

# Annual Summary of Oil and Hazardous Substance Releases

Fiscal Year 2009 (July 1, 2008-June 30, 2009)

Alaska Department of Environmental Conservation ■ Division of Spill Prevention and Response ■ October 2009

## Significant Responses



Spring flooding in Eagle.

### Spring Flooding

Location: Yukon and Kuskokwim Rivers

Report Date: May 2009

Product: various

Quantity: unknown

Cause: flooding

In May 2009, heavy snow melt and ice dams caused flooding in communities along the Yukon and Kuskokwim river systems, impacting several communities, damaging many homes, businesses, and public infrastructure. Many public and private drinking water systems were impacted by the flooding, as well as wastewater disposal systems, and landfills.

The primary public health and safety issues were bacteria, viruses, protozoa, and/or petroleum products in flood waters that pose a threat to drinking water wells; flooded on-site sewer systems that backed up into homes or onto the ground surface; home heating fuel tanks, propane tanks, barrels, and small fuel containers that can shift, fall, or float away and cause spills; and hazardous materials contained in flood debris.

In addition to DEC spill response personnel, staff from the Drinking Water, Waste Water, and Solid Waste programs coordinated emergency response actions with the Alaska Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management. DEC staff and contractors recovered more than 90 drums of potential contaminants and removed at least 13,500 gallons of used oil and oily water from drums and tanks. More than 6,000 gallons of oily water was sent for disposal in Anchorage. 1400 gallons of home heating oil was filtered and returned to residents. Sorbent booms were placed in drainages to the river and 7,500 gallons of used oil was distributed to communities for used oil burners.

### Kuparuk DS 1L Well 22 Produced Water Spill

Location: 1L Pad, Well #22, Kuparuk

Report Date: December 25, 2008

Product: produced water, trace amount crude oil

Quantity: 94,920 gallons

Cause: line failure due to internal corrosion

On December 25, 2008 oil field workers witnessed an anomaly in the drill site 1L surveillance system. Upon investigation, the workers discovered that a quantity of produced water had spilled from a 6" water

injection well line to the reserve pit and gravel pad. The water injection well line was immediately shut in and the source was isolated.

Two teams consisting of a total of 23 spill response personnel responded to the spill including the Kuparuk Spill Response Team (SRT) and Alaska Clean Seas (ACS). The SRT workers used vacuum trucks and heavy equipment to recover the produced water from the gravel pad and reserve pit. A total of 2.95 acres of snow-covered tundra and 1.83 acres of gravel pad was lightly misted with the produced water. Workers removed the contaminated snow and ice. In addition, 319 yards of contaminated gravel was trimmed from the pad surface and hauled to the grind and inject facility in Prudhoe Bay.

### M/V Monarch Sinking

Location: Granite Point Platform in Central Cook Inlet

Report Date: January 15, 2009

Product: diesel, lube oil

Quantity: unknown

Cause: vessel sinking due to hull breach caused by sea ice

When making a delivery to the Granite Point Platform, the M/V Monarch was pinned to the platform by sea ice and sank with approximately 35,000 gallons of diesel fuel, and an unknown volume of hydraulic and lube oils. Equipment was pre-staged for response to recoverable amounts of oil that may seep from the sunken vessel. The sunken vessel was monitored using sonar until weather conditions permitted divers to assess its condition and assess other issues that may affect recovery of the vessel. As of June 13, nearly 1,000 gallons of diesel fuel has been recovered.

### F/V Mar-Gun Grounding St. George Island

Location: St. George Island

Report Date: March 5, 2009

Product: diesel

Quantity: unknown (approximately 18,371 gallons of fluids were removed from the vessel)

Cause: grounding

On March 5, 2009, the 112-foot trawler F/V Mar-Gun ran aground with five people aboard. Prior to leaving the vessel, the crew was able to transfer nearly all the diesel fuel from the double bottoms to the wing tanks. In addition, the crew was able to plug the vessel's fuel tanks. DEC responders and the USCG Pacific Strike Team, along with a marine salvage contractor responded to the incident. Response focused on removing fuel from the vessel and repairing damage to the vessel's hull. By March 13, most of the fuel had been removed. After several delays due to weather and sea ice, the vessel was refloated May 13 and towed to Dutch Harbor. Subsistence sampling was conducted by members of the community under the guidance of Polaris Applied Sciences personnel.

### Drift River Terminal Coordination

Location: Drift River Terminal, West side Cook Inlet

Report Date: March 22, 2009

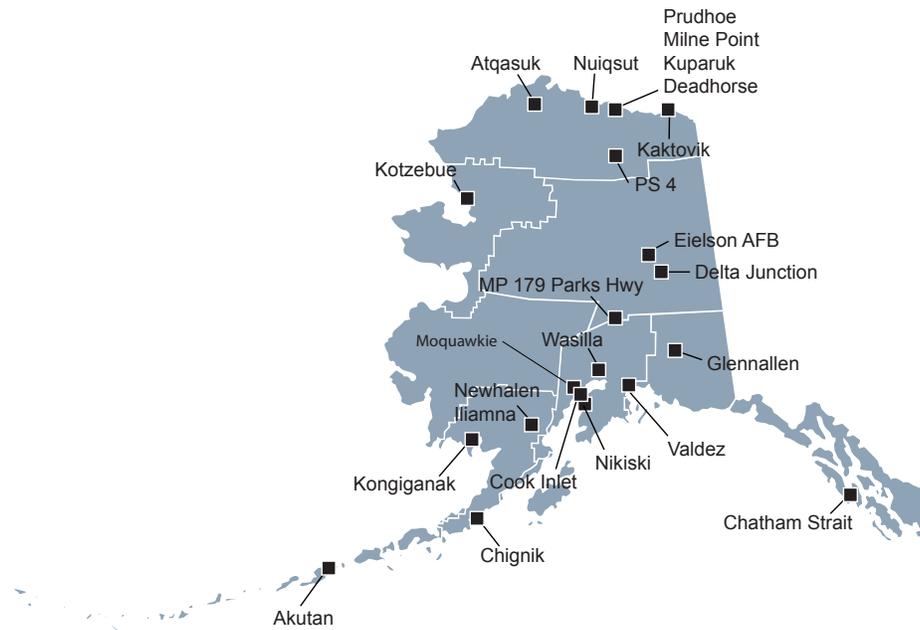
Product: crude oil

Quantity: potential release

Cause: volcanic eruption/flooding

Mount Redoubt initially erupted on March 22, 2009 at 10:38 PM, fol-  
continued on p. 3

# Large Spills



## Large Spills, July 1, 2008-June 30, 2009

Spill Date	Spill Name	Location	Product	Total Released
12/25/08	DS 1L Well 22	Kuparuk	Produced Water	94,920 gal
11/03/08	DS-11, Wells 7, 8, & 38 Seawater Release	Prudhoe Bay	Seawater	61,626 gal
07/17/08	Agrium Ammonia	Nikiski	Ammonia (Anhydrous)	40,013 lbs
03/08/09	Teck, Pogo Mine Drainage Water	Delta Junction	Other	40,000 gal
05/14/09	Tesoro SO2	Nikiski	Sulfur (Dioxide)	33,000 lbs
01/12/09	Milne Point CFP Produced Water Spill	Milne Point	Produced Water	24,444 gal
05/13/09	Tesoro SO2	Nikiski	Sulfur (Dioxide)	20,000 lbs
05/15/09	Tesoro SO2	Nikiski	Sulfur (Dioxide)	14,000 lbs
10/30/08	Crowley Jet Fuel Tank Failure	Newhalen	Kerosene	13,630 gal
09/28/08	Aurora Gas Moquawkie #4 Drilling Mud	West Kenai Peninsula	Drilling Muds	11,000 gal
07/10/08	Tesoro Refinery SO2	Nikiski	Sulfur (Dioxide)	10,226 lbs
12/26/08	Eielson prearranged dump zone	Eielson AFB	Diesel	9,500 gal
03/22/09	DS-1L, Well 16 Produced Water Release	Kuparuk	Produced Water	9,450 gal
05/22/09	Tesoro SO2	Nikiski	Sulfur (Dioxide)	9,000 lbs
07/21/08	Trident Seafoods Chignik Facility Fire	Chignik	Ammonia (Anhydrous)	8,000 lbs
02/03/09	Effluent Water Injection Leak	Kuparuk	Process Water	6,900 gal
12/04/08	Ooogarak 6720 Drilling Mud Release	North Slope	Drilling Muds	6,720 gal
01/15/09	M/V Monarch Sinking	Cook Inlet	Diesel	6,000 gal
07/19/08	Agrium Shutdown P/R	Nikiski	Ammonia (Anhydrous)	5,900 lbs
07/20/08	Agrium Shutdown P/R	Nikiski	Ammonia (Anhydrous)	5,900 lbs
02/25/09	Tesoro Sulfur Recovery Unit	Nikiski	Sulfur (Dioxide)	5,855 lbs
09/07/08	DS-18, Well 5 Brine Spill	Prudhoe Bay	Process Water	5,544 gal
08/18/08	Methane Release	Parks Hwy, near MP 179	Other	4,800 gal
12/30/08	Big State Pup Rollover, MP 205	Richardson Hwy MP 205	Diesel	4,000 gal
05/04/09		Delta Junction	Sodium Cyanide	3,600 lbs
01/14/09	Tesoro 01/09 SO2 release	Nikiski	Sulfur (Dioxide)	3,400 lbs
01/02/09		Pump Station 4	Halon	3,400 lbs

## Large Spills *(continued)*

Spill Date	Spill Name	Location	Product	Total Released
08/25/08	MDC 6200 gal spill	Delta Junction	Propylene Glycol	3,000 gal
03/23/09	Tesoro SO2	Nikiski	Sulfur (Dioxide)	2,769 lbs
02/25/09	F/V ICY MIST grounding NW Akutan Island	Akutan	Diesel	2,700 gal
05/28/09	Tesoro SO2 release	Nikiski	Sulfur (Dioxide)	2,468 lbs
08/06/08	D Pad Well 22 Diesel Release	Prudhoe Bay	Diesel	2,310 gal
09/16/08	Kaktovik Underground Piping Release	Kaktovik	Gasoline	2,000 gal
01/30/09	M/V Lituya Grounding	Chatham Strait	Diesel	2,000 gal
05/16/09	Tesoro SO2	Nikiski	Sulfur (Dioxide)	2,000 lbs
05/02/09	Millsite	Kotzebue	Process Water	2,000 gal
01/15/09	M/V Monarch Sinking	Cook Inlet	Other	1,705 gal
08/20/08	Atqasuk Power Plant Heating Loop	Atqasuk	Ethylene Glycol	1,500 gal
01/23/09	1,500 gal fuel truck diesel spill	Kongiganak	Diesel	1,500 gal
06/06/09	Pile Bay Rd Tanker Spill	Iliamna	Diesel	1,400 gal
01/22/09	MDC Missile Field#1 1200 Gal Glycol spill	Delta Junction	Propylene Glycol	1,200 gal
04/29/09		Nuiqsut	Diesel	1,200 gal
06/23/09	Pioneer Ice Damage to Dry Drill Products	Prudhoe Bay	Other	1,200 lbs
05/15/09	Mud Cutting Containment Cel	North Slope	Drilling Muds	1,008 gal
12/28/08	PetroStar Refinery Fire	Valdez	Glycol, Other	1,000 gal
07/18/08	Illegal Dumping MP 49.5 Parks Hwy	Wasilla	Used Oil (all types)	1,000 gal
07/15/08	Anadarko DS-2P Drill Mud spill	Kuparuk	Drilling Muds	1,000 lbs
01/07/09	Veritas Deadhorse Diesel Spill	Deadhorse	Diesel	1,000 gal
05/24/09	MI Drilling Fluids (Swatco)	Pump Station 4	Sodium Bromide	1,000 lbs

### Significant Responses - continued from p. 1

lowed by several other eruptions, with the most significant occurring on April 4, 2009. The resultant lahars (or volcanic mudflows) caused extensive flooding at the Drift River Oil Terminal (DROT). However, no oil or hazardous substance releases occurred from either of the two operational tanks. No damage to the protective tertiary dike system or the individual tank secondary containment systems occurred during these significant lahar flooding events.

On April 6, 2009 the T/V Seabulk Arctic completed the transfer of approximately 60% of the crude oil from the two tanks in service at the DROT facility. Both operational tanks were ballasted with seawater as a precaution to keep the tanks from floating, if a significant flood should occur at the facility. On April 30, more crude oil was removed from the DROT tanks; and, following additional measurements and confirmation by a third party it was determined that approximately 841,860 gallons (20,040 barrels) of crude oil remained at the terminal, approximately 13% of the original volume of 6.2 million gallons.

### Milne Point Module 54 Produced Water Spill

*Location: Milne Point Central Facilities Pad, North Slope*

*Report Date: January 12, 2009*

*Product: Produced water and crude oil*

*Quantity: 24,444 gallons*

*Cause: overflow of sand slurry tank when automated flow control system failed*

On January 12, 2009, Vessel 5417 at the Central Facilities Pad

in the Milne Point Unit overflowed causing produced water and crude oil to spill into secondary containment and onto the gravel pad. The sand slurry tank was manually isolated and the source controlled. All free product from the containment was removed by responders using a vacuum truck. Temporary snow berms were constructed around the spill area to reduce the possibility of offsite migration of the product. A team consisting of 9 spill response technicians, including Alaska Clean Seas personnel, responded to the spill. Vacuum trucks and heavy equipment were used to recover the produced water and crude oil from the gravel pad.



# Statewide Summary

## All Spills

During Fiscal Year 2009 (July 1, 2008-June 30, 2009), 2,162<sup>1</sup> oil and hazardous substance releases were reported to the Department. The total volume released was 384,811 gallons.

Noncrude oil comprised 75% of the spills reported and 22% of the total volume. Process Water comprised more than half of the total volume, but just 3% of the number of spills reported during the period. Crude oil spills comprised 3% of the spills reported, but less than 1% of the total volume released.



Spills Reported in Gallons	2,116
Total Gallons	384,811
Spills Reported in Pounds	46
Total Pounds	172,116

## Top 5 Causes (gallons)

Cause	Spills	Gallons
Line Failure (STR/MECH)	407	171,207
Equipment Failure (STR/MECH)	343	64,255
Human Error (HUM)	310	27,063
Containment Overflow (STR/MECH)	35	25,116
Tank Failure (STR/MECH)	14	14,733

## Top 5 Products (gallons)

Product	Spills	Gallons
Produced Water	18	130,652
Seawater	13	63,565
Diesel	542	53,951
Other	60	48,239
Drilling Muds	22	21,499

## Top 5 Facility Types (gallons)

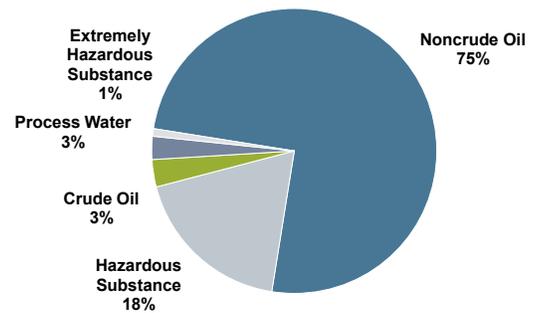
Facility Type	Spills	Gallons
Oil Production (TRA)	395	226,416
Mining Operation (STO)	438	51,629
Other (OTH)	218	30,471
Air Transportation (TRA)	94	12,969
Vehicle (TRA)	109	12,569

<sup>1</sup> Some spill incidents involved releases of multiple substances. In FY 09, there were 2,097 spill incidents, resulting in 2,166 oil and hazardous substance releases.

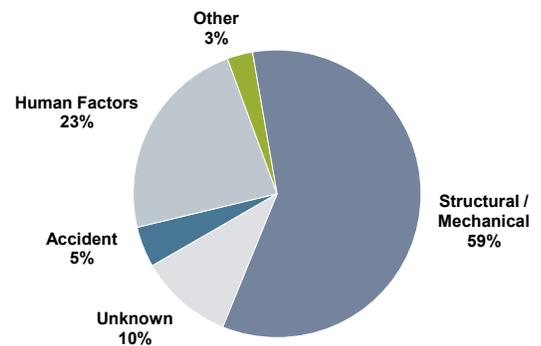
### KEY TO ABBREVIATIONS

HUM	Human Factors
ACC	Accident
UNK	Unknown
OTH	Other
STR/MECH	Structural/Mechanical
STO	Storage
TRA	Transportation
VES	Vessel
OTH/UNK	Other/Unknown

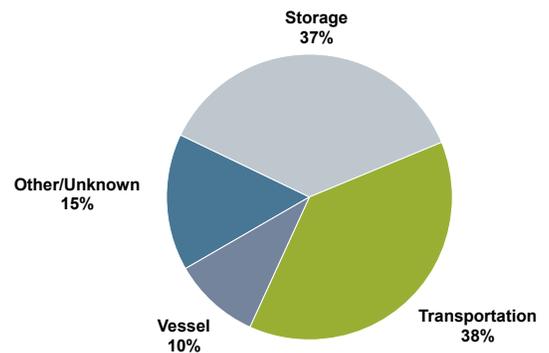
## Number of Spills by Product



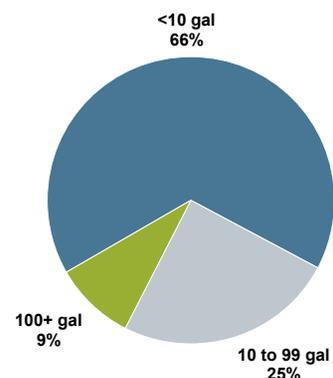
## Number of Spills by Cause



## Number of Spills by Facility Category



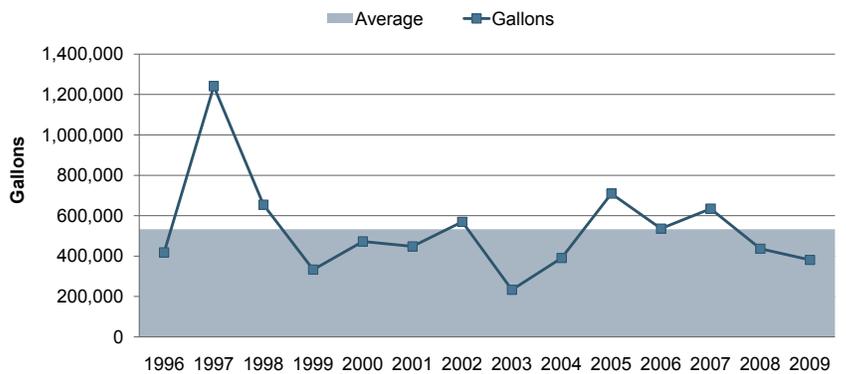
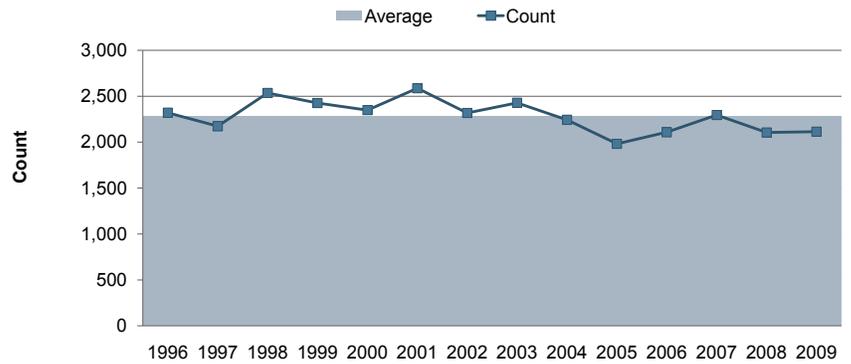
## Number of Spills by Size Class



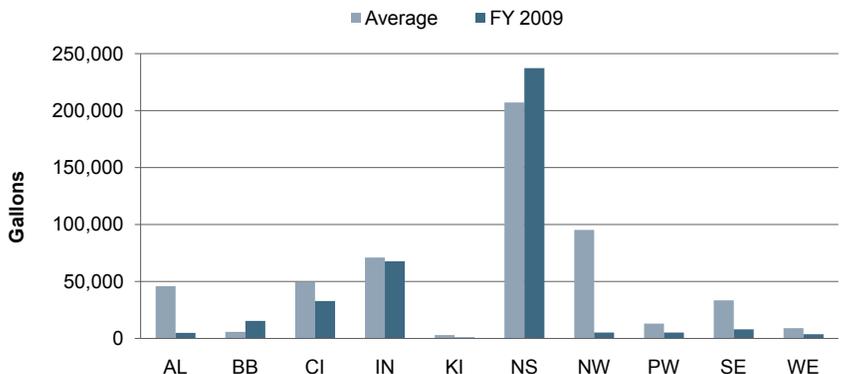
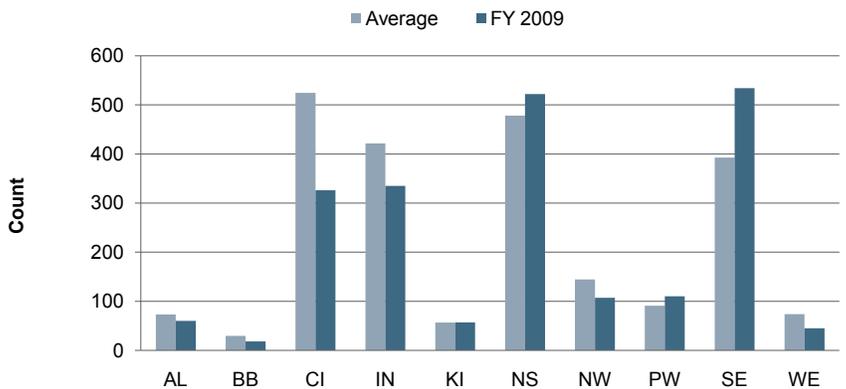
## Spills by Fiscal Year

- The number of spills in FY 2009 (2,162<sup>1</sup>) was slightly higher than in FY 2008 (2,114).
- Total volume released in FY 2009 was 384,811 gallons, 41,809 less than the previous FY (436,620 gallons).
- The North Slope (25%) and Southeast Alaska (25%) subareas had the most spills. However, the volume released within the North Slope subarea (237,253 gallons) comprised 62% of the total statewide volume (384,811 gallons).
- Process water comprised more than half of the statewide volume released. More than 99% of the total volume of Process Water was released in the North Slope subarea. Process water comprised approximately 87% of the total volume released in the North Slope subarea, but only 6% of the spills.
- More than 80% of the spills reported during the year were due to Structural/Mechanical (59%) or Human Factors (23%) causes.
- Three-quarters (75%) of the releases occurred at Transportation (38%) or Storage (38%) facilities.
- Approximately 66% of the releases during FY 2009 were less than 10 gallons in volume. Nearly a third of these occurred in the Southeast Alaska subarea. Spills under 10 gallons at mining facilities were the most common, representing 23% of the statewide total.

<sup>1</sup> Some spill incidents involved releases of multiple substances. In FY 09, there were 2,097 spill incidents, resulting in 2,166 oil and hazardous substance releases.



## Spills by Subarea



### KEY TO ABBREVIATIONS

AL	Aleutian
BB	Bristol Bay
CI	Cook Inlet
IN	Interior
KI	Kodiak Island
NS	North Slope
NW	Northwest Arctic
PW	Prince William Sound
SE	Southeast Alaska
WE	Western Alaska

# Statewide Summary *(continued)*

## Noncrude Oil

- A little more than two-thirds (68%) of the noncrude spills were under 10 gallons.
- Diesel comprised approximately 34% of the total number of noncrude spills and more than 60% of the total noncrude volume released during FY 2009.
- Hydraulic Oil spills were the most frequent noncrude oil releases (36%), but comprised only 6% of the total noncrude oil volume.



Spills Reported in Gallons	1,586
Total Gallons	84,957
Spills Reported in Pounds	4
Total Pounds	110

### Top 5 Causes (gallons)

Cause	Spills	Gallons
Tank Failure (STR/MECH)	13	14,733
Rollover/Capsize (ACC)	43	11,767
Human Error (HUM)	232	11,559
Intentional Release (HUM)	15	11,452
Line Failure (STR/MECH)	349	6,179

### Top 5 Products (gallons)

Product	Spills	Gallons
Diesel	542	53,951
Kerosene	10	13,708
Hydraulic Oil	572	5,246
Gasoline	49	3,817
Used Oil (all types)	79	2,259

### Top 5 Facilities (gallons)

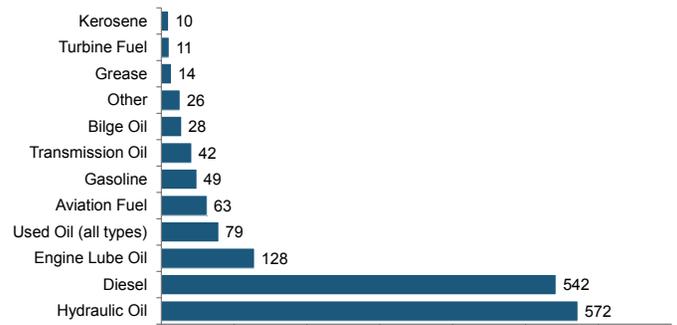
Product	Spills	Gallons
Other (OTH)	183	24,747
Air Transportation (TRA)	89	12,727
Vessel (VES)	199	10,593
Vehicle (TRA)	87	7,604
Oil Production (TRA)	184	5,836

#### KEY TO ABBREVIATIONS

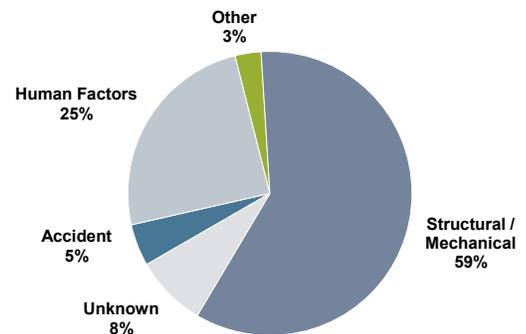
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## Number of Spills by Product

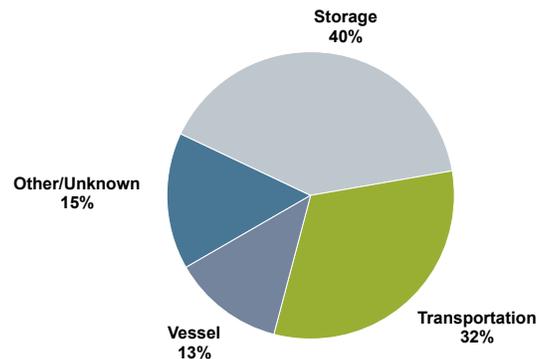
(10 or more spills reported)



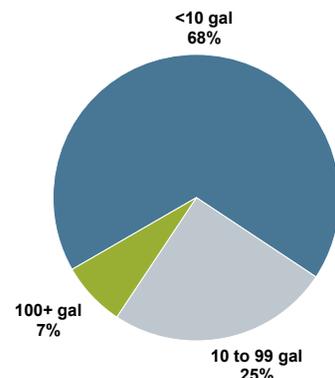
## Number of Spills by Cause



## Number of Spills by Facility Category



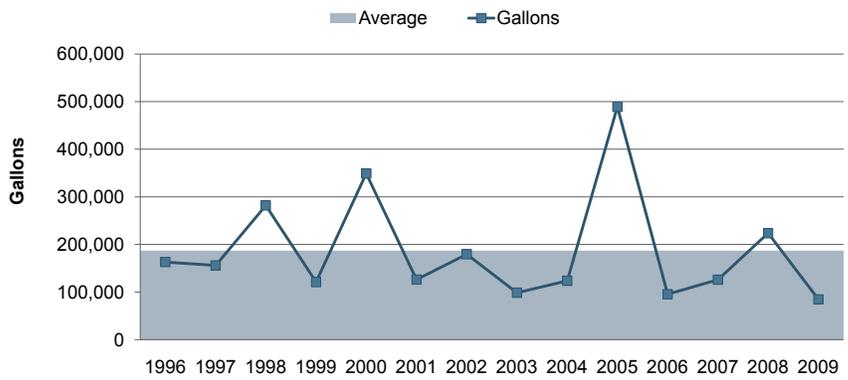
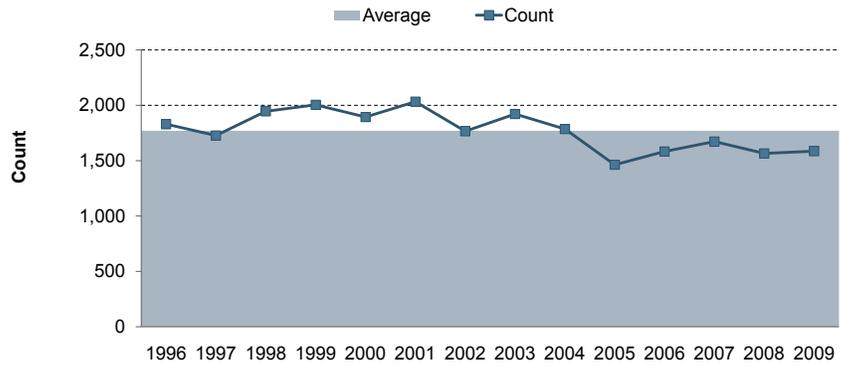
## Number of Spills by Size Class



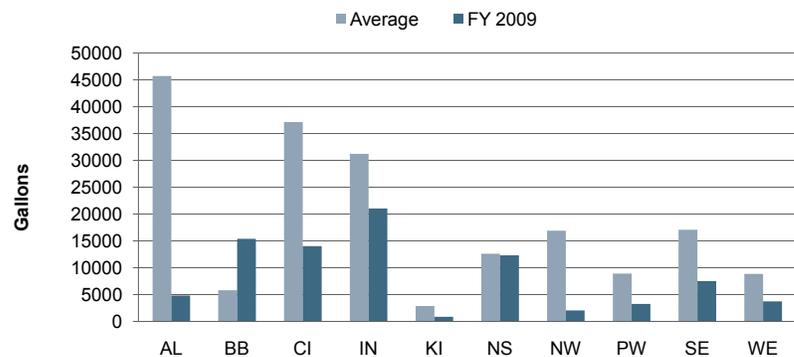
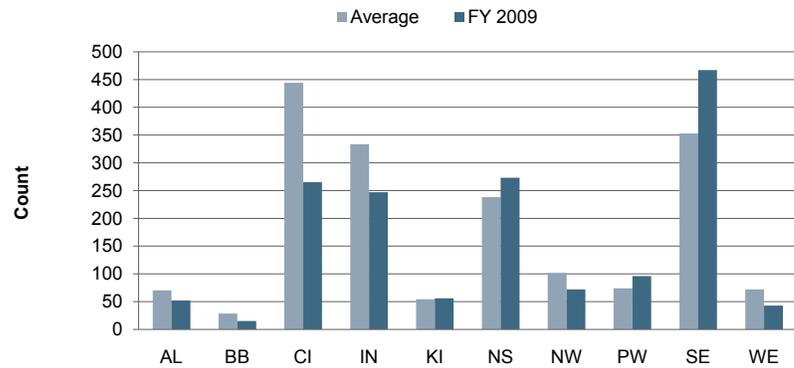
# Statewide Summary *(continued)*

## Spills by Fiscal Year

- Noncrude oil releases comprised 75% of the spills reported during FY 2009 and 22% of the total volume.
- The Southeast Alaska subarea had the greatest number of noncrude oil spills (467), representing 29% of the total number of noncrude spills statewide, but only 9% of the statewide volume. The Interior Alaska subarea had the greatest volume (21,030 gallons), 25% of the statewide total.
- Hydraulic Oil was the most common noncrude oil released (572), with more than half (293) occurring at Mining facilities.
- Nearly 60% of the noncrude spills were due to Structural/Mechanical causes.
- Nearly three-quarters of the noncrude spills during FY 2009 occurred at Storage (40%) or Transportation facilities (32%).



## Spills by Subarea



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# Statewide Summary *(continued)*

## Crude Oil

- About 85% of the Crude Oil spills occurred at Oil Production facilities.
- Valve Failure and Human Error were the primary causes based on total volume released.
- Over half of all Crude Oil spills were less than 10 gallons.



Spills Reported 66  
Total Gallons 3,171

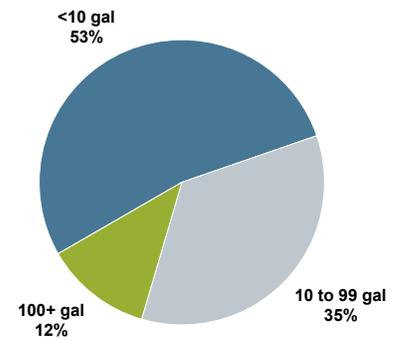
### Top 5 Causes

Cause	Spills	Gallons
Valve Failure (STR/MECH)	3	860
Human Error (HUM)	10	748
Equipment Failure (STR/MECH)	8	509
Overfill (HUM)	2	242
Corrosion (STR/MECH)	3	215

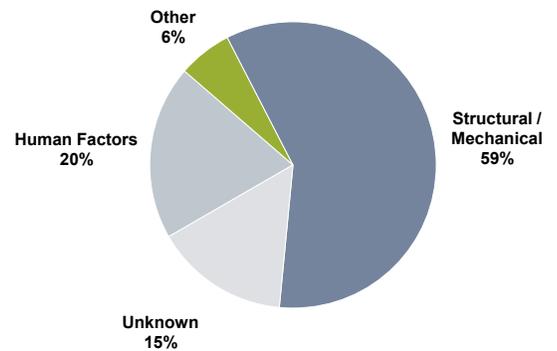
### Top 5 Facilities

Product	Spills	Gallons
Oil Production (TRA)	56	2,050
Crude Oil Terminal (STO)	4	580
Refinery Operation (STO)	5	317
Transmission Pipeline (TRA)	1	224

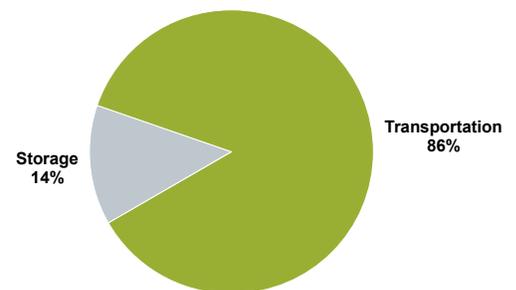
## Number of Spills by Size Class



## Number of Spills by Cause



## Number of Spills by Facility Category



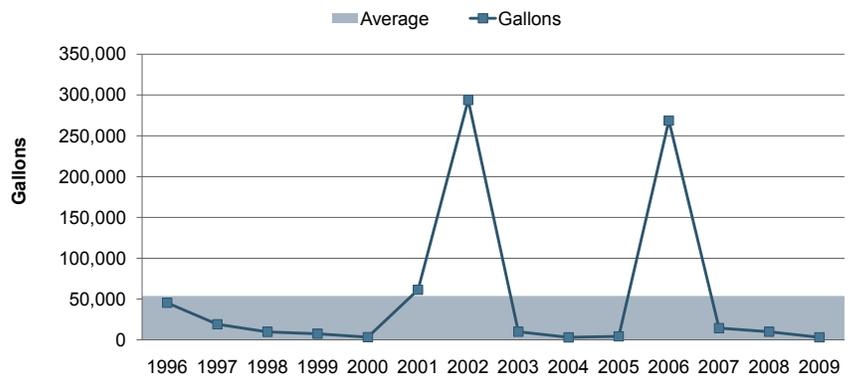
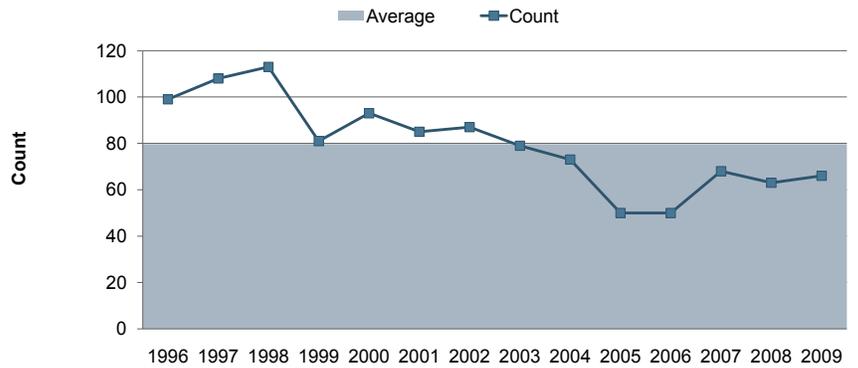
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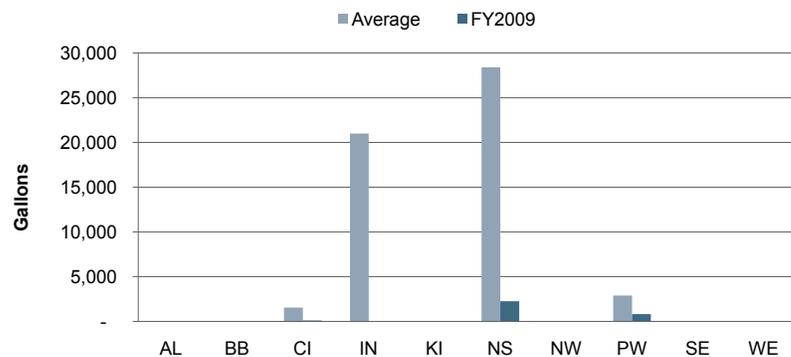
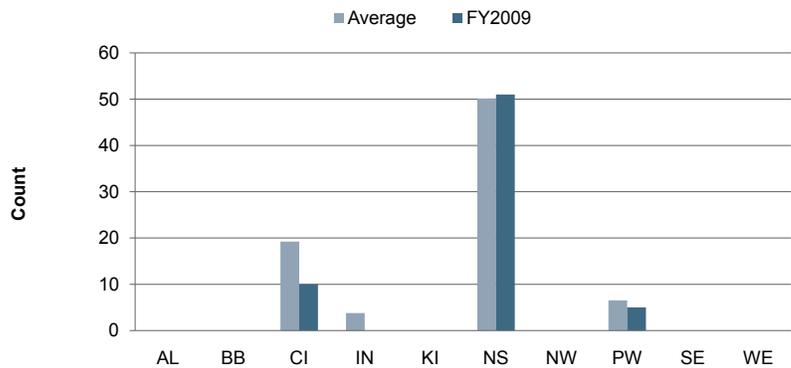
# Statewide Summary *(continued)*

- The number of crude oil spills increased slightly in FY 2009 (66) compared to the prior FY (63); however, the total volume was substantially lower, 3,171 gallons in FY 2009 compared to 9,996 in FY 2008.
- More than 75% of the crude oil spills, representing more than 70% of the spilled volume in FY 2009, occurred in the North Slope subarea.

## Spills by Fiscal Year



## Spills by Subarea



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# Statewide Summary *(continued)*

## Hazardous Substances

- More than 65% of the Hazardous Substance spills in FY 2009 were less than 10 gallons.
- Oil Production facilities had more Hazardous Substance releases; however, Mining facilities had the highest total volume released.



Spills Reported in Gallons	389
Total Gallons	83,292
Spills Reported in Pounds	24
Total Pounds	8,417

### Top 5 Causes (gallons)

Cause	Spills	Gallons
Equipment Failure (STR/MECH)	72	48,725
Human Error (HUM)	54	13,390
Well Blow-Out (ACC)	1	11,000
Line Failure (STR/MECH)	44	2,645
Rollover/Capsize (ACC)	10	1,818

### Top 5 Products (gallons)

Product	Spills	Gallons
Other	34	47,207
Drilling Muds	22	21,499
Propylene Glycol	25	5,219
Ethylene Glycol (Antifreeze)	82	4,366
Glycol, Other	53	2,822

### Top 5 Facilities (gallons)

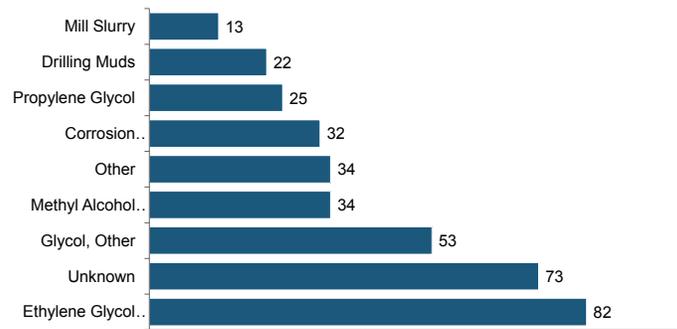
Product	Spills	Gallons
Mining Operation (STO)	60	41,841
Oil Production (TRA)	117	12,198
Natural Gas Production (TRA)	4	11,244
Other (OTH)	32	5,308
Vehicle (TRA)	21	4,965

#### KEY TO ABBREVIATIONS

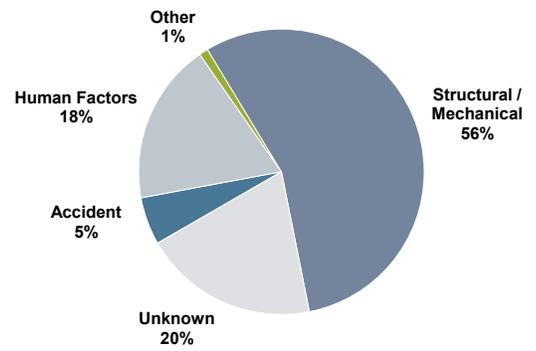
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OTH/UNK	Other/Unknown

## Number of Spills by Product

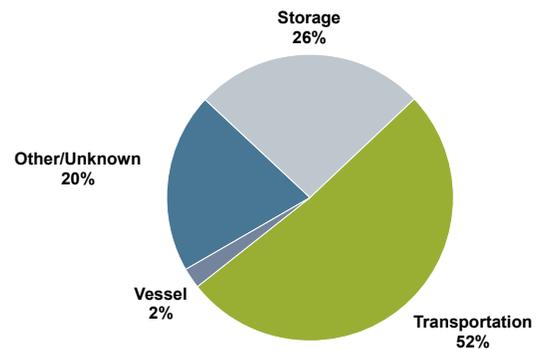
(10 or more spills reported)



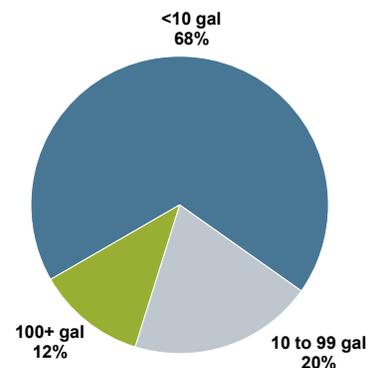
## Number of Spills by Cause



## Number of Spills by Facility Category



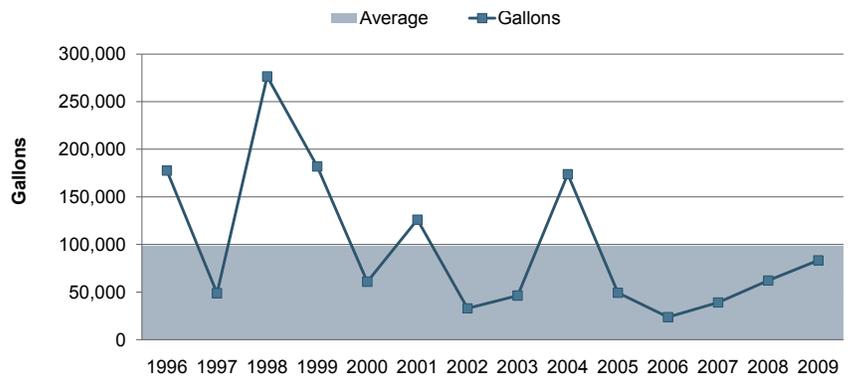
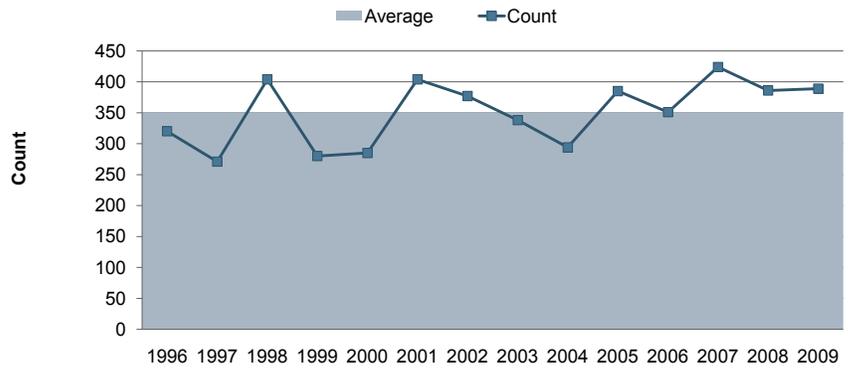
## Number of Spills by Size Class



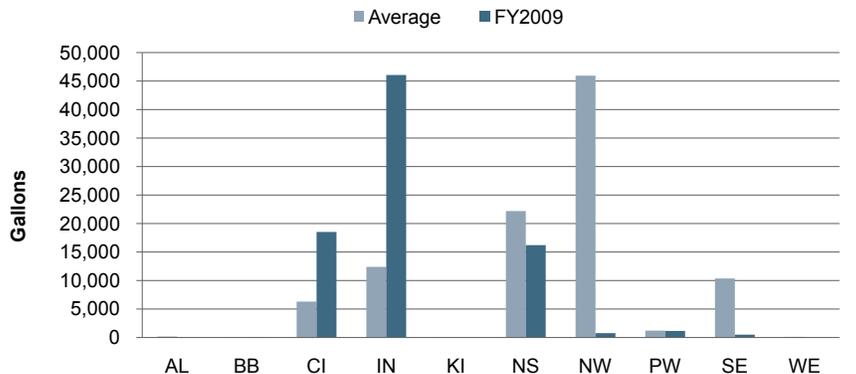
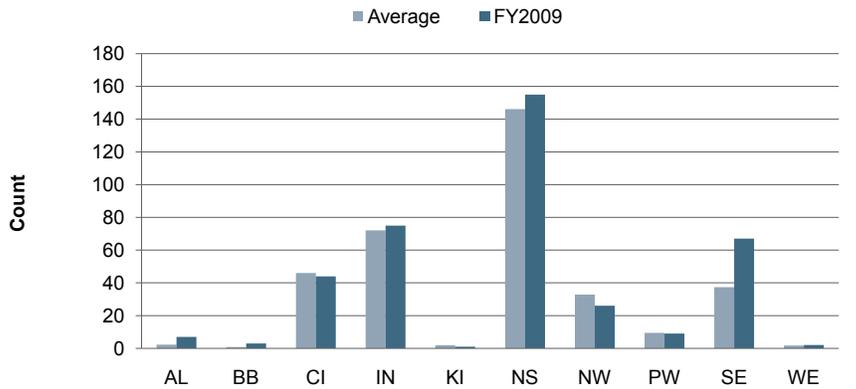
# Statewide Summary *(continued)*

## Spills by Fiscal Year

- More than half of the Hazardous Substances releases during FY 2009 were due to Structural/Mechanical Failure (56%).
- Approximately 50% of the total volume of hazardous substances released during the period occurred at Mining facilities.
- Ethylene Glycol (82 spills) was the product most frequently released.
- Most hazardous substance releases occurred within the North Slope subarea (155 spills). The greatest total volume released occurred in the Interior Alaska subarea (46,055 gallons).



## Spills by Subarea



### KEY TO ABBREVIATIONS

AL	Aleutian
BB	Bristol Bay
CI	Cook Inlet
IN	Interior
KI	Kodiak Island
NS	North Slope
NW	Northwest Arctic
PW	Prince William Sound
SE	Southeast Alaska
WE	Western Alaska

# Statewide Summary *(continued)*

## Extremely Hazardous Substances

- 89% of the Extremely Hazardous Substance (EHS) releases in FY 2009 were 100 pounds or more.
- Sulfur Dioxide was the most commonly released EHS and comprised 63% of the total pounds released.

◆◆◆

Spills Reported in Gallons	20
Total Gallons	3,675
Spills Reported in Pounds	18
Total Pounds	163,589

### Top 5 Causes (pounds)

Cause	Spills	Pounds
Other (OTH)	8	94,624
Intentional Release (HUM)	4	62,039
Equipment Failure (STR/MECH)	3	6,745
Line Failure (STR/MECH)	1	170
Corrosion (STR/MECH)	1	6

### Top Products (pounds)

Product	Spills	Pounds
Sulfur Dioxide	11	103,595
Anhydrous Ammonia	7	59,994

### Top 5 Facility Types (pounds)

Product	Spills	Pounds
Refinery Operation (STO)	11	103,595
Other (OTH)	1	40,013
Chemical Manufacturing (STO)	2	11,800
Cannery (STO)	4	8,181

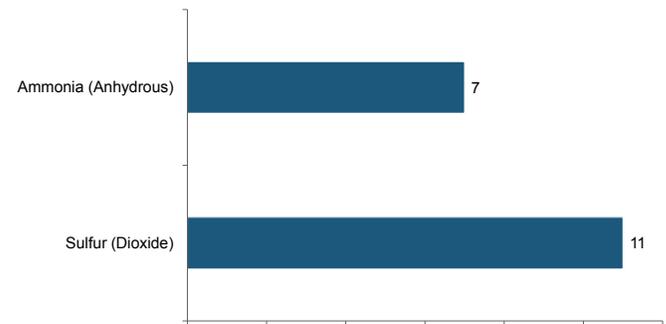
NOTE: Extremely Hazardous Substances (EHS) are designated by the US Environmental Protection Agency in federal regulations (40 CFR part 355, Emergency Planning and Notification).

#### KEY TO ABBREVIATIONS

HUM	Human Factors
ACC	Accident
UNK	Unknown
OTH	Other
STR/MECH	Structural/Mechanical
STO	Storage
TRA	Transportation
VES	Vessel
OTH/UNK	Other/Unknown

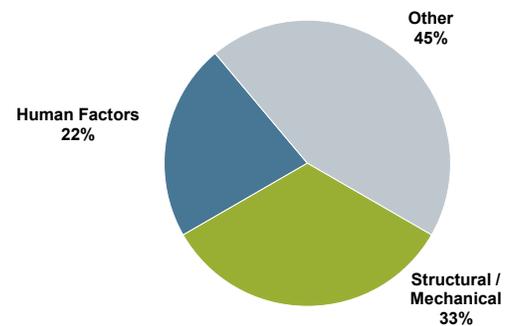
## Number of Spills by Product

*(spills reported in pounds)*



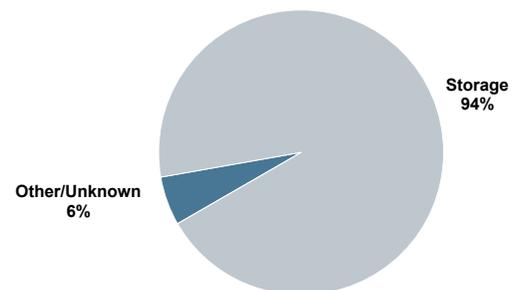
## Number of Spills by Cause

*(spills reported in pounds)*

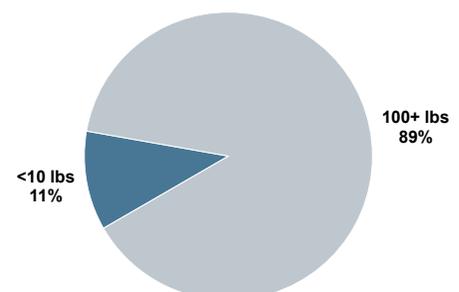


## Number of Spills by Facility Category

*(spills reported in pounds)*



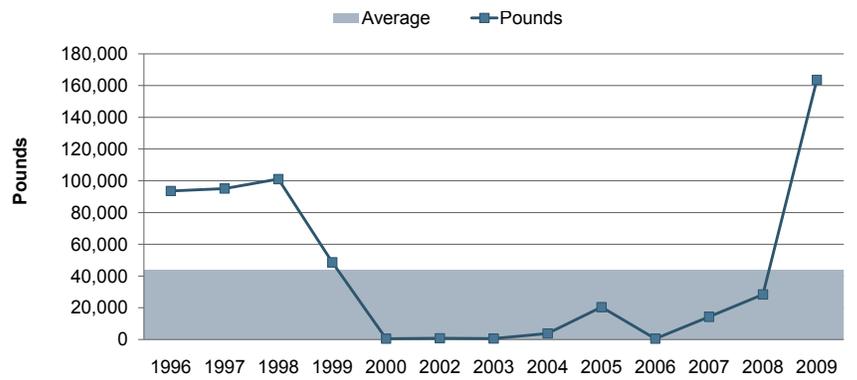
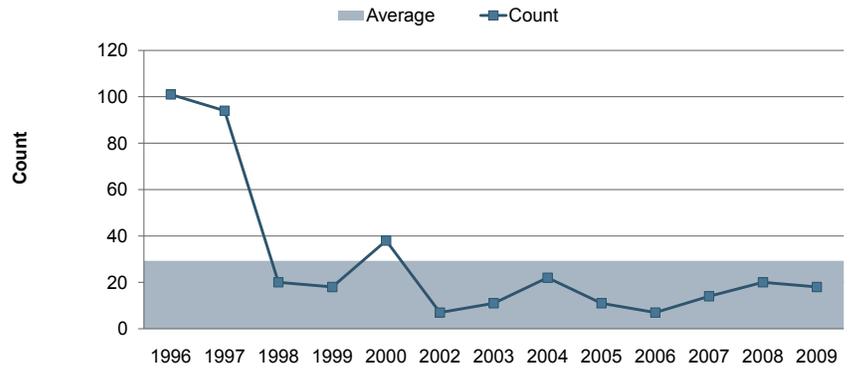
## Number of Spills by Size Class



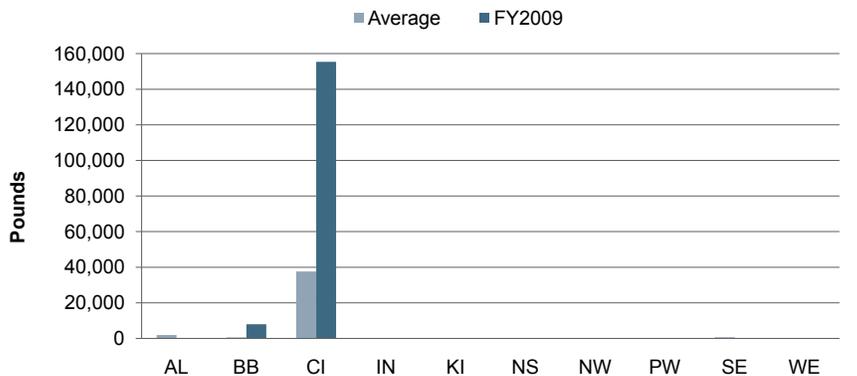
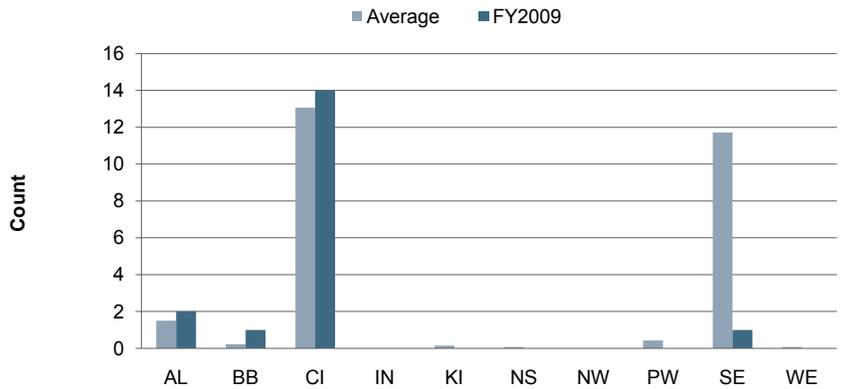
# Statewide Summary *(continued)*

- Most EHS releases occurred at Refineries during FY 2009.
- The Cook Inlet subarea had the greatest number of EHS releases and also the greatest total pounds.

## Spills by Fiscal Year *(spills reported in pounds)*



## Spills by Subarea *(spills reported in pounds)*



### KEY TO ABBREVIATIONS

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# Statewide Summary *(continued)*

## Process Water<sup>1</sup>

- Process Water releases comprised 55% of the total volume released during FY 2009, but only 3% of the spills.
- 42% of Process Water releases were 100 gallons or more in volume.
- Most of the Process Water volume released during FY 2009 was due to Line Failure.
- Most Process Water spills occurred at Oil Production facilities.



Spills Reported in Gallons 55  
Total Gallons 209,717

### Top 5 Causes (gallons)

Cause	Spills	Gallons
Line Failure (STR/MECH)	5	158,701
Containment Overflow (STR/MECH)	3	24,524
Equipment Failure (STR/MECH)	12	10,948
Corrosion (STR/MECH)	5	6,998
Unknown (UNK)	5	5,600

### Top Products (gallons)

Product	Spills	Gallons
Produced Water	18	130,652
Seawater	13	63,565
Process Water	23	15,486
Source Water	1	14

### Top 5 Facility Types (gallons)

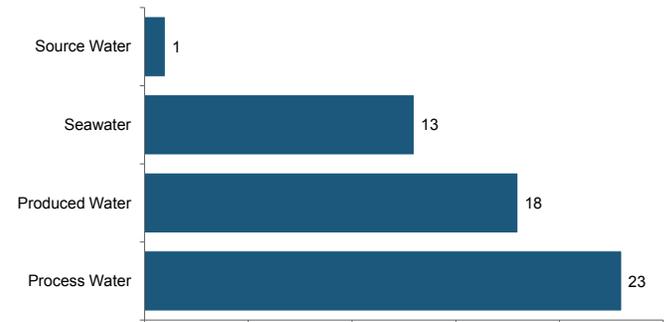
Product	Spills	Gallons
Oil Production (TRA)	32	206,328
Mining Operation (STO)	13	2,585
Other (OTH)	1	400
Non-Crude Terminal (STO)	1	336
Refinery Operation (STO)	4	51

<sup>1</sup>See Glossary, p. 16

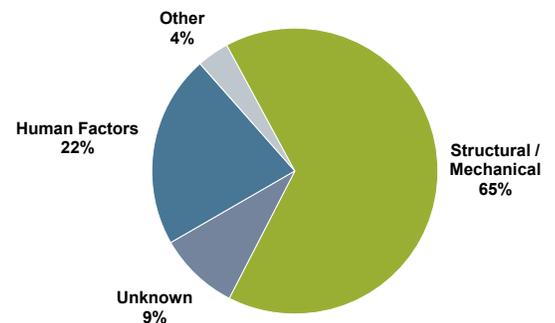
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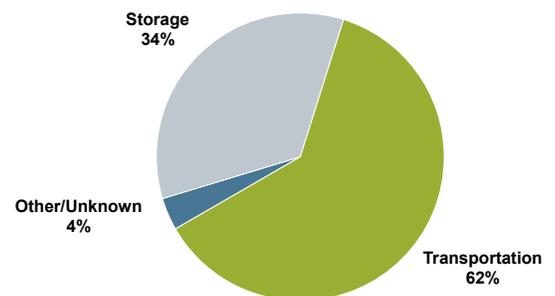
## Number of Spills by Product



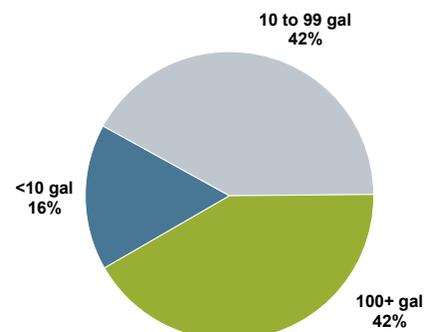
## Number of Spills by Cause



## Number of Spills by Facility Category



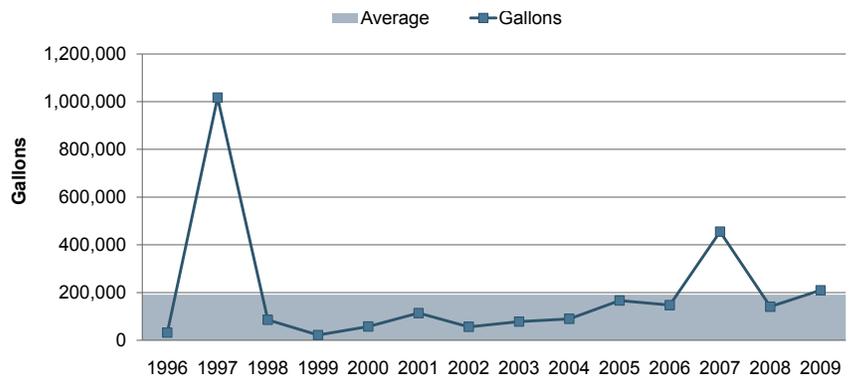
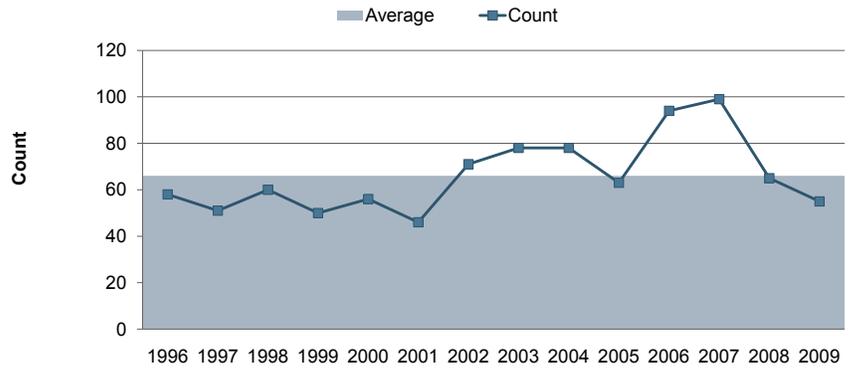
## Number of Spills by Size Class



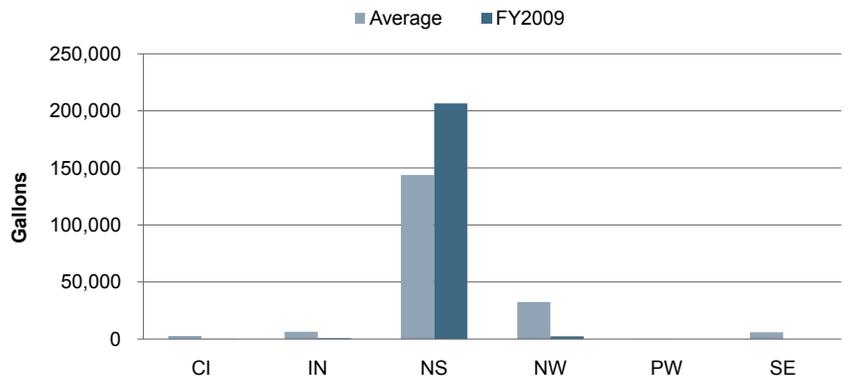
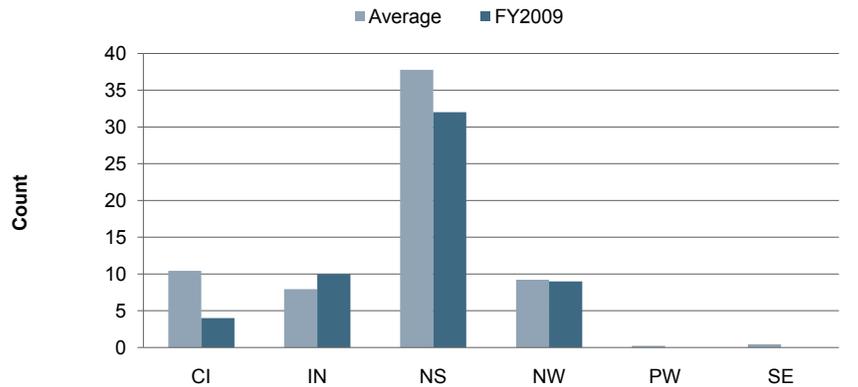
# Statewide Summary *(continued)*

- Process Water spills made up 3% of the total number of spills, but more than half of the total volume released during the period.
- Most Process Water spills, and the greatest volume released, occurred in the North Slope subarea.

## Spills by Fiscal Year



## Spills by Subarea



### KEY TO ABBREVIATIONS

AL	Aleutian
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# Special Projects

## ■ **Emergency Towing System**

In August 2008, a second DEC-sponsored training exercise was held in Unalaska to train personnel on the Aleutian Island Emergency Towing System (ETS) and determine if modifications to the system were needed. The two exercises resulted in the development of a helicopter planning matrix, which will help determine load and distance capacities for the USCG and Air National Guard helicopters. In addition, ETS mobilization checklists were developed for both helicopter and vessel deployment tactics to ensure all needed equipment is mobilized to the proper deployment locations. The new revised ETS manual was published in January 2009.

In August 2008, ADEC purchased and stored a 10-inch ETS at the USCG Air Station Kodiak. C-130s and helicopters maintained at the base will help facilitate a quick mobilization and deployment to a distressed vessel anywhere in Alaska.

## ■ **Aleutian Islands Risk Assessment**

A commercial vessel accident and large oil spill in 2004 focused public attention on the risks inherent in commercial shipping in the region. The court settlement resulting from this accident established funding for a comprehensive risk assessment and directed the U.S. Coast Guard to take actions necessary to conduct this assessment.

In 2007, the Transportation Research Board (TRB) within the National Academies impaneled the Committee for Risk of Vessel Accidents and Spills in the Aleutian Islands: a study to design a comprehensive assessment. The committee included individuals with expertise in risk assessment methods and practices. Their efforts culminated with the completion of their report titled: Risk of Vessel Accidents and Spills in the Aleutian Islands - Designing a Comprehensive Risk Assessment. The TRB delivered an advance copy of the report to a public audience in Anchorage

on July 17, 2008.

The second phase of the project, conducting the Aleutian Islands Risk Assessment in accordance with the TRB design, is now underway.

[www.aleutiansriskassessment.com/](http://www.aleutiansriskassessment.com/)

## ■ **Southeast PPOR Project**

Places of Potential Refuge (PPOR) documents are designed to identify possible locations to move a vessel needing assistance where actions can be taken to stabilize and/or repair the vessel, in order to protect human life, reduce hazards to navigation, and/or protect natural resources and other uses of an area. The documents contain maps, aerial photos, and information on site considerations, operational characteristics, and local knowledge. A project to develop new PPOR documents for the Southeast Alaska Subarea was initiated in October 2008. Meetings were held in Juneau and Ketchikan and several sites were selected by work group members. The first phase of this project was completed in June 2009 with PPOR maps developed for four of the nine response zones in Southeast Alaska. The PPOR maps for the remaining five zones will be completed in FY 10.

## ■ **Clean Marinas Project**

The Clean Harbors initiative in Alaska is jointly sponsored by ADEC and the Cook Inlet Regional Citizens Advisory Council (CIRCAC) and is partially funded by a grant from Conoco Phillips. Homer Harbor is serving as a pilot project for launching the initiative in Alaska. This program is based on Clean Marinas, a program promoted by NOAA and others which encourages marina operators and recreational boaters to protect coastal water quality by engaging in environmentally sound operating and maintenance practices.

A work group has been established that is comprised of representatives from ADEC,

CIRCAC, City of Homer Port Administration, Cook Inlet Keeper, USCG, Alaska Sea Grant, Kachemak Bay Research Reserve, and the Harbormasters Association. Working with a contractor, the work group drafted an Alaska Clean Harbors Guidebook that includes Best Management Practices for harbors in Alaska.

## ■ **Commercial Passenger Vessel Environmental Compliance Program**

Licensed marine engineers are hired each year for this program as Ocean Rangers (OR) to monitor operations on large cruise ships to ensure they are in compliance with the state law and regulations. To aid in the reporting of oil discharges by the OR, ADEC developed a visual oil pollution guide which included photographs of various types of oil discharges, written descriptions of various type of discharges, and instructions on how to determine the size and thickness of oil on the water. The guide also included a brief review of the state law as it applied to oil spills to water. ADEC staff also provided training to the OR on oil spill reporting via video conference.

## ■ **Drills**

ADEC staff also participated in approximately 30 spill drills and exercises including major drills such as the Valdez Marine Terminal Drill; Tesoro PWS Tanker Drill (Nikiski and Homer); Canada-United States Dixon Entrance (CANUSDIX '08) trans-boundary exercise; Polar Tankers Prince William Sound Tanker Drill; several Trans Alaska Pipeline System Combined Resources Exercises; the 2009 Southeast Alaska Area Exercise; and the Ketchikan Mass Rescue Exercise. ADEC staff also participated in smaller drills.

For more information go to:  
[www.dec.state.ak.us/spar/perp](http://www.dec.state.ak.us/spar/perp)

# Glossary

**Process Water (Oil Exploration and Production Operations):** Process water includes seawater (and occasionally freshwater) and produced water. Seawater is injected into a formation to pressurize the reservoir and force the oil toward the oil production wells. Gelled water is seawater and freshwater that is mixed with a gelling substance to increase the viscosity of the fluid for a number of purposes. Seawater is also used to maintain the existing wells or to detect leaks in pipelines. Produced water is the water mixture consisting of oil, gas, and sand that is pumped from oil production wells. The percentage of crude oil occurring in process water can

vary somewhat based on the source of the spill.

**Process Water (Mining Operations):** Process water for mining operations includes water taken from tailing ponds for the milling process (reclaim water), water that has been through the water treatment plant but not the sand filter (process water), water that has been through both the water treatment and sand filter (discharge water), water mixed with ground ore materials (slurry) or water used in the milling and product recovery process (process solution water).