

# JOBS AND PRACTICES

*you to be in compliance and protect the environment..*

## What to Look For

Job Description – This is the job, or process, that is going to be addressed.

Benchmark – This is a concise summary of the environmental standards made relevant to this job.

Boatyard Bob Says – These are tips to help you reduce waste, reduce labor, save money, or go beyond basic compliance.

The “Heads-Up” Icons – These notify you of potential issues.

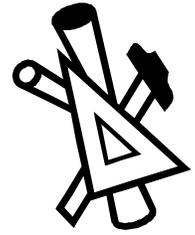
I C O N   K E Y	
	Planning Required
	Health and Safety Issues
	Testing Required
	Permitting, Reporting Record keeping Required
	Recycling Opportunity

Job BMPs – These are way(s) to do the job that will ensure you are in compliance with applicable laws and rules and prevent pollutants from getting into the environment.

Clean Up and Waste Disposal – If there are any particular issues relating to job clean up or waste disposal, they will be noted here.

Customer Relations – This segment provides reasons and ways to help your customers understand the regulatory requirements and why you have to do certain things and charge them for it.

Legal Requirements – These are brief summaries of the relevant laws and regulations.



# HULL PREPARATION

## Benchmark

Require the capture of particulates to the maximum extent practicable given current technology, with no visible escape and/or buildup.

## HULL PREPARATION BMPS



Photo credit: MEDEP

The scraper chips and sanding dust (debris) generated when preparing a boat for repainting or repair may contain toxic compounds. Dropping or spilling hull preparation debris into the water is prohibited. Sanding dust should not be allowed to become airborne or otherwise leave a containment area. Bottom paint dust particularly is considered a pesticide and must be handled accordingly.

### Indoor Hull Preparation



When possible, hull preparation should be performed indoors over an impervious surface. The dust and chips should be cleaned up periodically to prevent the dust from being tracked outside and minimize slipping.

### Vacuum sanding

Vacuum sanders are a very effective BMP for capturing paint dust and eliminate the need for a tarp or screen enclosures if working outdoors. Vacuum sanders also increase the speed with which a boat bottom can be completely sanded, significantly reduce clean-up time, and reduce worker exposure to toxic materials.

Be sure that the sander is plugged into a ground-fault-interrupting plug to ensure the safety of your workers.

### Boatyard Bob Says . . .

“Carefully prepare the surface before painting, reducing the amount of hull preparation necessary every year.”

“Recommend to your customers and use paints that are appropriate to the climate and use of the boat preventing unused toxics from entering the environment.”

“Using water based or low-risk coatings and solvents with low volatility will avoid many potential hazardous waste and air emissions issues.”



## Outdoor Hull Preparation



If working outdoors with a non-vacuum sander or with any other techniques where the dust and chips are not controlled, perform work over an impervious surface that enables easy clean up and will prevent residue from washing or falling into the water, inter-tidal zone or onto the soils. When sanding, prevent dust from becoming airborne by using a tarp or screen (see sandblasting section for specifications) containment system over the impervious surface.



Hull work outside  
Photo credit: Bunnell Marine Consulting

The enclosure should be as stable as possible with tarps, screens or plastic sheeting and weighted down the bottom edges to keep them in place. When using a non-vacuum sander in an enclosed space such as in a building or within a tarp enclosure, care should be taken to have appropriate respiratory protection for the worker.

## Hull Preparation Over Water

When performing hull preparation from open floats, use tarps between the work area and the water to collect any debris. The use of vacuum sanders is strongly recommended as setting up tarp enclosures or screens over the water is very difficult. Hull preparation of vessels in water should generally be limited to interior surfaces and other work inside the rails, where dust and debris can be contained and prevented from entering the water.



When working over water, if dust could be generated, the work area should be tarped  
Photo credit: MEDEP

## CLEAN-UP

Clean up immediately at the end of a hull maintenance activity, at the end of the day and before a predicted rainstorm by sweeping or vacuuming the work area and collecting and disposing of the waste. Spent paint dust, scrapings, and debris must be stored in a covered container until appropriate disposal can be arranged.

## DISPOSAL



The collected paint dust, grits, chips and other paint drips or spills must be securely stored in a covered and labeled container and saved for proper disposal.



A representative sample of this waste material must be collected for testing by a qualified laboratory. The required analysis is Toxicity Characteristic Leaching Procedure (TCLP) for Resource Conservation and Recovery Act (RCRA) Metals (EPA test method 1311, 6010-B or 7000). Proper characterization of this waste usually



requires a minimum of one composite sample. If the results of the analysis indicate the waste is hazardous, then the waste must be disposed of as a hazardous waste. If the results indicate it is non-hazardous, then the waste must be disposed of as a special waste. Keep records that document the volumes of waste material generated on site and the level of toxins contained.

## 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 vacuum sanders, dropcloths, and screens for rent 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.



Customer sign on hull preparation. However, the paint debris should NOT be thrown in the dumpster, it should be collected and disposed of as special waste. Photo credit: MEDEP

## 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. See page 3-33 or the Brightwork CD (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.

### PAINT REMOVAL

Antifouling Paint Labels FIFRA Section 12 (a)(2)(G) and 7 MRSA § 606 (2)(B)  
Because all antifouling paints are pesticides, their container labels are enforceable legal documents that require general and specific management practices for preparing



surfaces, application, storage and disposal of the paint. See page 3-50 or the Brightwork CD for more detailed regulatory information.

For additional information on pesticide issues: Board of Pesticide Control, 28 State House station, Augusta, ME 04333, phone # (207) 287-2731 or [www.thinkfirstspraylast.org](http://www.thinkfirstspraylast.org)

## **WASTE PAINT DUST AND DEBRIS 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.

In addition to the dry paint wastes that may be hazardous for TCLP metals, most cleaners and solvents associated with painting 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. Waste generated from cleanup after painting, including rags, may be hazardous if they are contaminated with a listed waste or 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.

DEP views solvent/resin wastes as hazardous waste, and treatment of such waste, including useless resins, or bad batches, by deliberate polymerization treatment (solidification) for the purpose of disposal is prohibited unless licensed by Maine DEP. Incidental polymerization of small amounts of catalyzed resins left over from applications is acceptable without a license, as long as the resin is completely solidified in small quantities (i.e. less than pint size or less 2 inches thick) such that there is no residual resin or solvent left.

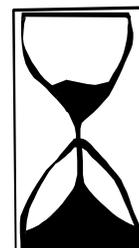
For additional information: See page 3-40 or the Brightwork CD for more detailed regulatory information. Contact information below.

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. However, non-liquid paint waste (dust and debris) is specifically identified as special waste. Wood or cured



fiberglass debris from boat repair is normally classified as demolition debris, contact your local transfer station for proper disposal.

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.



# SANDBLASTING

## BENCHMARK

Require the capture of particulates to the maximum extent practicable given current technology, minimizing escape and/or buildup of particulates outside the containment structure. In order to contain the particulates, the containment screen must meet the following minimum specifications:

Tensile Strength (ASTM D-1682 grab method)	Warp: 420 lbs.    Fill: 210 lbs.
Burst Strength (ASTM D-3786)	465 lbs./ square inch
Apparent Opening Size (#60-70U.S. sieve)	0.245-0.212mm
Water Flow Rate	20 gal/sq. ft./minute
Weight (ASTM D-3776)	6.4 oz./square yard

## SANDBLASTING BMPS

The particulates and dust generated when sand blasting boats may contain metal compounds including copper, lead or other heavy metals that are toxic to marine life and may be considered hazardous waste. Sandblast dust should not be allowed to leave a containment area.



Ideally, sandblasting should occur indoors within a walled booth that ensures the containment of the blasting material and the residue. If unable to conduct sandblasting indoors, all sandblasting will be performed over surfaces (concrete, plywood, plastic, etc.) which

will prevent sand or residue from washing or falling into the water, inter-tidal zone or onto the soils. Screens or tarps should be installed around the area to be sandblasted and must completely enclose the work area. They should be securely fastened all around including fastened to the deck in order to contain the maximum amount of residue possible.

Boatyard Bob Says. . . .

“Use alternative or recyclable blasting media, reducing the volume and cost of disposal.”

“Keep records of the volume and type of wastes generated to help you identify waste.”

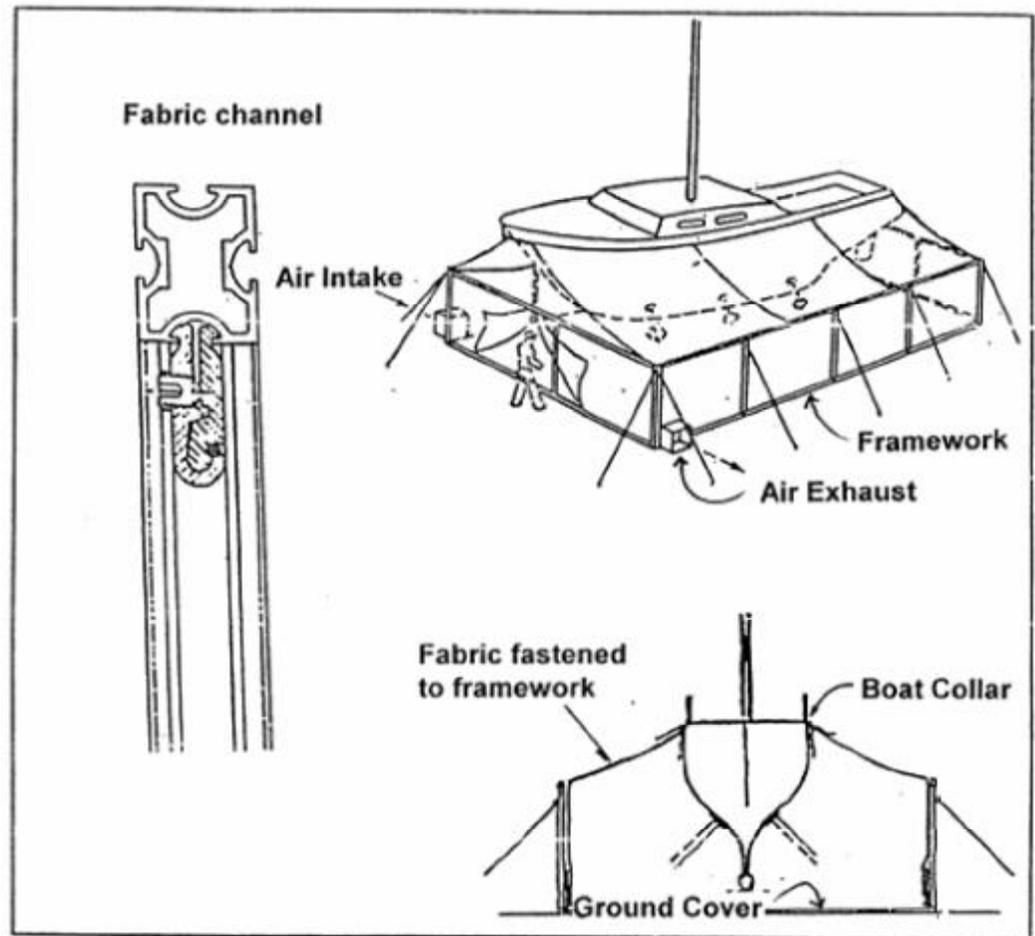


Tarpping for sandblasting  
Photo credit: Rockland Marine

The tarps should trap 95 % or more of all sanding dust emission. On windy days, the blasting should either be stopped or be closely monitored to prevent residue from escaping the



containment area. During the sandblasting operations the screens and/or tarps must be checked and adjusted as needed for maximum containment.



Example of sandblasting/ spray painting shield system.  
Source: Pier Pressure Marine Systems, Inc.

#### CLEAN-UP

Clean-up immediately at the end of the sand blasting activity, at the end of the day or before a predicted rainstorm by sweeping or vacuuming the work area and disposing of the waste appropriately..

#### DISPOSAL

The collected spent grit and residue must be securely stored in a covered and labeled container and saved for proper disposal.



A representative sample of spent grit and residues must be collected for testing by a qualified laboratory. The required analysis is TCLP - Toxicity Characteristic Leaching Procedure for RCRA Metals (EPA test method 1311, 6010-B or 7000). Proper



characterization of this waste usually requires a minimum of one sample composited from each boat project or one composite sample per 100 cubic yards of waste if more than 100 cubic yards are generated from any one project. If the results of the analysis indicate the waste is hazardous, then the waste must be disposed of as a hazardous waste. If the results indicate it is non-hazardous, then the waste must be disposed of as a special waste. Keep records that document the volumes of waste material generated on site and the level of toxins contained.

## 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 § 413

Section 413 prohibits discharging (spilling, leaking, dumping) of pollutants into state waters without a license from the Department of Environmental Protection. 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.

Discharge of Pollutants to the Air - 38 M.R.S.A § 592-A (1) and § 590

Section 592-A prohibits the particulates soiling property, including your own, that is accessible to the public and the creation of a nuisance condition. A nuisance condition can be roughly described as airborne particulates resulting in 20% opacity, or enough particulates in the air to reduce visibility by 20%. Section 590 prohibits the discharge of over 10 lbs. an hour or over 100 lbs. per day of particulates, before containment, without a license.

For additional information: For additional information: See page 3-39 or the Brightwork CD for more detailed regulatory information. Bureau of Air Quality Control, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2437.



## **SPENT SANDBLAST GRIT AND OTHER WASTE 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. Sand blast grit must be tested utilizing the TCLP test for RCRA metals to determine if it is a hazardous waste. If found to be a hazardous waste, the sand blast grit must be managed and disposed of in accordance with the Hazardous Waste Management Rules. When sand blasting paints that contain lead or other heavy metals, the resultant sandblast grit is frequently hazardous waste.

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, Nnn

If the sand blast materials have been determined to be non-hazardous wastes then the Solid Waste Regulations specify their appropriate disposal. Sandblast grit is specifically identified as a special waste unless a representative test indicates that it fails the toxicity characteristic (see hazardous waste above).

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 Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651.

*We understand that compliance is work and that it does have a price, but we are reminded over and over by businesses like yours that clean water is god for business.*



# PAINTING

## BENCHMARK

Prevent paint and solvents and spray drift from getting into the intertidal zone, water or air to the maximum extent practicable.

## PAINTING BMPS

Spills and drips of paint or solvents into the water or onto the ground are prohibited, and best management practices should be implemented to eliminate them. Where practicable, painting should be done indoors, or under a roof and over an impervious surface or a drop cloth to facilitate spill or drip clean-up.

### Painting Outdoors

Whenever possible, apply paint with a brush or roller. Use tarps or perform over an impervious surface to facilitate the collection of paint drips and to prevent paint from washing away when it rains. The bottom edges of the tarps and plastic sheeting should be weighted down to keep them in place.

### Spray Painting Booth or Enclosed Spray Area



A spray booth or enclosed spray area should be used to facilitate the capture of any overspray or partially cured or dried particles during spray painting. However, paint fumes may concentrate in a spray booth or spray area and can represent a hazard to the employees. Booths or areas must meet the local building and fire code requirements and must ensure adequate ventilation for people working in them. Access to booths should be limited to employees fitted and trained with proper respiratory protection equipment, as may be required by Occupational Safety and Health (OSHA) standards. Paint guns used in spray booths or areas should be either High Velocity Low Pressure (HVLV) or High Efficiency Low-Pressure (HELP) types, which are rated at least 65% efficient paint transfer. Filters on the exhaust vents help prevent particles from escaping the booth or area. Equipment used inside the booth or area must be explosion proof.

### Boatyard Bob Says . . .

“Using water based or low-risk coatings and solvents with low volatility will avoid many potential hazardous waste and air emissions issues.”

“Use bottom paints that are appropriate to the climate and use of the boat, and recommend that your customers do the same.”

“Carefully control inventory and use small paint pots to minimize waste paint and solvents.”



## Spray Painting Outdoors



If unable to conduct spray painting in a spray booth or spray area, then the boat being worked on should be over an impervious surface to prevent residue from washing or falling into the water, intertidal zone, or soils.

Screens or tarps should be installed around and must completely enclose the work area. The enclosure material should be securely fastened in order to contain the maximum amount of paint possible. The tarps should trap 95 % or more of all emissions. Employees working within the containment area may be required by OSHA to be fitted and trained with proper respiratory protection equipment. On windy days, the painting should either be stopped or be closely monitored to prevent paint from escaping the protected area.

## Painting Over Water

Painting and varnishing of vessels in water should generally be limited to work within the rails, where paint materials and spills can be contained and prevented from entering the water. When painting from open floats, paints should be kept in cans of one quart or less. The paint cans should be kept in drip pans with drop cloths or tarps underneath the drip pans. Paint and solvent mixing, brush cleaning and similar activities should not be conducted over the water, but should be done in an on-shore work area. A drip containment system shall be provided when painting overboard.

## CLEAN-UP AND DISPOSAL

Cleaning paint brushes, rollers or guns has the potential to generate large amounts of hazardous or special wastes. Minimize waste production by using separate cans of cleaner that are graduated in purity and reusing the cleaner in successive steps. By letting the cleaning solvent settle and decanting off the clean solvent, you can re-use the solvent indefinitely. Cleaning of spray guns should be done in an enclosed gun cleaner/solvent recycling machine. Solvent recycling machines must be licensed by the DEP.

Boatyard Bob Says . . .

“Re-use brush cleaner many times, using progressively cleaner pots of solvents”

“Keep records of the volume and type of wastes generated to help you identify waste.”

Spent painting equipment, rags or other debris may be flammable and can spontaneously ignite. Rags should be stored in an approved ignition suppressive container in a cool dark place until such time as disposal is appropriate.



If the rags are dripping wet with listed hazardous waste, such as listed "F" solvents (e.g. toluene, xylene, MEK, etc.), or unlisted or blended solvents with a flash point of less than 140°f, or are dripping wet with a corrosive compound then the rags are considered hazardous waste. 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.



Separate and store generated wastes in secure, labeled, covered containers and dispose of appropriately. Hazardous waste has special requirements for accumulation, and storage (90- or 180-day limits) and disposal (via a licensed hazardous waste transporter documented by a manifest).

#### 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 specify certain practices, recommend the use of certain products, prohibit the use of hazardous materials, and should clearly state clean-up and disposal requirements. 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

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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.



## **PAINT APPLICATION**

Antifouling Paint Labels FIFRA Section 12 (a)(2)(G)

Because all antifouling paints are pesticides, their container labels are enforceable legal documents that require general and specific management practices for preparing surfaces, application, storage and disposal of the paint. See page 3-50 or the Brightwork CD for more detailed regulatory information. Contact information below.

Antifouling Paint Application 7 MRSA § 606(2)(B) CMR 01 026 Chapter 22

Specifically, be sure to follow the Board of Pesticides Control drift laws and regulations when spraying antifouling paint or wood preservatives. See page 3-50 or the Brightwork CD for more detailed regulatory information. Contact information below.

Prohibition on the use of Tributyltin 38 M.R.S.A §419-A

The use of tributyltin (TBT) is generally prohibited but boatyards may receive permission to apply it if application is performed by licensed pesticide applicators (see below) on aluminum vessels or other vessels greater than 25 meters in length. See page 3-50 or the Brightwork CD for more detailed regulatory information. Contact information below.

Pesticide Applicator's License - 38 M.R.S.A. §258-A, Sec.1471-D and CMP 01 Chapter 10 & 31.

The application of TBT (tributyltin) paints requires a commercial pesticides applicator license from the Board of Pesticides Control. A record of these applications must be kept according to CMR 01 Chapter 50 and should be kept for a minimum of 2 years. The commercial applicator/operator certification is the license required for individuals that apply TBT antifouling paints. The Board of Pesticides Control has regulations regarding the drift of pesticides (CMR 01 026 Chapter 22) that need to be followed. See page 3-50 or the Brightwork CD for more detailed regulatory information.

For additional information on all pesticide issues issues: Board of Pesticide Control, Department of Agriculture, 28 State House station, Augusta, ME 04333, phone # (207) 287-2731 or [www.thinkfirstspraylast.org](http://www.thinkfirstspraylast.org)

## **PAINT STORAGE**

Unused paint may contain flammable and/or toxic material and should be stored appropriately. Anti-fouling paint is a pesticide and must be stored in accordance to label directions.



## **WASTE PAINT 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 painting 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 after painting, 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.

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. However, some wastes like non-liquid paint wastes like dried paint residue, clean up materials, and brushes generated during painting or refinishing are specifically identified as special 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 Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651.



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# BOAT WASHING

Section to be added soon

















# 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 an impervious surface with no floor drain.



Yard signs  
Photo credit: MEDEP

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, a 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.

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 Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651



# STORMWATER AND PLANNING

## STANDARD

**Minimize sediment and pollutant discharge into the water from shoreside infrastructure construction and maintenance activities.**

## STORMWATER OVERVIEW



Steep slope and parking/storage area  
Photo credit: MEDEP

Marinas and boatyards are at a particular disadvantage when it comes to stormwater management due to their normal proximity right on the water. Any pollutants generated at the site will eventually reach the water. Because of this all facilities must pay particular attention to stormwater issues and most facilities are required to obtain a NPDES Multisector Stormwater General Permit (see Legal Requirements at the end of this section). In 2005, the Maine DEP is assuming full jurisdiction of the NPDES stormwater program and will be responsible for the administration of the multisector general permit process.

## GENERAL BMPs



Stormwater transports 40-60% of pollutants from the land to the water. Good housekeeping, planning and management of boatyard and marina stormwater can reap huge environmental, safety and financial benefits. Thoughtful planning about drainage, shoreline stability, road and ditch maintenance, and building layout can dramatically reduce pollutant movement into the water. Following these BMPs will help you plan and manage stormwater and maintain an attractive and safe facility and will ensure you are prepared for the multi-sector stormwater permit process (see legal reference).

Erosion (the loss of soil through a force on the soil's surface, such as wind, water or heavy use) and sedimentation (the deposition of eroded soil) is the primary pollutants source. There are many erosion and sedimentation control BMPs. Some are outlined briefly below. Further detail is available in *Maine Erosion Control and Sediment Control: Best Management Practices* (March 2003), see CD-ROM. To select the appropriate BMPs, site-specific activities, site layout, and the potential pollution sources must be evaluated.



## The Master Plan



Potential pollutants that are carefully managed will not be available to run off in a rain storm. Understanding your facility's site is essential for effective stormwater management. Assessing your facility's topography, existing buildings and roads, existing groundcover and soil types; and working with the site, rather than against it. Building placement and road layout can make the existing drainage issues better or worse. Basic site characteristics should be identified and understood before evaluating any further changes. Therefore, an overall master plan for your facility is essential to a coordinated and thoughtful approach to stormwater management. The master plan must contain the site map and drainage plans with the addition of traffic patterns, solar and wind patterns, and any fixed structures. These maps and plans are necessary for your multi-sector stormwater permit application. Finally, a business plan will identify patterns and goals for reorganization or redevelopment.

### Boatyard Bob Says . . .

“Stabilize areas of bare soil with vegetation, riprap, permanent mulch or pavement.”

“Staggering buildings will reduce “wind tunnels” and “aqueducts”.

“Careful building orientation can reduce erosion, make snow removal easier and make the workplace naturally safer.”

The BMPs provided in the rest of this manual and the ones outlined below will go a long way to minimizing your exposure in storm events but will be more effective if they are part of an integrated plan.

## The Site Map and Drainage Plan



The first step in determining how to best manage stormwater from your property is to develop a facility map and drainage plan. This is also one of the most important requirements of the stormwater permit process. After your drainage plan is complete, the areas that are unstable or potential pollutant sources should be obvious. The base map can be done by hand using graph paper, or enlarged aerial photographs and does not need to be to scale (please note if it is not). The site map and drainage plan should include any area which may be exposed to stormwater (precipitation or runoff) including:

- All roads into, around and through the property,
- All buildings and docks;
- All significant pollution risks, such as outside fuel tanks, fueling areas, outside waste disposal, maintenance areas (including painting, sanding, blasting, welding, metal fabrication or fiberglass work), equipment/material storage, outside boat or engine maintenance areas etc.,



- General types of groundcover (i.e. asphalt, gravel, grass)
- The type of shoreline around a facility (i.e. natural vegetation, stone riprap, seawall, timber-crib)
- Orientation reference (North arrow)
- Once your base map is completed, make several copies in order to always have a clean copy should you need it. The easiest way to add the drainage patterns to your drainage plan is to observe where water flows during snow melt or a significant rainstorm. Make sure to note:
  - Run on/runoff from other properties or roads;
  - The relative volume and velocity of the runoff. Using different size arrows with a notation of S(low), M(oderate), or F(ast) works well.
  - Direct run-off from roofs.
  - Any run-off that looks particularly dirty and its source.
  - Any dirt plumes in the waterbody and their source, or any actively eroding shoreline.

The following sections will address typical problem areas in detail.

## SHORELINE STABILIZATION

Shorelines are under constant attack from wave action, fluctuating water levels, tidal currents, storm surges and boat traffic. Examine your property to determine what forces are at work. Slowly eroding shorelines may be able to be stabilized with vegetation, otherwise, riprap will be needed. The following factors need to be considered before selecting the appropriate stabilization:

**Fetch:** The distance of open water wind can blow across before reaching your property will determine the size of the waves generated.

**Shape of Shoreline:** Coves or headlands often have different needs.

**Boat Traffic:** The number of boats that travel along the shore and their distance from the shore influences the type of shoreline stabilization you need.

Boatyard Bob says . . .

“Rising sea level? Stabilizing your shoreline will help prevent valuable land area loss.”

“Take action before it is too late, inspect and repair your shoreline after every major storm, BUT, get the appropriate NRPA permit if a major repair job is necessary.”



Potential Width of any Planting Area: Buffer strips, infiltration areas, and shoreline stabilization need to be at least 5 to 10 linear feet wide to be effective.

### **CHOOSING A STABILIZATION METHOD**

Consider the following factors when choosing a shoreline stabilization method.

Vegetation is the first choice for shoreline stabilization because it absorbs wave action, filters pollutants, slows run-off, and provides habitat for wildlife. Vegetation works best when:

- The fetch is less than ½ mile.
- The area is in a cove.
- Less than 10 boats per week going fast enough to create a wake travel within ½ mile or the shore.
- There is a natural beach with existing vegetation greater than 10 feet wide above the mean high tide.
- The planting area is greater than 10 feet wide.



Well maintained gravel yard  
Photo credit: Bunnell Marine Consulting

Riprap is effective when:

- The shore is eroding due to wave scouring and wave impact.
- The shore does not have erosion issues due to seepage or soil instability.
- A combination of riprap and plantings is used.

No riprap can be installed or repaired along the rivers, ponds, lakes, or the ocean without permission from the DEP and Army Corps of Engineers.



Parking lot runoff  
Photo credit: MEDEP

#### Maintenance

No shoreline stabilization is maintenance free. Inspect the slope in the spring, in the fall, and after severe storms for slumping, sliding, or seepage problems. Replace any plants that have died and reseed if needed. If you need to provide any nutrients bury them next to the root zone of the plants and apply the very minimum. Correct any problems immediately. Severe slumping or sliding may indicate that the slope is failing due to forces other than wave impact. Make a careful inspection of the land to the side of any riprap area. Near the riprap edge, erosion may be accelerated by wave



reflection from the stone. If this is the case, additional measures may be necessary to halt the erosion. Contact an engineer or your county Soil and Water Conservation District if you have concerns.

## ROADS AND DITCHES

### GRAVEL ROADS

Roads and driveways are big contributors of water runoff and surface water pollution. Much of the gravel from gravel roads has the potential to be washed into waterways with every major storm. If you find you have to add gravel to your road regularly, or consistently have ruts, “washboards”, or potholes developing, you need to manage the water on the road better, perform more regular maintenance such as crowning the road and/or choose to pave the road.

If the gravel or dirt road surface gets severely damaged with heavy rainstorms or spring thaw or runoff, or it needs year round maintenance, evaluate your road surface material. Gravel can vary tremendously in its ability to compact, drain, and reduce erosion and different parts of the road have different gravel requirements. If your gravel is appropriate and other measures fail to fix the erosion, consider a more permanent asphalt surface. If an asphalt surface is required, a modified water bar can be installed that will be low enough to be plowed, but will still divert rainwater during average storms.

#### Maintenance

Grading operations should be performed as soon as potholes or gravel loss is visible. Grader berms at the edge of the road prevent water from flowing off road and so take care to allow free drainage to the woods or buffer areas.

Dig out road ditches in the late spring, summer or early fall when vegetation in the ditch can quickly grow to stabilize the gravel and dirt.

Pay attention to chronic road erosion problems. Fix the cause, not the symptom.

Additional details on the construction and maintenance of gravel roads may be found in the “Camp Road Maintenance Manual, a Guide for Landowners” developed by the Kennebec County Soil and Water Conservation District and the DEP. It is available from the DEP at no cost.

#### Grading and Crowning

Ensure that water spends as little time as possible on your road by properly crowning or grading its surface. Crowning a road



Road grading and crowning  
Photo credit: MEDEP



means creating a high point in the middle sloping gradually to either side. Insufficient crowning will allow water to puddle on the surface leading to potholes and weakening the road base making it susceptible to rutting. Crowns are effective when:

- The road surface is higher than the surrounding ground level.
- Level or gently sloping roads have a crown of ¼ inch per foot.
- Steeper roads have a crown of 3/8 inch per foot.
- The road slopes smoothly into the ditch.

Regular annual grading of the surface material helps maintain the crown, eliminates potholes, and facilitates water getting off the surface of the road. Be sure to eliminate the “lip” that can form on the outside of the grader.

#### Water Bars or Open Culverts

On sloping roads, excess water on the surface of the road causes rutting and loss of road material. Make sure you eliminate run-off from other roads first. Excess water from the road itself can be managed by installing water bars or open top culverts, structures that are installed in (or on) the road that divert water off before it can erode the surface. Water bars can be small earth dams (like speed bumps), upright rubber strips or even partially buried logs that are installed at regular intervals at an approximate 30 degree angle and force water off the road, out of ditches, and into the woods (or buffer strip area). Open top culverts are usually 3 sided wood structures installed in the road like an interceptor ditch, also at an angle, and divert the water off the road and out of the ditches. Both of these methods must be evaluated carefully before installing and may not be useful on roads that have to be plowed in the winter.

#### DITCHES

Use permanent ditch linings (rock or vegetative ground covers) to keep ditches from eroding. The linings protect the soil and provide an erosion-resistant surface against which the water can flow. Large flows, groundwater seepage, and soil conditions can make selection and design of a permanent lining difficult.

#### Rip-rap or Vegetation?

In general, use a riprap lining instead of a vegetative lining when the following conditions exist:

- The slope of the ditch is greater than 3 (horizontal) to 1 (vertical).
- There is prolonged wetness, or groundwater seepage;



- People, animals, or vehicles travel through or across the ditch;
- The soil is clay or silt or other soil types where vegetation cannot become established; or
- The lining must be installed after the growing season.

#### Vegetation lined ditches

##### Vegetation lined ditches work best when:

- The slope is less than 3 to 1.
- Mulch fabric is used to line the ditch while the vegetation is growing.
- The ditch is mulched and seeded immediately after construction.
- The seed mixture used contains both annual and perennial grasses and other plants that develop extensive root systems.
- The ditch will be mowed at least once per year.



Riprap lined ditch with water breaks  
Photo credit: MEDEP

#### Riprap lined ditches

##### Riprap lined ditches work best when:

- The slope is greater than 3 to 1.
- A well-graded mix of durable stone is used.
- Filter fabric or a gravel bed is used under the stone.
- The surface soils on the ditch bottom and side slopes is compacted before the filter fabric and stones are installed.
- The stone is installed carefully to avoid puncturing the filter fabric or tear it away from the side slopes.
- The final grading is done by hand to fill in voids, completely cover any filter fabric, and create a uniform surface.

#### Ditch Maintenance

A maintenance program should be established to maintain the ditch's capacity and cover. Check the ditch in late spring and fall for slumps and fallen stones.



Repair any slumps immediately. Replace stones on areas where the filter fabric is showing through or when the stones are buried with sediment.

Mow vegetated waterway at least once annually. When practical, delay mowing until after July 15 to accommodate ground nesting wildlife. Mow to a height of 4 to 6 inches to help maintain good surface protection. Do not mow later than 30 days prior to the first anticipated killing frost.

## RUNOFF DIVERSION

### Ditch Turnouts



A combination swale, vegetation and riprap  
Photo credit: MEDEP

A ditch turnout is a stable ditch, a turnout berm, and a level spreader used to store and release road runoff into an existing, stable, vegetated buffer area. Their intended design is to reduce water velocity and its erosive forces. The faster the water moves the more sediment it can carry. Ditch turnouts also filter sediment, soluble pollutants, and sediment-attached pollutants.

Before diverting water onto someone else's property, you must get the owner's permission. Sometimes ditch turnouts can be readily located along lot lines between properties.

### Vegetated Swales

Vegetated swales are broad, shallow earthen channels, lined with dense vegetation designed to promote infiltration through the soil and trap pollutants by filtration through the vegetation. Vegetated swales should be considered when:

- There is a small impervious area draining into the swale.
- Water velocities are low and there are well drained soils.
- The slope is low and follow the contour of the land.
- The flow duration is short to minimize constant standing water in the swale.

### Vegetated Buffers

Buffer strips are trees, shrubs, and groundcover that catch sediment and non-point source pollution before they reach a waterbody and are an effective conservation practice for controlling storm water runoff pollution by:



Vegetated buffer  
Photo credit: MEDEP



- Reducing the impact of rain on the soil.
- Increasing evaporation.
- Filtering sediment and pollutants from runoff and allowing infiltration.
- Holding soil in place and absorbing water and nutrients.

Vegetated buffers are most effective when:

- The buffer strip is at least 10 feet wide and located between the a small pollutant source and the water.
- Use native plants, appropriate for the site.
- Use a mix of groundcovers and woody plants with a durable, organic mulch in any bare spots.

Permanent Mulch

Permanent mulch reduces runoff and erosion, prevents soil compaction, conserves moisture, helps to establish plant cover, and controls weeds on any area prone to erosion. Mulch should be used:

- Where soil is exposed and vegetation is difficult to establish,
- In high traffic areas,
- Around landscaping, paths and walkways that are not paved, and areas that are covered by decking.

Permanent mulch is most effective when:

- Erosion control mix, or crushed stone is applied at least three inches thick,
- It is used on slopes no steeper than 2 to 1,
- It is inspected periodically, particularly after rainstorms.

## Clearing Vegetation

Reducing or eliminating vegetation near waterways is not recommended because vegetation slows the speed of stormwater and reduces the amount of pollutants getting to the waterbody. The Mandatory Shoreland Zoning Act requires that all towns restrict vegetation clearing in the shoreland zone to ensure that natural vegetation and ground cover is maintained within 100 feet of natural high water line.



## Catch Basins, Oil/grit or Oil/water separators,

A catch basin and oil/grit or oil/water separators are conventional stormwater drainage structures that trap coarse sediment, debris and floating hydrocarbons. Catch basins and oil separators are most effective when:

- The drainage area is relatively small.
- They are well maintained and cleaned at least once a year.
- They are installed as part of an overall engineered design.

### Maintenance

Catch basins and oil separators should be inspected three to four times annually, depending on their performance. Sediment should be removed when it accumulates to within 6 inches of the bottom of the hood or at least once a year. Failure to clean basins and separators out on a regular basis can result in floating hydrocarbons, re-suspension and loss of previously trapped material, or other products mixing in the water column.

## Construction BMPs

Erosion and sedimentation are more likely to occur during construction projects. Avoid disturbing wet areas, steep slopes, drainage ways, unstable soils, areas subject to flooding, stream banks or edges, and lake shores. Proper site design will help you avoid expensive erosion control measures. Due to the potential for runoff from construction at marinas or boatyards, please contact regulatory officials when you are planning your project, well in advance of any construction. Your town office or code enforcement officer is an important contact, however, town ordinances do not override state laws and regulations. Contact the Maine DEP for projects within 100 feet of a water body or wetland. If your property is in an unorganized territory, contact the Land Use Regulation Commission (LURC).

### During Construction

Before doing anything else, install a filter barrier on the downslope side of the construction area. This barrier can be a properly installed silt fence, an embedded hay bale barrier, stone check dams, erosion control mix berm or any combination of the measures. **REMEMBER:** Hay bales and silt fencing don't work unless they are properly installed and maintained.

Check to see that your silt fencing and hay bales are in good condition before and after a storm event. Check and repair them again after storms. Remove sediment that has accumulated. Replace silt fencing that no longer allows water to filter through it. If the barriers are being undercut at the edges, they should be replaced by a stone checkdam.



Use mulch hay liberally on disturbed soil during the construction period to avoid having an erosion problem. Mulch hay is the cheapest and most effective way of protecting the soil. Don't let a week pass without mulching!

After Construction

When the earthmoving is completed, replant the area. Don't automatically plant the area to grass – consider replacing the native trees and shrubs. These species are generally better at taking up the pollutants and nutrients in runoff.

Be extremely careful when using fertilizers near streams, lakes and ponds and use mixes that are very low in phosphorus. Don't apply them before a storm.

## 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.

Erosion Control Law 38 M.R.S.A. §420-C

The Erosion Control Law requires requiring that anyone conducting an activity involving filling, displacing or exposing earthen materials take measures to prevent erosion of soil or sediment beyond the project site or into a protected natural resource. Erosion control measures must be in place before an activity begins, and remain in place and functional until the site is permanently stabilized. No permit is required. The law is enforceable by both the DEP and certain municipal code enforcement officers.

In 2005, the standard applies to any eroding soil whether or not under construction, if the site drains to a “most at risk” water body (contact DEP for list), and in 2010, any eroding soil from entering any waterbody.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information Contact information below.

Natural Resource Protection Act (NRPA) 38 M.R.S.A. §480-C

The Natural Resources Protection Act (NRPA) regulates activities in, on, over, or adjacent to protected natural resources: coastal wetlands; sand dunes; freshwater wetlands; great ponds; rivers, streams and brooks; fragile mountain areas; and significant wildlife habitat that may cause material or soil to be washed into those resources.



Generally, a permit is required if work disturbs soil within 75 feet of a protected natural resource. If you are unsure about whether or not an NRPA permit is required for your project, contact the appropriate DEP office and arrange for a staff visit.

Activities that may be regulated include:

- dredging, bulldozing, removing, or displacing soil, sand, vegetation, or other materials;
- draining or otherwise dewatering;
- filling; and
- constructing, repairing or altering any permanent structure (permanent structure is one placed or constructed in a fixed location for a period exceeding 7 months of the year).

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111, Portland – 312 Canco Road, Portland, ME 04103 (207) 822-6300, Bangor – 106 Hogan Road, Bangor, ME 04401 (207) 491-4570.

Mandatory Shoreland Zoning Act - 38 M.R.S.A. §435-449, C.M.R. Chapter 1000 and Local Ordinances

The Mandatory Shoreland Zoning Act requires all municipalities to establish zoning ordinances for land within 250 feet of great ponds, rivers, tidal areas, and freshwater and coastal wetlands. Within the shoreland zone, permits are required from the municipality (usually the planning board) for any new marina or expansion (including new structures).

Marinas are considered to be water-dependent uses and, therefore, in most cases are not subject to the same setback standards as those for non water-dependent uses. Most local ordinances have no minimum water setback standard for marina structures. However, boat storage is not considered a water dependent use.

Most shoreland zoning ordinances also regulate structures and activities which extend into and over the water. This would include boat ramps, piers, docks, and floats. Again, most ordinances have limited construction standards for piers, docks and floats.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information. Contact information below.



Stormwater Management Law - 38 M.R.S.A § Section 481- 490 and 420D

Stormwater runoff should not cause erosion of surficial soils. Exposed soil should be stabilized immediately with vegetation. Runoff discharged into a receiving ditch should not erode the vicinity of the outlet, and finally, discharged runoff should not cause bank erosion or sedimentation of the receiving water body.

Stormwater should be handled within the area of the facility in order to conduct surface runoff away from critical site features and to a suitable outlet. This is generally accomplished by site grading, vegetation and/or routing the water flow into a properly designed stormwater system.

Under the State of Maine Site Location of Development Law, most boatyards and marinas are not regulated because of their small size; but a new state stormwater law (38 M.R.S.A. § 420D) went into effect in July, 1997 and revisions are due to become effective in 2005. A new or expanded boating facility will now require a permit from the Department of Environmental Protection prior to construction. Note: Revisions to the Stormwater Law and Rules will be proposed by the MEDEP in 2005. Contact MEDEP for updates.

For additional information: For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information. Contact information below.

NPDES Stormwater Laws (Multi-Sector General Permit) – 40 CFR 122.26

In 1987, the United States Congress enacted a two phase stormwater permit program under section 402(p) of the Clean Water Act. Under phase I of the program – the National Pollutant Discharge Elimination System (NPDES) – permits are required for stormwater discharges associated with certain industrial activities performed at marinas and boatyards. In 2005, the Maine Department of Environmental Protection Agency begins implementing this program.

A marina primarily in the business of renting boat slips, storing, cleaning, and repairing boats, and which generally performs a range of other marine services is classified under the Standard Industrial Classification (SIC) system as a SIC 4493. A boatyard primarily in the boat maintenance and repair business is classified as a SIC 3732. A SIC 4493 facility is only required to obtain an NPDES stormwater discharge permit if boat maintenance activities are conducted on the premises, those activities are exposed to snow melt or rainwater and there is a conveyance to the waterbody. A SIC 3732 facility is required to obtain a stormwater discharge permit if there is exposure and the stormwater is conveyed from the facility into a waterbody.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Land and Water Quality, Maine



Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111,

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

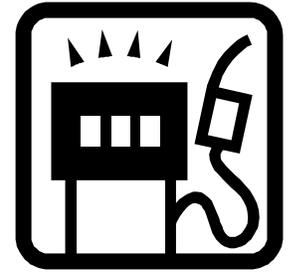
Section 413 prohibits discharging (spilling, leaking, dumping) of pollutants into state waters without a license from the Department of Environmental Protection. See page 3-33 or the Brightwork CD for more detailed regulatory information.

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.

Pollution and corruption of waters and lands of the State prohibited - 38 M.R.S.A §543

Section 543 prohibits the discharge of oil into or near the waters for the state. If a spill happens that causes a sheen on the waterbody, you have violated this section of the law. Call the Oil Spill report line at 800-482-0777.

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Bureau of Remediation and Waste Management, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651.



## FUELING AND FUEL STORAGE

### **BENCHMARK**

Implement spill prevention measures whenever fuel is handled or stored. Report, minimize, contain and clean up spills that do occur.

### FUELING BMPS



Spills of diesel, oil, or gasoline into the water or onto the ground are prohibited, and best management practices should be implemented to prevent them. Spills into the bilge are difficult to completely clean and often wind up in the water. Where practicable, fueling should be done on shore over an impervious surface where any spills can be easily collected and cleaned up.

According to the NFPA, when fueling everyone should follow these rules:

1. Extinguish all flames, including cigarettes
2. Stop all engines
3. Shutting off electricity is recommended
4. Check bilge for fuel vapors, ventilate if necessary
5. Maintain nozzle contact with fill pipe
6. Avoid overfilling
7. When fueling with gasoline it is a good idea to only have the person doing the fueling on board.

Boatyard Bob Says . . .

“Train staff and customers on proper fueling and spill containment procedures.”

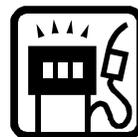
“Carefully monitor all fueling activities.”

“A plastic crate with absorbent material is helpful to store nozzles on the dock when not in use.”

“Inspect customers fuel tank vents for traps, if missing recommend installation.”



Helpful signage  
Photo credit: Bunnell Marine Consulting



## In the Water Fueling

Most spills occur due to overfilling (topping off) and operator inattention. Customers doing their own fueling should:

- Pay close attention when fueling
- Not top off the tank.
- Use oil absorbent pads or “doughnut” around the fuel nozzle to prevent fuel from “burping” out of the fill pipe and catch and contain any spills before they get to the deck, water, or bilge.
- If no vent trap is installed in the boat, use a commercially available device on the outside of the hull over the vent to catch any fuel that might come out.
- Oil or gas absorbent pads or “bilge pillows” should be used in the bilge to absorb any spills.



Dockside spill kit and nozzle storage  
Photo credit: Bunnell Marine Consulting

The marina or fuel dock must remove the clips holding the nozzle valve open, requiring someone to hold the nozzle while filling. Fuel tank vent traps should be installed whenever possible to prevent fuel from discharging through the vent line and the fuel fill should be clearly labeled and easy to identify. For more information on fueling safety requirements, refer to “The Fire Protection Standard for Marinas and Boatyards” NFPA 303.



MMTA & MEDEP  
Fill Don't Spill program  
signs still available

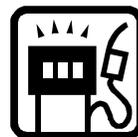
## Managing Spills

Both state and federal law require a spill prevention, contingency and countermeasures plan (SPCC plan) for any facility storing more than 1,320 gallons of petroleum products and are required for facilities regulated under a stormwater multi-sector general permit where gas, oil, or hazardous materials are used or stored. You must include all fuel containers over 55 gallons, including heating oil tank(s), when determining whether you are over the threshold.



The SPCC plan must include:

- Potential spill sources including oil and hazardous materials used or stored in the area.
- Prevention measures (e.g. security, inspection, containment, training, equipment),



- Spill emergency procedures, including health and safety, notification, and spill containment and control measures and the location of spill control materials.
- A drainage plan, and
- Emergency telephone numbers

Please refer to Sections 3 and 5 that detail all the components of a general SPCC plan. A template SPCC plan can also be found on the Brightwork CD. Section 5 provides further information on this use of the template.

If a spill occurs or any oil or hazardous material is accidentally discharged into the water of the state or onto land with any potential for entry into state surface or ground waters, the Maine DEP Bureau of Remediation and Waste Management should be notified immediately by calling (207) 287-2651 or 1-800-432-0777.

Inform your local harbormaster and fire department about your SPCC plan and equipment. Because the fire department and the harbormaster may be included in any first response action, it may be appropriate for them to have a copy of the SPCC plan. In some cases, the marina operator has granted permission to the city or town to use the response equipment, if necessary. Marina operators may also consider inviting the harbormaster or fire department to participate in drills as they are held at the facility.

#### Spill Response

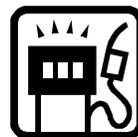
In the event of an actual spill, cleanup efforts should begin immediately and be completed as soon as possible, taking precedence over normal work. The cleanup should include properly disposing of any spilled material and used cleanup material. The following steps should be performed as quickly as possible:



1. Stop the source of the spill.
2. Contain the liquid using containment booms if the spill might reach the water.
3. Cover the spill with absorbent material like oil absorbent pads (if on the water) or kitty litter, or sawdust on land. Do not use straw.
4. Comply with state and federal regulations to contain and clean up the spill, and dispose of materials at an approved facility.
5. Contact the Maine DEP and/or the local fire department.



MMTA & MEDEP Fill Don't Spill program spill kit stickers and nozzle tags still available



Spill clean-up materials on dock  
Photo Credit: Bunnell Marine Consulting

Make spill response equipment readily available.

In order for it to be used, spill response equipment must be easy to find and easily accessed by staff. Some marinas choose to make the spill equipment accessible for all patrons to use at their discretion, potentially encouraging quick response to smaller spills. If spills can occur in different locations throughout the facility, multiple response kits should be available.

The type of spill response equipment needed depends on the type of boating facility and the type of vessels that frequent the marina or boatyard. At a minimum, the

response kit should include:

- Absorbent pads and booms,
- A fire extinguisher,
- A brief set of instructions.

Clean-up materials include the following:

- Oil-absorbing floating booms prevent oil from spreading and absorb the oil
- Absorbent pads absorb and trap spilled materials for easy disposal.

Oil-only absorbent pads often float and will not absorb water and are used for quickly cleaning up small fuel spills by throwing them into the oil slick and retrieving them once saturated.

Other absorbent pads are designed for acids or other water-based chemical, and will absorb water and sink.

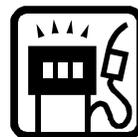
Some marinas have adopted the practice of securing oil absorbent material at the waterline of floating fuel docks to quickly capture small spills.

**Traditional dispersants (liquid soaps) should not be used.** These chemicals move the contaminants from the surface of the water to the bottom trapping them in bottom sediments, potentially causing long-term damage.

Please refer to section 4 for more spill cleanup material guidelines.

#### CLEAN-UP

Used absorbent material rags or other debris may be flammable and can spontaneously ignite. Rags should be stored in an approved ignition suppressive container in a cool dark place until such time as disposal is appropriate. Oil



contaminated materials may be disposed of as a solid waste if the oil cannot be squeezed out of the material and if contained in plastic bags. Gasoline contaminated clean-up materials are considered hazardous waste and must be handled accordingly.

## FUEL STORAGE BMPS



For more information, please refer to NFPA 30, 30A and 303. Any above ground fuel storage areas must:

- Have secondary containment equal to 110% of the total volume stored.
- Have covered, undrained, secondary containment
- Protect piping and fittings from damage from vehicles and other physical damage.
- Meet current standards if any piping or fittings runs underground.
- Be inspected weekly for leaks. Joints and connection points outside of any secondary containment should be checked very carefully.



Double walled tank with protection  
Photo Credit: Bunnell Marine Consulting

If you meter your fuel, as regulated by the Department of Agriculture, measure fuel volume daily and perform a reconciliation of fuel sold and fuel bought to ensure that they balance. If you store more than 1,550 gallons of gasoline, diesel fuel or fuel oil you are required to submit annual reports under the Emergency Planning and Community Right to know Act (EPCRA).

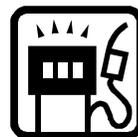


Secondary containment and protection  
Photo Credit: MEDEP

Fill pipes should be readily accessible to the tanker operator, but should be protected. Providing absorbent pads and secondary containment around the fill pipes will minimize spills during fuel delivery.

### CUSTOMER RELATIONS

Boatyards and marinas are ultimately responsible for all activities that take place at the yard or marina, including fueling, by the boat owners. Therefore, it is in your interest to clearly communicate the proper management practices to boat owners through clear signage.



## 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. 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.

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For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Contact information below.

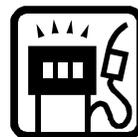
Removal of prohibited discharges - 38 M.R.S.A §548.

Section 548 requires the clean up of any spill that is covered under section 543. If the responsible party does not clean up the spill, this section allows the state to clean it up and charge the responsible party for all costs incurred as part of the cleanup.

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Contact information below.

Enforcement; penalties - 38 M.R.S.A §550.

Section 550 provides protection from fines if the spill is reported, and subsequently cleaned up and paid for by the responsible party. Under the federal oil spill law, there is no such protection.



For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Bureau of Remediation and Waste Management, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651

Oil Pollution Prevention 40 CFR Part 112.1 (A)(4)(f)(2)(ii)

This section of the federal law addresses the requirements for SPCC plans and other oil pollution prevention provisions.

Spill Prevention and Control - 38 MRSA §570-K, sub-§5

Section 570 addresses the requirements for SPCC plans and other oil pollution prevention provisions at oil storage facilities used in the marketing and distribution of oil to others, including marinas that sell fuel.

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Bureau of Remediation and Waste Management, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651

Rules and Regulations for Flammable and Combustible Liquids 16-219 CMR Chapter 31

These rules are enforced by the state Fire Marshal's Office and regulate the storage of fuels in above ground storage tanks.

Regulation of underground oil storage facilities used to store motor fuels or used in the marketing and distribution of oil - 38 M.R.S.A §564.

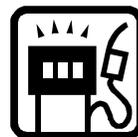
This section addresses the underground fuel storage tank requirements.

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Bureau of Remediation and Waste Management, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651

National Fire Protection Association (NFPA) Sections 30, 30A and 303

NFPA publishes the fire protection standards for many industries, Sections 30 and 30A relate to storage and distribution, 303 is specifically targeted at marinas and boatyards.

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information.



## REPORTING REQUIREMENTS

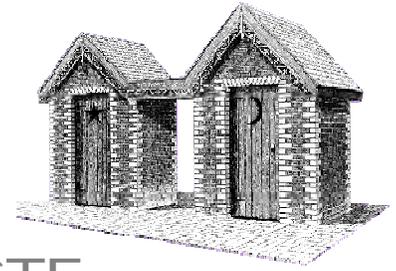
Emergency Planning and Community Right to know Act (EPCRA) –  
Superfund Amendments and Reauthorization Act of 1986, Title III and 37-B  
M.R.S.A Chapter 13 §791-806

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



## SEWAGE AND PET WASTE

### BENCHMARK

Prevent the discharge of untreated or poorly treated sewage and pet waste to the water.

### SEWAGE AND PET WASTE MANAGEMENT BMPS

The discharge of untreated sewage into a waterbody can not only cause environmental contamination but it can also be bad for business. No one likes the smell or sight of sewage in and around the water. Pet waste can be a significant public health issue and, can negate your efforts to properly manage sewage.

Sewage management is one of the most common issues around marinas. Facilities that provide slip or mooring space should carefully evaluate the potential risks of improperly handled sewage. Larger marinas should consider both pumpout and shore-side facilities.

#### Pumpout stations



Pumpout station on dock  
Photo Credit: MEDEP

A marina that provides mooring or slip rentals, fuel or other marina-related services should, if possible, install a holding tank pumpout system. Facilities have 18 or more slips or moorings for boats greater than 24 feet in length are required to have a pumpout station. Grant funds are available to help buy and install the pump and infrastructure as well as provide support for ongoing operations and maintenance.

#### Boatyard Bob Says . . .

“Provide non-toxic holding tank additives, to reduce the impact of pumpout tank waste on the city sewer.”

“Ask that your customers refrain from using on-board washing machines or heavy-duty dishwashing detergent while at the marina.”

“Encourage the use of non-toxic, phosphate free, low nitrogen, vegetable based soaps rather than strong detergents.”

“Encourage the use of on-shore facilities.”

“Provide doggy-bag stations to help customers clean up after their dogs.”

“Use low-flow shower heads, toilets, and front loading washing machines to reduce water use.”



Pumpout systems are easy to use and elimination of waste will often take less time than it takes to fill a boat with fuel or water. If you have a pumpout station:

- Advertise that you provide pumpout services, provide clear signage regarding times of operation and cost, as well as operating instructions and emergency phone numbers.
- Make the system readily accessible. Systems only available at high tide or on a difficult dock will not get used.
- Train your staff to perform pumpouts. Remind your trained personnel that pumpout operators often make very good tips.
- Don't charge for a pumpout Remember, a clean harbor is good for business.
- Inspect the system regularly for leaks or hazards.
- Check the system for proper function especially for sufficient suction.
- Keep the pumpout system clean, making it more attractive to use.
- Provide personal protective equipment to operators or customers, including non-latex gloves, disinfectant cleanup wipes, and a bucket to dip the nozzle into for cleaning purposes.
- Utilize the state's grant program to pay for system upgrades and operations and maintenance.
- Install the best system you can afford, the extra money you spend will be made up by time saved to operate the system.



Pumpout station on dock  
Photo Credit: MEDEP

For complete information on the Boat Pumpout Grant Program refer to section 3.



Outhouse over water  
Photo Credit: Unknown

#### On-shore facilities

Providing onshore bathroom, shower and laundry facilities enables you to ensure that most of the wastewater produced by boaters, is properly treated. However, on-shore facilities can contribute to pollution if not properly maintained.

In general:

- Ensure restrooms, porta-potties, shower stalls and laundry facilities are conveniently located, regularly



inspected, clean, in good working order, well lighted and safe.

- Coin operated showers with low-flow shower heads and faucet aerators save water.
- Use toilets that use a maximum of 2 gallons of water per flush.
- Front loading washing machines require less water and detergents than top-loading machines.
- Repair leaky faucets or running toilets promptly.
- Don't use toilet tank tablets and avoid harsh bathroom cleaners.
- Provide receptacles for sanitary items.

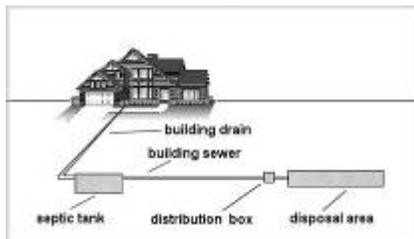


Porta-potties  
Photo Credit: Bunnell Marine Consulting

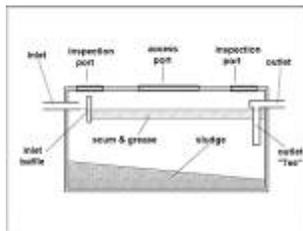
If you have public water and sewer:

- Ensure that your pump station has a visual and audible alarm.
- Have the pump station inspected regularly, cleaned and pumped when necessary.

If you have a septic system:



Septic System diagrams  
Credit: Division of Health Engineering



- Know the age, location and treatment capacity of your entire septic system.
- Monitor your water use to help determine wastewater discharge amounts.
- Provide non-toxic, phosphate and chlorine free laundry detergents.
- Have your septic tank inspected and pumped regularly, at least once a year.
- If you have any kind of food production (restaurant or take out), ensure you have a functioning grease trap and inspect and clean it regularly.
- Avoid “septic system cleaners” or additives.



- Ensure that all your facilities are piped into your septic system and that you do not have any kind of “overflow drain”.
- Do not discharge holding tank waste into your septic system unless your system was specifically designed to handle this type of waste.
- Prevent the discharge of paints, solvents, or other materials to your septic system.
- Ensure your disposal field is properly maintained and protected. Prevent woody plants from growing into the bed and prohibit heavy vehicles from driving over it.



Septic system breakout  
Photo Credit: Division of Health  
Engineering

#### Pet Waste



Dog waste station  
Photo Credit: MEDEP

Providing a dedicated “dog walking” area, with a trash can, pooper-scooper or doggy bag station will help prevent pet waste from soiling your property and washing into the water. If possible provide a small fenced in area where the dogs can exercise. Educate your customers that they are required to pick up after their dog and that they need to use the designated dog exercise area, not the floats or docks. Inspect the dog exercise area regularly and use small amounts of lime to neutralize any odors and prevent grass damage.

#### **DISPOSAL**

Most garbage generated from onshore facilities can be discarded in the regular trash. More information on handling solid waste, can be found in the waste section. Ensure the sanitary wastes from holding tanks or the septic tank are pumped by a licensed septic waste hauler and trucked to an approved location.

#### **CUSTOMER RELATIONS**

Boatyards and marinas are ultimately responsible for waste management at the facility. While you may not be able to control how customers manage their sewage, you can clearly communicate the rules of the facility through written agreements and/or clear signage. The agreements may include the recommendations regarding shore-side facilities, prohibition of sewage discharge at the facility and should require the customer to disclose their sewage management practices.



## 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**

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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.

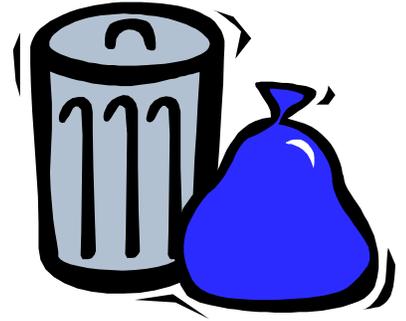
Discharge of Pollutants from Motor Vehicles (Pumpout Requirements) 38 M.R.S.A § Section 423

Section 423 prohibits the discharge of sewage from motor vehicles on land but also requires that marinas and boatyards with 18 or more slips or moorings for boats greater than 24 feet in length have a pumpout station. See page 3-33 or the Brightwork CD for more detailed regulatory information.

Maine Subsurface Wastewater Disposal Rules - 144A CMR 241

The “Plumbing Code” regulates the subsurface disposal of wastewater. Flow estimates, system designs and requirements are all defined. See page 3-33 or the Brightwork CD for more detailed regulatory information.

# WASTE MANAGEMENT



## **BENCHMARK**

Contain solid waste to the maximum extent possible with no visible escape of solid waste from the facility in an uncontrolled manner. Manage special and hazardous waste in compliance with all applicable laws.

## WASTE MANAGEMENT BMPS

Properly managing all wastes, trash and other solid wastes, special wastes and hazardous waste is one of the most important environmental jobs in a boatyard or marina management. Careful waste management will protect you from environmental violations as well as help keep your facility safe and appealing.

### Trash and Non-Hazardous Solid Waste

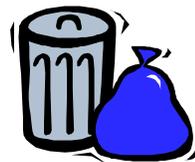
Provide trash receptacles in convenient locations and in adequate numbers to handle the amount of trash generated. All receptacles should:

- Be located conveniently.
- Have tight fitting lids that are kept closed.
- Be emptied on a regular basis before they overflow.
- Comply with any local ordinances.
- Have signs clearly listing rules and regulations for disposal, including what should NOT be put in the dumpster.
- Be inspected regularly by marina or boatyard personnel.
- Be secured to prevent tipping by wind or vandals.



Dumpsters  
Photo credit: Bunnell Marine  
Consulting

Some marinas regulate the accessibility of the collection facility by fencing it in to avoid problems with improper disposal. The area surrounding the solid waste collection facilities should be inspected at least daily by marina personnel and any errant waste discovered during this inspection should be cleaned up from the surrounding grounds. Any waste receptacles placed on docks or near the water's edge should be carefully



secured. Marina operators are responsible for the contents of their solid waste dumpsters, including the improper disposal of hazardous waste or waste oil.

Wood, demolition debris and waste fiberglass can normally be considered solid waste. Exceptions to this include asbestos contaminated waste, bad batches of fiberglass solvent/resin or the deliberate polymerization of waste materials (see regulatory reference at the end of this section).

### Recycling

Recycling materials saves money and resources and can reduce solid waste disposal costs. The easier and more convenient recycling is for boaters, the more cooperative they will be. Recycling centers should:

- Provide separate containers for glass, steel cans, aluminum, plastic, newspapers and office paper.



Recycling bins and signage  
Photo credit: Bunnell Marine Consulting

- Be located close to where the waste is generated (for example, locate a cardboard dumpster near shipping and receiving and bottle bins near picnic areas) or other convenient locations (for example near the land-side foot of the dock, and transient docks)
- Also be located near general refuse containers.
- Select recycling containers based on how they will be collected and sorted. Large recycling containers are difficult to empty and, because they will take longer to fill, should have lids to exclude rain and vermin.

### Shrink Wrap

Because of its volume, shrink wrap poses a unique recycling challenge. Contact your local solid waste facility and request that they support shrink wrap recycling. Alternately, contact some shrink wrap suppliers who may offer a recycling program for their product, or contact a plastics recycling company for service.

### Paint dust, chips or debris and non-liquid paint waste

Paint dust, chips, debris and waste paint contaminated equipment is special waste and in some cases, may be hazardous waste, and must not be disposed of in the normal garbage. Paint waste must be:



- Collected
- Securely stored in a covered and labeled special waste container.



- Tested
- Properly managed.



Representative composite samples must be tested by a qualified laboratory using the TCLP metals analysis (EPA Method 1311-610B or 7000) prior to disposal. If the results of the analysis indicate the waste is hazardous, then the waste must be managed and disposed of as a hazardous waste. If the results indicate it is non-hazardous, then the waste must be disposed of as a special waste.

Empty paint cans can be discarded as solid waste or recycled. Empty aerosol spray dispensers can be disposed as solid waste if they are truly empty (at atmospheric pressure with no remaining liquid). Aerosol cans that are still pressurized and contain liquid are hazardous waste. Spent painting equipment, rags or other debris may be flammable and can spontaneously ignite. Refer to page 4 for information on rag disposal.



Secondary containment  
Photo Credit: MEDEP

Refer to the list in the resource section for licensed special waste and hazardous waste transporters. Keep records that document the volumes of waste material generated on site and the level of toxins contained. (See also: Sand Blasting BMPs and Painting BMPs.) See also Page XX section 3 for guidance on managing special or hazardous waste.

#### Liquid Paint Wastes



Waste oil-based paints, shellacs, lacquers, urethanes, enamels, and paint thinners are hazardous waste, and must be labeled “hazardous waste”, stored, and managed as hazardous waste. This will include used thinners and filters when they can no longer be used, but would not normally include latex paints. See the Hazardous waste section on page 5. (See also: Painting BMPs)

#### Boatyard Bob Says . . .

“Use non-hazardous, aqueous based solvents for clean-up.”

“Reuse rags whenever possible.”

“Don’t hang them to dry before disposal.”

#### Sandblast grit and debris



A representative sample of spent grit and residues must be collected for testing by a qualified laboratory. The required analysis is TCLP - Toxicity Characteristic Leaching Procedure (EPA test method 1311, 6010-B or 7000). Proper characterization of this waste usually requires a minimum of one sample composite from each boat project or one composite sample per 100 cubic yards of waste if more than 100 cubic yards are generated from any one project. If the results of the analysis indicate the waste is

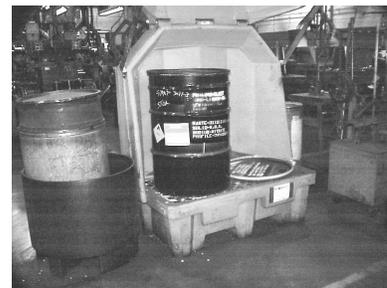


hazardous, then the waste must be managed and disposed of as a hazardous waste. If the results indicate it is non-hazardous, then the waste must be disposed of as a special waste. Keep records that document the volumes of waste material generated on site and the level of toxins contained. (See also: Sand Blasting BMPs.)

#### All Liquids

All waste liquid products such as waste oil, or used antifreeze should be:

- Stored in separate, secure, labeled, covered containers.
- Placed on clean, durable, impervious surfaces.
- Stored within covered secondary containment with a capacity of 110% of the volume of the largest storage tank or container or 20% of the total volume.
- Removed by an approved transporter promptly after the container is filled.
- Inspected frequently for leaks, drips or spills.



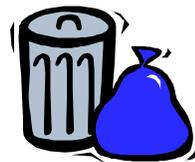
Drum containment and labeling  
Photo Credit: MEDEP

If the volume of liquid being stored is relatively small, one secondary spill impoundment may be adequate to contain the material stored in several containers. If the area is secured, the facility may be able to better regulate oil disposal. If the facility allows boat owners to service their own equipment on site, providing clearly marked waste oil and used antifreeze collection areas will encourage the proper handling of those wastes.

Using absorbent pads and catch pans underneath nozzles can reduce spills.

#### Used Oil

A separate container for the disposal of used oil (lube oil, waste diesel fuel), accessible to your facility patrons will encourage the proper disposal of waste. However, it is often difficult to control what is put into an oil collection container. If a container becomes contaminated with water or other substances, then the cost to empty the waste oil may be very high, so locate and supervise the containers carefully. Note: Waste oil contaminated with hazardous waste becomes hazardous waste. Consider keeping the containers in a locked storage area, and instructing customers to leave their waste oil in a closed, sturdy container at a collection site. A member of the marina staff is then responsible for moving the waste from the collection facility and dumping it into the appropriate containers in the storage facility. Some facilities use waste oil burners to dispose of oily materials and provide heat for work areas.



### Used Anti-Freeze

Most used antifreeze is not hazardous waste unless it is contaminated with metals, benzene or other hazardous waste. It is toxic to people and animals. To determine if hazardous, test the antifreeze by TCLP analysis. If the antifreeze is non-hazardous, collect and store like all liquid waste, then recycle. Many commercial firms offer antifreeze recycling services. If the antifreeze is hazardous it must be handled accordingly.

Use non-toxic antifreeze (propylene glycol) in any system that may discharge to the water. Doing so will minimize the need to collect and recycle permanent (ethylene glycol) antifreeze.

### Waste Gasoline

Waste gasoline is a hazardous waste due to ignitability and so must be handled and stored in conformance with the hazardous waste rules. Specifically, the waste gasoline must:

- Be stored in labeled "hazardous waste, waste gasoline" non-leaking containers, on an impervious surface.
- Be stored according to local fire code in the appropriate covered container
- Not be allowed to evaporate
- Not be discharged to surface waters, or poured on the ground
- Be covered to prevent stormwater from contacting the container.
- Be in a storage location that conforms to local fire codes, as well as hazardous waste regulations.
- Be removed by a licensed hazardous waste transporter and taken to a licensed hazardous waste disposal facility.



Waste gasoline containment  
Photo Credit: MEDEP

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. Waste gasoline must not be poured on the ground; disposed of in storm sewers, septic systems, municipal sewers; discharged to surface waters; or be allowed to evaporate. It must be removed from the site by a hazardous waste transporter.



Engines and engine parts should be stored under cover over an impervious surface such as sealed asphalt or cement. Care should be taken to prevent oil and other petroleum fluids from leaking onto the open ground.

Oil filters should be drained for 24 hours by placing a filter in a funnel over the appropriate waste collection container to allow the excess petroleum product to drain into the container. Properly drained filters should be collected and recycled when possible or can be double bagged and disposed of as solid waste.



Used rags or other debris may be flammable and can spontaneously ignite. Rags should be stored in an approved ignition suppressive container in a cool dark place until such time as disposal is appropriate. Rags saturated with listed hazardous waste, such as listed "F" solvents (e.g. toluene, xylene, MEK, etc.), or that are dripping wet with unlisted or blended solvents with a flash point of less than 140°f, or with a corrosive compound then the rags are considered hazardous waste. 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.



Used lead-acid batteries (Unbroken) should be stored on an impervious surface, stored under cover, protected from freezing, and sent to an approved recycling facility. Cracked, broken or otherwise leaking lead-acid batteries are considered hazardous waste and must be managed accordingly.

Other Batteries



Nickel-Cadmium, and metal hydride batteries (both rechargeable), Lithium and all other non-alkaline batteries are classified as hazardous waste and must be recycled or disposed of accordingly. Collection containers and recycling services are available for most rechargeable batteries for a small fee. See the resources section for more information.



Mercury lamps and switches Spent fluorescent bulbs, other mercury lamps, and mercury switches are in a special category of hazardous waste called Universal Waste. Spent lamps must be collected and stored safely to prevent them from breaking. When a sufficient quantity has accumulated, they must be recycled as universal waste. Bilge pump "float switches" often contain mercury. When a float switch is removed from service it should be carefully examined to determine if it contains mercury.

Contact the manufacturer for more information regarding what switches contain mercury. If the switch does contain mercury, store it with the spent lamps for eventual recycling as universal waste.



Well labeled trash can  
Photo Credit: MEDEP





## Waste Resins and Epoxies

Solvent/resin or epoxy wastes are hazardous waste. Small amounts of catalyzed resins or epoxy left over from application may be disposed of as solid waste as long as the resin is completely solidified in small quantities (i.e. less than pint size or less 2 inches thick) such that there is no residual resin or solvent left. Deliberate polymerization treatment (solidification) for the purpose of disposal of useless resins or bad batches is prohibited unless licensed by Maine DEP. These wastes must be managed as hazardous waste.

## Glue and adhesives



Residual amounts of glues and adhesives remaining in empty caulking tubes may be disposed of as solid waste. Glues and adhesives in liquid form cannot be disposed of as solid waste and should be used for their originally intended purpose. If there is unused product that is planned for disposal, you must determine whether the product constitutes hazardous or special waste.

## Spill Cleanup materials

Most oil spill recovery material can be disposed of easily. Nonabsorbent booms can be cleaned and reused. Oil absorption materials, such as pads, retain little water when fully saturated and can be disposed of the same way as other oil-soaked material. If absorbent pads, booms, or other material become contaminated with a non-hazardous waste like oil, diesel, or grease, they can be collected in a plastic bag and disposed of as solid waste but only if the oil cannot be squeezed from the material.

## Special Waste

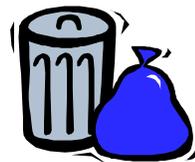
Several wastes generated at marinas and boatyards including paint waste, some rags and spent sandblast grit, are classified as special waste. Special waste should be handled and stored in a manner to prevent it from leaking, spilling or becoming airborne. Once the storage container is filled, you must contact one of the two disposal facilities in the state, for guidance regarding testing and disposal. The waste will need to be tested to document it is non-hazardous. Once approved, you must ship the waste via an approved transporter to one of the facilities.

## Hazardous wastes

A number of substances used in marinas may be considered "hazardous materials" or "hazardous wastes" and are subject to "cradle to grave" management measures specified under federal and state statutes and regulations. Marina owners and operators are responsible for determining whether materials handled at their facilities are subject to regulated management and for complying with applicable regulations for the handling, storing, transporting, and ultimate disposal of these



Hazardous waste storage  
Photo Credit: MEDEP



materials, including all manifesting and reporting requirements.

Where feasible, minimize the use and storage of hazardous materials on-site or replace hazardous materials with non-toxic ones.

Hazardous Waste must be:

- Carefully managed and tracked.
- Stored in separate, clearly labeled, containers, ensuring that only the material specified on the label goes into the container.
- Placed on clean, durable, impervious surfaces.
- Stored within covered secondary containment with a capacity of 110% of the volume of the largest storage tank or container or 20% of the total volume.
- Segregated and securely stored in separate areas in closed containers that prevent the mixing of chemicals if incompatible or reactive.
- In a storage location that conforms to local fire codes, as well as hazardous waste regulations.
- Removed by a licensed hazardous waste transporter and taken to a licensed hazardous waste disposal facility.



Hazardous waste storage building  
Photo Credit: MEDEP

#### Disposal and Recycling

Once waste material is collected, ensure that it is disposed of properly. If the material is regulated as hazardous waste, ensure that the pertinent requirements are satisfied.

Regardless of whether the material is eventually recycled or disposed of, carefully document how much material was collected, how it was removed from the facility, and the material's final destination. These records will be invaluable if there is ever any question about the facility's hazardous waste collection and disposal practices. Records of hazardous waste and universal waste shipments must be retained for a minimum of three years from date of shipment. In addition, these records can help you identify processes for waste reduction.

Whether or not a material can be recycled will depend primarily on the type of material and the availability of recycling facilities. In some cases, it may be possible to switch



from a product that is non-recyclable to a similar product that is recyclable without sacrificing effectiveness.

#### CUSTOMER RELATIONS

Waste management is a big issue for boatyards and marinas. Encouraging proper waste management by everyone who uses your facility will help your facility stay safe, in compliance and attractive to customers. As you are ultimately responsible for all activities that take place in your yard, it is in your interest to provide appropriate containers and clearly communicate proper waste practices to everyone who uses your facility.

## 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. 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) 287-3901.

### **DISPOSAL OF WASTE EQUIPMENT AND MATERIALS**

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. Universal Waste is a very specific type of hazardous waste which has its own specific management requirements. Universal waste regulation is covered in these rules as well.

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 heavy 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.

DEP views solvent/resin wastes as hazardous waste, and treatment of such waste, including useless resins, or bad batches, by deliberate polymerization treatment (solidification) for the purpose of disposal is prohibited unless licensed by Maine DEP. These wastes must be managed as hazardous waste. Incidental polymerization of small amounts of catalyzed resins left over from applications is acceptable without a license, as long as the resin is completely solidified in small quantities (i.e. less than pint size or less 2 inches thick) such that there is no residual resin or solvent left.

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. However, non-liquid paint waste (dust and debris) is specifically identified as special waste. Wood or cured fiberglass debris from boat repair is normally classified as demolition debris, contact your local transfer station for proper disposal.

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 Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651

Used Oil Collection Center 38MRSA § 1319-G and 1319-Y and Waste Oil Management CMR Chapter 860

In 1996, the Maine Legislature passed a law to encourage used oil recycling. It provides incentives for establishing centers where used oil can be collected from the public. If you wish to establish a used oil collection center, you may be eligible to obtain low interest loans or grants for purchasing above ground used oil storage tanks. The loan program is administered by the Finance Authority of Maine (FAME). In addition, the new law establishes design and operational standards to reduce releases of oil to the environment and to minimize the possibility of hazardous waste being mixed in with



the oil. Provided the marina operator is in compliance with these standards, is registered with the Department, and the operator has not mixed hazardous waste or knowingly allowed others to mix hazardous waste with the oil, the law allows for the reimbursement for disposal of waste oil which tests as hazardous waste.

For additional information: See page 3-52 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

Antifouling Paint Labels FIFRA Section 12 (a)(2)(G) 7 MRSA § 606 (2)(B)

Because all antifouling paints are pesticides, their container labels are enforceable legal documents that require general and specific management practices for preparing surfaces, application, storage and disposal of the paint. See page 3-50 or the Brightwork CD for more detailed regulatory information.

For additional information on all FIFRA issues: Board of Pesticide Control, Department of Agriculture, 28 State House station, Augusta, ME 04333, phone # (207) 287-2731 or [www.thinkfirstspraylast.org](http://www.thinkfirstspraylast.org)

## **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.

*Remember, clean water is good business!*



## WASTE DISPOSAL QUICK REFERANCE CHART

WASTE PRODUCT	RECYCLING CONTAINER	SOLID WASTE (DUMPSTER)	SPECIAL WASTE	HAZARDOUS WASTE	OTHER
GENERAL TRASH		X			
DRINK BOTTLES	X				
FOOD CANS	X				
NEWSPAPERS	X				
OFFICE PAPER	X				
CONSUMER BATTERIES	X	X (alkaline only)		X (refer to manual page 2-60)	
PRODUCT CONTAINERS	X	X			
USED OIL	X				<b>Burn in licensed waste oil burner (permit may be required)</b>
USED ANTIFREEZE	X			X (may be)	
ENGINE BATTERIES	X			X (if broken)	<b>Used battery storage area</b>
PAINT DEBRIS			X	X (refer to manual pages 2-2 and 2-60)	
SANDBLAST GRIT AND DEBRIS			X	X (refer to manual pages 2-7 and 2-60)	
PAINTING WASTE			X	X (refer to manual pages 2-11 and 2-60)	
RAGS		X (see Solvent Contaminated Wiper Management)	X (if contaminated with paint)	X (refer to manual page 2-60)	



WASTE THINNER AND SOLVENT	X		X (if contaminated with paint and not hazardous)	X	
WASTE GASOLINE				X	
MERCURY LAMPS				X	<b>Universal Waste</b>
FLUORESCENT LIGHTS				X	<b>Universal Waste</b>
BILGE PUMP SWITCHES		X		X (if mercury containing)	<b>Universal Waste</b>
WOOD DEBRIS (BRUSH OR UNTREATED)	X				<b>Burn with permit</b>
WOOD DEBRIS (PAINTED OR TREATED)		X			<b>Contact Transfer Station</b>
FIBERGLASS DEBRIS		X			<b>Contact Transfer station</b>
WASTE RESIN				X	
WASTE GLUE/ADHESIVES		X	X	X	<b>Determine if they are hazardous or special waste</b>
SPILL CLEAN-UP DEBRIS		X		X (for gasoline or other hazardous spill waste)	<b>If you have a spill, contact proper authorities</b>
MARINE LIFE DEBRIS (SEAWEED, MUSSELS)	X (compost)	X			<b>Small amounts can be dispersed back into water</b>
SHRINK WRAP	X	X			<b>Recycle if possible</b>



## PIERS, DOCKS, AND FLOATS

### **BENCHMARK**

Minimize the discharge of pollutants from materials used for dock, pier, or float construction and maintenance.



### DOCKS AND PIERS AND FACILITY PLANNING

When maintaining, planning an expansion, or building new boatyard and marina structures, include water quality impacts in your decision making. Water quality and wildlife habitat can be affected by the “hardscape” at your facility when you:

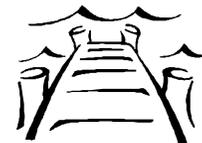
- Increasing or decreasing stormwater runoff.
- Change water and sediment movement.
- Change shoreline structure and wave movement.
- Cover or shade the bottom.
- Add pollutants through the type of products used.
- Increase or decrease the amount of dredging.



Well maintained dock  
Photo Credit: Bunnell Marine Consulting

**To minimize** the impact of changing or adding structures to your waterfront, implement the following practices.

- Minimize impervious areas. Doing so will reduce stormwater runoff.
- Avoid building structures that will impact water and sediment movement. Seawalls, causeways and filled piers have significant impacts on water movement and quality and sediment movement. It is in your best interest to have water moving through your facility constantly.



- Use upland and inland areas for parking and storage, protecting shorefront and making space available for buffer strips, swales, and other stormwater mitigation.
- Expand upward instead of adding slips, where allowable. Consider dry-stack storage, reducing the need for antifouling paint, and the risk for fuel spills on the water.
- Landscape your shorefront. Buffer strips and vegetated shoreline stabilization are beautiful and functional and can dramatically reduce pollutants running off the facility. Choose a variety of pest-resistant plants suited to the location, native to the area and provide fertilizer carefully at the roots at planting time to minimize fertilizer runoff.

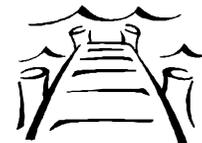
Building, or expanding structures on the shoreline may trigger a number of permitting requirements including local permits for shoreland zoning, building and plumbing, Natural Resources Protection Act (NRPA) permits, submerged lands leases, and stormwater permits. Contact the regulating officials in the planning stage of your project to work with the regulations instead of around them.

## PIERS, DOCKS, AND FLOAT BMPS

Choosing construction materials carefully can reduce maintenance and reduce the toxic pollutants from being introduced into the environment and result in a very durable structure. Treated woods like CCA (chromated copper arsenate, ACZA (ammoniacal copper zinc arsenate, or ammoniacal copper arsenate (ACA) can leach metals into the water, even when properly “aged” on land and are being phased out except in commercial and industrial situations. Preservative treated woods are effective in submerged situations, but may be unnecessary for decking, railings and other topside structures. Naturally rot resistant woods like cedar, white oak, and black locust are good choices for topside use, but still require regular maintenance. New, less toxic stains and weather treatment can enhance the durability and rot resistance of otherwise untreated wood. In addition, new pressure treating compounds like ACQ (ammonium copper quat) provide promise as durable and perhaps less toxic alternatives. New decking material made from recycled wood products and plastic is available that is durable and almost maintenance free. However, many of the recycled products do not have the same structural strength as wood and may require closer framing and other design considerations. Do your own research, publications like “Marina Dock Age” have huge amounts of material that can inform your decisions.

### Submerged structures

Creosote treated pilings are no longer permitted for new installations in Maine, but existing pilings can often be pulled out, turned over and re-driven into the sediment conserving a resource with little additional pollutant load.



- Piling coatings including polyethylene (Perma Pile® or Forma Pile®, or Pilewrap®, for example) or composites can protect existing or new pilings from damage but do not provide additional strength.
- Alternative piling materials such as recycled plastic (Plastic Pilings®, Seapile®, Seatimber®) are often reinforced with fiberglass and are treated with ultraviolet inhibitors to increase durability are non-toxic in the marine environment and impervious to borers. In limited Maine testing, some alternative pilings did not appear to have the desired durability.
- Some tropical hardwoods (Ipe, Greenheart, Ironwoods®) are naturally resistant to borers and are very durable. Verify that the source of the wood is from sustainably forested timberlands and not from the native rainforest.
- Other alternative piling materials like concrete (Lancaster CP-40®) are also strong and very durable but may involve different connection configurations.
- If using CCA treated wood for submerged situations, ensure that it is southern yellow pine or douglas fir and that it meets the 2.5 CCA.
- Alternatives to pressure treated lumber for other submerged uses are being developed.

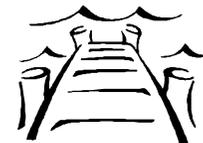
#### Topside Structures

There are many alternatives to CCA treated wood in topside applications. Pressure treated wood should be avoided except in ground-contact or high moisture applications (see submerged alternatives above). For siding, decking or handrails:

- Use recycled lumber alternatives (for example Trex®, Correctdeck®, TimberTech®, EWOOD®, Nexwood®). They are very low maintenance and durable but lack some of the structural strength of wood and normally require additional structural support. Recycled lumber may not be appropriate for drive-over or heavy load applications like commercial piers with regular vehicle traffic.
- Use untreated woods such as cedar and locust. Unfortunately, wood will need to be cleaned which is time consuming and many people resort to painting or staining it (refer to Painting section for guidance). New less toxic or non-toxic stains can maintain the woods good looks and increase rot resistance.
- Virgin PVC decking can be used, but by-products of its production are very toxic.



Pier work  
Photo Credit: Bunnell Marine Consulting



- Aluminum is light and durable, but can be noisy.
- If you choose to use pressure treated lumber for topside use, ensure that it is southern yellow pine or douglas fir and that it does not exceed 1.0 CCA.

#### Floatation

There are several choices in dock floatation available, expanded polystyrene, polyurethane, polyethylene encapsulated, and fiberglass encapsulated. Unprotected floatation will foul eventually or degrade due to oil, sun, and abrasion. Degraded floatation can break apart and create a trash problem along with making your dock less stable. When evaluating floatation consider:

- Product life span
- Product durability
- Fouling potential
- Ease of replacement
- Eventual disposal

#### Disposal of Old Structures

Eventually old docks and wharves have to be repaired or replaced. Recycle any useable lumber, hardware and floatation. Pressure treated lumber must be disposed of properly and not burned.

## 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**

Natural Resource Protection Act (NRPA) 38 M.R.S.A. §480-C

The Natural Resources Protection Act (NRPA) regulates activities in, on, over, or adjacent to protected natural resources: coastal wetlands; sand dunes; freshwater wetlands; great ponds; rivers, streams and brooks; fragile mountain areas; and significant wildlife habitat that may cause material or soil to be washed into those resources.



Generally, a permit is required if work disturbs soil within 75 feet of a protected natural resource. If you are unsure about whether or not an NRPA permit is required for your project, contact the appropriate DEP office and arrange for a staff visit.

Activities that may be regulated include:

- dredging, bulldozing, removing, or displacing soil, sand, vegetation, or other materials;
- draining or otherwise dewatering;
- filling; and
- constructing, repairing or altering any permanent structure (permanent structure is one placed or constructed in a fixed location for a period exceeding 7 months of the year).

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, Portland – 312 Canco Road, Portland, ME 04103 (207) 822-6300, Bangor – 106 Hogan Road, Bangor, ME 04401 (207) 491-4570.

Mandatory Shoreland Zoning Act - 38 M.R.S.A. §435-449, C.M.R. Chapter 1000 and Local Ordinances

The Mandatory Shoreland Zoning Act requires all municipalities to establish zoning ordinances for land within 250 feet of great ponds, rivers, tidal areas, and freshwater and coastal wetlands. Within the shoreland zone, permits are required from the municipality (usually the planning board) for any new marina or expansion (including new structures).

Marinas are considered to be water-dependent uses and, therefore, in most cases are not subject to the same setback standards as those for non water-dependent uses. Most local ordinances have no minimum water setback standard for marina structures. However, boat storage is not considered a water dependent use.

Most shoreland zoning ordinances also regulate structures and activities which extend into and over the water. This would include boat ramps, piers, docks, and floats. Again, most ordinances have limited construction standards for piers, docks and floats.

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. Or your local Code Enforcement Officer



Stormwater Management Law - 38 M.R.S.A § Section 481- 490 and 420D

Stormwater runoff should not cause erosion of surficial soils. Exposed soil should be stabilized immediately with vegetation. Runoff discharged into a receiving ditch should not erode the vicinity of the outlet, and finally, discharged runoff should not cause bank erosion or sedimentation of the receiving water body.

Stormwater should be handled within the area of the facility in order to conduct surface runoff away from critical site features and to a suitable outlet. This is generally accomplished by site grading, vegetation and/or routing the water flow into a properly designed stormwater system.

Under the State of Maine Site Location of Development Law, most boatyards and marinas are not regulated because of their small size; but a new state stormwater law (38 M.R.S.A. § 420D) went into effect in July, 1997. A new or expanded boating facility will now require a permit from the Department of Environmental Protection prior to construction . Note: Revisions to the Stormwater Law and Rules will be proposed by the MEDEP in 2005. Contact MEDEP for updates.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111.

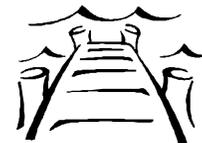
NPDES Stormwater Laws – 40 CFR 122.26

In 1987, the United States Congress enacted a two phase stormwater permit program under section 402(p) of the Clean Water Act. Under phase I of the program – the National Pollutant Discharge Elimination System (NPDES) – permits are required for stormwater discharges associated with certain industrial activities performed at marinas and boatyards. In 2005, the Maine Department of Environmental Protection Agency will be implementing this program.

A marina primarily in the business of renting boat slips, storing, cleaning, and repairing boats, and which generally performs a range of other marine services is classified under the Standard Industrial Classification (SIC) system as a SIC 4493. A SIC 4493 marina is required to obtain an NPDES stormwater discharge permit if boat maintenance activities are conducted on the premises. The stormwater permit will apply only to the point source discharge of stormwater from the maintenance areas at the marina.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Land and Water Quality, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2111, Portland – 312 Canco Road, Portland, ME 04103 (207) 822-6300, Bangor – 106 Hogan Road, Bangor, ME 04401 (207) 491-4570.

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. 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.

Submerged Lands Law – 12 M.R.S. A. § Section 1861-1867

Lands located below the mean low water line of tidal waters, the natural low water line of great ponds, and the international boundary rivers are owned by the State and reserved in a public trust. Construction of private or commercial piers, floats, marinas, and other structures on or over these public submerged lands often requires a lease or easement from the Department of Conservation, Bureau of Parks and Lands.

For additional information: See page 3-62 or the Brightwork CD for more detailed regulatory information or, Bureau of Parks and Lands, Department of Conservation, 22 State House Station, Augusta, ME 04333, phone # (207) 287-3821.

Pollution and corruption of waters and lands of the State prohibited – 38 M.R.S.A §543

Section 543 prohibits the discharge of oil into or near the waters for the state. If a spill happens that causes a sheen on the waterbody, you have violated this section of the law. Call the Oil Spill report line at 800-482-0777.

For additional information: See page 3-52 or the Brightwork CD for more detailed regulatory information. Bureau of Remediation and Waste Management, Maine Department of Environmental Protection, 17 State House Station, Augusta, ME 04333, phone # (207) 287-2651