Oil or Chemical Spill Notification

Call the National Response Center at
800-424-8802

Oil Spill Response

in the Region IV Coastal Zone,
contact the U.S. Coast Guard
Marine Safety Office (MSO):

MSO Wilmington, NC
910-792-8408

MSO Charleston, SC
843-724-7616

MSO Savannah, GA
912-652-4353

MSO Jacksonville, FL
904-247-7310

MSO Miami, FL
305-732-0160

MSO Tampa, FL
813-228-2189

MSO Mobile, AL
334-441-5121

In the Region IV Inland Zone,
contact the U.S. Environmental
Protection Agency:
404-562-8700

Inland Zone U.S. Coast Guard Offices are:

MSO Huntington, WV
800-253-7465

MSO Louisville, KY
800-253-7465

MSO Paducah, KY
502-442-1621

MSO Memphis, TN
901-544-3912

State Pollution Response Contacts are:

North Carolina
919-733-3300

South Carolina
Spill: 888-481-0125
Office: 803-896-4000

Georgia
404-656-4300

Florida
850-413-9911

Alabama
334-242-4378

Mississippi
601-352-9100

Tennessee
800-258-3300

Kentucky
800-928-2380

Suggested References:

Oil in the Sea
National Academy Press 1985

A Field Guide to Coastal Oil Spill Control
and
Clean-Up Techniques, CONCAWE
1987

Shoreline Assessment Manual
NOAA/HAZMAT

Shoreline Countermeasures for
Temperate
Coastal Environments
(Tropical manual also available)
NOAA/HAZMAT and USCG
Available: NTIS (703) 487-4650

Introduction to Coastal Habitats and
Biological Resources for Oil Spill
Response
NOAA/HAZMAT

Environmental Effects and
Effectiveness of
In-Situ Burning in Wetlands
LSU/NOAA

Document Prepared by Region IV
Regional Response Team

RRT IV Co-Chairs:
U.S. Coast Guard 305-536-5651
U.S. EPA 404-562-8721

OIL SPILL SHORELINE ASSESSMENT AND SHORELINE CLEANUP

Spill response workers flush an oiled shoreline with water.

Shoreline Cleanup

As it is almost impossible to fully prevent shoreline oiling during a spill. The responders approach to the cleanup of an oiled shoreline is as important as how they approach the containment and protection priorities. The need for responders and planners to think through cleanup methods in advance of a moving oil slick is critical. Several considerations must be made before a proper cleanup plan can be initiated.

First, the type and quantity of the oil that will likely impact the shore must be determined. Oil types vary greatly and have a major influence on the degree of impact, ease of cleanup, and persistence of the contamination. For example, lighter fuels (diesel, home heating fuel and light crude oils) will evaporate quickly, but tend to be more toxic and penetrate the shoreline sediments to a greater degree. Heavy oils (bunker C, #6 fuel and heavy crude oils) are less toxic to shoreline ecosystems and do not penetrate finer sediments, but they are very persistent, difficult to clean, and may smother shoreline organisms.

Second, the type of shoreline which is predicted to be impacted must be identified and mapped. Both state and federal mapping projects have successfully categorized much of the U.S. shoreline in terms of habitat sensitivity to spilled oil. The most widely used characterization scheme for shorelines is the NOAA Environmental Sensitivity Index (ESI). The ESI ranks shorelines in terms of their relative sensitivity to oil spill impacts, predicted rates of removal of stranded oil by processes such as waves and currents which naturally clean the shoreline, and ease of cleanup.

Shoreline types, from least to most sensitive are:

1. Exposed rocky cliffs & seawalls
2. Wave cut rocky platforms
3. Fine to medium-grained sand beaches
4. Coarse-grained sand beaches
5. Mixed sand and gravel beaches
6. Gravel beaches/Rip-rap
7. Exposed tidal flats
8. Sheltered rocky shores/man-made structures
9. Sheltered tidal flats
10. Marshes/mangroves

Once responders have a clear understanding as to the type and degree of impact and the type of shoreline, they can begin planning an effective cleanup strategy. The goal of all the methods discussed is to clean only to the level which would speed recovery and use of the shoreline. Cleaning strategies which will do greater injury to the resource than the oil itself are rejected.

Defining Cleanup Options

Many areas have preplanned shoreline cleanup methodologies organized in a matrix of oil and shoreline types. Under most circumstances, the process is inclusive of the federal, state and local resource managers. Often, non-government organizations such as universities and local non-profit environmental groups are solicited for input. The types of cleanup methods discussed vary from natural and mechanical recovery to technologies such as dispersants and localized burning. The shorelines are discussed by category rather than by location. For example, the planned cleanup options for exposed seawalls might include high pressure washing with ambient sea water during the mid to high tide stages of the tidal cycle. Areas with unique features (e.g., bird nesting sites, etc.) are discussed individually. One cleanup option commonly used and commonly misunderstood is that of natural recovery. In more sensitive environments (e.g., wetlands, tidal flats, etc.) the activity associated with the cleanup can be more damaging than the oil itself. It is common in these environments for oil to remain on the surface of the sediments. The disturbance caused by an active cleanup will often drive the contaminants below the surface and make them available to the root systems of the plant and the organisms that burrow into the sediments. Responders choose natural recovery in cases where the natural flushing of the tides is the least harmful method of removing the oil, even though the process will be slower than with human intervention.

Mobilizing the Cleanup

Once the cleanup options are defined and agreed upon, responders must determine where cleanup teams should be mobilized. This is determined by the Shoreline Cleanup Assessment Team (SCAT). Individuals experienced in marine sciences and oil spill response walk the impacted shorelines (in some cases it is necessary to use boats or helicopters for the SCAT surveys). These teams catalogue the shoreline in terms of type, degree of oiling, location of specific

sensitive resources to be avoided or protected, and other logistical information. The team then recommends cleanup methods for that shoreline area, choosing from the agreed upon cleanup options for that shoreline type. Although this process may seem redundant, it enables the cleanup team to determine the need and priority for cleanup by identifying areas of pooled oil which could re-mobilize and foul other shorelines, to decide on the most appropriate cleanup method for the specific shoreline conditions and to notice site-specific constraints in order to minimize further damage during cleanup. In addition, it creates a record of the shoreline impacts which is detailed enough for managers to use in assessing the effectiveness of the cleanup effort.

Shoreline Cleanup Methods

Listed below are examples of shoreline cleaning methods. All of the actions are considered carefully before they are approved. The italics represent methods which require special approvals under federal law.

1) Natural Recovery
2) Manual Removal
3) Mechanical Removal
4) Passive Collection with Sorbents
5) Vacuum
6) Debris Removal
7) Sediment Reworking/Tilling
8) Vegetation Cutting/Removal
9) Flooding (deluge)
10) Ambient Water Washing
-Low Pressure (< 50 psi)
-High Pressure (< 100 psi)
11) Warm Water Washing (< 90 °F)
12) Hot Water Washing (> 90 °F)
13) Slurry Sand Blasting
14) *Solidifiers*
15) *Shoreline Cleaning Agents*
16) *Nutrient Enrichment*
17) *Burning*