

DENVER FIRE DEPARTMENT

STANDARD OPERATING GUIDELINE

Section: SECURING THE CITIES
Topic: Radiation Response – Secondary Screener

Topic No:	2122.03
Date:	10-30-24
Approved:	<i>RM</i>
Review Date:	10-30-27
Replaces:	New

PURPOSE: The Denver Fire Department policy regarding Secondary Screeners.

SCOPE: To provide information and response guidance for Secondary Screeners responding to a radiological alarm within the Denver Securing the Cities (STC) program.

I. Secondary Screeners

- Shift Commanders, Hazmat members of Station 9, and selected members of Special Operations will receive training for Secondary Screening. Secondary Screeners will complete the PER 243, PER 245, PER 246, and PER 355.

II. Operational Guidance: Secondary Screening

- During the Secondary Screening phase, a radiation source was detected, causing the Primary Screener to request assistance from a Secondary Screener. The Secondary Screener will utilize the following detection equipment:
 - a. Spectroscopic Personal Radiation Detector (SPRD)
 - b. Ruggedized Isotope Identifier (RIID)
- Utilizing tactics and techniques learned in PER 245 training, operators utilizing their PRD will detect, verify, and locate the source of the elevated radiological emission.

III. Radiation Detection Response Protocol

Step 1 - Primary Screener Detection
Detect, Verify, Locate/Localize

Step 2 – Secondary Screener Detection/Identification
Note Readings, Identify Isotope

Step 3 – Secondary Screener Technical Assistance
Reachback – DOE Triage

Step 4 - Operational Response
Request Federal Assets in coordination with Law Enforcement

Step 5 - Post Alarm Resolution - Record, Report, Adjudicate

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IV. Radio Isotope Identifier Device

- The Securing the City program for the City and County of Denver Utilizes the Berkeley Nucleonics Corporation Sam 950 RIID.
- This device has a radiation operating range of 0R/HR to 10R/HR and can run for >8 hours on a single charge.
- The unit is required to have a Smartphone or CF-66 Tough book with it to transport the Spectrums to reach back.

At any point during this process, an alarm may be adjudicated if it is determined that the source is legitimate. The FBI WMD Coordinator should be notified as soon as a threat is resolved.

Denver Police Department and the FBI will be notified through the Communication Center of all Denver Fire Department Secondary Screening responses when indicated by the CONOPS. This notification will require a response if the screening produces an identification of a nefarious isotope, both natural and artificial. Suppose the source material is suspected or confirmed as being out of the source holder at any time during the screening process, or a contamination risk exists. In that case, primary screeners will request a Level II HAZMAT response from the Denver Fire Department.

V. Operational Guidance: Secondary Screening

Secondary screening involves using specialized radiation detection instruments, including radioisotope identification devices (RFIDs), to gather more information regarding the nature of the radiological alarm. The investigating primary screener will validate the nature of the radiological concern using dose measurement, visual clues, and initial isotopic identification to support an assessment of the alarm. It should be noted that RIIDs are not 100% accurate in identifying radioisotopes, and Reachback should be utilized if the initial analysis is inconsistent, inconclusive, or any suspicions exist.

Team Structure

A certified Secondary Screening Team shall be available 24 hours a day, seven days a week. This standby team should be able to respond to any location within the City and County of Denver within a reasonable time to prevent any extensive detentions times incurred by primary screeners with potential suspects in the field. Each team should consist of two qualified members. During a Secondary Screen event, DFD will request DPD for detention capability.

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Capability/Equipment

Every Fire apparatus will have, at a minimum, a Personal Radiation Detector (PRD). Additional, specialized equipment will be issued to the units of the Hazardous Materials Response Team (HMRT) of the Denver Fire Department. This equipment includes, but is not limited to:

- PRD – Personal Radiation Detector with an incorporated dosimeter
- RIID – Radiological Isotope Identification Device
- Backpack (Man-portable detector)
- Mobile Detection System
- Tablet capable of transmitting data and files over the internet
- Tape Measure
- Check Source

Secondary Screening

Make contact via telephone with the Primary Screener to confirm and receive any additional information that may be needed to guide response, isolation distances, or other concerns.

- Conduct Secondary Screening, e.g., perform isotope identification spectrum collection and additional surveys following equipment procedures. Review all information obtained by the Primary Screening operator.
- If there are multiple hot spots on the incident, spectra are required.
 - a. The following measurements should be obtained (shorter spectra acquisition times may be used as the situation safety conditions warrant):
 1. 5-minute background spectrum
 2. 5-minute spectrum of a known isotope (check source)
 3. 5-minute spectrum of the unknown isotope source
 4. Two gamma dose rate measurements at two different distances – near and far, such as 1' and 2' or 30" and 60".
 5. Neutron count rate
 - b. Request Reachback if:
 1. Anytime an Unexplained Special Nuclear Material is identified.
 2. Secondary screening procedures do not reveal the source of the confirmed alarm.
 3. Radiation levels do not appear to be consistent with manifest shipping documentation or interview comments.

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4. Radiation source appears to be a potential threat material condition.
5. Consistent, unexplainable neutrons detected – all neutron detections should be treated as potential threats until determined to be non-threatening and legitimate.
6. Other inconsistencies and uncertainties are encountered.

c. Secondary Screener will document alarm resolution via ESO.

All Secondary Screening activations will require notification to relevant stakeholders identified in the Information Exchange Plan and the FBI WMD Field Office.

- Regardless of the screening stage, criminal and terrorist threats involving RN materials require immediate notification to the FBI for coordination of a time sensitive response to potentially prevent harm or substantial loss of life or substantial damage to property.

Therefore, Denver STC Partner Agencies will support the federal interagency agreements aligned within the National Domestic Detection CONOPS. When suspicious activity or a criminal nexus is detected at any stage of screening and adjudication, the FBI will be initiated through the existing agency's corresponding dispatch or escalation notification procedures.

The Denver FBI WMD Field Coordinator can be contacted 24/7 by the FBI Denver switchboard at: (303)-630-6097 (press 0 at the prompt and ask for the WMD Coordinator).

VI. Adjudication Protocol

Adjudication occurs when the nature of the alarm has been determined, and the event is suspended. The adjudication process involves determining if the cause of the radiation alarm is a threat, benign, or regulatory concern. Adjudication can occur at any phase in the alarm response process and should be performed at the lowest possible organizational level.

Alarms Can Be Resolved into Two Possible Categories:

- Non-Threat
- Threat

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Most radiological/nuclear alarms can be resolved with proper training at the primary screening level. Unresolved alarms will require secondary screening inspection and may require the response of other specialized resources such as DFD HAZMAT, Bomb Unit, or the FBI WMD Coordinator to support the alarm adjudication.

Non-Threat

- Naturally Occurring Radioactive Materials (NORM)
- Exempt Consumer Products containing Radioactive Material
- Medical treatments, such as injection of radiopharmaceuticals
- Transport or use of radioactive material, including improperly shipped or managed material without intent to harm. Safety and regulatory follow-on actions may be required for radioactive material that is improperly shipped or used.
- Non-Threat/Illegal Activity or Regulatory violation: notify the proper governing agency for action.

Threat

The event can be adjudicated as a potential threat at any time. Primary threat indicators listed below will help identify potential hazards that are cause for immediate notification of the FBI WMD Coordinator, in addition to:

- Shift Commander On-Duty
- Assistant Chief of Special Operations
- Captain of Special Operations
- Hazmat Branch Director or Team Leader of DFD HAZMAT

Primary threat indicators include:

- Discovery or possibility of explosives or improvised explosive devices in conjunction with the radiation alarm
- An indication of threat material or a terrorism nexus
- Any unexplained detection/indication of neutrons
- Special Nuclear Material (SNM) is identified

Threat determinations are generally made in coordination with the FBI through a unified command structure. The threat level must be made using the totality of information available to the investigating officer. Additional radiological indicators that warrant further investigation include:

- The level and distribution of the radioactivity do not correlate with the materials described in the shipping documents.

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- Interview responses and/or shipping documents are inconsistent with additional information provided by the radioisotope identification device.
- The isotope cannot be identified, or the detection equipment, law enforcement data, and other relative information cannot conclusively identify the source of radiation.

Regulatory limits:

- 500 $\mu\text{R/h}$ at the surface of an unmarked package
 - Per the Department of Transportation Regulation, 49CFR173, properly shipped packages should not exceed these values
- 10,000 $\mu\text{R/h}$ at 1 meter from a placarded vehicle or labeled package
- 2,000 $\mu\text{R/h}$ in public areas
 - Per the Nuclear Regulatory Commission, this is the maximum exposure rate in uncontrolled, public areas

VII. Evidence Collection

Crimes potentially resulting in Federal violations and involving radioactive materials are solely the investigative responsibility of the Federal Bureau of Investigation (FBI). Activities involving radioactive material, not within the jurisdiction of the FBI will be handled by the Colorado Department of Public Health and Environment or Denver Department of Public Health and Environment, as determined appropriate per the specific incident.

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