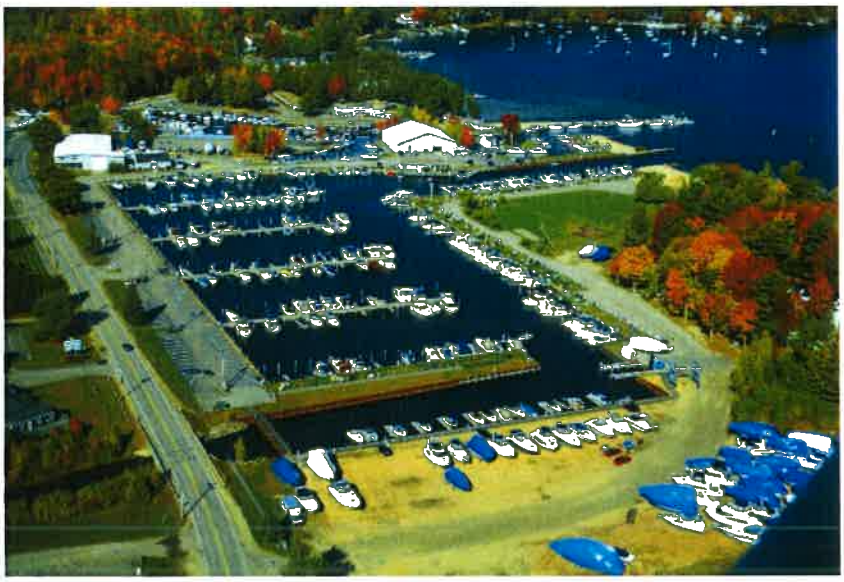
OPERATION AND MAINTENANCE BEST MANAGEMENT PRACTICES MANUAL



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I. INTRODUCTION

This Operation and Maintenance Best Management Practice Manual (BMP Manual) was prepared for the Mountain View Yacht Club owners and employees. It provides guidance to facility personnel and individual boat owners, detailing their responsibilities regarding the use, maintenance, and storing of water craft and the general operation of a marina facility, as they relate to the various local, state, and federal regulations applicable to marinas and their associated activities. The New Hampshire Department of Environmental Services (NHDES) Boat Inspection Program staff conducts announced and unannounced inspection of watercraft on inland waters of the state and boat owners found to be in violation of state and federal regulations are given 48-hours to correct the situation. Failure to correct the violations may result in fines.

Topics covered in the BMP Manual will include:

Boat Maintenance
- Sanding & Painting
- Engine Maintenance & Repair
- Boat Washing
- Management of Bilge Waste Water
- Vessel Sewage & Gray Water

Facility Management
- Hazardous Waste Management
- Universal Waste
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- Stormwater
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II. BOAT MAINTENANCE

Sanding & Painting

Boat sanding and painting must only be conducted in areas that have been designated for such operations by the marina staff. In all cases, sanding and painting should be on impervious surfaces or while using tarps to collect dust, paint chips, or other debris generated by the operation. No sanding or painting may be conducted in proximity to surface waters or during periods of rainfall or windy conditions. All waste generated by sanding or sand blasting must be collected and containerized pursuant to proper off-site disposal. Inhalation of particulate matter generated during sanding or sand blasting operations can cause respiratory distress. Therefore, the use of appropriate respiratory protective devices is highly recommended. Additional pollution prevention tips recommended by the NHDES include:

- The use of "dust-less" sanders to capture dust and chips.
- The use of heated paint strippers to remove paint and thereby eliminate the generation of dust.
- The use of low-volatile organic compound (VOC) paints to minimize the release of VOCs.
- The use of water-based paint instead of solvent-based paint to eliminate the need for solvents and/or paint thinners.
- Whenever possible apply paint with brushes or rollers and conduct painting on impervious surfaces or use tarps.
- Spilled paint should be cleaned up immediately.
- Rags used to clean up paint spills or during clean-up should be stored in approved containers in a cool dark place pending proper disposal.

Paint and solvent waste generated when paint guns and other equipment are cleaned must be properly containerized and disposed of. Any such wastes that are characterized as hazardous waste must be disposed of in compliance with NHDES's Hazardous Waste Rules. Latex paint can be disposed of as solid waste, but must be dry. Kitty litter or sand can be added to latex paints to harden them prior to disposal. Waste oil-based paints and alkyd paints are considered a hazardous waste by the NHDES and must be disposed of in a proper manner. Individual watercraft owners can generally dispose of such wastes at municipal household hazardous waste collection days. Pending disposal, all such materials should be properly stored inside in closed containers.

Engine Maintenance & Repair

Engine maintenance and repair should be conducted in a manner so as to prevent the release of potentially hazardous materials to surface water and groundwater resources. Whenever practicable, maintenance and repairs should be conducted inside or on impervious surfaces away from water bodies. BMPs to be used while conducting engine maintenance and repairs include the following:

- Drip pans and plastic tarps should always be used to collect spilled fluids and incidental releases.
- Spill clean-up materials such as absorbent pads, rags, and inert absorbent material such as "kitty litter" should be maintained near the work area and dry method clean-up techniques should be used. Spilled, leaked, or otherwise discharged materials should never be washed into site storm drains or otherwise released to surface water or on to pervious ground material.
- Oil filters should be drained of used oil prior to disposal.
- Used oil, gasoline, and/or antifreeze should be collected and stored in appropriate, closed containers pending proper disposal. All storage containers should remain closed except when fluids are added or removed, and should be labeled to identify their contents (for example "Used Oil for Recycling"). Different fluids should never be mixed together.
- All storage containers should be stored inside, with secondary containment, and their identifying labels clear visible; and in an orderly fashion with at least two feet of aisle space on at least one side.
- Never wash engine parts over water or bare ground.
- Do not use gasoline as a cleaning agent.
- Use Bilge socks as routine practice in all watercraft to reduce hydrocarbon discharge to surface waters.
- Use alternative "green" cleaning agents such as citrus-based cleaners, aqueous cleaners, or high pressure hot water systems.
- If antifreeze is used during the winterization of watercraft, it is recommended that propylene glycol be used in lieu of the more toxic ethylene glycol. All antifreeze must be carefully drained from engines, prior to first launch, and properly disposed of.
- Whenever possible refuel watercraft on land.
- If sacrificial anodes are used on any watercraft at the MVYC, care should be taken that they are properly managed and not disposed of in surface waters.

Boat Washing

Extensive boat washing activities, such as those conducted at the beginning and end of the boating seasons, should be conducted in an area designated and approved by the marina and subject to the terms of a NHDES Groundwater Discharge Registration. All detergents or other

chemical compounds used during boat washing activities should be approved by NHDES, and should only be used in compliance with the manufacturer's directions. Some chemicals used to wash boats may have potential environmental and human health effects. Accordingly, prior to initiating any boat wash activities, owners and/or marina personnel are advised to read the labels on the chemical containers; or consult material Safety Data Sheets (SDS's) for the compounds to be used that detail potential health effects, recommended personal protective equipment, first aid measures to be implemented in case of exposure, and accidental release clean up measures. Private boat owners/operators must notify marina staff in the event of any significant accidental release of boat washing compounds to surface waters.

NHDES discourages the washing of boats while they are in the water, because the release of detergents, as well as the dirt, oils, greases, gasoline, etc. that accumulate on the boat surfaces can adversely impact the surface water quality and/or aquatic organisms. When boat washing in the water is unavoidable, NHDES has established the following techniques and requirements:

- Always use cleaning methods that prevent or contain the release of pollutants to surface water.
- Boats may not be cleaned below the waterline.
- Use a spray wash that does not require a water rinse.
- Use phosphate-free detergent to wash the outside of the boat. Remove the detergent with an absorbent product like a sponge or mop. Extract the detergent from the absorbent product and place it into the wash bucket to be properly disposed elsewhere. Never discharge the wash water into the surface water. (NHDES Fact Sheet BB-58).
- To avoid the discharge of harmful compounds to surface waters, it is recommended that non-harmful compounds such a borax, lime juice, or "environmentally friendly" detergents be used when washing boats in the water.

Management of Bilge Waste Water

Bilges, by virtue of their location at the low point of a vessel, can collect a variety of substances that may be environmentally harmful if discharged to surface waters. These substances may include: engine oil, fuels, wash water, and heavy metals. Accordingly, federal and state environmental agencies have prohibited the discharge of such wastewater to surface waters unless done so under the auspices of a federal National Pollution Discharge Elimination System (NPDES) permit and a NHDES discharge permit. The discharge of bilge water to ground surfaces, vessel cleaning stations, or storm drains is likewise not recommended since such discharges can result in groundwater pollution.

The use of "bilge socks", pillows, or mats may be used to absorb some of the contaminants, however, they do not absorb all potentially harmful constituents of bilge wastewater and the used materials must be properly disposed of. Bilge water may be pumped from the bilge into approved containers pending off-site disposal. Such material is considered a "waste" and subject to laboratory analytical characterization to determine if it is classified as a "hazardous waste".

Vessel Sewage & Grey Water

The direct discharge of sewage to surface waters results in the release of various bacteria, viruses, and nutrients than can be harmful to aquatic life and detrimental to human recreational activities. In New Hampshire, it is, therefore, illegal to discharge treated or untreated sewage from boats into state surface waters. Similarly, "grey water" generated from vessels showers and sinks may also contain potentially harmful constituents, including detergents, cleaning agents, food waste, pharmaceuticals, and other wastes, and are likewise required to be properly disposed of.

MVYC provides sewage and grey water disposal services that discharge waste materials to the municipal wastewater treatment plant.

III. FACILITY MANAGEMENT

Hazardous Waste Management

During the normal operations of a marina, both marina employees and individual watercraft owners may generate parts washer fluid, oil, gasoline, solvent, paint, paint stripper, and heavy metal wastes. The proper management of these waste products is essential to prevent discharges to groundwater and surface water, and maintain compliance with state and federal regulations. BMPs to be conducted regarding hazardous waste accumulation and storage include:

- Hazardous waste containers must be properly labeled. Labels must include name of the waste, waste code, and accumulation start date.
- Containers must be closed at all times except when adding or removing waste and must be compatible with the materials stored therein.
- Waste storage areas must be located on an impermeable surface, under cover, and with controlled access.
- Flammable compounds should be stored in fire resistant cabinets.
- Hazardous waste storage areas must have secondary containment if not located in a structure or building, and this secondary containment must be able to hold at least 110 percent of the volume of the container(s).

- All waste containers should be regularly inspected for leaks, cracks, corrosion, bulging, or other signs of that might indicate a threat of leakage.
- Any spills or leakage should be cleaned up, preferably using dry clean-up methods, and all waste material should be containerized pending proper disposal.
- Hazardous waste should be segregated by waste type and incompatible wastes should not be stored in proximity to each other.
- Fire extinguishers with the proper fire suppressant should be located throughout the work areas.

MVYC maintains a parts washer for use in its engine maintenance and repair services and was formerly classified as a Small Quantity Generator (SQG) of hazardous waste, as defined by the NHDES hazardous waste rules (i.e. in each and every month they generate less than 220 pounds of hazardous waste, 2.2 pounds of acutely hazardous waste, and/or 220 pounds of material resulting from a spill of an acutely hazardous waste). Circa 2006, MVYC switched to a non-hazardous cleaning fluid in the parts washer. Following consultation with NHDES and the contractor it was determined that the facility was no longer subject to the SQG regulations.

MVYC is subject to a federal program referred to as Tier II reporting. Tier II reports are forms that organizations and businesses in the United States with hazardous chemicals above certain quantities are required to fill out. Known officially as "Emergency and Hazardous Chemical Inventory Forms", Tier II Reports are submitted annually to local fire departments, Local Emergency Planning Committees (LEPC), and State Emergency Response Commissions (SERCs) to help those agencies plan for and respond to chemical emergencies.

The amount of a chemical that triggers a reporting obligation is called the reporting limit. Different chemicals have different reporting limits, most of which have a threshold of 10,000 pounds. However, certain chemicals, referred to as Extremely Hazardous Substances (EHS) have much lower limits.

Universal Waste

Universal wastes are materials that may have potentially hazardous characteristics, but that subject to New Hampshire's Universal Waste Rule (Env-Hw 1100) are exempt from the more burdensome Hazardous Waste Rules requirements, as long as they are properly managed and recycled or disposed of. Universal wastes include: used antifreeze, spent fluorescent and high intensity discharge lamps, mercury containing devices (such as thermostats or thermometers), batteries (lithium, nickel-cadmium, or sealed lead-acid batteries), cathode ray tubes, and pesticides.

- **Antifreeze** when used as an engine coolant can become contaminated with fuels, heavy metals, and other hazardous materials, causing it to be characterized as a hazardous waste. However, if recycled, waste antifreeze can be handled as universal waste.
- Waste antifreeze should not be mixed with other fluids such as used oil or other hazardous waste. If stored outside the containers should be covered.
- Waste antifreeze should be accumulated and stored in containers that are structurally sound, compatible with antifreeze, and capable of being closed when not having material added or removed.
- The container(s) should be clearly labeled "Universal Waste – Antifreeze", "Waste Antifreeze" or "Used Antifreeze." The label should also include the date on which waste antifreeze was first added to the container, and the antifreeze must be recycled or disposed as hazardous waste within one year from the date it was generated. (NHDES Fact Sheet WMD-HW-4)
- **Fluorescent and high intensity discharge lamps** contain small quantities of mercury which is hazardous to human health and the environment. They should, therefore, be stored in proper containers to prevent breakage and release of the mercury. The containers should be stored undercover, preferably indoors, and labeled as "Universal

Waste – Waste Lamps", "Waste Lamps", or "Used Lamps." The container label should also show the date on which the lamp was put in it.

- NHDES offers the following recommendations for cleaning up debris caused by a broken universal waste lamp:
  - Ventilate the room by closing all interior doors and vents, opening windows and any exterior doors in the room and leave the room (restrict access) for at least 15 minutes
  - Remove all broken lamp pieces you can and DO NOT VACUUM.
    a. Wear disposable gloves, if available.
    b. Carefully clean up the glass fragments and residue with a stiff paper or cardboard.
    c. Pick up any remaining small pieces of glass and residue using tweezers and sticky tape, such as masking or duct tape.
    d. Wipe the area clean with a damp towel, cloth or disposable wipe.
  - Place all remains and cleanup materials (cardboard, gloves, tape, etc.) in a tightly sealed container.
  - Label the container "broken universal lamp for recycle" or "hazardous waste."
  - Store the container in a secure area until you are able to recycle it as universal waste or dispose of it as hazardous waste.
  - Wash your hands.
  - Leave windows in the affected room open as long as practical (weather permitting). (NHDES Fact Sheet WMD-HW-28)
- Since mercury is hazardous to human health and the environment, mercury-containing devices may not be disposed of as ordinary solid waste. They may be disposed of as either hazardous waste or recycled as universal waste.
- **Mercury-containing devices** should be stored in structurally sound containers that are compatible with mercury and which can be closed when material is not being added or removed.
- The container(s) should be clearly labeled "Universal Waste – Mercury-Containing Devices", "Waste Mercury-Containing Devices" or "Used Mercury-Containing Devices." The label should also include the date on which the first device was added to the container, and the devices must be recycled or disposed as hazardous waste within one year from the date it was generated. (NHDES Fact Sheet WMD-HW-17).
- **Batteries** should be kept in a cool dry area away from flammable materials, since they may carry a residual charge and could short circuit, creating a potential fire hazard. Used batteries should be placed in individual plastic bags, or tape should be placed over the electrodes before being stored with other batteries.
- Leaking batteries should be stored in structurally sound, closed containers.

Solid Waste

Solid waste generated by facility personnel and water craft owners (waste paper, food scraps, etc.) should be containerized and prevented from being released into surface water. MVYC provides dumpsters at several locations on the property and solid waste should be properly disposed therein. Covers should be maintained on all dumpsters and should be securely closed when not placing waste within them.

Used Oil/Gasoline

Use oil is generated by routine engine oil changing, engine maintenance and repair, and/or winterization of watercraft engines. Used oil should never be discharged directly to surface waters or ground surfaces, and should never be dumped or washed into storm drains or sanitary sewer. Although used oil is characterized as a hazardous waste, it is subject to less stringent requirements if it is managed as "Used Oil for Recycling." Used oil for recycling must be stored in structurally sound containers that are compatible with oil and which can be closed when oil is not being added or removed. All containers must be stored on impervious surfaces and under cover, with secondary containment. Each used oil container must be labeled as "Used Oil for Recycling." To ensure compliance with applicable regulations, it is recommended that used oil be recycled through authorized used oil marketers. Waste gasoline can similarly be collected, store, and recycled through authorized recyclers.

Stormwater

Stormwater runoff is created by rain events and melting ice and snow. As runoff flows over the ground surface it picks up contaminants such as petroleum products, nutrients, detergents, heavy metals, animal waste, trash, and sediment; all of which can be discharged to surface waters. These discharges result in adverse impacts to water quality, aquatic life, and recreational activities. Because of the industrial activities conducted at MVYC, the facility is required to obtain and abide by the requirements of a federal NPDES stormwater permit. Requirements of this permit include:

- The preparation of a Stormwater Pollution Prevention Plan.
- The implementation of BMPs to reduce or eliminate stormwater pollutants from reaching surface waters.
- Conducting quarterly visual monitoring of stormwater runoff characteristics.

- Conducting quarterly facility compliance inspections.
- Preparing and submitting annual compliance reports to the US Environmental Protection Agency (EPA).
- Collection of water quality samples. Conducting annual employee training.

BMPs associated with stormwater include:

- During storm events, minimize outside activities that might release contaminants to surface water.
- Routinely inspect and clean stormwater catch basins.
- Do not stockpile sand or gravel in proximity to catch basins where they might be washed in to surface waters.

Aboveground Storage Tanks

Aboveground storage tanks (AST) are used at MVYC to store used oil, used gasoline, used anti-freeze, and diesel fuel. EPA and NHDES regulate storage of "oil" in ASTs to prevent or minimize its release to surface waters. For the purposes of these regulations, the term "oil" includes fuel oil, motor oil, gasoline, diesel fuel, and similar petroleum products.

NHDES requires that any oil AST with a capacity of greater than 660 gallons to be registered, and any AST facility with a total storage capacity of greater than 1320 gallons in containers of 55 gallons or greater to prepare and maintain a Spill Prevention, Control, and Countermeasure plan (SPCC plan). Neither of these thresholds is currently exceeded at MVYC.

The following BMPs should be conducted for all facility ASTs:

- ASTs should have secondary containment and should be kept under cover.
- ASTs should remain closed unless fluids are being added or removed.
- ASTs should be regularly inspected for signs of corrosion, cracks, or other signs that might indicate a threat of leakage.
- Any spills or leakage should be cleaned up, preferably using dry clean-up methods, and all waste material should be containerized pending proper disposal.
- Individual ASTs should be maintained for each type of fluid and different fluid types should never be mixed. (NHDES 2006)

Underground Storage Tanks

MVYC maintains a 6,000-gallon Underground Storage Tank (UST) for the storage and dispensing of gasoline. This fueling facility is

registered with the NHDES and is subject to annual leak/tightness testing, inventory monitoring, and employee/operator training. BMPs associated with watercraft refueling at MVYC include:

- All refueling activities will be conducted by MVYC personnel who have been trained in the proper operation of the refueling equipment.
- Designated MVYC personnel have receive approved biennial training and are certified as Class A, B, & C UST Operators.
- Spill cleanup kits will be provided by the MVYC in proximity to the UST fuel pumps and at other appropriate locations at the facility to facilitate the rapid response to and clean-up of any significant spill, leak, or other discharge of gasoline or other potentially hazardous materials or water quality contaminants.

- An emergency shut-off device is located on the dockside portion of the marina store and should be activated in the event of a spill, leak, or other release of gasoline to the adjacent surface water.

Discharges of gasoline, oil, or other petroleum products to the environment must be reported to the applicable individuals or organizations. The type of report required will be determined by the nature and severity of the release and the potential for causing harm to human health or the environment.

Federal regulations require that any spill must be reported to the US Environmental Protection Agency (EPA) if it has the potential to:

- Violate applicable water quality standards; or
- Cause a film or sheen or discoloration of the water or adjoining shorelines, or cause a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines. (40 CFR part 110)

For any discharge that reaches navigable waters or threatens to reach navigable waters, immediate notification must be made to the National Response Center Hotline (800-424-8802) and to the EPA Region I office (888-372-7341).

State regulations require that any spill exceeding 25 gallons be reported to the NHDES within 24 hours of the release. Releases occurring after regular NHDES work hours must be reported to the State police (603-223-4381). An incident report form must also be completed and forwarded to NHDES Waste Management Division Spill Response & Complaint Investigation Section.

A written notification must be made to EPA, pursuant to requirements at 40 CFR 112, for any single oil discharge of more than 1,000 gallons to a navigable water or adjoining shoreline, or two or more discharges of at least 42 gallons of oil to a waterway in any 12-month period. This written notification is in addition to any requirements at 40 CFR 110, and must be made within 60 days of the qualifying discharge. A copy of the notification should also be sent to the NHDES.

Pet Waste

Pet waste contains bacteria, viruses, and nutrients that have the potential to adversely impact surface water quality. Therefore, all pet waste should be collected and disposed of in the pet waste disposal devices provided by the MVYC.

VI. FACILITY MAINTENANCE

Building & Landscape Maintenance

The building and grounds at MVYC should be maintained in a manner that will minimize the release of potential contaminants to surface and groundwater. BMPs that should be followed include:

- Minimize the use of herbicides, pesticides, and fertilizers, particularly in proximity to the surface water. Whenever possible use integrated pest management techniques.
- Whenever possible, refuel mowers, weed whackers, chain saws, and similar equipment on impervious surfaces to prevent the discharge of fuel to surface water and avoid refueling outside during storm events. Clean up spills immediately and properly dispose of any waste material.
- Maintain grass buffer strips along the water's edge where possible, as these provide a filtering effect.
- Routinely inspect the grounds and remove debris.
- Maintain dumpsters on impervious surfaces, where practical, at strategic locations on the property, and keep them closed unless adding or removing waste material. Routinely inspect dumpsters for signs of corrosion or leaks that could lead to the discharge of contaminated liquids to surface water.

V. EMPLOYEE HEALTH & SAFETY AND TRAINING

Marina employees are often required to work with or in proximity to hazardous materials, hazardous waste, or equipment that, if not properly maintained and operated, could result in personal injury. Typical BMPs recommended by NHDES and/or required by federal or state regulations include:

- Keep emergency contact names and telephone numbers posted near telephones in case of spills or emergency situations.
- Keep all material safety data sheets in an accessible and localized area, and ensure that personnel are aware of their location and purpose.
- Maintain good "housekeeping" practice, such as:
  - Maintain a minimum two feet of aisle space around waste storage containers to allow for routine inspections and to allow for easy access.
  - Clean-up spills in a timely fashion and avoid cluttered work areas to avoid potential slip, trip, and fall accidents.
- Provide eye wash stations and fire extinguishers in all work areas, as applicable.
- Keep spill kits in work areas, in case of emergencies.
- Provide respiratory protection devices, as necessary, for employees conducting sanding or spray painting operations.

MVYC is required to provide training for certain employees to conduct marina operations and properly use equipment and chemicals according to established rules and regulations. Training requirements to which the MVYC are subject include:

- The federal Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), under whose auspices the MVYC is required to seek coverage, requires that certain marina staff members receive annual training relevant to the permit's general and industrial sector-specific requirements.
- In 2013 the federal Occupation Safety and Health Administration (OSHA) issued requirements that employers provide training for the employees regarding the United Nations Harmonized System of Classification and Labelling of Chemicals. This training covers the new chemical labelling requirements and the new chemical Safety Data Sheet (SDS) format.
- As the owner of a registered UST facility the MVYC is required to have designated Class A, B, and C operators who have been trained and certified in accordance with an approved UST operator's training program.

- If marina personnel are required to respond to hazardous waste emergencies at the facility, OSHA regulations found in the Federal Register at 29 CFR 1910 require that they receive training to be properly prepared to address incident issues.