

Appendix B

Quantity and Distribution of U.S. Equipment

The following tables provide information on the type, quantity, and location of major oil spill response equipment within the continental United States. The first two tables identify U.S. Navy and U.S. Coast Guard equipment. The following four tables list skimmers, booms, dispersant delivery systems, and off-loading pumps that could be applicable for offshore spills. Except for the Navy equipment maintained at Williamsburg, Virginia and Stockton, California and the Coast Guard equipment in Mobile, Alabama and Hamilton Air Force Base, California, this equipment is held by industry oil spill cooperatives. The 93 cooperatives are listed in the next table, and, following this, the new equipment acquisitions of the Alyeska coopera-

tive following the *Exxon Valdez* spill are identified. Next, we list the equipment based at the Oil Spill Service Centre in Southampton England, about half of which was used in the *Exxon Valdez* spill. Finally, the equipment proposed to be purchased for each regional oil spill response center to be established by the Petroleum Industry Response Organization is presented. A caveat: response capability depends on much more than the type of equipment on hand, including such variables as maintenance, training, and logistics, so conclusions about the capabilities of the organizations presented here based solely on examining equipment are likely to be inaccurate.

Table B-1 -Major Types, Quantities, and Location of U.S. Navy Spill Response Equipment

Equipment description	Quantities/location		
	Williamsburg, Virginia	Stockton, California	Pearl Harbor, Hawaii
Spilled oil recovery equipment:			
Skimmer vessel system (36' aluminum hull)	12	11	1
Skimming system (sorberent belt voss)	1	1	0
Skimming system (screw pump voss)	2	2	0
Skimmer, sorberent rope mop (36")	2	1	0
Boom vans (42" x 1980' boom)	6	7	0
Boom mooring system	37	34	4
Boom handling boat (24' 260 hp)	8	6	2
Boom tending boats (19' x 23' inflatable)	2	2	1
Boom tending boats (18' rigid hull)	4	4	1
136,000 gal oil storage bladder	6	4	0
26,000 gal oil storage bladder	4	3	1
Pumping equipment:			
Pump, 6" submersible	11	8	2
Floating hose (6" x 100')	65	0	0
Hot tap system	4	3	0
Boarding kit.	1	2	0
Firefighting system	3	2	0
Ancillary equipment:			
Command trailer (40' communications and command center)	1	1	0
Command van (20' communications and command center)	3	2	0
Fender system (8' x 12' foam)	16	4	0
Fender system (14' x 60' lp air)	8	0	0
Fender system (10' x 50' lp air)	24	0	0
Shop vans	3	2	0
Rigging vans	2	3	0
Personnel bunk van	2	0	0
Beach transfer system (4-wheel drive veh.)	1	0	0
Communication system (SAT phone, land)	1	0	0
Communication system (SAT phone, ship)	1	0	0
Oil/water separator (parallel plate 100 gal/rein)	2	1	0
Cleaning system van	1	2	0

SOURCE: U S Navy, 1989

Table B-2- Major National Strike Force Equipment of the U.S. Coast Guard

	Atlantic team	Pacific team
Spilled oil recovery equipment:		
Open Water Oil Containment and Recovery Systems:		
Skimming barriers	5	19
Fast surface delivery systems	11	11
Pumping subsystem	7	17
Dracone barges (various sizes)	8	4
Expandi harbor boom (1,600 feet)	1	0
Pumping equipment:		
Air Deliverable Anti-Pollution Transfer Systems (ADAPTS):		
Prime movers	7	13
Submersible pumps	11	15
Hydraulic hose (5,000 feet)	1	1
Discharge hose (4,000 feet)	1	1
Fuel bladders	?	8
Viscous oil pumping systems		
Prime movers	2	1
Submersible pumps	?	8
Chemical transfer systems	2	7
Nonsubmersible pumps	9	16
Ancillary equipment:		
Command Posts	3	2
Tractors	4	2
Boats (various small boats)	10	6
All purpose vehicles	7	5
Trailers	3	12
Radios	42	36
Computers	3	7
Monitoring equipment	?	Y
Testing equipment	?	f

SOURCE: U S Coast Guard, 1989

Table B-3--Major Sources of Skimmers in the United States

Region	Location	service type	No. ^a	Type ^a	Power ^b	Storage capacity (gallons)	Recovery (gal./min)	Performance ^c			Viscosity	Debris	Expected ^d availability
								1	2	3			
East coast	Davisville, RI	Weir	2	B	N	1,700	1,000	G	G-F	F	G	F	B
	Williamsburg, VA	Sorbent lifting belt	8	SC	Y	1,700	200	G	F	F-P	F	G	A
Gulf coast	Davisville, RI	Weir	4	VOO	N	0	120	G	F	P	G	F	B/C
	Davisville, RI	Weir	2	VOO	N	0	120	F	F	P	G	F	B/C
	Mobile, AL	Weir	8	B	N	0	1,000	G	G-F	F	G	F	A
	Venice, LA	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Venice, LA	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Venice, LA	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Intercostal, IA	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Cameron, IA	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Cameron, LA	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Houma, IA	Weir	2	VOO	N	0	120	G	F	P	G	F	B/C
	Grand Isle, IA	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Geand Isle, LA	Weir	1	SC	Y	0	120	G	F	P	G	F	C
	Rockport, TX	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
	Galveston, TX	Weir	1	VOO	N	0	120	G	F	P	G	F	B/C
west coast	Stockton, Ca	Sorbent lifting belt	8	SC	Y	1,700	200	G	F	F-P	F	G	A
	Port San Luis, CA	Weir	1	VOO	N	0	120	G	G	F	F	F	C
	Port San Luis, CA	Weir	2	SC	Y	0	250	G	G-F	F	G	F	C
	Santa Barbara, CA	Weir	2	SC	Y	0	250	G	G-F	F	G	F	C
	Santa Barbara, CA	Weir	1	VOO	N	0	120	G	G	F	F	F	C
	Hdamilton AFB, CA	Weir	19	B	N	0	1,000	G	G-F	F	G	F	A
	Concord, CA	Weir	1	VOO	N	0	120	G	P	P	F	F	C
	San Pedro, CA	Weir	1	VOO	N	0	120	G	P	P	F	F	C
	San Pedro, CA	Weir	1	VOO	N	0	120	G	G	F	F	F	C
	San Pedro, CA	Weir	1	VOO	N	0	200	F	P	P	G	F	C
	Seattle, WA	Submersion belt	1	SC	Y	10,000	500	G	G	F	G	F	C
Alaska	Valdez	Weir	1	SC	Y	1,700	200	G	F	F-P	F	G	C
	Valdez	Weir	1	SC	Y	3,400	400	G	F	F-P	F	F	C
	Dutch Hahrbor	Weir	1	VOO	N	0	300	G	F	P	F	F	B
	Dutch Harbor	Weir	1	VOO	N	0	120	G	G	F	F	F	B
	Deadhorse	Weir	1	SC	Y	0	0	G	F	F-P	G	F	C
	Dutch Harbor	Weir	2	Voo	N	0	120	G	F	P	G	F	B/C

^aB = Barrier Skimmer

SC = Self-propelled/self-contained skimmer

VOO = Skimmer system operated from a "Vessel of Opportunity"

^bY = Self-propelled

N = Requires external source of power

^cRating indicates estimated performance of the system as a whole, including barriers, support, etc Where possible, information on the performance characteristics (P = poor, F = fair, and G = good) of the equipment is given in terms of (1) gallons affected, (2) sea state performance, and (3) composition of the oil encountered In addition, a sense of the ready availability of the resources is provided as not all assets can be utilized in a direct manner. SOURCE: COMDTINST M154662, "Oil Pollution Response Planning Guide for Extreme Weather"

^dAvailability is indicated as follows:

A = Readily available in most cases. This equipment is mainly government resources of the U.S. Coast Guard and the U.S. Navy Coast Guard equipment is based at Mobile, AL and Hamilton Air Force Base, CA Navy equipment is primarily based at Williamsburg, VA and Stockton, CA

B = Equipment which may be available depending on specific equipment needs and circumstances existing at the time of need These assets are mainly held by cooperatives for the convenience of its membership within a defined area either as a matter of operating or economic necessity. In the case of the former (such as offshore lease equipments), warware from governmental entities may have to be reobtained, or agreement may be required among the members to cease or reduce operations

C = Resources that may be made available but only within a specified area Equipment that is permanently installed on a vessel would, for instance, only be available within that vessel's areal limitation

SOURCE: Engineering Computer Optecnomics, inc (ECO), "Analysis of Oil Spill Response Technologies," contractor report prepared for the Office of Technology Assessment, July 1989

Table 54- Major Sources of Containment Boom in the United States

Region	Location	Total length (feet)	Free board (inches)	Draft (inches)	Unlit weight (per 100')	Tensile strength (lbs)	Sea state performance ^a			Maximum	Expected ^c availability
							1	2	3		
East coast	Davisville, RI	1,000	24	36	1,280	18,000	G/G	F/G	P/G	4	B
	Davisville, RI	1,476	14	16	880	69,000	G/G	F/G	P/F	5	B/C
	Davisville, RI	2,000	24	36	1,200	120,000	G/G	G/G	F/G	5	B
	Williamsburg, VA	12,000	12	24	1,280	18,000	G/G	F/G	P/G	4	A
Gulf coast	Mobile, AL	2,448	21	27	1,600	50,000	G/F	G/G	F/G	5	A
	Mobile, AL	2,448	21	27	1,600	50,000	G/F	G/G	F/G	5	A
	Grand Isle, LA	1,040	12	24	300	20,000	G/P	G/G	G/F	5	B
	Venice, LA	1,000	12	24	300	20,000	G/P	G/G	G/F	5	B
	Venice, LA	1,000	12	24	475	16,500	G/G	F/G	P/G	4	B
	Intracoastal, TX	1,000	12	24	1,400	40,000	G/G	F/G	P/G	4	B
	Galveston, IX	1,000	12	24	1,400	40,000	G/G	F/G	P/G	4	B
	Rockport, TX	1,000	12	24	1,400	40,000	G/G	F/G	P/G	4	B
West coast	Concord, CA	8,000	17	27	152	55,000	G/G	G/G	G/G	5	C
	Concord, CA	4,000	14 ^b	17 ^b	156	5,700	G/G	F/G	P/G	3	B/C
	San Pedro, CA	5,000	20	30	1,800	104,000	G/G	F/G	P/G	5	B/C
	San Pedro, CA	5,000	14	16	880	69,000	G/G	F/G	P/F	5	B/C
	San Pedro, CA	4,100	16	23	360	95,000	G/G	G/G	F/G	5	B/C
	San Pedro, CA	3,100	12	24	1,280	18,000	G/G	F/G	P/G	4	B/C
	San Pedro, CA	16,500	14	17	156	5,700	G/G	F/G	P/G	3	B/C
	San Pedro, CA	4,000	20	23	353	16,500	G/G	G/G	F/G	4	B/C
	San Pedro, CA	6,400	17	27	152	55,000	G/G	G/G	G/G	5	C
	Santa Barbara, CA	2,000	20	23	353	16,500	G/G	G/G	F/G	4	B/C
	Santa Barbara, CA	10,900	14	17	156	5,700	G/G	F/G	P/G	3	B/C
	Santa Barbara, CA	3,200	17	27	152	55,000	G/G	G/G	G/G	5	c
	Santa Barbara, CA	2,696	12	24	1,280	18,000	G/G	F/G	P/G	4	B/C
	Santa Barbara, CA	2,035	14	24	1,280	18,000	G/G	F/G	P/G	4	B/C
	Stockton, CA	11,000	12	24	1,280	18,000	G/G	F/G	P/G	4	A
	Hamilton AFB, CA	12,852	21	27	1,600	50,000	G/F	G/G	F/G	5	A
	Seattle, WA	6,000	14	16	880	69,000	G/G	F/G	P/F	5	B/C
	Seattle, WA	14,000	-	-	475	25,000	G/G	G/G	F/G	4	B/C
Alaska	Valdez	11,000	14	16	880	69,000	G/G	F/G	P/F	5	B/C
	Valdez	11,000	12	24	290	30,000	G/G	F/G	P/G	4	C
	Valdez	8,000	17	27	152	55,000	G/G	G/G	G/G	5	C
	Deadhorse	5,400	-	-	-	-	-	-	-	-	B/C
	Deadhorse	4,000	14 ^b	16 ^b	880	69,000	G/G	F/G	P/F	5	B/C
	Deadhorse	2,035	14 ^b	24 ^b	1,280	18,000	G/G	F/G	P/G	4	B/C
	Dutch Harbor	4,500	14 ^b	17 ^b	156	5,700	G/G	F/G	P/G	3	B/C
	Anchorage	4,500	12	24	1,280	18,000	G/G	F/G	P/G	4	A

a Rating indicates estimated performance of the system as a whole, including barriers, support, etc. Where possible, information on the performance characteristics (P = poor, F = fair, and G = good) of the equipment is given in terms of (1) gallons affected, (2) sea state performance, and (3) composition of the oil encountered. In addition, a sense of the ready availability of the resources is provided as not all assets can be utilized in a direct manner. SOURCE: COMDTINST M164662, "Oil Pollution Response Planning Guide for Extreme Weather"

^b Measured in feet

^c Availability is indicated as follows:

- A = Readily available in most cases. This equipment is mainly government resources of the U.S. Coast Guard and the U.S. Navy Coast Guard equipment is based at Mobile, AL and Hamilton Air Force Base, CA. Navy equipment is primarily based at Williamsburg, VA and Stockton, CA.
 - B = Equipment which may be available depending on specific equipment needs and circumstances existing at the time of need. These assets are mainly held by cooperatives for the convenience of its membership within a defined area either as a matter of operating or economic necessity. In the case of the former (such as offshore lease requirements), waivers from governmental entities may have to be obtained, or agreement may be required among the members to cease or reduce operations.
 - C = Resources that may be made available but only within a specified area. Equipment that is permanently installed on a vessel would, for instance, only be available within that vessel's area limitation.
- SOURCE: Engineering Computer Optecomics, Inc (ECO), "Analysis of Oil Spill Response Technologies," contractor report prepared for the Office of Technology Assessment, July 1989

Table B-5-Major Sources of Offloading Pumps in the United States

Region	Type	city	Units capacity (gal/min)	Performance characteristics							Expected availability ^b
				Viscosity		Debris tolerance			Emulsify liquids		
				Light	Heavy	Silt	Gravel	Seaweed			
East coast	Destroil	Williamsburg, VA	2 310	G	P	G	G	F	G	A	
	Thune-Eureka	Williamsburg, VA	10 2000	F	G	G	G	P	P	A	
	Viscous Oil	Elizabeth City, NC	1 2 0 0 0	F	G	G	G	P	P	A	
Gulf coast	Adapts	Mobile, AL	12 1000	P	G	G	G	P	P	A	
	Viscous Oil	Mobile, AL	1 2 0 0 0	F	G	G	G	P	P	A	
west coast	Adapts	Hamilton AFB, CA	12 1000	P	G	G	G	P	P	A	
	Viscous Oil	Hamilton AFB, CA	2 2 0 0 0	F	G	G	G	P	P	A	
	Thune-Eureka	Stockton, CA	11 2000	F	G	G	G	P	P	A	
	Destroil	Stockton, CA	2 310	G	P	G	G	F	G	A	
	Adapts	Concord, CA	1 1000	P	G	G	G	P	P	B	
	Adapts	Concord, CA	1 1000	P	G	G	G	P	P	B	
Alaska	Destroil	Anchorage, AK	1 310	G	P	G	G	F	G	B	
	stops	Valdez, AK	2 1000	G	G	G	G	P	P	B	
Other	Thune-Eureka	Detroit, MI	5 2 0 0 0	F	G	G	G	P	P	A	
	Adapts	Detroit, MI	2 1000	P	G	G	G	P	P	A	

^a P = poor, F = tier, G = good

^b Availability is indicated as follows:

A = Readily available in most cases. This equipment is mainly government resources of the U S Coast Guard and the U S Navy Coast Guard equipment is based at Mobile, AL and Hamilton Air Force Base, CA. Navy equipment is primarily based at Williamsburg, VA and Stockton, CA.

B = Equipment which may be available depending on specific equipment needs and circumstances existing at the time of need. These assets are mainly held by cooperatives for the convenience of its membership within a defined area either as a matter of operating or economic necessity. In the case of the former (Such as offshore lease requirements), waivers from governmental entities may have to be obtained, or agreement may be required among the members to cease or reduce operations.

SOURCE: Engineering Computer Optecnomics, Inc (ECO), "Analysis of Oil Spill Response Technologies," contractor report prepared for the Office of Technology Assessment, July 1989.

Table B-6- Major Sources of Dispersant Delivery Systems in the United States

	Location	Platform	Oil treatment ^a rate comparison (gal/rein)	Storage capacity (gallons)	Expected availability
East Coast	Davisville, RI	Boat	500	500	B
Gulf Coast	Grand Isle, LA	Boat	500	500	B
	Houma, IA	Boat	500	500	B
	Rockport, TX	Boat	500	500	B
	Galveston, TX	Boat	500	500	B
	Chandler, AR	DC-4	Less than 8000	00	B
	Chandler, AR	ADDS/C-130	Less than 8000	2500	A
	Mesa, AR	DC-4	Less than 8000	2500	B
West Coast	San Pedro, CA	Boat	4a	Drums	B
	San Pedro, CA	Boat ^c	4a	Drums	c
	Santa Barbara, CA	Boat ^c	4a	Drums	c
	Santa Barbara, CA	Boat ^c	48	Drums	c
	Santa Barbara, CA	Boat	48	Drums	B
Alaska	Anchorage, AK	Boat	500	Drums	B
	Anchorage, AK	Helicopter	1600	Drums	B

^a SOURCE: COMDTINST M1 6468 2, "Oil Pollution Response Planning Guide for Extreme Weather," Rating indicates estimated Performance of the system as a whole, including barriers, support, etc

^b Availability is indicated as follows:

A = Readily available in most cases This equipment is mainly government resources of the U S Coast Guard and the U S Navy Coast Guard equipment is based at Mobile, AL and Hamilton Air Force Base, CA Navy equipment is primarily based at Williamsburg, VA and Stockton, CA

B = Equipment which maybe available depending on specific equipment needs and circumstances existing at the time of need These assets are mainly held by cooperatives for the convenience of its membership within a defined area either as a matter of operating or economic necessity In the case of the former (Such as offshore lease requirements), waivers from governmental entities may have to be obtained, or agreement may be required among the members to cease or reduce operations

C = Resources that may be made available but only within a specified area Equipment that is permanently installed on a vessel would, for Instance, only be available within that vessel's areal limitation

^c Installed on response vessel

SOURCE: Engineering Computer Optecnomics, Inc (ECO), "Analysis of Oil Spill Response Technologies," contractor report prepared for the Office of Technology Assessment, July 1989

Table B-7- Alyeska Response Equipment

Since the *Exxon Valdez* spill incident, Alyeska has substantially increased the amount of spill response equipment that it has on hand to respond to any future spills. The equipment obtained is listed below.

3	ERVs (Ship Escort)	Escort Response Vessels – ERVs are 210-foot converted ocean going, ice strengthened tugs. These vessels have twin variable pitch propellers and bow thrusters for increased maneuverability. Each ERV is equipped with: <ul style="list-style-type: none"> ● 2 Vikoma Seaskimmer 50's (nameplate 385 bbl/hr each) ● 1,600 ft. RoBoom Ocean 2000 on deck reels ● 3,000 ft. Expandi 4300 Boom (self inflating) ● 4,000 bbl recovered oil storage capacity. 	1	(Knowles Head)	Lightening Vessel – A 140,000 bbl integrated tug/barge equipped with: <ul style="list-style-type: none"> ● Fenders ● 3 Framo salvage pumps ● Ancillary salvage equipment (hoses, etc.) ● Moorings.
1	WRV (Valdez)	Weir Boom Response Vessel – equipped with: <ul style="list-style-type: none"> ● 2 Framo Transec boom/skimmer systems (initially 1 Vikoma weir boom skimming system - nameplate 4200 bbl/hr) ● 20-foot work boat. 	2	(Valdez)	Storage Barges – (73,000 bbl and 63,000 bbl). Each equipped with an assortment of: <ul style="list-style-type: none"> ● Spill containment booms including Vikoma HI 950 Boom, Scot Boom, Arctic Harbor Boom (total approximately 16,000 ft.) ● Supersucker pump/skimming systems ● Absorbent materials.
1	DDS (Knowles Head)	Dynamic Skimming System -A 180,000 bbl integrated tug/barge, permanently named, equipped with: <ul style="list-style-type: none"> ● 2 Marflex Sweep Arms (nameplate 2100 bbl/hr). 	2	(Valdez),	Ship Assist Tugs – Two tugs available for pollution response duties.
Other Resources Available for Spill Response					
<ul style="list-style-type: none"> ● 62,000 gallons of dispersant ● 2 aerial dispersant applicators (ADDS PACKS) ● Dispersant application systems mounted on escort vessels ● Fire boon, igniters, and other burning eq m ● A portable communications module ● Reconnaissance aircraft 					

SOURCE: Alyeska 1990

Table B-8-Equipment Based at the Oil Spill Response Center, Southampton, U.K.

Item	Quantity	Item	Quantity
1. Containment booms		2. Skimmers	
BP Weir Boom System	1	Vikoma Seaskimmer 100, disk skimmer	3
Vikoma Oceanpack including 500m boom and recovery module	3	Vikoma Seaskimmer 50, disk skimmer	4
Vikoma Boom Reel including 500m boom on winders	3	Vikoma Komara 12K, disk skimmer	8
Vikoma Seapack including 450m boom	4	BP Fastflow Skimmer, static skimmer	1
Nordan Ocean Boom, 200m inflatable 106cm boom on winders	2	Slurp Skimmer, weir skimmer	2
Roulands Ro-Boom, 200m inflatable 1.95m boom on winders	4	Scavenger Skimmer, weir skimmer	2
Vikoma Coastalpack, 250m boom on winder	1	Vikoma Kebab 600, disk skimmer	3
Hoyle Standard Boom, 1.52m lengths of 30.5cm foam boom	152m	OMI Mark II – 9DP Mop Wringer, rope mop skimmer	2
Skimmex Shoreline Barrier, 12m sections	158m	OMI Mark II – 4D Mop Unit, rope mop	2
Hoyle Shore Guardian Boom, 25m sections	1,750m	OMI Mark I – 4VE Mop Unit	1
Hoyle Sea Sentinel Boom, 10m and 25m lengths	3,300m	Oil Mop 55 Hand Mop	2
		ORI Jaws 552, Mop Unit	1
		Harrier V4 Skimmer, suction skimmer	1
		BP Vacuum Head, suction head skimmer	11
		Molex Vacuum Tanks, skid mounted vacuum tank	2

SOURCE: Oil Spill Response Centre, Southampton, United Kingdom, 1969

Table B-8- Equipment Based at the Oil Spill Response Center, Southampton, U.K. (Continued)

Item	Quantity	Item	Quantity
2. <u>Skimmers (continued)</u>		6. <u>Communications equipment</u>	
Egmolap, heavy oil belt skimmer	1	Sailor VHF Radio Type RT 144,61 channels	3
Clam Shell Skimmer 3		Motorola VHF Radio Type HT 200, 6 channels	6
Heavy Fuel Oil Skimmers, toothed disk skimmers	2	Motorola VHF Radio Type MX 300S, 24 channels	6
Heavy Oil Skimmers (medium)	2	Stomo VHF Radio Type 500, 3 channels	2
Heavy Oil Skimmer (small)	1	Aquastar Radio Telephone Type WP/1, 24 channels	1
<u>Ancillary equipment for skimmers</u>		Lafayette VHF Scanning Monitor, 7 channels	3
HIAB Jib with power pack	4	Telescopic Masts, 9m 3	
Vacuum Box for use with BP Vacuum Head	3	7. <u>Miscellaneous items</u>	
3. <u>Temporary oil storage</u>		Floodlights	2
Dunlop Dracone 1D5, capacity 100 tons	1	Zodiac 16 ft. inflatable boat	1
Dunlop Dracone 1E, capacity 30 tons	1	Avon 12 ft. inflatable boat	1
Leigh Flexible Pillow Tanks, capacity 25 tons	10	Alvis Stalwart Amphibious Vehicle	1
Leigh Flexible Pillow Tanks, capacity 12 tons	10	High pressure hot water cleaners	5
Fastank Storage Unit with liners, capacity 7 tons	17	Hipower multipurpose power packs	7
Hoyle P/U Storage Tank, capacity 25 tons	2	Bauer Compressor Type 1C40	1
Skimmex Storage Tank, capacity 6 to 7 tons	1	Rollalong Mobile Command Center	1
Skimmex Storage Tank, capacity 2.5 tons	1	Mini Power Pack, diesel power pack on wheels	5
Vikoma Pillow Tank, capacity 30,000 liters	2	8. <u>Vessels</u>	
Avon Storage Tank, capacity 25,000 liters	1	45 ft. work boat	1
4. <u>Transfer pumps</u>		Fast personnel carrier	1
Thune Eureka CCN 100 Pump	2	28m training/operation vessel	1
Spate Pump 3B 5		Air transportable work boat	1
Putzmeister Concrete Pump, screw and ram pump	1	9. <u>Ancillary equipment</u>	
Desmi/Destroil Screw Pump	4	Vikoma Emergency Air Blower for boom inflation	5
Godiva Fire Pump 1		Small air blowers	13
5. <u>Dispersant equipment</u>		Vulcanisers for on-sits boom repair	5
WSL Offshore Spray Unit	11	Boom cleaner, Ro-Clean system	1
Biggs Wall Wide Spray Unit	1	Mooring buoys, anchors, chains	
Rototech TC3 Spray Module	2	Rotary hand pump for filling knapsack dispersant sprayers	2
WSL Inshore Spray Unit	7	Hand pump for liquid transfer	1
Seaguard Pack Super Dispersant Spray Unit	1	Atlas Copco Air Compressor	1
Backpack sprayers- Falcon 2 gallons	17	Welding units	3
Falcon 3 gallons	5	Road trailers	3
Gell set unit	1	Fork lift trucks	3
Beach Pump AR-30 2		Ford tractor	1
Beach Pump AR-15 2		Foam generator	1
Additional hose - 70m on reel	11	Video camera/recorder	1
50m on reel	6	Camera and accessories	1
Pillow Tanks, capacity 300 gallons	3	Absorbants, booms, pillows, pads, etc.	
Aerial Dispersant Delivery System	1		

SOURCE: Oil Spill Response Centre, Southampton, United Kingdom, 1989

Table B-9-Petroleum Industry Response Organization: Proposed Capital Equipment for Each of Five Regional Centers

Item	Current number estimated	Current \$ estimate
Lightening:		
Pumps	4	\$851,524
Fenders	8	\$240,000
Dracones	8	\$1,000,000
		<u>\$1,891,524</u>
Containment boom (ft):		
Offshore	30,000	\$3,974,580
Medium	30,000	\$1,917,900
Lightweight	10,000	\$0
Skimming barrier	4,000	(Included in skimmer cost)
		<u>\$5,892,480</u>
Skimmers:		
Skimming barrier	4	\$1,870,000
Other skimmers	14	\$2,770,382
Power packs	0	(Included in skimmer cost)
		<u>\$4,840,382</u>
Dispersant equipment:		
Adds pack	1	\$500,000
Helicopter system	4	\$121,080
Dispersant chemical	50,000	\$800,000
		<u>\$1,221,080</u>
	Major equipment subtotal	\$13,845,448
Other:		
vessels		\$4,000,000 ^{ab}
Office equipment & computers		\$130,000 ^{ab}
Bird cleaning		\$20,000 ^a
Protective boom (lightweight boom)		\$587,300
Temporary oil storage (Dracones)		\$1,750,000
Forklifts, compressors, etc.		\$500,000 ^a
Trailers/cargo containers		\$380,000
Maintenance shop equipment		\$25,000 ^a
Vehicles, 4-wheel drive		\$120,000 ^a
Tractors for trailers		\$540,000
Pre-stages barges		1,750,000
Other equipment		\$200,000
Spare parts		\$800,000
		<u>\$10,582,300</u>
	Other subtotal	\$10,582,300
Equipment total for one regional center:		\$24,207,746
Equipment total for five regional centers:		\$121,038,731
Headquarters office equipment and computers:		\$130,000
	Total capital equipment	\$121,188,731

^aIndicates data not available to allow reprojection of costs

^bPII estimate for non-mainframe computers = \$2.0 million/regional center

SOURCE: Petroleum Industry Response Organization (PIRO), 1990.

Table B-10- U.S. Oil Spill Co-Ops

Alaska Clean Seas Anchorage, AL	Clean Islands Council Honolulu, HI	Middletown-Portland Cooperative Portland, CT	Pt. Everglades Spillage Cleanup Ft Lauderdale, FL
Altoona Area Industry Association Altoona, PA	Clean Seas Carpinteria, CA	Miss-Ota-Croix Oil Control Coordination Committee St Paul, MN	Roanoke Valley Mutual Aid Association Roanoke, VA
Arco-Total Cooperative Traverse City, MI	Clean Sound Cooperative Seattle, WA	Montana-Wyoming Oil Control Coordination Committee Laurel, MT	Savannah River Oil Control Coordinating committee Savannah, GA
Atlanta Area Terminals Oil Doraville, GA	Continental Shelf Associates Jupiter, FL	Muskegon Tri-Cities Mutual Assistance Association North Muskegon, MI	Southeast Wyoming Oil Spill Cooperative Casper, WY
Bi-State Metropolitan Oil Bettendorf, IA	Connecticut River Pollution Control Committee Hartford, CT	Mutual Assistance Pact-Wichita Tulsa, OK	Stamford West Branch Harbor Association Stamford, CT
Boston Harbor Oil Spill Cooperative East Boston, MA	Cook Inlet Response Organization Nikiski, AK	Nashville Mutual Assistance Association Nashville, TN	Tampa Port Committee for Spillage Control, Inc Tampa FL
Bridgeport Harbor Pollution Abatement Committee Bridgeport, CT	Corpus Christi Area Oil Spill control Association Corpus Christi, TX	National Fire Protection Association Quincy, MA	Texas City Harbor Oil Spillage Contingency Program Texas City, TX
Buffalo River & Harbor Oil Spill Cooperative Buffalo, NY	Delaware Bay & River Cooperate Lewes, DE	Neches River Oil Control committee Beaumont, TX	Thames River petroleum Cooperative Norwich, CT
Burlington Harbor Pollution Abatement Committee Montpelier, VT	Delaware River Co-Operative Philadelphia PA	New Haven Harbor Petroleum Cooperative New Haven, CT	The Port of Mobile Oil Spill cooperative Mobile, AL
Central New York Oil Spill Cooperative Rochester, NY	Detroit Area Industrial Mutual Aid Detroit, MI	Norwalk Abatement Committee Norwalk, CT	Toledo Harbor Spill Control Committee Toledo, OH
Central New York Oil Spill Containment Rochester, NY	Evansville Mutual Assistance Association Evansville, IN	Oil City Petroleum Co-op Committee Oceanside, NY	Tri-City Industrial Anti-Pollution Committee Braintree, MA
Charleston Industry Liquid Spillage Control Committee, Inc North Charleston, SC	Fairfax City Petroleum Terminals Air & Water Conservation & Safety Organization Fairfax, VA	Pensacola Spillage Control, Inc Pensacola, FL	Tri-State Pollution Prevention and Cleanup Committee Charleston, WV
Clean Atlantic Associates New Orleans, LA	Four Corners Area Oil Control Coordination Committee Cortez, CO	Peoria-Tazewell Conservation Committee Pekin, IL	Tulsa Area Oil Control Committee Tulsa OK
Clean Bay Concord, CA	Greater Caribbean Energy and Environmental Foundation Miami, FL	Petroleum Committee of Sioux Falls for Environmental Protection Yankton, SD	Ulster/Greene Counties Harbor Pollution Control Cooperative Port Ewen, NY
Clean Caribbean Cooperative East Boston, MA	Greater Cincinnati Hazardous Material Control Committee Cincinnati, OH	Plattsburg-Lake Champlain Oil Spill Control Committee Plattsburgh, NY	Utica-Rome Oil Pollution Control Committee Marcy, NY
Clean Channel Association Mont Belvieu, TX	Green Bay Oil Men's Clean Waters Control Board Green Bay, WI	Port of Miami Spillage Cleanup Committee Miami, FL	Vicksburg Association for Clean Port & River Vicksburg, MS
Clean Coastal Waters Long Beach, CA	Humboldt Bay Oil Spill Cooperative Eureka CA	Port Manatee Environmental Protection Association Palmetto, FL	Will-Grundy Industrial Conservation Committee Lockport, IL
Clean Gulf Associates New Orleans, LA	Jacksonville Spillage Control, Inc Jacksonville, FL	Port of Palm Beach Environmental Protection Committee Riviera Beach, FL	
Clean Harbors Cooperative Perth Amboy, NJ	Marine Industry Group Gretna LA	Port Canaveral/Brevard County Spillage Cleanup Committee, Inc Cape Canaveral, FL	
Clean Islands Council Honolulu, HI	Massachusetts Petroleum Council Boston, MA	Port Everglades Spillage Committee Ft. Lauderdale, FL	
Clean Land & Harbor, Inc Wilmington, NC	Memphis Area Petroleum Assistance Association Memphis, TN	Portsmouth Harbor Oil Spill Committee Concord, NH	
Clean Rivers Association Convent, IA	Metro-Milwaukee Petroleum Operations Group Milwaukee, WI		

SOURCE: Robert Schulze, op cit , footnote 5