

ANNEX R – RADIOLOGICAL (ESF #10)

I. PURPOSE

This section is intended to provide an outline of the organization, personnel, equipment, and procedures necessary to protect citizens from the potential effects of incidents involving radioactive materials, and to respond to an incident of radiological nature.

II. MISSION AREAS AND LIFELINES

A. Mission Areas

1. Response to radiological incidents is necessary to protect the public and responders from exposure to radiological agents disbursed by accident or due to terrorist activity.
2. Recovery requires specialized personnel to remove sources of contamination and permanently dispose of radioactive waste and residue.

B. Lifelines

1. Safety and Security lifelines are important as protective actions are taken and contaminated zones are established, and the public is restricted from those areas through evacuation and area closures.
2. Health and medial is a part of medical treatment for patients who have been exposed to radiological materials in the course of the incident. Residences, long-term care facilities, and other locations that house individuals could be affected by a radiological incident and evacuated or locked down.
3. Communications systems must transmit warnings and specific directives to county residents and workers.
4. Hazardous Materials lifelines are critical in protecting people, property and the environment from damage through contamination. While the ability to perform these associated tasks is rarely needed, when an incident occurs, responders must be immediately ready and able to respond appropriately and safely.

III. SITUATION AND ASSUMPTIONS

A. Situation

1. There are no major institutions, facilities, or sites with radioactive materials or sources within the county, although there are fixed locations that use these types of materials.
 - a. A listing of private entities that are licensed for use and storage of radiological materials in their operations is maintained at the Shelby County Emergency Management Agency as a secure record under Ohio Revised Code Section 149.433.
2. Radiation measuring and detecting instruments have been issued to response agencies in Shelby County.
3. While many types of incidents involving radioactive materials could occur, the threat of a transportation accident involving radioactive sources is the primary concern for Shelby County.
 - a. A checklist of items to be reported following a radiological accident is included as Appendix 1 to this Annex, Accident Reporting Checklist.

- b. Initial response information for incidents involving radioactive materials is listed in Guide 163 of the Department of Transportation (DOT) Emergency Response Guidebook.
 - c. A decision-making guide for actions to take following a radiological incident is included as Tab 1 to this Annex, Radioactive Materials Accident Flow Chart.
 - d. Shelby County may be notified of a radiological incident that begins outside the county, or they may not be notified of any incident at all. It is common for counties to be unaware that radiological materials are being transported in or through the county at the time.
4. Shelby County could be affected by a terrorism event involving radioactive or nuclear materials. Such events may include Radiological Dispersion Devices (RDD), Stationary Radiological Devices (SRD), or Nuclear Weapons. Although the possibility exists for the use of such devices in Shelby County, it is much less likely than for other locations in Ohio.
 - a. See Annex P, Terrorism, for more information on terrorist attacks.
 - b. Appendix 2 to this Annex, Radiological Protection for the Nuclear Attack Hazard for actions to be taken by responders and the public in a nuclear incident.
 - c. Appendix 3 to this Annex, Wartime Nuclear EOC Staffing Information contains job descriptions and responsibilities for the EOC staff.
 5. Radiological incidents will require certain capabilities that are beyond the scope of resources and training within the county.

B. Assumptions

1. Shipments of limited quantities of radioactive materials occasionally become involved in accidents and could produce containment loss and related contamination; however, the potential hazard from such events is low.
2. Large quantity and safeguard radioactive materials are shipped in special containers designed to withstand severe accident conditions. Such containers can contain amounts of radioactive material that if released due to accident, could cause serious health and safety effects over large areas.

IV. CONCEPT OF OPERATIONS

A. Core Capabilities

1. Planning must include an expanded list of potential responders for radiological incidents. Public health and healthcare agencies must be included because they are responsible for being about to detect and care for patients who are exposed to radiation. Significant pre-incident planning is required to combine traditional responders and others who are not typically a first responder agency.
2. Public Information and Warning systems must have pre-scripted messaging so work can be sent out quickly and correctly about an incident. The messages must include contaminated zones, safe zones, suggested routes of travel and other relevant information.
3. Operational Coordination between all agencies is necessary to first protect the responders from exposure, but also to quickly and effectively remove the contamination and contain the spread of the radiological material. The response may require not only local resources, but also state level resources and private industry.
4. Situational Assessment must be maintained throughout an incident as the source of contamination is discovered, the scope and extent of the release is determined, and the affected zones are identified. This information must be entirely accurate for an effective response plan to be developed.

5. Intelligence and Information Sharing is critical at the local level. Radiological incidents and the damage caused does not allow for misinformation and rumors to circulate. Law enforcement and other response agencies must communicate quickly and accurately.
6. Screening, Search, and Detection must occur immediately and accurately in order to contain what can become a large-scale incident. This must be feasible for both fixed facility and highway incidents.
7. Environmental Response/Health and Safety issues must be managed effectively and quickly so response agencies are able to work within dangerous zones under protective measures. Claims management and documentation must be complete and accurate if a worker is exposed to radiation during the response.

B. General Operations

1. Radiological transportation incidents fall within the realm of hazardous materials response and actions should be taken in conjunction with Annex Q, Hazardous Materials, to the Shelby County EOP.
 - a. This annex will address issues such as assessment, sheltering, and decontamination.
2. A terrorism event involving radiological or nuclear materials would fall within the scope of Annex P, Terrorism, to the Shelby County EOP. Annex P, Appendix 1, Section II addresses the specific concerns of nuclear or radiological events.
3. Procedures to be used for notifying responders and the public in the event of a radiological incident are addressed in Annex C, Notification and Warning.
4. Communications issues are addressed in Annex B, Communications.

C. Specific Response

1. There is a need for swift, efficient, well-coordinated response from all sources; government (local/state/federal) and private (contractors & carriers).
2. Responders vary with each incident, depending upon notifications, capabilities and limitations. An effective incident command structure is essential between all levels of government and must be maintained at the site and at the EOC/assessment room.
 - a. Local authorities are essential to response, making initial emergency action decisions to include site/area security, evacuations, and emergency medical treatment.
 - b. State agencies may often provide advanced guidance and expertise (with resources) along with the legal authority to enforce response decisions.
 - c. Private sources may also be involved in a response commitment. Industrial representatives may best understand the characteristics of specific products and equipment, along with handling techniques.
3. The Ohio Department of Health is the radiation protection and licensing authority in Ohio.
4. The Ohio EMA assumes the primary coordinating role for other state agencies.

D. Exposure Control

1. In wartime, terrorism, and accidental events the Shelby County EMA is the primary agency in the county responsible for coordinating radiological incidents.
 - a. The agency will coordinate local response and will work with the OEMA and ODH Radiological Emergency Response Team through the county EOC, making appropriate

radiological assessment and assigning suitable means and measures for the protection of the population and emergency workers.

- b. It will control the distribution of radiological assessment and decontamination equipment and assure proper training in the employment of this equipment.
 - c. Local emergency response agencies will maintain rosters of personnel trained in assessment methodology along with the equipment for such actions.
2. Local agencies receiving assessment equipment will be responsible for maintaining exposure control records for personnel on a 24-hour basis.
 - a. DOT Emergency Response Guidebook, Guide 163 can be used to determine initial safe zones and evacuation boundaries.
 - b. A Responder Dose Rate Record form, used to document dosimeter readings for each individual responder, is located in Tab 2 to this annex.
 - c. Recordkeeping is the responsibility of each agency. Responder Dose Rate Records shall be forwarded to the EMA Director for analysis and follow-up, if necessary. The EMA Director will return a copy of each responder's record to them.
 - d. The incident commander is responsible for ensuring that exposure rates remain at a low level (as reasonably achievable).
 3. Ohio EMA can provide additional radiological survey meters and dosimeters to the county for use by appropriate local response forces.
 - a. Guidance for use of radiological instruments is available through Ohio EMA and Ohio Department of Health.
 4. Upon completion of emergency assignments, a record of total accumulated dosages and times of exposure will be made for emergency workers.
 - a. At a minimum, dosimeters should be read hourly. In areas where high exposure rates are encountered, dosimeters should be read more frequently as directed by ODH.
 - b. On-scene, each department's safety officer should record all individual dosages; see Tab 2, Responder Dose Rate Record.
 - c. These doses should be continually reported to the EOC by the on-scene commander. The EOC will maintain records of these readings. See Tab 4, Site Dose Rate Summary.
 - d. The dose received by each individual should be kept within the EPA guidelines for exposure limits. If an emergency worker's dose is nearing 5 R, a replacement, or alternate worker should be assigned to the position.
 - e. When lifesaving activities are involved, a maximum limit of 25 R is considered acceptable. This applies only if the exposure is incurred while directly involved in lifesaving activities and the rescuer is a volunteer who has received complete information about the risks involved.
 5. U.S. EPA dose limits for whole-body exposure to radioactive materials are set as follows:

<u>Condition</u>	<u>Exposure Limit</u>
a. Non-life saving / normal events	5 REM
b. Protection of populations / facilities	10 REM
c. Lifesaving activities	25 REM

E. Contamination

1. Medical problems take priority over radiological concerns.

- a. Guide 163 in the DOT Emergency Response Guidebook recommends that lifesaving actions and medical treatment be provided immediately.
 - 1) Injured persons contaminated by contact with released material are not a serious hazard to health care personnel, equipment, or facilities.
 - 2) Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
- b. In the event that other hazards (such as chemicals) are also present, decontamination may be required prior to medical treatment.
2. Uninjured persons at the scene of a radioactive materials incident who are suspected of being contaminated will be decontaminated and transported to a receiving hospital for further medical evaluation. Records of all actions at the decontamination site will be maintained. See Tab 3, Individual Decontamination Record.
3. Vehicles and other equipment will be evaluated on a case-by-case basis and decontaminated as appropriate.
4. See Section V, Direction & Control, of this Annex for detailed information on decontamination procedures.

F. State Technical Support

1. The Ohio Department of Health is tasked with providing technical assistance in a radiological emergency.
 - a. Additional state-level support is available and may be accessed by request through the Ohio EMA.
2. The assessment room in the State of Ohio EOC may be activated during the period of a technical emergency to receive and analyze radiological data from the county EOC and make recommendations on necessary actions.

G. Federal Response

1. Ohio EMA will act as a liaison between the County EMA and federal officials involved in the response to a radiological or nuclear incident.

V. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. Organization

1. Radiological Assessment
 - a. The EMA Director will coordinate radiological assessment efforts and support training and equipment distribution.
 - b. Initial radiological assessment is a responsibility of the fire department, acting in concert with other public safety agencies:
 - 1) Hazardous Materials Teams
 - 2) Sheriff and/or Police Departments
 - 3) Health Department and Hospitals
 - 4) Others, as required
 - c. Ongoing assessment activities may also involve the following:
 - 1) Engineer or City/Village utility representatives

- 2) Facility representatives
 - d. Augmentation may be available from other sources:
 - 1) Ohio Emergency Management Agency (OEMA)
 - 2) Ohio Department of Health (ODH)
 - 3) Ohio Environmental Protection Agency (OEPA)
 - 4) Public Utilities Commission of Ohio (PUCO)
 - 5) Ohio State Fire Marshal (OSFM)
 - 6) Ohio State Patrol (OSP)
- B. Assignment of Responsibilities
- 1. The Shelby County EMA
 - a. Support preparation for response to radiological incidents
 - 1) Sponsor training courses for first responders and medical personnel
 - 2) Provide reference materials for the development of SOGs
 - b. Ensure warning/notification actions
 - c. Open the Shelby County EOC as needed.
 - d. Advise Ohio EMA and coordinate requests for state-level technical assistance
 - e. Coordinate outside expertise to ensure proper team make-up and capabilities are provided to response forces
 - f. Distribute radiological assessment equipment to law enforcement agencies, fire departments, EMS, public health, hazardous materials team, hospital, and other agencies/sites for emergency use
 - g. Prepare damage assessment reports for submission to the State / Federal Government
 - 2. Law Enforcement Agencies
 - a. Receive and transmit NAWAS data (within capabilities)
 - b. Provide site security
 - c. Provide escort or transport support
 - d. Assist in delivery of additional radiological assessment equipment as required
 - 3. Local Fire Departments
 - a. Respond in accordance with the local hazardous materials protocol and the Emergency Response Guidebook, guide 163
 - b. Operate detection and assessment equipment, as available
 - c. Ensure appropriate responder training and familiarity with assessment equipment use
 - 4. Hazardous Materials Team
 - a. Advise fire, EMS, and other on-scene responders as requested
 - b. Conduct advanced containment operations on-scene
 - c. Calculate evacuation distances and plume dimensions
 - d. Organize and execute decontamination operations

5. Public Health
 - a. Collect environmental samples
 - b. Provide technical information and data to guide the response efforts and development of tactics
 - c. Coordinate with the county agricultural agencies and veterinarians
 - d. Provide recommendations to the EOC on allowable radiological exposures and/or other protective actions for the public
 - e. Distribution of safety information to the public

VI. DIRECTION AND CONTROL

A. EOC

Radiological incidents in Shelby County will be managed through the activated Emergency Operations Center with cooperative efforts of the public health, hazardous materials, fire, law enforcement, and emergency management representatives. See Annex A - Direction and Control for more information on the function of the EOC.

B. On-Scene Actions

1. Fire department and law enforcement officials, using an incident command structure, will be the primary responders, until the arrival of special response teams. The following steps are recommended for on-scene responders at a radiological incident:
2. Refer to the Emergency Response Guidebook, Guide 163 for initial information on health, fire or explosion, protective clothing, evacuation, fire, spills or leaks, and first aid.
3. Restrict the area of the Incident
 - a. Keep the general public as far as possible/practical from the incident scene.
 - b. Keep upwind of fire/smoke to the maximum extent possible.
 - c. Areas downwind of the incident should be evacuated.
4. Perform necessary lifesaving measures
 - a. Using appropriate personal protective equipment (PPE), remove exposed or injured persons from the contaminated area to a safe area.
 - b. Ensure proper decontamination procedures are followed to reduce exposure and limit the spread of contaminants.
 - c. Physicians and/or hospitals shall be notified that patients have been exposed to radiation and may potentially be contaminated.
 - 1) This information is to be relayed by the transporting service or local public safety agency.
 - 2) The hospital may set up decontamination stations for secondary decontamination of victims and protection of other patients and staff.
5. Firefighting
 - a. If there is a fire or danger of fire, assistance should be summoned according to department procedures as needed.

- b. All potentially contaminated material should be handled with mechanical means, and using protective gear (gloves, suits, air packs, etc.) in order to avoid contact with or inhalation of radiation.
 - c. Tools used at the scene should be treated as “contaminated” until they have been evaluated and decontaminated if necessary.
 - d. Clothing should be contained in marked bags and held in an isolated area until such time as it can be safely addressed.
 - e. With fires, two potential hazards may exist regarding nuclides: the melting of shielding surrounding the radioactive source, and the vaporization of the sources. Although the possibility of either event is remote, it is important that fire departmental plans and training consider them.
6. Notifications
- a. The following notifications should be made immediately following the discovery of a radiological or nuclear incident:
 - 1) Local Fire Department, Law Enforcement, EMS, HazMat Team, local receiving Hospital, Health Department, and Emergency Management Agency.
 - 2) The Shelby County EMA will notify Ohio Department of Health (ODH), Bureau of Radiological Health, and the Ohio EMA.
7. Radiological Assessment
- a. All fire departments, the Shelby County HazMat Team, Wilson Memorial Hospital, and the EMA Office have radiological assessment equipment. Detection and assessment operations should be conducted at any suspected radiological incident.
 - b. Dosimeters should be worn by all responders entering the warm or hot zones.
 - c. Advanced capability can be provided by the ODH Radiological Bureau of Radiological Health Branch for transportation accidents or the 52nd Weapons of Mass Destruction Civil Support Team in cases where terrorism is suspected. Contact the EMA Office to request these resources.
8. Use care to contain runoff from decontamination operations. See Annex Q – Hazardous Materials for further information.
9. Eating, drinking, smoking, or chewing in the incident area is absolutely prohibited.
- C. Decontamination
- 1. Ohio Department of Health, Radiological Health Branch, will be contacted for assistance and may provide technical oversight for decontamination efforts. Following is a brief listing of types and means that may be used:
 - 2. Personnel
 - a. Mild soap and water (soft brush, if available) should be used to decontaminate the hair, skin, and hands.
 - 3. Area and Material
 - a. Vacuum cleaning is recommended for dry porous surfaces (i.e., wood, concrete, canvas, etc.) to remove contaminated dust by suction.
 - 1) All dust must be filtered out of the exhaust.
 - 2) The machine will be contaminated and must be properly disposed.

- b. Water cleaning is recommended for non-porous surfaces (i.e., metal, painted plastic, etc.). Oiled surfaces cannot be cleaned in this manner.
 - 1) Drainage must be controlled.
 - 2) Work from top to bottom to avoid re-contamination.
 - 3) Work upwind to avoid spray.
 - 4) Spray makes waterproof PPE necessary.
- c. Steam cleaning is used on non-porous surfaces (i.e., painted or oiled) that cannot be cleaned with water.
 - 1) Drainage must be controlled.
 - 2) Work from top to bottom.
 - 3) Work from the upwind side.
 - 4) Spray makes waterproof PPE necessary.
- 4. Vehicle and Equipment
 - a. Decontamination of response vehicles and equipment must be accomplished prior to returning to service.
 - 1) Decisions regarding decontamination of private vehicles will be made based on the specific requirements of each incident.
 - b. Water washing with a hose is the simplest method for partial decontamination of vehicles and equipment. Runoff must be contained.
 - c. A paved area should be selected for decontaminating vehicles and equipment.
 - d. The interior of vehicles can be decontaminated by vacuum cleaning. Hosing should not be used on upholstery or other porous surfaces.
- 5. Radiological assessment should follow each decontamination procedure to determine if further action is required.

VII. CONTINUITY OF GOVERNMENT

- A. Lines of succession for agencies with responsibility for radiological incidents are maintained in jurisdictional SOGs and in Annex A, Direction & Control, Section VI.
- B. Refer to Appendix 3, Procedures for the Relocation & Safeguarding of Vital Records in the Basic Plan, and Appendix 1, Procedures for the Protection of Government Resources, Facilities, & Personnel in Annex N, Resource Management.

VIII. ADMINISTRATION AND LOGISTICS

- A. Training
 - 1. Radiological awareness training will be offered, as needed, for any and all response agencies in Shelby County.
 - 2. Refresher training will be encouraged for those who have previously completed radiological courses.
 - 3. Ohio EMA is the primary provider of radiological training for Shelby County; however, FEMA also offers an awareness course on-line at www.fema.gov/emi.

B. Exercises

1. Exercises dealing with radiological events may be developed at the request of any response agency or at the discretion of the Shelby EMA.
 - a. This type of exercise could also meet the requirements of the annual hazardous materials exercise program. See Annex Q for more information.

C. Equipment

1. Radiological assessment equipment is located throughout Shelby County and is rotated and maintained on a bi-annual schedule.
2. Fire departments possess structural firefighter's protective clothing and instrumentation to perform certain tasks in a radiological environment. This may not be disposable and must be subject to decontamination or outright replacement.

IX. PLAN DEVELOPMENT AND MAINTENANCE

- A. Primary organizations listed in this annex are responsible for reviewing it and submitting new, or updated, information to the EMA Director, based upon assessments of exercises, actual events, or changes in governmental structure, assignments, or offices.
- B. Organizations with radiological protection duties are responsible for maintaining their own SOGs, mutual aid agreements, 24-hour recall personnel rosters, and resource listings.
- C. The County EMA Director is responsible for printing and distribution of changes, revisions, and updates to this annex to all departments, agencies and organizations retaining a copy of this plan.

X. AUTHORITIES AND REFERENCES

A. Authorities

1. CPG 2-1, Radiological Defense Preparedness, Sep 1989
2. 29 CFR 1910.120
3. National Fire Protection Association (NFPA) 472 and 473
4. Also see Section IX.A of the Basic Plan

B. References

1. National Council of Radiation Protection (NCRP) – Report #138 (Terrorism Incidents Involving Radioactive Materials)
2. US EPA – Report #400 (Protective Limits)
3. North American Emergency Response Guidebook, 2004

XI. ADDENDA

- Appendix 1 - Detection & Assessment Equipment Distribution
- Appendix 2 - Accident Reporting Checklist
- Appendix 3 - Radiological Protection for the Nuclear Attack Hazard
- Appendix 4 - Wartime Nuclear EOC Staffing Information
- Tab 1 - Radioactive Materials – Accident Flow Chart
- Tab 2 - Responder Dose Rate Record
- Tab 3 - Individual Decontamination Record

XII. AUTHENTICATION

Shelby County Health Commissioner

Date

Shelby County EMA Director

Date

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ACCIDENT REPORTING CHECKLIST

Below is a checklist or guideline on information to be transmitted when requesting assistance or reporting a radiological incident to the proper authority.

1. Confirm that the incident involves radioactive materials.
2. Provide the location and brief nature of the incident, including description of package(s).
3. Identify known injuries.
 - a. Identify suspected exposure or contamination of personnel.
 - b. Identify evidence of released radioactive material.
4. Report any evidence of any other hazardous materials.
5. Identify the commercial carrier and shipper and/or consignee.
6. Describe the terrain and weather conditions at the scene.
7. Describe and document the personnel and equipment on the scene and the actions under way.
8. List your name and call back phone number of the person submitting the report.
9. Locate shipping papers, labels, or package markings, and report the following information. Do not delay reporting to obtain this information.
 - a. Shipper's name
 - b. Radioisotope(s)
 - c. Number of curies
 - d. White I, Yellow II, or Yellow III labels
 - e. Transport index (TI) of package(s)
 - f. Physical and chemical form
 - g. Package identification (specification Type A or B, certification number, exemption number, etc.)
10. If emergency service personnel responders have radiation survey meters and have been properly trained in their use, indicate types of instruments used and readings obtained. Do not delay communications to get this information.

RADIOLOGICAL PROTECTION FOR THE NUCLEAR ATTACK HAZARD

I. PURPOSE

This appendix covers radiological protection relating to unique demands expected to be generated by a nuclear attack.

II. MISSION AREAS AND LIFELINES

A. Mission Areas

1. Response: The county must be able to identify, assess, respond to and recover from a nuclear incident.

B. Lifelines

1. Safety and Security: The possibility of evacuation is significant with a nuclear incident and must be provided to preserve life and safety.
2. Health and Safety: The ability to provide medical care for nuclear exposure in an incident, for both residents and responders, is a critical component of response. If patients in hospitals and long-term care facilities need to be protected, those actions must be automatic and effective.
3. Communications: The public must be warned and directed to take protective actions immediately during a nuclear incident and rumor control must be efficient.
4. Hazardous Materials: Response to an incident must be identified, assessed, contained and controlled, and recovery must take place quickly whether the incident is on the highway or in the field, or inside a fixed facility.

III. SITUATION & ASSUMPTIONS

A. Situation

1. The intentional detonation of a nuclear weapon would cause a radiological hazard that differs markedly from that posed by peacetime hazards in the extent of the area affected and in the intensity of the radiation.
2. It is not possible to predict the size of an attack or the specific areas that would be directly affected. The number of weapons could be one, as in an accidental launch or terrorist incident, or it could be many, as in an all-out attack on military and economic targets in a community or on a military base.
3. Nuclear attack protection planning remains a necessary activity as long as stockpiles of nuclear weapons exist and the number of nations with sufficient technological development to produce nuclear weapons continues to grow.

B. Assumptions

1. Shelby County has radiological assessment and detection equipment that will be effective for use during peacetime radiological events.
2. Shelby County will require assistance to develop a radiological protection system which meets all nuclear attack requirements.

IV. CONCEPT OF OPERATIONS

A. Core Capabilities

1. Planning – Due to the involvement of many local and state departments in a nuclear incident, planning must occur to coordinate efforts in a rapid, seamless response manner.
2. Public Information and Warning – The county must be able to disseminate information and issue warnings to the public very quickly and accurately in a nuclear incident; they must also be able to manage misinformation rapidly and definitively.
3. Operational Coordination – As various agencies from local and state departments respond, coordination of operations at the site and through the EOC is critical to smooth and methodical delivery of services
4. Situational Assessment – Local responders must be able to continually assess the situation for severity, origin, and containment for the purpose of adjusting the response to fit the incident.
5. Intelligence and Information Sharing – As law enforcement determines the origin and impact details, it is critical that information is shared with other responders to keep the scene safe and to protect responders from nuclear dangers.
6. Screening, Search and Detection – Responding departments must be able to locate, identify, and characterize nuclear threats for the purpose of designing an appropriate and effective response

B. Peacetime

1. Nuclear attack protection planning should be ongoing during peacetime. The principal elements include plans, procedures, equipment, communications, and trained personnel.

C. Heightened Awareness Phase

1. In the event of a serious nuclear attack threat against the United States, the National Terrorism Advisory System (NTAS) will be adjusted to reflect the situation. Shelby County will implement readiness activities according to the HSAS alert level as indicated in Annex P (Terrorism) to the Shelby County EOP, Section V.C.

D. Nuclear Attack Phase

1. If an attack actually occurs, the emergency operations center at Ohio EMA will provide information on when emergency actions can be undertaken and how to minimize the radiation danger to emergency services personnel.
2. Shelby County EMA will implement the positions named in Appendix 4 (Wartime Nuclear EOC Staffing Information) to the Annex R, Radiological. This will allow for necessary radiological activities to be integrated with the emergency management organization as a whole. Personnel will be trained to monitor and interpret radiological data, so that radiological situation information will be available throughout the organization even during periods of seriously degraded communications.

V. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

A. Organization

1. Not used. See Section IV.A to the Radiological Annex.

B. Assignment of Responsibilities

1. Not used. See Section IV.B to the Radiological Annex.

VI. DIRECTION AND CONTROL

A. Information Requirements - All assessment locations will report the following information to the county EOC.

1. Negative reports are as important as other reports. Negative sighting and damage reports are sent as possible after a weapon detonation. Negative Fallout Reports should be sent 12 hours after a nuclear burst.
2. Sightings of nuclear weapons detonations
 - a. Damage - Observed damage is classified as window or structural for reporting purposes.
 - 1) Window damage is only broken windows. This defines the outer limit of physical damage.
 - 2) Structural damage is visible damage greater than simply broken windows. This damage defines the area in which more serious damage has occurred. Structural damage includes any fires started, blown in doors, or any greater damage.
3. Fallout - Fallout reports are very time critical and provide key information on the travel of the cloud, expected dose rates and health of the populace. Exposure rates should be reported as "outside" dose rates or if inside then the transmission factor must always be determined and reported. All the below numbers are outside dose rates.
 - a. Fallout is arriving and the exposure rate goes above .5 r/hr. (500mr/hr.)
 - b. The exposure rate reaches/rises above 5 r/hr.
 - c. The exposure rate reaches/rises above 50 r/hr.
 - d. The exposure rate has peaked and is declining.
 - e. The exposure rate is declining and goes below 50 r/hr.
 - f. The exposure rate is declining and goes below 5 r/hr.
 - g. The exposure rate is declining and goes below .5 r/hr. (500 mr. /hr.). Selected assessment locations may be tasked to provide hourly reports.

B. Shelby County will immediately forward the first report of each type received to the State of Ohio Emergency Operations Center (EOC). The state may request additional data as well as the following summary reports:

1. Each location's peak report.
2. Any location where the total dose is expected to exceed/has exceeded 200 REM.

C. See also Section V, Direction and Control, of the Radiological Annex.

VII. CONTINUITY OF GOVERNMENT

A. Not used. See Section VI of the Radiological Annex.

VIII. ADMINISTRATION AND LOGISTICS

- A. Not used. See Section VII of the Radiological Annex.

IX. PLAN DEVELOPMENT AND MAINTENANCE

- A. Not used. See Section VIII of the Radiological Annex.

X. AUTHORITIES AND REFERENCES

A. Authorities

- 1. Not used. See Section IX.A of Annex R, Radiological.

B. References

- 1. Not used. See Section IX.B of Annex R, Radiological.

XI. ADDENDA

- A. Not Used

**PROCEDURES UPON WARNING OF UNAUTHORIZED OR ACCIDENTAL
LAUNCH OF A NUCLEAR WEAPON**

This attachment establishes procedures for the Shelby County Warning Point staff in case NAWAS warning is received of an accidental, unauthorized, or any other unexplained incident involving a possible detonation of a nuclear weapon anywhere in the United States. Procedures below are for an accidental missile launch, and will be modified as necessary for other emergencies involving a possible nuclear weapon detonation.

- A. If NAWAS warning is received of an accidental missile launch (or any other unauthorized or unexplained incident involving possible detonation of a nuclear weapon) which THREATENS Shelby County, the Shelby County Warning Point operator will IMMEDIATELY:
 1. Sound all fixed sirens and instruct police vehicles to augment fixed siren coverage.
 2. Contact WBLL/WPKO (AM/FM) Radio by telephone and instruct them to broadcast the emergency alert instructions below IMMEDIATELY, repeating the message until instructed otherwise; also, ASK THEM TO STANDBY FOR FURTHER NOTIFICATIONS. The emergency public instructions are:
 - a. WE HAVE BEEN NOTIFIED BY THE NATIONAL WARNING CENTER THAT AN ACCIDENTAL MISSILE LAUNCH THREATENS THIS AREA AT (LOCAL) TIME. A NUCLEAR EXPLOSION COULD OCCUR. TAKE COVER IMMEDIATELY--BY LYING DOWN IN A BASEMENT, OR IN THE CENTRAL PART OF A BUILDING, OUT OF LINE OF FLYING GLASS.
 3. (Note: The above emergency public instruction should be kept at the local warning point.)
 4. Alert key officials as follows:
 - a. A list of key officials including the Chief Executive, Emergency Management Agency Director, Radiological Protection Officer, and EOC staff--with day and night telephone numbers should be maintained at the county Warning Point.
- B. If NAWAS warning is received that an accidental missile launch or other incident threatens some part of the United States that is NOT in the Shelby County area, IMMEDIATELY:
 1. Contact WBLL/WPKO (AM/FM) Radio by telephone and instruct them to broadcast the emergency public instructions below; also, STANDBY FOR FURTHER NOTIFICATIONS.
 - a. WE HAVE BEEN NOTIFIED BY THE NATIONAL WARNING CENTER THAT (CITY, STATE) IS THREATENED BY AN ACCIDENTAL MISSILE LAUNCH. YOU NEED NOT TAKE COVER OR TAKE OTHER PROTECTIVE ACTIONS AT THIS TIME. WE WILL GIVE YOU ADDITIONAL INFORMATION AND ADVICE AS SOON AS IT IS AVAILABLE. STAY TUNED TO THIS STATION FOR FURTHER INSTRUCTIONS.
 2. (Note: The public instructions should be kept at the Warning Point.)
 3. Alert key officials per 1. C. Above.
- C. If NAWAS warning is received that a nuclear detonation has occurred and that fallout can be expected in the Shelby County area "WITHIN ONE HOUR":
 1. Sound Attack Warning per 1.a. Above.

2. Contact WBLL/WPKO (AM/FM) Radio to broadcast the emergency public instructions below immediately, repeating the message until instructed otherwise; also, STANDBY FOR FURTHER NOTIFICATIONS.
 - a. WE HAVE BEEN NOTIFIED BY THE NATIONAL WARNING CENTER THAT AN ACCIDENTALLY-LAUNCHED NUCLEAR WEAPON EXPLODED IN (CITY, STATE) AT (LOCAL TIME). THE NUCLEAR EXPLOSION MAY HAVE PRODUCED DANGEROUS RADIOACTIVE FALLOUT.
 - b. FALLOUT MAY ARRIVE HERE BY (LOCAL TIME). IF FALLOUT DOES ARRIVE, YOU WILL NEED PROTECTION TO AVOID DEATH OR SERIOUS RADIATION SICKNESS.
 - c. DO NOT USE THE TELEPHONE.
 - d. LISTEN CAREFULLY TO THE LIFE-SAVING INSTRUCTIONS WE WILL NOT BROADCAST. WE WILL KEEP REPEATING THESE INSTRUCTIONS.
 - e. TAKE THE FOLLOWING ACTIONS IMMEDIATELY TO PROTECT YOURSELF IN CASE FALLOUT ARRIVES HERE:
 - 1) LOCATE THE BEST FALLOUT PROTECTION AVAILABLE THAT YOU CAN REACH IN 20 TO 30 MINUTES OR LESS.
 - 2) IF YOU ARE AT HOME AND YOUR HOUSE HAS A BASEMENT, THE BASEMENT PROVIDES FAIR TO GOOD FALLOUT PROTECTION NOW. TAKE THESE ACTIONS TO MAKE THE PROTECTION BETTER: PUT A WORK BENCH OR LARGE, STURDY TABLE IN THE CORNER OF THE BASEMENT THAT IS FARTHEST BELOW GROUND (AND FARTHEST FROM AN EXPOSED OUTSIDE WALL OF THE BASEMENT, IF THERE IS ONE). THEN PUT BOXES OR DRESSER DRAWERS FILLED WITH EARTH ON TOP OF THE TABLE AND ON THE TWO EXPOSED SIDES. BRICKS OR OTHER HEAVY MATERIALS CAN ALSO BE USED. ON THE TABLE, PILE AS MUCH HEAVY MATERIAL AS IT WILL HOLD WITHOUT COLLAPSING. AROUND THE TABLE, PLACE AS MUCH SHIELDING MATERIAL AS POSSIBLE.
 - 3) IF YOU ARE AT HOME AND YOUR HOUSE DOES NOT HAVE A BASEMENT, YOU HAVE THREE CHOICES. (a) PREPARE TO GO TO A NEARBY LARGE BUILDING THAT HAS A BASEMENT (PREFERABLY ONE MARKED WITH THE YELLOW-AND-BLACK "FALLOUT SHELTER" SIGN); OR (b) SEE IF YOU HAVE A NEIGHBOR WHOSE HOUSE HAS A BASEMENT WHO IS WILLING TO SHARE HIS BASEMENT WITH YOU AND YOUR FAMILY FOR ONE OR TWO WEEKS; OR (c) PREPARE A FALLOUT SHELTER IN YOUR HOUSE.
 - 4) IF YOU DO NOT HAVE A BASEMENT AND YOU DECIDE TO STAY AT HOME, IT IS ESSENTIAL TO PREPARE A FALLOUT SHELTER IN THE MIDDLE OF THE HOUSE. DO THIS BY SELECTING A PLACE IN THE CENTER OF THE HOUSE, AWAY FROM WINDOWS AND DOORS, AND PUTTING A LARGE STURDY TABLE THERE. THEN PUT BOXES OR DRESSER DRAWERS FILLED WITH EARTH (OR OTHER HEAVY RADIATION SHIELDING MATERIALS) ON TOP OF THE TABLE-- AND ON ALL FOUR SIDES AROUND IT. ON THE TABLE, PILE AS MUCH HEAVY SHIELDING MATERIAL AS IT WILL HOLD WITHOUT COLLAPSING. AROUND THE TABLE, PLACE AS MUCH SHIELDING MATERIALS AS POSSIBLE.
 - 5) RAPIDLY GATHER SUPPLIES YOU WILL NEED TO STAY IN SHELTER FOR ONE TO TWO WEEKS. SUPPLIES SHOULD INCLUDE:
 - a) AS MUCH DRINKABLE LIQUIDS (WATER, FRUIT OR VEGETABLE JUICES) AND READY-TO-EAT FOOD AS YOU CAN CARRY TO THE SHELTER AREA (AT HOME OR ELSEWHERE). WATER IS MORE IMPORTANT THAN FOOD.

- b) A BATTERY POWERED RADIO, FLASHLIGHT, EXTRA BATTERIES FOR EACH, AND PAPER AND PENCIL FOR TAKING NOTES ON INFORMATION GIVEN OVER THE RADIO.
 - c) SPECIAL MEDICINES OR FOOD REQUIRED BY MEMBERS OF YOUR FAMILY--SUCH AS INSULIN, HEART TABLETS, DIETETIC FOOD, OR BABY FOOD.
 - d) A BLANKET FOR EACH FAMILY MEMBER.
 - e) A METAL CONTAINER WITH A TIGHT-FITTING LID TO USE AS AN EMERGENCY TOILET; PLASTIC BAGS TO LINE THE TOILET CONTAINER; TOILET PAPER, SOAP, WASH CLOTHS AND TOWELS, A PAIL OR BASIN, SANITARY NAPKINS.
- 6) REMEMBER THAT FALLOUT MAY ARRIVE HERE BY (LOCAL TIME). KEEP LISTENING TO THIS STATION FOR INFORMATION ON WHETHER FALLOUT HAS STARTED TO ARRIVE. TAKE ACTIONS FOR FALLOUT PROTECTION WITHOUT DELAY.
 - 7) IF FALLOUT DOES ARRIVE HERE, YOU MAY NEED TO STAY IN SHELTER FOR ONE TO TWO WEEKS. LISTEN TO THIS STATION FOR CIVIL DEFENSE INSTRUCTIONS ON WHEN YOU CAN LEAVE SHELTER.
3. (Note: The public instructions should be kept at the warning point.)
 4. Continue alerting key officials (not already reached) per 1.c above.
- D. If NAWAS warning is received that a nuclear detonation has occurred, but fallout is NOT expected in the Shelby County area "WITHIN ONE HOUR":
1. Continue alerting key officials (not already alerted) per 1.c above.
 2. Instruct WBLL/WPKO (AM/FM) Radio by telephone that they are to continue broadcasting the public instructions in item C.2.a (above); also STANDBY FOR FURTHER NOTIFICATIONS.
 3. (Note: Depending on local circumstances--such as how much time is estimated to be needed to contact the Chief Executive, Emergency Management Director, or Radiological Protection Officer--it MAY be considered desirable to assign additional SOP-type duties to the local warning point operators. If so, the following is suggested as a point of departure for local warning point instructions.)
- E. If the NAWAS warning places the nuclear detonation within 500 miles of Shelby County--AND IF the Chief Executive, Emergency Management Director DOES NOT INSTRUCT OTHERWISE WITHIN 30 MINUTES OF THE TIME OF THE NUCLEAR DETONATION--instruct WBLL/WPKO (AM/FM) Radio by telephone to broadcast emergency public instructions in C.2.a above.
1. (Note: the foregoing instructions for the warning point operator provide a "fail-safe" approach. If the operator is not instructed otherwise within half-an-hour of the time of the nuclear detonation, instructions will be broadcast to the public to start preparing for fallout protection. Obviously, this will alarm the public; and protection could be unnecessary in areas not threatened by fallout--or in all areas in the NUDET were later determined to be an air burst, with no fallout produced. Against this must be weighed the undesirability of not having instructed the public to start preparing for fallout. It should be remembered that in the highly unlikely event that an accidental launch--with a nuclear detonation--ever occurred, it would undoubtedly occur with no warning, and the Chief Executive, Emergency Management Director, or Radiological Officer might be difficult to locate.)

- F. If a NAWAS message is received that the accidentally-launched weapon has impacted WITHOUT causing a nuclear detonation:
1. Instruct the emergency alert station WHIO (AM/FM) to broadcast the following immediately, IF THE IMPACT WAS IN THE SHELBY COUNTY AREA:
 - a. THE ACCIDENTALLY-LAUNCHED MISSILE HAS IMPACTED IN THIS AREA. A NUCLEAR EXPLOSION DID NOT--REPEAT--DID NOT OCCUR. HOWEVER, IT IS POSSIBLE THAT SOME DANGER MAY EXIST FROM MATERIALS INCLUDED IN A NUCLEAR WEAPON. THEREFORE, YOU MUST REMAIN UNDER COVER UNTIL FURTHER NOTICE. THIS MAY BE FOR A NUMBER OF HOURS. KEEP LISTENING TO THIS STATION FOR FURTHER CIVIL DEFENSE INSTRUCTIONS.
 2. Instruct the emergency alert station WHIO (AM/FM) to broadcast the following immediately, IF THE IMPACT WAS NOT IN THE SHELBY COUNTY AREA:
 - a. WE HAVE BEEN NOTIFIED BY THE NATIONAL WARNING CENTER THAT THE ACCIDENTALLY-LAUNCHED MISSILE IMPACTED IN (CITY, STATE) AT (LOCAL TIME). A NUCLEAR EXPLOSION DID NOT--REPEAT--DID NOT OCCUR. YOU NEED NOT TAKE COVER OR TAKE OTHER PROTECTIVE ACTIONS. MORE INFORMATION WILL BE PROVIDED ON REGULAR NEWS BROADCASTS.

WARTIME NUCLEAR EOC STAFFING INFORMATION

Staffing Patterns and Responsibilities

- A. Analysts (wartime position)
 - 1. Records and analyzes incoming radiological data to determine location, intensity and hazard to life, also predicts probable radiation decay times by mathematical extrapolation.
 - 2. Determines areas where activity is permitted or restricted and for how long.
 - 3. Identifies hazardous situations requiring immediate remedial action by emergency services.
 - 4. Prepares estimates of shelter emergence time for EOC staff and sheltered.
 - 5. Analyzes decontamination requirement for all other activities and situations.

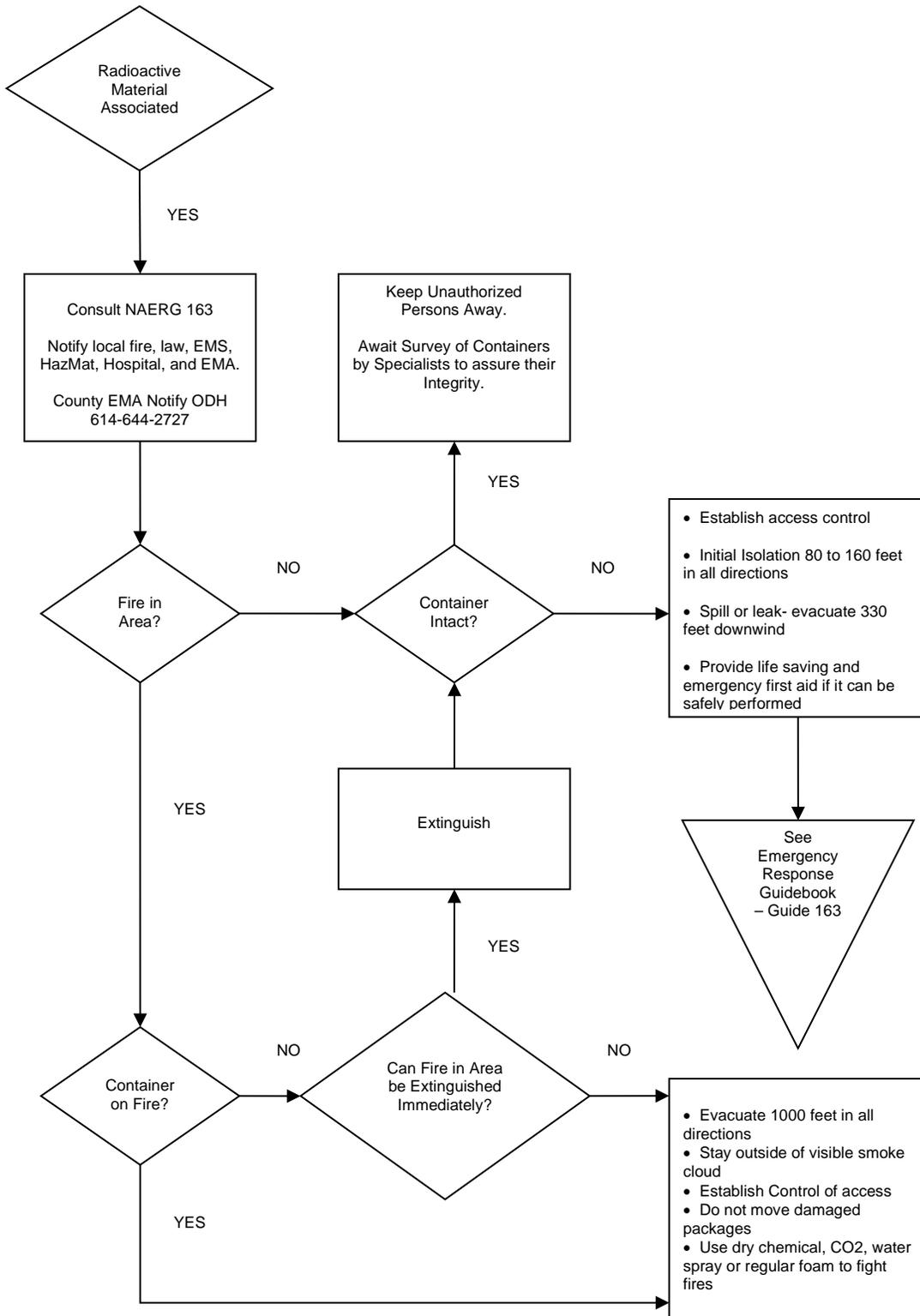
- B. Plotters (wartime position)
 - 1. Records incoming data in appropriate format.
 - 2. Prepares and maintains:
 - a. Meteorological information/data
 - b. Fallout forecasts
 - c. Message and reporting logs
 - d. Dose and dose rate plots
 - 3. Maintains plots and maps of all conditions.

- C. Radiological Response Team Personnel & Team Chief (wartime position)
 - 1. This position will likely be assigned to the Shelby County Hazardous Materials Team and Chief.
 - 2. Serves as a community-based cadre of radiological defense personnel.
 - 3. Develops radiological defense plans and SOPs.
 - 4. Trains initial response personnel in assessment for nuclear attack preparedness and first response actions in peacetime.
 - 5. Conducts refresher/update training for radiological monitors.
 - 6. Serve as a cadre to conduct accelerated "SURGE" training in a national emergency.
 - 7. Ensures the availability, operability, periodic maintenance and proper distribution of radiological instruments in assigned departments.
 - 8. Notifies local EMA authorities of a radiological emergency.
 - 9. When necessary, performs all RM duties.

D. Radiological Monitors (wartime position)

1. Serve as self-protection monitors in a nuclear attack environment.
2. Uses survey meters to identify areas of contamination and the type and exposure rate of radiation.
3. Apply radiation protection principles of time/distance/shielding (mass) in the reduction of public exposure to ionizing radiation.
4. Demonstrate knowledge and proficiency in the field of dosimetry to include use of chargers and the determination of accumulated doses of radiation.
5. Perform shelter assessment duties as necessary.
6. Reports weapons effects observations.

RADIOACTIVE MATERIALS ACCIDENT FLOW CHART



RESPONDER DOSE RATE RECORD

Name: _____

County: _____

Home Address: _____

Organization: _____

Social Security No: _____

Signature: _____

Mission	Time		Dosimeter + 1 CDV -				Dosimeter + 2 CDV -				
	In	Total	Serial No.	Initial Reading	End Reading	Mission Total	Serial No.	Initial Reading	End Reading	Mission Total	
	Out										
Cumulative Total			Cumulative Total					Cumulative Total			

Instructions

1. Complete personal information. Keep this form with you at all times. Submit upon completion of mission, or at the request of your supervisor. A new form should be issued is the mission has not been completed.
2. Record brief description of Date/Mission, In-Time (time of entry), CDV Model, Serial Number, and Initial Reading.
3. Read the dosimeters at least hourly. Notify supervisor when dosimeter indicates 1, 5, 10, 15, 20, and 25 REM.
4. Do not exceed 25 REM cumulative total.
5. Fill in Out-Time and End Reading. Calculate Mission Total (End minus Initial Reading).
6. Provide copies to: Individual/Personnel, Health Dept., Hospital, and EMA.

INDIVIDUAL DECONTAMINATION RECORD

1. Personal Information

Patient's Name: _____

Address: _____

Date of Birth: _____ Contact # _____

2. Event Details

Date of Event: _____ Time of Event: _____

Location: _____

3. Injuries / Contamination

Injury Involved: Yes No

Contamination: Yes, No Location on body: _____

4. Assessment

Decontamination Station: _____

Initial Monitor: _____ Instrument # _____ Time: _____ Date: _____

5. Radiation Exposure

Radiation Type: _____ (Alpha, Beta, Gamma)

Estimated Exposure Time: _____ (Sec/Min/Hr./Day)

Dosimetry: _____

Description: _____

6. Decontamination Method and Agent Used

Description: _____

7. Final Disposition

Decontaminated and Released? Yes No

Medical Referral: Sent to: _____ Hospital

Examination & Authorization for Release/Transfer By: _____

Date/Time: _____