) Systems Operator: Emergency & Intermediate Phases	I; III; VII; IX; X; XI; XII
RAD-REP-0351V ODH ODAT QA Dose Assessor: Emergency & Intermediate Phases (Virtual)	I; III; VII; IX; X; XI; XII
RAD-REP-0352 ODAT Informal Line: Emergency Phase	I; III; VII; IX; X; XI
RAD-REP-0352V ODAH Informal Line Communicator: Emergency Phase (Virtual)	I; III; VII; IX; X; XI
RAD-REP-0353 ODAT Utility EOF Liaison: Emergency Phase	I; III; VII; IX; X; XI
RAD-REP-0353V ODAT Utility EOF Liaison: Emergency Phase (Virtual)	I; III; VII; IX; X; XI
RAD-REP-0354 ODAT County EOC Liaison: Emergency Phase	I; III; VII; IX; X; XI
RAD-REP-0354V ODAT County EOC Liaison: Emergency Phase (Virtual)	I; III; VII; IX; X; XI
RAD-REP-0355 Field Sample Screening Station: Radiological Response	I; VIII; XII

ODH (continued)	
RAD-REP-0356 JIC Radiological Subject Matter Expert (SME): Emergency Phase	I; III; VI
RAD-REP-0356V JIC Radiological SME Liaison: Emergency Phase (Virtual)	I; III; VI
RAD-REP-0357 IZRRAG Chair: Intermediate Phase	I; III; XII
RAD-REP-0357V ODAT State RadResponder Coordinator: Emergency & Intermediate Phase (Virtual)	II; VIII
RAD-REP-0358 IZRRAG Assistant Chair: Intermediate Phase	I; III; XII
RAD-REP-0360 ODH IZRRAG Health Physics Subject Matter Expert (HP-SME): Intermediate Phase	I; III; XII
RAD-REP-0362 HP-SME Support to the ODH Radiochemistry Laboratory	I; III; XII
RAD-REP-0361 IZRRAG Communicator: Intermediate Phase	I; III; XII
RAD-REP-0365 Radiological Environmental Monitoring Manual – Soil Counting Procedure	I; VIII; XII
ODNR	
Radioactive Sampling Guidelines for Fish and Wildlife	I; VIII; XII
OHIO EMA	
101 – State EOC Activation Decision Process	I; VII
301 – JIC Operating Procedures	VI
321 – Media Advisory and Release	VI
650 – Radiological Assessment Branch Director	III; IV
653 – Assessment Room Activation	III; VII
657 – FMT Coordinator	I; V; VII; VIII; IX; X; XII
658 – FMT Member	I; III; VIII; IX; X
659 – Dosimetry Coordinator	I; IX; X
660 – FMT Courier	XIV
663 – FTC Coordinator	I; III; IX; X; XII
669 – Lake Erie Restriction and Clearance (ODNR)	I; IV; V; VI; IX
670 – Executive Room Activation	III; VII

OHIO EMA (continued)	
671 – Executive Room	I; III; IV; V; VI; IX; XII
672 – RadResponder	VIII
Public Inquiry Operator	VI
State EOC PIO	VI
State PIO at Utility JIC	VI
NPCT 1-5 Communications Tests	XIII
OHIO EPA	
Drinking Water Sampling (Deposition) Guidelines During a Nuclear Power Plant Incident (Ohio EPA)	I; VIII; XII
FMT Communicator (Ohio EPA)	I; VII; X
Ohio Environmental Protection Agency Radioactive Sampling Guidelines for Hard Surfaces	I; VIII; XII
Ohio Environmental Protection Agency Radioactive Sampling Guidelines for Snow	I; VIII; XII
Ohio Environmental Protection Agency Radioactive Sampling Guidelines for Surface Water	I; VIII; XII
Ohio Environmental Protection Agency Radioactive Sampling Guidelines for Vegetation	I; VIII; XII
Soil Sampling Guidelines (Ground Deposition) Guidelines During a Nuclear Power Plant Incident (Ohio EPA)	I; VIII; XII

This page intentionally left blank.

Appendix E: NUREG-0654 Crosswalk

Criterion	EOP[28]	Plan[29]	Location
A.1.a.i	X		ESF-1 – ESF-15
		X	I.2 – I.17; Attachments I-D, I-E, I-F
A.1.a.ii	X		ESF-1 – ESF-15
		X	I.2 – I.17; Attachments I-D, I-E
A.1.b.i	X		ESF-1 V.B; ESF-2 VI.B; ESF-3 IV.B; ESF-4 V.B; ESF-5 IV.C; ESF-6 V.B; ESF-7 IV.B; ESF-8 V.E; ESF-9 VI.B; ESF-10 IV.C; ESF-11 IV.B; ESF-12 IV.B; ESF-13 IV.B; ESF-14 IV; ESF-15 IV
		X	I.2 – I.17; Attachments I-A, I-B, I-C, I-D, I-E, I-F
A.1.b.ii	X		ESF-1 V.B; ESF-2 VI.B; ESF-3 IV.B; ESF-4 V.B; ESF-5 IV.C; ESF-6 V.B; ESF-7 IV.B; ESF-8 V.E; ESF-9 VI.B; ESF-10 IV.C; ESF-11 IV.B; ESF-12 IV.B; ESF-13 IV.B; ESF-14 IV; ESF-15 IV
		X	I.2 – I.17
A.1.c.i		X	Attachment I-C
A.1.d.i	X		I.F; V.A.1.c
		X	I.2.A.1; I 3.A.1
A.1.d.ii	X		I.F; V.A.1.c
		X	I.3.A.1
A.1.e.i		X	I.6.A.3.e
A.1.e.ii		X	I.6.A.3
A.1.e.iii		X	I.6.A.3
A.1.e.iv		X	I.6.A.3.e
A.1.e.v		X	V.1.A
A.2.a.i	X		ESF-1 – ESF-15
		X	I.2 – I.17
A.2.a.ii	X		ESF-1 – ESF-15
		X	I.2 – I.17
A.2.a.iii	X		Tab A
		X	Attachments I-D, I-E, I-F
A.2.b.i	X		I.C; II.C.2
		X	I.1.B; I.2.A.1
A.2.b.ii	X		III.J.6.d; III.J.7.c
		X	I.2.A.7; I.2.A.8; XV.1.C.1
A.2.b.iii			N/A
A.2.b.iv			Appendix B
A.3.i	X		V.E; V.F; ESF-1 – ESF-15; TIA-1

[28] State of Ohio Emergency Operations Plan
[29] State of Ohio Radiological Emergency Preparedness (REP) Plan, 2022

A.3.i		X	XV.1.F
A.3.ii	X		V.E; V.F
		X	Appendix B
A.3.iii		X	Appendix B
A.3.iv			N/A
A.3.v		X	XV.1.F.2
A.3.vi		X	XV.1.F.1
A.4.i		X	VII.1.A.2.h.i; VII.1.A.2.h.ii.2
A.4.ii		X	VII.1.A.2.h.ii.5
A.4.iii		X	VII.1.A.2.h.ii.5
A.4.iv		X	VII.1.A.2.h.ii.1, Footnote [3]
A.4.v		X	VII.1.A.2.h.ii
C.1.a.i		X	I.1.C; IX.1.A
C.1.b.i		X	II.4.C
C.1.b.ii		X	II.1.C; Attachments II-A, II-B
C.1.b.iii		X	Attachments II-A, II-B
C.1.c.i		X	II.4.B; Attachments II-C, II-D
C.1.c.ii		X	II.5
C.1.c.iii	X		ESF-2.II
C.2.a.i		X	I.2.A.6; I.3.H.1; I.9.A.4.a; III.2.D.5
C.3.i		X	II.1.B; II.1.C
C.3.ii		X	II.1.B
C.3.iii		X	II.1.B.3; II.1.B.4
C.3.iv		X	II.1.B; II.1.C; Attachments II-A, II-B
C.4.i		X	XV.1.F; Appendix B
C.6.i			N/A
C.6.ii			N/A
C.6.iii			N/A
C.6.iv			N/A
C.6.v			N/A
D.3.i		X	III.1 – III.4
D.3.ii		X	III.1 – III.4
D.4.i		X	Attachment I-F; III.1 – III.4
E.1.i		X	IV.1.A; IV.1.B; V.1.A
E.1.ii		X	IV.1.A.3
E.1.iii		X	IV.1.C.1
E.2.i		X	IV.2.A
E.2.ii		X	IV.2.B
E.2.iii		X	IV.2.A.3; Attachment IV-B
E.2.iv		X	Attachment IV-A
E.2.v		X	V.1.B;V.1.C
E.5.i			N/A
E.5.ii			N/A
E.5.iii			N/A
E.5.iv			N/A

E.5.v			N/A
E.5.vi			N/A
E.6.i			N/A
E.6.ii			N/A
E.6.iii			N/A
E.7.i			N/A
E.7.ii			N/A
E.7.iii			N/A
E.7.iv			N/A
E.7.v			N/A
F.1.a.i			V.1.A
F.1.a.ii		X	I.6.A.3
F.1.a.iii		X	Attachment V-A
F.1.b.i			N/A
F.1.b.ii			N/A
F.1.b.iii		X	V.1.B; Attachment V-A
F.1.c.i	X		ESF-2 II.C – ESF-2 II.D
		X	V.1.B
F.1.c.ii	X		ESF-2 II.C – ESF-2 II.D
		X	V.1.B
F.1.d.i		X	V.1.E; Attachment V-A
F.1.d.ii		X	V.1.D
F.1.e.i		X	I.3.B.1; IV.2.A; IV.2.B; V.1.C
F.1.e.ii		X	Attachment IV-A
F.2.i			N/A
F.2.ii			N/A
F.3.i		X	V.1.I; XIII.6.B; XIII.7; Attachment XIII-A
G.1.i		X	VI.1
G.1.ii			N/A
G.1.iii		X	VI.1.E
G.1.iv		X	VI.2.A
G.1.v			N/A
G.1.vi			N/A
G.2.i		X	VI.1
G.2.ii		X	VI.2.A.1 – VI.2.A.4
G.2.iii		X	VI.1.E
G.3.a.i		X	VI.4.B.5.c; VI.4.B.5.d; Attachment VI-A
G.3.a.ii		X	VI.4.B.6
G.3.a.iii			N/A
G.3.a.iv		X	VI.4.H
G.3.a.v		X	VI.4.B; VI.4.H
G.4.a.i	X		TIA-IV.B.8
		X	I.3.A.10; VI.4.B
G.4.a.ii		X	VI.4.B.4
G.4.a.iii		X	V.1.G; VI.3.A.2

G.4.a.iv	X		TIA-IV.B.8
		X	III.3.C.20; IV.3.A.2; VI.3.A.4.d; VI.4.J
G.4.b.i		X	VI.4.B.5; VI.4.E
G.4.b.ii		X	V.1.G
G.4.b.ii.a		X	VI.4.B.5.c
G.4.b.ii.b		X	V.1.G
G.4.c.i		X	VI.4.I
G.4.c.ii		X	VI.4.I.1
G.4.c.iii		X	VI.4.I.5
G.4.c.iv			N/A
G.5.i		X	VI.5.A.1
G.5.ii		X	VI.5.A.1
G.5.iii		X	VI.5.A.1
H.3.i		X	VII.1.A; Attachment VII-A
H.3.ii		X	VII.1.B
H.3.iii		X	VII.1.B.13
H.3.iv		X	VII.1.C
H.3.v		X	VII.1.A
H.3.vi		X	VII.1.A.2.g
H.4.i		X	III.2.D.3; III.2.D.4; III.3.C.2; VII.1.A.2
H.4.ii		X	VII.1.A.2.i; VII.1.A.2.j
H.4.iii		X	VII.1.A.2.h.ii.5
H.7.i		X	Attachment VII-D
H.7.ii			N/A
H.10.i		X	II.1.B.5; VII.2.A.1; VII.2.B
H.10.ii		X	II.1.B.5; VII.2.A.2, 3, 5
H.11.i		X	VII.2.A.8; VII.2.B, Attachments VII-D, VII-E, VII-F, VII.G
H.11.ii		X	VII.2.A.8; VII.2.B, Attachments VII-D, VII-E, VII-F, VII.G
H.12.i		X	I.3.I; I.9.B
H.12.ii		X	VII.3; VIII.4.B.1
H.12.iii		X	I.7.A.6; I.24.A.4; I.10.A.5; I.11.A.7;VII.3
I.7.i		X	I.3.K; I.9.A.8; VIII.1.A
I.7.ii		X	VIII.1
I.8.i		X	III.2.D.6; IV.2.A; V.1.C; VIII.1.B
I.8.ii		X	I.3.K; I.9.A.8; VII.1.A; VIII.1.C
I.8.iii		X	VIII.1.E; VIII.1.G
I.8.iv		X	VIII.1.F
I.8.v		X	I.3.K
I.8.vi		X	V.1.D; VII.2.A.8; VIII.1.K; VIII.3.H
I.8.vii		X	658 FMT SOP; SOP-07 ODA SOP for a Contamination Incident Involving Nuclear Materials - Milk Sampling; SOP-02 ODA SOP for a Contamination Incident Involving Nuclear Materials – Leafy Vegetation

			Sampling; ODNR Radioactive Sampling Guidelines for Fish and Wildlife; Drinking Water Sampling (Deposition) Guidelines During a Nuclear Power Plant Incident (Ohio EPA); Ohio EPA Radioactive Sampling Guidelines for Hard Surfaces; Ohio EPA Radioactive Sampling Guidelines for Snow; Ohio EPA Radioactive Sampling Guidelines for Surface Water; Ohio EPA Radioactive Sampling Guidelines for Vegetation; Soil Sampling Guidelines (Ground Deposition) Guidelines During a Nuclear Power Plant Incident (Ohio EPA)
I.8.viii		X	II.1
I.8.ix		X	VIII.1.I
I.9.i			VIII.1.J
I.9.ii			657 FMT Coordinator SOP (3.0); 658 FMT SOP (3.7; 3.9)
I.10.i		X	I.3.I; I.9.A.2; I.9.B; VIII.4.A
I.10.ii		X	VIII.4.A.
I.10.iii		X	VIII.4.A.1
I.10.iv		X	VIII.4.A
I.10.v		X	VIII.4.A
I.10.vi		X	VIII.4.A.5
I.10.vii		X	I.3.I.3; I.9.B.4
I.11.i		X	VIII.1.I
J.2.i		X	IX.1.C.2
J.2.ii			N/A
J.2.iii		X	IX.1.C.2
J.9.i		X	III.5.C.2; IX.2.A; IX.3; X.4.A.1; XII.3.A.2; XII.7.B.1; Attachments XII-B, XII-C
J.9.ii	X		V.A.1.l
		X	IX.3.C
J.10.a.i		X	Attachments VIII-A, VIII-C, VIII-E
J.10.a.ii		X	IX.5.A.2
J.10.b.i			N/A
J.10.c.i		X	N/A
J.10.d.i			N/A
J.10.d.ii			N/A
J.10.d.iii			N/A
J.10.d.iv			N/A
J.10.d.v			N/A
J.10.e.i		X	IX.1.B.4.b.ii; X.5.A
J.10.e.ii		X	X.5.E
J.10.e.iii		X	I.8.C.5; X.5.C; X.5.D
J.10.e.iv		X	IX.1.B.4.d; X.5.F
J.10.f.i		X	X.5.B
J.10.f.ii		X	X.5.B

J.10.g.i		X	IX.1.C; IX.1.D; IX.4.A
J.10.g.ii		X	IX.1.C.2; IX.4.B.2
J.10.g.iii		X	II.4.A
J.10.g.iv			N/A
J.10.g.v			N/A
J.10.h.i			N/A
J.10.h.ii			N/A
J.10.h.iii			N/A
J.10.h.iv			N/A
J.10.h.v			N/A
J.10.h.vi			N/A
J.10.h.vii			N/A
J.10.i.i		X	Appendix C
J.10.i.ii			N/A
J.10.i.iii			N/A
J.10.i.iv			N/A
J.10.j.i	X		ESF-1.V.B.5; ESF—13.III.A.4.e
		X	I.7.A.7; I.7.A.12; I.24.A.3; IX.1.C; IX.1.D.1; IX.4.A
J.10.j.ii			N/A
J.10.j.iii		X	IX.1.D.3; IX.4.C
J.10.j.iv		X	I.3.A.6; III.3.C.9; III.3.C.12; IX.1.C.1; IX.4.C
J.10.j.v		X	I.3.A.6; III.3.C.9; III.3.C.12; IX.1.C.1; IX.1.D; IX.4.A; IX.4.C
J.10.j.vi			N/A
J.10.k.i	X		ESF-1.IV.A.3.e; ESF-1.V.B.2.a; ESF-1.V.B.4.b
		X	I.11.A.3; IX.1.D.2
J.10.k.ii	X		ESF-1.V.B.4.b; ESF-1.V.B.5
		X	IX.1.C.e
J.10.l.i			N/A
J.10.l.ii			N/A
J.10.m.i		X	IX.3; Attachment IX-A
J.10.m.ii			N/A
J.10.m.iii			N/A
J.11.i		X	XII.1
J.11.ii		X	XII.2
J.11.iii		X	XII.3.J
J.11.iv		X	VIII.1.M; VIII.3.B; VIII.3.D; VIII.3.I; XII.3.J.5.a
J.11.v		X	II.1; VII.3.B.4
J.11.vi		X	XII.4.C.3; XII.4.H.1
J.11.vii		X	XII.4.C.2; XII.4.H.1
J.11.viii		X	Attachment XII-B
J.11.ix		X	IX.5
J.11.x		X	VI.2.A.4; XII.4.G; XII.4.H.2
J.12.i			N/A
J.12.ii			Attachment X-C

J.12.iii			N/A
J.12.iv			N/A
J.12.v			N/A
K.3.a.i		X	X.2; X.3.A;
K.3.a.ii		X	X.3; X.4; Attachment X-A
K.3.a.iii		X	X.2.A.5
K.3.a.iv		X	X.2.B.4
K.3.a.v		X	X.2.B.4; X.2.B.5
K.3.a.vi		X	X.2.A.5
K.3.a.vii		X	X.2; XII.6.B.5
K.3.a.vii		X	X.4.A.4.e; X.4.A.6.d
K.3.b.i		X	X.2.B; Attachment X-A
K.3.b.ii		X	X.2.B.3; Attachment X-A
K.3.b.iii		X	X.2.B.1; Attachment X-B
K.3.b.iv		X	X.4.A.6
K.4.i		X	X.4; Attachment X-A
K.4.ii		X	X.4.A.4.e; X.4.A.6
K.4.iii			N/A
K.4.iv		X	X.4.A.4.e; X.4.A.6.c; Attachment X-A
K.4.v		X	X.4.A.4.e; X.4.A.6.c
K.4.vi		X	X.4.A.4.e.ii; Attachment X-A
K.4.vii		X	X.4; Attachment X-A
K.5.a.i			N/A
K.5.a.ii			N/A
K.5.a.iii			N/A
K.5.a.iv		X	Attachment X-C
K.5.a.v			N/A
K.5.a.vi			N/A
K.5.b.i			N/A
K.5.b.ii			N/A
K.5.b.iii			N/A
K.5.b.iv			Attachment X-C
K.5.b.v			N/A
K.5.b.vi			N/A
K.5.b.vii			N/A
L.1.i			N/A
L.1.ii			N/A
L.1.iii			N/A
L.1.iv			N/A
L.1.v		X	X.2.B
L.3.i		X	XI.1.A
L.4.i			N/A
L.4.ii			N/A
L.4.iii			N/A
L.4.iv			N/A

L.4.v			N/A
L.4.vi			N/A
L.4.vii			N/A
L.4.viii			N/A
M.1.i		X	XII.5.E.1
M.1.ii		X	XII.5.B
M.1.iii		X	XII.7
M.1.iv		X	XII.6
M.1.v		X	XII.8
M.1.vi		X	III.6.C; XII.9
M.3.i		X	XII.9.B.1
M.3.ii		X	XII.9.B.1
M.4.i		X	I.9.B.4; VIII.4.B
N.1.a.i		X	XIII.1.B.3; XIII.1.B.4
N.1.b.i		X	XIII.2.A; Attachments XIII-A, XIII-B
N.1.b.ii		X	XIII.2.A
N.1.d.i		X	XIII.2.B.1; Attachments XIII-A, XIII-B
N.1.d.ii			N/A
N.1.d.iii		X	XIII.2.B.3
N.1.d.iv		X	XIII.2.B.5
N.2.a.i		X	XIII.6.B.1; Attachment XIII-A
N.2.a.ii		X	XIII.6.B.2; Attachment XIII-A
N.2.a.iii		X	XIII.6.B.3; Attachment XIII-A
N.2.a.iv		X	XIII.6.B.4; Attachment XIII-A
N.2.c.i			N/A
N.2.d.i		X	XIII.6.C; Attachment XIII-A
N.2.e(1).i		X	XIII.6.D; Attachment XIII-A
N.3.i		X	XIII.4.A
N.4.i		X	XIII.5.A
N.5.i		X	XIII.5.F
O.1.i		X	XIV.1
O.1.ii			N/A
O.1.iii		X	XIV.2.E
O.1.iv		X	XIV.1
O.1.b.i			N/A
O.4.a.i		X	XIV.2.D; Attachment XIV-F
O.4.a.ii		X	Attachments XIV-A, XIV-B, XIV-C, XIV-D, XIV-E
O.4.a.iii		X	XIV.2.C
O.4.a.iv		X	XIV.3
O.4.b.i		X	XIV.2.D; Attachment XIV-F
O.4.b.ii		X	Attachments XIV-A, XIV-B, XIV-C, XIV-D, XIV-E
O.4.b.iii		X	XIV.2.C
O.4.b.iv		X	XIV.3
O.4.c.i		X	XIV.2.D; Attachment XIV-F
O.4.c.ii		X	Attachments XIV-A, XIV-B, XIV-C, XIV-D, XIV-E

O.4.c.iii		X	XIV.2.C
O.4.c.iv		X	XIV.3
O.4.d.i			N/A
O.4.d.ii			N/A
O.4.d.iii			N/A
O.4.d.iv			N/A
O.4.f.i			N/A
O.4.f.ii			N/A
O.4.f.iii			N/A
O.4.f.iv			N/A
O.4.g.i			N/A
O.4.g.ii			N/A
O.4.g.iii			N/A
O.4.g.iv			N/A
O.4.h.i			N/A
O.4.h.ii			N/A
O.4.h.iii			N/A
O.4.h.iv			N/A
O.4.j.i		X	XIV.2.B.10; Attachment XIV-F
O.4.j.ii		X	Attachment XIV-A
O.4.j.iii		X	XIV.2.C
O.4.j.iv		X	XIV.3
O.5.i		X	XIV.2.C; XIV.3
P.1.i		X	XV.1.C.2
P.1.ii		X	Attachments XIV-A, XIV-B, XIV-C, XIV-D, XIV-E
P.2.i		X	XV.1.C.1
P.3.i		X	XV.1.C.2
P.4.i		X	XV.1.D
P.4.ii		X	XIII.5.F
P.4.iii		X	XV.1.D.2
P.4.iv		X	VI.2.A.1
P.5.i		X	Attachment XV-A
P.5.ii		X	XV.1.C.2.c; XV.1.D.1.a; Attachment XV-A
P.5.iii		X	XV.1.D.1.b
P.6.i		X	Appendix C
P.7.i		X	Appendix D
P.8.i		X	Contents, I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV
P.8.ii		X	Appendix E
P.10.i		X	XV.1.C.2.d

This page intentionally left blank.

Appendix F: Ohio Implementation of the 2017 EPA Protective Action Guide (PAG) Manual

Appendix F – Ohio Implementation of the 2017 US EPA Protective Action Guide (PAG) Manual

Crosswalk NUREG Criterion #_____

The *"EPA PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents"* was published in the Federal Register on January 19, 2017 to provide guidance to the states on protective actions in response to a nuclear power plant and other radiological incidents. The last approved manual was "EPA-400 Manual of Protective Action Guides and Protective Action for Nuclear Power Plants" May 1992. An Interim EPA PAG Manual was published in 2013. In the 2017 PAG Manual, there are some substantial changes, deletions, as well as additional planning guidance. The Ohio Department of Health (ODH), Ohio Environmental Protection Agency (Ohio EPA), and the Ohio Emergency Management Agency (Ohio EMA) have reviewed the 2017 PAG manual and make the following recommendations for implementation of the guidance in response to a nuclear power plant emergency in Ohio.

The 2017 PAG Manual states that it serves only as guidance and that it does not preclude a state from setting their own guidelines.

Ohio shall adopt individual parts of the 2017 PAG Manual as follows:

The 2017 PAG Manual now offers guidance and protective actions for all types of radiological incidents.

- Ohio shall continue to use the State of Ohio Plan for Nuclear Power Plants and shall develop plans for other types of radiological incidents in Ohio.

The 2017 PAG Manual has changed the basis for dosimetry to the recommendation of International Commission on Radiological Protection (ICRP) Publication 60.
The 2017 PAG Manual, does not follow the current guidance of the Nuclear Regulatory Commission (NRC) for nuclear power plant licensees or the agreement state occupational dose rules which currently uses the ICRP 26/30 model as the basis for dosimetry. Implementation of ICRP 60, will impact multiple industries and would require significant discussion and determination of impacts to implement. Extensive planning and cooperation with the commercial nuclear power plant utilities and the NRC is required to make this change. In discussions with the nuclear power plant utility in Ohio, they have indicated no plans of changing to ICRP-60 in or before 2021.

- Ohio shall not adopt the ICRP-60 dosimetric methods at this time.

The 2017 PAG Manual removed organ dose-based evacuation thresholds.
The 2017 PAG Manual removes the 5 rem child thyroid evacuation criteria as threshold for recommending evacuation of an impacted population. This change is recommended because of the new calculations and weighting factors used with the ICRP-60 model for determining dose. Currently, the state of Ohio recommends evacuation when doses to the impacted population exceed *either* 5 rem child thyroid *or* 1 rem total effective dose equivalent (TEDE). This evacuation recommendation is based upon the ICRP-26/30 model. Since Ohio is not recommending a change to the current model used for dose calculations, the current organ dose-based evacuation recommendations shall continue.

- Ohio recommends not removing the 5 rem child thyroid dose based evacuation criteria.

The 2017 PAG Manual removed the intermediate phase relocation PAG of 5 rem over 50 years to avoid confusion with long-term cleanup.
The 2013 Interim PAG manual removed the intermediate phase relocation PAG of 5 rem over 50 years for relocation.

- Ohio removed the 5 rem relocation PAG over 50 years in 2015.

The 2017 PAG Manual allows Shelter-in-place for special populations up to 10 rem Total Effective Dose (TED).
The 2017 PAG Manual suggests special populations may shelter-in-place up to 10 rem TED and take Potassium Iodide (KI) when projections indicate 5 rem child thyroid dose will be exceeded. Under the current Ohio REP plan, the county EMA does not treat special populations differently from the general population when providing the evacuation decision for the public. Plus, according to the ODH KI Directive, evacuation is the recommended action when 5 rem child thyroid is exceeded, while taking KI is supplementary. KI is available in the counties at the reception centers, upon evacuation. The current REP plan is more conservative than this requirement in the PAG Manual.

- Ohio shall not adopt the shelter-in-place for special populations up to 10 rem TEDE, except for the medically fragile and incarcerated individuals; adding a special population definition, as individuals who need assistance to evacuate, to the Ohio REP Plan; and adding a medically fragile individual definition, as individuals who cannot be moved because it is life threatening, to the Ohio REP Plan.

- Ohio will re-evaluate the 10 rem TEDE if there is a competing issue impacting public health.

The 2017 PAG Manual suggests using the Food and Drug Administration's (FDA) 2001 Guidance for recommending Potassium Iodide (KI) at 5 rem child thyroid dose as a tiered approach.
The 2017 PAG manual has three tiers of recommendations – one for individuals ages 40+, one for individuals aged 18 – 40, and one for pregnant women, adolescents, and children. The Ohio Department of Health, per its KI Directive, incorporated taking KI at exceedances of 5 rem child thyroid as a supplemental protective action after guidance was published by FDA in 2001. However, ODH does not apply a tiered approach for the KI recommendation. ODH recommends evacuation as the primary action and taking KI for all individuals at a projected dose of 5 rem child thyroid, as a more conservative approach to protect the public.

- Ohio shall not adopt a tiered approach for KI ingestion.

The 2017 PAG Manual suggests different surface contamination control limits.
The 2017 PAG manual proposes a recommended level for surface contamination at monitoring stations be changed to 2 times (2x) the existing background value. The FEMA REP-14 and FEMA REP-22 guidance for control of surface contamination in the Radiological Emergency Preparedness (REP) program for a nuclear power plant is 300 counts per minute (cpm) above background.

- Ohio shall continue to follow the FEMA REP guidance of 300 cpm above background surface contamination control limits for nuclear power plant events.

- Ohio recommends using 2 times background as guidance for surface contamination control for other types of radiological incidents.

The 2017 PAG Manual suggests a two-tier drinking water PAG recommendation of 100 mrem for pregnant women and children and 500 mrem for all others and returning to compliance with the Safe Drinking Water Act (SDWA) levels (4 mrem/year) within the year.

In order to allow flexibility and allow assessment during an incident:

- Ohio will evaluate the scope of the incident, community needs, risk of dehydration in extreme heat and the availability to provide alternative water to determine whether there is a need to refer to the PAG manual and implement standards other than the SDWA level of 4 mrem/year.

- Ohio may choose to implement a two-tiered advisory level as identified in the guidance or a conservative one tier approach using the lowest derived response level (DRL) as identified in table 4-3 of the PAG Manual. Ohio's experience has been that two-tiered response levels create confusion and result in the public following the most restrictive guidance.

- Another option Ohio may choose is an interim standard lower than the PAG and higher than the SDWA standard as determined with coordination from state partners.

The 2017 PAG Manual suggests ideas for planning guidance in the Recovery Phase. Chapter 5 provides planning guidance for the long-term cleanup process. Cleanup goals and strategies are to be determined as decision-makers and stakeholders gain an understanding of all relevant factors.

- Ohio shall add guidance for the Post-Plume Phase to the 2021 Ohio REP Manual.

ODH — W. Gene Phillips, RS — Digitally signed by W. Gene Phillips, RS Date: 2020.10.07 10:32:33 -04'00'

Bureau Environmental Health and Radiation Protection Chief Signature

Ohio EPA — Digitally signed by 10045860 Date: 2020.10.07 10:46:26 -04'00'

Division of Drinking and Ground Waters Chief Signature

Ohio EMA — Christopher M. Salz — Digitally signed by Christopher M. Salz DN: cn=Christopher M. Salz, o=Ohio Emergency Management Agency, ou=Department of Public Safety, email=cmsalz@dps.ohio.gov, c=US Date: 2020.10.07 10:06:46 -04'00'

Radiological Branch Chief Signature