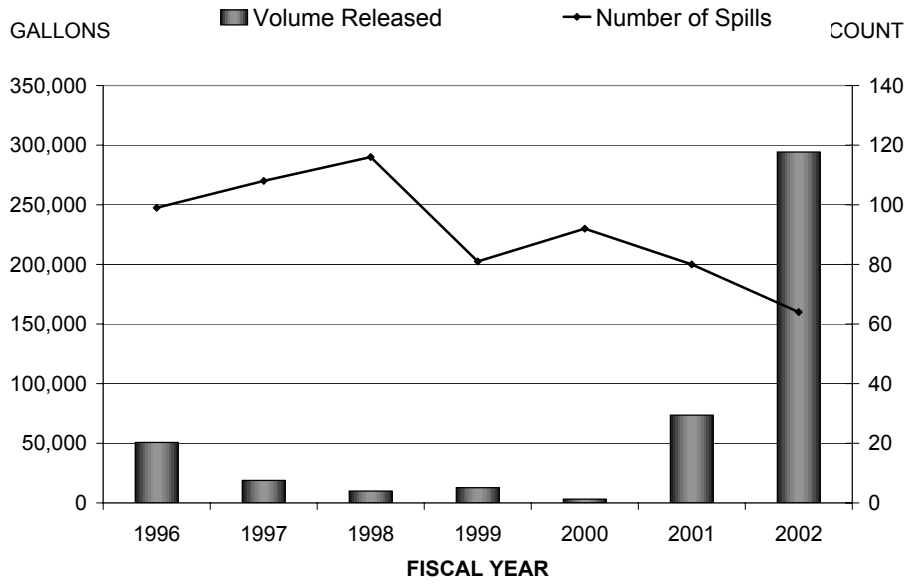
A. Crude Oil

Number of Crude Oil Spills and Total Volume Spilled

Fiscal Year	Total Spills	Total Quantity Released (gallons)
1996	99	50,750
1997	108	18,873
1998	116	9,905
1999	81	12,770
2000	92	3,156
2001	80	73,625
2002	64	294,218
Total	640	463,297
Average	91	66,185

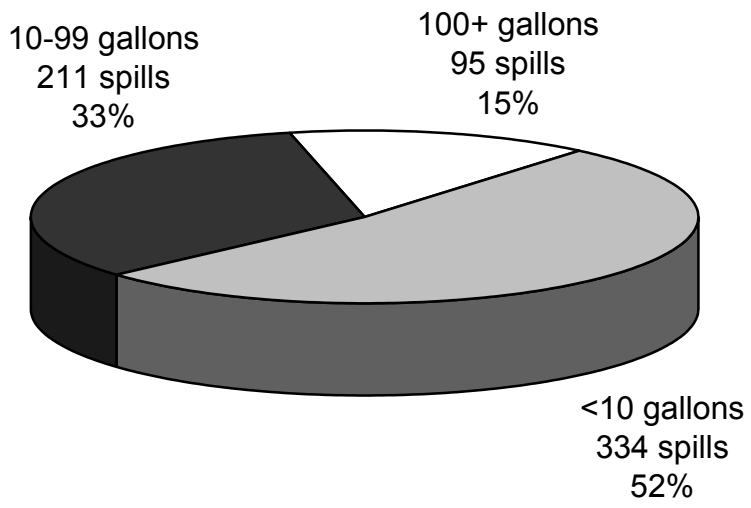
- Crude oil spills occurred only at State-regulated facilities.
- Largest crude oil spill during this reporting period: TransAlaska Pipeline Bullet Hole incident on October 4, 2001, with 285,600 gallons of crude oil spilled.
- Crude oil spills accounted for only 4% of the total spills and 16% of the total volume spilled during this seven year period.
- Crude oil spills averaged 727 gallons per incident.



Crude Oil Spills by Size Class

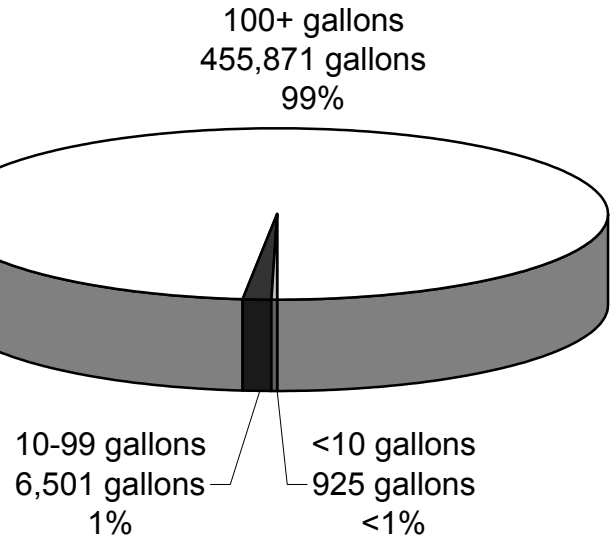
	Spill Size							
	<10 gallons		10-99 gallons		100+ gallons		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	58	147	27	846	14	49,757	99	50,750
1997	44	120	45	1,441	19	17,312	108	18,873
1998	61	167	38	1,175	17	8,563	116	9,905
1999	45	134	25	790	11	11,846	81	12,770
2000	56	145	28	622	8	2,389	92	3,156
2001	41	139	23	669	16	72,817	80	73,625
2002	29	73	25	958	10	293,187	64	294,218
Total	334	925	211	6,501	95	455,871	640	463,297

Number of Spills by Spill Size



- The majority of crude oil spills are less than 10 gallons in size.
- 95 spills (or 15% of the 640 crude oil spills) resulted in 99% of the total volume spilled.

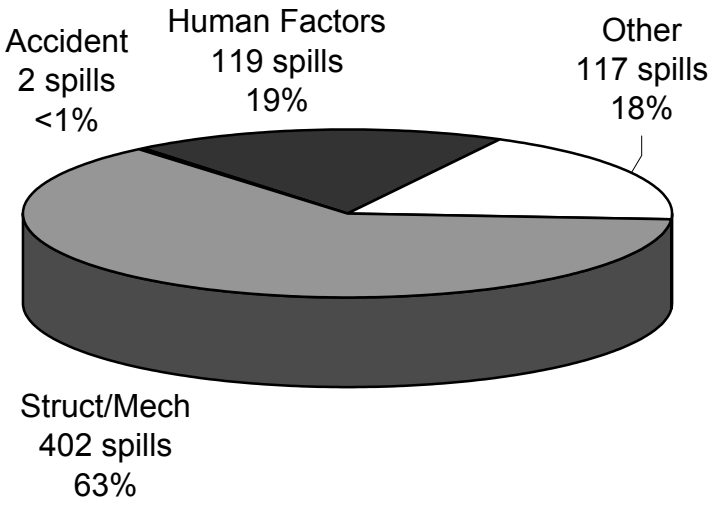
Gallons Spilled by Spill Size



Crude Oil Spills by Cause

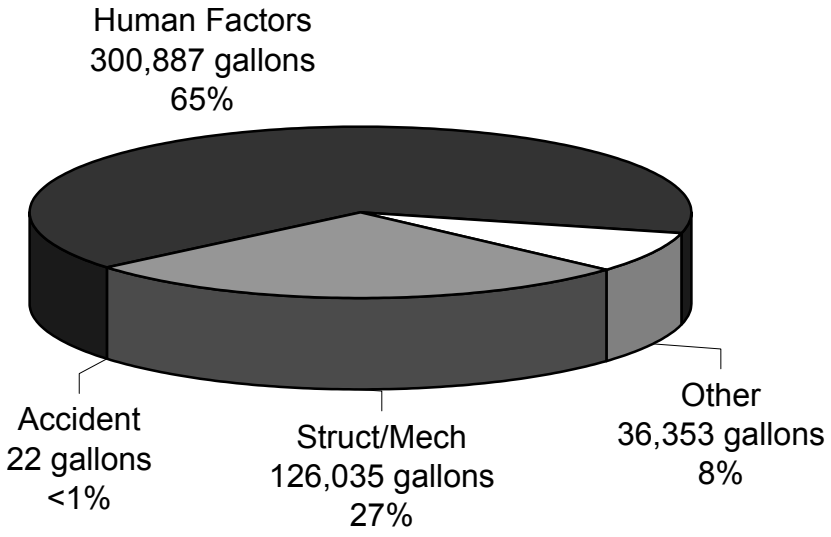
	Cause									
	Accident		Human Factors		Other		Struct/Mech		Total	
FY	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
1996			22	7,849	21	498	56	42,403	99	50,750
1997			29	1,433	23	1,372	56	16,068	108	18,873
1998	1	20	25	1,771	12	1,888	78	6,226	116	9,905
1999	1	2	13	246	11	382	56	12,140	81	12,770
2000			10	272	21	353	61	2,531	92	3,156
2001			6	1,186	21	31,227	53	41,212	80	73,625
2002			14	288,130	8	633	42	5,455	64	294,218
Total	2	22	119	300,887	117	36,353	402	126,035	640	463,297

Number of Spills by Cause



- Structural/Mechanical was the primary cause of 63% of the crude oil spills, with an average of 314 gallons per spill.
- Human Factors causes (including the October 2001 TAPS Bullet Hole incident) accounted for 65% of the total volume spilled.

Gallons Spilled by Cause

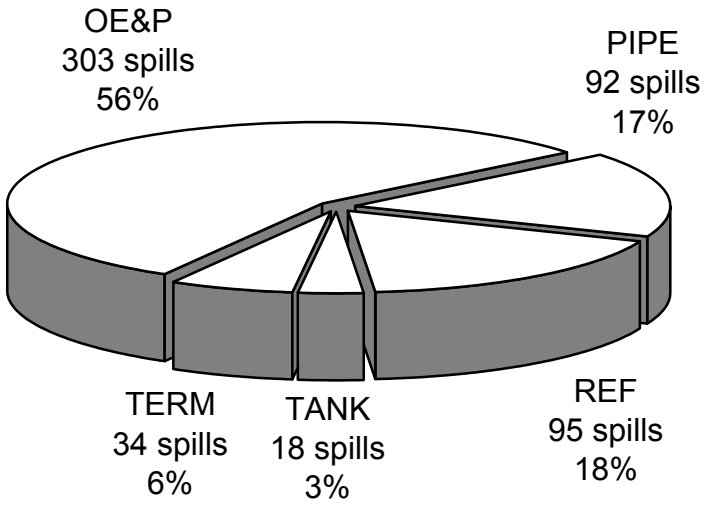


Crude Oil Spills at Regulated Facilities

	OE&P		PIPE		REF		TANK		TERM		TOTAL	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	34	7,268	15	34,803	25	8,100	4	45	2	10	80	50,226
1997	54	4,360	18	7,652	16	6,682	2	4	5	125	95	18,823
1998	60	5,817	14	3,721	17	228	4	4	4	26	99	9,796
1999	27	8,367	12	160	22	3,000	3	671	11	507	75	12,705
2000	56	2,653	12	315	8	70	1	3	5	20	82	3,061
2001	26	31,563	13	38,966	4	235	3	12	5	1,751	51	72,527
2002	46	4,528	8	286,056	3	3,575	1	1	2	10	60	294,170
Total	303	64,556	92	371,673	95	21,890	18	740	34	2,449	542	461,308

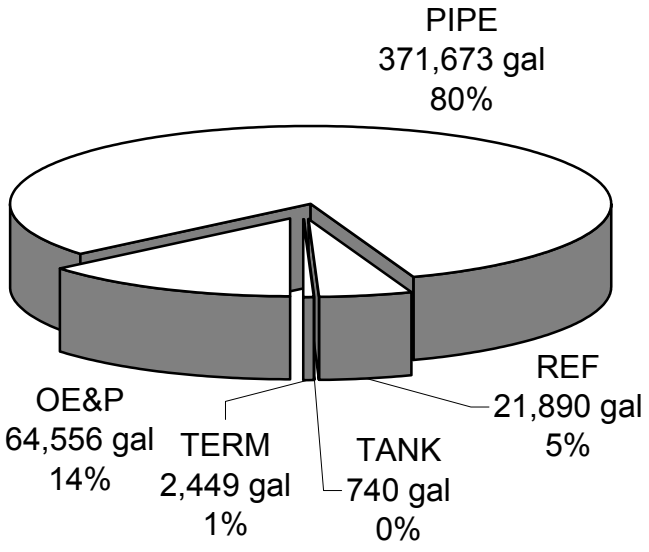
NOTE: OE&P - Oil Exploration and Production Facilities; PIPE - Transmission Pipelines; REF - Refineries; TANK - Tanker Vessels; TERM - Oil Terminal Facilities

Number of Spills by Facility Type



- Spills from tanker vessels were minimal (3%) and small in size, with an average of 41 gallons per spill.
- Spills from oil exploration and production accounted for the majority of the spills (56%)
- Pipelines averaged 3,997 gallons per spill (including the TAPS Bullet Hole Incident).

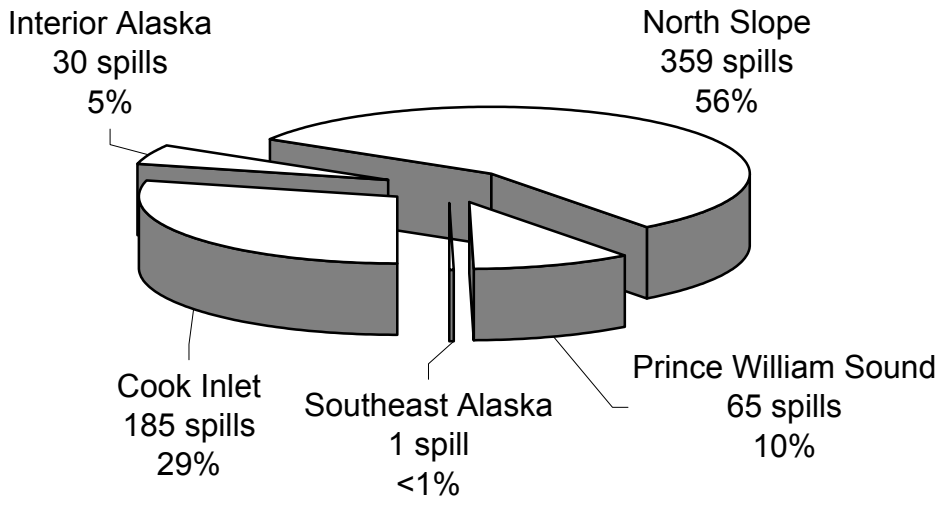
Gallons Spilled by Facility Type



Crude Oil Spills by Subarea

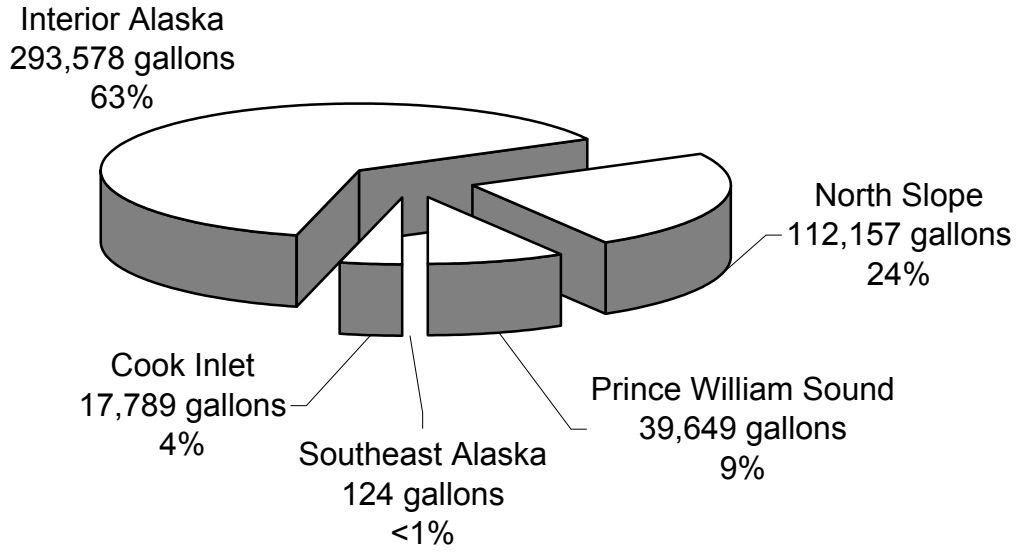
	Cumulative Totals, FY 96-02	
Subarea	*count*	*gallons*
Cook Inlet	185	17,789
Interior Alaska	30	293,578
North Slope	359	112,157
Prince William Sound	65	39,649
Southeast Alaska	1	124
Total	640	463,297

Number of Spills by Subarea



- While the North Slope subarea experienced the majority of crude oil spills, the Interior Alaska subarea accounted for the greatest volume (although 285,600 gallons were attributed to a single incident, i.e., the TAPS Bullet Hole incident).

Gallons Spilled by Subarea

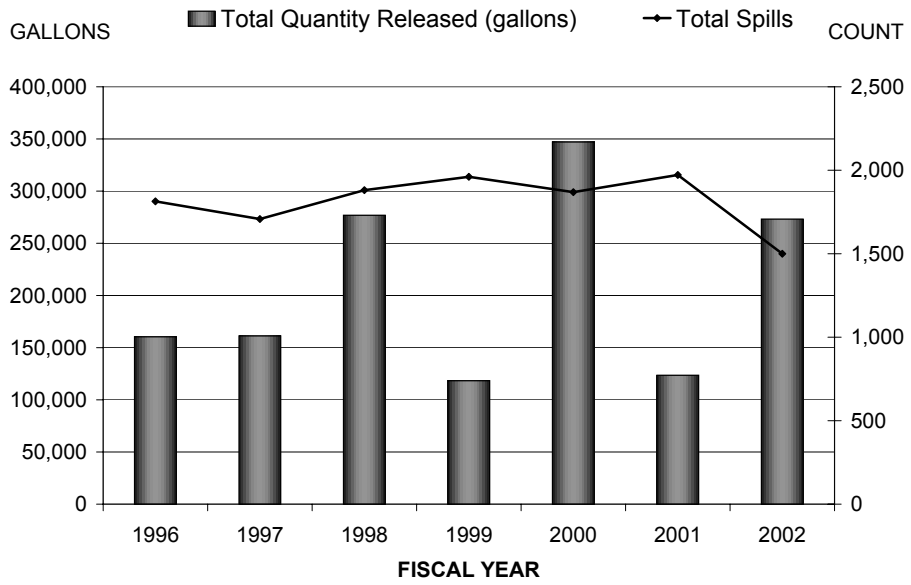


B. Noncrude Oil

Number of Noncrude Oil Spills and Total Volume Spilled

Fiscal Year	Total Spills	Total Quantity Released (gallons)
1996	1,814	160,367
1997	1,708	161,243
1998	1,881	276,831
1999	1,961	118,309
2000	1,869	347,095
2001	1,972	123,555
2002	1,500	273,187
Total	12,705	1,460,587
Average	1,815	208,655

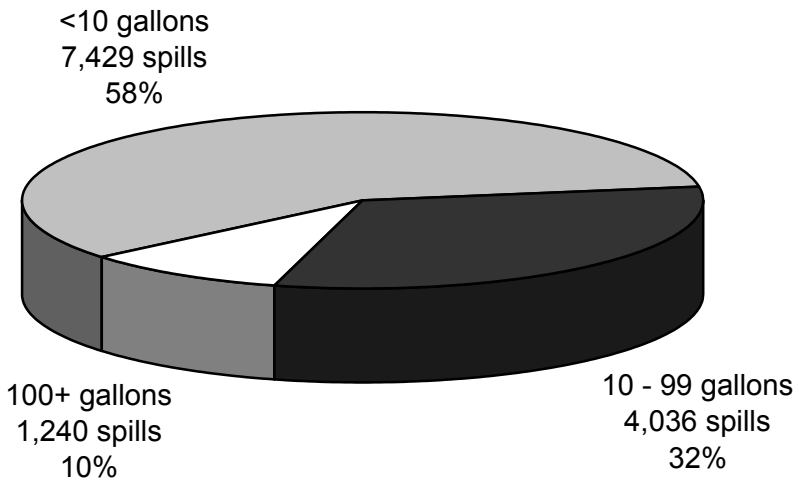
- Largest Noncrude Oil Spill: 120,516 gallons (train derailment, December 1999)
- Excluding process water, the number of noncrude oil spills accounted for the vast majority (81%) throughout the state.



Noncrude Oil Spills by Size Class

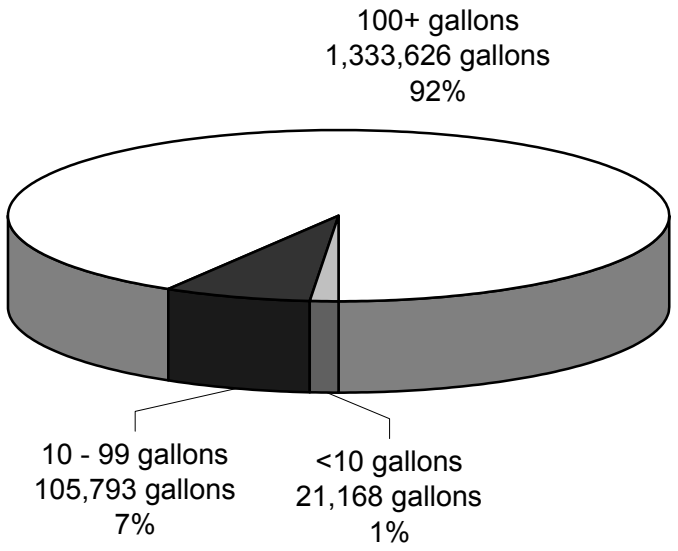
	Size Class							
	<10 gallons		10 - 99 gallons		100+ gallons		Total	
FY	count	gallons	count	gallons	count	gallons	count	gallons
1996	1,058	2,891	589	14,995	167	142,481	1,814	160,367
1997	945	2,823	569	14,678	194	143,742	1,708	161,243
1998	1,056	2,967	658	16,856	167	257,008	1,881	276,831
1999	1,165	3,286	601	15,844	195	99,179	1,961	118,309
2000	1,127	3,180	562	15,657	180	328,258	1,869	347,095
2001	1,200	3,490	595	15,983	177	104,082	1,972	123,555
2002	878	2,531	462	11,780	160	258,876	1,500	273,187
Total	7,429	21,168	4,036	105,793	1,240	1,333,626	12,705	1,460,587

Number of Spills by Spill Size



- No significant trends in the average size of noncrude oil spills.
- The majority of the spills (58%) are less than 10 gallons.
- Although spills > 100 gallons accounted for only 10% of the total spills, the volume of noncrude oil spilled from these spills accounted for 92% of the total volume spilled (1,333,626 gallons)

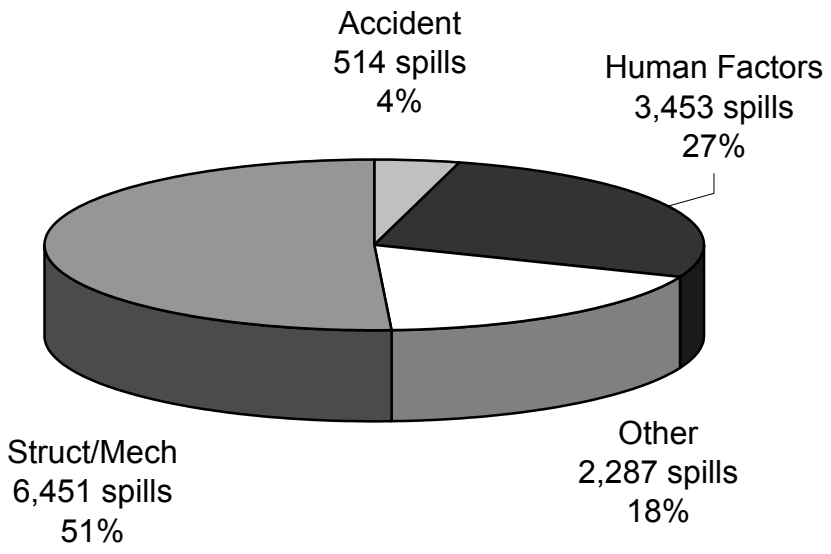
Gallons Spilled by Spill Size



Noncrude Oil Spills by Cause

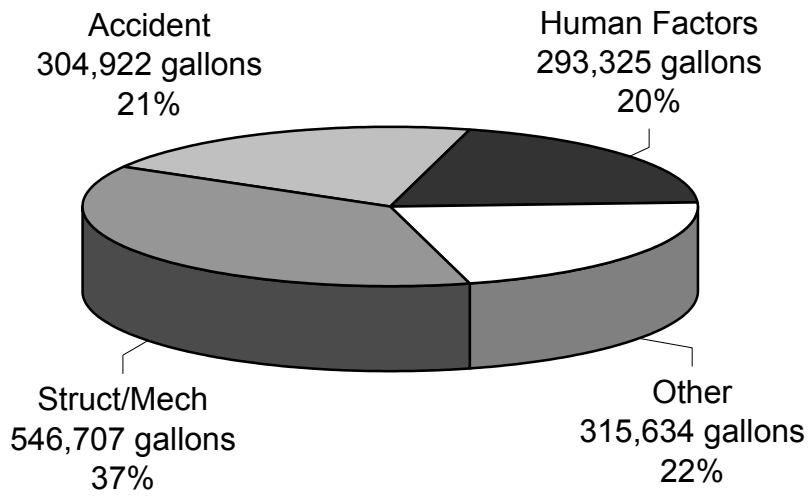
	Cause									
	Accident		Human Factors		Other		Struct/Mech		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	83	35,081	567	49,628	345	16,613	819	59,045	1,814	160,367
1997	59	7,125	584	49,503	295	34,610	770	70,005	1,708	161,243
1998	89	63,094	561	35,907	265	106,317	966	71,513	1,881	276,831
1999	79	20,294	583	32,367	386	11,641	913	54,007	1,961	118,309
2000	69	138,913	465	30,426	352	96,154	983	81,602	1,869	347,095
2001	83	16,062	377	19,063	418	39,776	1,094	48,654	1,972	123,555
2002	52	24,353	316	76,431	226	10,523	906	161,881	1,500	273,187
Total	514	304,922	3,453	293,325	2,287	315,634	6,451	546,707	12,705	1,460,587

Number of Spills by Cause



- No significant trends in the causes of noncrude oil spills.
- Accidents resulted in the largest average volume spilled, or 593 gallons per incident, followed by Other causes (138 gallons per spill incident).

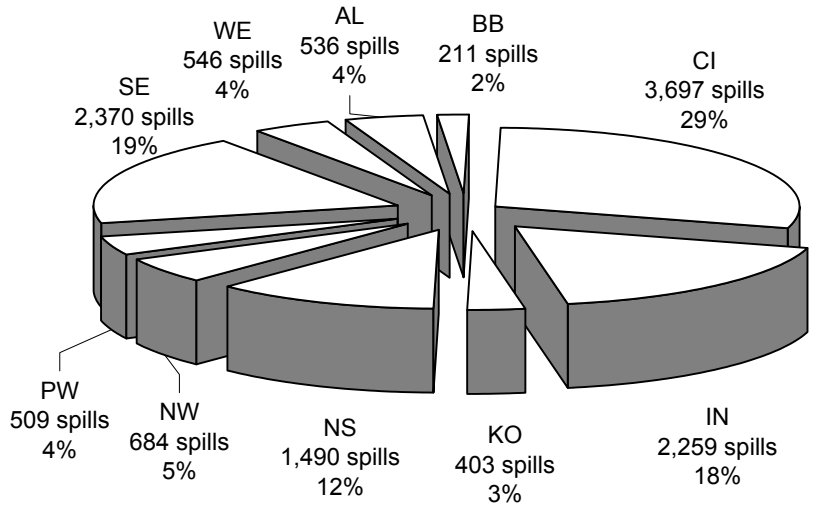
Gallons Spilled by Cause



Noncrude Oil Spills by Subarea

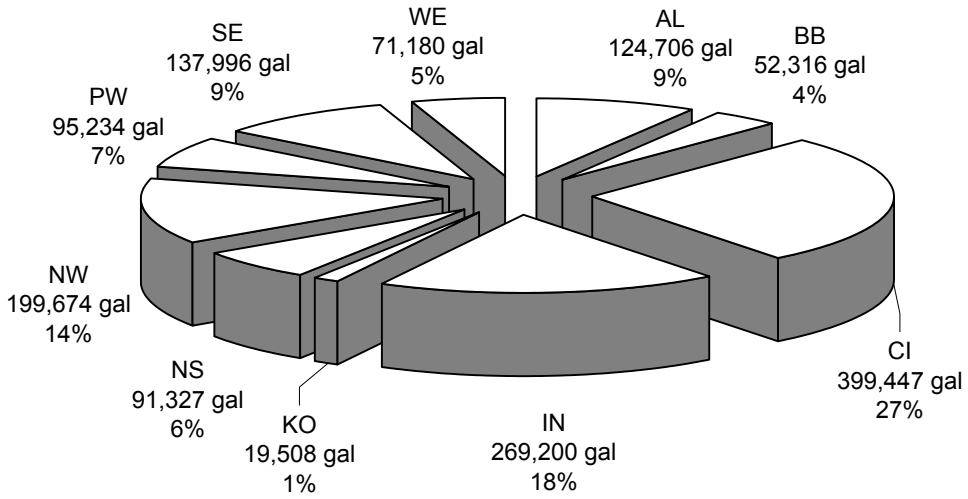
	Cumulative Totals, FY 96-02	
Subarea	*count*	*gallons*
Aleutian (AL)	536	124,706
Bristol Bay (BB)	211	52,316
Cook Inlet (CI)	3,697	399,447
Interior Alaska (IN)	2,259	269,200
Kodiak Island (KO)	403	19,508
North Slope (NS)	1,490	91,327
Northwest Arctic (NW)	684	199,674
Prince William Sound (PW)	509	95,234
Southeast Alaska (SE)	2,370	137,996
Western Alaska (WE)	546	71,180
Total	12,705	1,460,587

Number of Spills by Subarea



- Noncrude oil spills were more common in the more densely populated and industrialized subareas such as Cook Inlet, Southeast and Interior Alaska.

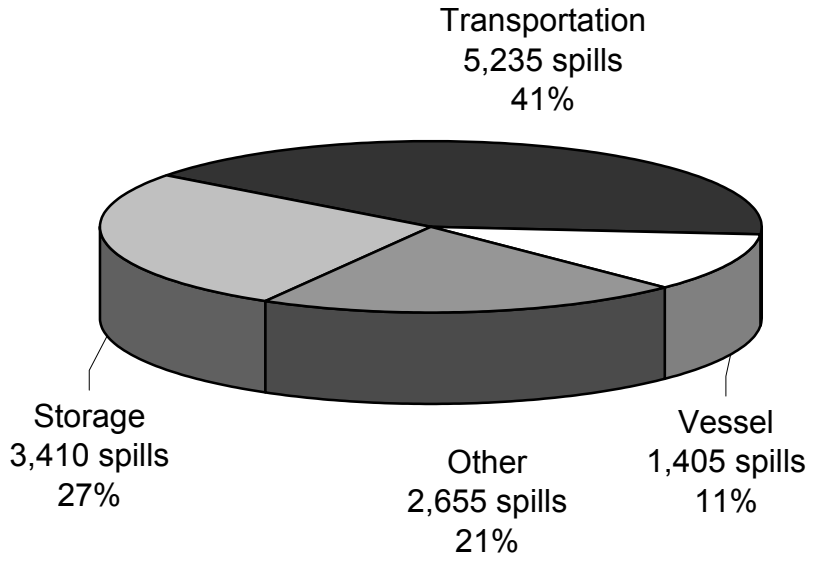
Gallons Released by Subarea



Noncrude Oil Spills by Facility Type

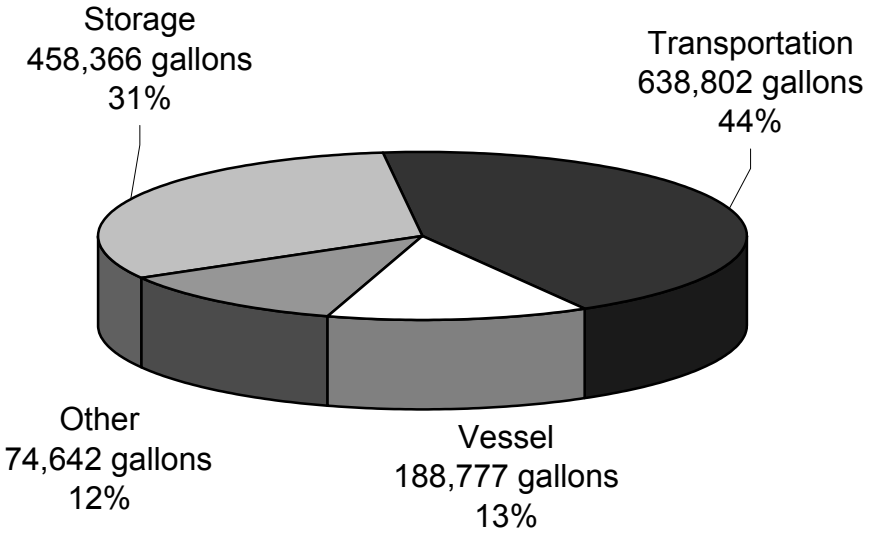
	Facility Type									
	Storage		Transportation		Vessel		Other		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	427	63,356	745	40,697	215	41,286	427	15,028	1,814	160,367
1997	415	72,862	674	47,800	233	16,871	386	23,710	1,708	161,243
1998	362	51,202	863	142,402	257	50,417	399	32,810	1,881	276,831
1999	422	43,883	817	43,893	300	15,822	422	14,711	1,961	118,309
2000	487	127,063	824	165,247	173	11,520	385	43,265	1,869	347,095
2001	660	44,103	800	46,624	129	9,648	383	23,180	1,972	123,555
2002	637	55,897	512	152,139	98	43,213	253	21,938	1,500	273,187
Total	3,410	458,366	5,235	638,802	1,405	188,777	2,655	174,642	12,705	1,460,587

Number of Spills by Facility Type



- Storage and Vessels were the facility types with the largest average volume per spill (134 gallons per spill for both).
- Transportation accounted for the most spills and the largest volume spilled amongst the four facility types.

Gallons Spilled by Facility Type

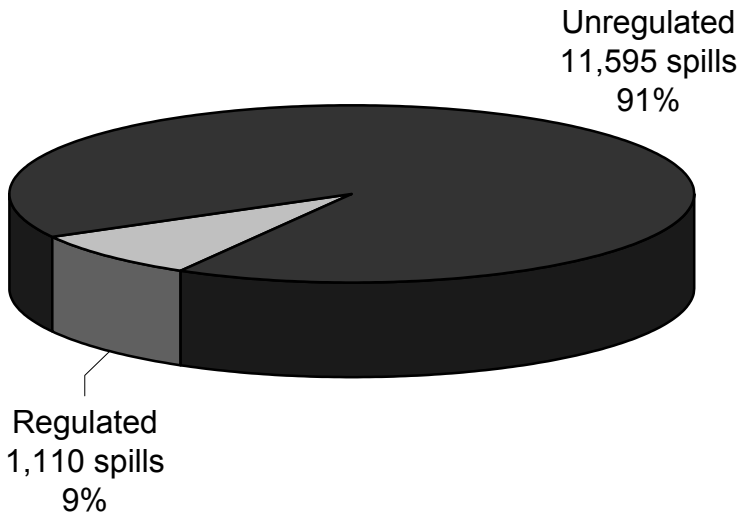


Noncrude Oil Spills at Regulated and Unregulated Facilities

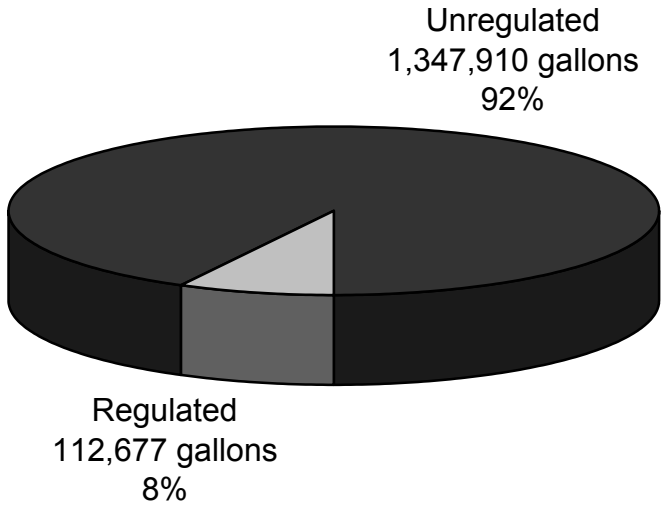
	Facility Type					
	Regulated		Unregulated		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	144	6,358	1,670	154,009	1,814	160,367
1997	158	32,978	1,550	128,265	1,708	161,243
1998	212	13,930	1,669	262,901	1,881	276,831
1999	152	18,412	1,809	99,897	1,961	118,309
2000	114	5,110	1,755	341,985	1,869	347,095
2001	121	14,464	1,851	109,091	1,972	123,555
2002	209	21,425	1,291	251,762	1,500	273,187
Total	1,110	112,677	11,595	1,347,910	12,705	1,460,587

Number of Spills at Regulated and Unregulated Facilities

- Unregulated facilities were clearly the major source of noncrude oil spills as well as the total volume released.



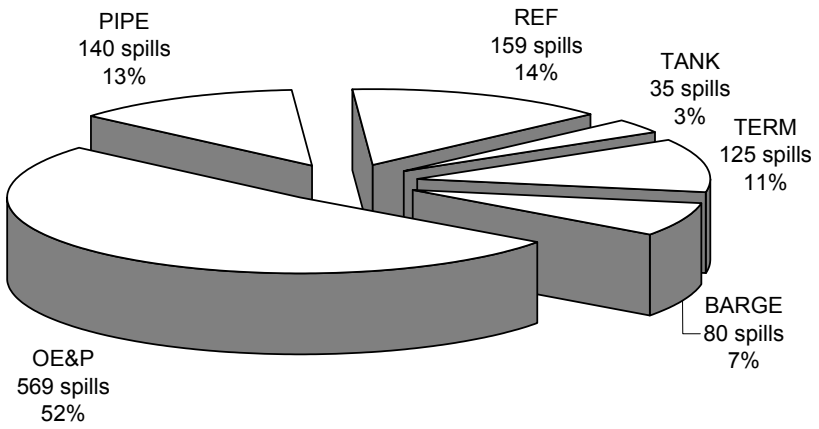
Gallons Spilled at Regulated and Unregulated Facilities



Noncrude Oil Spills at Regulated Facilities

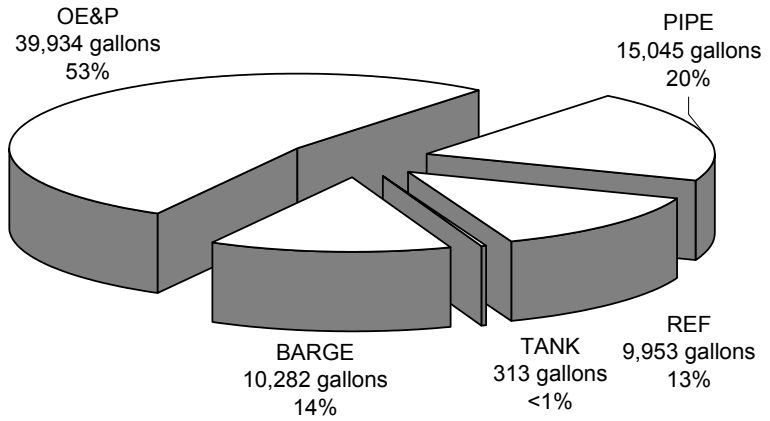
	BARGE		OE&P		PIPE		REF		TANK		TERM		TOTAL	
FY	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
1996	12	353	56	2,534	26	621	27	1,091	8	17	14	1,732	143	6,348
1997	14	8,260	70	17,689	29	899	28	2,066	5	5	12	4,059	158	32,978
1998	17	990	87	2,178	23	7,465	52	2,514	8	36	25	747	212	13,930
1999	17	468	52	3,220	22	3,733	24	701	10	53	27	10,237	152	18,412
2000	10	142	68	1,867	11	353	7	84	2	201	15	2,462	113	5,109
2001	6	12	76	7,268	19	1,222	8	1,283			12	4,679	121	14,464
2002	4	57	160	5,178	10	752	13	2,214	2	1	20	13,223	209	21,425
Total	80	10,282	569	39,934	140	15,045	159	9,953	35	313	125	37,139	1,108	112,666

Number of Spills by Facility Type



- Although only 9% of the noncrude spills occurred at regulated facilities, oil exploration and production facilities account for over half (52%) of the noncrude oil spills and volume (53%) released.

Gallons Released by Facility Type



Noncrude Oil Spills from Unregulated Facilities

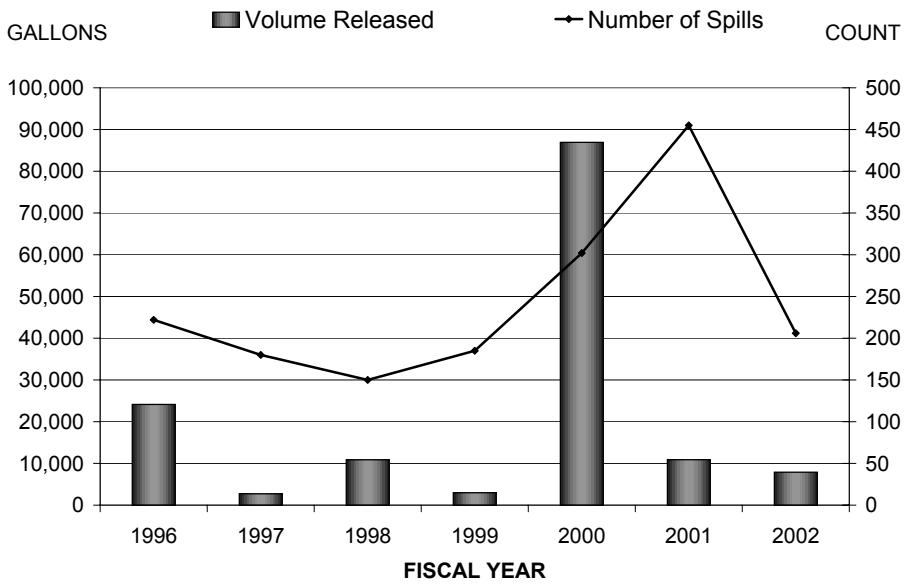
	1996		1997		1998		1999		2000		2001		2002		Cumulative Total	
FacilityType	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
Air Transportation	166	7,024	142	13,958	184	3,626	155	5,469	132	4,266	97	15,587	107	117,772	983	167,702
Cannery	18	12,031	13	1,220	14	3,718	15	1,539	7	941	3	33	6	1,666	76	21,148
Drug Lab	1	1			2	6									3	7
Gas Station	200	4,222	149	2,587	81	3,756	139	2,918	257	2,660	446	11,628	203	1,293	1,475	29,064
Harbor/Port	2	31	1	20	1	15	5	29	1	10	2	35	17	88	29	228
Landfill/Dump													7	268	7	268
Laundry Service	3	550			1	1,500	3	445	3	1,164			1	30	11	3,689
Log Processing	8	864	30	3,632	2	20	5	104	1	20	4	33	18	84	68	4,757
Logging Operation	2	35	2	80			1	5	1	5	7	368	41	215	54	708
Maintenance Yard/Shop	3	185	1	20	6	106	5	442	3	59	1	25	16	3,194	35	4,031
Mining Operation	14	883	28	1,391	35	833	24	1,022	18	514	16	263	165	4,335	300	9,241
Oil Terminal Facility	45	24,072	55	43,284	60	27,793	47	9,906	47	94,226	42	9,303	26	7,184	322	215,768
Other	237	12,131	228	20,704	245	29,840	253	10,263	215	39,906	248	15,487	178	20,806	1,604	149,137
Power Generation	17	7,244	24	5,267	24	3,459	25	3,763	29	12,642	5	774	22	6,838	146	39,987
Railroad Operation	12	221	11	1,156	20	343	25	1,359	13	135,292	5	715	16	2,058	102	141,144
Refinery Operation	6	901	6	35	7	263	3	204					3	396	25	1,799
Residence	68	9,223	73	8,877	55	6,231	103	11,786	98	11,902	117	13,866	85	8,372	599	70,257
Salvage/Wrecking Yard													1	1	1	1
School	2	105			2	115	1	30	4	406	1	10	16	5,855	26	6,521
Telecommunications							1	370	1	10			1	5	3	385
Transmission Pipeline	18	5,590	20	2,002	13	100,699	16	10,631	12	5,392	18	1,006	11	996	108	126,316
Unknown	176	2,760	135	2,482	134	2,917	158	2,153	156	3,069	120	7,558	63	844	942	21,783
Vehicle	476	24,810	417	12,244	548	28,108	550	21,743	595	18,323	593	20,909	194	25,314	3,373	151,451
Vessel	194	40,906	214	8,606	232	49,391	273	15,301	161	11,177	123	9,636	93	43,156	1,290	178,173
Water/Wastewater Facility	2	220	1	700	3	162	2	415	2	2	3	1,855	2	1,060	15	4,414
Total	1,670	154,009	1,550	128,265	1,669	262,901	1,809	99,897	1,756	341,986	1,851	109,091	1,292	251,827	11,597	1,347,976

C. Gasoline

Number of Gasoline Spills and Total Volume Spilled

Fiscal Year	Total Spills	Total Quantity Released (gallons)
1996	222	24,140
1997	180	2,731
1998	150	10,873
1999	185	2,962
2000	302	86,930
2001	455	10,883
2002	206	7,891
Total	1,700	146,410
Average	243	20,916

- Largest Gasoline Spill: 84,360 gallons spilled from an Oil Terminal Facility in the Northwest Arctic (March 24, 2000)
- Gasoline spills averaged approximately 86 gallons per incident and 480 spills or 28% were 1 gallon or less in size.

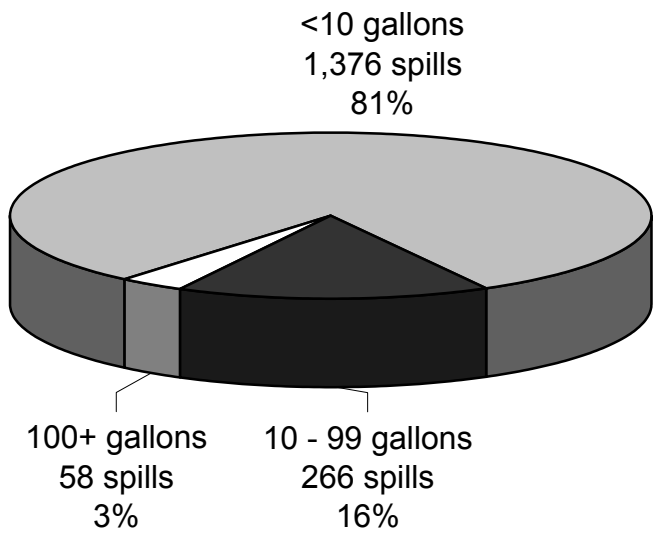


Gasoline Spills by Size Class

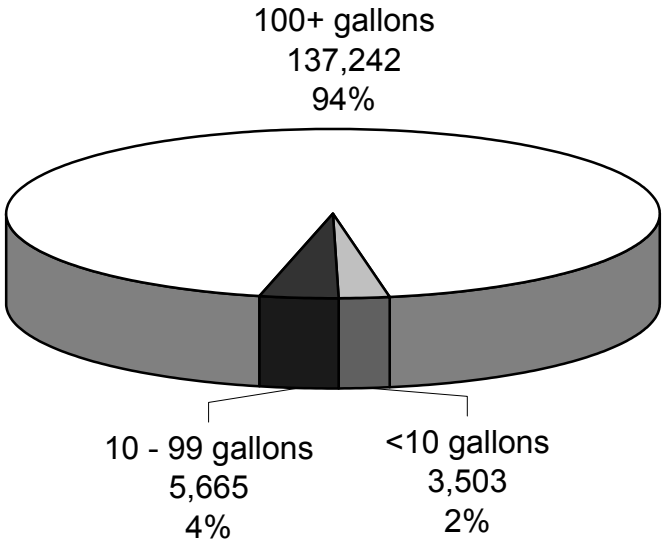
	Spill Size							
	<10 gallons		10 - 99 gallons		100+ gallons		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	170	386	37	674	15	23,080	222	24,140
1997	138	398	37	783	5	1,550	180	2,731
1998	99	285	40	923	11	9,665	150	10,873
1999	138	355	40	1,167	7	1,440	185	2,962
2000	256	657	38	853	8	85,420	302	86,930
2001	398	1,002	46	794	11	9,087	455	10,883
2002	177	420	28	471	1	7,000	206	7,891
Total	1,376	3,503	266	5,665	58	137,242	1,700	146,410

Number of Spills by Spill Size

- Spills > 100 gallons averaged 2,366 gallons per spill, and accounted for 94% of total volume spilled.



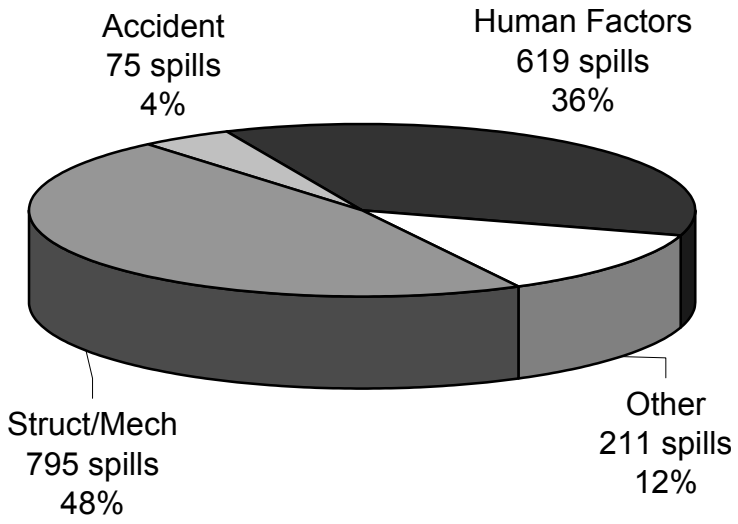
Gallons Spilled by Spill Size



Gasoline Spills by Cause

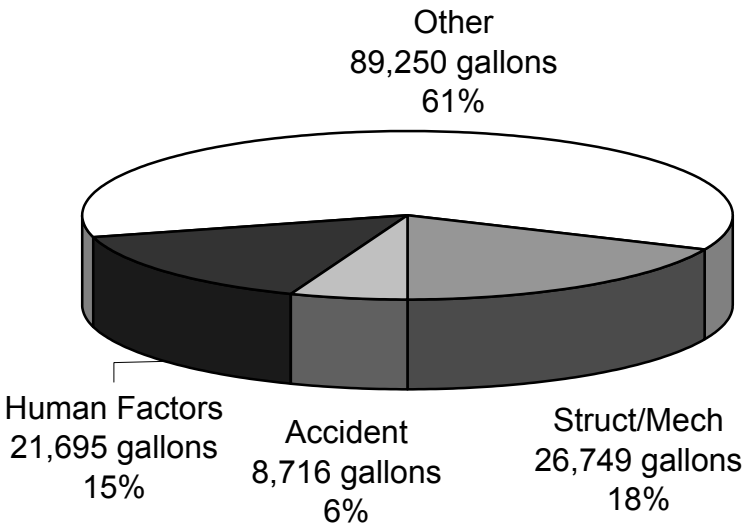
	Cause									
	Accident		Human Factors		Other		Struct/Mech		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	8	52	137	13,802	24	2,391	53	7,895	169	16,245
1997	10	129	105	1,862	23	94	42	646	138	2,085
1998	17	221	67	2,145	17	141	49	8,366	101	2,507
1999	17	594	75	908	22	216	71	1,244	114	1,718
2000	7	86	120	676	34	84,950	141	1,218	161	85,712
2001	10	586	77	2,122	61	1,331	307	6,844	148	4,039
2002	6	7,048	38	180	30	127	132	536	74	7,355
Total	75	8,716	619	21,695	211	89,250	795	26,749	905	119,661

Number of Spills by Cause



- Structural/Mechanical causes accounted for 48% of the total number of spills.
- "Other" causes accounted for the majority of the total volume spilled for gasoline.

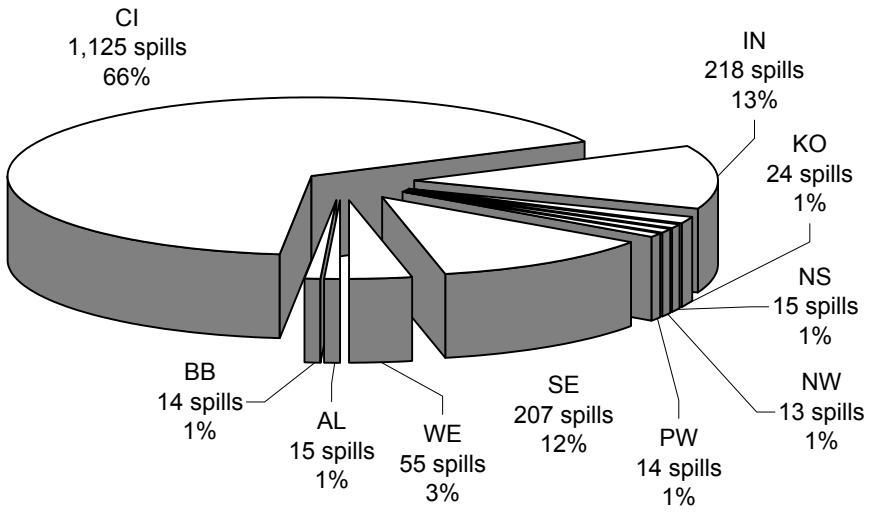
Gallons Spilled by Cause



Gasoline Spills by Subarea

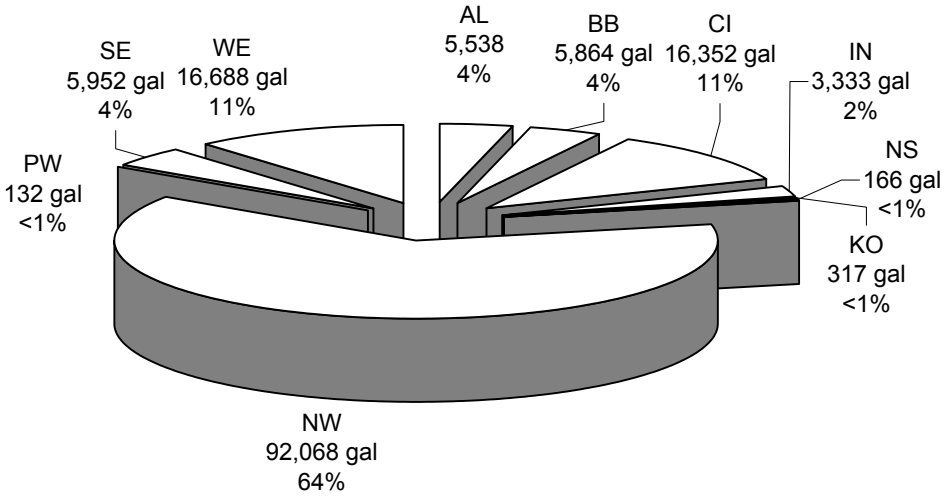
	Cumulative Totals, FY 96-02	
Subarea	*count*	*gallons*
Aleutian (AL)	15	5,538
Bristol Bay (BB)	14	5,864
Cook Inlet (CI)	1,125	16,352
Interior Alaska (IN)	218	3,333
Kodiak Island (KO)	24	317
North Slope (NS)	15	166
Northwest Arctic (NW)	13	92,068
Prince William Sound (PW)	14	132
Southeast Alaska (SE)	207	5,952
Western Alaska (WE)	55	16,688
Total	1,700	146,410

Number of Spills by Subarea



- Although the Cook Inlet subarea experienced the majority of the gasoline spills in the state, the average spill size was small (approximately 15 gallons).
- Gasoline spills in the Northwest Arctic subarea accounted for the largest percentage (64%) of gasoline released in the state. A significant amount of the total came from a single gasoline spill on March 24, 2000 when 84,360 gallons was spilled from an aviation tank farm in Unalakleet.

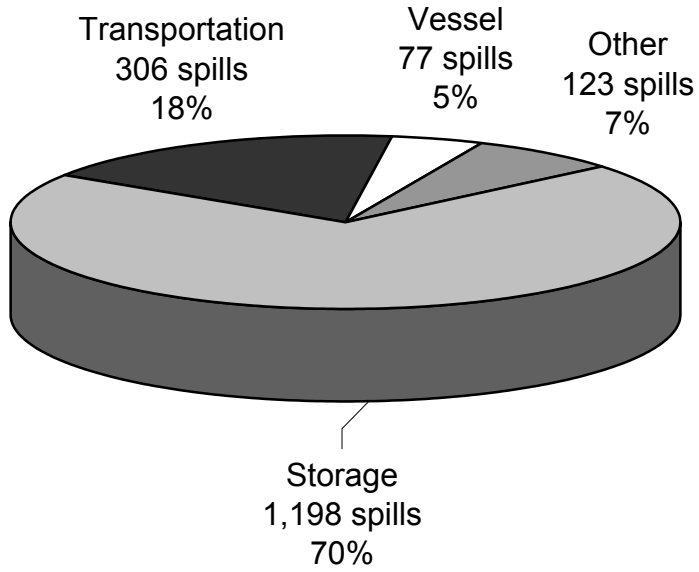
Gallons Released by Subarea



Gasoline Spills by Facility Type

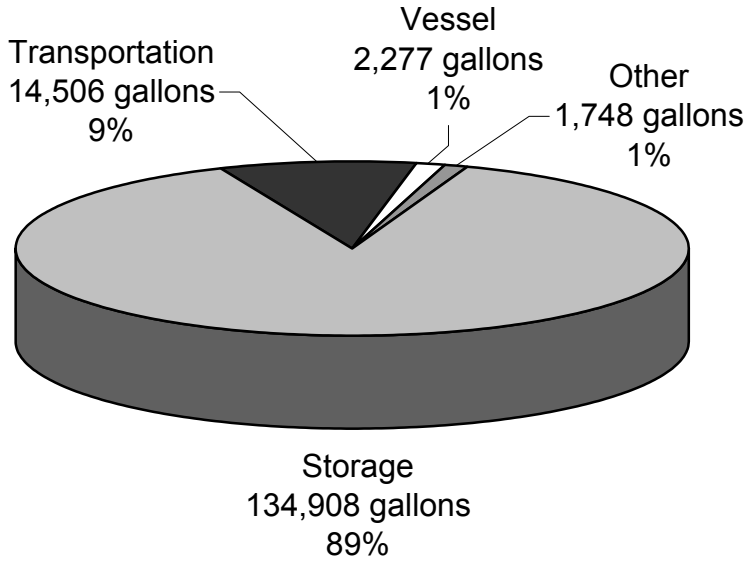
	Facility Type									
	Storage		**Transportation**		**Vessel**		**Other**		**Total**	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	156	27,042	38	2,687	11	1,092	18	319	223	31,140
1997	107	2,081	40	428	10	55	23	167	180	2,731
1998	74	9,818	49	324	15	362	12	369	150	10,873
1999	100	1,310	42	858	19	431	24	363	185	2,962
2000	214	85,489	61	932	10	252	17	257	302	86,930
2001	390	8,568	45	2,061	3	65	17	189	455	10,883
2002	157	600	31	7,216	9	20	12	84	209	7,920
Total	1,198	134,908	306	14,506	77	2,277	123	1,748	1,704	153,439

Number of Spills by Facility Type



- Storage facilities were the major source of gasoline spills in terms of numbers of spills and total volume spilled.

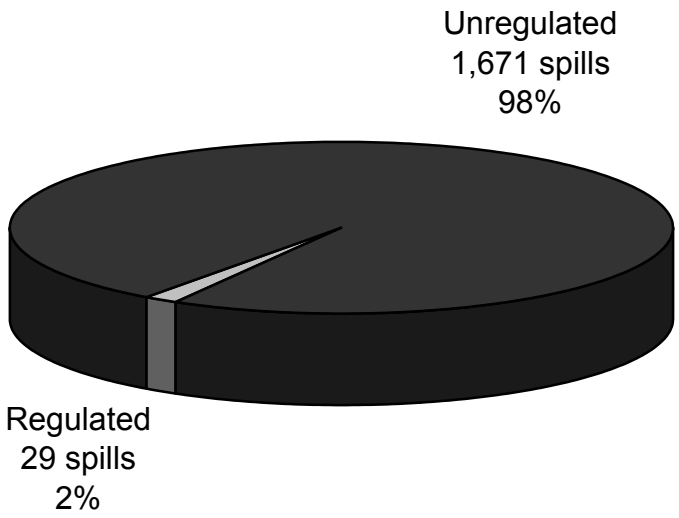
Gallons Spilled by Facility Type



Gasoline Spills at Regulated and Unregulated Facilities

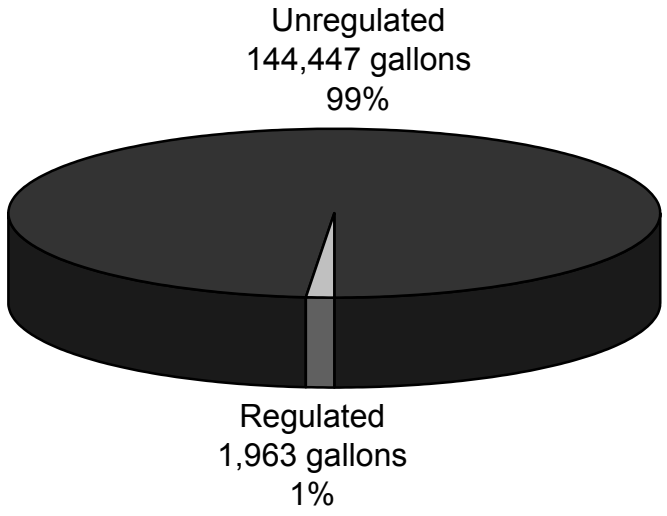
	Facility Type					
	Regulated		Unregulated		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	3	340	219	23,800	222	24,140
1997	5	774	175	1,957	180	2,731
1998	5	77	145	10,796	150	10,873
1999	8	186	177	2,776	185	2,962
2000	4	24	298	86,906	302	86,930
2001	3	561	452	10,322	455	10,883
2002	1	1	205	7,890	206	7,891
Total	29	1,963	1,671	144,447	1,700	146,410

Number of Spills at Regulated vs. Unregulated Facilities



- Unregulated facilities accounted for 98% of the gasoline spills and 99% of the volume released.
- Gasoline spills from unregulated facilities averaged 86 gallons per incident as compared to 68 gallons spilled per incident at regulated facilities.

Gallons Released at Regulated vs. Unregulated Facilities

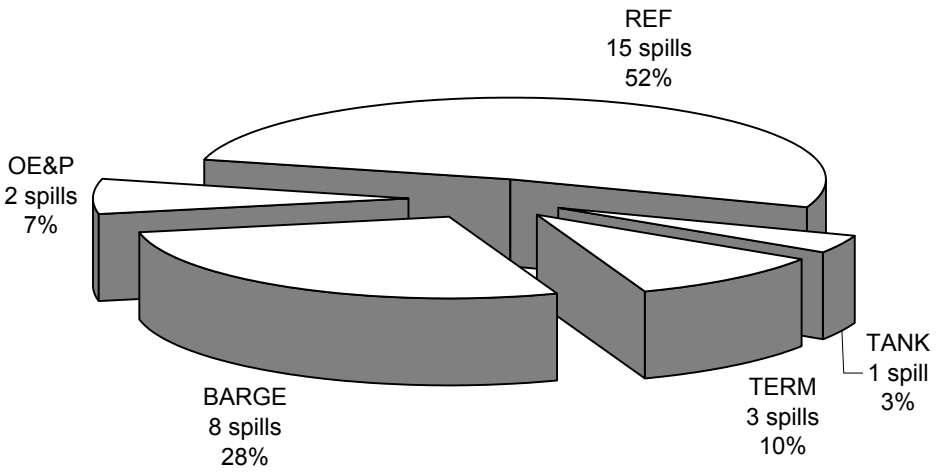


Gasoline Spills at Regulated Facilities

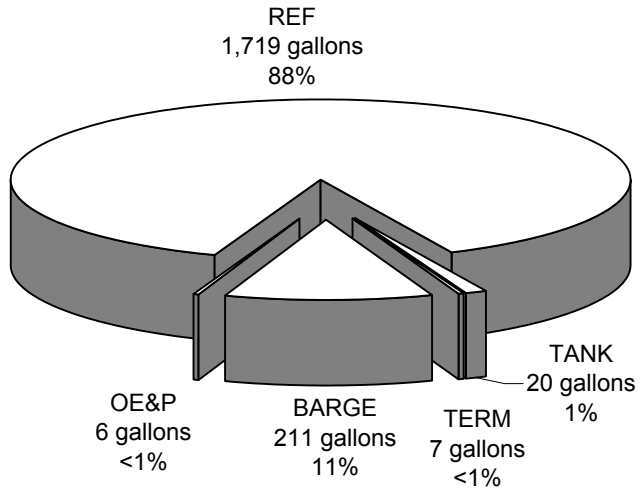
	BARGE		OE&P		REF		TANK		TERM		TOTAL	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996					3	340					3	340
1997	2	20			3	754					5	774
1998	1	30	1	1	2	43			1	3	5	77
1999	4	160			2	5	1	20	1	1	7	166
2000					3	21			1	3	4	24
2001			1	5	2	556					3	561
2002	1	1									1	1
Total	8	211	2	6	15	1,719	1	20	3	7	28	1,943

Number of Spills at Regulated Facilities

- Only 2% of the gasoline spills occurred at regulated facilities, of that, Refineries account for 52% of the spills reported and 88% of the total volume spilled.



Gallons Released at Regulated Facilities



Gasoline Spills from Unregulated Facilities

- 82% of the gasoline spills occur at gas stations or from vehicles and account for 14% of the volume loss.
- 80% of the volume loss occurs at unregulated oil terminals or tank farms and only 2% of the total spills occur at these facilities.

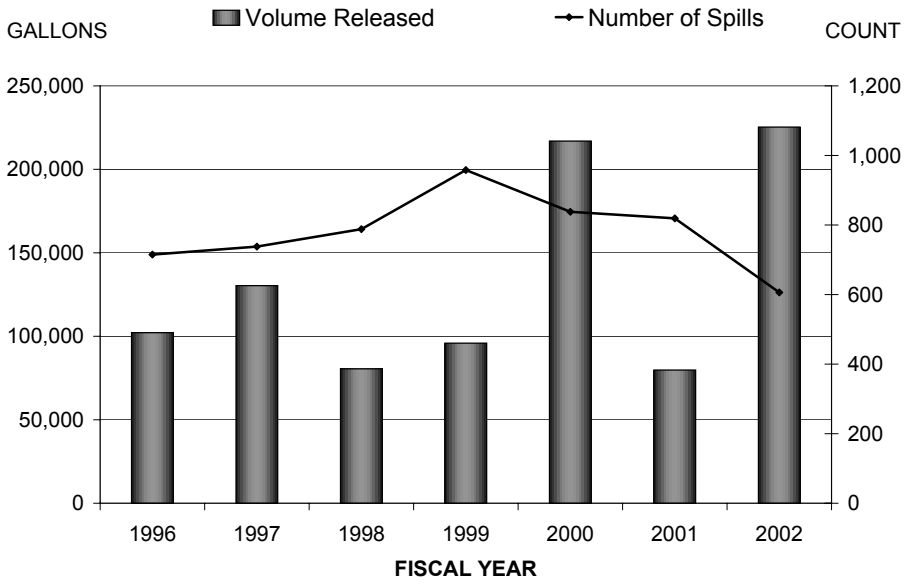
	1996		1997		1998		1999		2000		2001		2002		Cumulative Total	
FacilityType	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
Air Transportation	1	1	5	73	4	36	3	60	4	238	5	1,234	1	1	23	1,643
Cannery			1	50			2	150							3	200
Gas Station	141	665	98	1,016	59	3,483	90	488	205	713	384	2,606	152	509	1,129	9,480
Harbor/Port					1	15					1	10			2	25
Log Processing			1	1											1	1
Maintenance Yard/Shop							1	40							1	40
Mining Operation	1	15			1	3									2	18
Oil Terminal Facility	8	18,621	4	260	9	6,276	5	627	5	84,655	4	5,406	4	81	39	115,926
Other	12	110	17	140	7	291	12	293	8	219	13	158	7	64	76	1,275
Railroad Operation			1	20	1	10	2	6			1	404			5	440
Refinery Operation	1	1			1	5									2	6
Residence	1	400			1	5			1	100					3	505
Transmission Pipeline	1	2,000	1	20	1	5							1	20	4	2,045
Unknown	6	209	6	27	5	78	11	69	8	35	4	31	4	5	44	454
Vehicle	36	686	33	315	41	257	37	792	57	694	37	408	28	7,191	269	10,343
Vessel	11	1,092	8	35	14	332	14	251	10	252	3	65	8	19	68	2,046
Total	219	23,800	175	1,957	145	10,796	177	2,776	298	86,906	452	10,322	205	7,890	1,671	144,447

D. Diesel

Number of Diesel Spills and Total Volume Spilled

Fiscal Year	Total Spills	Total Quantity Released (gallons)
1996	715	102,182
1997	738	130,360
1998	788	80,498
1999	958	95,897
2000	838	216,951
2001	819	79,782
2002	606	225,330
Total	5,462	931,000
Average	780	133,000

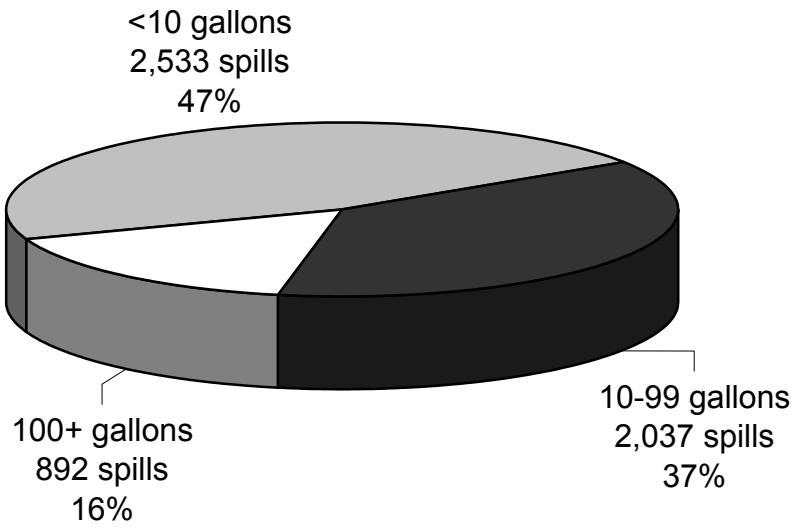
- The largest diesel spill on record occurred on December 22, 1999 when a train derailment resulted in 120,516 gallons of JP8 spilled at Gold Creek.
- The number of diesel spills appears to be on a decline since 1999.



Diesel Spills by Size Class

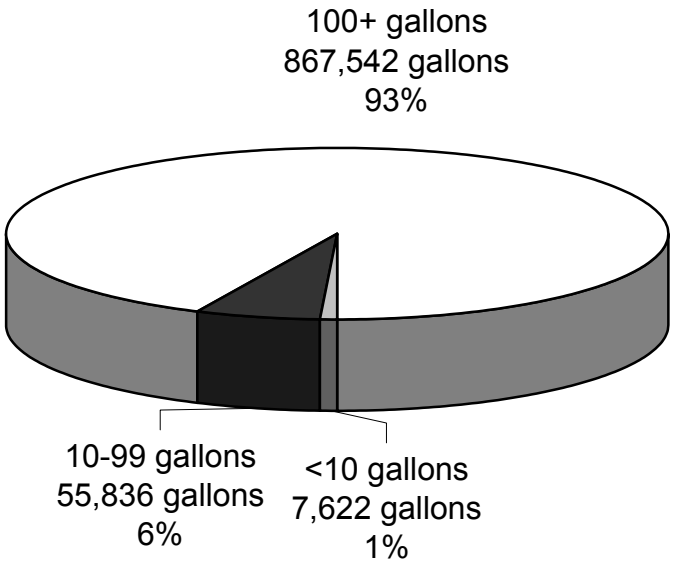
	Size Class							
	<10 gallons		10-99 gallons		100+ gallons		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	347	1,026	253	7,238	115	93,918	715	102,182
1997	327	1,010	276	7,536	135	121,814	738	130,360
1998	358	1,045	321	8,686	109	70,767	788	80,498
1999	471	1,404	343	9,102	144	85,391	958	95,897
2000	391	1,175	308	8,702	139	207,074	838	216,951
2001	370	1,175	319	8,919	130	69,688	819	79,782
2002	269	787	217	5,653	120	218,890	606	225,330
Total	2,533	7,622	2,037	55,836	892	867,542	5,462	931,000

Number of Spills by Spill Size



- Diesel spills greater than 100 gallons in size accounted for only 16% of the total number of diesel spills during this reporting period; however, the total volume spilled amounted to 93% of the entire volume of diesel spilled.

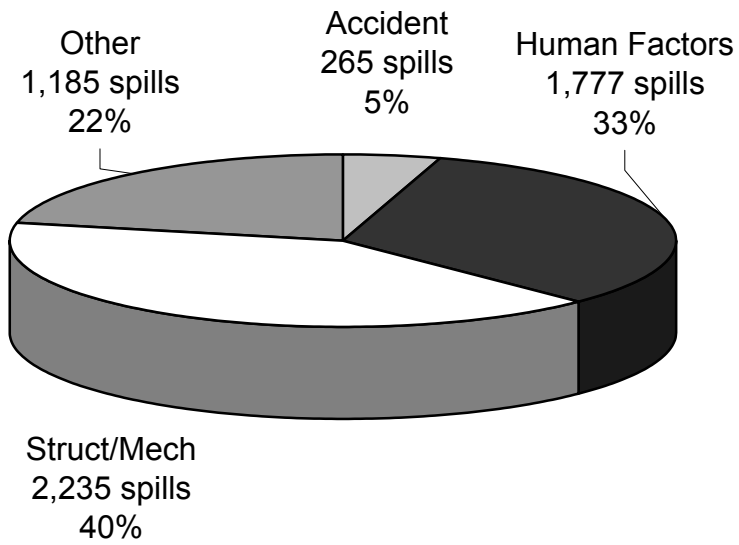
Gallons Spilled by Spill Size



Diesel Spills by Cause

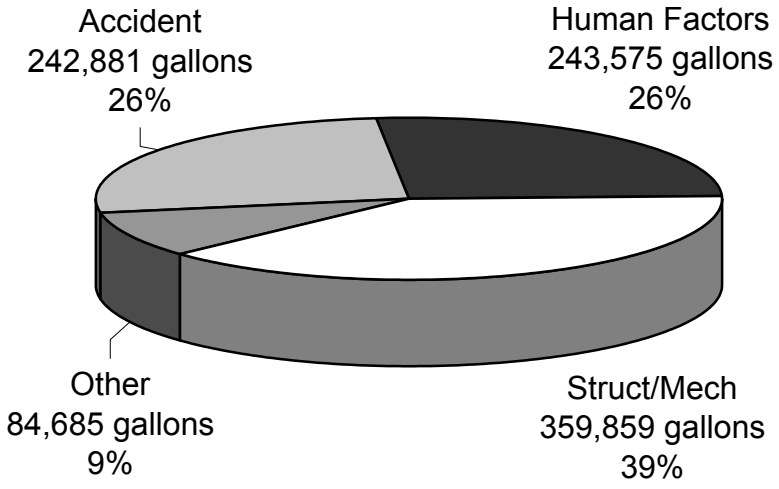
	Cause									
	Accident		Human Factors		Struct/Mech		Other		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	49	30,822	255	30,721	271	36,306	140	4,333	575	97,849
1997	26	4,971	271	41,512	292	52,411	149	31,466	589	98,894
1998	41	22,058	286	28,700	335	27,052	126	2,688	662	77,810
1999	34	18,545	311	27,610	378	40,089	235	9,653	723	86,244
2000	44	138,710	244	27,228	346	41,707	204	9,306	634	207,645
2001	45	10,824	229	15,360	325	33,079	220	20,519	599	59,263
2002	26	16,951	181	72,444	288	129,215	111	6,720	495	218,610
Total	265	242,881	1,777	243,575	2,235	359,859	1,185	84,685	4,277	846,315

Number of Spills by Cause



- Structural/Mechanical causes and Human Factors accounted for the vast majority of diesel spills in Alaska.

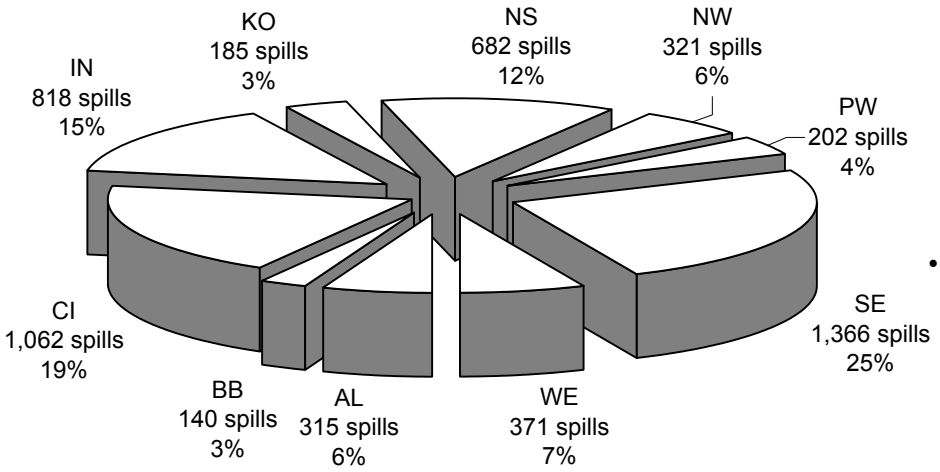
Gallons Spilled by Cause



Diesel Spills by Subarea

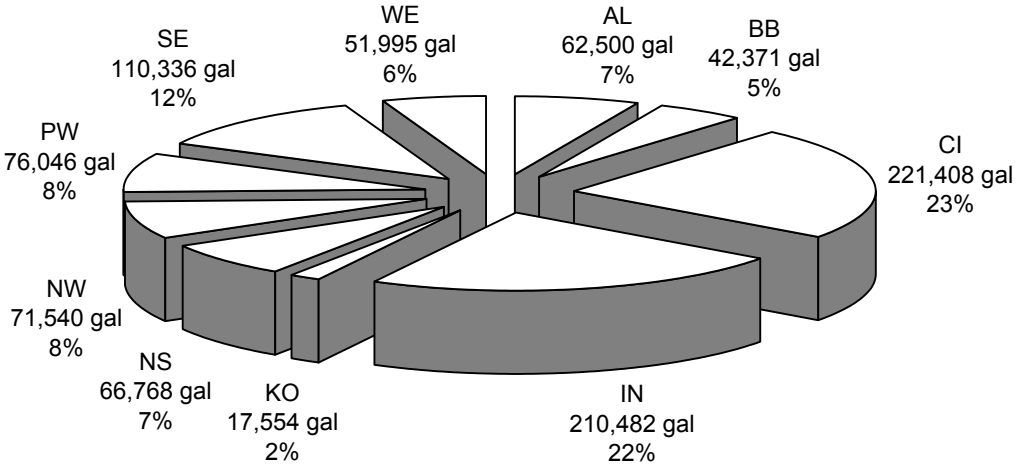
	Cumulative Totals, FY 96-02	
Subarea	*count*	*gallons*
Aleutian (AL)	315	62,500
Bristol Bay (BB)	140	42,371
Cook Inlet (CI)	1,062	221,408
Interior Alaska (IN)	818	210,482
Kodiak Island (KO)	185	17,554
North Slope (NS)	682	66,768
Northwest Arctic (NW)	321	71,540
Prince William Sound (PW)	202	76,046
Southeast Alaska (SE)	1,366	110,336
Western Alaska (WE)	371	51,995
Total	5,462	931,000

Number of Spills by Subarea



- The number of diesel spills was fairly well distributed throughout the ten subareas, with Southeast Alaska (25%), Cook Inlet (19%) , Interior Alaska (15%) and the North Slope (12%) at the higher end of the spectrum.
- In terms of total volume of diesel spilled by subarea, the Cook Inlet (23%) and Interior Alaska (22%) subareas accounted for 45% of the total volume spilled.

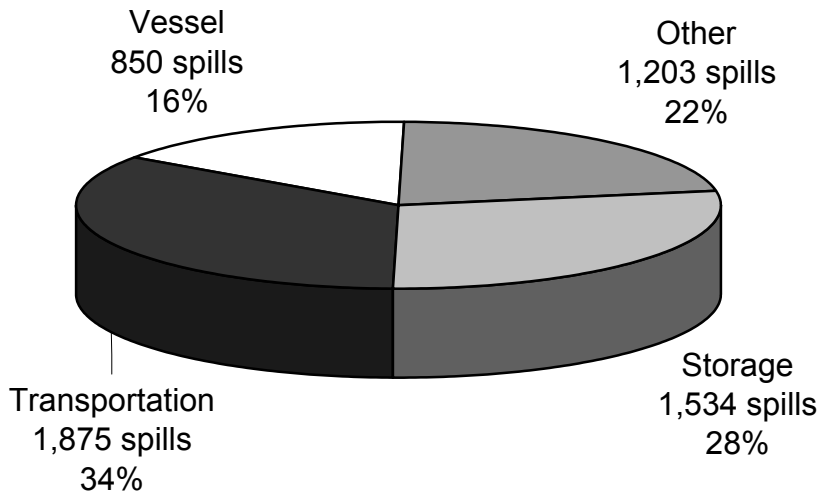
Gallons Released by Subarea



Diesel Spills by Facility Type

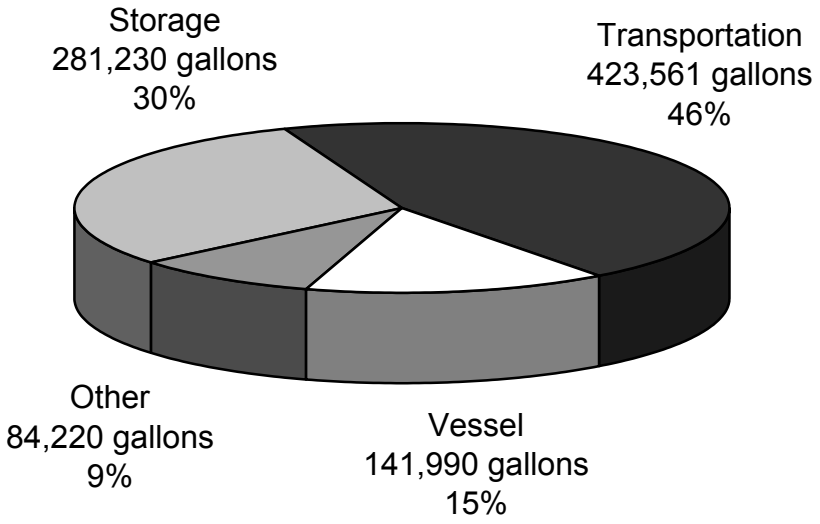
	Facility Type									
	Storage		Transportation		Vessel		Other		Total	
FY	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
1996	198	35,885	231	18,445	131	39,330	155	8,522	715	102,182
1997	219	66,184	200	29,257	142	16,240	177	18,679	738	130,360
1998	193	33,826	269	26,593	159	9,437	167	10,642	788	80,498
1999	243	38,127	332	32,564	174	14,108	209	11,098	958	95,897
2000	231	38,802	328	156,901	88	10,696	191	10,552	838	216,951
2001	231	34,585	307	22,487	96	9,271	185	13,439	819	79,782
2002	219	33,821	208	137,314	60	42,908	119	11,288	606	225,330
Total	1,534	281,230	1,875	423,561	850	141,990	1,203	84,220	5,462	931,000

Number of Spills by Facility Type



- Transportation facilities accounted for nearly half of the total volume spilled from diesel spills.

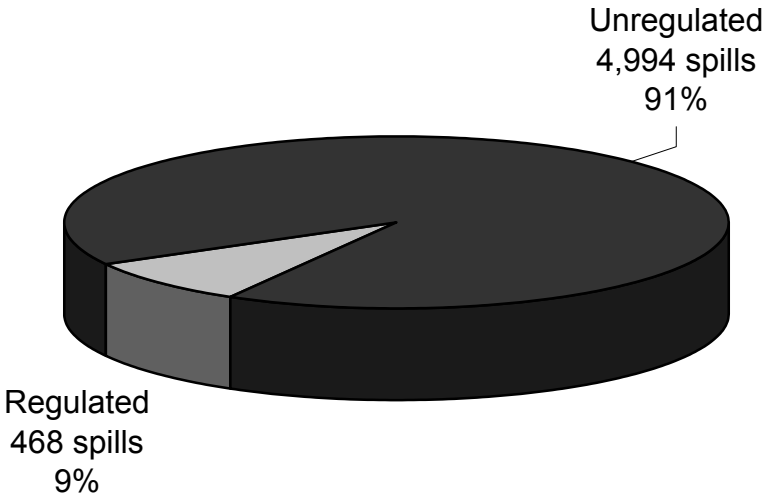
Gallons Spilled by Facility Type



Diesel Spills at Regulated and Unregulated Facilities

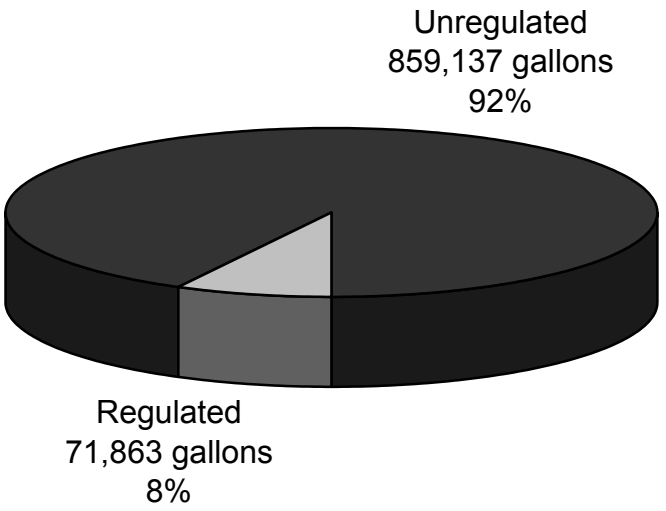
	Facility Type					
	Regulated		Unregulated		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	56	4,226	659	97,956	715	102,182
1997	63	28,141	675	102,219	738	130,360
1998	87	3,426	701	77,072	788	80,498
1999	67	15,282	891	80,615	958	95,897
2000	47	3,255	791	213,696	838	216,951
2001	64	11,222	755	68,560	819	79,782
2002	84	6,311	522	219,019	606	225,330
Total	468	71,863	4,994	859,137	5,462	931,000

Number of Spills at Regulated vs. Unregulated Facilities



- Similar to gasoline spills, the number of diesel spills from unregulated facilities occurred approximately ten times as much as from regulated facilities.
- The amount of diesel released per incident from unregulated facilities was 172 gallons as compared to 154 gallons of diesel per incident for regulated facilities.

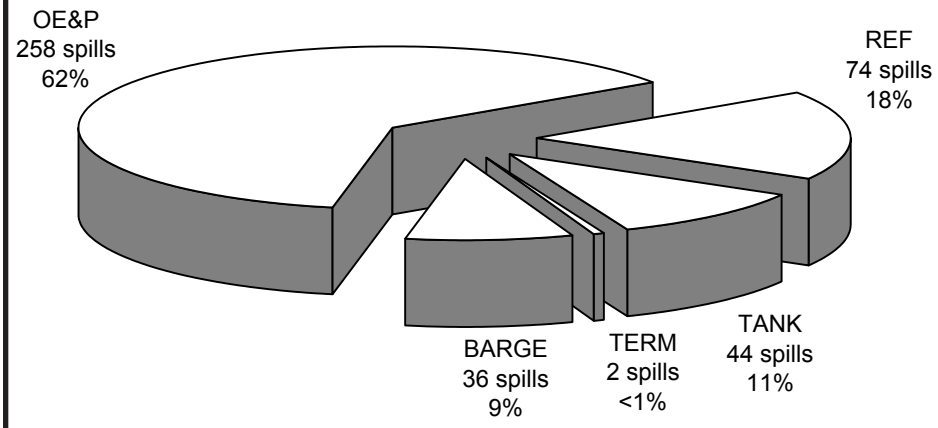
Gallons Released at Regulated vs. Unregulated Facilities



Diesel Spills at Regulated Facilities

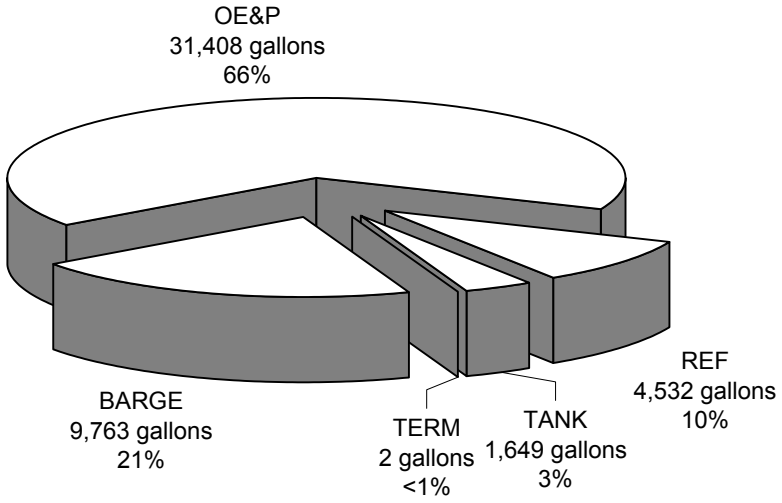
	BARGE		OE&P		REF		TANK		TERM		TOTAL	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	3	261	24	2,082	13	91	9	172			7	1,620
1997	4	8,172	29	16,728	17	717	9	447	2	2	2	2,075
1998	10	902	43	718	9	861	9	295			16	650
1999	9	260	25	2,798	15	2,152	10	78			8	9,994
2000	5	134	25	399	9	347	1	40			7	2,335
2001	3	8	43	5,837	9	314	4	572			5	4,491
2002	2	26	69	2,846	2	50	2	45			9	3,344
Total	36	9,763	258	31,408	74	4,532	44	1,649	2	2	370	45,705

Number of Spills at Regulated Facilities



- Only 9% of the total diesel spills occurred at regulated facilities and oil exploration and production facilities were the source of the majority of these diesel spills in terms of the number of spills (62%) and total volume released (66%).

Gallons Released at Regulated Facilities



Diesel Spills from Unregulated Facilities

- The transportation node comprised of vehicles (22%), vessels (16%), air transportation (6%) and rail (<1%) account for 44% of the diesel spills at unregulated facilities and 58% of the volume loss. Although rail transportation incidents occur <1% they contribute 16% of the total volume loss of diesel.

	1996		1997		1998		1999		2000		2001		2002		Cumulative Total	
FacilityType	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
Air Transportation	7	669	10	5,031	18	396	81	3,332	97	3,793	65	4,244	56	115,815	334	133,280
Cannery	9	10,661	7	764	8	3,678	9	997	4	670	1	25	4	1,645	42	18,440
Drug Lab					1	5									1	5
Gas Station	49	1,523	43	1,521	19	157	45	2,232	45	1,447	56	8,986	39	742	296	16,608
Harbor/Port	2	31	1	20			3	13	1	10	1	25	8	34	16	133
Laundry Service	1	500			1	1,500	3	445	3	1,164			1	30	9	3,639
Log Processing	5	821	8	3,030			4	14			1	2	1	2	19	3,869
Logging Operation	2	35	2	80					1	5	3	317	4	33	12	470
Maintenance Yard/Shop	2	85	1	20	5	96	2	97	2	29	1	25	5	1,558	18	1,910
Mining Operation	10	846	13	1,182	19	695	12	93	12	403	8	193	29	931	103	4,343
Oil Terminal Facility	28	3,539	48	42,592	46	17,311	36	9,159	39	9,348	35	3,884	19	6,900	251	92,733
Other	87	7,226	98	16,910	89	9,993	106	7,027	102	8,721	112	8,170	86	10,924	680	68,971
Power Generation	5	6,935	11	4,891	10	2,889	11	3,052	17	11,196	2	700	12	4,541	68	34,204
Railroad Operation	4	95	4	395	7	172	7	1,173	8	135,145	2	260	8	593	40	137,833
Refinery Operation			2	7	2	55									4	62
Residence	67	8,823	73	8,877	54	6,226	101	11,581	95	11,749	113	13,826	80	8,365	583	69,447
School	2	105			2	115			4	406	1	10	14	5,685	23	6,321
Telecommunications							1	370	1	10					2	380
Transmission Pipeline	6	618	12	1,667	7	140	9	10,252	10	5,390	15	870	7	935	66	19,872
Unknown	65	1,282	68	1,634	67	617	96	1,783	86	1,811	66	5,247	31	347	479	12,721
Vehicle	178	14,873	137	4,832	194	24,330	199	15,132	181	11,837	178	10,958	60	17,058	1,127	99,020
Vessel	128	39,069	136	8,066	149	8,535	165	13,848	83	10,562	93	9,263	58	42,882	812	132,225
Water/Wastewater Facility	2	220	1	700	3	162	1	15			2	1,555			9	2,652
Total	659	97,956	675	102,219	701	77,072	891	80,615	791	213,696	755	68,560	522	219,019	4,994	859,137

E. Hazardous Substances

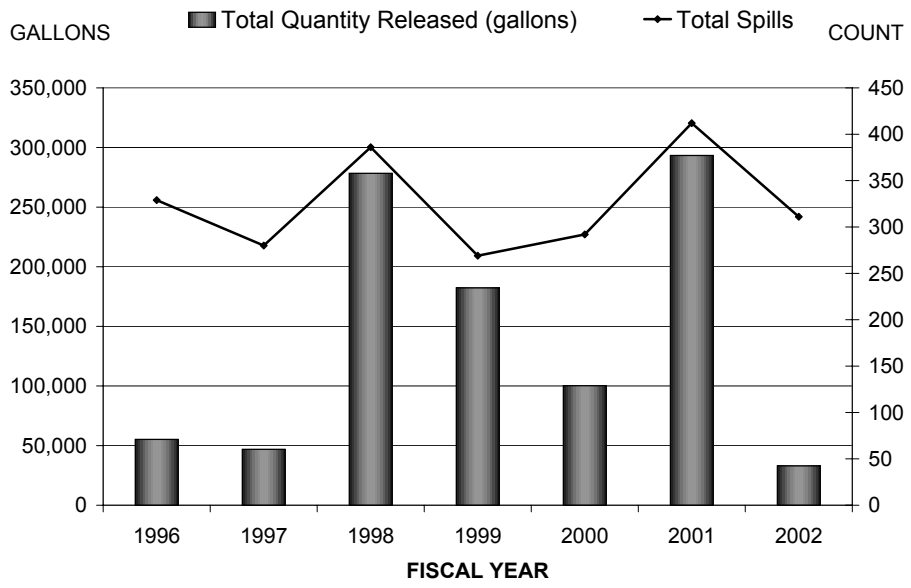
There were no significant trends associated with chemical releases over this seven-year reporting period.

As mentioned previously in this report, the following is the definition of Hazardous Substances. Also, see Appendix A for a list of hazardous substances commonly reported in the state.

> **Hazardous Substance:** means (A) an element or compound that, when it enters into or on the surface or subsurface land or water of the state, presents an imminent and substantial danger to the public health or welfare, or to fish, animals, vegetation, or any part of the natural habitat in which fish, animals, or wildlife may be found; or (B) a substance defined as a hazardous substance under 42 U.S.C. 9601-9657 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980); "hazardous substance" does not include uncontaminated crude oil or uncontaminated refined oil in an amount of 10 gallons or less.

Number of Hazardous Substance Spills and Total Volume Spilled

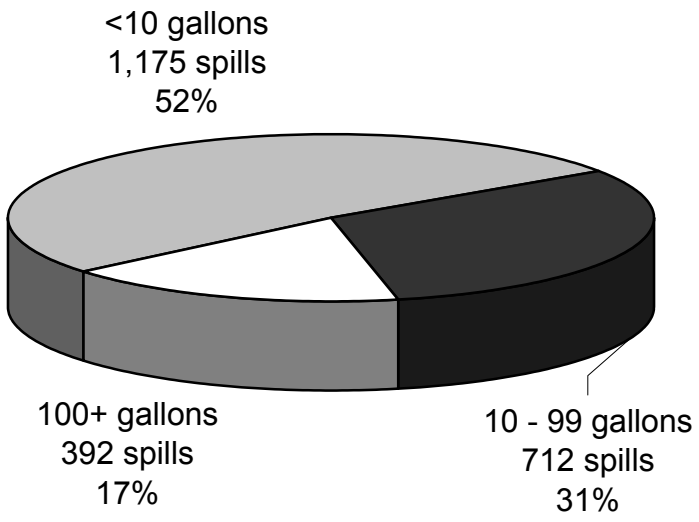
Fiscal Year	Total Spills	Total Quantity Released (gallons)
1996	329	55,216
1997	280	46,875
1998	386	278,364
1999	269	182,283
2000	292	100,229
2001	412	293,317
2002	311	32,975
Total	2,279	989,259
Average	326	141,323



Hazardous Substance Spills by Size Class

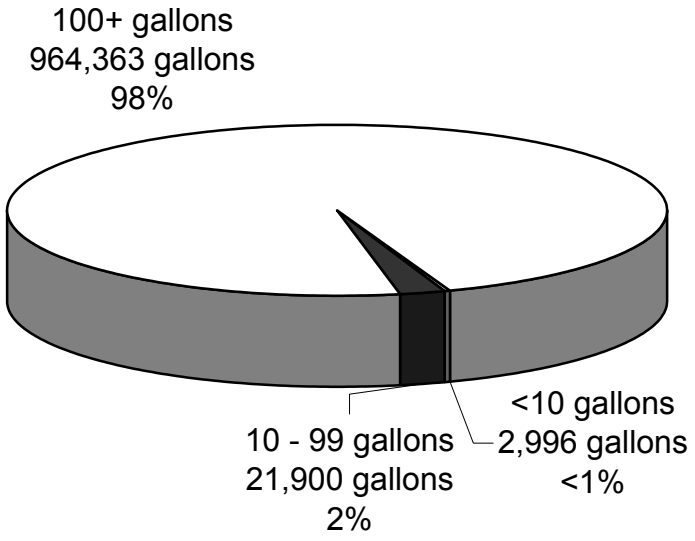
	Spill Size							
	<10 gallons		10 - 99 gallons		100+ gallons		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	170	408	104	3373	55	51435	329	55216
1997	145	369	83	2477	52	44029	280	46875
1998	201	502	125	3900	60	273962	386	278364
1999	128	365	86	2495	55	179423	269	182283
2000	139	355	92	2931	61	96943	292	100229
2001	234	669	123	3883	55	288765	412	293317
2002	158	328	99	2841	54	29806	311	32975
Total	1,175	2,996	712	21,900	392	964,363	2,279	989,259

Number of Spills by Spill Size



- Most chemical spills were small in terms of quantity released. Spills under 100 gallons in size made up 83% of the total number of releases.
- While only 17% of the total number of spills were greater than 100 gallons in size, the volume released was 98% of the total volume of hazardous substance spills.

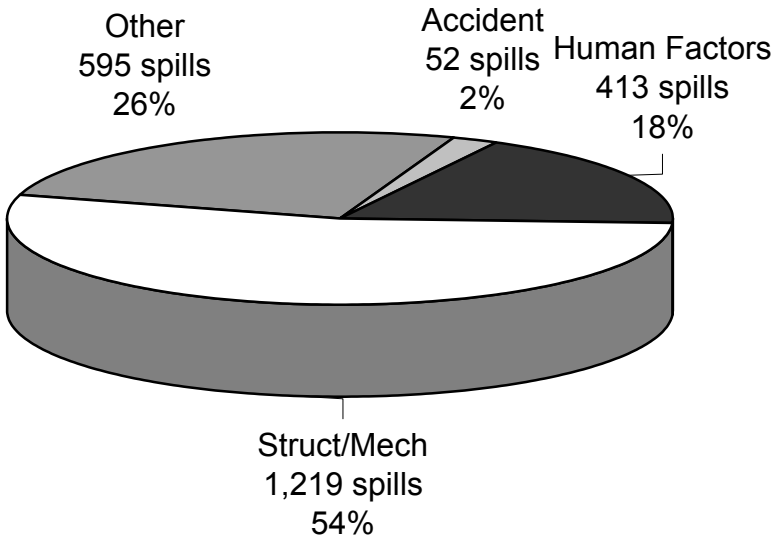
Gallons Spilled by Spill Size



Hazardous Substance Spills by Cause

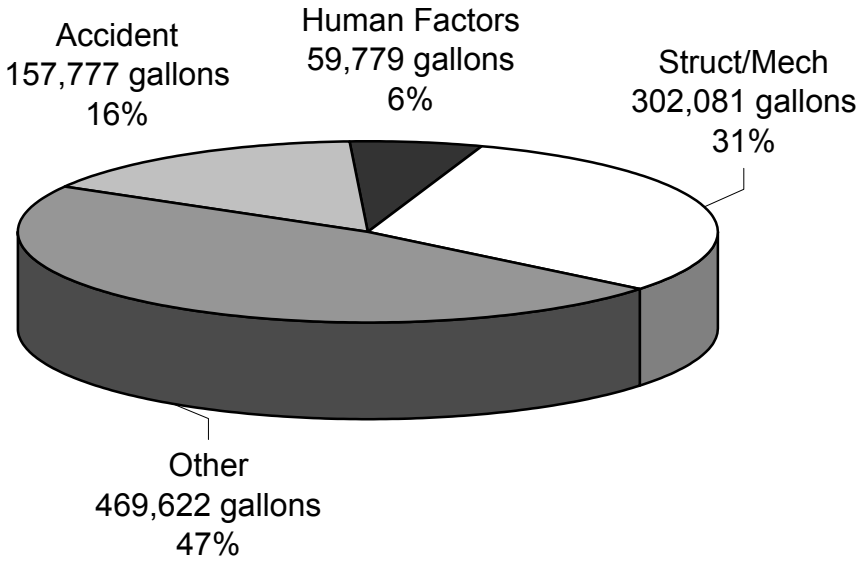
	Cause									
	Accident		Human Factors		Struct/Mech		Other		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	4	11	68	14,450	176	35,137	81	5,618	329	55,216
1997	2	46	50	8,063	164	30,780	64	7,986	280	46,875
1998	11	362	73	4,955	240	61,634	62	211,413	386	278,364
1999	6	4,294	44	2,218	141	29,857	78	145,914	269	182,283
2000	8	584	58	4,485	146	27,490	80	67,670	292	100,229
2001	11	152,078	60	12,976	176	99,309	165	28,954	412	293,317
2002	10	402	60	12,632	176	17,874	65	2,067	311	32,975
Total	52	157,777	413	59,779	1,219	302,081	595	469,622	2,279	989,259

Number of Spills by Cause



- Approximately 70% of spills due to Structural/Mechanical causes can be attributed to leaks, line and valve failures.
- Approximately 58% of spills due to Human Factor causes can be attributed to overfills and human error.

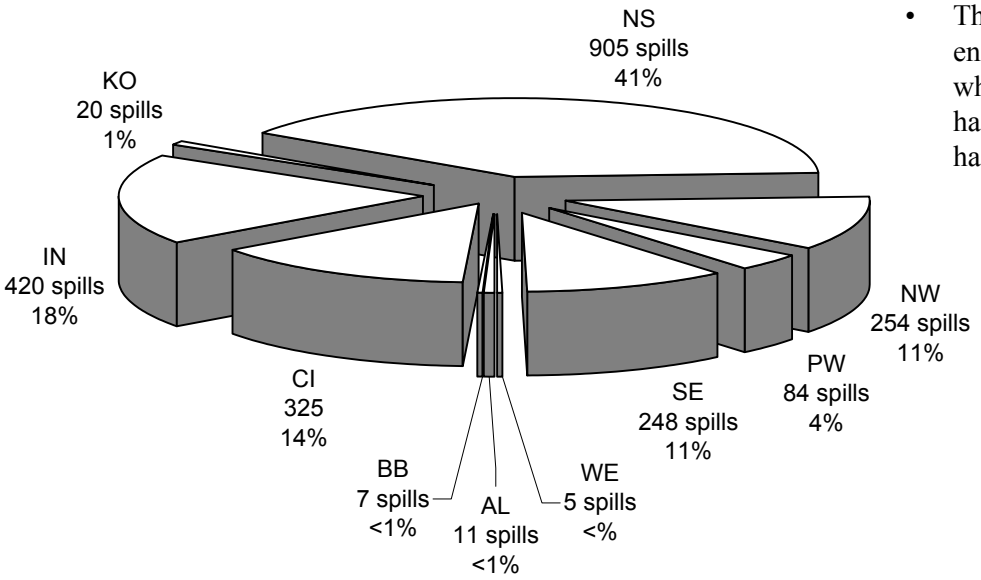
Gallons Spilled by Cause



Hazardous Substance Spills by Subarea

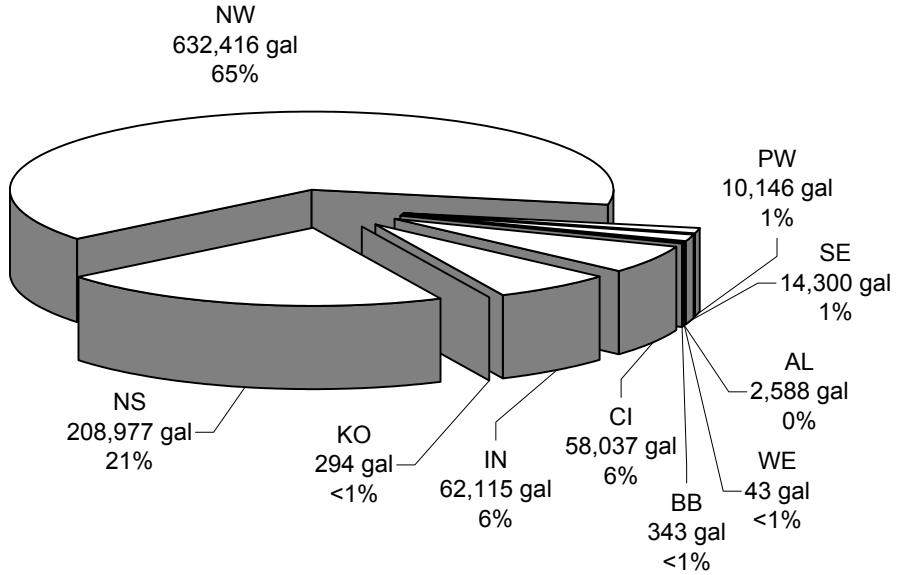
	Cumulative Totals, FY 96-02	
Subarea	*count*	*gallons*
Aleutian (AL)	11	2,588
Bristol Bay (BB)	7	343
Cook Inlet (CI)	325	58,037
Interior Alaska (IN)	420	62,115
Kodiak Island (KO)	20	294
North Slope (NS)	905	208,977
Northwest Arctic (NW)	254	632,416
Prince William Sound (PW)	84	10,146
Southeast Alaska (SE)	248	14,300
Western Alaska (WE)	5	43
Total	2,279	989,259

Number of Spills by Subarea



- The North Slope subarea experienced the greatest number of spills, while the Northwest Arctic subarea had the greatest total volume of hazardous substances released.

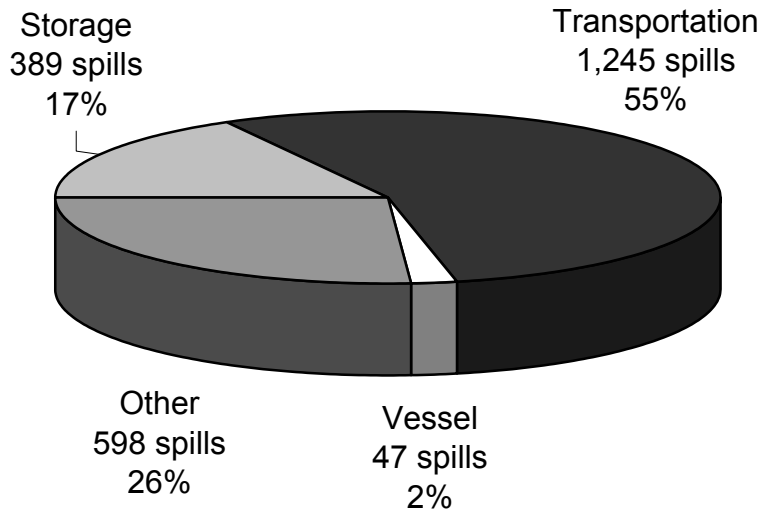
Gallons Spilled by Subarea



Hazardous Substance Spills by Facility Type

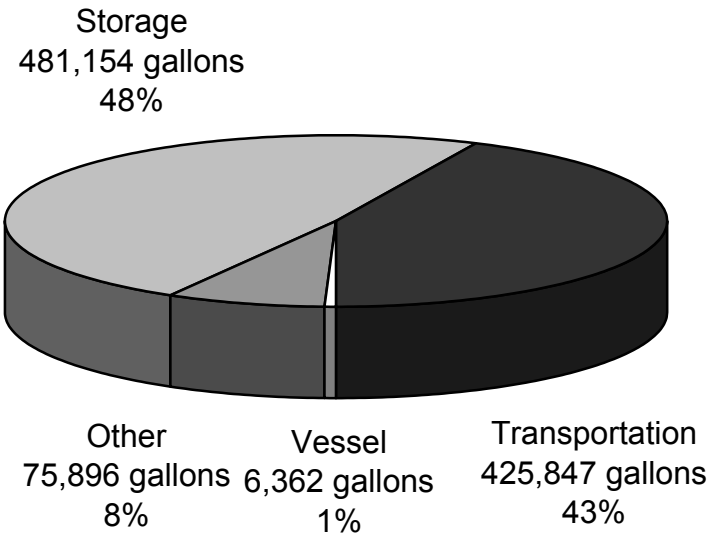
	Facility Type									
	Storage		Transportation		Vessel		Other		Total	
FY	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
1996	36	4,047	176	25,414	6	11	111	25,744	329	55,216
1997	40	15,557	164	22,870	6	1,153	70	7,295	280	46,875
1998	76	246,884	234	17,600	5	218	71	13,662	386	278,364
1999	63	158,171	140	17,323	4	14	62	6,775	269	182,283
2000	49	16,724	157	71,702	9	226	77	11,577	292	100,229
2001	49	30,806	201	251,350	13	4,727	149	6,434	412	293,317
2002	76	8,965	173	19,588	4	13	58	4,409	311	32,975
Total	389	481,154	1,245	425,847	47	6,362	598	75,896	2,279	989,259

Number of Spills by Facility Type



- Transportation facilities accounted for over half the releases.
- Storage facilities account for 17% of the releases and nearly half the total volume (an average of 1,237 gallons per release).

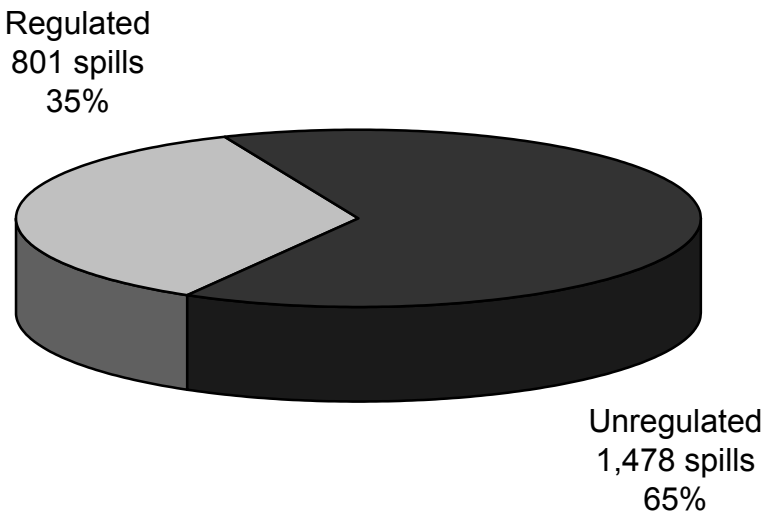
Gallons Spilled by Facility Type



Hazardous Substance Spills at Regulated vs. Unregulated Facilities

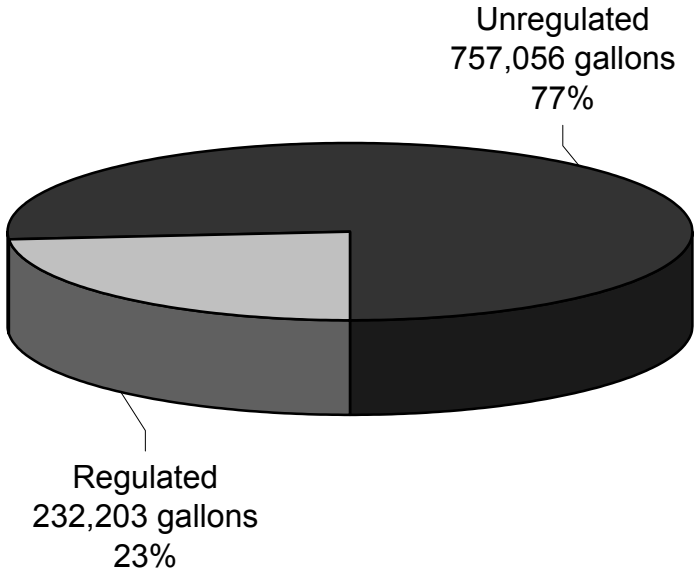
	Facility Type					
	Regulated		Unregulated		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	94	14,221	235	40,995	329	55,216
1997	115	27,936	165	18,939	280	46,875
1998	175	23,265	211	255,099	386	278,364
1999	86	12,758	183	169,525	269	182,283
2000	89	51,830	203	48,399	292	100,229
2001	107	89,956	305	203,361	412	293,317
2002	135	12,237	176	20,738	311	32,975
Total	801	232,203	1,478	757,056	2,279	989,259

Number of Spills at Regulated vs. Unregulated Facilities



- 65% of the hazardous substance spills occurred at unregulated facilities and account for 77% of the total volume released.

Gallons Spilled at Regulated vs. Unregulated Facilities

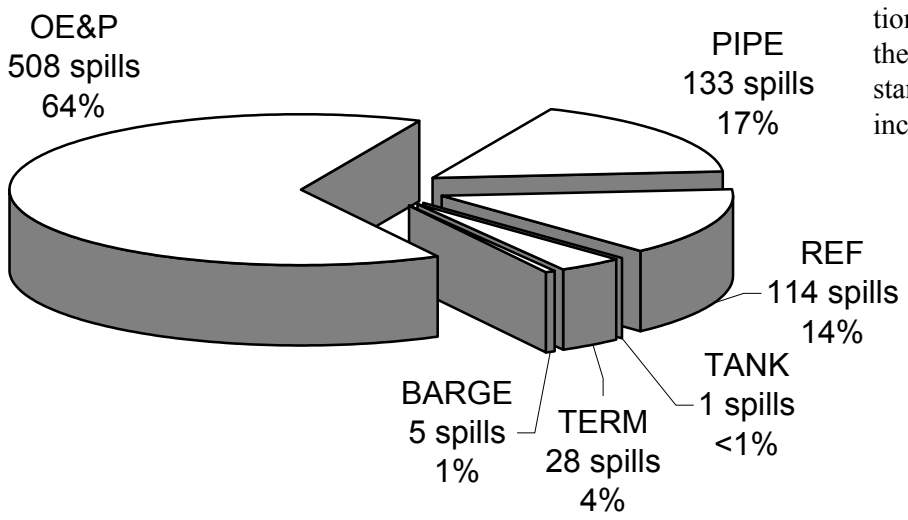


Hazardous Substance Spills at Regulated Facilities

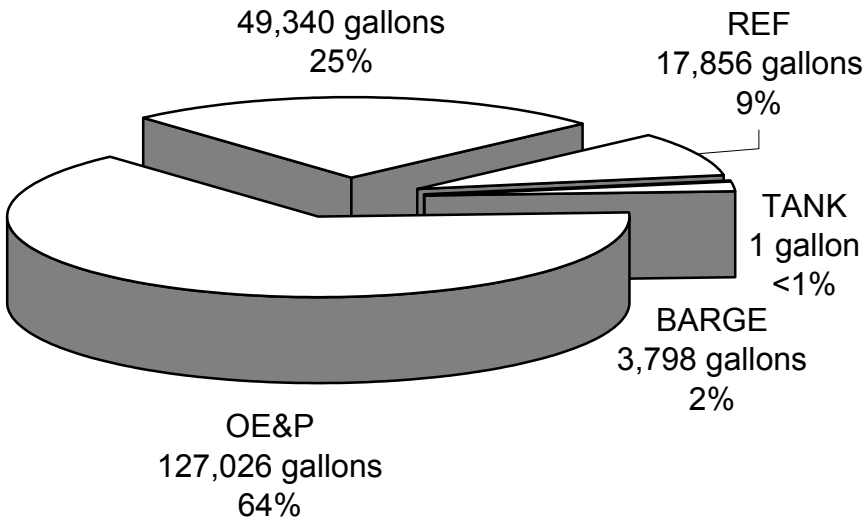
	BARGE		OE&P		PIPE		REF		TANK		TERM		TOTAL	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	1	2	46	8,135	24	3,003	20	490			3	2,591	94	14,221
1997	1	600	71	17,854	22	313	18	8,577			3	592	115	27,936
1998	1	195	112	20,296	28	1,866	28	851			3	54	172	23,262
1999			33	2,477	25	7,964	12	648			13	1,623	83	12,712
2000	1	1	63	41,147	11	7,631	11	3,037	1	1	1	3	88	51,820
2001	1	3,000	67	26,489	17	28,493	14	2,716			5	256	104	60,954
2002			116	10,628	6	70	11	1,537					133	12,235
Total	5	3,798	508	127,026	133	49,340	114	17,856	1	1	28	5,119	789	203,140

Number of Spills by Facility Type

- Thirty-five percent (35%) of the hazardous substance spills occurred at regulated facilities. Oil exploration and production facilities were the major source of hazardous substance spills in terms of number of incidents and total volume released.



Gallons Spilled by Facility Type



Hazardous Substance Spills from Unregulated Facilities

- Vehicles (commercial vehicles, tanker trucks) account for 43% of the hazardous substance releases and 24% of the volume loss. Mining operations account for 14% of the hazardous substance releases and 54% of the volume loss.

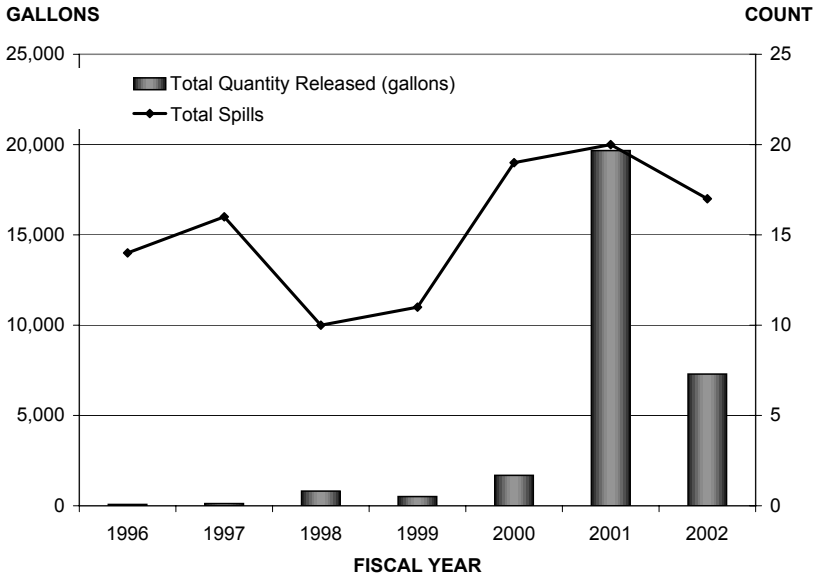
	1996		1997		1998		1999		2000		2001		2002		Cumulative Total	
FacilityType	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
Air Transportation	3	77	1	1	5	356	4	1,612	5	3,401	3	8	6	7,922	27	13,377
Cannery							1	500	2	2,020					3	2,520
Farm/Aquaculture													1	1	1	1
Gas Station	1	1					2	86	6	398					9	485
Log Processing	1	0	3	4,600											4	4,600
Maintenance Yard/Shop											1	25	9	161	10	186
Mining Operation	6	10,556	11	1,066	43	247,548	27	123,313	16	8,942	22	27,416	50	6,861	175	425,702
Oil Terminal Facility			1	10	2	250	3	25,452	5	552	5	97	1	30	17	26,391
Other	68	13,884	43	6,865	34	3,784	38	5,746	42	5,353	61	4,996	21	4,126	307	44,754
Power Generation	2	101	4	714	1	15	2	28	1	140	1	101	1	15	12	1,114
Railroad Operation			1	100	1	10	1	80	1	20,000	1	1,020			5	21,210
Refinery Operation	1	1	1	50			1	6,500					1	300	4	6,851
Residence	1	1	1	40							1	5			3	46
School							1	20							1	20
Transmission Pipeline	23	6,140	5	262	1	150	4	370	6	304	4	33,003	4	37	47	40,266
Unknown	17	447	7	125	9	965	4	507	8	61	9	776	2	4	56	2,885
Vehicle	86	8,475	68	4,274	96	1,597	71	4,771	68	5,184	111	162,313	38	970	538	187,584
Vessel	1	5	4	552	2	2	1	11	4	217	6	1,590	1	10	19	2,387
Water/Wastewater Facility	1	300	1	10	1	200	1	1	4	1,616	1	200			9	2,327
Total	211	39,988	151	18,669	195	254,877	161	168,997	168	48,188	226	231,550	135	20,437	1,247	782,706

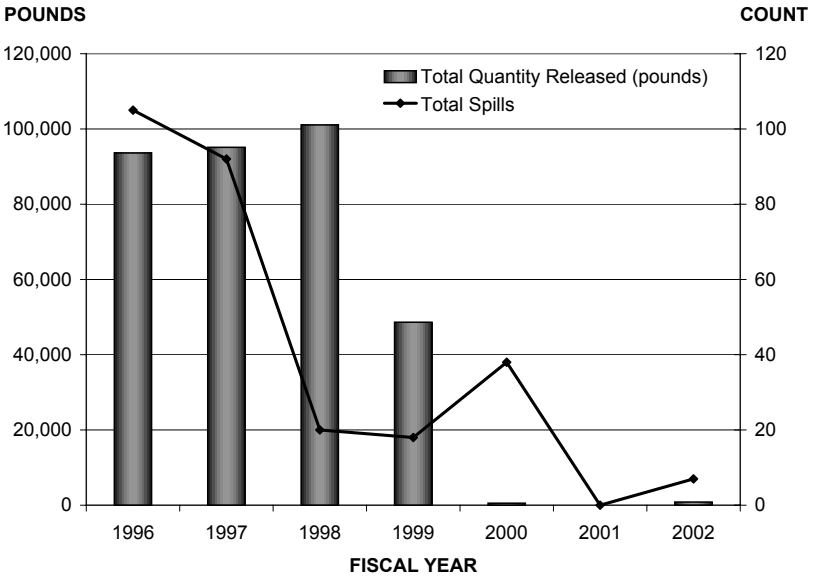
F. Extremely Hazardous Substances

- A 2002 survey of Tier Two reporting facilities (under the Community Right-to-Know Act) indicated that there are 809 facilities that store reportable quantities of hazardous substances in Alaska. This does not include transportation facilities which are exempt from Tier Two reporting. Reportable substances include explosives, poisons, flammable solids, radioactive substances, compressed gases, and substances which require a material safety data sheet (MSDS).
- EHS chemicals most commonly stored and used in Alaska include chlorine, ammonia, and sulfuric acid.
- The state experiences an average of 62 EHS releases per year, the majority of which are are less than 10 gallons or 1 pound in size.
- The four prevalent EHSs released in the state are Ammonia (39%), Sulfur Dioxide (25%), Chlorine (18%) and Sulfuric Acid (12%).

Number of EHS Releases and Total Volume Released

	Reported in Gallons		Reported in Pounds	
Fiscal Year	*count*	*gallons*	*count*	*pounds*
1996	14	76	105	93,613
1997	16	120	92	95,122
1998	10	813	20	101,071
1999	11	509	18	48,645
2000	19	1,685	38	537
2001	20	19,668		
2002	17	7,295	7	836
Total	107	30,166	280	339,824
Average	15	4,309	47	56,637



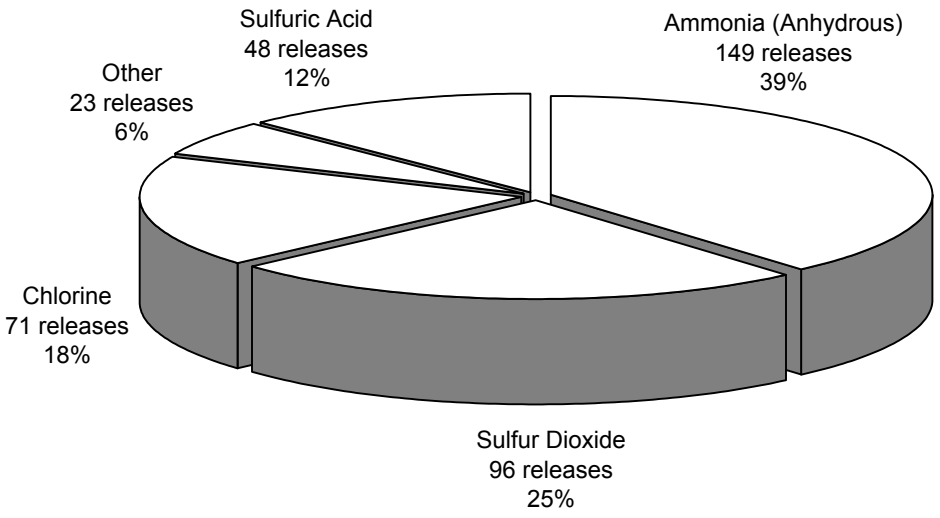


EHS Releases by Substance

		Reported in Gallons		Reported in Pounds	
EHS	**Total Count**	*count*	*gallons*	*count*	*pounds*
Ammonia (Anhydrous)	149	21	24,979	128	336,295
Chlorine	71	16	1,075	55	121
Formaldehyde	1	1	1		
Hydrazine (Anhydrous)	1	1	1		
Hydrochloric Acid	5	5	1,980		
Hydrofluoric Acid	2	2	2		
Hydrogen Peroxide	2	2	351		
Hydrogen Sulfide	2			2	2
Phosphoric Acid, Dimethyl 4-(Methylthio)	1	1	2		
Sodium Azide (Solid)	1	1	1		
Sodium Cyanide (Solid)	2	2	520		
Sodium Cyanide (Solution)	3	3	725		
Sulfur (Dioxide)	96	1	1	95	3,406
Sulfuric Acid	48	48	520		
Toluene 2,4-Diisocyanate	3	3	8		
Total	387	107	30,166	280	339,824

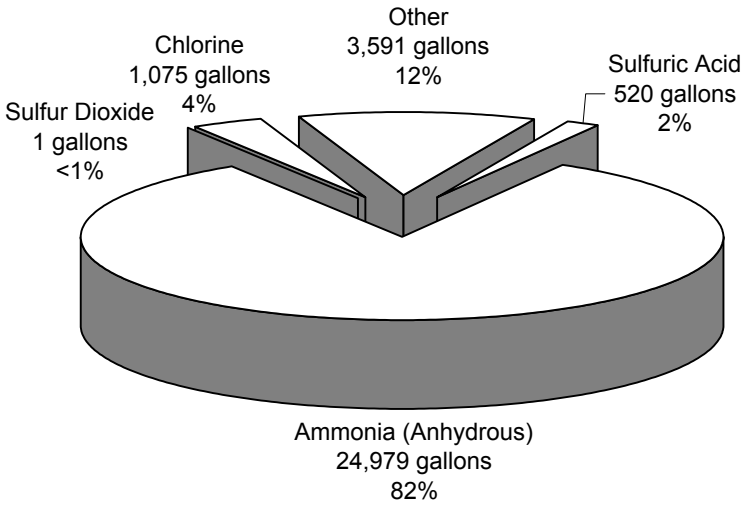
NOTE: Sulfur dioxide releases occurred primarily while the two pulp mills in the Southeast were in operation. Since deactivation of the two facilities, sulfur dioxide releases have been reduced significantly.

Number of Releases by Substance



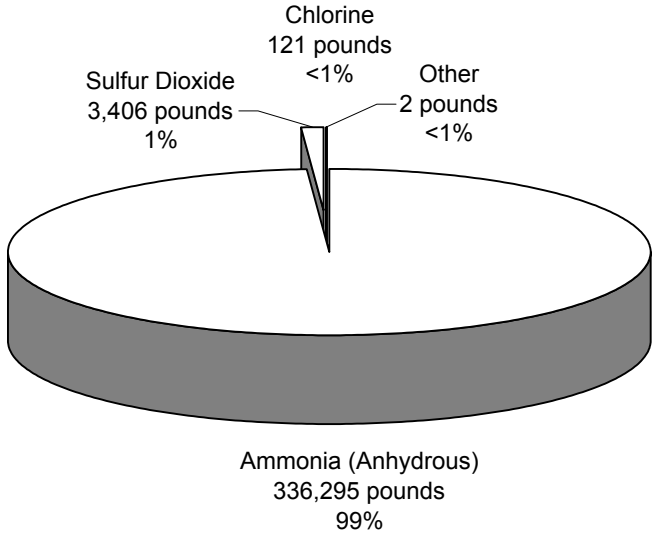
EHS Releases by Substance *(continued)*

Gallons Released by Substance



- Anhydrous ammonia was the most prevalent EHS in terms of total gallons (82%) and pounds released (99%).

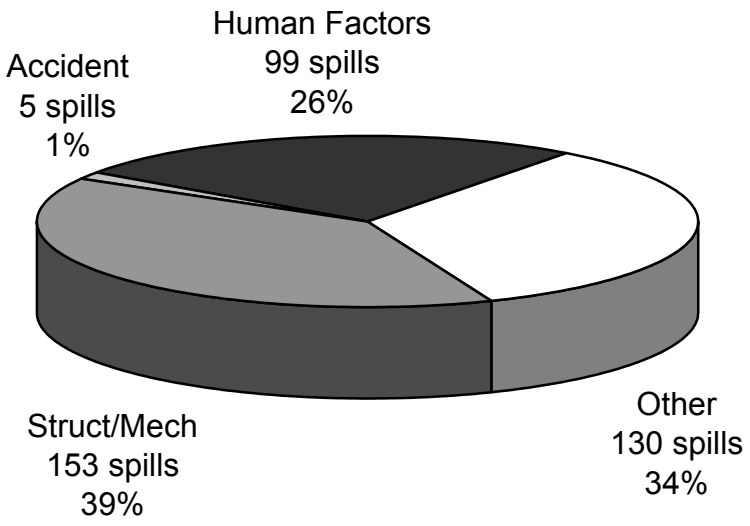
Pounds Released by Substance



EHS Releases by Cause

	Number of EHS Spills by Cause				
FY	*Accident*	*Human Factors*	*Other*	*Struct/Mech*	**Total**
1996		20	39	60	119
1997	1	40	18	49	108
1998	2	12	4	12	30
1999		15	8	6	29
2000		3	48	6	57
2001		4	9	7	20
2002	2	5	4	13	24
Total	5	99	130	153	387

Number of Releases by Cause

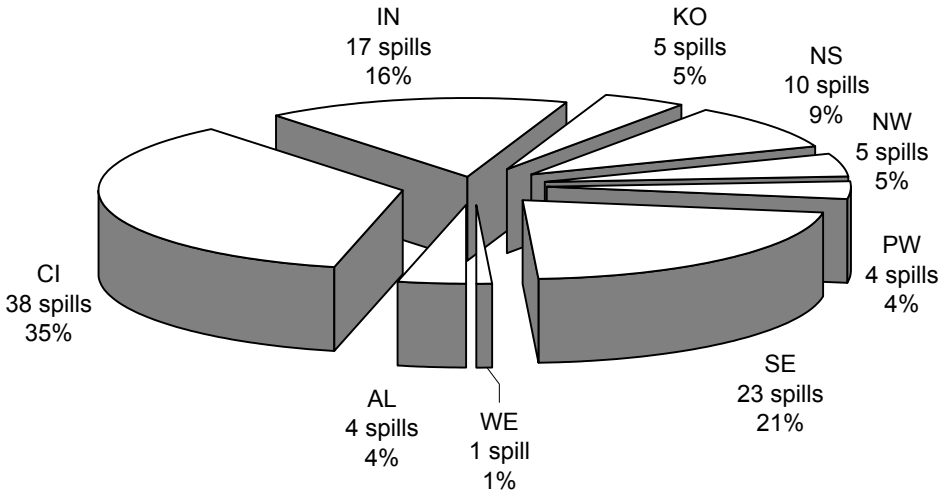


- Structural/Mechanical and "Other" causes accounted for the majority of the releases (73%).

EHS Releases by Subarea

Subarea	Number of Spills FY 96-02
Aleutian (AL)	10
Bristol Bay (BB)	1
Cook Inlet (CI)	150
Interior Alaska (IN)	17
Kodiak Island (KO)	5
North Slope (NS)	11
Northwest Arctic (NW)	5
Prince William Sound (PW)	7
Southeast Alaska (SE)	179
Western Alaska (WE)	2
Total	387

Number of Releases by Subarea

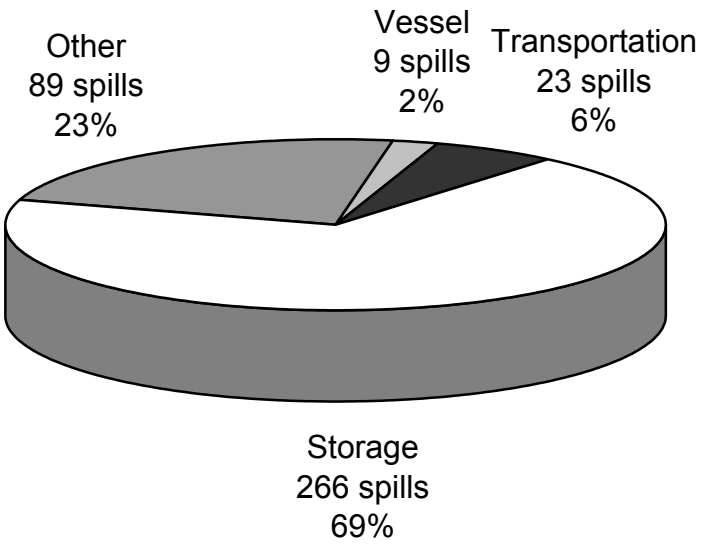


- 72% of the EHS releases occurred in the Southeast, Cook Inlet and Interior subareas, with 35% of the spills in Cook Inlet.

EHS Releases by Facility Type

	Number of EHS Spills by Facility Type				
FY	*Vessel*	*Transportation*	*Storage*	*Other*	**Total**
1996		4	75	40	119
1997	3	2	92	11	108
1998	2	3	17	8	30
1999	2	3	18	6	29
2000		2	53	2	57
2001		1	3	16	20
2002	2	8	8	6	24
Total	9	23	266	89	387

Number of Releases by Facility Type



- Storage and Other facilities accounted for 92% of the total number of EHS releases in Alaska.
- EHS releases from Transportation facilities and Vessels are not that prevalent, and accounted for only 8% of the total number of incidents.

G. Process Water

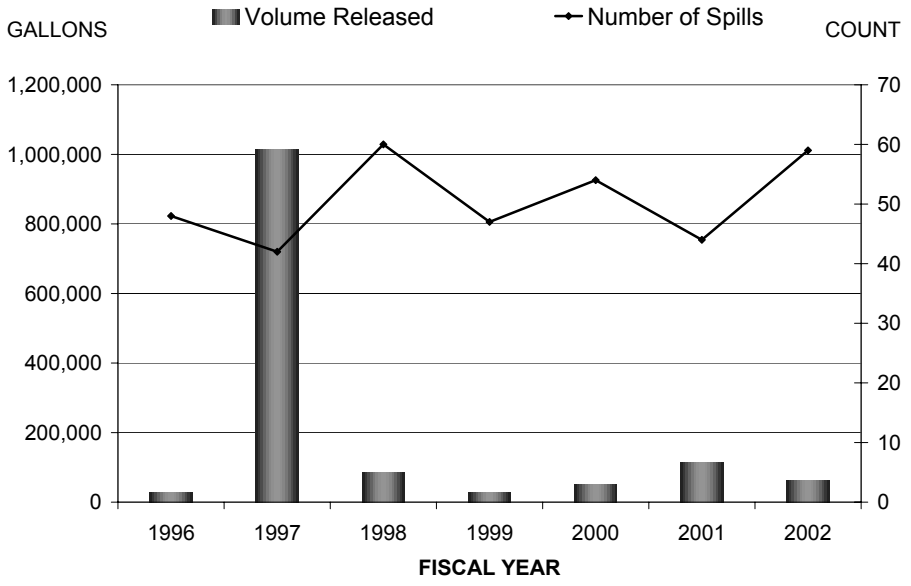
- This report includes only unpermitted process water spills. For the purpose of this report, "Process Water" spills are typically associated with oil exploration and production operations and mining operations. The definition differs for each operation and process water spills are considered reportable as a hazardous substance discharge. The following definitions apply to each type of operation:

  Process Water for 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 for 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).

Number of Process Water Spills and Total Volume Spilled

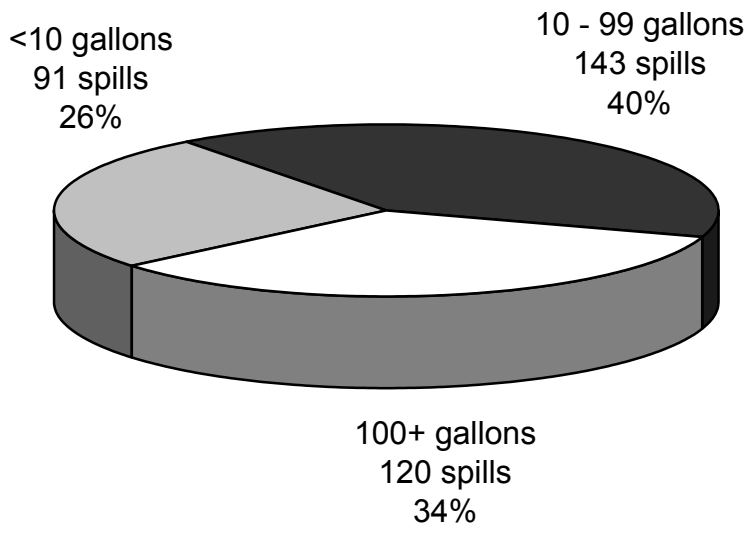
Fiscal Year	Total Spills	Total Quantity Released (gallons)
1996	48	28,493
1997	42	1,014,844
1998	60	86,398
1999	47	27,050
2000	54	51,105
2001	44	114,421
2002	59	62,896
Total	354	1,385,207
Average	51	197,887



Process Water Spills by Size Class

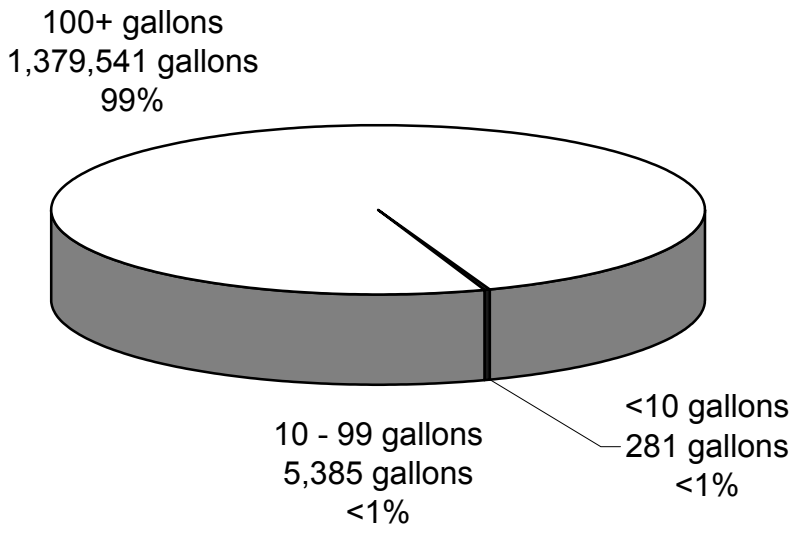
	Spill Size							
	<10 gallons		10 - 99 gallons		100+ gallons		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996	16	56	19	671	13	27766	48	28493
1997	15	43	15	654	12	1014147	42	1014844
1998	14	53	25	795	21	85550	60	86398
1999	7	32	23	787	17	26231	47	27050
2000	12	35	26	1007	16	50063	54	51105
2001	10	22	17	746	17	113653	44	114421
2002	17	40	18	725	24	62131	59	62896
Total	91	281	143	5,385	120	1,379,541	354	1,385,207

Number of Spills by Spill Size



- While nearly two-thirds of process water spills are less than 100 gallons in size, those spills in the 100+ gallons range clearly accounted for nearly 100% of the total volume spilled.

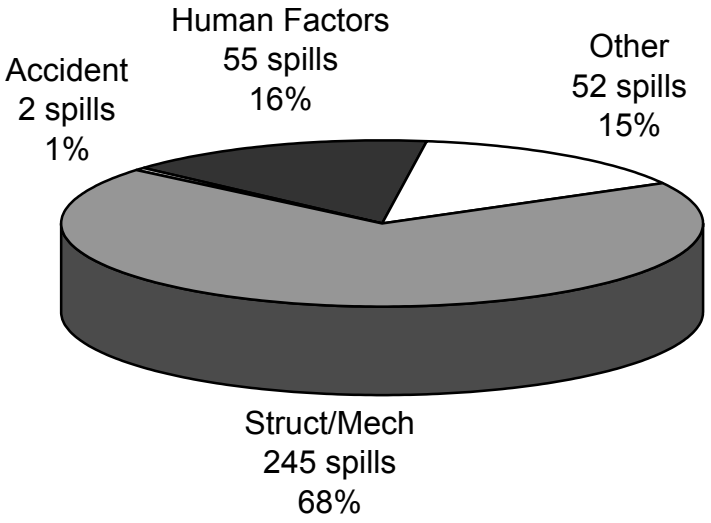
Gallons Spilled by Spill Size



Process Water Spills by Cause

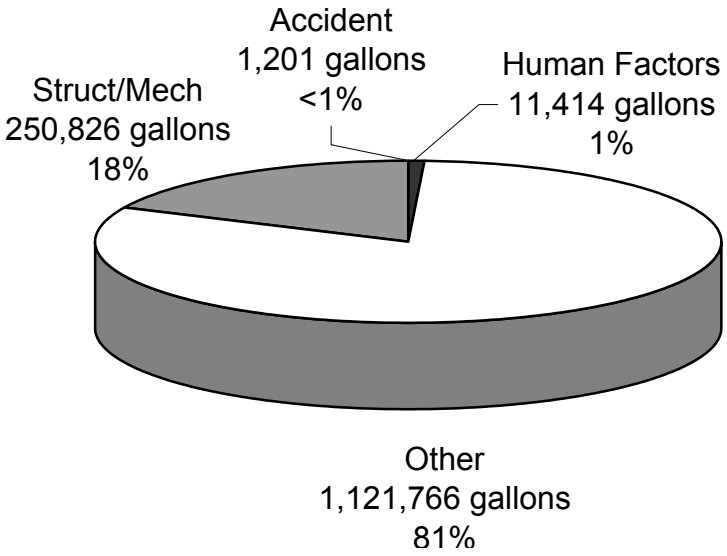
	Cause									
	Accident		Human Factors		Other		Struct/Mech		Total	
FY	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*	*count*	*gallons*
1996			9	1,113	8	1,810	31	25,570	48	28,493
1997	1	1	3	293	7	1,004,390	31	10,160	42	1,014,844
1998			9	763	4	63,137	47	22,498	60	86,398
1999			10	924	9	302	28	25,824	47	27,050
2000			10	2,503	8	25,147	36	23,455	54	51,105
2001			6	1,779	5	1,080	33	111,562	44	114,421
2002	1	1,200	8	4,039	11	25,900	39	31,757	59	62,896
Total	2	1,201	55	11,414	52	1,121,766	245	250,826	354	1,385,207

Number of Spills by Cause



- Most process water spills were caused by human factors, structural/ mechanical, or other causes. Accidents accounted for only 1% of the total number of incidents.
- Spills from "Other" causes resulted in 81% of the total volume of process water spilled.

Gallons Spilled by Cause

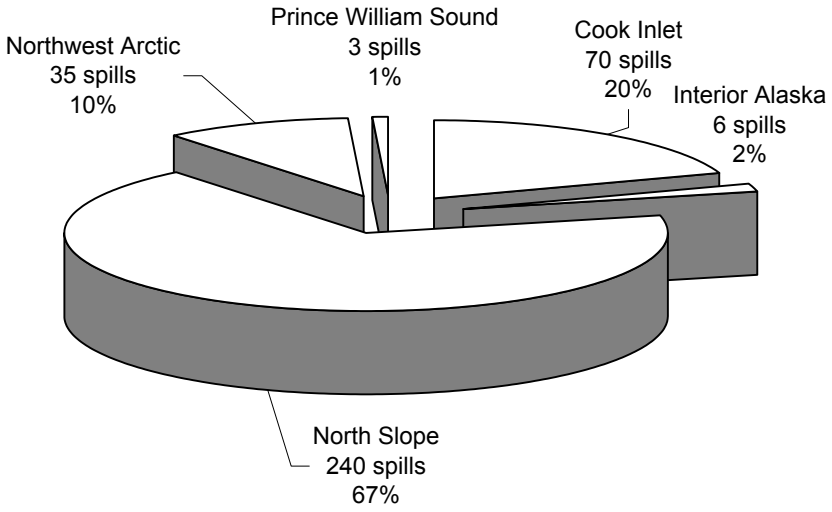


Process Water Spills by Subarea

Cumulative Total (FY96-02)

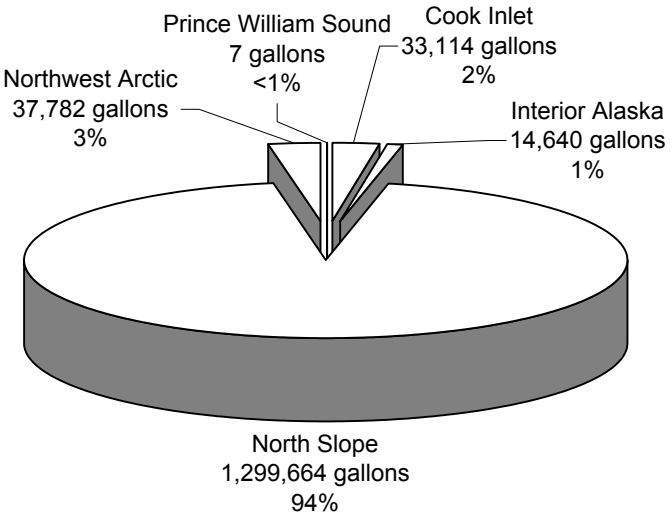
Subarea	*Number of Spills*	*Gallons Released*
Cook Inlet	70	33,114
Interior Alaska	6	14,640
North Slope	240	1,299,664
Northwest Arctic	35	37,782
Prince William Sound	3	7
Total	354	1,385,207

Number of Spills by Subarea



- North Slope and Cook Inlet subareas experienced the greatest number of process water spills.
- A single release of 994,000 gallons of process water occurred on the North Slope on March 17, 1997.

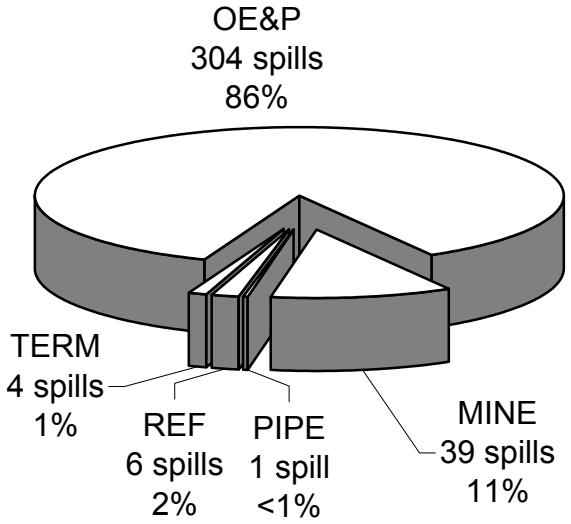
Gallons Released by Subarea

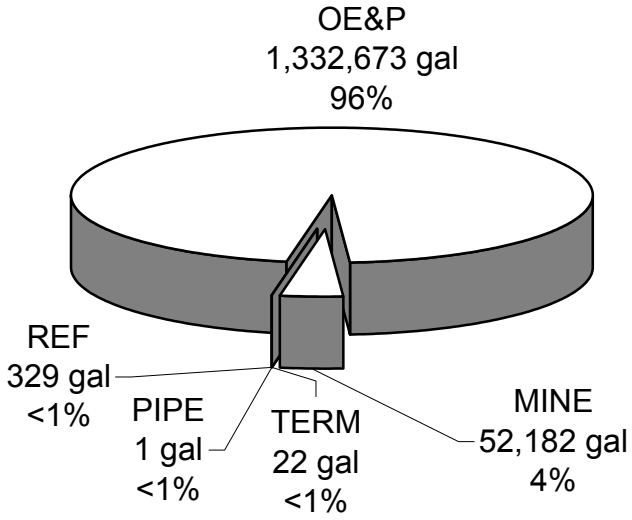


Process Water Spills by Facility Type

	PIPE		REF		TERM		OE&P		MINE		Cumulative Total	
FY	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons	count	gallons
1996			1	2			47	28,491			48	28,493
1997			1	1	3	7	38	1,014,836			42	1,014,844
1998			2	86	1	15	43	79,900	14	6,397	60	86,398
1999							45	27,030	2	20	47	27,050
2000			1	40			45	24,820	8	26,245	54	51,105
2001							40	111,856	4	2,565	44	114,421
2002	1	1	1	200			46	45,740	11	16,955	59	62,896
Total	1	1	6	329	4	22	304	1,332,673	39	52,182	354	1,385,207

Number of Spills by Facility Type



- Oil Exploration and Production facilities were clearly the major source of process water spills, and also accounted for the majority of the total volume spilled (96%).

Gallons Spilled by Facility Type