

JOB AID: RADIOLOGICAL RESPONSE PROCEDURES

A JOB AID FOR OIL DISCHARGE AND HAZARDOUS SUBSTANCE RELEASE RESPONSES IN ALASKA

August 2019

Please note that this is a draft document. Additional formatting and content review and revision is planned, but not yet scheduled.

Current content is Annex J of the superseded Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan); Change 3 January 2010/ Administrative Update March 2018

RADIOLOGICAL RESPONSE PROCEDURES

1. General: The potential for a significant nuclear-related accident in the State of Alaska is remote. There are no active nuclear reactors in the State of Alaska and the quantities of nuclear materials transported within the state are insignificant in comparison to nuclear waste/cargo shipments in the Lower 48 states. However, Alaska's proximity to nuclear facilities (e.g., power plants, waste storage sites, and processing plants) in eastern Russia and seasonal weather patterns that could bring fallout over the state warrant concern, as well as preparedness on the U.S. side. Most of the Russian facilities are substandard in construction and have had a history of reported and unreported releases.

There are two basic situations that may occur following a radiological accident. In the case of a major catastrophic event with serious impact to the State of Alaska, the Governor may declare a disaster emergency, the State Emergency Response Plan would be activated, and the Alaska Department of Military and Veterans Affairs would be the lead agency. For non-declared emergencies, the Alaska Department of Environmental Conservation (ADEC) more than likely would serve as the lead agency under their hazardous materials response charter.

The National Response Framework (NRF), Nuclear/Radiological Incident Annex details the responsibilities of coordinating Federal agencies for nuclear/radiological incidents. These coordinating agencies include:

- Department of Defense (DOD) or Department of Energy (DOE), as appropriate, for incidents involving nuclear/radiological materials or facilities owned or operated by DOD or DOE; or for incidents involving a nuclear weapon, special nuclear material, and/or classified components under DOD or DOE custody.
- DHS, generally through Customs and Border Protection (CBP), for incidents involving the inadvertent import of radioactive materials as well as any other incidents where radioactive material is detected at borders.
- EPA or DHS/USCG, as appropriate, for environmental response and cleanup for incidents not otherwise covered above.
- DHS for all deliberate attacks involving nuclear/radiological facilities or materials, including radiation dispersal devices and improvised nuclear devices.

The following procedures address actions to be taken in the event of a radiological emergency.

2. Notification Procedures:

See Appendix I, below.

3. Basic Responsibilities of State and Federal Agencies:

a. Federal agency tasking is contained in the National Response Framework.

b. The Alaska Department of Military and Veterans Affairs (through the Division of Homeland Security and Emergency Management) will:

- Implement the State Emergency Response Plan, if applicable.
- *Provide the designated State Coordinating Officer.
- Receive communications from federal, state and local agencies.
- *Provide updates to the Governor and federal, state and local agencies through Situation Reports (SitReps).
- *Provide a State Area Commander and lead staff for the State Emergency Coordination Center.
- Facilitate release of health advisory information and recommended population protection measures.
- *Coordinate area evacuation if the situation warrants.

**Basic tasks under a declared disaster situation.*

c. The Alaska Department of Environmental Conservation will:

- Set up/participate in the Unified Command (non-disasters) and provide the State On-Scene Coordinator (SOSC).
- Coordinate health advisories with the Alaska Department of Health and Social Services (ADHSS).
- Coordinate and verify accuracy of actual and forecasted radiological contamination plume locations thru NOAA's National Weather Service satellite imagery and the University of Alaska's Geophysical Institute at Fairbanks.
- Provide ADEC Air Quality staff and response team assistance, as requested by the State Coordinating Officer or the ADEC SOSC.
- Alert the EPA Alaska Operations Office (if not previously alerted) and local communities that may be at risk. Coordinate response actions.
- Determine areas within the State that are likely to receive airborne radiological contamination and establish a radiation monitoring network. (See Appendix II, below, for further details). As a minimum:
 - Coordinate with EPA and determine local sample screening and analysis capability to expedite turnaround of sampling results.
 - Coordinate with the US Air Force, US Army, and US Navy for Department of Defense resources in Alaska and with the US Coast Guard and other federal agencies for their resources for establishing a monitoring network and data exchange.

d. The Alaska Department of Health and Social Services will:

- Develop appropriate protective action guidelines for response to radiological releases. EPA-developed federal protective action guidelines may be used if deemed appropriate for the State of Alaska.

- Coordinate health advisories with ADEC prior to release over statewide media networks.
- Alert the US Food and Drug Administration and the US Nuclear Regulatory Commission of the potential for radiological contamination impacting the State of Alaska.
- Advise the Unified Command on the potential health hazards resulting from the deposition of radiological contamination.
- Maintain contact with rural health facilities and provide them with updated status reports.
- Provide a representative to the Unified Command structure.

e. The Alaska Department of Labor and Workforce Development will:

- Alert federal Occupational Safety and Health Administration (OSHA) officials.
- Coordinate with ADHSS in determining OSHA standards for radiation exposure to emergency response personnel.

f. The Alaska Department of Fish and Game will:

- In conjunction with the U.S. Department of Agriculture and other federal agencies, determine the impact of radiological hazards on fish and wildlife in the affected area.
- Advise the general public on any restrictions to commercial, sport, or subsistence fishing and hunting as a result of potential health hazards (from consumption of contaminated fish and wildlife).

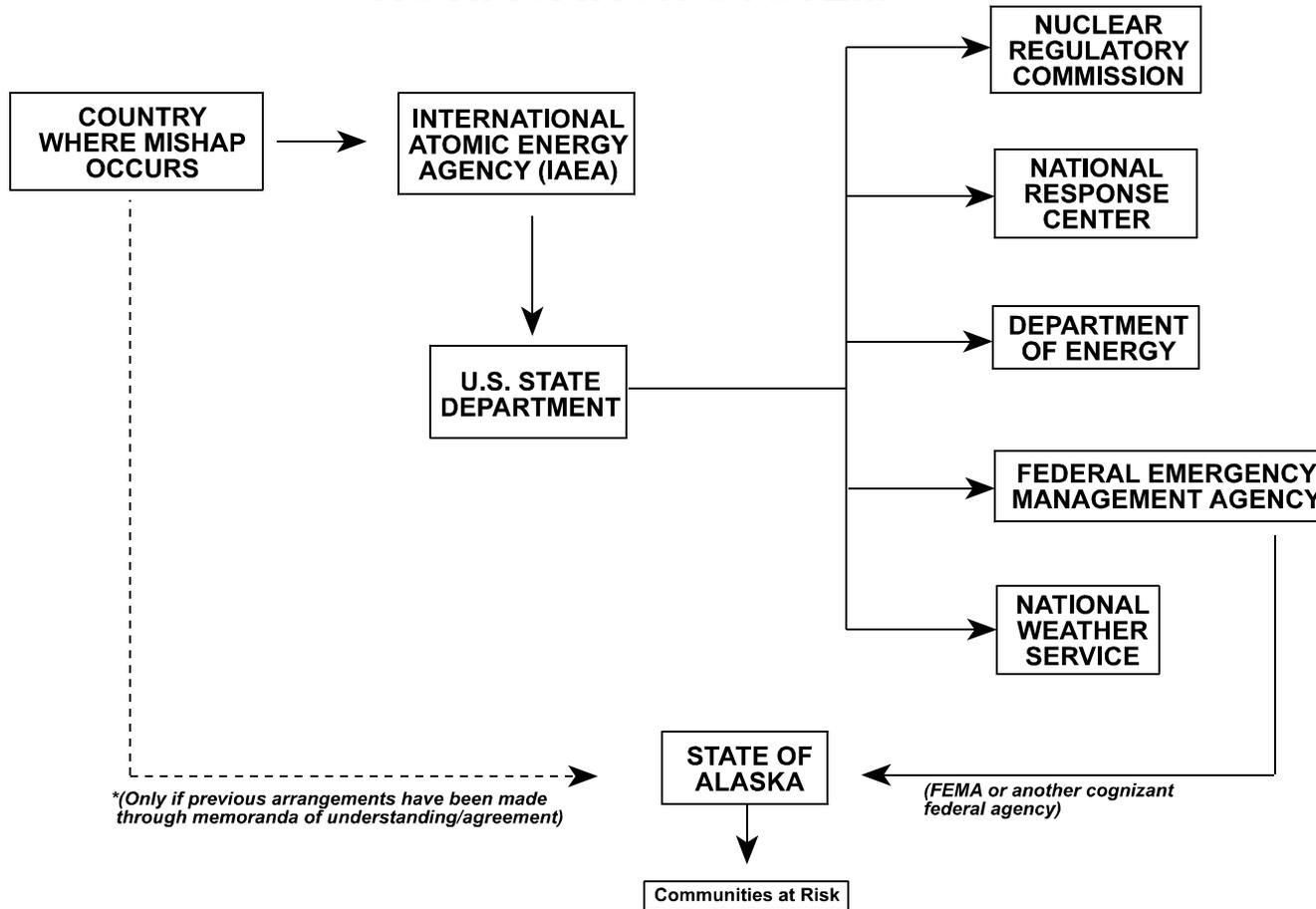
APPENDIX I – NOTIFICATION PROCEDURES

Immediate notification of a radiological incident is critical to develop and implement the proper response strategy to protect the general populace. While existing international protocols outline a formal notification system through the International Atomic Energy Agency (IAEA), direct communication with the affected country will provide immediate information on the release. The existing lines of communication are described below. Additionally, Figure 1, below, provides a schematic flow diagram for notification.

- 1. International Notification:** Currently, in the event of nuclear releases which may threaten the United States, the U.S. State Department could be notified by the International Atomic Energy Agency (IAEA) **and/or** the country where the release has occurred.
- 2. Federal Notification:** The U.S. State Department notifies the Nuclear Regulatory Commission (NRC) which, in turn, notifies its regional offices, the National Response Center, the Department of Energy, Federal Emergency Management Agency, National Weather Service, and the State of Alaska.
- 3. State Notification:** Within the State of Alaska, the Division of Homeland Security and Emergency Management (DHSEM) would receive the initial call from federal agencies. Upon receiving notification, DHSEM will notify the Governor and the Alaska Departments of Environmental Conservation and Health and Social Services. Additional notification responsibilities are also indicated under basic tasks for each State agency.
- 4. Local Notification:** The State agency in charge of the radiological response will provide immediate notification to local elected officials for those communities which may be at risk from the radiological hazard. Also see additional notification responsibilities indicated under basic tasks for each State agency.

Figure 1 - Radiological Release Notification

NOTIFICATION SYSTEM



APPENDIX II – RADIATION MONITORING SYSTEM/NETWORK

Within the State of Alaska, basic radiation monitoring capabilities are described below. Additionally, Figure 2, below, indicates the preferred locations for deploying assets (if available and operational). In the event of a radiological incident threatening the State of Alaska, other resources in the lower 48 could be deployed to enhance the area and point detection capabilities.

1. Statewide Hazmat Team Radiological Detection Assets: For a listing of detection equipment maintained by ADEC, EPA, USCG and the Statewide Hazmat Teams, see Figure 3.

2. Department of Defense: The Department of Defense (DoD) also maintains a variety of radiation detection equipment at four primary locations in the state: Elmendorf AFB and Ft Richardson in Anchorage; Eielson AFB and Ft Wainwright in Fairbanks. These instruments are primarily handheld point detectors for high and low range radiation intensities. Personal dosimeters and film badges are also available in limited quantities. DoD does not maintain airborne monitoring capabilities in Alaska. For a listing of DoD radiological equipment assets located within Alaska, see Figure 4, below.

3. United States Coast Guard: Radiological equipment for USCG D17 units includes two different types of gear: the Personal Radiation Detector (PRD) or PM1703GN, and the Radioactive Isotope Identifier (RIID) or identIFINDER-U.

4. Other Federal Agency Assets (EPA, FEMA, DOE, NRC):

a. Department of Energy - The Department of Energy (DOE) maintains national and regional coordination offices as points of access to Federal radiological emergency assistance. The Regional Coordination Office for DOE Region 8 is the Richland Operations Office.

b. Radiological Assistance Program, Region 8, Richland Operations Office, Richland, Washington - The Region 8 Radiological Assistance Program (RAP) is responsible for providing assistance in monitoring and assessment activities associated with radiological incidents or emergencies and coordinating U.S. Department of Energy resources as needed in the States of Washington, Oregon and Alaska. The RAP team is made up of teams composed of qualified DOE, Richland Operations Office (RL), and RL contractor personnel who are experts in monitoring radioactive materials involved in the incident. The RAP Team Leader (an RL official or designee) is responsible and has the authority to activate the resources and support necessary when assistance is requested. The radiological assistance teams are deployed in support of the State authorities and/or lead federal agency and are not intended to direct actions at the scene or assume command and control, except when DOE is the lead federal agency.

The RL can request the assistance of the other emergency response assets should the existing capabilities of the RAP team be inadequate to accomplish the task. Requests can be made through the Region 8 RAP or through DOE-Headquarters Emergency Operations Center through a 24-hour telephone number. Determination to activate or deploy the emergency response assets will be made by the National Nuclear Security Administration Office of Emergency Response, located in Washington, D.C.

Specialized expertise and equipment capabilities are located throughout the DOE and DOE contractor system. The DOE radiological assistance teams are knowledgeable of the DOE resources and may request their use, including other federal assets listed below.

c. Federal Radiological Monitoring and Assessment Center, DOE, Nevada Operations Office –

The Federal Radiological Monitoring and Assessment Center (FRMAC) is an operational center located at or near the scene of a radiological incident and provides a focal point to compile and coordinate all off-site federal radiological monitoring and assessment activities. The FRMAC is established when a major radiological emergency exists. A major radiological emergency is determined when a request for assistance requires capabilities exceeding those of the DOE regional RAP team. A request for additional assistance is recommended to the senior official or lead federal agency official.

The FRMAC is self-supporting, including specialized resources in radiation protection, legal and medical support, communications, logistics, videos, and administration. A FRMAC could be deployed as a unit or separately, as conditions dictate. Specific capabilities could be requested, e.g., Aerial Measuring System and the National Atmospheric Release Advisory Capability.

d. Aerial Measuring System, DOE, Nevada Operations Office –

The Nevada Operations Office contractor, Bechtel Nevada, can provide aerial measurements of ground surfaces through gamma spectroscopy. They also have a capability to make in-plume air concentration measurements in the event of a reactor accident release, large area continuous release, or contamination incident. Aerial photography can be performed simultaneously with isodose and isoconcentration curves. The aerial measurement survey is primarily used for making rapid radiological assessment of substantial land areas and the analysis and identification of the radioactive emissions from a source.

e. National Atmospheric Release Advisory Capability, DOE, Oakland Operations Office –

Another major DOE resource maintained at Lawrence Livermore National Laboratory is the National Atmospheric Release Advisory Capability (NARAC). The NARAC is a centralized computer-base system that estimates the transport, diffusion, and deposition of radioactive materials released to the atmosphere and dose projections to people and the environment.

f. Radiation Emergency Assistance Center/Training Site, DOE, Oakridge Operations Office –

Radiation Emergency Assistance Center/Training Site (REAC/TS), operated by the Medical Sciences Division of the Oak Ridge Institute for Science and Education for the U.S. Department of Energy, provides 24-hour assistance with medical and health physics problems associated with radiation accidents in local, national, and international arenas. REAC/TS is prepared to deploy to a radiological emergency with the FRMAC to provide:

- medical and radiological triage
- decontamination procedures and therapies for external contamination and internally deposited radionuclides, including chelating therapy
- diagnostic and prognostic assessments of radiation induced injuries, and
- radiation dose estimates by methods that include cytogenetic analysis, bioassay, and in-vivo counting.

Figure 2 - Statewide Radiation Monitoring Systems - General Deployment Strategy

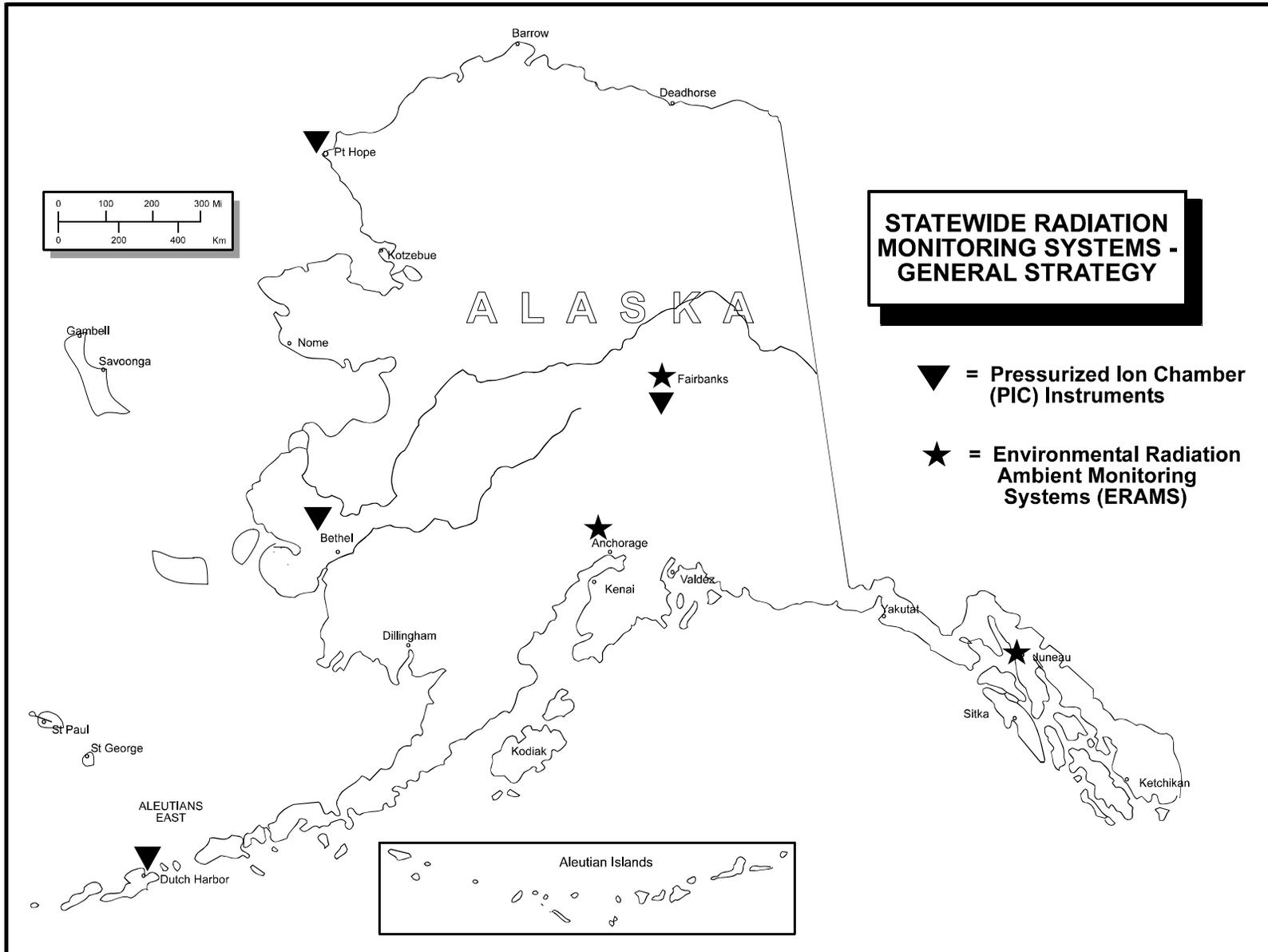


FIGURE 3 – STATEWIDE HAZMAT RESPONSE TEAM RADIOLOGICAL DETECTION ASSETS

Manufacturer/ Model No.	Detection Capabilities	Quantity	Location	Owning Agency
Eberline E-120		2	Anchorage, Kenai	ADEC
Victoreen 190		14	Anchorage, Fairbanks, Juneau, Kenai, Ketchikan	ADEC
Victoreen CDV 700-6A		1	Anchorage	ADEC
Bicron Surveyor 50		2	Anchorage	ADEC
Ludlum 2241-2, Dual Survey Meter	depends on probe	1	Anchorage	EPA
Ludlum 44-9 (Pancake probe)	Alpha, Beta, Gamma	1	Anchorage	EPA
Ludlum 3 Survey Meter	Alpha, Beta, Gamma	1	Anchorage	EPA
Ludlum 192 Survey Meter	Low level gamma	1	Anchorage	EPA
Ludlum 44-2, Scintillator Probe	Gamma	1	Anchorage	EPA
Ludlum 43-90, Alpha Scintillator Probe	Alpha	1	Anchorage	EPA
Eberline Monitor 4, Radiation Alert Monitor	Alpha, Beta, Gamma	1	Anchorage	EPA
Canberra Mini-Radiac, Personal RadMon Device	Gamma	1	Anchorage	EPA
Ranger	Radiation Detector	1	Anchorage	Anchorage FD
Ludlum Model 9	Beta, Gamma	2	Anchorage	Anchorage FD
Ludlum 2241 / Pancake	Alpha, Beta, Gamma	2	Anchorage	Anchorage FD
MiniRadiacs	Alpha, Beta, Gamma	28	Anchorage	Anchorage FD
Ludlum 2241-3, Dual Survey Meter	Alpha, Beta, Gamma	1	Fairbanks	Fairbanks Hazmat
GammaRAE II	Gamma	5	Fairbanks	Fairbanks Hazmat
Bicron Surveyor 2000 radiation monitor w/ probe	Alpha, Beta, Gamma	1	Fairbanks	Fairbanks Hazmat
ADM-300		1	Anchorage	103CST (AKNG)
AN-VDR 2		2	Anchorage	103CST (AKNG)
PDR-77		2	Anchorage	103CST (AKNG)
Staplex Air Sampler		5	Anchorage	103CST (AKNG)
Thermoelectron FH-40		2	Anchorage	103CST (AKNG)
UDR-13		22	Anchorage	103CST (AKNG)

Manufacturer/ Model No.	Detection Capabilities	Quantity	Location	Owning Agency
GSM-110 Rad-Detector		2	Valdez	Valdez Hazmat
Inovision Rad-Detector		1	Valdez	Valdez Hazmat
Radiation Pager		3	Valdez	Valdez Hazmat
Pen Dosimeter		10	Valdez	Valdez Hazmat
Canberra Radiagem 4000		1	Juneau	Juneau Hazmat
Alpha, Beta, Gamma Probe (SABG-15)		1	Juneau	Juneau Hazmat
Gamma Probe (SG-2R)		1	Juneau	Juneau Hazmat
Dosicard Stand-Alone		1	Juneau	Juneau Hazmat
Personal Radiation Detectors (PRD)		19	Anchorage	US Coast Guard
Identifinder-U		1	Anchorage	US Coast Guard
RADPACK		1	Anchorage	US Coast Guard
Personal Radiation Detectors (PRD)		4	Cordova	US Coast Guard
Identifinder-U		1	Cordova	US Coast Guard
Personal Radiation Detectors (PRD)		8	Homer	US Coast Guard
Identifinder-U		1	Homer	US Coast Guard
Personal Radiation Detectors (PRD)		34	Juneau	US Coast Guard
Identifinder-U		1	Juneau	US Coast Guard
RADPACK		1	Juneau	US Coast Guard
Personal Radiation Detectors (PRD)		10	Ketchikan	US Coast Guard
Identifinder-U		1	Ketchikan	US Coast Guard
Personal Radiation Detectors (PRD)		4	Kodiak	US Coast Guard
Identifinder-U		1	Kodiak	US Coast Guard
Personal Radiation Detectors (PRD)		4	Petersburg	US Coast Guard
Identifinder-U		1	Petersburg	US Coast Guard
Personal Radiation Detectors (PRD)		4	Seward	US Coast Guard
Identifinder-U		1	Seward	US Coast Guard
Personal Radiation Detectors (PRD)		4	Sitka	US Coast Guard
Identifinder-U		1	Sitka	US Coast Guard

FIGURE 4 - ALCOM RADIOLOGICAL ASSETS

USARAK (US Army)	M17 MASK	M24/25 MASK	M291 PERS DECON KIT	M13 DECON EQUIP	M8A1 CHEMDET	M256 CHEMDET	IM 93 DOSIMETER	IM 174 RADIACMETER	VDR 2 RADIACMETER	PDR 75 RADIACMETER	PDR 27 RADIACMETER
FRA (Ft Richardson)											
501st IN BN	660	0	810	64	23	69	77	12	27	6	1
21st SIG CO	202	NA	205	90	18	20	20		17	1	
23rd ENG CO	145	NA	200	NA	4	6	NA		4	4	
20th PAD	5	NA	0	NA	0	0	NA	4	NA	A N	
98th MAINT		239	NA	0	0	4	26	14		0	1
FWA (Ft Wainwright)											
HHC 1st BDE	396	NA	206	105	25	35	46		18	5	
1-17 IN BN	613	10	569	95	25	57	85		25	5	
4-9 IN BN	641	9	525	82	25	56	84		25	5	
4-11 FA BN	506	NA	504	126	17	65	23		5	5	
706 SPT BN	760	0	651	242	21	87	85		39	8	
A TP/4-9CAV	117	NA	220	21	14	25	33		17	1	
567 ENG CO	171	NA	375	12	5	12	20		5	1	
6 MI CO	163	NA	224	86	12	31	39	9	0	3	
47 ENG CO	142	NA	0	5	4	26	8		4	1	
BAND	42	NA	44	2	2	4	4		1	1	

FIGURE 4 - ALCOM RADIOLOGICAL ASSETS (continued)

USAFAK (US Air Force)	PDR 27T RADIAC METER	PDR 27G RADIAC METER	PDR 27A RADIAC METER	PDR 43E RADIAC METER	PDR 43D RADIAC METER	PDR 56F RADIAC METER	ADM 300	IM 93 DOSIMETER	IM 143 DOSIMETER	TLV	CDV 750 DOSIMETER CHARGER
EAFB (Elmendorf AFB)											
3 CES/CEXD	6		1	11	1	6	3	12	83		5
3 AMS/SGPB	3	1				1	4			15	
EIL (Eielson AFB)											
343 CEX/SPTG	6			8		1		20			3
HOSPITAL	1			3		1	2				