HFO Project Phase III(a) Heavy Fuel Oil & Other Fuel Releases from Shipping in the Arctic and Near-Arctic.



Final HFO III(a) Report prepared by USA, Finland, Russian Federation, Kingdom of Denmark, Norway, Iceland and submitted to the PAME II-2016 meeting (Sep 2016).



Appendix A: Shipping Incidents and Sources

Table A.1 – Shipping Incidents Involving Oil Releases and Liability from Such Releases

Vessel Flag Spill Date	• Spill Amount & Type • Spill Location	• Liability, If Any
Golden Trader ¹ 9/10/2011	 205 tonnes of IFO spilled after bulk carrier Golden Trader collided with the fishing vessel Vidar. 60 m³ recovered by Danish vessels. Larger amount of oil later went ashore on Swedish west coast and recovered by Swedish authorities. Skagerak (Denmark and Sweden) 	No liability allocation or enforcement found.
Godafoss ² Malaysia 2/17/2011	 Up to 200,000 gallons of HFO Hvaler Islands off SE coast of Norway 	No liability allocation or enforcement action found.
Full City ³ Panama 7/31/2009	 6,300-9,500 gallons (200-300 tons) of HFO and diesel fuel Langesund, southern Norway 	 Norwegian authorities imposed a US \$39 million fine on the ship's owners.⁴ Unknown if fine paid yet. On May 3, 2010 the Nedre Telemark District Court sentenced the master and third officer of the vessel to six months' and 60 days' imprisonment, respectively.⁵ Both were guilty of violating the Pollution Act due to their failure to take adequate measures to prevent pollution; the master was additionally guilty of violating the Ship Safety Act.⁶
Propontis Greece 02/2007	 No oil spilled (used to show how an ecological disaster was avoided) West of Suursaari, Russia 	 No liability allocation or enforcement action found.

⁶ *Id*.

¹ ITOPF, In Action, GOLDEN TRADER, Denmark, 2011 *available at http://www.itopf.com/inaction/case-studies/case-study/golden-trader-denmark-2011//.*

² Norway Oil Spill Clean-up Products, ALASKA WILDERNESS LEAGUE (Feb. 17, 2011) available at http://www.alaskawild.org/wp-content/uploads/2014/10/Norway_Spill_Factsheet_070511.pdf.

³ Grounded ship's oil spill called the 'worst ever' in Norway, NEWSINENGLISH.NO (July 31, 2009) available at http://www.newsinenglish.no/2009/07/31/grounded-ships-oil-spill-calledthe-worst-ever-in-norway/

Robert A. Clark, In Hindsight: A Compendium of Business Continuity Case Studies 44 (2014).

⁵ Morten Lund Mathisenet al., *Court sentences crew in the aftermath of the Full City oil spill*, INTERNATIONAL LAW OFFICE (2010) *available at* http://www.internationallawoffice.com/newsletters/detail.aspx?g=7ec1888a-017b-4d36-9a74-cc7780c4d9ce#case.

Selendang Ayu ⁷ Malaysia 12/8/2004	 About 336,000 gallons: 321,052 of IFO &14,680 of marine diesel/other oils⁸ Bering Sea (near Unalaska Island, Alaska; just outside near-Arctic at 53° N)⁹ 	 In August 2007, the Selendang Ayu's Singaporean operator, IMC Shipping Co. Pte. Ltd. (IMC), pleaded guilty to two counts of violating the Refuse Act and one count of violating the Migratory Bird Treaty Act. IMC was fined \$10 million in U.S. District Court. 10 In April 2009, the state of Alaska settled with IMC and another party, Ayu Navigation. Both will pay the state almost \$845,000 to settle oil spill, wreck removal and lost fish tax claims. 11 The vessel owners have paid at least \$9 million as of 2015. 12
Fu Shan Hai ¹³ China	• 1680 tons of HFO, 110 tons of diesel oil, 35 tons of lubricating oil ¹⁴	Claims for pollution damage have been settled, including Swedish and Danish claims.
5/31/2003	Remaining oil was recovered by the wreck in 2013.	settled, including Swedish and Danish claims.
	Bulk carrier sank after colliding with Polish container ship Gdynia northwest of the Danish Island of	
. 14	Bornholm in the Baltic Sea. 15	
Baltic Carrier ¹⁶ Marshall Islands	• 74,600 gallons (2350 tons) of HFO	As of 9/27/2002, claims for pollution damage have been settled for DKr 55 million (about)
3/29/2001	Baltic Sea (East of Falster Island, Denmark)	\$7.9 million USD). 17 Further claims totaling
		DKr 43 million (about \$6.2 million USD) are being assessed. 18
Janra	• 40 tons of heavy fuel oil	No liability allocation or enforcement action
Germany	• Sea of Aland, Finland	found.

⁷ Parker Associates Inc., *Report on the Selendang Ayu Incident* (2005) *available at* http://www.aleutiansriskassessment.com/documents/SelendangAyu.pdf; *see also* AMSA Report at pp. 88-89.

⁸ National Transportation Safety Board, *Marine Accident Brief [for the Selendang Ayu]*, 1 (2009) *available at* https://app.ntsb.gov/doclib/reports/2006/MAB0601.pdf.

⁹ Id

¹⁰ NOAA Incident News: http://incidentnews.noaa.gov/incident/1242/518435 ("The penalty includes \$4 million in community service, including \$3 million to assess risks for shipping hazards where the Selendang Ayu went aground along the Great Circle Route and \$1 million for the Alaska Maritime National Wildlife Refuge").

¹¹ Selendang Ayu settlement reached, KUCB (April 28, 2009) available at http://kucb.org/news/article/selendang-ayu-settlement-reached/ ("The \$845,000 penalty is in addition to the \$100 million spent by the companies for the cleanup, a \$9 million federal criminal penalty and \$2.5 million reimbursed to the state for its cleanup costs.").

¹² DJ Summers, *IMO lists Aleutian buffer zones; IUU task force releases plan*, ALASKA JOURNAL OF COMMERCE (Mar. 19, 2015) *available at* http://www.alaskajournal.com/Alaska-Journal-of-Commerce/March-Issue-4-2015/IMO-lists-Aleutian-buffer-zones-IUU-task-force-releases-plan/.

¹³ International Maritime Organization, *Are HNS Spills More Dangerous than Oil Spills?*, 56 (2009) available at

 $[\]frac{http://www.imo.org/OurWork/Environment/PollutionResponse/Documents/White\%20paper\%20Interspill\%202006\%20R\%20and\%20D\%20Forum.pdf}{1^4\ Volume\ I.\ Improvement\ of\ the\ Emergency\ Oil\ Spill\ Response\ System\ under\ the\ Arctic\ Conditions\ for\ Interval of\ Conditions\ for\ Conditions\ for\$

¹⁴ Volume I. Improvement of the Emergency Oil Spill Response System under the Arctic Conditions for Protection of Sensitive Coastal Areas (Case Study: the Barents and the White Seas), UNEP/GEF Project Russian Federation – Support to the National Programme of Action for the Protection of the Arctic Marine Environment, 17 (2010) [hereinafter Volume I] available at http://www.nefco.org/sites/nefco.viestinta.org/files/Oil%20Spills%20Final%20Report_eng.pdf.

¹⁶ Gilles Vinent et al., *Accident of the Oil Tanker "Baltic Carrier" Off the Danish Coastline Final Report*, 2 (2001) *available at* http://csd.bg/fileadmin/user_upload/AnnexesCD/Annex%2078.pdf.

¹⁷ Note by the Director, *Incidents Involving the 1992 Fund Baltic Carrier*, International Oil Pollution Compensation Fund 1992, Executive Committee 18th session (FUND/EXC.18/10), 1 (2002). ¹⁸ *Id.*

12/23/2000		
Nefterudovoz-7 Russia 10/09/1999	75 tons of fuel oilSt. Petersburg, Russia	No liability allocation or enforcement action found.
Volgo-Don 5088 Russia 06/1999	12 tons of chemicalsSt. Petersburg, Russia	No liability allocation or enforcement action found.
Omsky Russia 05/1999	10 tons of oilSt. Petersburg, Russia	No liability allocation or enforcement action found.
Nunki Malta 1998	100 tons of oilKalundborg Fjord, Denmark	No liability allocation or enforcement action found.
Kotlin 1998	37,5 tons of oilKronshtadt, Russia	No liability allocation or enforcement action found.
Tosna 1998	25 tons of oilSt. Petersburg, Russia	 No liability allocation or enforcement action found.
Dar-20 1998	17 tons of oilJaroslawiec, Poland	No liability allocation or enforcement action found.
Halsingland 1997	70 tons of oilKalajoki, Finland	No liability allocation or enforcement action found.
M/V Kuroshima ¹⁹ Panama 11/26/1997	 38,976 gallons of Bunker Summer Bay near Unalaska Island, Alaska (just outside near-Arctic at 54°N)²⁰ 	• The "Kuroshima Restoration Plan" was developed by federal and state natural resource trustees in consultation with the Qawalangin Tribe of Unalaska to restore native seabird populations impacted by the spill. Suroshima Shipping, the vessel owner, agreed to stipulations with government authorities about its participation in the restoration.
Hual Trooper Germany 1995	180 tons of heavy fuel oilThe Sound, Sweden	No liability allocation or enforcement action found.
Oden Sweden 1995	12,5 tons of oilStockholm, Sweden	No liability allocation or enforcement action found.
Oihonna Finland 1995	81,25 tons of heavy fuel oilKotka, Finland	No liability allocation or enforcement action found.
Kreva 3/19/1995	27,5 tons of diesel fuel and heavy fuel oilHusum, Sweden	No liability allocation or enforcement action found.
Kihnu Estonia 1/16/1993	 1000 tons heavy fuel oil and 460 tons diesel fuel Tallinn, Estonia 	 Finnish government submitted a claim for 90,000 euros relating to clean-up operations carried out in Estonian waters Claim was reduced to 69,000, provided an out of court settlement would be reached.
Frank Michael	• 1703 tons of chemical fertilizer	No liability allocation or enforcement action

¹⁹ Alaska Department of Environmental Conservation Division of Spill Prevention and response, Summary of Oil and Hazardous Substance Spills by Subarea (July 1, 1995 – June 30, 2005), 6 (2007)

[[]hereinafter ADEC Summary] available at https://dec.alaska.gov/spar/perp/docs/10year_rpt/10Yr_Subareas_FINAL.pdf.

20 Summer Bay: United States, GEOGRAPHICAL NAMES available at http://www.geographic.org/geographic_names/usaname.php?uni=1419304&fid=usageo_1319.

21 NOAA et al., Final Restoration Plan and Environmental Assessment for the M/V Kuroshima Oil http://www.darrp.noaa.gov/northwest/kuro/pdf/kurofrp0.pdf. ²² *Id*.

	F C 1	C 1
Germany	• Faro, Sweden	found.
10/10/1993		
Konstantin T.	• 12,5 tons of oil	No liability allocation or enforcement action
Greece	• Husum, Sweden	found.
1992		
Valyr	• 15 tons of oil	 No liability allocation or enforcement action
1992	Vysotsk, Russia	found.
Pamisos	• 12,5 tons of heavy fuel oil	No liability allocation or enforcement action
Greece	Aland, Finland	found.
1992	,	
Antares	• 15 tons of oil	No liability allocation or enforcement action
1991	• Rauma, Finland	found.
Sterno	• 15 tons of oil	No liability allocation or enforcement action
1990	• Glan, Sweden	found.
Volgoneft 263 ²³	• 25, 400 gallons (800 tons) HFO	• As of August 1990, the Swedish Government
USSR	Baltic Sea, Sweden	has taken legal action against the vessel owner
5/14/1990	• Battic Sea, Sweden	in the Court of Kalmar, claiming
3/14/1330		compensation for oil pollution damage of an
		undisclosed amount. ²⁴
		• The vessel was covered by a State guarantee
		in accordance with Article VII.12 of the Civil
		Liability Convention and the limitation
		amount is estimated at SKr3 million (\$350,000
		USD) ²⁵
Finn-Baltic	• 37,5 tons of oil	No liability allocation or enforcement action
12/27/1990	Hanko, Finland	found.
Milos Reefer ²⁶	• 237,343 gallons of IFO & diesel fuel	 No liability allocation or enforcement action
Greece	 Bering Sea (near NE corner of St. 	found.
11/15/1989	Matthew Island, Alaska)	
T/V Oriental Crane ²⁷	• 7,600 gallons of Bunker oil	No liability allocation or enforcement action
Sierra Leone	Nikiski, Alaska	found.
12/12/1988	,	
Sotka	• 370 tons of heavy fuel oil	Claims relating to fishery damage
Finland	• Market, Finland	(5Kr300,000) and clean-up costs (FM600
09/09/1985		000) totaled £105,000. However, if the oil
0,10,11,00		still in the sea reaches the shore, considerable
		costs for clean-up operations may arise
Eira	• 300 tons of heavy fuel oil	No liability allocation or enforcement action
Finland	• Qvarken, Finland	found.
08/31/1984	Vvarken, Filmanu	Tound.
Globe Asimi ²⁸	• Covered thousand targ of HEO and the d	• Dollytion domogo reported to be
	• Several thousand tons of HFO spilled	Pollution damage reported to be
Gibraltar	into the Port of Klaipeda, USSR. The	approximately£ 800 million but no damage
11/22/1981	HFO later drifted out to sea	suffered in the territory of any Fund Member
.20	Port of Klaipeda, USSR	State.
Antonio Gramsci ²⁹	• 600-700 tons of crude oil released	• USSR claims for environmental damage
USSR	after tanker grounded near Borga on	settled for £426,430.

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²³ International Oil Pollution Compensation Funds, *Incidents Involving the IOPC Funds 2012*, 91 (2012) *available at* http://www.iopcfunds.org/uploads/tx_iopcpublications/incidents2012_e.pdf

⁽²⁰¹²⁾ available at http://www.iopcfunds.org/uploads/tx iopcpublications/incidents2012 e.pdf.

24 Note by the Director, *Information on And Approval of Settlement of Claims*, International Oil Pollution Compensation Fund 1992, Executive Committee 24th session (FUND/EXC.24/4), 18 (1990).

25 *Id.*

²⁶ David H. Dickey, *Notable Oil Spills in U.S. Waters Calendar Years 1989-2011*, Dep't of homeland Security & US Coast Guard (2012).

²⁷ ADEC Summary, *supra* note 79, at 23.

²⁸ International Oil Pollution Compensation Fund, Annual Report 1984, at p. 8, available at http://www.iopcfunds.org/uploads/tx_iopcpublications/1984_ENGLISH_ANNUAL_REPORT.pdf.

²⁹ International Oil Pollution Compensation Fund, Information on and Approval of Settlement of Claims (Antonio Gramsci Incident), FUND/EXC.24/3 (1 August 1990).

2/6/1987	south coast of Finland	
M/V Kurdistan ³⁰ Britain 3/15/1979	 Borga, Finland 6,000 tons (43,900 barrels) of Bunker C Cabot Strait, Newfoundland, Canada 	No liability allocation or enforcement action found.
Antonio Gramsci ³¹ USSR 2/27/1979	 5,500 tons of crude oil spilled after tanker grounded. Ventspils, USSR in the Baltic Sea 	 Sweden claimed 112 million Swedish crowns for clean-up operations; IOPC paid 90 million Swedish Crowns, minus the Swedish share in the shipowner's sum (about 4 million Swedish Crowns), plus interest.³² Environmental impacts were small although a large area was contaminated.³³
T/V Tsesis ³⁴ Russia (Soviet Union) 10/26/1977	 1100 tons of #5 Fuel Oil and Bunker C Sodertalje, Sweden 	No liability allocation or enforcement action found.
Arrow ³⁵ Liberia 2/4/1970	10,000 tons of Bunker CChedabucto Bay, Nova Scotia, Canada	No liability allocation or enforcement action found.
Esso Nordica 09/25/1970	600 tons of light fuel oilPellinki, Finland	No liability allocation or enforcement action found.
Pensa 12/06/1970	500 tons of light fuel oilHailuoto, Finland	No liability allocation or enforcement action found.
Palva Russia 05/01/1969	200 tons of crude oilUto, Finland	No liability allocation or enforcement action found.
Tug Aries ³⁶ US 6/26/2011	 29,000 gallons of diesel, lube oil, & hydraulic oil Bering Sea (95 miles east of St. Paul Island, Alaska) 	No liability allocation or enforcement action found.
Petrozavodsk ³⁷ Russia 5/11/2009	 2400 gallons (75 tons) of fuel (unspecified if HFO) Barents Sea (Bear Island, Norway) 	No liability allocation or enforcement action found.
Collision between Tug Pacific Challenger & Barge SCT282 ³⁸	125 gallons of fuelCook Inlet, Nikiski, Alaska	No liability allocation or enforcement action found.

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http://www.iopcfunds.org/uploads/tx_iopcpublications/1980_ENGLISH_ANNUAL_REPORT.pdf.

Brik Bonsdorff, The Antonio Gramsci Oil Spill: Impact on the Littoral and Benthic Ecosystems,

Marine Pollution Bulletin, Vol. 12, No. 9, pp. 301-305 (1981), available at https://www.abo.fi/fakultet/media/16577/bonsdorff1981 marpollutbull12.pdf.

³⁴ James S. Mattson, *Oil Spills*, MATTSONLAW.COM available at http://mattsonlaw.com/environment/oil spills/oil spills.htm.

³⁰ *Kurdistan*, CENTER FOR TANKSHIP EXCELLENCE *available at* http://www.c4tx.org/ctx/job/cdb/precis.php5?key=19790315 001.

³¹ International Oil Pollution Compensation Fund, Report on the Activities of the International Oil Pollution Compensation Fund during 1978 and 1979, at p. 2, available at http://www.iopcfunds.org/uploads/tx_iopcpublications/1978_1979_ANNUAL_REPORT.pdf.

³² International Oil Pall time Compensation Fund, Report on the Activities of the International Oil Pall time Compensation Fund, Report on the Activities of the International Oil Pall time Compensation Fund, Report on the Activities of the International Oil Pall time Compensation Fund, Report on the Activities of the International Oil Pall time Compensation Fund, Report on the Activities of the International Oil Pall time Compensation Fund, Report on the Activities of the International Oil Pall time Compensation Fund to the Activities of the International Oil Pall time Compensation Fund to the Activities of the International Oil Pall time Compensation Fund to the Activities of the International Oil Pall time Compensation Fund to the Activities of the International Oil Pall time Compensation Fund to the Internation Fund

³² International Oil Pollution Compensation Fund, Report on the Activities of the International Oil Pollution Compensation Fund During 1980, at p. 2, *available at*

³⁵ Potomac Research, Incorporated, *Arrow Navships 0995-008-1010*, Dep't of the Navy Naval Ship systems Command *available at* http://www.supsalv.org/SalvReports/ARROW.pdf.

³⁶ NOAA Incident News: http://incidentnews.noaa.gov/incident/8329.

³⁷ *Volume I supra* note 74, at 18.

³⁸ Naomi Klouda, *Barge spills fuel near Kikiski – Incident demonstrates how even small oil spills are treated*, THE MOUTH OF THE KENAI (June 3, 2009) *available at* https://redoubtreporter.wordpress.com/2009/06/03/barge-spills-fuel-near-nikiski----incident-demonstrates-how-even-small-oil-spills-are-treated/.

Tug & Barge: US		
5/27/2009 F/V Icy Mist ³⁹ US 2/25/2009	 2,850 gallons of diesel fuel & hydraulic oil North of Akutan Island, Alaska 	No liability allocation or enforcement action found.
Monarch ⁴⁰ US 2/15/2009	 38,000 gallons of diesel fuel & 2,000 gallons of lubricating oil Granite Point Platform in Cook Inlet, Alaska 	No liability allocation or enforcement action found.
F/V American Way ⁴¹ US 1/6/2009	 200-500 gallons of diesel fuel; Aghiyuk Island, SW of Kodiak Island, Alaska 	No liability allocation or enforcement action found.
M/V Nunaniq ⁴² US 10/2/2008	 50-300 gallons of diesel #1 fuel (not HFO) Mekoryuk Bay, Alaska 	No liability allocation or enforcement action found.
L/C Saltery Provider ⁴³ [Unknown] 8/18/2008	 100 gallons of diesel fuel West side of Clarence Strait in Saltery Cove, Alaska 	No liability allocation or enforcement action found.
F/V Nordic Viking ⁴⁴ US 7/22/2007	• 3500 gallons diesel fuel • Prince William Sound, Alaska	 In 2008, Nordic Viking, LLC, the vessel owner, reached an agreement with the state of Alaska. It paid a \$17,500 fine to Alaska's oil spill response fund, implemented drug and alcohol testing on other fishing boats operated by its members, and engaged in a supplemental environmental project that contributed \$10,000 to the Gulf of Alaska Keeper's marine debris clean-up program. In the same year, Captain Dale R. Pruitt pled guilty to criminal charges of (1) operating a boat in a negligent or reckless manner and (2) oil pollution. For the two charges, he was sentenced to a one-year suspended imposition of sentence, had to successfully complete a state-approved alcohol treatment program, in addition to 15 days of jail time (plus 75 days of suspended jail time), 40 hours of community work service and four years of probation (SOA v. Dale R. Pruitt, 3CO-S08-098 CR).
T/V Seabulk Pride ⁴⁶ US 2/2/2006	84 gallons of gasolineCook Inlet, Alaska	Companies involved, Seabulk Tankers and Tesoro, have signed an agreement with the State of Alaska to address civil oil spill claims and alleged violations of the Cook Inlet winter ice rules. Under the agreement's terms, Seabulk and Tesoro have paid the state

³⁹ NOAA Incident News: http://incidentnews.noaa.gov/incident/7983 .

Dickey, *supra* note 86.

http://incidentnews.noaa.gov/incident/7945.

NOAA Incident News: http://incidentnews.noaa.gov/incident/7945.

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State of Alaska Office of Special Prosecutions & Dep't of Environmental Conservation, Dale R.

Pruitt Pleads Guilty to Prohibited Operation and Oil Pollution Charges Related to F/V Nordic Viking Grounding (Aug. 8, 2008) available at

https://dec.alaska.gov/das/ecu/newsItems/Dale%20Pruitt%20press%20release.pdf. 45 Id.

⁴⁶ State of Alaska Department of Law, State Reaches Settlement on Seabulk Pride Spill & Grounding (July 1, 2010) available at http://law.alaska.gov/press/releases/2010/070110-SeabulkPride.html.

P/V Clipper Odyssey [Unknown] ⁴⁸	 3,000-5,000 gallons of diesel fuel Baby Islands just east of Unalaska Island, Alaska 	\$429,870 (representing an oil spill civil assessment of \$5,000; civil assessments of \$360,000; and \$64,870 reimbursing the state's response and investigation costs). The companies do not admit to any violations. ⁴⁷ • No liability allocation or enforcement action found.
8/1/2004	Island, Alaska	
F/V Windy Bay ⁴⁹ US 8/4/2001	 35,000 gallons of diesel fuel Prince William Sound, Alaska	• Oil Spill Liability Trust Fund (OSLTF) bore entire cost of cleaning up spill: \$3,396,000. No liability mentioned. 50
Tug Barge Annahootz ⁵¹ US 9/1/1994	500 gallons of diesel fuelCook Inlet, Alaska	No liability allocation or enforcement action found.
T/V Eastern Lion ⁵² [Unknown] 5/21/1994	 8,400 gallons of crude oil (unknown if HFO) Port Valdez, Alaska 	No liability allocation or enforcement action found.
Braer ⁵³ [Unknown] 1/5/1993	 25,000,000 gallons (85,000 tons) of Norwegian light crude Shetland Islands, United Kingdom 	 Under the UK's Civil Liability Convention, "the liability limit for [Braer] owners could be \$8 million for pollution damage, including cleanup costs [An] agreement that victims of a spill should be compensated from the International Oil Pollution Compensation Fund [IOPCF] [also exists]."⁵⁴ By 2005, at least GBP47 million paid by IOPCF; the ship's liability insurer Skuld, had paid GBP 6.2 million (about \$11.22 million USD) to claimants.⁵⁵
Shin Yang Ho ⁵⁶ South Korea 6/27/1990	60,000 gallons of fuel oilBristol Bay, Alaska	No liability allocation or enforcement action found.

⁴⁷ *Id*.

⁴⁸ NOAA Incident News: http://incidentnews.noaa.gov/incident/1200.

⁴⁹ Alaska Dep't of Environmental Conservation Division of Spill Prevention and Response, *Major Oil* Spills to Coastal Waters available at https://dec.alaska.gov/spar/perp/bigspills.htm.

U.S. Coast Guard, Oil Pollution Act Liability Limits in 2013, Report to Congress, 18 (2013) available at https://www.uscg.mil/npfc/docs/PDFs/Reports/Liability Limits Report 2013.pdf.

⁵¹ John Whitney, Cook Inlet, Alaska Oceanographic and Ice Conditions and NOAA's 18-Year Oil Spill Response History 1984-2001, HAZMAT Report 2003-01, 92 (2002) available at http://docs.lib.noaa.gov/noaa_documents/NOS/HMRA/HAZMAT_report_2003-01.pdf.

Major Oil Spills to Coastal Waters, supra note 115.

⁵³ Shetland Oil Spill, TED CASE STUDIES (1997) available at http://www1.american.edu/ted/SHETLAND.HTM.

Id. (citing Braer Crude Oil Tanker Splits as Weather Hinders Containment, Oil & Gas Journal, 27 (1993)).

⁵⁵ Braer, TANKERS, BIG OIL AND POLLUTION available at http://www.oilpollutionliability.com/braer/. ⁵⁶ Dickey, *supra* note 84.

Exxon Valdez ⁵⁷	• 10, 900,000 gallons of Prudhoe Bay	• In 2008 the United States Supreme Court
US 3/24/1989	Crude (unknown if HFO) • Bligh Reef in Prince William Sound,	further reduced estimated damages to just over \$500 million. More than \$2 billion has been
	Alaska	spent by Exxon on cleanup and recovery.
		Exxon has paid at least \$1 billion in damages. 58
Yardarm Knot ⁵⁹	• 97,000 gallons of diesel fuel	No liability allocation or enforcement action
[Unknown]	 Bering Sea (near St. Paul Island, 	found.
2/19/1989	Alaska)	
Thompson Pass ⁶⁰	• 71,400 gallons of crude oil (unknown	 No liability allocation or enforcement action
US	if HFO)	found.
1/3/1989	 Prince William Sound, Alaska 	
T/V Glacier Bay ⁶¹	• 207,000 gallons of crude oil	No liability allocation or enforcement action
US	(unknown if HFO)	found.
7/2/1987	Cook Inlet, Alaska	
M/V Vashon ⁶²	• 5,200 gallons of diesel fuel	No liability allocation or enforcement action
[Unknown]	 Johnson Cove, Prince of Wales 	found.
6/7/1986	Island, Alaska	

NOAA Incident News: http://incidentnews.noaa.gov/incident/6683.

**Exxon Valdez Oil Spill (1989), THE NEW YORK TIMES (Aug. 3, 2010) available at http://topics.nytimes.com/top/reference/timestopics/subjects/e/exxon_valdez_oil_spill_1989/index.html

^{. 59} Dickey, *supra* note 84. 60 *Id.* 61 *Major Oil Spills to Coastal Waters, supra* note 115. 62 NOAA Incident News: http://incidentnews.noaa.gov/incident/6365.

Table A.2 – Main Sources for Table A.1

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3.	Alaska Department of Environmental Conservation Division of Spill Prevention and response, <i>Summary of Oil and Hazardous Substance Spills by Subarea (July 1, 1995 – June 30, 2005)</i> (2007) [hereinafter ADEC Summary] available <i>at</i> https://dec.alaska.gov/spar/perp/docs/10year_rpt/10Yr_Subareas_FINAL.pdf (last visited April 16, 2015).
4.	Volume I. Improvement of the Emergency Oil Spill Response System under the Arctic Conditions for Protection of Sensitive Coastal Areas (Case Study: the Barents and the White Seas), UNEP/GEF Project Russian Federation – Support to the National Programme of Action for the Protection of the Arctic Marine Environment (2010) [hereinafter Volume I] available at http://www.nefco.org/sites/nefco.viestinta.org/files/Oil%20Spills%20Final%20Report_eng.pdf (last visited April 16, 2015).
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