

NRC Technical Manual - San Juan Islands

Technical Manual Description: Vessel oil spill contingency plan holders are required to submit technical manuals if they operate or transit in the Neah Bay, Cathlamet, or San Juan Islands planning standard areas. The technical manual must include all of the equipment appropriate for the operating environment that is necessary to meet the recovery and storage requirements for the worst case discharge through a forty-eight hour time frame. The technical manuals will be used to inform the five year Best Achievable Protection (BAP) Review cycle by supporting Ecology's determination that the response systems, training levels, and staffing demonstrate BAP. Plan holders must use a systems approach to identify the equipment including Western Response Resource List (WRRRL) identification numbers or other identification numbers that will be used to describe the response and storage systems detailed.

Technical Manual Planning Standard: San Juan Islands

Plan holders Covered by the Manual: NRC WA Plan Covered Vessels

Worst Case Discharge: The Technical Manual is based on a worst case discharge of 813,000

Recovery and storage volume requirements based on the worst case discharge

	Recovery	Storage
Hour 2	0	0
Hour 3	0	0
Hour 4	0	0
Hour 6	12,500	12,500
Hour 12	36,000	54,000
Hour 24	48,000	96,000
Hour 48	60,000	96,000

Oil types: This technical manual covers oil groups 1-4

Technical Manual Planning Assumptions

The focus of the manual is recovery and storage systems and planning for GRPs is not included.

Training Level Personnel Utilized in the Recovery and Storage Tactics

Response Personnel hold current 8, 24 or 40 hour HAZWOPER certification in compliance with 29 CFR 1910.120 and WAC 296-824-300. Where required by USCG regulation, personnel that have vessel crewing assignments and responsibilities hold appropriate USCG Merchant Mariner Licenses and Endorsements. Additional detailed information available in the NRC PRC Application and NRC WA Plan.

Updates and Distribution

The Technical Manual will be used by NRC for planning and training. A hard copy is located in the NRC Seattle office with the NRC WA Plan and an electronic copy is stored in the NRC Plan file on the company server. Electronic copies are also distributed to NRC Marine Operations supervisory personnel. NRC Seattle's Marine Operations Manager is responsible for maintaining and updating the Manual. Lessons learned as identified during drill and spill reviews will be evaluated for applicable revisions to the Manual and updated versions will be circulated electronically and filed with the hard copy.

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Recovery and Storage Systems Mobilization

Bold ETA = Maximum time for the entire system to arrive onscene (mobilization for all resources in System Details description) based on Ecology planning calculations.

Hour 6 Systems	ETA	WRRL ID	Resource	Kind Type	Indentification	Specification	EDRC	Storage	Boom	People	Home Base	State	Staging	
	15	31491	Storage	TB2	OSRB, KENNY	Tank Barge	0	30783	0	3	Seattle	WA	Moorage, Duwamish River	
	15	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water	
System RS-14	16													
	6	28258	Skimmer Portable	SK2	South Park, Wier Skimmer	CASCADE-5465	5465	0	0	0	0	Seattle, South Park	WA	Warehouse
		n/a	Vessel	WB1	VOO	Landing Craft	0	0	0	0	Tacoma	WA	moorage	
	16	28564	Vessel	WB3	Sea Wolf 6500	Sea Arch Catameran 32'	0	0	0	2	Port Townsend	WA	Moorage	
	11	TBD	Storage	TB4	Trailer, SWB 2	Portable Barge Set	0	248	100	0	Portland	OR	Trailer, yard	
System RS-11	23													
	23	30322	Skimmer Portable	SKP	Coated Disc Skimmer	Crucial 13/30 Disk Skimmer	1440	0	0	0	Astoria	OR	Ironwood	
	23	31527	OSRV	OSRV1	Ironwood	Response Vessel 180'	0	0	175	6	Astoria	WA	Moorage	
	6	30267	Storage	TB4	Trailer 45', SWB1	Portable Barge Set	0	248	100	0	Seattle, South Park	WA	Trailer, Seattle	
System S-02	24													
	24	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water	
	24	LOI	Storage	TB2	LOI	Tank Barge	0	27708	0	3	Puget Sound	WA	In Water	
						Hour 24 Total	6905	58987	375					
						Hour 24 Cumulative	60128	119421	1425					
						Required	48000	96000	n/a					
						Variance	12128	23421	n/a					
Hour 48 Systems		WRRL ID	Resource	Kind Type	Indentification	Specification	EDRC	Storage	Boom	People	Home Base	State	Staging	
						Hour 48 Total	60128	119421	2175					
						Hour 48 Cumulative	60128	119421	2175					
						Required	60000	96000	n/a					
						Variance	128	23421	n/a					

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Recovery and Storage Systems by Type

Systems	ETA	WRRRL ID	Resource	Kind Type	Indentification	Specification	EDRC	Storage	Boom	People	Home Base	State	Staging
OSRV													
System RS-10	2	28542	OSRV	OSRV1	OSRV NRC Columbia	Response Vessel 126'	0	625	0	6	Ferndale	WA	Anchor, Conoco
System RS-09 A	7	28263	OSRV	OSRV4	Trailer 6067, Belt Skimmer Vessel	Marco/1C, #1	3588	30	0	2	Seattle, South Park	WA	Trailer 6067
System RS-09 A	7	28264	OSRV	OSRV4	Trailer 6066, Belt Skimmer Vessel	Marco/1C, #2	3588	30	0	2	Seattle, South Park	WA	Trailer 6066
System RS-01	7	28537	OSRV	OSRV1	OSRV Cape Flattery, Vessel	Response Vessel 110'	0	320	300	4	Neah Bay	WA	Neah Bay Moorage
System RS-09 B	11	28261	OSRV	OSRV3	Trailer 6169, Belt Skimmer Vessel	Marco/1C	3588	30	0	2	Portland	OR	Trailer 6169
System RS-09 B	12	28262	OSRV	OSRV3	Belt Skimmer Vessel	Marco/1-I	3588	30	0	2	St Helens	OR	Moorage
System RS-11	23	31527	OSRV	OSRV1	Ironwood	Response Vessel 180'	0	0	175	6	Astoria	WA	Moorage
Skimmer													
System RS-10	2	30459	Skimmer Portable	SK2	OSRV NRC Columbia, Lori Brush Skimmer	Brush Skimmer, Vessel Mounted	9052	0	0	0	Ferndale	WA	OSRV, Conoco
System RS-06	4	28225	Skimmer Portable	SK3	Container, Disc Skimmer/ Power Pack	Morris/MI-30	686	0	0	0	Anacortes	WA	Net Shed
System RS-06	4	TBD	Skimmer Portable	SK4	Wier Skimmer	3" Skim-pak	254	0	0	0	Anacortes	WA	Net Shed
System RS-04B	6	28252	Skimmer Portable	SK2	Wier Skimmer	Desmi 250	3017	0	0	0	Seattle, Pier 90	WA	24' Trailer 3441
System RS-13	6	29795	Skimmer Portable	SK2	Warehouse, Disc Skimmer	Crucial Coated Disc Skimmer	888	0	0	0	Seattle, South Park	WA	warehouse
System RS-07 B	6	28214	Skimmer Portable	SK2	Trailer Pier 90, Brush Skimmer	Lamor/OPC2	3019	0	0	0	Seattle, South Park	WA	Trailer 3439- 24' Pier 9C
System RS-08	4	28255	Skimmer Portable	SK4	FRV 8, Wier Skimmer	2" Skim-pak	178	0	0	0	Tacoma, TFW	WA	FRV 8
System RS-08	4	28248	Skimmer Portable	SK4	FRV 3, Wier Skimmer	2" Skimpak	178	0	0	0	Seattle, Pier 90	WA	FRV 3
System RS-03	2	28256	Skimmer Portable	SK4	FRV 4, Wier Skimmer	2" Skim-pak	178	0	0	0	Port Angeles	WA	FRV 4
System RS-05B	7	28224	Skimmer Portable	SK3	Storage Shed, Disc Skimmer/ Power Pack	Morris/MI-30	686	0	0	0	Tacoma, TFW	WA	Tacoma TFW
System RS-04A	9	28253	Skimmer Portable	SK2	Wier Skimmer	Desmi 250	3017	0	0	0	Port Angeles	WA	24' Trailer #3440
System RS-07 A	10	28213	Skimmer Portable	SK2	Trailer Hoquiam, Brush Skimmer	Lamor/OPC2	3019	0	0	0	Aberdeen	WA	24' Trailer
System RS-01	7	28259	Skimmer Portable	SK3	OSRV Cape Flattery, Brush Skimmer	Aquaguard RBS-40	2427	0	0	1	Neah Bay	WA	OSRV Cape Flattery
System RS-01	11	28226	Skimmer Portable	SK3	Warehouse, Brush/Wier Skimmer	Aqua-Guard/RBS-10	662	0	0	0	Neah Bay	WA	Warehouse
System RS-02	11	30822	Skimmer Portable	SK1	ORB, disc skimmer	Elastec X 150 disc	9600	0	0	0	Neah Bay	WA	Neah Bay
System RS-05A	9	28223	Skimmer Portable	SK3	Disc Skimmer/ Power Pack	Morris/MI-30	686	0	0	0	Port Angeles	WA	Boat Haven
System RS-12	11	28260	Skimmer Portable	SK3	Brush/Drum Skimmer	Aqua-Guard/RBS-10	662	0	0	0	Seattle, Fisherman's Terr	WA	Vessel Service Boat
System RS-12	11	28215	Skimmer Portable	SK3	Brush/DrumSkimmer	Aqua-Guard/RBS-10	662	0	0	0	Portland	OR	Loft
System RS-11	23	30322	Skimmer Portable	SKP	Coated Disc Skimmer	Crucial 13/30 Disk Skimmer	1440	0	0	0	Astoria	OR	Ironwood
System RS-14	6	28258	Skimmer Portable	SK2	South Park, Wier Skimmer	CASCADE-5465	5465	0	0	0	Seattle, South Park	WA	Warehouse
Storage													
System RS-06	4	28277	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3
System RS-06	4	28278	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3
System RS-04B	4	28311	Storage	PS4	Net Shed, Bladder Tank	Canflex FCB-43E Bladder	0	100	0	0	Anacortes	WA	Net Shed
System RS-13	6	30792	Storage	TB4	Trailer, SWB 2	Portable Barge Set	0	248	100	0	Seattle, Yard	WA	Trailer, yard
System RS-07 B	4	29796	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8
System RS-07 B	6	28279	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8
System S-02	6	LOI	Storage	TB2	LOI	Tank Barge	0	27708	0	3	Puget Sound	WA	In Water
System RS-08	6	28280	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8
System RS-08	6	28281	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8
System RS-03	2	29797	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4
System RS-05B	2	29800	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4
System RS-04A	9	28283	Storage	PS4	Bladder Tank	Bladder Tank	0	100	0	0	Port Angeles	WA	Container on chassis
System RS-07 A	2	29798	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4
System RS-07 A	2	29799	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4
System RS-01	7	28308	Storage	PS4	OSRV Cape Flattery, Bladder Tank	Dracone Canflex	0	100	0	0	Neah Bay	WA	OSRV Cape Flattery
System RS-02	11	29818	Storage	TB3	ORB 6	Tank Barge 40'	0	248	150	3	Neah Bay, Marina	WA	Moorage
System S-02	11	28288	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 9	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28289	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 8	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28290	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 7	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28291	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 6	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28292	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 5	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28293	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 4	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28294	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 3	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28295	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 2	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-02	11	28296	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 1	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
System S-04	11	TBD	Storage	PS4	Bladder Tank	Canflex/DLE-5	0	25	0	0	Neah Bay	WA	Trailer
System S-04	11	TBD	Storage	PS4	Bladder Tank	Canflex/DLE-5	0	25	0	0	Neah Bay	WA	Trailer
System RS-05A	11	TBD	Storage	TB4	Trailer, SWB 2	Portable Barge Set	0	248	100	0	Portland	OR	Trailer, yard
System RS-12	4	28275	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3
System RS-12	4	28276	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3
System S-02	12	LOI	Storage	TB2	LOI	Tank Barge	0	27708	0	3	Puget Sound	WA	In Water

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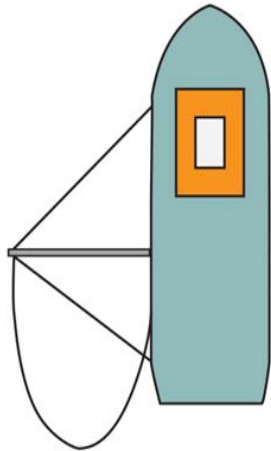
SAN JUAN ISLANDS

Recovery and Storage Systems by Type

Systems	ETA	WRRRL ID	Resource	Kind Type	Indentification	Specification	EDRC	Storage	Boom	People	Home Base	State	Staging
System RS-11	6	30267	Storage	TB4	Trailer 45', SWB1	Portable Barge Set	0	248	100	0	Seattle, South Park	WA	Trailer, Seattle
System S-02	24	LOI	Storage	TB2	LOI	Tank Barge	0	27708	0	3	Puget Sound	WA	In Water
System S-01	15	31491	Storage	TB2	OSRB, KENNY	Tank Barge	0	30783	0	3	Seattle	WA	Moorage, Duwamish River
System RS-14	11	TBD	Storage	TB4	Trailer, SWB 2	Portable Barge Set	0	248	100	0	Portland	OR	Trailer, yard
Tug													
System S-02	6	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water
System S-02	12	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water
System S-02	24	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water
System S-01	15	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water
Vessel													
System RS-06	4	30266	Vessel	WB3	Retriever, 6669	32' Workboat	0	0	0	2	Anacortes	WA	Moorage
System RS-06		n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Region 2	WA	moorage
System RS-06		n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Region 2	WA	moorage
System RS-04B		n/a	Vessel	WB1	VOO	Landing Craft	0	0	0		Anacortes	WA	moorage
System RS-04B	6	28561	Vessel	WB4	Sea Hawk 6479	Aluminum vessel 28'	0	0	0	2	Seattle, South Park	WA	Trailer 6601
System RS-13	2	28566	Vessel	WB3	FRV 2, Kvichak	Response Vessel 32'	0	0	0	2	Anacortes	WA	Moorage
System RS-13	2	28490	Vessel	WB4	Munson Work Boat 6658	Pak-Cat, 24'	0	0	0	2	Ferndale	WA	OSRV Columbia
System RS-07 B	4	28571	Vessel	WB3	FRV 8, Kvichak	Response Vessel 32'	0	0	0	2	Tacoma, TFW	WA	Moorage
System RS-08	4	28572	Vessel	WB3	FRV 9, Kvichak	Response Vessel 32'	0	0	0	2	Everett	WA	Moorage
System RS-08	6	29778	Vessel	WB4	WS 2 6603	Aluminum work skiff 18'	0	0	0	2	Seattle, Yard	WA	Yard, Trailered
System RS-03	2	28568	Vessel	WB3	FRV 4, Kvichak	Response Vessel 32'	0	0	0	2	Port Angeles	WA	Moorage
System RS-03		n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Neah Bary	WA	moorage
System RS-03		n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Neah Bay	WA	moorage
System RS-05B	2	28569	Vessel	WB3	FRV 5, Kvichak	Response Vessel 32'	0	0	0	2	Bellingham	WA	Moorage
System RS-05B	7	29778	Vessel	WB4	WS 2 6603	Aluminum work skiff 18'	0	0	0	2	Tacoma, TFW	WA	Trailer
System RS-04A		n/a	Vessel	WB1	VOO	Landing Craft	0	0	0		Port Angeles	WA	moorage
System RS-04A	6	29783	Vessel	WB4	Sea Falcon 6602	Aluminum vessel 28'	0	0	0	2	Seattle, South Park	WA	Trailer
System RS-07 A	3	28567	Vessel	WB3	FRV 3, Kvichak	Response Vessel 32'	0	0	0	2	Seattle, Pier 90	WA	Moorage
System RS-02	4	28570	Vessel	WB3	FRV 7, Kvichak	Response Vessel 32'	0	0	0	2	Neah Bay	WA	Moorage
System RS-02	6	28560	Vessel	WB4	Red Rocket 6413	Boston Whaler 25'	0	0	0	2	Neah Bay	WA	Museum Lot
System RS-05A	4	28563	Vessel	WB4	Sea Ram 6508	Kvichak BHSS 28'	0	0	0	2	Port Angeles	WA	Moorage
System RS-05A	6	29778	Vessel	WB4	WS 2 6603	Aluminum work skiff 18'	0	0	0	2	Seattle, Yard	WA	Yard, Trailered
System RS-12	4	28574	Vessel	WB3	Response 1, 6771	Kvichak Vessel 32'	0	17	0	2	Seattle, Fisherman's Terr	WA	Moorage Dock 7
System RS-12	6	28534	Vessel	WB4	LUND 6460 (#5)	Workboat 20', 75 HP	0	0	0	2	Seattle, South Park	WA	Trailer 6559
System RS-12	11	28541	Vessel	WB4	JETCRAFT 6464 (#9)	Workboat 20'	0	0	0	2	Portland	OR	Trailer, yard
System RS-14		n/a	Vessel	WB1	VOO	Landing Craft	0	0	0		Tacoma	WA	moorage
System RS-14	16	28564	Vessel	WB3	Sea Wolf 6500	Sea Arch Catameran 32'	0	0	0	2	Port Townsend	WA	Moorage

NRC Technical Manual- Recovery/Storage System Detail

System RS-01



Tactic purpose and description: The purpose of this tactic is on-water recovery and storage of oil in an open water operating environment. The AquaGuard RBS-40 and RBS-10 are deployed from the OSRV NRC Cape Flattery. Recovery is enhanced with a boom arm. In order to support continuous operations, oil recovered with this system is off loaded to on-board and portable bladder storage.

Operating environment: Calm, Protected, Open Water to 6 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations):
6/12

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28259	Skimmer Portable	SK3	OSRV Cape Flattery, Brush Skimmer	Aquaguard RBS-40	2427	0	0	1	Neah Bay	WA	OSRV Cape Flattery
PRC / dedicated	28226	Skimmer Portable	SK3	Warehouse, Brush/Wier Skimmer	Aqua-Guard RBS-10	662	0	0	0	Neah Bay	WA	Warehouse

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28537	OSRV	OSRV1	OSRV Cape Flattery, Vessel	Response Vessel 110'	0	320	300	4	Neah Bay	WA	Neah Bay Moorage

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28308	Storage	PS4	OSRV Cape Flattery, Bladder Tank	Dracone Canflex	0	100	0	0	Neah Bay	WA	OSRV Cape Flattery

Offloading narrative and pump rate description: The 4" transfer pump on the OSRV may be used to offload onboard storage tank at a maximum pumping rate of 150 gpm. Portable bladder can be offloaded by portable pump or vaccum truck.

Mobilization Details :

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): n/a

NRC Technical Manual- Recovery/Storage System Detail

System RS-01

Transit speeds (include any alternatives granted by Ecology): Cape Flattery 10 kts

Support resources for mobilization: none required

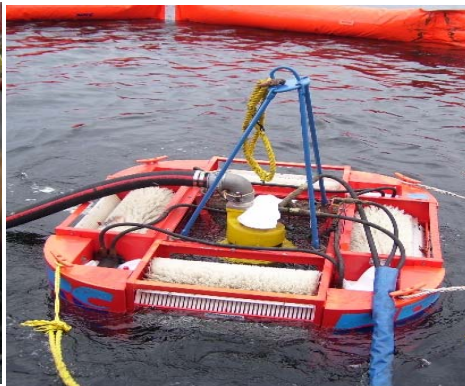
Support resources for deployment: onboard crane

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



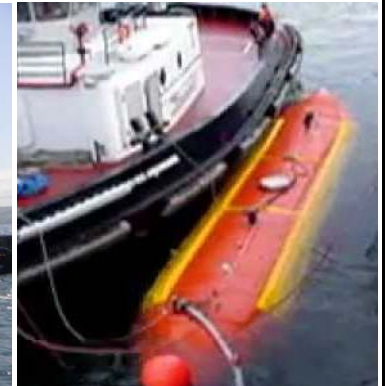
RBS-10



RBS-40



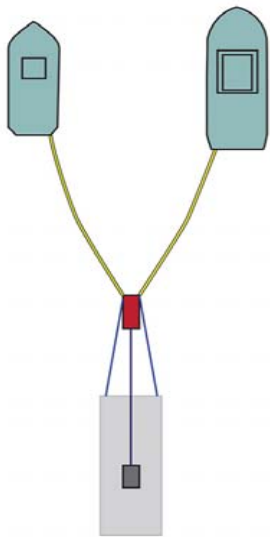
NRC Cape Flattery



Canflex Bladder

NRC Technical Manual- Recovery/Storage System Detail

System RS-02



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. The Elastec X-150 is towed by the FRV and Red Rocket and providing enhanced skimming. In order to support continuous operations, recovered oil is off loaded to the Barge ORB 6 towed behind the skimmer.

Operating environment: Calm, Protected, Open Water to 3 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 5/10 (plus VOO crews)

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	30822	Skimmer Portable	SK1	ORB, disc skimmer	Elastec X 150 disc	9600	0	0	0	Neah Bay	WA	Neah Bay

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28570	Vessel	WB3	FRV 7, Kvichak	Response Vessel 32'	0	0	see below	2	Neah Bay	WA	Moorage
PRC / dedicated	28560	Vessel	WB4	Red Rocket 6413	Boston Whaler 25'	0	0	0	2	Neah Bay	WA	Museum Lot

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	29818	Storage	TB3	ORB 6	Tank Barge 40'	0	248	150	3	Neah Bay, Marina	WA	Moorage

Offloading narrative and pump rate description: Barge would be offloaded to shoreside when full. Portable transfer pump or receiving facility equipment may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

NRC Technical Manual- Recovery/Storage System Detail

System RS-02

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology): FRV 25 kts

Support resources for mobilization: Truck for Red Rocket Trailer

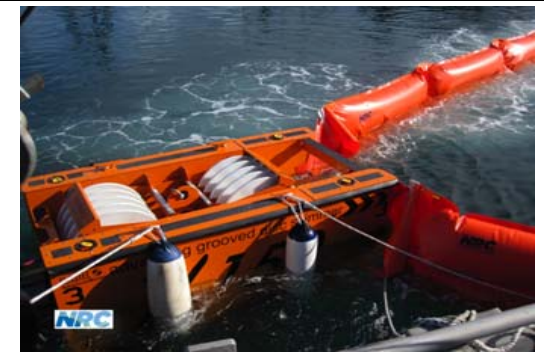
Support resources for deployment: Crane on OSRV Cape Flattery deploys X-150

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



ORB 6



X-150



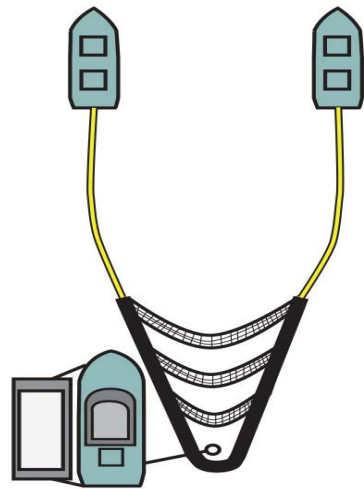
Red Rocket



FRV

NRC Technical Manual- Recovery/Storage System Detail

System RS-03



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an calm, protected or open water operating environments. The SkimPaks are deployed from the FRV. Oil is collected in the Speed Sweep towed by the VOOs. The skimmer is positioned in the apex to recover oil. In order to support continuous operations, oil recovered with this system is off loaded to on-water storage detailed below.

Operating environment: Calm, Protected, Open Water up to 6 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 3/6 (plus VOO crews)

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28256	Skimmer Portable	SK4	FRV 4, Wier Skimmer	2" Skim-pak	178	0	0	0	Port Angeles	WA	FRV 4

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28568	Vessel	WB3	FRV 4, Kvichak	Response Vessel 32'	0	0	0	2	Port Angeles	WA	Moorage
VOO	n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Neah Bay	WA	moorage
VOO	n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Neah Bay	WA	moorage
PRC / dedicated	31492	Boom	B2	Desmi Speed Sweep System	Boom Collection	0	200	200	0	Neah Bay	WA	OSRV Cape Flattery

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	29799	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4

Offloading narrative and pump rate description: Bladder tank is transported shoreside when full to be offloaded by portable transfer pump or vacuum truck then re offloads receiving facility equipment may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology): FRV 25 kts

Support resources for mobilization: Cape Flattery crane offloads Speed Sweep

Support resources for deployment: FRV deploys skimmers and bladders

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



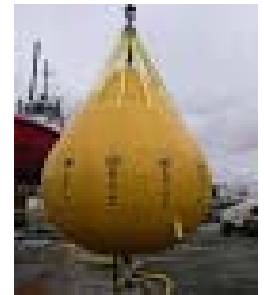
FRV



Speed Sweep



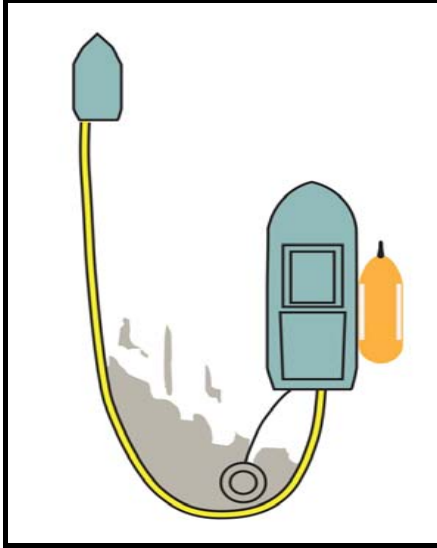
SkimPak



Canflex Bladder

NRC Technical Manual- Recovery/Storage System Detail

System RS-04



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment.

A: The Port Angeles Desmi 250 is deployed from a VOO launch craft. Recovery operations are enhanced by a J boom towed by the Sea Falcon. In order to support continuous operations, recovered oil is transferred to towable bladder.

B: The Seattle Desmi 250 is deployed from a VOO launch crafts. Recovery operations are enhanced by a J boom towed by the Sea Falcon. In order to support continuous operations, recovered oil is transferred to towable bladder.

Operating environment: Calm, Protected, Open Water to 6 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 5/10 (plus VOO per its COI)

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28253	Skimmer Portable	SK2	Wier Skimmer	Desmi 250	3017	0	0	0	Port Angeles	WA	24' Trailer #3440
PRC / dedicated	28252	Skimmer Portable	SK2	Wier Skimmer	Desmi 250	3017	0	0	0	Seattle, Pier 90	WA	24' Trailer 3441

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
VOO	n/a	Vessel	WB1	VOO	Landing Craft	0	0	0		Anacortes	WA	moorage
PRC / dedicated	29783	Vessel	WB4	Sea Falcon 6602	Aluminum vessel 28'	0	0	0	2	Seattle, South Park	WA	Trailer
VOO	n/a	Vessel	WB1	VOO	Landing Craft	0	0	0		Anacortes	WA	moorage
PRC / dedicated	28561	Vessel	WB4	Sea Hawk 6479	Aluminum vessel 28'	0	0	0	2	Seattle, South Park	WA	Trailer 6601

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28283	Storage	PS4	Bladder Tank	Bladder Tank	0	100	0	0	Port Angeles	WA	Container on chassis

NRC Technical Manual- Recovery/Storage System Detail	System RS-04
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PRC / dedicated	28311	Storage	PS4	Net Shed, Bladder Tank	Canflex FCB-43E Bladder	0	100	0	0	Anacortes	WA	Net Shed
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Offloading narrative and pump rate description: Recovered product will be offloaded to shoreside when full. Portable transfer pump to shoreside storage or vacuum truck may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology):

Support resources for mobilization: Truck for skimmer trailer

Support resources for deployment: Crane on VOO deploys skimmer

Training (describe training requirements for operating the recovery equipment): Hands-on, skimmer-specific, deployment exercises.

Photographs of equipment:



Desmi 250



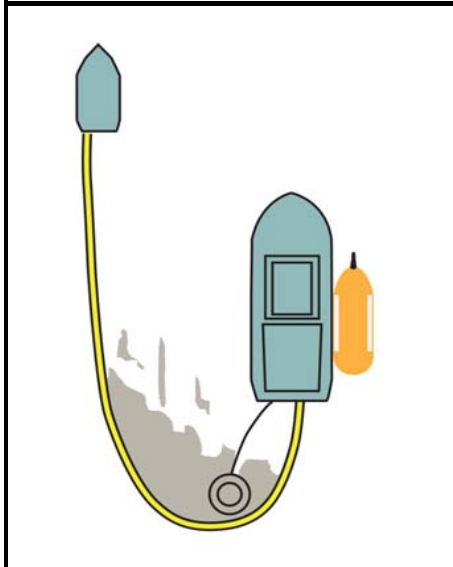
Sea Falcon / Sea Hawk



Canflex Bladder

NRC Technical Manual- Recovery/Storage System Detail

System RS-05 A & B



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment.

A: The Port Angeles Morris MI-30 is deployed from the Sea Ram. Recovery operations are enhanced by a J boom towed by the workboat. In order to support continuous operations, oil is transferred to towable bladder.

B: The Tacoma Morris MI-30 is deployed from the Sea Ram. Recovery operations are enhanced by a J boom towed by the workboat. In order to support continuous operations, oil is transferred to towable bladder.

Operating environment: Calm, Protected, Open Water to 3 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 5/10

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28223	Skimmer Portable	SK3	Disc Skimmer/ Power Pack	Morris/MI-30	686	0	0	0	Port Angeles	WA	Boat Haven
PRC / dedicated	28224	Skimmer Portable	SK3	Storage Shed, Disc Skimmer/ Power Pack	Morris/MI-30	686	0	0	0	Tacoma, TFW	WA	Tacoma TFW

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28563	Vessel	WB4	Sea Ram 6508	Kvichak BHSS 28'	0	0	0	2	Port Angeles	WA	Moorage
PRC / dedicated	29778	Vessel	WB4	WS 2 6603	Aluminum work skiff 18'	0	0	0	2	Seattle, Yard	WA	Yard, Trailered
PRC / dedicated	28569	Vessel	WB3	FRV 5, Kvichak	Response Vessel 32'	0	0	0	2	Bellingham	WA	Moorage
PRC / dedicated	29778	Vessel	WB4	WS 2 6603	Aluminum work skiff 18'	0	0	0	2	Tacoma, TFW	WA	Trailer

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	TBD	Storage	TB4	Trailer, SWB 2	Portable Barge Set	0	248	100	0	Portland	OR	Trailer, yard

NRC Technical Manual- Recovery/Storage System Detail										System RS-05 A & B		
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PRC / dedicated	29800	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4
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Offloading narrative and pump rate description: Recovered product will be offloaded to shoreside when full. Portable transfer pump to shoreside storage or vacuum truck may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology):

Support resources for mobilization: Truck to deliver skimmer

Support resources for deployment: Vessel davit deploys skimmer

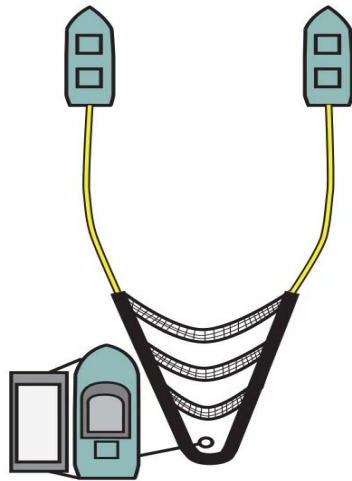
Training (describe training requirements for operating the recovery equipment): Hands-on, skimmer-specific, deployment exercises.

Photographs of equipment:



NRC Technical Manual- Recovery/Storage System Detail

System RS-06



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. The MI-30 and Skimpak are deployed from the FRV. Oil is collected in the Speed Sweep towed by the VOOs. The skimmers are positioned in the apex to recover oil. In order to support continuous operations, oil recovered with this system is off loaded to on-water storage detailed below.

Operating environment: Calm, Protected, Open Water to 3 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 5/10

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28225	Skimmer Portable	SK3	Container, Disc Skimmer/ Power Pack	Morris/MI-30	686	0	0	0	Anacortes	WA	Net Shed
PRC / dedicated	TBD	Skimmer Portable	SK4	Wier Skimmer	3" Skim-pak	254	0	0	0	Anacortes	WA	Net Shed

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	30266	Vessel	WB3	Retriever, 6669	32' Workboat	0	0	0	2	Anacortes	WA	Moorage
VOO	n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Region 2	WA	moorage
VOO	n/a	Vessel	WB1	VOO	Boom Boat	0	0	0		Region 2	WA	moorage
PRC / dedicated	31493	Boom	B2	Desmi Speed Sweep System	Booming Collection	0	200	200	0	Anacortes	WA	Trailer

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28277	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3

NRC Technical Manual- Recovery/Storage System Detail										System RS-06		
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PRC / dedicated	28278	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3
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Offloading narrative and pump rate description: Recovered product will be offloaded to shoreside when full. Portable transfer pump to shoreside storage or vacuum truck may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology):

Support resources for mobilization: Truck to deliver skimmer

Support resources for deployment: Vessel davit deploys skimmer

Training (describe training requirements for operating the recovery equipment): Hands-on, skimmer-specific, deployment exercises.

Photographs of equipment:



MI-30

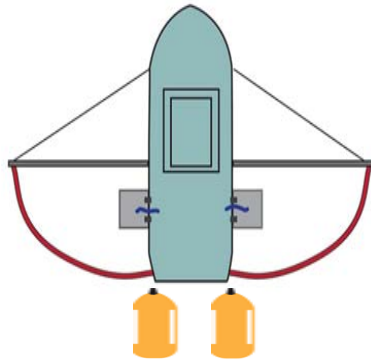
Skimpak

Retriever

Canflex Bladder

NRC Technical Manual- Recovery/Storage System Detail

System RS-07 A & B



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an calm, protected or open water operating environment. The Lamors are deployed from the FRVs. Recovery operations are enhanced by boom arms funneling product to the skimmers. In order to support continuous operations, recovered oil is stored in bladders.

Operating environment: Calm, Protected, Open Water less than 3 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 3/6 each

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28213	Skimmer Portable	SK2	Trailer Hoquiam, Brush Skimmer	Lamor/OPC2	3019	0	0	0	Aberdeen	WA	24' Trailer
PRC / dedicated	28214	Skimmer Portable	SK2	Trailer Pier 90, Brush Skimmer	Lamor/OPC2	3019	0	0	0	Seattle, South Park	WA	Trailer 3439-24' Pier 90

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28567	Vessel	WB3	FRV 3, Kvichak	Response Vessel 32'	0	0	0	2	Seattle, Pier 90	WA	Moorage
PRC / dedicated	28571	Vessel	WB3	FRV 8, Kvichak	Response Vessel 32'	0	0	0	2	Tacoma, TFW	WA	Moorage

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	29798	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4
PRC / dedicated	29799	Storage	PS4	FRV 4, Bladder Tank	Canflex/DLE-5	0	25	0	0	Port Angeles	WA	FRV 4
PRC / dedicated	29796	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8

NRC Technical Manual- Recovery/Storage System Detail										System RS-07 A & B		
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PRC / dedicated	28279	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8
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Offloading narrative and pump rate description: Bladders are offloaded by portable transfer pump or vacuum truck.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology): FRV 25 kts

Support resources for mobilization: Truck deploys trailers with skimmers

Support resources for deployment: Crane truck positions skimmers on FRVs and davit deploys bladders

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



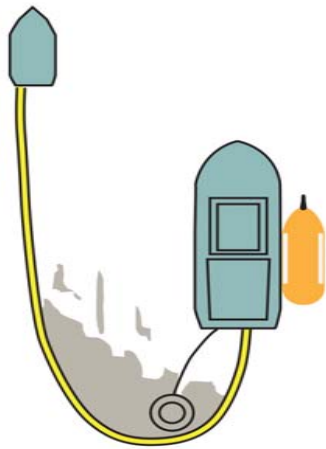
Lamor



Canflex Bladder

NRC Technical Manual- Recovery/Storage System Detail

System RS-08



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an calm or protected water operating environment. The Skimpaks are deployed from the FRV. Recovery operations are enhanced by the workboat funneling product to the skimmer with a J-boom. In order to support continuous operations, oil recovered with this system is stored in portable bladders.

Operating environment: Calm, Protected, less than 3 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations):
5/10

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28255	Skimmer Portable	SK4	FRV 8, Wier Skimmer	2" Skim-pak	178	0	0	0	Tacoma, TFW	WA	FRV 8
PRC / dedicated	28248	Skimmer Portable	SK4	FRV 3, Wier Skimmer	2" Skimpak	178	0	0	0	Seattle, Pier 90	WA	FRV 3

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28572	Vessel	WB3	FRV 9, Kvichak	Response Vessel 32'	0	0	0	2	Everett	WA	Moorage
PRC / dedicated	29778	Vessel	WB4	WS 2 6603	Aluminum work skiff 18'	0	0	0	2	Seattle, Yard	WA	Trailerred

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28280	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8
PRC / dedicated	28281	Storage	PS4	FRV 8, Bladder Tank	Canflex/DLE-4	0	25	0	0	Tacoma, TFW	WA	FRV 8

Offloading narrative and pump rate description: Bladder tanks are transported shoreside when full to be offloaded by portable transfer pump or vacuum truck then re offloads receiving facility equipment may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology): FRV 25 kts

Support resources for mobilization: N/A

Support resources for deployment: Davit on FRV deploys skimmers and bladders

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



FRV



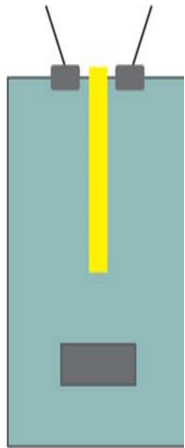
SkimPak



Canflex Bladder

NRC Technical Manual- Recovery/Storage System Detail

System RS-09 A & B



Tactic purpose and description: The purpose of this tactic is on-water recovery and storage of oil in an open water or near shore operating environment. The Marco IC vessel skimmers are trailered from Seattle to a boat launch as appropriate for response strategy. Self propelled skimmer vessels enhance recovery with hopper arms. In order to support continuous operations, oil recovered with this system is transferred to on-board storage and off loaded shoreside by portable pump or vacuum truck.

Operating environment: Calm, Protected, Open Water to 3 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations):
2/4

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28263	OSRV	OSRV4	Trailer 6067, Belt Skimmer Vessel	Marco/1C, #1	3588	30	0	2	Seattle, South Park	WA	Trailer 6067
PRC / dedicated	28264	OSRV	OSRV4	Trailer 6066, Belt Skimmer Vessel	Marco/1C, #2	3588	30	0	2	Seattle, South Park	WA	Trailer 6066
PRC / dedicated	28261	OSRV	OSRV3	Trailer 6169, Belt Skimmer Vessel	Marco/IC	3588	30	0	2	Portland	OR	Trailer 6169
PRC / dedicated	28262	OSRV	OSRV3	Belt Skimmer Vessel	Marco/I-I	3588	30	0	2	St Helens	OR	Moorage

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated												

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging

Offloading narrative and pump rate description: Recovered oil is stored in on-board tanks and off loaded shoreside by portable pump or vacuum truck.

Mobilization Details :

Mobilization method for recovery device (land/water): land

Mobilization method for each workboat(s): n/a

Transit speeds (include any alternatives granted by Ecology): n/a

Support resources for mobilization: Trucks for trailered vessel skimmers

Support resources for deployment: n/a

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



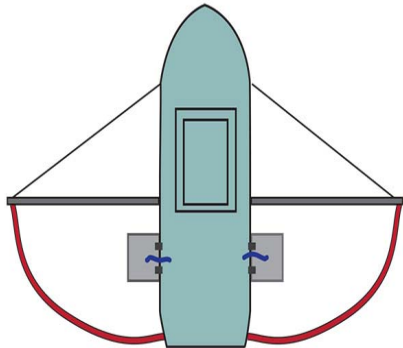
Marco IC on trailer



Marco IC

NRC Technical Manual- Recovery/Storage System Detail

System RS-10



Tactic purpose and description: The purpose of this tactic is on-water recovery and storage of oil in an open water operating environment. The Lori Brush skimmer is mounted on the OSRV NRC Columbia. Recovery is enhanced by a boom arm. In order to support continuous operations, oil recovered with this system is off loaded to on-board storage.

Operating environment: Calm, Protected, Open Water to 6 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 6/12

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	30459	Skimmer Portable	SK2	OSRV NRC Columbia, Lori Brush Skimmer	Brush Skimmer, Vessel Mounted	9052	0	0	0	Ferndale	WA	OSRV, Conoco

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28542	OSRV	OSRV1	OSRV NRC Columbia	Response Vessel 126'	0	625	0	6	Ferndale	WA	Anchor, Conoco

Associated Storage Device Detail: See System S-01, S-02

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging

Offloading narrative and pump rate description: The 4" transfer pump on the OSRV may be used to offload onboard storage tank at a maximum pumping rate of 150 gpm. Portable bladder can be offloaded by portable pump or vaccum truck.

Mobilization Details :

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): n/a

Transit speeds (include any alternatives granted by Ecology): Columbia 10 kts

NRC Technical Manual- Recovery/Storage System Detail

System RS-10

Support resources for mobilization: none required

Support resources for deployment: onboard crane

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

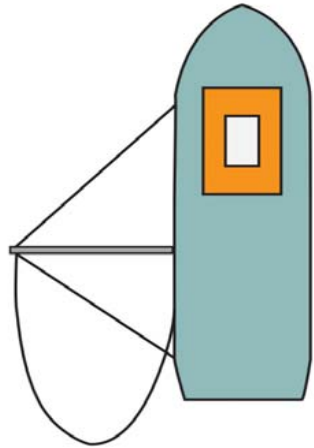
Photographs of equipment:



NRC Columbia with Lori

NRC Technical Manual- Recovery/Storage System Detail

System RS-11



Tactic purpose and description: The purpose of this tactic is on-water recovery and storage of oil in an open water operating environment. The Crucial skimmer is deployed from the M/V Ironwood. Recovery is enhanced by a boom arm. In order to support continuous operations, oil recovered with this system is transferred to a portable set.

Operating environment: Calm, Protected, Open Water to 6 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations):
6/12

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	30322	Skimmer Portable	SKP	Coated Disc Skimmer	Crucial 13/30 Disk Skimmer	1440	0	0	0	Astoria	OR	Ironwood

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
VOS	31527	OSRV	OSRV1	Ironwood	Response Vessel 180'	0	0	175	6	Astoria	WA	Moorage

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	30267	Storage	TB4	Trailer 45', SWB1	Portable Barge Set	0	248	100	0	Seattle, South Park	WA	Trailer, Seattle

Offloading narrative and pump rate description: The 4" transfer pump on the OSRV may be used to offload onboard storage tank at a maximum pumping rate of 150 gpm. Portable bladder can be offloaded by portable pump or vaccum truck.

Mobilization Details :

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): n/a

Transit speeds (include any alternatives granted by Ecology): Ironwood 8.75 knots

Support resources for mobilization: none required

Support resources for deployment: onboard crane

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



Crucial Disc



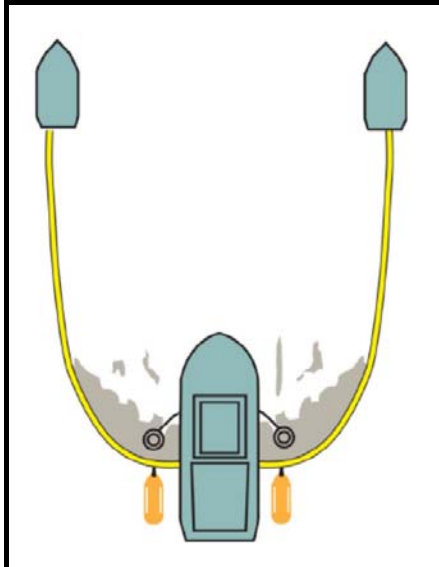
M/V Ironwood



Portable Barge Set

NRC Technical Manual- Recovery/Storage System Detail

System RS-12



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an calm or protected water operating environment. The RBS skimmers are deployed from the Response 1. Recovery operations are enhanced by dual J-booms towed by the work boats funneling product to the skimmers. In order to support continuous operations, recovered oil is stored in onboard tankage and portable bladders.

Operating environment: Calm, Protected, Open Water less than 3 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 6/12

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28260	Skimmer Portable	SK3	Response 1, Brush/Drum Skimmer	Aqua-Guard/RBS-10	662	0	0	0	Seattle, Fisherman's	WA	Vessel Service Boat
PRC / dedicated	28215	Skimmer Portable	SK3	Brush/DrumSkimmer	Aqua-Guard/RBS-10	662	0	0	0	Portland	OR	Loft

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28574	Vessel	WB3	Response 1, 6771	Kvichak Vessel 32'	0	17	0	2	Seattle, Fisherman's	WA	Moorage Dock 7
PRC / dedicated	28534	Vessel	WB4	LUND 6460 (#5)	Workboat 20', 75 HP	0	0	0	2	Seattle, South Park	WA	Trailer 6559
PRC / dedicated	28541	Vessel	WB4	JETCRAFT 6464 (#9)	Workboat 20'	0	0	0	2	Portland	OR	Trailer, yard

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28275	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3
PRC / dedicated	28276	Storage	PS4	FRV 3, Bladder Tank	Canflex/DLE-4	0	25	0	0	Seattle, Pier 90	WA	FRV 3

NRC Technical Manual- Recovery/Storage System Detail

System RS-12

Offloading narrative and pump rate description: Bladders are offloaded by portable transfer pump or vacuum truck.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology):

Support resources for mobilization: Truck deploys trailers with skimmers

Support resources for deployment: n/a

Training (describe training requirements for operating the recovery equipment): Hands-on, equipment-specific, deployment exercises.

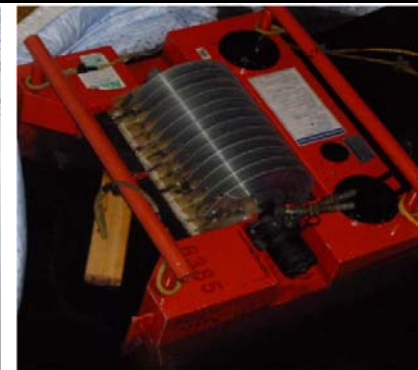
Photographs of equipment:



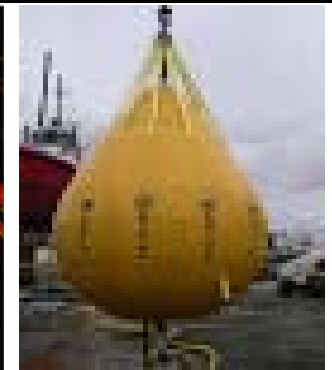
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Response 1



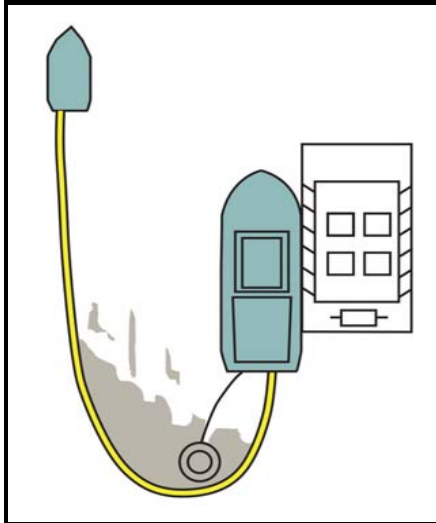
RBS-10



Canflex Bladder

NRC Technical Manual- Recovery/Storage System Detail

System RS-13



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. The Crucial skimmer is deployed from the FRV. Recovery operations are enhanced by a J boom towed by the work boat. In order to support continuous operations, recovered oil is transferred to portable barge set.

Operating environment: Calm, Protected, Open Water to 6 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 5/10 (plus VOO per its COI)

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	29795	Skimmer Portable	SK2	Warehouse, Disc Skimmer	Crucial Coated Disc Skimmer	888	0	0	0	Seattle, South Park	WA	warehouse

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28566	Vessel	WB3	FRV 2, Kvichak	Response Vessel 32'	0	0	0	2	Anacortes	WA	Moorage
PRC / dedicated	28490	Vessel	WB4	Munson Work Boat 6658	Pak-Cat, 24'	0	0	0	2	Ferndale	WA	OSRV Columbia

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	30792	Storage	TB4	Trailer, SWB 2	Portable Barge Set	0	248	100	0	Seattle, Yard	WA	Trailer, yard

Offloading narrative and pump rate description: Recovered product will be offloaded to shoreside storage when full. Portable transfer pump to shoreside storage or vacuum truck may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology):

Support resources for mobilization: Truck for skimmer trailer

Support resources for deployment: Davit on Sea Boar deploys skimmer

Training (describe training requirements for operating the recovery equipment): Hands-on, skimmer-specific, deployment exercises.

Photographs of equipment:



Crucial



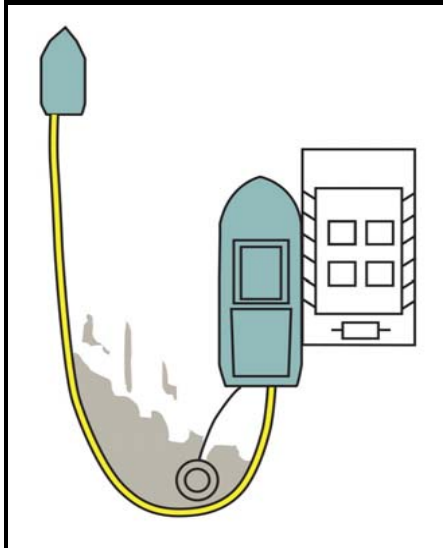
Sea Boar



Pac Cat

NRC Technical Manual- Recovery/Storage System Detail

System RS-14



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. The Cascade skimmer is deployed from the VOO. Recovery operations are enhanced by the J boom towed by the Sea Wolf. In order to support continuous operations, recovered oil is transferred to portable barge set.

Operating environment: Calm, Protected, Open Water to 6 ft waves.

Night Operations (describe how this system is capable to support night ops): This recovery system can be used to support night operations.

Oil type skimmer is optimized for: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 5/10 (plus VOO per its COI)

Recovery Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28258	Skimmer Portable	SK2	South Park, Wier Skimmer	CASCADE-5465	5465	0	0	0	Seattle, South Park	WA	Warehouse

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
VOO	n/a	Vessel	WB1	VOO	Landing Craft	0	0	0		Tacoma	WA	moorage
PRC / dedicated	28564	Vessel	WB3	Sea Wolf 6500	Catameran 32' Twin 150hp	0	0	0	2	Port Townsend	WA	Moorage

Associated Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	TBD	Storage	TB4	Trailer, SWB 2	Portable Barge Set	0	248	100	0	Portland	OR	Trailer, yard

Offloading narrative and pump rate description: Recovered product will be offloaded to shoreside storage when full. Portable transfer pump to shoreside storage or vacuum truck may be used for offload.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (include any alternatives granted by Ecology):

Support resources for mobilization: Truck for skimmer trailer

Support resources for deployment: Crane on VOO deploys skimmer

Training (describe training requirements for operating the recovery equipment): Hands-on, skimmer-specific, deployment exercises.

Photographs of equipment:



Cascade-5465



Sea Wolf

NRC Technical Manual - Storage System Detail

System S-01



Tactic purpose and description: The purpose of this tactic is to provide open water capable on-water storage capacity for recovered oily water - can be used to support recovery systems. The Tank Barge Kenny is deployed using a tug available under letter of intent.

Operating environment: Open Water to 6 ft waves.

Night Operations (describe how this system is capable of supporting night ops): This system can be used to support night operations.

Oil type: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 1/2 (plus 3 4 for Tug)

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 6/12

Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	31491	Storage	TB2	OSRB, KENNY	Tank Barge	0	30783	0	3	Seattle	WA	Moorage, Duwamish River

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Indentification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
LOI/Non-dedicated	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water

Offloading narrative and pump rate description: The Kenny would be offloaded to shoreside storage when full. Barge transfer pumps or facility pumps may be used. Transfer rate of of barge is 60 bbl/min unless the receiving facility has a limitation.

Mobilization Details:

Mobilization method for recovery device (land/water): water

Mobilization method for each workboat(s): water

Transit speeds (only list if an alternative was granted by Ecology): 7.5 knots

Support resources for mobilization: water

Support resources for deployment: water

Training of personnel for deployment: per LOI tug requirements

Photographs of equipment:



Tank Barge Kenny

NRC Technical Manual - Storage System Detail

System S-02



Tactic purpose and description: The purpose of this tactic is to provide open water capable on-water storage capacity for recovered oily water - can be used to support recovery systems. Barges are deployed as available using tugs available under letter of intent.

Operating environment: Open Water to 6 ft waves.

Night Operations (describe how this system is capable of supporting night ops): This system can be used to support night operations.

Oil type: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 1/2 (plus 3/4 for Tug)

Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
LOI/Non-dedicated	LOI	Storage	TB2	LOI	Tank Barge	0	27708	0	3	Puget Sound	WA	In Water
LOI/Non-dedicated	LOI	Storage	TB2	LOI	Tank Barge	0	27708	0	3	Puget Sound	WA	In Water

Associated Vessel and Boom Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDCR	Liquid Storage	Boom	People	Home Base	State	Staging
LOI/Non-dedicated	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water
LOI/Non-dedicated	LOI	Tug	Tug2	LOI	>1,500 HP	0	0	0	2	Puget Sound	WA	In Water

Offloading narrative and pump rate description: Tank Barges will be offloaded to shoreside storage when full. Barge transfer pumps or facility pumps may be used.

Mobilization Details:

Mobilization method for recovery device (land/water): water

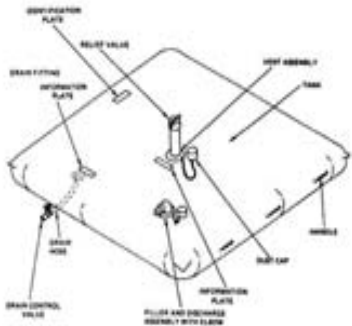
Mobilization method for each workboat(s): water

Transit speeds (only list if an alternative was granted by Ecology):

Support resources for mobilization: water

Support resources for deployment: water

Training of personnel for deployment: per LOI tug requirements



Tactic purpose and description: The purpose of this tactic is to provide temporary shoreside storage capacity for recovered oil.

Operating environment: Shoreside

Night Operations (describe how this system is capable of supporting night ops): This system can be used to support night operations.

Oil type: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 1/2 per each

Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	28288	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 9	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28289	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 8	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28290	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 7	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28291	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 6	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28292	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 5	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28293	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 4	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28294	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 3	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28295	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 2	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot
PRC / dedicated	28296	Storage	PS4	Flatbed 3387, Bladder Tank	Collapsible Fabric Tank 1	0	238	0	0	Neah Bay	WA	Flatbed 3387, Museum Lot

Offloading narrative and pump rate description: The portable tanks are deployed shoreside to provide offload storage for on water storage when full. NRC transfer pumps may be used. When full tanks to be offloaded by vacuum truck.

Mobilization Details:

Mobilization method for recovery device (land/water): land

Mobilization method for each workboat(s): n/a

Transit speeds (only list if an alternative was granted by Ecology): n/a

Support resources for mobilization: tractor to mobilize flat bed trailer

Support resources for deployment: crane truck or fork lift

Training of personnel for deployment: hands-on, equipment-specific, deployment exercises.

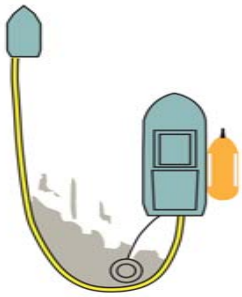
Photographs of equipment:



Tanks on Trailer

NRC Technical Manual - Storage System Detail

System S-04



Tactic purpose and description: The purpose of this tactic is to provide additional on water storage capacity to switch out with full portable bladders.

Operating environment: On Water

Night Operations (describe how this system is capable of supporting night ops): This system can be used to support night operations.

Oil type: Group 1-4

Minimum number of personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): 1/2 per each

Storage Device Detail:

Ownership	WRRL ID	Resource	Kind Type	Identification	Specification	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC / dedicated	TBD	Storage	PS4	Bladder Tank	Canflex/DLE-5	0	25	0	0	Neah Bay	WA	Trailer
PRC / dedicated	TBD	Storage	PS4	Bladder Tank	Canflex/DLE-5	0	25	0	0	Neah Bay	WA	Trailer

Offloading narrative and pump rate description: The portable tanks are deployed as needed to provide on water storage when full. When full tanks to be offloaded by vacuum truck.

Mobilization Details:

Mobilization method for recovery device (land/water): land

Mobilization method for each workboat(s): n/a

Transit speeds (only list if an alternative was granted by Ecology): n/a

Support resources for mobilization: tractor to mobilize flat bed trailer

Support resources for deployment: crane truck or fork lift

Training of personnel for deployment: hands-on, equipment-specific, deployment exercises.

Photographs of equipment:



Canflex Bladder