Pacific States/British Columbia Oil Spill Task Force

Summary of West Coast Oil Spill Data

Calendar Year 2015

June 2015

PACIFIC STATES | BRITISH COLUMBIA
OIL SPILL
TASK FORCE

CONTACT INFORMATION

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Data analysis and summary report
by Camille Stephens

OIL SPILL DATA PROJECT

Summary of Regional Spill Data (CY 2015)

The Task Force's regional oil spill database, which was launched in 2003, is a unique and valuable resource that enables us to track regional trends in spills and related causal factors. Using a standardized data dictionary to ensure uniform entries, we collect data on all spills of a barrel (42 gallons) or larger.

DATABASE WORKGROUP

Database Workgroup provides staff-level coordination to help ensure that data is collected in a consistent manner by all Task Force member agencies. The Pacific States/British Columbia Oil Spill Task Force Data Dictionary (available at oilspilltaskforce.org/ourwork/data-project/) was developed by the Database Workgroup and establishes standardized terms and definitions for collecting spill data.

Workgroup members include:

- Jason Seifert (Alaska Department of Environmental Conservation)
- Cathy Conway, Adrian Chatigny, and Damon Williams (California Department of Fish and Wildlife, Office of Spill Prevention and Response)
- Mike Zollitsch (Oregon Department of Environmental Quality)
- Steven Mow and Curtis Martin (Hawaii Department of Human Health)
- Jack Barfield (Washington Department of Ecology)

The British Columbia Ministry of Environment monitors the project, is developing a spill database, and plans to join the Task Force project as soon as possible.

DATA LIMITATIONS

- Each agency that assists in the creation and maintenance of the Task Force database in no way guarantees the accuracy of the information and no guarantee of accuracy shall be expressed or implied.
- Only spills of one barrel (42 gallons) or larger are included in our Database.
- The Task Force oil spill database is created and maintained for informational purposes only. The data it contains reflects the respective agencies' best information at the time it was entered in the database. This means that recorded quantities may be under-reported. It remains an ongoing challenge to refine the information entered to a level of specificity that supports effective analysis while also taking into account the varied collection capabilities of member agencies.

HIGHLIGHTS

The 2015 data is provided on the following pages. Highlights include:

- A total of 782 releases occurred during 2015, with a total volume of 646,903 gallons spilled. Of those, 7 releases were over 10,000 gallons.

Non-Crude Spills

- 742 releases were non-crude spills totaling gallons. 488,585
- Vessels (22%) and Facilities (36%) comprised more than 50% of the non-crude spill volume during 2015.
- Over half of the total non-crude spill volume was attributable to Equipment Failure (34%) or Human Error (33%).
- More than three-quarters (79%) of the total non-crude volume was comprised of spills with volumes greater than 1,000 gallons.
- Nearly three-quarters (72%) of the non-crude volume was spilled to Land.

Crude Oil Spills

- 40 Crude oil releases totaling 158,318 gallons occurred in 2015.
- Crude oil releases comprised 24% the total volume for 2015.
- Pipelines were the major source of crude oil spills during 2015.
- Equipment Failure (93%) was the predominant cause of crude oil spills during 2015.
- During 2015, over three-quarters of the crude oil spill volume was to Marine Waters (89%).

NOTE: California's data submission does not include every spill reported to the State in 2015, compared to previous years. This resulted in a significant drop in the California data presented regarding the total number of spills and the total volume for the year, especially for spills to land. Hawaii's data submissionfor 2015 represents only the first half of the year due to issues encountered in their new data management system.

Trends

The 2002-2015 data provides us with an opportunity to look at 14-year trends, which is also shown in this report. Here

are the highlights:

- A total of 13,843 releases occurred during the 14-year period, with a total volume of approximately 11.7 million gallons.
- Over the 14-year period, the combined volume of Non-Crude spills was more than 2.5 times greater than the combined volume for Crude Oil spills.
- The top two Crude Oil spills during the 14-year period were 463,848 gallons in California (2008) and a 267,000 gallon spill in Alaska (2006). The combined volume of these two incidents comprised 23% of the total Crude Oil volume released for the period.
- Facilities (51%) and Pipelines (19%) were the major sources of spills during the 14-year period.
- Equipment Failure (55%) and Human Error (30%) were the major spill causes.

FOR MORE INFORMATION

Data summaries for calendar years 2002 – 2012, as well as other information about the Pacific States/British Columbia Oil Spill Task Force and its work, are available at www.oilspilltaskforce.org. Summaries for years prior to 2012 are included in the Task Force Annual Reports for those years. Beginning with calendar year 2012, the data summary was created as a separate document available at oilspilltaskforce.org/ourwork/data-project/

For questions specifically related to this report or the Task Force's data project, contact Sarah Brace, Executive Coordinator at Sarah@VedaEnv.com.

Summary of Releases by Product *(2015)*

Product	Spill Count	Gallons	% Total Volume
Diesel oil / Marine Gas Oil	354	206,737	32.0%
Crude Oil	40	158,318	24.5%
Oily Water Mixture	27	101,192	15.6%
Asphalt / creosote	6	72,400	11.2%
Gasoline	79	38,535	6.0%
Mineral Oil / Transformer Oil	73	25,277	3.9%
Unknown	14	9,652	1.5%
Hydraulic oil	58	7,842	1.2%
Heating Oil	36	7,554	1.2%
Lube oil / Motor oil	37	7,011	1.08%
Jet Fuel / Kerosene	18	3,708	0.6%
Edible / Vegetable Oil	9	2,869	0.4%
Other	8	2,290	0.4%
Aviation Gasoline	9	2,240	0.3%
Waste oil	6	610	0.1%
Bunker C / IFO / HFO	4	416	0.1%
Cutter Stock	1	100	0.0%
Oily Waste	2	92	0.01%
LNG / LPG	1	60	0.01%
Total	782	646,903	

2015

ANNUAL SUMMARY OF SPILLS

- A total of 782 releases occurred during 2015, with a total volume of 646,903 gallons.
- A total of seven releases were greater than 10,000 gallons.

NOTE: California's data submission does not include every spill reported to the State in 2015, compared to previous years. This resulted in a significant drop in the California data presented regarding the total number of spills and the total volume for the year, especially for spills to land. Hawaii's data submissionfor 2015 represents only the first half of the year due to issues encountered in their new data management system.

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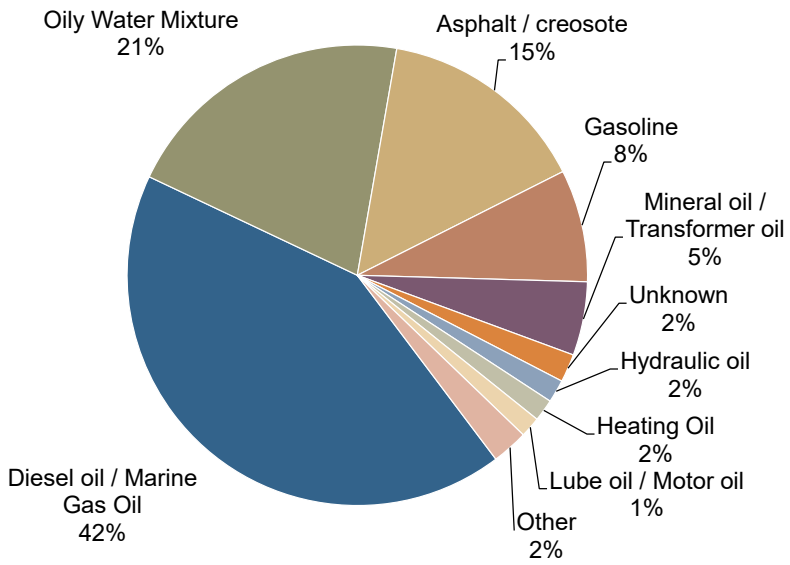
Spills Greater Than 10,000 Gallons *(2015)*

Product	Volume	State	Date	Source Type	Cause Type	Medium
Crude Oil	140,000	California	5/19/2015	Pipeline	Equipment Failure	Marine
Diesel oil / Marine gas oil	75,000	Hawaii	1/22/2015	Vessel	Human Error	Marine
Asphalt / creosote	71,000	Washington	2/8/2015	Facility	Equipment Failure	Land
Oily Water Mixture	42,000	California	8/11/2015	Unknown	Unknown	Land
Diesel oil / Marine Gas Oil	30,847	Alaska	8/15/2015	Facility	Equipment Failure	Land
Oily Water Mixture	25,200	California	7/7/2015	Unknown	Unknown	Land
Gasoline	11,300	Oregon	12/13/2015	Vehicle	Human Error	Land

Non-Crude Spills by Product, All States (2015)

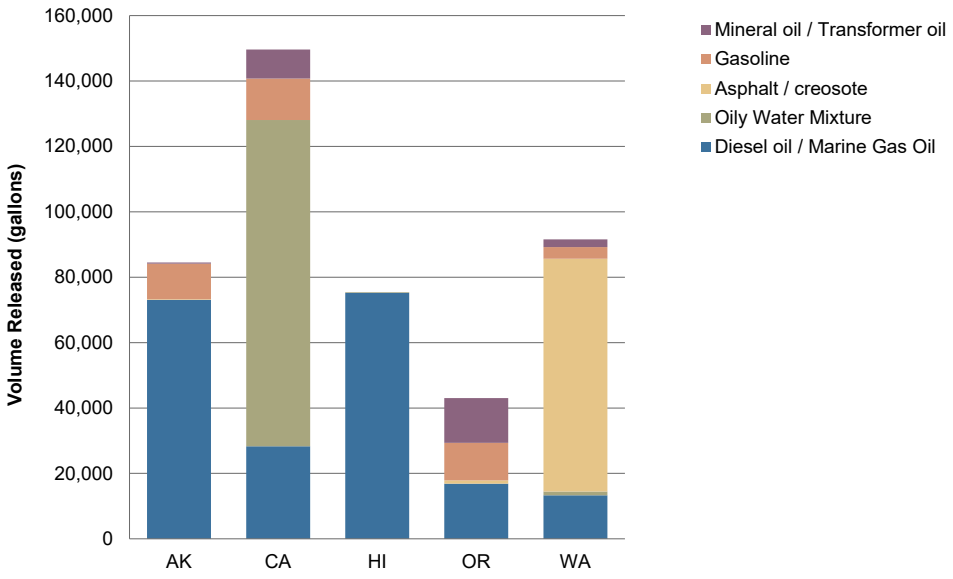
(percent total volume)



NOTE: "Other" includes classifications comprising 1% or less of the total volume released: Jet fuel/kerosene, Edible/Vegetable Oil, Other, Aviation Gasoline, Waste oil, Bunker C/IFO/HFO, Kerosene/Jet Fuel, Cutter Stock, Oily Waste, LNG/LPG

Non-Crude Spills by Product and State (2015)

(5% or more total volume)



2015

NON-CRUDE SPILLS

Total Spills	742
Total Volume (gal)	488,585
Average Spill Size (gal)	658

Summary by Product

Top Products

Product	Gallons
Diesel oil/Marine Gas Oil	206,737
Oily Water Mixture	101,192
Asphalt/creosote	72,400
Gasoline	38,535
Mineral/Transformer oil	25,277

- 742 non-crude spills totalling 488,585 gallons occurred during 2015.

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2015

NON-CRUDE SPILLS

Summary by Source

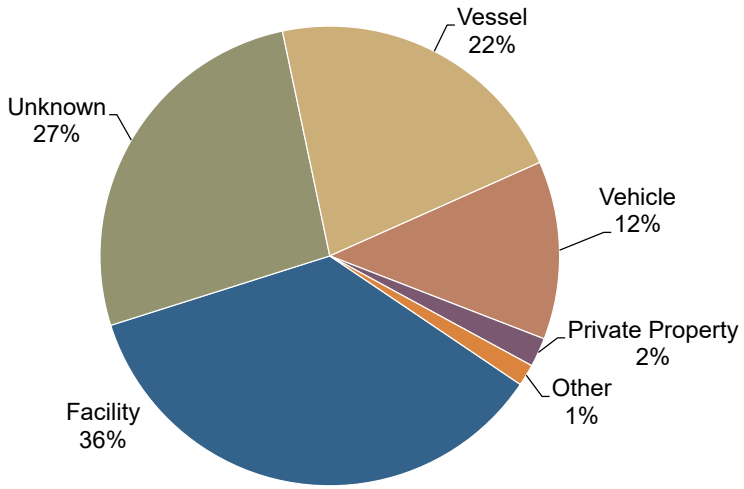
Top Sources

Source	Gallons
Facility	174,297
Unknown	129,847
Vessel	105,715
Vehicle	61,280
Private Property	10,010

- Facilities (36%) and Unknown (27%) were the major sources of non-crude spills during 2015.
- Vessels (22%) and Facilities (36%) comprised more than 50% of the non-crude spill volume during 2015.

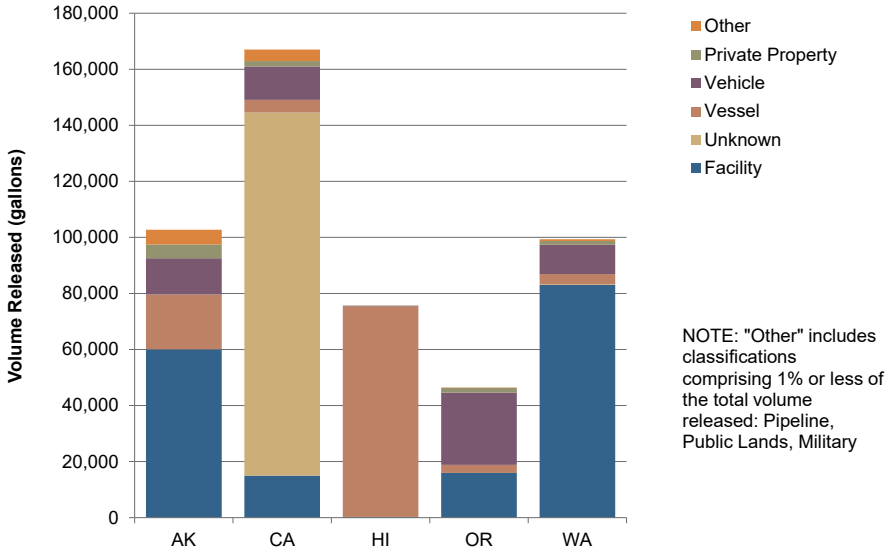
Non-Crude Spills by Source, All States (2015)

(percent total volume)



NOTE: "Other" includes classifications comprising 1% or less of the total volume released: Pipeline, Public Lands, Military

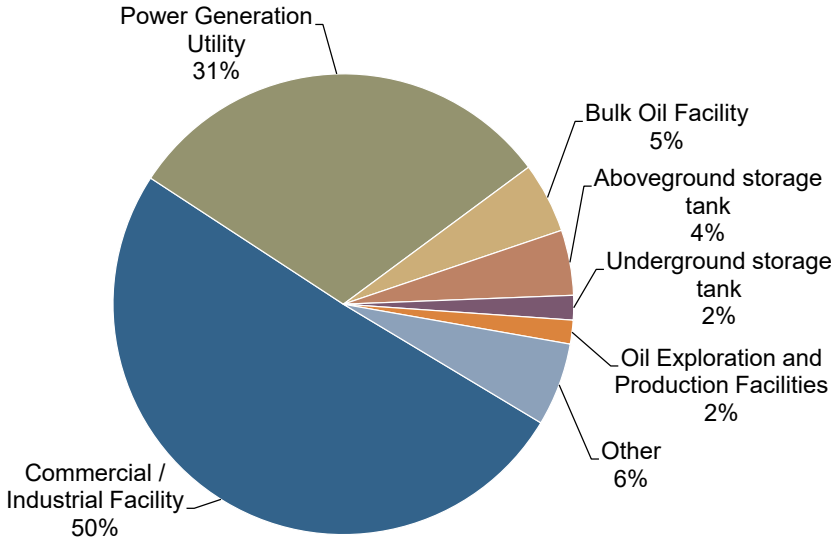
Non-Crude Spills by Source and State (2015)



NOTE: "Other" includes classifications comprising 1% or less of the total volume released: Pipeline, Public Lands, Military

Non-Crude Spills -- Facility Detail (2015)

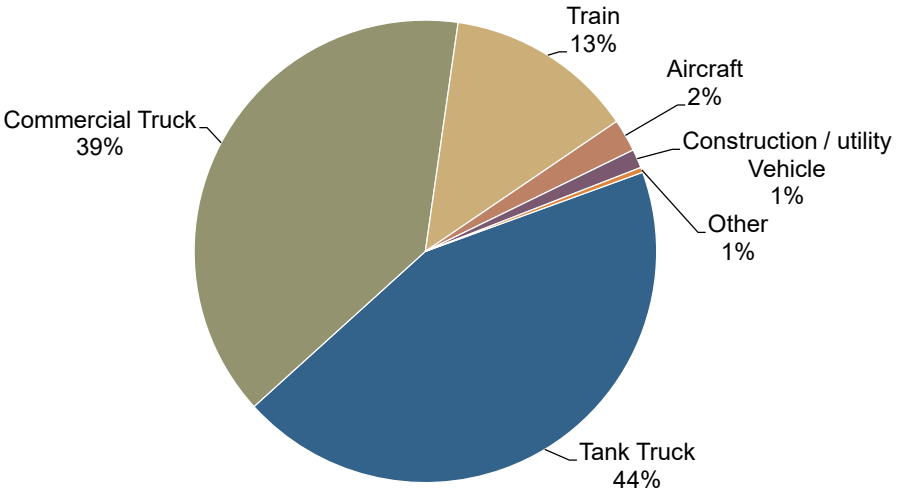
(percent total volume)



NOTE: "Other" includes classifications comprising 1% or less of the total volume released: Government facilities, Retail Petroleum Outlet, Refinery, Shipyard/Port Facility, Marina, Leaking Drum or Container, Marine Terminal

Non-Crude Spills -- Vehicle Detail (2015)

(percent total volume)



NOTE: "Other" includes classifications comprising 1% or less of the total volume released: Non-commercial Vehicle, Bus or Public Transportation

2015

NON-CRUDE SPILLS

Summary by Source *(continued)*

- Commercial/Industrial Facilities (50%) and Power Generation Utility (31%) were the top contributors to facility spills.
- Over three-quarters of the non-crude spill volume for vehicles was from Tank Trucks (44%) and Commercial Trucks (39%).

2015

NON-CRUDE SPILLS

Summary by Cause

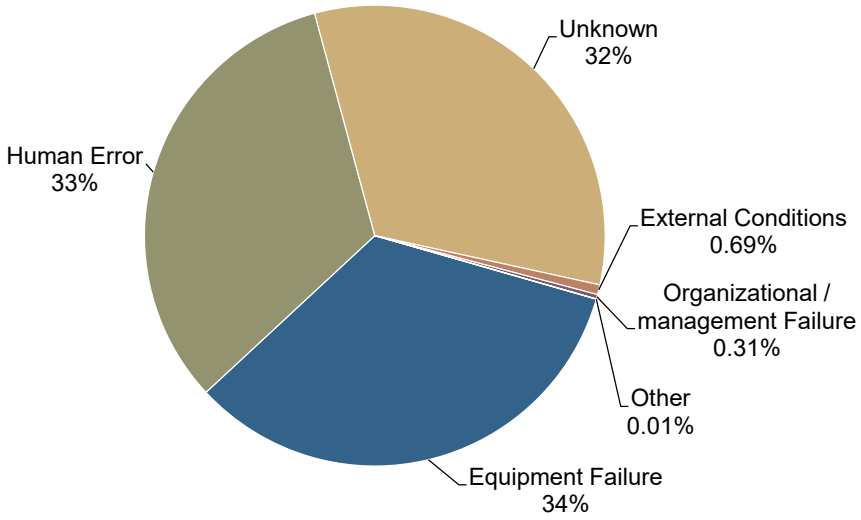
Top Causes

Cause	Gallons
Equipment Failure	164,390
Human Error	159,758
Unknown	159,495
External Conditions	3,371
Organizational/Management Failure	1,521

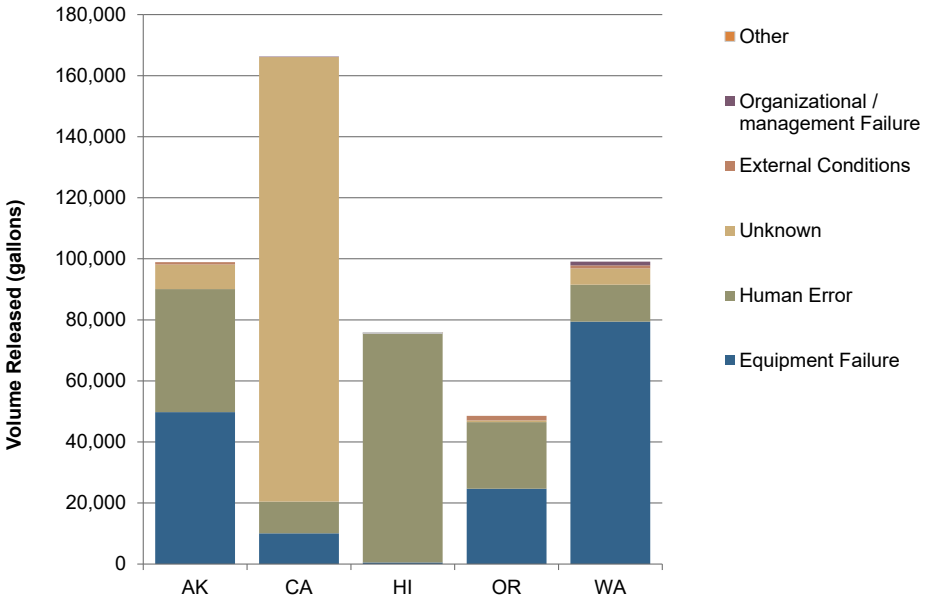
- Over half of the total non-crude spill volume was attributable to Equipment Failure (34%) or Human Error (33%).

Non-Crude Spills by Cause, All States (2015)

(percent total volume)

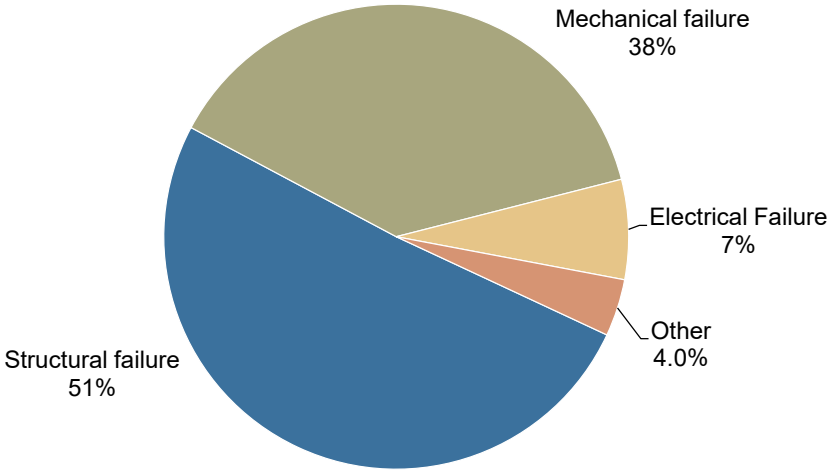


Non-Crude Spills by Cause and State (2015)



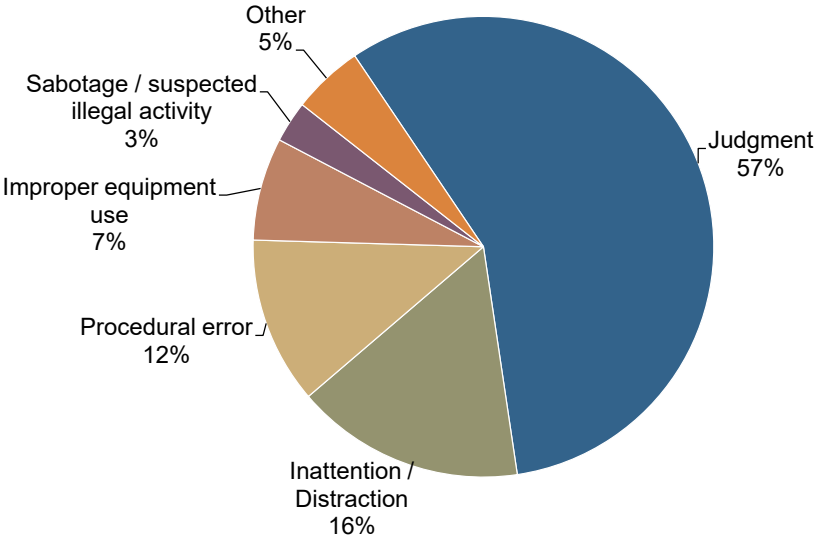
Non-Crude Spills -- Equipment Failure Detail (2015)

(percent total volume)



Non-Crude Spills -- Human Error Detail (2015)

(percent total volume)



NOTE: "Other" includes classifications comprising 1% or less of the total volume released: Inexperience, Inattention, Fatigue/Reduced Alertness, Inaccurate Computation, Deliberate violation, Illegal Drugs/Alcohol, Communications

2015

NON-CRUDE SPILLS

Summary by Cause *(continued)*

- More than half of the total Equipment Failure spill volume was due to Structural Failure (51%)
- Over half of the total Human Error spill volume was due to Judgment (57%).

2015

NON-CRUDE SPILLS

Summary by Activity

Top Activities

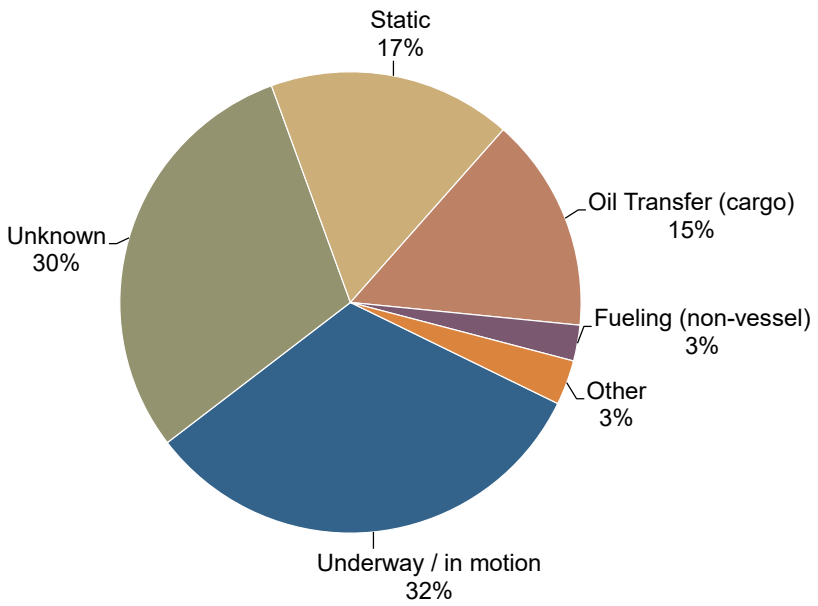
Activity	Gallons
Underway / in motion	158,200
Unknown	145,769
Static	83,512
Oil Transfer (cargo)	73,513
Fueling (non-vessel)	12,269

- Underway/In Motion (32%) and Unknown ((30%) were the main activities at the time of the spill.

[1]Underway/In Motion: (1) Vessel underway conducting normal operations, no oil movements in progress (oil movements include ballasting, tank washing, internal transfers); (2) Vehicle in motion conducting designed function

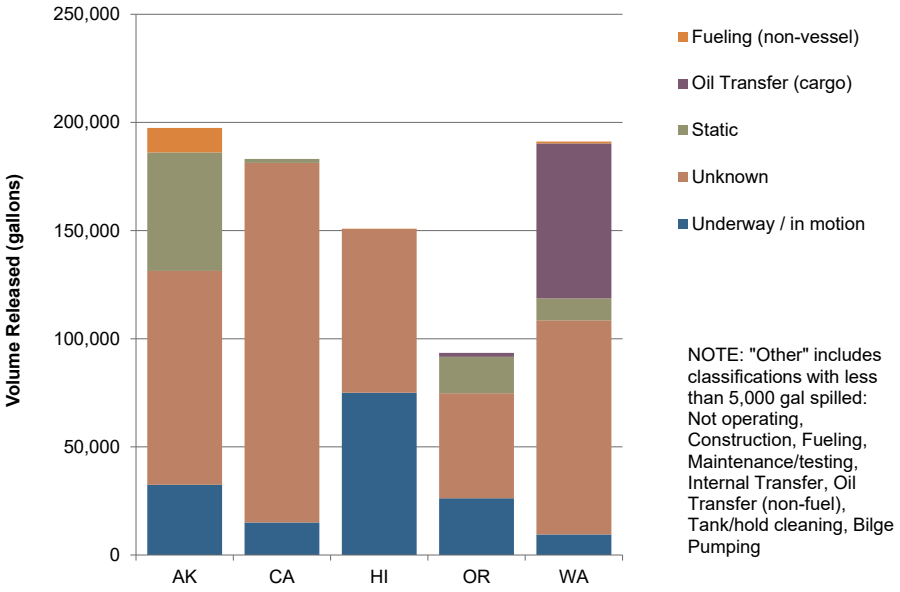
Non-Crude Spills by Activity (2015)

(percent total volume)



NOTE: "Other" includes classifications with less than 5,000 gal spilled: Not operating, Construction, Fueling, Maintenance/testing, Internal Transfer, Oil Transfer (non-fuel), Tank/hold cleaning, Bilge Pumping

Non-Crude Spills by Activity and State (2015)



NOTE: "Other" includes classifications with less than 5,000 gal spilled: Not operating, Construction, Fueling, Maintenance/testing, Internal Transfer, Oil Transfer (non-fuel), Tank/hold cleaning, Bilge Pumping

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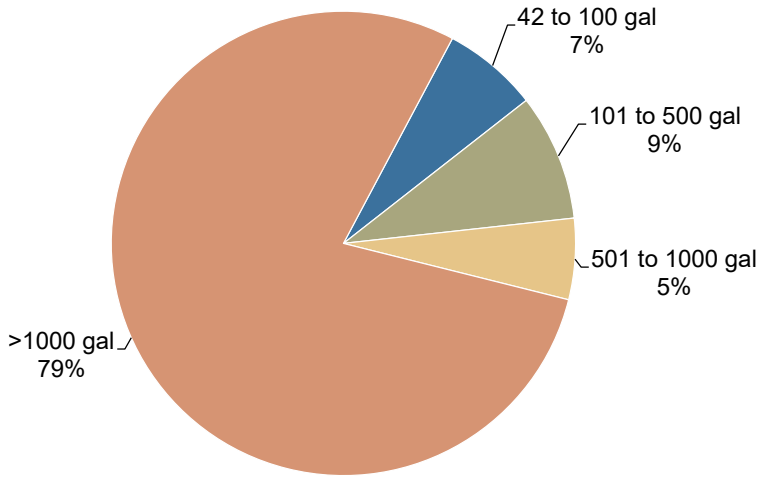
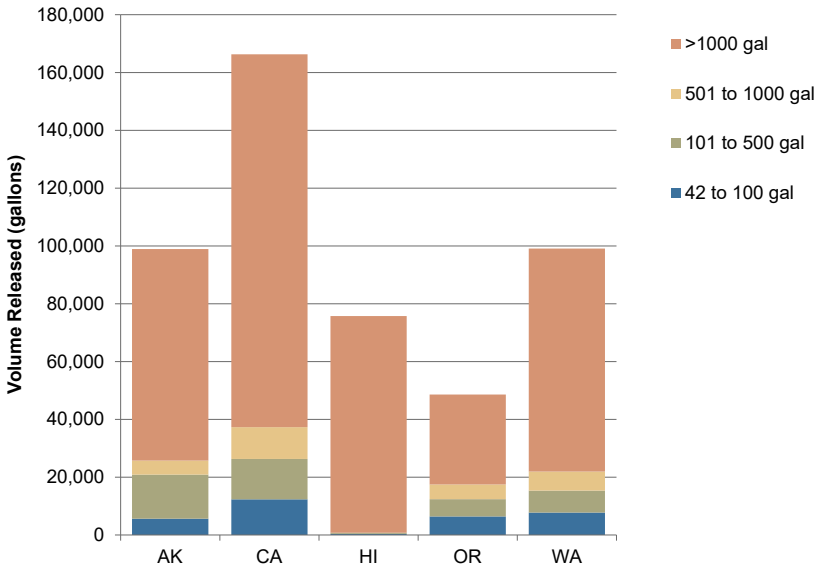
Non-Crude Spills by Spill Size (2015)

(percent total volume)



Non-Crude Spills by Spill Size and State (2015)



2015

NON-CRUDE SPILLS

Summary by Spill Size

Size Class	Gallons
42 to 100 gal	32,537
101 to 500 gal	43,098
501 to 1000 gal	27,593
>1000 gal	385,357

- More than three-quarters (79%) of the total non-crude volume was comprised of spills with volumes greater than 1,000 gallons.

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NON-CRUDE SPILLS

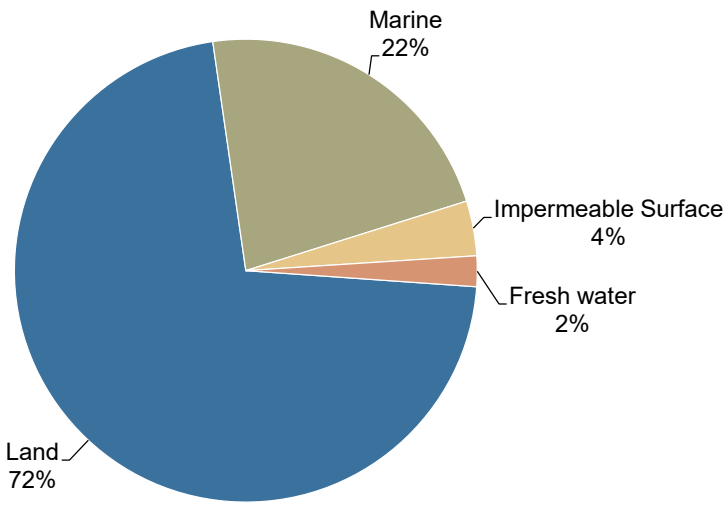
Summary by Medium

Medium	Gallons
Land	349,853
Marine	109,575
Impermeable Surface	18,728
Fresh water	10,429

- Nearly three-quarters (72%) of the non-crude volume was spilled to Land.

Non-Crude Spills by Medium Impacted (2015)

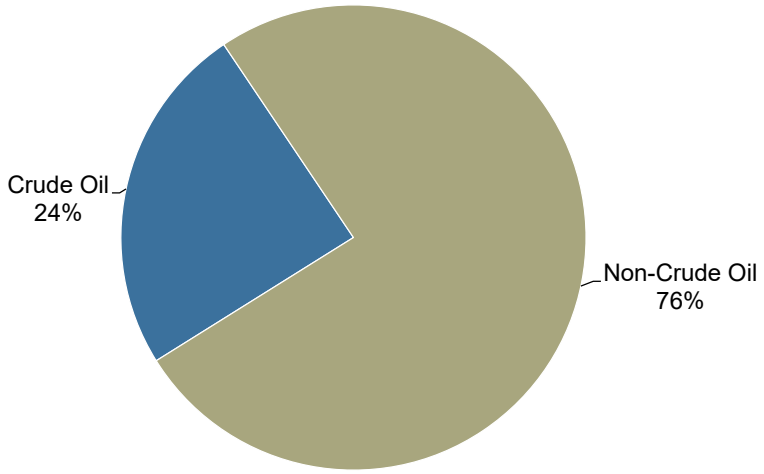
(percent total volume)



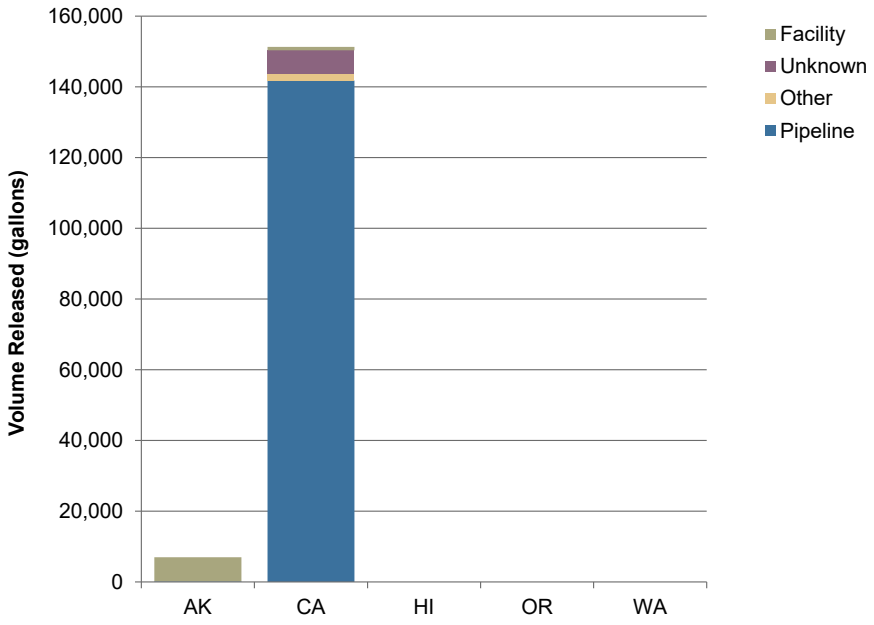
Non-Crude Spills by Medium and State (2015)

Crude Spills vs. Non-Crude Spills, All States (2015)

(percent total volume)



Crude Spills by Source Type and State (2015)



2015

CRUDE SPILLS

Total Spills	40
Total Volume (gal)	158,318
Average Spill Size (gal)	3,958

Product Type	Gallons
Non-crude Oil	488,585
Crude Oil	158,318
Total	646,903

- Crude oil comprised 24% the total volume for 2015.

Top Sources

Source Type	Gallons
Pipeline	141,987
Facility	7,777
Unknown	6,538
Other	2,016

- Pipelines were the major source of crude oil spills during 2015.

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CRUDE SPILLS

Top Causes

Cause Type	gallons
Equipment Failure	146,782
Unknown	9,163
Organizational/Management Failure	1,680
Other	420
Human Error	273

- Equipment Failure (93%) was the predominant cause of crude oil spills during 2015.

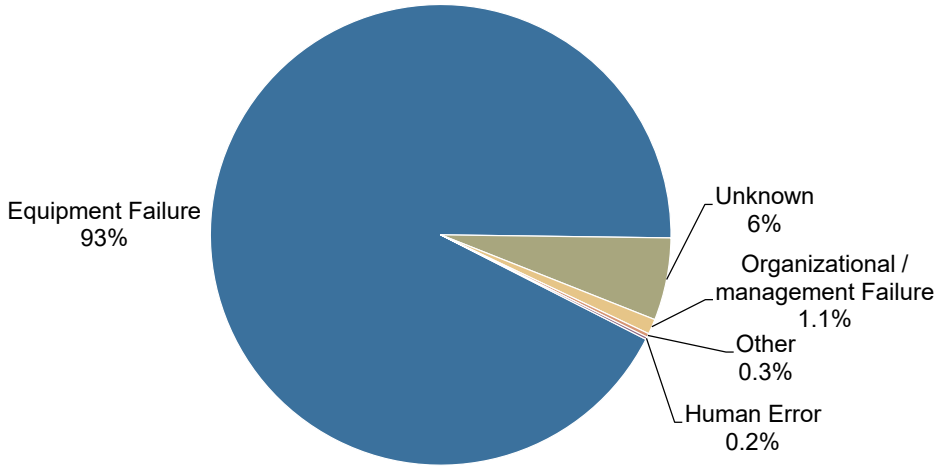
Equipment Failure Detail

Cause	gallons
Structural failure	145,540
Mechanical failure	1,242

- Structural Failure (99%) comprised virtually all spill volume due to Equipment Failure.

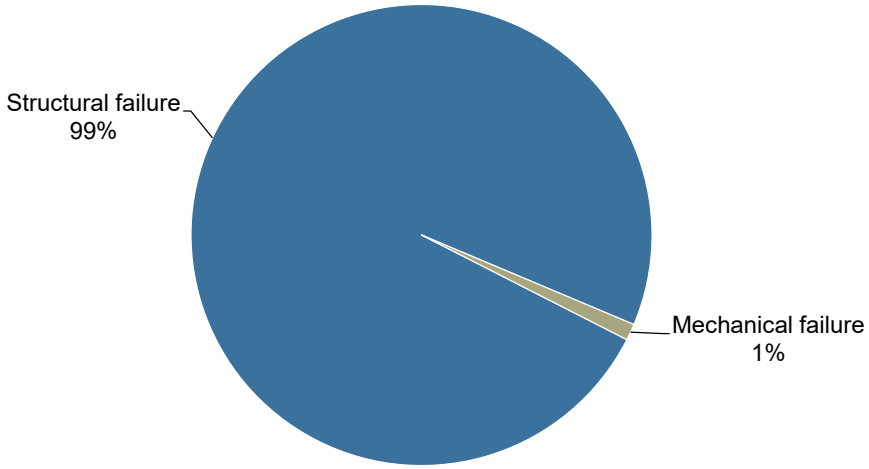
Crude Spills by Cause, All States (2015)

(percent total volume)



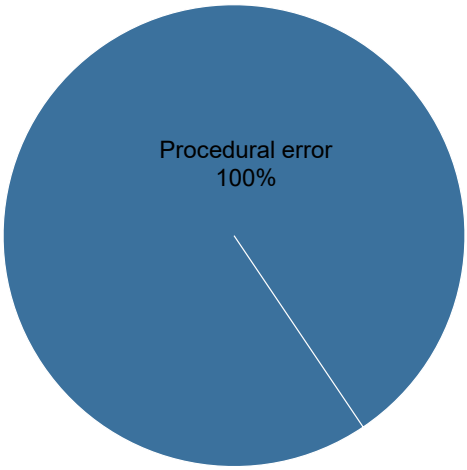
Crude Spills -- Equipment Failure Detail (2015)

(percent total volume)



Crude Spills -- Human Error Detail (2015)

(percent total volume)



2015

CRUDE SPILLS

Human Error Detail

Cause	gallons
Procedural error	273

- Procedural Error was the sole cause of spills attributed to Human Error.

2015

CRUDE SPILLS

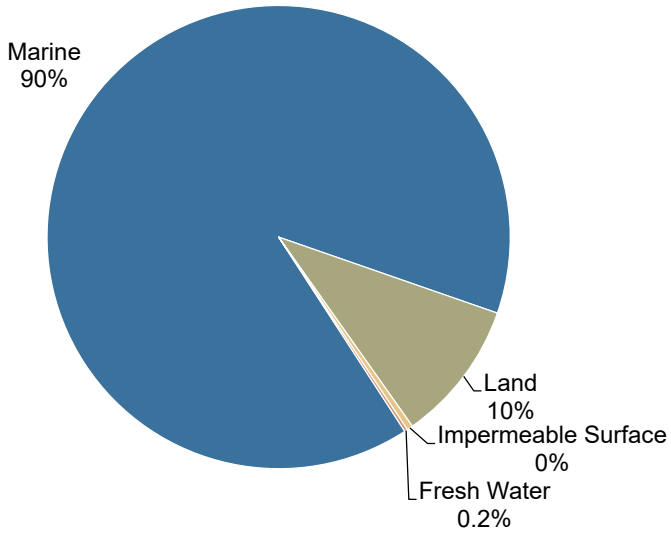
Summary by Medium

Medium	Gallons
Marine	141,680
Land	15,645
Impermeable Surface	657
Fresh Water	336

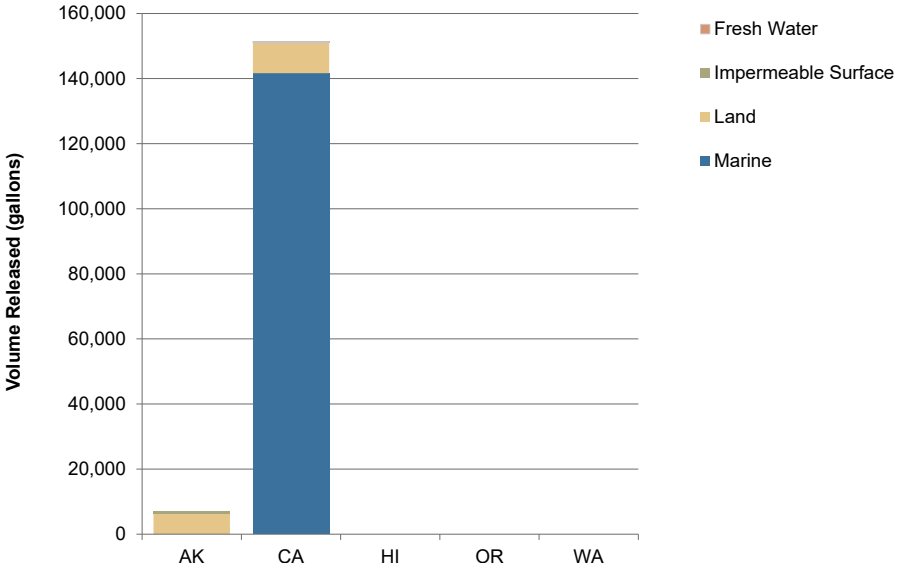
- During 2015, nearly all of the crude oil spill volume was to Marine Waters (90%)

Crude Oil Spills by Medium Impacted (2015)

(percent total volume)



Crude Spills by Medium and State (2015)



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SUMMARY OF SPILLS
(2002-2015)

- A total of 13,843 releases occurred during the 14-year period 2002-2015, with a total volume of approximately 11.7 million gallons.

NOTE: California's data submission does not include every spill reported to the State in 2015, compared to previous years. This resulted in a significant drop in the California data presented regarding the total number of spills and the total volume for the year, especially for spills to land. Hawaii's data submissionfor 2015 represents only the first half of the year due to issues encountered in their new data management system.

Releases by Product (2002-2015)

Product	Spill Count	Gallons	% Total Volume
Crude Oil	1,475	3,129,099	26.6%
Diesel oil / Marine Gas Oil	6,621	2,888,747	24.6%
Oily water mixture	587	1,671,267	14.2%
Bunker C / IFO / HFO	100	735,246	6.3%
Gasoline	557	659,328	5.6%
Other	379	578,922	4.9%
Asphalt / Creosote	166	575,359	4.9%
Mineral Oil / Transformer Oil	1,381	421,193	3.6%
Kerosene / Jet Fuel	292	277,148	2.4%
Aviation gasoline	161	151,205	1.3%
Waste oil	332	137,698	1.2%
Unknown	140	134,409	1.1%
Lube oil / Motor oil	545	130,087	1.1%
Hydraulic oil	726	93,448	0.8%
Heating Oil	279	66,678	0.6%
Edible / Vegetable oil	79	57,602	0.5%
Oily Waste	4	20,342	0.2%
LNG / LPG	16	12,590	0.1%
Aviation fuel	2	1,607	0.01%
Cutter Stock	1	100	0.001%
Total	13,843	11,742,075	

Spills Greater Than 10,000 Gallons (2002-2015)

Number of Spills	146
Releases to Water	28
Crude	36
Non-crude	110

Product	Volume	State	Date	Source Type	Cause Type	Medium
Crude Oil	463,848	California	04/24/08	Pipeline	Equipment Failure	Land
Diesel Oil	420,000	California	10/30/07	Facility	Equipment Failure	Land
Bunker C / IFO / HFO	321,052	Alaska	12/08/04	Vessel	Human Error	Marine
Bunker C / IFO / HFO	270,000	Washington	08/25/04	Facility	Human Error	Land
Crude Oil	267,000	Alaska	03/02/06	Pipeline	Equipment Failure	Land
Asphalt / Creosote	203,000	Washington	01/22/14	Facility	Equipment Failure	Land
Other	193,200	California	01/04/10	Facility	Equipment Failure	Land
Crude Oil	191,562	Alaska	05/25/10	Pipeline	Equipment Failure	Impermeable Surface
Diesel Oil	145,000	Alaska	03/23/08	Vessel	Human Error	Marine
Diesel Oil	142,800	Alaska	01/11/10	Facility	Human Error	Marine
Oily Water Mixture	128,000	California	11/26/08	Facility	Equipment Failure	Land
Crude Oil	126,000	California	03/23/05	Pipeline	External Conditions	Fresh Water
Crude Oil	126,000	California	03/09/07	Facility	Equipment Failure	Land
Aviation gasoline	115,353	California	11/22/04	Pipeline	Equipment Failure	Land
Other	112,000	Oregon	05/04/11	Vehicle	Equipment Failure	Land

Spills Greater than 10,000 Gallons -- *continued*

Product	Volume	State	Date	Source Type	Cause Type	Medium
Crude Oil	140,000	California	05/19/15	Pipeline	Equipment Failure	Marine
Oily Water Mixture	100,000	California	09/07/12	Facility	Equipment Failure	Fresh Water
Crude Oil	87,192	California	01/10/07	Facility	Equipment Failure	Land
Gasoline	80,000	California	08/31/13	Vehicle	Human Error	Land
Diesel oil / Marine gas oil	75,000	Hawaii	01/22/15	Vessel	Human Error	Marine
Asphalt / creosote	71,000	Washington	02/08/15	Facility	Equipment Failure	Land
Mineral Oil / Transformer Oil	70,000	California	04/16/13	Facility	Human Error	Fresh Water
Oily Water Mixture	63,000	California	01/17/12	Facility	Equipment Failure	Land
Oily Water Mixture	63,000	California	07/29/08	Facility	Unknown	Land
Crude Oil	63,000	California	04/23/07	Facility	Equipment Failure	Land
Asphalt / Creosote	60,000	California	12/27/14	Facility	Unknown	Land
Diesel Oil	58,800	California	07/07/07	Facility	Human Error	Land
Oily Water Mixture	58,128	California	04/06/14	Facility	Equipment Failure	Land
Bunker C / IFO / HFO	58,000	California	11/07/07	Vessel	Human Error	Marine
Waste Oil	44,000	Washington	01/31/14	Private Property	Unknown	Impermeable surface
Mineral Oil / Transformer Oil	42,000	California	12/08/10	Facility	Equipment Failure	Land
Crude Oil	42,000	California	06/12/07	Pipeline	Equipment Failure	Land
Oily Water Mixture	42,000	California	08/11/15	Unknown	Unknown	Land
Crude Oil	42,000	California	10/23/12	Facility	Organizational / management Failure	Fresh Water
Crude Oil	40,000	California	04/17/07	Pipeline	Equipment Failure	Land
Oily water mixture	37,306	California	11/11/06	Facility	Equipment Failure	Impermeable Surface
Oily Water Mixture	36,750	California	06/24/09	Facility	Equipment Failure	Land
Unknown	35,910	California	12/03/13	Facility	Equipment Failure	Land
Oily Water Mixture	33,600	California	11/09/14	Unknown	Unknown	Land
Kerosene / jet fuel	33,600	California	02/15/10	Vessel	Organizational / management Failure	Marine
Oily water mixture	33,600	California	04/14/06	Pipeline	Equipment Failure	Impermeable Surface
Diesel Oil / Marine Gas Oil	32,000	California	01/25/13	Vehicle	External Conditions	Fresh Water
Oily Water Mixture	31,500	California	06/10/08	Facility	External Conditions	Land
Oily Water Mixture	31,500	California	12/03/09	Facility	Equipment Failure	Land
Diesel oil / Marine Gas Oil	30,847	Alaska	08/15/15	Facility	Equipment Failure	Land
Oily Water Mixture	30,240	California	04/20/07	Facility	Equipment Failure	Land
Diesel Oil	30,000	Oregon	05/09/02	Other	External Conditions	Fresh Water
Oily Water Mixture	30,000	California	02/03/14	Vehicle	Other	Fresh Water
Crude Oil	29,400	California	10/01/06	Facility	Equipment Failure	Impermeable Surface
Gasoline	29,400	California	08/14/05	Pipeline	Human Error	Land
Gasoline	27,500	California	04/25/07	Vehicle	Equipment Failure	Land
Jet fuel / Kerosene	27,000	Hawaii	01/13/14	Facility	Equipment Failure	Land
Gasoline	27,000	Washington	03/23/12	Facility	Equipment Failure	Land
Crude Oil	26,460	California	01/30/06	Pipeline	Human Error	Land
Oily Water Mixture	26,250	California	06/17/09	Facility	Equipment Failure	Land
Crude Oil	26,250	California	06/11/08	Facility	Equipment Failure	Land
Oily Water Mixture	25,200	California	07/07/15	Unknown	Unknown	Land
Crude Oil	25,200	California	11/27/05	Pipeline	Equipment Failure	Land

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Spills Greater than 10,000 Gallons -- *continued*

Product	Volume	State	Date	Source Type	Cause Type	Medium
Crude Oil	25,200	California	11/24/12	Facility	Equipment Failure	Land
Diesel Oil	24,500	Washington	10/27/10	Facility	Equipment Failure	Land
Gasoline	24,500	Hawaii	10/06/04	Unknown	Equipment Failure	Land
Oily Water Mixture	24,360	California	05/09/14	Facility	Human Error	Land
Kerosene / Jet Fuel	24,000	Washington	03/01/05	Pipeline	Equipment Failure	Land
Kerosene / jet fuel	22,388	California	05/18/11	Vehicle	Unknown	Marine
Oily Water Mixture	21,546	California	06/27/08	Facility	Equipment Failure	Land
Crude Oil	21,336	California	06/01/10	Pipeline	Equipment Failure	Land
Oily Water Mixture	21,000	California	03/29/07	Pipeline	Human Error	Land
Diesel Oil	21,000	California	05/18/06	Pipeline	Equipment Failure	Land
Crude Oil	21,000	California	11/06/06	Facility	Unknown	Land
Unknown	21,000	Oregon	01/13/11	Vehicle	Equipment Failure	Land
Other	21,000	California	06/04/03	Facility	Equipment Failure	Marine
Crude Oil	21,000	California	12/10/13	Pipeline	Unknown	Land
Oily Water Mixture	21,000	California	04/10/14	Facility	Equipment Failure	Land
Oily Water Mixture	21,000	California	07/11/08	Facility	Equipment Failure	Land
Crude Oil	20,622	California	09/06/08	Facility	Equipment Failure	Land
Asphalt / Creosote	20,575	Washington	04/30/13	Facility	Human Error	Land
Diesel Oil	20,000	California	11/07/12	Vessel	Organizational / management Failure	Marine
Oily Waste	20,000	Washington	11/13/14	Facility	Equipment Failure	Impermeable surface
Asphalt / Creosote	20,000	Washington	10/06/14	Vehicle	Unknown	Land
Diesel Oil / Marine Gas Oil	20,000	California	04/13/13	Vessel	Unknown	Marine
Mineral Oil / Transformer Oil	20,000	Washington	03/25/13	Facility	Equipment Failure	Land
Diesel Oil	20,000	California	12/08/09	Facility	Human Error	Land
Diesel Oil	20,000	California	05/02/05	Pipeline	Equipment Failure	Land
Gasoline	18,900	Hawaii	02/13/08	Facility	Human Error	Land
Crude Oil	18,900	California	05/15/06	Facility	Human Error	Land
Diesel Oil	18,200	Washington	11/03/06	Facility	Equipment Failure	Land
Crude Oil	17,640	California	05/27/12	Facility	Equipment Failure	Land
Bunker C / IFO / HFO	17,000	California	09/14/11	Private Property	Equipment Failure	Marine
Crude Oil	16,800	California	10/13/06	Pipeline	Equipment Failure	Land
Bunker C / IFO / HFO	16,800	California	08/07/07	Facility	Equipment Failure	Land
Oily Water Mixture	16,800	California	04/09/14	Facility	Equipment Failure	Land
Crude Oil	16,800	California	12/03/09	Facility	Equipment Failure	Land
Gasoline	16,800	California	03/24/06	Vehicle	Unknown	Land
Crude Oil	16,800	California	06/02/06	Facility	Equipment Failure	Impermeable Surface
Waste Oil	15,750	Washington	06/12/06	Facility	Equipment Failure	Land
Diesel Oil	15,000	Oregon	10/31/05	Facility	Human Error	Fresh Water
Diesel Oil	15,000	Washington	08/01/08	Facility	Equipment Failure	Impermeable Surface
Other	14,700	California	12/04/04	Pipeline	Equipment Failure	Fresh Water
Crude Oil	14,700	California	03/02/14	Unknown	Unknown	Land
Diesel Oil	14,680	Alaska	12/08/04	Vessel	Human Error	Marine
Edible / Vegetable Oil	14,400	California	04/08/13	Facility	Human Error	Land
Oily Water Mixture	14,070	California	07/29/07	Facility	Human Error	Land

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PACIFIC STATES | BRITISH COLUMBIA
OIL SPILL TASK FORCE

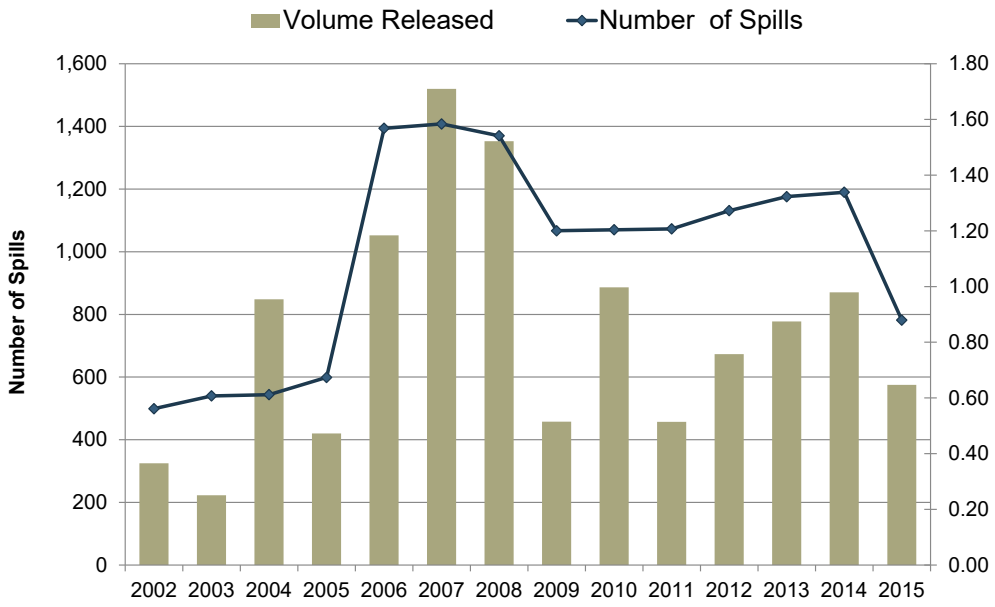
Spills Greater than 10,000 Gallons -- *continued*

Product	Volume	State	Date	Source Type	Cause Type	Medium
Crude Oil	14,000	California	03/07/03	Pipeline	Equipment Failure	Land
Diesel Oil	14,000	Hawaii	11/01/11	Vessel	Equipment Failure	Land
Oily water mixture	14,000	California	09/16/06	Pipeline	Equipment Failure	Land
Oily Water Mixture	13,659	California	01/10/07	Facility	Equipment Failure	Land
Kerosene / jet fuel	13,630	Alaska	10/30/08	Facility	Equipment Failure	Land
Bunker C / IFO / HFO	13,524	Washington	04/07/05	Facility	Human Error	Land
Crude Oil	13,500	Alaska	11/29/09	Facility	Equipment Failure	Land
Oily Water Mixture	13,440	California	01/21/07	Facility	External Conditions	Land
Mineral oil / Transformer oil	13,000	Hawaii	03/22/07	Vessel	Equipment Failure	Marine
Asphalt / Creosote	13,000	Oregon	08/11/04	Vehicle	Equipment Failure	Land
Diesel Oil	13,000	Hawaii	07/20/06	Vessel	Equipment Failure	Marine
Crude Oil	12,852	California	06/28/10	Facility	Equipment Failure	Fresh Water
Oily Water Mixture	12,684	California	04/03/08	Facility	Equipment Failure	Land
Asphalt / creosote	12,600	California	11/13/09	Facility	Human Error	Land
Oily Water Mixture	12,600	California	10/12/07	Pipeline	Equipment Failure	Land
Oily Water Mixture	12,600	California	10/15/12	Facility	Equipment Failure	Land
Oily water mixture	12,600	Alaska	01/29/07	Facility	Equipment Failure	Land
Crude Oil	12,600	California	11/09/14	Unknown	Unknown	Land
Crude Oil	12,600	California	07/15/07	Facility	Equipment Failure	Land
Crude Oil	12,600	California	11/26/07	Facility	Equipment Failure	Land
Oily Water Mixture	12,600	California	12/03/09	Facility	Equipment Failure	Land
Diesel Oil	12,248	Alaska	04/24/05	Facility	Human Error	Land
Other/Unknown	12,118	Alaska	12/18/02	Facility	Other	Land
Mineral oil / Transformer oil	12,096	California	09/30/07	Pipeline	Equipment Failure	Land
Diesel Oil	12,045	Alaska	01/19/12	Facility	Human Error	Impermeable Surface
Crude Oil	12,012	California	06/28/12	Facility	Equipment Failure	Land
Crude Oil	12,000	California	03/15/07	Facility	Equipment Failure	Land
Oily Water Mixture	11,970	California	05/01/07	Pipeline	Equipment Failure	Land
Oily Water Mixture	11,760	California	12/10/13	Facility	Unknown	Land
Crude Oil	11,676	California	03/04/06	Facility	Equipment Failure	Land
Other/Unknown	11,611	Alaska	02/26/02	Facility	Other	Land
Gasoline	11,300	Oregon	12/13/15	Vehicle	Human Error	Land
Gasoline	11,000	Oregon	12/02/02	Vehicle	Human Error	Fresh Water
Diesel Oil	11,000	Alaska	11/17/03	Facility	Human Error	Land
Gasoline	11,000	Washington	03/23/09	Vehicle	Human Error	Land
Gasoline	11,000	Washington	11/27/03	Vehicle	Unknown	Fresh Water
Diesel Oil	10,584	Hawaii	08/05/05	Pipeline	Equipment Failure	Land
Other	10,500	Washington	09/13/07	Facility	Human Error	Land
Oily water mixture	10,500	California	08/12/06	Pipeline	Equipment Failure	Land
Oily water mixture	10,500	California	05/29/06	Pipeline	Equipment Failure	Fresh Water
Oily Water Mixture	10,500	California	04/11/08	Facility	Human Error	Land
Asphalt / Creosote	10,080	California	02/13/13	Facility	Equipment Failure	Land
Crude Oil	10,080	California	07/21/08	Pipeline	Equipment Failure	Land
Oily Water Mixture	10,080	California	09/29/14	Unknown	Unknown	Land

Crude vs. Non-Crude Spills by Year (2002-2015)

	Non-Crude Oil		Crude Oil		Total	
Year	Spill Count	Gallons	Spill Count	Gallons	Spill Count	Gallons
2002	481	353,759	18	11,424	499	365,183
2003	524	222,531	16	28,015	540	250,546
2004	538	951,906	6	2,018	544	953,924
2005	580	299,516	19	172,871	599	472,387
2006	1,152	594,120	242	589,867	1,394	1,183,987
2007	1,200	1,179,794	208	530,288	1,408	1,710,082
2008	1,145	821,392	225	700,297	1,370	1,521,689
2009	933	393,768	134	120,972	1,067	514,740
2010	941	693,159	129	303,808	1,070	996,967
2011	945	441,172	128	73,004	1,073	514,176
2012	1,006	555,444	125	201,812	1,131	757,256
2013	1,081	740,141	95	134,692	1,176	874,833
2014	1,100	877,689	90	101,713	1,190	979,402
2015	742	488,585	40	158,318	782	646,903
14-YR Total	12,368	8,612,976	1,475	3,129,099	13,843	11,742,075
14-YR AVG	883	615,213	105	223,507	989	838,720

Number of Spills and Volume Released (2002-2015)



2002-2015

Summary by Product

- Over the 14-year period, the combined volume of Non-Crude spills was more than 2.5 times greater than the combined volume for Crude Oil spills.

Crude Oil Spills

- The top two Crude Oil spills during the 14-year period were 463,848 gallons in California (2008) and a 267,000 gallon spill in Alaska (2006). The combined volume of these two incidents comprised 23% of the total Crude Oil volume released for the period.

NOTE: California's data submission does not include every spill reported to the State in 2015, compared to previous years. This resulted in a significant drop in the California data presented regarding the total number of spills and the total volume for the year, especially for spills to land. Hawaii's data submissionfor 2015 represents only the first half of the year due to issues encountered in their new data management system.

2002-2015

Non-Crude Oil Spills
(see graph on following page)

- Diesel Oil/Marine Gas Oil comprised 25% of the total spill volume and 34% of the Non-Crude spill volume for the period.

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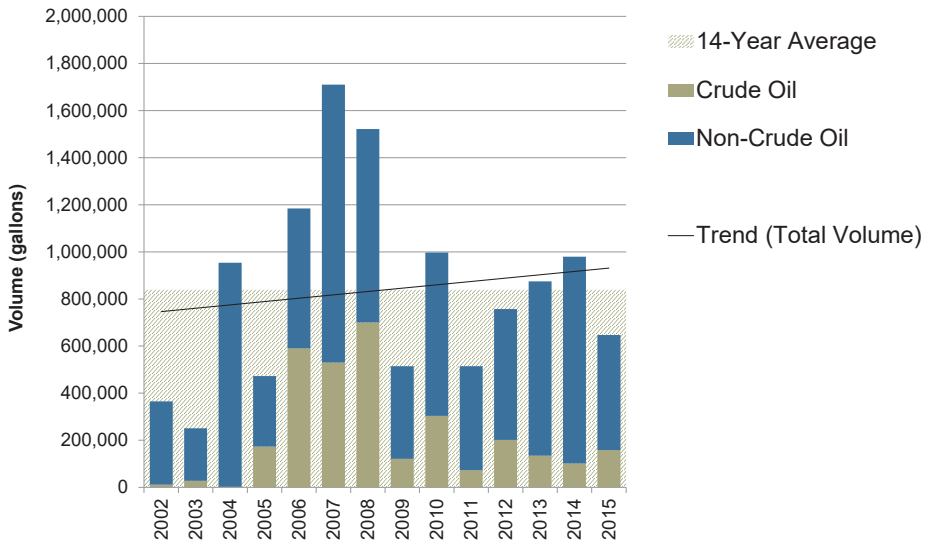
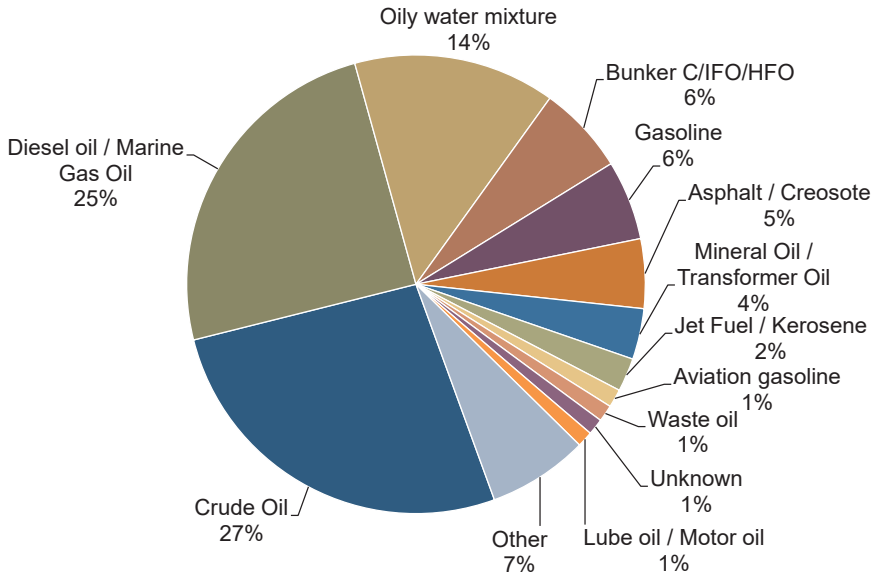
Crude vs. Non-Crude Spills (2002-2015)



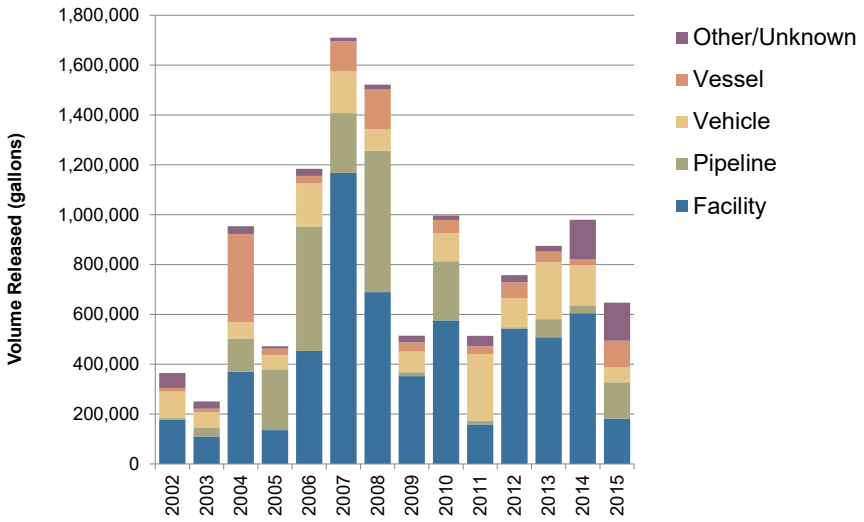
Spills by Product (2002-2015)

(percent total volume)



NOTE: "Other" includes products comprising 1% or less of the total volume released: Hydraulic oil, Heating Oil, Edible/Vegetable oil, Oily Waste, LNG/LPG, Aviation fuel, Cutter Stock

Annual Spill Volume by Source (2002-2015)



2002-2015

Summary by Source

- Overall, Facilities (51%) and Pipelines (19%) were the major sources of spills during the 14-year period.
- Facilities were the source of 54% of the Non-Crude spill volume.
- Pipelines (53%) were the major sources of Crude Oil spills.

Non-Crude Oil Spill Sources

Source	gallons
Facility	4,661,803
Vehicle	1,724,609
Vessel	1,063,512
Pipeline	576,882
Other/Unknown	568,965
Military	9,090
Public Lands	7,615
Farm/Agriculture	500
Total	8,612,976

Crude Oil Spill Sources

Source	gallons
Pipeline	1,669,156
Facility	1,366,454
Other/Unknown	55,711
Vehicle	32,444
Vessel	5,334
Total	3,129,099

2002-2015

Summary by Cause

- Overall, Equipment Failure (55%) and Human Error (30%) were the major spill causes.
- Equipment Failure (46%) and Human Error (38%) were the predominant causes for Non-Crude spills
- 79% of the total Crude Oil spill volume was due to Equipment Failure.

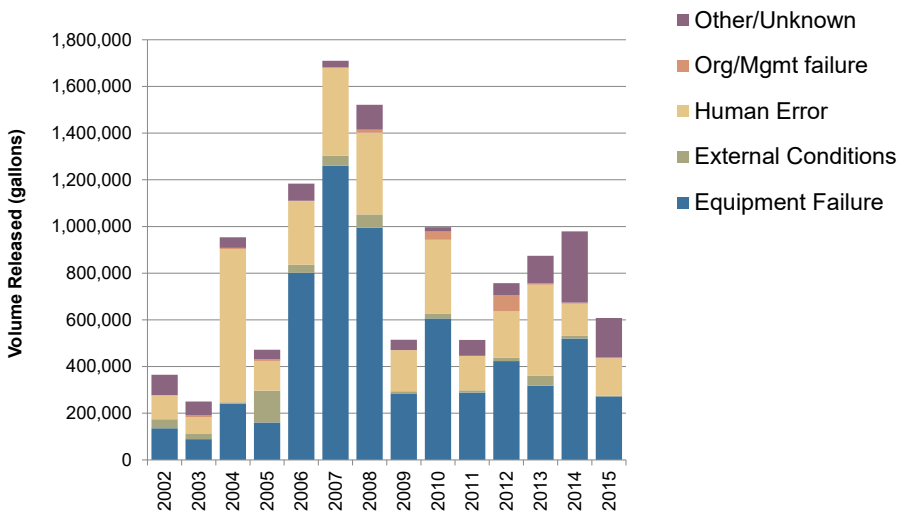
Non-Crude Oil Spills

Cause	gallons
Equipment Failure	3,969,173
Human Error	3,231,754
Other/Unknown	1,015,986
External Conditions	290,029
Organizational / Management Failure	106,034
Total	8,612,976

Crude Oil Spills

Cause	gallons
Equipment Failure	2,465,409
Human Error	255,136
Other/Unknown	200,177
External Conditions	158,796
Organizational / Management Failure	49,581
Total	3,129,099

Annual Spill Volume by Cause (2002-2015)



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