Petroleum Control

Environmental Concerns

Petroleum in or on the water is harmful and, in some cases, fatal to aquatic life. Benzene, a carcinogen, is in gasoline. Oil contains zinc, sulfur, and phosphorous.

Once petroleum is introduced into the water, it may float at the surface, evaporate into the air, become suspended in the water column, or settle to the sea floor. Floating petroleum is particularly noxious because it reduces light penetration and the exchange of oxygen at the water's surface. Floating oil also contaminates the micro layer. The micro layer refers to the uppermost portion of the water column. It is home to thousands of species of plants, animals, and microbes. Ninety-nine percent of the Chesapeake Bay's blue crab larvae feed in the micro layer which also serves as a nursery ground for rockfish (Hardy 1991). The abundance of life in the micro layer attracts predators: seabirds from above and fish from below. Pollution in the micro layer, thus, has the potential to poison much of the aquatic food web.

Legal Setting

Federal Water Pollution Control Act (Clean Water Act)

Because of the harm associated with petroleum, the discharge of oil is absolutely prohibited. The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of $5,000.

The United States Coast Guard must be notified any time a spill produces a sheen on the water. Call the National Response Center at 1-800-424-8802. Report the location, source, size, color, substance, and time of the spill. Failure to report a spill may result in fines.

The Clean Water Act (33 CFR 153.305) also prohibits the use of soaps or other dispersing agents to dissipate oil on the water or in the bilge without the permission of the Coast Guard (specifically, the Captain of the Port of Baltimore). Soaps, emulsifiers, and dispersants cause the petroleum to sink in the water column and mix with sediments where they will remain for years. Also, the soaps themselves are pollutants. You may be fined up to $25,000 per incident for the unauthorized use of soap or other dispersing agents on the water or in the bilge.

Federal Emergency Planning and Community Right-to-Know Act (EPCRA)

EPCRA requires that facilities, including marinas, with 10,000 pounds or more of hazardous materials (i.e., petroleum) report the quantity and type with emergency response agencies by March 1 of each year. The single-page form must be submitted to MDE, your local Emergency Planning Committee (LEPC), and your local fire department. The online reporting system and contact information for LEPCs is available from MDE at mde.maryland.gov/programs/Businessinfocenter/CommunityRightToKnow/Pages/index.aspx or (410) 537-3800.

Maryland State Law

The discharge of oil is also prohibited by State law. Section 4-410(a) of Maryland Environment Article, Annotated Code of Maryland, states that

> Except in case of emergency imperiling life or property, unavoidable accident, collision, or stranding, or as authorized by a permit issued under §9-323 of this article, it is unlawful for any person to discharge or permit the discharge of oil in any manner into or on waters of this State.

All spills must be reported immediately to the Maryland Department of the Environment (MDE): 866-633-4686.

Careless engine maintenance, refueling habits, and improper disposal of oil and contaminated bilge water release more oil into marine water each year than did the Exxon Valdez spill (Clifton et al. 1995a).

Best Management Practices for Preventing Spills at the Source

Protect Petroleum Storage Tanks. Fuel storage tanks at marinas typically hold from 1,000 to 10,000 gallons of fuel. If a tank was to rupture or develop a leak, the consequences could be devastating.

Above Ground Tanks

- Install double-walled or vaulted above ground fuel tanks. Tanks installed after April 21, 1978 should meet the following conditions (NFPA 30).
  a. The capacity of the tank shall not exceed 12,000 gal (45,420 L).
  b. All piping connections to the tank shall be made above the normal maximum liquid level.
  c. Means shall be provided to prevent the release of liquid from the tank by siphon flow.
  d. Means shall be provided for determining the level of the liquid in the tank. This means shall be accessible to the delivery operator.
  e. Means shall be provided to prevent overfilling by sounding an alarm when the liquid level in the tank reaches 90 percent of capacity and by automatically stopping delivery of liquid to the tank when the liquid level in the tank reaches 95 percent of capacity. In no case shall these provisions restrict or interfere with the proper functioning of the normal or emergency vent.
  f. Spacing between adjacent tanks shall be not less than 3 ft. (0.9 m).
  g. The tank shall be capable of resisting the damage from impact of a motor

vehicle or suitable collision barriers shall be provided.

h. Where the interstitial space is enclosed, it shall be provided with emergency venting.

Also, refer to NFPA 30A Automotive and Marine Service Station Code.

◆ Alternatively, locate above ground fuel tanks within a dike or over an impervious storage area with containment volumes equal to 1.1 times the capacity of the storage tank(s). Design containment areas with locking spigots to drain collected materials. If possible, cover the tank with a roof to prevent rainwater from filling the containment area. The control of any stormwater that collects in the diked area must be addressed as a condition of your General Permit for Discharges from Marinas. Refer to COMAR 26.10.01.12 for additional requirements for above ground fuel tanks.

Underground Oil Storage Tanks (USTs)

◆ All underground storage tanks must be registered with MDE.

◆ All existing and new USTs must include corrosion protection and spill and overfill prevention equipment (COMAR 26.10.03).

◆ Install a leak detection system on all new and existing USTs and piping (COMAR 26.10.05).

◆ Maintain daily product inventory. Using a stick or electronic method, measure the liquid level in the tank and reconcile the results with pump meter readings and receipt of product (COMAR 26.10.04.01E).

◆ Monitor USTs on a monthly basis for leaks (COMAR 26.10.05.02).

◆ Install a readily accessible shut-off valve on shore to halt, when necessary, the flow of fuel through a pipeline from the oil storage facility to a wharf, pier, or dock (COMAR 26.10.01.20F and 26.10.03.07).

◆ All motor fuel USTs must meet Federal financial responsibility requirements (i.e., insurance) for environmental pollution liability.

◆ Drop tubes are required on all USTs containing gasoline or diesel. A drop tube is a PVC pipe that runs from the surface fill to within 6 inches of the bottom of the tank and is intended to prevent static build up.

❖ Contact the Maryland Department of the Environment's Oil Control Program for further information and assistance with installation or plan review.

A single pint of oil released onto the water can cover one acre of water surface area (Buller 1995).

Avoid Waves and Wakes.

❖ Locate fuel docks in areas protected from wave action and boat wakes when constructing new or upgrading existing facilities. For safety reasons, all fueling stations should be accessible by boat without entering or passing through the main berthing area.

✧ Provide a stable platform for fueling personal watercraft (PWC). You may purchase prefabricated drive-on docks or modify an existing dock by cutting a v-shaped berth and covering it with outdoor carpeting. Consider placing the PWC fueling area at the end of the fuel pier to reduce conflict with larger boats.

Maintain Fuel Transfer Equipment.

❖ Inspect transfer equipment regularly and fix all leaks immediately.

❖ Maintain transfer equipment and hoses in good working order. Replace hoses, pipes, and tanks before they leak.

❖ Hard connect delivery nozzles.

❖ Hang nozzles vertically when not in use so that fuel remaining in hoses does not drain out.

Install Environmental Controls at the Pumps.

- ◆ Do not install holding clips**.** The use of holding clips to keep fuel nozzles open is illegal at marina fuel docks (COMAR 26.10.01.20E and 26.10.03.07).
- ❖ Install automatic back pressure shut-off nozzles on fuel pump discharge hoses to automatically stop the flow of fuel into a boat's fuel tank when sufficient reverse pressure is created.
- ✧ Consider installing fuel nozzles that redirect blow-back into vessels' fuel tanks or vapor control nozzles to capture fumes.
- ❖ Maintain a supply of oil absorbent pads and pillows at the fuel dock to mop up spills on the dock and on the water.
- ❖ Place plastic or nonferrous drip trays lined with oil absorbent material beneath fuel connections at the dock to prevent fuel leakage from reaching the water.
- ❖ Post instructions at the fuel dock directing staff and patrons to immediately remove spilled fuel from the dock and water with oil absorbent material. Indicate the location of the absorbents.
- ❖ Place small gas cans in oil absorbent-lined drip pans when filling.
- ✧ Secure oil-absorbent material at the waterline of fuel docks to quickly capture small spills. Look for oil absorbent booms that are sturdy enough to stand up to regular contact with the dock and boats.
- ✧ Offer your services to install fuel/air separators on boats.

Supervise Fueling: Environmental Recommendations.

- ❖ Always have a trained employee at the fuel dock to oversee or assist with fueling.
- ❖ Train employees to clarify what the boater is asking for. For example, as your employee passes the fuel nozzle to the boater, have him or her say, "This is gasoline. You asked for gasoline."
- ❖ Train employees to hand boaters oil absorbent pads with the fuel nozzle. Request that boaters use them to capture backsplash and vent line overflow.
- ❖ Attach a container to the external vent fitting to collect overflow. There are products on the market that may be attached to the hull with suction cups. A rubber seal on the container fits over the fuel vent allowing the overflow to enter the container. Fuel captured in this manner can be added to the next boat to fuel.
- ❖ Instruct fuel dock personnel and boaters to listen to filler pipes to anticipate when tanks are nearly full.
- ❖ Encourage boaters to fill their fuel tanks just before leaving on a trip to reduce spillage due to thermal expansion and rocking, i.e., if the fuel is used before it warms up, it cannot spill overboard.
- ❖ If boaters prefer to refuel upon their return to port, encourage them to fill their tanks to no more than 90 percent of capacity.
- ❖ Instruct boaters to slow down at the beginning and end of fueling.
- ❖ Require boaters to stay with their craft during fueling.

Supervise Fueling: Safety Recommendations.

- ❖ Always have a trained employee at the fuel dock to oversee or assist with fueling.
- ❖ Remind boaters that gasoline vapors are heavier than air; they will settle in a boat's lower areas.
- ❖ Require all passengers to get off gasoline powered vessels before fueling.

The person fueling the vessel, generally the boater, is liable for all penalties associated with spilled fuel.

❖ Instruct boaters to:
- Stop all engines and auxiliaries
- Shut off all electricity, open flames, and heat sources
- Extinguish all cigarettes, cigars, and pipes
- Close all doors, hatches, and ports
- Maintain nozzle contact with the fill pipe to prevent static spark
- Inspect bilge after fueling for leakage or fuel odors
- Ventilate all compartments after fueling until fumes are gone

❖ Train dock staff to carefully observe fueling practices; make sure fuel is not accidently put into the holding or water tank.

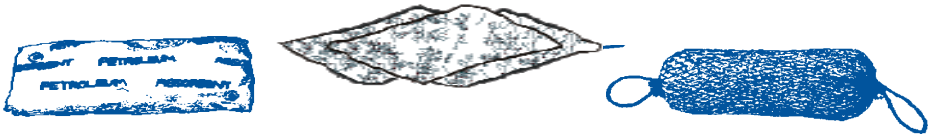
Box 2: Oil Absorbent Material

Oil absorbent pads, booms, and pillows absorb hydrocarbons and repel water. Depending upon the type, they may hold up to 25 times their weight in oil. These types of products are useful for capturing spurts at the fuel dock, cleansing bilge water, and wiping up spills in engine maintenance areas.

There are a number of new twists on basic oil absorbent materials. One variety of oil absorbent boom captures oil from the bilge and solidifies into a hard rubber bumper. Other types contain microbes that digest the petroleum. The oil is converted to carbon dioxide and water. Because the microbes take 2 to 3 weeks to digest a given input of oil, it is not appropriate to use these types of products for a spill of any significant size. Rather, they are designed to control the minor drips associated with routine operations. Care must still be taken that free floating oil is not discharged overboard.

Yet another type of oil absorbent product is a boom constructed out of oil absorbent polypropylene fabric and filled with dehydrated microbes. These booms hold the petroleum in the fabric until it is digested by microbes. Threats associated with free floating petroleum are thereby minimized.

How you dispose of used oil absorbent material depends on what type of product it is and how it was used:
- Standard absorbents that are saturated with gasoline may be air dried (away from spark/flame/heat) for safe disposal.
- Standard absorbents saturated with oil or diesel may be wrung out over oil recycling bins (if they are saturated with oil or diesel only!). Alternatively, they should be double bagged–one plastic bag sealed inside of another–and tossed in your regular trash.
- Bioremediating bilge booms may be disposed in your regular trash as long as they are not dripping any liquid. Because the microbes need oxygen to function, do not seal them in plastic bags.



Oil absorbent materials, such as pillows (left), pads (center), and booms (right) absorb up to 25 times their weight in oil while repelling water.

Turn Down the Pressure. Problems with backsplash and vent-line overflow are often due to the high pressure flow of fuel from the pump.

✧ Ask your fuel company representative to set the delivery rate to 10 gallons per minute, especially if you cater to small boats.

Advocate the Use of Oil Absorbent Materials.

❖ Distribute pads, pillows, or booms to your customers.

✧ Require tenants to use oil absorbent materials as part of your lease agreement.

Provide an Oil/Water Separator.

✧ Invest in a portable or stationary oil/water separator to draw contaminated water from bilges, capture hydrocarbons in a filter, and discharge clean water. The discharge from an oil/water separator must be sampled in accordance with the requirements of the General Discharge Permit for Marinas.

Offer Spill-Proof Oil Changes.

❖ Purchase a non-spill pump system to draw crankcase oils out through the dipstick tube. Use the system in the boat shop and rent it to boaters who perform their own oil changes.

❖ Slip a plastic bag over used oil filters prior to their removal to capture any drips. Hot drain the filter by punching a hole in the dome end and draining for 24 hours. Recycle the collected oil. Recycle the metal canister if practical. If not, dispose in your regular trash.

✧ Encourage the use of spill-proof oil change equipment as a condition of your slip rental agreement.

Minimize Spills and Leaks from Machinery.

❖ Use non-water-soluble grease on Travelifts, fork lifts, cranes, and winches.

✧ Place containment berms with containment volumes equal to 1.1 times the capacity of the fuel tank around fixed pieces of machinery that use oil and gas. The machinery should be placed on an impervious pad. Design containment areas with spigots to drain collected materials. Dispose of all collected material appropriately. Refer to the Waste Containment and Disposal section of this guidebook. If possible, cover the machinery with a roof to prevent rainwater from filling the containment area.

✧ Place leak-proof drip pans beneath machinery. Empty the pans regularly, being conscientious to dispose of the material properly (uncontaminated oil and antifreeze may be recycled).

✧ Place oil-absorbent pads under machinery.

Educate Boaters.

❖ Photocopy the Petroleum Control tip sheet from the back of this book and distribute to your customers. There is room to add your marina's name and logo.

Best Management Practices for Emergency Planning

Prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan.

◆ The Environmental Protection Agency's Oil Pollution Prevention Regulation requires that marinas prepare and implement a plan to prevent any discharge of oil into navigable waters or adjoining shorelines if the facility has an aggregate above ground storage capacity greater than 1,320 gallons.
Oil is defined in the SPCC regulations (40 CFR 112) as "oil of any kind or in any form, including but not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil and oily mixtures."

◆ The plan must address:
- operating procedures implemented by the facility to prevent oil spills,
- control measures installed to prevent a spill from entering navigable waters or adjoining shorelines, and
- countermeasures to contain, cleanup, and mitigate the effects of an oil spill that impacts navigable waters or adjoining shorelines.

◆ In some cases the SPCC plan must be certified by a professional engineer and in other cases facility managers can "self-certify" their plan. In other cases marinas may self certify their plans using a free template from the EPA. **Because the SPCC rule is subject to change, marina operators should visit epa.gov/oilspill/spcc.htm to view up-to-date rules and criteria.**

◆ The SPCC plan must be kept on-site for EPA review. If a single spill of greater than 1,000 gallons occurs or two discharges of 42 gallons or more occur within one year, a copy of the SPCC plan must be submitted to EPA Region III.

◆ **SPCC plans must be reviewed by the marina owner or manager at least every five years (40 CFR 112.5). A record of the review should be kept** in the beginning of the plan showing the reviewer's signature, date signed, and list of any changes. Major changes such as tank installations or removals require a formal amendment signed by an engineer.

❖ Use the template in Appendix VIII to create your SPCC plan.

Assess Hazards.

❖ Consider and plan for likely threats:
- fuel spill
- holding or water tank filled with gas
- spill at the storage area: used oil, antifreeze, solvents, etc.
- fire
- health emergency
- hurricane, etc.

Develop Emergency Response Plans.

❖ Develop written procedures describing actions to be taken under given circumstances. The plans should be clear, concise, and easy to use during an emergency, e.g., use a large type size. Each emergency response plan should contain the following information:
Where:
- In the very front of the plan, insert a laminated site plan of the facility showing valves, pipes, tanks, structures, roads, hydrants, docks, power and fuel shutoffs, hazardous material storage locations, and telephones.

- Describe where response material is located.

Who:

- Identify who is responsible for taking what action, e.g., deploying equipment, contacting emergency agencies, etc.
- Designate one person on the marina staff as the official spokesperson for the facility.
- Include a list of emergency phone numbers: U.S. Coast Guard's National Response Center (800) 424-8802, MDE's Emergency Response Division 866-633-4686, Maryland Poison Center (800) 492-2414, local fire and police departments, owner, neighboring marinas that have emergency response equipment, and spill response contractors (see Appendix VI).
- Include a brief description of each agency's jurisdiction and information about what type of equipment and services are available from neighboring marinas and spill response firms.

What:

- State what action should be taken during an emergency and, based on likely threats, what equipment should be deployed. Include information about what type of equipment is available on site and what its characteristics and capabilities are.
- Characterize the facility's waterfront and vessels.
- Describe the type, amount, and location of materials stored on site, e.g., petroleum and hazardous materials.

How:

- Explain how the equipment should be used and disposed.

When:

- Indicate when additional resources should be called for assistance.

❖ Update the plans annually to include any new technology or equipment and to confirm phone numbers.

❖ Use the outline in Appendix IX to create your emergency plans or obtain a copy of the Panic Preventer File for Marinas from Florida Sea Grant.

Make Plans Accessible.

❖ Keep copies of all Emergency Response Plans in a readily accessible location.

❖ Place a copy of the Oil Spill Response Plan (or SPCC plan if applicable) in the oil spill response kit.

Train Employees.

❖ Review plans and response procedures with staff at the beginning of each boating season.

❖ Train employees in the use of containment measures.

❖ Run emergency response drills at least twice annually.

✧ Invite the U.S. Coast Guard and local fire department to demonstrate emergency response procedures at your marina.

Share Your Emergency Response Plans.

❖ Inform your local fire department and harbor master, if applicable, about your emergency response plans and equipment.

✧ Let neighboring marinas know what resources are available at your marina.

Maintain Oil Spill Response Equipment.

❖ Maintain enough oil spill response equipment to contain the greatest potential spill at your facility.

❖ Store enough boom to encircle the largest vessel in your facility. Vessel length x 3 = required length of boom.

Store Oil Spill Response Equipment Smartly.

❖ Store the equipment where the greatest threat of an oil spill exists: fuel receiving and fuel dispensing areas.

❖ Store materials in an enclosed container or bin that is accessible to all staff–especially those who handle the fueling operations.

❖ Mark the storage site with a sign reading "Oil Spill Response Kit." Include instructions for deploying pads and booms and notification that all spills must be reported to the USCG at (800) 424-8802 and MDE at 866-633-4686.

✧ Consider leaving the storage container unlocked so that it is available to patrons, as well as to staff. If leaving the bin unlocked at all times is not palatable, try leaving it unlocked just on weekends and holidays when both activity and risk are greatest.

✧ If the bin is left unlocked, check the inventory regularly.

Box 3. Fuel Spill

What do you do when oil, gas, or diesel is spilled on the water?

1. Stop the flow.
2. Contain the spill.
3. Call the U.S. Coast Guard's National Response Center at (800) 424-8802 and Maryland Department of the Environment's Emergency Response Division at 866-633-4686.

Failure to report spills to the Coast Guard may result in civil penalties.

If less than a gallon is spilled and you clean it up immediately, the Coast Guard will probably not send anybody to your facility. The spill is still a violation, however.

Call the Coast Guard if a slick floats into your marina from an unknown source. The Coast Guard will clean up the spill with their own resources. They will also investigate and try to eliminate the source of the spill. You will not be held liable for a slick that did not originate at your facility.

Be Prepared for a Fire.

❖Meet the National Fire Protection Association's standards for marinas: NFPA 303, Fire Protection Standards for Marinas and Boatyards; NFPA 302, Fire Protection Standards for Pleasure and Commercial Motor Craft; NFPA 30A, Automotive and Marine Service Station Code; NFPA 307, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves; and NFPA 33, Standard for Spray Application Using Flammable and Combustible Materials.

❖ Be sure hydrants are available to allow for fighting fires throughout your facility.
❖ Install smoke detectors.
❖ Provide and maintain adequate, readily accessible, and clearly marked fire extinguishers throughout the marina, especially near fueling stations.
❖ Inspect and test all fire fighting equipment and systems regularly. Test fire extinguishers annually.
❖ Train personnel on fire safety and response: who to call, location of hydrants, use of portable extinguisher, etc.
❖ Provide ready access to all piers, floats, and wharves for municipal fire fighting equipment.
❖ Call the State Fire Marshal's Office at 800-525-3124 to schedule a "basic fire inspection." The inspection will determine whether you are meeting the state fire code, including hazardous material storage requirements.
✧ Invite the local fire marshal to visit your marina annually to train employees. These annual visits will also help the fire department to become familiar with your facility.

Maintain Safety Data Sheets.

◆ Keep a book of Safety Data Sheets (SDS) for all products staff use at your facility, as required by the Occupational Safety and Health Act of 1970 (29 USC Sec. 657). Store the book in an office away from material storage areas. Keep in mind during an emergency that this file will not tell you what quantity is on site or even whether all the materials listed are present.
❖ Inform the Local Emergency Planning Committee what materials you store and what is released when they burn.

File Community Right to Know "Tier Two" Forms.

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires that facilities that store 10,000 pounds or more of hazardous material--such as petroleum--report the quantity of the materials to emergency response agencies by March 1 of each year. The 'tier two reporting form' must be submitted to MDE, your local Emergency Planning Committee (LEPC), and your local fire department. Forms and contact information for LEPCs is available from MDE at mde.maryland.gov/programs/Businessinfocenter/CommunityRightToKnow/Pages/index.aspx or (410) 537-3800.

Information Sources

Appendix I

Florida Sea Grant College Program

Maryland Department of the Environment
- Emergency Planning and Community Right-to-Know
- Hazardous Waste Program
- Oil Control Program

National Fire Protection Association

State Fire Marshal's Office

United States Coast Guard

United States Environmental Protection Agency

Appendix VIII

Spill Prevention, Control and Countermeasure Plan

Appendix IX

Emergency Response Plans