



ENGINE MAINTENANCE AND REPAIRS

BENCHMARK

Prevent the discharge of pollutants during engine maintenance and repair.

ENGINE MAINTENANCE AND REPAIR BMPS

ON-SHORE MAINTENANCE AND REPAIRS

Engine maintenance and repairs should be done in a dedicated work area over



Yard signs
Photo credit: MEDEP

an impervious surface with no floor drain. The area must be kept dry and not “washed out” into the yard during cleaning. Waste oils, fuel, antifreeze then can be collected for proper disposal. The use of evacuating pumps will reduce the

spill potential.

Boatyard Bob Says . . .

“Use less toxic, non-hazardous solvents or water based cleaners for parts cleaning.”

“Professionally maintained parts washers can minimize parts cleaning waste.”

“Transport all recovered liquids closed containers, particularly when getting on and off the boat.”

“Spill prevention is easier and less costly than spill clean up.”

The following activities should be performed on-shore.

- Total engine rebuilds, cleaning or repainting.
- Disassembly of power head or lower unit.
- Activities that have a high probability of discharging; gas, oil, chemicals, or contaminants into the water.

Cleaning Engines with steam or solvents needs careful monitoring. A catch pan with oil absorbent pads will remove most of the oil from the water. Oily water needs to be disposed of as an oily waste. Solvents used to clean engines can result in hazardous waste contaminated rags and/or liquids. Substituting non-hazardous solvents will help



alleviate this problem. If it is necessary to perform work outside the designated work area a catch pan, lined with oil absorbent pads, should be used. The use of these pads will minimize clean-up time. Containers for waste fluids must be readily available for use.

Test Tank Maintenance

Outboard engine test tanks can become very contaminated with oil and gas from exhaust, drips or spills. Enzymes or beneficial bacteria can be added to the tank to digest the petroleum products (see resource guide Section 4). Wastewater from the tank needs to be treated the same as oily bilge water. It should be contained for proper disposal and NOT be discharged onto the ground or into the water.



Engine Work
Photo credit: Bunnell Marine Consulting

IN THE WATER ENGINE REPAIR AND MAINTENANCE

Limit activities performed in the water to routine engine maintenance: tune-ups, oil changes, and minor repairs. Engine replacement or removal must be monitored carefully to prevent discharge of engine fluids into the water. The bilge should be dry before service is begun and the bilge pump turned off. Oil absorbent pads should be used to catch spills. Any resulting oily water needs to be collected by a liquid waste hauler for proper disposal, and the bilge inspected and cleaned before the bilge pump is used.

STORAGE, HANDLING, DISPOSAL AND RECYCLING

Liquids

Store Waste Liquids:

- In separate, labeled, covered, containers. At least one for used oil, used antifreeze, contaminated gasoline etc. DO NOT mix gasoline with other petroleum waste.
- Within a secondary containment
- Secure or within a fence or building
- On an impervious surface
- In a clean area



Waste liquid storage
Photo credit: MEDEP



- Inspection for leaks or seepage needs to be done on a regular schedule, at least weekly.
- Use absorbent pads & catch pans under nozzles and containers

Liquid Disposal

- Most waste liquids can be removed by a licensed waste transporter.
- Oil absorbent materials such as booms & pads are to be disposed of as oil-soaked rags unless contaminated with gasoline. Gasoline soaked material must be managed as hazardous waste.
- Non-absorbent booms can be cleaned and reused.



Waste Oil Collection
Photo credit: Bunnell Marine Consulting

Used Oil

- Used oil can be recycled for re-refining or
- Burned in an approved waste oil burner. Waste oil burners do not require special licenses. Make sure the waste oil is not mixed with any other fuels.

Oily Bilge Water

- Oily bilge water must be collected and not discharged to the water or the ground.

- Oil absorbent pads in the container will help remove oil from the water.
- Only water that has no oil sheen or is not contaminated with any other substance can be discharged to the ground or the public sewer.

Used Anti-Freeze

Although it is toxic to people and animals, used antifreeze is not considered a hazardous waste unless it is contaminated with metals, benzene or other hazardous wastes. If the antifreeze is not hazardous waste:

- Collect and store like all liquid waste, then,
- Recycle, many commercial firms offer antifreeze recycling services.
- If hazardous, manage and dispose of as hazardous waste.



Waste Gasoline

Whenever possible, gasoline may be filtered and used again as gasoline product. Gasoline can be stored successfully for future use by adding a stabilizing compound to the fuel. If it cannot be used it is a hazardous waste and must be handled, stored and disposed of in compliance with Hazardous Waste Regulations.

- Containers must be labeled – “Hazardous Waste”
- Must be stored according to local fire code in the appropriate covered container
- Must not be allowed to evaporate
- Must not be discharged to surface waters, or poured on the ground
- Must not be poured in sewer or septic systems
- Must be managed as hazardous waste and removed by a licensed transporter.

Engines and Engine Parts

- Store under cover over an impervious surface
- Care should be taken to prevent petroleum fluid from leaking onto the ground

Oil Filters

- Filters should be drained while hot with the use of a funnel into a collection container or crushed.
- Drained or crushed filters should be recycled or collected, double bagged and disposed of as a solid waste.



Used Rags

- Used rags can be flammable and can spontaneously ignite They should be stored in an approved ignition suppressive container in a cool dark place.
- Rags saturated with “F” listed solvents, blended solvents, or solvents with a flash point of less than 140°F may be considered hazardous waste and must be handled accordingly. Rags that are not saturated with either an “F” listed waste or an ignitable compound would be considered to be non-hazardous, assuming no other characteristic is exhibited. Rag management is specifically addressed in Maine DEP’s “Solvent Contaminated Wipers Management”



guidance, please refer to that document for specific rag handling procedures. The wiper guidance can be found starting on page 3-50 of this manual and on the Brightwork CD.

- Rags contaminated with non-hazardous substances can be handled as non-hazardous wastes including laundering for recycling or re-use.

Used Lead-Acid Batteries



- The location and number of all batteries should be reported to the local fire department in accordance with the Emergency Planning Community Right to Know Act (EPCRA).
- Used batteries should be stored on an impervious surface and protected from freezing.
- Batteries can be taken to an approved recycling facility or the battery supplier may collect them for disposal at no charge.



- Broken batteries are considered hazardous waste and must be handled accordingly.

Mercury Lamps & Switches

- Spent florescent bulbs, mercury lamps, and mercury switches are universal wastes and must be managed as such, including careful storage to prevent breakage.
- Bilge pump float switches can contain mercury. Contact the manufacturer to determine if the particular switch contains mercury.
- These materials must not be sent for recycling except to facilities authorized to recycle universal waste.
- Switches containing mercury may remain in place if they are needed and are still working.

Spill Clean-up Materials

- Remove non-hazardous wastes such as oil, diesel or grease from absorbent booms, pads and rags by squeezing the rags over a container.
- Rags or absorbent materials then can be double bagged and disposed as solid waste.
- Spill cleanup materials and residue from hazardous waste spills (e.g. Gasoline, solvents etc) are considered hazardous waste and must be managed as such.





MANAGING SPILLS



Develop a contingency plan for each area where oil and hazardous waste materials are used or stored. Plans should include the following:

- Potential spill sources
- List of hazardous materials used or stored
- Prevention measures, - security, inspection plan, training, equipment
- Spill emergency procedures - Health and safety measures, notification information, spill containment, and control measures.
- A drainage plan showing the probable path the spill will travel.
- Emergency phone numbers.
- Location of spill containment and control materials.

DISPOSAL AND RECYCLING



Once waste is collected it must be properly disposed. If the material is regulated as a hazardous or universal waste ensure that the regulations are satisfied.

- Document the amount, type, date of material collected.
- Keep a record on how it was removed from the facility, when and to where.
- Recycle when possible. Switch to a product that is recyclable and equally effective if possible.
- Check with your local transfer station for recycling requirements.

CUSTOMER RELATIONS

It is in your interest to clearly communicate the proper management practices to boat owners who work on their own boat through written agreements and/or clear signage. The agreements may include the recommended use of certain products, may prohibit the use of hazardous materials, and should clearly state clean-up and disposal requirements. Providing used oil recycling stations, a designated work area and clean up materials will help your customers comply with the agreements. Remember, boatyards and marinas are ultimately responsible for all activities that take place at the yard, including work done on the boats by the boat owners.



LEGAL REQUIREMENTS

The following summaries of Federal and State laws and regulations are for general reference only and do not represent the laws fully. For a complete review of the pertinent laws and regulations use the references below to find either the complete text of the law or regulation or a detailed and complete summary in Section 2.

GENERALLY

Discharge of Pollutants to Water - 38 M.R.S.A § Section 413

Section 413 prohibits discharging (spilling, leaking, dumping) of pollutants into state waters without a license from the Department of Environmental Protection. Also prohibits the discharge of pollutants to the groundwater due to spilling or injection via an illegal floor drain. See page 3-33 or the Brightwork CD for more detailed regulatory information.

For additional information: Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111.

REPORTING REQUIREMENTS

Emergency Planning and Community Right to know Act (EPCRA) – Superfund Amendments and Reauthorization Act of 1986, Title III and

37-B M.R.S.A Chapter 13 §791-806

The Emergency Planning and Community Right to know Act (EPCRA) of 1986 established requirements for federal, state, local governments and industry regarding emergency planning and notification reporting on hazardous and toxic chemicals. The requirements include provisions to increase the public's access to information on chemicals at facilities, their uses and any releases to the environment. The reporting requirements are also very important for the safety of local emergency response personnel (fire, police and rescue).

The EPCRA and state laws require that a facility submit to the local and state emergency planning organizations: 1) copies of all or a list of material safety data sheets (MSDS) for chemicals or any “extremely hazardous substance” used at the facility that are present on the property over the reportable quantity 2) chemical inventory reporting forms for those chemicals noted above and 3) facility emergency response plans for any extremely hazardous substance present over the threshold planning quantity. Some chemicals may trigger only one-time reporting, while others may trigger annual reporting. The laws require fees to be submitted on an annual basis depending on reporting requirements and quantities.



For marinas and boatyards, the most common extremely hazardous substances or hazardous substances that would exceed reportable quantities are: sulfuric acid (about 5 lbs. in each series 24 battery), and gasoline, diesel or fuel oil. If you have more than 200 regular car size batteries at your facility, you probably trigger the planning threshold for sulfuric acid and are required to submit a facility emergency response plan to your emergency planning organizations. However, if you have lots of consumer-sized batteries that are in use (in the boats) you may subtract the sulfuric acid volume from your total for determining whether you must submit an annual report on sulfuric acid. If you have more than 1557 gallons of gasoline, or diesel or fuel oil (not cumulative) stored on site (including gas tanks in boats) then you must submit an annual report and registration fee and perhaps an inventory fee).

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information or, Maine Emergency Management Agency, attn: SERC 72 State House Station, Augusta, ME 04333-0072, phone # (207) 626-4503 or 1-800-452-8735

WASTE EQUIPMENT AND MATERIAL DISPOSAL

Hazardous Wastes Regulations - Maine Hazardous Waste Management Rules Chapters 850-857.

These rules are the State's equivalent to the Federal Resource Conservation and Recovery Act (RCRA) and provide for "cradle to grave" management of hazardous waste. All facilities that generate hazardous wastes (see glossary) must manage any waste identified as "hazardous" in accordance with the rules and standards.

Most cleaners and solvents associated with engine work are identified as hazardous either by characteristic, primarily ignitability, or because they are an "F" listed hazardous waste including acetone, toluene, xylene, Methyl Ethyl Ketone (MEK), and ethylbenzene. Some paints contain high amounts of lead or other metals which would trigger the identification of the waste as hazardous by the toxicity characteristic. Waste generated from cleanup, including rags, will be hazardous if it is contaminated with a listed waste or is saturated with another ignitable compound. However, if the rags are not saturated with either an "F" listed waste or an ignitable compound they would be considered to be non-hazardous, assuming no other characteristic is exhibited. Rag management is specifically addressed in Maine DEP's "Solvent Contaminated Wipers Management" guidance, please refer to that document for specific rag handling procedures. The wiper guidance can be found starting on page 3-50 of this manual and on the Brightwork CD.

However, If the rags are not contaminated with listed hazardous waste, and are not saturated with an ignitable compound they would be considered to be non-hazardous, assuming no other characteristic is exhibited.

A subset of the Hazardous Waste Rules contains the requirements for universal wastes. These wastes, including mercury lamps and mercury switches, must be sent for metal



recovery in accordance with these rules. Special recycling facilities recover the metals (mostly mercury) from these wastes.

For additional information: See page 3-40 or the Brightwork CD for more detailed regulatory information. Contact information below.

Solid Waste Regulations – CMR Chapter 400 (1) III, Hhh, Nnn, and CCcc,

The Solid Waste Regulations classify non-hazardous waste materials and specify their appropriate disposal. Waste materials that are not identified as “hazardous” must be disposed of properly as either special or solid waste. Most wastes resulting from boatyard or marina activity can be classified as solid waste.

For additional information: See page 3-40 or the Brightwork CD for more detailed regulatory information. Bureau of Remediation and Waste Management, Maine Department of Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651