



COLD-WATER DELUGE

OBJECTIVE & STRATEGY

CWD

The objective of Cold-water Deluge is to use high volume/low pressure water flow to wet the surface of a shoreline segment. If there is no previous oil impact, the wetting will prevent oil from adhering to the shoreline. Flooding the beach segment may actually raise the water-table, thus lifting any oil from the sediment. Cold-water Deluge is most effective when deployed before oil impact. If oil has impacted a shoreline segment, Cold-water Deluge may be used as a clean-up technique. In this case the oil is washed down slope to the water and recovered.

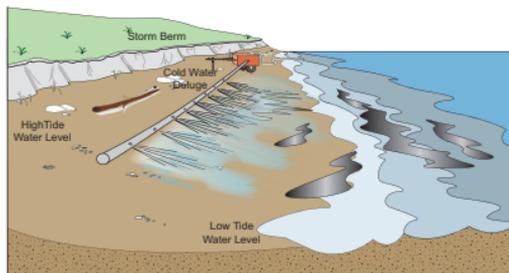


Figure CWD-1. Cold Water Deluge in protection mode.

The general strategy is to:

1. Identify the location and trajectory of the spill or potential spill.
2. Select equipment and a configuration that best supports the operating environment.
3. Deploy equipment and personnel to the location.
4. Set up equipment and begin operations.
5. Utilize an appropriate recovery tactic if oil has impacted the shoreline and is being remobilized.
6. Monitor the pumps and water flow to ensure that sufficient flow is maintained.

TACTIC DESCRIPTION

Cold-water deluge systems consist of high volume/low pressure pumps, intake hoses, perforated discharge hoses or



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pipes and associated hardware. Generally a large diameter perforated header hose/pipe is laid parallel to the water at the high tide line. Using high volume/low pressure pumping systems, a large amount of ambient seawater is then pumped through the hoses and washed down the beach. These systems are configured depending on the operating environment, type of beach material, type of oil, the state of oil weathering, and available equipment.

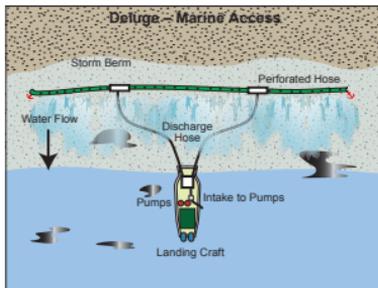


Figure CWD-2. Aerial view of a deluge configuration marine access.

Operating Environments

Cold-water Deluge is used in the Shoreline operating environment.

Deployment Configurations

Cold-water Deluge is recommended for use on beaches with a substrate coarser than sand and on low angled rocky shorelines. In clean-up mode, boom is deployed around the flooded area to ensure that oil is captured for recovery.

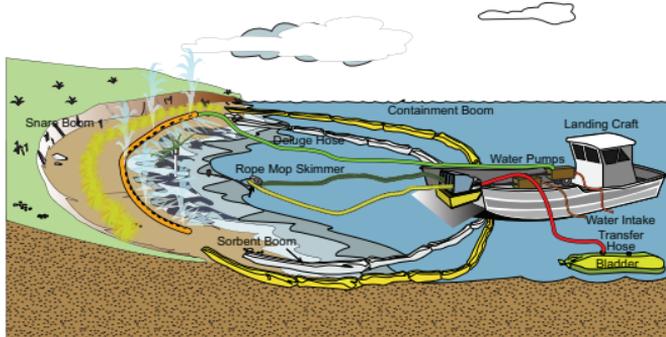


Figure CWD-3. Cold-water Deluge in clean-up mode. Note: Other shoreline clean-up tactics are not included in this manual, but the Cold-water Deluge tactic can be converted to a shoreline clean-up tactic by adding containment boom, a wash-down system, and a marine recovery system.

DEPLOYMENT CONSIDERATIONS AND LIMITATIONS**SAFETY**

- Daily weather evaluation is recommended.
- Consideration should be given to surf.



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- For areas with high concentrations of brown bears, consider using bear guards.
- Response Personnel should wear PPE as required by the incident-specific Site Safety Plan.
- Vessels, including skiffs, must have a minimum of two crew aboard.
- If possible, vessels in transit to/from an operation or staging area should transit in pairs.
- A communications schedule should be established and followed, between vessels in transit and the Operations Section or Radio Dispatcher.

DEPLOYMENT

- On beaches with rich inter-tidal areas, deluge should be used during periods when the rich area is submerged.
- Cold-water Deluge is generally not recommended for fine grained sand, mud, vegetated, or steep rocky shorelines.
- Remobilized oil should be recovered during operations.
- If wildlife or historic properties are encountered, see Wildlife Checklist or Historic Properties Checklist in Section A Part III.

REFERENCES TO OTHER TACTICS

Other tactics associated with Cold-water Deluge include:

-  • Shoreside Recovery
-  • Marine Recovery
-  • Diversion Boom and Recovery

EQUIPMENT AND PERSONNEL RESOURCES

Resources for the Cold-water Deluge tactic include pumps, suction hose, discharge hose, perforated header hose/pipe, and response personnel. Configuration and specific resources required will be determined by site conditions, spilled oil type and volume, area of coverage, and resource availability.



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Resource sets may need to be refined as site-specific requirements dictate.

Cold-water Deluge, Marine Access



Typical Equipment	Function	Quantity	Notes
Pumps and power pack	Moving seawater	Site-specific	Depending on configuration and length of beach
Suction hose	Moving ambient seawater to the pump	Site-specific	Depending on configuration and distance from water to high tide line
Discharge hose	Moving ambient seawater from the pump to the perforated header	Site-specific	Depending on configuration and distance from water to high tide line
Perforated hose or pipe	Supply water along the length of the beach	Site-specific	Depending on the length of beach being addressed
Typical Vessels	Function	Quantity	Notes
Class 2, landing craft	Platform for equipment and pumps	1	
Class 6, skiff	Safety and transportation to beach	1	
Typical Personnel	Function	Quantity	Notes
Field Team Leader	Supervises operations	1	
Vessel Operators Protected/Calm Waters	Operate landing craft and skiff	3 to 4	Depending on vessel size
Skilled Technicians	Operate response equipment	1 to 2	Depending on number of pumps and configuration
General Technicians	Work under the direction of skilled technicians	2 to 4	Depending on configuration

Cold-water Deluge, Land Access



Typical Equipment	Function	Quantity	Notes
Portable pumps and power pack	Moving seawater	Site-specific	Depending on configuration and length of beach
Suction hose	Moving ambient seawater to the pump	Site-specific	Depending on configuration and distance from water to high tide line
Discharge hose	Moving ambient seawater from the pump to the perforated header	Site-specific	Depending on configuration and distance from water to high tide line
Perforated hose or pipe	Supply water along the length of the beach	Site-specific	Depending on the length of beach being addressed
Typical Vessels	Function	Quantity	Notes
4 wheel drive truck	Transport equipment to site	Site-specific	Depending on access and terrain
ATVs with trailers	Transport equipment to site	Optional	Depending on access and terrain
Typical Personnel	Function	Quantity	Notes
Field Team Leader	Supervises operations	1	
Truck driver/ATV operator	Transport equipment	1 to 2	Depending on site
Skilled Technicians	Operate response equipment	1 to 2	Depending on number of pumps and configuration
General Technicians	Work under the direction of skilled technicians	2 to 4	Depending on configuration

