



U.S. Department of Homeland Security  
**FISCAL YEAR 2014**

**HOMELAND SECURITY GRANT PROGRAM**

**SUPPLEMENTAL RESOURCE:  
Radiological / Nuclear Detection Guidance**



U.S. DEPARTMENT OF HOMELAND SECURITY

**RADIOLOGICAL / NUCLEAR DETECTION GUIDANCE**

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## **A. DNDO Background and Mission**

The Domestic Nuclear Detection Office (DNDO) was established in the Department of Homeland Security (DHS) by Presidential Directive on April 15, 2005. DNDO plays an essential role in coordinating and implementing a defensive strategy, with domestic and international programs, to protect the Nation from a radiological or nuclear terrorist attack. Because no single layer within the strategy is capable of providing complete effectiveness in detecting and interdicting radiological and nuclear (R/N) materials intended for illicit use, DNDO promotes a multi-layered strategy.

DNDO is the primary agency within the U.S. Government responsible for coordinating the Global Nuclear Detection Architecture (GNDA). The GNDA is a worldwide network of sensors, telecommunications, and personnel, with the supporting information exchanges, programs, and protocols that serve to detect, analyze, and report on nuclear and radiological materials out of regulatory control. DNDO supports development of the domestic portion of the GNDA. Grantees are encouraged to work closely with DNDO when developing, enhancing, and/or sustaining R/N detection programs. This is to ensure their programs are efficiently integrated into current and future national efforts and they are able to leverage existing capabilities, best practices, and lessons learned from previous efforts.

DNDO is coordinating development, test, and evaluation programs to assess and improve the Nation's capability to detect, identify, and report R/N materials. By integrating these programs with operational support responsibilities, DNDO ensures capabilities are appropriately deployed along with appropriate training materials and operational response protocols. Working with federal, state, local, territorial, and tribal partners, DNDO has piloted initial training programs and developed detection alarm protocols that can be customized for specific operational missions.

## **B. Federal, State, Local, Territorial, and Tribal Partnerships**

DHS values the roles of information, intelligence, and systems in strengthening our Nation's security. DNDO seeks to integrate crucial overseas detection programs with nuclear detection efforts undertaken by federal, state, local, territorial, and tribal governments and domestic private sector collaborators. To facilitate an effective relationship with these entities involved in R/N detection activities, DNDO will continue to pursue the coordinated delivery of products, programs, and services to expand state, local, territorial and tribal capabilities.

DNDO provides stakeholders with training and exercise support, overt assessments, and covert operations. All of these may include the introduction of radiological sources into an operational environment and are coordinated within DHS and across appropriate federal, state, local, territorial and tribal agencies. In addition, DNDO provides open source adversarial assessments. Open source adversarial assessments are from an outsider's perspective and do not rely upon "inside" information of current or planned capabilities. The assessment team replicates an adversary looking to determine the

U.S. Government's capability to detect and defeat a radiological or nuclear attack. DNDO assessments identify and evaluate vulnerabilities and best practices across the GNDA and allow DNDO to improve the GNDA over time.

### **C. Building Adaptable Radiological/Nuclear Detection Capabilities**

State, local, territorial and tribal entities are encouraged to implement comprehensive R/N detection programs in support of, and in concert with, the domestic portion of the GNDA, as appropriate. DNDO recognizes implementing a comprehensive program takes time and requires substantial regional coordination and resources. DNDO promotes building adaptable R/N detection capabilities, for use in response to intelligence-driven events. DNDO encourages a regional approach to implement a comprehensive R/N detection program, with an emphasis on coordination and information sharing mechanisms to optimize technical and non-technical capabilities. Depending on stakeholder needs, these capabilities may be deployed during steady state operations or on an as needed basis across various operating environments and pathways (e.g., commercial vehicle inspection, special events screening, small maritime vessel monitoring, and critical infrastructure protection).

### **D. Maintaining and Sustaining Radiological/Nuclear Detection Capabilities**

Maintenance and sustainment are critical aspects of an enduring, comprehensive R/N detection capability. DHS preparedness funding may be used for maintenance contracts, warranties, repair or replacement costs, upgrades, and user fees under all active and future grant awards. However, grantees are reminded to be sensitive to supplanting issues. More information about allowable maintenance and sustainment costs are located in Information Bulletins #336 and #348 at Federal Emergency Management Agency (FEMA) [Grant Information Bulletins website](#). Grantees are encouraged to contact DNDO at [DNDO.SLA@dhs.gov](mailto:DNDO.SLA@dhs.gov) prior to initiating program activities for details on available program guidance, tools, resources, and updates.

### **E. Threat and Hazard Identification and Risk Assessment (THIRA) Process**

Grantees should ensure strategic planning for an R/N detection program aligns with Presidential Policy Directive (PPD)-8 guidance and state, local, territorial, and tribal strategic priorities. Specifically, R/N detection program managers should ensure their R/N detection mission is incorporated into broader state and local strategic preparedness planning efforts. This includes using the THIRA process and/or respective state/urban area working groups to ensure proper coordination of regional resources. FEMA's Comprehensive Preparedness Guide (CPG) 201, 2<sup>nd</sup> Edition: *THIRA Guide* provides an overview of the THIRA process and can be found online at:

[FEMA National Preparedness Cycle website](#). Figure 1 outlines the four-step THIRA process.



**Figure 1. The Four-Step THIRA Process**

If state, local, tribal, and territorial leaders consider improvised nuclear devices (IND) or radiological dispersal devices (RDD) a threat to their jurisdiction, R/N detection program managers should ensure these threats are identified in THIRA process Steps 1 and 2. In THIRA process Steps 3 and 4, program managers should refer to the PPD-8 core capabilities and associated desired outcomes to give identified threats context and then establish the R/N detection capability targets. Core capabilities applicable to an R/N detection program include, but are not limited to:

- Screening, Search, and Detection
- Planning
- Risk Management
- Operational Coordination
- Intelligence and Information Sharing
- Public Information and Warning

Additional information on core capabilities and associated desired outcomes can be found in the National Preparedness Goal at the [FEMA National Preparedness Goal website](#). Program managers should also use the Radiological/Nuclear Detection and Adjudication Capability Development Framework (see Section F.1 and Appendix D) to further refine R/N detection-specific target outcomes.

## **F. Available Resources and Allowable Costs**

Through the Assistance Program, DNDO is working in close coordination with federal, state, local, territorial, and tribal entities to build and enhance R/N detection programs

through planning, organization, equipment, training, exercise, and operational support (POETE/Ops) framework as outlined in Table 1. This POETE/Ops framework aligns with the National Preparedness Goal, state homeland security strategies, and reporting requirements for DHS preparedness grant programs.

**Table 1. Assistance for R/N Detection Programs**

|                            |  |
|----------------------------|--|
| <b>Planning</b>            | DNDO can provide planning assistance and support development of protocols and programs.  |
| <b>Organization</b>        | DNDO can provide program management guidance to support a successful, comprehensive R/N detection program.   |
| <b>Equipment</b>           | DNDO evaluates R/N detection equipment and can provide guidance on integrated sets of equipment to meet detection and alarm resolution mission priorities.                               |
| <b>Training</b>            | DNDO has developed standardized training courses and curricula to assist state, local, and tribal entities in development and implementation of initial and refresher training programs. |
| <b>Exercises</b>           | DNDO has developed exercise guidelines and can support R/N detection exercise development and execution.   |
| <b>Operational Support</b> | DNDO can provide technical “reach-back” support and access to information sharing systems 24/7 via the DNDO Joint Analysis Center.   |

The following DNDO services are available to state, local, territorial, and tribal grantees that wish to develop, enhance, or sustain R/N detection programs.

*Additional information about these programs and products is available on the R/N detection Community of Interest (COI) described below or by contacting DNDO at [DNDO.SLA@dhs.gov](mailto:DNDO.SLA@dhs.gov).*

### ***F.1. Planning and Organization***

**Plans and Protocols.** Working in coordination with federal, state and local R/N detection operators, DNDO has created planning templates and compiled examples to assist in the establishment of concepts of operation (CONOPs) and standard operating procedures (SOPs) for R/N detection operations and alarm resolution.

**Program Management (PM) Handbook.** DNDO has developed the R/N detection *Program Management Handbook*, which includes modules and technical appendices addressing specific operational environments such as commercial vehicle inspection (CVI), small maritime vessel operations, and special events. This handbook provides guidance for the administration of a domestic R/N detection program and is intended to assist program development and implementation at both the senior policy making and operational levels.

- The CVI module and technical appendix focuses on the R/N security risks posed by commercial vehicles.

- The Small Maritime Vessel module and technical appendix focuses on the R/N security risks posed by small maritime vessels (those vessels that are less than 300 gross tons).
- The Special Events module and technical appendix focuses on the R/N security risks posed by special events.

**National Incident Management System (NIMS) Resource Type Definitions.**

NIMS Resource Type Definitions for R/N detection equipment, teams, and personnel are defined in Appendix C. Regions considering developing or enhancing their R/N detection capability should identify the type and quantity of NIMS resources they currently have, as well as those they envision obtaining as part of this grant submission. Regions should also address any Emergency Management Assistance Compact (EMAC) or other interstate mutual aid agreements and compacts they have in place or anticipate as part of this program.

Appendix C contains the NIMS Resource Type Definitions.

**Radiological/Nuclear Detection and Adjudication Capability Development Framework (CDF).** The CDF planning guidance assists state, local, tribal, and territorial jurisdictions with identifying recommended levels of R/N detection capability based on risk factors and the likelihood of encountering illicit R/N material. The CDF is based on lessons learned provided by subject matter experts. It is intended to provide strategic guidance based on best practices, without establishing specific requirements. The CDF is DNDO guidance modeled on the FEMA Target Capability List (TCL) version 3.0., and can be leveraged to support grant investment justifications. A CDF calculator is also available to assist jurisdictions with identifying recommended levels of R/N detection capability quickly and easily. The CDF and supporting resources are available on the PRND Community of Interest (COI) web portal (see below).

Appendix D contains the CDF.

**Radiological/Nuclear Detection Community of Interest (COI) Web Portal.** The Homeland Security Information Network (HSIN) COI provides consistent, useful R/N detection information to the federal, state, local, territorial and tribal R/N detection community. The intent of the site is to enhance communication between DNDO and the broader R/N detection community while providing a forum where vetted users can securely collaborate to share examples, best practices and lessons learned. The COI provides access to many DNDO capability development documents and is intended to be the repository for federal, state, local, territorial, and tribal operators seeking to build or enhance R/N detection capability.

Interested officials with a “need to know” may request access by emailing [PRND\\_COI@hq.dhs.gov](mailto:PRND_COI@hq.dhs.gov) with the subject line “PRND COI HSIN Access Request.”

## ***F.2. Equipment***

**Overview.** Grantees intending to purchase R/N detection equipment are strongly encouraged to consider only instruments independently tested by accredited laboratories and demonstrated conformity with applicable ANSI/IEEE N42 standards. Manufacturers offering new equipment for consideration should be asked to provide evidence of independent testing for compliance with these standards. DNDO has resources to assist federal, state, local, territorial and tribal entities in selecting the right R/N detection equipment to meet their operational needs.

**Equipment Test Results.** DNDO has conducted several equipment test campaigns to evaluate detection systems effectiveness in multiple performance areas. This data may support R/N federal, state, local, territorial, and tribal entities R/N detection procurements. Several test campaign results are available on the COI and the [Responder Knowledge Base \(RKB\)](#). Examples of test reports include:

- Anole Test Campaign Report for handheld, backpack, and mobile systems
- Bobcat Test Campaign Report for commercial-off-the-shelf and prototype PRDs
- Crawdad and Dolphin Test Campaign Reports for boat-mounted detection systems
- Eland Test Campaign Report for mobile platform radiation detection systems (MPRDS) (i.e., vehicle-mounted detectors)
- Gryphon Test Campaign Report for aerial detection systems

ITRAP+10 is an international partnership with the European Commission that tested 79 models of radiation detection and identification instruments against the requirements set forth by the IEEE/ANSI (Institute of Electrical and Electronics Engineers/American National Standards Institute) and the IEC (International Electrotechnical Commission) standards, and the International Atomic Energy Agency (IAEA) guidelines.

These reports are available on the COI, RKB, or upon request. DNDO continues to conduct additional equipment test campaigns and stakeholders are encouraged to contact DNDO to learn more about these and upcoming tests.

**Graduated Radiological/Nuclear Detector Evaluation and Reporting (GRaDER<sup>®</sup>) Program.** The GRaDER program facilitates evaluation of commercial-off-the-shelf (COTS) preventive radiation and nuclear detection and identification instruments. Independent laboratories test equipment used to detect and intercept radiological and nuclear material or devices. GRaDER testing evaluates systems against national consensus standards. Summaries of the test results are provided to federal, state, local, territorial and tribal stakeholders to assist them in making equipment selection decisions. GRaDER utilizes National Voluntary Laboratory Accreditation Program (NVLAP) accredited or DNDO accepted laboratories to provide the appropriate infrastructure for high-integrity test data. Testing and reporting are standardized to enable valid comparisons and easy interpretation of results. There are fourteen GRaDER Equipment Evaluation reports available to the community. Currently there are

two laboratories accredited to the radiation detection instrumentation standards, a current listing can be found on the [NVLAP website](#).

**Special Requirements for Neutron Detection Equipment.** Helium-3 ( $^3\text{He}$ ) is an important element used in several national security, homeland defense, and medical applications. The supply of  $^3\text{He}$  is extremely limited and research is currently being conducted to develop alternative materials for neutron detection. Because of this, grantees developing R/N detection capability may be unable to acquire  $^3\text{He}$  gas for neutron detection. Grantees seeking to develop or enhance neutron detection capabilities are encouraged to contact DNDO for more information about  $^3\text{He}$  availability and alternative detection technologies.

**Mobile Detection Deployment Units.** DNDO's Mobile Detection Deployment Units (MDDUs) are trailer-based components outfitted with an extensive suite of R/N detection equipment and command and control capabilities. MDDUs offer a nationwide deployable R/N detection surge package to augment stakeholder resident capabilities. Each MDDU contains a number of mobile units, backpack detectors, high-resolution handheld radioisotope identification devices (RIIDs), personal radiation detection (PRD) devices, communications, and tracking equipment configured to outfit up to 40 individuals. Each MDDU is accompanied by technical support staff to train personnel on equipment use and to help integrate these R/N detection surge capabilities into existing operations. Requests for MDDUs should be directed through DNDO at [DNDO\\_MDDU\\_Request@hq.dhs.gov](mailto:DNDO_MDDU_Request@hq.dhs.gov).

**Equipment Types.** There is a broad range of sizes and capabilities for R/N detection equipment. Some of the radiation detection and identification equipment that can be utilized include, but are not limited to:

- **Personal Radiation Detectors (PRDs).** Pocket sized instruments used for detection of photon-emitting and optionally neutron-emitting radioactive materials. *Reference: ANSI / IEEE N42.32-2006 and IEC 62401.*
- **Spectroscopic Personal Radiation Detectors (SPRDs).** Pocket-sized instruments used for detection and identification of photon-emitting, and optionally neutron-emitting, radioactive materials. *Reference: ANSI/IEEE N42.48-2008 and IEC 62618.*
- **Hand-held Radioisotope Identification Devices (RIIDs).** Handheld instruments used for detection and identification of photon-emitting, and optionally neutron-emitting, radioactive materials. *Reference: ANSI / IEEE N42.34-2006 and IEC 62327.*
- **Human Portable (Backpack) Radiation Detectors.** Backpack based instruments used for detection and identification of photon-emitting, and

optionally neutron-emitting, radioactive materials. *Reference: ANSI / IEEE N42.53 and IEC 62694*

- **Mobile and Transportable Detectors.** Mobile radiation detection and optionally identification instruments used for detection and optionally identification of photon-emitting, and optionally neutron-emitting, radioactive materials. They are designed to be operated on a platform that is in motion but can also be used while stationary. *Reference: ANSI / IEEE N42.43-2006: no equivalent IEC standard.*
- **Radiation Portal Monitors (RPMs).** Monitors for people, packages, containers, and vehicles that detect and identify illicit photon- and neutron- emitting radioactive material during transportation. *Reference: ANSI / IEEE N42.35-2006 and IEC 62244.*
- **Spectroscopic Radiation Portal Monitors (SRPMs).** Monitors for people, packages, containers and vehicles that detect and identify illicit photon and neutron-emitting radioactive material during transportation. *Reference: ANSI N 42.38-2006 and IEC 62484.*

### ***F.3. Training***

DNDO has developed multiple training delivery systems to address the needs of those organizations interested in obtaining R/N detection training for their personnel. These are delivered through strategic partnerships with agencies such as Emergency Operations Training Academy (EOTA), FEMA National Training and Education Division (NTED), as well as, private sector online training developers. Resources and materials can be found through the [DNDO Training SharePoint site](#) and the [NTED Federal Sponsored Course Catalog](#).

Course offerings are listed in the catalogs noted above. Included are courses at the awareness level, equipment operations, basic and advanced operation levels, and the program level. Specialty courses, such as maritime and aviation-oriented courses, are also listed.

These courses are unique to the prevention mission and specific to R/N detection. These are offered through traditional instructor-led training, as well as computer-based interactive training mediums.

Agencies interested in training should review their training and exercise plan for integration, review equipment requirements, and training requisites related to operations. Agencies should speak directly to their training division for coordination and guidance in writing initial justifications for obtaining funding. Further information on grant guidance and allowable expenditures can be found in Appendix B or at [FEMA Grant Information Bulletins website](#).

#### ***F.4. Exercises***

DNDO provides assistance in developing, designing, and conducting exercises compliant with the Homeland Security Exercise and Evaluation Program (HSEEP) methodology. These exercises provide valuable hands-on experience for personnel performing R/N detection missions and assist decision makers in integrating the R/N detection mission into their daily operations.

#### ***F.5. Operational Support***

DNDO provides continuous information sharing support to federal, state, local, territorial, and tribal entities through the Joint Analysis Center (JAC). The JAC maintains real-time GNDA status to support development and execution of a coordinated response with relevant authorities.

The Joint Analysis Center Collaborative Information System (JACCIS) provides GNDA partners a secure web enabled application that includes capability for adjudication connectivity, a detector database, and status information regarding GNDA events and activities. To request a JACCIS account or information regarding the GNDA, please call 1-866-789-8304 or email [dndo.jac2@hq.dhs.gov](mailto:dndo.jac2@hq.dhs.gov).

*The Source* is the JAC's weekly informational bulletin consisting of:

- A summary of Nuclear Regulatory Commission (NRC) lost and stolen source information of significance posted on their Event Notification page for the previous calendar week
- A summary of GNDA-related news
- Detection/Radiation/Nuclear trivia

*In the Know* is DNDO's stakeholder pamphlet which showcases ongoing GNDA outreach efforts. *In the Know* includes articles and interesting facts written by DNDO and stakeholders. While it is not a technical publication, it is geared toward helping communicate program development efforts across the GNDA community.

#### ***F.6. Allowable Costs***

Appendix B outlines DHS preparedness grants available to build, enhance, or sustain R/N detection programs. Appendix B also identifies the specific R/N detection equipment (via the Authorized Equipment List) is allowed by each grant. Grantees are encouraged to contact DNDO prior to initiating program activities in order to take advantage of available program guidance, tools, resources, and updates.

## APPENDIX A: Program Baseline Capabilities Checklist

This Program Baseline Capabilities Checklist provides minimum R/N detection program capabilities for state, local, territorial and tribal stakeholders. This also includes recommended activities to develop, maintain and sustain a successful program. This checklist is outlined in the *Program Management Handbook*, which provides guidance to ensure R/N detection programs are developed consistently nationwide. The *Program Management Handbook* can be accessed via the HSIN COI or by contacting DNDO. By achieving this baseline level of capability, a state, local, territorial or tribal R/N detection program will have the necessary structures, processes, and tools in place to detect, analyze, and report on R/N materials out of regulatory control.

### Planning

- Develop the R/N detection program concept
- Identify appropriate stakeholders who may provide input into the design of the R/N detection program
- Understand jurisdictional risks posed by R/N threats
- Determine R/N detection program capabilities necessary to address identified risks
- Develop an R/N detection program strategy
- Identify existing complementary programs available for use in the R/N detection program
- Determine necessary policies and procedures for accomplishing R/N detection program goals
- Define roles and responsibilities needed for R/N detection program administration
- Create a budget to support the R/N detection program
- Identify available and accessible funding sources to support the R/N detection program
- Address potential risks to establishing the R/N detection program
- Identify critical success factors for R/N detection program implementation and sustainment
- Evaluate and assess R/N detection program effectiveness
- Ensure the continuous improvement of the R/N detection program

### Organization

- Develop and establish an R/N detection program organizational structure
- Establish a Program Advisory Group to provide multi-disciplinary guidance for R/N detection program administration
- Outline legal authority necessary to administer the R/N detection program
- Understand R/N detection program resources and requirements for multi-jurisdictional coordination
- Develop and implement an R/N detection program communications plan

- Develop and implement an R/N detection program outreach plan

## Equipment

- Define R/N detection program equipment goals
- Identify factors influencing equipment goals
- Identify existing equipment available for R/N detection program use
- Define strategy for obtaining equipment
- Understand and comply with state procurement processes for R/N detection equipment acquisitions
- Manage R/N detection program equipment inventory
- Ensure the proper use of equipment
- Ensure proper maintenance and calibration of equipment
- Ensure equipment use, maintenance, and calibration protocols align with training and exercises
- Test and evaluate R/N detection program equipment operational effectiveness
- Create and manage the R/N detection program equipment budget
- Understand specific R/N detection program equipment grant and funding considerations

## Training

- Define R/N detection program training goals
- Identify training programs and resources available for use in the R/N detection program
- Develop a strategy for executing R/N detection program training
- R/N detection program training administration, management, and sustainment
- Ensure training subject matter and curriculum aligns with equipment and exercises
- Ensure training program aligns with GNDA Goals 1, 2, 3, and 4
- Test and evaluate the effectiveness of R/N detection program training
- Create and manage a training budget
- Understand additional grant and funding considerations specific to R/N detection program training

## Exercises

- Define R/N detection program exercise goals
- Identify existing factors influencing execution of R/N detection program exercises
- Identify current resources and exercises that can be used for the R/N detection program
- Develop a R/N detection program exercise execution strategy
- Develop R/N detection program exercises

- Administer and manage R/N detection program exercises
- Ensure exercises align with equipment and training
- Test and evaluate exercise program effectiveness
- Create and manage exercise program budget
- Understand additional grant and funding considerations specific to the R/N detection exercise program

### **Operations Support**

- Define R/N detection program operations support goals
- Identify factors influencing types of resources and systems necessary to accomplish operations support goals
- Identify operations support resources for the R/N detection program
- Develop a strategy for using R/N detection program operations support resources
- Develop alarm adjudication processes and procedures
- Determine systems necessary for information and intelligence sharing
- Determine mechanisms to evaluate and continuously improve operations support
- Create and manage operations support budget
- Understand current grant and funding processes relevant to R/N detection program operations support

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APPENDIX B: Allowable R/N Detection Expenses Chart

|  | Emergency Management Performance Grants (EMPG)  | Homeland Security Grant Program (HSGP)  |  |  | Tribal Homeland Security Grant Program (THSGP)  | Transit Security Grant Program (TSGP)  | Intercity Passenger Rail (IPR or Amtrak)  | National Special Security Event (NSSE) Grant Program                | Port Security Grant Program (PSGP)  |
|--|---|---|--|--|---|--|---|---|---|
|  |   | State Homeland Security Program (SHSP)  | Urban Areas Security Initiative (UASI) | Operation Stonegarden (OPSG)   |   |  |   |   |   |
| <b>Purpose</b>   | All-hazards management  | State preparedness  | Urban area preparedness                | Border LE operations   | Tribal preparedness   | Transportation infrastructure security activities  | Amtrak security   | NSSE preparation and execution costs                                | Port security   |
| <b>Eligible Funding Recipient</b>  | All 56 states & territories, Marshall Islands, Micronesia                                       | All 56 states & territories, Marshall Islands, Micronesia   | Designated urban areas                 | Local/tribal government in border states                                 | Directly eligible Tribes  | Owners/operators of transit systems (intra-city/commuter bus, ferries*, all passenger rail)      | Amtrak  | States, territories & local governments hosting NSSE before 30SEP14 | 1-Port authorities, owners, & operators; 2-Area Maritime Security Committee Members             |
| <b>Allowable RND PLANNING Costs</b>  | *Developing plans<br>*Planning staff salaries   | *Developing plans<br>*Planning staff salaries<br>*OT/backfill and travel  |  |  | *Developing plans<br>*Planning staff salaries<br>*OT/backfill and travel                        |  | *Developing plans<br>*Planning staff salaries   | *Develop Op. Sec. Plan<br>*Must be w/ NSSE Ex. Steering Committee   | *Developing plans<br>*Planning staff salaries   |
| <b>Allowable RND ORGANIZATION or OPERATIONAL Costs</b>                     | Emergency manager salaries  | 50% of funds eligible for:<br>*Intelligence Analysts<br>*OT for federally-requested info-sharing, intel & investigative homeland security activities (e.g., JTTF)<br>*Operational OT/Backfill for CIKR security |  | 50% funds eligible for:<br>*Operational OT/border LE activities backfill | Same as SHSP except CIKR security   | *Operational activities<br>*Ops. Packages (OPacks)<br>*Top Transit Asset List (TTAL) remediation |   | Variety of planning, personnel, and organizational activities       | Operational Package (OPack):<br>*Explosives Detection Canine Team                               |
| <b>Allowable RND EQUIPMENT Costs</b><br>(PRD, RIID, Mobile, RPM, Backpack) | Yes   | Yes   | Yes                                    | Yes  | Yes   | Yes  | Yes   | No  | Yes (Prefers QTL over ICE)  |
| <b>Allowable RND TRAINING Costs</b>  | *OT/backfill & training travel<br>*Training coordinator salaries                                | *OT/backfill and training travel<br>*Training coordinator salaries  |  |  | *OT/backfill & training travel<br>*Training coordinator salaries                                | *OT/backfill & training travel<br>*Training coordinator salaries                                 | *OT/backfill & training travel<br>*Training coordinator salaries                                | Variety of planning, personnel, and organizational activities       | *OT/backfill & training travel<br>*Training coordinator salaries                                |
| <b>Allowable RND EXERCISE Costs</b>  | *Develop & conduct exercise<br>*OT/backfill & exercise travel<br>*Exercise coordinator salaries | *Develop & conduct HSEEP exercise<br>*OT/backfill and exercise travel<br>*Exercise coordinator salaries   |  |  | *Develop & conduct exercise<br>*OT/backfill & exercise travel<br>*Exercise coordinator salaries | *Develop & conduct exercise<br>*OT/backfill & exercise travel<br>*Exercise coordinator salaries  | *Develop & conduct exercise<br>*OT/backfill & exercise travel<br>*Exercise coordinator salaries | Variety of planning, personnel, and organizational activities       | *Develop & conduct exercise<br>*OT/backfill & exercise travel<br>*Exercise coordinator salaries |

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| Equipment                                      | AEL Category  | AEL Number   | AEL Description  | EMPG | HSGP |      |      | THSGP | TSGP | IPR | PSGP |
|--|---|--------------|--|------|------|------|------|-------|------|-----|------|
|  |   |              |  |      | SHSP | UASI | OPSG |       |      |     |      |
| Personal Alarming Radiation Detector           | Radiological Detection, Portable                    | 07RD-01-PDGA | Personal radiation (gamma and neutron) detection device which provides an alarm based on detection, but does not quantify dose-rate.   | Yes  | Yes  | Yes  | Yes  | Yes   | Yes  | Yes | Yes  |
| Radionuclide Isotope Identifier                | Radiological Detection, Portable                    | 07RD-01-RIID | Handheld spectrometer for nuclide identification using crystals such as NaI, CZT, LaBr, and Germanium.   | Yes  | Yes  | Yes  | Yes  | Yes   | Yes  | Yes | Yes  |
| High-Sensitivity Radionuclide Detector         | Radiological Detection, Transportable Lab Equipment | 07RD-02-DRHS | Radionuclide detector utilizing high-purity crystal such as germanium.   | Yes  | Yes  | Yes  | Yes  | Yes   | Yes  | Yes | Yes  |
| Standoff Gamma/ Neutron Detector               | Radiological Detection, Standoff Detectors          | 07RD-04-SGND | A detector that can detect gamma/neutron radiation at a stand-off distance of at least 50 feet and specify the type and location of radiation sources, while maintaining sufficient energy resolution and sensitivity to discriminate between normally-occurring radioactive materials, background and | Yes  | Yes  | Yes  | Yes  | Yes   | Yes  | Yes | Yes  |
| Pulsed Neutron Activation System, Non-Invasive | Inspection and Screening System, Inspection Systems | 15IN-00-PLSN | Screening system utilizing pulsed neutrons. Non-destructive detection of CWAs in sealed containers.  | No   | Yes  | Yes  | Yes  | Yes   | No   | No  | Yes  |
| Mobile Search and Detection System X-Ray       | Inspection and Screening System, Inspection Systems | 15IN-00-XRAY | Portable X-Ray systems for use in search and screening operations  | No   | Yes  | Yes  | Yes  | Yes   | No   | No  | Yes  |
| Portal Monitors                                | Inspection and Screening System, Screening Systems  | 15SC-00-PMON | Systems to scan vehicles/cargo for radioactive content. Various sizes for vehicles, packages (large and small) and pedestrians. Does not identify radionuclide   | No   | Yes  | Yes  | Yes  | Yes   | No   | No  | Yes  |
| Spectroscopic Portal Monitors                  | Inspection and Screening System, Screening Systems  | 15SC-00-PMSP | Systems to scan vehicles/cargo for radioactive content and identify source radionuclide. Variants include vehicle, rail, and seaport container configurations.   | No   | Yes  | Yes  | Yes  | Yes   | No   | No  | Yes  |

**APPENDIX C: NIMS Resource Type Definitions (Pending FEMA Review)**

# Preventive Radiological/Nuclear Detection (PRND) Resources

Mar 2014

*Pending FEMA Review*  
Preventive Radiological/Nuclear Detection (PRND) Resources  
400-INT-115300v2.00

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## NIMS Overview

The National Mutual Aid and Resource Management Initiative supports the National Incident Management system (NIMS) by establishing a comprehensive, integrated national mutual aid and resource management system that provides the basis to type, order, and track all federal, state, and local response assets.

### NIMS Resource Typing

For ease of ordering and tracking, response assets need to be categorized via resource typing. Resource typing is the categorization and description of resources that are commonly exchanged in incidents via mutual aid, by capacity and/or capability. Through resource typing, disciplines examine resources and identify the capabilities of a resource's components (i.e., personnel, equipment, training). During an incident, an emergency manager knows what capability a resource needs to have to respond efficiently and effectively. Resource typing definitions will help define resource capabilities for ease of ordering and mobilization during an incident. As a result of the resource typing process, a resource's capability is easily defined and an emergency manager is able to effectively and efficiently request and receive resources through mutual aid.

### NIMS Resource Management

NIMS recognizes that resources (such as personnel, equipment, or supplies) are needed to support critical incident objectives. The flow of resources must be fluid and adaptable to the requirements of the incident. NIMS defines standardized mechanisms and establishes the resource management process to identify requirements, order and acquire, mobilize, track and report, recover and demobilize, reimburse, and inventory resources.

Resource management should be flexible and scalable in order to support any incident and be adaptable to changes. Efficient and effective deployment of resources requires that resource management concepts and principles be used in all phases of emergency management and incident response.

The resource management process can be separated into two parts: resource management 1) as an element of preparedness and 2) resource management during an incident. The preparedness activities (resource typing, credentialing, and inventorying) are conducted on a continual basis to help ensure that resources are ready to be mobilized when called to an incident. Resource management during an incident is a finite process with a distinct beginning and ending specific to the needs of the particular incident.

### Annual Review

The PRND NIMS Resource Type Definitions will be reviewed annually and updated as appropriate.

For more NIMS information, please refer to the Resource Management webpage located at: <http://www.fema.gov/emergency/nims/ResourceMgmt.shtm>.



**Personal Radiation Detector (PRD)**

|                          |                         |  |               |  |               |              |
|--------------------------|-------------------------|--|---------------|--|---------------|--------------|
| <b>DESCRIPTION</b>       |                         | An alarming personal radiation detector worn on the body to detect photons (and in some cases neutrons).   |               |  |               |              |
| <b>RESOURCE CATEGORY</b> |                         | Preventive Radiological/Nuclear Detection  |               | <b>RESOURCE KIND</b>                             | Equipment     |              |
| <b>OVERALL FUNCTION</b>  |                         | Used to detect the presence of radiation in a limited area in the vicinity of the equipment operator.  |               | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b> |               |              |
| <b>CAPABILITY</b>        |                         |  |               |  |               |              |
| <b>COMPONENT</b>         | <b>METRIC / MEASURE</b> | <b>TYPE 1</b>  | <b>TYPE 2</b> | <b>TYPE 3</b>                                    | <b>TYPE 4</b> | <b>NOTES</b> |
| Equipment                | Radiation Detection     | Gamma/ Neutron   | Gamma         |  |               |              |
| <b>COMMENTS</b>          |                         | <p>Additional optional features: isotope identification (spectroscopic), dose rate capable, count rates and other types of displays, low profile mode (Bluetooth or wireless), ruggedized, network capable, GPS.</p> <p>Gamma detector types would include sodium iodide (NaI), cesium iodide (CsI), CdZnTe (CZT) solid state detectors and other scintillator or solid state detectors. Less effective PRND detector types would include gas filled detectors such as Geiger-Mueller or Ion Chamber detectors</p> |               |  |               |              |
| <b>REFERENCE(s)</b>      |                         | <p>ANSI/IEEE N42.32-2006 American National Standard Performance Criteria for Alarming Personal Radiation Detectors for Homeland Security.</p> <p>ANSI/IEEE N42.48-2008 American National Standard Performance Requirements for Spectroscopic Personal Radiation Detectors (SPRDs) for Homeland Security.</p>   |               |  |               |              |



Radio-Isotope Identification Device (RIID)

|                          |   |   |                       |  |               |              |
|--------------------------|---|---|-----------------------|--|---------------|--------------|
| <b>DESCRIPTION</b>       |   | A portable radiation detector with gamma spectroscopic capabilities and neutron indication. <i>Note: also known as a radionuclide identifier.</i>                         |                       |  |               |              |
| <b>RESOURCE CATEGORY</b> |   | Preventive Radiological/Nuclear Detection   |                       | <b>RESOURCE KIND</b>                             | Equipment     |              |
| <b>OVERALL FUNCTION</b>  |   | Primarily used to identify the radioisotope of radiological and nuclear material. May also be used to initially detect the presence of radiological and nuclear material. |                       | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b> |               |              |
| <b>CAPABILITY</b>        |   |   |                       |  |               |              |
| <b>COMPONENT</b>         | <b>METRIC / MEASURE</b>                                     | <b>TYPE 1</b>   | <b>TYPE 2</b>         | <b>TYPE 3</b>                                    | <b>TYPE 4</b> | <b>NOTES</b> |
| Equipment                | Isotope Identification                                      | High Resolution   | Medium/Low Resolution |  |               |              |
| Equipment                | Energy Resolution at 662 KeV full width half maximum (FWHM) | < 1.0%  | 1.0% - >9.0%          |  |               |              |
| <b>COMMENTS</b>          |   | Additional optional features: Gamma and neutron radiation detection, dose rate capable, low profile mode (Bluetooth or wireless), ruggedized, network capable, GPS.       |                       |  |               |              |
| <b>REFERENCE(S)</b>      |   | ANSI/IEEE N42.34 2006 American National Standard Performance Criteria for Hand-Held Instruments for the Detection and Identification of Radionuclides.                    |                       |  |               |              |



Human-Portable Detector (Backpack)

|                          |                         |  |                |                      |  |              |
|--------------------------|-------------------------|--|----------------|----------------------|--|--------------|
| <b>DESCRIPTION</b>       |                         | Instrument composed of several radiation detection components that are placed inside a backpack or other similar enclosure with an optional external control device (IEC 45B/754/CDV-referred to as backpack-type radiation detector). |                |                      |  |              |
| <b>RESOURCE CATEGORY</b> |                         | Preventive Radiological/Nuclear Detection  |                | <b>RESOURCE KIND</b> | Equipment  |              |
| <b>OVERALL FUNCTION</b>  |                         | Primarily used to detect the presence of R/N material in a wide area around the operator. Due to the larger detector element and power source, the detection range of this device may be greater than a PRD or RIID.                   |                |                      | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b> |              |
| <b>CAPABILITY</b>        |                         |  |                |                      |  |              |
| <b>COMPONENT</b>         | <b>METRIC / MEASURE</b> | <b>TYPE 1</b>  | <b>TYPE 2</b>  | <b>TYPE 3</b>        | <b>TYPE 4</b>                                    | <b>NOTES</b> |
| Equipment                | Radiation Detection     | Gamma/ Neutron   | Gamma/ Neutron | Gamma                | Gamma  |              |
| Equipment                | Isotope Identification  | Yes  | No             | Yes                  | No   |              |
| <b>COMMENTS</b>          |                         | Additional optional features: dose rate capable, low profile mode (Bluetooth or wireless), ruggedized, network capable, GPS.   |                |                      |  |              |
| <b>REFERENCE(S)</b>      |                         | ANSI/IEEE N42.43-2006 American National Standard Performance Criteria for Mobile and Transportable Radiation Monitors Used for Homeland Security.  |                |                      |  |              |



Vehicle-Mounted Detection System

|                          |                         |   |                |  |               |              |
|--------------------------|-------------------------|---|----------------|--|---------------|--------------|
| <b>DESCRIPTION</b>       |                         | A Vehicle-Mounted Detection System is an instrument transported on a vehicular platform (truck, boat or aircraft) for detecting radiological and nuclear material.  |                |  |               |              |
| <b>RESOURCE CATEGORY</b> |                         | Preventive Radiological/Nuclear Detection   |                | <b>RESOURCE KIND</b>                             | Equipment     |              |
| <b>OVERALL FUNCTION</b>  |                         | Primarily detects the presence of radiological and nuclear material and used to identify radioisotopes in a wide area around the vehicular platform. The system may be permanently mounted in a vehicular platform (e.g. truck, boat or aircraft) or relocatable between these platforms. Due to the larger detector element and power source, the detection range of this device may be greater than a PRD, RIID, or backpack-type detector. |                | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b> |               |              |
| <b>CAPABILITY</b>        |                         |   |                |  |               |              |
| <b>COMPONENT</b>         | <b>METRIC / MEASURE</b> | <b>TYPE 1</b>   | <b>TYPE 2</b>  | <b>TYPE 3</b>                                    | <b>TYPE 4</b> | <b>NOTES</b> |
| Equipment                | Radiation Detection     | Gamma/ Neutron  | Gamma/ Neutron | Gamma  | Gamma         |              |
| Equipment                | Isotope Identification  | Yes   | No             | Yes  | No            |              |
| <b>COMMENTS</b>          |                         | Additional optional features: dose rate capable, low profile mode (Bluetooth or wireless), ruggedized, network capable, GPS.<br>May be mounted permanently in or relocatable between various vehicular platforms (e.g., truck, boat, or aircraft).  |                |  |               |              |
| <b>REFERENCE(S)</b>      |                         | ANSI/IEEE N42.43-2006 American National Standard Performance Criteria for Mobile and Transportable Radiation Monitors Used for Homeland Security.   |                |  |               |              |



**Law Enforcement Preventive Radiological/Nuclear Detection (PRND) Team**

|                          |                        |   |  |  |  |  |
|--------------------------|------------------------|---|--|--|--|--|
| <b>DESCRIPTION</b>       |                        | A team composed of sworn law enforcement personnel dedicated to the detection of radiological and nuclear materials.  |  |  |  |  |
| <b>RESOURCE CATEGORY</b> |                        | Preventive Radiological/Nuclear Detection   |  | <b>RESOURCE KIND</b>   |  | Team   |
| <b>OVERALL FUNCTION</b>  |                        | The team utilizes PRND tools and training to detect nuclear and radiological material out of regulatory control. This team is capable of handling interdiction and other law enforcement PRND missions. |  | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b>   |  | 1. Logistics for deploying this team (e.g. security, lodging, transportation, meals, etc.) are to be discussed prior to deployment of this resource.<br>2. Teams can work up to 12 hours per shift, and are self-sustained for 72 hours.<br>3. Additional PRND Team operators may be ordered within span of control. |
| <b>CAPABILITY</b>        |                        |   |  |  |  |  |
| <b>COMPONENT</b>         |                        | <b>METRIC / MEASURE</b>   |  | <b>TYPE 1</b>  |  | <b>TYPE 2</b>  |
|                          |                        |   |  | <b>TYPE 3</b>  |  | <b>TYPE 4</b>  |
|                          |                        |   |  |  |  | <b>NOTES</b>   |
| Team                     | Capabilities           | Primary Screening<br>Secondary Inspection<br>Wide Area Search   |  | Primary Screening<br>Secondary Inspection  |  | Primary Screening  |
| Personnel                | Team Composition       | 1 PRND Team Leader<br>5-7 PRND Operators  |  | Same as Type 3   |  | 1 PRND Team Leader<br>2-3 PRND Operators   |
| Equipment                | Radiation Detection    | 6-8 Type 1-2 PRDs<br>2-4 Type 1-2 Backpacks and/or<br>1 Type 1-4 Mobile Detection System<br>1 Radiation Survey Meter  |  | Same as Type 3   |  | 3-4 Type 1-2 PRDs  |
| Equipment                | Isotope Identification | Same as Type 2 plus<br>1 Type 1 RIID  |  | 1-2 Type 1-2 RIIDs   |  | None   |
| Equipment                | Communication          | Same as Type 2  |  | Intra-team communications and ability to transmit spectra and other data to technical reachback. |  | Intra-team communications  |
| <b>COMMENTS</b>          |                        | Self-sustainment for 72 hours. Any teams operating with only PRDs should have established access to RIIDs to conduct secondary screening as needed.   |  |  |  |  |
| <b>REFERENCE(S)</b>      |                        | EMAC Resource Request Checklist   |  |  |  |  |

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Multi-Disciplinary Preventive Radiological/Nuclear Detection (PRND) Team

|                          |                         |   |  |  |  |  |
|--------------------------|-------------------------|---|--|--|--|--|
| <b>DESCRIPTION</b>       |                         | A team composed of public safety personnel from various backgrounds dedicated to the detection of radiological and nuclear materials.   |  |  |  |  |
| <b>RESOURCE CATEGORY</b> |                         | Preventive Radiological/Nuclear Detection   |  | <b>RESOURCE KIND</b>                             | Team   |  |
| <b>OVERALL FUNCTION</b>  |                         | The team utilizes PRND tools and training to detect nuclear and radiological material out of regulatory control. This team <i>may not be</i> capable of handling interdiction or other law enforcement PRND missions unless assigned sworn law enforcement personnel. |  | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b> | <ol style="list-style-type: none"> <li>1. Logistics for deploying this team (e.g. security, lodging, transportation, meals, etc.) are to be discussed prior to deployment of this resource.</li> <li>2. Teams can work up to 12 hours per shift, and are self-sustained for 72 hours.</li> <li>3. Additional PRND Team operators may be ordered within span of control.</li> </ol> |  |
| <b>CAPABILITY</b>        |                         | <b>TYPE 1</b>   | <b>TYPE 2</b>  | <b>TYPE 3</b>                                    | <b>TYPE 4</b>  | <b>NOTES</b>   |
| <b>COMPONENT</b>         | <b>METRIC / MEASURE</b> |   |  |  |  |  |
| Team                     | Capabilities            | Primary Screening<br>Secondary Inspection<br>Wide Area Search   | Primary Screening<br>Secondary Inspection  | Primary Screening                                |  |  |
| Personnel                | Team Composition        | 1 PRND Team Leader<br>5-7 PRND Operators  | Same as Type 3   | 1 PRND Team Leader<br>2-3 PRND Operators         |  |  |
| Equipment                | Radiation Detection     | 6-8 Type 1-2 PRDs<br>2-4 Type 1-2 Backpacks and/or<br>1 Type 1-4 Mobile Detection System<br>1 Radiation Survey Meter  | Same as Type 3   | 3-4 Type 1-2 PRDs                                |  | Any teams operating with on PRDs should have established access to RIIDS to conduct secondary screening. |
| Equipment                | Isotope Identification  | Same as Type 2 plus<br>1 Type 1 RIID  | 1-2 Type 1-2 RIIDs   | None   |  |  |
| Equipment                | Communication           | Same as Type 2  | Intra-team communications and ability to transmit spectra and other data to technical reachback. | Intra-team communications                        |  |  |
| <b>COMMENTS</b>          |                         | Self-sustainment for 72 hours. Any teams operating with only PRDs should have established access to RIIDS to conduct secondary screening as needed.   |  |  |  |  |
| <b>REFERENCE(S)</b>      |                         | EMAC Resource Request Checklist   |  |  |  |  |



**Maritime Law Enforcement Preventive Radiological/Nuclear Detection (PRND) Team**

|                          |  |   |  |  |  |  |
|--------------------------|--|---|--|--|--|--|
| <b>DESCRIPTION</b>       |  | A team composed of maritime law enforcement personnel dedicated to the detection of radiological and nuclear materials.   |  |  |  |  |
| <b>RESOURCE CATEGORY</b> |  | Preventive Radiological/Nuclear Detection   |  | <b>RESOURCE KIND</b>                             | Team   |  |
| <b>OVERALL FUNCTION</b>  |  | The team utilizes PRND tools and training to detect nuclear and radiological material out of regulatory control in the maritime environment. This team is capable of handling interdiction and other law enforcement PRND missions. |  | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b> | 1. Logistics for deploying this team (e.g. security, lodging, transportation, meals, etc.) are to be discussed prior to deployment of this resource.<br>2. Teams can work up to 12 hours per shift, and are self-sustained for 72 hours.<br>3. Additional PRND Team operators may be ordered within span of control. |  |
| <b>CAPABILITY</b>        |  | <b>TYPE 1</b>   | <b>TYPE 2</b>  | <b>TYPE 3</b>                                    | <b>TYPE 4</b>  | <b>NOTES</b>   |
| <b>COMPONENT</b>         | <b>METRIC / MEASURE</b>                        |   |  |  |  |  |
| Team                     | Capabilities                                   | Primary Screening<br>Secondary Inspection<br>Wide Area Search   | Primary Screening<br>Secondary Inspection  | Primary Screening                                |  |  |
| Personnel                | Team Composition                               | Same as Type 2  | Same as Type 3   | 1 Coxswain<br>2-3 PRND Operators                 |  |  |
| Equipment                | Vessel   | Same as Type 2  | Same as Type 3   | 1 Vessel   |  |  |
| Equipment                | Radiation Detection and Isotope Identification | Same as Type 2<br>Plus<br>1 Type 1-2 Backpack<br>Or<br>1 Type 1-4 Mobile Detection System<br>1 Radiation Survey Meter   | Same as Type 3   | 2-4 Type 1-2 PRDs                                |  | Any teams operating with on PRDs should have established access to RIIDS to conduct secondary screening. |
| Equipment                | Isotope Identification                         | Same as Type 2  | 1 Type 1-2 RIID  | None   |  |  |
| Equipment                | Communication                                  | Same as Type 2  | Intra-team communications and ability to transmit spectra and other data to technical reachback. | Intra-team communications                        |  |  |
| <b>COMMENTS</b>          |  | Any teams operating with only PRDs should have established access to RIIDS to conduct secondary screening as needed.  |  |  |  |  |
| <b>REFERENCE(S)</b>      |  | EMAC Law Enforcement Resource Request Checklist   |  |  |  |  |

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**Maritime Multi-Disciplinary Preventive Radiological/Nuclear Detection (PRND) Team**

| <b>DESCRIPTION</b>       |  | A team composed of maritime public safety personnel from various backgrounds dedicated to the detection of radiological and nuclear materials.  |  |  |               |  |
|--------------------------|--|---|--|--|---------------|--|
| <b>RESOURCE CATEGORY</b> |  | Preventive Radiological/Nuclear Detection   |  | <b>RESOURCE KIND</b>                             |               | Team   |
| <b>OVERALL FUNCTION</b>  |  | The team utilizes PRND tools and training to detect nuclear and radiological material out of regulatory control in the maritime environment. This team <i>may not be</i> capable of handling interdiction or other law enforcement PRND missions unless assigned sworn law enforcement personnel. |  | <b>COMPOSITION &amp; ORDERING SPECIFICATIONS</b> |               | 1. Logistics for deploying this team (e.g. security, lodging, transportation, meals, etc.) are to be discussed prior to deployment of this resource.<br>2. Teams can work up to 12 hours per shift, and are self-sustained for 72 hours.<br>3. Additional PRND Team operators may be ordered within span of control. |
| <b>CAPABILITY</b>        |  | <b>TYPE 1</b>   | <b>TYPE 2</b>  | <b>TYPE 3</b>                                    | <b>TYPE 4</b> | <b>NOTES</b>   |
| <b>COMPONENT</b>         | <b>METRIC / MEASURE</b>                        |   |  |  |               |  |
| Team                     | Capabilities                                   | Primary Screening<br>Secondary Inspection<br>Wide Area Search   | Primary Screening<br>Secondary Inspection  | Primary Screening                                |               |  |
| Personnel                | Team Composition                               | Same as Type2   | Same as Type3  | 1 Coxswain<br>2-3 PRND Operators                 |               |  |
| Equipment                | Vessel   | Same as Type2   | Same as Type3  | 1 Vessel   |               |  |
| Equipment                | Radiation Detection and Isotope Identification | Same as Type2<br>Plus<br>1 Type 1-2 Backpack<br>Or<br>1 Type 1-4 Mobile Detection System<br>1 Radiation Survey Meter  | Same as Type3  | 2-4 Type 1-2 PRDs                                |               | Any teams operating with on PRDs should have established access to RIIDS to conduct secondary screening.   |
| Equipment                | Isotope Identification                         | Same as Type2   | 1 Type 1-2 RIID  | None   |               |  |
| Equipment                | Communication                                  | Same as Type2   | Intra-team communications and ability to transmit spectra and other data to technical reachback. | Intra-team communications                        |               |  |
| <b>COMMENTS</b>          |  | Any teams operating with only PRDs should have established access to RIIDS to conduct secondary screening as needed.  |  |  |               |  |
| <b>REFERENCE(S)</b>      |  | EMAC Resource Request Checklist   |  |  |               |  |



### Position Titles

This section contains Qualification Charts for PRND Team Leader and PRND Operator position titles under the National Incident Management System (NIMS).

The following table shows the six basic categories of criteria employed:

### Categories

The categories listed under the required and recommended criteria are defined as follows:

|   |   |
|---|---|
| <b>Education</b>  | Formal instruction based on a curriculum that prepares an individual with the core knowledge and skills for entry into a discipline and for performing job functions.   |
| <b>Training</b>   | Instruction and/or activities that enhance an individual's core knowledge increase skill set and proficiency as well as strengthen and augment abilities.   |
| <b>Experience</b>   | Time required in a job function for an individual to attain proficiency in applying knowledge, skills and abilities.  |
| <b>Physical/Medical Fitness</b>                               | Physical and medical considerations, that when applied, help to ensure safe performance in potentially hazardous environments.  |
| <b>Currency</b>   | Functioning in the ICS position during a qualifying incident, approved exercise, drill, training or simulation at least once every five years.  |
| <b>Professional and Technical Licenses and Certifications</b> | <b>Licensure</b> refers to the granting of a 'permission to practice.' Licenses are usually issued in order to regulate some activity that is deemed to be dangerous, a threat to the person or the public, or which involves a high level of specialized skill. <b>Certification</b> is a designation earned by a person to assure qualification to perform a job or task. |



|                         |   |   |
|-------------------------|---|---|
| <b>Name of Position</b> | <b>PRND Team Leader</b>   |   |
| <b>Type</b>             | <b>Not Applicable</b>   |   |
| <b>Description</b>      | The <i>Law Enforcement</i> PRND Team Leader has the overall authority and/or responsibility for directing the PRND operations of the LE PRND team. The <i>Multi-disciplinary</i> PRND Team Leader has the overall authority and/or responsibility for directing the PRND operations of the Multi-disciplinary PRND team.  |   |
| <b>Category</b>         | <b>Requisite Criteria</b>   | <b>Recommended Criteria</b>   |
| <b>Education</b>        | Not Applicable  | Not Applicable  |
| <b>Training</b>         | Completion of the following courses or equivalent:<br>1. ICS-100: Introduction to ICS<br>2. ICS-200: ICS for Single Resources and Initial Action Incidents<br>3. ICS-300: Intermediate ICS<br>4. IS-700: NIMS, an Introduction<br>5. IS-706: NIMS Intrastate Mutual Aid – An Introduction<br>6. IS-800: National Response Framework<br>7. Classroom Instruction on Agency specific RN detection equipment | <p><b>DNDO courses and web link:</b> <a href="https://qnda.energy.gov">https://qnda.energy.gov</a></p> 1. BAS2150IL – Basic Principles of Radiation <i>or equivalent</i><br>2. BAS2160/WB – Basic Principles of Ionizing Radiation (Web Based) <i>or equivalent</i><br>3. FOP3200IL – Primary Screening <i>or equivalent</i><br>4. FOP3300IL – Secondary Screening <i>or equivalent</i><br>5. FOP3400IL – Reach Back <i>or equivalent</i> |

**CTOS courses and web link:** <http://www.ctosnnsa.org/>

6. PER-243 – Primary Screener/Personal Radiation Detector *or equivalent*  
 7. AWR-140 – Introduction to Radiological/Nuclear Incidents *or equivalent*  
 8. PER-245 – Secondary Screener – RIID *or equivalent*

**FEMA courses and web link:**  
[https://www.firstrespondertraining.gov/catalog.do?a=state\\_federal](https://www.firstrespondertraining.gov/catalog.do?a=state_federal)

1. DHS-022-PREV – Basic Principles of Radiation *or equivalent*  
 2. DHS-019-PREV – Primary Screening *or equivalent*  
 3. DHS-020-PREV – Secondary Screening *or equivalent*  
 4. DHS-023-PREV – Radiological Nuclear Detection Reachback *or equivalent*

Contact DNDO at [DNDO.SLA@dhs.gov](mailto:DNDO.SLA@dhs.gov) for updated PRND training courses.



|   |   |  |
|---|---|--|
| <b>Experience</b>   | <p>Knowledge, Skills and Ability:</p> <ol style="list-style-type: none"> <li>Position task book or equivalent documentation documenting ability to perform required skills as demonstrated through exercises and/or incidents and approved by the authority having jurisdiction.</li> </ol> <p>Experience:</p> <ol style="list-style-type: none"> <li>Demonstrated experience as a PRND Team Leader in the radiological nuclear detection discipline as verified by the authority having jurisdiction.</li> </ol> |  |
| <b>Physical/Medical Fitness</b>                               | <p>Meets all medical and physical fitness requirements established within their primary discipline, which includes the physical capability to work long hours in adverse and potentially extreme environmental conditions.</p>  |  |
| <b>Currency</b>   | <ol style="list-style-type: none"> <li>Annual refresher training</li> <li>Qualifying incident experience, exercises, drills or simulations every five years</li> </ol>  |  |
| <b>Professional and Technical Licenses and Certifications</b> | <p>Certified as a sworn law enforcement officer, firefighter, health physicist, etc.</p>  |  |
| <b>Additional Criteria</b>                                    | <p>Per NIMS compliance at the time of publication, ICS- and IS- training courses are listed. Equivalent courses must meet the NIMS National Standard Curriculum.</p> <p>Where applicable, experience is measured from the time an individual receives necessary certifications.</p>   |  |

**Ordering Specifications or Designations**

- Can be ordered as an individual asset
- Can be ordered in conjunction with a NIMS typed team (LE or Multi-Disciplinary PRND Team, Maritime LE or Multi-Disciplinary PRND Team)
- Can be ordered in conjunction with a NIMS typed unit ( )

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|                         |  |   |
|-------------------------|--|---|
| <b>Name of Position</b> | <b>PRND Operator</b>   |   |
| <b>Type</b>             | <b>Not Applicable</b>  |   |
| <b>Description</b>      | The <i>Law Enforcement PRND Operator</i> is responsible for conducting primary and/or secondary PRND operations. The <i>Multi-disciplinary PRND Operator</i> is responsible for conducting primary and/or secondary PRND operations. |   |
| <b>Category</b>         | <b>Requisite Criteria</b>  | <b>Recommended Criteria</b>   |
| <b>Education</b>        | Not Applicable   | Not Applicable  |
| <b>Training</b>         | Completion of the following courses/ curricula:<br>1. ICS-100: Introduction to ICS<br>2. ICS-200: Basic ICS<br>3. IS-700: NIMS, an Introduction<br>4. Classroom Instruction on agency specific RN detection equipment.               | DNDO courses and web link: <a href="https://qnda.energy.gov">https://qnda.energy.gov</a><br>1. BAS2150IL – Basic Principles of Radiation or equivalent<br>2. BAS2160/WB – Basic Principles of Ionizing Radiation (Web Based) or equivalent<br>3. FOP3200IL – Primary Screening or equivalent<br>4. FOP3300IL – Secondary Screening or equivalent<br>5. FOP3400IL – Reach Back or equivalent<br><br>CTOS courses and web link: <a href="http://www.ctosnnsa.org/">http://www.ctosnnsa.org/</a><br>6. PER-243 – Primary Screener/Personal Radiation Detector or equivalent<br>7. AWR-140 – Introduction to Radiological/Nuclear Incidents or equivalent<br>8. PER-245 – Secondary Screener – RIID or equivalent<br><br>FEMA courses and web link:<br><a href="https://www.firstrespondertraining.gov/catalog.do?a=state_federal">https://www.firstrespondertraining.gov/catalog.do?a=state_federal</a><br>9. DHS-022-PREV – Basic Principles of Radiation or equivalent<br>10. DHS-019-PREV – Primary Screening or equivalent<br>11. DHS-020-PREV – Secondary Screening or equivalent<br>12. DHS-023-PREV – Radiological Nuclear Detection Reachback or equivalent<br><br>Contact DNDO at <a href="mailto:DNDO.SLA@dhs.gov">DNDO.SLA@dhs.gov</a> for updated PRND training courses. |

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|  |  |  |
|--|--|--|
| Experience   | <p>Knowledge, Skills and Ability:</p> <ol style="list-style-type: none"> <li>1. Position task book or equivalent documentation documenting ability to perform required skills as demonstrated through exercises and/or incidents and approved by the authority having jurisdiction.</li> </ol> <p>Experience:</p> <ol style="list-style-type: none"> <li>2. Demonstrated experience as a PRND Operator in the radiological nuclear detection discipline as verified by the authority having jurisdiction.</li> </ol> |  |
| Physical/Medical Fitness                               | Meets all medical and physical fitness requirements established within their primary discipline, which includes the physical capability to work long hours in adverse and potentially extreme environmental conditions.  |  |
| Currency   | <ol style="list-style-type: none"> <li>1. Annual refresher training</li> <li>2. Qualifying incident experience, exercises, drills or simulations every five years</li> </ol>   |  |
| Professional and Technical Licenses and Certifications | Certified as a sworn law enforcement officer, firefighter, health physicist, etc.  |  |
| Additional Criteria                                    | <p>Per NIMS compliance at the time of publication, ICS- and IS- training courses are listed. Equivalent courses must meet the NIMS National Standard Curriculum.</p> <p>Where applicable, experience is measured from the time an individual receives necessary certifications.</p>  |  |

Ordering Specifications or Designations

- Can be ordered as an individual asset
- Can be ordered in conjunction with a NIMS typed team (LE or Multi-Disciplinary PRND Team, Maritime LE or Multi-Disciplinary PRND Team)
- Can be ordered in conjunction with a NIMS typed unit ( )



## Glossary

**Coxswain** is the person in charge of a boat's navigation and steering.

**Intra-team communications** are supported through the use of electronic devices, such as radios, which enable teams to maintain communication during various operations.

**Limited Area RN Detection** is the ability to detect RN materials within the vicinity of the equipment operator by using either personal radiation detectors (PRDs) or radio-isotope identification devices (RIIDs). These instruments are usually limited in range due to smaller detector elements and power sources.

**Out of regulatory control** refers to devices and materials that are being imported, possessed, stored, transported, developed, or used without authorization by the appropriate regulatory authority, either inadvertently or deliberately.

**Primary Screeners** are trained to specialize in the initial phase of radiation detection to include verification of the initial detector alarm, locating the general area from which radiation is being emitted, and first contact with an individual, vehicle, or shipment.

**Secondary Screeners** assist the primary screeners in verifying a detector alarm by using RIIDs to pinpoint/measure the source of radiation which caused the detectors to alarm. If the situation requires further investigation, Secondary Screeners utilize technical reachback assistance to adjudicate, or identify, the type and nature of the material or device causing a detection alarm.

**Technical reachback** is the process of communicating spectroscopic information to the appropriate authority for analysis in order to identify the radiological material.

**Wide Area RN Detection** is the ability to detect RN materials over a broader area by using either human-portable detectors (backpacks) or vehicle-mounted detection systems. These instruments have a greater detection range than PRDs and RIIDs in general because of larger detector elements and larger power sources. Therefore, a vehicle-mounted system typically has a wider area detection capability than a human-portable detector, which in turn typically has a wider area detection capability than a PRD or RIID.

## APPENDIX D: Capability Development Framework

U.S. Department of Homeland Security  
Domestic Nuclear Detection Office (DNDO)



### **Preventive Radiological / Nuclear Detection (PRND) and Adjudication Capability Development Framework**

## Preventive Radiological / Nuclear Detection and Adjudication Capability Development Framework

1. Conduct Preventive Radiological / Nuclear Detection (PRND) planning for appropriate operational deployment
2. Conduct primary screening to detect Radiological/Nuclear (RN) material using specialized PRND equipment
3. Conduct secondary screening to verify, assess, measure and/or collect spectra
4. Conduct technical reach back
5. Adjudicate/Resolve initial detection/incident

### User Instructions

This document is intended to provide initial guidance that assists state, local and tribal jurisdictions identify and develop targeted levels of Preventive Radiological / Nuclear Detection (PRND) and Adjudication Capability based on risk factors and increased likelihood of encountering illicit radiological or nuclear material. This document was developed with the support of federal, state and local subject matter experts. It is intended to provide strategic guidance based on best practices, but does not establish specific requirements and individual jurisdictions may have needs that require solutions other than those provided. This document is based on current best practices and is expected to evolve over time. The utilization of this guidance document will assist in determining: How prepared are we? How prepared do we need to be? What should we do to increase PRND capability? There are three major sections in this document (Classes, Target Outcomes, and Resource Elements) and the user should utilize each section as follows:

**Step 1.** Review Table 1, *Targets/Pathways*. Each category should be reviewed independently. Users should determine the most appropriate Class (1 to 5) for each Target/Pathway through an evaluation of the Risk Factors listed for that section. The class number for each Target/Pathway determined to be most applicable should be noted, as this number will be used in the rest of the document. The term Risk Factor is used in the case of the Land Border, Interior and Maritime Pathways although these Risk Factors identify the likelihood of encountering illicit radiological/nuclear material within the pathway rather than the threat to the pathway itself.

- The **Classes** table groups jurisdictions/entities into appropriate Classes at the top row of the Capability Framework based on the rating of Risk Factors specific to the jurisdiction/entity.
  - For the Interior Population Center, this should be done for each of the sub-factors (Population, Population Density, Likely Targets).
  - For the Interior Pathway, Interior Special Events, Land Border and Maritime sections, the user should examine the Risk Factors (Likelihood of Encounter) within each section and determine the most appropriate class based on the total number of Risk Factors and/or the impact of each Risk Factor. A scoring system is provided to assist in determining Class; however, one Risk Factor may be so significant by itself that a jurisdiction may have a need for greater capability to perform the PRND mission based solely on that one factor.
  - Terms such as extent, presence, prevalence and proximity are subjective and are measured based on the user's judgment.

**Step 2.** Using the Class designation (1 to 5) determined for each Target/Pathway, the user should review the associated Target Outcome listed in Table 2, *Target Outcomes*. This is the best practice outcome the jurisdiction should strive to achieve for each identified Target/Pathway. Since each jurisdiction/entity is unique, any number or combination of risk factors may be considered to justify a Class designation.

- The **Target Outcomes** table outlines the level of capability and target outcomes for each Target/Pathway to build capabilities against.
  - The jurisdiction's Class for each Target/Pathway should be matched with the corresponding column.
  - The user should use the Performance Measures found within their Class to assess the jurisdiction's ability to execute each Target Outcome.
  - The jurisdiction/entity determines *how* to achieve Target Outcomes.
  - A jurisdiction or entity is not expected to deliver a capability by itself – rather, capabilities may be met through mutual aid and regional collaboration.

**Step 3.** After determining appropriate outcomes for each Target/Pathway, the user should reference the Resource Elements section.

- The **Resource Elements** section directs users to key resources and additional guidance for how Target Outcomes can be accomplished through plans, personnel/teams, equipment, training and exercises.

**\*This document is intended to provide initial guidance to jurisdictions for building and measuring PRND capability. It is not meant to prescribe how to perform PRND operations or to be viewed as a standard\***

| <b>RN Risk Factors Classification</b>      |   |                            |                             |                           |                            |
|--|---|----------------------------|-----------------------------|---------------------------|----------------------------|
| <b>Targets/Pathways</b>                    | <b>Class Five</b>   | <b>Class Four</b>          | <b>Class Three</b>          | <b>Class Two</b>          | <b>Class One</b>           |
| <b>Interior Population Centers</b>         | <b>Class Five</b><br>10-24  | <b>Class Four</b><br>25-39 | <b>Class Three</b><br>40-54 | <b>Class Two</b><br>55-74 | <b>Class One</b><br>75-100 |
|  | <ul style="list-style-type: none"> <li>- Population density (weighted by population size) (45)</li> <li>- Number of potential Critical Infrastructure/Key Resources (CI/KR) targets (35):                             <ul style="list-style-type: none"> <li>o Category 1 (Catastrophic) CI/KR targets (15)</li> <li>o Category 2 (Extreme) CI/KR targets (10)</li> <li>o Category 3 (Significant) CI/KR targets (5)</li> <li>o Category 4 (Moderate/Regional) CI/KR targets (3)</li> <li>o Category 5 (Limited/Local) CI/KR targets (2)</li> </ul> </li> <li>- Global City (5)</li> <li>- Domestic and international tourism (10)</li> <li>- Military Installations (5)</li> </ul>   |                            |                             |                           |                            |
| <b>Interior Pathway</b>                    | <b>Class Five</b><br>10-24  | <b>Class Four</b><br>25-39 | <b>Class Three</b><br>40-54 | <b>Class Two</b><br>55-74 | <b>Class One</b><br>75-100 |
|  | <ul style="list-style-type: none"> <li>- Known/probable routes historically used to transport illicit materials (e.g. drugs, people, etc.) (15)</li> <li>- Major transportation corridors (10)</li> <li>- Major transportation hubs/ integrated transit nodes (10)</li> <li>- Proximity to RN sources                             <ul style="list-style-type: none"> <li>o Category 1 (10)</li> <li>o Category 2 (5)</li> </ul> </li> <li>- Proximity to maritime or land border localities                             <ul style="list-style-type: none"> <li>o Class 1 (10)</li> <li>o Class 2 (6)</li> <li>o Class 3 (4)</li> </ul> </li> <li>- Proximity to target localities :                             <ul style="list-style-type: none"> <li>o Class 1 (15)</li> <li>o Class 2 (10)</li> <li>o Class 3 (5)</li> </ul> </li> </ul>   |                            |                             |                           |                            |
| <b>Interior Special Events<sup>1</sup></b> | <b>Class Five</b><br>10-24  | <b>Class Four</b><br>25-39 | <b>Class Three</b><br>40-54 | <b>Class Two</b><br>55-74 | <b>Class One</b><br>75-100 |
|  | <ul style="list-style-type: none"> <li>- Special event related CI/KRs (convention centers, stadiums, etc.)</li> <li>- Aggregate number/significance of events in locality in upcoming year, considering the following event-level attributes:                             <ul style="list-style-type: none"> <li>o Number of event attendees and concentration</li> <li>o Proximity to non-event related CI/KR (transportation hubs, media centers, etc.)</li> <li>o Presence of dignitaries</li> </ul> </li> <li>- Duration of event</li> <li>- Type of venue (stadiums, religious sites, etc.)</li> <li>- Significance of event (historical, religious, political, symbolic, etc.)</li> <li>- Level of media attention expected (local, state, national, international)</li> <li>- Number of simultaneous/concurrent events (and venues)</li> <li>- Known indications of adversarial threats to special events</li> </ul>   |                            |                             |                           |                            |
| <b>Land Border</b>                         | <b>Class Five</b><br>10-24  | <b>Class Four</b><br>25-39 | <b>Class Three</b><br>40-54 | <b>Class Two</b><br>55-74 | <b>Class One</b><br>75-100 |
|  | <ul style="list-style-type: none"> <li>- Proximity to border (45)</li> <li>- Degree of monitoring (15)                             <ul style="list-style-type: none"> <li>o Under monitored land border (terrain, etc.)</li> <li>o Communication black spots</li> <li>o Federal land in border region</li> <li>o Tribal territories in border region</li> </ul> </li> <li>- Known criminality (5)                             <ul style="list-style-type: none"> <li>o Crime levels in localities along border</li> <li>o Known illicit cross-border pathways</li> </ul> </li> <li>- Cross-border "twin cities" (5)<sup>†</sup></li> <li>- Cross-border traffic (10)                             <ul style="list-style-type: none"> <li>o Rail traffic</li> <li>o Commercial vehicle traffic</li> <li>o Passenger vehicle traffic</li> </ul> </li> <li>- Proximity to target localities                             <ul style="list-style-type: none"> <li>o Class 1 (8)</li> <li>o Class 2 (5)</li> <li>o Class 3 (2)</li> </ul> </li> <li>- Proximity to transportation hubs (e.g. airports)</li> </ul> |                            |                             |                           |                            |

| Maritime | (tunnels, service roads, airstrips)   |                     |                      | and bus stations) (5)  |                     |
|----------|---|---------------------|----------------------|--|---------------------|
|          | Class Five<br>10-24   | Class Four<br>25-39 | Class Three<br>40-54 | Class Two<br>55-74   | Class One<br>75-100 |
|          | <ul style="list-style-type: none"> <li>- Large vessel traffic (container and non-container) (50)</li> <li>- Small vessel traffic (15)                             <ul style="list-style-type: none"> <li>o Proximity to international borders/ foreign countries</li> <li>o Miles of accessible coastline</li> <li>o Number of channels</li> <li>o Number of ports/marinas</li> <li>o Inland waterways</li> </ul> </li> </ul> |                     |                      | <ul style="list-style-type: none"> <li>- Known smuggling routes (10)</li> <li>- Proximity to target localities                             <ul style="list-style-type: none"> <li>o Class 1 (10)</li> <li>o Class 2 (5)</li> <li>o Class 3 (3)</li> </ul> </li> <li>- Maritime-accessible critical infrastructure                             <ul style="list-style-type: none"> <li>o Category 1 (5)</li> <li>o Category 2 (2)</li> </ul> </li> </ul> |                     |

**CDF Target Outcomes**

|                | Target Outcomes  | Focus Area                  | Class Five  | Class Four   | Class Three  | Class Two  | Class One  |
|----------------|--|-----------------------------|---|--|--|--|--|
|                | Conduct RND planning for appropriate operational deployment  | Interior Population Centers | <p>Develop and adopt CONOPS/SOPs, including:</p> <p>MOUs or CAs in place for access to primary and secondary screening RND equipment and trained personnel, to clarify legal status of external agencies, and to establish reliable communications channels with these agencies.</p> <p>Identification of screening zones and operational tempos for deployment of detection assets during heightened alert postures.</p> | <p>Develop and adopt CONOPS/SOPs, including:</p> <p>In-house availability and/or CAs in place for access to primary and secondary screening RND equipment and trained personnel; CAs in place to clarify legal status of external agencies and to establish reliable communications channels with these agencies.</p> <p>Identification of screening zones and operational tempos for deployment of detection assets for baseline and heightened alert postures.</p> | <p>Develop and adopt CONOPS/SOPs, including:</p> <p>In-house availability of detectors and trained personnel to perform primary screening and/or CAs in place for:</p> <ul style="list-style-type: none"> <li>- Access to secondary and additional primary screening and RND equipment</li> <li>- Additional trained personnel</li> <li>- Clarification of legal status of external agencies and established reliable communication channels with these agencies</li> <li>- Access to intelligence pertaining to regional and international trends regarding RN security</li> </ul> <p>Identification of screening zones and operational tempos for deployment of detection assets for baseline and heightened alert postures.</p> <p>Conduct knowledge mapping, i.e. identify and map operational knowledge assets to facilitate access to reach back capabilities.</p> | <p>Develop and adopt CONOPS/SOPs, including:</p> <p>In-house availability of detectors and trained personnel to perform primary and secondary screening. MOUs or CAs in place for:</p> <ul style="list-style-type: none"> <li>- Access to additional RND equipment and trained personnel</li> <li>- Clarify legal status of external agencies and establish reliable communications channels with these agencies</li> <li>- Access to intelligence pertaining to regional and international trends regarding RN security</li> </ul> <p>Identification of screening zones and operational tempos for constant deployment of detection assets.</p> <p>Conduct knowledge mapping, i.e. identify and map operational knowledge assets to facilitate access to reach back capabilities.</p> |  |
|                |  | Interior Pathways           |   |  |  |  |  |
| Special Events |  |                             |   |  |  |  |  |
| Land Border    |  |                             |   |  |  |  |  |
|                |  | Maritime                    |   |  |  |  |  |
|                | Conduct primary screening to detect RN using specialized RND | Interior Population Centers | LEAs capable of situation assessment and aware of indicators of terrorism and RN exposure/use.  | LEAs capable of situation assessment and aware of indicators of terrorism and RN exposure/use.   | LEAs capable of situation assessment and aware of indicators of terrorism and RN exposure/use.   | LEAs capable of situation assessment and aware of indicators of  | LEAs capable of situation assessment and aware of indicators |

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|  | Target Outcomes                | Focus Area                  | Class Five  | Class Four   | Class Three  | Class Two   | Class One  |
|--|--------------------------------|-----------------------------|---|--|--|---|--|
|  | equipment                      | Interior Pathways           | MOU in place to access hand-held detectors to conduct technical primary screening in selected screening zones on as-needed basis.   | CA in place to allow LEAs to regularly conduct primary screening in selected screening zones using detectors owned by other agencies or screen attendees and supplies at selected events.  | In-house ability to perform weight, density, and explosives detection to identify physical anomalies and highlight shielding.<br><br>In-house ability to routinely conduct primary screening using portable and hand-held detectors in selected screening zones or screen attendees and supplies at a special event. | terrorism and RN exposure/use.<br><br>In-house ability to perform weight, density, and explosives detection to identify physical anomalies and highlight shielding.   | of terrorism and RN exposure/use.<br><br>In-house ability to perform weight, density, and explosives detection to identify physical anomalies and highlight shielding.   |
|  |                                | Special Events              |   |  |  |   |  |
|  |                                | Land Border                 | LEAs capable of situation assessment and aware of indicators of terrorism and RN exposure/use.<br><br>CA in place to access hand-held detectors to regularly conduct technical primary screening in selected screening zones. | LEAs capable of situation assessment and aware of indicators of terrorism and RN exposure/use<br><br>In-house ability for LEAs to routinely conduct primary screening in selected screening zones using detectors owned by other agencies. | CA in place to provide additional capabilities.  | In-house ability to conduct 24x7 primary screening using fixed, portable, and hand-held detectors in selected screening zones or screen attendees and supplies and conduct detection patrols within a special event.<br><br>CA in place to regularly provide additional capabilities or as-needed for special events. | In-house ability to conduct 24x7 primary screening using fixed, portable, and hand-held detectors in all screening zones or screen attendees and supplies and conduct detection patrols within two simultaneous special events.<br><br>CA in place to regularly provide additional capabilities or as-needed for special events. |
|  |                                | Maritime                    | LEAs capable of situation assessment and aware of indicators of terrorism and RN exposure/use.<br><br>CA in place to access hand-held detectors to regularly conduct technical primary screening in selected screening zones. | LEAs capable of situation assessment and aware of indicators of terrorism and RN exposure/use<br><br>CA in place to allow LEAs to routinely conduct primary screening in selected screening zones using detectors owned by other agencies. |  |   |  |
|  | Conduct secondary screening to | Interior Population Centers | MOU in place to provide RIID and trained operators on as-needed basis.  | CA in place to provide RIID and on-call trained operators during routine   | In-house ability or CA with other agencies located within 1 hour of selected screening zones or  | In-house ability to provide at least 1 RIID and 24x7 on-call  | In-house ability to provide at least 1 high-res RIID and   |

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|  | Target Outcomes                             | Focus Area                  | Class Five   | Class Four  | Class Three   | Class Two  | Class One   |
|--|---|-----------------------------|--|---|---|--|---|
|  | verify/assess /measure/ collect spectra     | Interior Pathways           |  | primary screening operations and on as-needed basis.  | special events to provide RIID and trained operators.<br><br>If in-house, MOU in place to provide additional RIIDs and trained personnel on as-needed basis.  | trained operators stationed within 40 minutes of selected screening zones or on-site at a special event and ability respond to simultaneous events.<br><br>CA in place to provide additional RIIDs and trained personnel on as-needed basis. | 24x7 on-call trained operators stationed within 30 minutes of all screening zones or on-site at a special event and ability to respond to simultaneous events.<br><br>CA in place to provide additional RIIDs and trained personnel on as-needed basis. |
|  |   | Special Events              |  |   |   |  |   |
|  |   | Land Border                 |  |   |   |  |   |
|  |   | Maritime                    |  |   |   |  |   |
|  | Conduct technical reach back                | Interior Population Centers | MOU in place to provide technical reach back capabilities, including transmission of relevant knowledge requirements, with a response time from reach back organization to sending party no greater than 50 minutes. | CA in place to provide technical reach back capabilities, including transmission of relevant knowledge requirements, with a response time from reach back organization to sending party no greater than 40 minutes. | CA in place to access federal and state technical reach back capabilities, including transmission of relevant knowledge requirements, with a response from reach back organization to sending party no greater than 30 minutes. | CA in place to access federal and state technical reach back capabilities, including transmission of relevant knowledge requirements, with a response from reach back organization to sending party no greater than 20 minutes.              |   |
|  |   | Interior Pathways           |  |   |   |  |   |
|  |   | Special Events              |  |   |   |  |   |
|  |   | Land Border                 |  |   |   |  |   |
|  |   | Maritime                    |  |   |   |  |   |
|  | Adjudicate/ resolve initial detection event | Interior Population Centers | <p>Communication channels in place for initial notification of a confirmed RN event.</p> <p>CA in place for access to forensics team to collect evidence for prosecution.</p>  |   |   |  |   |
|  |   | Interior Pathways           |  |   |   |  |   |
|  |   | Special Events              |  |   |   |  |   |
|  |   | Land Border                 |  |   |   |  |   |
|  |   | Maritime                    |  |   |   |  |   |

**Risk Factor Scores**

| Risk Factor                                  |                   | Class 5 | Class 4 | Class 3 | Class 2 | Class 1 |
|--|-------------------|---------|---------|---------|---------|---------|
| <i>Population Weighted Density</i>           |                   | 9       | 18      | 27      | 36      | 45      |
| <i>CI/KR</i>                                 | <i>Category 1</i> | 7       | 9       | 11      | 13      | 15      |
|  | <i>Category 2</i> | 2       | 4       | 6       | 8       | 10      |
|  | <i>Category 3</i> | 1       | 2       | 3       | 4       | 5       |
|  | <i>Category 4</i> | 0       | 0       | 1       | 2       | 3       |
|  | <i>Category 5</i> | 0       | 0       | 0       | 1       | 2       |
| <i>Global City</i>                           |                   | 1       | 2       | 3       | 4       | 5       |
| <i>Tourism</i>                               |                   | 2       | 4       | 6       | 8       | 10      |
| <i>Military Installations</i>                |                   | 1       | 2       | 3       | 4       | 5       |
| <i>Known Transit of Illicit Materials</i>    |                   | 3       | 6       | 9       | 12      | 15      |
| <i>Major Transportation Corridors</i>        |                   | 2       | 4       | 6       | 8       | 10      |
| <i>Major Transportation Hubs</i>             |                   | 2       | 4       | 6       | 8       | 10      |
| <i>Proximity to Target Locality</i>          | <i>Category 1</i> | 3       | 6       | 9       | 12      | 15      |
|  | <i>Category 2</i> | 2       | 4       | 6       | 8       | 10      |
|  | <i>Category 3</i> | 1       | 2       | 3       | 4       | 5       |
| <i>Proximity to Border/Maritime Locality</i> | <i>Category 1</i> | 3       | 6       | 8       | 9       | 10      |
|  | <i>Category 2</i> | 1       | 2       | 4       | 5       | 6       |
|  | <i>Category 3</i> | 0       | 0       | 0       | 2       | 4       |
| <i>Proximity to RN Sources</i>               | <i>Category 1</i> | 2       | 4       | 6       | 8       | 10      |
|  | <i>Category 2</i> | 1       | 2       | 3       | 4       | 5       |
| <i>Special Events</i>                        |                   | 24      | 39      | 54      | 74      | 100     |
| <i>Degree of Monitoring</i>                  |                   | 0       | 5       | 10      | 13      | 15      |
| <i>Known Crime/Smuggling</i>                 |                   | 1       | 2       | 3       | 4       | 5       |
| <i>Proximity to Border</i>                   |                   | 9       | 18      | 27      | 36      | 45      |
| <i>Twin City</i>                             |                   | 0       | 0       | 0       | 0       | 5       |
| <i>Cross-border Traffic</i>                  |                   | 2       | 4       | 6       | 8       | 10      |
| <i>Proximity to Target Localities</i>        | <i>Category 1</i> | 3       | 5       | 6       | 7       | 8       |
|  | <i>Category 2</i> | 0       | 1       | 2       | 3       | 4       |
|  | <i>Category 3</i> | 0       | 0       | 1       | 2       | 3       |
| <i>Proximity to Transportation Hubs</i>      |                   | 1       | 2       | 3       | 4       | 5       |
| <i>Large Vessel Traffic</i>                  |                   | 30      | 35      | 40      | 45      | 50      |
| <i>Known Crime/Smuggling</i>                 |                   | 2       | 4       | 6       | 8       | 10      |
| <i>Small Vessel Traffic</i>                  |                   | 6       | 8       | 10      | 12      | 15      |
| <i>Proximity to Target Locality</i>          |                   | 4       | 8       | 12      | 16      | 18      |
| <i>Maritime Accessible CI/KR</i>             | <i>Category 1</i> | 1       | 2       | 3       | 4       | 5       |
|  | <i>Category 2</i> | 0       | 0       | 0       | 1       | 2       |

**III. Resource Elements: Guidance on plans, personnel/teams, equipment, training, and exercises for meeting Target Outcomes (Table II) through any combination of a jurisdiction or entity’s resources, mutual aid, and other assistance.**

*A jurisdiction or entity may not require all resource elements identified to achieve Target Outcomes.*

*Guidance on the resources to build a capability is applicable for use by a jurisdiction or entity in any Class unless otherwise indicated.*

**PLANS**

The *Planning Table* identifies industry standards, Standard Operating Procedures (SOPs), and Emergency Operation Plan (EOP) guidance to support a jurisdiction or entity’s plans for delivering an effective PRND capability. Many of the documents referenced in this section may be found on the Preventive RN Detection Community of Interest (PRND COI) on the Homeland Security Information Network (HSIN). Documents available on the PRND COI are noted below with an (\*). PRND COI access may be received by emailing [PRND\\_COI@hq.dhs.gov](mailto:PRND_COI@hq.dhs.gov) with the subject line “DNDO PRND COI HSIN Access Request.”

**Conduct PRND program planning to include the following steps:**

- Develop a PRND program Concept of Operations
- Identify appropriate stakeholders and resources to provide input into the design of a PRND Program
- Develop a PRND program strategy to include budget and funding resources

**General Planning Resources to accomplish the above steps:**

- PRND Program Management Handbook \*
- Domestic Nuclear Detection Office’s Planning Fact Sheets \*
- PRND Community of Interest (Fact Sheet) \*

• **Supplemental Planning Resources**

- Domestic Nuclear Detection Office Documents
  - Sample State/Local Standard Operating Procedures (SOPs)
  - Concept of Operations (CONOPS) Documents
  - Other planning documents to include sample documents from existing state and local PRND programs.\*
- Lessons Learned Information Sharing (LLIS) Network
- Responder Knowledge Base (RKB)
- FEMA Homeland Security Grant Program (HSGP) documents \*
- HSGP Supplemental Resource: Domestic Nuclear Detection Office Guidance\*
- Homeland Security Presidential Directives
- National Infrastructure Protection Plan (NIPP)
- State and UASI Capability Assessments
- State and UASI Homeland Security Strategies
- State and UASI Charters

• **Maritime Planning Resources**

- Domestic Nuclear Detection Office’s PRND Program Management Handbook Small Craft Maritime Module\*
- US Coast Guard/AMSC threat assessment and security plans
- Maritime specific CONOPS, SOPS, After Action Reports, and Lessons Learned documents\*

• **Special Event Planning Resources**

- Domestic Nuclear Detection Office’s PRND Program Management Handbook Special Events Module\*
- Special Event specific CONOPS, SOPS, After Action Reports, and Lessons Learned documents\*

• **Interior Planning Resources**

- Domestic Nuclear Detection Office’s PRND Program Management Handbook Commercial Vehicle Inspection (CVI) Module\*
- Interior specific CONOPS, SOPS, After Action Reports, and Lessons Learned documents\*

**PERSONNEL/TEAMS**

The *Personnel/Teams Table* identifies what baseline competencies and skill-sets personnel delivering a capability should possess.

**Primary Duties**

1. Team Leader or Program Manager
2. Primary Screener
3. Secondary Screener
4. Reach Back Specialist

**Conduct PRND planning for appropriate operational deployment**

**Team Leader or Program Manager**

- ID resources and assets
- Risk analysis
- Incident Command / National Incident Management System (NIMS)
- Mission analysis (venue location)
- Organize team (roles and responsibilities)
- Equipment requirements
- Mission briefings
- Time schedule
- Operations planning and operation orders (Part of Incident/Event Incident Action Plan-IAP)
- Final mission preparation
- Execution of mission plan
- Integrate intelligence functions
- After Action Report, document 'lessons learned'
- Training and Exercise Coordinator or Operations Planner
- Equipment maintenance
- In house or immediate access to law enforcement (detention or arrest) authority

**Conduct primary screening to detect RN using specialized PRND equipment**

**Primary Screener**

- Equipment check and operations
- Detect
- Verify
- Locate/isolate
- Measure take readings
- Assess/evaluate
- Employ equipment per mission plan
- Conduct sweeps
- Chokepoints for both people and equipment
- Training: equipment, legal, mission etc.
- In house or immediate access to law enforcement (detention or arrest) authority

**Conduct secondary screening to Verify/Assess/Measure/Collect Spectra**

**Secondary Screener**

- Collect spectra and capability to save
- Send spectra and other requested information (photos, incident info etc) to Reach Back
- Receive Reach Back report
- In house or immediate access to law enforcement (detention or arrest) authority

**Conduct Technical Reach Back**

**Reach Back Specialist**

- Receive spectra
- Receive request from Secondary Screener
- Process/analyze/assess
- Report to Secondary Screener
- Analyze spectra
- Assess spectra
- Report results
- In house or immediate access to law enforcement (detention or arrest) authority

**Adjudicate/Resolve initial detection/incident**

Team Leader or Program Manager  
 Primary Screener  
 Secondary Screener

- Actions based on totality of circumstances
- Generally adjudicated at lowest level possible by authorized personnel
- In house or immediate access to Law Enforcement (detention or arrest) authority

**EQUIPMENT**

The *Equipment Table* identifies types of specialized equipment a jurisdiction should be able to access in order to meet the Target Outcomes for the Preventive Radiological / Nuclear (R/N) Detection and Adjudication Capability. Equipment references are drawn from existing federal guidance, including the Standardized Equipment List (SEL) and the DHS Authorized Equipment List (AEL). The complete AEL provides general categories and specific equipment allowable for funding under the DHS Homeland Security Grant Programs. Additional information on equipment, including applicable standards, manufacturing requirements and reviews, can be found on the Responder Knowledge Base (RKB) at [www.rkb.us](http://www.rkb.us).

DNDO recently initiated the Graduated RN Detector Evaluation and Reporting (GRaDER<sup>SM</sup>) Program to provide a continuing means of independently testing and assessing commercially available RN detection equipment against ANSI N42 performance standards on a voluntary basis by equipment vendors. When test results are available, GRaDER will provide performance and operationally relevant technical information on tested systems to DHS components and other Federal Departments, as well as State, local, territorial and tribal government law enforcement and first responders via the Responder Knowledge Base (RKB). More information on the GRaDER Program is available on the DNDO website at <http://www.dhs.gov/GRaDER>.

Special Requirements for Neutron Detection Equipment: Helium-3 (<sup>3</sup>He) is an important element used in several national security, homeland defense, and medical applications. The supply of <sup>3</sup>He is extremely limited. While research is currently being conducted to develop alternative materials for neutron detection, grantees developing PRND capability may be unable to acquire <sup>3</sup>He gas for neutron detection equipment. Jurisdictions seeking to develop or enhance neutron detection are encouraged to contact DNDO for more information about the availability of <sup>3</sup>He and alternative detection technologies.

Jurisdictions should utilize national, state and local equipment caches as appropriate. The *Equipment table* is not meant to be a comprehensive list of all available resources. Many of the resources referenced in this section may be found on the Preventive RN Detection Community of Interest (PRND COI) on the Homeland Security Information Network (HSIN). Documents available on the PRND COI are noted below with an (\*). PRND COI access may be received by emailing [PRND\\_COI@ha.dhs.gov](mailto:PRND_COI@ha.dhs.gov) with the subject line "DNDO PRND COI HSIN Access Request."

**Equipment Types \***

- Handheld
- Mobile
- Fixed
- Re-locatable

**Conduct PRND planning for appropriate operational deployment**

- Training and exercises-special operations (operational profile)
- Concept of operations (CONOPS) (SOP, protocols, unique to each jurisdiction)
- Funding/resources
- Definitions of the mission
- Intel: Legal, relationships, coordination, communication

**Conduct primary screening to detect RN using specialized PRND equipment**

- Personal Radiation Detector (not a dosimeter) Minimum requirement for primary screening

**Optional/Additional Primary Screening Equipment \***

- Mobile Radiation Detection System (Vehicular)
- Portable backpack
- Equipment user manual/guide
- Digital camera
- Note pad
- GPS unit

**Conduct secondary screening to Verify/Assess/Measure/Collect Spectra**

- Vehicle
- RIID-low resolution (in relation to the energy resolution of the detection media)
- RIID-high resolution (in relation to the energy resolution of the detection media)
- Tape measure
- Radioactive check source
- Digital camera/note pad/GPS unit
- Personal protective equipment (PPE)
- Stay time chart
- Video camera
- Survey meter
- Radiation field guide

**Conduct Technical Reach Back**

- Secure communications: cell phone or satellite phone
- Dedicated laptop with Air card or satellite
- Phone numbers and contact information
- Reference library and materials
- Equipment manuals

**Adjudicate/Resolve initial detection/incident**

- Law enforcement equipment necessary to make arrests in permissive and non-permissive environments

**TRAINING AND EXERCISES**

The *Training and Exercise Table* identifies the essential tasks that personnel assigned to an incident involving an escalation of radiation detection must be able to complete. Learning objectives are consistent with the forthcoming FEMA [Training and Exercise Integration/Training Operations](#) (TEI/TO) Training Frameworks, which will emphasize the need for jurisdictions to build their capacity in relation to the capabilities noted in the TCL. Learning objectives reflect skills and abilities that can be observed during an operation and do not represent all related awareness and pre-requisite course requirements.

**PRND Training information:**

Counter Terrorism Operations Support (CTOS) courses are provided free of charge as part of the FEMA National Training Consortium course offerings. A course catalog and contact information is listed on the web site - <http://www.ctosnasa.org/>

- Personal Radiation Detector (PER-243)
- Personal Radiation Detector Train the trainer (PER-243-1)
- Secondary Screener RIID (SS-RIID) (PER-245)
- Primary Screener Backpack Basic Course (PSBB) (PER-246)

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FEMA NPD approved training materials - contact DNDO Training Branch at 202-254-7135 or 202-254-7101- see the listings at – [https://www.firstrespondertraining.gov/catalogs/federal\\_catalog.pdf](https://www.firstrespondertraining.gov/catalogs/federal_catalog.pdf)

- One Day Primary/Secondary Screener PRD/RIID Course - DHS-010-PREV
- Maritime PRND Operations Course DHS-011-PREV
- Primary Screener - Mobile Detection Course MDS - DHS-012-PREV
- Primary Screening - PRD Basic Operator Training Course - DHS-013-PREV
- Primary Screener - Backpack PackEye Course – DHS- 014-PREV
- Secondary Screening: RIID Operator’s Course DHS-015-PREV

DNDO Courses – contact DNDO Training Branch at 202-254-7135 or 202-254-7101

- Reach Back Spectroscopy Course
- Mobile Aerial Radiological Surveillance Course (MARS)
- DNDO provides PRND training experts who provide training support and consultations to assist federal, state, and local agencies in tailoring training and training programs to meet the local needs.

PRND Training Curricula continue to develop. For the latest information on available courses and training related issues, contact the DNDO Training Branch at 202-254-7135 or 202-254-7101.

The learning objectives listed below should form the foundation for jurisdictions conducting operations-based exercises. Jurisdictions should ensure that personnel have been taught to perform each listed learning objective. The list enables course developers to align existing courses to each Target Outcome, or as a starting point for establishing new courses.

The Learning Objectives for each capability will be integrated into the National Homeland Security Training Program (currently under development), which will oversee and coordinate homeland security training programs, increase training capacity, and ensure standardization across programs. Homeland Security Exercise and Evaluation Program (HSEEP) and the Exercise Evaluation Guides (EEGs) will also be updated. Information on HSEEP, including the latest version of the *EEG Builder* Web-based tool and a template EEG for the Critical Resource Logistics and Distribution capability are at [www.hseep.dhs.gov](http://www.hseep.dhs.gov).

**Conduct PRND planning for appropriate operational deployment**

|  |   |
|--|---|
| 1. Identify three detection missions and factors to consider when planning a mission and incorporate PRND Concept of Operations into associated plans and procedures | 9. Apply NIMS/Incident Command System (ICS) into PRND program structure   |
| 2. Perform a jurisdictional threat and risk assessment to determine baseline for planning  | 10. Analyze the PRND mission  |
| 3. Apply the principles of program strategy development and execution in plans and procedures  | 11. Establish and use a planning schedule of events for a given PRND mission/operation and develop PRND operations plans/orders |
| 4. Gather pertinent information about a given PRND mission/operation   | 12. Incorporate operational considerations into plans/orders  |
| 5. Assess the PRND operational environments  | 13. Plan PRND missions and operations missions/operations using established plans/orders  |
| 6. Select instruments and equipment to carry out a given PRND mission/operation  | 14. Understand training requirements for PRND team/personnel  |
| 7. Determine operational organization based on the given PRND mission/operation  | 15. Manage a given PRND mission/budget  |
| 8. Identify and obtain resources and assets for the PRND mission   | 16. Formulate and present mission deployment briefings  |

**Conduct primary screening to detect RN using specialized PRND equipment**

|   |  |
|---|--|
| 1. Start, set up and operate a PRD in accordance with jurisdiction SOPs   | 9. Set up and operate a Backpack Detector in accordance with jurisdiction SOPs                         |
| 2. Detect/receive alarms/alerts utilizing a PRD   | 10. Use the triangulation method with the backpack to locate the source                                |
| 3. Verify a PRD alarm/ alert  | 11. Deploy primary screening equipment in accordance with mission plan                                 |
| 4. Locate/localize the source of an alarm/alert utilizing a PRD   | 12. Apply legal implications/restrictions to primary screening operations                              |
| 5. Measure the level of radiation of a source utilizing a PRD   | 13. Conduct a coordinated sweep using primary screening techniques with PRDs and backpack(s)           |
| 6. Conduct an interview with individual(s) associated with a PRD alarm/alert leading to successful adjudication | 14. Conduct a coordinated choke point operation using Primary Screening techniques, PRDs and backpacks |
| 7. Demonstrate situational awareness for factors connected with the alarm/alert                                 | 15. Conduct primary screening in a maritime environment  |
| 8. Assess a PRD alarm/alert considering the totality of circumstances   |  |

|  |   |
|--|---|
| <b>Conduct secondary screening to verify/assess/measure/collect spectra</b>  |   |
| 1. Initiate secondary screening utilizing the Radiation Isotope Identifier Device (RIID)   | 7. Determine if source person(s) knows reason for alarm/alert   |
| 2. Start, set up and operate a RIID in accordance with jurisdiction SOPs   | 8. Document essential data describing the PRND related incident on appropriate form(s)                  |
| 3. Incorporate input of the primary screener into the secondary screening process  | 9. Collect, save and download spectra utilizing the RIID  |
| 4. Conduct a consensual interview of person(s) upon identification of source alarm/alert   | 10. Send/receive spectra to reach back organization   |
| 5. Collect and save spectra of the known source, unknown source, and background radiation at the scene   | 11. Assess the totality of the PRND incident  |
| 6. Obtain radiation measurements with the RIID   |   |
| <b>Conduct technical reach back</b>  |   |
| 1. Communicate with secondary screening on 24/7 basis  | 11. Demonstrate understanding of gamma ray interaction with matter                                      |
| 2. Start, set up and remotely operate computer systems used for spectral analysis  | 12. Demonstrate understanding of basic operation of gamma ray detectors                                 |
| 3. Receive, save, and properly identify spectrum files sent by secondary screening   | 13. Demonstrate understanding of various spectrum features and how they are produced                    |
| 4. Properly document/record on appropriate forms   | 14. Demonstrate ability to send/receive spectral analysis to secondary screening                        |
| 5. Apply computer applications and programming in support of gamma spectroscopy  | 15. Demonstrate ability to discuss the spectrum file/record with secondary screening                    |
| 6. Open and manipulate spectra utilizing spectrum analysis software  | 16. Demonstrate ability to provide technical advice on the identification of the radionuclide           |
| 7. Demonstrate ability to verify/correct energy calibration  | 17. Demonstrate ability to contact national reach back organization                                     |
| 8. Demonstrate proper assessment of both known and unknown spectra sent by secondary screening   | 18. Demonstrate knowledge and ability to send/receive spectrum file to national reach back organization |
| 9. Demonstrate knowledge of gamma spectroscopy   | 19. Ability to discuss strategies for appropriate adjudication or escalation                            |
| 10. Demonstrate understanding of the basics of radionuclide identification by gamma spectroscopy   |   |
| <b>Adjudicate/Resolve initial detection/incident</b>   |   |
| 1. Receive and interpret reports from reach back organization  | 6. Apply legal considerations, aspects, implications and effects based upon the adjudication results    |
| 2. Consult the Common Innocent Radiation Sources and Isotopes of Major Concern (CIRS) Table to further assess the totality of the circumstances of the PRND incident | 7. Demonstrate ability to incorporate lessons learned/improvements into future PRND operations          |
| 3. Upon receipt of reach back report, make appropriate decisions/actions in support of totality of circumstances of the alarm/alert                                  | 8. Demonstrate ability to make proper notifications to appropriate organizations and/or agencies        |
| 4. Contact additional specialty teams as needed  | 9. Incorporate lessons learned/improvements into future PRND operations                                 |
| 5. Transfer control to appropriate response entities if required   |   |

## Glossary of Terms

| Term             | Explanation  |
|------------------|--|
| AEL              | Authorized Equipment List. The AEL is published by the FEMA Grant Programs Directorate, Department of Homeland Security, and used to determine equipment allowability under multiple grant programs, including the Homeland Security Grant Program.  |
| Adjudication     | The process of identifying, with reasonable certainty, the type or nature of material or device that set off an alarm and assessing the potential threat that the material or device might pose with corresponding implications for the need to take further action.   |
| Alarm            | Overly identified or overtly obtained information generated by technical equipment (sensors or detectors) that indicates nuclear or radiological material is possibly out of regulatory control.   |
| Alarm Resolution | The process of taking the necessary action to eliminate any threat posed by the material that set off the alarm or taking measures to address an indeterminate alarm. In cases where an alarm remains indeterminate, or unknown after initial adjudication efforts, resolution may involve further action to complete the adjudication process – i.e., to identify the material and determine that it poses no threat – or may involve operational response activities.  |
| Alert            | A message that provides situational awareness of an urgent nature about a potential or ongoing emergency situation and is an indicator of a potential terrorist threat warning; or informs of a credible, specific, imminent threat against US personnel, facilities, or interests, with information the community considers sufficiently specific and credible to enable implementation of local security measures.   |
| CONOPS           | Concept of Operations  |
| CI/KR            | Critical Infrastructure and Key Resources as defined by the Tier I/Tier II National Asset Data Base or by a jurisdiction.  |
| COI              | Communities of Interest  |
| CVI              | Commercial Vehicle Inspection  |
| Detection        | Includes traditional technical means (sensors) to sense alpha, beta, gamma, or neutron emission from radioactive materials; technical means that use non-intrusive inspection (NII); other technical means, such as ultrasound or weight measurement; and non-technical approaches, to include conventional intelligence and law enforcement activities, intelligence cues, surveillance, or operational encounters by law enforcement. A "detection event" could entail either an instrument alarm or an information alert. |
| DHS              | U.S. Department of Homeland Security   |
| DNDO             | Domestic Nuclear Detection Office  |
| DOE              | U.S. Department of Energy  |
| FEMA             | Federal Emergency Management Agency  |
| GNDA             | Global Nuclear Detection Architecture. A worldwide network of sensors, communications capabilities, and personnel, with supporting information exchanges, programs, and protocols.   |
| HDER             | Homeland Defense Equipment Reuse. The HDER program that provides responder agencies across the nation a substantial inventory of radiological detection instrumentation and other equipment that is no longer required by the Federal Government.  |
| HPRDS            | Human Portable Radiation Detection System  |
| HSEEP            | Homeland Security Exercise and Evaluation Program. Doctrine and policy for designing, developing, conducting and evaluating exercises; HSEEP is a threat- and performance-based exercise program that includes a cycle, mix, and range of exercise activities of varying degrees of complexity and interaction.  |

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| <b>Term</b>                    | <b>Explanation</b>  |
|--------------------------------|---|
| HSGP                           | Homeland Security Grant Program   |
| HSIN                           | Homeland Security Information Network   |
| HSPD                           | Homeland Security Presidential Directive. A directive that establishes policies to strengthen U.S. preparedness to prevent and respond to threatened or actual domestic terrorist attacks.  |
| HSPD-8                         | Homeland Security Presidential Directive-8. HSPD-8 is a directive that establishes policies to strengthen U.S. preparedness to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies by requiring a national domestic all-hazards preparedness goal, establishing mechanisms for improved delivery of federal preparedness assistance to state and local governments, and outlining actions to strengthen preparedness capabilities of federal, state, and local entities. |
| ICS                            | Incident Command System   |
| IED                            | Improvised Explosive Device. An IED is a "homemade" device designed to be used on its own or in conjunction with toxic chemicals, biological toxins, or radiological materials.   |
| IND                            | Improvised Nuclear Device   |
| JAC                            | Joint Analysis Center   |
| MOU / MOA                      | Memorandum of Understanding / Memorandum of Agreement   |
| National Preparedness Goal     | A national goal that establishes measurable readiness priorities and targets that appropriately balance the potential threat and magnitude of terrorist attacks, major disasters, and other emergencies with the resources required to prevent, respond to, and recover from them.  |
| National Preparedness Guidance | Guidance that helps states implement the national strategies outlined in HSPD-8 by providing a new framework for jurisdictions to assess their level of preparedness.   |
| NIMS                           | National Incident Management System; provides a consistent framework for incident management at all jurisdictional levels regardless of the cause, size, or complexity of the incident and provides the nation's first responders and authorities with the same foundation for incident management for terrorist attacks, natural disasters, and other emergencies.   |
| NIPP                           | National Infrastructure Protection Plan   |
| NORM                           | Naturally Occurring Radioactive Material  |
| NRC                            | Nuclear Regulatory Commission. The NRC is a U.S. government organization whose mission is to protect the public health and safety, and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities.  |
| NSPD                           | National Security Presidential Directives. NSPDs are used to promulgate presidential decisions on national security matters.  |
| Nuclear Material               | Refers to special nuclear material, source material, and byproduct material. For purposes of this document, the term "nuclear material" also includes those same materials found in a device or in components.  |
| POE                            | Port of Entry   |
| POETE/Ops                      | Planning, Organization, Equipment, Training, Exercises, and Operations Support  |
| Primary Screening              | The initial point of radiation detection to include the first contact with a conveyance, individual, or shipment.   |
| PRD                            | Personal Radiation Detector   |

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| <b>Term</b>           | <b>Explanation</b>   |
|-----------------------|--|
| PRND                  | Preventive Radiological/Nuclear Detection  |
| PRND COI              | Preventive Rad/Nuc Detection Community of Interest website located on the Homeland Security Information Network (HSIN) Access may be requested by emailing <a href="mailto:PRND_COI@hq.dhs.gov">PRND_COI@hq.dhs.gov</a> with the subject line "DNDO PRND COI HSIN Access Request"  |
| PSGP                  | Port Security Grant Program  |
| Radioactive Material  | Elements and compounds emitting alpha, beta, gamma, or neutron radiation by the spontaneous disintegration of atomic nuclei. For purposes of this document, the term "radioactive material" is used interchangeably with "radiological material" and also includes those same materials found in a device or in components.  |
| Radiological Material | See "radioactive material"   |
| Reachback             | Resources that provide specialized technical analysis of radiation spectra for the resolution of radiation detection alarms.   |
| RAP                   | Radiological Assistance Program; a DOE program to provide radiological expertise and equipment to assist federal, state, commonwealth, territorial, and local agencies with monitoring and analysis and radiological first response to resolve radiological accidents and situations.  |
| RDD                   | Radiological Dispersal Devices also known as "dirty bombs"; consist of radioactive material combined with conventional explosives.   |
| RN                    | Radiological/Nuclear   |
| Scan                  | A form of examination utilizing nonintrusive imaging equipment, radiation detection equipment, or non-technical means, to capture data, including images of a container or a conveyance.   |
| Screen                | The visual or automated review of information about goods, including manifest or entry documentation accompanying a shipment being imported into the U.S., to determine the presence of misdeclared, restricted, or prohibited items and assess the level of threat posed by such cargo.   |
| Search                | When applied to cargo inspections, refers to an intrusive examination in which a container is opened and its contents are devanned and visually inspected for the presence of misdeclared, restricted, or prohibited items. When applied to the actions required to locate a radioactive source, refers to the systematic application of radiation detectors and protocols to identify the presence of a source in a designated geographical location or region. |
| Technical Reach Back  | Resources that provide specialized technical analysis of radiation spectra for the resolution of radiation detection alarms.   |
| RIID                  | Radio-isotope identification detectors   |
| RKB                   | Responder Knowledge Base; provides emergency responders with a single source for integrated information on available equipment, equipment certification and standards, equipment training, cost resources, and reviews from other equipment users.   |
| Secondary Screening   | Utilization of isotope identification detection equipment and/or other investigative techniques to identify and investigate the primary event.   |
| SEL                   | Standardized Equipment List  |
| SOP                   | Standard Operating Procedures  |
| UASI                  | Urban Areas Security Initiative Grant Program  |