

# Reference Aid

(U//FOUO) Radiological Terrorism: A Reference Aid on After-Action Reporting for State and Local Incident Management Officials

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Homeland  
Security



Federal Bureau  
of Investigation



## (U//FOUO) Radiological Terrorism: A Reference Aid on After-Action Reporting for State and Local Incident Management Officials

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*(U) Prepared by the Office of Intelligence and Analysis (I&A), Cyber, Infrastructure, and Science Division, Chemical, Biological, Radiological, and Nuclear Threat Branch, and the FBI Weapons of Mass Destruction Directorate. Coordinated with the I&A State and Local Programs Office; I&A Collection Requirements Division; DHS Office of Operations Coordination and Planning; Domestic Nuclear Detection Office; DHS Office of Health Affairs; Interagency Threat Assessment and Coordination Group; National Counterterrorism Center; and US Environmental Protection Agency.*

### (U) Scope

(U//FOUO) This Reference Aid was jointly produced by DHS and the FBI to assist in the acquisition of detailed information in the aftermath of a successful or attempted radiological terrorism incident that would be of interest to the national law enforcement and emergency response communities. It is intended to help state, local, tribal, and territorial agencies and private sector entities deter, prevent, preempt, or respond to terrorist attacks against the United States.

(U//FOUO) Incident response to a radiological terrorist attack would involve, but not necessarily be limited to, police, fire, hazardous materials, public health, and radiological and nuclear detection emergency management teams and offices. Incident response also would require establishing an incident command system, such as a unified command structure based on the National Incident Management System.

(U//FOUO) This Reference Aid focuses narrowly on those responders who complete after-action reports following incidents described in this Reference Aid. The information collected may provide broader situational awareness after an incident has occurred, support threat analysis of potential follow-on incidents, assist in identifying perpetrators, and facilitate the allocation of consequence-management resources.

(U//FOUO) **Warning:** Radiological dispersal devices (RDDs) or radiological exposure devices (REDs) may be hazardous, even at a distance. Individuals should not endanger themselves by approaching a dangerously radioactive source or device in an attempt to collect this information. State, local, tribal, territorial, and private sector medical officials will normally be involved in safety evaluations following such incidents.

**(U//FOUO)** This Reference Aid does not take precedence over local safety, operational, legal, first-responder, or law enforcement protocols (such as evidence gathering), nor does it call for those protocols to be violated in order to acquire the information described. This Reference Aid is not a request for intelligence collection and does not provide the authority to conduct law enforcement or intelligence-related operational activities. Recipients are encouraged to consult legal counsel about any questions regarding the scope of their legal authorities.

## **(U) Reporting Guidance**

**(U)** For immediate technical assistance regarding radiation-detection incidents or adjudicating radiation-detection alarms, contact the Domestic Nuclear Detection Office's Joint Analysis Center (JAC) at 1-877-363-6522. The JAC provides radiation-detection alarm adjudication for state and local officials as well as rapid-turnaround analytic services for nuclear detection questions.

(U) DHS and the FBI encourage recipients of this document to report information concerning suspicious or criminal activity related to radiological materials to:

- (U) The nearest State and Major Urban Area Fusion Center. Fusion center contact information can be found online at <http://www.dhs.gov/contact-fusion-centers>.
- (U) The DHS National Operations Center (NOC), which can be reached by telephone at 202-282-8101 or by e-mail at [NOC.SWO@dhs.gov](mailto:NOC.SWO@dhs.gov).
- (U) The local FBI Joint Terrorism Task Force. FBI regional telephone numbers can be found online at <http://www.fbi.gov/contact/fo/fo.htm>.
- (U) The FBI Strategic Information and Operations Center (SIOC), which can be reached by telephone at 202-323-3300 or by e-mail at [SIOC@ic.fbi.gov](mailto:SIOC@ic.fbi.gov).

(U//FOUO) Reporting should include the date, time, location, type of activity, name of the submitting company or organization, and a designated point of contact. Reporting should remain within official channels to ensure appropriate and consistent public notifications, as necessary.

(U//FOUO) For incidents involving the known or suspected use or attempted use of an RDD or an RED, or any other suspected malicious use of radioactive materials, the following categories of information are of greatest interest:

- (U//FOUO) Incident description and details.
- (U//FOUO) Suspects.

### **(U) Environmental Spills**

(U) Report information about discharges of oil, chemical, radiological, biological, or etiological materials into the environment, anywhere in the United States and its territories, to the National Response Center at 1-800-424-8802.

- (U//FOUO) Suspicious devices and radiological materials.
- (U//FOUO) Other objects and equipment.
- (U//FOUO) Effects of the incident.

**(U) Terms and Definitions**

(U//FOUO) **Incident:** For the purpose of this document, the term “incident” means any malicious attempt—suspected or confirmed—to contaminate persons, property, infrastructure, or natural resources with radioactive materials. Incidents may or may not result in contamination at levels hazardous to people or require significant clean-up operations.

(U//FOUO) **Radioactive material:** Elements and compounds emitting alpha, beta, gamma, or neutron radiation by the spontaneous disintegration of atomic nuclei.

(U//FOUO) **RDD:** Any device or process, other than a nuclear explosive device, specifically designed to spread radioactive material by explosion, aerosol, or other means of exposure to contaminate, frighten, and cause injury.

(U//FOUO) **RED:** A device intended to expose people, without their knowledge, to potentially harmful doses of ionizing radiation. Consisting of partially or fully unshielded radioactive material, an RED could be very small and easily hidden from sight in a public place (such as under a subway seat, in a food court, or in a busy corridor), exposing those nearby.

(U//FOUO) **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.

**(U) Incident Description and Details**

(U//FOUO) For any incident suspected or confirmed of being a malicious attempt to expose or contaminate persons, property, infrastructure, or natural resources with radioactive materials, information of interest includes:

- (U//FOUO) Time and place of the incident—include street address and geographic coordinates, such as latitude and longitude or military grid reference system, if available.
- (U//FOUO) Types of buildings, activities, and infrastructure at the site. Describe what was occurring at the incident site immediately prior to the incident, including any special events taking place. Estimate how many people were present at the start of the incident.
- (U//FOUO) Information about persons fleeing the scene immediately prior to the incident.
- (U//FOUO) Details regarding how radioactive materials were dispersed or intended to be dispersed, to include explosive, manual, or other means of dispersal.
- (U//FOUO) Indications or evidence that other or secondary devices exist.
- (U//FOUO) Evidence of coordination or pre-planning between multiple persons.

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- (U//FOUO) Indications or evidence that perpetrators were aware of or tried to circumvent security measures.
- (U//FOUO) Indications or evidence that the perpetrators took measures to confine people in proximity to the radiological device.
- (U//FOUO) Distractions, diversions, or other tactics used to transport or place a device at the incident scene.
- (U//FOUO) Unusual odors, airborne particles, smoke, powders, liquids, or vapors.
- (U//FOUO) Proximity, if known, of the incident site to intense radiation sources, such as those that might be found at hospitals, universities, or industrial sites using radiation devices.
- (U//FOUO) Status of the climate control system, windows, and doors—for incidents that occurred inside a building or vehicle—before and during the incident, to include any evidence of tampering or sabotage.
- (U//FOUO) Proximity of the incident site to critical infrastructure, including potentially symbolic targets or high-population areas.
- (U//FOUO) If the incident involved an attempt to create an RDD or RED by damaging a piece of equipment containing radiological material at its place of installation:
  - (U//FOUO) Name, location, and function of the host facility.
  - (U//FOUO) Type, purpose, and location of the equipment housing the radiological source within the facility.
  - (U//FOUO) Type, quantity, and activity level of the radiological source used in the equipment.
  - (U//FOUO) Any information about how the perpetrators might have gained access to the equipment.
- (U//FOUO) If the incident involved an attempt to create an RDD or RED by breaching the packaging and containment measures of radiological material being transported in a vehicle:
  - (U//FOUO) Origin, route, and final and intended destination of the vehicle (including all intermediate stops).
  - (U//FOUO) Type, quantity, and activity level of the radiological source or sources being transported.
  - (U//FOUO) Tactics and tools used by the perpetrators in both the attempt to interdict the shipment or release the radioactive material.

- (U//FOUO) Timeline of events that notes where on the vehicle's route the radioactive release occurred.
- (U//FOUO) Photos or video of the incident site before, during, and after the incident.
- (U//FOUO) For incidents occurring outdoors, weather conditions leading up to and during the incident—to include any micro-weather conditions peculiar to the incident site, such as unusual wind conditions (or lack thereof) caused by urban canyons, humidity, or whether the incident site was in full sunlight or shade.
- (U//FOUO) Aircraft, model aircraft, or balloons overflying the scene before, during, or after the incident, particularly if the activity was unusual or could be linked to reconnaissance of the incident site or dispersal of radiological materials. Describe the overflight activity and any suspicions it may have raised.
- (U//FOUO) Prior suspicious incidents at the same location, particularly descriptions of possible preoperational activity such as reconnaissance, surveillance, recent theft of radiological materials, or unusual photographing of infrastructure, facilities, or personnel.

## (U) Suspects

(U//FOUO) Perpetrators of radiological incidents might survive and be observed or apprehended. For people associated with a possible radiological device or incident, or suspicious persons exhibiting signs of radiation sickness, information of interest includes:

- (U//FOUO) Names, ages, street addresses, telephone numbers, and e-mail addresses of suspects.
- (U//FOUO) Physical descriptions and photos of suspects, including evidence of illness or injury, and descriptions of specific symptoms, as well as when the symptoms were first observed.\*
- (U//FOUO) Descriptions of suspects' clothing.
- (U//FOUO) Descriptions of suspects' roles in the incident or reason for presence at the scene.
- (U//FOUO) Locations and activities of suspects before, during, and after the incident.
- (U//FOUO) Languages and dialects spoken by suspects.
- (U//FOUO) Occupations, education levels, degrees and certifications held, and names and locations of schools attended by persons involved.
- (U//FOUO) Suspicious behavior by anyone in the vicinity of the incident.

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\* (U) Note that all medical-related information must be collected and handled consistent with the *Health Insurance Portability and Accountability Act* and other medical privacy laws.

## **(U) Suspicious Devices and Radiological Materials**

(U//FOUO) Devices designed to disperse radioactive material may fail to operate, be disrupted before dispersal, or remain wholly or partly intact at the incident scene after dispersal. Information about the design and disposition of these devices, and possible tactics associated with their use, can be helpful with analysis and attribution efforts.

(U//FOUO) For any suspicious device or radiological material, information of interest includes:

- (U//FOUO) Current status (such as location and disposition) of the suspicious device or materials.
- (U//FOUO) Presence and descriptions of any suspected explosives incorporated into the design of the device.
- (U//FOUO) Radiation measurements (distance from the source, dose rate per hour, and neutrons present), spectroscopy data (at least one unknown sample three to five minutes in length, a background spectrum at least 30 feet from the unknown source, and a calibration sample if the source is not embedded within the device), or other technical measurements of radiation emitted from the device and, if known, normal background radiation levels for the incident site.
- (U//FOUO) Characteristics of the device, to include physical description, dimensions, markings (including hazardous materials placard number if present), shipping labels, and weight, as well as disposition and placement at the incident scene. Provide a photograph or diagram if possible.
- (U//FOUO) Copies of notes or documentation associated with the device.
- (U//FOUO) Physical description of the suspected radiological material, to include form (metal, ceramic, granules, or powder), size, color, shape, identifying marks, and state (liquid, solid, or gas). Provide a photograph if available.
- (U//FOUO) Evidence of radiation shielding used in the preparation, transport, or malicious use of the radiological materials. Evidence that the perpetrators may have had access to heavy-lifting equipment.

## **(U) Other Objects and Equipment**

(U//FOUO) For any objects associated with the incident, other than the suspicious devices themselves, information of interest includes:

- (U//FOUO) Unusual or inconsistent equipment or objects present at the incident scene.
- (U//FOUO) Physical descriptions of items that could have been used to carry or conceal materials—such as backpacks, luggage, or other containers—as well as any other objects or materials associated with or in the possession of suspicious persons.

- (U//FOUO) Possession of personal protective equipment, dosimeters, or other radiological detection equipment by anyone other than first responder personnel, particularly if such items were linked with the suspects. If available, provide technical data about this equipment, such as manufacturer, model number, and equipment settings.
- (U//FOUO) Descriptions of any and all markings on containers.
- (U//FOUO) Descriptions of estimated dimensions and weight of containers.

## **(U) Effects of the Incident**

(U//FOUO) For incidents involving confirmed radioactive contamination or exposure of persons or property, information of interest includes:

- (U//FOUO) Descriptions of the injuries or medical symptoms exhibited by persons involved in the incident.\*
- (U//FOUO) Descriptions of damage to property and infrastructure, including the distance and direction from the suspected center point of the attack.
- (U//FOUO) Estimates of how many potentially exposed or contaminated persons may have departed the incident site and their most likely routes of egress and transportation.
- (U//FOUO) Estimates of the number of victims still present at the incident site, including the number of deaths.
- (U//FOUO) Descriptions of sick or dead animals, birds, or insects possibly affected by the incident. Include approximate numbers and locations.
- (U//FOUO) Descriptions of any personnel decontamination measures that were used, including the identities of the decontamination force, disposition of contaminated clothing, contaminated water runoff, and victims.
- (U//FOUO) Descriptions of public-safety measures put into place as a result of the incident, including quarantine and evacuation zones.

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\* (U) Note that all medical-related information must be collected and handled consistent with the *Health Insurance Portability and Accountability Act* and other medical privacy laws.



## (U//FOUO) Appendix: Sample Reporting Guide for Field Use

(U//FOUO) This appendix condenses the information in the attached Reference Aid to a one-page format suitable for first responders making initial reports from the field.

### (U//FOUO) Information for Initial Radiological Incident Report

Reporting Officer	Suspicious Devices and Radiological Materials
<ul style="list-style-type: none"> <li>— Name, telephone number, e-mail address.</li> <li>— Organization and affiliation.</li> </ul>	<ul style="list-style-type: none"> <li>— Current status (location, disposition, etc.) of the suspicious device or materials.</li> <li>— Presence and descriptions of any suspected explosives used in the device.</li> <li>— Radiation measurements (radiation pager indications).</li> <li>— Description of the device's overall physical dimensions, markings, shipping labels, weight, and placement at the incident scene.</li> <li>— Description or photo of suspected radiological material, including form, size, color, shape, and identifying marks.</li> <li>— Indications or evidence that the material is or was concealed or shielded.</li> </ul>
Suspect Information	Incident Description and Details
<ul style="list-style-type: none"> <li>— Names, ages, street addresses, phone numbers, and e-mail addresses.</li> <li>— Physical descriptions and photos, including evidence of illness or injury and descriptions of specific symptoms.</li> <li>— Descriptions of subjects' clothing.</li> <li>— Descriptions of suspects' roles in the incident.</li> <li>— Occupations and educational backgrounds.</li> </ul>	<ul style="list-style-type: none"> <li>— Time and place of the incident.</li> <li>— Description of the location. Description of activities at the incident site prior to the incident. Estimate of how many people were present.</li> <li>— First responders present at the scene.</li> <li>— Unusual odors, airborne particles, smoke, powders, liquids, or vapors.</li> <li>— Weather conditions for incidents occurring outdoors.</li> <li>— Evidence that suggests how the radioactive material was dispersed (i.e., explosive dissemination, manual dispersal, or other means).</li> </ul>
Other Objects and Equipment	Effects of the Incident
<ul style="list-style-type: none"> <li>— Descriptions of unusual equipment or objects present at the incident scene.</li> <li>— Descriptions of backpacks, luggage, or other containers associated with suspects.</li> <li>— Descriptions of personal protective equipment (gloves, masks, etc.), dosimeters, unusual electronic equipment—including make, model, and settings—possessed by suspects.</li> </ul>	<ul style="list-style-type: none"> <li>— Descriptions of injuries and medical symptoms of persons involved in the incident.</li> <li>— Descriptions of damage to property and infrastructure.</li> <li>— Estimates of how many potentially exposed or contaminated persons may have departed the incident site, and their most likely routes of egress and transportation.</li> <li>— Estimates of the number of victims still present at the incident site, including the number of deaths.</li> </ul>

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Point of Contact Reference
<p>For immediate technical assistance regarding radiation-detection incidents or adjudicating radiation-detection alarms, contact the Domestic Nuclear Detection Office's JAC at 1-877-363-6522.</p> <p>To report information concerning suspicious or criminal activity related to radiological materials, contact:</p> <ul style="list-style-type: none"> <li>— The nearest State and Major Urban Area Fusion Center. Fusion center contact information can be found online at <a href="http://www.dhs.gov/contact-fusion-centers">http://www.dhs.gov/contact-fusion-centers</a>.</li> <li>— The DHS NOC, which can be reached by telephone at 202-282-8101 or by e-mail at <a href="mailto:NOC.SWO@dhs.gov">NOC.SWO@dhs.gov</a>.</li> <li>— The local FBI Joint Terrorism Task Force. FBI regional telephone numbers can be found online at <a href="http://www.fbi.gov/contact/fo/fo.htm">http://www.fbi.gov/contact/fo/fo.htm</a>.</li> <li>— The FBI SIOC, which can be reached by telephone at 202-323-3300 or by e-mail at <a href="mailto:SIOC@ic.fbi.gov">SIOC@ic.fbi.gov</a>.</li> </ul>

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**(U) Reporting Notice:**

(U) DHS and the FBI encourage recipients of this document to report information concerning suspicious or criminal activity to the nearest State and Major Urban Area Fusion Center and to the local FBI Joint Terrorism Task Force. State and Major Urban Area Fusion Center contact information can be found online at <http://www.dhs.gov/contact-fusion-centers>. The FBI regional telephone numbers can be found online at <http://www.fbi.gov/contact/fo/fo.htm>. The DHS NOC can be reached by telephone at 202-282-8101 or by e-mail at [NOC.SWO@dhs.gov](mailto:NOC.SWO@dhs.gov). The FBI SIOC can be reached by telephone at 202-323-3300 or by e-mail at [SIOC@ic.fbi.gov](mailto:SIOC@ic.fbi.gov). When available, each report submitted should include the date, time, location, type of activity, number of people and type of equipment used for the activity, the name of the submitting company or organization, and a designated point of contact.

**(U) Administrative Note:**

(U//FOUO) Information contained in this Reference Aid is for official use only. No portion of this Reference Aid should be released to the media, the general public, or over nonsecure Internet servers. Release of this material could adversely affect or jeopardize investigative activities.

(U) For comments or questions related to the content or dissemination of this document, please contact the I&A Production Branch at [IA.PM@hq.dhs.gov](mailto:IA.PM@hq.dhs.gov) or the FBI Weapons of Mass Destruction Directorate, External Policy and Plans Unit at 202-324-3000.

(U) I&A would like to invite you to participate in a brief customer feedback survey regarding this product. Your feedback is extremely important to our efforts to improve the quality and impact of our products on your mission. Please click below to access the form and then follow a few simple steps to complete and submit your response. Thank you.

**(U) Tracked by:** HSEC-6.2, HSEC-7.10, HSEC-8.1, HSEC-8.2, HSEC-8.3, HSEC-8.6, HSEC-8.7, HSEC-8.8, HSEC-8.10, HSEC-10.10

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Office of Intelligence and Analysis  
**I&A Customer Survey**

Product Title:

**1. Please select the partner type that best describes your organization.**

**2. Overall, how satisfied are you with the usefulness of this product?**

- Very Satisfied**  
  **Somewhat Satisfied**  
  **Neither Satisfied Nor Dissatisfied**  
  **Somewhat Dissatisfied**  
  **Very Dissatisfied**

**3. How did you use this product in support of your mission?**

- Integrated into one of my own organization's finished information or intelligence products
- Shared contents with federal or DHS component partners  
If so, which partners?
- Shared contents with state and local partners  
If so, which partners?
- Shared contents with private sector partners  
If so, which partners?
- Other (please specify)

**4. Please rank this product's relevance to your mission. (Please portion mark comments.)**

- Critical
- Very important
- Somewhat important
- Not important
- N/A

**5. Please rate your satisfaction with each of the following:**

	<b>Very Satisfied</b>	<b>Somewhat Satisfied</b>	<b>Somewhat Dissatisfied</b>	<b>Very Dissatisfied</b>	<b>N/A</b>
Timeliness of product or support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responsiveness to your intelligence needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**6. How could this product or service be improved to increase its value to your mission? (Please portion mark comments.)**

To help us understand more about your organization so we can better tailor future products, please provide:

Name: <input type="text"/>	Position: <input type="text"/>
Organization: <input type="text"/>	State: <input type="text"/>
Contact Number: <input type="text"/>	Email: <input type="text"/>



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