

Hazmat Risks in Alaska

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State of Alaska

*Dept of Environmental Conservation
Spill Prevention and Response Division*

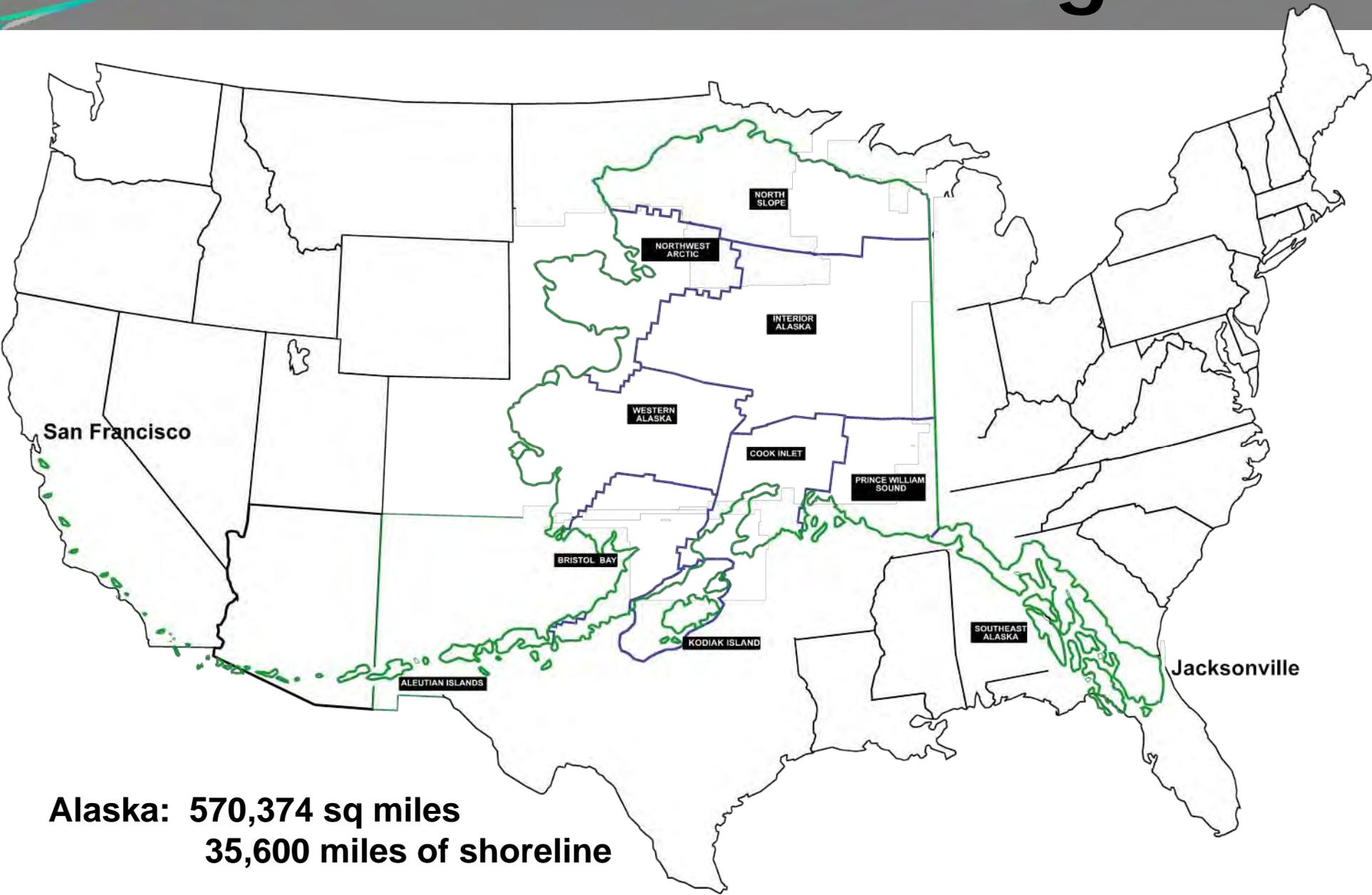


Spill Response in Alaska

- Roughly 2,000 spills per year on the average
- DEC staff perform field visits/phone follow-ups to roughly 750-800 of these spills
- 25-30 spills are considered "significant" with Situation Reports generated
- 36 primary spill responders in DEC



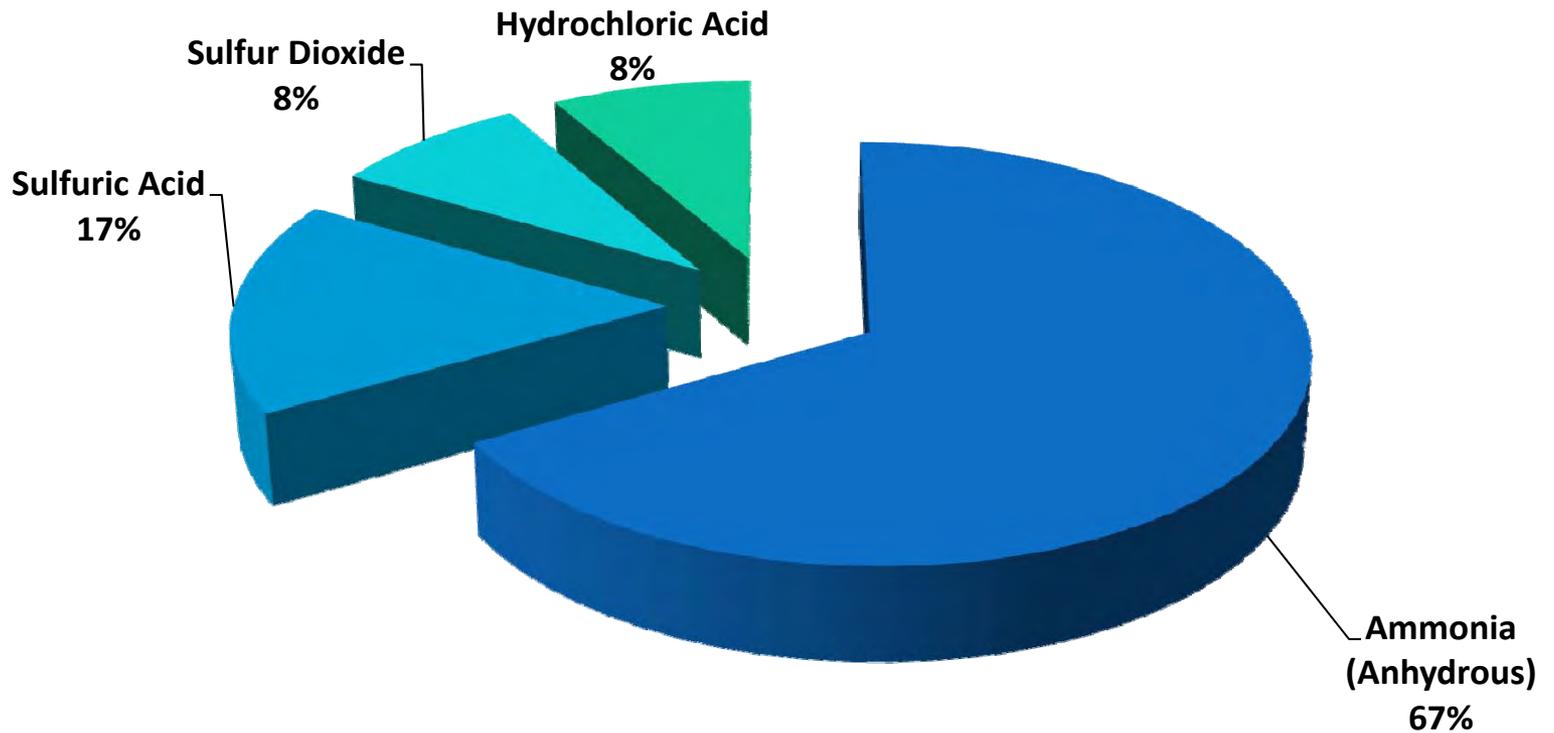
The Overall Challenge



Alaska: 570,374 sq miles
35,600 miles of shoreline

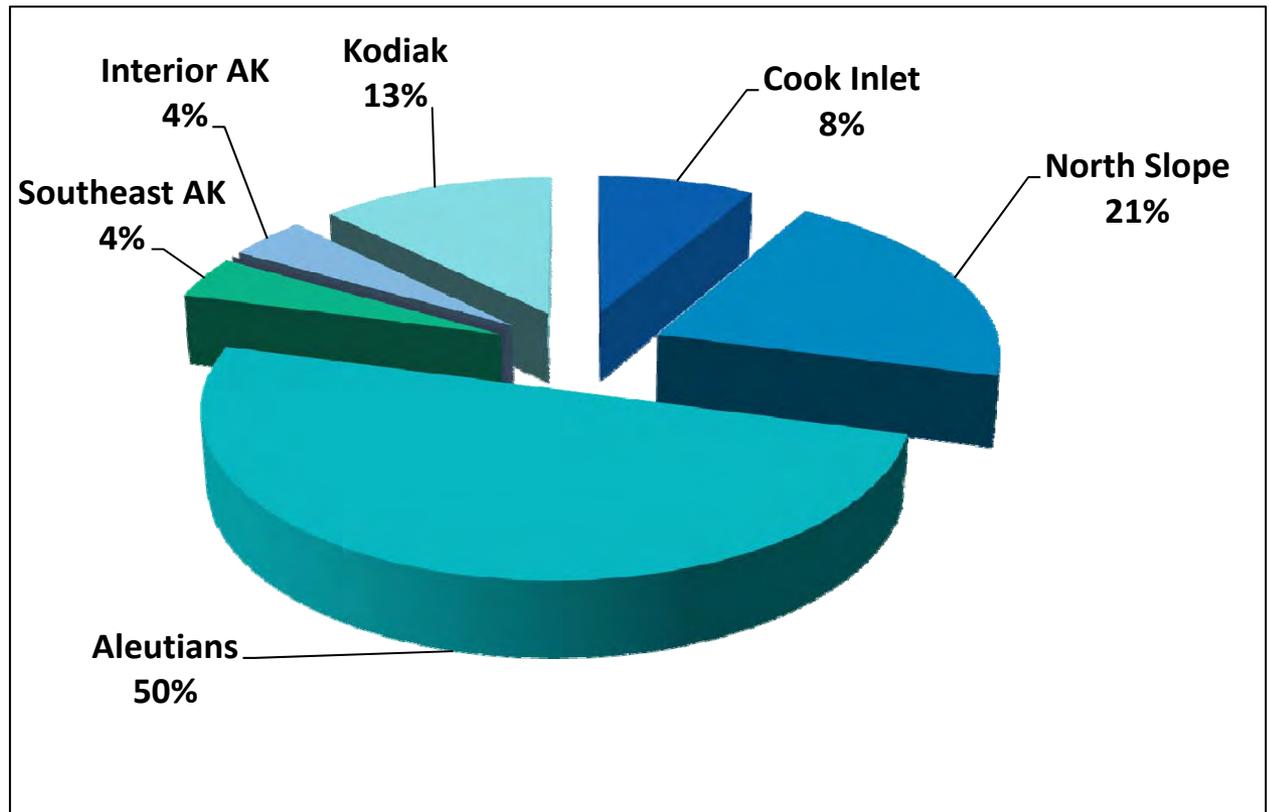
EHS Releases - CY2011

| Substance | No. of Releases | Qty (lbs) |
|---------------------|-----------------|-----------|
| Ammonia (Anhydrous) | 16 | 866 |
| Sulfuric Acid | 4 | 11 |
| Sulfur Dioxide | 2 | 3,359 |
| Hydrochloric Acid | 2 | 80 |
| Total | 24 | 4,316 |

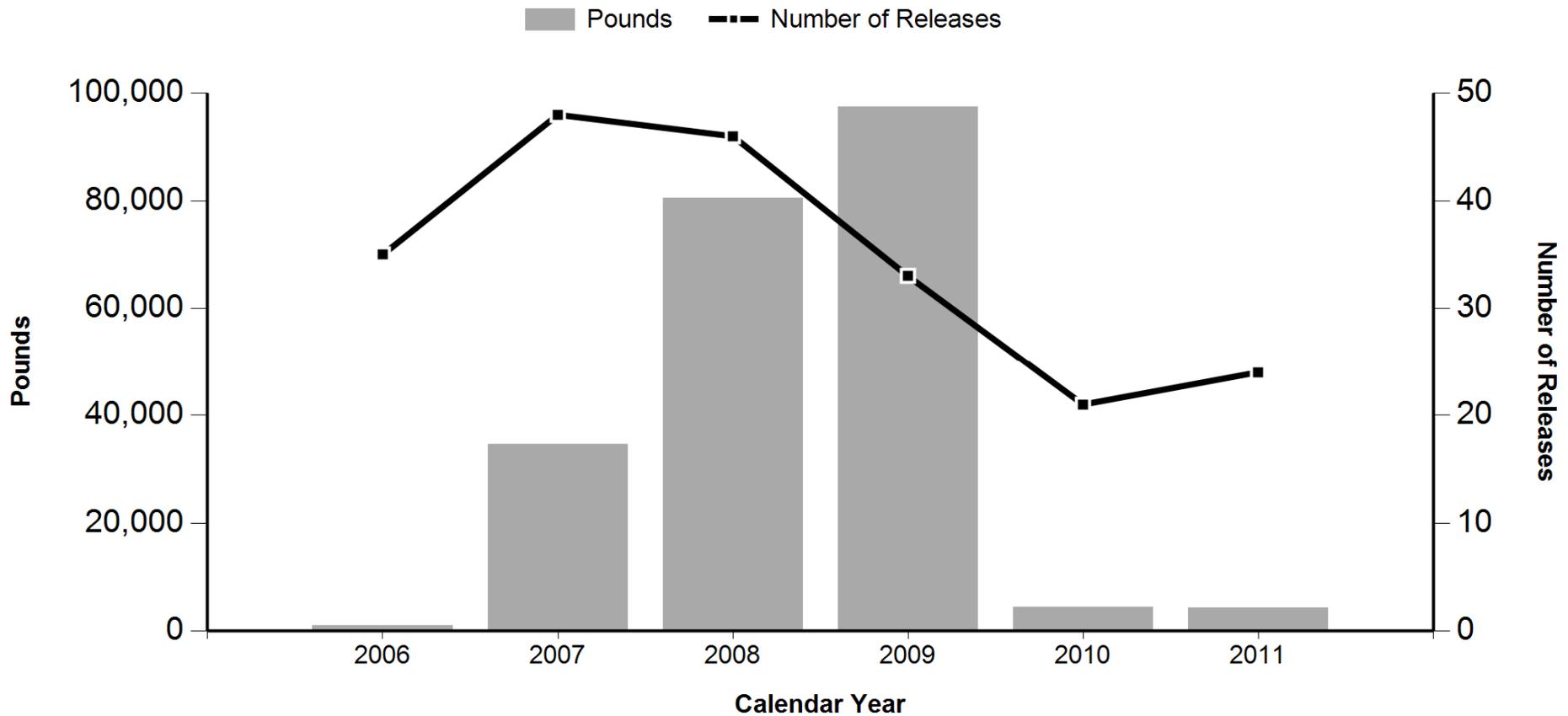


CY2011 EHS Releases – By Subarea

| EHS Releases by Subarea | Number |
|-------------------------|--------|
| Cook Inlet | 2 |
| North Slope | 5 |
| Aleutians | 12 |
| Southeast AK | 1 |
| Bristol Bay | 0 |
| Prince William Sound | 0 |
| NW Arctic | 0 |
| Interior AK | 1 |
| Kodiak | 3 |
| Western AK | 0 |
| | 24 |



EHS Releases - Six Year Trend



July 21, 2008

Chignik Cannery Fire

**8,000 lbs of Ammonia lost
out of a total of 9,500 lbs of
Ammonia**

**Minor Injuries Reported
(smoke inhalation);
No Fatalities**





July 1, 1998 – Homer Icicle Seafoods Fire and Ammonia Release (35,000 lbs)



June 22, 1999 – Truck Rollover (Glenn Hwy, Long Lake - 4,500 gallons Jet Fuel)



Dec 22, 1999 – Train Derailment at Gold Creek ~ 120,000 gallons of jet fuel



Aug 27, 2001 – Truck Rollover (Richardson Hwy ~ 13,000 gallons of Jet A Fuel)



July 30, 2002
12 Chlorine Cylinders being removed
from storage shed at Port Graham
1 cylinder with A Kit attached

August 24, 2002
Qanirtuuq Princess – 6 Ammonia
Cylinders removed from the
water, 7 removed from the
vessel



**September 27, 2002
Chlorine Release
Alaska Pacific University
Swimming Pool**

Minor Injuries



**June 27, 2004
F/V Steelhead
Freon22 Release
Valdez Harbor**

1 Fatality

Other Hazmat Threats in Alaska

- Meth Labs
- WMD and White Powder Incidents
- Propane Incidents
- Mercury Responses
- Unknown Chemicals



Illegal Pyrotechnics Lab – Ketchikan April 2008

Storage Locker with large items removed from front

Tubs of Chemicals

Boxes of Chemicals

Improvised ball mill





STATEWIDE Hazardous Materials COMMODITY FLOW STUDY

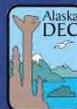


SEPTEMBER 2010

Prepared for:
ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
and
ALASKA DEPARTMENT OF MILITARY AND VETERANS AFFAIRS

Prepared by:
Nuka Research and Planning Group, LLC

ADEC SPAR Term Contract 18-3009-10 and 18-3009-21
Planning, Management, Operational, and Technical Assistance in Support
of Emergency Response to Oil and Hazardous Substance Spills



Period of Study: CYs 2007, 2008, and 2009

Transportation Modes Reviewed:

- Air
- Highway
- Rail
- Marine
- Pipeline

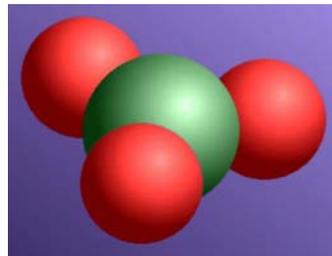
Varied Inputs and Details Provided by Transporters

Hazmat Commodity Flow

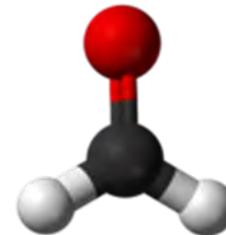
- **Top Six EHS Commodities Shipped:**
 - Sodium Cyanide
 - Chlorine
 - Sulfuric Acid
 - Anhydrous Ammonia
 - Formaldehyde
 - Phosgene



**Phosgene
(Cobalt Chloride)**



Ammonia



Formaldehyde

Hazmat Commodity Flow Study

- **Top Three Hazardous Substances Shipped:**
 - Hazard Classification 2 (Gas Materials)
 - Hazard Classification 3 (Flammable Liquids)
 - ORM-D (Other Regulated Materials)
- **Other Hazardous Substances Shipped:**
 - Hazard Classification 9 (Miscellaneous Materials)
 - Hazard Classification 5 (Oxidizers and Organic Peroxides)
 - Hazard Classification 8 (Corrosive Materials)

Hazmat Commodity Flow

- Subareas with Large EHS Shipments:
 - Cook Inlet
 - Interior Alaska
 - Kodiak Island
 - Prince William Sound
 - Aleutians
 - North Slope
 - Northwest Arctic



Statewide Summary of Volumes (lbs) Transported via Highway

LEGEND

- = Greater than 200 million lbs
- = Greater than 150 million lbs
- = Greater than 100 million lbs
- = Greater than 50 million lbs
- = Greater than 25 million lbs
- = Less than 25 million lbs
- = ADEC Boundaries

0 150 300 miles

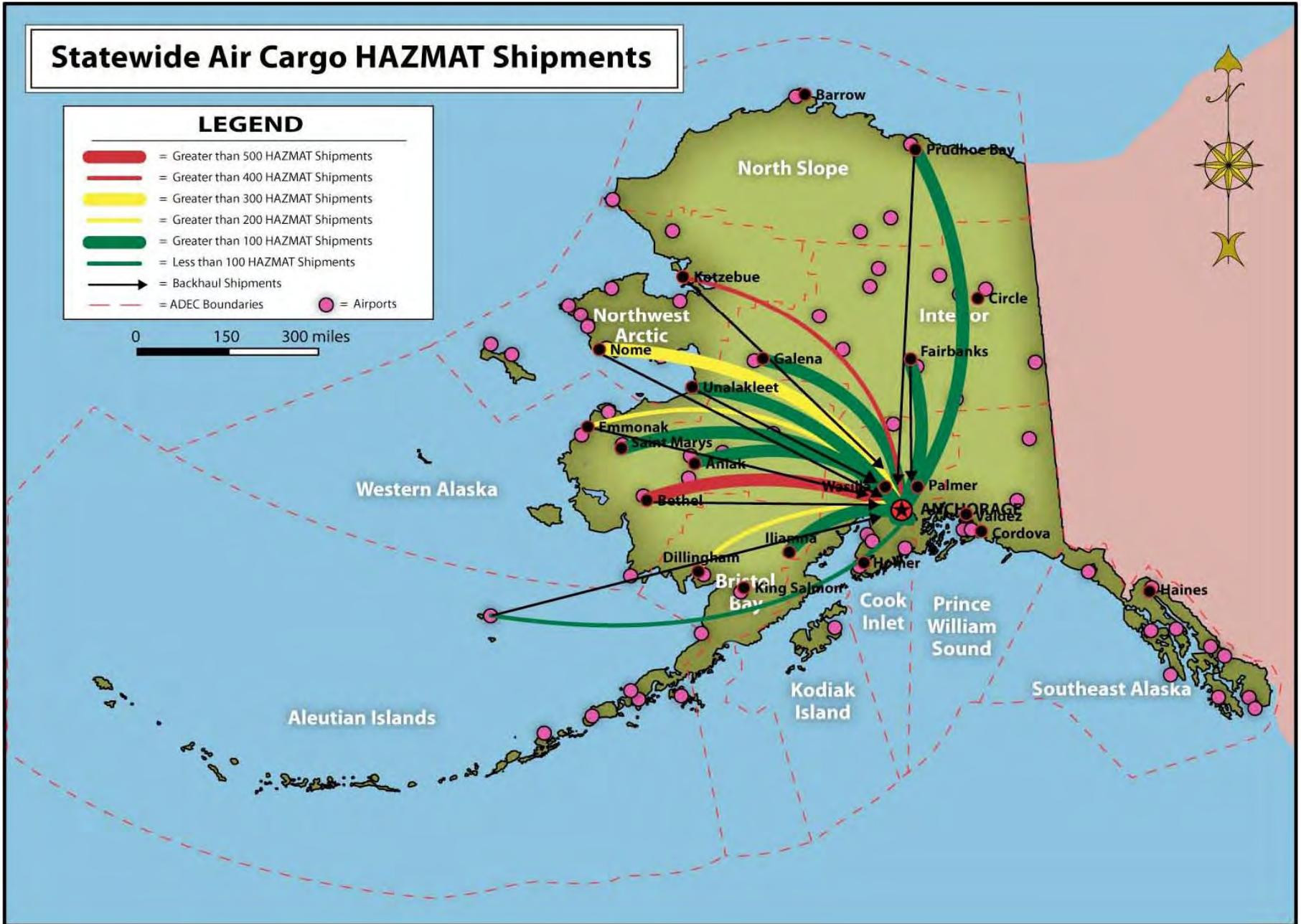


Statewide Air Cargo HAZMAT Shipments

LEGEND

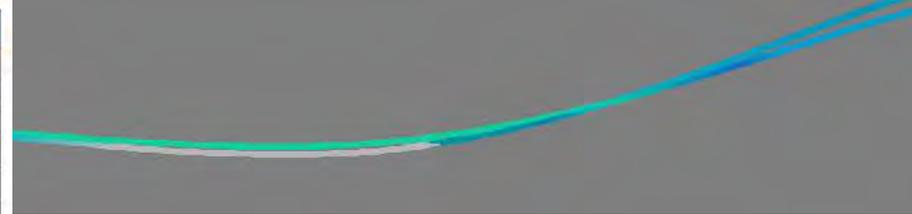
- █ = Greater than 500 HAZMAT Shipments
- ▬ = Greater than 400 HAZMAT Shipments
- █ = Greater than 300 HAZMAT Shipments
- ▬ = Greater than 200 HAZMAT Shipments
- █ = Greater than 100 HAZMAT Shipments
- ▬ = Less than 100 HAZMAT Shipments
- = Backhaul Shipments
- - - = ADEC Boundaries
- = Airports

0 150 300 miles



Top 5 EHS Marine Corridors (Based on a 3 year average)

| EHS | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | |
|-------------------|--------------|----------------|--------------|-------------------|--|---------------|------------|--------|--------------|-------------------|-----------|----------------|-----|-----|-----|-----|-----|
| AA | Cook Inlet | N/A | N/A | N/A | N/A | | | | | | | | | | | | |
| Bromine | Cook Inlet | Inside Passage | Aleutians | Unimak Pass | North Slope | | | | | | | | | | | | |
| Chlorine | Cook Inlet | N/A | N/A | N/A | N/A | | | | | | | | | | | | |
| Chloroform | Cook Inlet | N/A | N/A | N/A | N/A | | | | | | | | | | | | |
| Formaldehyde | Cook Inlet | N/A | N/A | N/A | N/A | | | | | | | | | | | | |
| Mercuric Chloride | Aleutians | Unimak Pass | North Slope | Valdez-Whittier | Inside Passage | | | | | | | | | | | | |
| Nitric Acid | Cook Inlet | Inside Passage | Aleutians | Unimak Pass | North Slope | | | | | | | | | | | | |
| Nitric Oxide | Cook Inlet | N/A | N/A | N/A | N/A | | | | | | | | | | | | |
| Phosgene | Homer-Kodiak | N/A | N/A | N/A | N/A | | | | | | | | | | | | |
| Sodium Cyanide | N/A | N/A | N/A | N/A | N/A </tr <tr> <td>Sulfuric Acid</td> <td>Cook Inlet</td> <td>Seward</td> <td>Homer-Kodiak</td> <td>Cook Inlet-Kodiak</td> <td>Aleutians</td> </tr> <tr> <td>Sulfur Dioxide</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> | Sulfuric Acid | Cook Inlet | Seward | Homer-Kodiak | Cook Inlet-Kodiak | Aleutians | Sulfur Dioxide | N/A | N/A | N/A | N/A | N/A |
| Sulfuric Acid | Cook Inlet | Seward | Homer-Kodiak | Cook Inlet-Kodiak | Aleutians | | | | | | | | | | | | |
| Sulfur Dioxide | N/A | N/A | N/A | N/A | N/A | | | | | | | | | | | | |

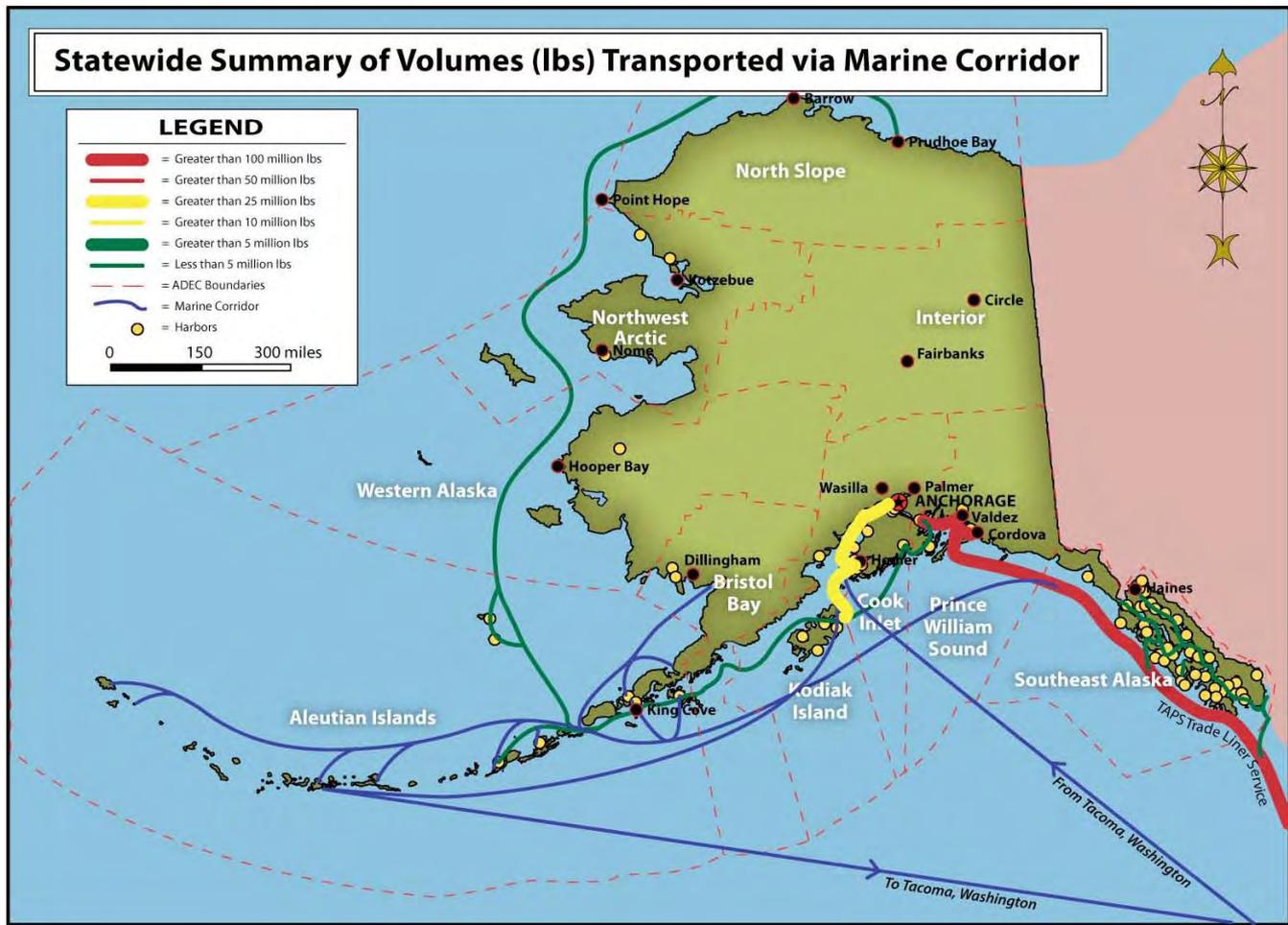


Statewide Summary of Volumes (lbs) Transported via Marine Corridor

LEGEND

- = Greater than 100 million lbs
- = Greater than 50 million lbs
- = Greater than 25 million lbs
- = Greater than 10 million lbs
- = Greater than 5 million lbs
- = Less than 5 million lbs
- = ADEC Boundaries
- = Marine Corridor
- = Harbors

0 150 300 miles

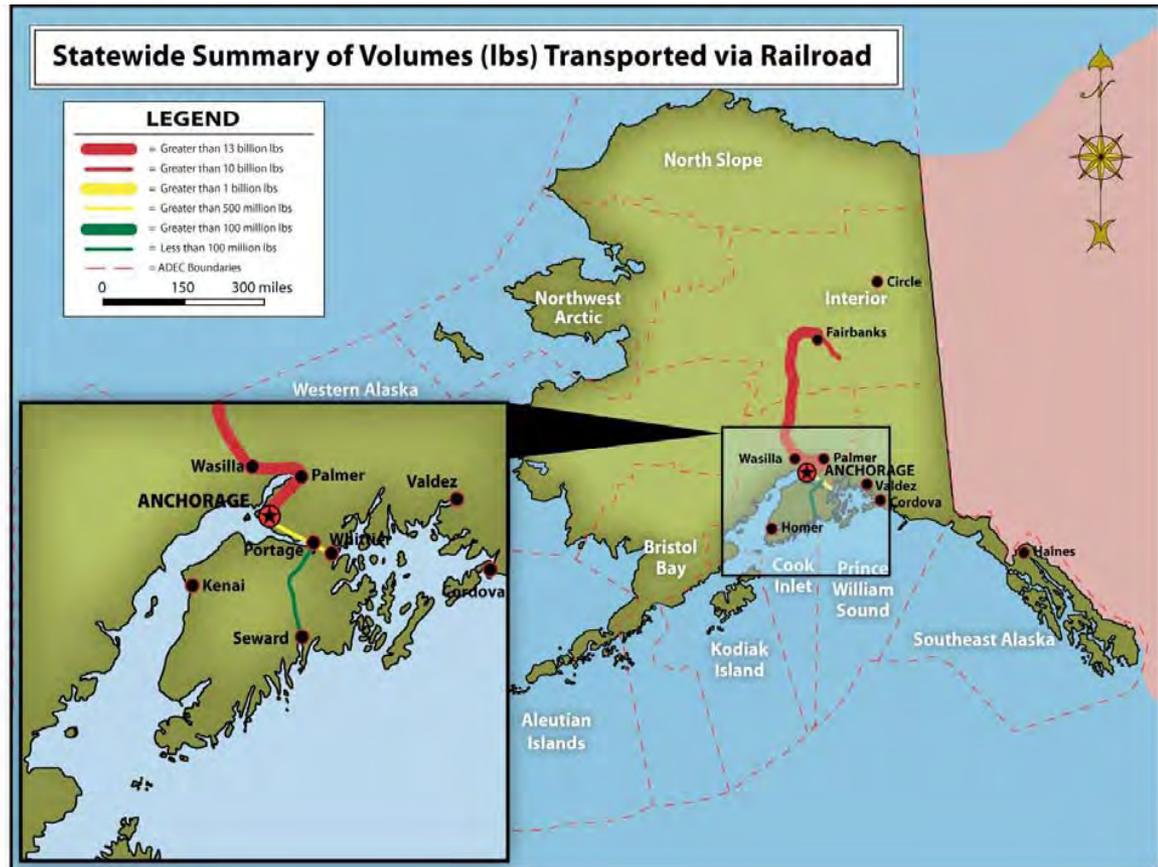


Statewide Summary of Volumes (lbs) Transported via Railroad

| Rank | Rail Segment | Total Volume (lbs) |
|------|--------------------------|--------------------|
| 1 | Anchorage - Fairbanks | 13,078,641,750 |
| 2 | Fairbanks - Eielson, AFB | 12,539,329,250 |
| 3 | Portage - Anchorage | 679,827,500 |
| 4 | Whittier - Portage | 602,236,750 |
| 5 | Seward - Portage | 76,750,250 |

Table 3-16. EHS Commodities Shipped via Rail 2007-2009

| Hazard Class | EHS transported via Railroad Corridor | Volume (lbs) |
|--------------|---------------------------------------|--------------|
| 6.1 | Sodium Cyanide | 29,136,000 |

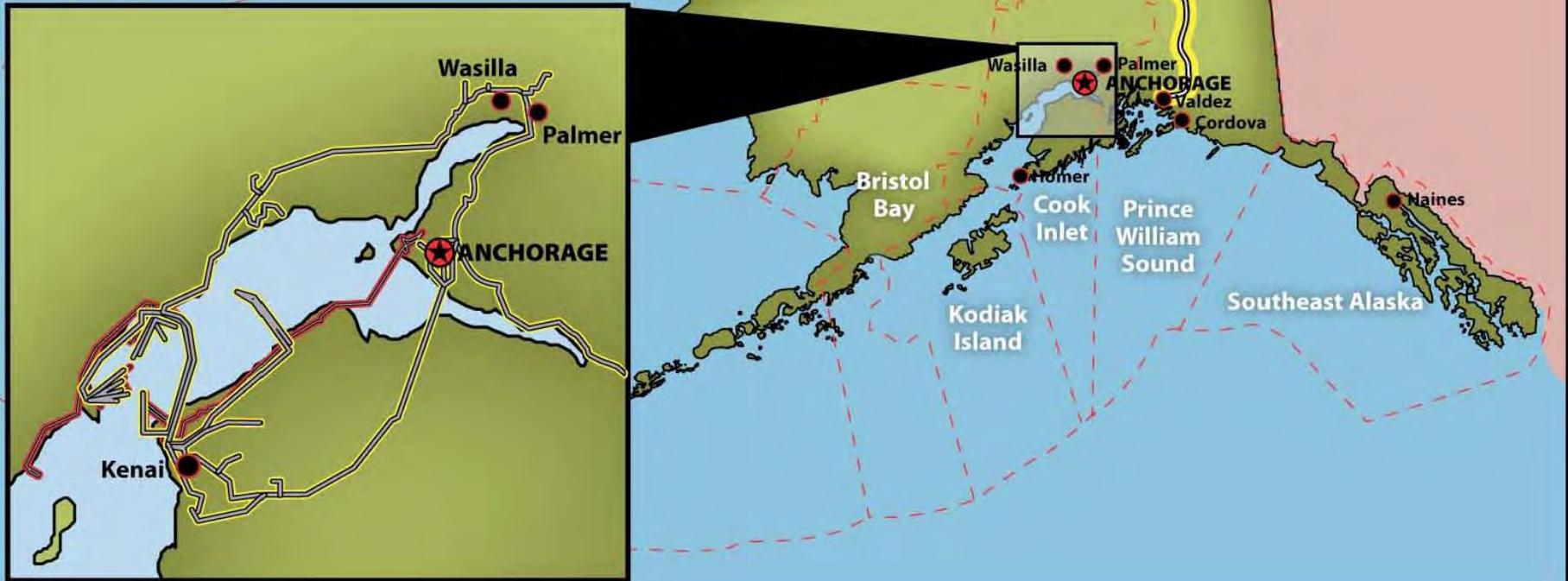


Statewide Summary of Volumes (lbs) Transported via Pipeline

LEGEND

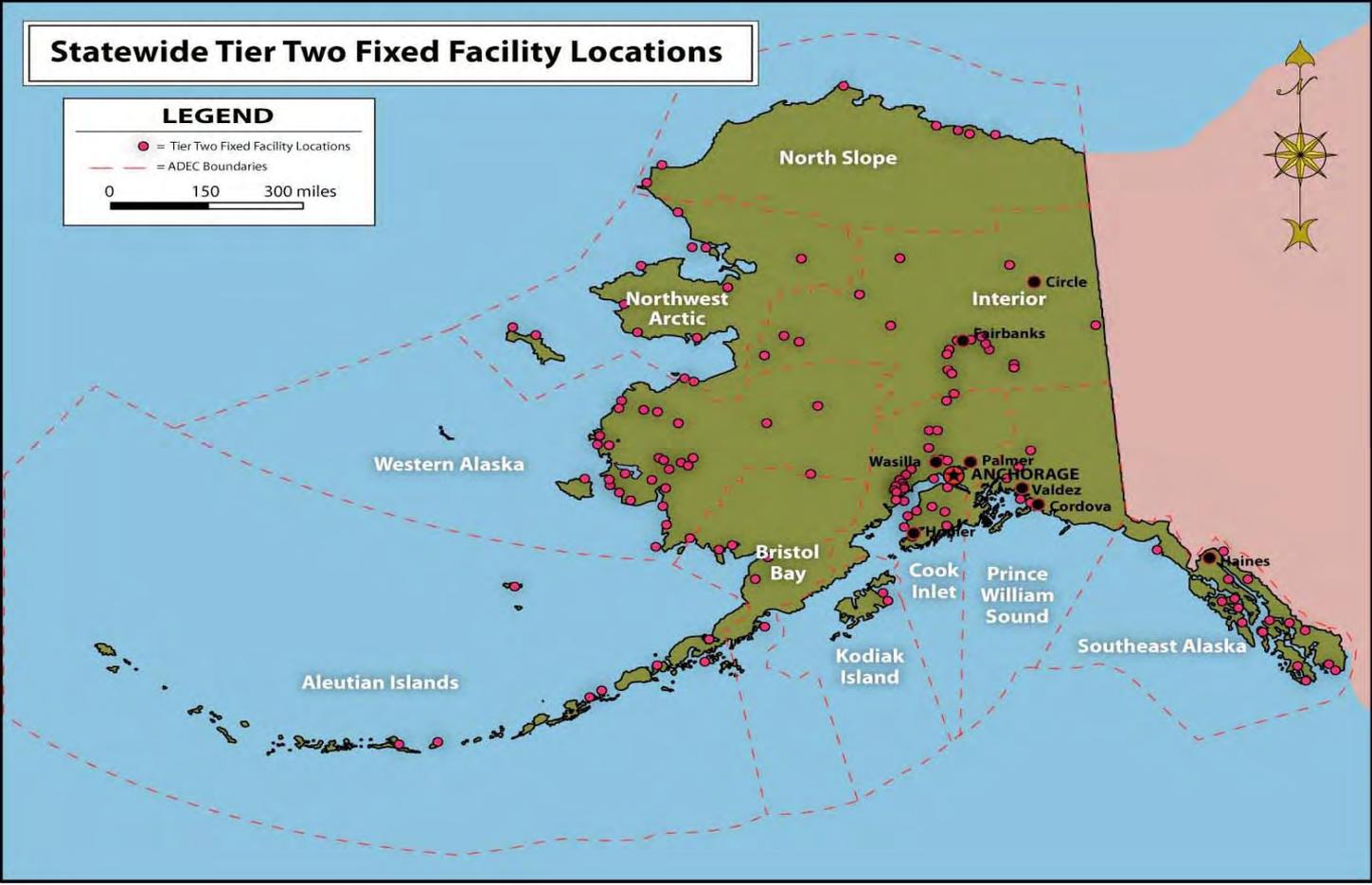
- █ = Greater than 40 trillion lbs
- ▬ = Greater than 20 trillion lbs
- █ = Greater than 200 billion lbs
- ▬ = Greater than 1 billion lbs
- █ = Greater than 1 million lbs
- ▬ = Less than 1 million lbs
- - - = ADEC Boundaries

0 150 300 miles

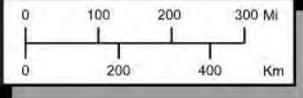


| Hazard Class | EHS Facility | Volume (lbs) |
|--------------|----------------------------------|--------------|
| 2.2 | Anhydrous Ammonia | 17,058,534 |
| 8 | Sulfuric Acid | 1,998,043 |
| 3 | Urea | 414,000 |
| 6.1 | Sodium Cyanide | 276,002 |
| 2.3 | Chlorine | 179,550 |
| 3 | Formaldehyde Solution, Flammable | 41,936 |
| 8 | Batteries, Wet, Filled with Acid | 22,961 |
| 8 | Nitric Acid | 20,719 |
| 6.1 | Arsenic Trioxide | 9,367 |
| 8 | Waste Oil w/Sulfuric Acid | 6,740 |
| 8 | Bromine | 299 |

Outreach Effort to Seafood Processors/Canneries for Chemical Release Reporting

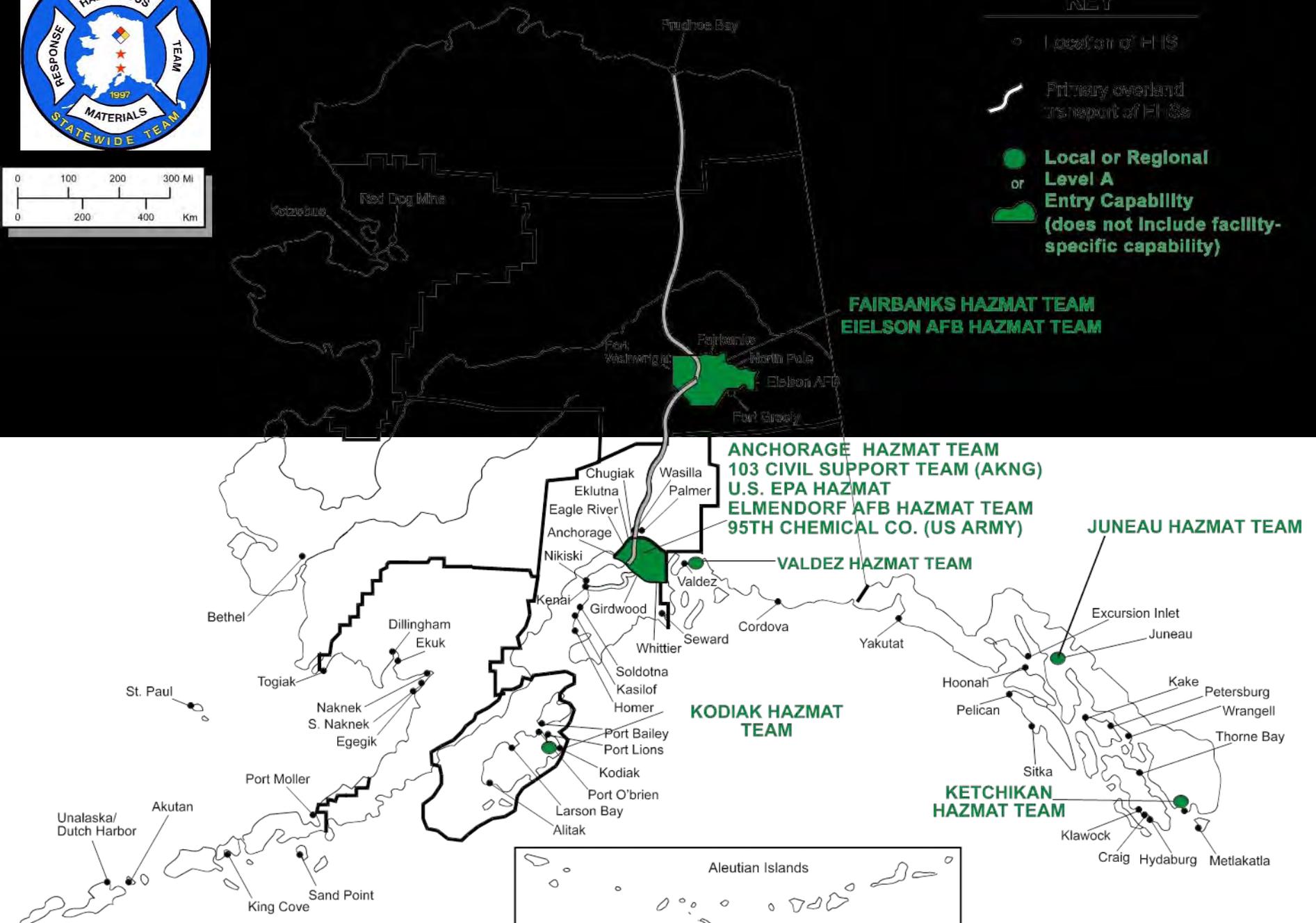


HAZMAT Level A Entry Capability (as of February 2010)



KEY

- Location of H IIS
- Primary overland transport of H IIS
- Local or Regional Level A Entry Capability (does not include facility-specific capability)
- or
- Entry Capability (does not include facility-specific capability)



FAIRBANKS HAZMAT TEAM
EIELSON AFB HAZMAT TEAM

ANCHORAGE HAZMAT TEAM
103 CIVIL SUPPORT TEAM (AKNG)
U.S. EPA HAZMAT
ELMENDORF AFB HAZMAT TEAM
95TH CHEMICAL CO. (US ARMY)

VALDEZ HAZMAT TEAM

KODIAK HAZMAT TEAM

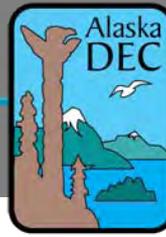
JUNEAU HAZMAT TEAM

KETCHIKAN HAZMAT TEAM

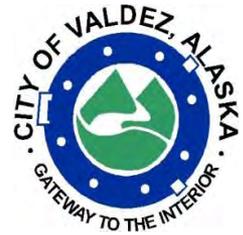




Municipality of Anchorage



Kodiak Island Borough



Anchorage & Fairbanks Hospitals

Statewide Hazmat Response Work Group



Eielson AFB Hazmat



BP Hazmat Team





Questions/Discussion

<http://dec.alaska.gov/spar/perp/hazmat.htm>