MSRC PAC/NW Region Technical Manual - Cathlamet Planning Standard (WAC 173-182-415)

Technical Manual Description: The following is for planning purposes only. The technical manual includes equipment appropriate for the operating environment and adequate to meet the WAC planning standards for recovery and storage through the forty-eight hour time frame.

Technical Manual Planning Standard: Cathlamet

Plan Holder(s) Covered by the Manual: Vessel planholders maintaining a vaild Service Agreement with MSRC.

Worst Case Discharge: Planholders have provided a worst case discharge volume of 300,000 bbls; per WAC 173-182-415, this translates to a planning requirement for 60,000 barrels of EDRC recovery and 84,000 barrels of storage through 48 hours.

Oil types: Planholders have indicated they carry oil groups 1-4

Technical Manual Planning Assumptions

Workboats will be used only once.

Vessels and boom for GRPs are not represented in the technical manual. The focus of the manual is the recovery and storage systems.

Assumptions as to mobilization times, estimated recovery capability (EDRC ratings), etc. are based on WAC.

Training Level of Personnel Described 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.

Updates and Distribution

This Technical Manual correlates MSRC resources to Planholder recovery and storage planning requirements. It is a planning document and, per WAC 173-182-349, does not bind MSRC or Planholders to the use of specific tactics during a spill or drill, or guarantee what will occurr in a real spill event. Information is subject to change.

MSRC PAC/NW Region Technical Manual - Cathlamet Planning Standard (WAC 173-182-415)

RECOVERY/STORAGE SUMMARY

	Recovery			Storage		
	WAC Planning Standard	MSRC Capability	Needed to Meet WAC Planning Standard	WAC Planning Standard	MSRC Capability	Needed to Meet WAC Planning Standard
Hour 6	9,000	14,155	0	9,000	54,024	0
Hour 12	30,000	32,095	0	45,000	54,280	0
Hour 24	42,000	70,502	0	84,000	69,918	14,082
Hour 48	60,000	70,502	0	84,000	107,918	0

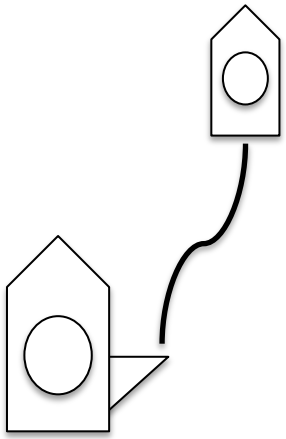
SYSTEM RECOVERY/STORAGE

System Type	System Name	ETA (hours)	Planning Hour	Recovery	Storage
Recovery (w/ storage)	OREGON RESPONDER	3	6	10567	14000
Recovery (w/ storage)	30-10	5	12	3588	24
Storage	OSRB 404	6	12	0	40000
Recovery (w/ storage)	MERLIN	8	12	3588	28
Recovery (w/ storage)	PEREGRINE	9	12	3588	28
Recovery (w/ storage)	SANDPIPER	12	12	10764	4
Storage	BUSTER #4	12	12	0	196
Recovery (w/ storage)	ARCTIC TERN	20	24	15840	276
Recovery (w/ storage)	WC PARK RESPONDER	20	24	10567	14000
Recovery (w/ storage)	SHEARWATER	24	24	12000	1362
Storage	OSRB 380	31	48	0	38000

Note: ETAs, rated recovery capability (EDRC) and storage estimated in accordance with WAC or as otherwise approved by WADOE.

Cathlamet Technical Manual - (24 hour) - Recovery System Detail

Recovery System
OREGON RESPONDER



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. This tactic assumes the OSRV1 OREGON RESPONDER will be enhanced by the WB3 16-1 using a 660' leg of B1 boom in a J formation. To promote the ability for continuous recovery operations, the tactic assumes that recovered oil is off loaded to available on-water storage. See Storage Systems OSRB 380 & OSRB 404.

Operating environment: Open Water waves 0-6 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using vessel lighting and vessel-based X-band radar and thermal infrared camera. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 12/20, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	7518	OSRV	OSRV1	OREGON RESPONDER	Skimmer, Transrec	10567	14000	0	10	Astoria	OR	In Water

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	7522	Vessel	WB3	OREGON RESPONDER, 16-1	Workboat 32'	0	0	0	2	Astoria	OR	Ship
PRC/ dedicated	7514	Boom	B1	OREGON RESPONDER, Boom	67"	0	0	1320	0	Astoria	OR	Ship

Cathlamet Technical Manual - (24 hour) - Recovery System Detail	Recovery System OREGON RESPONDER

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with the OREGON RESPONDER is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 33 bbl/min.

Mobilization Detail

Mobilization method for recovery device with onboard boom (land/water): Water

Mobilization method for each workboat: Water

Transit speeds (only list if an alternative was granted by Ecology): Estimate for OREGON RESPONDER 12 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 3 hours (assuming 1 hour MOB for dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: None required

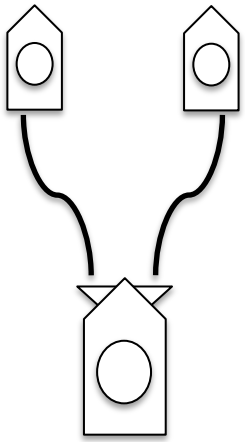
Support resources for deployment: None required

Equipment Photographs

OREGON RESPONDER **16-1**

Cathlamet Technical Manual - (12 hour) - Recovery System Detail

Recovery System 30-10



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in a protected/shallow water operating environment. This tactic assumes the OSRV3 30-10 will be enhanced by the WB3 HERON and WB5 JAEGER using two 100' legs of B2 boom in a V formation. To promote the ability for continuous recovery operations, the tactic assumes that collected oil is off loaded to available on-water storage.

Operating environment: Protected Water waves 0-3 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using onboard vessel lighting and navigation equipment. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 6/12, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	30802	OSRV	OSRV3	30-10	Skimmer, Marco	3588	24	0	2	Portland	OR	Trailer

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	3009	Vessel	WB3	HERON	Work Boat, 40'	0	0	0	2	Astoria	OR	In Water
PRC/ dedicated	3032	Skiff	WB5	JAEGER	Seine Skiff, 18'	0	0	0	2	Astoria	WA	Trailer
PRC/ dedicated	3012	Boom	B2	HERON, Boom, Kepner	20"	0	0	1000	0	Astoria	WA	HERON

Cathlamet Technical Manual - (12 hour) - Recovery System Detail	Recovery System 30-10

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with 30-10 is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 8 bbl/min.

Mobilization Detail

Mobilization method for recovery device and workboat (land/water): Land

Mobilization method for each workboat with onboard boom (land/water): Water

Transit speeds (only list if an alternative was granted by Ecology): Estimate for HERON 17 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 5 hours (assuming 1 hour MOB for dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: PRC/dedicated trucks for 30-10 and JAEGER.

Support resources for deployment: None required.

Equipment Photographs

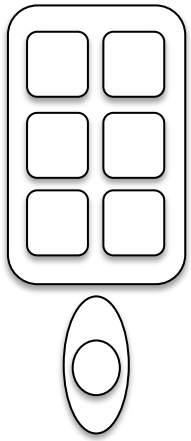
30-10

HERON

JAEGER

Cathlamet Technical Manual - (12 hour) - Storage System Detail

Storage System OSRB 404



Tactic purpose and description: The purpose of this tactic is to provide open water capable on-water storage capacity for recovered oily water. This tactic assumes the OSRB 404 will be deployed using a tug available under MSRC letter of intent.

Operating environment: Open Water waves 0-6 ft.

Night Operations (describe how this system is capable to support night ops): This storage system is capable of night operations using onboard lighting. Night operations are subject to safety, weather and other considerations.

Oil type: Group 1-5

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 2/4, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	7513	Storage	TB2	OSRB, 404	Tank Barge	0	40000	0	2	Astoria	OR	Barge

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
LOI/ NON-dedicated	LOI	Tug	TUG2	LOI	>1,500 HP	0	0	0	6	Columbia River	WA	In Water

Cathlamet Technical Manual - (12 hour) - Storage System Detail	Storage System OSRB 404

Offloading Detail

Offloading narrative and pump rate description: OSRB 404 may be offloaded to shoreside storage when full. Transfer pump on the barge may be used. Transfer rate estimated at 90 bbl/min unless the receiving facility has a limitation.

Mobilization Detail

Mobilization method for storage device (land/water): Water

Mobilization method for tug (land/water): Water

Transit speeds (only list if an alternative was granted by Ecology): Estimate for OSRB 404 8 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 6 hours (assuming 3 hour MOB for non-dedicated tug per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: None required

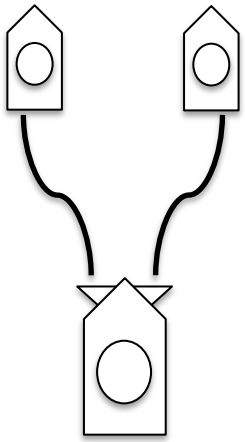
Support resources for deployment: A non-dedicated tug may be used to tow OSRB 404.

Equipment Photographs

OSRB 404

Cathlamet Technical Manual - (12 hour) - Recovery System Detail

Recovery System
MERLIN



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in a protected/shallow water operating environment. This tactic assumes the OSRV3 MERLIN will be enhanced by the WB5 EGRET and WB5 SNIPE using two 100' legs of B2 boom in a V formation. To promote the ability for continuous recovery operations, the tactic assumes that collected oil is off loaded to available on-water storage.

Operating environment: Protected Water waves 0-3 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using onboard vessel lighting and navigation equipment. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 6/12, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	24952	OSRV	OSRV3	MERLIN	Skimmer, Marco	3588	28	0	2	Everett	WA	Trailer

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	2992	Skiff	WB5	EGRET	Seine Skiff, 18'	0	0	0	2	Anacortes	WA	Trailer
PRC/ dedicated	3152	Skiff	WB5	SNIPE	Seine Skiff, 18'	0	0	0	2	Tacoma	WA	Trailer
PRC/ dedicated	3012	Boom	B2	HERON, Boom, Kepner	20"	0	0	200	0	Astoria	WA	HERON

Cathlamet Technical Manual - (12 hour) - Recovery System Detail	Recovery System MERLIN

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with MERLIN is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 8 bbl/min.

Mobilization Detail

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

Mobilization method for each workboat (land/water): Land

Mobilization method for boom (land/water): Water via HERON (Recovery System 30-10)

Transit speeds (only list if an alternative was granted by Ecology): Estimate for MERLIN 10 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 8 hours (assuming 1 hour MOB for dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: PRC/dedicated trucks for MERLIN, EGRET and SNIPE.

Support resources for deployment: None required.

Equipment Photographs

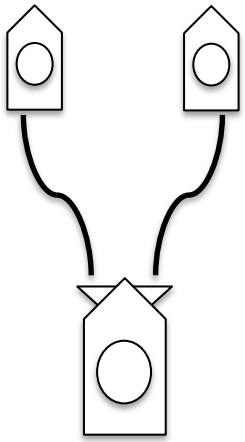
MERLIN

EGRET

SNIPE

Cathlamet Technical Manual - (12 hour) - Recovery System Detail

Recovery System
PEREGRINE



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in a protected/shallow water operating environment. This tactic assumes the OSRV3 PEREGRINE will be enhanced by the WB4 RESPONSE 5 and WB5 WILLET using two 100' legs of B2 boom in a V formation. To promote the ability for continuous recovery operations, the tactic assumes that collected oil is off loaded to available on-water storage.

Operating environment: Protected Water waves 0-3 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using onboard vessel lighting and navigation equipment. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 6/12, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	3030	OSRV	OSRV3	PEREGRINE	Skimmer, Marco	3588	28	0	2	Everett	WA	Trailer

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	3110	Skiff	WB5	WILLET	Seine Skiff, 18'	0	0	0	2	Port Angeles	WA	Trailer
PRC/ dedicated	7490	Vessel	WB4	RESPONSE 5	Work Boat, 28'	0	0	0	2	Everett	WA	Trailer
PRC/ dedicated	3012	Boom	B2	HERON, Boom, Kepner	20"	0	0	200	0	Astoria	WA	HERON

Cathlamet Technical Manual - (12 hour) - Recovery System Detail	Recovery System PEREGRINE

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with PEREGRINE is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 8 bbl/min.

Mobilization Detail

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

Mobilization method for each workboat (land/water): Land

Mobilization method for boom (land/water): Water via HERON (Recovery System 30-10)

Transit speeds (only list if an alternative was granted by Ecology): Estimate for PEREGRINE 10 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 9 hours (assuming 1 hour MOB for dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: PRC/dedicated trucks for PEREGRINE, WILLET and RESPONSE 5.

Support resources for deployment: None required.

Equipment Photographs

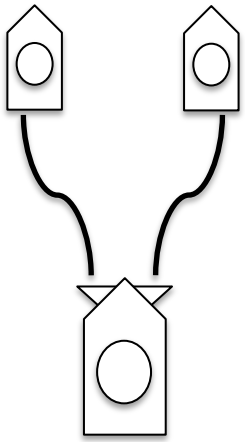
PEREGRINE

WILLET

RESPONSE 5

Cathlamet Technical Manual - (12 hour) - Recovery System Detail

Recovery System SANDPIPER



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in a protected/shallow water operating environment. This tactic assumes the OSRV3 SANDPIPER will be enhanced by 2 workboats using two 100' legs of B2 boom in a V formation. To promote the ability for continuous recovery operations, the tactic assumes that collected oil is off loaded to available on-water storage.

Operating environment: Protected Water waves 0-3 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using onboard vessel lighting and navigation equipment. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 6/12, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	3029	OSRV	OSRV3	SANDPIPER	Skimmer, Marco	10764	4	0	2	Tacoma	WA	Trailer

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
NON-dedicated	VOO	Vessel	WB4	Workboat	Workboat	0	0	0	2	Lower Columbia River	WA	In Water
NON-dedicated	VOO	Vessel	WB4	Workboat	Workboat	0	0	0	2	Lower Columbia River	WA	In Water
PRC/ dedicated	3012	Boom	B2	HERON, Boom, Kepner	20"	0	0	200	0	Astoria	WA	HERON

Cathlamet Technical Manual - (12 hour) - Recovery System Detail	Recovery System SANDPIPER

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with SANDPIPER is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 6 bbl/min.

Mobilization Detail

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

Mobilization method for each workboat (land/water): Water

Mobilization method for boom (land/water): Water via HERON (Recovery System 30-10)

Transit speeds (only list if an alternative was granted by Ecology): Estimate for SANDPIPER 10 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 12 hours (assuming 3 hour MOB for non-dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: Non-dedicated truck and trailer for SANDPIPER.

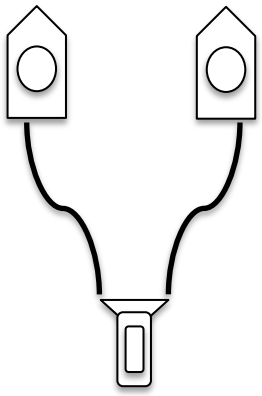
Support resources for deployment: Two non-dedicated workboats (VOO) may be used to tow boom.

Equipment Photographs

SANDPIPER

Cathlamet Technical Manual - (12 hour) - Storage System Detail

Storage System
BUSTER #4



Tactic purpose and description: The purpose of this tactic is to provide open water capable on-water collection and storage capacity for recovered oil. This tactic assumes the Buster will be deployed using two workboats capable of towing unit astern. To promote the ability for continuous recovery operations, the tactic assumes that collected oil is off loaded to available on-water storage.

Operating environment: Open Water waves 0-6 ft.

Night Operations (describe how this system is capable to support night ops): This storage system is capable of night operations using lighting and navigation equipment of VOO vessels. Night operations are subject to safety, weather and other considerations.

Oil type: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 4/8, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	31077	Boom	B2	Buster #4, System A	Buster #4	0	196	200	0	Astoria	WA	OREGON RESPONDER

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
NON-dedicated	VOO	Vessel	WB3	Workboat	Workboat	0	0	0	2	Lower Columbia River	WA	In Water
NON-dedicated	VOO	Vessel	WB3	Workboat	Workboat	0	0	0	2	Lower Columbia River	WA	In Water

Cathlamet Technical Manual - (12 hour) - Storage System Detail	Storage System BUSTER #4

Offloading Detail

Offloading narrative and pump rate description: Buster may be offloaded to on-water storage when full. Transfer pump options vary. Transfer rate estimated at 10-90 bbl/min.

Mobilization Detail

Mobilization method for Buster (land/water): Water via OREGON RESPONDER (Recovery System OREGON RESPONDER)

Mobilization method for each workboat (land/water): Water

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

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 12 hours (assuming 3 hour MOB for non-dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: None required

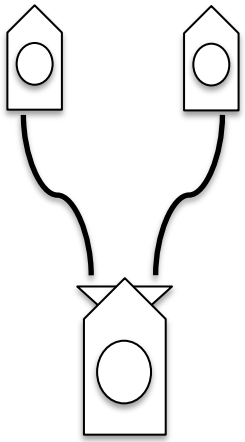
Support resources for deployment: Two non-dedicated workboats (VOO) may be used to deploy Buster.

Equipment Photographs

BUSTER #4

Cathlamet Technical Manual - (24 hour) - Recovery System Detail

Recovery System ARCTIC TERN



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. This tactic assumes the OSRV2 ARCTIC TERN will be enhanced by the WB3 OSPREY and WB3 EAGLE using two 300' legs of B2 boom in a V formation. To promote the ability for continuous recovery operations, the tactic assumes that recovered oil is off loaded to available on-water storage. See Storage Systems OSRB 380 & OSRB 404.

Operating environment: Open Water waves 0-6 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using vessel lighting and vessel-based thermal infrared camera. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 7/14, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	3108	OSRV	OSRV2	ARCTIC TERN	Skimmer, JBF		276	0	3	Neah Bay	WA	In Water
PRC/ dedicated	7528	Skimmer Portable	SK1	ARCTIC TERN	Skimmer, STRESS Weir	15840	0	0	0	Neah Bay	WA	ARCTIC TERN

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	2983	Vessel	WB3	OSPREY	Work boat, 42'	0	0	0	2	Anacortes	WA	In Water
PRC/ dedicated	3005	Vessel	WB3	EAGLE	Work boat, 42'	0	0	0	2	Bellingham	WA	In Water
PRC/ dedicated	2984	Boom	B2	OSPREY, Boom, Kepner	20"	0	0	3000	0	Anacortes	WA	OSPREY

Cathlamet Technical Manual - (24 hour) - Recovery System Detail	Recovery System ARCTIC TERN

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with ARCTIC TERN is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 12 bbl/min.

Mobilization Detail

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

Mobilization method for each workboat with onboard boom (land/water): Water

Transit speeds (only list if an alternative was granted by Ecology): Estimate for ARCTIC TERN 9 kts, EAGLE 19 kts, OSPREY 19 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 20 hours (assuming 1 hour MOB for dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: None required

Support resources for deployment: None required

Equipment Photographs

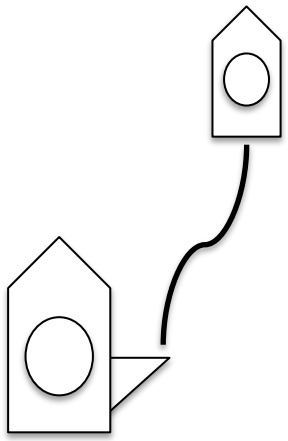
ARCTIC TERN

OSPREY

EAGLE

Cathlamet Technical Manual - (24 hour) - Recovery System Detail

Recovery System
WC PARK RESPONDER



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. This tactic assumes the OSRV1 WC PARK RESPONDER will be enhanced by the WB3 15-1 using a 660' leg of B1 boom in a J formation. To promote the ability for continuous recovery operations, the tactic assumes that recovered oil is off loaded to available on-water storage. See Storage Systems OSRB 380 & OSRB 404.

Operating environment: Open Water waves 0-6 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using vessel lighting and vessel-based X-band radar and thermal infrared camera. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 12/20, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	7527	OSRV	OSRV1	WC PARK RESPONDER	Skimmer, Transrec	10567	14000	0	10	Port Angeles	WA	In Water

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	7531	Vessel	WB3	WC PARK RESPONDER, 15-1	Workboat 32'	0	0	0	2	Port Angeles	WA	Ship
PRC/ dedicated	7523	Boom	B1	WC PARK RESPONDER, Boom	67"	0	0	1320	0	Port Angeles	WA	Ship

Cathlamet Technical Manual - (24 hour) - Recovery System Detail	Recovery System WC PARK RESPONDER

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with the WC PARK RESPONDER is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 33 bbl/min.

Mobilization Detail

Mobilization method for recovery device with onboard boom (land/water): Water

Mobilization method for each workboat: Water

Transit speeds (only list if an alternative was granted by Ecology): Estimate for WC PARK RESPONDER 12 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 20 hours (assuming 1 hour MOB for dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: None required

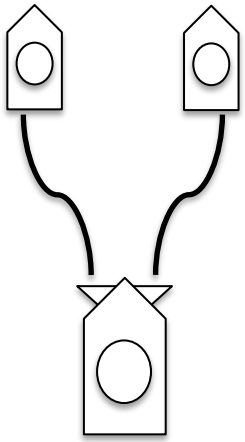
Support resources for deployment: None required

Equipment Photographs

WC PARK RESPONDER **15-1**

Cathlamet Technical Manual - (24 hour) - Recovery System Detail

Recovery System SHEARWATER



Tactic purpose and description: The purpose of this tactic is on-water recovery of oil in an open water operating environment. This tactic assumes the OSRV1 SHEARWATER will be enhanced by two workboats using two 300' legs of B2 boom in a V formation. To promote the ability for continuous recovery operations, the tactic assumes that recovered oil is off loaded to available on-water storage. See Storage Systems OSRB 380 & OSRB 404.

Operating environment: Open Water waves 0-6 ft.

Night Operations (describe how this system is capable to support night ops): This recovery system is capable of night operations using vessel lighting and vessel-based thermal infrared camera. Night operations are subject to safety, weather and other considerations.

Oil type skimmer is optimized for: Group 2-4

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 8/14, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	3104	OSRV	OSRV1	SHEARWATER	Skimmer,JBF	12000	1362	0	4	Port Angeles	WA	In Water

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
NON-dedicated	VOO	Vessel	WB3	Workboat	Workboat	0	0	0	2	Lower Columbia River	WA	In Water
NON-dedicated	VOO	Vessel	WB3	Workboat	Workboat	0	0	0	2	Lower Columbia River	WA	In Water
PRC/ dedicated	3105	Boom	B2	SHEARWATER, Boom, Acme	30"	0	0	800	0	Port Angeles	WA	SHEAR-WATER

Cathlamet Technical Manual - (24 hour) - Recovery System Detail	Recovery System SHEARWATER

Offloading Detail

Offloading narrative and pump rate description: The recovery system may be offloaded to available storage system barge when the temporary storage associated with the SHEARWATER is full. Transfer pump on the skimmer may be used. Transfer rate estimated at 12 bbl/min.

Mobilization Detail

Mobilization method for recovery device with onboard boom (land/water): Water

Mobilization method for each workboat (land/water): Water

Transit speeds (only list if an alternative was granted by Ecology): Estimate for SHEARWATER 10 kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 24 hours (assuming 3 hour MOB for non-dedicated vessels per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: None required

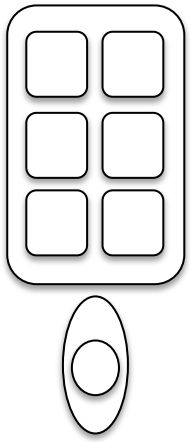
Support resources for deployment: Two non-dedicated workboats (VOO) may be used to tow boom.

Equipment Photographs

SHEARWATER

Cathlamet Technical Manual - (48 hour) - Storage System Detail

Storage System
OSRB 380



Tactic purpose and description: The purpose of this tactic is to provide open water capable on-water storage capacity for recovered oily water. This tactic assumes the OSRB 380 will be deployed using a tug available under MSRC letter of intent.

Operating environment: Open Water waves 0-6 ft.

Night Operations (describe how this system is capable to support night ops): This storage system is capable of night operations using onboard lighting. Night operations are subject to safety, weather and other considerations.

Oil type: Group 1-5

Minimum number of response personnel for a 12 hour shift (also list 24 hour shift if the system conducts night operations): Estimated at 2/4, subject to circumstances at hand.

Recovery Device Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
PRC/ dedicated	7510	Storage	TB2	OSRB, 380	Tank Barge	0	38000	0	2	Port Angeles	WA	In Water

Associated Vessel and Boom Detail

Ownership	wrrlID or other ID	Resource	Kind Type	Indentification	Specifications	Recovery EDRC	Liquid Storage	Boom	People	Home Base	State	Staging
LOI/ NON-dedicated	LOI	Tug	TUG2	LOI	>1,500 HP	0	0	0	6	Puget Sound	WA	In Water

Cathlamet Technical Manual - (48 hour) - Storage System Detail	Storage System OSRB 380

Offloading Detail

Offloading narrative and pump rate description: OSRB 380 may be offloaded to shoreside storage when full. Transfer pump on the barge may be used. Transfer rate estimated at 90 bbl/min unless the receiving facility has a limitation.

Mobilization Detail

Mobilization method for storage device (land/water): Water

Mobilization method for tug (land/water): Water

Transit speeds (only list if an alternative was granted by Ecology): Estimate for OSRB 380 8kts

Time for the entire system to arrive onscene (mobilization for all resources detailed above): Estimated at 31 hours (assuming 3 hour MOB for non-dedicated tug per WAC 173-182-350(3)). Subject to weather, safety and other factors.

Support resources for mobilization: None required

Support resources for deployment: A non-dedicated tug may be used to tow OSRB 380.

Equipment Photographs

OSRB 380