



VESSEL DECONTAMINATION

OBJECTIVE & STRATEGY

Dv

The objective of the Vessel Decontamination tactic is to remove oil contamination from vessels that are exposed to oil and oily waste during spill response operations. The level of decontamination will depend on whether the vessel is to be demobilized or returned to spill response service. When a vessel is demobilized, it will be cleaned to a non-oiled state throughout the vessel. Vessels returning to service should be decontaminated sufficiently to not reintroduce oil into the environment or cross-contaminate response personnel and equipment. The purpose is to expedite cleanup of oiled vessels in a safe, organized and effective manner while minimizing waste and damage to the environment.

The general strategy used in performing vessel decontamination is to:

1. Identify the appropriate location for decontamination operations,
2. Establish a site plan,
3. Obtain necessary permits for operations,
4. Deploy equipment and personnel to the location,
5. Set up equipment and begin operation,
6. Monitor operations to ensure that vessels are cleaned to established criteria and oil is removed from the environment, and
7. Dispose oil contamination, solid wastes, PPE, and cleaning fluids according to the incident Waste Management Plan.

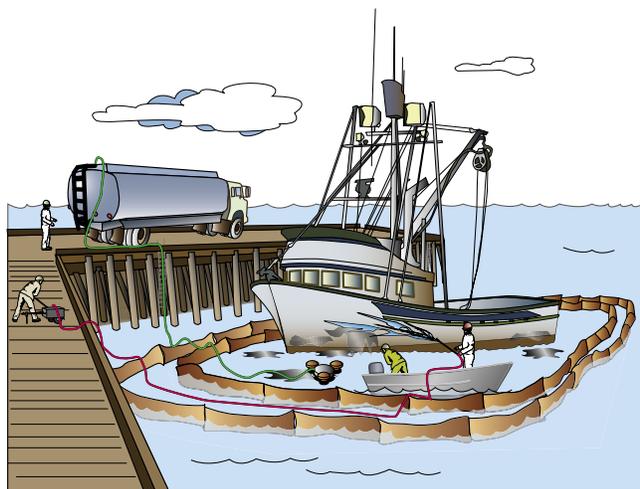


Figure DV-1. On-water vessel decontamination deployment configuration at a dock.



TACTIC DESCRIPTION

Decontamination involves the removal of oil or other contaminants from vessels when they leave the Hot Zone, while still in the Warm Zone. Vessel decontamination is conducted as part of the overall incident Decontamination Plan that is established by the Unified Command. An approved incident-specific Decontamination Plan supercedes the guidance in this manual.

Operations are conducted by designated decontamination teams and are broken down into different methods for larger vessels that cannot be removed from the water and smaller vessels that can be removed from the water. Controls must be in place to ensure that contamination is contained, removed from the environment, and properly disposed. Access should be limited and all personnel and equipment should be tracked in and out of the decontamination area to ensure that no cross contamination occurs. PPE is required in accordance with the incident Safety Plan.

While the general tactics are the same for small and large vessels, the approach will be adjusted depending on the size of the vessel and availability of equipment.

All vessels awaiting decontamination should be isolated inside oil containment boom so that oil and wastes cannot re-enter the environment. The site should be integrated into the overall decontamination site plan and situated in the Warm or Decontamination Reduction Zone immediately adjacent to the Hot Zone.

General Procedures

All vessels should undergo gross decontamination of oil that is easily accessed by manual removal with sorbent pads and a detergent if necessary. After gross oil is recovered, all contaminated areas of the vessel are washed with pressurized warm/hot water spray. Detergents or degreasers may be used if the pressure wash does not remove all the oil. To keep wastes to a minimum degreasing agents should not encourage emulsification of oil. Oil recovery operations should be conducted concurrently with washing operations. Recovery can consist of skimmer operations outlined in the tactics Marine Recovery and On-land Recovery or may be accomplished with Passive Recovery depending on oil type and amount expected.

Vessels That Can be Removed From the Water

Vessels that can be physically removed from the water with available equipment, ie. travel lifts, cranes, or trailers; should be removed and cleaned in a designated area surrounded by berms or dikes that are lined to contain and recover the run-off of oil and water (Figure DV-2). A warehouse or a large area with a concrete floor is preferred for containment of wastes. The area may also be used for other





equipment decontamination. Sorbents, vacuum skimmer systems and storage devices should be present to recover wastes that are collected in the bermed area. All wastes are then disposed of in accordance with the incident Waste Management Plan.

Vessels That Cannot be Removed From the Water

Decontamination of vessels that cannot be removed from the water will be conducted on-water using a berth (Figure DV-1) or established anchorage in protected waters (Figure DV-3). The location should be immediately adjacent to the spill site outside the Hot Zone. It must be boomed off with a doubled, adequately anchored, containment boom, and have a gate for access. If the site is in open water, and multiple vessels are to be cleaned, a mooring should be established prior to operations. Adjacent sensitive areas should have protection plans in place to prevent contamination in the event of boom failure.

A recovery and primary storage system that is sized and suited to the operation should be present to recover oil floating in the boomed area. This might include sorbents, skimming systems, storage systems, and one or more platforms for operations. Sorbents should be floated inside the boomed area for removal of sheens and residual oil. When light contamination is expected, pads and sheets may be used. Sausage type booms may be deployed inside the exclusion boom for long-term deployments when significant oil is to be removed. Sorbents should be tended daily to ensure effectiveness.

After the initial cleaning, the surrounding waters should be monitored for sheening. If sheening is present and continuous, then the vessel should be cleaned again to remove any trace oil. Once cleaned, the vessel should be placed in a clean holding/staging area and logged out of the decontamination area.

The entry into any confined space, such as tanks or holds, should only be accomplished with trained and certified responders with specialized equipment and the approval of the Safety Officer. **Confined space entry is not covered by this manual.** Consult individual vessel decontamination plans and the incident specific decontamination plan for details.

Operating Environments

All decontamination areas should be established as close to the spill site or Hot Zone as feasible and should be scalable to the expected maximum size of the response vessels and provide safety, ease of access, and comfort for operations. For large vessels being cleaned at anchor, it is recommended that operation take place in calm waters. Decontamination of smaller vessels may occur adjacent to the spill site. Measures should be taken at the area the vessel is removed to, in order to protect the area from contamination. Geotextile sheeting or sorbents should be placed in these areas.





Deployment Configurations

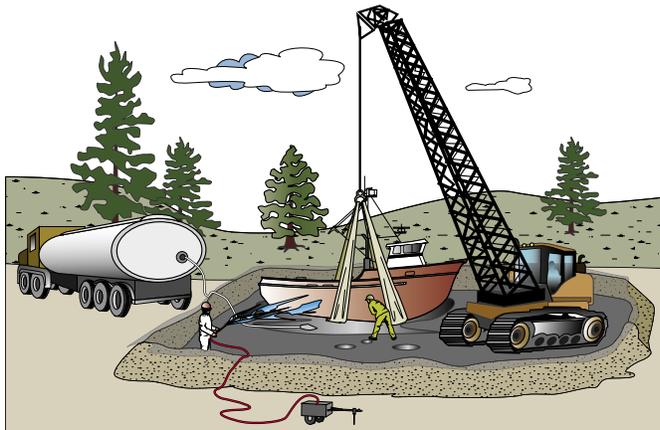


Figure DV-2. On-land vessel decontamination deployment configuration.



Figure DV-3. On-water vessel decontamination deployment configuration at an anchorage.

DEPLOYMENT CONSIDERATIONS AND LIMITATIONS

SAFETY

- PPE is required of all personnel in the decontamination area. Consult the incident Site Safety Plan for specific requirements,
- Confined space entry is not to be allowed, unless specifically authorized by the incident Safety Officer, and
- Worker exposure to contaminants should be minimized.

DEPLOYMENT

- Consider archeological and cultural impacts when selecting decontamination areas.
- The decontamination area should have a security check point for controlling access and tracking all equipment entering and leaving.
- Resources that are to be redeployed should be decontaminated first.
- Personal decontamination must be integrated into the site plan to prevent cross contamination.
- Detergent or degreasing solutions should be citrus-based (Citri-solve, Simple Green, PES51) and maybe re-circulated if the product does not emulsify oil.
- Vessels must be fully decontaminated prior to demobilization.
- Permits must be obtained prior to on-water operations.

REFERENCES TO OTHER TACTICS

Other tactics that may be involved in Vessel Decontamination include:

- Safety Tactics
- Personnel Decontamination
- Containment Boom





Vessel Decontamination

-  • On-water Free Oil Recovery
-  • On-land Recovery
-  • Marine Recovery
-  • Passive Recovery
-  • Land-based Storage and Transfer
-  • Marine-based Storage and Transfer

EQUIPMENT AND PERSONNEL RESOURCES

Resources for establishing a Vessel Decontamination Area will be determined by the size and the needs of the response. Refine resource sets as site-specific requirements dictate.

On-water Vessel Decontamination



Equipment	Function	Quantity	Notes
Warm/hot water pressure wash system	Oil removal	1 or more	Include adequate hoses and connections.
Oil boom, 6" to 24" height	Contain and concentrate oil around vessel	Site-specific	Depending on configuration, currents, sea states and oil concentration.
Small anchor systems	Secure boom	1 per 200 ft. of boom	Depending on configuration, currents, and sea states.
Sorbents	Oil removal and recovery	Response specific	Pads, rolls and boom may be used.
Detergents	Oil removal	Response specific	For manual removal deliver from spray bottles. May be incorporated in high pressure wash.
Storage tanks	Storage of recovered wastes	Response specific	Deployed during operation at a berth or dock.
Marine oil recovery system	Oil recovery	1	Select based on oil type and amounts encountered.
Mooring system or berth	Hold vessels in place during cleaning	1	Use if multiple vessels are to be cleaned to avoid contamination of vessel anchors.
Lighting system	Illuminate operations	1	May be used to augment existing lighting.
Vessel	Function	Quantity	Notes
Class 6 skiffs	Access to vessel being decontaminated and platform for pressure washing operations	1 to 2	Delivery of personnel and equipment.
Tank barge	Storage of recovered wastes and platform for operations	Optional	Deployed when decon activities are conducted at anchor/mooring.
Personnel	Function	Quantity	Notes
Field Team Leader or Group Supervisor	Supervise operations under the Direction of the Operations Section Chief	1 or more	Should be familiar with the Site Safety Plan, Waste Management Plan, and Decontamination Plan.
Skilled Technicians	Work under the direction of Field Team Leader or Group Supervisor	1 to 6	Depending on decontamination activities.
General Technicians	Work under the direction of Skilled Technician	2 to 8	Depending on decontamination activities.
Vessel/Skiff Operators	Maneuver skiffs during cleaning operations	1 to 2	May not be necessary during decon at a berth/dock.



Vessel Decontamination



On-land Vessel Decontamination

Equipment	Function	Quantity	Notes
Warm/hot water pressure wash system	Oil removal	1 or more	Include adequate hoses and connections.
Berm or dike materials	Contain and concentrate oil around vessel	Site-specific	Depending on size of vessels.
Polyethylene sheeting	Provide barrier to contain oil	Site-specific	Use to line decon areas.
Sorbents	Oil removal and recovery	Response specific	Pads, rolls and boom may be used.
Detergents	Oil removal	Response specific	For manual removal deliver from spray bottles. May be incorporated in high pressure wash.
Storage tanks	Storage of recovered wastes	Response specific	A vacuum truck would be optimal.
Vacuum system	Oil recovery	1	Select based on oil type and amounts encountered.
Crane, travel lift, trailer	Remove vessel from water	1	Take steps to protect from contamination.
Personnel	Function	Quantity	Notes
Field Team Leader or Group Supervisor	Supervise operations under the Direction of the Operations Section Chief	1 or more	Should be familiar with the Site Safety Plan, Waste Management Plan, and Decontamination Plan.
Skilled Technicians	Work under the direction of Field Team Leader or Group Supervisor	1 to 6	Depending on decontamination activities.
General Technicians	Work under the direction of Skilled Technician	2 to 8	Depending on decontamination activities.

