

ALEUTIANS SUBAREA CONTINGENCY PLAN

HAZARDOUS MATERIALS SECTION

HAZMAT: PART ONE – HAZMAT RESPONSE	C-1
A. INITIAL NOTIFICATION OF RESPONSE AGENCIES	C-1
B. RECOGNITION	C-1
C. EVALUATION.....	C-3
D. EVACUATION	C-5
E. DIRECTION AND SITE/ENTRY CONTROL	C-5
F. COMMAND AND CONTROL	C-6
G. COMMUNICATIONS.....	C-6
H. WARNING SYSTEMS & EMERGENCY PUBLIC NOTIFICATION.....	C-7
I. HEALTH AND MEDICAL SERVICES	C-7
HAZMAT: PART TWO – RESPONSIBLE PARTY HAZMAT ACTION	C-8
A. DISCOVERY AND NOTIFICATION.....	C-8
HAZMAT: PART THREE – STATE HAZMAT ACTION	C-9
A. AUTHORITY	C-9
B. RESPONSE POLICY.....	C-9
C. STATE RESPONSE CAPABILITIES.....	C-9
D. RESPONSIBILITIES.....	C-9
HAZMAT: PART FOUR – FEDERAL HAZMAT ACTION	C-11
A. AUTHORITY	C-11
B. JURISDICTION.....	C-11
C. RESPONSE POLICY.....	C-11
HAZMAT: PART FIVE – SUBAREA HAZMAT RISK ASSESSMENT	C-13
A. GENERAL	C-13
B. FACILITIES	C-14
C. TRANSPORTATION.....	C-15
D. REFERENCES	C-23
HAZMAT: PART SIX – RADIOLOGICAL AND BIOLOGICAL ISSUES	C-24

HAZMAT: PART ONE – HAZMAT RESPONSE

A. INITIAL NOTIFICATION OF RESPONSE AGENCIES

All hazardous material (hazmat) releases in excess of the reportable quantity must be reported by the responsible party to the National Response Center (NRC). Any release regardless of the amount is required to be reported to the Alaska Department of Environmental Conservation (ADEC). Upon notification of a release, the NRC shall promptly notify the appropriate Federal On-Scene Coordinator (FOSC). The FOSC shall contact the ADEC State On-Scene Coordinator (SOSC). If ADEC receives notification first, the SOSC shall notify the FOSC promptly. An emergency notification list is provided at the front of the *Response Section* to this plan. The FOSC and the SOSC will relay the notification to local communities, resource agencies, medical facilities, and others as necessary and begin coordination with a Local On-Scene Coordinator (LOSC) if the incident poses an immediate threat to public health and safety.



As long as there is an immediate threat to public safety, the LOSC serves as the ultimate command authority if the FOSC or SOSC does not assume the lead role for the response or the LOSC request a higher authority to assume that responsibility.

The LOSC can at any time request higher authority to assume command and control of an incident. Local emergency plans should be consulted for any specific directions or guidelines. The local fire department and/or the Local Emergency Planning Committee should have the most current records on local storage of hazardous materials that are in quantities that meet federal reporting requirements.

B. RECOGNITION

The recognition of chemical or physical hazards is essential to dealing with a release safely. Chemical and physical hazards may be confronted by emergency response personnel when responding to a hazardous material incident. Chemical hazards include biological, radioactive, toxic, flammable, and reactive hazards. Physical hazards include slips, trips and falls, compressed gases, materials handling, thermal, electrical and noise hazards, and confined spaces.

Once a hazardous material has been identified it is important to determine the hazards and properties. Thousands of substances exhibit one or more characteristics of flammability, radioactivity, corrosiveness, toxicity, or other properties which classify them as hazardous. For any particular hazardous category, the degree of hazard varies depending on the substance.

The degree of hazard is a relative measure of how hazardous a substance is. For example, the Immediately Dangerous to Life and Health (IDLH) concentration of butyl acetate in air is 10,000 parts per million (ppm); the IDLH for tetrachloroethane is 150 ppm. Tetrachloroethane is therefore far more toxic (has a higher degree of hazard) when inhaled in low concentration than butyl acetate. Vapors from butyl acetate, however, have a higher degree of explosive hazard than tetrachloroethane vapors which are not explosive.

Once the substance(s) has been identified, the hazardous properties and degree of hazard can be determined using reference materials. Chemical properties and the health hazards associated with the various materials transported in the Aleutians Subarea can be found in the USCG CHRIS Manual, the DOT

Emergency Response Guidebook (current edition), and CAMEO (Computer-Aided Management of Emergency Operations) computer programs. Industry experts can be consulted as well. An excellent resource is the CHEMTREC 24-hour information number, 1-800-424-9300, supported by the Chemical Manufacturers Association. Additional references are provided below.

Although appropriate references give information about a substance's environmental behavior, additional field data will likely be required. Most frequently, air monitoring and sampling are needed to verify and identify the presence of hazardous materials, to calculate concentrations, and to confirm dispersion patterns.

Available references (with several websites) for hazmat and response organization information:

- The *Unified Plan*, which addresses the Unified Command Structure in Annex B, Appendix II, and also provides statewide hazmat response guidance in Annex L. www.dec.alaska.gov/spar/perp/plans/uc.htm
- Commandant Instruction #16465.30
- National Contingency Plan (40 CFR part 300)
- The Alaska Incident Management System (AIMS) Guide (November 2002 Revision 1) [www.dec.alaska.gov/spar/perp/docs/AIMS_Guide-Complete\(Nov02\).pdf](http://www.dec.alaska.gov/spar/perp/docs/AIMS_Guide-Complete(Nov02).pdf)
- Coastal Sensitivity Atlas
- USCG CHRIS Manual
- DOT Emergency Response Guidebook (current edition) www.phmsa.dot.gov/hazmat/library/erg
- CHEMTREC, Chemical/Hazardous Substance information, 1 800-424-9300
- Sax's Dangerous Properties of Industrial Materials
- International Maritime Dangerous Goods Codes
- Safety Data Sheets (SDS) www.hazard.com/msds/index.php
- NFPA Fire Protection Guide On Hazardous Materials
- NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. Also, the NIOSH/OSHA Pocket Guide Book www.cdc.gov/niosh/npg/
- HartCrowser, Inc., 1999. 1998 Statewide Hazardous Material Inventory. Prepared for ADEC, Division of Spill Prevention and Response.
- HartCrowser, Inc., 1999. Alaska Level A and B Hazardous Material Response Resources. Prepared for ADEC, Division of Spill Prevention and Response.
- HartCrowser, 2000. Evaluation of Chemical Threats to the Alaska Public. Prepared for ADEC, Division of Spill Prevention and Response.
- Statewide Hazardous Materials Commodity Flow Study, Nuka Research and Planning Group, 2010. Prepared for ADEC and the Alaska Department of Military and Veterans Affairs. The basic report is available at: www.dec.alaska.gov/spar/perp/hazmat/study.html
- Spill Tactics for Alaska Responders (STAR) Manual, April 2006. Describes the various levels of protection (Levels A, B, C, and D for hazardous materials response) www.dec.alaska.gov/spar/perp/star/docs.htm

Many of the publications/ programs listed here can also be found at ADEC offices and with the local fire departments.



C. EVALUATION

To properly evaluate a hazardous materials release, the incident must be characterized. Incident characterization is the process of positively identifying the substance(s) involved and evaluating the actual or potential public health and environmental impacts. Characterizing a hazardous substance incident is generally a two-phase process, an initial characterization followed by a more comprehensive characterization.

1. Initial Characterization: The initial characterization is based on information that is readily available or can be obtained fairly rapidly to determine what hazards exist and if immediate protective measures are necessary. During this initial phase, a number of key decisions must be made regarding:

- Imminent or potential threat to public health.
- Imminent or potential threat to the environment.
- Immediate need for protective actions to prevent or reduce the impact.
- Protection of the health and safety of response personnel.

If the incident is not immediately dangerous to human life or sensitive environments, more time is available to evaluate the hazards, to design plans for cleanup, and to establish safety requirements for response personnel. Information for characterizing the hazards can be obtained from on-scene intelligence (records, placards, eye witnesses, etc.), direct-reading of instruments, and sampling. Depending on the nature of the incident and the amount of time available, various combinations of this information gathering process are used. The following outline describes an approach to collecting data needed to evaluate the impact of a hazardous materials incident.

- An attempt should be made to gather as much information as possible, such as:
 - Description and exact location of the incident.
 - Date and time of occurrence.
 - Hazmats involved and their physical/chemical properties.
 - Present status of incident.
 - Potential pathways of dispersion.
 - Habitation - population at risk.
 - Environmentally sensitive areas - endangered species, delicate ecosystems.
 - Economically sensitive areas - industrial, agricultural.
 - Accessibility by air, roads and waterways.
 - Current weather and forecast (next 24 to 48 hours).
 - Aerial photographs/video when possible.
 - A general layout and mapping of the site.
 - Available communications.
- Off-site reconnaissance (that can be conducted in Level D) should be the primary inspection for initial site characterization when the hazards are largely unknown or there is no urgent need to go on-site. Off-site reconnaissance consists of visual observations and monitoring for

atmospheric hazards near the site. Collecting of off-site samples may identify substance migration or indicate on-site conditions. Off-site reconnaissance would include:

- Monitoring ambient air with direct-reading instruments for:
 - Organic and inorganic vapors, gases, and particulates
 - Oxygen deficiency
 - Specific materials, if known
 - Combustible gases and radiation
 - Identifying placards, labels, or markings on containers or vehicles.
 - Noting the configuration of containers and trailers.
 - Noting the types and numbers of containers, trailers, buildings, and impoundments.
 - Identifying any leachate or runoff.
 - Looking for biological indicators - dead vegetation, animals, insects or fish.
 - Noting any unusual odors or conditions.
 - Observing any vapors, clouds, or suspicious substances.
 - Taking off-site samples of air, surface water, ground water (wells), drinking water, site runoff, and soil.
 - Reviewing the Dangerous Cargo Manifest.
 - Conducting interviews with workers, witnesses, observers, or inhabitants.
- An on-site survey (conducted in a minimum of Level B protection until hazards can be determined) may be necessary if a more thorough evaluation of hazards is required. On-site surveys require personnel to enter the restricted or hot zone of the site. Prior to any personnel conducting an on-site survey, an entry plan addressing what will be initially accomplished and prescribing the procedures to protect the health and safety of response personnel will be developed. On-site inspection and information gathering would include:
 - Monitoring ambient air with direct-reading instruments for:
 - Organic and inorganic vapors, gases, and particulates
 - Oxygen deficiency
 - Specific materials, if known
 - Combustible gases and radiation
 - Observing containers, impoundments, or other storage systems and noting:
 - Numbers, types, and quantities of materials.
 - Condition of storage systems (state of repair, deterioration, etc.)
 - Container configuration
 - Labels, marking, identification tags, or other indicators of material
 - Leaks or discharges from containers, tanks, ponds, vehicles, etc.
 - Noting physical condition of material:
 - Solids, liquids, gases
 - Color
 - Behavior (foaming, vaporizing, corroding, etc.)

- Determining potential pathways of dispersion - air, surface water, ground water, land surface, biological routes
- Taking on-site samples of storage containers, air, surface water, ground water (wells), drinking water, site runoff, and soil.

2. Comprehensive Characterization: Comprehensive characterization is the second phase, a phase which may not be needed in all responses. It is a more methodical investigation to enhance, refine, and enlarge the information base obtained during the initial characterization. This phase provides more complete information for characterizing the hazards associated with an incident. As a continuously operating program, the second phase also reflects environmental changes resulting from any response activities.

Information obtained off-site and during the initial site entries can be sufficient to thoroughly identify and assess the human and environmental effects of an incident. But if it is not, an environmental surveillance program needs to be implemented. Most of the same type of information collected during the preliminary inspection is needed, but more detailed and extensive. Instead of one or two groundwater samples being collected, for instance, a broad and intensive groundwater survey may be needed over a long period of time.

Results from preliminary inspections provide a screening mechanism for a more complete environmental surveillance program to determine the full extent of contamination. Since mitigation and remedial measures may cause changes in the original conditions, a continual surveillance program can be used to identify and track fluctuations or ramifications.

D. EVACUATION

Neither USCG nor the EPA has the authority to order an evacuation of facilities or communities in the event of a release; this authority lies with local or state entities. However, evacuation should be strongly recommended to local civil authorities (police, fire departments, etc.) whenever a hazardous release poses a threat to surrounding personnel. With a release of hazardous materials, the area should be isolated for at least 100 meters in all directions until the material is identified. Only trained and properly equipped personnel should be allowed access.

Quick evacuation tables are located in the back of the DOT Emergency Response Guidebook. Evacuation should always begin with people in downwind and in low-lying areas. Continual reassessment is necessary to account for changes in weather wind, rate of release, etc. CAMEO should be used to provide an air plume trajectory model for downwind toxic plume distances. Again, constant reassessment will be required.

Issues concerning disaster assistance should be referred to Alaska DMVA's Division of Homeland Security and Emergency Management.

E. DIRECTION AND SITE/ENTRY CONTROL

The purpose of site control is to minimize potential contamination of emergency response personnel, protect the public from any hazards, and prevent unlawful entry onto the site which may result in an

additional release of material, destruction of evidence, or prolong the cleanup effort. The degree of site control necessary depends on site characteristics, site size, and the surrounding community.

Several site control procedures should be implemented to reduce potential exposure and to ensure that an effective, rapid cleanup is conducted:

- Secure site, and establish entry control points.
- Compile a site map.
- Prepare the site for subsequent activities.
- Establish work zones.
- Use the buddy system when entering.
- Establish and strictly enforce decontamination procedures.
- Establish site security measures.
- Set up communications networks.
- Enforce safe work practices.

For complete guidance on Direction and Site Entry/Control, refer to the NIOSH/OSHA/USCG/EPA Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities (Publication No. 85-115).

F. COMMAND AND CONTROL



As long as there is an immediate threat to public safety, the LOSC serves as the ultimate command authority if the FOSC or SOSC does not assume the lead role for the response or the LOSC request a higher authority to assume that responsibility.

The LOSC can at any time request higher authority to assume command and control of an incident. All applicable local emergency plans should be consulted. After the LOSC, together with the FOSC and SOSC, has determined that public safety is not at risk, then the Unified Command response organization will assume command and control of the incident.

Government response organization in the State of Alaska is based on the Unified Command structure of the Incident Command System (ICS), which is outlined in the Alaska Incident Management System (AIMS) Guide. The Unified Command brings together the FOSC, the SOSC, and the Responsible Party's Incident Commander (along with the LOSC if participation is warranted and available) into one governing unit. The ICS and Unified Command structure are discussed in further detail in the *Unified Plan, Annex B* and in the *AIMS Guide*. The organizational structure and hazmat team member duties and responsibilities for hazmat response are also described in the *AIMS Guide, Appendix B*.

G. COMMUNICATIONS

A communications plan for all sections of the ICS will be established by the Incident Commander.

At this time, a pre-established generic communications plan accounting for the various police, fire, federal, state, and local frequencies has not been established. State and federal communications resources are listed in the *Unified Plan, Annex E* and in the *Resources Section* of this plan.

H. WARNING SYSTEMS & EMERGENCY PUBLIC NOTIFICATION

Three separate systems for broadcast of emergency messages are available to the Alaska Regional Response Team, FOSC, and SOSC. These include the National Oceanic and Atmospheric Administration Weather Radio System, the State of Alaska Emergency Alert System, and the National Warning Systems. For details on how to access these systems are provide in the *Unified Plan, Annex E, Appendix III, Tab V*. The LOSC or the local emergency services should activate any system they have available through their community (e.g. community alert system). To broadcast an emergency public notice to a specific Aleutian community refer to the *Resources Section* of this plan for radio, newspaper, and television contacts.

I. HEALTH AND MEDICAL SERVICES

For local hospital and clinic information refer to the *Resources Section, Community Profiles* of this plan.

HAZMAT: PART TWO – RESPONSIBLE PARTY HAZMAT ACTION

A. DISCOVERY AND NOTIFICATION

Any person in charge of a vessel or a facility shall report releases of hazardous materials in excess of the reportable quantity as defined in Table 1 of 49 CFR 172.101 to the NRC 24-hour telephone number, 1-800-424-8802, in accordance with the National Contingency Plan. Any release regardless of the amount is required to be reported to the State of Alaska. Notification to the state can be done by contacting ADEC either thru the Central Area Response Team at 269-3063 or through the 24-hour telephone number at 1-800-478-9300.

If direct reporting to the NRC is not immediately practicable, reports will be made to the Captain of the Port (COTP) Western Alaska (the USCG FOSC for the Aleutians Subarea at 24-hour telephone number 428-4200). The Environmental Protection Agency's pre-designated FOSC may also be contacted through the regional 24-hour response telephone number at 206-553-1263. All such reports shall be promptly relayed to the NRC.



In any event, the person in charge of the vessel, vehicle, or facility involved in a hazardous material release shall notify the NRC and the State of Alaska as soon as possible.

As much information as possible shall be reported. This will include, but is not limited to, the following:

- Location of the release
- Type(s) of material(s) released, including any pertinent SDS data
- An estimate of the quantity of material released
- Possible source of the release
- Date and time of the release
- Population and/or environment at risk.

Removal action

The responsible party shall, to the fullest extent possible, perform promptly the necessary removal action to the satisfaction of the pre-designated FOSC, SOSOC and LOSC or local emergency services.

Regardless of whether or not a cleanup will be conducted, the responsible party shall cooperate fully with all federal, state, and local agencies to ensure that the incident is handled in a safe, proper manner.

HAZMAT: PART THREE – STATE HAZMAT ACTION

A. AUTHORITY

ADEC is mandated by statute to respond promptly to a discharge of oil or a hazardous substance (AS 46.80.130). Additionally, ADEC may contract with a professional emergency contractor or municipality in order to meet response requirements, and/or establish and maintain a containment and cleanup capability (i.e., personnel, equipment and supplies) (AS 46.09.040).

B. RESPONSE POLICY

ADEC is currently operating in accordance with an August 1992 policy decision which precludes ADEC personnel from responding to situations which require Level A/B protection. ADEC personnel are prohibited from responding with or using personal protective equipment beyond the Level C protection category (as defined in EPA standards).

For additional information regarding the State's general response policy, refer to the *Unified Plan, Annex A, Appendix VI, Tab C*.

C. STATE RESPONSE CAPABILITIES

ADEC has entered into local response agreements with the Fairbanks North Star Borough, the Municipality of Anchorage, the City of Kodiak, the City and Borough of Juneau, and the City of Ketchikan. These teams (along with the 103rd Civil Support Team (CST) and the U.S. EPA team) comprise the Statewide Hazmat Response Team. In the event of a hazmat release requiring immediate response, the ADEC pre-designated SOSC may request support from any of the hazmat response teams. These teams maintain a Level A entry capability and can respond beyond their jurisdictional boundaries at the request of the SOSC. The teams are to be used strictly for emergency response operations. Once the immediate hazard is dealt with, the teams will be released to return to their home station. Post-response recovery operations will be handled by the responsible party (if known) or through ADEC response term contractors or Federal contractors.

Another state asset is the 103rd CST, based at Kulis Alaska National Guard Base, Alaska. The 103rd CST can be requested through ADEC or DMVA's Division of Homeland Security and Emergency Management, State Emergency Operations Center (SEOC – 428-7100 or 1-888-462-7100). The primary focus of the team is weapons of mass destruction, including chemical and biological warfare agents and toxic industrial chemicals. The 103rd CST maintains Level A entry capability and a wide variety of detection instruments and support equipment. The team can be used in an advisory role for hazard modeling or medical assessment and in a primary or an assist mode to perform entries alone or in conjunction with other first responders.

D. RESPONSIBILITIES

State agency roles and responsibilities are clearly defined in the *Unified Plan, Annex A*. During a hazmat incident, the SOSC's anticipated and prioritized response objectives are as indicated below:

- **Safety:** Ensure the safety of persons involved, responding or exposed from the immediate effects of the incident.

- Public Health: Ensure protection of public health and welfare from the direct or indirect effects of contamination on drinking water, air and food.
- Source Mitigation: Ensure actions are taken to stop or reduce the release at the source to reduce/eliminate further danger to public health and the environment.
- Environment: Ensure protection of the environment, natural and cultural resources, and biota from the direct or indirect effects of contamination.
- Cleanup: Ensure adequate containment, control, cleanup and disposal by the responsible party or take over when cleanup is inadequate.
- Restoration: Ensure assessment of contamination and damage and restoration of property, natural resources and the environment.
- Cost Recovery: Ensure recovery of costs and penalties to the Oil and Hazardous Substance Release Prevention and Response Fund for response containment, removal, remedial actions, or damage.

HAZMAT: PART FOUR – FEDERAL HAZMAT ACTION

A. AUTHORITY

Section 311 of the Federal Water Pollution Control Act and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 are the principal authorities for federal response to discharges of oil and releases of hazardous substances. The procedures and standards for conducting responses are contained in the NCP (40 CFR 300). Under the NCP and the *Unified Plan*, each USCG COTP for coastal zones, or EPA representatives for inland zones, coordinates federal activities on-scene as either the pre-designated FOSC or as the first federal official in the absence of the pre-designated FOSC. The FOSC objective is to ensure rapid, efficient mitigation of actual or threatened pollution releases or discharges.

B. JURISDICTION

The NCP identifies USCG COTP for Western Alaska (Commanding Officer, Sector Anchorage) as the pre-designated FOSC for the Aleutians coastal zone, and the EPA (Region 10 Alaska Operations Office) as the pre-designated FOSC for the inland zone. The FOSC will respond to hazardous substance releases, or threats of release, occurring in the coastal or inland zones and not involving DOD vessels or facilities, which originate from:

- Vessels and vehicles (as well as other modes of transportation, e.g., railroad)
- Facilities, other than hazardous waste management facilities, when the release requires immediate action to prevent risk of harm to human life, health, or the environment.
- Hazardous waste management facilities, or illegal disposal areas, when the FOSC determines emergency containment or other immediate removal actions are necessary prior to the arrival of the EPA FOSC.

For all shore side incidents in the coastal zone, once the immediate threat to human life, health, or the environment has been abated and the character of the response changes to a long-term cleanup or site remediation, the FOSC responsibilities will be transferred from the USCG COTP to a designated EPA official.



As long as there is an immediate threat to public safety, the LOSC serves as the ultimate command authority if the FOSC or SOSOC does not assume the lead role for the response or the LOSC request a higher authority to assume that responsibility.

C. RESPONSE POLICY

The USCG will follow the policy guidance contained in COMDTINST M16465.30, "Policy Guidance for Response to Hazardous Chemical Releases", and the Marine Safety Manual, Volume VI, Chapter 7 when responding to a hazardous chemical release. The USCG Incident Management Handbook also provides guidelines for responding to a hazardous substance release.

The USCG and other federal agencies in Alaska will maintain a "conservative" Level D response capability level. "Conservative" response consists of recommending evacuating the affected area and maintaining a safe perimeter while attempting to positively identify the pollutant and outlining a clear course of

action. Federal personnel, with the exception of specialized teams (e.g., the National Strike Force, the Pacific Strike Team, and the EPA START Team), will not enter a hazardous environment. This response posture is appropriate due to insufficient numbers of trained or equipped personnel to allow a safe and proper entry into a hazardous environment and the low risk of a chemical release in the area. Refer to the *Unified Plan* for a description of the National Strike Force and other special forces.

In situations requiring an entry into a hazardous environment, federal agencies will rely on the capabilities of the USCG Pacific Strike Team, EPA Emergency Response Teams, state and local hazmat response teams, if available, and industry or commercial resources.

In implementing this conservative response posture, the COTP for Western Alaska will carry out all the FOSC functions not requiring entry of unit personnel into a hazardous environment. These functions include:

- Conducting preliminary assessment of the incident.
- Carrying out COTP measures such as restricting access to affected areas, controlling marine traffic (safety zones), notifying affected agencies, coordinating with state and local agencies, and assisting as resources permit.
- Conducting local contingency planning.
- Identifying responsible parties, and informing them of their liability for removal costs.
- Carrying out "first aid" mitigation if the situation warrants and capability exists.
- Monitoring cleanup activities.

CAMEO computer programs will be an important part of any chemical release incident. The CAMEO chemical database with Codebreaker and Response Information Data Sheets modules provide a rapid means of identifying chemicals and their associated hazards. ALOHA (areal Locations of Hazardous Atmospheres) air modeling program, part of CAMEO, provides a rapid means of developing a downwind hazard evaluation. The NOAA Scientific Support Coordinator will be the primary individual responsible for operating the CAMEO programs during a hazardous chemical release for the FOSC. Local fire departments and EPA also maintain CAMEO to assist in their response efforts. Programs for the ALOHA model need to be frequently updated to account for changing wind and weather conditions, source strength, and other variable conditions.

Level D protection is primarily work uniform/coveralls, safety boots, safety goggles and a hard hat. This provides minimal protection. Level D must not be worn for "entry" into any hazardous materials situation. It does NOT provide protection from chemicals. Level D protection strictly applies to non-hazardous environments (e.g. Command Post, Cold Zone, etc.).



HAZMAT: PART FIVE – SUBAREA HAZMAT RISK ASSESSMENT

A. GENERAL

This part provides general information on the location of extremely hazardous substances and other hazardous substances within the Aleutians Subarea. The Aleutians Subarea includes the southern portion of the Alaska Peninsula and the Aleutian and Pribilof Islands to the west.

There have been several hazardous materials spills or releases in the Aleutians Subarea. As of June 2014, the most significant release in the Aleutians subarea occurred on July 6, 2012, when 20,000 pounds of anhydrous ammonia were released from the F/V *Excellence* while the vessel was at the dock in Dutch Harbor. The ADEC Spills Database also noted 19 other hazmat releases of 100-plus gallons/pounds, of which 15 involved anhydrous ammonia and three releases involved chlorine gas.

1. Chemical Inventory: Based on the 2011 Tier Two reports, the most prevalent extremely hazardous substances in the region are:

- anhydrous ammonia
- sulfuric acid

2. Chemical Risks: This subsection identifies the hazards associated with the most common extremely hazardous substances present within the subarea in amounts greater than the federally-mandated threshold planning quantities. The properties of each substance and how they affect humans are discussed below. Of the extremely hazardous substances known to be present, ammonia poses the greatest threat.

Anhydrous ammonia is a colorless gas with a characteristic odor. The term "anhydrous" is used to distinguish the pure form of the compound from solutions of ammonia in water. Like chlorine, anhydrous ammonia is neither explosive nor flammable, but will support combustion. It readily dissolves in water to form an aqua ammonia solution. Anhydrous ammonia is considerably lighter than air and will rise in absolutely dry air. As a practical matter, however, anhydrous ammonia immediately reacts with any humidity in the air and will often behave as a heavier gas. The chemical reacts with and corrodes copper, zinc and many alloys. Anhydrous ammonia affects the body in much the same way as chlorine gas. Like chlorine, anhydrous ammonia gas is primarily a respiratory toxicant. In sufficient concentrations, the gas affects the mucous membranes, the respiratory system and the skin. In high concentrations it can cause convulsive coughing, difficult and painful breathing, and death. Anhydrous ammonia will cause burns if it comes in contact with skin or eyes.

Sulfuric acid is a dense, colorless, oily liquid. It is highly reactive with a large number of other substances and is readily soluble in water with release of heat. Fumes are released from the liquid through evaporation, and heat as a result of fire or other chemical reaction can significantly increase emissions. Both the liquid and its solutions will cause burns if allowed to come in contact with skin or eyes. Fumes are highly toxic, and reaction of the acid with a variety of substances can produce other toxic gases.

Under the requirements of Title III of the Superfund Reauthorization Act (SARA), the local fire department, as well as any Local Emergency Planning Committee, maintains records of reportable quantities of hazardous chemicals stored in the community, including their safety data sheets as reportable under the Tier II requirements of the SARA.



3. Response Capability: There are no Level A hazmat response teams in the Aleutians Subarea. In the event of a hazardous substance release, ADEC should be contacted and they can take action to activate the Statewide Hazmat Response Team. This formally agreed arrangement allows ADEC to request a Level A hazmat team to respond to an event anywhere in the state, as long as the requested hazmat Team can spare the services of the equipment and trained personnel.

In addition, several of the larger industrial facilities within the subarea are required to have Risk Management Plans (RMPs) for chemicals exceeding threshold quantities under 40 CFR Part 68 regulations. The RMPs contain emergency response plans for mitigating facility releases. Large bulk fuel production and storage facilities within the subarea also are required to maintain Facility Response Plans and specific levels of response equipment to mitigate oil releases in accordance 40 CFR Part 112.20 regulations.

Several communities in the Aleutians Subarea have developed and maintain local emergency management plans, or all-hazard plans, to respond to a variety of emergencies including hazardous substance releases.

B. FACILITIES

The table below identifies the number of facilities that store and utilize hazardous substances. Local emergency responders receive copies of Tier Two inventory reports for local facilities annually. If other emergency responders are deployed to the area, they should contact the local fire department to determine specific chemical hazards at a facility.

Number of Facilities with Hazardous Substances

Substance	Max Amount (lbs)	Number of Facilities
Extremely Hazardous Substances		
Ammonia, Anhydrous	448,767	12
Sulfuric Acid	50,145	8
Chlorine	15,854	3
Nitric Acid	4,185	3
Sodium Hypochlorite 12.5%	19,000	1
Hazardous Substances		
1,1,1,2-Tetrafluoroethane	35	1
Acetylene, Compressed Gas	3,550	1
Carbon Dioxide, Compressed Gas	9,000	1
Cast Boosters	5,400	1
Bromochlorofluoriodomethane	22,000	1
Chlorodifluoromethane	24,054	3
Ethylene Glycol	25,060	3
Fish Oil	1,026,000	1
Helium, Compressed Gas	6,150	1
Hydrochloric Acid	4,500	2
Lead	36,842	2
Nitrogen	3,890	1
Oxygen, Compressed Gas	1,870	1
Pentafluoroethane	550	1
Potassium Acetate	417,000	1

Propane	47,908	4
Propylene Glycol	11,058	1
R407C Refrigerant Gas	370	1
Sodium Hydroxide	15,120	3
Urea	201,600	1
Vanguard Calcium Hypochlorite	10,000	1
Petroleum Products		
Diesel Fuel (Diesel #1 and #2)	12,182,856	12
Jet A Fuel	2,074,000	2
Gasoline	261,000	3
Heating Oil	66,000	1
Motor Oil	110,662	1
Transformer Oil	61,769	2
Used Oil	25,900	1

1. The Emergency Planning and Community Right-to-Know Act of 1986 categorizes certain dangerous chemicals as EHS.
2. The above table summarizes EHS present above the associated threshold quantities as reported by facilities in the Aleutians Subarea on 2011 Tier Two forms. Facilities in other communities within the subarea may have these and other extremely hazardous substances at quantities below the EHS threshold quantities.
3. The Emergency Planning and Community Right-to-Know Act of 1986 required facilities to report the presence of any chemical that has a Safety Data Sheet as administered by the Occupational Safety and Health Administration and is stored in amounts above certain threshold levels. In certain cases involving mining operations, facilities may be exempt from report under Mining Safety and Health Administration provisions.

C. TRANSPORTATION

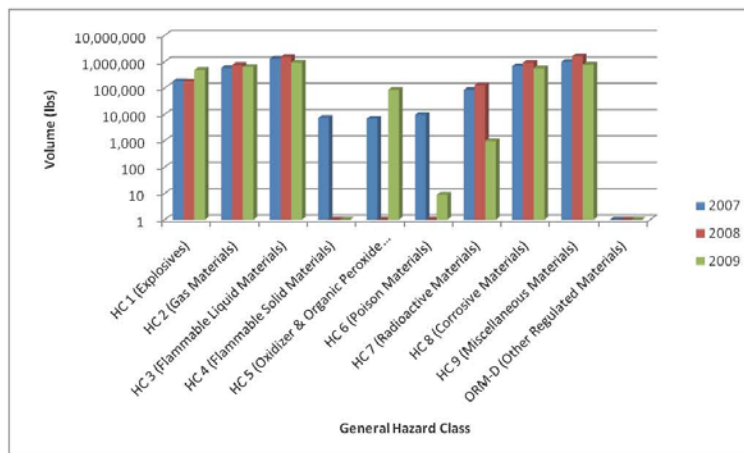
Hazardous substances are generally transported into the subarea via water and delivered either direct to facilities or transported to facilities by truck over local road systems. Some substances may be shipped by air or come into the area aboard fishing-industry vessels.

The following pages contain information from the Statewide Hazmat Commodity Flow Study conducted in 2010. The information provided is specific to the Aleutians subarea. The complete report is available on the ADEC website at: www.dec.alaska.gov/spar/perp/hazmat/study.html

5.5 Aleutians

The transportation of hazardous materials through the Aleutian Subarea (AI) includes two modes of transportation: air and marine. Many of the commodities listed as transiting this subarea are destined for other subarea locations. For example, hazardous materials shipments that are delivered via barge/vessel to any of the subareas north of the Aleutians Subarea (e.g. Western Alaska, Northwest Arctic, and North Slope) will be noted as transiting within the Aleutians Subarea. Additionally, while not captured in this dataset, the Aleutian Subarea sees significant volume of commodities destined for other foreign and domestic ports. According to a September 3, 2010 Aleutian Islands Risk Assessment³⁴, the Aleutian Islands are the ideal route of passage for international trade. Commodities identified in this report that transit the Aleutian Islands enroute to other foreign and domestic ports include primarily HC 3 (Flammable Liquid Materials) and HC 2 (Gas Materials). These specific commodities are not captured in this dataset. The breakdown of hazardous materials volumes from year to year by Hazard Class is depicted in Figure 5-21 below.

Figure 5-21. Volumes of Hazardous Materials Shipped into the Aleutians presented on a log scale



In general, HC 3 commodities (Flammable Liquid Materials), HC 8 commodities (Corrosive Materials), HC 9 (Miscellaneous Materials), and HC 2 (Gas Materials) consistently dominated the volume of hazardous materials commodities shipped within the Aleutians Subarea. Figures 5-22, 5-23, and 5-24 depict the comparison of commodities shipped as a percentage of the total Aleutians Subarea volume.

³⁴ Aleutian Islands Risk Assessment Phase A – Preliminary Risk Assessment Task 1: Semi-quantitative Traffic Study Report, Det Norske Veritas and ERM – West, INC., September 2010.

Figure 5-22. AI Hazardous Materials Percentage of Total Volume by Hazard Class for 2007

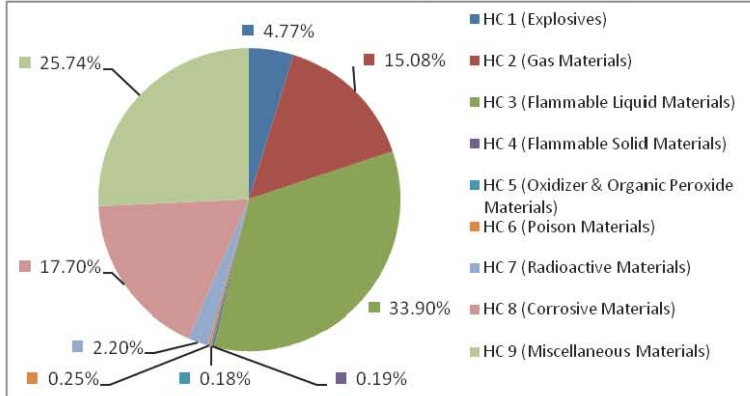


Figure 5-23. AI Hazardous Materials Percentage of Total Volume by Hazard Class for 2008

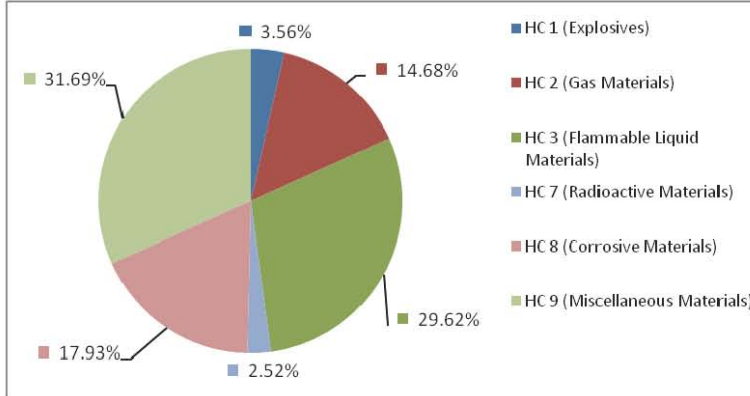


Figure 5-24. AI Hazardous Material percentage of total volume by Hazard Class for 2009

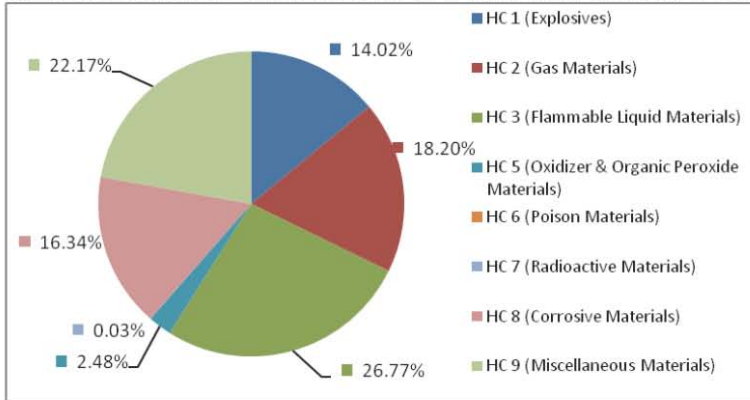


Table 5-34 lists the volumes of hazardous materials shipped within the Aleutians Subarea by hazard class for each calendar year evaluated for this study.

Table 5-34. Volumes of Hazard Class Transported within AI Subarea by Calendar Year

Hazard Class	2007 (Total Volume in lbs)	2008 (Total Volume in lbs)	2009 (Total Volume in lbs)
HC 1 (Explosives)	185,044	182,475	491,133
HC 2 (Gas Materials)	585,380	752,882	637,228
HC 3 (Flammable Liquid Materials)	1,316,011	1,519,413	937,361
HC 4 (Flammable Solid Materials)	7,358	-	-
HC 5 (Oxidizer & Organic Peroxide Materials)	6,884	-	86,754
HC 6 (Poison Materials)	9,583	-	9
HC 7 (Radioactive Materials)	85,512	129,487	975
HC 8 (Corrosive Materials)	687,092	919,493	572,083
HC 9 (Miscellaneous Materials)	999,266	1,625,431	776,443
ORM-D (Other Regulated Materials)	-	-	-

A more detailed evaluation of each hazard class is provided below. For the Aleutians Subarea, the volume shipped threshold was established at 10,000 lbs.

HC 1 Explosives: The primary explosives that were transported through the Aleutians Subarea were HC 1.0 and 1.4 in 2007, HC 1.0 in 2008, and HCs 1.0, 1.1, 1.3 and 1.4 in 2009. Table 5-35 lists the primary HC 1 commodities shipped within the Aleutians Subarea.

Table 5-35. Primary Hazard Class 1 Commodities Shipped within the Aleutians Subarea

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
1.0	Ammunition	0006
1.1	Boosters	0042
	Cord Detonating	0065
	Explosive, Blasting, Type A	0081
	Explosive, Blasting, Type E	0241
1.3	Rocket Motors	0186
1.4	Articles, Explosive, N.O.S.	0349

There were no HC 1.2 or 1.5 commodities shipped in a volume that exceeded the 10,000 lb threshold.

HC 2 Gas Materials: HCs 2.0 (unspecified hazard class), 2.1 and 2.2 were transported in the Kodiak Subarea. Volumes transported remained relatively consistent from year to year. Table 5-36 lists the primary HC 2 commodities shipped within the Aleutians Subarea.

Table 5-36. Primary Hazard Class 2 Commodities Shipped within the Aleutians Subarea

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
2.1	Acetylene, Dissolved	1001
2.2	Argon, Compressed	1006
	Carbon Dioxide	1013
	Dichlorodifluoromethane or Refrigerant Gas R12	1028
	Chlorodifluoromethane or Refrigerant Gas R22	1018
	Helium, Compressed	1046
	Nitrogen, Compressed	1066
	Oxygen, Compressed	1072
	Compressed Gas, N.O.S.	1956
	Carbon Dioxide Refrigerated Liquid	2187
	Liquefied Gas, N.O.S.	3163
	1,1,1,2-Tetrafluoroethane or Refrigerant Gas R134A	3159
	Fire Extinguishers	1044

HC 3 Flammable Liquid Materials: HC 3.0 materials were shipped to the Aleutians Subarea via aircraft and marine methods. No discernible trend was displayed from the data received and compiled. However, it has been stated in the Vessel Traffic in the Aleutians Subarea Report of 2005³⁵ that as much as 800 million gallons (approximately 5,800,000,000 lbs) per year of persistent and non-persistent oil cargo moves through the Aleutians Subarea in innocent passage in about 30 to 40 tank ship voyages. Table 5-37 lists the primary HC 3 commodities shipped within the Aleutians Subarea.

Table 5-37. Primary Hazard Class 3 Commodities Shipped within the Aleutians Subarea

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
3.0	Gasoline	1203
	Isopropanol or Isopropyl Alcohol	1219
	Paint	1263
	Butanols	1120
	Adhesives	1133
	Methanol	1230
	Kerosene	1223

³⁵ Vessel Traffic in the Aleutians Subarea, Report to Alaska Department of Environmental Conservation, Nuka Research and Planning Group, LLC and Cape International, Inc., April 29, 2005

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
	Flammable Liquids, N.O.S.	1993
	Flammable Liquids, Corrosive, N.O.S.	2924
	Fuel, Aviation, Turbine Engine	1863
	Petroleum Distillates, N.O.S. or Petroleum Products, N.O.S.	1268

HC 4 Flammable Solid Materials: Small volumes of HC 4.1 were transported through the Aleutians Subarea in 2007 that did not exceed 10,000 lbs. There were no other shipments noted for 2008 or 2009 based on the data evaluated for this study.

HC 5 Oxidizer and Organic Peroxide Materials: HC 5.1 and 5.2 were shipped within the Aleutians Subarea in 2007 and 2009. The volume of HC 5.1 increased by an order of magnitude between 2007 and 2009 while HC 5.2 shipments stopped. Table 5-38 lists the primary HC 5 commodities shipped within the Aleutians Subarea.

Table 5-38. Primary Hazard Class 5 Commodities Shipped within the Aleutians Subarea

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
5.1	Hydrogen Peroxide, Aqueous Solutions	2014

There were no shipments of HC 5.2 commodities that exceeded 10,000 lbs.

HC 6 Poisons: A relatively small volume of HC 6.1 was shipped in the Aleutians Subarea in 2007 and no shipments were reported in 2008 according to the data received and evaluated for this study. A very small volume of Mercuric Chloride was shipped in 2009. The small volume was retained for reporting purposes because it is classified as an EHS. These volumes did not exceed 10,000 lbs.

HC 7 Radioactive Materials: HC 7.0 was transported within the Aleutians Subarea in 2007, 2008 and 2009. Volumes shipped increased between 2007 and 2008, and then decreased sharply in 2009. Table 5-39 lists the primary HC 7 commodities shipped within the Aleutians Subarea.

Table 5-39. Primary Hazard Class 7 Commodities Shipped within the Aleutians Subarea

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
7.0	Radioactive Material, Type A Package	2915
	Radioactive Material, Excepted Package-Articles Manufactured From Natural or Depleted Uranium or Natural Thorium	2910
	Radioactive Material, Type A Package, Special Form	3332

HC 8 Corrosive Materials: The volume of HC 8.0 commodities shipped within the Aleutians Subarea increased by approximately 30% between 2007 and 2008 and then decreased by approximately 40% between 2008 and 2009. Table 5-40 lists the primary HC 8 commodities shipped within the Aleutians Subarea.

Table 5-40. Primary Hazard Class 8 Commodities Shipped within the Aleutians Subarea

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
8.0	Corrosive Cleaning Supplies	1760
	Batteries, Wet, Filled with Acid	2794
	Sulfuric Acid	2796
	Batteries, Wet, Non-Spillable	2800
	Corrosive, Liquid, Basic, Inorganic, N.O.S.	3266
	Formic Acid	1779
	Phosphoric Acid	1805
	Sodium Hydroxide Solution	1824
	Batteries, Wet, Filled with Alkali	2795

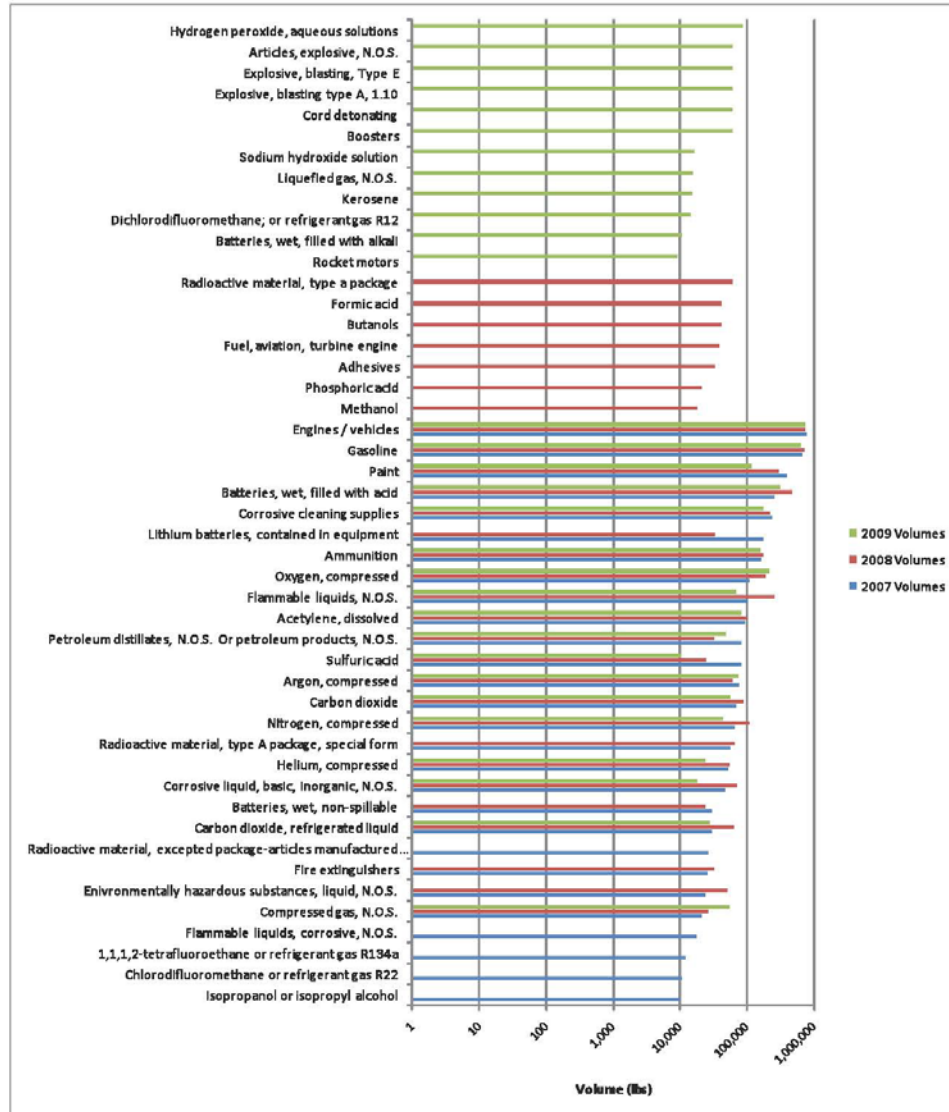
HC 9 Miscellaneous Materials: The volume of HC 9.0 commodities shipped within the Aleutians Subarea saw a dramatic increase between 2007 and 2008 and then dropped below the 2007 levels in 2009. The sharp increase in 2008 could be attributable to the increase in the Alaska Permanent Fund Dividend checks during this timeframe. Table 5-41 lists the primary HC 9 commodities shipped within the Aleutians Subarea.

Table 5-41. Primary Hazard Class 9 Commodities Shipped within the Aleutians Subarea

Hazard Class	Hazardous Material Description (Greater than 10,000 lbs Shipped)	UN ID Number
9.0	Engines / Vehicles	3166
	Environmentally Hazardous Substances, Liquid, N.O.S.	3082
	Lithium Batteries, Contained in Equipment	3091

Figure 5-25 depicts the volume of hazardous materials shipped each year within the Aleutians Subarea by Hazardous Material Name for volumes exceeding 10,000 pounds.

Figure 5-25. Hazardous Material Commodities by Hazardous Material Name (Greater than 10,000 lbs) for the Aleutians Subarea, for 2007 through 2009, presented on a log scale.



D. REFERENCES

Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases (Unified Plan) May 1994, Alaska Regional Response Team, 1994. (as amended).

1998 Statewide Hazardous Material Inventory, HartCrowser, 1999. Prepared for Alaska Department of Environmental Conservation, Division of Spill Prevention and Response.

Alaska Level A and B Hazardous Material Response Resources, HartCrowser, 1999. Prepared for Alaska Department of Environmental Conservation, Division of Spill Prevention and Response.

Evaluation of Chemical Threats to the Alaska Public, HartCrowser, 2000. Prepared for Alaska Department of Environmental Conservation, Division of Spill Prevention and Response.

Alaska Statewide Oil and Hazardous Substance Inventory for Tier Two Reporting Year 2011, Ecology and Environment. Prepared for U.S. Environmental Protection Agency, Region 10.

Statewide Hazardous Materials Commodity Flow Study, Nuka Research and Planning Group, 2010. Prepared for the Alaska Department of Environmental Conservation and the Alaska Department of Military and Veterans Affairs. The basic report is available at:
www.dec.alaska.gov/spar/perp/hazmat/study.html

“Vessel Traffic in the Aleutians Subarea” (May 2005). This report is available on the ADEC website at:
www.dec.alaska.gov/spar/perp/index.htm.

HAZMAT: PART SIX – RADIOLOGICAL AND BIOLOGICAL ISSUES

Procedures for radiological response are included in the *Unified Plan, Annex J*.

Presently, a biological response is not addressed and procedures are not under development for biological issues.