



PEMA Directive


Number:	D2019-05
Effective Date:	September 23, 2019
Termination Date:	N/A
Rescinds Directive Number:	D2014-01

Subject:
Radiological Preparedness Program

Scope:
Radiological Responder Certifications for County and State Agency Response Programs under PEMA Oversight

- Distribution:**
- www.pema.pa.gov
 - County Coordinators
 - Chiefs of State-Certified HMRTs
 - County Radiological Officers
 - County Commissioners
 - Commonwealth Agencies

By Direction of:



David R. Padfield, Director
PA Emergency Management Agency

I. PURPOSE

The purpose of this directive is to define the requirements for a Commonwealth radiological responder certification program. The standardization of this program will assist counties, participating agencies, and organizations in the certification process to train and develop their personnel and ensure the growth of a successful radiological preparedness program across the Commonwealth.

II. REFERENCES

- A. Commonwealth Radiation Protection Act 147 of 1984
- B. Commonwealth Emergency Operations Plan and applicable supporting plans
- C. Pennsylvania Emergency Management Services Code, 35 Pa. C.S., 7101-7707
- D. Hazardous Materials Emergency Planning and Response Act, 165 of 1990, 35 P.S. § 6022.101 et seq.

Comments and Questions Regarding this Directive Should be Directed to:
Nuclear Power Plants Division, Bureau of Technological Hazards, 717-651-2217

- E. NUREG-0654/FEMA-REP-1, Revision 1: *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*, Nuclear Regulatory Commission (NRC)-Federal Emergency Management Agency (FEMA), November 1980 and its successors
- F. *DHS FEMA REP Program Manual*, January 2016 and its successors
- G. REP-2, *Guidance on Off-Site Emergency Radiation Measurement Systems, Phase 1-Airborne Release*, FEMA, Revision 2, June 1990 and its successors
- H. REP-5, *Guidance for Developing State, Tribal and Local Radiological Emergency Response Planning and Preparedness for Transportation Accidents*, Revision 2, FEMA, November 2000 and its successors
- I. *Modular Emergency Response Radiological Transportation Training (MERRTT)*, United States Department of Energy (DOE), April 2013 and its successors
- J. Environmental Protection Agency (EPA)-400/R-16/001, *PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents*, EPA, November 2016 and successors (see EPA webpage at www.epa.gov/radiation/protective-action-guides-pags for current information as well as Planning Guidance for a variety of radiation/nuclear incidents)
- K. National Incident Management System (NIMS), 3rd Edition October 2017
- L. National Response Framework (NRF)/Nuclear Radiological Incident Annex, 3rd Edition, June 2016
- M. 49 Code of Federal Regulations (CFR) Parts 171-180 (USDOT)
- N. 10 Code of Federal Regulations (CFR) Parts 71-73 (USNRC)

III. GENERAL

As there is a need to ensure emergency responders are capable of preserving public safety during a radiological incident, this Directive will implement a radiological responder certification program to promote growth, development, sustainability, and interoperability across the Commonwealth. Additionally, as untrained personnel may be needed to support radiological response, it will be necessary for personnel certified under this program to address surge training capabilities as outlined in Section V.

- A. Counties, participating agencies, and organizations shall maintain a roster of trained personnel with a minimum of one Radiological Officer (RO) and four Radiological Response Technicians (RRT) as an operational starting point. Additional staffing to maintain 24-hour staffing and operational readiness is strongly preferred. PEMA recommends three ROs and four RRTs to provide the

needed operational depth. This may be accomplished through mutual aid. These personnel may be filled by the “Additional Personnel for HazMat Teams” recommendation found in the PEMA Emergency Management Directive D-2019-02 (and successors) *Hazardous Materials Response Team State Certification/Re-certification Program Requirements*

- B. Counties, participating agencies, and organizations are required to develop, implement, and maintain the capabilities necessary to respond to anticipated radiological hazards, and the ability to provide initial response and guidance to emergency managers.
- C. PEMA has implemented this radiological responder certification process in order to create a unified training standard and ensure the quality of the program. The process focuses on individual and team training, and program management.
- D. Counties, participating agencies, and organizations actively involved in the radiological responder certification process shall:
 - 1. Maintain a list of identified trained radiological personnel by level that is easily accessible in case of an emergency
 - 2. Maintain all personnel and team training records
 - 3. Track personnel recertification requirements and dates to accomplish timely biennial recertification
 - 4. Enter all classes into TRAIN PA to maintain student transcripts and training records across the Commonwealth
- E. The Directive also identifies acceptable surge training of radiological personnel (see Section V).

IV. RADIOLOGICAL RESPONDER CERTIFICATION PROGRAM

This section details the levels of radiological responder certification, the process to obtain the level of certification, and the process to maintain certification. These levels of certification are basic, advanced, and specialized. Certification prerequisites, training, and refresher requirements are listed below for each of the program levels. Attachments A, B, and C are also provided to assist individuals in selecting the appropriate training to meet certification requirements.

The Commonwealth uses courses provided by federal agencies as the basis for training for each level of radiological response training, thus establishing a national standard for each level of certification. Once completed, applicants shall document the required training and submit the appropriate form from Attachment B to PEMA to receive certification.

A. The federal courses that form the basis for each position are:

1. RRT – Department of Energy (DOE) *Modular Emergency Radiological Response Transportation Training (MERRTT)*
2. RO – FEMA G-320 *Fundamentals Course for Radiological Response*
3. RI – FEMA PER-908-1 *Radiological Series, Train the Trainer (RAD TtT)*
4. Alternative classes as identified in Attachment C will be considered

B. Radiological Response Technician (RRT):

Through prerequisites, training and refresher requirements, an RRT will understand radiation and how to work within the Incident Command System (ICS), maintain safety, use survey meters and other basic tools, and have ability to perform the basic radiological response activities. These activities include detecting radiation sources or radiological contamination, providing appropriate decontamination, containing radiological threats, and other basic operations a team may require. RRT Certification is the entry level for the Radiological Preparedness Program.

1. RRT Prerequisites:
 - a. Minimum 18 years of age
 - b. Complete ICS-100, 200, 700, 800 (current versions)
 - c. Complete IS-3 *Radiological Emergency Management*
2. RRT Initial Training Requirements:

Complete MERRTT course
3. RRT Refresher Requirements:
 - a. Complete Compressed-MERRTT (C-MERRTT) or
 - b. IS-302 MERRTT (not more than once in two-year refresher cycle)
or
 - c. MERRTT or any higher level radiological training courses as listed in Attachment C will be considered

C. Radiological Officer (RO):

The RO is an advanced-level responder. Through prerequisites, training, and refresher requirements, an RO will have the experience and training to lead a team; provide radiological expertise to an Incident Commander, Emergency Operations Center, or an elected official; and to maintain team training, documentation, and equipment. A certified RO will have demonstrated knowledge, skills, and abilities to direct RRTs in support of their mission(s) to

include, but not limited to, radiological surveying, establishing hot zones, establishing and conducting monitoring and decontamination, etc. Certified ROs must also have the knowledge, skills and ability to perform surge training to increase personnel response capability.

1. RO Prerequisites:

- a. Serve as an RRT for a minimum of one year
- b. Complete ICS-300: *Intermediate ICS for Expanding Incidents* (current version)
- c. Attend the PEMA *Radiological Officers' Development in Emergency Operations* (RODEO) **or**
- d. Participated in a full scale or functional radiological exercise utilizing RRT knowledge, skills and abilities **or**
- e. Have had a role in a real-world radiological event where RRT knowledge, skills and abilities were put to task
- f. Items d. and e. above will require explanation of the event, position(s), and tasks performed to determine if prerequisites are met
- g. Any alternate or higher-level radiological training courses as listed in Attachment C will be considered
- h. Receive the endorsement of their county, agency, or organization as a recognized response asset to receive training and to act in this capacity

2. RO Initial Training Requirements:

Complete FEMA G-320: *Fundamentals Course for Radiological Response*

3. RO Refresher Requirements:

- a. Complete IS-302 MERRTT or C-MERRTT (not more than once in two-year refresher cycle) **or**
- b. MERRTT **or**
- c. FEMA G-320: *Fundamentals Course for Radiological Response* **or**
- d. RODEO **or**
- e. Any alternate or higher level radiological training courses as listed in Attachment C will be considered

D. Radiological Instructor (RI):

1. RI Prerequisites:

- a. Must have at least four years of experience as a RO **or**
- b. Equivalent experience in radiological education and training and/or practice afforded through work experience, e.g., radiation health

- physics, nuclear power plant radiological controls, medical/pharmaceutical industry; or academia; or federal or state Radiological Emergency Preparedness Program will be considered
- c. FEMA PER-908-1 *RAD TtT*

2. RI Initial Training Requirements:

- a. Must have completed one of the following approved adult education methodology courses. Other equivalencies not listed will be considered:
- i. Pennsylvania State Fire Academy (PSFA), *Educational Methodology for local Level Instructors (EMLL)*
 - ii. Pennsylvania Department of Conservation and Natural Resources, *Instructor Trainer Course* (Sir Stanford Fleming College)
 - iii. National Fire Academy Resident Course R – 114, *Fire Service Course Design* or its predecessor *Fire Service Instructional Methodology*
 - iv. A formal post-secondary collegiate-level course in adult education methodology will be taken into consideration
 - v. A formal course of instruction in adult educational methodology and instructing adults of at least 30 hours duration conducted by another state's fire training system, the military services, state or federal agency, or other organization (i.e., Pennsylvania State Police Instructor Development, Department of Corrections Training for Staff Trainers, Municipal Police Officers' Education and Training Commission [MOPETC]-General Instructor, Center for Domestic Preparedness Weapons of Mass Destruction Instructor Training)
 - vi. Certification as a public school teacher by the Pennsylvania Department of Education: secondary or post-secondary certification preferred
 - vii. Certification as an Emergency Medical Technician (EMT) Instructor by the Pennsylvania Department of Health
- b. Must be an approved DOE or state-certified radiological instructor
- c. Once granted by PEMA, the RI will be a provisional instructor and will teach under the mentorship of a DOE or state-certified radiological instructor until the provisional instructor shows mastery of the subject and demonstrates ability to provide quality instruction
- d. RIs are qualified to teach radiological response classes in Pennsylvania such as DOE MERRTT, C-MERRTT and G-320 classes

3. RI Refresher Requirements:

- a. RIs are required biennially to conduct 32 hours at minimum of active instruction; they must instruct at least one radiological course annually.
- b. RIs are required to take courses on advanced or specialized radiological training and/or adult education (eight-hour biennially)
- c. RIs must maintain their instructor status with their state instructor organization

Note: Classes taught by an RI can be used to recertify their RO certification.

E. Summary of Certification and Recertification:

1. Attachment A: Requirement Matrix by Position provides a list of prerequisites, initial training requirements, refresher training requirements, and optional courses for RRT, RO, and RI positions
2. Attachment B: Certification Checklist Forms are to be submitted to PEMA for RRT, RO, and RI certifications and recertification
3. Attachment C: Optional Courses for Radiological Training provides an expanded but not all-inclusive list of offerings for Operational, Technical and Specialist Level Classes that may be considered for initial and refresher certifications. These are typically advanced specialized courses

Note: Counties, agencies and organizations should assess if advanced/specialized training is required for their anticipated missions.

4. Many of the federal courses are free. Specialized or advanced radiological training is provided by a number of vendors. Applicants for these federal classes must be an RRT to receive the Pennsylvania State Training Officer endorsement. PEMA Bureau of Technological Hazards will verify whether the participation in optional or alternative specialized classes meets the certification/recertification requirement

V. SURGE TRAINING

- A. During a radiological incident, it may be necessary to quickly train responders to assist in the radiological response efforts. Such assistance may include:
 1. Radiological briefers, who perform municipal RO tasks such as conducting a radiological briefing, issuing dosimetry and potassium iodide (KI), initiating and tracking radiological paperwork, and reporting exposure and dosimetry readings under the supervision of the county RO in municipalities without trained Ros

2. Radiological monitors and decontamination personnel, who operate radiological meters and monitors at planned or added monitoring positions or assist in personnel, material, or vehicle decontamination
- B. Surge training may consist of basic instruction in job-specific requirements such as delivering a radiological briefing, assigning dosimetry, or the use and operation of the assigned radiological instruments. The instruction will include:
1. A radiological briefing – risk and risk management
 2. Familiarization with and operational procedures of the survey meter, dosimeter, and dosimeter charger
 3. Personnel monitoring procedures and dispensing dosimetry, KI, and survey meters
 4. Protective Action Guides (PAG) including sheltering, evacuation, and the use of KI
 5. Proper use of Personal Protective Equipment (PPE), i.e., donning and doffing
 6. Decontamination procedures and operations
 7. Decontamination and exposure records
 8. Reporting procedures
 9. Brief on impacts, release status and recovery activities
- C. Surge training may only be conducted by qualified radiological personnel. Qualified radiological personnel are RIs, ROs, RRTs:
1. Other trained and qualified personnel with expertise, e.g., Department of Environmental Protection staff, Federal Emergency Management Agency radiological rostered personnel, etc.
 2. A Radiological Briefer in municipalities without a trained RO can be surge trained by a county RO

Attachment A Requirement Matrix by Position
Attachment B Certification Checklist Forms
Attachment C Optional Courses for Radiological Training

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Carbon Copy: Office of the Director
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Chief Counsel's Office
Special Assistant to the Director
Legislative/Policy Office
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Bureau of Technological Hazards
Bureau of Planning, Training and Exercise
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ATTACHMENT A

Requirement Matrix by Position

POSITION	PREREQUISITES	INITIAL TRAINING REQUIREMENTS	REFRESHER REQUIREMENTS	OPTIONAL COURSES
Radiological Response Technician (RRT)	<ul style="list-style-type: none"> • Minimum age 18 • Complete ICS-100, 200, 700, 800 (current versions) • Complete IS-3 	<ul style="list-style-type: none"> • MERRTT Course 	<ul style="list-style-type: none"> • C-MERRTT or • IS-302 MERRTT (no more than once in two refresher cycles) or • MERRTT or any higher level radiological training course 	<ul style="list-style-type: none"> • See Attachment C
Radiological Officer (RO)	<ul style="list-style-type: none"> • Serve as an RRT for a minimum of one year • Complete ICS-300 (current version) • PEMA RODEO, or • County RAD full scale or functional radiological exercise, or real world radiological event 	<ul style="list-style-type: none"> • PEMA G-320 	<ul style="list-style-type: none"> • C-MERRTT or • IS-302 MERRTT (no more than once in two refresher cycles) or • MERRTT or • FEMA G-320 or • RODEO 	<ul style="list-style-type: none"> • See Attachment C
Radiological Instructor (RI)	<ul style="list-style-type: none"> • Serve as an RO for a minimum of four years • FEMA PER-908-1 	<ul style="list-style-type: none"> • Must have completed an approved adult education methodology course or equivalent • Must be an approved instructor through PEMA 	<ul style="list-style-type: none"> • Must teach one radiological class a year • Attend eight hours of specialized or advanced radiological training OR adult education biennially 	<ul style="list-style-type: none"> • See Attachment C

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ATTACHMENT B

Certification Checklist Forms

This attachment contains the following certification forms:

- County Radiological Response Technician Initial Certification
- County Radiological Officer – Initial Certification
- County Combined RRT & RO – Recertification
- PEMA Radiological Instructor – Initial Certification
- PEMA Radiological Instructor – Recertification



CHECKLIST

COUNTY RADIOLOGICAL RESPONSE TECHNICIAN INITIAL CERTIFICATION

Name:			
Title:			
Agency:			
Address:			
City/State:		Zip Code:	
Phone:		Mobile Phone:	
Email:			
Last Four # of SS: XXX-XX-		FEMA SID#:	

Course	Date Completed	Certificate Enclosed
1. ICS-100: Introduction to Incident Command System		
2. ICS-200: ICS for Single Resources & Initial Action Incidents		
3. IS-700: National Incident Management System: An Introduction		
4. IS-800: The National Response Framework: An Introduction		
5. IS-3: Radiological Emergency Management		
6. MERRTT: Modular Emergency Response Radiological Transportation Training		

County Agency Recommendation		PEMA State Training Officer	
Signature:		Signature:	
Name (Print):		Name (Print):	
Title:		Date:	
Agency:		Approved <input type="checkbox"/>	Denied <input type="checkbox"/>
Date:			



CHECKLIST

COUNTY RADIOLOGICAL OFFICER - INITIAL CERTIFICATION

Name:			
Title:			
Agency:			
Address:			
City/State:		Zip Code:	
Phone:		Mobile Phone:	
Email:			
Last Four # of SS: XXX-XX-	FEMA SID#:		

Course	Date Completed	Certificate Enclosed
1. Affirm by signing below one-year service with a RAD Response Team & RRT Requisites		
2. ICS-300: Intermediate ICS for Expanding Incidents		
3. G-320: Fundamentals Course for Radiological Response		
4. Provide a copy of ONE of the following:		
• PEMA RODEO: Radiological Officers Development in Emergency Operations		
• REP FSE: RAD functional, full-scale, or real-world event		

County Agency Recommendation		PEMA State Training Officer	
Signature:		Signature:	
Name (Print):		Name (Print):	
Title:		Date:	
Agency:		Approved <input type="checkbox"/>	Denied <input type="checkbox"/>
Date:			



CHECKLIST

COUNTY COMBINED RRT & RO - RECERTIFICATION

Name:			
Title:			
Agency:			
Address:			
City/State:		Zip Code:	
Phone:		Mobile Phone:	
Email:			
Last Four # of SS: XXX-XX-			FEMA SID#:

Course	Date Completed	Certificate Enclosed
1. Copy of current or lapsed RO or RRT Certification		
2. Provide a copy of one of the following:		
a. IS-302 MERRTT: Modular Emergency Radiological Response Transportation Training (FEMA Independent Study - <i>NOT allowed more than once in the span of two refresher cycles</i>) -or- C-MERRTT: Compressed Modular Emergency Radiological Response Transportation Training		
b. MERRTT: Modular Emergency Radiological Response Transportation Training		
c. FEMA G-320: Fundamentals Course for Radiological Response		
d. RODEO: Radiological Officers' Development of Emergency Operations		
e. Alternative refresher course (as listed in Radiological Training Attachment C. Please submit a copy of the course completion certificate.		

County Agency Recommendation		PEMA State Training Officer	
Signature:		Signature:	
Name (Print):		Name (Print):	
Title:		Date:	
Agency:		Approved <input type="checkbox"/>	Denied <input type="checkbox"/>
Date:			



CHECKLIST

PEMA RADIOLOGICAL INSTRUCTOR - INITIAL CERTIFICATION

Name: _____
Title: _____
Agency: _____
Address: _____
City/State: _____ **Zip Code:** _____
Phone: _____ **Mobile Phone:** _____
Email: _____
Last Four # of SS: XXX-XX- _____ **FEMA SID#:** _____

Course	Date Completed	Certificate(s) Enclosed
1. PEMA Instructor classification certificate		
2. Four years of experience as a RO or equivalent		
3. PER-908-01: FEMA/CDP Radiological Series Train-the-Trainer		
4. EMLL: PSFA Educational Methodology for Local Level Instructor course (or PEMA-approved equivalent)		
5. Mentoring: Successfully completed Provisional Instructor Mentoring Program		

PEMA Review

Signature: _____

Name (*Print*): _____

Date: _____

Approved

Denied

PEMA State Training Officer

Signature: _____

Name (*Print*): _____



CHECKLIST

PEMA RADIOLOGICAL INSTRUCTOR - RECERTIFICATION

Name: _____
Title: _____
Agency: _____
Address: _____
City/State: _____ **Zip Code:** _____
Phone: _____ **Mobile Phone:** _____
Email: _____
Last Four # of SS: XXX-XX- _____ **FEMA SID#:** _____

Course	Date Completed	Certificate(s) Enclosed
RECERTIFICATION: Provide copies of the following:		
1. Instructional Time: 32-hours at minimum of active instruction biennially (should conduct at least one radiological course annually).		
2. Complete biennially at least 8-hours of a continuing education program related to the instructor's specialty, in an adult/vocational education program, or radiological program.		

NOTE: Use reverse side of this page to identify courses taught and continuing education.

PEMA Review

PEMA State Training Officer

Signature: _____

Signature: _____

Name (Print): _____

Name (Print): _____

Date: _____

Approved

Denied



CHECKLIST

PEMA RADIOLOGICAL INSTRUCTOR - RECERTIFICATION

Instructions: Fill out each series of boxes for each course you have taught. For instructor hours, please only include hours in which you were directly involved. For example, if you were only present for a single (8) hour day out of a (24) hour day you would receive credit only for the (8) hours. For the instructor role, please designate if you were the lead or adjunct instructor.

NOTE: As an instructor, you will also need 32 hours of instruction time and eight hours of continuing education every two years.

Course Name	Course Start Date	Hours	Instructor Role Lead or Adjunct

Continuing Education Course	Course Date(s)	Hours

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ATTACHMENT C

Radiological Training Options

Operations Level Classes

Source	Number	Name
DOE	C-MERRTT*	Compressed MERRTT
FEMA	IS ⁵ -302*	Online Compressed MERRTT
DOE	MERRTT	Modular Emergency Radiological Response Transportation Training
DTRA ³	NR ⁶ 101	Nuclear Emergency Team Operations
DTRA ³	CW ² 100	Basic
PEMA	G ⁴ -320	Fundamentals Course for Radiological Response
FEMA	PER ⁷ -909-2	Fundamentals Course for Radiological Response
FEMA	PER ⁷ -904	Radiological Emergency Response Operations
CTOS ¹	PER ⁷ -345	Radiation Instrument Operations
CTOS ¹	PER ⁷ -354	Response to Radiological/Nuclear Weapons of Mass Destruction
CTOS ¹	PER ⁷ -355	Radiation Instruments Employment

Technician Level Classes

Source	Number	Name
DTRA ³	NR ⁶ 300	Advanced Diagnostics Training Level I
DOE	T-MERRTT	Technical MERRTT
FEMA	PER ⁷ -904	Radiological Emergency Response Operations
DTRA ³	NR ⁶ 401	Applied Radiological Response Technician Level II
CTOS ¹	PER ⁷ -241	Technician Level Response Radiological/Nuclear
REAC/TS ⁸	**	Radiation Emergency Medicine
FEMA	PER ⁷ -908-1	Radiological Series, Train the Trainer
PEMA	RODEO	Radiological Officers' Development in Emergency Operations

Specialist Level Classes

Source	Number	Name
DOE	Specialist**	Specialist
FEMA	PER ⁷ -905	Advanced Radiological Incident Operations

* You may use either C-MERRTT or IS-3 for recertification once every four years.

** These classes may involve cost to the students

Footnotes:

- 1: CTOS – Center for Radiological Nuclear Training
- 2: CW – Chemical Weapons
- 3: DTRA – Defense Threat Reduction Agency
- 4: G – State/local/tribal field-delivered courses
- 5: IS – Independent Study
- 6: NR – Non-Resident
- 7: PER – Performance
- 8: REAC/TS – Radiation Emergency Assistance Center/Training Site

