Radiological Operations Support Specialist (ROSS) – Incident Command System Initial Response Job Aid

Homeland Security

Science and Technology

Radiological Operations Support Specialist (ROSS) – Initial Response ICS Job Aid

DOCUMENT PURPOSE:

A Radiological Operations Support Specialist (ROSS) is a state, local, or private subject matter expert (SME) tasked with identifying and providing critical information to responders and decision-makers during a radiological emergency. This will allow responders and decision-makers to develop a common operating picture (COP) to be shared with all key leaders. This COP must include information on radiological monitoring activities and associated data, predictions/assessments of exposure dosages to the public or responders, and possible protective actions that may be warranted. Ensuring that accurate, prioritized information is relayed to the Incident Commander and other key leaders in a timely manner is also a responsibility of the ROSS when acting at the state and local level.

This job aid is for use by a ROSS working at the Incident Command Post (ICP) during the initial stages (first 24 hours) of a radiological incident. It is intended to crosswalk traditional incident management actions with those required in a radiological incident, and identify how the ROSS can bridge the gap. This job aid does not address the role of a ROSS functioning in an EOC nor does it address the role of a ROSS in the proactive, long-term recovery or reoccupation management of an incident after the initial response phase.

DESCRIPTION OF JOB AID COLUMNS:

Phase/Step: The Phase/Step column indicates a particular function that must be performed in the initial response to an incident. This list is not in priority or chronological order as many of these actions must be taken immediately and concurrently with other actions. The Incident Commander, members of the Incident Management Team (IMT), and the ROSS must determine how to accomplish these actions in the initial response with limited resources and less than perfect situational awareness.

Initial Incident Management Action: The Initial Incident Management Action column indicates incident management actions typically performed by a member of the IMT during the associated Phase/Step. These actions may be performed by a single member of the IMT or by one or more members working together. The member(s) of the IMT who may perform these actions are listed in parentheses.

ROSS Considerations: The Ross Considerations column indicates specific things that the ROSS should consider in support of each Initial Incident Management Action at the various Phases/Steps. Some of these actions are simply for situational awareness or support while others may result in a Major Decision Point or Specific Action. Many of these actions may occur simultaneously. There is no particular order in which they should occur and the ROSS should assess the situation to determine prioritization of actions.

Major Decision Point or Specific Action: The Major Decision Point or Specific Action column indicates decisions that must be made or actions that must be taken at each Phase/Step. Most of these decisions will be made by Incident Command or members of the Command & General Staff, with input from the ROSS. The ROSS should ensure that these decisions are made or actions are taken.

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Activation/Preparation	• Receive deployment notification • Deploy • Arrive and make contact with POC	• Obtain information on reporting relationship and jurisdiction • Review applicable guidance for the type of incident/event being responded to • Integrate in to the radiological response team • Establish access to national assets and software that can be used in the field	• N/A
Initial Size-Up and Assessment	• Conduct initial incident assessment (Incident Command) • Verify situation against initial report of the incident and communicate findings (Incident Command)	• If available, obtain initial models and projections from state and federal sources, including NARAC • Confirm incident origin and point of release • Confirm meteorological conditions (on-ground weather, temperature, wind direction, etc.) • Assess topography, terrain, and geographic features (flat, hilly, urban canyon, etc.) • Consolidate and map initial field data from all sources. Request updated model if necessary • Provide feedback and incident specific data to modelers to update or refine models • Collect incident site damage and casualty estimates as these may help in the estimation of explosive yield • Ensure Emergency Support Functions (ESF) agencies understand the scenario and consequences of radiological event	• Determine appropriate/safe location for the Incident Command Post • Using available data products, brief incident command on the radiological response aspects and impact of hazard on incident response • Assist with dissemination of immediate public messaging

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Determine Overall Incident Direction	• Determine initial priorities (Incident Command) • Determine initial objectives (Incident Command) • Make key decisions (Incident Command/Elected Official) • Identify necessary incident specific operation procedures (Incident Command)	• Prioritize life safety operations • Ensure characterizing the radiological hazard and deposition is an incident objective • Ensure radiological health and safety is considered in the objectives, including the radiological hazards and impacts to all-hazards operations • Assist with key decisions, especially those related to public protective actions, responder health & safety, and establishment of incident facilities (ICP, Staging Areas, etc.) • In the case of a nuclear detonation, ensure planners and command understand that there are possibly lethal levels of radiation dose in the dangerous fallout and moderate and severe damage zones	• Incident Command must determine and communicate overall incident direction; ROSS must ensure that radiological response aspects are considered in the incident direction

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Initial Responder Safety Actions	• Implement measures for responder safety (Incident Command/ Safety Officer) • Identify hot, warm, and cold zones (Operations Section Chief/Safety Officer) • Identify personal protective equipment (PPE), respiratory protection, and dosimetry requirements for entry into the hot zone (Operations Section Chief/Safety Officer)	• Interpret and explain to Incident Command and the Safety Officer the potential radiological hazards present in the operating environment • Explain that initial characterization of the incident will predict the possibility or lack thereof for acute exposure • Advise planners and command where exposure rates exceed 10 R/h or 0.1 Gy/h (the Dangerous Radiation Zone) to better plan responder dose • Assist the Operations Section Chief and Safety Officer in establishing control zones based on the radiological conditions; control zones may include hot, warm, and cold zones consistent with National Fire Protection Association (NFPA) guidance, dangerous radiation zone, and hot zone consistent with National Council on Radiation Protection and Measurements (NCRP) guidance, or hazardous materials and radiation control zones determined by some other means	• Decide on the boundaries of the hot, warm, cold zones • Decide on the hotline and responder decontamination location • Decide on the PPE requirements to include protective clothing and respiratory protection • Decide on the dosimetry requirements

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Initial Responder Safety Actions (continued)	• Identify stay times and exposure limits for entry into the hot zone (Operations Section Chief/Safety Officer) • Identify and establish decontamination and hotline responder monitoring procedures (Operations Section Chief/Safety Officer) • Ensure appropriate medical capability is in place to address responder injuries (Safety Officer)	• Provide advice on the appropriate use of PPE, respiratory protection and dosimetry • Provide advice on exposure rate- and integrated exposure-based responder turn back limits; interpret dosimeter readings • Determine optimal location for hotline and decontamination; recommend decontamination and responder radiological monitoring procedures • Determine the capability of area hospitals to handle patients with radiological contamination and radiological injuries • Coordinate with REAC/TS and local area hospitals	• Decide on the turnback limits • Determine exceptions for life safety operations such as search and rescue • Decide on responder decontamination and radiological monitoring procedures

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Initial Public Health & Safety Actions	• Evaluate potential hazards to the public and determine necessary protective action measures (Incident Command)	• Review public protective action decisions already in place (shelter-in-place, evacuation, etc.) • Review predictive models and ground truth data as they relate to public protective actions: o Reports and mapping of field data o NARAC projection o NARAC 24-hour dose estimate, Total Effective Dose Equivalent (TEDE), and Inhalation only o NARAC 4-day dose estimate, TEDE, and Inhalation only • Interpret public protective action guidance and advise Incident Command on recommended public protective actions • Consider shelter-in-place and evacuation options to maximize public health and safety • Determine if public protective action decisions need to be made or modified • Re-evaluate public protective actions	• Decide on, communicate, and implement public protective actions Note: This authority may not always be delegated to Incident Command and may be made by an agency executive or elected official. If Incident Command is not responsible for making and issuing public protective actions, ensure the relevant authority having jurisdiction issues a technically informed public protection action decision.

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Resource Management	• Determine resources on-scene and resources required; request additional resources if necessary (Operations Section Chief/Planning Section Chief)	• Determine the radiological response capabilities of the resources on-scene (training and qualifications, skills, experience, equipment, etc.) • Review local assets available for response including radiation detection capabilities and measurement equipment, data management, GIS support, communications support, aerial monitoring capability, etc., as appropriate • Facilitate smooth integration of specialized radiological response resources	• Identify radiological response resource shortfalls and communicate these to Operations Section Chief and Planning Section Chief. If possible, order additional radiological response resources using approved resource ordering processes.

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Operations Planning, Execution, and Management	• Determine operational work assignments and manage operations (Operations Section Chief) • Re-allocate resources, if necessary, based on initial observations (Operations Section Chief) • Ensure effective use of specialized resources • Determine need to subdivide incident into workable management units and expand the incident organization structure (Operations Section Chief)	• Identify and recommend to Operations Section incident areas of high and low priority based on radiological considerations. This applies to both radiological response and all-hazards operations. For example, the ROSS might advise Incident Command or Operations that search and rescue operations should concentrate on the moderate and light damage zones and avoid the severe damage zone and dangerous fallout following a nuclear detonation. • Identify and recommend to Operations Section the optimal allocation of resources with radiological response capabilities • Identify and recommend radiological response operations and activities (i.e.: hot zone determination; 10-point monitoring; aerial measurements) • Advise field monitoring teams on the proper choice and use of equipment/instrumentation and areas to collect data and samples • Organize the collection of field data to define Hot Zone and Dangerous Radiation Zone boundaries, and collect data 360º around the incident to define unaffected areas	• Decide on the boundaries of the hot, warm, cold zones. • Assess the incident area and determine go/no-go zones for operations • Conduct a 10 point radiological monitoring survey and communicate results to NARAC/IMAAC. • Determine radiological response resource allocation and work assignments • Ensure field measurements are being properly taken and reported

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Operations Planning, Execution, and Management (continued)		• Ensure data collected from the 10-point monitoring survey are entered and transmitted through RadResponder, or other radiological data management software. • Assess the location, extent of contamination, and dose implications of the first 10-Point monitoring survey and determine a second set of 10 points to measure and map. • Review new data and models and recommend adjustments to both radiological response and all-hazard operations as appropriate • Begin to organize radiological response resources under the Operations Section. Start with Strike Teams and Task Forces and expand to Divisions and Groups as required to maintain span of control. Identify qualified personnel to serve as overhead supervision (i.e.: Strike Team and Task Force Leaders; Division and Group Supervisors) • As circumstances demand, order customized data products from NARAC through the IMAAC	

Phase/Step	Initial Incident Management Action	ROSS Considerations	Major Decision Point or Specific Action
Coordination & Communication	• Communicate with stakeholders and keep agency leadership informed (Incident Command/Agency Liaisons)	• Coordinate and communicate with radiological and technical personnel at other response nodes (ICPs, EOCs, etc.) • Coordinate and communicate with NARAC/IMAAC and the Consequence Management Home Team (CMHT) • Participate in CMHT bridgeline calls as appropriate. • Coordinate and communicate with specialized radiological resources en route to the incident	
Public Information & Communication	• Communicate with the public (Incident Command/Public Information Officer)	• Assist in the preparation of press releases and public communications to ensure clarity of the radiological hazard and appropriate protective actions • If required, attend media briefings to communicate radiological data and assessments to the public	• Accurate, timely, and informative public information must be released early and often. Absent further guidance, the public should be advised to shelter in place until safe routes for evacuation are determined or the need for shelter is no longer required. This information should be communicated from a position of authority

APPENDICES

1. Sample Incident Objectives for Radiological Consequence Management
2. National Response Framework and National Incident Management System Command & Coordination Structures and

SAMPLE INCIDENT OBJECTIVES FOR RADIOLOGICAL CONSEQUENCE MANAGEMENT

The following are sample incident objectives that may be used during a radiological response. The list below is not comprehensive, nor are the objectives listed in chronological and priority order. These should be used by the ROSS as example incident objectives as they work with Incident Command during the response.

- Develop and disseminate predictive models to inform decisions and actions
- Issue protective action recommendations and evacuation/shelter-in-place orders
- Establish and implement incident site controls (Hot Zone, Dangerous Radiation Zone, etc.)
- Establish and manage Community Reception Centers for population monitoring
- Characterize and assess the extent of radiological contamination
- Identify source and radioactive isotope and implement appropriate actions
- Develop and implement a radiological monitoring and sampling plan
- Conduct radiological data assessment and analysis and develop data products to inform decisions and actions
- Conduct coordinated radiation monitoring and sampling, assessment, and laboratory analysis to assess data
- Develop a process and be prepared to implement a plan to mitigate the spread and possible re-suspension of radioactive contamination
- Collect and analyze radiological data from multiple sources
- Maintain a common set of radiological monitoring data in an accountable, secure, and retrievable form that ensures the technical integrity of the data
- Identify laboratories capable of processing samples and develop and implement a sample management plan
- Identify victims receiving medically significant radiation doses and provide appropriate treatment
- Determine the overall impact to public health, the environment, agriculture, and the economy

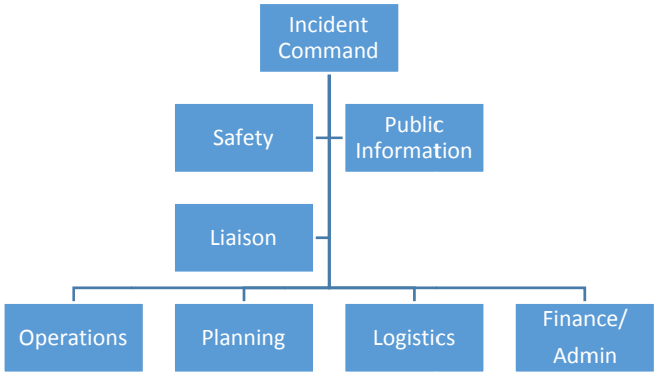
NATIONAL RESPONSE FRAMEWORK AND NATIONAL INCIDENT MANAGEMENT SYSTEM COMMAND & COORDINATION STRUCTURES AND INTEGRATION

Incident Management involves multiple partners and stakeholders at all levels of government and the private sector. It consists of actions and activities that enable decision-makers to determine appropriate courses of action and provide oversight for complex incidents to achieve a unity of effort and safe and effective outcomes.

ICS AND INCIDENT COMMAND

Emergency responders from all levels of government and the private sector are directed through Homeland Security Presidential Directive 5 (HSPD-5), and have agreed through the adoption of National Incident Management System (NIMS), to use the Incident Command System (ICS) to command and manage field-level operations, and use ICS as the mechanism through which multi-discipline, all-hazard field-level operations are organized.

Almost all responses start locally, with an initial response using organic resources from the community. Oftentimes these resources come from local government, but they may also come from state or federal government, other local jurisdictions, or the private sector. From the very beginning, an Incident Commander is appointed and an Incident Command Post (ICP) is established. In cases where incidents cross jurisdictional, functional, or geographic boundaries, the Incident Command function may expand into a Unified Command with several Incident Commanders working through a unified process.



Sample ICS organization chart representing the Command & General Staff functions.

The ICP serves as the focal point of on-scene incident command and management and the location from which on-scene and field operations, within the ICP's designated area of responsibility (AOR), are directed. It is common for local and state resources to work together

under a single ICP, and most incidents do not require federal resources beyond the capabilities of the local and state resources. In the event that federal resources are required, if those resources are involved in on-scene and field-level operations, federal resources will integrate into the field-level ICS and ICP. Federal agencies with jurisdictional, functional, or statutory authority may also become part of the Unified Command.

ICPs may be established along jurisdictional boundaries, or, in some cases, functional boundaries. Large scale, highly complex, and/or geographically dispersed incidents may necessitate multiple ICPs with separate and distinct areas of responsibility. If multiple ICPs are established, an Area Command Post may be established.

LOCAL MULTIAGENCY COORDINATION

If the field-level Command Element (single Incident Commander or Unified Command) determines that additional incident coordination and support is needed, they may request the activation of a local Emergency Operations Center (EOC). Additionally, a local emergency manager may determine that additional incident coordination and support is needed and they may activate the EOC.

The local EOC is the first component in the larger Multiagency Coordination System (MACS). The primary function of MACS is to coordinate activities above the field-level and to prioritize competing demands for incident resources. Local EOCs are the physical locations where multiagency coordination occurs at the local level and where a variety of local coordinating structures come together to solve incident-related problems. Local EOCs help form a common operating picture (COP) of the incident, relieve field-level command of the burden of external coordination, and secure additional resources to help meet response requirements. Local elected officials and agency administrators may use the EOC to communicate policy guidance or direction to incident management personnel.

STATE MULTIAGENCY COORDINATION

Another component of the MACS is the state EOC. State EOCs are activated as necessary to support local EOCs and become the central location from which off-scene activities supported by the State are coordinated. The key function of a state EOC is to ensure that the local EOCs and personnel at the field-level have the resources they need to effectively manage the incident. State EOCS are typically organized by a combination of ESFs and other coordinating structures to align the various disciplines and capabilities of the state agencies.

FEDERAL MULTIAGENCY COORDINATION

In the event that federal assistance is required by the state and local governments to manage the incident, the state EOC will become the conduit for state-federal coordination. There are a

number of federal coordination entities that may be established. Initially, federal coordination is managed by a FEMA Regional Response Coordination Center (RRCC). If a Stafford Act declaration is made, FEMA may also establish an Initial Operating Facility (IOF) or Joint Field Office (JFO); the IOF/JFO is typically established near the state EOC to facilitate state-federal coordination. The IOF/JFO is a temporary federal facility that provides a central location in the state for coordination of federal response efforts.

The IOF/JFO will be managed by a Unified Coordination Group (UCG) comprised of senior leaders representing federal and state government. At a minimum the UCG consists of a FEMA Federal Coordinating Officer (FCO) and a State Coordinating Officer but other members of the UCG may include a Defense Coordinating Officer (DCO) and other senior federal officials as required.

The IOF/JFO is responsible for responding to requests for federal assistance and resources and for Mission Assigning other federal agencies through the ESFs to provide assistance or resources to the state. Federal resources may receive Mission Assignments directing them to provide field-level operational support, in which case these federal resources would integrate into the field-level Incident Command System and ICP, described in the ICS and Incident Command section.