LA-LB AREA CONTINGENCY PLAN v. 2014.4

August 2018

SECTION 3000
OPERATIONS

ABSTRACT

This section is designed to frame and inform decisions on response actions.

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3000 OPERATIONS

3100 Operations Section Organization

The Operations Section Chief is responsible for the management of all operations directly applicable to the primary mission. The Operations Chief activates and supervises elements in accordance with the Incident Action Plan and directs its execution; activates and executes the Site Safety Plan; directs the preparation of unit operational plans; requests or releases resources; makes expedient changes to the Incident Action Plans as necessary; and reports such to the Incident Commander.

There is only one Operations Section Chief for each operational period and is normally, but not always, from the jurisdictional or agency which has the greatest involvement either in terms of resources assigned or area of concern.

3110 Organization Options

The operations organization is designed to be highly flexible so that it can be used during any type of emergency. Unlike other sections of ICS organization, Operations builds from the bottom up, only adding layers of management to maintain span of control when the size of the Operations Sections requires more focused oversight.

3200 Recovery and Protection

The Recovery and Protection Branch Director and the Protection Group Supervisor are responsible for the deployment of containment, diversion, collection, protection and absorbing boom in designated locations. Depending on the size of the incident, the Protection group may be further divided into teams, task forces, and single resources.

3210 Protection

The goal of most containment and recovery strategies is to collect the spilled oil from the water and prevent it from reaching sensitive resources. Frequently, this is not possible and sensitive resources are oiled in spite of response efforts, especially during large oil spills. Often the goal will be to minimize environmental impact using a variety of booming, containment, and recovery techniques. Protection strategies and site-specific information is listed in section 9800 of the Appendix.

3210.1 Containment and Protection Options

Protection strategies and site-specific information is listed in section 9800 of the Appendix. This section is to assist first responders to an oil spill in protecting the most sensitive and valuable biological communities. This ACP is intended to serve as a guide only until the Unified Command System is staffed with appropriate biological expertise to make the response recommendations to the Federal On-Scene Coordinator and the State On-Scene Coordinator. While the basic philosophy is to protect the largest number of organisms most sensitive and vulnerable too oiling, it must be noted that all biological communities and organisms are sensitive to the effects of oiling. The different categories simply identify the relative degree of sensitivity. Even shorelines on which specific environmentally sensitive sites have not been identified have resources sensitive to oiling.

The environmental sensitivity of a site is determined by considering the following criteria:

- Does the site provide habitat for species either listed or candidates for listing as rare, threatened, or endangered under State and/or Federal law?
- Does the site provide habitat that is of extraordinary biological productivity?
- Does the site provide habitat that is of extraordinary biological diversity?
- Does the site provide habitat for organisms that are extremely vulnerable and sensitive to oiling and that would be difficult to restore if contaminated by oil?

The following relative priorities for environmentally sensitive areas are established:

Category A – Highest concern for Protection
- Wetlands, estuaries, and lagoons with emergent vegetation (includes all Environmental Sensitivity Index (ESI) 10 shorelines (see Section 9800) Sheltered tidal flats (includes all ESI 9 shorelines)
- Habitats of species that are listed or candidates for listing as rare, threatened, or endangered under State and Federal laws.
- Sites of significant concentrations of vulnerable and sensitive species, e.g. pinniped pupping and nursery areas during the pupping season.

Category B – Very high concern for Protection.
- Major pinniped haul out areas during non-pupping seasons.
- Moderate concentrations of vulnerable and sensitive species.
- Other low energy shorelines not otherwise included by one of the criteria above, including rip-rap in sheltered areas (ESI 6b), exposed tidal flats (ESI 7), sheltered rocky shores (ESI 8A) and sheltered man-made structures (ESI 8B).

Category C – Great concern for Protection. Higher energy habitats (ESI 6A through 1) for example: Habitats important to large numbers of species of sport, commercial value, and scientific interest or species experiencing significant population declines though not yet threatened.

Prioritization of Environmental and Economic Resources

Consistent with State and Federal law, the highest priority in oil spill response is the protection of human health and safety. Consistent with State law, protection of environmental resources is the second highest priority. Protection of economic resources is the third highest priority. There may be situations where both the economic and environmental significance of a site or area would be considered in deciding appropriate response strategies. This consideration would only be necessary if response resources were limited. These considerations must be made at the time of the spill by the Unified Command based on the information available and conditions at the time of the spill.

3220 On-Water Recovery

Offshore/Open Water Operations

Oil removal/recovery in open water is accomplished through the use of skimming devices once the oil has been contained. Skimmers can be freestanding in which the skimmer is a separate piece of equipment which pumps the oil-water mixture from the contained surface into tanks on a vessel. These skimmers are usually driven by hydraulic units on board a vessel. Self-propelled skimmers have a skimmer as an integral part of the vessel. The skimming vessel positions itself at the head of a concentrated or contained pool of oil and recovers the oil into tanks on board the vessel. There is also a type of skimmer in which the weir or collection zone of the skimmer is an integral part of the boom, which is in contact with the oil. The pumping and oil collection is done on the vessel, which is close to the weir skimmer.

"Vessels of opportunity", such as fishing vessels, may be used to deploy or tow boom and, depending on their size, be equipped with skimming equipment. They need to have adequate deck space and lifting cranes to carry the necessary equipment. The Coast Guard's Vessel of Opportunity Skimming System (VOSS) could be deployed on a variety of vessels.

Near-shore/Shallow Water

Oil recovery techniques and equipment are different in near-shore/shallow water locations than open water. Shallow draft vessels and smaller boom and skimmers are used in these situations. These vessels can maneuver into tight places behind and under wharfs or in sloughs and can actually skim next to shore in many near-shore locations.

Strategies for near-shore cleanup can differ depending on the depth of the water and the location. Near-shore operations, within a bay or inlet, will also require shallow draft vessels, workboats and skimmers. However, the vessels may only be operable at high tide. At or near low tide, the operation may evolve into a shoreline cleanup operation. Any boom towing boats or skimmers must be able to withstand going aground without sustaining major damage.

Coastal shallow water or near-shore strategies will differ in certain respects. In addition to the need for small, shallow draft vessels, specialized vessels such as kelp cutters and harvesters may also be needed. California's rocky coast can make near-shore operations difficult and even dangerous during high surf and winter conditions. Once again, the safety of personnel involved in these operations is the Unified Command's paramount concern.

3220.1 Recovery Options

Skimmers

Weir Skimmers: These skimmers recover oil by aligning a barrier just below the surface of the water and having oil floating on the water surface pass over the weir into a recovery box or into a pump. Weir skimmers are not the most efficient recovery systems because a large amount of water is usually collected along with the recovered oil. Also, they do not function well in uneven seas or whenever currents exceed 0.7 knots.

Vortex Skimmers: In a vortex skimmer, a turbine-like fan, mounted below the surface, is used to create a current, which draws in oil floating on the water. It is then pumped to a collection tank. The device is mounted on a vessel or floats at the water surface.

Sorbtion/Oleophilic Skimmers: This type of skimmer uses materials that will retain a high percentage of oil minimizing the amount of water collected with the oil. The skimming devices can be belts, ropes, brushes or discs that come in contact with the oil. The device then will either wring or scrape the oil from the material into a collection point for removal to a storage tank. Some belt or brush skimmers are very effective in currents exceeding 2 knots and more aggressive sea conditions

Suction Skimmers: These devices operate in conjunction with a pump that draws liquid into the skimming device. The skimmer head generally floats on the water with an oil/water mixture being drawn into the skimmer. A typical application would include a skim head used with a truck mounted vacuum system.

Dredges

Suction dredges are rarely used to recover oil or oiled sediments from the bottom of a water body because oil usually does not sink or, if it does, the amount is small and not recoverable. There are exceptions, however. Whether oil sinks or floats depends primarily on the specific gravity of the oil and the temperature and salinity of the water. Oil may also sink once it is adsorbed to exposed sediment like sand or gravel, which is subsequently mobilized and re-deposited in deeper water.

If dredging is considered as a recovery technique, there must be provision for containment and storage of large quantities of water recovered along with the oil or oiled sediment. A large quantity of oil-contaminated water can present significant storage, transport, and disposal problems, which must be resolved before the activity is begun. These problems can be diminished if oil/water separation is provided, and decanting of water back to the containment area is allowed by state and federal agencies.

Vacuum Trucks

Vacuum trucks are frequently essential equipment for cleanup of oil spills. A hose is extended from the truck to the oil collection or containment site to pick up the oil. If the oil is floating on water, the suction hose can be connected to a "duck bill" nozzle that has a long horizontal slot to allow the oil to be picked up while minimizing the amount of water collected. A weir-type skimmer can also be connected to the suction hose to suck the thin layer of oil from the surface and minimize the amount of water collected at the same time. Both methods require a full-time attendant to adjust the equipment and clear debris.

Vacuum trucks work best when the oil layer is thick. If there is only a thin layer of oil on the water, much more water will be collected than oil. Recovery of a large quantity of water can make a vacuum truck operation very inefficient because the tank will quickly fill with water and little oil. Transport and disposal costs increase as a result.

The operation can be made more efficient if the oil/water mix recovered is allowed to separate in the tank and the water decanted back to the containment area. Decanting must be approved by state and federal agencies.

3220.2 Storage

To expedite removal of spilled oil, refined products, and contaminated materials from marine waters during an emergency-response, containment activities (to include temporary waste storage) may be conducted at appropriate on-shore locations. Temporary storage sites can be an area or facility approved by the IC or Unified Command for characterizing and/or temporarily storing recovered oil and/or oily materials used, collected, or recovered during an oil spill response.

Such an area may include, but is not limited to, permitted or interim status hazardous waste storage facilities, other non-permitted facilities, vessels, barges, tanks, vacuum trucks, barrels, containers, storage piles, or other appropriate containment methods and locations that may be used to hold recovered oil and/or oily materials. Temporary storage sites need not be owned, operated, or leased by the RP. Temporary storage sites that are on- shore should be established at locations that are convenient to the recovery operations for the temporary storage of recovered petroleum products, and contaminated materials and debris. The location of the temporary storage site, however, must be done with the concurrence of the following:

DTSC [The DTSC duty officer can be contacted at one of the following phone numbers: Region 1 (Sacramento) @ 916-255-3564; Region 2 (Oakland) @ 510-540-3739; Region 3 (Glendale) @ 818-551-2830; and Region 4 (Long Beach) @ 310-590-4968.]

California Coastal Commission Oil Spill Program: for information on emergency permits for temporary storage sites within the coastal zone call the CCC Oil Spill Program, Deputy Director 415-904-5205 or 24 hour cell phone 415-693-8375.

Regional Water Quality Control Board (RWQCB), and Local health, fire and emergency services departments.

If a Unified Command is established, OSPR will facilitate the contact of the state and local government agencies through the Liaison Officer.

3230 Shoreside Recovery

Oil on coastal waters, shorelines, or subtidal habitats can harm the environment, intrude on recreational activities, cause economic hardship, disrupt commercial activities, and be expensive to clean up. Decisions about if, where, when, and how to remove oil from coastal habitats affect each of these potential spill consequences.

Sound cleanup decisions depend on accurate information about the types of habitats that the oil affects, the degree of oiling, and the location of oiling. NOAA's *Characteristic Coastal Habitats: Choosing Spill Response Alternatives* illustrates typical physical and biological attributes of North American coastal habitats at risk from oil spills. The text describes each habitat and discusses both how oil is likely to behave there and considerations for treating oil.

The document summarizes the technical rationale for selecting response methods for four categories of oil in specific habitats. *Characteristic Coastal Habitats* can help you select appropriate response options to minimize the adverse environmental impacts of a marine oil spill. The guide discusses intertidal, subtidal, ice, and on-water habitats. Specific response options include natural recovery; mechanical, chemical, and biological treatment; and in-situ burning. The document is located online at: Characteristic_Coastal_Habitats.

3230.1 Shoreline Cleanup Options

This section lists and describes techniques, which may be required for use during a shoreline cleanup. It should be noted that methods noted with an (*) will require special consideration and authorization by the natural resource trustee prior to commencement of work. The trustee agency(s) for fish and wildlife resources will make the final recommendations to the Unified Command on which specific method(s) to employ on a case-by-case basis. Currently approved methods are:

Natural Recovery

Objective: No attempt is made to remove any stranded oil, when there is no effective method for cleanup or to minimize impact to the environment. Oil is left to degrade naturally.
Description: No action is taken, although monitoring of contaminated areas is required.
Applicable Habitat Types: All habitat types.
When to Use: When natural removal rates are fast (e.g., gasoline evaporation or high energy coastlines), when the degree of oiling is light, access is severely restricted or dangerous to cleanup crews, or when cleanup actions will do more harm than natural removal.
Biological Constraints: This method may be inappropriate for areas used by high numbers of mobile animals (birds, marine mammals) or endangered species.
Environmental Effects: Same as from the oil alone.
Waste Generation: None.

Barriers/Berms

Objective: To prevent entry of oil into a sensitive area or to divert oil to a collection area.

Description: A physical barrier other than a boom is placed across an area to prevent oil from passing through into sensitive habitats. Barriers can consist of earthen berms or filter fences. When it is necessary for water to pass because of water volume, underflow or overflow dams are used.

When to Use: When the oil threatens sensitive habitats, and other barriers are not feasible. Berms also serve to protect sensitive areas when cleaning adjacent shorelines.

Applicable Habitat Types: At the mouths of creeks or streams to prevent oil from entering from offshore, or to prevent oil from being released from the creek into offshore waters. Also, on beaches where a high berm can be built above the high-tide line to prevent oil from over-washing the beach and entering a sensitive back-beach habitat (e.g. lagoon).

Environmental Effects: May disrupt or contaminate sediments and adjacent vegetation. The natural beach or shore profile should be restored (may take weeks to months on gravel beaches).

Biological Constraints: Responders must minimize disturbance to sensitive areas, such as shorebird nesting sites on beaches. Placement of dams and filter fences could cause excessive physical disruptions to the site, particularly in wetlands.

Waste Generation: Sediment barriers will become contaminated on the oil side and filter fence materials will have to be disposed of as oily wastes.

Manual Oil Removal/Cleaning

Objective: To remove oil with hand tools and manual labor.

Description: Removal of surface oil with hands, rakes, shovels, buckets, scrappers, sorbents, pitchforks, etc., and placing in containers. No mechanized equipment is used. Manual recovery includes underwater recovery of submerged oil by divers with hand tools, for example.

Applicable Habitat Types: Can be used on all habitat types.

When to Use: Light to moderate oiling conditions for stranded oil or heavy oils that have formed semi-solid to solid masses that can be picked up manually.

Biological Constraints: Foot traffic over sensitive areas (wetlands, tidal pools, etc.) should be restricted or prevented. There may be periods when shoreline access should be avoided, such as during bird nesting.

Environmental Effects: Minimal, if surface disturbance by crew movement and waste generation is controlled.

Waste Generation: May generate significant quantities of oil mixed with sediment, which must be properly disposed of or treated. Decontamination of hand tools may produce oily wastewater that must be treated properly. Worker personal protective gear is usually disposed of daily or decontaminated and the resulting oily wastewater treated properly.

Mechanical Oil Removal

Objective: To remove oil from shorelines and bottom sediments with mechanical equipment.

Description: Oil and oiled sediments are collected and removed using mechanical equipment such as backhoes, graders, bulldozers, dredges, draglines, etc. This method requires systems for temporary storage, transportation, and final treatment and disposal.

Applicable Habitat Types: On land, wherever surface sediments are both amenable to and accessible to heavy equipment. Mechanical recovery is appropriate for submerged oil, used in sheltered areas where oil accumulates. Additionally it can be used on viscous to solid oil on the water's surface.

When to Use: When large amounts of oiled materials must be removed care should be taken to remove sediments only to the depth of oil penetration, which can be difficult when using heavy equipment. Mechanical methods should be used carefully where excessive sediment removal may cause erosion.

Biological Constraints: Heavy equipment may be restricted in sensitive habitats (e.g., wetlands, soft substrate) or areas containing endangered species. Operators will need special permission to use in areas with known cultural resources. Dredging in sea grass beds or coral reef habitats may be prohibited. The noise generated by the mechanical equipment may also be a constraint.

Environmental Effects: The equipment is heavy, with many support personnel required. Mechanical methods may be detrimental if excessive sediments are removed without replacement. All organisms in the sediments will be affected, although the need to remove the oil may make this response method the best overall alternative. Re-suspension of exposed oil and fine-grained oily sediments can affect adjacent bodies of water.

Waste Generation: Can generate significant quantities of contaminated sediment that must be cleaned or land filled. The amount of waste generated by this cleanup option should be given careful consideration by response planners when reviewing potential environmental impacts of the oily wastes, debris, and residues.

Sorbents

Objective: To remove surface oil by absorption onto oleophilic (oil-attracting) material placed in water or at the waterline.

Description: Sorbent material is placed *on the floating oil or water surface* to allow it to absorb oil, or alternatively, the material can be used to wipe or dab stranded oil. Forms include sausage boom, pads, rolls, sweeps, snares, and loose granules or particles. These products can be either synthetic or natural substances. Efficacy depends on the capacity of the particular sorbent, energy available for lifting oil off the substrate, and stickiness of the oil. Recovery of all sorbent material is mandatory. Loose particulate Sorbents must be contained in a mesh or other material.

Applicable Habitat Types: Can be used on any habitat or environment type.

When to Use: When oil is free-floating close to shore or stranded on shore. The oil must be able to be released from the substrate and absorbed by the sorbent. Often used as a secondary treatment method after gross oil removal and in sensitive areas where access is restricted. Selection of sorbent varies by oil type; heavy oils only coat surfaces, requiring a high surface area to be effective, whereas lighter oils can penetrate sorbent material.
Biological Constraints: Access for deploying and retrieving sorbents should not be through soft or sensitive habitats or affect wildlife. Sorbent use should be monitored to prevent overuse and generation of large volumes of waste. Sorbents should not be used in a fashion that would endanger or trap wildlife. Sorbents left in place too long can break apart and present an ingestion hazard to wildlife.
Environmental Effects: Physical disturbance of habitat during deployment and retrieval. Improperly deployed or tended sorbent material can crush or smother sensitive substrates.
Waste Generation: Sorbents must eventually be collected for proper disposal so care should be taken to select and use sorbents properly, and prevent generation of large amounts of lightly oiled sorbents. Recycling should be emphasized rather than disposal.

Vacuum

Objective: To remove oil pooled on a shoreline substrate or sub tidal sediments.
Description: A vacuum unit is attached via a flexible hose to a suction head that recovers free oil. The equipment can range from small, portable units that fill individual 55-gallon drums to large super suckers that are truck or vessel mounted and can generate enough suction to lift large rocks. Removal rates from substrates can be extremely slow.
Applicable Habitat Types: Any accessible habitat type. Vacuum machinery may be mounted on barges for water-based operations, on trucks driven to the recovery area, or hand-carried to remote sites.
When to Use: When oil is stranded on the substrate, concentrated in trenches or trapped in vegetation. Usually requires shoreline access points.
Biological Constraints: Special restrictions should be established for areas where foot traffic and equipment operation may be damaging, such as soft substrates. Operations in wetlands need to be very closely monitored, with a site-specific list of restrictions developed to prevent damage to vegetation.
Environmental Effects: Minimal, if foot and vehicular traffic is controlled and minimal substrate is damaged or removed.
Waste Generation: Collected oil and or oil/water mix will need to be stored temporarily prior to recycling or disposal. Oil may be recyclable; if not, it will require proper disposal. Large amounts of water are often recovered, requiring separation and treatment.

Debris Removal

Objective: To remove contaminated debris from the shoreline or water surface.
Description: Manual or mechanical removal of debris from the shore or water surface.
Debris removal can include cutting and removal of oiled logs.
Applicable Habitat Types: This method can be used on any habitat or environment type where access is safe.
When to Use: Driftwood and debris are heavily contaminated and provide a potential source of chronic oil release. Debris removal may create aesthetic problems, be a source of contamination for other resources in the area or cause clogging problems in the skimmer and create safety problems for responders. Debris removal is used in areas of debris accumulation on beaches prior to oiling to minimize the amount of oiled debris to be handled.
Biological Constraints: Foot traffic over sensitive areas (wetlands, spawning grounds) needs to be restricted. T h e r e m ay be periods when access should be restricted (spawning periods, influx of large numbers of migratory water birds).
Environmental Effects: Physical disruption of substrate, especially when mechanized equipment must be deployed to recover a large quantity of debris.
Waste Generation: Debris removal will generate contaminated debris (volume depends on what, and how much, is collected, e.g., logs, brush). Unless there is an approved hazardous waste incinerator that will take oily debris, burning will seldom be allowed especially on-site burning. However, this option should still be explored, especially for remote locations, with the appropriate state or federal agencies that must give approvals for burning.

Sediment Reworking/Tilling *

Objective: To enhance the rate of degradation, by breaking up oily sediments and surface oil deposits, increasing the surface area, and mixing deep subsurface oil layers to the surface.
Description: The oiled sediments are roto-tilled, disked, or otherwise mixed using mechanical equipment or manual tools. Along beaches, oiled sediments may also be pushed to the water's edge (surf washing) to enhance natural cleanup by wave activity. The process may be aided with high-volume flushing of gravel.
When to Use: On sand to gravel beaches with subsurface oil, where sediment removal is not feasible (due to erosion or disposal problems). On sand beaches, where the sediment is stained or lightly oiled, appropriate where oil is stranded above normal high waterline.
Biological Constraints: Avoid use on shores near sensitive wildlife habitat, such as fish-spawning areas or bird-nesting or concentration areas because of the potential for release of oil and oiled sediments into adjacent bodies of water. Tilling should not be used in shellfish beds.

Environmental Effects: Due to the mixing of oil into sediments, this method could further expose organisms that live below the original layer of oil. Repeated mixing over time could delay reestablishing organisms. Refloated oil from treated sites could contaminate adjacent areas.
Waste Generation: None.

Vegetation Cutting/Removal

Objective: To remove portions of oiled vegetation or oil trapped in vegetation to prevent oiling of wildlife or secondary oil releases.
Description: Oiled vegetation is cut with weed-whackers, blades, etc., and picked or raked up and bagged for disposal.
Applicable Habitat Types: Habitats composed of vegetation such as wetlands, sea grass beds, and kelp beds.
When to Use: When the risk of oiled vegetation contaminating wildlife is greater than the value of the vegetation that is to be cut, and there is no less-destructive method that removes or reduces the risk to acceptable levels.
Biological Constraints: Operations must be strictly monitored to minimize the degree of root destruction and mixing of oil deeper into the sediments. Access in bird-nesting areas should be restricted during nesting seasons. Cutting only the oiled portions of the plants and leaving roots and as much of the stem as possible minimizes impact to plants.
Environmental Effects: Vegetation removal will destroy habitat for many animals. Cut areas will have reduced plant growth, and in some instances, plants may be killed. Cutting at the base of the plant stem may allow oil to penetrate into the substrate, causing subsurface contamination. Along exposed sections of shoreline, the vegetation may not recover, resulting in erosion and habitat loss. Trampled areas will recover much more slowly.
Waste Generation: Cut portions of oiled plants must be collected and disposed.

Flooding

Objective: To wash oil stranded on the land surface to the water's edge for collection.
Description: A perforated header pipe or hose is placed above the oiled shore or bank. Ambient-temperature water is pumped through the header pipe at low pressures and flows down slope to the water. On porous sediments, water flows through the substrate, pushing loose oil ahead of it, or floating oil to the water's surface and transporting the oil down the slope for pickup. On saturated, fine-grained sediments, the technique becomes more of a flushing of the surface.
Applicable Habitat Types: All shoreline types where the equipment can be effectively deployed. This is non-effective in steep intertidal areas.
When to Use: In heavily oiled areas when the oil is still fluid and adheres loosely to the substrate, and where oil has penetrated into gravel sediments. This method is frequently used with other washing techniques (low- or high-pressure, cold-to-hot-water flushing).

Biological Constraints: Special care should be taken to recover oil where nearshore habitats contain rich biological communities. Not appropriate for muddy substrates. **Environmental Effects:** Habitat may be physically disturbed by foot traffic during operations and smothered by sediments washed down the slope. Oiled sediment may be transported to shallow, nearshore areas, contaminating them and burying benthic organisms.
Waste Generation: Depends on the effectiveness of the collection method.

Low-Pressure, Ambient-Water Flushing

Objective: To remove fluid oil that has adhered to the substrate or man-made structures, pooled on the surface, or become trapped in vegetation.
Description: Ambient-temperature water is sprayed at low pressures (<10 psi), usually from hand-held hoses, to lift oil from the substrate and direct it to the water's edge for recovery by skimmers, vacuum, or sorbents. Can be used with a flooding system to prevent released oil from re-adhering to the substrate down-stream of the treatment area.
Applicable Habitat Types: On substrates, riprap, and solid man-made structures, where the oil is still fluid. In wetlands and along vegetated banks where oil is trapped in vegetation.
When to Use: Where fluid oil is stranded onshore or floating on shallow intertidal areas.
Biological Constraints: May need to restrict use so that the oil/water effluent does not drain across sensitive, intertidal habitats and mobilized sediments do not affect rich sub tidal communities. Use from boats will reduce the need for foot traffic in soft substrates and vegetation. Flushed oil must be recovered to prevent further oiling of adjacent areas.
Environmental Effects: If containment methods are not sufficient, oil and oiled sediments may be flushed into offshore areas. Some trampling of substrate and attached biota will occur.
Waste Generation: Depends on the effectiveness of the collection method.

High-Pressure, Ambient-Water Flushing

Objective: To remove oil that has adhered to hard substrates of man-made structures.
Description: Similar to low-pressure flushing except that water pressure is 100-1,000 psi. High-pressure spray will more effectively remove sticky or viscous oils. If low-water volumes are used, sorbents are placed directly below the treatment area to recover oil.
Applicable Habitat Types: On bedrock, man-made structures, and gravel substrates.
When to Use: Use when low-pressure flushing is not effective at removing adhered oil that must be removed to prevent continued oil release or for aesthetic reasons. Us e w hen a directed water jet can remove oil from hard-to-reach sites.

Biological Constraints: May have to restrict flushing so that the oil does not drain across sensitive habitats. Flushed oil must be recovered to prevent further oiling of adjacent areas. Attached animals and plants in the direct spray zone will be removed.
Environmental Effects: May drive oil deeper into the substrate or erode shorelines of fine sediments if water jet is improperly applied. If containment methods are not sufficient, oil and oiled sediments may be flushed into offshore areas. Some trampling of substrate and attached biota will occur.

Waste Generation: Depends on the effectiveness of the collection method.

Low-Pressure, Hot-Water Flushing

Objective: To remove non-fluid oil that has adhered to the substrate or man-made structures, or pooled on the surface.
Description: Hot water (90.F up to 170.F) is sprayed with hoses at low pressures (<10 psi) to liquefy and lift oil from the substrate and direct it to the water's edge for recovery by skimmers, vacuums, or sorbents. Used with flooding to prevent released oil from re-adhering to the substrate.
Applicable Habitat Types: On bedrock, sand to gravel substrates, and man-made structures.
When to Use: Where heavy, but relatively fresh oil is stranded onshore. The oil must be heated above its pour point, so it will flow. This is less effective on sticky oils.
Biological Constraints: Avoid wetlands or rich intertidal communities so that hot oil/water effluent does not contact sensitive habitats. Operations from boats will help
reduce foot traffic in soft substrates and vegetation. Flushed oil must be recovered to prevent further oiling of adjacent areas.
Environmental Effects: Hot-water contact can kill all attached animals and plants. If containment methods are not sufficient, oil may be flushed into downstream areas. Some trampling of substrate and biota will occur.
Waste Generation: Depends on the effectiveness of the collection method.

High-Pressure, Hot-Water Flushing

Objective: To mobilize weathered and viscous oil strongly adhered to surfaces.
Description: Hot water (90 degrees F [30 degrees C] up to 170 degrees F [70 degrees C]) is sprayed with hand-held wands at pressures greater than 100 psi (720 kpa). If used without water flooding, this procedure requires immediate use of vacuum or sorbents to recover the oil/water runoff. When used with a flooding system, the oil is flushed to the water surface for collection by skimmers, vacuum, or sorbents.
Applicable Habitat Types: Gravel substrates, bedrock, and man-made structures.
When to Use: When oil has weathered to the point that warm water at low pressure no longer effectively removes oil. Use to remove viscous oil from man-made structures for aesthetic reasons.

Biological Constraints: Use should be restricted so that the oil/water effluent does not drain across sensitive habitats (damage can result from exposure to oil, oiled sediments, and hot water). Should not be used directly on attached algae nor rich, inter-tidal areas. Released oil must be recovered to prevent further oiling of adjacent areas.
Environmental Effects: All attached animals and plants in the direct spray zone will be removed or killed, even when used properly. Oiled sediment may be transported to shallow near-shore areas, contaminating them and burying benthic organisms.
Waste Generation: Depends on the effectiveness of the collection method.

Steam Cleaning

Objective: To remove heavy residual oil from solid substrates or man-made structures.
Description: Steam or very hot water (171 degrees F [77 degrees C] to 212 degrees F [100 degrees C]) is sprayed with hand-held wands at high pressure (2000+ psi [14,400 kpa]). Water volumes are very low compared to flushing methods.
Applicable Habitat Types: Man-made structures such as seawalls and riprap.
When to Use: When heavy oil residue must be removed for aesthetic reasons, and when hot-water flushing is not effective and no living resources are present.
Biological Constraints: Not to be used in areas of soft substrates, vegetation, or high biological abundance directly on, or below, the structure.
Environmental Effects: Complete destruction of all organisms in the spray zone.
Difficult to recover all released oil.
Waste Generation: Depends on the effectiveness of the collection method.
Usually sorbents are used, generating significant waste volumes.

Sand Blasting

Objective: To remove heavy residual oil from solid substrates or man-made structures.
Description: Use of sandblasting equipment to remove oil from the substrate may include recovery of used (oiled) sand in some cases.
Applicable Habitat Types: On heavily oiled bedrock, artificial structures such as seawalls and riprap.
When to Use: When heavy oil residue must be cleaned for aesthetic reasons and even steam cleaning is not effective.
Biological Constraints: Not to be used in areas of soft substrate, vegetation, or high biological abundance directly below, or adjacent to, the structures.
Environmental Effects: Complete destruction of all organisms in the blast zone. Possible smothering of downstream organisms, unrecovered, and used sand will introduce oiled sediments into the adjacent habitat.
Waste Generation: Will need to recover and dispose of oiled sand used in blasting.

Dry Ice Blasting

Objective: To mobilize weathered and viscous oil strongly adhered to hard surfaces.

Description: Similar to other forms of media blasting, Dry Ice blasting uses small, solid particles of dry ice as the cleaning media. The frigid temperature of the dry ice -109.3°F or -78.5°C "blasting" against the material to be removed, causes it to shrink and lose adhesion from its sub surface. Dry ice blasting media non-abrasive and is sprayed with hand-held wands with blasting pressures from 20 – 300 psi. Only the removed product must be disposed of, as the dry ice sublimes into the atmosphere after blasting.

Applicable Habitat Types: Rocks, bedrock, rip-rap and man-made structures or equipment.

When to Use: When oil has weathered to the point that hot water at high pressure no longer effectively removes oil.

Biological Constraints: Use should be restricted so that the removed oil does not contaminate sensitive habitats (damage can result from exposure to oil and oiled sediments). Should not be used directly on attached algae nor in rich, inter-tidal areas. Released oil must be recovered to prevent further oiling of adjacent areas.

Environmental Effects: All attached animals and plants in the direct spray zone will be removed or killed, even when used properly.

Waste Generation: Depends on the effectiveness of the collection method.

Solidifiers *

Objective: To change the physical state of spilled oil from a liquid to a solid.

Description: Chemical agents (polymers) are applied to oil at rates of 10-45 percent or more, solidifying the oil in minutes to hours. Various broadcast systems, such as leaf blowers, water cannons, or fire suppression systems, can be modified to apply the product over large areas. Solidifiers can be applied to both floating and stranded oil. Solidifiers can be placed in booms, pillows, sausages, etc. and used like sorbents, although this type of solidifier application has not been used operationally.

Applicable Habitat Types: All water environments, bedrock, sediments, and artificial structures.

When to Use: When immobilization of the oil is desired, to prevent refloating from a shoreline, penetration into the substrate, or further spreading. However, the oil may not fully solidify unless the product is well mixed with the oil, and may result in a mix of solid and untreated oil. Generally not used on heavy oil spills, which are already viscous.

Biological Constraints: Must be able to recover all treated material.

Environmental Effects: Available products are insoluble and have very low aquatic toxicity. Unrecovered solidified oil may have longer impact because of slow weathering rates. Physical disturbance of habitat is likely during application and recovery.

Waste Generation: If skimming efficiency is increased, solidifiers may reduce the volume of water collected during oil recovery. Effects on recycling oil treated with solidifiers are unknown. Most solidifier producers state that treated oil can pass leachate tests, allowing disposal in landfills.

Shoreline Cleaning Agents (Surface Washing Agents) *

Objective: To increase the efficiency of oil removal from contaminated substrates.
Description: Special formulations are applied to the substrate, as a presoak and/or flushing solution, to soften or lift weathered or heavy oils from the substrate to enhance flushing methods. The intent is to lower the water temperature and pressure required to mobilize the oil from the substrate during flushing. Some agents will disperse the oil as it's washed off the beach, others will not.
Applicable Habitat Types: On any habitat where water flooding and flushing procedures are applicable.
When to Use: When the oil has weathered to the point where it cannot be removed using ambient water temperatures and low pressures. This approach may be most applicable where flushing effectiveness decreases as the oil weathers.
Biological Constraints: When the product does not disperse the oil into the water column, the released oil must be recovered from the water surface. Use may be restricted where suspended sediment concentrations are high, near wetlands, and near sensitive near shore resources.
Environmental Effects: The toxicity and effects on dispersability of treated oil vary widely among products. Selection of a product should consider the toxicity of the product.
Waste Generation: Because treated oil must be recovered, waste generation is a function of recovery method, which often includes sorbents.

Nutrient Enrichment (Biostimulation) *

Objective: To accelerate the rate of oil hydrocarbon degradation due to natural microbial processes using a form of bioremediation that adds nutrients (generally nitrogen and phosphorus) that stimulate microbial growth. If nutrients are a limiting factor (as measured using the interstitial pore water) in an area where shoreline oiling has occurred, water-soluble nutrients can be applied by a spray irrigation system.
Description: Nutrients should be applied daily if the impacted area gets completely submerged by tides and waves and if maximum biostimulation is desired. If the impacted area gets submerged only during spring tides, the frequency of nutrient addition will be determined by the intertidal zone water coverage. Using slow-release granular or encapsulated nutrients or oleophilic fertilizer (which adheres to the oil residue on the surface) should require less frequent addition, but time-series monitoring of interstitial pore water nutrient levels is needed to ensure target levels are being maintained, especially throughout the depth of the impacted intertidal zone.

When to Use: Any shoreline habitat type where access is allowed and nutrients are deficient.
Applicable Habitat Types: On moderate to heavily oiled substrates, after other techniques have been used to remove free product on lightly-oiled shorelines, where other techniques are destructive or ineffective; and where nutrients limit natural attenuation. Most effective on light to medium crude oils and fuel oils (asphaltenes tend to inhibit rapid biodegradation). T hi s m et hod i d l ess effective where oil residues are thick. Not considered for gasoline spills, which evaporate rapidly.
Biological Constraints: Avoid using ammonia-based fertilizers at highly elevated concentrations because un-ionized ammonia is toxic to aquatic life. Nitrate is an equally good nitrogen source, minus the toxicity. Sodium tripolyphosphate is a better phosphorus source than orthophosphates because it is more soluble in seawater. If nutrients are applied properly with adequate monitoring, eutrophication should not be a problem. Only nutrient additives proven to be nontoxic and effective in either the laboratory or the field should be used in the environment. Contact toxicity of oleophilic nutrients may restrict their use as other chemicals in the product could be more toxic to aquatic organisms in the presence of oil.
Environmental Effects: Detrimental effects to shoreline from foot or vehicle traffic caused by workers applying nutrients (unless nutrients are sprayed from a vessel or aircraft).
Waste Generation: None.

Natural Microbe Seeding (Bioaugmentation) *

Objective: To accelerate natural microbial degradation of oil by using a form of bioremediation that adds high numbers of oil-degrading microorganisms.
Description: Formulations containing specific hydrocarbon-degrading microbes are added to the oiled area because indigenous hydrocarbon degraders are low in number, or, those that are present cannot degrade the oil effectively. Since microbes require nitrogen and phosphorus to convert hydrocarbons to biomass, formulations containing these oil degraders must also contain adequate nutrients. Research studies conducted with bioengineered organisms or organisms enriched from different environments, grown in the laboratory to high numbers, and applied to an oiled beach to stimulate rapid biodegradation, have failed to prove conclusively that seeding is effective.
Bioaugmentation appears less effective than biostimulation because: 1) hydrocarbon degraders are ubiquitous in nature and, when an oil spill occurs at a given site, the influx of oil will cause an immediate increased response in the hydrocarbon degrading populations; but, 2) if nutrients are in limited supply, the rate of oil biodegradation will be less than optimal; thus, 3) supplying nutrients will enhance the process initiated by the spill, but adding microorganisms will not, because they still lack the necessary nitrogen and phosphorus to support growth.
Applicable Habitat Types: There is insufficient information on impact or effectiveness of this method to make a judgment on applicable habitat.

When to Use: There is insufficient information on impact or effectiveness of this method to make a judgment on when to use it.

Biological Constraints: Avoid using products containing ammonia-based fertilizers at elevated concentrations because un-ionized ammonia is toxic to aquatic life. Nitrate is an equally good a nitrogen source, minus the toxicity. If the product containing nutrients is applied properly with adequate monitoring, eutrophication should not be a problem; but, toxicity tests should be evaluated carefully, as other chemicals in the product could be toxic to aquatic organisms.

Environmental Effects: Detrimental physical effects to shoreline from foot or vehicle traffic caused by workers applying bioaugmentation products (unless nutrients are sprayed from a vessel or aircraft).

Waste Generation: None.

IN-SITU BURNING *

Objective: To remove oil from the water surface or habitat by burning it in place.

Description: Oil floating on the water surface is collected into slicks at least 2-3 mm thick and ignited. The oil can be contained in fire-resistant booms, or by natural barriers such as ice or the shore. On land, oil can be burned when it is on a combustible substrate such as vegetation, logs, and other debris. Oil can be burned from non-flammable substrates using a burn promoter. On sedimentary substrates, it may be necessary to dig trenches for oil to accumulate in pools to a thickness that will sustain burning. Heavy oils are hard to ignite but can sustain a burn. Emulsified oils may not ignite nor sustain a burn when the water content is greater than 30 to 50 percent.

When to Use: On most habitats except dry muddy substrates where heat may impact the biological productivity of the habitat. Burning m ay increase oil penetration into permeable substrates. Use in marshes should be undertaken using special precautions. Not suitable for woody vegetation such as mangroves and hardwood swamps.

Applicable Habitat Types: On land, where there is heavy oil in sites neither amenable nor accessible to physical removal and it is important to remove the stranded oil quickly. In wetlands and mud habitats, a water layer will minimize impacts to sediments and roots. Burning has m any potential applications for spills in ice. There are many operational and public health limitations.

Biological Constraints: The possible effect of smoke on wildlife and populated areas should be evaluated.

Environmental Effects: Temperature and air quality effects are likely to be localized and short-lived. Toxicological impact from burn residues has not been evaluated. On-water, burn residues are likely to sink. On land, removal of residues is often necessary for crude and heavy oils. Limited data on burning oiled wetlands indicate recovery of wetland vegetation will depend on season of burn, type of vegetation, and water level in the marsh at time of burn.

Waste Generation: Any residues remaining after burning will need to be collected and land-filled, but with an efficient burn will be a small fraction of the original oil volume.

3230.2 Pre-Beach Cleanup

While it is generally not possible to avoid the generation of oily debris resulting from the contact of floating oil with waterborne solids, it is possible to avoid the generation of oily debris in the coastal inter-tidal zone if the anticipated area of oil impact can be cleaned prior to stranding of the spilled oil. Personnel can be deployed to remove debris from beach intertidal areas to above the high tide line in order to prevent oiling of stranded debris/trash. It is important to note that such crews are not likely to be certified as required for oiled debris recovery under OSHA, 29 CFR Part 1910.120 and can only perform this task prior to the stranding of spilled oil. A safety/industrial hygiene specialist should be consulted regarding limitations of these crews and the effective establishment of exclusion zones in the area of beach impact.

3230.3 Storage

To expedite removal of spilled oil, refined products, and contaminated materials from marine waters during an emergency-response, containment activities (to include temporary waste storage) may be conducted at appropriate on-shore locations. The transportation of oil and contaminated material to temporary waste storage sites during an emergency response is exempt from transportation and manifesting requirements, per the draft MOU between OSPR and DTSC (these requirements are also exempted per 22 CCR 66263.30 and/or 66263.43 for transportation-related emergency responses.

During an immediate response, all oil and/or oily materials may be recovered, transported, or transferred to temporary waste storage sites and are exempt from any hazardous waste generator and facility permit requirements for a period of 30 days, per the draft MOU between OSPR and DTSC. Additional 30-day extensions may be granted by DTSC, under appropriate circumstances.

Temporary storage sites can be an area or facility approved by the IC or Unified Command for characterizing and/or temporarily storing recovered oil and/or oily materials used, collected, or recovered during an oil spill response. Such an area may include, but is not limited to, permitted or interim status hazardous waste storage facilities, other non-permitted facilities, vessels, barges, tanks, vacuum trucks, barrels, containers, storage piles, or other appropriate containment methods and locations that may be used to hold recovered oil and/or oily materials. Temporary storage sites need not be owned, operated, or leased by the RP. Temporary storage sites that are on-shore should be established at locations that are convenient to the recovery operations for the temporary storage of recovered petroleum products, and contaminated materials and debris. Sitting of the temporary storage site, however, must be done with the concurrence of the following:

- FOSC
- DTSC [The DTSC duty officer can be contacted at one of the following phone numbers: Region 1 (Sacramento) @ 916-255-3564; Region 2 (Oakland) @ 510-540-3739; Region 3 (Glendale) @ 818-551-2830; and Region 4 (Long Beach) @ 310-590-4968.]
- California Coastal Commission Oil Spill Program: for information on emergency permits for temporary storage sites within the coastal zone call the CCC Oil Spill Program, Deputy Director 415-904-5205 or 24 hour cell phone 415-693-8375.
- Regional Water Quality Control Board (RWQCB), and local health, fire and emergency services departments.

3240 Disposal

It is critical for the FOSC in an immediate removal operation to recognize that contaminated soils, dredge spoils, drums, tanks, refuse, water or other associated materials are to be considered hazardous wastes and must be disposed of as such in accordance with the Resource Conservation and Recovery Act (RCRA), as well as local and state regulations controlling the disposal of hazardous wastes.

Recovered petroleum products that are not accepted by a refinery or that cannot be recycled must be managed as a waste. Waste classified as hazardous under either the Resource Conservation Recovery Act (RCRA) or state regulations must be transported to a permitted or interim status hazardous waste facility. Hauling of the waste must be done by a state hazardous materials hauler. Prior to removal of the hazardous waste from on-site/temporary storage, a uniform hazardous waste manifest (DHS- 8022A) must be prepared by the generator (e.g. RP) for recovered petroleum and other contaminated materials.

All materials shipped off-site must be transported in compliance with applicable regulations. These include RCRA, 40 CFR Part 262-263, DOT Hazardous Materials Regulations, 49 CFR Part 171-178, and any applicable state regulations. The FOSC should consider the possibility of employing on-site treatment (e.g. incineration, biological treatments, chemical treatments, waste stream treatment methods, etc.). Approved and effective on-site treatment will often eliminate the dilemma affiliated with hauling hazardous waste to a hazardous waste facility.

Crude oil spilled to marine waters, recovered, and transported to a refinery may be considered a product and may not be subject to hazardous waste management regulations [California Health and Safety Code (CHSC), 25943.2]. The collected crude oil may be shipped to a refinery that can accept the spilled crude oil. Refined petroleum products that are recovered from marine waters may also be handled as a product if they can be used for their originally intended purpose (i.e. fuel, fuel oil, etc.)(CHSC 25250.3).

3240.1 Waste Management

One of the major issues associated with an oil spill response is the proper management of the recovered petroleum product, as well as the contaminated cleanup materials, soil, and debris. How these are managed is dependent on how they are characterized - as either a solid waste, hazardous waste or a hazardous material (used or reused). This subsection presents a general approach to the management of the various types of wastes collected during an oil spill.

Under California law, a hazardous substance released or discharged to marine waters of the state is defined as a waste and must be characterized as either hazardous or nonhazardous and managed accordingly. Once the waste is characterized and its final disposition is determined, the waste may be redefined and managed as a material, rather than a waste.

In managing hazardous wastes, one must also be responsible for adhering to the waste minimization philosophy behind good waste management practices. Waste generation and disposal can be minimized through proper waste characterization, handling, segregation, treatment, and recycling; while only solid, non-recyclable wastes are actually "disposed" of.

The following waste management hierarchy should always be used in the management of both hazardous and nonhazardous wastes:

1. Eliminate or minimize the amount of waste generated
2. Source reduction
3. Use and reuse as a material
4. Reclaim or recycle
5. Treatment
6. Disposal

Dispose of waste only if the above priorities are not feasible. The need to minimize the volume and toxicity of all hazardous wastes has been made clear and explicit in state and federal regulations; however, other reasons to minimize waste would include protection of public health and the environment, as well as economic incentives, liability incentives, and public relations incentives.

3240.2 Decanting Policy

Oil recovered at sea typically contains significant amounts of seawater. In order to maintain the efficiency of the skimming process this water must be separated/decanted from the oil and discharged back to the ocean during recovery operations. Separated sea water typically contains elevated levels of hydrocarbons and thus the discharge of this material may constitute a discharge of a pollutant; therefore, in 1995, a Memorandum of Understanding (MOU) had been entered by the SWRCB and OSPR which addresses all permits and requirements pertaining to the incidental discharge of wastewater during oil spill response activities. The MOU finds that these discharges are exempt from the regulation under a National Pollution Discharge Elimination System (NPDES) permit. Additionally, the MOU also provides that the SWRCB will recommend that the coastal RWQCB waive the issuance of waste discharge requirements for these types of discharges.

The "discharge" of separated/decanted water is recognized by the Federal On-Scene Commander (FOSC) as an integral part of off-shore skimming operations and as an excellent waste minimization tool. The FOSC or designee, therefore, may authorize the discharge of separated/decanted water back into the sea within the catenary area of a boom/skimming system outside of State waters (3 miles), in accordance with the MOU between SWRCB and OSPR. The exception to this will be in NOAA Marine Sanctuary waters. A significant portion of the coastline is now part of the National Marine Sanctuary program. Other sanctuaries include Channel Islands San Miguel, Santa Cruz, Santa Rosa, Anacapa, Santa Barbara Island, Richardson and Castle Rock, and Cordel Banks. Federal law prohibits the discharge of material, such as separated water, to marine sanctuaries unless permitted by the Administrator of the sanctuary program. Negotiations are presently under way seeking pre-approval to discharge separated waters during an emergency response to oil spills within the sanctuaries. Until pre-approval is obtained, permit for the discharge of separated water must be obtained from the Sanctuary Program, via the appropriate field office, before any discharge can take place. The phone numbers for the Sanctuary field offices are as follows: Channel Islands (805) 966-7107; and Farallones and Cordell Book @ (415) 556-3509.

3240.3 Sample Waste Management Plan

Sample Waste Management Plans can be found in the Region IX Regional Contingency Plan.

3250 Decontamination

Personnel, vehicles, vessels, etc. responding to hazardous substance incidents may become contaminated in a number of ways. This includes contact vapors, gases, or particulates in the air; being splashed by materials while sampling, walking through puddles of liquid or contaminated soil; or through using/handling contaminated equipment. Decontamination consists of physically removing contaminants or changing their chemical nature to innocuous substances. How extensive decontamination must be depends on a number of factors, the most important being the type of contaminated personnel, equipment, etc. involved.

The Decontamination Group is responsible for decontamination of personnel and equipment. Contaminated personnel entering contaminated areas shall be decontaminated in accordance with the Site Safety Plan. The following “minimum” actions shall be performed:

- Direct and coordinate decontamination activities,
- Determine resource needs, and
- Brief SOFR on conditions.

A personnel decontamination plan should be developed as part of the Site Safety Plan. The initial decontamination plan is based on a worst-case situation or assumes no information is available about this incident. Specific conditions (e.g., type of contaminant, amount of contamination, levels of protection required, type of protective clothing worn) are then evaluated, and the initial decontamination plan is modified to adapt as new information about site conditions becomes available. All materials and equipment used for decontamination must be disposed of properly (i.e., as waste). In addition to routine decontamination procedures, emergency decontamination procedures must be established. In an emergency, the primary concern is to prevent loss of life and severe injury to site personnel. If immediate medical treatment is required to save a life, decontamination should be delayed until the victim is stabilized. If decontamination can be performed without interfering with essential life-saving techniques or first aid, or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination must be performed immediately. During an emergency, provisions must also be made for protecting medical personnel and disposing of contaminated clothing and equipment. Contaminated debris including organic material, contaminated cleanup equipment (i.e., PPE, sorbents, booms, etc.) and other contaminated materials that cannot be recycled must be managed as a waste. The materials must also be characterized before the appropriate waste management option is determined.

3260 Dispersants

The *California Dispersant Use Plan* is located in the Region IX Regional Contingency Plan and maintained on the California Department of Fish & Wildlife Office of Spill Prevention & Response website. The plan details the agencies, authorities, and process involved in making a dispersant use decision in US and State waters. For more information about the *California Dispersant Use Plan*, contact Ms. Ellen Faurot-Daniels at the California Office of Spill Prevention & Response, ellen.faurot-daniels@wildlife.ca.gov; (831) 649-2888.

California Dispersant Use Plan

The most common technique for removing spilled oil from marine surface waters involves mechanical skimming devices, which typically remove less than 20% of the spilled petroleum. The second most commonly considered method is the use of chemical agents (*e.g.*, dispersants) to disperse oil into the water column. The effectiveness of this approach can range from zero to 100 percent, depending on the type of petroleum spilled, the dispersant used, oceanographic conditions, and the approach employed to estimate effectiveness (NRC, 1989).

While moving dispersed oil into the water column does not alleviate the risk of impacts to that environment, it does have the potential to accelerate cleanup of spilled oil on the water surface and at the same time reduce the environmental risk of oil- related impacts on more environmentally sensitive areas and species. This includes the intertidal, tidal inlets, marshes and wetlands, coastline areas, and surface waters where endangered marine mammals and large concentrations of sea birds might exist.

Dispersant effectiveness is difficult to predict in advance due to the many controlling variables (*e.g.*, type and weathered state of the spilled oil, the dispersant used, sea state, application efficiency). The use of SMART (Specialized Monitoring of Applied Response Technologies) is part of the *California Dispersant Use Plan*, and will be used as appropriate during real spills to estimate the effectiveness of a dispersant application, and to make informed decisions about whether continued application is warranted.

RRT Dispersant Use Policy

The RRT has approved two types of dispersant use zones in California:

1. Dispersant Pre-Approval Zones.
All waters 3-200 nm from any shoreline except those within a National Marine Sanctuary, or within 3 nm of the California/Mexico border. This pre-approval is only extended by the RRT to the Federal On-Scene Coordinator (FOSC).

2. RRT Incident-Specific Approval.
Required for all other waters (e.g., within state waters, including bays and estuaries, and within 3 nm of the California/Mexico border).

It is expected that the RRT will also require that any subsurface use of dispersants, or a surface use extending beyond 96 hours, will also need to come to the RRT for their incident-specific approval.

Only dispersants that are on the federal NCP Product Schedule and licensed by the State of California may be used.

Conditions of dispersant use apply, even within the pre-approval zone. These and other recommended practices and processes are detailed in full in the California Dispersant Use Plan.

Dispersant use decisions (as well as other ART decisions) are run under the Environmental Unit in Planning (see Section 4600), facilitated by the OSPR ART Technical Specialist and, as available, the NOAA SSC. Both are members of the Region IX RRT, and will be the primary persons tasked with working through the dispersant use flowcharts and checklists, and briefing the FOSC/UC and RRT with their recommendations.

3270 In-Situ Burn

The In-Situ Burn Plan, located in the Region IX Regional Contingency Plan, details in full the agencies, authorities, and process involved in making an in-situ burn use decision in US and State waters.

California On-Water In-Situ Burn Plan

At the time of an oil spill, the FOSC is authorized to evaluate the use of in-situ ("controlled") burning. The use of in-situ burning should be considered when it will lessen the overall environmental impact of the spill, and when permitted under specified circumstances. A distinct advantage of in-situ burning of oil is that it permanently removes oil from the surface, with little or no impacts to environmentally sensitive resources outside the burn area (e.g., outside the air space, off the water surface, and deeper than the surface microlayer of the water column). Disadvantages are that successful burns create a very visible and dark soot plume, which will need to be monitored to ensure particulate matter within the plume does not exceed allowed standards, and that it is not drifting toward human populated areas or occurring within the minimal distances from shore established by local air districts. In-situ burning of oil also poses some operational constraints: the oil must first be contained (which can be difficult in higher sea states) within specialized fire boom (not currently generally available in California), winds must be favorable, the oil must be thick enough and not too emulsified to burn, and trained burn teams and monitors (wildlife, SMART, air) should be available before and during most burn events.

In-situ burning can also in some cases be considered for use in conjunction with mechanical skimming (and chemical dispersants, Section 3260) to increase the rate of surface oil removal.

In-situ burning can also in some cases be considered for use in conjunction with mechanical skimming (and chemical dispersants, Section 3260) to increase the rate of surface oil removal.

3270.1 RRT In-Situ Burn Policies

The RRT has approved two types of *in-situ* burn use zones in California:

1. RRT *In-situ* Burn Pre-Approval Zone.
All waters 35-200 nm from any California shoreline. **This pre-approval is only extended by the RRT to the On-Scene Coordinator (OSC).** This Pre-Approval is conveyed in a Letter of Agreement among the Coast Guard, EPA, NOAA and DOI, and may be found in its entirety in Appendix XIII of the RCP.

2. RRT Incident-Specific Approval.
Required for all other California waters (*e.g.*, 3-35 nm from shore, and within state waters, including bays and estuaries), and on land. A case-by-case checklist for RRT *in-situ* burn approval, as well as other decision support material, is in Appendix XIII of the RCP.

During a spill, *in-situ* burn use decisions (as well as other ART decisions) are run from under the Environmental Unit in Planning (see Section 4600), facilitated by the OSPR ART Technical Specialist and, as available, the NOAA SSC. Both are members of the Region IX RRT, and will be the primary persons tasked with working through the *in-situ* burn use flowcharts and checklists, and briefing the UC and RRT with their recommendations. If a decision is made to conduct an *in-situ* burn, a Liaison position between Planning and Operations will be established to facilitate some operational aspects of that decision, with a focus on ensuring that all conditions of *in-situ* burn use are being met, and all Best Management Practices, effectiveness monitoring, air and water sampling, wildlife monitoring, etc., are incorporated and used, as appropriate to each incident.

3280 Bioremediation

The RRT IX Regional Contingency Plan describes the agencies, authorities, and process involved in making a decision to use bioremediation for oil spill
incidents in US and State waters, and on land.

The primary objective of oil spill abatement and cleanup is to reduce the effect of spilled oil on the environment. Physical removal of oil is the preferred method. However, mechanical recovery may be limited by equipment capability, weather and sea conditions, spill magnitude, safety considerations, site accessibility, and surface load restrictions. In addition, efforts and equipment used for mechanical recovery of oil, especially in sensitive habitats such as marshes and wetlands, may prove to be more destructive to these environments than the original contamination with oil, leaving bioremediation as the more preferred option for consideration.

Bioremediation is a treatment technology that enhances existing biological processes to accelerate the decomposition of petroleum hydrocarbons and some hazardous wastes. Bioremediation has been used extensively in waste water treatment of spilled oil. Research in Alaska following the Valdez incident suggested that shoreline treatment by nutrient enhancement significantly increased degradation rates of oil, compared to untreated shoreline areas. The benefits of bioremediation, however, have not been adequately demonstrated through field applications during spills post-Exxon Valdez (in most cases, native oil-eating microbes effectively degrade the residual oil without additional input).

The prospect of bioremediation providing increased rates of oil degradation with minimal input of human effort is attractive. However, the technology is time consuming, unproved in open water environments, and probably best suited to the treatment of stranded oil on specific types of shorelines and in marsh habitats. At present, bioremediation should be viewed as a polishing agent for the final stages of cleanup rather than as a primary response tool, especially considering the slow rates of reaction to degrade the oil.

3280.1 RRT Bioremediation Policy

It is RRT policy that bioremediation should be used strictly as a shoreline remediation tool with a preference for nutrient enhancement and without the introduction of indigenous and/or non-indigenous microbes.

Only bioremediants that are on the federal NCP Product Schedule and licensed by the State of California may be used.

During a spill, decisions involving the use of bioremediation (as well as other ART decisions) are run from under the Environmental Unit in Planning (see Section 4720.7), facilitated by the OSPR ART Technical Specialist and, as available, the NOAA SSC. Both are members of the Region IX RRT, and will be the primary persons tasked with working through the bioremediation flowcharts and checklists in Appendix XIV of the RCP, and briefing the UC and RRT with their recommendations.

However, based on current knowledge and research, the use of bioremediation will generally not be advised as a response tool to remove bulk oil, but reserved and further researched as a way to removed stranded oil from sensitive habitats after all threats of re-oiling have been mitigated.

3290 Use of Oil Spill Cleanup Agents (OSCA)

The RRT IX Regional Contingency Plan describes the agencies, authorities, and process involved in making a decision to use OSCAs for oil spill incidents in US and State waters, and on land.

Chemical dispersants and bioremediants are two types of oil spill cleanup agents (OSCAs) already addressed in sections 3260 and 3280, respectively. Generally, OSCAs are defined by the State of California as:
" …a chemical, or any other substance, used for removing, dispersing, or otherwise cleaning up oil or any residual products of petroleum in, or on, any waters of the state. This category of substances would include surface washing agents, dispersants, gelling agents, herding agents, emulsifiers and de-emulsifiers, chemical booms, sorbents and bioremediants."

To be considered for use in California, OSCAs must be both:

1) Listed on the federal EPA NCP Product Schedule
And
2) Licensed by the California Department of Fish and Wildlife, Office of Spill Prevention and Response (OSPR).

The EPA exempts all sorbent and sorbent-type products from listing procedures. Sorbents are not automatically exempted from the State licensing process – they must first prove they are "inert" according to definitions in State Government Code Section 8670.13.1(b) before a state license exemption will be granted.

Once an OSCA is appropriately listed and licensed, it must still be approved for use by the RRT. If the use is in state waters, approval must also be granted by the OSPR Administrator.

Some cases of OSCA use, such as dispersants, have already been reviewed by the RRT, and pre-approval granted by the RRT to the OSC for specified areas and conditions of use. All other OSCA use (for example, use of surface washing agents to clean oiled rip-rap or ship hulls) must be approved for use on a case-by-case basis.

During a spill, decisions involving the use of OSCAs (as well as other ART decisions) are run from under the Environmental Unit in Planning (see Section 4600), facilitated by the OSPR ART Technical Specialist and, as available, the NOAA SSC. Both are members of the Region IX RRT, and will be the primary persons tasked with working through the OSCA use flowcharts and checklists in Appendix XI of the RCP, and briefing the UC and RRT with their recommendations. The Incident Commander/Unified Command will then determine the appropriateness of any particular OSCA use during a given spill incident, and will forward their request to use an OSCA to the RRT for RRT decision. If the OSCA use is in state waters, the OSPR Administrator will also issue a letter approving (or refusing approval) of an OSCA in a response. OSCA approvals (from either/or the RRT and the OSPR Administrator) may also stipulate conditions of use.

3300 Emergency Response

The priority response objective is protection of public health and safety including response personnel. Protection of the environment and public welfare (infrastructure) are also important response objectives, but are subordinate to public and responder safety.

3310 Search and Rescue (SAR)

Search and Rescue (SAR) efforts primarily focus on finding and assisting persons in actual or apparent distress.

SAR Area Resources

Search and Rescue resources may be provided by local U.S. Coast Guard units and/ or county and local fire/lifeguards, law enforcement agencies, or other agency with jurisdiction and capabilities.

3320 Salvage/Source Control

The primary objective in any salvage scenario, whether a single event casualty or combination of casualties, is to minimize the risk to human health, the environment, and property. The following six types of casualties are listed in order of frequency: Hull or Machinery Damage, Stranding or Grounding, Collision, Fire and Explosion, Allision, Stress

Fractures. Common to all casualties is a need for the quick and substantial allotment of response resources. The Unified Command will set the objectives of a vessel casualty response. Early dissemination of an accurate assessment of the vessel's condition and deployment of appropriate response resources is essential.

Refer to Section 8000 of this Area Contingency Plan.

Assessment and Survey

The evaluation and interpretation of information gathered from a variety of sources (including weather information and forecasts, computerized models, GIS data mapping, remote sensing sources, ground surveys, etc.) that, when communicated to emergency managers and decision makers, can provide a basis for incident management decision making.

Refer to Section 8000 of this Area Contingency Plan.

Stabilization

Refer to Section 8000 of this Area Contingency Plan.

Specialized Salvage Operations

Refer to Section 8000 of this Area Contingency Plan.

Types of Equipment Required

The equipment required in an incident ranges from personal protective, fire fighting, medical, decontamination, communications, pollution control, to any specific special equipment to mitigate further escalation of the incident.

Salvage Guidelines

Once enough information has been gathered to proceed with a decisive action plan, the USCG Operational Commander, IC or UC will set forth the operational period objectives.

These objectives *may* include but are not limited to:

- Evacuate crew
- Control vessel movement
- Get response personnel and equipment on-scene
- Extinguish shipboard fire
- Stop/slow flooding
- Stop/slow vessel movement toward potential hazards
- Contain pollution
- Identify suitable port of refuge
- Create a salvage plan
- Mitigate potential impacts of the casualty on other vessel traffic and port activities
- Evaluate risk to public- i.e., hazardous material release, air quality, etc.

Refer to Section 8000 of this Area Contingency Plan.

3330 Marine Fire Fighting

Coast Guard guidance on Marine Firefighting can be found in the Coast Guard Marine Safety Manual Volume 6 (COMDTINST M16000.1)Among the provisions of the Ports and Waterways Safety Act of 1972 (PWSA) (33 U.S.C. 1221 et seq.) is an acknowledgment that increased supervision of port operations is necessary to prevent damage to structures in, on, or adjacent to the navigable waters of the U.S., and to reduce the possibility of vessel or cargo loss, or damage to life, property, and the marine environment.

The Coast Guard has traditionally provided fire fighting equipment and training to protect its vessels and property. Commanding Officers of Coast Guard units (COTP's, Groups, Cutters, Stations) are routinely called upon to provide assistance at fires on board vessels and at waterfront facilities. Although the Coast Guard clearly has an interest in fires involving vessels or waterfront facilities, local authorities are principally responsible for maintaining the necessary fire fighting capabilities within U.S. ports and harbors. Additionally, a vessel/facility's owner and/or operator is ultimately responsible for the overall safety of vessels/facilities under their control, including ensuring adequate fire fighting protection.

3340 Hazmat

Under the direction of the Emergency Response Branch Director, the HAZMAT Group Supervisor is responsible for coordinating and directing all hazardous materials activities related to the incident.

1. Prioritize HAZMAT responses related to the incident.
2. Determine resource requirements.
3. Direct and coordinate HAZMAT responses.
4. Manage dedicated HAZMAT resources.
5. Brief Emergency Response Branch Director on activities.
6. Maintain Unit/Activity Log (ICS 214).

Initial Emergency Response Procedures

Refer to Section 7000 of this Area Contingency Plan.

Evacuation Procedures

Refer to Section 7000 of this Area Contingency Plan.

Hazmat POC's

Under the direction of the Emergency Response Branch Director, the HAZMAT Group Supervisor is responsible for coordinating and directing all hazardous materials activities related to the incident.

Refer to Section 7000 of this Area Contingency Plan.

Types of Equipment Required

The equipment required in an incident ranges from personal protective, fire fighting, medical, decontamination, communications, pollution control, to any specific special equipment to mitigate further escalation of the incident.

Refer to Section 7000 of this Area Contingency Plan.

3350 Emergency Medical Services

Under the direction of the Emergency Response Branch Director, the EMS Group Supervisor is responsible for coordinating and directing all emergency medical services related to the incident.

1. Prioritize EMS responses related to the incident.
2. Determine resource requirements.
3. Direct and coordinate EMS responses.
4. Manage dedicated EMS resources.
5. Brief Emergency Response Branch Director on activities.
6. Maintain Unit/Activity Log (ICS 214).

3360 Perimeter/Crowd/Traffic/Beach Control

Under the direction of the Emergency Response Branch Director, the Law Enforcement Group Supervisor is responsible for coordinating and directing all law enforcement activities, related to the incident, which may include, but not limited to, isolating the incident, crowd control, traffic control, evacuations, beach closures, and/or perimeter security.

1. Determine resource needs.
2. Direct and coordinate law enforcement response.
3. Manage dedicated law enforcement resources.
4. Manage public protection action; e.g., evacuations, beach closures,
5. Brief Emergency Response Branch Director on activities.
6. Maintain Unit/Activity Log (ICS 214).

Safety/Security Zones

Security/Safety Zones will be coordinated in accordance with 33 CFR 165 Subparts C and D.

3400 Air Ops

Aerial Surveillance

Refer to the Region IX Regional Contingency Plan.

Aerial Dispersant Application

Refer to the California Dispersant Use Plan.

Procedures for Temporary Flight Restrictions

Refer to the Region IX Regional Contingency Plan.

Permanent Area Restrictions

Refer to the Region IX Regional Contingency Plan.

3420 Air Support

Refer to the Region IX Regional Contingency Plan.

Airports/Helibases/Heli-spots

Refer to Section 9800 of the Appendix.

Unmanned Aerial Systems

Refer to the Region IX Regional Contingency Plan.

List of Certified Helo's/Aircraft Providers

Refer to the Region IX Regional Contingency Plan.

Fuel/Maintenance Sources

Refer to the Region IX Regional Contingency Plan.

Air Traffic Control Procedures

Refer to the Region IX Regional Contingency Plan.

3500 Staging Areas

3510 Pre-Identified Staging Areas

Refer to Section 9800 of the Appendix.

Staging areas for equipment: To a degree, the appropriate staging area is spill specific. However, there are considerations, which need to be applied each time an equipment staging site is selected. A preliminary list of these considerations follows and is not all inclusive:

(a) Accessibility (e.g. vehicles, trailers, boats, etc.);

(b) Proximity to spill;

(c) Proximity to a sensitive environmental site (California Department of Fish and Wildlife - OSPR and trustees MUST be consulted);

(d) Potential temporary command post site and/or availability of existing facilities;

(e) Accessibility to power, phone lines, and water;

(f) Availability of site (i.e. is site privately owned, regulatory prohibitions, etc.);

3520 Security

Refer to the Region IX Regional Contingency Plan.

3600 Wildlife

The Wildlife Response Plan for Oil Spills in California is located on the California Department of Fish and Wildlife website: Wildlife Response

Wildlife and habitats are put at risk or injured when oil is spilled into the marine environment. Both Federal and State statutes mandate protection, rescue and rehabilitation of oiled wildlife.

The federal Oil Pollution Act of 1990 (OPA 90) requires Area Contingency Plans contain a Fish and Wildlife and Sensitive Environments protection plan and include immediate and effective protection, rescue and rehabilitation of wildlife resources and habitat that are harmed by a spill.

The State of California's Lempert-Keene-Seastrand Oil Spill Prevention and Response Act requires the development of contingency plans for the protection of fish and wildlife, funding for a network of rescue and rehabilitation facilities, assessment of injuries to natural resources, and restoration plans to compensate for adversely affected wildlife resources and habitats.

To address these statutory mandates, the Wildlife Response Plan for Oil Spills in California has been developed by a group of federal and state agencies and other interested parties.

The Wildlife Response Plan for Oil Spills in California details the Wildlife Branch purposes, goals, objectives, responsibilities, and structure. The Wildlife Branch is in the Operations Section of the Incident Command System (ICS) for oil spill response. The Wildlife Branch structure is described in the USCG Incident Management Handbook. As is always true with the ICS, the structure may be expanded or contracted to fit the need, but the mission remains unchanged.

The Wildlife Response Plan for Oil Spills in California details the Wildlife Branch purposes, goals, objectives, responsibilities, and structure. The Wildlife Branch is in the Operations Section of the Incident Command System (ICS) for oil spill response. The Wildlife Branch structure needed in California and detailed in the plan is expanded beyond that described in the Incident Management Handbook. As is always true with the ICS, the structure may be expanded or contracted to fit the need, but the mission remains unchanged.

The principal objectives of Wildlife Branch operations during oil spill response are:

- Protect wildlife and habitats from contamination
- Minimize injuries to wildlife and habitats from contamination
- Minimize injuries to wildlife from the cleanup
- Provide best achievable care for injured wildlife
- Document adverse effects that result from the spill and cleanup

California DFW OSPR staff will assume the role of Wildlife Branch Director during a spill response. This is a natural consequence of the pivotal position of OSPR because they are the lead state trustee agency for California's fish and wildlife, they have formal agreements and permits in place with other agencies, and they have the needed expertise, training and experience. Within the Wildlife Branch structure for California, there are five Groups who report to the Wildlife Branch Director:

- Wildlife Reconnaissance Group (aerial, ground, and on-water)
- Wildlife Hazing Group (deters wildlife from oiled areas)
- Wildlife Recovery Group (search and collection, live and dead)
- Wildlife Field Stabilization (initial first aid prior to transport)
- Wildlife Care and Processing Group (rehabilitation and logging in)

While the Wildlife Plan was originally designed to cover oil spills in marine waters as required by federal and state law, it is applicable to non-oil spills as well. The organizational structure, roles and responsibilities remain the same, although some functions may be altered, as appropriate.

3610 Fish and Wildlife Protection Options

When oil spills occur in California, the ICS is used as the organizational structure to coordinate response actions. The actual response organization grows to fit the level of response necessary for a specific incident. For that reason, when a specific ICS position is discussed in the Plan, readers should realize positions and duties may not be needed or may be combined. Readers new to the ICS should keep in mind that various people may fill any given ICS position, and normal day-to-day job titles do not relate to ICS position titles. If
a suggested ICS position is not filled, the responsibility for the unfilled position's duties falls to the next higher ICS position. Those tasks still get done unless they don't apply to the particular response.

3620 Recovery

Recovery &Transportation of oiled wildlife involves collecting dead and capturing live animals and transporting them to processing centers. Wildlife collection by any agency or organization must be conducted under the direction of the WBD and the UC. Their activities must comply with agreements and permits from the appropriate management agencies (e.g., DFG, NOAA-NMFS, and USFWS; see 14 CCR 679(d)).

Wildlife Recovery Operations/Procedures

Once animals have become oiled, habitat-specific and species-specific strategies to recover and remove oiled/debilitated live animals and all dead wildlife are required. Under the direction of the Recovery & Transportation Group Supervisor, systematic surveys for collecting affected wildlife should be carried out several times per day, including at least one survey as early as is safely possible after dawn. Successful captures not only depend on the condition of the animal, but also on the training and experience of the handler, along with techniques and equipment used.

Recovery Processing

The Wildlife Processing Unit ensures oiled animals are fully evaluated and data are captured, so the UC can obtain oiled wildlife statistics used for a variety of purposes, such as response strategy development and media updates.

Depending on the size of the spill, Live Animal and Dead Animal Strike Teams can be formed to improve triage and stabilization capabilities for the live animals.

Carcass Retrieval and Processing

Following processing and documentation, information on wildlife collected including number, type, species, locations, and disposition of oiled wildlife, all dead animals that have had appropriate evidence collected (photos, feather samples and fur/carapace swabs) should be systematically packaged and stored in locked freezers on site until the conclusion of the event.

3630 Wildlife Rehab

Native wildlife in California is protected under a variety of other regulations (e.g., DFG code 3500). The OWCN and key Oiled Wildlife Care Network (OWCN) Member Organizations hold Wildlife Rehabilitation Permits issued by the State which allow them to temporarily collect and hold injured (as by oil) wildlife. Non-native restricted species cannot be released or transferred without written permission from DFG (14 CCR s 671).

Wildlife Rehab Operations

In response to the Federal Oil Pollution Act of 1990 (OPA 90), the National Oil and Hazardous Substances Pollution Contingency Plan (“National Contingency Plan” or NCP) update of 1994 stipulates that Area Contingency Plans (ACPs) contain a Fish and Wildlife and Sensitive Environments Plan “in order to provide for coordinated, immediate and effective protection, rescue, and rehabilitation of, and minimization of risk of injury to, fish and wildlife resources and habitat.”

Rehab Facilities/Procedures

Facilities within the OWCN “shall be established and maintained in a state of preparedness to provide the best achievable treatment for marine mammals and birds affected by an oil spill in marine waters.” In the case of cleaned animals that require prolonged time to recover, transport to long-term care facilities may be considered (particularly for marine mammals).

Refer to the Region IX Regional Contingency Plan.