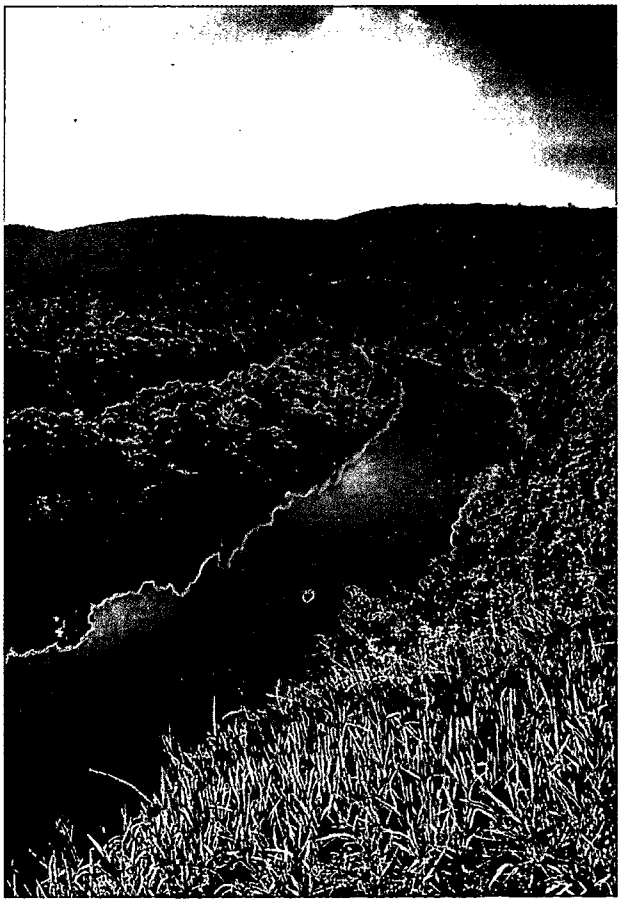
STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION



NEW JERSEY

AGREEMENT STATE APPLICATION

SECTION 4.7

4.7 EVENT & ALLEGATION

4.7 Events & Allegations

The State of New Jersey Emergency Operations Plan Emergency Support Function (ESF) #10 Hazardous Materials Response Annex has been prepared to guide emergency planning, capacity, training, exercising, and response in New Jersey to fixed site or transportation incidents involving hazardous materials; to ensure coordination among responsible Federal, State, county, and local agencies; to provide for standardization in response capability; and to lessen the threat to the public by increasing awareness and preparedness. ESF #10 is undergoing revision and not available at this time. A copy will be made available to the NRC when it is finalized.

Under ESF #10, a hazardous materials incident is defined as a release, or potential release, of a hazardous substance into the environment. A hazardous substance is defined as any material that is capable of posing an unreasonable risk to health, safety, property, or the environment. As such this Annex includes the notification and response protocols for incidents involving chemical, biological, radiological, nuclear, and/or explosive materials.

The Bureau of Environmental Radiation's Radioactive Materials Radiological Assessment Team (RAMRAT) functions during an incident involving radioactive material are found in ESF #10 – Hazardous Materials Response Annex. This Annex also summarizes the notification and response protocols for non-nuclear reactor radiation incidents. Nuclear reactor radioactive materials incidents are fully addressed in the NJ Radiological Emergency Response Plan.

An overview of the emergency response plan, which details the authority and purpose of the Bureau's response function, and two memoranda detailing the emergency communications plan are provided in section 4.7 Events & Allegations.

Included in Section 4.7 are the following documents:

- Emergency Response Plan for Radioactive Materials and Radiation Emergencies (Non-Nuclear Reactor Radiation Emergencies)
- Memorandum dated January 18, 2007 "Communications Center Operational Procedure #51: Radioactive Material Release Notifications at Other than Nuclear Power Plants or Princeton Plasma Physics Laboratory (Amended)
- Memorandum dated October 31, 2006 "Communications Center Operational Procedure #42: Terrorist Threat/Security Breach Notifications (Amended)

OVERVIEW OF HAZARDOUS MATERIALS RESPONSE ANNEX #10
EMERGENCY OPERATIONS PLAN EMERGENCY SUPPORT FUNCTION
FOR
RADIOACTIVE MATERIALS AND RADIATION EMERGENCIES
(NON-NUCLEAR REACTOR RADIATION EMERGENCIES)

I. Authorities:

A. The authority for this plan is contained in the New Jersey Statutes Annotated Title 26:2D-9.

B. References used in the compilation of the Basic Plan are:

1. New Jersey Statutes Annotated Title 26:2D-1 et. seq.
2. New Jersey Administrative Code Title 7 Chapter 28, Subchapter 1 et. seq.
3. New Jersey Statutes Annotated Title 58:10-23.11 et. seq.

C. Mutual assistance understandings exist between the Department of Environmental Protection's (DEP) Bureau of Emergency Response (BER) and the Bureau of Environmental Radiation (BERAD) Radioactive Materials Radiological Assessment Team (RAMRAT) for radioactive materials and radiation (RAMR) incidents.

D. Also, should BERAD need assistance with RAMR incidents, all Emergency Response Specialists are equipped and knowledgeable through advanced training.

II. Purpose:

A. BERAD will act to protect and preserve lives and property in the event of RAMR incident. It will utilize all resources, manpower and facilities available when necessary.

B. This purpose will be accomplished through a Comprehensive Emergency Management approach, which encompasses the following four phases:

1. **Mitigation**: Those activities which eliminate or reduce the probability and the effects of a RAMR incident.

2. **Preparedness**: Those activities which the BERAD develops to respond to RAMR incidents including acquisition and maintenance of appropriate instrumentation and trained individuals to use them.

3. **Response**: Those activities that help to evaluate the situation and reduce unnecessary radiation exposure by providing appropriate emergency assistance.

4. **Recovery**: Those short and long term activities which return all systems to normal after a RAMR incident.

C. The purpose of this plan is to set fort the general policies and procedures that will be followed in the event of a RAMR incident.

II. Situations:

A. The State of New Jersey may experience radiation incidents as a result of transportation accidents or from lost or stolen sources of radioactive materials.

B. Licensed radioactive materials users within the state may experience a natural or man-made incident, which could result in the release of radioactive materials to uncontrolled areas.

C. RAMR incidents may occur in the state that requires a response beyond the technical capability of the BER at which point the BERAD would provide assistance.

D. The State of New Jersey will contact the United States Nuclear Regulatory (NRC) for all RAMR incidents involving NRC licensed radioactive materials.

Members of the RAMRAT maintain a 24-hour a day response capability to non-nuclear reactor radiation emergencies throughout the State. A radiation emergency may include responding to a facility that has discovered radioactive contaminated trash or scrap metal, abandoned or stolen devices containing radioactive material, a transportation accident involving radioactive shipments or a terrorist radiological threat involving a possible weapon of mass destruction.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

M E M O R A N D U M

TO: NJDEP Communications Center Personnel

FROM: Vincent Krisak

DATE: January 18, 2007

SUBJECT: COMMUNICATIONS CENTER OPERATIONAL PROCEDURE #51 (Amended)
RADIOACTIVE MATERIAL RELEASE NOTIFICATIONS AT OTHER THAN NUCLEAR POWER PLANTS OR PRINCETON PLASMA PHYSICS LABORATORY

Effective immediately all **radioactive material(s)** notifications occurring **at other than** a Nuclear Power Plant (i.e., Oyster Creek, Hope Creek, or Salem Unit #1 or #2) or the Princeton Plasma Physics Laboratory will require immediate notification to the appropriate duty officers from the Radioactive Materials and Radiation Assessment Team (RAMRAT) and the Bureau of Emergency Response. The lead agency will be designated as **Radiation Protection** and a copy of the incident report telefaxed to both agencies. ***(NOTE: Operators are ONLY to use "CC - Radioactive Materials" as the "Incident Type. "***

Incidents or advisories **(i.e. NRC notifications) involving shipments of Highway Route Control Quantity of radioactive material (spent fuel or nuclear waste) regardless of whether or not a release has occurred, are to be immediately referred to either Chief Kent Tosch or Rich Penny, Bureau of Nuclear Engineering (BNE).** These shipments are infrequent, however the NRC advisory includes **all** radioactive materials greater than 27,000 curies.

The BNE, upon assessing the incident information will be responsible for any additional notifications (i.e. NJSP, Emergency Response, etc.) which may be required. If requested, offer your complete cooperation with any necessary referrals.

Vincent S. Krisak, Chief
Bureau of Communications and
Support Services

rgc
c Assistant Director Van Fossen
Assistant Director Lipoti
Chief Tosch
Chief Sweeney
Chief Gardner
[redacted]

TO: NJDEP Communications Center Personnel

FROM: Vince Krisak

DATE: October 31, 2006

SUBJECT: COMMUNICATIONS CENTER OPERATIONAL PROCEDURE #42 TERRORIST THREAT/ SECURITY BREACH NOTIFICATIONS (Amended)

All calls involving the threat of terrorism will be handled in a professional manner and in accordance with the following procedures. The threat may be communicated directly from a perpetrator or may be a second-hand communication from a facility employee, news media, law enforcement or other governmental agency. In all cases, the operator should attempt to obtain as much information as possible, primarily the nature and location of the reported threat. A notification report mayor may not be required based upon the nature of the threat. For example, threats against natural resources (public and private water supplies), public consumable commodities, nuclear generating stations, power plants, communication facilities, fixed military installations, governmental buildings or any report of a security breach/unauthorized intrusion (i.e. trespassing, breaking and entering, tampering) whether discovered through direct observation, alarm activation or signs of intrusion (i.e. cut locks, open door/hatch, cut security fencing) are to be considered report-worthy. Document the threat's wording exactly. All agencies recei'ying a verbal notification will also receive a telefax copy of any generated incident report.

A) Biological Threats of Terrorism - Threats of terrorism involving these substances (i.e. anthrax, cholera and plague) including incidents involving suspected contamination, including positive signals from Bio-Hazard Detection Systems in U.S. Postal facilities or exposure/requests for sample collection/testing will result in an immediate verbal notification to the Department of Health and Senior Services (DHSS) as follows:

Calls received between 0800 = 1700 hours, Monday - Friday: (609) 588-3572.
After-hours/weekends/holidays - consult the DHSS Duty Officer Roster.
In addition to the verbal notification a copy of the incident report will be faxed to (609) 588-7433.
Note: The Incident Notification chemical dictionary contains approximately 18 biological agents including a general "Biological Agent, Other." In all cases, these substances are identified by the term "Biological Agent" in parenthesis.
After notifying the DHSS, the operator is to immediately contact both the Bureau of Emergency Response (BER) and the New Jersey State Police (NJSP) and provide all relevant information. DHSS is the lead agency for all biological incidents.

B) Incendiary, Explosive or Chemical Threats/Terrorism - Threats of terrorism involving these materials will result in immediate verbal notification to the BER, NJSP and

DHSS. Again attempt to obtain as much information as possible from the caller, primarily nature and location of the reported threat.

C) Nuclear/Radioactive Material Threats/Terrorism - Threats of terrorism involving these materials will result in immediate verbal notification to BER, NJSP, the Bureau of Radiation-Radioactive Materials and Radiation Assessment Team (RAMRAT) and DHSS.

D) Nuclear Power Plants and Support Facilities - All threats of terrorism against a nuclear power plant or its support facilities (i.e. turbine building, spent fuel storage area) will result in an immediate VERBAL notification to the Bureau of Nuclear Engineering (BNE) duty officer and NJSP- Regional Intelligence Operations Center (RIOC).

E) NJDEP Facilities - Any threat of terrorism against a NJDEP facility will result in an immediate notification to Assistant Commissioner Wade Chaudhary (Management & Budget). Assistant Commissioner Chaudhary should be contacted at his office during regular business hours. After hours, weekends or holidays refer to the Communication Center Bible for contact information.

F) Security Breach - Incidents of this type which occur at a nuclear power generating station or its support facilities (i.e. turbine building, spent fuel storage areas) are to be telefaxed to the Bureau of Nuclear Engineering (BNE) and the NJSP-RIOC. Security breaches occurring at non-nuclear facilities that handle, process, store or use radioactive materials will be telefaxed to RAMRA T and the NJSP-RIOC. Security breaches that occur at all other sites will be telefaxed to the appropriate BER regional office and to the NJSPRIOC. **NOTE**- Security breaches which have occurred at either a public or private water supply facility or its distribution system or which has occurred at a water treatment facility will require an IMMEDIATE verbal notification to the appropriate water enforcement regional office (this call is in ADDITION to the BER/NJSP-RIOC telefax).

G) National Response Center (NRC) faxes reporting: unusual events/suspected terrorist activity - Upon receipt of an NRC report outlining any unusual activity (i.e. unknown persons taking pictures of a facility, suspicious activity around sensitive areas, etc. regardless of location), Communications Center personnel will immediately telefax all pages of the NRC report to the following individuals/offices:

Assistant Director Van Fossen - (609) 777-0985
NJSP Regional Intelligence Operations Center (RIOC) - (609) 530-3650
The Office of Counter terrorism Critical Infrastructure Group - (609) 631-4928

The **original** NRC telefax should be left in Communications Officer Kerr's mailbox for filing. If you are in doubt as to whether or not to telefax the NRC report - **telefax it.**

In all incidents involving threats of terrorism, the BER Duty Officer will be provided with the appropriate A - 310 municipal hazardous material contact telephone number for the incident location, if known.

It is the specific responsibility of the Emergency Response Duty Officer to notify the local municipality based upon their assessment if such notification is warranted (hazardous discharge potential).

ALL threats of terrorism including security breaches will also require an immediate verbal notification to the department's Emergency Response Coordinator Robert Van Fossen.

Vincent S. Krisak, Chief
Bureau of Communications and
Response Services

C: Assistant Commissioner Chaudhary - Management and Budget
Deputy Commissioner Bresnitz - DHSS
DEP Emergency Response Coordinator Van Fossen
Capt. Jerome Hatfield - NJSP
Chief Sweeney
Chief Tosch
Chief-Gardner
Administrator Hamilton
Emergency Response Regional Supervisors
Communications Officer Kerr

V:/BCSS/BCSS Documents/Center SOPsIPROC-42

CHEMCODE	SUBSTANCE NAME
03086	Biological Agents, Other
03105	Anthrax (Biological Agent)
03106	Cholera (Biological Agent)
03107	Plague (Biological Agent)
03108	Tularemia (Biological Agent)
03109	Q Fever (Biological Agent)
03110	Smallpox (Biological Agent)
03111	Venezuelan Equine Encephalitis (Biological Agent)
03112	Eastern Equine Encephalitis (Biological Agent)
03113	Western Equine Encephalitis (Biological Agent)
03114	Viral Hemorrhagic Fever (Biological Agent)
03115	Ebola Virus (Biological Agent)
03116	Marburg Virus (Biological Agent)
03117	Rift Valley Fever (Biological Agent)
03118	Botulinum (Biological Agent)
03119	Staphylococcal Enerotoxin B (Biological Agent)
03120	Ricin (Biological Agent)
03121	T-2 Mycotoxins (Biological Agent)

4.7.1 EVENT & ALLEGATION RESPONSE PROCEDURES

4.7.1 Procedures for Responding to Events and Allegations

The response to a materials event will be as per the procedures that are included in the State's "Radioactive Materials and Radiological Assessment Team" manual. This document includes the necessary steps that will be taken to respond to, assess and mitigate any material event that occurs within the State. Reach-back capabilities to Federal agencies are included for events that exceed the capabilities of the State. If the event occurred due to the actions of a licensee, staff and management will decide if a reactive inspection is warranted. Steps the licensee took to minimize the likelihood of a recurrence will be reviewed during this followup inspection. If a generic problem that could affect multiple licensees is discovered, information related to the particular issue will be made available to potentially impacted licensees. A list of radiological instrumentation is included as Attachment 8 to SOP RR-101.

The Bureau of Environmental Radiation maintains access to the services of the New Jersey Department of Health and Senior Services' (DHSS) Environmental and Chemical Laboratory Services (ECLS) for any radioanalytical services it may need as part of incident response efforts. Included is a parameter and method list for radioactive materials. Also included is the current price list for the specified methods.

As part of its response capabilities, the Bureau of Environmental Radiation also maintains procedures to issue United States Department of Transportation (DOT) exemptions for previously unrecognized radioactive material so it will be in compliance with DOT requirements.

The Bureau of Environmental Radiation, in conjunction with the New Jersey State Police and the New Jersey Office of Counter-Terrorism, utilizes the "New Jersey Radiological Response Protocol" as a template for the use of radiation detection and isotope identification equipment to classify radioactive substances and ascertain their legitimacy. **Because of the sensitive nature of this document, and its classification For Official Use Only, it is not for distribution to any other party.**

New Jersey's Department of Environmental Protection's Radiation Protection and Release Prevention Element maintains an agreement with the Conference of Radiation Control Program Directors (CRCPD) to be a member of the National Orphan Radioactive Material Disposition Program, allowing the Bureau of Environmental Radiation to assist an individual or firm in the disposition of unwanted sources.

Allegations of improper activities will be investigated in a timely manner. If the allegation is confirmed, appropriate action will be taken to address the situation. Severe infractions can be discussed with, and potentially referred to, the State Office of the Attorney General, if so warranted.

Included in Section 4.7.1 are:

Radioactive Materials Radiological Assessment Team Manual

- SOP RR-101 Notification, Initial Response and Mobilization
- SOP RR-102 On-Scene Radiological Response
- SOP RR-103 Radiological Assessment and Protective Action Guidance

New Jersey Department of Health & Senior Services Radioanalytical Services Laboratory overview

- NJDHSS price list

SOP 7.01 Procedure for Issuance of US DOT Exemptions

Attachment 1 - U.S.D.O.T. Exemption E-10656 (Contaminated Metal or Recycling Material)

Attachment 2 - U.S.D.O.T. Exemption E-11406 (Contaminated Trash or Refuse Material)

Attachment 3 - Procedures for Notifications Made By Waste Facilities That Involve Trash Contaminated With Radioactive Material

SOP 7.02 Management of Allegations

SOP 7.03 Instrument Calibration and Quality Assurance Program

Introduction to CRCPD National Radioactive Material Disposition Program materials

- CRCPD National Radioactive Material Disposition Program

Inspection Procedure 92702 Followup on Enforcement Actions

SOP RR-101 Notification, Initial Response and Mobilization

1.0 OBJECTIVE

To describe the initial notification and mobilization of the Radioactive Materials Radiological Assessment Team (RAMRAT). The Team Supervisor is the individual who will stay at his/her initial post (either at home or in the office) and assess the situation. The Team Leader will go to the scene, if necessary, and direct the response from there. A list of RAMRAT members is provided in Attachment RR101-1.

2.0 INITIAL RESPONSE

2.1 Fill Out Initial Contact Message Form

Fill out the Initial Contact Message Form (ICMF) (Attachment RR101-2). Obtain as much information as possible, but you must complete the top portion of the form. You may not be able to complete the entire form because the caller does not have sufficient information. However, be sure to get a name and number of someone to contact for further information. If that individual cannot give the requested information, then obtain a name and number for someone who can.

2.2 Call For Further Information (if necessary)

If the call did not come from an individual with sufficient knowledge, then call for further information, e.g. call the first responder, if appropriate. Complete as much as possible on the remainder of the ICMF (Attachment RR101-2).

2.3 Analyze Information

If one is unsure about how to handle the event, or one wants a second opinion, call a manager (Attachment RR101-5).

Take one of the following actions:

2.3.1 Handle the situation over the telephone. The first responders at the scene may be able to perform readings, obtain packaging information, etc. This may allow closure of the incident without further response. For example, they may be able to determine that none of the radioactive material packaging was damaged in a transportation accident.

2.3.2 Delay response until working hours. If the call is received during off-hours and it is determined that the situation is not an emergency, responders can be sent during normal working hours. If readings are less than 20 mR/hr on contact, the response can be delayed as long as the material is isolated and secured. The owner of the facility/site where the material is located is responsible for maintaining security and keeping personnel from the immediate vicinity.

2.3.3 Mobilize a RAMRAT member(s) immediately (Attachment RR101-1). Protective action recommendations may be made simultaneously or delayed until the situation is assessed at the scene. Responsibility for contacting team members may be assigned to a member of the team.

2.3.4 Initiate Protective Actions. A situation may occur where there is not enough time to initiate a response before one makes a protective action. Depending on the situation, the appropriate authority to give the protective action recommendation to may be the State Police, the Bureau of Emergency Response (BER), the radiation safety officer of the licensed facility, or the first responders: firefighters, rescue workers, or county emergency management personnel. If the State Police are at the scene, then the appropriate authority is always the State Police.

- Isolate and secure the area.
- Have personnel keep at least 150 feet and upwind of the incident to a point where the radiation level drops below 2 mrem per hour.
- Identify personnel that may have been in contact with radioactive material and ask State or local authorities to detain for further questions and contamination surveys.
- Ask State or local authority to detain personnel that may have knowledge of the incident.

2.4 Notify Management

NJDEP Management is to be notified whenever an incident is reported. A phone list for the NJDEP Management Chain of Command is provided in Attachment RR101-5. Use Attachment RR101-4 as a phone log.

2.5 Call for Assistance

If a significantly hazardous situation exists, assistance from State or Federal agencies may be warranted. RAMRAT members may need management assistance in determining hazard significance. A Team Supervisor, Team Leader, or a management representative may request assistance. A phone list for these agencies is provided in Attachment RR101-3. Use Attachment RR101-4 as a phone log.

3.0 MOBILIZATION

3.1 Field team members may be dispatched directly to the site, or to 25 Arctic Parkway to pick up equipment and/or other field team members. A pool vehicle with the equipment listed in Attachment RR101-6 will be available at the office. If the available vehicle does not have equipment, then use Attachment RR101-6 as a checklist and load the equipment into the vehicle. The keys and sign-out sheet are located at the RPRP-BER Bureau Chief's secretary's desk.

3.2 The first member to arrive that is assigned a key to the building, will unlock the building according to Attachment RR101-7.

3.3 The team leader, if present, or the senior team member, will assign tasks to prepare for dispatching. These tasks may include signing out the pool vehicle, locating the license in the Radioactive Materials filing cabinets, loading additional emergency response kits, or locating other specialized reference materials or instrumentation based on the incident and nuclide(s) involved. A list of available instruments and their detection capabilities are listed in Attachment RR101-8. Pre-operational instrument checks should be performed enroute, or as soon as possible upon arrival at the scene, according to Attachment RR101-9.

3.4 Follow the procedures outlined in SOP RR102 after arriving on the scene.

Attachment RR101-1

RAMRAT TEAMS

Team A	Name	Work Phone	Radio
Supervisor	Rich Peros	609-984-5522	8
Leader	Cathy Biel	609-984-5663	11
Member	Ed Truskowski	609-984-5542	37
Member	Al Orlandi	609-984-5891	32
Member	Pat Mulligan	609-984-7536	5
Member	Karen Tuccillo	609-984-7443	13
Member	Jack Tway	609-984-5514	

Team B	Name	Work Phone	Radio
Supervisor	William Csaszar	609-984-5555	12
Leader	James McCullough	609-984-5480	47
Member	Nancy Stanley	609-984-5452	36
Member	Nick DePierro	609-984-7442	3
Member	Adria Wentzel	609-984-5362	

Technical Support

Name	Work Phone
Patricia Gardner	609-984-5405
Jenny Goodman	609-984-5498
Debbie Wenke	609-984-5521

Attachment RR101-2

RAMRAT INITIAL CONTACT MESSAGE FORM

Person receiving notification	**Person making the notification**
Name: Title: Date: Time:	Name: Title: Affiliation: Phone Number: Fax Number:

Location of Incident	**Contact person at the site**
Name: Address:	Name: Title: Phone Number: Fax Number:

Start of incident (date and time):	**Radioactive Materials License**
____(mo)/____(day)/____(yr); ___:___(mil. time) **Termination of incident (date and time):** ____(mo)/____(day)/____(yr); ___:___(mil. time)	☐ State ☐ NRC (If NRC contact Region 1 State Liaison Officer)

Did a release occur?	**Release information**
☐ No ☐ Yes (if yes, check below) ☐ Solid ☐ Liquid ☐ Gas ☐ Unsure	Start of release (date and time): ____(mo)/____(day)/____(yr); ___:___(mil. time)
Contaminant Identified: ☐ No ☐ Yes (if yes, list) _____	Termination of release (date and time): ____(mo)/____(day)/____(yr); ___:___(mil. time)

Radiation Measurements:

Date _____Time_____ Instrument make & model _____

Background Measurement _____

Location_____ Measurement _____

Performed by:

Meteorological Conditions:

Wind speed_____ Wind Direction_____ Stability Class_____

Description of incident, include contaminants involved:

Directions to control scene, reduce or eliminate hazards until arrival of RAMRAT:

Forward Command Post:

☐ Established Phone Number_____ Location:_____

Name of person in charge:_____ Title: _____

List of Agencies at the Scene:

Notify DEP Chain of Command: (start with Manager BER)

☐ Manager BER ☐ Assistant Director RPRP ☐ Director DESH ☐ Assistant Commissioner ER

(If a BER Manager cannot be contacted, go to the next manager listed.)

Further Action	**Comments**
☐ None –incident terminated	
☐ DOT Exemption Issued	
☐ Monitor from office	
☐ Dispatch personnel to scene	
☐ Notify federal agencies	
☐ Other	

Additional Information

- **NJ Department of Environmental Protection "Hotline"** (Trenton Dispatch)
  (877) 927-6337 24 hours

- **NJ Department of Environmental Protection Bureau of Emergency Response**
  (973) 973-669-6385 Northern
  (609) 584-4130 Southern

- **NJ State Police**
  (609) 882-2000 24 hours

- **NJ State Police Regional Operations Intelligence Center (ROIC)**
  (609) 882-2000 x6090

- **NJ Office of Homeland Security & Preparedness**
  (609) 584-4000

- **US Nuclear Regulatory Commission - Office of Nuclear Security and Incident Response**
  (301) 816-5100 24 hours
  (301) 951-0550 Back-up
  (301) 415-0550 Second Back-up

- **US Nuclear Regulatory Commission, Region I Office, King of Prussia**
  (610) 337-5000 Work hours
  (800) 432-1156 Work hours toll free

- **US Department of Energy**
  Radiological Assistance Program (RAP), Brookhaven National Laboratory
  (631) 344-2200 24 hour hotline
  (631) 344-7309 Region 1, (Steve Centori) (his pager: 631-453-4564)
  Federal Radiological Monitoring and Assessment Center
  (301) 903-3558 National Nuclear Security Administration, Nevada Operations Office
  Oakridge Institute for Science and Education
  Radiation Emergency Assistance Center/Training Site
  REACT/TS 24 hour (865) 576-1005 Office hours (865) 576-3131

- **US Environmental Protection Agency - Radiological Emergency Response**
  (732) 548-8730 24 hour for Region II (NJ, NY, Puerto Rico, Virgin Islands)
  (212) 637-4010 NYC office
  (202) 564-3850 Headquarters

- **US Federal Emergency Management Agency**
  (212) 680-3600 NYC regional office for Region II (NJ, NY, Puerto Rico, Virgin Islands)
  (202) 566-1600 Washington DC Headquarters office

- **US Food and Drug Administration**
  (888) INFO-FDA or (888) 463-6322 Rockville, MD Headquarters

- **National Response Center and Terrorist Hotline**
  (800) 424-8802 24 hour hotline
  (202) 267-2675 24 hour hotline

- **Chemtrec Operations Center**
  (800) 424-9300 24 hour number (703) 527-3887

Attachment RR101-4

COMMUNICATION LOG

(documentation of communications with team supervisor, management, NJDEP responder, or outside agencies)

RAMRAT person making call: _____
Phone call to : _____ Affiliation: _____ Phone number: _____
Date and Time: : ____(mo.) / ____ (day) / ____ (yr.); ___:___ (military time)
Summary of Conversation (information transmitted and response of person called)

Action Items:

RAMRAT person making call: _____
Phone call to : _____ Affiliation: _____ Phone number: _____
Date and Time: : ____(mo.) / ____ (day) / ____ (yr.); ___:___ (military time)
Summary of Conversation (information transmitted and response of person called)

Action Items:

Attachment RR101-5

NJDEP MANAGEMENT CHAIN OF COMMAND & TELEPHONE NUMBERS

- Patricia Gardner, Manager, Bureau of Environmental Radiation

  Office: (609) 984-5405
  Radio: RAD 22

- Paul Baldauf, Assistant Director Radiation Protection and Release Prevention

  Office: (609) 984-5636
  Radio: RAD 1

- Jill Lipoti, Ph.D., Director, Division of Environmental Safety and Health

  Office: (609) 633-7964
  Radio: RAD ALPHA

- Nancy Wittenberg, Assistant Commissioner, Environmental Regulation

  Office: (609) 292-2795

- Lisa P. Jackson, Commissioner, Department of Environmental Protection

  Office: (609) 292-2885

RAMRAT EMERGENCY EQUIPMENT CHECKLIST

Mark each item that is included in the emergency kit taken to the incident.

Individual Equipment Initials of checker:_____ Date of check: _____

Low Range Dosimeter (0-200 mR)	
High Range Dosimeter (0-20R)	
Dosimeter Charger	
Batteries for Charger	
TLD whole body dosimeter	
TLD extremity dosimeter	
Digital self-reading dosimeter (SAIC –PD10i)	
Tyvek Suit	
Safety Glasses	
Hard Hat	
Latex Gloves	
Cloth Gloves	
Disposable Booties	
Emergency Worker Exposure Record	

Comments:

General Supplies Initials of checker:_____ Date of check: _____

Lantern flashlight	
(2) 6V Lantern Batteries	
Duct Tape	
Radiac Wash	
Paper Towels	
Rad Waste Disposal Bags	
Flashlight	
Flashlight batteries	
Buckets for sample storage	
Lids for sample buckets	
Calculator	
Permanent Markers	
Pens/Pencils	
Rope (for hotline setup)	
Labels	
Site Area County Map(_____County)	
Map of New Jersey	
RAMRAT SOP Manual	
Masking/Scotch Tape	
Clipboards	
Perform Vehicle Radio Check	
Check Gas Level in Vehicle	
GPS system (may not be available)	
Magenta and Yellow Tape	
Barrier Cones	

Comments:

Instrumentation Initials of checker:_____ Date of check:_____

Ludlum Kit includes: Model 19 NaI microR meter Model 17 ion chamber Model 3 survey meter w/44-9 and 44-38 probes	
Thermo Kit includes: FH40GL Digital Survey Meter FHT 752 Neutron Tracking Probe FHZ 612 High Energy Gamma Probe FHZ 732GM Probe FHZ 512A NaI Probe FHZ 672 High Sensitivity Plastic Scint Probe FHZ 380AB (100 cm^2) ZnS/Plastic Scint Probe	
Thermo Teleprobe (13-ft. extension)	
ORTEC HPGe Gamma Spec/Neutron Detector	
IdentiFINDER Ultra Gamma Spec/Neutron Detector/ Dose Rate Meter	
InSpector 1000 Gamma Spec/Neutron Detector	

Comments:

Wipe Sample Supplies Initials of checker:_____ Date of check: _____

Planchets	
Templates	
Smear Discs	
Zip Lock or Whirl pak plastic bags	
Wipe Sample Activity Calculation Form	

Comments:

Environmental Sampling Supplies Initials of checker:_____ Date of check: _____

Request for Analysis/Chain of Custody Forms	
Trowel	
Grass Shears	
Top Soil Cutter/Shovel	
Portable Scale	
Ruler	
Disposable Tape Template	
Plastic Bags for Samples	
Plastic Funnel	
Cubitainers	
Air Sampler*, Charcoal, Filter	
Nails	
Pocket Knife	
Hammer/Mallet	
Buckets for Samples	
Lids for Sample Buckets	

Comments:

* this sampler requires AC power

ENTRY INTO 25 ARCTIC PARKWAY

1. These instructions apply to the front entrance to 25 Arctic Parkway.
2. Unlock the front door. You will hear a high pitch tone coming from the keypad.
3. Unlock the second front door with one's electronic ID badge.
4. Proceed into the building and bear left to the keypad located on the wall at the top of the small staircase.
5. Enter your personnel code number on the keypad. If you entered this number correctly, the high-pitched tone will stop and the status LED will be a solid green.
6. If something goes wrong, i.e. the high-pitched tone does not stop, you forgot your code number, etc. then contact one of the following:
   - Aetna Alarm 609-896-1990
   - Ewing Police 911 or 609-882-1313
   - Building Management
   - Sign in. The sign-in sheets are located on table in waiting area.

EXIT PROCEDURE FROM 25 ARCTIC PARKWAY

1. Check the sign-in sheet to make sure no one else is in the building. Also do a walk around and call out to see if anyone is still inside.
2. Make sure that all interior building doors are closed and locked.
3. Check the keypad, the status light should be solid green. If the status LED is blinking green, make sure everyone is out of the building and check all the doors again to make sure they are closed and locked.
4. Enter your code into the keypad, the armed/alarm LED will be red.
5. Leave the building quickly and make sure you lock the entrance door behind you.

Attachment RR101-8

RAMRAT INSTRUMENTATION CHECKLIST

Inventory date: ____(mo.) / ____ (day) / ____ (yr.), checked by _____

Instrument	Detection Capabilities	Serial #	Last calib. Date*
RAMRAT Kits (6 available):			
Ludlum Model 19 NaI(Tl) microR meter **Ludlum Model 17** ion chamber **Ludlum Model 3** survey meter	Gamma only. Higher energy gamma (>80 Kev), low emission rates (0-5000uR/hr) Beta/Gamma, sliding window. 0–50R/hr. Alpha,Beta,Gamma with **44-9 Detector**, 0-600K cpm. Beta/Gamma with **44-38 Detector**, 0-200mR/hr.		
THERMO Kits (4 available):			
FH40GL Multipurpose Digital Survey Meter w/internal proportional detector-AND-teleprobe 13-ft. extension	Internal proportional counter, 1uR/hr-10 R/hr. Neutron 0.01-100000 cps with **FHT 752 SH Neutron Tracking probe.** High Energy Gamma 10 uR/hr-1000R/hr with **FHZ 612 Gamma, Hx.** Alpha, Beta, Gamma 0.1-10000 cps with **FHZ 732GM.** **FHZ512A** 1.5"x1.5" NaI Probe		
THERMO Kits Expanded (8 available):			
FH40GL Multipurpose Digital Survey Meter w/internal proportional detector-AND- teleprobe 13-ft. extension	Internal proportional counter, 1uR/hr-10 R/hr. Neutron 0.01-100000 cps with **FHT 752 SH Neutron Tracking probe.** High Energy Gamma 10 uR/hr-1000R/hr with **FHZ 612 Gamma, Hx.** Alpha, Beta, Gamma 0.1-10000 cps with **FHZ 732GM.** **FHZ512A** 1.5"x1.5" NaI Probe **FHZ 672** Plastic scintillator 1 uR/hr-10mR/hr – high sensitivity for Gamma and Beta sources. **FHZ 380AB** (100cm^2) ZnS/plastic scintillator-Alpha and Beta in cps.		
SAIC Model PD-10I Dosimeter (25 available)	Gamma and x-rays, personal dose and dose rate monitoring		
Ludlum Model 77-6 telescopic uR meter **(1 available)**	X/Gamma rays in remote locations. As low as 35 Kev (I-125) (0-5000uR/hr)		
Exploranium (2 available)	Portable gamma spec		
IdentiFINDER (3 available)	Portable gamma spec/dose rate meter		
ORTEC Detective-EX HPGe (2 available)	Portable neutron detector/gamma spec		
Ludlum Model 3 (2 available)	Alpha Scintillator **43-5 Detector**		
Reutor-Stokes	Pressurized ionization chamber		
InSpector 1000 (2 available)	Portable neutron detector/gamma spec		
IdentiFINDER Ultra (8 available)	Portable neutron detector/gamma spec/dose rate meter		
Total Teletector (1 available)	High range GM telescopic		

Preoperational Instrument Check

1.0 Purpose

The purpose of this procedure is to establish requirements for conducting operational checks of radiation and contamination survey instruments.

2.0 Procedure

Observe radiation safety procedures when handling radioactive material contained in check sources and standards. Use all instruments in accordance with the operating instructions provided in the instrument manual.

Inspection:

- ❑ A current calibration sticker indicating that it has been calibrated within the last year.
- ❑ Operability, including conditions for broken or frayed HV power cable, dented detector casing, broken meter face, and cleanliness.
- ❑ If instrument is dirty, wipe it down using damp paper towels.

Operation:

- ❑ Turn the instrument on and check battery conditions (see instrument manual for specific instruction). Replace batteries if necessary.
- ❑ Turn scale knob down to lowest range setting and turn audio on.
- ❑ Perform a response check by observing instrument response to a check source.
- ❑ Note if the background readings are within reason.[1]
- ❑ If the instrument is not responding or the background is not consistent, do not use the instrument and remove it from service.

[1] Higher background readings can be expected in the Reading Prong area of New Jersey. Background readings as high as 100 uR/h have been observed.

SOP RR-102 On-Scene Radiological Response

Purpose
To provide guidance on mitigating the consequences of a non-nuclear power plant accident involving radioactive materials, and implementing response actions at the scene.

1. Alert DEP management that RAMRAT responder has arrived at the scene. Establish contact with the on-scene coordinator, if present.

2. Approach the scene cautiously and resist the urge to "rush in." Where there is the potential for release of radioactive material, the approach to the scene should be upwind. Assess the situation. Observe possible signs that radiation may be present and may have spread, such as:
    - placard with radiation symbol
    - information from witnesses who may know something about the nature of the hazard
    - packages bearing the radiation symbol
    - spill, fire or explosion.

CAUTION

Alpha particles, low energy beta particles and neutrons cannot be measured with beta/gamma survey meters.

Limit time spent in the immediate hazard area. Try to avoid direct contact with damaged or leaking containers.

Alpha emitters represent a significant inhalation hazard and, if airborne, response would require respiratory protection. The Bureau of Emergency Response personnel will perform tasks that require respiratory protection. The RAMRAT team members will provide technical support.

3. Turn on survey meter while approaching the scene to provide first indication of encountering radiation. Measure dose rate and check for contamination. Do not approach the area of the source without the dose rate being measured. A self reading dosimeter should be worn if dose rates in the area are over 1 mrem/h.

Emergency Worker DOSE LIMITS

Radiation dose limit is 1.25 R per incident. If more than one incident per year, use occupational dose limits.

This limit may be incrementally increased to 5 R with concurrence from the Department of Health and Senior Sercices and a maximum of 25 R with authorization by the Governor based upon Department of Health and Senior Services recommendation.

Doses ≥ 25 R may be authorized for lifesaving activities or protection of large populations on a voluntary basis. Volunteers must be fully aware of the risks involved.

Radiation dose limit for extremities is 50 R.

Emergency Worker TURN-BACK VALUES

Do not remain in areas greater than 100 mR/hour (gamma or closed window) any longer than required for survey activities or other essential activities.

Do not proceed into areas with dose rates greater than 1 R/hour (gamma or closed window) unless directed to do so by the Team Supervisor or management.

Do not enter areas exceeding 10 R/hour (gamma or closed window). Volunteers may enter to perform lifesaving activities if authorized.

4. If not already accomplished, assist with the removal of non-essential personnel and members of the public from the accident area. Have someone record names and addresses of all persons involved in the incident.

5. If persons involved in the accident appear to be injured:

   - Ensure that Emergency Medical responders are aware that the victim may be contaminated with radioactive material.
   - Have qualified personnel remove the injured person from the hazardous area as soon as possible. [Injuries may prevent this so as soon as possible would mean when the medical responders arrive]
   - **LIFE SAVING ACTIONS SHOULD NOT BE DELAYED DUE TO THE PRESENCE OF RADIATION!**

6. Request assistance from law enforcement personnel to detain potentially contaminated individuals. Depending on the numbers of affected individuals, request State Police to establish a regional decontamination center or wait for additional RAMRAT members to monitor for contamination and set up the decon station.

7. Evaluate the need for immediate protective actions (e.g. evacuation) for the public using the Guidance Levels below.

Guidance Levels (GL) for Radiological Emergencies Based on Ambient Dose Rate Measurements from Gamma-Emitting Radionuclides

Major Exposure Conditions	GL	Main Actions
External Radiation from a point source or from ground contamination over a small area or in the case of not very disruptive evacuation.	10 mrem/h	Isolate the area. Recommend evacuation of cordoned area. Control access and egress.
External radiation from ground contamination over a wide area or in the case of very disruptive evacuation.	100 mrem/h	Recommend evacuation or substantial shelter.
External radiation from air contamination with an unknown radionuclide(s).	100 uR/h	Isolate the area (if possible). If practical, consider recommending evacuation of cordoned area or downwind in case of open area.

8. Determine approximate safe distance from the source using a maximum exposure rate of 2 mR/hr[1]. Establish security and safety perimeters using the magenta and yellow barrier tape and safety cones and control public and personnel access and egress at an initial safe distance. Set up Hotline if necessary according to Attachment RR102-1. Use Attachment RR102-2 for monitoring individuals for contamination and for procedures on decontamination.

9. Survey the affected area. Record results on First Responder Worksheet Attachment RR102-3. Take wipes if deposition has occurred using procedure in Attachment RR102-4.

10. Locate transportation records (bill of lading), license, or labeling to help identify the radionuclide. If no records are available, use the portable gamma spectrometer to identify any gamma emitting nuclides. See Attachment RR102-5 thru 102-9 for operating procedures.

11. Contain any spill and mitigate the spread of contamination by utilizing the following: SWIM – Stop, Warn others, Isolate the spill, and Minimize exposure.

[1] If the distance to establish a 2 mR/h barrier is too great and impractical, consider using 5 mR/h, up to a maximum of 10 mR/h.

12. Once the radionuclide(s) has (have) been identified, use Attachment RR102-10 to determine the quantity present.

13. Perform Assessment tasks in SOP RR-103. If necessary, make or modify protective action recommendations.

14. Periodically brief on-scene coordinator and RPRP headquarters.

15. Go to SOP RR-104, Recovery and Reentry for recovery operations.

Set-up of Hotline

Objective

This procedure is to ensure that personnel are appropriately equipped and protected to prevent the spread of contamination when entering and exiting contaminated areas. A step-off pad is an integral element of this procedure. The step off pad is considered "clean".

Procedure

1.0 Prepare the Step-off Pad

1.1 Establish barriers so access to the contaminated area is through the step-off pad. Vehicles, fencing, tables, chairs and rope may be used to control access.

1.2 The step-off pad is typically an area of 8-10 foot wide by 12-20 foot long that separates the contaminated from the uncontaminated area. Professional judgement is used to determine the size of a step-off pad. Figure A is a typical lay out of a hotline.

1.3 The buffer zone in the step-off pad may contain a bench to assist personnel while doffing outer coveralls and shoe-covers. The waste containers can be plastic bags secured to a stand or a piece of furniture.

1.4 A monitor is usually assigned to provide assistance to personnel in the contaminated area and to monitor them as they exit.

2.0 Entering the Contaminated Area through the Step-off Pad

2.1 A worker should possess the following before entering the step-off pad area:

- Personnel dosimetry including a zeroed rechargeable unit
- Appropriate instrumentation for the suspected contaminants
- Clipboard, pad, and pens
- Sample bags and markers if necessary
- Wipe test kits if necessary
- Additional tools or equipment as necessary and a receptacle to carry them

2.2 A worker must wear the following before entering the step-off pad area:

- Safety shoes
- Coveralls
- Outer shoe covers

- Outer tyvek coveralls with hood
- Surgical gloves
- Outer cotton or rubber gloves
- Hard hat, if necessary
- Safety glasses, if necessary
- Respiratory protection, if necessary
- Place duct tape over all seams: junction of outer boots and outer coveralls, junction of outer gloves and outer coveralls. Liquids and dust flow downward, therefore have outer coveralls overlap boots and gloves.
- Rechargeable self-reading dosimeters should be worn where they can be viewed by the user.

2.3 As personnel pass through the step-off pad, a monitor should evaluate readiness to enter the contaminated area. Monitors may also survey entering personnel for positive radiation readings due to contamination or a nuclear medicine procedure.

3.0 Leaving the Contaminated Area

3.1 Step onto the step-off pad, but stay on the contaminated side of the buffer zone.

3.2 Place instrumentation on the table on the contaminated side of the hotline.

3.3 Read Self Reading Dosimeter prior to leaving the contaminated area.

3.4 Place samples on the table on the contaminated side of the hotline. The monitor will double bag the sample and transfer it to the clean area.

3.5 Remove duct tape from clothing seams and place the tape in designated waste container.

3.6 Remove outer gloves and place into designated waste container.

3.7 Remove hard hat and place in designated container.

3.8 Remove hood, if detachable, and place in designated waste container. When removing hood, lean head backwards and remove to avoid possible facial contamination.

3.9 Remove respirator and place in designated container.

3.10 Remove outer coveralls, tyvek suit, to below the buttocks.

3.11 Sit on bench with feet on hot side.

3.12 Remove outer coveralls completely and place in designated waste container.

3.13 Remove outer shoe cover and place in designated waste container.

3.14 Place uncovered shoe and foot on "clean" side (in buffer area).

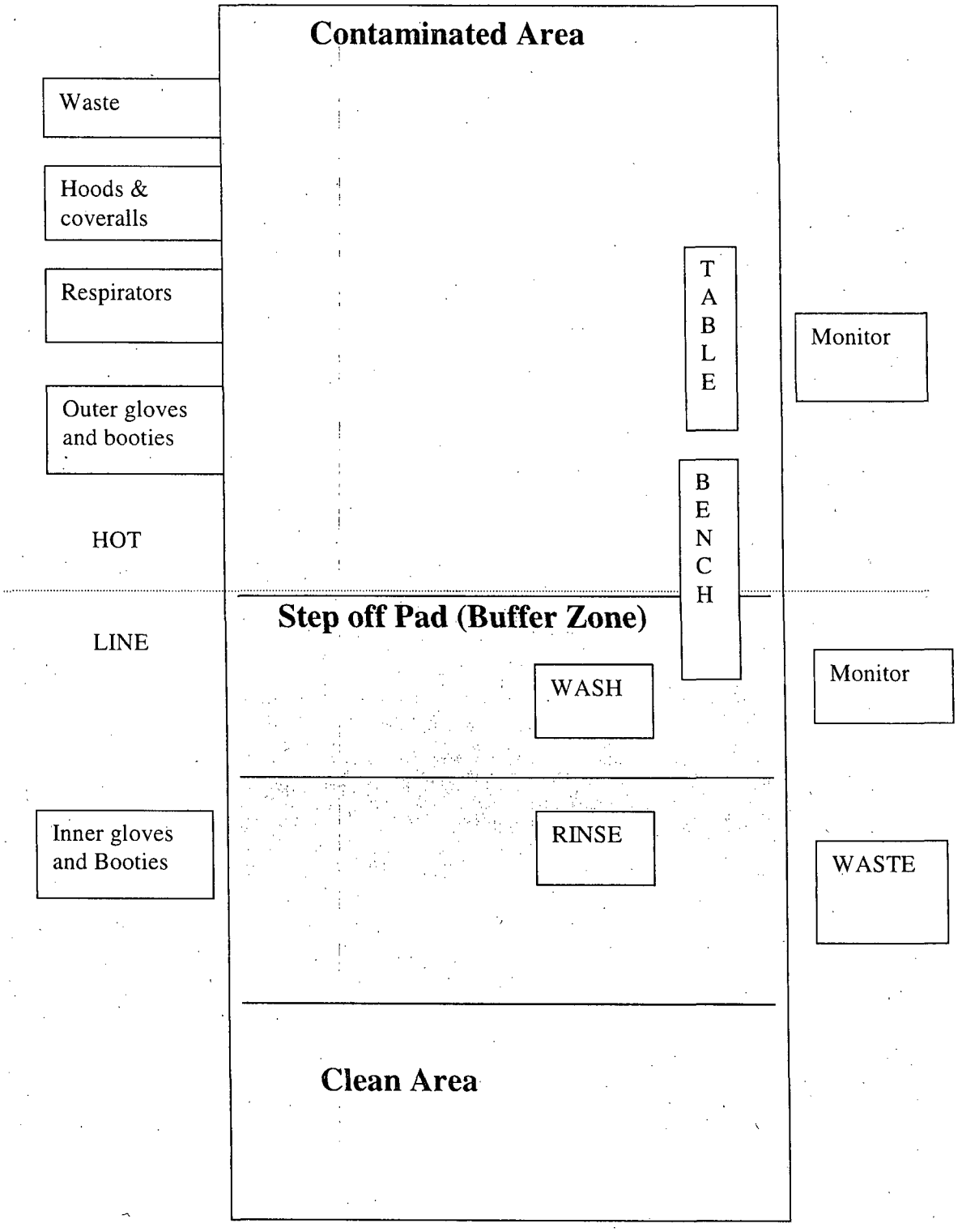
3.15 Remove remaining outer shoe cover and place in designated waste container.

3.16 Place second uncovered shoe and foot on "clean" side (in buffer area).

3.17 Remove inner gloves and place in designated waste container.

3.18 Monitor should survey personnel for contamination of face, hair, neck, back, buttocks, hands, knees, and feet.

Figure A: Hotline Lay-out



Using Hand-Held Survey Instruments for Personnel Contamination Surveys

Using a hand-held survey instrument to conduct a personnel contamination survey is the first step in determining which individuals need to be decontaminated. In the field, surveying will be done with hand-held instruments. The recommended instrument for this task is a survey meter with a sensitive probe that can detect alpha, beta, and gamma radiation. The Model 3 Geiger-Mueller Meter (or equivalent) with the pancake probe should be used to detect low levels of contamination on people or equipment.

When surveying personnel or equipment, the pancake probe should be held as close as practical from the surface being surveyed without actually touching. Remember that an alpha particle travels only 1/4 inch to two inches in air, so if the probe is further away, it will not detect alpha contamination. Also, a thin layer of blood, water, dirt, bandages, clothing, etc., will block the alpha radiation and prevent the alpha-emitting contamination from being detected. In addition, the probe should be moved very slowly over the surface being surveyed. A general guideline is one-probe diameter per-second or one to two-inches per second. If personnel are being surveyed, the most likely places for contamination are the feet and hands. Be careful not to put the probe under the surface being surveyed, or contaminated dirt, etc., may fall onto the probe and contaminate the probe itself. After the hands and arms are checked, survey the rest of the body, beginning at the top of the head and working down. The front side of the person is checked first and then the back side. **NOTE: The responder with the radiation detection instrument should direct the movements of the person being surveyed. The responder operating the instrument should never move. Always begin the survey with the meter setting on the lowest scale.**

If equipment or vehicles are being surveyed, the "hands and feet principal" applies, meaning the tires/wheel wells should be checked first. Then a logical sequence is door handles, floorboards, steering wheel, etc. Pay special attention to any areas where people place their hands or feet.

Surveying Requirements

1. Check the survey meter prior to use. Verify that the instrument is in service, set to the proper scale (the lowest or most sensitive setting), and check if the audio output can be heard during surveying. Try to limit handling of the meter and probe until you have checked your hands for contamination (See Step 2).

For the Ludlum Model 3 Geiger-Mueller (or equivalent) Detector:

A. Set the knob to the battery test (**BAT**) and check that batteries are good.
B. Set the knob to the lowest scale (**X0.1**).
C. Set **Fast/Slow** switch to Fast ("**F**").
D. Set the **Audio** switch to **ON**. You should be able to hear an occasional audio click, even when the meter is measuring "clean/uncontaminated" background levels.

2. Check your hands for contamination before handling the probe.

   A. Leave the probe attached to the holder on the meter, and remove the cover from the pancake probe. (The cover can be placed on the backside of the pancake probe so that the cover is not misplaced).
   B. Place the palm of one hand up to the sensitive area of the probe for approximately five seconds. Then move the hand slowly in front of the probe to scan the fingers and the back of the hand.
   C. Repeat this procedure with the other hand.

3. Cover the probe with a plastic baggie and secure with tape.

4. Take a background measurement for reference.

   If you are not given pre-established contamination limits for surveying (such as those given in the sample table below), then take a background measurement in a clean area. Use this background reading as your reference, and use **twice** this background reading as the contamination limit. **If any measurement is greater than twice the background reference reading, then consider the person or item contaminated.**

   A. Set the knob to the battery test (**BAT**) and check the battery level.
   B. Set the knob to the lowest scale (**X0.1**).
   C. Set **Fast/Slow** switch to Slow ("**S**").
   D. Measure the background radiation level to approximately 60 seconds. It is normal for the value to vary some during the measurement. Write down what appears to be the average value or most common reading during the 60-second interval.
   E. Use this average value as the background reference. Typical background readings are about 40 to 100 cpm or 5 to 20 μR/hr (0.005 to 0.02 mR/hr). For example, with the meter range knob set to the X 0.1-scale, the dial

needle may show 1 kcpm, which is a reading of 100 cpm (1 kcpm x 0.1 = 1000 cpm x 0.1 = 100 cpm). When using a probe that can detect gamma alpha or beta radiation, make the reading in units of counts per minute. Use the mR/hr readings only when the probe can only detect gamma radiation.

F. **Use a twice-background value as the contamination level.** Write down these two values with the units (cpm or mR/hr) for future reference. For example:

Background	35 cpm (or 0.035 kcpm)
Contamination level	70 cpm (or 0.070 kcpm)

G. Return the **Fast/Slow** switch to Fast ("**F**") before the meter is used for surveying.

Scanning should be performed after the responder removes SCBA or respirator, and outer protective clothing.

5. To scan a responder, hold the probe less than 1/2 inch from the person being surveyed for beta and gamma contamination, approximately 1/4 inch for alpha contamination (or for alpha, beta, and gamma contamination). If it is not possible to maintain a ¼ inch separation, then hold the probe as close as possible without touching or dragging the probe across the surface. Remember that even a thin layer of water, dirt, blood, or clothing will block alpha radiation and prevent detection of the alpha source contamination.

6. Move the probe slowly above the surface, approximately one probe diameter per second, or about two inches per second.

7. If the count rate increases during surveying, pause for five to ten seconds over the area to provide adequate time for instrument response. If a more accurate measurement is needed, place the **Fast/Slow** switch to Slow ("**S**") and hold the probe over the contaminated area for 30 seconds. Return the switch to Fast ("**F**") before continuing the search.

8. If you can hear the audible clicks from the meter, then you can focus your attention on the probe and surveying technique while you listen for an increase in the clicking rate. If the clicking rate increases, pause and look at the meter dial.

9. If the count rate increases to a value greater than twice-background, then the person will need to be decontaminated. (Nasal swabs and mouth included.) Page 11 of this attachment outlines the steps to be taken for decontamination.

10. The whole-body survey should take at least two to three minutes to check one person.

In performing a personnel survey, the individual to be monitored stands with legs spread and arms extended. The responder should begin the survey at the head, subsequently surveying the upper trunk, arms, lower trunk, and legs. The individual being surveyed is asked to turn to the back, and the procedure is repeated. As in equipment and area surveys, care must be taken not to permit the detector probe to touch any potentially contaminated surfaces. If it is suspected that contamination may have entered a body opening or wound, swabs (Q-tips) may be used to collect surface material. If they are available, have medical personnel perform the sample collection using the swabs to avoid injuring the victim. These swabs may then be checked with a radiation detector.

It is not necessary to perform the personnel contamination survey in exactly the order listed below, but a consistent procedure should be followed to help prevent accidentally skipping an area of the body. Tell the person to stand erect, with feet spread slightly, and arms extended with palms up and fingers straight out. Pause the probe for about five seconds at locations most likely to be contaminated.

Perform the personnel contamination survey in the following recommended order:

1. Hands (pause at palms for approximately five-seconds)

2. Arms

3. Turn hand and arms over

4. Backside of hands and arms (pause at each elbow)

5. Top and sides of head, face (pause at mouth and nose for approximately five seconds; this may indicate internal contamination)

6. Front of the neck and shoulders

7. Arms (pause at each elbow)

8. Chest and front abdomen

9. Front of the legs (pause at each knee)

10. Shoe tops

11. Shoe bottoms (pause at sole and heel)

12. Have the person being surveyed turn around

13. Back of the head and neck

14. Back and rear of abdomen (pause at the seat of pants)

15. Back of the legs

16. Any dosimeters worn by the person being surveyed. If the dosimeter is not contaminated, give it back to the person.

Return the probe to its holder on the meter when finished. Do not set the probe down on the ground. The probe should be placed in the holder with the sensitive side of the probe facing to the side so that the next person to use the meter can monitor his/her hands before handling the probe.

The most common mistakes made during the survey are:

- Holding the probe too far away from the surface (should be about 1/2 inch or less)
- Moving the probe too fast (should be about one-probe diameter per second or 1 to 2 inches per second)

Personnel Contamination Log

Name of person suspected of being contaminated: _____

Address & Phone number of person:

Date and time of survey: : ____(mo.) / ____ (day) / ____ (yr.); ___:___ (military time)

Survey performed by: _____

Where was person and what was person doing during incident:

Body contamination data

Instrument number	Time	Location on diagram	Results

Instruments used:

#	Manufacturer	Model	Serial #	Check source reading	Probe, if separate Manufact./Model#
1					
2					
3					
4					

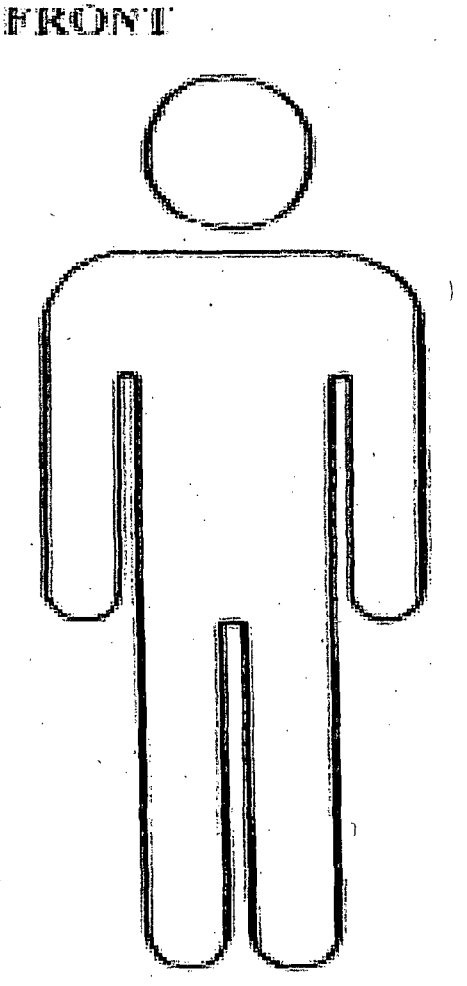
Bioassay Collected? _____ Yes _____ No

Background Reading:_____

Contamination Trip Level: _____

Personnel Contamination Log

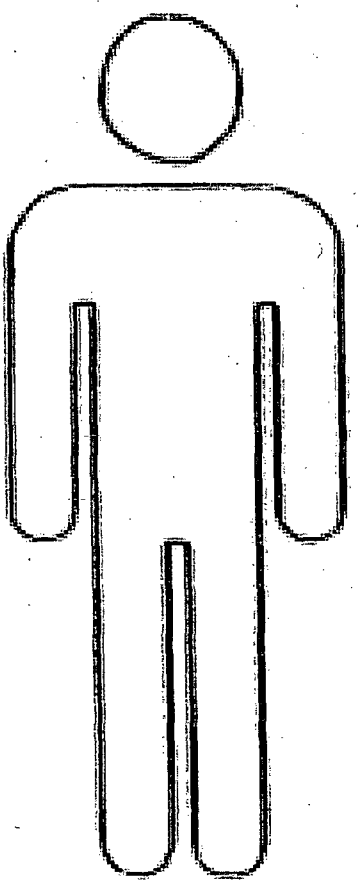
Mark diagram below with letters to designate areas of the body that are contaminated



Personnel Contamination Log

Mark diagram below with letters to designate areas of the body that are contaminated.

BACK



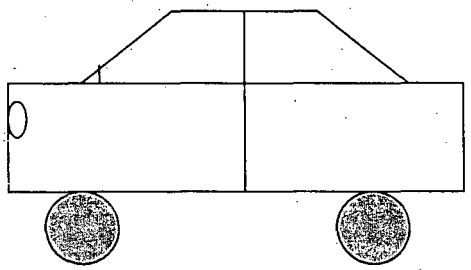
Vehicle Contamination Survey Sheet

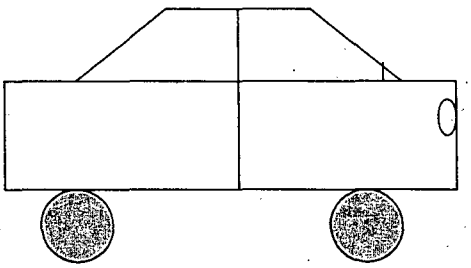
Name_____ Date/Time:_____ Team:_____
Mark contamination locations on the diagrams below

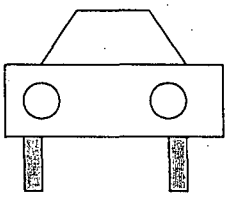
Measurements: Inside/Outside

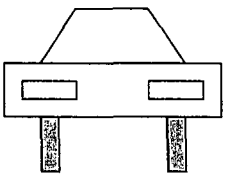
1._____
2._____
3._____
4._____
5._____
6._____
7._____
8._____

Monitored By:_____
Instrument Type:_____
Serial Number:_____
Probe Type:_____
Background Reading:_____
Contamination Trip Level:_____
(Comments on back of form)







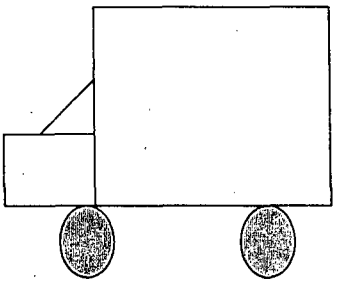


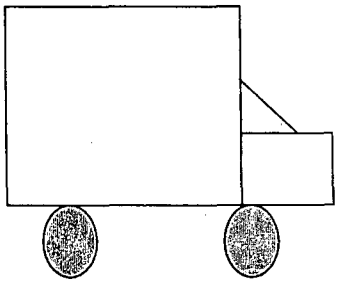
Vehicle Contamination Survey Sheet

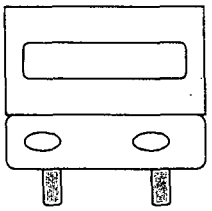
Name_____ Date/Time:_____ Team:_____
Mark contamination locations on the diagrams below

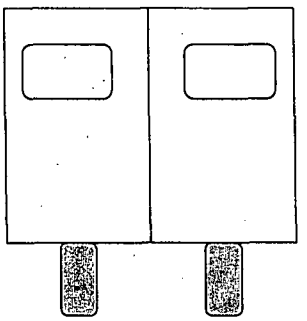
Measurements: In/Out
1._____
2._____
3._____
4._____
5._____
6._____
7._____
8._____

Monitored By:_____
Instrument Type:_____
Serial Number:_____
Probe Type:_____
Background Reading:_____
Contamination Trip Level:_____
(Comments on back of form)









PERSONNEL DECONTAMINATION

Begin with the first listed method for that body part and then proceed step by step to the more severe methods, as necessary.

Method	Body Part	Action	Technique	Advantages	Disadvantages
1. Masking Tape **(It is acceptable to skip this step and start with soap and water)**	Clothes Skin and hands unless the area is sensitive or has a lot of hair	Removes contaminated dust and dirt	Use the "sticky" side of a reverse rolled piece of masking tape to remove dirt and any loose contamination If a meter shows the contamination was not removed, then cleanse the area with moistened paper towels. Lukewarm water should be used, if possible. Do not use hot water (it opens pores in the skin)	Quick and effective for most radioactive contamination. Only generates very small amounts of contaminated liquid waste compared to washing.	some areas of skin are sensitive and can become irritated by the tape being pulled off. Will not work on liquid contamination.
2. Soap and Water	Skin and hands	Emulsifies and dissolves contaminates.	Wash 2 to 3 minutes and monitor. Do not wash more than 3 to 4 times. Do not use hot water (if opens pores in the skin). Use lukewarm water.	Readily available and effective for most radioactive contamination.	Continued washing will defat the skin. Indiscriminant washing of other than affected parts may spread contamination.

PERSONNEL DECONTAMINATION (continued)

Begin with the first listed method for that body part and then proceed step by step to the more severe methods, as necessary

METHOD	BODY PART	ACTION	TECHNIQUE	ADVANTAGES	DISADVANTAGES
3. Soap and Water	Hair	Same as above	Wash several times. Close eyes and mouth, and avoid getting runoff in eyes and mouth. If contamination is not lower to acceptable levels shave the heard and apply skin decontamination methods	Same as above	Same as above. **Any shaving must be done with care, preferably by medical personnel. Get permission of victim if possible.**
4. Lava soap, **soft** brush, water	Skin and Hands	Emulsifies, dissolves, and erodes contaminates.	use light pressure with heavy lather. Wash for 2 minutes, 3 times. Rinse and monitor. Use care not to scratch or erode the skin. Apply lanolin or hand cream to prevent chapping.	Readily available and effective for most radioactive contamination.	Continued washing will abrade the skin **Must be used with care, preferably by medical personnel.**
5. Tide ™ or other detergent (plain)	Skin and Hands	Same as above	Make into a paste. Use with additional water with a mild scrubbing action. Use care not be erode the skin.	Same as above.	Continued washing will abrade the skin. **Must be used with care, preferably by medical personnel.**

PERSONNEL DECONTAMINATION (continued)

Begin with the first listed method for that body part and then proceed step by step to the more severe methods, as necessary

METHOD	BODY PART	ACTION	TECHNIQUE	ADVANTAGES	DISADVANTAGES
6. Mixture of 50% Tide™ and 50% Cornmeal	Skin and Hands	Same as above	Make into a paste. Use with additional water with mild scrubbing action. Use care not be erode the skin.	Slightly more effective than washing with soap.	Will defat and abrade the skin. **Must be used with care, preferably by medical personnel.**
7. Sweating	Skin and hands and feet	Physical removal by sweating	Place hand or foot in plastic glove or booty. Tape shut. Place near source of heat for 10 to 15 minutes or until hand is sweating profusely. Remove glove and wash using standard techniques. Or gloves can be worn for several hours using only body heat.	Cleansing action is from the inside out. Hand does not dry out.	If glove or booty is not removed shortly after profuse sweating starts and parts washed with soap and water immediately, contamination may seep into the pores.

PERSONNEL DECONTAMINATION (continued)

Begin with the first listed method for that body part and then proceed step by step to the more severe methods, as necessary

METHOD	BODY PART	ACTION	TECHNIQUE	ADVANTAGES	DISADVANTAGES
8. Flushing	Eyes, ears, nose, and mouth. **(NOTE: This is the first method to use for the eyes, ears, nose, and mouth)**	Physical removal by flushing.	Roll back the eyelids as far as possible, flush with large amounts of water. If isotonic irrigants are available, obtain them without delay. Apply to eye continually and then flush with large amounts of water. (Isotonic irrigant [0.9% NaCl solution]: 9 grams NaCl in beaker, fill to 1,000 cc with water). Can be purchased from drug suppliers, etc.	If used immediately will remove contamination. May also be used for ears, nose, and throat.	When using for nose and mouth, contaminated individual should be warned not to swallow the rinses. **Must be used with care, preferably by medical personnel.**

Attachment RR102-3

RAMRAT Team Member(s):

Notified RAMRAT Lead of arrival at the scene: Date: Time:

Location of Incident:	**Type of location:**
Contact person: Name & Address:	Industrial Commercial Residential Public place
Conventional Hazards:	**Nature of Emergency:**
Fire Chemicals Explosives Other	Lost source Damaged Source Found Source Unknown Transport Other
Emergency Responders On Scene:	**Current status:**
NJDEP BER Police Fire Dept. County HAZMAT Other	Is access being controlled? Y N Actions to prevent exposure:
Source Details:	**Radiological hazards:**
Radionuclide(s) Sealed: Unsealed: Other	Significant radiation dose Release to the environment Inhalation hazard Contaminated areas Potential for dispersion

Radiation Survey Measurements

Instrument Type _____ Model _____ Serial # _____

Background Measurement _____

Distance	Measurement	Units
Contact		
1 foot		
1 meter		
Other		

Instrument Type _____ Model _____ Serial # _____

Background Measurement _____

Distance	Measurement	Units
Contact		
1 foot		
1 meter		
Other		

Instrument Type _____ Model _____ Serial # _____

Check Source Measurement _____ Background Measurement _____

Distance	Measurement	Units
Contact		
1 foot		
1 meter		
Other		

Diagram of the Source and Surrounding Area

Nuclide Identification	**Nuclide Identification**
Instrument: (Make, Model and Serial #)	Instrument: (Make, Model and Serial #)
Nuclide(s)	Nuclide(s)

Person(s) Interviewed:

Name	**Affiliation**	**Phone Number**

Comments:

Signature:	**Date:**

Wipe Sample Collection and Analysis (taken from BNE SOP-361)

1.0 Objective

The purpose of this procedure is to describe the proper methodology for detecting removable contamination and the gross activity of the samples from exposed surfaces after a radiation incident.

2.0 Instructions, Equipment and Instrument Checks

2.1 Wipe samples should be collected at all sampling sites where deposition may have collected (e.g. top of cars, picnic tables or horizontal surfaces).

2.2 The Team Leader must ensure that the proper sampling equipment has been secured and all equipment is operable. The following specific equipment is needed for wipe sampling:

- Smear discs and sample envelopes
- Template (100 cm^2)
- Sample Labels

2.3 Instrument Pre-operations Checks: Pre-operational instrument and response checks should be conducted prior to dispatching into the field; use SOP RR104-20.

2.4 Wipe Sample Procedure

2.4.1 Obtain smear discs, template and sample envelopes.

2.4.2 Using a wipe smear disc, select a horizontal surface such as a vehicle hood or roof to obtain a sample of 100 cm^2. A 100 cm^2 sample may be obtained by the following methods:

- Wipe a smear disc in a lazy "S" pattern approximately 16 " long.
- Smear an area of approximately 4 inches by 4 inches.
- Use a template with an inside area of 100 cm^2.

2.4.3 After the required sample amount is collected, place the wipe sample in the plastic sample bag (bag #1), point the opening of the bag away from you and compress the excess air out of the bag. Seal the opening by folding the end of the bag and sealing it with duct tape or a twist tie.

2.4.4 Attach a completed preprinted label to the bag (bag #1) with the following information.

- Sample location
- Sample type
- Sample number
- Sample size/weight/volume
- Geographic coordinates (recorded from GPS units, if available)
- Sample team
- Current date and time

2.4.5 Upon entering the field vehicle, place the labeled sample (bag #1) into another plastic bag (bag #2) and seal with tape.

2.4.6 A Request for Analysis and Chain of Custody Record and any other required forms must be completed for each sample collected. The form must accurately identify each sample and be verified by another RAMRAT team member. All completed forms will be kept together until the samples are transferred.

2.4.7 For convenience during transportation, multiple samples already double bagged may be placed in a container. However, each time a sample is transferred to another person, the sample's Request for Analysis and Chain of Custody Record must be signed.

2.4.8 Upon transferring the sample to the sample custodian at the Remote Radiological Environmental Assessment Laboratory (RREAL) or other facility, each double bagged sample should be placed in another plastic bag (bag #3) and sealed with tape by the sample custodian.

2.4.9 The appropriate Request for Analysis and Chain of Custody Record must be signed and transferred to the sample custodian along with each sample.

2.4.10 After the last sample is taken in the area, clean and decontaminate all equipment using the supplied clean water, wash and paper towels (refer to BNE SOP-363, Field Equipment Decontamination). Tools should then be placed in a plastic bag. Dispose all contaminated materials (tape, paper towels etc.) in a large plastic bag designated for radioactive waste.

2.4.11 Contaminated clothing (gloves and booties) should be disposed with other radioactive waste materials and replaced with clean sets.

2.4.12 Contact the RAMRAT Supervisor to report sampling location and information and request further instructions.

Proceed to the next sampling location or deliver all samples as directed by the RAMRAT Supervisor.

OPERATING THE GR-130 "Exploranium" GAMMA-RAY SPECTROMETRY SYSTEM

CONTROL BUTTON (CB) ACTION

The GR-130 has only one operating control – the rubber-covered control button (CB) with four actions – UP (forward-toward front of unit); DOWN (backward-toward rear); LEFT and RIGHT. A short, quick CLICK UP or CLICK DOWN is used to move the cursor and highlight desired menu items. A LONG DOWN (backward for one-second) activates the selection.

TIME-OUT

Unit has an automatic time-out function, which will turn the unit off if left in any menu position 2.5 minutes. To continue where you left off use a LONG DOWN (backward for one-second) and unit returns to the menu you were working in and you can continue from that point.

1. TO TURN ON SYSTEM

A CLICK DOWN (backward) of the CB toward the position on the handle marked ON will activate the unit and identify either the Main Menu or Analysis Menu at top of listed items. If in Analysis mode, highlight Main Menu and press LONG DOWN.

2. TO STABILIZE UNIT

Highlight STABILIZATION by scrolling through Main Menu. Then use a LONG DOWN to display stabilization instructions using the Cs-137 source. Insert source in hole of yellow boot at front of analyzer with source label facing instrument. Press LONG DOWN. When display reads "Stabilization OK" use a LONG DOWN to return to main menu. Stabilization takes from ~ 0.5 to 2.0 minutes.

3. TO ANALYZE SAMPLE

Scroll through menu if necessary to highlight ANALYSIS. With the GR-130 detector facing the radiation source, use a LONG DOWN to acquire a spectrum. The screen will show peaks forming, followed by Analysis Menu.

4. TO SEE SPECTRUM

Highlight SEE SPECTRUM and use LONG DOWN to display peaks. Shaded peaks identify sample energies). Left or right movement of the CB can be used to position the cursor over a peak and read the energy in KeV (denoted as EN). Up or down movement of the CB can be used to increase or decrease peak height.

5. TO PERFORM PEAK ANALYSIS

LONG DOWN to return to Analysis Menu and highlight PEAK ANALYSIS. LONG DOWN and display will compute and list the peaks in KeV (denoted as PPKeV).

6. TO PERFORM NUCLIDE IDENTIFICATION

LONG DOWN to return to Analysis Menu and highlight NUCLIDE IDENT. LONG DOWN and display will list nuclides identified.

7. TO PERFORM ADDITIONAL ANALYSIS

Highlight RETURN, use a LONG DOWN to return to Analysis Menu. Highlight START MEAS, click down to start analysis. After spectrum has been acquired, unit returns to Analysis Menu. At this point go to step # 4 above.

8. TO TURN OFF SYSTEM

Return to Main Menu. Move CB up and hold it in OFF position while display counts down 3-2-1 and shuts down.

Operating the identiFINDER GAMMA-RAY SPECTROMETRY SYSTEM

1. **To turn on the system**
   To switch on the instrument, press the bottom button marked with the red circle. The display will show the serial number and the software installed and, in parallel will start measuring the spectrum of the gamma calibration source. If not interrupted, the calibration will be completed after approximately 90 seconds. After confirming the calibration, the identiFINDER automatically enters the dose rate mode. The dose rate mode is the starting position for all other identiFINDER features.

   BATTERY INDICATION - The number in the battery icon in the upper left corner of the display is the actual battery voltage. The typical battery life for fully charged batteries is around 7 hours. As the battery level drops, a "Low Battery Warning" will appear, usually around 4.5V. At this time, there are only a few minutes left to save your data and then connect the charger.

2. **To measure Background**
   To measure background from the dose rate mode, press the "L" button on the far left of the button pad with the word "FINDER" on the screen above the button. It will take 10 seconds to measure background.

3. **To analyze a Sample and perform Nuclide Identification**
   After background has been measured, press the "M" button in the middle of the button pad with the letters "IDENT" on the screen above that button and point the identiFINDER towards the radiation source to begin analysis.

   By pressing the "M" key and beginning the analysis, you have entered the Automatic Nuclide Identification Mode. The instrument will acquire the gamma spectrum of the unknown source/contamination for the set acquisition time. The actual count rate (cps) is shown together with the remaining acquisition time(s). If the count rate is too small, a message "MOVE CLOSER TO SOURCE" will appear. If the count rate is too high, the message "MOVE AWAY FROM SOURCE" will be shown. The optimum results will be obtained when the count rate is within the range indicated by the 2 arrows.

   Upon completion of the count, spectrum results are displayed as one of three possibilities: 1) "Low activity! Do you want to continue?" Not enough counts or data was acquired to make an accurate identification. Either the count time was too short or the level of radioactivity was too low. Select "Yes" to recount, the data will be added to the data acquired during the first run. Select "No" to exit and return to dose rate mode, where you can then increase the count time and/or move the detector closer to the source 2) "Nuclide Listing: Not in Library" Acquired sufficient data, but

didn't locate a matching spectrum in the selected library. Possible cause: Source is an irresolvable mixture of radioisotopes, heavily shielded, or the library should be changed (see included procedure to change the isotope library of a saved spectrum) Select Exit to return to the dose rate mode 3) "Nuclide Listing:" Successful identification is displayed and rated between 1 (unlikely) and 10 (very likely). A probability rating less than 6 should be discontinued and analysis should be further evaluated.

4. **To see/save Spectrum**
   After a successful or unsuccessful identification, the operator can see the spectrum by pressing the "L" key with the word "SPECTRUM" on the screen above or the spectrum can be saved by pressing the "M" key with the word "SAVE" on the screen above. The spectrum can also be saved after viewing by pressing the "R" key on the right with the word "EXIT" on the screen above. The next screen will prompt you as to how to save the spectrum. The desired command on the bottom of the screen corresponds with its function key below.

5. **To perform additional Analysis**
   Press the "R" key with the word "OPTIONS" on the screen above to open the OPTIONS menu. In the OPTIONS mode, five different entries can be selected: Advanced Options, Dose/GM Display, Finder Options, Doserate Options, and Alarm Options. Refer to the manual for the capabilities within each "Option". Use the "L" key to scroll Down and then the "M" key to SELECT.

6. **To change the Acquisition Time**
   To change the acquisition time, select "OPTIONS" (R key) from the Dose Rate or Finder Mode to open the Options Menu. "Select" (press the M key) Advanced Options on the Options Menu. Scroll down (L key) to Identify Options and press "Select" (M key). Press "select" again to Identify Settings. Time (seconds) will be highlighted. Press "select" (M key) to change the time by using the L key to increase the acquisition time and the R key to decrease the time, and then press the M key to ACCEPT the desired time.

7. **To turn off System**
   Press and hold the bottom button with the red circle to turn the instrument off. The screen will read POWER OFF.

Procedure for Saving a Spectrum, Recalling a Saved Spectrum and Changing the Isotope Library of a Saved Spectrum for Identification

I. To Save a Spectrum:

1. After a sample has been collected, the identiFINDER will attempt to identify the nuclide.
2. To save this spectrum, Press "Save".
3. The IdentiFINDER will save that spectrum as a number (Ex. No.5). Press "Save". The spectrum is now saved under that number (Ex. No. 5).

II. To Recall a Saved Spectrum:

1. Press "Options"
2. Select "Advanced Options"
3. Select "Show Spectrum"
4. To recall a saved spectrum, Press "Skip" 3 times (you will see "Load" above the "R" button). Press "Load"
5. To recall a specific spectrum, Press "Skip" until the Spectrum No. that you want appears (Ex. 5). (Also the date and time will appears as dd/mm/yy and time expressed in a 24 hour clock) Press "Load" and the spectrum will appear.

III. To Change the Isotope Library of a Saved Spectrum:
(Note: to be used when the initial sample analysis does not identify the nuclide)

1. After saving the spectrum using the procedure outlined in "I." above, press "Options".
2. Select "Advanced Options"
3. Select "Identify Options"
4. Select "Identify Settings"
5. Select "Library"
6. Change library and Press "Accept"
7. Press "Back" 2 times
8. Select "Show Spectrum"
9. Recall the saved spectrum, using the procedure outlined in numbers 4 and 5 in II. above.
10. Press "Skip" 1 time and Press "Identify". identiFinder will analyze the recalled spectrum using the newly selected library.
11. If spectrum is still not identified, you will need to "Exit" the spectrum and try again using a different library.

Note: Except for I-123, all nuclides are in the OSI, Industrial, Customs or EOD libraries (I-123 is in the Medical library)

Operating the identiFINDER ULTRA GAMMA-RAY AND NEUTRON SPECTROMETRY SYSTEM

1. **To turn on the system**
   To switch on the instrument, press and hold the bottom button marked with the red circle until the Red Alarm LED lights, then release to turn on. The display will show the startup screen, followed by the initialization screen. If not interrupted, the calibration will be completed after approximately 90 seconds. After confirming the calibration, the identiFINDER automatically enters the dose rate mode. The dose rate mode is the starting position for all other identiFINDER modes and features.

   BATTERY INDICATION – The number in the battery icon in the upper left corner of the display is the actual battery voltage. The typical battery life for fully charged batteries is around 10 – 12 hours. As the battery level drops, a "Low Battery Warning" will appear, usually around 4.5 V. At this time, there are only a few minutes left to save your data and then connect the charger or replace the batteries. If left ON without the charger connected the unit will automatically shut down. If the voltage drops below 3.9V, the device will switch off immediately.
   On the back side of the device, two LED lights are indicating the state of the charging: The green LED on the right hand side illuminates when the external power supply is connected to the identiFINDER, the orange LED on the left hand side is switched on only while the powerPACK plus is currently being charged up.

2. **To measure Background**
   To measure background from the dose rate mode, press the "L" button on the far left of the button pad with the word "FINDER" on the screen above the button. It will take 10 seconds to measure background.

3. **To analyze a Sample and perform Nuclide Identification**
   After background has been measured, press the "M" button in the middle of the button pad with the letters "IDENT" on the screen above that button and point the identiFINDER towards the radiation source to begin analysis.

   By pressing the "M" key and beginning the analysis, you have entered the Automatic Nuclide Identification Mode. The instrument will acquire the gamma spectrum of the unknown source/contamination for the set acquisition time. The default count time is set for 30 seconds. The actual count rate (cps) is shown together with the remaining acquisition time(s). If the count rate is too small, a message "MOVE CLOSER TO SOURCE" will appear. If the count rate is too high, the message "MOVE AWAY FROM SOURCE" will be shown. The optimum results will be obtained when the count rate is within the range indicated by the 2 arrows.

Upon completion of the count, spectrum results are displayed as one of three possibilities: 1) "Low activity! Do you want to continue?" Not enough counts or data was acquired to make an accurate identification. Either the count time was too short or the level of radioactivity was too slow. Select "YES" to recount, the data will be added to the data acquired during the first run. Select "NO" to exit and return to dose rate mode, where you can then increase the count time and/or move the detector closer to the source. 2)"Nuclide Listing: Not in Library" Acquired sufficient data, but didn't locate a matching spectrum in the selected library. Possible cause: Source is an irresolvable mixture of radioisotopes, heavily shielded, or the library should be changed (see included procedures to change the isotope library of a saved spectrum). 3)"Nuclide Listing:" Successful identification is displayed and rated between 1 (unlikely) and 10 (very likely). A probability rating less than 5 should be discontinued and analysis should be further evaluated. For all three options, select Exit, by pressing the button on the right labeled "R", to return to the dose rate mode.

4. **To see/save Spectrum**
   After a successful or unsuccessful identification, the operator can see the spectrum by pressing the "M" key with the world "SPECTRUM" on the screen above. The spectrum can be saved by pressing the left key labeled "L" three times with the world "SKIP" on the screen above and then the middle key labeled "M" with the word "SAVE" on the screen above.

5. **To perform additional Analysis**
   Press the "R" key with the word "OPTIONS" on the screen above to open the OPTIONS menu. In the OPTIONS mode, five different entries can be selected: More Options, Gamma/N Counting, Finder Options, Doserate Options, and Alarm Options. Refer to the manual for the capabilities within each "Option." Use the "L" key to scroll Down and the "M" key to Select.

6. **To change the Acquisition Time**
   To change the acquisition time, select "OPTIONS" ("R" key) from the Dose Rate or Finder Mode to open the Options Menu. Select (press the "M" key) "MORE OPTIONS" on the Options Menu. Scroll down ("l" key) to IDENTIFY OPTIONS and press "Select" ("M" key) to change the time by using the "L" key to increase the acquisition time and the "R" key to decrease the time, and then press the "M" key to ACCEPT the desired time.

7. **To turn off System**
   Press and hold the bottom button with the red circle to turn the instrument off. The screen will read POWER OFF.

Procedure for Saving a Spectrum, Recalling a Saved Spectrum and Changing the Isotope Library of a Saved Spectrum for Identification

I. To Save a Spectrum:

1. After a sample has been collected, the identiFINDER will attempt to identify the nuclide.
2. To save this spectrum, press by the "M" key with the world "SPECTRUM" on the screen above. Then press the left key labeled "L" three times with the world "SKIP" on the screen above and then the middle key labeled "M" with the word "SAVE" on the screen above.
3. The identiFINDER will save that spectrum as a number (Ex. No.5). Press the "L" button to "SAVE." The spectrum is now saved under that number (Ex. No.5)

II. To Recall a Saved Spectrum

1. Press "Options"
2. Select "More Options"
3. Select "Show Spectrum"
4. To recall a save spectrum, press "Skip" 3 times (you will see "Load" above the "R" button). Press "Load"
5. To recall a specific spectrum, press "Skip" until the Spectrum No. that you want appears (Ex. No.5). (Also the date and time will appear as dd/mm/yy and time expressed in a 24 hour clock). Press "Load" and the spectrum will appear.

III. To Change the Isotope Library of a Saved Spectrum:
(NOTE: To be used when the initial sample analysis does not identify the nuclide)

1. After saving the spectrum using the procedure outlined in "I" above, press "Options."
2. Select "More Options"
3. Select "Identify Options"
4. Select "Identify Settings"
5. Select "Library"
6. Change library by using the "+" and "-" symbols displayed above the "L" and "R" buttons, respectively. Then press "Accept" displayed over the "M" button.
7. Press "Back" 2 times
8. Select "Show Spectrum"
9. Recall the saved spectrum, using the procedure outlined in numbered 4 and 5 in "II" above
10. Press "Skip" one time and press "Identify". The identiFINDER will analyze the recalled spectrum using the newly selected library.
11. If spectrum is still not identified, you will need to "Exit" the spectrum and try again using a different library.

NOTE: The different libraries include the following: Customs (for customs authorities), OSI (on-site inspection), Nuclear (nuclear industry and research), Medical, Industrial, and EOD (explosive ordnance disposal). All libraries can be modified except the OSI library.

Operating Instructions

ORTEC Detective-EX Portable Gamma Nuclide Identifier and Neutron Detector

PART A

The ORTEC Detective-EX is a portable gamma nuclide identifier and neutron detector. It is to be used for rapid identification of the nuclide **after** the area has been surveyed and the location of the material is known (see SOP RR-102.)

While the Detective-EX is primarily an excellent gamma-ray spectroscopy system, it can be used as a survey instrument to locate a source and determine a dose rate (see **Part B**.)

1. Startup

The ORTEC Detective-EX is designed for continuous operation and will be fully charged and ready to be transported when you retrieve it from its storage location. Do not remove the Detective from the docking station to which it is securely strapped. The power cord and AC/DC Power Adaptor should be removed for transport, but brought along for possible use at the scene of the radiological emergency.

The accessory kit, located in the plastic crate adjacent to the Detective, must also be brought to the scene. This kit contains **connector cables** and a **battery belt** needed for providing external power to the Detective. You may also put the **power cord** and **AC/DC Power Adaptor** into this kit for transport.

The ORTEC Detective-EX functions as a portable, battery-operated instrument using the internal batteries and can last up to 3 hours from the time the unit is disconnected from the power source before additional power support is needed. The time remaining on the internal batteries is always displayed on the top right portion of the screen. DO NOT completely deplete the internal batteries as this will cause a lengthy delay before the instrument can be used again.

2. To Charge Battery

The docking station provides external power to simultaneously start and operate the Detective, as well as charge the internal battery. It must be noted that only external power can be used to cool the detector. The docking station can be powered from AC outlet or a 12 V vehicle cigarette lighter socket. While the Detective's internal battery is charging, the front panel red LED is lit. The red light will also flash if the instrument is removed from the station before it is fully charged. The green light is lit when the battery is fully charged.

The internal battery charge can be conserved during transport by connecting the automobile accessory adaptor to the **Power In** connector on the docking station and then into the 12 V automobile accessory socket. Alternatively, if the vehicle being used to transport the unit is equipped with a power inverter, the docking station can be plugged into the vehicle's electrical inverter outlet with the AC/DC Power Adaptor. The Power Adaptor and cords will be attached to the unit when you retrieve it from its storage location.

Battery belt and connector cables are provided to extend operating time in the field. The external battery will discharge first, and then the internal batteries will be used. The cable will be connected to the Detective itself at the **Input Power** socket.

3. To Check Calibration

While the Detective-EX is shipped pre-calibrated, it is strongly recommended that this calibration be checked before first use, and then rechecked periodically.

To perform the manual calibration check, tap the **Advanced** button on the *Survey Mode* screen, then hit **Calibrate**. A sealed ^{137}Cs calibration source is mounted on the top of the docking station's source holder on the front of the docking station. Position the ^{137}Cs source in front of the detector window and hit the **Start Calibration Now** button. While calibration is in progress, the time remaining before completion will be displayed. At the end of the calibration period, a message button will appear, indicating one of three things: calibration is OK, is usable but can be improved, or has failed. If calibration succeeded, the display will show the calibration adjustment (Cal. Adjust). If there is a message saying calibration can be improved, hit the **Apply New Calibration** button.

An **Unable to Check Calibration** message will be displayed when the calibration source has not been detected due to insufficient activity or too much distance between the detector and the source. Reposition the detector so that its end cap is close to the sealed ^{137}Cs calibration source mounted on the top of the docking station. When calibration is satisfactory, hit the **Back** button twice to return to the *Survey Mode* screen. Factory calibration settings can be restored at anytime by clicking the **Restore Default** button.

4. General Guidelines for Operation

The instrument should be positioned with the grey-capped detector pointing at the source and close enough for the instrument to gather data. This distance will vary with the strength of the source.

Using your fingers or the supplied stylus, select a function (e.g. **Search, Identify, Display**) by tapping or pressing on the "soft buttons" as presented on the display.

To return to the previous dialog screen, press the **Back** button. Values will not change if a screen is accidentally opened; just tap **Back** to return to the previous screen. All values from that previous screen will be retained.

A soft keyboard will appear at the bottom of the screen if numbers or text is needed. Tap the required numbers or letters, and then tap **OK**.

5. **Identify Mode**

Tap **Identify** from either the *Search Mode* or *Survey Mode* screen. The *ID Mode* screen is where the radionuclide(s) is identified and classified. The instrument begins collecting data immediately. The elapsed time is displayed in the top right corner of the screen, as well as the neutron count rate (cps) and gamma dose rate (mrem/hr).

If there is enough activity to make an identification, the Detective-EX will display one or more messages indicating the type of nuclides found (e.g., **Industrial**, **Medical**, **Nuclear**, **Nuclear Plutonium**, **Nuclear Uranium**, **Nuclear Neptunium**, **NORM**, **NORM-TH**, **Other**). It will also display the suspected nuclides, which are nuclides that have been identified, but the confidence level is not high enough for them to be listed as found.

Tap one of the displayed items to review the list of isotopes the Detective-EX suspects or identifies. You can select **Save** to save the spectrum to the internal memory. Select **Display** to enter *Display Mode,* or select **Back** to return to the initial *ID Mode* screen.

From the main *ID Mode* screen, selecting **Intense** will give you a list of the most intense gamma-ray peaks and the isotope that is associated with that peak.

5. **Display Mode**

The **Display** button is available on the startup, or *Survey Mode*, screen and on the *Found* screen. Tapping the **Display** button will switch you to the multi-channel analyzer (MCA) mode to show you the current spectrum in the live-spectrum memory. Tap **Back** to return to the previous screen.

The spectrum display has a vertical marker line and below the display is shown the position of the marker in the spectrum (in keV) and the counts in the marker channel. To move the marker, tap the position you want in the display area. The marker will jump to that location and the values will be updated. You can also press on the display area and drag the stylus to the left or right to the new location.

You can zoom in or out on a selected area of the spectrum with the >< or <> buttons.

6. **Save Spectrum**

To save a spectrum, tap the **Save** button, then tap the **Set** button. This will save the current spectrum under a file name in the format: **YYYY_MM_DD_HH_MM SSS.SPC.**

7. **Recall Spectrum**

Recalling spectrum can be done under the **Advanced** settings by tapping the **Spectra** button and then tapping **Display.** Choose the spectra by highlighting it with a tap, and then tap the activated **Choose** button.

Go to **PART B** for instructions on the **Survey** and **Search** operations.

Instructions for using the ORTEC Detective-EX for Survey and Search

PART B

1. Survey Mode

Survey Mode is the instrument's starting, or default, screen and the dialog display shows the overall status of the detector.

The three (3) "Rate" indicator boxes (neutron count rate, dose rate and gamma count rate) show the count rate or dose rate as a numerical value and as a color coded "thermometer." The bar that lists each rate changes color with increasing rate. Low rates are **green**, followed by **yellow** and, lastly, **red** as the rate increases.

Green triangles indicate very low rates.

WARNING!!! High Gamma Dose Rate! is displayed for gamma count rates greater than 20,000 counts per second (cps).

Tap **Search** to go to the *Search Mode*.

Tap **Identify** to go to the *ID Mode*.

Tap **Display** to display the current spectrum. Note: If the **Display** button is not shown, it has likely been disabled in Advanced Setup.

Tap **Advanced** to display the *Adv. Setup* dialog. Advanced dialog will provide access to calibrate the detector, adjust volume for headphones and check the detector's current diagnostic status.

2. Search Mode

Tap **Search** to display a chart showing total gamma and neutron count rate as time progresses. The chart constantly scrolls, with the newest data appearing at the left side of the screen. This allows the user to visually determine his/her proximity to a radioactive source emitting gamma-rays or neutrons (i.e. are you getting closer/further from the source?). The neutron count rate (cps) and gamma dose rate (mrem/hr) are also displayed at the top of the screen.

Gamma counts are displayed in blue (scaled vertically from 0 to 10,000 cps) and neutron counts are displayed in red (scaled vertically from 0 to 500 cps). NOTE: the vertical black line is the "Marker" on the graph from which the computer reports the counts; therefore the user should drag this line to the left side of the screen if they would like to know the count rate in real time. Otherwise, there is a lag time of about 30 seconds.

Tapping **Save** allows you to save the survey mode data, but it will only save the data displayed in the screen (the most current 221 reports of count rate, or about one minute of data). This function is not necessarily important.

Tapping **Pause** will stop data acquisition and tapping **Continue** will start data acquisition.

Once a source is located on the *Search Mode* screen, you can select **Identify** at the right of the screen to access the *ID Mode* screen.

Operating Instructions

Canberra Inspector 1000 NaI Spectrometer

PART A

1. **Attaching the NaI Probe**
   Before turning on the instrument, the NaI probe must be attached. Plug the cord into the bottom of the Model IPROS-2 probe (red boot on top) and into the bottom of the meter where it is marked "DET." The probe will clip onto the right side of the meter with a push.

2. **To turn on the Inspector 1000**

   To switch on the instrument, press the **top button which is circled in white**. Startup takes about 30 seconds, after which the Gamma Dose Rate screen is displayed. This is the Monitor mode and background dose rate is shown.

   BATTERY INDICATION: There is a battery icon in the lower right of this screen to display battery life remaining.

3. **Locate**

   Press the **Enter** button, which is the **large button circled in green**. Scan the area with the probe until the displayed count increases.

4. **Identify**

   Press the **Enter** button to enter data collection mode. Then press the **Enter** button one more time to start to acquire data. The instrument will collect data for two minutes and the screen displays time remaining for acquisition to finish.

   When acquisition is complete, the instrument may take up to two minutes to process the data. Then the nuclide(s) identified will appear in the table format on the screen along with the dose rate, estimated activity and % error.

5. **View/Save Spectrum**

   Press the **Up Arrow button marked with a blue circle** to access the menu bar. Select SPEC, then FILE, then SAVE.

   Press the **Home** button, which is the large **button with a house circled in purple**, to return to the Monitor mode.

6. Turn off the Inspector 1000

Hold down the **top button which is circled in white** until the instrument shuts down.

GO TO PART B FOR INSTRUCTIONS ON:

- **RECALLING A SAVED SPECTRUM**
- **CLOSING AN OPEN SAVED SPECTRUM FILE**
- **CHANGING THE REFERENCED ISOTOPE LIBRARY**

Operating Procedures

Canberra Inspector 1000 NaI Spectrometer

PART B

1. To Recall a Saved Spectrum:

a. Press the **"up" arrow button** on the left side of the instrument. A tool bar will appear at the bottom of the screen.

b. Press the **"Spec" button** on the tool bar. It is on the right hand side of the tool bar. A different tool bar will appear on the bottom of the screen.

c. Press the **"File" button** on the tool bar. It is the button second from the left. Another tool bar will appear.

d. Press the **"Open" button** on the tool bar. It is the button second from the left. A final tool bar will appear.

e. Press the **"Spectrum" button** on the tool bar. It is on the left hand side. A list of file names will appear on the screen. Use the **"up" and "down" arrow keys** on the left side of the instrument to highlight the file you wish to open. If the file does not appear on the screen, use the **"forward"** or **"back"** arrow buttons to move through the listing of saved files, then use the **"up"** and **"down"** arrow keys to highlight the file you wish to open.

f. Once the file is highlighted, tap on it using a stylus or your fingernail. This will open the file and you will be able to view the saved spectrum. Remember to close the file that contains the spectrum after you have finished reviewing it.

2. To Close an Open Saved Spectrum File:

a. With the spectrum file open, press the **"up" arrow button** on the left side of the instrument. A tool bar will appear on the bottom of the screen.

b. Press the **"Spec" button** on the tool bar. It is on the right hand side of the tool bar. A different tool bar will appear on the bottom of the screen.

c. Press the **"File" button** on the tool bar. It is the button second from the left. Another tool bar will appear.

d. Press the **"Close" button** on the tool bar. It is the button second from the right. The file will close and the spectrum will disappear from the screen.

3. To Change the Referenced Isotope Library:

a. Press the **"Enter" button** and the **"Home" button** at the same time. A tool bar will appear at the bottom of the screen. Hit the **"Next" button** located at the right hand side. Another tool bar will appear.

b. Press the **"Spec Setup"** button. It is second from the left. The "Peak Analysis" screen will appear.

c. Press the **"Next"** button on the bottom right of the screen. The "NID Analysis" screen will appear. Using your fingernail or a stylus, tap on the field to the right of the heading "Library." The field will become highlighted.

d. Use the **"up" or "down" arrow buttons** on the InSpector 1000 (on the left hand side of the device itself, **not** the buttons on the bottom of the screen) to scroll through the different isotope libraries until you come to the library you want to use.

e. Tap the **"Apply" button** on the bottom of the screen. It's the button second from the left. This will direct the device to use the library you select and save your selection. The device will use this library until another is chosen.

f. After the "apply" button has been pressed, press the **"Quit" button**. It's the button second from the right. You will then return to the dose rate screen.

Gamma Constants (Γ) for One Curie of Some Radionuclides
(taken from Radiological Health Handbook, 1970 and modified to fit table parameters)

Nuclide	$\frac{R\text{-}m^2}{hr\text{-}Ci}$ @1m	$\frac{R\text{-}ft^2}{hr\text{-}Ci}$ @1ft.	Nuclide	$\frac{R\text{-}m^2}{hr\text{-}Ci}$ @1m	$\frac{R\text{-}ft^2}{hr\text{-}Ci}$ @1ft.	Nuclide	$\frac{R\text{-}m^2}{hr\text{-}Ci}$ @1m	$\frac{R\text{-}ft^2}{hr\text{-}Ci}$ @1ft
Actinium-227	~0.22	~2.4	Gold-198	0.23	2.48	Potassium-42	0.56	6.0
Antimony-122	0.24	2.6	Gold-199	~0.09	~1.	Radium-226	0.825	8.88
Antimony-124	0.98	10.5	Hafnium-175	~0.21	~2.3	Radium-228	~0.51	~5.5
Antimony-125	~0.27	~2.9	Hafnium-181	~0.31	~3.3	Rhenium-186	~0.02	~.2
Arsenic-72	1.01	10.9	Indium-114m	~0.02	~.2	Rubidium-86	0.05	.5
Arsenic-74	0.44	4.7	Iodine-124	0.72	7.8	Ruthenium-106	0.17	1.8
Arsenic-76	0.24	2.6	Iodine-125	~0.07	~.8	Scandium-46	1.09	11.7
Barium-131	~0.30	~3.2	Iodine-126	0.25	2.7	Scandium-47	0.056	.60
Barium-133	~0.24	~2.6	Iodine-130	1.22	13.1	Selenium-75	0.20	2.2
Barium-140	1.24	13.3	Iodine-131	0.22	2.4	Silver-110m	1.43	15.4
Beryllium-7	~0.03	~.3	Iodine-132	1.18	12.7	Silver-111	~0.02	~.2
Bromine-82	1.46	15.7	Iridium-192	0.48	5.2	Sodium-22	1.20	12.9
Cadmium-115m	~0.02	~.2	Iridium-194	0.15	1.6	Sodium-24	1.84	19.8
Calcium-47	0.57	6.1	Iron-59	0.64	6.9	Strontium-85	0.30	3.2
Carbon-11	0.59	6.4	Krypton-85	~0.004	~.04	Tantalum-182	0.68	7.3
Cerium-141	0.035	.38	Lanthanum-140	1.13	12.2	Tellurium-121	0.33	3.6
Cerium-144	~0.04	.4	Lutecium-177	0.009	.1	Tellurium-132	0.22	2.4
Cesium-134	0.87	9.4	Magnesium-28	1.57	16.9	Thulium-170	0.0025	.027
Cesium-137	0.33	3.6	Manganese-52	1.86	20.0	Tin-113	~0.17	~1.8
Chlorine-38	0.88	9.5	Manganese-54	0.47	5.1	Tungsten-185	~0.05	~.5
Chromium-51	0.016	.17	Manganese-56	0.83	8.9	Tungsten-187	0.30	3.2
Cobalt-56	1.76	18.9	Mercury-197	~0.04	~.4	Uranium-234	~0.01	~.1
Cobalt-57	0.09	1.0	Mercury-203	0.13	1.4	Vanadium-48	1.56	16.8
Cobalt-58	0.55	5.9	Molybdenum-99	~0.18	~1.9	Xenon-133	0.01	.1
Cobalt-60	1.32	14.2	Neodymium-147	0.08	.86	Ytterbium-175	0.04	.4
Copper-64	0.12	1.3	Nickel-65	~0.31	~3.3	Yttrium-88	1.41	15.2
Europium-152	0.58	6.2	Niobium-95	0.42	4.5	Yttrium-91	0.001	.01
Europium-154	~0.62	~6.7	Osmium-191	~0.06	~.6	Zinc-65	0.27	2.9
Europium-155	~0.03	~.3	Palladium-109	0.003	.03	Zirconium-95	0.41	4.4
Gallium-67	~0.11	~1.8	Platinum-197	~0.05	~.5			
Gallium-72	1.16	12.5	Potassium-42	0.14	1.5			

$ER = \Gamma A/d^2$

ER = Exposure Rate (R/h)
Γ = Gamma Constant (R-m^2/hr-Ci) or (R-ft^2/hr-Ci)
A = Activity (Ci)
d = Distance from the source in feet or meters

Example: At 4 feet away from an unshielded Ra-226 source (width of the source is less than 5 inches) the exposure rate is 56 mR/hr. What is the approximate activity of the source?

$ER = \Gamma A/d^2$ or

$$A = \frac{ER * d^2}{\Gamma}$$

$A = (.056)(16) / 8.88$

$= 0.1$ Ci or 100 mCi

If more than one nuclide is identified in the same area, then the activity can be estimated by using the most limiting gamma constant, that is, the one with the lowest value.

Example: At 4 feet away from an unshielded Ra-226 and Co-60 source (width of the source is less than 5 inches), the exposure rate is 100 mR/hr. What is the approximate activity of the each nuclide?

$ER = \Gamma A/d^2$ or

$$A = \frac{ER * d^2}{\Gamma}$$

$A = (.1)(16)/8.88$

$= 0.180$ or 180 mCi

Without any other information, you would assume there is a 1:1 ratio between the two nuclides, so your approximation would be 90 mCi of Co-60 and 90 mCi of Ra-226.

SOP RR103 Radiological Assessment and Protective Action Guidance

1.0 Objective

To provide guidance on how to use the available information and data to assess doses and recommend protective action for emergency workers and the public. Generally, there will be a RAMRAT member assigned to assessment tasks who may not be located at the incident site. RAMRAT team members should assure that data is made available to this person and that any requests for data be obtained as soon as possible.

2.0 Types of Data

2.1 Nuclide Identification and Activity

If the nuclide is a gamma emitter, then identification can be made with the portable gamma spectrometer (see Attachment RR102-5 for operating instructions). Once the nuclide is known, exposure rate readings can be used to calculate the activity of the source (see Attachment RR102-10 for Gamma Constant Calculation). See 3.2 below for further discussion on source term.

2.2 Exposure Rate Readings

Exposure rate readings should be taken at known distances from the source at centerline and at distances away from centerline. If there was air dispersion of the material, then measurements should be made at distances of 0.1, 0.2, 0.3 miles, etc. from the source in both the x and y directions. If a GPS unit is available, record latitude and longitude. Use Attachment RR103-1, Ground Truthing/Traversal Report, to record this information.

3.0 Assessment

3.1 Hotspot

Hotspot is a simple Gaussian air dispersion model that can be used for a general explosion (radiation dispersion device or dirty bomb), general fire, general resuspension, or general plume. Also available are models for plutonium or uranium explosions or fire, plutonium resuspension, and a tritium release. A nuclear detonation model is also included.

The many uncertainties associated with variables in the Gaussian model-fluctuations in the meteorological conditions or type of terrain-result in a degree of imprecision in calculated concentrations and radiation dose values. If inappropriate meteorological data, source-term assumptions, effective stack height, etc., are input into the programs, large errors are possible in the Hotspot estimates. Given accurate input assumptions, the standard deviation of the dose values as calculated in Hotspot is approximately a factor of 5 (some authors report a factor of 3). Therefore, 68% of the time (i.e., assuming a Gaussian distribution), the calculated dose values will be within a factor of 5.

Other percentages can be inferred from the Gaussian distribution. If D is the calculated radiation dose, then 50% of the time the true dose should lie between D/3 and 3D, and 80% of the time between D/8 and 8D. For example, if the calculated 50-year CEDE was 300 mrem at least half of the time you would expect the true value to lie between 100 mrem and 900 mrem. This level of accuracy is more than acceptable for emergency response and planning and is almost always less than the error associated with estimating the actual source term. More importantly, the Gaussian model will usually be conservative, i.e., produce dose estimates greater than the actual observed values.

32. Operating Guidelines for Hotspot

Input parameters needed to run Hotspot are shown in Attachment RR103-2. As much information as possible should be provided to the RAMRAT Assessor. Output can be viewed as a table, contour plot or linear plot. Examples are shown in Attachment RR103-3.

Generally the source term will not be known accurately. By the time the responder is present, much of the original material may already have been dispersed. However, since the Guassian model is linear, adjustment factors can be made to the Hotspot output tables from field data obtained in Attachment RR103-1, to get an estimate of the initial source term. This is why the accuracy of the exposure readings and distances are important.

The following is an example of how to adjust the source term to match the exposure readings from the field:

Go to the Output Tab and then select Table Output under Text Files (see Attachment RR103-3). The table includes a 4 day Total Effective Dose Equivalent (TEDE) in rem at selected distances from the source at centerline. The TEDE includes the inhalation component. The output table also includes the ground shine dose rate. This is the data that should be compared to the exposure rate readings received from the field.

The input to the model is 100 Curies of Cs-137. Hotspot predicts a dose rate of 2000 μR/h at 0.2 miles at centerline, but the responders are reporting values of 200 μR/h at 0.2 miles at centerline. Either all the data from the model output can be divided by a factor of 10 or the source term can be changed to 10 Curies and a new output generated. Several readings from responders should be obtained before making adjustments to the model.

4.0 Protective Action Guidelines

4.1 Once the model output is adjusted, the results (the 4 day TEDE) may be compared to Table 103-1 below for protective action recommendations (PARs). A Team Supervisor, Leader, or Manager may make protective action recommendations. It is always preferable for a Manager to issue the PARs. These PARs are recorded on Attachment 103-4 and given to the DEP lead at the site. If there is no DEP lead at the site, then the PARs are given to the on-scene coordinator who may be a police officer, radiation safety officer of a facility, Federal Bureau of Investigation staff member, etc.

Table 103-1: Radiation Protection Guidelines For Members of the Public*

Protective Action	PAG (projected dose)	Comments
Evacuation	1 – 5 Rem TEDE	Evacuation (or for some situations, sheltering) should normally be initiated at 1 REM
Evacuation	5-25 Rem CEDE	Evacuation (or for some situations, sheltering) should normally be initiated at 1 REM

*From EPA 400-R-91-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", Table 2

NOTE: Sheltering may be the preferred protective action when it will provide protection equal to or greater than evacuation, based on consideration of factors such as source term characteristics, and temporal or other site-specific conditions including severe weather, competing disasters, institutionalized personnel who are not readily mobile, and local physical factors which impede evacuation.

The evacuation PAG in the first row of Table 103-1 is the sum of the effective dose equivalent resulting from exposure to external sources and the committed effective dose equivalent (CEDE) incurred from all significant inhalation pathways during the first four days. As indicated in the second row in Table 103-1, an evacuation PAR can be made based on a CEDE only. The Hotspot model can calculate CEDE separately, or a total effective dose equivalent for a 4 day exposure. Refer to Attachment RR103-5 for Estimating CEDE for Inhalation based on laboratory data.

4.2 Release to Water

4.2.1 If significant radionuclide deposition occurs on surface waters intended for a human water supply (lake, river, or stream), emergency monitoring should include sampling at the raw water intake to the public water supply to determine if protective actions are required.

4.2.2 Surface water may be contaminated either by direct release of radionuclides to surface waters or by deposition from an atmospheric release. Spring and well water should not be affected by an accidental release of radioactive materials to the atmosphere or to waterways. Table 103-2 of this procedure, outlines the Protective Action Guides for Water.

4.2.3 Deposition from the airborne plume can result in contamination of soil surfaces or snowpack that might run off into lakes or streams that are part of the potable water supply. This includes runoff that may be significantly increased due to the environment. Since mixing and dilution of radioactivity will occur in the streams and lakes, and there will be an inherent time delay prior to public consumption. Contamination via this pathway should not result in an emergency problem, however, soil or snow samples can be analyzed and used to estimate the radionuclide concentration in water.

4.3 Derived Intervention Levels for Ingestion

4.3.1 The Food and Drug Administration (FDA) issued new ingestion guidance in August 1998, which defines the ingestion PAG as a committed effective dose equivalent (CEDE) of 500 mrem or a committed dose equivalent (CDE) to any specific organ of 5,000 mrem, whichever is more limiting. An ingestion DIL corresponds to the concentration of radioactivity in food, expressed as Becquerels/kilogram or picoCurie/kilogram, which could lead to an individual in the most sensitive population (e.g., a 1-year old child) receiving a dose equal to the PAG if no intervention were taken for the year. It is important to note that food intake is for the entire diet, not for any one type of food, and includes drinking water. The ingestion DILs are applicable to foods as prepared for consumption.

4.3.2 For a mixed population group, the protective actions for drinking water should be based on the "Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies", US Department of Health and Human Services, Food and Drug Administration, document issued on August 13, 1998, Table 2. This table is included as Table 103-2.

4.4 Decisions as to whether or not a particular water supply should be used will be based upon a judgment regarding the health benefits associated with the reduction in exposure to the population versus any undesirable health, economic and social affects the decision may have.

4.5 In situations involving the contamination of a water supply, protective actions that may be considered will include, but not necessarily limited to, the following:

4.5.1 Divert contaminated water and ration uncontaminated water already in the system.

4.5.2 Obtain an alternate uncontaminated water supply to replace or dilute water from contaminated supplies.

4.5.3 Chemically treat raw water at treatment facilities to eliminate or reduce the radionuclide concentrations to acceptable levels.

4.5.4 Time delay at the water treatment facility to allow decay of radionuclides, sedimentation of particulate, and other factors that may reduce the concentration of nuclides in the water supply.

4.5.5 Prohibit use of water for human consumption.

Table 103-2

Recommended Derived Intervention Level (DIL) or Criterion for Each Radionuclide Group [4, a, b]

All Components of the Diet

Radionuclide Group	Bq/kg	pCi/kg
Sr_{90}	160	4300
I_{131}	170	4600
Cs_{134} & Cs_{137}	1200	32,000
Pu_{238} & Pu_{239} & Am_{241}	2	54
Ru_{103} & Ru_{106}[c]	$C_{103}/6800 + C_{106}/450 < 1$	$C_{103}/180{,}000 + C_{106}/12{,}000 < 1$

4 Taken from Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations for State and Local Agencies, US Department of Health and Human Services, Food and Drug Administration, Document Issued on August 13, 1998, Table 2.

a The DIL for each radionuclide group (except for Ru_{103} & Ru_{106}) is applied independently. Each DIL applies to the sum of the concentrations of the radionuclides in the group at the time of measurement.

b Applicable to foods as prepared for consumption. For dried or concentrated food, such as powdered milk or concentrated juices, adjust the value by a factor appropriate to the reconstitution, assuming the reconstitution media is not contaminated. For spices, which are used in very small quantities, use a dilution factor of 10.

c Due to the large difference of DILs for Ru_{103} & Ru_{106}, the concentrations of Ru_{103} & Ru_{106} are divided by their respective DILs and then summed. The sum must be less than one. C_{103} & C_{106} are the concentrations, at the time of measurement, the Ru_{103} & Ru_{106}, respectively.

4.6 The Hotspot model does not include releases of radionuclides to surface or ground waters. Initially, estimates of the quantity of the nuclide(s) should be used along with any dilution (housing down an area that is contaminated with runoff to a body of water) to determine if the doses in Table 103-3 could be exceeded. If it is determined that these dose limits are exceeded, and the nuclides involved are not listed in Table 103-2, then precautionary protective actions should be taken as outlined in section 4.5 of this procedure. If the nuclides involved are included in Table 103-2, then these guidelines should be followed for Protective Action Recommendations.

4.7 Likewise, the Hotspot model does not predict doses based on ingestion of contaminated food. If contaminated food or milk is possible, then the products should be sampled and determined if doses in Table 103-3 would be exceeded. This is not an issue for the early phase of an incident. If it is determined that the PAGs are exceeded, then the appropriate protective actions listed in Table 103-4 should be implemented.

Table 103-3
Food and Water Ingestion PAGs

0.5 Rem (5mSv)*	Committed Effective Dose Equivalent
5 Rem (50mSv)*	Committed Dose Equivalent to an individual tissue or organ.

* Whichever is more limiting.

Table 103-4

Protective Action Recommendation (Food and Food Products)

Pasture	◆ Removal of lactating cows from contaminated pastures and substitution of stored feed or uncontaminated pastures ◆ Provide a source of contaminated water
Milk[a,b]	◆ Withhold contaminated milk from the market to allow radioactive decay of short-lived radionuclides. This may be achieved through storage of frozen fresh milk, frozen concentrated milk, or milk products ◆ Divert fluid milk for production of dry whole milk, non-fat dry milk, butter, or evaporated milk ◆ Use of contaminated milk may be acceptable for use in animal feed when the Radioactivity will not contribute additional radiation exposure to human populations ◆ Dispose of milk and milk products where radiation concentrations can not be reduced to acceptable levels and substitute with uncontaminated milk and milk products ◆ Place temporary embargoes on contaminated milk and milk products to prevent them from being introduced into commerce.
Fruits and Vegetables[b]	◆ Wash, brush, scrub, or peel vegetables and fruit to remove surface contamination ◆ Preserve fruits and vegetables through canning, freezing or dehydration or storage to permit the radioactive decay of short lived radionuclides ◆ Dispose of fruits and vegetables where radioactivity cannot be reduced to acceptable levels for human consumption ◆ Use temporary embargoes to prevent contaminated fruit and vegetables from Being introduced into commerce.
Grains[b]	◆ Mill products where applicable to reduce the amount of radioactive contamination ◆ Polish products where applicable to reduce the amount of radioactive contamination ◆ Store contaminated grain products to permit the radioactive decay of short lived radionuclides ◆ Use contaminated grain products as feed for animals in cases where the ingested contamination will not contribute additional radiation exposure to the public ◆ Use contaminated grains for seed ◆ Dispose of grains where the radioactivity cannot be reduced to acceptable levels ◆ Use temporary embargoes to prevent radioactively contaminated grains from entering into commerce.
Meat and Meat Products	Each decision for this category will be made on a case by case basis rather than global decisions throughout the IPZ. ◆ Divert meat and meat products to non-human consumption ◆ Store meats and meat products to allow the radioactive decay of short lived nuclides ◆ Dispose of meats and meat products where radioactivity cannot be reduced to acceptable levels for human consumption ◆ Use temporary embargoes to prevent radioactively contaminated meats and meat products.

[a] The diversion of fresh milk to milk products must continue until most of the projected dose has been avoided. This action may be ceased when the cost-effectiveness point is reached or the concentration of I_{131} approaches background levels. Since the supply of stored feed may be limited and the costs of this protective action greater than diversion to milk products, the use of stored feed may be the first action to be terminated.

[b] The option of processing food to reduce the amount of contamination at or below the level of the DILs presumes that facilities will accept contaminated raw food products and processing the c not cause excessive exposure to workers at the facility.

GROUND TRUTHING/TRAVERSAL REPORT

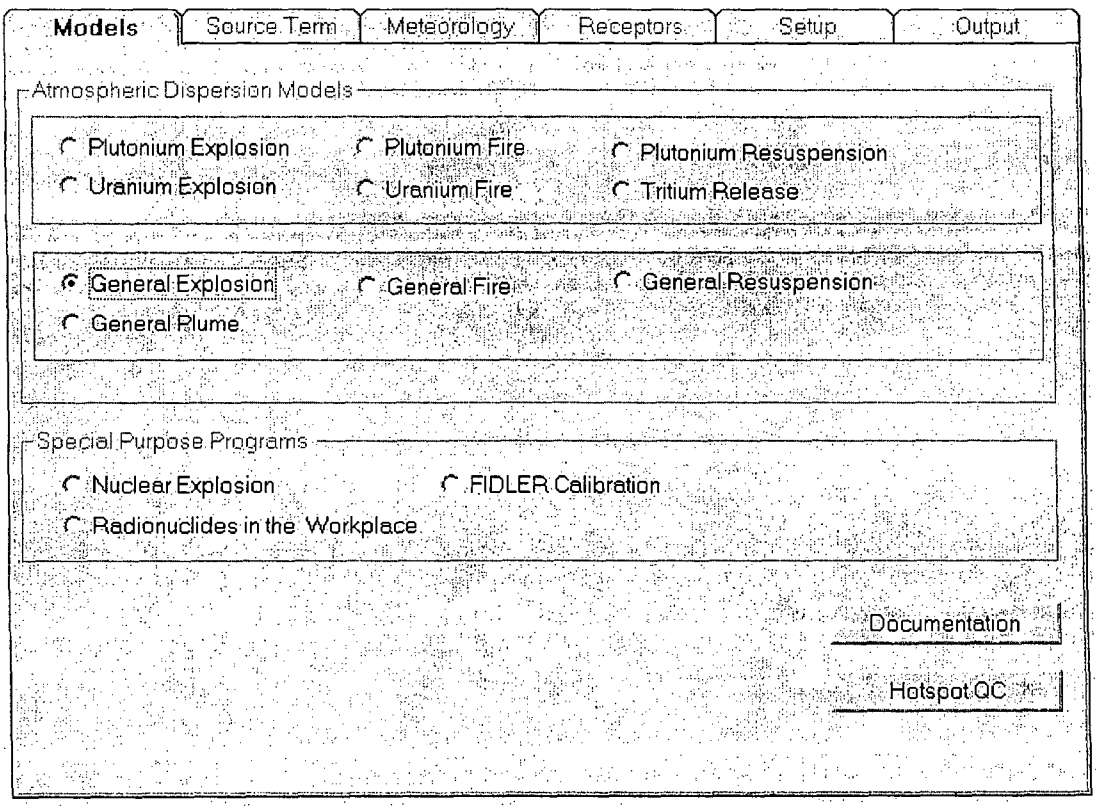
TEAM: _____ DATE: _____ TIME: _____

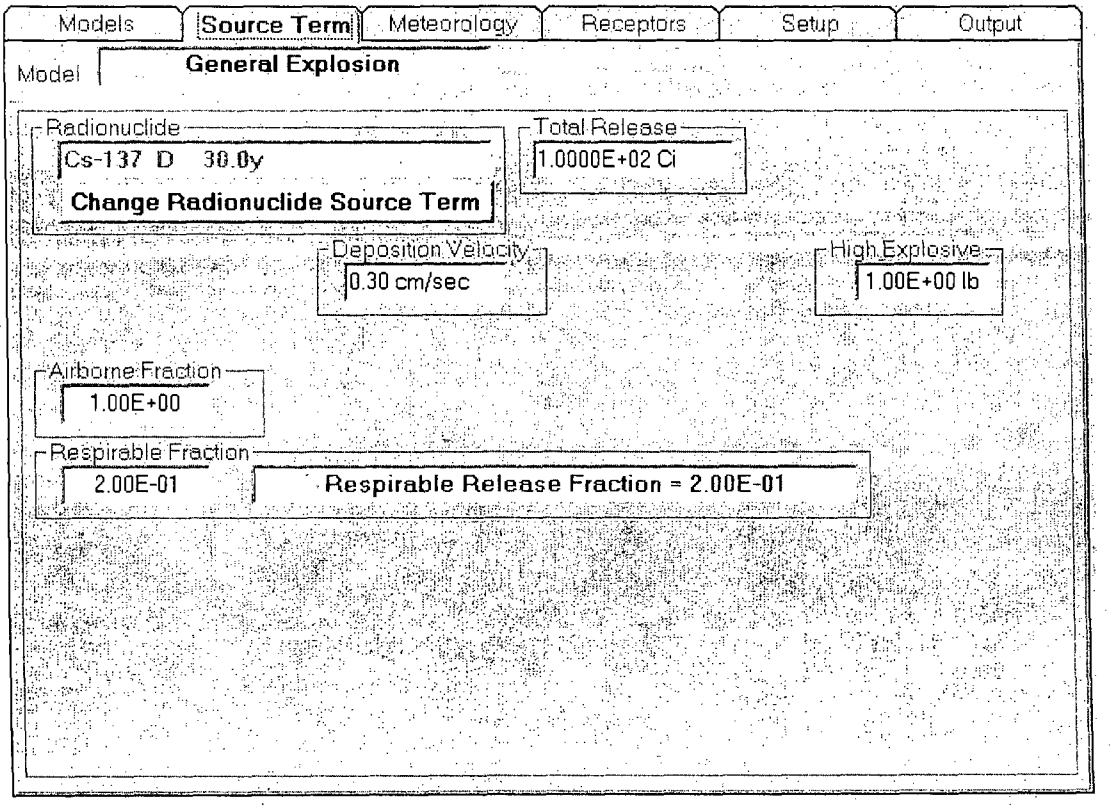
INSTRUMENT AND PROBE TYPE: _____ DOSIMETER READING: _____mR

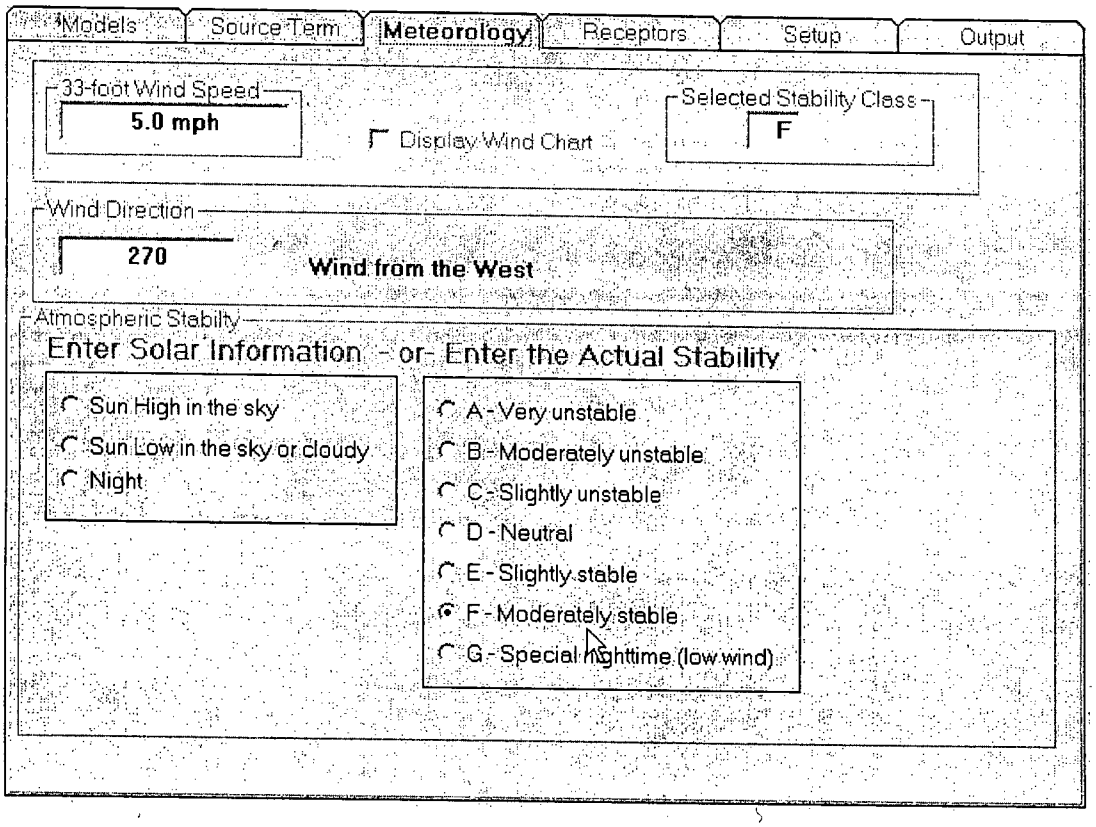
LOCATION/LANDMARKS	DISTANCE FROM SOURCE (miles)		GAMMA READING (uR/hr or mR/hr)
	x(lat.) from source	y (long.) from centerline	

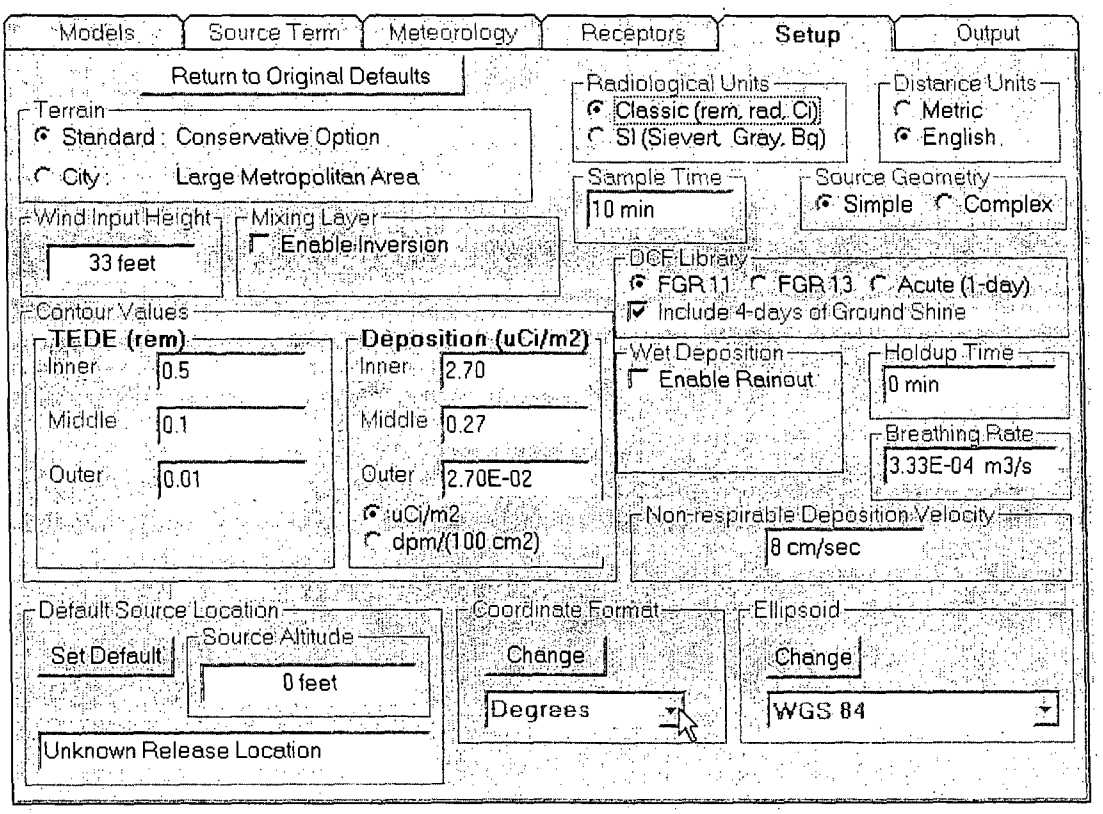
GROUND TRUTHING/TRAVERSAL REPORT

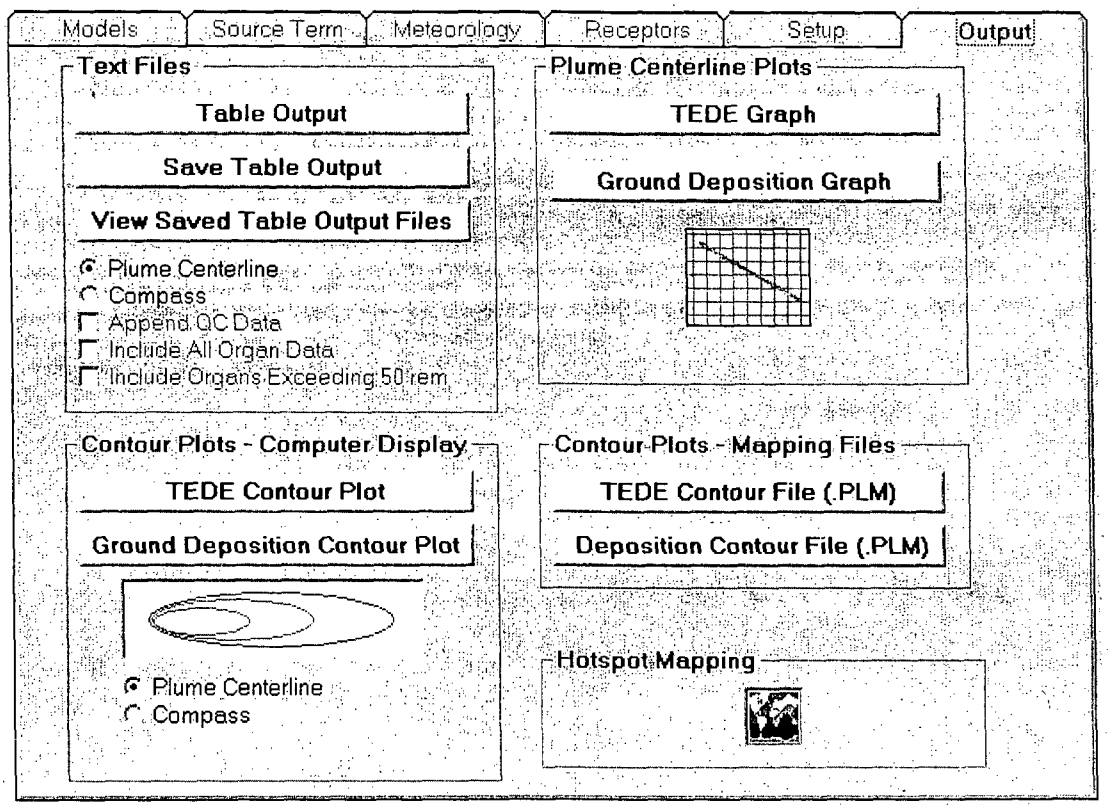
LOCATION/LANDMARKS	DISTANCE FROM SOURCE (miles)		GAMMA READING (uR/hr or mR/hr)
	x(lat.) from source	y (long.) from centerline	


Models
Source Term
Meteorology
Receptors
Setup
Output
Atmospheric Dispersion Models
Plutonium Explosion
Plutonium Fire
Plutonium Resuspension
Uranium Explosion
Uranium Fire
Tritium Release
General Explosion
General Fire
General Resuspension
General Plume
Special Purpose Programs
Nuclear Explosion
FIDLER Calibration
Radionuclides in the Workplace
Documentation
Hotspot QC


Models
Source Term
Meteorology
Receptors
Setup
Output
Model
General Explosion
Radionuclide
Cs-137 D 30.0y
Change Radionuclide Source Term
Total Release
1.0000E+02 Ci
Deposition Velocity
0.30 cm/sec
High Explosive
1.00E+00 lb
Airborne Fraction
1.00E+00
Respirable Fraction
2.00E-01
Respirable Release Fraction = 2.00E-01


Models
Source Term
Meteorology
Receptors
Setup
Output
33-foot Wind Speed
5.0 mph
Display Wind Chart
Selected Stability Class
F
Wind Direction
270
Wind from the West
Atmospheric Stability
Enter Solar Information - or- Enter the Actual Stability
Sun High in the sky
Sun Low in the sky or cloudy
Night
A - Very unstable
B - Moderately unstable
C - Slightly unstable
D - Neutral
E - Slightly stable
F - Moderately stable
G - Special nighttime (low wind)


Models
Source Term
Meteorology
Receptors
Setup
Output
Return to Original Defaults
Terrain
Standard : Conservative Option
City : Large Metropolitan Area
Radiological Units
Classic (rem, rad, Ci)
SI (Sievert, Gray, Bq)
Distance Units
Metric
English
Sample Time
10 min
Source Geometry
Simple
Complex
Wind Input Height
33 feet
Mixing Layer
Enable Inversion
DCF Library
FGR 11
FGR 13
Acute (1-day)
Include 4-days of Ground Shine
Contour Values
TEDE (rem)
Inner 0.5
Middle 0.1
Outer 0.01
Deposition (uCi/m2)
Inner 2.70
Middle 0.27
Outer 2.70E-02
uCi/m2
dpm/(100 cm2)
Wet Deposition
Enable Rainout
Holdup Time
0 min
Breathing Rate
3.33E-04 m3/s
Non-respirable Deposition Velocity
8 cm/sec
Default Source Location
Set Default
Source Altitude
0 feet
Unknown Release Location
Coordinate Format
Change
Degrees
Ellipsoid
Change
WGS 84


Models
Source Term
Meteorology
Receptors
Setup
Output
Text Files
Table Output
Save Table Output
View Saved Table Output Files
Plume Centerline
Compass
Append QC Data
Include All Organ Data
Include Organs Exceeding 50 rem
Plume Centerline Plots
TEDE Graph
Ground Deposition Graph
Contour Plots - Computer Display
TEDE Contour Plot
Ground Deposition Contour Plot
Plume Centerline
Compass
Contour Plots - Mapping Files
TEDE Contour File (.PLM)
Deposition Contour File (.PLM)
Hotspot Mapping

HOTSPOT Version 2.05 General Explosion
Jan 28, 2004 01:21 PM

Source Material	: Cs-137 D 30.0y
Source Term	: 1.0000E+02 Ci
Airborne Fraction	: 1.000
Respirable Fraction	: 0.200
Respirable Release Fraction	: 0.200
Distance Coordinates	: All distances are on the Plume Centerline
Wind Speed (h=33 ft)	: 5.0 mph
High Explosive	: 1.00 Pounds of TNT
Debris Cloud Top	: 76 m

UNMITIGATED BLAST DAMAGE

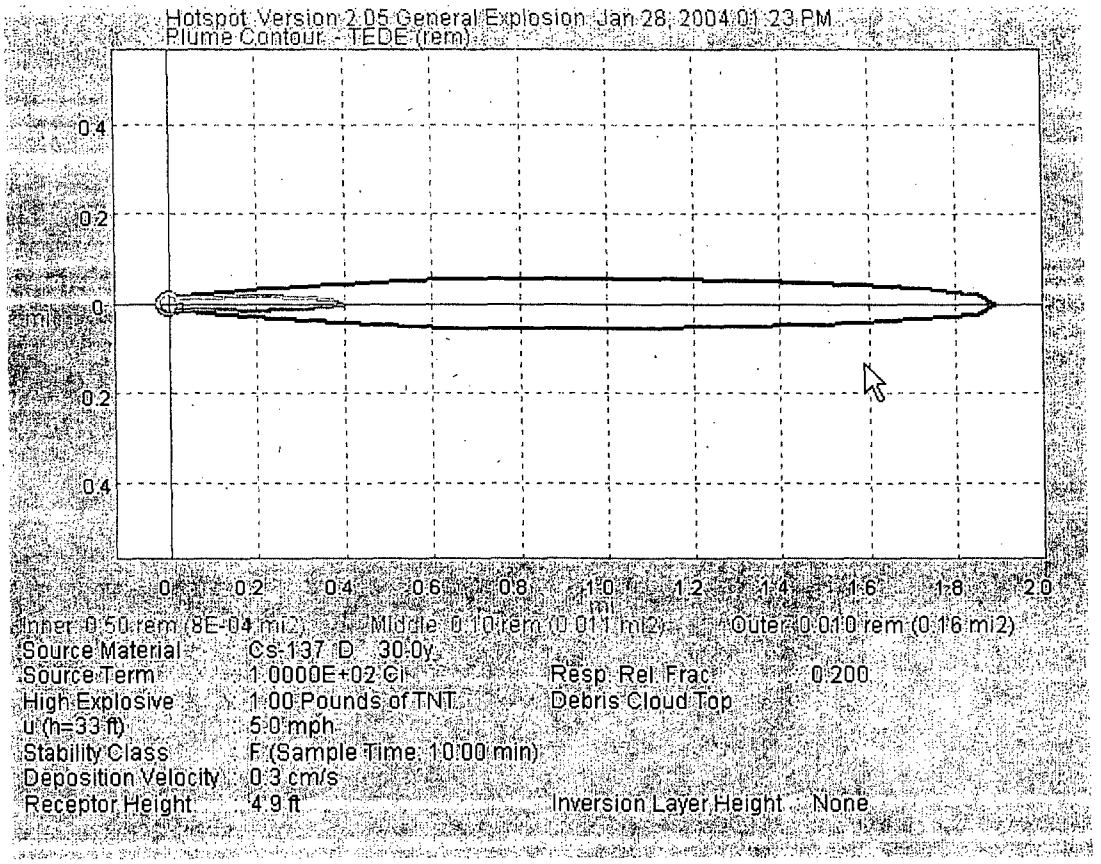
IABTI Safe distance		: 274 m (900 ft)
Eardrum ruptures and incapacitation	(5 psi)	: 4.4 m 6.9 m (14 ft 23 ft)
Lung damage and complete incapacitation	(10 psi)	: 3.0 m - 4.6 m (9.9 ft - 15 ft)
Onset of lethality	(25 psi)	: 1.9 m - 3.0 m (6.4 ft - 9.9 ft)

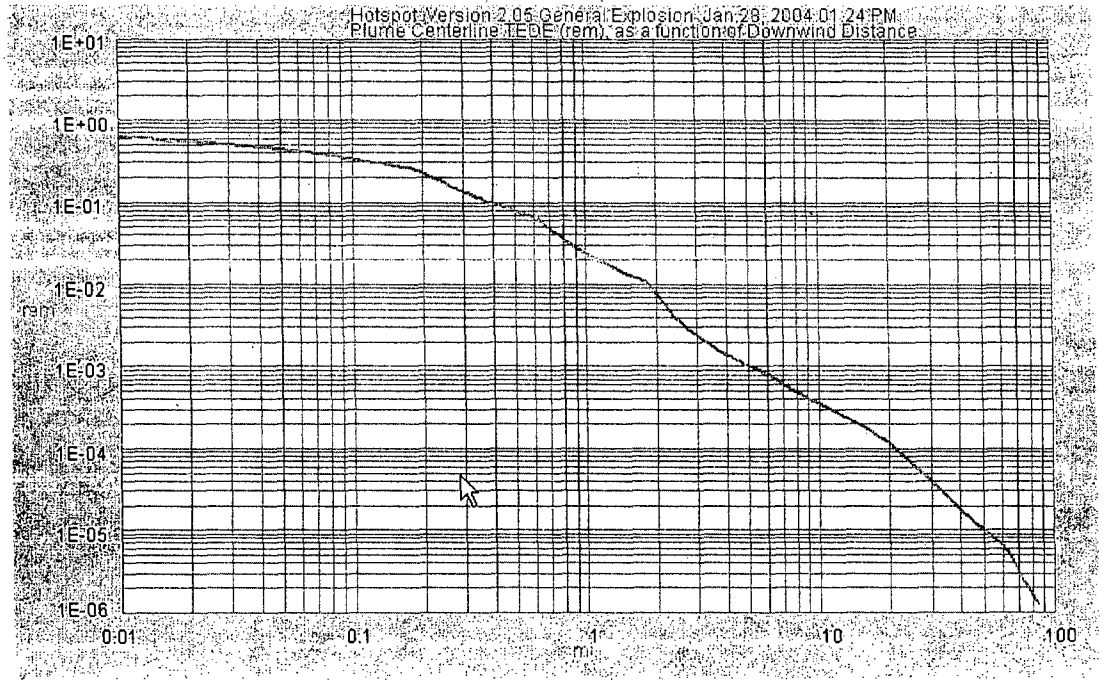
Note: minimum range corresponds to side-on pressure and maximum range corresponds to reflected overpressure generated using Sandia National Laboratories BLAST model.

Stability Class	: F
Respirable Dep. Vel.	: 0.30 cm/s
Non-respirable Dep. Vel.	: 8.00 cm/s
Receptor Height	: 4.9 ft
Inversion Layer Height	: None
Sample Time	: 10.000 min
Breathing Rate	: 3.33E-04 m3/sec
Maximum Dose Distance	: 0.005 mi
MAXIMUM TEDE	: 1.0 rem

FGR-11 Dose Conversion Data
Note: Dose data in TEDE column includes 4 days of ground shine (100% stay time).

DISTANCE mi	T E D E (rem)	TIME-INTEGRATED AIR CONCENTRATION (Ci-sec)/m3	GROUND SURFACE DEPOSITION (uCi/m2)	GROUND SHINE DOSE RATE (rem/hr)	ARRIVAL TIME (hour:min)
0.030	5.0E-01	3.4E-03	6.5E+02	4.8E-03	<00:01
0.100	3.4E-01	2.1E-03	4.4E+02	3.3E-03	00:02
0.200	2.3E-01	1.4E-03	3.0E+02	2.2E-03	00:05
0.300	1.4E-01	1.1E-03	1.7E+02	1.3E-03	00:08
0.400	9.8E-02	8.6E-04	1.3E+02	9.5E-04	00:11
0.500	7.0E-02	7.2E-04	1.0E+02	7.4E-04	00:14
0.600	6.7E-02	6.2E-04	8.4E+01	6.2E-04	00:17
0.700	4.8E-02	5.4E-04	6.0E+01	4.4E-04	00:20
0.800	3.6E-02	4.8E-04	4.4E+01	3.2E-04	00:23
0.900	2.9E-02	4.3E-04	3.4E+01	2.5E-04	00:26
1.000	2.4E-02	3.9E-04	2.8E+01	2.1E-04	00:29
2.000	7.8E-03	2.0E-04	8.0E+00	5.9E-05	00:58
4.000	1.4E-03	9.1E-05	6.1E-01	4.5E-06	01:56


Hotspot Version 2.05 General Explosion Jan 28, 2004 01:23 PM
Plume Contour - TEDE (rem)
0.4
0.2
0
0.2
0.4
0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
mi
Inner 0.50 rem (8E-04 mi2)
Middle 0.10 rem (0.011 mi2)
Outer 0.010 rem (0.16 mi2)
Source Material
Cs-137 D 30.0y
Source Term
1.0000E+02 Ci
Resp Rel Frac
0.200
High Explosive
1.00 Pounds of TNT
Debris Cloud Top
u (h=33 ft)
5.0 mph
Stability Class
F (Sample Time: 10.00 min)
Deposition Velocity
0.3 cm/s
Receptor Height
4.9 ft
Inversion Layer Height
None


Hotspot Version 2.05 General Explosion Jan 28, 2004 01:24 PM
Plume Centerline TEDE (rem), as a function of Downwind Distance
1E+01
1E+00
1E-01
1E-02
rem
1E-03
1E-04
1E-05
1E-06
0.01
0.1
1
10
100
mi

PROTECTIVE ACTION RECOMMENDATION TRANSMITTAL FORM

THIS IS A DRILL / THIS IS AN EMERGENCY
(circle one)

Transmittal #_____ **Date** _____ **Time**_____

Protective Action Recommendation: _____

_____

_____

_____

_____

_____

Basis:_____

_____

_____

_____

Radiation Program Lead _____

Transmittal Time _____

Inhalation Committed Effective Dose Equivalent and Committed Dose Equivalent Determination

Assumptions:

Breathing rate (BR) = 3.37E4 liters per day
Inhalation occurs for 24 hr/day
Dose Conversion Factor (DCF) = from Federal Guidance No. 11, Table 2.1 (Sv/Bq)
Conversion Factor (CF) = 3.7E3 to convert from Sv/Bq to mrem/pCi
Air Concentration (AC) = radionuclide concentration in pCi/L (air sample analysis)
Committed Effective Dose Equivalent (CEDE) = mrem/day
Committed Dose Equivalent (CDE) = mrem/day

CEDE = (DCF) (CF) (AC) (BR)

Example:
The laboratory analyzed an air sample and reported a Cs-137 concentration of 50 pCi/L. The DCF for Cs-137 is found in Table 2.1 of Federal Guidance Report No. 11. The DCF from the effective column (last column) is used.

CEDE = (8.63E-9 Sv/Bq)(3.7E3 mrem/pCi per Sv/Bq)(50 pCi/L)(3.37E4 L/day)
= 53.8 mrem/day
This value can be multiplied by 4 to get a 4 day CEDE.
The other columns in Federal Guidance Report No. 11 are the conversion factors for specific organs. If an organ dose is limiting, the dose conversion factor will be in bold. If this is the case, then the Committed Dose Equivalent should also be calculated and compared to Table 103-3.

Another option is to use **mass loading** and concentration in soil.
Assumptions:

Breathing rate (BR) = 3.37E4 liters per day
Inhalation occurs for 24 hr/day
Mass Loading (ML) = 1E-7 g/L
Dose Conversion Factor (DCF) = from Federal Guidance Report No. 11, Table 2.2
Soil Concentrations (SC) = radionuclide concentration in pCi/g (soil sample)

CEDE = (ML)(DCF)(CF)(SC)(BR)

Ingestion Committed Effective Dose Equivalent and Committed Dose Equivalent Determination

Assumption:

Ingestion Rate for food (IR_f) = 40 g/day
Ingestion Rate for water (IR_w) = 2 L/day
Dose Conversion Factor (DCF) = from Federal Guidance No. 11, Table 2.2 (Sv/Bq)
Conversion Factor (CF) = 3.7E3 to convert from Sv/Bq to mrem/pCi
Water Concentration (WC) = radionuclide concentration in water (pCi/L)
Food Concentration (FC) = radionuclide concentration in food (pCi/g)
Committed Effective Dose Equivalent (CEDE) = mrem/day
Committed Dose Equivalent (CDE) = mrem/day

$$\mathbf{CEDE_w = (DCF_w)\ (CF)(WC)(IR_w)}$$
$$\mathbf{CEDE_f = (DCF_f)\ (CF)\ (FC)\ (IR_f)}$$

These two dose rates should be added and compared to Table 103-3.

New Jersey Radiological Response Protocol

(Abbreviated due to sensitive nature)

Radiation Response Protocol

Included in the Application is the NJ Department of Environmental Protection State's "Radioactive Materials and Radiological Assessment Team" manual. This document includes the necessary steps that will be taken to respond to, assess and mitigate any material event that occurs within the State. If the event occurred due to the actions of a licensee, staff and management will decide if a reactive inspection is warranted. Steps the licensee took to minimize the likelihood of a recurrence will be reviewed during this followup inspection. Reach-back capabilities to Federal agencies are included for events that exceed the capabilities of the State. The Bureau of Environmental Radiation, in conjunction with the New Jersey State Police and the New Jersey Office of Counter-Terrorism, also utilizes the "New Jersey Radiological Response Protocol" as a template for the use of radiation detection and isotope identification equipment to classify radioactive substances and ascertain their legitimacy. **Because of the sensitive nature of this document, and its classification For Official Use Only, it is not for distribution to any other party it is not included in the Application.** Included in the Application is a streamlined version of the protocol that outlines the roles and responsibilities for each response organization, contact information and on-scene response.

NJ Department of Environmental Protection
RADIOACTIVE MATERIAL INCIDENT REPORT FORM

Name of Officer: _____Date: _____Time: _____

Incident Location: _____

Equipment Used Type_____ Serial # _____Calibration Date:_____
_____

Passenger or Pedestrian Information:
Last Name:_____ First Name: _____ MI:

Conveyance Type:

Vehicle Type: _____ License #: _____ State: _____

1). Has the location of the source been identified? Yes or No

2). Have the passengers been isolated from the vehicle? Yes or No
Source: Occupant Vehicle Truck Package Other
Description: _____

3). Is the integrity of the container breached? Y or N
If yes, solid ___liquid ____ gas ____unknown ___

4). Has the radiation source been isolated in secondary inspection? Yes or No

5). Radiation level: Gamma Alarm
Reading at contact: _____Units: μR, mR R

6). Has an isotope identification been performed? Yes or No
Isotope Identified: _____
Instrument _____ Serial # _____ Calibration Date _____
Manufacturer _____

7). Is the isotope identification consistent with a medical or industrial source that is listed in the innocent radiation checklist? Yes or No

8). Is the vehicle/person authorized to transport radioactive material? Yes or No

9). Does the radiation source detected match the declaration/placarding/shipping manifest? Yes or No
If "No" what is the discrepancy? _____

10). Request technical assistance? Yes or No

11). Made the following notifications:

NJ DEP Hotline Name: _____Phone: _____
(877) 927-6337
NJSP ROIC Name: _____ Phone:_____
(609) 882-2000 X 6090

12). Technical Representative Recommendations:

_____
_____
_____
_____
_____

13). Additional Remarks: _____

14). Total Dose Exposure: μR, mR R

Report Completed By:

_____ _____
Print Date

_____ _____
Signature Time

RADIOLOGICAL RESPONSE QUICK GUIDE

UNIDENTIFIED/UNVERIFIED SOURCE:

A. Notify the New Jersey Department of Environmental Protection (NJDEP) Hotline at 1-877-927-6337 (1-877-WARNDEP)

B. NJDEP will ask for the following information:
1. Call back information;
2. Description of the incident;
3. Location of the source;
4. Type of emission (pager alert or other detection);
5. Radiation Detector readings;
6. Manifest/Placarding information;
7. Impact upon people (injuries, contamination);
8. Presence of fire, physical hazards or hazardous material; and
9. Responses to Radioactive Material Incident Report Form (Appendix 5).

C. DEP will immediately notify NJSP Regional Operations and Intelligence Center (ROIC)

D. Based on the information provided, the NJDEP will make an assessment of whether the radiation source is legitimate (i.e., medical isotope, naturally occurring radioactive materials (NORM), etc.) and may initiate a response from the designated HAZMAT/CBRNE team.

IF YOU ENCOUNTER A READING GREATER THAN 2mR/hour:

A. Separate the occupants from the vehicle or package
° Re-survey
° Question

B. Establish a hot zone boundary out to a reading of less than 2mR/hour

C. Notify DEP Hotline at 1-877-927-6337 (1-877-WARNDEP)
DEP will immediately notify NJSP Regional Operations and Intelligence Center (ROIC) and the designated HAZMAT/CBRNE team.

D. Begin recording the dose reading every 30 minutes

New Jersey Department of Health and Senior Services
Public Health and Environmental Laboratories
Environmental and Chemical Laboratory Services

RADIOANALYTICAL SERVICES LABORATORY

November 2007

Phone: (609)777-0849
Fax: (609)984-0646

Radioanalytical Services Laboratory Overview

The Radioanalytical Services Laboratory consists of seven technical staff members who have been generally cross trained to provide services in its three units: (1) Gross Alpha and Chemical Terrorism Method Development, (2) Radiochemistry, and (3) Instrumentation.

The laboratory is responsible for maintaining radiological testing capabilities for the analysis of drinking water in support of the National Safe Drinking Water Act (SDWA) and the New Jersey State 48-hour gross alpha testing requirements. This laboratory also performs radiological analysis of soil, vegetation, and air filter samples and serves as a testing resource in response to incidents involving the accidental or intentional release of radioactivity into the environment.

1- Major Program Activities

The major functions of the Radioanalytical Services Laboratory can be sub-divided into three areas, Routine Testing, Emergency Testing, and Analytical Method Development.

Routine Programs: Radiochemical analysis of samples containing low-levels of radioactivity, with emphasis on water samples regulated by the State and federal agencies.

This laboratory works closely with New Jersey Department of Environmental Protection (NJDEP)/Bureau of Safe Drinking Water (BSDW) on technical issues related to drinking water testing and methods. As the State radiological testing laboratory, this unit provides analytical support for other New Jersey State agencies, such as NJDEP/Radiation Protection Program/Radioactive Materials Section, NJDEP/Publicly Funded Site Remediation, NJ Department of Transportation (NJDOT), and NJDHSS Food Safety Program.

Emergency Programs: Radiochemical analysis of samples containing high-levels of radioactivity, in response to CT events or emergency incidents involving site radioactive contamination.

In order to enhance emergency response radiological testing capabilities, the laboratory regularly participates in nationally sponsored programs. As a participant in the National Institute of Standards and Technology (NIST) Radiochemistry Inter-comparison Program (NRIP), the Laboratory has been involved in Emergency Preparedness Proficiency Testing Exercises in 2004 and 2005, and 2007. During these unique events, the analysis of water, soil, and filter samples were successfully performed and reported within an 8-hour scheduled turnaround time. As a Food Emergency Response Network

(FERN) Radiological Laboratory, the Laboratory has played an active role in successful participation in five events (three in 2004, one in 2005, and one in 2006) associated with the Food and Drug Administration (FDA)/FERN radiological surveillance PT program. The samples were issued by the FDA Winchester Engineering and Analytical Center (WEAC) to laboratories nationwide and required a one to 14-day response time.

Method Development Programs: Conducting radioanalytical method development or performing analytical support to research activities involving drinking water, in response to Federal or New Jersey State regulations, or based on new findings during routine analyses.

Research and development is an integral function of the Laboratory. Several of the procedures developed in this laboratory have been granted United States Environmental Protection Agency (USEPA) approval for the analysis of drinking water samples (i.e. New Jersey methods for Ra-228 and Strontium 89/90). A Ra-224 in water testing procedure using gamma-ray spectrometry was also developed in the Laboratory. An application to approve another method, developed at Radioanalytical Services, as a FERN method, has been recently submitted. Staff routinely present their findings at various scientific gatherings and publish the results in peer-reviewed scientific journals. These activities have created interest and attention from federal agencies, such as the USEPA and the U.S. Geological Survey (USGS). A number of cooperative projects have been developed and pursued with various federal and state agencies. One of these projects was a collaborative study to validate a method for Ra-224 analysis in drinking water. The Laboratory along with EPA's National Air and Radiation Environmental Laboratory (NAREL), Montgomery, AL and EPA's Radiation and Indoor Environmental National Laboratory (RIENL), Las Vegas, NV participated in this three-laboratory collaborative study. The results have been published in the 21st edition of Standard Methods, 2005. A recent research project with the State of New York Department of Health on alpha-detection efficiency was published in the Journal of Nuclear Instruments and Methods. The results of another collaborative project with USGS on the occurrence of radium isotopes in Southern New Jersey were published in USGS Scientific Investigation Report in 2005. A current NJDHSS/NJDEP/USGS/Florida State University collaborative study involves the measurement of radon and radium isotopes in southern New Jersey public water supplies and the effect on their concentration from pipe scale in the distribution lines. This ongoing research project was initiated in April 2004 and some of its findings have been presented in scientific meetings, with a recent publication, as a book chapter, in "Environmental Radiochemical Analysis III", Royal Society of Chemistry, 2007. The Laboratory also collaborated with Georgia Institute of Technology, Environmental Research Center in a USEPA alternate test procedure (ATP) validation study for a method to determine Ra-226 and Ra-228 in water by gamma-ray spectrometry. The procedure is now recognized as an EPA- and NJDEP-approved analytical method.

In addition to the above programs, the staff of Radioanalytical Services provides, on a regular basis, technical assistance to state, federal, and private agencies.

2- Program Staff

Bahman Parsa, Research Scientist 1, supervises and directs the operation of the Radioanalytical Services Laboratory and ensures that all the data generated is demonstrably valid. He assists in sample preparation, counting, data reduction, and results review/sign-off tasks. Radiological experience: 44 years

Reynaldo Obed, Research Scientist 2, supervises the operation of Radiochemistry Section and performs sample preparation of water samples for gamma-ray spectroscopy, tritium testing, strontium-89/90, and isotopic uranium analyses. He is also responsible for the preparation of radioactive standards and calibration planchets. Radiological experience: 35 years.

William Nemeth, Research Scientist 2, supervises the Instrumentation Section, assists in sample counting, and provides technical information to clients. He also performs as the laboratory radiation safety officer. Radiological experience: 25 years.

Gail Suozzo, Research Scientist 2, supervises the Gross Alpha and Chemical Terrorism Method development Section and performs sample preparation for gross alpha testing, radium-224, radium-226, and radium-228 analyses. She also generates the QA/QC tables and plots for the analyses performed at Radioanalytical Services. Radiological experience: 9 years.

Jennifer Carter, Chemist, performs sample preparation for gross alpha testing, radium-224, radium-226, and radium-228 analyses. Radiological experience: 5 years.

James Henitz, Chemist, regularly maintains the counting systems to ensure their proper operations, operates the counting tasks of prepared samples, and performs the follow-up data reduction. When required, he develops necessary spreadsheets for data reduction process. Radiological experience: 4 years.

Norman Raynor, Principle Lab Tech, performs the bulk of the data reduction process and conducts the preparation of soil samples for gamma-ray spectroscopy. Radiological experience: 6 years.

3- Radioanalytical Testing Capabilities

The Radioanalytical Services testing capabilities are presented in the following Table:

Test
Gross Alpha/Beta in Water (Evaporation Method, EPA 900.0)
Gross Alpha in Water (Coprecipitation Method, Standard Methods 7110 C)
Gross Alpha/Beta in Soil/Vegetation
Gross Alpha/Beta in Filter Paper
Radium-224/Unsupported Lead-212 in Water (New Jersey Method)
Radium-224 in Water (Standard Methods 7500-Ra E)
Radium-226 in Water (EPA 903.0)
Radium-228 in Water (New Jersey Method)
Radon-222 in Water (Standard Methods 7500-Rn)
Isotopic Uranium in Water (EPA 00-07)
Photon Emitters in Water (HASL-300 Ga-01-R)
Photon Emitters in Soil/Vegetation (HASL-300 Ga-01-R)
Photon Emitters in Filter Paper (HASL-300 Ga-01-R)
H-3 in Water/Urine (EPA 906.0)
Strontium-89/90 in Water (New Jersey Method)
Gross Alpha/Radium-224/Radium-226/Radium-228 in Water (New Jersey Method)
Radium-224, Radium-226, and Radium-228 in Water by Gamma-Ray Spectroscopy (New Jersey Method)
Radium-226 and Radium-228 in Water by Gamma-Ray Spectroscopy (Georgia Tech Method)

4- Program Laboratory Space and Major Equipment

The Radioanalytical Services group maintains space on the 4th and 5th floors of the Public Health and Environmental Laboratories (PHEL) building. Our group occupies rooms L-411, L-412, L413/415, L-418 and L-419 on the

fourth floor and rooms L-529 & L-531 on the fifth floor, totaling to 2720 Sq. Ft. A descriptive breakdown of these laboratories is as follows:

Room L-411 is used for sample receipt and also contains two Berthold (LB-770 & LB-780) 10-detector, thin-window, gas flow, proportional, alpha/beta counters (one equipped with automatic sample changer) and one Packard 2900TR liquid scintillation counter. This room is approximately 600 Sq. Ft.

Rooms labeled L-413/415 are actually one large room with an area of 650 Sq. Ft. and functions as one of the radiochemistry sample preparation areas. This room has a total of nine chemical fume hoods. The room also contains two sinks with drying racks, each having tap and DI water supplies, two floor model centrifuges, a flaked icemaker, and one floor shaker.

Room L-419 is another radiochemical sample preparation room for media other than water samples. It has a 400 Sq. Ft. floor space and contains three fume hoods, two sinks with ample bench space, a drying oven, a glove box, an industrial blender, and top-loader balance.

Room L-529 is the main instrumentation room. The instruments contained within are 1) a gamma spectroscopy system having six HPGe detectors (with relative efficiencies ranging from 10 to 40%) coupled to a Canberra AXP computer and an X-terminal running Open-VMS operating system and Genie-Procount acquisition and analysis software, 2) a Tennelec LB-4100 16-detector, thin-window, gas flow, proportional alpha/beta counter interfaced with a personal computer, 3) a Canberra Quad Alpha spectrometer system featuring four-detector 450-mm^2 active area passivated implanted planar silicon (PIPS) detectors interfaced via a thin wire Ethernet to the Canberra AXP computer. This room is approximately 750 Sq. Ft.

Room L-531 is the third radiochemical sample preparation area. This room is approximately 350 Sq. Ft. and has one perchloric acid fume hood and two regular 4-foot chemical fume hoods. It has floor and tabletop centrifuges, glassware, chemical storage, and two sinks with tap and DI water supplies.

On the 5th floor, in the hallway opposite room L-529, are secure sample storage closets and a small refrigerator. Rooms L-412 and L-418 are Radioanalytical Services office space.

5- Program Quality Control (QC) Requirements

The Laboratory maintains a strict QC procedure based on the practices required by the USEPA, documented in their Manual for the Certification of Laboratories Analyzing Drinking Water, 5th edition, 2005, and procedures endorsed by the Multi-Agency Radiation Laboratory Protocols (MARLAP)

Manual. Specifically, the Laboratory follows the National Environmental Laboratory Accreditation Conference (NELAC) requirements for the initial and continuing demonstration of capability (IDC & CDC), which is employed in acceptance and institution, and continuous usage, of any method. As part of its technical requirements, nuclear instrument control measures, such as calibration, daily performance checks, and daily background determinations are observed. Quality control procedures for monitoring the validity of environmental tests undertaken are also required. These measures include:

- Method Performance Negative Control: By preparation of a reagent blanks in each batch of analysis to assess the preparation batch for possible uncorrected contamination during the preparation and processing steps.
- Method Performance Positive Control: By preparation of a laboratory control sample (LCS), also called laboratory fortified blank (LFB), to evaluate the performance of the total analytical system in each batch of analysis.
- Sample-Specific Controls, Matrix Spikes: To indicate the effect of the sample matrix on the ability of the selected method to provide accurate results.
- Sample-Specific Controls, Replicates: To indicate the precision of the results for the specific sample using the selected method.
- Sample-Specific Controls, Tracers or Carriers: For the methods which use tracers or carriers to assess the chemical yields, as a criteria for sample result acceptance.

As part of the quality assurance process, the laboratory is subject to internal audits by the PHEL Quality Assurance program. External on-site audits are regularly conducted by the USEPA, Nuclear Regulatory Commission (NRC), and New Jersey Department of Environmental Protection (NJDEP)/Office of Quality Assurance(OQA) and NJDEP/Radioactive Material Section.

In addition, the laboratory, in an on-going basis, participates in Proficiency Test (PT) Studies presented by:

- Environmental Resource Associates
- NIST, NRIP Program
- FDA, FERN Program
- Department of Energy, MAPEP Program
- Department of Homeland Security, Environmental Measurements Laboratory
- International Atomic Energy Agency (IAEA)

NEW JERSEY STATE DEPARTMENT OF HEALTH AND SENIOR SERVICES

AQUEOUS (Drinking Water and Waste Water) ANALYSIS WITH ROUTINE DATA REPORTS (Continued from previous page)

RADIOCHEMISTRY	SFY 08 CHARGES	RADIOCHEMISTRY (CONTINUED)	SFY 08 CHARGES
GROSS ALPHA AND BETA (evaporation)	$ 145.00	RADON IN WATER	$ 103.00
GROSS ALPHA (Coprecipitation)	$ 181.00	ISOTOPIC URANIUM	$ 515.00
GROSS ALPHA/Ra-224/Ra-226/Ra-228	$ 361.00	GAMMA SPECTROSCOPY (WATER OR MILK)	$ 108.00
GROSS ALPHA/Ra-226/Ra-228	$ 309.00	H-3 (WATER OR URINE)	$ 95.00
RADIUM 224	$ 335.00	STRONTIUM (Sr) - 89/90	$ 309.00
RADIUM 226	$ 222.00		
RADIUM 228	$ 335.00		
RADIUM 226 and 228 (Gamma Spec.)	$ 190.00		
RADIUM 224, 226 and 228 (Gamma Spec.)	$ 240.00		

NON-AQUEOUS (Sediment, Bulk Material, etc.) ANALYSIS WITH ROUTINE DATA REPORTS

GENERAL CHEMISTRY	SFY 08 CHARGES
CYANIDE	$ 31.00
NITROGEN, KJELDAHL	$ 31.00
PETROLEUM HYDROCARBONS (IR)	$ 52.00
PERCENT RESIDUE	$ 13.00
PHOSPHORUS, TOTAL	$ 27.00
TOC	$ 37.00

TRACE METALS	SFY 08 CHARGES
Graphite Furnace Atomic Absorption Spectroscopy As, Sb, Pb, Se, Ti	$ 41.00 / element
Inductively Coupled Plasma Emmission (ICP) Ag, Al, B, Ba, Be, Cd, Ca, Cr, Co, Cu Fe, Mg, Mn, Mo, Ni, K, Ag, Na, V, Zn	$ 39.00 / element
MERCURY	$ 42.00
CHROMIUM IN URINE	$ 57.00
LEAD IN PAINT CHIPS	$ 15.00
RADIOCHEMISTRY	
GAMMA SPECTROSCOPY (Soil, sediment or vegetation)	$ 148.00

Please note, trip blanks are handled, analyzed and reported as samples and are therefore billed as samples.

Special Data Turnaround Charges:

Emergency = 100% increase in charge

Priority = 50% increase in charge

Data Package Surcharge:

12% increase in charge

SOP 7.01
PROCEDURE FOR ISSUANCE of U.S.D.O.T. EXEMPTIONS

1.0 Purpose

To issue U.S.D.O.T. exemption forms for waste and recycled material shipments found to contain previously unrecognized radioactive material so they will be in compliance with the United States Department of Transportation (USDOT) requirements. Shipments are sent back to their point of origin in a safe and timely manner, provided the material is not leaking from the vehicle and the radiation levels are less than 50 mR/hr. at the surface of the vehicle.

2.0 Materials and Supplies

- Guidance For Completing USDOT Exemption Forms.
- Attachment 1 - U.S.D.O.T. Exemption E-10656 (Contaminated Metal or Recycling Material)
- Attachment 2 - U.S.D.O.T. Exemption E-11406 (Contaminated Trash or Refuse Material)
- Attachment 3 - Procedures for Notifications Made By Waste Facilities That Involve Trash Contaminated With Radioactive Material

3.0 Procedure

3.1 Provided the radioactive materials are not leaking from the vehicle and the radiation levels at the surface of the vehicle are less than 50mR/hr., a USDOT Exemption may be issued.

3.2 Use the appropriate USDOT Exemption Form for the material involved (i.e. E-10656 for contaminated metal or recycled material (Attachment 1) or E-11406 for contaminated trash or refuse (Attachment 2)).

3.3 Generate the Exemption Approval Number (EAN) by looking at the previously assigned EANs, listed in the log on the front covers of the Exemption approval folders, and increasing it by 1 for the appropriate destination state. For example if the last shipment of contaminated trash sent back to New York had a EAN of NJ-NY-99-05, the next EAN would be NJ-NY-99-06. Record the EAN assigned in the log on the front of the respective Exemption approval folder.

3.4 Follow the Guidance for Completing USDOT Exemption Forms (Attachment 3).

3.5 Notify all parties involved by telephone and a fax of the Exemption approval. Also, inform them of the estimated date and time of arrival of the shipment.

3.6 Make copies of the Exemption form and distribute as indicated on the USDOT Exemption Form, as well as the following:

- USDOT Exemption folder.
- Incident folder- which is to be created for each incident and filed in the incident drawer.
- Radioactive Materials Section Supervisor.
- For E-10656 forms forward to Jim Yusko at fax number: (412) 442-4194.
- Retain one copy in your files.

January 23, 2007

U.S. Department
of Transportation

400 Seventh Street, S.W.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 10656
(ELEVENTH REVISION)

EXPIRATION DATE: December 31, 2010

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Shippers and carriers of scrap metal or other related metal recycle materials with low levels of external radiation who are approved by state radioactive material control officials registered with the Office of the Executive Director of the Conference of Radiation Control Program Directors (CRCPD), Frankfort, Kentucky.

2. PURPOSE AND LIMITATION:

a. This special permit authorizes the one-way transportation in commerce by highway or rail of shipments of scrap metal and related metal recycle materials (hereafter referred to as "scrap metal") which have been found, during or at the conclusion of transportation or during inspection of the shipment following its receipt, to contain unexpected and unidentified radioactive material or contamination. The one-way transportation authorized by this special permit is exempted from the classification, packaging, and hazard communication requirements normally required for transportation of radioactive material.

The purpose of the transportation authorized by this special permit is to allow the scrap metal to be moved to a location deemed by the authorizing state official to be more appropriate for proper characterization and/or disposition of the discovered radioactivity. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. The safety analysis performed in the development of this special permit only considered the hazards and risks associated with transportation in commerce.

c. Party status will not be granted to this special permit.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR Part 172, Subparts C, D, E, F, G, and H as they pertain to required shipping papers, package marking and labeling, vehicle placarding, emergency response information and training; 49 CFR Part 173, Subpart B, § 173.22(a)(1) as it pertains to classification of hazardous materials; 49 CFR Part 173, Subpart I as it pertains to packaging and transport of radioactive material; Part 174, Subpart K as it pertains to detailed requirements for rail transport of radioactive materials; and Section 177.842 as it pertains to highway transport of radioactive materials.

5. BASIS: This special permit is based on the application of CRCPD dated December 12, 2007, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	**Hazard Class/ Division**	**Identification Number**	**Packing Group**
Radioactive material, excepted package-limited quantity of material	7	UN2910	N/A
Radioactive Material, Type A package *non-special form, non fissile or fissile-excepted*	7	UN2915	N/A
Radioactive Material, Type A package, special form *non fissile or fissile-excepted*	7	UN3332	N/A
Radioactive Material, Type B(U) package *non fissile or fissile-excepted*	7	UN2916	N/A
Radioactive Material, low specific activity (LSA-I) *non fissile or fissile-excepted*	7	UN2912	N/A
Radioactive Material, low specific activity (LSA-II) *non fissile or fissile-excepted*	7	UN3321	N/A

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identification Number	Packing Group
Radioactive Material, low specific activity (LSA-III) *non fissile or fissile-excepted*	7	UN3322	N/A
Radioactive Material, surface contaminated objects (SCO-I *or* SCO-II) *non fissile or fissile-excepted*	7	UN2913	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - The shipments are excepted from the packaging and transport requirements for radioactive materials of Part 173, Subpart I and may be transported by motor vehicle or rail provided it is evident that radioactive material will not be released from the conveyance during transit and that the transport conditions in the shipment approval form specified in paragraph 7(d) of this special permit are satisfied.

b. CLASSIFICATION AND TESTING - The shipments are exempted from the classification and description requirement of § 173.22(a)(1) provided that the measured radiation levels at the external surface of the conveyance do not exceed 0.50 mSv/h (50 mrem/h).

c. COMMUNICATIONS - The packages and conveyances transported under this special permit are exempted from the communications requirements of 49 CFR Part 172, Subpart C (shipping papers), D (marking), E (labeling), and F (placarding) provided the communications provisions in the shipment approval form specified in paragraph 7(d) of this special permit are satisfied.

d. SHIPMENT APPROVAL by STATE RADIATION OFFICIAL - Prior to shipment of the scrap metal, the state radiation control official of the state where the radiation was detected must evaluate the radiological risk associated with the transport of the material, under the conditions of this special permit, to a location where the radioactive material can be identified and properly treated. If the official believes that these risks are no greater than the risk associated with the transport of these materials within the regulations, he may authorize the shipment by completing and signing the shipment approval form shown in Annex A. Any

additional or special conditions required as a condition of safe transport may be included in the approval.

e. SHIPMENT APPROVAL FORM DISTRIBUTION - Copies of the shipment approval form must be provided, in advance of the shipment, by the issuing official to the following:

(1) the Office of the Executive Director, CRCPD, Frankfort, KY;

(2) the cognizant person at the facility where the radioactive material was discovered;

(3) the cognizant person at the facility from which the scrap metal was shipped prior to detection;

(4) the cognizant person at the facility to which the scrap metal will be shipped for identification and/or treatment;

(5) the state radiation official having authority over the facility receiving the shipment (after detection);

(6) the state radiation official having authority over the facility from which the shipment originated (before detection).

f. SHIPMENT APPROVAL for CARRIERS - The cognizant person at the facility where the radioactive material was discovered must provide the operator of the highway vehicle with a copy of the shipment approval. For shipments by rail, he must provide the shipment approval to the railroad management or dispatch office.

g. IDENTIFICATION AND DISPOSITION OF RADIOACTIVE MATERIAL TRANSPORTED UNDER THIS SPECIAL PERMIT - Once the radionuclides in the scrap metal are identified and appropriate disposition is arranged, the identification and disposition portion of the shipment approval form must be completed and sent to the following:

(1) the Office of the Executive Director, CRCPD;

(2) the state official at the state of origin (prior to detection);

(3) the state official issuing the shipment approval; and

(4) the state official of the state where identification and disposition occurred

8. SPECIAL PROVISIONS:

a. Shipment Approval Assigned Number - One official in each state must assign and maintain a list of shipment approval numbers for all shipment approvals issued by that state under DOT-SP 10656. The eight figures in the shipment approval number should be determined as follows: the first two characters are the abbreviation of the state of origin; the third and fourth characters must be the abbreviation of the state of destination; the fifth and sixth characters must be the last two digits of the year of issue; the seventh and eighth characters must be the sequential number of the shipment approved for that year between those states. For example AR-KY-99-04 would be the fourth shipment from Arkansas to Kentucky that was approved by the official during 1999.

b. Additional modifying symbols may be added to the U. S. postal designation for the state of origin only, in order to distinguish among multiple originating state offices if necessary, if written permission is first obtained from the CRCPD. In these cases each originating state office must assign its own sequential numbers (the seventh and eighth characters in paragraph 8.a) for each year, starting with 01.

c. Each state radioactive material official approving shipments must have a copy of this special permit and a copy of Title 49 of the Code of Federal Regulations. This official should also provide a copy of this special permit and their implementing instructions to all managers of scrap metal facilities that have installed radiation monitoring systems within their state.

9. MODES OF TRANSPORTATION AUTHORIZED: Rail freight and motor vehicle.

10. MODAL REQUIREMENTS:

a. A current copy of the shipment approval document must be carried in the cab of the motor vehicle. For shipments by rail, the railroad management will provide to train crews the identity of the rail car and its position in the train.

b. Each carrier must ensure that the shipment described on the shipment approval document is transported over the most appropriate route without unnecessary or avoidable delay.

c. The shipment approval form and other provisions of this special permit satisfy: the Emergency Information and Training requirements of 49 CFR Part 172, Subpart G and Subpart H, and the modal Class 7 material requirements of Part 174, Subpart K and Part 177, Subpart B.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law 49 U.S.C. 5101 et seq:

- All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when the special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term 'exemption' to 'special permit' and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must immediately notify the Associate Administrator for Hazardous Materials Safety -- OHMSPA, by calling the National Response Center at 1-(800)424-8802 of any incident under this special permit. A call must also be made to the state official signing the shipment approval as identified in paragraph 7(d). These telephonic notices should identify that the shipment is under DOT-SP 10656 and the eight-digit shipment approval identification number.

Issued in Washington, D.C.:

Diane Laballe

for Bob Richard
Deputy Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: RB/FF/sln

Annex A **DOT-SP 10656 SHIPMENT APPROVAL FORM**

Approval Number ____ ____ ____ ____ **(Refer to SP 10656, paras. 8a-8b)**

This shipment of scrap metal or related materials for recycle contains unidentified radioactive material causing low levels of radiation outside the transport vehicle. Shipment is under Special permit DOT-SP 10656 without a determination of materials meeting or not meeting the regulatory definition of radioactive material. The shipment is a minor radiological concern based on considerations of the U.S. Department of Transportation and the state official signing this shipment approval document.

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DETAILS of DETECTION SITE, MATERIALS, and ORIGIN

Facility: Name _____ **Type:** _____

Address: _____

❶ **Contact person:** _____ **Ph.** _____ **Fax.** _____

☐ **Highway or** ☐ **Rail Vehicle Type:** _____ **Id.No.:** _____

Owner: _____ **Operator name:** _____

❷ **Contact person:** _____ **Ph.** _____ **Fax.** _____

Description of scrap and release risks: _____

_____

Radiation Measurement **Date/time performed:** _____

mrem/h (max) _____ **location on vehicle** _____

Inst.Mfgr./type/model _____ **Bkg. mrem/h** _____

Surveyor name: _____ **Ph.** _____

Shipment Origin **Company:** _____ **Location:** _____

❸ **Contact person:** _____ **Ph.** _____ **Fax.** _____

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RADIATION CONTROL OFFICIALS (Detection, Origin, Destination States)

Detection State Official (receiving radiation detection info) Name: _____

❹ **Organization** _____ **Ph.** _____ **Fax.** _____

Origin State Official (prior to detection)
Name: _____

❺ **Organization** _____ **Ph.** _____ **Fax.** _____

Destination State Official (after detection) **Name:** _____

❻ **Organization** _____ **Ph.** _____ **Fax.** _____

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DESTINATION for RADIOACTIVE MATERIAL IDENTIFICATION and DISPOSITION

If carrier and shipper to this location are different than ❷ and ❸, show info in REMARKS

Company Name: _____ Location: _____

❼ Contact person: _____ Ph. _____ Fax. _____

SP-10656 Approval Number ____ ____ ____ ____ Page 2

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APPROVAL of SHIPMENT and SPECIAL CONDITIONS Date: _____

Conditions: _____

_____

_____

❽ Signature: _____ Ph. _____ Fax. _____

Title _____ Organization _____ Date _____

==========

IDENTIFICATION of RADIOACTIVE MATERIAL and DISPOSITION INFORMATION at DESTINATION

_____

_____

_____

❾ Name: _____ Title: _____ Date: _____

Organization: _____ Ph. _____ Fax. _____

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RECORD of TRANSMITTALS (Shipment Approvals and identification/disposition)
(Circumstances may influence distribution)

Shipment Approvals (Sent by ❹ or ❽) to (Show date sent)

OED CRCPD _____ ❶ _____, ❷ _____, ❸ _____,
❺ _____, ❻ ❼ _____, OTHER _____

Record of Identification and Disposition (Sent by ❻, ❼, ❾, or) to

❸ _____, ❹ _____, ❺ _____, ❾ _____, OED CRCPD _____

OTHER _____

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REMARKS, OTHER INFORMATION

_____

_____

_____

_____

_____

_____

_____

In case of an emergency, notify the National Response Center ((800)424-8802) and the (❽) authorizing official and give the Special permit No. and Approval No.

May 5, 2006

U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

DOT-SP 11406
(SEVENTH REVISION)

EXPIRATION DATE: April 30, 2010

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Shippers and carriers of liquid or solid waste (henceforth called "waste") with low levels of external radiation who are approved by state radioactive material control officials registered with the Office of the Executive Director of the Conference of Radiation Control Program Directors (CRCPD), Frankfort, Kentucky.

2. PURPOSE AND LIMITATION:

a. This special permit authorizes the one-way transportation in commerce by highway or rail of shipments of waste which have been found, during or at the conclusion of transportation or during inspection of the shipment following its receipt, to contain unexpected and unidentified radioactive material or contamination. The one-way transportation authorized by this special permit is exempted from the classification, packaging, and hazard communication requirements normally required for transportation of radioactive material.

The purpose of the transportation authorized by this special permit is to allow the waste to be moved to a location deemed by the authorizing state official to be more appropriate for proper characterization and/or disposition of the discovered radioactivity. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein.

b. The safety analysis performed in the development of this special permit only considered the hazards and risks associated with transportation in commerce.

c. Party status will not be granted to this special permit.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR Part 172, Subparts C, D, E, F, G, and H as they pertain to required shipping papers, package marking and labeling, placarding, emergency response information, and training. Part 173, Subpart B, § 173.22(a)(1) as it pertains to classification of hazardous materials.

Part 173, Subpart I as it pertains to packaging and transport of radioactive material. Part 174, Subpart K as it pertains to detailed requirements for rail freight transport of radioactive materials. Section 177.842 as it pertains to highway transport of radioactive materials.

5. BASIS: This special permit is based on CRCPD's application dated January 30, 2006, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Proper Shipping Name/ Hazardous Materials Description	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**
Radioactive material, excepted package-limited quantity of material	7	UN2910	N/A
Radioactive Material, Type A package *non-special form, non fissile or fissile-excepted*	7	UN2915	N/A
Radioactive Material, Type A package, special form *non fissile or fissile-excepted*	7	UN3332	N/A
Radioactive Material, Type B(U) package *non fissile or fissile-excepted*	7	UN2916	N/A
Radioactive Material, low specific activity (LSA-I) *non fissile or fissile-excepted*	7	UN2912	N/A
Radioactive Material, low specific activity (LSA-II) *non fissile or fissile-excepted*	7	UN3321	N/A
Radioactive Material, low specific activity (LSA-III) *non*	7	UN3322	N/A

Proper Shipping Name/ Hazardous Materials Description	Hazard Class/ Division	Identification Number	Packing Group
Radioactive material, excepted package-limited quantity of material	7	UN2910	N/A
fissile or fissile-excepted			
Radioactive Material, surface contaminated objects (SCO-I *or* SCO-II) *non fissile or fissile-excepted*	7	UN 2913	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - The shipments are excepted from the packaging and transport requirements for radioactive material of Part 173, Subpart I and may be transported by motor vehicle or rail freight provided it is evident that radioactive material will not be released from the conveyance during transit and that the transport conditions in the shipment approval form specified in paragraph 7(d) of this special permit are satisfied.

b. CLASSIFICATION AND TESTING - The shipments are exempted from the classification and description requirement of 49 CFR § 173.22(a)(1) provided that the measured radiation levels at the external surface of the conveyance do not exceed 0.50 mSv/h (50 mrem/h) and, in the case of a highway vehicle, the dose rate in any occupied space is no greater than 0.02 mSv/h (2 mrem/h).

c. COMMUNICATIONS - The packages and conveyances transported under this special permit are exempted from the communication requirements of 49 CFR Part 172, Subpart C (shipping papers), D (marking), E (labeling), and F (placarding) provided the communication provisions in the shipment approval form specified in paragraph 7(d) of this special permit are satisfied.

d. SHIPMENT APPROVAL BY STATE RADIATION OFFICIAL - Prior to shipment of the waste, the state radiation control official of the state where the radiation was detected must evaluate the radiological risk associated with the transport of the material, under the conditions of this special permit, to a location where the radioactive material can be identified and properly treated. If the official believes that these risks

are no greater than the risk associated with normal transport of radioactive material in compliance with the regulations, he/she may authorize the shipment by completing and signing the shipment approval form shown in Annex A. Any additional or special conditions necessary for safe transport must be included in the approval. Note: This special permit is not required in order to transport radioactively contaminated household wastes, since according to DOT Letter of Interpretation Ref. No. 04-0197, dated Oct. 8, 2004, radioactively contaminated household wastes are not regulated in transport by DOT under its hazardous materials regulations.

e. SHIPMENT APPROVAL FORM DISTRIBUTION - Copies of the shipment approval form must be provided, in advance of the shipment, by the issuing official to the following:

(1) the Office of the Executive Director, CRCPD, Frankfort, KY;

(2) the cognizant person at the facility where the radioactive material was discovered;

(3) the cognizant person at the facility from which the waste was shipped prior to detection;

(4) the cognizant person at the facility to which the waste will be shipped for identification and/or treatment;

(5) the state radiation official having authority over the facility receiving the shipment (after detection);

(6) the state radiation official having authority over the facility or company from which the shipment originated (before detection).

f. SHIPMENT APPROVAL FOR CARRIERS - The cognizant person at the facility where the radioactive material was discovered must provide a copy of the shipment approval to the operator of the vehicle used for highway shipments and to the railroad management or dispatch office for rail freight shipments.

g. IDENTIFICATION AND DISPOSITION OF RADIOACTIVE MATERIAL TRANSPORTED UNDER THIS SPECIAL PERMIT - Once the radionuclides in the waste are identified and disposition is arranged, the person responsible for the identification must complete the identification and disposition portion of the shipment approval form and provide the completed form to:

(1) the Office of the Executive Director, CRCPD;

(2) the state official at the state of origin (prior to detection);

(3) the state official issuing the shipment approval; and

(4) the state official of the state where identification and disposition occurred, if different from g(2).

8. SPECIAL PROVISIONS:

a. Shipment Approval Assigned Number - One official in each state must assign and maintain a list of shipment approval numbers for all shipment approvals issued by that state under DOT-SP 11406. The eight figures in the shipment approval number should be determined as follows: the first two characters are the abbreviation of the state of origin; the third and fourth characters must be the abbreviation of the state of destination; the fifth and sixth characters must be the last two digits of the year of issue; the seventh and eighth characters must be the sequential number of the shipment approved for that year between those states. For example PA-NJ-00-02 would be the second shipment from Pennsylvania to New Jersey that was approved by the official during 2000.

b. Each state radioactive material official approving shipments must have a copy of this special permit and a copy of Title 49 of the Code of Federal Regulations. This official should also provide a copy of this special permit and their implementing instructions to all managers of landfill, incineration or other waste processing facilities that have installed radiation monitoring systems within the state.

9. MODES OF TRANSPORTATION AUTHORIZED: Rail freight and motor vehicle.

10. MODAL REQUIREMENTS:

a. A current copy of the shipment approval document must be carried in the cab of the motor vehicle. For shipments by rail freight, the railroad management will provide train crews with the identity of the rail car and its position in the train.

b. Each carrier must ensure that the shipment described on the shipment approval document is transported over the most appropriate route without unnecessary or avoidable delay.

c. The shipment approval form and other provisions of this special permit satisfy: the Emergency Information and Training requirements of 49 CFR Part 172, Subpart G and Subpart H, and the modal Class 7 material requirements of Part 174, Subpart K and Part 177, Subpart B.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law 49 U.S.C. 5101 et seq:

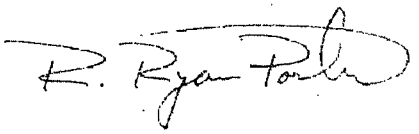
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by 49 CFR 172, Subpart H.

No person may use or apply this special permit, including display of its number, when the special permit has expired or is otherwise no longer in effect. Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term 'exemption' to 'special permit' and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: In addition to the reporting requirements of §§ 171.15, 171.16, and 174.750 or 177.854, a carrier must report, as soon as practicable, any incident involving a shipment in transportation under this special permit to the Associate Administrator for Hazardous Materials Safety by calling the National Response Center at 1-(800)424-8802. A call must also be made to the state official signing the shipment approval as identified in paragraph 7(d). These telephonic notices should identify that the shipment is under DOT-SP 11406 and the eight-digit shipment approval identification number.

Issued in Washington, D.C.:



for Robert A. McGuire
Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/special_permits/spec_perm_index.htm. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: FDF/sln

Annex A

DOT-SP 11406 SHIPMENT APPROVAL FORM

Approval No ____ ____ ____ ____ (Refer to SP 11406, para. 8a)

This shipment of waste or recycle materials contains unidentified radioactive material causing low level radiation outside the vehicle. Shipment is under Special permit DOT-SP 11406 without a determination of materials meeting or not meeting the regulatory definition of radioactive material. The shipment is a minor radiological concern based on considerations of the U.S. Dept. of Transportation and the state official signing this shipment approval document.

==========

DETAILS of DETECTION SITE, MATERIALS, and ORIGIN

Facility: Name _____ Type: _____

Address: _____

❶ Contact person: _____ Ph. _____ Fax. _____

☐ Highway or ☐ Rail Vehicle Type: _____ Id.No.: _____

Company: _____ Operator name: _____

❷ Contact person: _____ Ph. _____ Fax. _____

Description of waste and release risk factors: _____

_____

Radiation Measurement Date/time performed: _____

mrem/h (max) _____ location on vehicle _____

Inst.Mfgr./type/model _____ Bkg. mrem/h _____

Surveyor name: _____ Ph. _____

Shipment Origin Company: _____ Address: _____

Waste Origin: _____

❸ Contact person: _____ Ph. _____ Fax. _____

==========

RADIATION CONTROL OFFICIALS (Detection, Origin, Destination States)

Detection State Official (receiving radiation detection info) Name: _____

❹ Organization _____ Ph. _____ Fax. _____

Origin State Official (prior to detection) Name: _____

❺ Organization _____ Ph. _____ Fax. _____

Destination State Official (after detection) Name: _____

❻ Organization _____ Ph. _____ Fax. _____

==========

DESTINATION for RADIOACTIVE MATERIAL IDENTIFICATION and/or DISPOSITION

If carrier and shipper to this location are different than ❷ and ❸, show info in REMARKS

Company Name: _____ Location: _____

❼ Contact person: _____ Ph. _____ Fax. _____

May 5, 2006

SP 11406 Approval No ___ ___ ___ ___ Page 2

APPROVAL of SHIPMENT and SPECIAL CONDITIONS

Conditions: _____

_____

_____

❽ Signature: _____ Ph._____ Fax._____

Title _____ Organization _____ Date _____

IDENTIFICATION of RADIOACTIVE MATERIAL and DISPOSITION INFORMATION at DESTINATION

_____

_____

_____

❾ Name:_____ Title:_____ Date: _____

Organization:_____ Ph._____ Fax._____

RECORD of TRANSMITTALS (Shipment Approvals and identification/disposition)
(Circumstances may influence distribution)

Shipment Approvals (Sent by ❹ or ❽) to (Show date sent)

OED CRCPD _____, ❶ _____ , ❷ _____, ❸ _____,

❺ _____, ❻ _____, ❼ _____, OTHER _____

Record of Identification and Disposition (Sent by ❼, ❾, or other ____) to

OED CRCPD _____, ❸ _____, ❺ _____, ❻ _____,

❹ or ❽ _____, OTHER _____

REMARKS, OTHER INFORMATION

_____

_____

_____

_____

_____

_____

In case of an emergency, notify the National Response Center ((800)424-8802) and the (❽) authorizing official and give the Special Permit No. SP 11406 and Approval No.

ATTACHMENT 3

Procedure For Notifications Made By Waste Facilities That Involve Trash Contaminated With Radioactive Material

During Routine Business Hours (8am – 5pm, Mon-Fri)

A. Contact the Bureau of Environmental Radiation's Radioactive Material Section BER/RMS (voice: 609-984-5462, fax: 609-633-2210) for All Reported Radiation Incidents

During Off-Hours (5pm- 8am Mon-Fri, Weekends, and Holidays)

A. Reported Radiation Readings of less than or equal to 30 millirem/hour ($\leq$ 30 mR/hr)

Do Not Contact the RAMRAT Duty Officer at these levels

Inform the waste facility that they must complete a D.O.T. Exemption and fax it to the BER/RMS

Inform the waste facility that a representative from the BER/RMS will contact them on the next business day and issue the exemption.

Inform the waste facility that the truck is to remain at their site until the D.O.T. Exemption has been approved by the BER/RMS

B. Reported Radiation Readings greater than 30 millirem/hour ($>$ 30 mR/hr)

Contact the RAMRAT Duty Officer at these levels

* In all instances, fax a copy of the "Incident Notification Report to the office of the Bureau of Environmental Radiation at 609-633-2210

NJDEP - BER 7.02
MANAGEMENT OF ALLEGATIONS

1. Initial Contact

Receipt of an Allegation

An "alleger" is any individual or organization that makes an allegation to DEP. Any DEP employee may receive an allegation, either by telephone, in person, via the Internet;[1] during an inspection, investigation, or enforcement conference; or in the mail. Treat the alleger courteously in all contacts and be responsive to the alleger, irrespective of the reason the alleger came to DEP. The safety significance of an allegation should not affect the treatment of the alleger, although it may affect the timing of DEP follow up actions. The way DEP staff treat an alleger is an important indicator of how the alleger, DEP staff, and the public view the allegation process.

Questions To Be Asked During Contact With the Alleger (Allegation Contact Form - Attachment 1)

First obtain as much information as possible from the alleger, including:

- The alleger's full name, position or relationship to the facility or activity involved, home mailing address (not business), telephone number
- The alleger's employer, the facility, and activity involved
- Nature and details of the allegation
- Potential safety impact
- How the alleger found out about the concern(s)
- Other individuals DEP should contact for additional information
- Records DEP should review whether the alleger raised the concerns with his or her management. If not, why not. If yes, what action has been taken.
- Whether the alleger has any objection to referring issues to the licensee.
- Whether the alleger objects to having his or her identity released
- The alleger's preference for method and time of contact
- The reason the alleger contacted DEP (e.g., licensee's corrective action program is unresponsive, individual fears retaliation)
- . Whether the alleger has contacted any other State agency

If the information appears to be classified or safeguards information, inform the alleger that DEP will contact him or her to arrange a personal interview with a staff member knowledgeable in the safeguards or classified information area of the alleger's concerns.

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[1] Because of the current lack of security in Internet communications between the public and DEP, the inability to verify the identity of the sender, and the possibility that messages sent to company e-mail addresses can be read by the company, **all** allegations received via the Internet will be treated **as** anonymous. Anyone submitting an allegation via the Internet who desires a personal response from the DEP must call the safety hotline, verify that they are the party who sent the allegation via the Internet, and provide their address so that a response can be sent to them via the U.S. Postal Service. This information is provided to allegers on the allegations web page.

If the alleger attempts to provide off-the-record information, advise him or her that DEP does not recognize off-the-record information and that all information received will be accepted officially and appropriately acted upon.

If the alleger does not object to being contacted again, inform the alleger that he or she will be contacted again, either by telephone, a personal visit, or a letter, within 30 days of the allegation. Inform the alleger that DEP will acknowledge receipt at a designated address.

This process will permit the alleger to review the information with DEP to confirm that the information has been correctly interpreted and understood. Also inform the alleger that he or she will be contacted when the allegation is resolved. All contacts should be documented in the appropriate allegation file.

If the DEP contact does not have the capability to evaluate the information, determine follow up action, or establish DEP jurisdiction, the contact should inform the alleger that it may be necessary for someone else to contact him or her for additional information.

If during contact with an alleger, the alleger becomes hostile and/or abusive, the DEP employee is not required to continue the discussion and withstand the abuse. In this type of situation, the DEP employee should politely end the conversation and either offer to re-contact the alleger, or provide the alleger the opportunity to re-contact DEP, after he or she has had an opportunity to collect himself or herself.

2. Protecting an Alleger's Identity

Before the end of the initial discussion in which the alleger has presented his or her concerns, inform the alleger of the degree to which his or her identity can be protected. Inform the alleger that his or her identity, or information that would reveal his or her identity, will be withheld from DEP staff except on a need-to-know basis.

It is DEP's practice to neither confirm nor deny to the licensee or the public that an individual is an alleger or confidential source, except when necessary in the furtherance of an investigation. Whether confidentiality has been granted or not, the following points apply:

- Do not tell a licensee (even if the licensee asks) that an inspection is based on an allegation
- Inspection-related documents should address relevant issues without acknowledging that the issue was raised in the context of an allegation.
- Do not include information that could lead to the identification of the alleger or confidential source in DEP-generated documents related to an allegation, except in cases in which the alleger has indicated that he or she has no objection to the release of his or her name to the licensee and this lack of objection has been documented in writing. This type of information includes inspection reports or referrals and correspondence to licensees, Agreement States, Federal agencies, the Occupational Safety and Health Administration (OSHA), the military, or other organizations or individuals.
- Do not refer to the identity of an alleger or confidential source during internal DEP staff discussions. Redact the alleger's name and other identifying

information from allegation documents before they are distributed to assigned staff.

- If necessary, to protect the identity of an alleger or confidential source, reword and retype an alleger's written allegation before it is made available to a licensee.
- Do not reproduce allegation files and documents that could reveal the identity of an alleger or confidential source
- Correspondence maybe issued by any designated staff as long as the Assistant Director and/or Director, as appropriate, reviews and concurs in the letter.
- Internal correspondence containing information that could reveal the identity of an alleger or confidential source must be transmitted in a sealed envelope marked "To Be Opened by Addressee Only"

3. Disclosing an Alleger's Identity

In accordance with N.J.S.A. 47:1A et seq., (commonly known as the Open Public Records Act or OPRA) members of the public may seek access to government records that are made or maintained by the Department of Environmental Protection. There are statutory exemptions to OPRA which are listed at N.J.S.A. 47:1A-1.1 (e.g., legislative; deliberative process; trade secrets; attorney-client privilege, etc) that could also apply in case specific situations. The DEP's OPRA Policy and Procedure is Attachment 2.

Inform an alleger of the limitations on the protection of his or her identity. Tell the alleger that his or her identity will not be disclosed outside DEP, except as follows:

- The alleger has clearly indicated no objection to being identified.
- Disclosure is necessary because of an overriding health or safety issue.
- Disclosure is necessary pursuant to an order of a court or DEP adjudicatory authority

For allegations involving wrongdoing (e.g., allegations involving record falsification, willful violations, or other deliberate conduct in violation of DEP regulatory requirements), an alleger's identity may be disclosed at the DEP's discretion in order to pursue the investigation.

Notify an alleger if his or her name or other personal identifier is to be, or has been, released.

Advising an Alleger About Confidentiality

If the alleger declines to provide sufficient information, attempt to establish the reason(s) for the reluctance, using the following guidance:

- Explain that confidentiality can be provided under certain circumstances but not for concerns involving discrimination.

4. Recipient of the Allegation

A DEP employee receiving an allegation will inform his or her supervisor. The DEP employee needs to complete the Radioactive Material Section Allegation Report Form (Attachment 1) and perform an immediate assessment to determine if there is an overriding safety issue.

An allegation should be screened using the following questions: (c)

- Is there an immediate safety concern that must be quickly addressed?
- Is the allegation a specific safety or quality issue or a generalized concern?
- Has the staff previously addressed the issue?
- Have a substantial number of allegations on similar concerns been received?
- What is the time sensitivity of the allegation, and what immediate actions are necessary?
- What is the potential for wrongdoing and will investigative assistance be needed?
- Does the allegation package contain sufficient information for a thorough evaluation? If not, identify the additional information needed.
- Is the identity of an alleger necessary for a thorough evaluation?
- Can the issues be adequately addressed by a technical inspection? If not, determine the best way to address the issues.
- Identify any peripheral issues that could develop.
- Are any licensing actions, enforcement actions, or other allegations pending that could be affected by the allegation?
- Can inspection resources be effectively utilized pursuing the issue or is the allegation too vague or frivolous?
- Is further consideration of the allegation required? If not, inform the alleger or confidential source in a courteous and diplomatic manner of the rationale for not considering it further.
- Can licensee resources reasonably be used in resolving the allegation to conserve staff resources? Consider potential problems associated with involving the licensee in the resolution process.
- Does the allegation have the potential to require escalated enforcement action?
- Determine if other DEP offices should be notified.
- Establish a schedule for the resolution of each allegation that is consistent with the licensing schedule, if applicable.

Any time there is a referral to another organization, whether it is internal to DEP or external, the alleger must be notified. However, for an allegation not within the jurisdiction of DEP, tell the alleger that the allegation will be forwarded to the appropriate organization(s) and that he or she, subsequently, should directly contact the organization(s). In this case, in which DEP forwards an allegation not within its jurisdiction to another organization(s), DEP should not act as a middle-man between the alleger and the other organization(s). The alleger should be told to contact the new organization(s) directly, and DEP will terminate its involvement in the case.

Allegations should be addressed according to the guidelines listed below:

- Overriding safety issue – shall be addressed immediately
- High safety significance – should be addressed expeditiously, usually within 30 working days
- Low safety significance – should be addressed as priorities and resources permit, usually within 6 months of receipt.

5. Closure of Allegations

Documentation of Resolution of the Allegation
A final report will be prepared to set forth the facts about the allegation and its resolution. This report can be a memorandum (including a closeout letter) for a relatively minor matter, a report of an investigation, an inspection report, material inspector field notes, or a technical paper for a complex or major generic issue.

The final closure report should include a summary of the concern, a description of the evaluation performed, and the conclusions drawn. It also should inform the alleger which concerns were substantiated and which were not. However, if the closure document is an inspection report, it will address the relevant issue without acknowledging that the issue was raised in the context of an allegation.

The closure report officially closes the allegation and must be placed in the allegation file.

Send to the alleger or confidential source and, if appropriate, to the affected organizations a copy of the final report, appropriately redacted to protect the identity of the alleger or confidential source and/or other people related to the allegation and to protect proprietary information. However, do not send materials inspector field notes, instead, summarize the information in the closure letter. A transmittal letter may be needed to summarize the matter after civil and criminal enforcement actions, if any, have taken place.

Notification When No Enforcement Action Is Intended
Following the issuance of a report, the staff determines whether enforcement is warranted. If enforcement is not warranted, staff issues a memorandum stating that it does not appear that enforcement is warranted and forwards report to management. If management agrees letter is sent to alleger providing findings of the investigation.

Notification When an Enforcement Action Is Pending
When an enforcement action is pending, the alleger cannot normally be informed of the results of the investigation until the licensee is informed. The licensee is informed of the results through the issuance of a letter informing the licensee that DEP is considering an issue for escalated enforcement and inviting the licensee to an enforcement conference or offering the licensee the choice of responding in writing. A copy of the letter to the licensee and the synopsis of the report shall be sent to the alleger at the time it is sent to the licensee. The concurrences on the letter to the licensee are those required by the enforcement process and they also serve as the approval to provide the synopsis to the alleger.

Staff-Identified Potential Wrongdoing
Allegations that involve failure to meet requirements have the potential for being willful violations (wrongdoing). The staff should remain alert to implicit allegations and indicators of wrongdoing that may emerge.

Allegations regarding suspected improper conduct by DEP employees or DEP contractors will be brought to the attention of appropriate management for referral to Labor Relations.

It is very possible that information considered to be an allegation might be received at enforcement conferences. In these cases, this information will be treated as staff-identified allegations because the person making the statement may not consider that they made an allegation and they are not likely to be expecting a response. In cases of this type, the staff will evaluate or inspect the issue but DEP will not issue an acknowledgment or closure letter to the person who made the statement.

NJ Department of Environmental Protection
RADIOACTIVE MATERIALS SECTION ALLEGATION REPORT FORM

LICENSEE/FACILITY AND/OR EMPLOYEE NAME:

Alleger: _____

Address: _____

_____

_____

Home Phone: _____

Work Phone: _____

Alleger's preference for method of contact (mail, phone, etc.) And time of contact:

Date Received: _____

Received by: _____

Title: _____

Identity Protection Requested: Y or N

Disclosure of Alleger's Identity:

The Individual receiving the Allegation: Inform the alleger of the degree to which their identity can be protected. This is necessary since some allegers may incorrectly assume that the NJDEP can or will protect their identity under all circumstances

Confidentiality Protection Requested: Y or N

What is the allegation or concern?

_____

/ did alleger find out about the allegation or concern?

Where did alleged action or activity occur?
When did allegation or concern occur?
Who is involved/witnessed action or activity?
How or why did it occur?
What evidence or records, if any, can be examined?
Did the individual express a concern to the licensee, facility or Agreement State involved?
What is the status of the licensee's, facility's, or State's action?
What is this an issue of? (Circle all applicable): (a) Safety; (b) Safeguards; (c) Drugs; (d) Falsification; (e) Discrimination; (f) DEP personnel wrongdoing; (g) DEP performance; (h) Licensee.
The alleger informed verbatim of the limitations on the protection of identity as described in Part I (A)(1)(b) through (e) of the allegations handbook 8.8 of Protection of Alleger Identity: Yes or No

PREPARED BY:	DATE PREPARED:

Open Policy Records Act (OPRA) Requests

I. PURPOSE

To state the policy and procedure governing access to, and inspection and copying of Department government records pursuant to written requests made under the New Jersey Open Public Records Act, non-OPRA requests, and subpoenas.

II. AUTHORITY

N.J.S.A. 13:1B-3
N.J.S.A. 13:1B-4
N.J.S.A. 13:1D-2
N.J.S.A. 47:1A-1 et seq.
Executive Order No. 9 (1963)
Executive Order No. 11 (1974)
Executive Order No. 79 (1979)
Executive Order No. 21 (2002)
Executive Order No. 26 (2002)
N.J.A.C. 7:1-1.1 (http://www.state.nj.us/dep/legal/rules/njac7_1.pdf)

III. SUPERSEDES

Policy and Procedure No. 1.56 dated 04/27/94.
Policy and Procedure No. 3.14 dated 09/09/03

IV. DEFINITIONS

Assistant Commissioner Records Custodian (ACRC) – shall mean the person in each Assistant Commissioner area who assigns requests to appropriate File Officers and oversees the processing of the request by the program to ensure the request is being handled properly.

Central File Unit - shall mean the Office of the Records Custodian, Central File Unit, located on the first floor, west wing of 401 East State Street.

Confidential Records - shall mean all government records that are exempted by law from public inspection (see Section V, Policy).

Department Records Custodian – shall mean the officer officially designated by formal action of the agency Commissioner to coordinate and maintain government records. (see Section VI. Responsibilities).
File Officer – shall mean the program person who retrieves files from units within their responsibility that maintain ownership of files. Reports findings to the ACRC.

Form ADM-101 – shall mean the "Records Billing Statement" to be completed by the Office of the Records Custodian to bill requesters for copies made prior to their release.

Form SONJ-DEPRRF-V2 – shall mean the "State of New Jersey, Department of Environmental Protection, Government Records Request Form" to be completed by anyone requesting a government record pursuant to the New Jersey Open Public Records Act. (available online at http://depnet.dep.state.nj.us/opra/NJDEP_OPRA_Request_Form.pdf)

Government Record – shall mean any paper, written or printed book, document, drawing, map, plan, photograph, microfilm, data processed or image processed document, information stored or maintained electronically or by sound-recording or in a similar device, or any copy thereof, that has been made, maintained or kept on file in the course of official business.

Office of Legal Affairs – shall mean, for purposes of this policy and procedure, the office on which subpoenas for records are to be served, pursuant to N.J.A.C. 7:1-1.3(f). The Office of Legal Affairs is located on the fourth floor, west wing, 401 East State Street.

Office of the Records Custodian – shall mean the custodian of the Department's records, as designated under the OPRA, located on the first floor, west wing, 401 East State Street.

Open Public Records Act (OPRA) – shall mean the statute concerning public access to government records, N.J.S.A. 47-1A-1 et. seq. (available online at http://www.nj.gov/grc/act.html)

Requester - shall mean any person seeking access to government records.

Subpoena – shall mean a legal request for access to government records.

V. POLICY

A. Access to Government Records

1. The Department will retain all originals of government records in accordance with the State Records Retention Schedule. (available online at http://www.njarchives.org/links/pdf/g100000-905.pdf

2. The Department will provide access to government records for inspection upon a written request under OPRA on Form SONJ–DEPRRF-V2, and in response to a properly served subpoena.

3. The Department will provide copies or provide facilities for a requester to make copies of government records upon written request under OPRA on Form SONJ-DEPRRF-V2, and in response to a properly served subpoena.

4. Written requests under OPRA to inspect, copy or obtain a copy of any government record required to be made available under OPRA, shall be sent or referred to:

   Chief
   Office of the Records Custodian
   New Jersey Department of Environmental Protection
   PO Box 442
   401 East State Street
   Trenton, New Jersey 08625-0442

5. The Department will provide copies of government records, and certify, when requested, that same are true and accurate copies.

6. A request for a government record received in the Department other than the Office of the Records Custodian and that references OPRA, shall be forwarded immediately (seven-day time frame starts from the time the request is received in the Department) to the ORC for processing.

7. Requests received for government records that do not reference OPRA may be responded to directly by the program. Prior to releasing any government

records, confidential information (see Section V. B. Confidential Records) must be removed or redacted.

8. The Department will provide copies or provide facilities for a requester to make copies of government records in response to a properly served subpoena. Pursuant to N.J.A.C. 7:1-1.3(f), anyone serving a subpoena for the production of Department records and/or testimony from Department employees must serve the subpoena on the Office of Legal Affairs. No Department employee outside the Office of Legal Affairs is authorized to accept service of a subpoena.

B. Confidential Records – OPRA Requests

1. Government records are confidential, and are not subject to public inspection or copying under OPRA if they are:

   a. A Department record that consists of inter-agency or intra-agency advisory, consultative, or deliberative material;

   b. Information received by a member of the Legislature from a constituent or information held by a member of the Legislature concerning a constituent, including but not limited to, information in written form or contained in any e-mail or computer data base, or in any telephone record whatsoever, unless it is information the constituent is required by law to transmit;

   c. Any memorandum, correspondence, notes, report or other communication prepared by, or for, the specific use of a member of the Legislature in the course of the member's official duties, except that this provision shall not apply to an otherwise publicly-accessible report that is required by law to be submitted to the Legislature or its members;

   d. Any copy, reproduction or facsimile of any photograph, negative or print, including, instant photographs and videotapes of the body, or any portion of the body, of a deceased person, taken by or for the medial examiner at the scene of death or in the course of a post mortem examination or autopsy made by or caused to be made by the medical examiner except:

      i. When used in a criminal action or proceeding in this State that relates to the death of that person,

      ii. For the use as a court of this State permits, by order after good cause has been shown and after written notification of the request for the court order has been served at least five days before the order is made upon the county prosecutor for the county in which the post mortem examination or autopsy occurred,

      iii. For use in the field of forensic pathology or for use in medical or scientific education or research, or

      iv. For use by any law enforcement agency in this State or any other State or Federal law enforcement agency.

   e. Criminal investigatory records;

   f. Victim's records, except that a victim of a crime shall have access to the

victim's own records;

g. Trade secrets and proprietary commercial or financial information obtained from any source. For the purposes of this paragraph, trade secrets shall include data processing software obtained by a public body under a licensing agreement that prohibits its disclosure;

h. Any record within the attorney-client privilege. This paragraph shall not be construed as exempting from access attorney or consultant bills or invoices except that such bills or invoices may be redacted to remove any information protected by the attorney-client privilege;

i. Administrative or technical information regarding computer hardware, software and networks, including but not limited to source code, operating protocols, and manuals created by employees or consultants for the use of the Department, which, if disclosed, would jeopardize computer security;

j. Emergency or security information or procedures for any buildings or facility which, if disclosed, would jeopardize security of the building or facility or persons therein;

k. Security measures and surveillance techniques which, if disclosed, would create a risk to the safety of persons, property, electronic data or software;

l. Information which, if disclosed, would give an advantage to competitors or bidders;

m. Information generated by or on behalf of public employers or public employees in connection with any sexual harassment complaint filed with a public employer or with any grievance filed by or against an individual or in connection with collective negotiations, including documents and statements of strategy or negotiating position;

n. Communication between the Department and its insurance carrier, administrative service organization or risk management office;

o. Information that is to be kept confidential pursuant to court order;

p. That portion of any government record that discloses the social security number, credit card number, unlisted telephone number or driver license number of any person; except for use by the Department in carrying out its functions, or any private person or entity acting on behalf thereof, or any private person or entity seeking to enforce payment of court-ordered child support; except with respect to the disclosure of driver information by the Division of Motor Vehicles as permitted by N.J.S.A. 39:2-3.4; and except that a social security number contained in a government record required by law to be made, maintained or kept on file by the Department shall be disclosed when access to the document or disclosure of that information is not otherwise prohibited by State or federal law, regulation or order or by State statute, resolution of either or both houses of the Legislature, Executive Order of the Governor, rule of court or regulation promulgated under the authority of any statute or executive order of the Governor.

q. A government record that pertains to an investigation or inspection in progress by the Department, if the inspection, copying or examination of

such record or records is inimical to the public interest; provided, however, that this provision shall not be construed to allow the Department to prohibit access to a record of the Department that was open for public inspection, examination, or copying before the investigation or inspection commenced;

r. The personnel or pension records of any individual, including but not limited to records relating to any grievance filed by or against an individual, except:

i. An individual's name, title, position, salary, payroll record, length of service, date of separation and the reason therefor, and the amount and type of any pension received;

ii. When such personnel or pension records are required to be disclosed by another law, when disclosure is essential to the performance of official duties of a person duly authorized by this State or the United States, or when authorized by an individual in interest; or

iii. Data contained in information that disclose conformity with specific experiential, educational or medical qualifications required for Department employment or for receipt of a public pension, but not including any detailed medical or psychological information;

s. Test questions, scoring keys and other examination data pertaining to the administration of any examination or an application for public employment or licensing;

t. In addition, OPRA continues any existing exception from public access to a government record made under:

i. Resolution of either or both houses of the Legislature;

ii. Regulation promulgated under the authority of any statute or Executive Order of the Governor;

iii. Executive Order of the Governor;

iv. Rules of Court; or

v. Any Federal law, Federal regulation, or Federal order.

2. Government records are confidential, and are not subject to public inspection or copying under OPRA if they are among the following, which are, in accordance with paragraph 4 of Executive Order 21 (July 8, 2002), Department-specific categories of documents, as proposed by the Department in the New Jersey Register on July 2, 2002 with modifications subsequently imposed upon issuance of Executive Order 26 (August 13, 2002).

a. Information related to Green Acres and Natural Lands Trust land acquisitions, program offerings and active projects, including appraisals, valuations and title investigations shall be made available for public inspection, examination and copying no later than 48 hours before formal action is to be taken on any land transaction, program offering or active

project unless the land transaction, program offering or active project is actively under negotiation, a binding contract has not been executed, or disclosure of the information would jeopardize the land transaction, program offering or active project.

b. Records relating to mediation proceedings conducted by or on behalf of the Department, except that any records that were open for public inspection, examination or copying prior to mediation shall continue to be available for public inspection, examination or copying during and after mediation. Final agreements
resulting from mediation shall be available for public inspection, examination or copying;

c. Records that reveal the identity of a complainant;

d. The following information shall be withheld if the Department determines that the inspection, examination or copying of that record would substantially interfere with the State's ability to protect and defend the State and its citizens against acts of sabotage or terrorism, or which, if disclosed, would materially increase the risk or consequences of potential acts of sabotage or terrorism:

i. Any inventory of enforcement resources, including standard operating procedures, compiled and any policies or plans compiled by the Department pertaining to the mobilization, deployment, or tactical operations involved in responding to emergencies, including employee emergency contact information;

ii. Information related to a nuclear power plant, which, if disclosed, would jeopardize the public health, safety and welfare or the security of the plant;

iii. Listing of Low Level Radioactive Waste generators including amounts of waste generated and shielding designs for sources of radiation;

iv. National defense related information from Lockheed Martin's Aegis Radar System facility;

v. Environmental Emergency Procedures detailing plans such as emergency procedures for wastewater treatment facilities pursuant to N.J.A.C. 7:14A-6.12(D); and

vi. Inundation maps submitted as part of Emergency Action Plans pursuant to N.J.A.C. 7:20-1.7(f) and 1.11(i);

vii. Discharge Prevention Containment and Countermeasures and Discharge Cleanup;

viii. Removal Plans and related general site plans;

ix. Off-Site Consequence Analyses developed pursuant to the Toxic Catastrophe Prevention Act;

x. Radioactive Materials Licenses issued by the Nuclear Regulatory

Commission and advisories issued by the Nuclear Regulatory Commission that address lessons learned, security or enforcement issues;

3. Government records are confidential, and are not subject to public inspection or copying under OPRA if they are among the following, identified in Executive Order 26 (August 13, 2002):

a. No public agency shall disclose the resumes, applications for employment or other information concerning job applicants while a recruitment search is ongoing. The resumes of successful candidates may be disclosed once the successful candidate is hired. The resumes of unsuccessful candidates may be disclosed after the search has been concluded and the position has been filled but only where the unsuccessful candidate has consented to such disclosure.

b. Records of complaints and investigations undertaken pursuant to the Model Procedures Complaints Alleging Discrimination, Harassment or Hostile Environments in accordance with the Policy Prohibiting Discrimination, Harassment or Hostile Environment in the Workplace and Executive Order No. 106 (Whitman 1999), whether open, closed or inactive.

c. Information concerning individuals as follows:

i. Information related to medical, psychiatric or psychological history, diagnosis, treatment or evaluation; Information related to a nuclear power plant, which, is disclosed, would jeopardize the public health, safety and welfare or the security of the plant;

ii. Information in personal income or other tax return;

iii. Information describing a natural person's finances, income, assets, liabilities, net worth, bank balances, financial history or activities, or creditworthiness, except as otherwise required to be disclosed;

d. Test questions, scoring keys and other examination data pertaining to the administration of an examination or an application for public employment or licensing;

e. Records of another Department or agency allocated to that Department in the possession of this Department or any agency allocated to this Department when those records are made confidential by a regulation of that Department or agency allocated to that Department adopted pursuant to N.J.S.A. 47:1A-1 et seq. and Executive Order No. 9 (Hughes 1963), or pursuant to another law authorizing the Department or agency to make records confidential or exempt from disclosure; and

f. Records of this Department or any agency allocated to this Department held by the Office of Information Technology, the State Records Storage Center of the Division of Archives and Record Management (DARM), in the Department of State, or an offsite storage facility outside of the regular business office of the agency. Such records shall remain the legal property of this agency and be accessible for inspection or copying only through a request to the proper custodian of this Department or agency allocated to this Department. In the event that records of this Department or any agency allocated to this Department have been or shall be transferred to and

accessioned by the State Archives in the Division of Archives and Records Management, all such records shall become the legal property of the State Archives, and requests for access to them shall be submitted directly to the State Archives.

C. Confidential Records – Subpoenas

1. Government records are confidential, and are not subject to public inspection or copying under a subpoena if they are:

a. Within the attorney-client privilege. This paragraph shall not be construed as exempting from access attorney or consultant bills or invoices except that such bills or invoices may be redacted to remove any information protected by the attorney-client privilege;

b. Prepared for or in anticipation of litigation to which the Department is a party;

c. A Department record that consists of inter-agency or intra-agency advisory, consultative, or deliberative material;

d. That portion of any government record that discloses the social security number, credit card number, unlisted telephone number or driver license number of any person. The government record can be produced, but the confidential information must be redacted; or

e. Protected by any other judicially-recognized protection or privilege.

VI. RESPONSIBILITIES

A. In response to a government records request under OPRA the Office of the Records Custodian shall:

1. Receive and respond to written requests and schedule appointments for requesters to review government records and/or to provide copies of government records by:

a. Reviewing the request to ensure that the records requested are subject to public inspection;

b. Forwarding the request to the appropriate ACRC(s) who will forward the request to the appropriate file officer(s);

c. Scheduling appointments for requesters to review government records and/or to coordinating requests for copies;

d. Maintaining and updating the OPRA tracking system to ensure the tracking system always reflects the most current information;

e. Mailing forms granting or denying OPRA requests;

f. Calculating cost of copying records according to the attached schedule, completing Form ADM-101 "Records Billing Statement", and forwarding to the requester for copies of government records prior to the release of records;

g. Receiving and recording payment received, if copying done by the

Department, and forwarding payment as outlined in Policy and Procedure 3.07 "Control of Revenue Receipts."

2. Coordinate with the ACRC(s) or file officer(s) when requested information has not been forwarded or there are questions regarding the processing of an OPRA request.

B. In response to service of a subpoena, the Office of Legal Affairs shall:

1. Receive and respond to subpoenas by:

a. Reviewing the subpoena to ensure that the subpoena is properly served and the records or testimony requested are clearly identified, and communicating with the requester to clarify the subpoena, as necessary;

b. Notifying subpoenaed employees of their obligation to attend a deposition or testify in court;

c. Through the OPRA tracking system, forwarding the request to the appropriate ACRC(s) who will forward the request to the appropriate file officer(s);

d. Requesting legal advice from the Office of the Attorney General, as necessary;

e. Scheduling appointments for requesters to review government records and/or to coordinating copying of subpoenaed government records;

f. Maintaining and updating the OPRA tracking system regarding subpoenas for records to ensure the tracking system always reflects the most current information;

g. Corresponding with the requester;

h. Calculating cost of copying records according to the attached schedule, and notifying the requested of the cost of copies of subpoenaed government records prior to the release of records;

i. Receiving and recording payment received, if copying is done by the Department, and forwarding payment as outlined in Policy and Procedure 3.07 "Control of Revenue Receipts."

2. Coordinate with the ACRC(s) or file officer(s) when requested information has not been produced or there are questions regarding the processing of a subpoena.

C. File Officer(s) shall:

1. Control all government records under their jurisdiction by:

a. Maintaining a list of all records in OPRA tracking system;

b. Maintaining a list in the OPRA tracking system of exempt records;

c. Maintaining government records that include information concerning all matters within their jurisdiction;

d. Adhering to records retention schedules.

2. Receive requests for inspection of government records under OPRA from the Office of the Records Custodian and under subpoenas from the Office of Legal Affairs, and respond by:

   a. With regard to record requests through the Office of the Records Custodian, scheduling appointments with the requester to inspect public records;

   b. Maintaining sufficient security to ensure that public records are not altered, destroyed, damaged or removed during the inspection period;

   c. Notifying the Office of the Records Custodian when the request to inspect public records has been satisfied, and the Office of Legal Affairs when the subpoenaed records have been inspected;

3. Receive from the Office of the Records Custodian, if under OPRA, and from the Office of Legal Affairs, if by subpoena, and respond to requests for copies of government records by:

   a. Copying or providing facilities for the requester to make copies of public records requested;

   b. Notifying the Office of the Records Custodian when the request to copy public records has been satisfied, of the Office of Legal Affairs when the request to copy subpoenaed records has been satisfied;

VII. PROCEDURES

A. Requests to Inspect Government Records under OPRA

1. Office of the Records Custodian reviews the request and sends it to the appropriate ACRC(s).

2. File Officer(s)

   a. Ensures that the requested government records have been located;

   b. Ensures that the government records requested are not exempt by law from public disclosure;

   c. Enters detailed information into the OPRA tracking system regarding the records found and not found;

   d. Notifies the Office of the Records Custodian when Steps 2 and 3 have been completed through the OPRA tracking system;

   e. Provides a suitable location for the requester to review the records;

   f. Returns government records to the proper location;

B. Requests for Copies of Government Records under OPRA

1. File Officer(s)

a. Ensures that the requested government records have been located;

b. Ensures that government records requested are not exempted by law from public disclosure;

c. Copies government records requested or provide facilities for the requester to make copies of the records;

d. Forwards original or copies of government records to the Office of the Records Custodian;

e. Enters detailed information into the OPRA tracking system regarding the records found and not found;

f. Notifies the Office of the Records Custodian when the request has been completed through the OPRA tracking system;

g. Returns government records to the proper location;

2. Office of the Records Custodian

a. Calculates cost of Department copied records according to Section IX, Costs, below, completes Form ADM-101 and forwards to the requester prior to the release of records;

b. Receives and records payment then processes payment as outlined in Policy and Procedure 3.07 "Control of Revenue Receipts";

c. Forwards copies to the requester.

C. Subpoena of Government Records

1. Office of Legal Affairs:

a. Reviews the subpoena and forwards the request for records through the OPRA tracking system to the appropriate ACRC(s);

b. Calculates cost of Department copies records according to Section IX, Costs, below and notifies the requester of the approximate costs, to determine if the requester wishes to inspect the records, or receive copies of the records;

c. If payment is made directly to the Department, rather than to the Treasury copy service, receives and records payment, then processes payment as outlined in Policy and Procedure 3.07 "Control of Revenue Receipts";

d. Forwards copies of records to the requester, if records have not been produced through the Treasury copy service or through the individual ACRC.

2. File Officer(s):

a. Ensures that the requested government records have been located;

b. Ensures that the government records requested are not confidential records in accordance with Subsection V.C. Confidential Records – Subpoenas, above;

c. Enters detailed information into the OPRA tracking system regarding the records found and not found;

d. Notifies the Office of Legal Affairs when Steps 2 and 3 have been completed through the OPRA tracking system;

e. Depending on instructions from the Office of Legal Affairs:

i. Provides a suitable location for the requester to review the records;

ii. Copies government records requested or provides facilities for the requester to make copies of the records, or forwards original government records to the Treasury employee on the 6th floor of 401 East State Street, identifies the requester on a copy slip, marks the copy slip "Shop 7," and certifies the copies as true copies;

iii. Notifies the Office of Legal Affairs when the request has been completed through the OPRA tracking system;

iv. Returns government records to the proper location.

VIII. VIOLATIONS

A. Violation of this policy may result in the initiation of formal disciplinary action. The Department is not limited in its discretion to determine penalties up to and including removal.

B. Pursuant to OPRA, "A public official, officer, employee, or custodian who knowingly and willfully violates OPRA and is found to have unreasonably denied access under the totality of circumstances shall be subject to a civil penalty of $1,000 for an initial violation, $2,500 for a second violation, and $5,000 for a third violation that occurs within 10 years of an initial violation. The penalty shall be collected and enforced in proceedings in accordance with the Penalty Enforcement Law of 1999."

C. Failure to respond to a properly issued subpoena could result in imposition of a penalty, damages in a civil suit, and punishment for contempt of Court.

IX. COSTS

Payment for copies must be made in advance. Anonymous requests, when permitted, may require a deposit against the costs for reproducing the documents whenever the anticipated cost of producing the government records will exceed $5.00.

PHOTOCOPYING/MICROFILM REPRODUCTION WITH DEP EQUIPMENT (16mm)

First page to tenth page	$0.75 per page
Eleventh page to twentieth page	$0.50 per page
All pages over Twenty	$0.25 per page

FAXING DOCUMENTS

First page	$3.00
All additional pages	$1.50

SPECIAL REPRODUCTIONS

$5.00 each plus cost for use of external vendors as warranted.

MAPS

$5 per map

NOTE: Map charges apply only to documents stored by the Central File Unit and/or program area and do not pertain to the Maps and Publications Store price schedule.

MICROFICHE CARDS

$1.00 each

MICROFILM REELS

$10 per reel

COMPUTER REPORTS - HARD COPY

Photocopying page cost.

ELECTRONIC COPIES

3 ½" Diskettes	$ 0.55 each
Compact Disc	$15.44 each

EMAIL – WHEN AVAILABLE

No Cost

NJDEP - BER 7.03
Instrument Calibration and Quality Assurance Program

Dosimetry

1. Optically stimulated luminescent (OSL) dosimeters are used to determine the legal record of radiation exposure of staff. OSL dosimeters are provided and processed by Landauer, Inc., a National Voluntary Laboratory Accreditation Program (NVLAP) accredited dosimetry processor. OSLs are exchanged on a monthly basis.
2. Self-reading dosimeters (SRDs) are used, as necessary, to provide an estimate of accrued radiation exposure. The SRDs are calibrated annually by the NJ State Police Calibration Facility.

Field Instruments

Field Instruments

1. Beta/gamma and alpha survey instruments are calibrated at a frequency recommended by the manufacturer.
2. Maintenance and calibration service agreements with either the manufacturer or certified calibration facility are established each year.
3. All field survey instruments have a calibration sticker placed on them to indicate the calibration-done and calibration-due dates.
4. A field instrument may not be used unless the date of proposed use is within 1 year of the date of last calibration.
5. Field instruments are battery-checked and response-checked with an appropriate check source at the beginning of each day of use.
6. The Radioactive Materials Section (RMS) maintains an inventory and calibration status log of all field survey instruments.
7. A RMS staff person has been assigned responsibility in their position description to maintain the RMS Instrument Calibration and Quality Assurance Program and ensure there are operable and calibrated survey instruments available for use at all times.

MEMORANDUM

Date: June 20, 2007

To: Radiation Control Program Directors

From: Ruth E. McBurney, Executive Director, CRCPD

Re: The CRCPD National Radioactive Material Disposition Program

Under its National Radioactive Material Disposition Program, CRCPD can provide funds for the disposition of discrete radioactive material that a State, county or city radiation control program (RCP) or the Nuclear Regulatory Commission declares to be:

a) unwanted by an owner who cannot afford the cost of disposition, or
b) in the custody of a person who should not be held liable for its disposition, or
c) taken into custody by the radiation control program and not traceable to its owner, or.
d) at unacceptable risk of loss or theft, thus making it potentially harmful to life or property.

The Agreement between the RCP and CRCPD on the following pages enlists the RCP regulatory staff to inspect the material, declare its status as orphan or insecure under (a) through (d) above, contract for services to be paid for by CRCPD, verify transfer of the material, and obtain a LLRW disposal permit if necessary. Of these duties the CRCPD staff can only, when necessary, execute the contracts for commercial assistance with disposition of material.

The following is an outline of the procedure for disposition of material under the National Material Disposition Program:

A. The RCP-CRCPD Agreement on procedure is executed.

B. For each batch of eligible material:
   1. The RCP lists candidate materials (Attachment #2) to CRCPD for review and concurrence.
   2. The RCP solicits bids for services to disposition the agreed upon materials.
   3. The RCP requests CRCPD to commit funds (Sample Funding Request is shown in Attachment #1), with attached bids for review and concurrence.
   4. CRCPD commits funds for the agreed upon project.
   5. The RCP contracts with service providers, including insurance for CRCPD and, where applicable, attaches the CRCPD funding commitment.
   6. Upon completion of the project, service providers' invoice the RCP.
   7. The RCP, as it chose in the Agreement, either pays the service provider and requests CRCPD for reimbursement, or notifies CRCPD to pay the service providers.
   8. CRCPD either reimburses the RCP or pays the service providers and notifies the RCP. A sample reimbursement request is shown in Attachment #4.

The following Agreement contains spaces for the RCP to enter specific information, and the text has two sets of alternative phrases in highlight, one set of which the RCP is to delete so as to choose either reimbursement from CRCPD for the RCP's payment of service providers, or the direct payment of service providers by CRCPD.

For additional information, phone Terry Devine, CRCPD, 502/227-4543 ext. 2223

Reimbursement Agreement
for the
CRCPD National Radioactive Material Disposition Program

[Notes, to be deleted, and details, to be filled in or optionally replaced, by the RCP are in red]

This AGREEMENT is made and entered into by and between the Conference of Radiation Control Program Directors, Inc. (CRCPD), 205 Capital Avenue, Frankfort, KY 40601, and the [State, county or cityl office entering the agreement, its mail address].

Recitals

Orphan Materials:
Radioactive material becomes an "orphan," and its disposition becomes eligible for CRCPD financial assistance, when the radiation regulatory authority (State, county, city or Federal) determines that:

- the possessor of such material cannot pay for the proper disposition of the material, or
- the individual or firm became the possessor of the material inadvertently, and should not be held liable for the disposition of such material. Examples of this circumstance are:
    - an individual or firm, not holding a radioactive material license, comes in possession of a radioactive material in the course of business, or
    - an individual or firm that is licensed to possess radioactive material, but is in possession of radioactive material not authorized by the license, or
- The agency took abandoned radioactive material into custody, and could not trace the owner.

Source Collection and Threat Reduction (SCATR) Program Materials:
Radioactive material, of a type that CRCPD regards as potentially harmful to life and property, becomes an "unacceptable risk" and eligible for CRCPD financial assistance when the radiation regulatory authority (State, county, city or Federal) determines that it has been in storage for so long that it is passing from the memory and care of the custodian and workers in the area.

Radioactive materials that meet the orphan or SCATR criteria pose a potential harm to persons or property. Such material for which appropriate action for disposition is not taken over a long period of storage incur increasing risk of loss or theft, which could result in radiation exposure to individuals close to the material and the spread of radioactive contamination to the environment.

Purpose

The overall purpose of this agreement is to financially assist, through the cooperation of State, county, or city radiation control programs, persons that do not have sufficient funding or who should not be held liable to fund the safe disposition of eligible radioactive material, and to financially assist the radiation control programs in their disposition of eligible material that they have taken into custody or declared to be at unacceptable risk of loss or theft.

NOW, THEREFORE, in consideration of the mutual promises and covenants set forth herein, the parties agree as follows:

Article I
Definitions

"Agreement" means this agreement.

"Agency" means the [State, Department, radiation control program].
["Agency" may be replaced throughout by "Department"]

"Company" means a person under contract with the Agency to provide disposition of eligible radioactive material or to assist with that disposition.
["Company" may be replaced throughout by "Vendor"]

"Contract" means the formal arrangement between the Agency and a company that will provide or assist with disposition of eligible material. *[This may be replaced throughout with any suitable term other than Agreement, which is defined above with another meaning.]*

"CRCPD" means the Conference of Radiation Control Program Directors, Inc.

"Eligible material" means discrete radioactive material that meets the criteria for orphan material or SCATR material given under Recitals.

"Person" means any individual, corporation, partnership, firm, association, public or private institution, group, or state agency, but shall not include federal government agencies.

Article II
Objectives

The specific objective of this program is for CRCPD to financially assist in the disposition of eligible radioactive material.

Article III
Responsibilities of the Agency

3.1 Procurement Procedures

The Agency will follow and apply its state procurement rules and regulations to assure that each Company selected to provide or assist with disposition of eligible materials approved for funding by CRCPD is qualified, licensed as appropriate, and selected at a competitive cost. In the event that competitive bidding is not employed, the Agency shall notify the CRCPD that competitive bidding was not used for the service, with an explanation as to why such competitive bidding was not employed in the selection process to assure the lowest reasonable cost.

3.2 Request for Financial Assistance

The Agency will request a written commitment from CRCPD to reimburse the company (companies) chosen as stated in 3.1 above, for the cost(s) incurred in the successful completion of disposition of agreed upon radioactive material. The letter of request (see Attachment #1) shall contain the following:

- The type and description of each radiation source or device involved, and
- The manufacturer, model number and serial number of each device, if applicable, and
- The radionuclides and current radioactivities (Attachment #2); and
- The proposal of each company chosen to perform a service, including identification of each Company's insurance providers and amounts of coverage and confirmation that the Company will include CRCPD as an additional named insured under that insurance; and
- An estimate of each anticipated cost to disposition these materials.

3.3 Program Implementation

Upon receipt of a written commitment from the CRCPD to honor the request of the Agency under 3.2, the Agency shall enter into a Contract with each Company that was selected to participate in the disposition of the agreed upon radioactive materials, including in each Contract the limitation on CRCPD's liability as stated in 3.4 and the naming of CRCPD as an additional insured under the Company's insurance for the course of the Contract. Upon completion of such disposition, the Agency shall, by letter, notify the CRCPD that the material has been disposed of at a licensed disposal facility or transferred to another licensed recipient, and that such disposal or transfer has been in accordance with the Agency's rules and regulations. A copy of each Company's invoice shall be enclosed with the Agency's letter of notification.

3.4 Liability of the Parties

CRCPD's reimbursement commitment shall not create a contractual or Agency relationship between CRCPD and the Company, and CRCPD shall not have any responsibility or liability for the relocation/disposition of the radioactive material identified under 3.2, or any damages resulting therefrom. This limitation on CRCPD's liability shall be included in each Contract entered into between the Agency and each Company regarding said disposition, and such Contract shall include an insurance coverage clause substantially the same as Attachment #3, which is included herein as if fully set out.

Article IV
Responsibilities of the CRCPD

4.1 CRCPD will be acting solely as a cost reimbursement source, and will not be responsible or liable for the identification and/or relocation of radioactive material; CRCPD shall not in any way arrange for, manage, or direct the identification and/or relocation or disposition of such material.

4.2 CRCPD will only consider funding the relocation or disposition of the eligible material that has been identified and recommended for funding by the Agency.

4.3 Each Contract for disposal, relocation, or associated service shall be between the Agency and the Company providing the service. CRCPD shall not be a party to that Contract except as an additionally insured and shall have no duties or responsibilities thereunder.

4.4 Upon the request of the Agency, and at the discretion of the CRCPD, and provided the estimated costs are deemed reasonable, CRCPD will, pending the availability of funds, issue a letter to the Agency committing CRCPD to reimburse each Company selected by the Agency under paragraph 3.2 to provide the disposal service. The commitment letter will state a maximum amount that CRCPD will reimburse the Company for the service identified. Any claim or charge made by a Company in excess of the maximum amount under the commitment letter shall not be the responsibility of CRCPD.

4.5 Upon the successful completion of the service, and upon receipt of the Agency's written notification that the radioactive material identified under 3.2 has been disposed of or transferred to a licensed recipient in accordance with the Agency's rules and regulations, and upon receipt of each Company's invoice to the Agency, CRCPD will reimburse each Company for the services rendered, not to exceed the maximum amount identified in the CRCPD's letter of commitment. The Agency will be notified when each Company has been reimbursed, and such notification will state the amount of such reimbursement. CRCPD has the right to refuse commitment of funds to any vendor that has been suspended or debarred.

4.6 CRCPD will maintain records in accordance with its record retention policy relating to all transactions performed under this project.

Article V
Termination of Agreement

5.1 Either party may terminate this Agreement upon notification of the other party at least 30 days prior to such termination. Any funding commitment made by CRCPD prior to termination will be honored.

[CRCPD recommends deletion of this Article but the Agency may wish to retain it]

Article VI
Term

6.1 This agreement will expire twenty-four months from its effective date.

[signature]
[printed name, title]
[agency]

[Date]

[signature]
Ruth E. McBurney, Executive Director
Conference of Radiation Control Program Directors, Inc.

[Date]

Attachment #1

Sample Funding Request

Date:

Ruth E. McBurney, Executive Director
Conference of Radiation Control Program Directors, Inc.
205 Capital Avenue
Frankfort, KY 40601

Dear Ms. McBurney:

Pursuant to the Agreement between the [insert State, Dept., agency name] and the Conference of Radiation Control Program Directors, Inc. (CRCPD), dated [insert date], I am requesting the CRCPD to commit a maximum reimbursement amount of $[insert amount] for the disposition of radioactive material described, in Attachment 2, per paragraph 3.2 of the Agreement. The Agency believes that this material meets the criteria as outlined in the above referenced Agreement.

In accordance with our agreement, this is to confirm that bids were obtained from commercial firms that offer services of managing radioactive materials. These bids were [were not, because...] obtained in accordance with state bidding policies. Attachment B to this letter provides information on the terms and conditions received from all bidders. [insert each company's name] was chosen because of [insert rationale for selecting each chosen company]. Upon receipt of confirmation from CRCPD to fund the disposition of the described radioactive material, the Agency will proceed to Contract the chosen company(ies) to perform the described services. The Agency shall ensure the limitation on CRCPD's liability as stipulated in paragraph 3.4 of the Agreement.

Should you have questions, please do not hesitate to contact [me] [other individual] [phone number].

Sincerely,
[signature]

ATTACHMENT #2
MATERIALS FOR FUNDING REQUEST

Device Application	Mfg. and Model *(if known)*	Radionuclide	Radioactivity & Assay Date	Eligibility [1] Criteria met *(insert a, b, c or d)*	*For OED Use Only*	
					Approved (Y or N)	*Funding Source*

Authorized Signature _____ *Radiation Control Agency/Department* _____ *Date* _____

[1] Eligibility criteria: a) owner can't afford disposition; b) possessor should not be liable for disposition; or c) RCP has possession but owner unknown
d) material is at unacceptable risk.

Note: Please attach any additional information relative to the radioactive material you feel will assist CRCPD in determining eligibility for funding.

Attachment #3

Participation and Insurance Coverage Clause

[To be included in each Agency Contract for disposition service]

The Agency and the Company agree and recognize that this Contract is contingent upon the Agency obtaining a funding commitment for the relocation/disposition of specified radioactive material from the Conference of Radiation Control Program Directors, Inc. (CRCPD), which is located in Frankfort, Kentucky.

In the event the Agency obtains such a funding commitment from CRCPD and this Contract is undertaken, the Company agrees as follows:

(1) The funding commitment by CRCPD shall not and does not create any responsibility on the part of CRCPD related in any way to the performance of this Contract, including but not limited to arranging for, managing or directing the identification/relocation/disposition of the related materials.

(2) The Company agrees to register and provide certification of CRCPD as an additionally insured on the Company's insurance policies for any and all claims, causes of action, damages, and other liabilities (administrative and/or civil), and costs incurred (including reasonable attorney's fees) that might be made or imposed upon CRCPD as a result of the funding commitments made by CRCPD to the Agency, or payments made by CRCPD to the Company, as a result of this Contract and the corresponding funding commitment by CRCPD.

(3) The insurance requirements set forth above will be included by the Company in any Contract it might make with a third party regarding the identification/relocation/disposition of the radioactive material which is the subject of this contract.

Attachment #4

[Sample request for reimbursement of radioactive material disposition]

[Agency letterhead]

[Date] REIMBURSEMENT REQUEST

Ruth E. McBurney, Executive Director
Conference of Radiation Control
Program Directors, Inc.
205 Capital Avenue
Frankfort KY 40601

Dear Ms. McBurney:

Pursuant to the National Radioactive Material Disposition Agreement between the [insert Agency name] and the Conference of Radiation Control Program Directors Inc. (CRCPD) dated ....., the Agency's request for funding of material disposition dated ..... and CRCPD's commitment of that funding dated ....., I am requesting the CRCPD to pay the vendor] the amount of $..... for the disposition of the radioactive material described in the above referenced request. Copy of the vendors invoice is attached.

The [Agency] confirms that the material identified in the above referenced request has been dispositioned as described in that request and according to all applicable State and Federal rules and regulations for the control of radiation sources.

Should you have any question regarding this request, please contact [individual, phone number].

Thank you.

[Agency director]

Att: Vendor's receipt of payment
Documentation of disposition

CRCPD National Radioactive Material Disposition Program

In April 2004, New Jersey's Department of Environmental Protection's Radiation Protection and Release Prevention Element (RPRP), entered into an agreement with the Conference of Radiation Control Program Directors (CRCPD), and became a member of the National Orphan Radioactive Material Disposition Program. The goal of this program is to reduce the number of discrete radioactive sources and devices that are abandoned or improperly disposed of and thereby reduce the risk of unnecessary radiation exposure to the public and/or contamination of the environment. These radioactive sources are generally discovered in scrap metal or other waste handling facilities, and it is important that they be disposed of quickly. CRCPD provides the financial assistance when the individual or firm inadvertently becomes the possessor of such material and cannot pay for the proper disposition of the material.

NJDEP INSPECTION MANUAL
INSPECTION PROCEDURE 92702

FOLLOWUP ON ENFORCEMENT ACTIONS

92702-01 INSPECTION OBJECTIVES

To determine that adequate corrective actions have been implemented for traditional enforcement actions. To verify that the root causes of these enforcement actions have been identified, that their generic implications have been addressed, and that the licensee's programs and practices have been appropriately enhanced to prevent recurrence.

Note that for construction inspection activities, licensee programs referenced throughout this procedure include the licensee Quality Assurance (QA) program.

92702-02 INSPECTION REQUIREMENTS AND GUIDANCE

General Guidance. This inspection procedure provides a mechanism to perform in-office and on-site follow-up inspection of traditional enforcement actions as deemed necessary by the Department.

Enforcement sanctions typically require written explanations and statements of reply concerning corrective actions, steps taken to prevent recurrence, and a schedule for completion of corrective and preventive actions. Specific responses or actions may be required in other enforcement sanctions. The inspector should carefully review the enforcement actions and inspection report transmittal letters which may contain NJDEP perceptions of, and concerns with, licensee performance. Such statements are valuable background information.

The NJDEP inspection program places strong emphasis on the inspection of licensee performance as the basis for determining the overall adequacy of the implementation of licensee programs. Thus, when a deficiency in the licensee performance is identified, and especially when repetitive conditions occur, a key element to be reviewed is the failure of the licensee program to identify and correct the deficiency. Where licensee corrective actions for NJDEP identified deficiencies are not adequate, additional inspections may be warranted to assess the adequacy of the licensee corrective actions for internally identified problems.

Enforcement actions that have been issued require a follow-up to ensure required actions are completed. Inspection follow-up should be completed as described below.

02.01 Documentation Review. Conduct a review of licensee responses to traditional enforcement actions to ascertain that the licensee responses and stated corrective and preventive actions were timely and appropriate. Evaluate whether the responses describe the conduct of a root cause analysis and implementation of any appropriate changes in training or procedures. Assess whether generic implications were addressed and whether the licensee programs and practices have been enhanced where appropriate to prevent recurrence.

Determine which responses are to receive onsite follow-up inspection based on their safety or security significance and complexity, inherent inadequacy, or apparent weaknesses in licensee administrative or management controls.

Guidance: The timing of NJDEP follow-up to a routine inspection would depend on the relative qualitative safety or security significance of a deficient licensee program in the area of the traditional enforcement action. Typically, the inspection staff will have information about the probable root cause of traditional enforcement actions as a result of their normal inspection activity. In addition, as part of the enforcement process, the licensee would make their own determination of their program adequacy. The available information can then be used to make a determination on the timing of NJEP follow-up, along with the scope and depth of follow-up that is warranted. The documentation review should include relevant inspection reports, inspection report transmittal letters, licensee response letters to enforcement correspondence, minutes of related enforcement meetings with the licensee, and any other agency records of communication on the issue with the licensee. Depending on the relative safety or security significance of the issue, the inspector and their management may conclude that an in-office review of the licensee docketed evaluation and corrective actions may suffice to close out the finding, rather than performing an onsite follow-up inspection. The review will initially take place in-office. The reviewer will determine any necessary on-site follow-up activity and coordinate on-site follow-up with the region. The reviewer will also provide a feeder inspection report input to document the results of their review.

02.02 Onsite Inspection. As necessary, conduct an onsite inspection of the selected traditional violations, with respect to timeliness, completeness, and adequacy of licensee actions in the following areas. Where appropriate, these inspections are to be actual physical verifications of equipment and processes.

a. Corrective Actions. Determine whether:

1. Licensee management has assigned responsibility for implementing corrective actions, including any necessary changes in procedures and practices.

2. Corrective actions have been fully implemented.

3. The licensee has posted copies of enforcement correspondence for radiological working conditions as required by NJDEP.

4. Follow-up actions were initiated for deviations noted in any recent Quality Assurance (QA) audits conducted by the licensee of the inspection area in which traditional enforcement actions were identified.

b. Root Cause Analysis. Review adequacy of licensee analysis.

c. Generic Implications Analysis. Review adequacy of licensee analysis.

d. QA Program Procedures and Practices Changes. For activities performed to satisfy a construction inspection program, determine that the licensee's review of the QA program evaluated the program's scope and effectiveness.

Guidance: The onsite inspection, if necessary, is to both determine the adequacy of the licensee actions to correct the deficiencies associated with the traditional enforcement action, and to examine whether the licensee evaluations included a review of items from their internal self-assessment activities when assessing the repetitive and generic nature of an NJDEP action and the effectiveness of the related licensee programs. Where an item is identified as repetitive in nature, the licensee should have conducted an in-depth analysis of the effectiveness of their management

control systems. This analysis entails the determination of the root cause(s) of deficient management controls and their potential generic implications. Confirm that the licensee has instituted appropriate corrective and preventive measures. The inspector should use their discretion to perform field verification activities to supplement their review of licensee programs to gain assurance that the corrective and preventive measures have been appropriately implemented in the field.

4.7.2 EVENT REPORTING PROCEDURES

4.7.2 Nuclear Material Event Reporting-NMED

4.7.2 Procedures for Identifying Significant Events and Allegations and for Entering Same into the Nuclear Materials Events Database (NMED)

Events that are required to be reported to NMED will be appropriately entered into the NMED database. This will include such occurrences as incidents and medical misadministrations that meet the reporting criteria. Concurrently, incidents will be entered into the New Jersey Environmental Management System (NJEMS).

Included in Section 7.4.2 are:

- SOP 7.04 Entering Radioactive Materials Incidents in NJEMS
- SOP 7.05 Nuclear Materials Event Database
- US NRC Procedure SA-300: Reporting Material Events

SOP 7.04
ENTERING RADIOACTIVE MATERIALS INCIDENTS IN NJEMS

This procedure describes the steps that DEP personnel must follow to investigate and document an incident called into the Communications Center or directly to a departmental program, using the Incidents Screen in NJEMS, as well as the Compliance Evaluation and Enforcement Action screens, if necessary. This SOP will cover the following scenarios:

A) Call received by the Communications Center and referred to one DEP program
B) Call received by the Communications Center and referred to multiple DEP programs
C) Call received by the Communications Center, referred to a program that refers it to CEHA agency
D) Call received requesting a permit compliance for Land Use
E) Call received by a program representative
F) Management Referrals that require investigation to be performed
G) Printing reports (Communications Center Notification and Incident)
H) Faxing reports from the Action Tab
I) Emailing reports from the Action Tab

Also included are three attachments. Attachment A is a listing of the laws and regulations that require notification to the Communications Center. Attachment B is an example of the action tab for scenario A) below. Attachment C is an example of the action tab for scenario C) below.

A) CALL RECEIVED BY THE COMMUNICATIONS CENTER AND REFERRED TO ONE DEP PROGRAM

1) When the Communications Center receives a call, the operator will open NJEMS to the Incidents screen and enter all pertinent data in accordance with the Bureau of Communications and Support Services Incident Module User Guide.

2) The Communications Center will add a task to the Action Tab (i.e., Notification-Fax) showing who was notified in the program. In addition, the Communications Center will fax and/or call someone in the program to inform him or her of this incident.

3) Either the person notified, a duty officer, or a supervisor from the program will then enter NJEMS and select **Incidents** from the **Program Menu**. At the **Incident List Window**, he/she will click on the **Find Incident** button. On the **Incident Selection Window**, the person will enter the **Communications Center #** and click on **OK**.

4) Once the **Incident List** is populated with the incident information, the person will highlight this row and click on the **Copy Incident** button. This must be done since all incidents recorded by the Communications Center will be un-editable by anyone except a Communications Center supervisor. This will create a new incident containing the same data that was captured by the Communications Center.

Note: Do not change the Received By information on the Reporter Tab.

5) Immediately, go to the **Description Tab** of this newly created incident and change the **Incident Type** from a CC prefixed type to your program specific type (i.e., AQ-Odors; HW-Abandoned Containers; WQ-Discharge; etc.). This ensures that your program gets "credit" for the incident, that the proper **Region** is selected and it changes the **Action Tab** view.

6) If no follow up is required, while on the **Description Tab**, change the **Follow Up Status** to **Acknowledged**. This would conclude your program's involvement with this incident. If follow up is required, then continue to next step.

7) Go to the **Action Tab** and either right click in the window or click on the **Add Row** button at the bottom of the screen. Select the **"Assigned"** task and select your program and the appropriate supervisor's name from the drop-down lists. This will be the person assigned to ensure proper follow up of this incident (i.e., assign to staff for investigation; refer to CEHA; etc.). Enter a **Completed Date**.

8) The supervisor listed in the previous step must then determine what to do with this incident. If the incident is going to be assigned for investigation, the supervisor will add a task to the **Action Tab** for **"Perform Investigation"**. This task will be assigned to a staff member with a **Due Date** completed.

9) The investigator must now be notified that this incident has been assigned to him/her for follow up. This can be done by paper copy, phone call or email. If you choose to email, then you must follow the steps below:

   a) Add a third row on the **Action Tab** for **"Notification-Email"** and select your program and the same staff member.

   b) Click on the **Email** button. You will be given a choice of reports to be emailed.

   c) Select the **Incident Report** and click on **OK**. This will send an email message to the staff assigned informing him/her that this incident has been assigned for follow up.

   Note: The email notification is preferred for non-emergent situations where a follow up could occur within a few days. It will be the responsibility of each program to determine the mode of notification and the appropriate use of each mode.

10) At this point, the staff assigned would perform further investigation, either by phone call, site visit or other necessary methods.

   a) If no violations were determined:

      i) The staff assigned would enter appropriate tasks on the **Action Tab** (i.e., "Site visit"; "Perform Sampling"; etc.) and add **Comments** describing findings. The final task added by the staff assigned should be **"Review and Approve"**, which the staff assigned should assign to his/her supervisor. Back on the **Description Tab**, the staff assigned should change the **Follow up Status** to **"Awaiting Rev/Approve"**. This is a visual cue to the supervisor that this incident is ready to be reviewed. In addition, the staff assigned should enter

Insp. Attributes, by clicking on this button, to record such things as **Photos Taken**; **Samples Taken**; etc.

ii) The supervisor would then review the **Incident Screen**. In the **Incidents Screen**, the supervisor will change the **Follow Up Status** to **Closed, Inv-no viol** (or another appropriate task), complete the **Review and Approve** task on the **Action Tab**

b) If violations are found, the investigator will document this investigation in Central File. For Land Use, if a supervisor agrees there is a violation, he/she will add the task **"prepare document"** to the General Level Activity Tracking for the specific Program Interest in Central File.

i) The investigator should now select **Incidents** from the **Program Menu**. Click on the **Find Incident** button. Type in the **Incident Number** and click on **OK**. Highlight the incident that is retrieved and open the detail record. Click on the **Edit Incident** button and change the **Follow Up Status** on the **Description Tab** to **Closed, Inv-w/viol**. Next, go to the **Action Tab** and place in the **Comments** field of the task **Perform Investigation,** the words **"see report in Central File"**. *DO NOT* put in **Completed Date** or **Hours Spent**. No further documentation is required in Incidents since all further tracking is now located in the activities in Central File.

ii) At the appropriate Site and Program Interest (if it does not already exist, then it must first be entered into Masterfile), click on the **Create New Document** button. In **the Create New Document Window**, select: Activity Category – **Enforcement**; Activity Class – **Investigation**; Activity ID – **calendar year and (New)**; Activity Type – **Incident Investigation**; Document Type – **Form**; Document Template – **Compliance Evaluation**; and enter an appropriate **Title**; then click **OK**. This will create a new activity gray bar with the **Compliance Evaluation Screen** checked out to the user.

iii) Open the **Compliance Evaluation Screen** and fully complete the **Description Tab**, making certain to enter the **Incident Number**. By entering the **Incident Number** on this tab, there is now a link to the **Incidents Screen**.

iv) Click on the **Non-Checklist Tab** and answer **Yes** to **Save Changes**. Next, click on the **Include Entries For** button. On the **Requirements Selection Window**, select the appropriate requirement set/subject item and click on **OK**. Set the **Display Requirements For** drop-down to the requirement set/subject item you previously selected. In the white data area, right click to **Add Row**. When the **Requirement Selection** window opens, add data to retrieve the specific citation(s) found to be in violation. Click **OK** and **Yes** to continue. *Note: Land Use will use the Checklist Tab to record other data required to be collected during an investigation. Programs may need to use the Checklist Tab to record permit violations or other specific requirements.*

v) Data will be retrieved. If there are any excess rows, highlight and delete using the eraser button on the tool bar or **Ctrl-X**. Repeat iii) and iv) as necessary.

vi) Close the **Compliance Evaluation Screen**, saving changes and check in the document.

vii) Open **Activity Tracking** and complete all appropriate tasks, including the **Hours to Complete**.

viii) Supervisor review and creating an Enforcement Action will follow, in accordance with the Compliance Evaluation and Enforcement Action SOPs.

NOTE: Any photos taken to document violations will be imported into a Word Document (2-3 pictures per document) and attached to the Compliance Evaluation activity in Central File until the Department has an imaging plan in place.

B) CALL RECEIVED BY THE COMMUNICATIONS CENTER AND REFERRED TO MULTIPLE DEP PROGRAMS

1. When the Communications Center operator enters the incident, on the **Action Tab**, the operator will enter the *lead* program first, using one of the Notification tasks, and subsequent rows will contain the other programs notified.

2. Each program must then make a copy of the Communication Center incident to document their follow up. If there are several incidents received that are for the "same event", the program must make a copy of at least one of the incidents and link all of the incidents as appropriate.

3. An effort should be made to coordinate follow up to an incident. For example: The incident is referred to BER, Hazardous Waste and Air. BER, being the lead, would respond first. If necessary, BER should contact Hazardous Waste and/or Air for assistance. If Hazardous Waste or Air wants to know the status, they should contact BER directly. Otherwise, after BER has stabilized the area, they refer the case to Hazardous Waste and/or Air, if necessary. It is then the responsibility of the Hazardous Waste and Air programs to coordinate follow up visits for investigation.

4. All documentation of the incident follow up should be entered into the **Incidents Screen** on the individual program copies and/or in Central File in a **Compliance Evaluation Screen**. (See A above.)

C) CALL RECEIVED BY THE COMMUNICATIONS CENTER, REFERRED TO A PROGRAM THAT REFERS IT TO A CEHA AGENCY

1. The Communications Center operator will enter the information into the **Incidents Screen** of NJEMS. He/She will then notify the appropriate DEP program(s).

2. A supervisor, duty officer or other appropriate person from the referred program will enter NJEMS. Select **Incidents** from the **Program Menu**. On the **Incidents List Screen**, click on the **Find Incident** button. At the **Incident Selection Screen**, enter the **Comm. Center #** and click on **OK**. This will return the user to the **Incidents List Screen** with the appropriate Incident information displayed.

3. The user will then highlight the incident displayed and click on the **Copy Incident** button. This will then bring the user to the **Incident Detail Window**, **Reporter Tab**, as entered by the Communications Center.

4. The user should then immediately click on the **Description Tab** and change the **Incident Type** from a CC type to a program specific type.

5. Next, the user will enter the **Action Tab**. A row should be added and the following selections made: Task = **Referred to**; Org = **appropriate CEHA Agency**; and the **Name** of the contact may be typed. **Comments** can be added to describe what action is required.

6. A second task should be added for **"Notification-Fax"** with the appropriate CEHA Agency listed in the Organization. (If using the fax utility from NJEMS, it is not necessary to enter a **Completed Date**, as the system will automatically update this for you. If faxing manually, enter the **Completed Date**.)

*Note: If you expect a response back from the CEHA Agency within a specified time frame, you may add a task, **CEHA Response**, with a **Due Date** of when the response is expected, after the **"Notification-Fax"** task. This will be a reminder to the investigator that they are expecting some response back from the CEHA Agency.*

7. The user will then print the Communications Center Notification Report or the Incident Report (see G below) and fax this to the CEHA Agency, using the appropriate fax cover sheet. (This is only necessary if manually faxing.)

8. The user will then click on the **Description Tab** and change the **Follow Up Status** to **Referred**. At this point, the user can close and save changes to this incident.

9. The CEHA Agency will then perform any necessary follow up. If required, the CEHA Agency will report back to the DEP program. The DEP program will then re-enter the **Incidents Screen** and update the incident, as appropriate, ensuring that the **Follow Up Status**, on the **Description Tab**, is changed to reflect it's new status (**CEHA Closed w/viol** or **CEHA Closed no viol**).

10. If the CEHA Agency reports back to the referring DEP program, the DEP program will then return to the Incident and update the **Action Tab**. The **CEHA Response** task should now have a **Completed Date** and any necessary **Comments**.

D) CALL RECEIVED REQUESTING A PERMIT COMPLIANCE FOR LAND USE

1. At the appropriate Site and Program Interest in Central File, click on the **Create New Document** button. In the Create New Document window, select: Activity Category – **Enforcement**; Activity Class – **Permit Compliance Inspection**; Activity ID – **calendar year and (New)**; Activity Type – **Incident Investigation**; Document Type – **Form**; Document Template – **Compliance Evaluation**; and enter an appropriate title; then click **OK**. This will create a new activity gray bar with the **Compliance Evaluation Screen** checked out to the user.

2. Open the **Compliance Evaluation** screen and fully complete the **Description Tab**, making certain to enter the **Incident Number**. By entering the **Incident Number** on this tab, there is now a link to the **Incidents** screen.

3. Click on the **Checklist Tab** and answer **Yes** to **Save Changes**. Next, click on the **Include Requirements** button. On the **Requirement Selection** window, select the appropriate requirement set/subject item and click on **OK** (choose both "compliance with permit conditions" and appropriate requirement set for investigation). Click on the **Load Requirements** button. Once requirements have been loaded, click on **OK** and set the **Display Requirements For** dropdown to the requirement set/subject item you previously selected. Complete all checklist items appropriately.

4. Close the **Compliance Evaluation** screen, saving changes and check in the document.

5. Open the **Activity Tracking** and complete all appropriate tasks, including the **Hours to Complete**.

6. Supervisor review and creating an Enforcement Action will follow, in accordance with the Compliance Evaluation and Enforcement Action SOPs.

7. The investigator should select **Incidents** from the **Program Menu**. Click on the **Find Incident** button. Type in the **Incident Number** and click on **OK**. Highlight the incident that is retrieved and open the detail record. Click on the **Edit Incident** button and change the **Follow Up Status** on the **Description Tab** to either **Closed, Inv-no viol** or **Closed, Inv-w/viol**.

E) CALL RECEIVED BY A PROGRAM REPRESENTATIVE

1. When a call is received directly by a program representative, the person taking the call must determine if this is a notification ***required by regulation*** to be called into the Communications Center. Please see attachment A containing a listing of regulations that require DEP notification. If this is the case, the person should direct the caller to contact the Communications Center directly at **1-877-927-6337** or **609-292-7172**. If the caller refuses (either due to being transferred several times or being irate), the program representative should follow the steps below and then ***immediately contact the Communications Center and notify them of the Incident Number and why he/she took the call.*** (See Attachment A – Laws/Regulations Requiring Notification to Communication Center.)

2. The program representative should enter NJEMS and select **Incidents** from the **Program Menu**. Once on the **Incident List Window**, the user will click on **Create New Incident** button.

3. The **Reporter Tab** of the **Incident Detail Window** will now appear with the user's name and program listed in the **Received by** field. The user will capture, at a minimum, the **Reporter Type**, **Reporter Name**, and **Reporter Phone Number**.

4. The program representative should ask if the reporter wishes to be updated and/or remain confidential. If the answer to either one or both of these questions is yes, the program representative should check the appropriate box(es). Please be aware that if the **Confidential** check box is selected, upon saving, the Reporter information will change to asterisks and only persons with Whole Update access in NJEMS will be able to see this information.

5. If the program representative has any **Comments** pertaining to the reporter, these should be added to the **Comments** box on the **Reporter Tab**.

6. Next, the program representative will click on the **Description Tab** and complete as much information as possible, making certain to enter: **Incident Type; Occurrence Date and Time; Status of Incident; Incident Description; Incident Source** (if known); **Incident Location** – primarily **Municipality** and **County; Lead Investigator** (if known); **Follow Up Status = Pending** and click on the **Subs. & Impacts** button to record any materials (known or suspected) to be involved in this incident.

7. The program representative will now click on the **Action Tab**, add a row and enter the **Assigned** task and appropriate information. This task should be assigned to a program supervisor for appropriate follow up.

   a) If the program representative also assigns work, he/she will **Add Row** and make the following selections: Task = **Perform Investigation**; Org = **program name**; Staff Assigned = **person assigned to follow up**; and **Due Date**. **Comments** may be added, if necessary.

   b) If the program representative does not assign work, then he/she can print either the Notification Report or Incident Report and give this to the person for assignment. Another option would be to email either the incident report or notification report to the person for assignment. Each program will decide which method is appropriate.

8. Follow up and documentation in NJEMS will occur at this point. Documentation of photos taken, samples taken, etc. should be recorded on the **Insp. Attributes** screen. (Refer to Section A) paragraph #6.)

F) MANAGEMENT REFERRALS THAT REQUIRE INVESTIGATION TO BE PERFORMED

1. When a Management Referral is received by a program or programs that requires a site visit, the program will either **Create a New Incident** in NJEMS to document this referral, following the steps in E above or find an existing incident record to document the **Management Referral #** and follow up.

2. On the **Description Tab**, there is a field to place the log number of this Management Referral. It is located at the bottom right of the screen and labeled **Management Referral #**. This field must be completed when you are following up on a Management Referral.

3. If more than one program is listed on the Management Referral, the programs involved should make an effort to determine if this investigation is in NJEMS and link the incidents from the **Incident List Window**. This is done by filtering to the incidents you wish to link; highlighting all of them; and clicking on the **Link** button on the bottom of the **Incident List Window**. If it is later determined that incidents were linked in error, they can be unlinked, by highlighting the one incident and clicking on the **Unlink** button at the bottom of the **Incident List Window**. You will receive a message box, stating that the incident will be unlinked to all other incidents and you will have to answer **OK**.

4. The task, **Mgmt. Ref. Resp. Prepared**, should be added to the **Action Tab** when the investigator has completed this task.

G) PRINTING REPORTS (COMMUNICATIONS CENTER NOTIFICATION AND INCIDENT)

1. To print the Communications Center Notification Report, you have two options:

   a) From the **Reports Menu**; select **Incidents** and **Notification Report**. You will then be prompted to enter either the **Communication Center #** or a **Date Range** (**Start Date** and **End Date**). This then retrieves the report to a **Print Preview** window, on which you click on the **Print** button to get a hard copy.

   b) From the **Incident Detail Window**, click on the **Notification Report** button at the bottom of the **Action Tab**. This then retrieves the report to a **Print Preview** window, on which you click on the **Print** button to get a hard copy.

2. To print the Incident Report:

   a) Select **Custom** from the **Reports Menu**. This retrieves a list of custom reports grouped by media area or program.

   b) Next select **Enforcement Incident Report** and click **OK**. This then causes the **Connect** box to appear.

c) Enter **infomaker** for the **User ID** and **Password.** This then opens the **Incident Report** Window.

d) Click on the **Incidents** button. You will be prompted to enter the **Incident Number**.

e) Once a number is entered, the report will be retrieved.

f) Select **File** and **Print** from the menu bar, then **OK** from the **Print Report** window to obtain a hard copy.

NOTE: There is a button on the Incidents screen that is currently disabled labeled Incident Report. In the future, this button will be enabled and you will be able to print the Incident Report simply by clicking on that button, similar to the Notification Report button listed above.

There are slight differences in the two reports, mostly in formatting. The Communications Center Notification Report was designed for use by the Communications Center when notifying programs. It very closely resembles their current notification report. The NJEMS incident number is not listed on this report. The Enforcement Incident Report was designed for use by inspectors, supervisors and management. It includes information from the Action Tab, including comments. Each program will determine which report they will use for notification and informing management of status of incident.

H) FAXING REPORTS FROM THE ACTION TAB

1. To fax a report from the **Action Tab**, the organization's fax number must be listed in the Organization Table in NJEMS.

2. On the **Action Tab**, you must **Add Row** and make the following selections: Task = **Notification-Fax**; Org = **program or organization to which you are faxing**; Staff Assigned = **DEP person, if applicable**; Completed Date = **today's date**; and Comments = **any applicable**.

3. Click on the **Fax** button. You will be asked **which report would you like to fax?**. You should select the **Communications Center Notification Report** and click **OK**.

NOTE: The Incident Report option does not currently work for the fax utility. In the future, this will be an option and you will be able to fax the Incident Report or the Communications Center Notification Report.

4. The report will be faxed to the appropriate entity. Confirmation will be received through the Right Fax utility on your PC.

I) EMAILING REPORTS FROM THE ACTION TAB

1. To email a report from the **Action Tab**, the person or organizations email address must be listed in the Org table or in the staff table in NJEMS.

2. On the **Action Tab**, you must **Add Row** and make the following selections: Task = **Notification-Email**; Org = **program or organization to which you are emailing**; Staff Assigned = **DEP person, if applicable**; Completed Date = **today's date**; and Comments = **any applicable**.

3. Click on the **Email** button. You will be asked **which report would you like to email?**. You may select either the **Communications Center Notification Report** or the **Incident Report**, and click **OK**.

4. The report will be emailed to the appropriate entity.

ATTACHMENT A

3/15/01

Laws/Regulations Requiring Notification to
NJDEP Communications Center

1. New Jersey Spill Compensation and Control Act

N.J.S.A. 58:10-23.11 et. Seq.
N.J.S.A. 13:1K et. seq. [specifically 13:1K-17 (c)]-A310
N.J.A.C. 7:1E-5.3(a) Discharge Notification
N.J.A.C. 7:1E-5.4(a) Aircraft Discharge Notification
N.J.A.C. 7:1E-5.5(a) Notification of Malfunctions in Discharge Detection Systems
N.J.A.C. 7:1E-5.10(a) Discharge Reporting Requirements of Local Officials

2. CERCLA - Continuous Release Reporting

40 CFR, Parts 302-355-Notification to LEPC/SERC of Hazardous Substance Releases Which Are Continuous and Stable in Quantity And Rate

3. Emergency Planning and Community Right-to-Know Act

SARA Title III, Section 304-Immediate Reporting of Hazardous Substance Releases To LEPC/SERC
40 CFR 355.40(b)1-Immediate Reporting to LEPC/SERC of Releases Involving Reportable Quantities Of Extremely Hazardous Substances or CERCLA Hazardous Substances. Follow-up Written Notice Required.

4. Toxic Catastrophe Prevention Act

N.J.S.A. 13:1K-19 et. seq
N.J.A.C. 7:31-5.2(b)4I-Notification of An EHS Accident

5. Air Pollution Control Act

N.J.S.A. 13:1B, 13:1D-9
N.J.S.A. 26:2C-1 et. seq. [specifically 26:2C-19(e)]
N.J.A.C. 7:27-22.19(g)1I-Recordkeeping, Reporting and Compliance Certification.

6. Pesticide Control Act

N.J.S.A. 13:1D-1 et. seq.
N.J.S.A. 13:1F-1 et. seq. (specifically 13:1F-4)
N.J.A.C. 7:30-9.14(b)-Reporting of Pesticide Spills

7. Solid Waste Management Act

N.J.S.A. 13:1E-1 et. seq.

N.J.A.C. 7:26-2A.7(a)19-Sanitary Landfill Engineering Design Standards and Construction Requirements.

N.J.A.C. 7:26-2A.8(b)42iii(2)-Sanitary Landfill Operational And Maintenance Requirements.

N.J.A.C. 7:26-2A.8(k)2-Control of Smoking, Smoldering or Burning Landfills.

N.J.A.C. 7:26-2B.8(v)3ii-Additional Operational Requirements For Thermal Destruction Facilities

N.J.A.C. 7:26-3.6(g)8-Intermodal Container Facility.

N.J.A.C. 7:26-3.7(c)-Smoking, Smoldering or Burning Solid Waste in Solid Waste Vehicles.

N.J.A.C. 7:26-3A.37(d)1-Tranporter Management of Spills

N.J.A.C. 7:26-3A.39(i)15-Collection Facilities for Medical Waste.

N.J.A.C. 7:26-3A.39(k)3-Collection Facilities for Medical Waste.

N.J.A.C 7:26A-6.6(d)3I-Standards for Used Oil Transporter And Transfer Facilities.

8. New Jersey Water Pollution Control Act

N.J.S.A. 58:10 A-1 et. seq.
N.J.A.C. 7:14A-6.10(b), (c) & (d)-Non-Compliance Reporting (NJPDES)

9. Resource Conservation and Recovery Act

N.J.A.C. 7:26G-6.1-Standards Applicable to Generators Of Hazardous Waste-incorporating 40 CFR Subpart C-262.34(a) referring to 40 CFR Subpart D-265.56 (Haz Fac.)
N.J.A.C 7:26G-7.1-Standards Applicable to Transporters Of Hazardous Waste-incorporating 40 CFR Subpart C-263.30a (Transportation)
N.J.A.C. 7:26G-8.1(c)4-Standards for Owners and Operators Of Hazardous Waste, Treatment, Storage and Disposal Facilities- incorporating 40 CFR Part 264
N.J.A.C. 7:26G-9.1(c)3-Interim Status Standards for Owners And Operators of Hazardous Waste Treatment, Storage and Disposal Facilities-incorporating 40 CFR Part 265.

10. Safe Drinking Water Act

N.J.S.A. 58:12A-1 et. seq.
N.J.A.C. 7:10-2.4(b)-Reporting of Changes to Plants and Emergencies.

11. Technical Requirements for Site Remediation
N.J.A.C. 7:26E-1.4(b)-Notifications
N.J.A.C. 7:26E-3.7(f)5-Site Investigation-Ground Water
N.J.A.C. 7:26E-6.3(b)4-Specific Remedial Action Requirements.

12. Underground Storage of Hazardous Substance Act

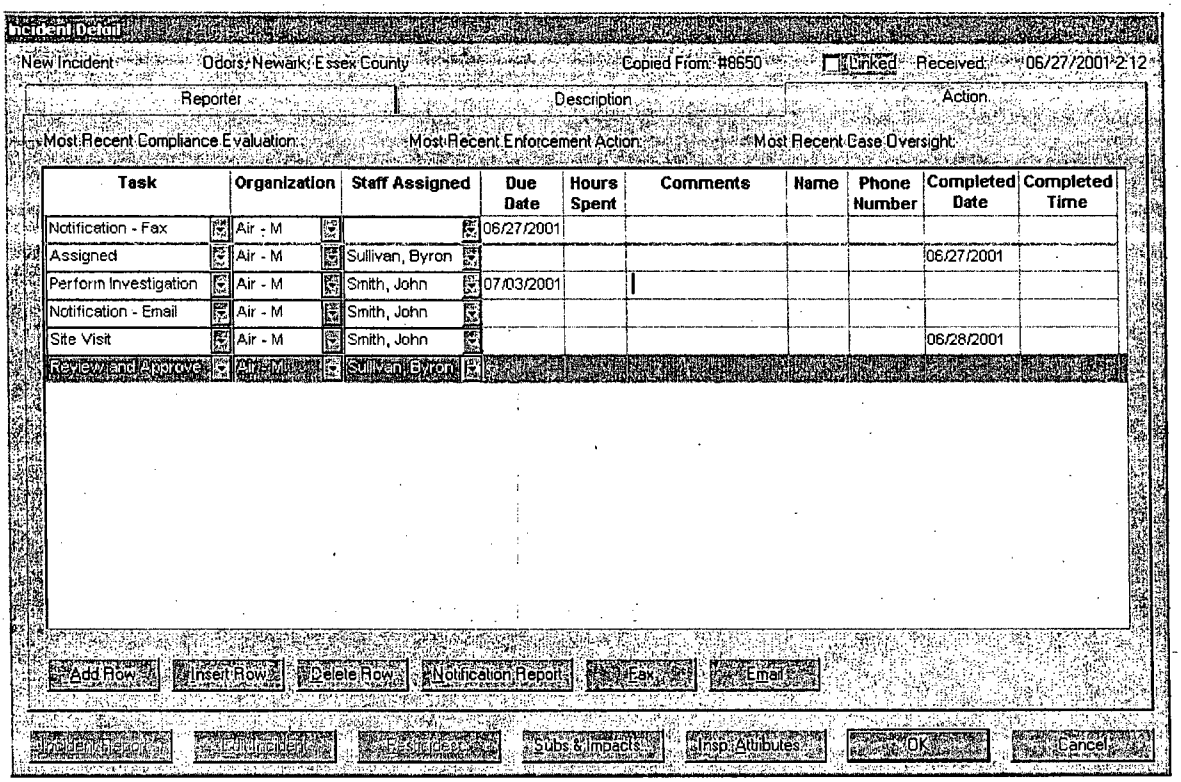
N.J.S.A. 58:10A-21 et. seq.
N.J.A.C. 7:14B-7.3(a)-Confirmed Releases.

13. Radiation Protection Programs
N.J.S.A. 26:2D-1 et. Seq.
N.J.A.C. 7:28-1.5(b)-Communications
N.J.A.C. 7:28-13.1-Reports of Theft or Loss of Radioactive Material
N.J.A.C. 7:28-13.2(a)-Reportable Radiation Incidents

N:\shared\drpsr\dre\bcss\bcss documents\center info other\lawsregs

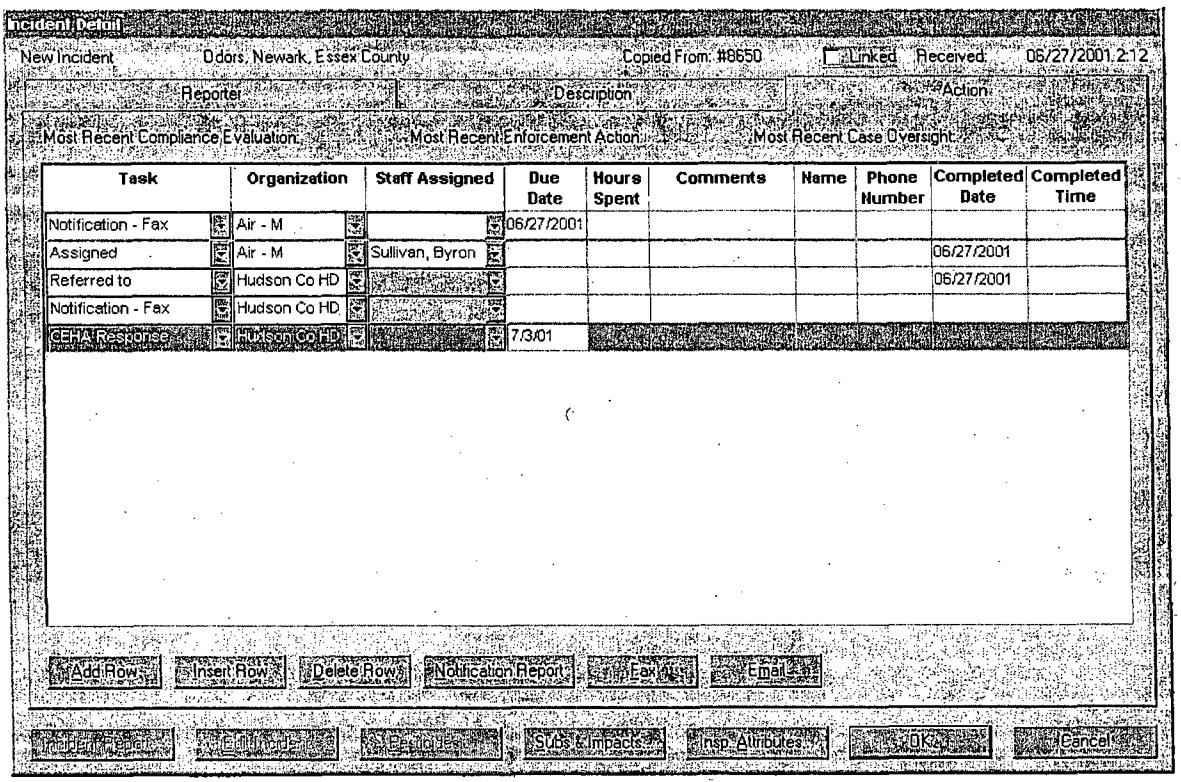
EXAMPLE ACTION TAB FOR:

A) Call received by the Communications Center and referred to one DEP program.



EXAMPLE ACTION TAB FOR:

C) Call received by the Communications Center, referred to a program that refers it to CEHA agency.



INCIDENT LOCATION TYPES

TYPE	DESCRIPTION
Residential	As described by the caller, an incident in a residential area.
Industrial	As described by the caller, an incident in an industrial area.
Commercial	As described by the caller, an incident in a commercial area (i.e., downtown area with stores, a mall, etc.)
Sensitive Population	As described by the caller, an incident in a sensitive area such as a school, hospital, etc.
Other	As described by the caller, an incident in an area that doesn't fit any of the other descriptions.
Urban	As described by the caller, incidents in a city type area (i.e., Trenton, Newark, etc.)

INCIDENT PRIORITY

PRIORITY	DESCRIPTION
High	To be defined by each DEP program.
Medium	To be defined by each DEP program.
Low	To be defined by each DEP program.
Und	To be defined by each DEP program.

INCIDENT CATEGORY

CATEGORY	DESCRIPTION
Facility	Incident occurred at a facility
Transportation	Incident occurred during transportation
Other	Incident that occurred neither at a facility nor during transportation

INCIDENT STATUS AT TIME OF REPORT

STATUS	DESCRIPTION
Continuous	The incident is still occurring at the time of the report.
Intermittent	The incident starts and stops over time.
Terminated	The incident has ceased.
Undetermined	The caller is uncertain as to the status.

INCIDENT TASKS

SK	DESCRIPTION
Assigned	Used to document that an incident was received by a program and given to someone for him or her to assign an investigator, using the Perform Investigation task. This was added for accountability purposes.
CEHA Response	Used to document the date on which a response was due and received by a DEP program from a CEHA Agency.
Mgmt. Ref. Resp. Prepared	Used to document the date when a response to a Management Referral was prepared. The comments field may be used to document to whom the referral was given or where it can be found (i.e., a file number or an electronic file name).
Notification-A310	Used by the Communications Center to document that an A310 verbal notification has been completed and A310 letters will be sent.
Notification - Email	Used to document that an incident report or notification report was emailed, via NJEMS, to a DEP staff member. Used in conjunction with the Email button, located at the bottom of the Action Tab.
Notification - Fax	Used to document that an incident report or notification report was faxed, via NJEMS, to a program and/or agency. Used in conjunction with the Fax button, located at the bottom of the Action Tab.
Notification - Home	Used by the Communications Center to document that an individual was notified at their home.
Notification - Mail	Used by the Communications Center to document that a person, program or agency was notified by regular or interoffice mail.
Notification ffice	Used by the Communications Center to document that a verbal notification was made to an individual while they were in their office.
ification - Page	Used by the Communications Center to document that a person was notified via pager.
Notification - Phone	Used by the Communications Center to document that notification to a person, program or agency was completed via telephone.
Notification - Radio	Used by the Communications Center to document that a person was notified via mobile radio.
Perform Investigation	Used to document the date(s) on which investigation activities (other than site visits), such as record reviews, phone calls and visiting tax offices, were performed and documenting any pertinent information in the Comments field. The Hours Spent is a cumulative total of all of these activities. Only one of these tasks should appear per investigation. *[NOTE: This definition supersedes the previous NJEMS definition that stated this task included both site visit and other activities performed during the investigation. As of the effective date of the Cross Department Incident SOP, the above definition came into effect.]*
Perform Sampling	Used to document the date(s) that sampling was performed in conjunction with an investigation. If more than one day is involved, multiple tasks should be added (one for each day).
Referred to	Used to document that the program involved in the investigation is referring this to either a CEHA Agency; another DEP program; or another State Agency for their action.
Review and Approve	Added by the inspector, but assigned to the supervisor, to document when the supervisor has completed his/her review of the "report".
Review Data Pkg	Used to capture the date and hours spent to review materials from the laboratory that analyzed the samples taken. Comments should be included as to a summary of the results.

Site Visit	Used to document the date(s) that a site visit was performed and to capture the results of this visit in the Comments field. If more than one day is involved, multiple tasks should be added (one for each day). Also, if more than one staff member is involved, a separate row is added for each staff member to capture the date, hours spent and any comments.

INCIDENT FOLLOW-UP STATUS

FOLLOW-UP STATUS	DESCRIPTION
Acknowledged	A routine notification was made for informational purposes only and the DEP made no response or investigation into it.
Awaiting Rev/Approve	This is an interim status used to help supervisors find incidents that require review and approval. Once considered complete the status will be set to a final status like Closed, Inv-no viol, Closed, Inv-w/viol or Inv., Not Confirmed.
CEHA – no viol	DEP referred the investigation to a CEHA agency that responded and conducted an investigation, which concluded without identification of any violations.
CEHA – w/viol	DEP referred the investigation to a CEHA agency that responded and conducted an investigation, which concluded with identification of one or more violations.
Cl, Inv (Do Not Use)	**This is the old Closed, Investigated status that can not be deleted because of historical data, but is not to be used when adding a new incident follow-up status.**
Closed, Inv-no viol	DEP responded and conducted an investigation, which concluded without identification of any violations.
Closed, Inv-w/viol	DEP responded and conducted an investigation, which concluded with identification of one or more violations. When this status is used, there must be a link established from the CE screen which documents the violation, to the incident.
Inv., Not Confirmed	DEP responded but there was no longer an issue to agree or disagree with. The investigation has terminated upon responding. This may be due to not making contact with a complainant or the complainant retracting the complaint. This status is also used if the complaint is anonymous and upon arrival there is no reason found for concern. This status will essentially be used to identify where resources have been used fruitlessly.
Pending	The incident was recorded and may be under investigation. The staff assigned field will be populated if it is under investigation. In the new version, Pending incidents are assigned only if there is a value in the staff assigned field.
Referred	The incident record was provided to another authority for their attention.
Referred to Qtr. EER	This is an Air specific status that indicates the incident will be followed-up and concluded during review of the associated quarterly Excess Emission Report (EER).

NJDEP - BER 7.05
Nuclear Materials Event Database

1.0 SCOPE / APPLICABILITY

1.1 This procedure provides guidance for entering reports in the Nuclear Materials Event Database (NMED), documenting material events and response actions, and submitting reports to the Nuclear Regulatory Commission (NRC) via the Idaho National Laboratory (INL).

1.2 Emergency actions, event response, and follow up actions (such as corrective actions and immediate notifications) are not within the scope of this procedure. For DEP notification requirements, see Attachment 2 of this procedure, and STP Procedure SA-300 (STP Procedures may be obtained from the internet at: http://www.nrc-stp.ornl.gov/procedures/sa300.pdf).

2.0 INTRODUCTION

2.1 The NMED system was established for the collection, control, and review of material events that are reported to the NRC by the states. The database was originally intended to document material events in the scope of the Atomic Energy Act (AEA): byproduct, source, and special nuclear materials. NMED is also one method of evaluation of Agreement State Radiological Programs by the NRC IMPEP Team.

2.2 The materials event reporting system actually involves two databases, one is maintained on the NRC website and the other is a maintained locally. Entries are made into the local database and subsequently transmitted to the NRC contractor, INL, where they undergo review prior to inclusion to the NMED.

2.3 The NRC and Agreement States use NMED to track events and event trends. The NRC performs quarterly and yearly evaluation of the NMED records, and prepares quarterly and annual reports. These reports are available from the NMED website.

2.4 The NMED database can be queried to evaluate trends, as well as to obtain details about events involving radioactive materials.

2.5 The Conference of Radiation Control Program Directors (CRCPD) petitioned the NRC to include Non-AEA materials in the national database. The CRCPD encourages the use of NMED to track lost, stolen, discovered/found and abandoned radiation sources.

2.6 BER will use NMED to track events involving lost, stolen, abandoned or found radioactive material under a New Jersey specific or general license or order authorized by any Federal, State or other government agency. At the discretion of BER, the local database will be used to document and track closure of New Jersey radiation events that may not be required to be reported to the NRC.

3.0 PERSONNEL RESPONSIBILITIES

3.1 Radioactive Materials Section (RMS) staff

3.1.1 Responsibilities
a. Provide timely information on events to the Bureau of Environmental Radiation (BER) Manager and Supervisor, RMS. Information that is required to complete a data entry is shown in Attachment 1.

b. Perform searches of the national NMED database as necessary.

3.2 Supervisor, RMS or designee

3.2.1 Responsibilities

a. Provide for review of NRC quarterly trending reports and dissemination of information as appropriate.

b. Provide for report input to the local database using the reporting thresholds in SA-300.

c. Provide for periodic data submissions by e-mailing NMED entries to the NRC via INL.

d. Assist staff in searches of the national NMED database as required.

e. Maintain the local database and provide unique identification numbers for reports received.

f. Ensure records submitted are complete and closed by the state in NMED.

4.0 NMED DATABASE ENTRIES

4.1 DATABASE ENTRIES

4.1.1 Data entry requires access to the NRC provided software.

4.1.2 Open the database; this will open the main menu.

4.1.3 On the main menu, open "create and edit records," this will open the "master event list."

4.1.4 Note the most recent (last) event record number.

4.1.5 On the master event list, select "add record".

4.1.6 Enter the next sequential event number in the format of state abbreviation "NJ," dash, last two digits of the year, event number. Example: NJ-080010 is the event number for the tenth event recorded for New Jersey in the year 2008.

4.1.7 Populate the remaining information fields, e.g. licensee / registrant name, address, telephone number(s), device names, etc. to describe the event. Use pick-lists (drop down menus) when possible to standardize information and simplify future keyword searches.

4.1.8 Select "next" to go to the "narrative" page.

4.1.9 Enter a narrative description of the event using the information submitted on Attachment 1 of this procedure or equivalent. The narrative can be viewed from the outside and should not contain sensitive, confidential or proprietary information.

4.1.10 Select "next" and enter any applicable references.

4.1.11 Select "Next" after each entry to save the changes.

4.1.12 Select "Master Event List" when all entries are complete. Note: this record is only saved on the local database. Forwarding the event record to the NRC is necessary to complete an event record in the national database.

4.1.13 If the event report is to be submitted to the national NMED database, then forward the report per section 4.3 in accordance with SA-300 frequency.

4.2 UPDATING OR MODIFYING A REPORT

4.2.1 Data entry requires access to the NRC provided software.

4.2.2 Open the database; this will open the main menu.

4.2.3 On the main menu, select "create and edit records," this will open the "master event list."

4.2.4 Select the report to edit or update then select the Edit button.

4.2.5 If the report is to be updated on the national database, ensure the "Send this report to NRC" field displays "YES."

4.2.6 Edit report fields as necessary, choosing NEXT after each entry.

4.2.7 If the event report is to be submitted to the national NMED database, then forward the report per section 4.3 in accordance with SA-300 frequency.

4.3 FORWARDING INFORMATION TO THE NATIONAL DATABASE

4.3.1 Open the database; this will open the main menu.

4.3.2 While on the main menu, open "create a file of records to send to the NRC".

4.3.3 The screen will change to the "create transfer file"

4.3.4 Fill in dates that include the file dates for transfer. The default start date is the date of the last file transfer. Select the "create transfer file" button.

4.3.5 Select "E-mail to INL".

4.3.6 Follow instructions provided.

4.4 SEARCHING THE NATIONAL DATABASE

4.4.1 Access the NMED website, https://nmed.inl.gov/

4.4.2 Enter your User ID and Password

4.4.3 Select "search the NMED"

4.4.4 Select search criteria and follow instructions provided.

4.5 SEARCHING THE LOCAL DATABASE

4.5.1 The local database is maintained on a network drive. Local database searches should be performed by the responsible individual.

END OF PROCEDURE

Attachment 1
Minimum Basic Event Information for a Complete Report

1. Essential Details:
   a. State Event Report Identification No._____

   b. Licensee name and location, including licensing State._____

   c. License / Registration # or identify as General Licensee (if applicable)._____
   _____

   d. Event date, time of occurrence and location (site) of event.

   e. Event circumstances and details including source radionuclide and activity.

   f. Date NJDEP was notified of event by licensee or non-licensee. _____

   g. Notifications: police, FBI, other States; as needed:_____

   h. NJDEP reportable? Applicable State reporting requirement.
   _____

   i. Position title(s) of persons involved _____

   j. Licensee corrective actions._____

   k. Possible generic safety concerns. _____

   l. Root cause(s) and contributing factors. _____

   m. Actions taken by the State. Onsite inspections; enforcement actions.

2. Source/Radioactive Material/Devices
   a. Isotope and activity; manufacturer, model and serial number, leak test results, if applicable: _____

   b. For events involving lost, stolen or abandoned material does source exceed IAEA Category 2 quantity?

   c. For equipment/device involved make, model and serial no., provide clear description of any equipment problems._____

3. Release of Licensed Material or Contamination

a. Release type (air or water); contamination (person or surface); isotope and activity released. _____

4. Medical Event

a. Procedure administered; dose intended and dose administered; isotope and activity administered; target organ

b. Patient and Referring Physician notified? _____

5. Overexposure

a. Indicate short and long-term health effects and exposure type (e.g., whole body or extremity)

b. Is event a potential Abnormal Occurrence? (see SA-300) _____

6. Transportation

a. Type of transport; identity of shipper; package type and ID number (if available)_____

NOTE: Provide monthly updates until event is closed and actions are complete.
Reference the State Event Report ID number in future updates and correspondence.

Attachment 2
Regulatory Reporting Schedule for NJDEP in Table 1 of SA-300

REPORTABLE EVENT NOTIFICATION

REPORTING METHODS TO NRC

4 HOURS: Significant reportable events requiring 4 hours or less notification by Agreement State licensees.

Report to NRC within 4 hours of notification by a licensee.

Report initial information to the NRC Operations Center
(301) 816-5100 or
(301) 951-0550
FAX #: (301) 816-5151

24 HOURS: Significant reportable events requiring 24 hours or less notification by Agreement State licensees.

Report to NRC within 24 hours of notification by a licensee.

Events involving theft or terrorist activities should be reported to the FBI within 24 hours of notification

30 - 60 DAYS: 30 – 60 day reportable events requiring greater than 24 hour notification by Agreement State licensee and event follow-up reports.

NJDEP provides 30-60 day notification and any follow-up reports to NRC-NMED on a monthly basis. NOTE: Licensee reports received within less than 30 days of the date of the monthly report may be included in the next month's report.

Email: NMED@INL.GOV
Telephone: 208-526-6904
or
208-526-0990-fax
Send Disk/CD to:
INL, P.O. Box 1625,
Idaho Falls, ID 83415
Attn: Thomas W. Smith
or
Written: Director of STP US
NRC, Washington, DC 20555

VOLUNTARY Lost, stolen, or abandoned sources reported to the Agreement State that are non-AEA or unlicensed material and not covered by the above two categories.

Voluntary reporting by the Agreement States and non-Agreement States.
Email: NMED@INL.GOV

Rev. 3, December.2005 Source: STP Procedure SA-300, Appendix; Handbook on Nuclear Event Reporting in the Agreement States, 3/2006

1) Personal or sensitive information should not be included in event descriptions (e.g., names, personal addresses, or--social security--numbers).

2) Events involving lost, actual or attempted theft, sabotage, or diversion of radioactive materials or devices containing "high-risk" sources in quantities greater than or equal to the quantities of concern (i.e., quantities greater than or equal to Category 2 sources listed in the International Atomic Energy Agency 's Code of Conduct and as outlined in reporting requirements in 10 CFR Part 20.2201. See Table 3 of SA-300)

3) A revision to the U.S. Code assigns lead responsibility for material events involving possible theft or terrorist activities to the Federal Bureau of Investigation (FBI).

4) A sample fax to the NRC Operations Center is available in Exhibit 1 of STP procedure SA-300.

5) The NRC Operations Center staff will promptly notify the appropriate Region Duty Officer (RDO) and Headquarters staff of Agreement State events. Therefore, no separate notification to other NRC staff by an Agreement State is necessary.

6) An example of the minimum basic event information required for a complete record is provided in Table 4 of SA-300.

7) Voluntary reporting is a joint national effort of the NRC and the Conference of Radiation Control Program Directors (CRCPD) to track all types of non-AEA, unlicensed or non-reportable AEA lost and found radioactive material. More information about the national program may be found in SA-300.

(Cut Out Page for Handy Reference)

Event Reporting Schedule for Agreement States

	Reportable Event Notification[1]	Agreement State Reporting Schedule to NRC	Reporting Methods to NRC[4]
4 HOURS	**Significant** reportable events requiring **4 hours or less**[2] notification by Agreement State licensees.	Agreement States should report to NRC within 4 hours of notification by an Agreement State licensee.	Report initial information to the NRC Operations Center[5] (301) 816-5100 or (301) 951-0550 FAX #: (301) 816-5151
24 HOURS	**Significant** reportable events requiring **24 hours or less** notification by Agreement State licensees.	Agreement States should report to NRC within 24 hours of notification by an Agreement State licensee.	
24 HOURS	Events involving **theft or terrorist activities** should be reported to the **FBI.**[3]	Agreement and non-Agreement States should report to the FBI within 24 hours of notification.	
30 – 60 DAYS	**30 – 60 day reportable events requiring greater than 24 hour notification** by Agreement State licensee and event follow-up reports.	Agreement State should provide 30-60 day notification and any follow-up reports to NRC-NMED on a monthly basis. NOTE: Licensee reports received within less than 30 days of the date of the monthly report may be included in the next month's report.[6]	Email: NMED@INL.GOV Telephone: 208-526-6904 or 208-526-0990-fax Disk/CD: INL, P.O. Box 1625, Idaho Falls, ID 83415 Attn: Thomas W. Smith or Written: Director of STP US NRC, Washington, DC 20555
VOLUNTARY	Lost, stolen, or abandoned sources reported to the Agreement State that are non-AEA or unlicensed material and not covered by the above two categories.	Voluntary reporting by the Agreement States and non-Agreement States.[7]	Email: NMED@INL.GOV

Rev. 3, December 2005

[1] Personal or sensitive information should not be included in event descriptions (e.g., names, personal addresses, or-- social security-- numbers).

[2] Events involving lost, actual or attempted theft, sabotage, or diversion of radioactive materials or devices containing "high-risk" sources in quantities greater than or equal to the *quantities of concern* (i.e., quantities greater than or equal to Category 2 sources listed in the International Atomic Energy Agency 's Code of Conduct and as outlined in reporting requirements in 10 CFR Part 20.2201

[3] A revision to the U.S. Code assigns lead responsibility for material events involving possible theft or terrorist activities to the Federal Bureau of Investigation (FBI).

[4] A sample fax to the NRC Operations Center is available in Table 1 of STP procedure SA-300.

[5] The NRC Operations Center staff will promptly notify the appropriate Region Duty Officer (RDO) and Headquarters staff of Agreement State events. Therefore, no separate notification to other NRC staff by an Agreement State is necessary.

[6] An example of the minimum basic event information required for a complete record is provided in Section 3 of SA-300.

[7] Voluntary reporting is a joint national effort of the NRC and the Conference of Radiation Control Program Directors (CRCPD) to track all types of non-AEA, unlicensed or non-reportable AEA lost and found radioactive material. More information about the national program may be found in SA-300.

STP Procedure Approval

Reporting Material Events - SA-300

Issue Date: March 8, 2006

Review Date: March 8, 2009

Janet R. Schlueter *Director, STP*	*/RA/*	*Date:*	*3/8/06*
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Andrea Jones *Procedure Contact, STP*	*/RA/*	*Date:*	*3/7/06*

NOTE

The STP Director's Secretary is responsible for the maintenance of this master copy document as part of the STP Procedure manual. Any changes to the procedure will be the responsibility of the STP Procedure Contact.

I. INTRODUCTION

This procedure establishes a process for the collection, control, and preliminary review of material events that have been reported to NRC by the Agreement States.

II. OBJECTIVES

A. To provide guidance for use by the Agreement States on reporting material events to NRC.

B. To provide guidance to NRC staff in the collection, coordination, and preliminary review of material events reported by the Agreement States.

III. BACKGROUND

A. The Atomic Energy Act (AEA) allows the Commission to enter an Agreement with a State to transfer regulatory authority over certain nuclear materials. In accordance with provisions contained in the AEA and the Energy Reorganization Act, and compatible Agreement State regulations, NRC and Agreement State licensees are required to report the occurrence of incidents and events involving the use of nuclear materials to the appropriate regulatory agency. For purposes of compatibility, the Agreement States report incidents and events involving the use of nuclear materials that have been reported by Agreement State licensees, to NRC.

B. The information collected on exposures, medical events, lost material, equipment failures, etc., that have occurred involving the licensed and unlicensed use of nuclear materials is invaluable in assessing trends or patterns, identifying generic issues, and recognizing any inadequacies or unreliability of specific equipment or procedures. The reported information is critical for initiating a timely and effective response to security-related events and will significantly aid in understanding why the event occurred and identifying any actions necessary to improve the effectiveness of NRC and Agreement State regulatory programs. The information is also used in preparation of NRC's annual performance report to Congress.

C. Nuclear Material Event Database (NMED)

NMED contains an historical collection of information on the occurrence, description, and resolution of events involving the use of radioactive material in the United States (source, byproduct, special nuclear material, and in some cases, naturally occurring, and accelerator-produced radioactive material). NMED accommodates the sharing of material event data submitted by Agreement States, non-Agreement States, and NRC licensees. NMED is maintained by the NRC's Office of Nuclear Material Safety and Safeguards (NMSS). The NMSS contractor, Idaho National Laboratory (INL), is responsible for coding and quality control of information.

IV. ROLES AND RESPONSIBILITIES

A. The Director, Office of State and Tribal Programs (STP), is responsible for the collection, coordination and, in cooperation with NMSS and the Office of Nuclear Regulatory Research (RES), the review of reports of incidents and events that have occurred involving the use of nuclear materials received from the Agreement States. NMSS is the designated agency lead office for review and evaluation of material events. NRC's Nuclear Security and Incident Response (NSIR) Operations Center receives notifications of significant events. NSIR staff participates in the review and evaluation of security-related material events.

B. The Director, STP, participates in NRC management review and evaluation of Agreement State response to material events that have been identified by NRC as ***significant*** in relation to public health and safety.

C. The Deputy Director, STP, is responsible for assigning a staff member to serve as lead material events project manager.

D. The STP-designated Project Manager for events [Event Project Manager] is responsible for coordination with the Agreement States and, in collaboration with NMSS and RES, the review of material event reports submitted to STP. Additionally, the Event Project Manager and the Regions participate in cooperation with NMSS and RES, in the identification and review of events that may meet the AO criteria in cooperation with NMSS, RES, and the Agreement States, and coordinates Agreement State review of the draft AO report.

E. The STP Director's Secretary is responsible for controlling STP distribution of Agreement State material event reports.

F. The Regional State Agreements Officer (RSAO) is a designated staff member, in an NRC regional office, who serves as the point of contact for the region and STP regarding Agreement State radiation control programs. STP and NMSS staff should coordinate with the appropriate RSAO, regarding the receipt of a ***significant*** event report.

G. STP staff should coordinate with the appropriate ASPO, responsible for providing back-up staff support to the RSAO (see STP Procedure SA-117), regarding the receipt of a ***significant*** event report.

V. GUIDANCE

A. Guidance for Agreement States

Agreement States should follow the guidance presented in the Appendix to this procedure entitled, *Handbook on Nuclear Material Event Reporting in the Agreement States.*

B. Guidance for STP Staff and RSAOs

1. Reports of Significant Events Received from Agreement States by Phone.

The following actions should be taken upon receipt of a report of a significant event from an Agreement State (i.e., events requiring 24-hour notification within 24 hours to the Headquarters Operations Center by Agreement States). Receipt of such reports should occur infrequently since guidance to the Agreement States stipulates that reports of ***significant*** events should be provided directly to the NRC Operations Center at (301) 816-5100.

a. Dial the NRC Operations Center Headquarters Operations Officer (HOO) if the State has contacted you by phone and have the State representative calling in provide the event notification information directly to the HOO.

b. Inform the Event Project Manager or the Project Manager's backup, the STP Director and Deputy Director. STP staff should inform the RSAO.

2. E-mail, FAX, or Written (Hard Copy) Event Reports

a. A copy of the event report should be provided to the Director and Deputy Director, STP, and the appropriate ASPO. A copy should also be sent to the NMED contractor, INL, through the STP Director's Secretary.

b. Agreement State event reports shall be reviewed by the Events Project Manager to identify any events that may be **significant** from the standpoint of health and safety. If the event is identified as **significant** and it was not previously reported to the NRC by the Agreement State under the 24-hour reporting requirement, the Event Project Manager should notify the HOO and the appropriate RSAO. If an event indicates the possibility of a generic concern or issue, the Event Project Manager will provide notification to the Deputy Director, Division of Industrial and Medical Nuclear Safety, NMSS. NOTE: Hard copy event reports received by the RSAO shall be reviewed by the RSAO in accordance with regional procedures. The RSAO should provide a copy of the event report to the Event Project Manager. The RSAO will keep the Event Project Manager informed of the status of events that have been identified as ***significant***.

3. Electronic Event Reports (E-mail or Electronic Storage Media)

The Agreement States send electronic copies of event reports (via Internet e-mail, PC diskette, fax or CDs) directly to the NMED contractor, INL, for entry into NMED. INL, in coordination with NMSS, conducts reviews of Agreement State material event reports that have been electronically provided to INL for safety significance. Information on any events identified as ***significant*** that were not previously identified by the Agreement State under the 24-hour reporting requirement or events that could pose possible generic issues are provided to STP and NMSS by INL.

4. Event Review for Safety Significance and Identification of Possible Generic Concerns

   a. The NMSS materials staff conducts a daily review of new material event notifications (ENs) received by the Headquarters Operations Center. Events are reviewed to identify any events that may involve generic safety concerns, issues (GSIs) or trends, that could have significant impact on health, safety and/or security concerns, relative to the NRC Strategic Plan performance goals and measures that have been linked to agency programs and activities, as required by Congress under the Government Performance Results Act (GPRA). Events are also evaluated by NRC and Agreement State staff to identify any events that meet the abnormal occurrence (AO) criteria, for inclusion in the annual AO Report to Congress. Similar event reviews to identify health, safety and security significance and generic concerns are conducted by the Agreement States. Information on any possible generic concerns identified by NRC or the Agreement States will be coordinated and shared with NMSS, STP and the Agreement States. A quarterly analysis is also performed on the information contained in NMED for each major event type to identify any statistically significant trends.

   b. Based on the results of the review, it may be necessary to request additional clarifying information. Agreement State staff may be contacted by the RSAO, or a designee, when the event has been identified as safety significant and meet the AO criteria.

   c. For events that have not been identified as safety significant, when necessary, the RSAO, or a designee, may contact Agreement States for additional information within 30 days for a 15-day Event Report and within 60 days for a 30-day Event Report after NRC receipt of the initial notification of the occurrence of the event from the State. This schedule provides reasonable time for State review and evaluation, and voluntary submission of the follow-up information by the State. A request for follow-up information may also be sent routinely via email by the NMED contractor, (e.g., when the NMED record is incomplete after 60 days from the date it was reported to the regulatory agency). Agreement States are

also requested to update NMED on a monthly basis until the event has been resolved and closed.

d. The designated STP Project Manager and the Regions participate in cooperation with NMSS and RES, in the identification and review of events that may meet the AO criteria in cooperation with NMSS, RES, and the Agreement States, and coordinates Agreement State review of the draft AO report.

e. Periodically, the Project Manager may be requested by management to provide statistical information regarding the status of event reporting by the Agreement States. Information provided by the Agreement State and collected and maintained in NMED, should be used by the Project Manager, the ASPO, the RSAO, and the designated IMPEP reviewer to evaluate the effectiveness and completeness of Agreement State event information provided for entry into the NMED database. See STP Procedure SA-100, *Implementation of the Integrated Materials Performance Evaluation Program (IMPEP)* and SA-105, *Reviewing Common Performance Indicator #5, Response to Incidents and Allegations.*

VI. APPENDIX

Handbook on Nuclear Material Event Reporting in the Agreement States.

VII. REFERENCES

Policy Statement on Adequacy of and Compatibility of Agreement State Programs, published in the Federal Register, 62 FR 46517 (September 3, 1997).

NRC Management Directive 5.6 *Integrated Material Performance Evaluation Program (IMPEP).*

NRC Management Directive 6.4, *Generic Issues Program*, December 4, 2001.

NRC Management Directive 8.1, *Abnormal Occurrence Reporting Procedure*, August 21, 1997.

NRC Management Directive 8.5, *Operational Safety Data Review,* December 23, 1997.

STP Procedure SA-100, *Implementation of the Integrated Materials Performance Evaluation Program (IMPEP).*

STP Procedure SA-105, *Reviewing Common Performance Indicator #5, Response to Incidents and Allegations.*

STP Procedure SA-117, *Agreement State Project Officers (ASPOs).*

SA-300 Reporting Material Events
Appendix (Rev. 2)

Handbook on Nuclear Material Event Reporting in the Agreement States

Final Report

March 2006

Office of State and Tribal Programs
U.S. Nuclear Regulatory Commission

Contact: Andrea Jones

AVAILABILITY OF REFERENCE MATERIAL

NRC documents: Event Notifications, Preliminary Notifications, Inspection Manuals and Procedures, NUREG Series technical reports, Regulatory Guides, etc. are available at the NRC external Website under References at: http://www.nrc.gov/reading-rm/doc-collections/. The Office of State and Tribal Programs (STP) documents are available at the STP external Website at: http://www.hsrd.ornl.gov/nrc/.

Paperwork Reduction Act Statement

The information collections contained in this report are covered by the requirements of NRC regulations contained in Title 10 of the U.S. Code of Federal Regulations. The Agreement States collect this information under compatible Agreement State regulations.

The collection of event information has been approved by the U.S. Office of Management and Budget, as follows.

"This information request has been approved by **OMB 3150-0178**, expiration date 09/03/2006. The estimated burden per response to comply with this collection request is 2 hours. Forward any comments regarding the burden estimate to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0052), Office of Management and Budget, Washington, DC 20503."

Public Protection Notification

If a document does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

Abstract

The review and analysis of operational event information increases the effectiveness of the U.S. Nuclear Regulatory Commission (NRC) and Agreement State regulatory programs by identifying safety and security significant events and concerns, and their causes. The information from reports of medical events, overexposures, equipment failures, and other events that have occurred involving the use of nuclear materials licensed by either the NRC or the Agreement States is invaluable in assessing trends or patterns and identifying possible inadequacies or unreliability of specific equipment or procedures. The reported information will significantly aid in understanding why the events occurred and identifying any actions necessary to improve the effectiveness of NRC and Agreement States regulatory programs. The information is also used in preparation of NRC's performance report to Congress.

This handbook, which supercedes the previous May 23, 2001 version, has been developed to provide information to the staff of the Agreement and non-Agreement States that are responsible for the preparation of event reports for incidents and events involving the use of nuclear materials that have occurred in their State. Reporting of Agreement State material events to NRC is mandatory for purposes of compatibility. The handbook describes the procedure to be followed in reporting material events to NRC. Guidance is provided on what information should be reported, the level of detail, and where to report. Information is also provided on obtaining Federal assistance for radiological emergencies. Procedures for identifying and reporting Abnormal Occurrences (AOs) are also included. The objective of the handbook is to:

- Improve technical information
- Standardize format
- Ensure consistency
- Facilitate information retrieval

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1. Introduction

This handbook contains guidance for Agreement States on reporting material event information to the Nuclear Regulatory Commission (NRC) for events that have occurred in their State. It also provides guidance for use by non-Agreement States when reporting events involving lost, stolen or found sources of naturally occurring and accelerator-produced radioactive materials (NARM). At the request of the Conference of Radiation Control Program Directors (CRCPD), the Nuclear Material Events Database (NMED) captures voluntary reports on lost and stolen events involving NARM. The reported information aids in understanding why the events occurred and in identifying actions to help ensure public and occupational safety and security, and improve the overall effectiveness of the NRC and Agreement State regulatory programs. Guidance is provided on (1) reporting significant events to the NRC Operations Center; (2) providing 30-60 day notification and follow-up event information; (3) schedule for event reporting; (4) reporting formats (i.e., electronic reporting to the NMED or written reports (mail, Fax, or email) to the Director, Office of State and Tribal Programs (STP); and (5) reporting event information for events meeting the abnormal occurrence (AO) criteria. An appendix to the Handbook contains (1) a glossary of terms, and (2) a listing of reference materials. NOTE: This procedure does not contain guidance on NMED data entry (coding). For guidance on data entry, an electronic copy of the NMED users guide has been included with the local Microsoft Access software program.

1.1 Why do we collect event information?

Operating experience is an essential element in the regulatory process for ensuring that licensed activities are conducted safely. Reporting operating incidents and events helps to identify deficiencies in the safe use of AEA radioactive material and to ensure that corrective actions are taken to prevent recurrence. A 1993 General Accounting Office (GAO) report identified the compilation and presentation of national materials data as an area for improvement and recommended that NRC take appropriate action to ensure that the information on radiation events is reported completely and accurately. Further, reliable information should be available to NRC, the Congress, and the States to identify patterns and trends and determine appropriate changes for the programs.[1] Event information is reported to Congress annually and used to demonstrate that the Agency and the States are meeting the safety and security goals and the corresponding strategic outcomes in the NRC's strategic plan. NRC conducts reviews of all operating experience reports, from both NRC licensees and Agreement States, to identify safety concerns early, and to further evaluate individual safety concerns for any *generic safety issues*

[1] Nuclear Regulation: Better Criteria and Data Would Help Ensure Safety of Nuclear Materials, GAO/RCED-93-90.

(GSIs) that could apply to a broader class of licensees. Prompt reporting of event information, including 30 day report information, and updates to events, helps the staff identify or detect possible safety concerns as early as possible. An event or condition could, by itself appear insignificant, but when compared with national information, could become a generic concern. In-depth analysis of event report data may result in the identification of actions that could lead to improvements in the effectiveness of NRC and Agreement State regulatory programs. Event analysis may also result in the issuance of information notices warning of possible safety concerns and assessment of the need for regulatory changes or revisions. Feedback is provided to Agreement State regulators, the industry, and the public.

NRC publishes a quarterly report that presents information on the results of statistical analysis of event data and any significant or generic issues or concerns. The *Nuclear Material Events (NMED) Database Quarterly Report* is available in electronic form at the NMED Internet Website: https://nmed.inl.gov. NRC's Office of Nuclear Material Safety and Safeguards (NMSS) publishes a nuclear material newsletter, *NMSS Licensee Newsletter*, NUREG/BR-0117, that includes information on safety concerns identified during that quarter.

1.2 What is the governing regulatory authority?

-- Under Section 274 of the AEA, Agreement States have assumed regulatory authority over byproduct source and certain quantities of special nuclear materials. The AEA directs NRC to cooperate with the States in the formulation of standards to protect employees or the general public against hazards of radiation and to assure that State and Commission programs will be coordinated and compatible. Article VI of the Agreement Between the State and the USNRC states that "the State and the Commission agree to keep each other informed of events, accidents, and licensee performance that may have generic implications or otherwise be of regulatory interest."

-- Under the AEA and the Energy Reorganization Act of 1974 (ERA), as amended, the NRC evaluates material event reports for both NRC and Agreement State licensees, and AOs that have occurred in licensed facilities. In addition, the ERA requires NRC to provide to Congress on an annual basis, information on significant events that meet the AO criteria.

-- Under the Government Performance Results Act of 1994 (GPRA), Federal agencies are required to establish measurable outcome oriented performance goals linked to Agency programs and activities in a strategic plan. An annual performance report to Congress is prepared that evaluates the NRC materials program against the metric performance goals. The metric goals are based on current and historical event

reporting data. Due to the importance of nationwide operating experience as an essential element in the regulatory process for ensuring that licensed activities are conducted safely, the Commission directed the staff to make Agreement State reporting of events to NRC's NMED database an item of compatibility (See Reference section, June 30, 1997, SECY-97-054). The implementing procedures are contained in STP Procedure SA-200 (See Reference section).

-- The guidance contained in this handbook is to assist NRC and Agreement State staff in the joint sharing and analysis of event information. It does not address evaluation of Agreement State programs. The AEA directs the Commission to periodically review actions taken by the States under the Agreements to insure adequacy and compatibility with the provisions of the Act. NRC conducts periodic evaluations of Agreement State programs under the *Integrated Materials Performance Evaluation Program (IMPEP)*, which includes an evaluation of event response, reporting, follow-up, and close-out. (See Reference for STP Procedures SA-100, *Implementation of the Integrated Performance Evaluation Program (IMPEP)* and SA-105, *Reviewing Common Performance Indicator #5, Response to Incidents and Allegations.*

1.3 How do you determine if an event is reportable?

Agreement States should report to NRC all events reported to their State by State licensees under State regulations equivalent to NRC's reporting requirements. Table 1, "Regulatory Reporting Requirements," of this guide contains a listing of the *U.S. Code of Federal Regulations (10 CFR)* regulatory reporting requirements for material event information. The 10 CFR reporting requirements form the basis for equivalent reporting requirements in Agreement State regulations. The listing references the specific 10 CFR reporting requirements, followed by a brief description of the types of events that fall under the reporting requirement, and the periodicity for reporting. Table 2, "Examples of Reportable Events," provides examples of reportable material events or occurrences that are required to be reported by both NRC and Agreement State material licensees.

The States are encouraged to **voluntarily** report an occurrence that actually happened (event) or something that may happen (condition) that does not meet the regulatory reporting criteria that the State believes might be of safety significance or of generic interest or concern, or involves media interest.

Table 1. Regulatory Reporting Requirements

NRC reporting requirements are contained in multiple Parts of Title 10 of the Code of Federal Regulations (10 CFR). The following provides a complete listing of the current 10 CFR material reporting requirements for which Agreement States should have compatible regulations.

10 CFR Part	Reporting Category		Brief Summary of Reporting Requirement	Notification
	Significant	30-60 Day		
20, Standards for Protection Against Radiation	20.1906(d)(1)		reports of removable contamination on package >limits in 10 CFR 71.87.	Immediate
	20.1906(d)(2)		radiation levels on package > limits in 10 CFR 71.47	Immediate
	20.2201(a)(1)(i)		reports of theft or loss of licensed material > 1000 X App C value	Immediate
		20.2201(a)(1)(ii)	reports of theft or loss of licensed material > 10 X App. C value	30 days
	20.2202(a)(1)		exposure (real or threatened) ≥ TEDE of 25 rem (.25 Sv), or eye or lens dose equiv. of 75 rem (.75 Sv) or shallow dose equiv. (skin\extremities) of 250 rads (2.5 Gy).	Immediate
	20.2202(b)(1)		exposure (real or threatened) ≥ TEDE of 5 rem (.05 Sv), or eye or lens dose equiv. of 15 rem (.15 Sv), or shallow dose equiv. (skin\extremities) of 50 rads (.5 Gy).	24 hours
	20:2202(a)(2)		release where individual could have intake > 5 X ALI over 24 hours.	Immediate
	20.2202(b)(2)		release where individual could have intake > 1 X ALI over 24 hours	24 hours
		20.2203(a),	radiation exposures, releases or concentrations of radioactive material that exceed the limits.	30 days
30, Rules of General Applicability to Domestic Licensing of Byproduct Material	30.50(a)		events involving prevention of immediate protective action, involving exposures or releases that could exceed regulatory limits	4 hours
	30.50(b)(1)		events involving unauthorized contamination restricting access >24 hours (no radionuclide with half-lives <24 hrs)	24 hours
	30.50(b)(2)		events involving equipment failure or disability to function as designed when equipment is required to be available and operable and no redundant equipment is available and operable, includes source disconnection and failure to retract source	24 hours
	30.50(b)(3)		events involving unplanned medical treatment of contaminated person	24 hours

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10 CFR Part	Reporting Category		Brief Summary of Reporting Requirement	Notification
	Significant	30-60 Day		
	30.50(b)(4)		events involving fire, explosion affecting integrity of material, device or container, and material exceeds 5Xs ALI	24 hours
31, General Domestic Licenses for Byproduct Material		31.5(c)(5)	failure or damage to shielding, on-off mechanism or indicator, or ≥ 0.005 microcuries (185 Bq) removable radioactive materials for generally licensed device	30 days
34, Licenses for Radiography & Radiation Safety Requirements for Radiographic Operations		34.27(d)	reporting of leaking sources, leak test results ≥ 0.005 microcurie (185 Bq), includes source disconnect and failure to retract source	5 days
		34.101(a)	radiography source disconnection, inability to retract source, or component failure (critical to safe operation of device)	30 days
35, Medical Use of Byproduct Material	35. 3045		notifications and reports of medical events involving administration and use of byproduct materials, with the exception of patient intervention events[2]	24 hours
	35.3067		leak testing sealed sources and brachytherapy sources	5 days
	35.3047		events involving an excessive dose to an embryo/fetus or a nursing child	24 hours
36, Licenses & Radiation Safety Requirements for Irradiators	36.83		irradiator events, release of material, defective components, systems or structures; (if not reported under other 10 CFR reporting requirements)	24 hours
39, Licenses & Radiation Safety Requirements for Well-Logging	39.35		leaking sealed sources found during periodic leak testing requirement	5 days
	39.77 (a)		well logging source rupture	Immediate
	39.77(b)		theft or loss, exposures, excessive concentration of rad material	24 hours

[2] Medical events require 15 day-licensee event report and 24 hour notification to referring physician and patient.

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10 CFR Part	Reporting Category		Brief Summary of Reporting Requirement	Notification
	Significant	30-60 Day		
		39.77(c) and (d)	when apparent recovery impossible, irretrievable source, abandonment	30 days
40, Domestic Licensing of Source Material	40.26(c)(2)		tailings or waste retention system failure that results in a release of material into unrestricted areas, or unusual conditions	Immediate
	40.60(a) ~~(b)(1) (b)(4)~~		requirements for domestic licensing of source material to receive, possess, use, transfer, or deliver source and byproduct material (NOTE: Same as 30.50 above)	
70, Domestic Licensing of Special Nuclear Material	~~70.50(a)(c)~~ 70.50(c)(2)	70.50 (b)	events involving special nuclear material (SNM)	(a) 24 hours (b) 30 days (c) 60 days
71, Packaging and Transportation of Radioactive Material	71.5 49 CFR 171.15(a)(1) and (2)	(c)	49 CFR 171.15 (a)(1) events involving hazardous materials (which include radioactive requires the immediate reporting of incidents involving hazardous materials (which include radioactive materials) that result in an individual's death, injury requiring hospitalization, carrier or property damage in excess of $50,000, evacuation of the general public for at least one hour and the closure of one or more major transportation facility or roadway for at least one hour. 49 CFR 171.15(a)(2) requires the immediate reporting of fire, breakage, spillage, or suspected radioactive contamination occurs involving the shipment of radioactive material	Immediate

Table 2. EXAMPLES OF REPORTABLE EVENTS	
This Table provides examples of reportable material events or occurrences that are required to be reported by both NRC and Agreement State material licensees. The Table addresses specific reporting requirements for either immediate notification (within 24 hours or less) or 30 day written reports.	
Immediately reportable under 10 CFR 20.2201(a)(i)	**Stolen Portable Moisture Density Gauge** Licensee reported that a [Manufacturer] [Model #] [serial #] portable gauge containing 10 millicuries of Cesium-137 and 50 millicuries of Americium-241: Beryllium was stolen from the licensee's vehicle parked at the licensee's facility. The gauge was padlocked in its original carrying case. The State is following the incident and working with local authorities to develop a press release. Local law enforcement and the FBI have been notified. Follow-up information will be provided to NRC on the recovery of the stolen gauge and entered into NMED.
Reportable within 24 hours under 10 CFR 30.50(b)(2)	**Possible Loss of Control and Damage to Portable Gauge** Licensee reported that a [Manufacturer] [Model #] [serial #] moisture density gauge had been damaged on March 28, 2001. The gauge contained 7.9 millicuries of Cesium-137 and 40 millicuries of Americium-241. A technician left the gauge unattended for a brief time and upon returning found that a construction vehicle had run over the gauge. The source rod was broken but the source was undamaged and remained in the shielded position. Wipe tests and instrument survey verified no leakage. The gauge was returned to the manufacturer for repair. The licensee was cited for not keeping licensed material under constant surveillance in an unrestricted area. Report has been entered in NMED.
Immediately reportable under 20.1906(d)(2)	**Shipment of Brachytherapy Sources Received with Radiation Levels Exceeding Regulatory Limits** A medical licensee reported receiving a shipment of two packages containing cesium-137 brachytherapy sources. Radiation surveys of the packages found radiation levels of 250 millirem per hour on one package, which exceeds the State and Federal limit at the external surface of a package of 200 millirem per hour. The third and final package was received two days later with radiation levels of 400 millirem per hour at the surface of the package. The shipper has retained a consultant to determine the cause of the elevated radiation levels. The State will keep NRC informed of the results of the consultants review of the event, and the information will be entered into NMED.

Reportable within 24 hours under 10 CFR 20.2203 20.2203, 30.50(a)	**Exposure to Nonradiation Worker at a Licensed Facility** A licensee reported to the State that a nonradiation worker had received an exposure as a result of picking up a 5 curie Americium-241:Beryllium neutron source used for well logging and placing it in his pocket. The worker, a temporary contractor employee, was cleaning a well logging tool at the licensee facility. (The licensee was under the assumption that all of the source material had been removed from the equipment.) While cleaning the tool, the source fell out, and the worker picked it up and placed it his pocket. The worker was not a radiation worker and had no knowledge of what the object was. Preliminary calculations performed by [identify Consultant/Contractor] indicate that the individual may have received a dose of 4-6 Rem. The licensee's RSO is investigating the incident. The State plans to keep NRC informed of the ongoing results of the investigation, and the information will be entered into NMED.
Reportable within 24 hours under 10 CFR Parts 35.3045 and 30.50(b)(2)	**Possible Medical Event involving a Teletherapy Unit Malfunction** A patient undergoing a Cobalt-60 Teletherapy treatment with a [Manufacturer][Model #] received an unintended exposure (**identify organ**). The RSO estimated that the patient received an exposure of 138 centiGray (rads) to a depth of 0.5 centimeters to the wrong treatment site, based on a possible total treatment time of 1.5 minutes. The exposure occurred as a result of two power disruptions during a thunderstorm. The loss of electrical power caused the unit table to move which resulted in treatment to the wrong site. The patient received 0.35 minutes of the intended fractionated treatment time of 1.5 minutes. The patient was prescribed a total dose of 5,040cGy (rads) to be given in 28 fractions of 180 cGy (rads) per day at the rate of 5 fractions per week. The prescribing physician elected not to make up the missed dose. The prescribing physician indicated that the patient is not expected to have any adverse effects from the medical administration. The patient and referring physician were notified of the event. The licensee was able to recreate the event to demonstrate how the event occurred. The licensee has contacted the manufacturer. The State will keep NRC informed of the results of the review for any generic implications.
Reportable within 24 hours under 10 CFR Part 35.3045 Note: May be classified as a potential AO.	**Medical Event high dose rate (HDR) afterloader device** A cancer patient undergoing therapeutic radiation treatment for prostate cancer received 18 Gy (1,800 rads) to the wrong treatment site. This error occurred using a HDR afterloader device with a radioactive source containing 270.7 GBq (7.32 Ci) of Ir-192. The event occurred after the dosimetrist made an error while inputting data into the afterloader's dosimetry software program. Although the dosimetrist appropriately clicked the "catheter tip" selection, the dosimetrist did not highlight and choose "catheter tip." Therefore, the computer cursor stayed on the "connector end" selection. This resulted in a 2-cm positioning error, which caused the source to stop short of the target so that the total prescribed dose was not delivered. The patient was informed of the event, and the remaining dose was delivered by external beam therapy. The State accepted the licensee's implementation of new procedures and its corrective actions as appropriate.

Reportable within 24 hours under 10 CFR Part 35.3045 Note: May be classified as a potential AO.	**Medical event involving the wrong treatment site** Licensee notified the State that a patient received greater than 1000 cGy (rads) to the wrong treatment site during an I-125 prostrate gland treatment involving 88 I-125 seeds with an activity of 11.1 MBq (0.3 mCi) per seed with a total activity of 1.0 Gbq (26.8 mCi). The prescribed treatment was for 14,500 cGy (rads) to the prostrate gland. Due to a coordinate error, the administration resulted in a partial treatment of the intended site and greater than 1,000 cGy (rads) to the rectum. The patient was notified of the error and the treatment was re-administered correctly. The State plans to update the NMED record with details of licensee corrective actions to prevent recurrence.
Reportable within 24 hours under 10 CFR Parts 36.83(a)(9), 30.50(b)(2)	**Possible Loss of Water or Leakage from Source Water Pool at Irradiator Facility** Licensee notified the State that the controls at a Co-60 irradiator facility were indicating that the water level was low, circulating pump off, and fill valves were open. The pool water level gauge indicated pool water level of 93 inches, well below the normal level of 137 inches. Previous incidents indicated that a loss of compressed air pressure to the water level gauge could result in an erroneously low water level gauge reading, causing the automatic pool fill valves to open, and the pool water circulating pump to turn off. The compressed air system pressure was found to be in the normal range, but the operator found water and congealed oil in the air line supplying the pool water level gauge, and the air line supplying the elevator control valve. Further investigation found that the compressed air line water traps were full of water. A past similar incident resulted in a failure to raise the elevator. The operator then verified that the pool water level was in fact normal. The licensee requested the building maintenance personnel to diagnose and repair the compressed air supply immediately, to prevent the conductivity in the pool water from reaching abnormal levels as a result of the resin filter circulating pump being automatically turned off by the false low pool water level meter reading. Maintenance personnel responded and replaced a failed compressed air dryer, and monitored the open air lines to clear the lines of water. A float activated automatic water drain was installed in the air line to prevent a possible recurrence by allowing any water to automatically drain from the air line.

1.4 *What is the Nuclear Material Events Database (NMED)?*

The NMED database contains a historical collection of information on the occurrence, description, and resolution of events involving the use of radioactive material in the United States (source, byproduct, special nuclear material, and a limited number of events involving naturally occurring, and, in some cases, accelerator-produced radioactive material that was initially identified as "unknown radioactive material" and later found to be non-AEA material). NMED accommodates the sharing of material event data submitted by Agreement and non-Agreement States and the NRC. The data includes information on material events from January 1990 through the present. NMED is being evaluated with respect to inclusion of events involving NARM or discrete NORM. The States will be notified of any changes made to NMED. The database is maintained by NMSS through a contractor, Idaho National Laboratory (INL).

1.5 *Reporting Lost, Stolen and Abandoned Sources*

Title 10 CFR 20.2201 mandates that each licensee report, by telephone, its discovery of any lost, stolen, or missing licensed material that exceeds specified quantities. Specifically, 10 CFR 20.2201(a)(1)(i) requires an immediate call if the licensed material is equal to or greater than 1000 times the quantity specified in Appendix C to 10 CFR Part 20, under such circumstances that an exposure could result to persons in unrestricted areas. Title 10 CFR 20.2201(a)(1)(ii) requires a call, within 30 days after the occurrence of any lost, stolen, or missing licensed material becomes known to the licensee, in a quantity greater than 10 times the quantity specified in Appendix C to 10 CFR Part 20, that is still missing at the time. Title 10 CFR 20.2201(b) requires a written report within 30 days after making the telephone call required by 10 CFR 20.2201(a). Title 10 CFR 20.2201(d) requires that, subsequent to filing the written report, the licensee report any additional substantive information on the loss or theft of the licensed material within 30 days of the knowledge of the substantive information.

The terrorist attacks on September 11, 2001, alerted regulators, licensees, and the public to the possible use of radioactive material as a terrorist weapon. Because of this possibility, it is important that any event, including transportation, involving sources in quantities greater than or equal to the *quantities of concern* (See Table 3, Radionuclides of Concern) that are lost, stolen or abandoned must be reported to the NRC Headquarters Operations Center immediately. The Commission has since codified these requirements in Appendix P to 10 CFR Part 110, "High-Risk Radioactive Material, Category 2." "High-Risk"

describes sources that could be used for malicious purposes to cause harmful effects. "Immediately" is interpreted as 4 hours after an Agreement State has been notified of the event by a licensee. The International Atomic Energy Agency (IAEA) described these high-risk sources and their activity thresholds in its draft TECDOC-1344, entitled "Categorization of Radioactive Sources." That document provides the supporting technical basis for the IAEA's Code of Conduct [the Code] on the Safety and Security of Radioactive Sources, as listed in Categories 1 and 2 of Table 3 to the Code. The rational for this immediate notification standard is to facilitate prompt coordinated Federal response in situations involving lost, stolen, or abandoned sources involving quantities of concern.

In order to ensure the safe handling, use, and control of licensed material in transportation for domestic highway and rail shipments by a carrier other than the licensees, for quantities that equal or exceed those in Table 3 but are less than 100 times Table 3 quantities, per consignment, the licensee shall confirm receipt of the shipment; and initiate an investigation to determine the location of the licensed material if the shipment does not arrive on or about the expected arrival time. When, through the course of the investigation, it is determined that the shipment has become lost, stolen, or missing, the licensee shall immediately notify the appropriate Agreement State regulatory agency. If, after 24 hours of investigation, the location of the material still cannot be determined, the radioactive material shall be deemed missing and the Agreement State licensee shall immediately notify the appropriate Agreement State regulatory agency.

Although NMED typically contains only events involving AEA material, the NMED database was expanded in 1998 to include voluntary reports of non-AEA orphan discrete sources (sources that are found but where the owner could not be identified), and expanded again in 2002 to capture voluntary reports of lost or stolen non-AEA discrete sources. This was done at the request of CRCPD to support their national effort to track lost stolen and recovered radioactive material of all types (including non-AEA and unlicensed material) found in both Agreement and non-Agreement States. The reportable as well as voluntary data on ***lost, stolen, and abandoned sources*** will be collected from Agreement and non-Agreement States, and in some cases non-licensee organizations and members of the public. Agreement and Non-Agreement States should follow the guidance provided in Section 2, "Reporting Material Events," to report any lost, stolen and abandoned non-AEA and unlicensed material. (See All Agreement State Letter SP-98-018, March 17, 1998).

1.6 Reporting Theft or Terrorist Activity Events (reportable within 4 hours)

FBI notification should be considered if an event involves the possibility of *theft or terrorist activities*. Agreement States are required to notify the NRC Headquarters Operations Center immediately in cases involving actual or attempted theft, sabotage, or diversion of radioactive material containing quantities greater than or equal to the quantities of concern of radioactive material as defined in Table 3. Agreement State Regulatory Agencies should notify the FBI or Local Law Enforcement Agency (LLEA) in all cases of actual theft, sabotage, diversions and possible terrorism of radioactive material, regardless of the quantity of radioactive material involved. This includes intentional use of radioactive materials that could be used in an unauthorized malevolent manner that could lead to serious consequences. In cases of theft or terrorist activities, after initial appropriate responses are made to the FBI or LLEA, Agreement States Regulatory Agencies shall promptly as possible, notify the NRC Operations Center. Agreement States should coordinate with the NRC, their communications with other local, Federal and State Agencies, to ensure that shared information is accurate and consistent. Based on health and safety significance the issuance of a press release should also be considered. (See All Agreement State Letter SP-98-038, dated May 5, 1998, regarding expansion of the FBI criminal investigative jurisdiction to include byproduct material. A revision to the U.S. Code assigns lead responsibility for material events involving ***theft or terrorist activities*** to the FBI.)

Table 3: Radionuclides of Concern

Radionuclide	Quantity of Concern[1] (TBq)	Quantity of Concern[2] (Ci)
Am-241	0.6	16
Am-241/Be	0.6	16
Cf-252	0.2	5.4
Cm-244	0.5	14
Co-60	0.3	8.1
Cs-137	1	27
Gd-153	10	270
Ir-192	0.8	22
Pm-147	400	11,000
Pu-238	0.6	16
Pu-239/Be	0.6	16
Se-75	2	54
Sr-90 (Y-90)	10	270
Tm-170	200	5,400
Yb-169	3	81
Combinations of radioactive materials listed above[3]	See Footnote Below[4]	

[1] The aggregate activity of multiple, collocated sources of the same radionuclide should be included when the total activity equals or exceeds the quantity of concern.

[2] The primary values used for compliance with this Order are TBq. The curie (Ci) values are rounded to two significant figures for informational purposes only.

[3] Radioactive materials are to be considered aggregated or collocated if breaching a common physical security barrier (e.g., a locked door at the entrance to a storage room) would allow access to the radioactive material or devices containing the radioactive material.

[4] If several radionuclides are aggregated, the sum of the ratios of the activity of each source, *i* of radionuclide, *n*, $\mathbf{A}_{(i,n)}$, to the quantity of concern for radionuclide *n*, $\mathbf{Q}_{(n)}$, listed for that radionuclide equals or exceeds one. [(aggregated source activity for radionuclide A) ÷ (quantity of concern for radionuclide A)] + [(aggregated source activity for radionuclide B) ÷ (quantity of concern for radionuclide B)] + etc..... ≥ 1

2. Reporting Material Events

In accordance with the provisions of compatible Agreement State regulations, Agreement State licensees are required to report the occurrence of material incidents and events to the Agreement State regulatory agency. As an item of compatibility, the Agreement States provide reports of incidents and events involving the use of nuclear materials by Agreement State licensees to NRC. Non-Agreement States have been requested by CRCPD to voluntarily report any lost, stolen and abandoned non-AEA and unlicensed material. This section presents information on reporting (1) significant events to the NRC Operations Center, (2) 30-60 day reportable events, and (3) follow-up event information.

2.1 Reporting Significant Events (Reportable within 24 hours by Agreement State licensee)

Agreement States should report significant events to the NRC Operations Center within 24 hours of notification by an Agreement State licensee. Significant events are those requiring prompt notification as determined under applicable Agreement State regulations. Information should be reported to the NRC Operations Center via voice at (301) 816-5100 or (301) 951-0550 or by FAX at (301) 816-5151. A Sample FAX page (Exhibit 1) has been included on page 9. States should assign an Event Report Identification Number [No.]. The format for this number is described in Section 2.4.a. ***"Assign Event Report Identification Number."***

2.2 Initial NMED Record for Significant Events

A copy of the initial event notification information received from an Agreement State on significant events is used by INL to establish an initial record in the national NMED database. INL will use the *Event Report Identification No.*, when entering the initial event record into NMED. The Event Report No. is reflected in the "Reference" field of the NMED record and should be used when providing updates to the initial NMED event record using the State's local Microsoft Access, NMED database. (See Section 2.5, of this Handbook for guidance on reporting follow-up event information to NMED). In addition, each event entered into NMED is assigned an unique NMED item number.

2.3 *Radiological Emergency Response Assistance Available to the States for Significant Material Events*

States may request Federal assistance through the NRC Operations Center staff. The Federal government, upon request, has the capability to provide assistance to States in responding to radiological emergencies. Under the National Response Plan (NRP), NRC is the lead Federal agency (LFA) for radiological emergencies involving AEA material where the material can be traced back to an individual NRC or Agreement State licensee. As the LFA, NRC is responsible for coordination of the Federal response, including providing assistance from NRC and arranging for assistance from other agencies, e.g., FEMA, DOE, etc., as requested by the States. Federal assistance is available to provide ground and aerial radiological monitoring (e.g., missing source), medical advice on radiation effects and treatment, consequence projection, and protective action assessment.

FAX TO: NRC OPERATIONS CENTER

Agreement State Agency:	[**State**] Dept. of Health, Division of Radiation Protection
Event Report ID No.:	State ID, YY, No., e.g. TN-06-001
License No.:	CL-Z00X-1
Licensee:	County Inspection Inc.
Event date and time:	April 6, 2006 between 4:00 and 5:00 am
Event location:	City, State
Event type:	Stolen Radiography Device
Notifications:	[**State**] Dept. of Health has notified local police, and the FBI due to possibility of unlawful criminal activity. Press release has not been issued at this time.
Event description:	[**State**] Dept. of Health was notified on [**date**], by a representative from [**licensee**], of the theft of a radiography exposure device [camera] from a locked equipment trailer on Thursday morning, April 6, 2006. The locked camera and the keys to the camera were stolen. The radiography camera is identified as XYZ Company, Model 160B, serial No. B-3333, containing [radionuclide] [**activity, when known**] 88.3 curies of Iridium-192. The device cables were not stolen. The State has an inspector on site and will continue to keep NRC informed of the status of our investigation.
Transport vehicle description: N/A	
Media attention:	[**State**] Dept. of Health has received inquiries from the media
Point of contact:	Minnie C. Gauges, 301-415-0001

Exhibit 1. Sample FAX Sheet to NRC Operations Center

2.4 30 - 60 Day Event Notification

Agreement States should report events requiring greater than 24 hours notification by Agreement States licensees, as determined under applicable Agreement State regulations, to NRC on a monthly basis. For reference, NRC reporting requirements for events are presented in Table 1. Reports may be made either electronically or in written form. NRC staff encourages Agreement States to electronically report all events using the NMED database software and entry screens.

The following paragraphs provide additional information on reporting events and NMED. For guidance on data entry, an electronic copy of the NMED users guide has been included in the local Microsoft Access NMED software program. The NMED software program also contains downloadable sample NMED data entry screens.

a. ***Assign Event Report Identification Number***

This number should appear on all reports, including preliminary, initial notification reports, and any follow-up reports. The Event Report No. should consist of the two letter State agency ID, two digit year corresponding to the reporting year, and a sequentially assigned four digit ID number. For events occurring in the State of New York, events should be numbered sequentially following the specific Agency ID and the two digit year (e.g. for New York State Department of Labor, NYDOL-06-001; or New City Department of Health and Mental Hygiene, Office of Radiological, NYC-06-001.) The Event Report ID No. should be referenced by the State for all telephone, electronic or written notification involving each specific event.

b. ***Basic Event Information***

Table 4, "Minimum Basic Event Information for a Complete Report," provides a listing of the minimum event information that should be provided. When submitting an initial event report, please provide as much information as is known at the time the report is prepared regarding the items indicated in the table. Updated information should be subsequently provided in follow-up reports (see Section 2.5).

c. ***Electronic Reporting to NMED***

Provide an electronic NMED report via E-mail or electronic storage media to the NMED contractor, based on the information provided by the Agreement State licensee in the 5, 15, 30 or 60 day report to **NMED@INL.GOV**. If you need additional help, you may contact the INL NMED Project Manager, electronically via Internet email at: NMED@inl.gov, or the NRC NMED Project Manager, Michele Burgess, via e-mail NMEDNRC@nrc.gov. For contact via telephone, refer to the contact information on the homepage of the NMED website.

Table 4. Minimum Basic Event Information for a Complete Report	
1. Essential Details (Provide)	**2. Source/Radioactive Material/Devices**
a. State Event Report Identification No.	a. Isotope and activity; manufacturer, model and serial number, leak test results, if applicable.
b. Licensee name and location, including licensing State.	b. For events involving lost, stolen or abandoned material does source exceed IAEA Category 2 quantity? Provide monthly event update through closure of event.
c. License No. or identify as General Licensee, (if applicable).	c. For equipment/device involved indicate the make, model and serial no. and provide clear description of any equipment problems.
d. Event date, time of occurrence and location (site) of event.	**3. Release of Licensed Material or Contamination**
e. Event circumstances and details including source radionuclide and activity.	Release type (air or water); contamination (person or surface); isotope and activity released
f. Date State Agency was notified of event by licensee or non-licensee.	**4. Medical Event**
g. Notifications: local police, FBI, and other States; as needed.	a. Procedure administered; dose intended and dose administered; isotope and activity administered; target organ.
h. Whether the event is NRC reportable and the applicable State reporting requirement.	b. Patient and Referring Physician notified?
i. Persons involved. Note: include position title(s) but do not submit personal or privacy information.	**5. Overexposure**
j. Licensee corrective actions and what actions were performed to prevent recurrence?	a. Indicate short and long-term health effects and exposure type (e.g., whole body or extremity)
k. Possible generic safety concerns.	b. Is event a potential Abnormal Occurrence?
l. Root cause(s) and contributing factors	**6. Transportation**
m. Actions the State took? Onsite inspections, any enforcement actions?	Type of transport; identity of shipper; package type and ID number (if available)

d. ***Internet Access to NMED***

An NMED search of the nationally collected data is available on the website with several drop-down point-and-click menus available. Users may download the latest NMED national database information via Internet file transfer. Internet access to the NMED is controlled through INL. If access is required, contact the INL NMED Project Manager by email message at: NMED@inl.gov or the NRC NMED Project Manager by email message at: NMEDNRC@nrc.gov. *NOTE: Agreement States should continue to use the Microsoft Access data entry program for maintaining a local events database and for submitting NMED event reports to INL.*

e. ***Written Event Reports***

Written event reports, including E-mail or fax, should be sent to the Director, STP or directly to the INL Project Manager at the address listed at the NMED homepage at https://nmed.inl.gov. Written report information should be comparable to the minimum basic information identified in Table 4. Reports should be provided in an optical character recognition (OCR) scannable format. Please include an ***Event Report Cover Page*** for all written form event information provided to NRC. Use of the Event Report Cover Page helps ensure our Document Control staff can readily identify, classify and appropriately record the document. A sample cover page is provided as Exhibit 2 of this Handbook.

2.5 Reporting Follow-up Event Information

Follow-up material event reports--providing the results of investigations into what, where, when and how the event or conditions occurred--through resolution and close out, should be provided for all events, both significant (24 hr. reportable) and 30-60 day reportable events.

a. On a monthly basis, follow-up reports through a closeout of the event should be provided electronically or in writing to the Director, STP or directly to the INL Project Manager at the address listed at the NMED homepage at https://nmed.inl.gov. Enter any new or supplemental information to the initial NMED record. A complete event report should include all investigative and medical information obtained through closeout of the event.

b. Additionally, when providing follow-up NMED event information, provide clear reference to documents on file that the State used to generate the NMED event report, e.g., a licensee inspection report dated mm/dd/yy, if applicable and appropriate.

c. Any follow-up information that revises earlier information or provides additional information on a given event should be provided to ensure a complete historical NMED record.

EXHIBIT 2 - SAMPLE EVENT REPORT COVER PAGE

AGREEMENT STATE

EVENT REPORT ID NO. __ - __ - ___
(State\YY\No.)

DATE:

TO:

Director
Office of State and Tribal Programs

SUBJECT:

STATE:

Signature and Title: _____

_____

_____

_____

Public Availability of Event Information: Any event information that is considered preliminary predecisional information by the State should be clearly identified on the cover page as follows: "Preliminary, **Not for Public Disclosure**." For event information in NRC's possession, the final determination on whether to withhold from public disclosure will be made by NRC on a case-by-case basis in accordance with the requirements of 10 CFR Part 9.

3. Closing and Completing Events

3.1 Events Closed in NMED

At the request of the Agreement States, a field was added to the NMED web site to enable a search for records that have been closed by the applicable agency under "Events Closed by Region/State." Agreement States should notify NRC, through the NMED contractor, INL, when the event record has been officially closed (i.e., no further follow-up planned and/or no additional information expected). For the purposes of NMED "event record closed" refers to an event that has been closed by the applicable Agreement State or NRC Regional Office. The State should ensure that the record contains all pertinent technical information, including followup information.

3.2 Record Complete in NMED

A "complete record" refers to an NMED record that contains a specified minimum set of information. This minimum set is defined on the NMED website under "Help." A "complete record" indicates that the event notification includes the *minimum* basic information to receive a "complete" determination from the contractor, INL.

> NOTE-IMPEP Review: The contractor is unable to determine if pertinent subsequent followup information that may have been provided by the licensee to the State has also been provided to NMED. Therefore, the abstract may or may not include sufficient technical information on followup activities such as root cause, dose assessment, licensee and State corrective actions, etc. A technical quality completeness review is conducted during periodic IMPEP reviews. (For additional information see *NMED Newsletter*, January 2002, January 2003, and January 2005 available at the NMED website.)

4. NRC Publication and Distribution of Event Notifications

4.1 Event Notifications (ENs) are Available on Internet

All events reported to the NRC Operations Center are currently entered into the NRC Event Notification (EN) database. Most ENs are publicly available on NRC's external home page at (http://www.nrc.gov/) under *Event Reports*, within one to five working days of notification. As a result of public access to this information, Agreement and non-Agreement States may receive contacts from the public or media regarding events and requesting additional information. The NRC will withhold Agreement State reports from public release for at least 48 hours.

4.2 Preliminary Notifications (PNs) are Used to Distribute Event Information

Preliminary Notifications (PNs) are brief summary reports of significant events issued by the NRC staff to notify the Commission of the occurrence of a significant event. PNs are based on information provided by State radiation control program staff. PNs are usually issued within the same business day of the notification (or the next business day if the event is reported after hours on the weekend). Most PNs will be publicly available on NRC's external home page under Event Reports at (http://www.nrc.gov/). Updates to PNs occur when significant additional information about an event is provided to NRC. When preparing PNs, NRC staff may contact the State for additional information on the event.

5. NRC Safety Reviews of Material Event Reports

5.1 NRC Review of Material Events for Safety Significance and Generic Assessment

A weekly review all of new material event notifications (ENs) received by the Headquarters Operations Center and event notifications and follow-up reports, received and entered into NMED from the Agreement States or NRC licensees, is conducted by NRC staff. The objective of the review is to identify any events that may involve generic safety concerns (GSIs) or could have significant impact on public health, safety or security. Events would include:

1. Multiple occurrences of the events tracked as performance measures in the Strategic Plan (e.g., medical events, overexposures, lost or stolen sources of concern, or

2. A single occurrence of an event tracked as a strategic goal in the Strategic Plan (e.g., deaths, loss of organ function), or

3. Events involving possible generic concerns or issues, e.g., equipment malfunctions, equipment failures, or

4. Consequences or causal factors not previously seen in the event assessment process.

NOTE: GSI's are defined as a safety concern that may affect the design, construction, operation, or decommissioning of all, several, or a class of regulated operations, and may have the potential to require licensees or certificate holders to make safety improvements and/or require new or revised requirements or guidance.

Requests for additional information: Based on the results of the materials event safety and generic assessment review and periodic audits, Agreement State staff may be contacted by the RSAO by phone or email to discuss the event. Additional information may be requested to help determine the safety significance and any possible generic implications (e.g., equipment malfunction or failure, significant exposures). Specific issues identified as a result of the review are tracked by NRC through close-out of the event.

If necessary, NRC staff may contact Agreement States for additional information on ***significant events*** that pose or could pose health and safety or security risks. Such requests, normally initiated by the RSAO, would occur on an as needed basis, possibly within hours to a few days of notification of the occurrence of the event, based on the safety significance.

The RSAO, or a designee, may contact Agreement States for additional event information within 30 days for a (15 day event notification) and within 60 days for a (30 day event notification) after NRC's receipt of the initial notification from the State. A request for follow-up information may also be sent routinely via email by the NMED contractor, (e.g., when the NMED record is incomplete after 60 days from the date reported to the regulatory agency).

5.2 Actions NRC May Take after Review of "Significant" Events

Events identified as having a "significant" potential risk to health, safety and security may receive additional NRC management review. NRC headquarters and region staff continue to follow-up and review material events through closure of the event, which includes checking to see that the final report information has been entered into NMED. Based on potential safety risks identified as a result of event review and analyses, NRC may take actions to reduce potential health and safety risks to the public by issuing safety-related notifications to licensees, i.e. Information Notices (IN), concerning software problems, equipment modifications, etc. Further research and analysis may result in regulatory or programmatic changes.

6. Abnormal Occurrence Guidelines and Criteria

6.1 Introduction

This section presents the guidelines and criteria to be followed when assessing the significance of an event or occurrence to see if it meets the criteria established to identify an abnormal occurrence (AO). Section 208 of the Energy Reorganization Act of 1974 (ERA) (Public Law 93-438, 42 USC 5848) identifies an abnormal occurrence as an unscheduled incident or event that the Commission determines to be significant from the standpoint of public health or safety. Section 208 of the Act also requires that the Commission inform Congress of any abnormal occurrences. The Agreement States support the NRC in their effort to keep Congress apprised of any significant events that may directly affect public health or safety by providing information to the NRC on proposed AOs that have occurred in their State.

6.2 AO Policy Information

The Commission submits a report to Congress identifying any AOs. The Federal Reports Elimination and Sunset Act of 1995 requires that AOs be reported to Congress on an annual basis. Section 208 of the ERA indicates that each report shall contain:

(1) The date and place of each occurrence;
(2) The nature and probable consequence of each occurrence;
(3) The cause or causes of each; and
(4) Any action taken to prevent recurrence.

As specified in Section 208, within 15 days of receiving information of each AO, the Commission shall provide as wide dissemination to the public as reasonably possible as soon as such information becomes available.

An incident or event will be considered an AO if it involves a major reduction in the degree of protection of the public health or safety. This type of incident or event would have a moderate or severe impact on the public health or safety and could include, but need not be limited to the following:

(1) Moderate exposure to, or release of, radioactive material licensed by or otherwise regulated by the Commission;
(2) Major degradation of essential safety-related equipment; or
(3) Major deficiencies in design, construction, use of, or management controls for facilities or radioactive material licensed by or otherwise regulated by the Commission.

The annual AO Reports to Congress can be accessed at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/.

The AO Report to Congress is also used as used to provide information on significant materials issues and on adverse licensee performance. In accordance with SECY-02-216, "Proposed Process for Providing Information on Significant Nuclear Materials Issues and Adverse License Performance," Agreement State events will be considered, along with other materials licensees, for discussion during the Annual Agency Action Review Meeting (AARM). The revised Management Directive and Handbook 8.14, "Agency Action Review Meeting," describes STP's participation in the AARM and its role as the leader of discussion on Agreement State licensees, as necessary.

6.3 AO Criteria

Agreement State staff should routinely screen events against the AO criteria as part of their routine program. Any events identified as potential AOs should be reported to NRC. Additionally, Agreement States are requested to prepare a special written report for potential AOs. Agreement State staff should follow the guidelines for preparing AO write-ups contained in Section 7.4 of this Handbook. When questions arise on a given event, it may sometimes be necessary for NRC to directly contact an Agreement State representative and request additional information.

The criteria for determining an AO and the guidelines for "Other Events of Interest" were stated in an NRC Policy Statement. The following AO criteria was published in the *Federal Register* on December 19, 1996, (61 FR 67072). The policy statement was revised to include criteria for gaseous diffusion plants and published in the *Federal Register* on April 17, 1997, (62 FR 18820).

The guidelines were revised for Appendix C "Other Events of Interest" by the Commission in a Staff Requirements Memorandum, SECY-98-175, dated September 4, 1998.

AO Criteria

As published in the Federal Register on December 19, 1996 (61 FR 67072) and as revised and published on April 17, 1997 (62 FR 18820) to incorporate gaseous diffusion plants.

Criteria by types of events used to determine which incidents or events will be considered for reporting as AOs are as follows:

I. For All Licensees.

A. Human Exposure to Radiation from Licensed Material.

1. Any unintended radiation exposure[3] to an adult (any individual 18 years of age or older) resulting in an annual total effective dose equivalent (TEDE) of 250 millisievert (mSv) (25 rem) or more; or an annual sum of the deep dose equivalent (external dose) and committed dose equivalent (intake of radioactive material) to any individual organ or tissue other than the lens of the eye, bone marrow and the gonads, of 2500 mSv (250 rem) or more; or an annual dose equivalent to the lens of the eye, of 1 Sv (100 rem) or more; or an annual sum of the deep dose equivalent and committed dose equivalent to the bone marrow, and the gonads, of 1 Sv (100 rem) or more; or an annual shallow-dose equivalent to the skin or extremities of 2500 mSv (250 rem) or more.

2. Any unintended radiation exposure to any minor (an individual less than 18 years of age) resulting in an annual TEDE of 50 mSv (5 rem) or more, or to an embryo/fetus resulting in a dose equivalent of 50 mSv (5 rem) or more.

3. Any radiation exposure that has resulted in unintended permanent functional damage to an organ or a physiological system as determined by a physician.

B. Discharge or Dispersal of Radioactive Material from its Intended Place of Confinement.

1. The release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceed 5000 times the values specified in Table 2 of Appendix B

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[3] An "unintended radiation exposure" includes any occupational exposure, exposure to the general public, or exposure as a result of a medical misadministration (as defined in §35.3045) involving the wrong individual that exceeds the reporting values established in the regulations.

All other reported medical events will be considered for reporting as an AO under the criteria for medical licensees. In addition, unintended radiation exposures include any exposure to a nursing child, fetus, or embryo as a result of an exposure (other than an occupational exposure to an undeclared pregnant woman) to a nursing mother or pregnant woman above specified values.

to 10 CFR Part 20, unless the licensee has demonstrated compliance with §20.1301 using §§20.1302(b)(1) or 20.1302(b)(2)(ii).

2 Radiation levels in excess of the design values for a package, or the loss of confinement of radioactive material resulting in one or more of the following: (a) a radiation dose rate of 10 mSv (1 rem) per hour or more at 1 meter (3.28 feet) from the accessible external surface of a package containing radioactive material; (b) a radiation dose rate of 50 mSv (5 rem) per hour or more on the accessible external surface of a package containing radioactive material and that meet the requirements for "exclusive use" as defined in 10 CFR 71.47; or (c) release of radioactive material from a package in amounts greater than the regulatory limits in 10 CFR 71.51(a)(2).

C. *Theft, Diversion, or Loss of Licensed Material, or Sabotage or Security Breach.*[4]

1. Any lost, stolen, or abandoned sources that exceed 0.01 times the A_1 values, as listed in 10 CFR Part 71, Appendix A, Table A-1, for special form (sealed/nondispersible) sources, or the smaller of the A_2 or 0.01 times the A_1 values, as listed in Table A-1, for normal form (unsealed/dispersible) sources or for sources for which the form is not known. Excluded from reporting under this criterion are those events involving sources that are lost, stolen, or abandoned under the following conditions: sources abandoned in accordance with the requirements of 10 CFR 39.77(c); sealed sources contained in labeled, rugged source housings; recovered sources with sufficient indication that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 did not occur during the time the source was missing; and unrecoverable sources lost under such conditions that doses in excess of the reporting thresholds specified in AO criteria I.A.1 and I.A.2 were not known to have occurred.

2. A substantiated case of actual or attempted theft or diversion of licensed material or sabotage of a facility.

3. Any substantiated loss of special nuclear material or any substantiated inventory discrepancy that is judged to be significant relative to normally expected performance, and that is judged to be caused by theft or diversion or by substantial breakdown of the accountability system.

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[4] Information pertaining to certain incidents may be either classified or under consideration for classification because of national security implications. Classified information will be withheld when formally reporting these incidents in accordance with Section 208 of the Energy Reorganization Act of 1974, as amended. Any classified details regarding these incidents would be available to the Congress, upon request, under appropriate security arrangements.

4. Any substantial breakdown of physical security or material control (i.e., access control containment or accountability systems) that significantly weakened the protection against theft, diversion, or sabotage.

D. Other Events (i.e., those concerning design, analysis, construction, testing, operation, use, or disposal of licensed facilities or regulated materials).

1. An accidental criticality [10 CFR 70.52(a)].

2. A major deficiency in design, construction, control, or operation having significant safety implications requiring immediate remedial action.

3. A serious deficiency in management or procedural controls in major areas.

4. Series of events (where individual events are not of major importance), recurring incidents, and incidents with implications for similar facilities (generic incidents) that create a major safety concern.

II. For Commercial Nuclear Power Plant Licensees.

A. Malfunction of Facility, Structures, or Equipment.

1. Exceeding a safety limit of license technical specification (TS) [§50.36(c)].

2. Serious degradation of fuel integrity, primary coolant pressure boundary, or primary containment boundary.

3. Loss of plant capability to perform essential safety functions so that a release of radioactive materials, which could result in exceeding the dose limits of 10 CFR Part 100 or 5 times the dose limits of 10 CFR Part 50, Appendix A, General Design Criterion (GDC) 19, could occur from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod system).

B. Design or Safety Analysis Deficiency, Personnel Error, or Procedural or Administrative Inadequacy.

1. Discovery of a major condition not specifically considered in the safety analysis report (SAR) or TS that requires immediate remedial action.

2. Personnel error or procedural deficiencies that result in loss of plant capability to perform essential safety functions so that a release of radioactive materials, which could result in exceeding the dose limits of 10 CFR Part 100 or 5 times the dose limits of 10 CFR Part 50, Appendix A, GDC 19, could occur from a

postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod system).

III. For Fuel Cycle Facilities.

1. A shutdown of the plant or portion of the plant resulting from a significant event and/or violation of a law, regulation, or a license/certificate condition.

2. A major condition or significant event not considered in the license/certificate that requires immediate remedial action.

3. A major condition or significant event that seriously compromises the ability of a safety system to perform its designated function that requires immediate remedial action to prevent a criticality, radiological or chemical process hazard.

IV. For Medical Licensees.

A medical event that:

(a) Results in a dose that is (1) equal to or greater than 1 gray (Gy) (100 rad) to a major portion of the bone marrow, to the lens of the eye, or to the gonads, or (2) equal to or greater than 10 Gy (1000 rad) to any other organ; and

(b) Represents either (1) a dose or dosage that is at least 50 percent greater than that prescribed in a written directive or (2) a prescribed dose or dosage that (i) is the wrong radiopharmaceutical,[5] or (ii) is delivered by the wrong route of administration, or (iii) is delivered to the wrong treatment site, or (iv) is delivered by the wrong treatment mode, or (v) is from a leaking source.

V. Guidelines for "Other Events of Interest"

The Commission may determine that events other than AOs may be of interest to Congress and the public and should be included in an Appendix to the AO report as Other Events of Interest. Guidelines for events to be included in the AO report for this purpose may include, but not necessarily be limited to, events that do not meet the AO criteria but that have been perceived by Congress or the public to be of high health and safety significance, have received significant media coverage, or have caused the NRC to increase its attention to or oversight of a program area, or a group of similar events that have resulted in licensed materials entering the public domain in an uncontrolled manner.[6]

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[5] The wrong radiopharmaceutical as used in the AO criterion for medical events refers to any radiopharmaceutical other than the one listed in the written directive or in the clinical procedures manual.

[6] Staff Requirements Memorandum, SECY-98-175, dated September 4, 1998.

6.4 Guidelines for AO Write-ups

All AO write-ups should be complete, up-to-date, and written using text that is understandable to non-technical readers. Please do not use **bold** or *italics* in writeups; use underline instead. Any special fonts will be added during the publishing stage by the NRC Technical Publications Specialist using the Kodak Ektaprint Electronic Publishing System.

NOTE: Agreement States may use INTERNET E-Mail capability to electronically send their AO information to STP via Internet using WordPerfect or an ASCII text file. NRC is currently using WordPerfect 10. The file may be attached to an e-mail transmission. The STP AO coordinator, Andrea Jones, may be reached at (ARJ@NRC.GOV).

First paragraph - State the AO criteria for the event by citing the appropriate section of the AO criteria.

Date and Place - Provide the date the event occurred, the licensee's name, and the city and State address of the licensee.

Nature and Probable Consequences - Briefly explain the event and the circumstances surrounding the occurrence. Provide the specific details of the event to include the: exposure (where applicable), source, specific radionuclide(s), quantity, dose (where applicable), treatment plan (where applicable), equipment/devices with the manufacturer and model number. Describe any immediate actions taken by the licensee or the State (confirmatory action letter, special inspection, enforcement conference, enforcement action(s), etc.). The write-up should answer where, when, how, why, and efforts to prevent recurrence.

For occupational, or public overexposures identify whether the person was notified. For medical events , include the intended and actual treatment plan, identify any health effects, including a statement of "no health effects," where applicable, and a statement whether the patient and referring physician were informed of the event. State whether a medical consultant has been contracted to review the event. Include the consultant's conclusions and identify the effects to the patient. Never mention any health effects to a patient without attributing the statement to the licensee or medical consultant. Indicate whether the primary physician was notified.

NRC's NUREG publication policy states that all documents must be published in dual units (Metric and English).

Cause or Causes - Self explanatory

Action(s) taken to prevent recurrence - Briefly explain what corrective actions were taken to prevent recurrence by the licensee, and indicate whether or not the State was satisfied with the licensee's corrective actions. State whether there were any enforcement actions, penalties.

Last paragraph - Indicate the status by stating whether the AO is closed or remains open waiting for additional significant information from the Agreement State licensee. An item should only be identified as open if the State expects additional significant action may take place that will be covered in a follow-up report. The new information contained in the follow-up report should be provided to NRC for inclusion in the AO report under the section entitled "Update to Previously Reported AOs."

The following pages contain three sample AO write-ups.

Example 1: Radiopharmaceutical Overexposure Write-up

Criteria

In accordance with the AO criteria I.A.1, "Human Exposure to Radiation from Licensed Material" any unintended radiation exposure to an adult (any individual 18 years of age or older resulting in an annual shallow-dose equivalent to the skin or extremities greater than 2,500 mSv (250 rem) is considered an AO.

Date and Place- **[Date]; [Facility/Licensee]; [location]** City, State.

Exposure

Source/Quantity

Nature and Probable Consequences- A pharmacist trainee received an extremity exposure resulting in a shallow dose equivalent to the hand of 7,402 mSv (742 rem); a deep dose equivalent of 70 mSv (7.02 rem) to the hand; and a dose of 0.9 mSv (0.90 rem) to the thyroid, based on licensees consultation with several external and internal dosimetry specialists. The exposures to the pharmacist trainees hand and forearm occurred when a spill took place while compounding I-131 from a vial. The pharmacist failed to notify anyone of the event, cleaned up the area and decontaminated his skin. The following day, the pharmacist reported the I-131 spill to the Imaging Manager , who conducted a second survey of the area that revealed no remaining contamination. Upon return from a one week vacation, the pharmacist informed the Radiation Safety Officer that skin on the forearm had been contaminated as a result of an earlier I-131 spill received prior to vacation. Immediate action was taken to determine if any contamination still remained on his arm. Elevated levels were discovered on his right forearm and left fingertips. The appropriate hospital/nuclear medicine personnel were notified. The contaminated individual was suspended from any and all duties involving radioactive material during the investigation.

Cause or Causes - The event occurred due to human error and failure to follow established procedures. An initial crimp failure on the vial many have contributed to the spill.

Actions Taken to Prevent Recurrence

Licensee - The licensee retrained all staff in spill procedures and proper supervisory notification. Additionally, at the prompting of the licensee, the vial supplier, re-evaluated the process of ensuring that each crimp is acceptable for shipment, although the supplier believed it was more likely an isolated incident.

State Agency - The State agency conducted inspections and reviewed licensee corrective actions. The licensee was cited for violations of State Regulations for Control of Radiation.

Status

This event is (**open\closed**) in (**State**).

Example 2: Diagnostic Medical Event AO Write-up

Criteria

In accordance with the AO criteria IV, "For Medical Licensees," administering a dose that is (1) equal to or greater than 1 gray (Gy) (100 rads) to a major portion of the bone marrow, the lens of the eye, or to the gonads; or (2) equal to or greater than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an abnormal occurrence.

Date and Place - **[Date]; [Facility/Licensee], [City, State]**

Procedure/dose (actual vs. intended)

Nature and Probable Consequences - A patient was prescribed a dose of 0.93 megabecquerel (MBq) (25 microcurie [μCi]) of Iodine-131 (I-131) for a diagnostic scan to assess a thyroid nodule. However, the patient was administered a dosage of 111 MBq (3,000 μCi) of I-131. The licensee discovered the event on [date], when the patient returned for the whole body scan 48 hours later. The technologist misunderstood the order by assuming that the referring physician wanted a whole body scan to assess thyroid cancer, and administered 111 MBq (3,000 μCi) of I-131 without requesting clarification or approval from the authorized users. As a result the patients thyroid received a dose of about 43 Gy (4,300 rads) instead of the prescribe dose of about 32.5 Gy (32.5 rads). The referring physician and patient were properly notified.

Notifications

Health effect to patient

Two authorized users determined that the administered dose of I-131 may induce a hypothyroid state requiring the patient to take thyroid hormone. A patient followup assessment included thyroid profiles and thyroid uptakes to determine thyroid function.

Cause or causes - The event was attributed to human error. The technologist misunderstood the treatment ordered by the referring physician and failed to verify the written directive.

Actions taken To Prevent Recurrence

Licensee - The licensee implemented corrective measures to ensure that authorized users approve all procedures involving the administration of radiopharmaceutical and re- instructed nuclear medicine personnel.

State Agency - The State agency conducted a follow-up inspection to ensure that the licensee's actions taken to prevent recurrence had been implemented.

This event is closed for the purpose of this report.

Example 3: Gamma Stereotactic Radiosurgery *(Gamma Knife)Write-up*

Criteria

In accordance with the AO criteria IV, "For Medical Licensees," administering a dose that is (1) equal to or greater than one gray (Gy) (100 rads) to a major portion of the bone marrow, the lens of the eye, or to the gonads; or (2) equal to or greater than 10 Gy (1,000 rads) to any other organ and represents a prescribed dose or dosage that is delivered to the wrong treatment site will be considered for reporting as an abnormal occurrence.

Date and Place - [Date]; [Facility/Licensee], [City, State]

Procedure/dose

Nature and Probable Consequences - A patient undergoing Gamma (intended vs. actual) Stereotactic Radiosurgery (Gamma Knife) was prescribed treatment of 20 Gy (2,000 rads) to a portion of the brain. However, the patient received a dose of 12.8 Gy (1,280 rads) to an unintended portion of the brain, (i.e. wrong treatment site).

What occurred?

During the treatment, the licensee completed three and one-half fractions of eight treatments before the medical physicist and radiation therapist realized that the administered treatment utilized the treatment parameters for another patient. The licensees medical physics staff had prepared treatment plan for two patients, to be treated on the same day. The treatment plan for Patient A consisted of a prescribed dose of 18 Gy (1,800 rads). Prior to initiating treatment of Patient A, a licensee staff member handed the plan of treatment for Patient B to the licensees radiation therapist; later, the therapist could not recall from whom the plan had been received. Using Patient B's treatment plan, the treatment team set up and delivered the first three fractions to Patient A and began delivery of the fourth fraction when the error was discovered by the medical physicist. Once notified of the error, the radiation oncologist terminated treatment.

The medical physicist determined that the treatment delivered a dose of 12.8 Gy (1,280 rads) to an unintended region of the patient's brain. The radiation oncologist determine that the location of the unintended site was far enough away from the intended site to proceed with the intended treatment. The licensees subsequently administered the intended treatment without incident.

Notifications

The licensee notified the patient's referring physician and the radiation oncologist notified the patient of the event.

Health effect to patient

The radiation oncologist did not anticipate any immediate adverse effect to the patient, and was not certain of the potential for any long-term effects as a result of the administration.

Consultant report, where applicable

The licensee consultant agreed with the assessment. With regard to long-report term affects, the consultant concluded that this administration may be at the threshold of late central nervous system injury and may produce symptoms. The consultant further stated that long-term follow-up was indicated for the patient and that the patient was eligible for inclusion in the Department of Energy's Office of Epidemiology and Health Surveillance voluntary life-time morbidity study. The licensee conducted medical follow-up of the patient to identify and respond to potential adverse medical consequences resulting from this administration. However during further attempted follow-ups on the patient the licensee lost contact with the patient.

Cause or causes -The misadministration was caused by human error, as a result of the licensees failure to verify that the treatment plan used was for the patient being treated. Contributing factors included inadequate labeling of the patient's name on the computer treatment plan and other medical recording information.

Actions Taken to Prevent Recurrence

Licensee -The licensee immediately implemented revised procedural measures and conducted retraining of applicable staff to ensure that patient - specific parameters are confirmed and verified prior to initiation of treatment, and that all medical record information is adequately labeled.

State Agency - The State conducted an investigation and reviewed the licensees corrective actions, which were found adequate by the State.

This event is closed for the purposes of this report.

NOTE: Emphasis added **[bold]** to clarify specific information that should be included in the report

Appendix

Glossary

ADAMS Agencywide Documents Access and Management System, NRC's official record electronic recordkeeping system, approved by the National Archives and Records Administration on April 1, 2000.

EN The Event Notification (EN) system is an internal NRC automated event tracking system used by the NRC Operations Center to track information on incoming notifications of the occurrence of significant material events that have or may affect public health and safety. Significant material events are reported to the NRC Operations Center by NRC licensees, staff of the Agreement States, other Federal agencies, and the public. The EN's are published each work day through the Internet.

Gray Gray (Gy) is the SI unit of absorbed dose. One Gray is equal to an absorbed dose of 1 joule/kilogram (100 rads).

Metric System The metric system is now included in all Federal documents. All event reports should include the dual system of Units (SI) in the following order. First use the International System of Units (SI) with the English System unit equivalent following in parentheses. Spell out the first time it appears, continue with an abbreviation, (see examples below). 1000 centiGray (cGy) (1000 rad) the first time, and continue with 1000 cGy (1000 rad). 50 millisieverts (mSv) (5 rem) 730 megabecquerel (MBq) (20.4 mCi)

NMED The Nuclear Material Events Database (NMED), maintained by NRC, is a historical collection of incidents and events that have occurred throughout the United States involving the use of radioactive material covered under the Atomic Energy Act. This excludes events occurring at nuclear power plants.

NRC Ops Center The NRC Operations Center in Rockville, Maryland, serves as the focal coordination point for communicating with NRC licensees, State agencies, and other Federal agencies about operating events in both the nuclear reactor and nuclear material industry. The Operations Center is staffed 24 hours a day by an NRC Headquarters Operations Officer (HOO), who is trained to receive, evaluate, and respond to events reported to the Operations Center.

PN Preliminary Notifications (PN) are brief summary reports of significant events issued by the NRC staff to notify the Commission of the occurrence of a significant event that appears to have health and safety significance or major public or media interest. PNs are based on information provided by State

radiation control program staff. These reports are publicly available through Internet on NRC's external home page under PN Reports at (http//www.nrc.gov).

RSAO The Regional State Agreements Officer (RSAO) is a designated staff member, in an NRC regional office, who serves as the point of contact for the region and the Office of State and Tribal Programs regarding Agreement State radiation control programs, and who participates in technical reviews of Agreement State radiation control programs.

Rad Rad is the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/grams or 0.01 joule/kilogram (0.01 gray)

Rem Rem is the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rem is equal to the absorbed dose in rads multiplied by the quality factor (1 rem = 0.01 sievert).

Sievert Sievert is the SI unit of any of the quantities expressed as dose equivalent. The dose equivalent in sieverts is equal to the absorbed dose in grays multiplied by the quality factor (1 Sv = 100 rem.).

References

The following is a list of NRC documents, manuals and procedures that contain additional information on event response and AOs.

NRC Policy

June 30, 1997 Staff Requirements Memorandum, Procedures for *Statement of Principles and Policy for the Agreement State Program and Policy Statement on Adequacy and Compatibility of Agreement State Programs.*

NRC Report

Performance Budget FY2006, NUREG-1100, Vol. 21, February 2005, annual report to Congress required by GPRA.

NMSS Licensee Newsletter, NUREG/BR-0017

NRC Management Directives

6.4	Generic Issues Program
8.1	Abnormal Occurrence Reporting Procedures
8.10	NRC Medical Event Assessment Program

NRC Inspection Manual

1300	Incident Response Actions - Responsibility and Authority (84-080)
1301	Response to Non-Emergency Incidents Involving Radioactive Material (96-022)
1302	Action Levels for Radiation Exposures and Contamination Associated with Material Events Involving Members of the Public (94-004)
1303	Requesting Emergency Acceptance of Radioactive Material by the U.S. Department of Energy (DOE) (95-009)
1330	Response to Transportation Accidents Involving Radioactive Materials (84-22)

1360	Use of Physician and Scientific Consultants in the Medical Consultant Program (94-013)
2800	Materials Inspection Program
87103	Inspection of Materials Licensees Involved in an Incident Bankruptcy Filing (97-008)

NRC Emergency Response Manuals

NUREG/BR-0230	Response Coordination Manual - Contains procedures for requesting Federal assistance during an emergency.
NUREG/BR-0150	Contains procedures for assessing the consequences of an emergency.

STP Correspondences

STP All Agreement State Letter (SP-98-018), dated March 17, 1998, "Use of the Nuclear Material Events Database (NMED) As a Central Listing Of Lost or Stolen Sealed Sources and Devices."

STP Procedures

SA-100	Implementation of the Integrated Materials Performance Evaluation Program
SA-200	Compatibility Categories and Health and Safety Identification for NRC Regulations and Other Program Elements

Event Notification and Response

FBI A revision to Section 831 of Chapter 39 of Title 18 of the U.S. Code regarding criminal activity, includes a significant expansion of Federal Bureau of Investigation jurisdiction to initiate criminal investigations and pursue prosecutions when radioactive materials are involved. In instances involving the suspected criminal misuse of nuclear material and byproduct material, your notification of the FBI is warranted. However, the U.S. Attorney's Office and the FBI will determine whether or not a criminal investigation is to be conducted by the FBI or deferred to State or local authorities for investigation and prosecution. The Commission also requests that Agreement States inform NRC of reports of events involving theft or terrorist activities warranting FBI notification.

. NRP — The Commission is the lead Federal agency (LFA) for response to any event involving NRC and Agreement State-licensed Atomic Energy Act material under the National Response Plan (NRP) , which includes other Federal agencies, i.e., Department of Energy (DOE), Environmental Protection Agency (EPA), Federal Emergency Response Administration (FEMA). NRP covers any peacetime radiological emergency that has actual, potential or perceived radiological consequences within the United States.

DOT/NRC — The National Response Center is a Department of Transportation, Coast Guard service that serves as a national point of contact for reporting all oil, chemical, non-AEA radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. In addition to gathering and distributing spill data for Federal On-Scene Coordinators and serving as the communications and operations center for the National Response Team, the Center maintains agreements with a variety of federal entities to make additional notifications regarding incidents meeting established trigger criteria. The Center maintains a 24 hour call line at 1-800-424-8802. The Center's Website address is: www.nrc.uscg.mil/services.

REACTS — The Radiation Emergency Assistance Center/Training Site (REACTS), is a Department of Energy (DOE) resource headquartered in Oak Ridge, Tennessee, telephone (865) 576-1005. REACTS is available 24 hours a day to provide medical and radiological assistance either from the REACTS facility or the accident site. Additionally, REACTS maintains a listing of other professionals throughout the country who are recognized as having highly specialized expertise and equipment to manage a particular area of concern.

AVAILABILITY OF REFERENCE MATERIAL
NRC documents: Event Notifications, Preliminary Notifications, Inspection Manuals and Procedures, NUREG Series technical reports, Regulatory Guides, etc., are available at the NRC external Website under References at: http://www.nrc.gov/reading-rm/doc-collections/. The Office of State and Tribal Programs (STP) documents are available at the STP external Website at: http://www.hsrd.ornl.gov/nrc/.

(Cut Out Page for Handy Reference)

Event Reporting Schedule for Agreement States

	Reportable Event Notification[1]	Agreement State Reporting Schedule to NRC	Reporting Methods to NRC[4]
4 HOURS	**Significant** reportable events requiring **4 hours or less**[2] notification by Agreement State licensees.	Agreement States should report to NRC within 4 hours of notification by an Agreement State licensee.	Report initial information to the **NRC Operations Center**[5] **(301) 816-5100** or **(301) 951-0550** FAX #: (301) 816-5151
24 HOURS	**Significant** reportable events requiring **24 hours or less** notification by Agreement State licensees.	Agreement States should report to NRC within 24 hours of notification by an Agreement State licensee.	
24 HOURS	Events involving **theft or terrorist** activities should be reported to the **FBI.**[3]	Agreement and non-Agreement States should report to the FBI within 24 hours of notification.	
30 – 60 DAYS	**30 – 60 day reportable events** requiring **greater than 24 hour** notification by Agreement State licensee and event follow-up reports.	Agreement State should provide 30-60 day notification and any follow-up reports to NRC-NMED on a monthly basis. NOTE: Licensee reports received within less than 30 days of the date of the monthly report may be included in the next month's report.[6]	Email: NMED@INL.GOV Telephone: 208-526-6904 or 208-526-0990-fax Disk/CD: INL, P.O. Box 1625, Idaho Falls, ID 83415 Attn: Thomas W. Smith or Written: Director of STP US NRC, Washington, DC 20555
VOLUNTARY	Lost, stolen, or abandoned sources reported to the Agreement State that are non-AEA or unlicensed material and not covered by the above two categories.	Voluntary reporting by the Agreement States and non-Agreement States.[7]	Email: NMED@INL.GOV

Rev. 3, December 2005

[1] Personal or sensitive information should not be included in event descriptions (e.g., names, personal addresses, or-- social security-- numbers).

[2] Events involving lost, actual or attempted theft, sabotage, or diversion of radioactive materials or devices containing "high-risk" sources in quantities greater than or equal to the *quantities of concern* (i.e., quantities greater than or equal to Category 2 sources listed in the International Atomic Energy Agency 's Code of Conduct and as outlined in reporting requirements in 10 CFR Part 20.2201

[3] A revision to the U.S. Code assigns lead responsibility for material events involving possible theft or terrorist activities to the Federal Bureau of Investigation (FBI).

[4] A sample fax to the NRC Operations Center is available in Table 1 of STP procedure SA-300.

[5] The NRC Operations Center staff will promptly notify the appropriate Region Duty Officer (RDO) and Headquarters staff of Agreement State events. Therefore, no separate notification to other NRC staff by an Agreement State is necessary.

[6] An example of the minimum basic event information required for a complete record is provided in Section 3 of SA-300.

[7] Voluntary reporting is a joint national effort of the NRC and the Conference of Radiation Control Program Directors (CRCPD) to track all types of non-AEA, unlicensed or non-reportable AEA lost and found radioactive material. More information about the national program may be found in SA-300.