

Tab 5: Mechanical Activities _____ 55

Oil _____ 57

Antifreeze _____ 59

Rags and Oil Absorbent Pads _____ 61

Degreasing / Parts Washing _____ 63

Battery Replacement _____ 65

Upland Engine Operations _____ 67

Commissioning Engines _____ 68

Decommissioning Engines _____ 69

Zinc Replacement _____ 70

Refrigerants _____ 71

Oil

Potential Environmental Impacts:

Even small amounts of oil introduced into the marina environment can cause environmental problems, especially if they persist. Although some oil that spills into the water evaporates, petroleum hydrocarbons can remain suspended in the water column, concentrate on the surface, or settle to the bottom. Because of the properties of oil, a cup of oil can spread a very thin sheen over more than an acre of calm water. Oil sheens can block necessary oxygen and light from moving through the surface of the water. According to the EPA, the hydrocarbons in oil harm juvenile fish, upset fish reproduction, and interfere with the growth and reproduction of bottom-dwelling organisms.

Legal Requirements:

Manage oil	<input type="checkbox"/> Manage used oil, and any materials used to clean a spill, in accordance with the requirements specified in Appendix C [40 CFR 279; DHEC R.61-107.279].
Oil storage - SPCC	<input type="checkbox"/> Storage of used oil is subject to all applicable Spill Prevention, Control and Countermeasures [40 CFR 112].
Report spills	<input type="checkbox"/> Any spill or release of petroleum that results in a sheen on the waters of the state or threatens the waters of the state to include groundwater must be reported immediately to the: [DHEC R.61-68.E.4] <ol style="list-style-type: none"> 1. SCDHEC Emergency Response Section and 2. National Response Center at [Section 311 of the Clean Water Act; 33 USC 1321]
Do not use dispersants/ soap or other dispersants	<input type="checkbox"/> The use of dispersants, such as dishwashing soaps or detergents, on a fuel spill or sheen of any size on the surface water is prohibited in most circumstances. Dispersants may only be used with permission from federal or state authorities, and only in rare instances [40 CFR 110.4, DHEC R.61-68.E.5].

Best Management Practices:

Keep used oil separate from other liquids	<input type="checkbox"/> Do not allow anything else, such as gasoline, solvents, paint, varnishes, pesticides, or antifreeze to be added to the used oil container. The introduction of these materials will result in the whole mixture having to be managed as a hazardous waste, adding a large expense. In general, engine oil, transmission fluid, hydraulic fluid, and gear oil are considered used oil and may be placed in the waste oil container. As a precaution though, <u>check with your recycler before mixing any materials.</u>
Reuse oil	<input type="checkbox"/> Burn your used oil in an approved used oil fuel space heater. This is a cost saving measure that eliminates the cost of waste oil removal.
Recycle oil	<input type="checkbox"/> Have a registered used oil transporter haul the used oil offsite for recycling. Used oil that is recycled is subject to less stringent regulations than hazardous waste.

Recycle oil filters	<input type="checkbox"/> Recycle used oil filters. Puncture and thoroughly drain them first. If you generate large numbers of filters, consider purchasing a filter crusher.
Spill-proof oil changes	<input type="checkbox"/> Purchase a non-spill vacuum-type system for spill-proof oil changes, or to suction oily water from bilges. <input type="checkbox"/> Slip a plastic bag over used oil filters prior to removal to prevent drips.
Use absorbent pads	<input type="checkbox"/> Use oil absorbent materials to clean up small drips and spills. <input type="checkbox"/> Sell oil absorbent pads in the ships store.
Customer oil collection:	<input type="checkbox"/> Install collection facilities for used oil and used oil filters and encourage boaters to use them, or direct boaters to their municipal used oil collection facility, usually at local transfer station.
Consult EQC	<input type="checkbox"/> Collected oil should be recycled or burned in an approved heater; otherwise the marina may be subject to stricter regulations due to the increased generation of hazardous waste. Contact EQC for a consultation visit to ensure there is no change in generator status.
Post signs	<input type="checkbox"/> Post signs indicating how important it is that the used oil not be contaminated.
Separate tanks	<input type="checkbox"/> Consider providing separate tanks for used oil, one for patrons to use and a secure tank for used oil collected by marina facility staff.
Educate: don't use detergents	<input type="checkbox"/> Educate customers and staff to not use soaps and detergents to clean up oily drips and spills on the water.
Bilge water	<input type="checkbox"/> Avoid pumping bilge water that is oily or has a visible sheen. Use oil absorbent materials or an oil/water separator to remove oil before pumping. <input type="checkbox"/> Purchase a portable or stationary oil/water separator to clean bilge water. These devices draw contaminated water from bilges; capture hydrocarbons in a filter and discharge clean water.

Relevant Sections and Appendices:

- ⇒ Appendix C for used oil management.
- ⇒ Appendix E for spill plan and reporting information.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.
- ⇒ Spills section.

Antifreeze

Potential Environmental Impacts:

Antifreeze can pollute groundwater, surface water and drinking water supplies if dumped, spilled or leaked, and is harmful to marine and aquatic life. While in an engine, antifreeze can become contaminated with lead or fuel to the point where it must be managed as a hazardous waste. There are two types of antifreeze. Antifreeze with ethylene glycol, a greenish-yellow, odorless, sweet-tasting chemical, poses a serious health hazard to humans and animals if ingested. Antifreeze with propylene glycol, which is usually pink and marketed as nontoxic, is less toxic and is recommended for use.

Legal Requirements:

Make hazardous waste determination	<ul style="list-style-type: none"> <input type="checkbox"/> Waste antifreeze can be either hazardous or non-hazardous, depending upon the levels of contaminants it contains (the most common contaminants are lead, benzene, and zinc). In order to determine which is the case, the generator must either have their waste tested, or utilize reliable “knowledge of process” information for the waste (if available) [RCRA; 40 CFR 262.11; DHEC R.61-79.262.11]. Such information could include testing by haulers or studies by industry trade groups. <input type="checkbox"/> A hazardous waste determination must be conducted on any materials used to clean antifreeze spills [40 CFR 262.11; DHEC R.61-79.262.11].
Manage hazardous waste	<ul style="list-style-type: none"> <input type="checkbox"/> Antifreeze that is hazardous waste must either be recycled or disposed of via a permitted hazardous waste hauler. While stored on-site, it must be managed in accordance with hazardous waste storage requirements [40 CFR 262.11; DHEC R.61-79.262.11].
Do not discharge	<ul style="list-style-type: none"> <input type="checkbox"/> Antifreeze that is determined to not be a hazardous waste is still considered a polluting liquid waste and may not be discharged into the waters of the state or placed in a location where it is likely to end up in the waters of the state [SC Pollution Control Act, Sec. 48-1-90(a), R.61-79.262.90].

Best Management Practices:

Choose Pink	<ul style="list-style-type: none"> <input type="checkbox"/> Use propylene glycol antifreeze (usually pink), which is less toxic than ethylene glycol (usually green), where appropriate. Sell propylene glycol in your ships store.
Transfer Carefully	<ul style="list-style-type: none"> <input type="checkbox"/> Use drip pans and funnels when transferring antifreeze to minimize spills and drips. <input type="checkbox"/> Wear eye protection, clothing that covers exposed skin and rubber gloves when transferring antifreeze. <input type="checkbox"/> Pour slowly and carefully to avoid splashing.

Segregate, Cover, and Label	<input type="checkbox"/> Segregate used antifreeze from other wastes. <input type="checkbox"/> Provide well-marked, coverable containers that are in good condition to collect antifreeze. <input type="checkbox"/> Label the containers “Used Antifreeze.” <input type="checkbox"/> Never mix antifreeze with other chemicals.
Contain	<input type="checkbox"/> Recover antifreeze used to winterize systems. <input type="checkbox"/> Store antifreeze in a container that can be completely drained with a wide opening. Keep antifreeze storage containers closed at all times. <input type="checkbox"/> Provide containment to prevent spills from entering ground water or stormwater.
Recycle	<input type="checkbox"/> Recycle used antifreeze. <input type="checkbox"/> Recycling options for antifreeze include: <ol style="list-style-type: none"> 1. Purchase on-site recycling equipment and recycle at your facility. Conduct a RCRA hazardous waste determination (i.e., test the residue or filter cartridge) at least one time to verify that the waste is not hazardous before recycling on-site. Keep a copy of the test results in your files; 2. Contract with a hauler that recycles the antifreeze off-site.

Relevant Sections and Appendices:

- ⇒ Appendix B for hazardous waste management information.
- ⇒ Appendix C for used antifreeze management information.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.
- ⇒ Hazardous waste section.

Rags and Oil Absorbent Pads

Potential Environmental Impacts:

Contaminated rags and oil absorbent pads that are improperly managed may pose fire, health, and environmental risks. Minimizing contamination of rags and pads reduces health risks to workers and emissions of volatile organic compounds to the air, improves effluent discharge from industrial laundries if you use washable rags, decreases liability risks, and saves money by minimizing solvent use.

Legal Requirements:

Types of contaminated rags/pads	<input type="checkbox"/> How used cloth rags/pads are managed depends on what the rags are contaminated with [40 CFR 262.11; DHEC R.61-79.262.11]. <input type="checkbox"/> If the used rag is: <ol style="list-style-type: none"> 1. Dripping with used oil, manage as used oil. 2. Contaminated with used oil, but not dripping, evaluate for hazardous waste then properly manage. 3. Contaminated with paints or solvents, or other hazardous materials, manage as hazardous waste. 4. Contaminated with other material (or only with mild cleaners or soaps), dispose of in regular trash.
Leased rags/ pads	<input type="checkbox"/> If you lease rags/pads and have them laundered, and they are contaminated with hazardous waste, you must manage them as hazardous waste until they are picked up for laundering. However, they do not require a hazardous waste manifest [40 CFR 262.11; DHEC R.61-79.262.11].

Best Management Practices:

Separate rags/pads	<input type="checkbox"/> Keep oily rags/pads separate from rags that have been contaminated with hazardous materials such as solvents.
Wring rags/pads	<input type="checkbox"/> Remove excess solvent from rags/pads by wringing or pressing excess into coverable container.
Reduce solvent use	<input type="checkbox"/> Reduce the amount of solvent used in cleaning through improved work practices. Use solvents only when absolutely necessary. Use non-VOC cleaners.
Recyclable rags	<input type="checkbox"/> Use cloth rags that can be recycled by an industrial laundry service.
Laundry service	<input type="checkbox"/> Contract with a permitted industrial laundry service that will pick up soiled rags and deliver clean rags on a regular basis. The laundry service may require you to limit the solvent and other chemical content of the soiled rags because of the limits on their permit to discharge wastewater into the sanitary sewer.
Rag/pad storage	<input type="checkbox"/> Store ignitable rags/pads in NFPA approved, labeled containers until they can be laundered.
Rags/pads with gasoline	<input type="checkbox"/> Reuse rags or absorbent pads that have soaked up ONLY gasoline.

Rags/pads with oil	<input type="checkbox"/> If rag or absorbent pad has soaked up ONLY diesel or oil: <ol style="list-style-type: none">1. If the used oil collector will accept them for energy recovery, place in a covered container in the used oil collection area for pickup.2. If the rag or pad is dry and the used oil collector will not accept them, check that the landfill will accept them and then double bag and place in trash.
--------------------	--

Relevant Sections and Appendices:

- ⇒ Appendix B for hazardous waste management information.
- ⇒ Appendix C for used oil management information.
- ⇒ Hazardous Waste section.
- ⇒ Oil section.

Degreasing / Parts Washing

Potential Environmental Impacts:

Degreasers used to clean metal parts may be organic solvents (chlorinated or non-chlorinated) or water-based cleaners. Organic solvents usually contain volatile organic compounds (VOCs), which can evaporate quickly. Many VOCs combine with combustion emissions to form ground level ozone, a major component of “smog.” Ozone damages lungs and degrades many materials. When solvents are released and reach water, even in very small quantities, they may render the water unfit for human consumption and uninhabitable for aquatic life. Many organic solvents are also combustible, which may pose a fire hazard.

Legal Requirements:

Make hazardous waste determination	<input type="checkbox"/> A hazardous waste determination must be conducted to establish whether or not disposal of waste solvents and parts washer solutions is subject to hazardous waste regulations [RCRA; 40 CFR 262.11; DHEC R.61-79.262.11]. A hazardous waste determination must also be conducted on any materials used to clean a spill.
------------------------------------	---

Best Management Practices:

Use non-VOC cleaners	<input type="checkbox"/> Use water-based, non-VOC cleaners that are less hazardous than solvent-based degreasers. They are also less toxic and non-flammable. Don't use a toxic or flammable organic solvent if you don't have to.
Volatile organic compound (VOC) use procedures	<input type="checkbox"/> Any parts washer that uses VOCs at room temperature should follow these equipment design and operating procedures: <ol style="list-style-type: none"> 1. The cover must be easily operated with one hand and closed whenever the parts washer is not being used for 2 minutes or more. 2. Parts must be covered during draining. 3. Waste solvent must be stored in covered containers. 4. Cleaned parts must be drained for at least 15 seconds, or until dripping ceases, whichever is longer. 5. Degreasing solvent must be sprayed as a compact fluid stream (not a fine, atomized, or shower type) and at a pressure that does not exceed 10 psi. 6. Operation must cease at the occurrence of any visible solvent leaks. 7. Post labels on or near each unit summarizing the applicable operating requirements. 8. Keep monthly records on the amount of solvent added to each unit.
Contain solvents	<input type="checkbox"/> If using VOC-based solvents is unavoidable, catch excess solvents in a pan and reuse.
Separate solvents	<input type="checkbox"/> Do not mix or add other types of solvents to any degreaser.
Don't dump solvents	<input type="checkbox"/> Never discard any degreasing solvent into sinks, floor drains or onto the ground. It will find its way to local waters and as little as a thimble full may render thousands of gallons of water uninhabitable for aquatic life or unfit for human consumption. You may be held responsible for remediation.

Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste management information.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.
- ⇒ Antifreeze section.
- ⇒ Battery Replacement section.
- ⇒ Oil section.
- ⇒ Rags and Oil Absorbent Pads section for used rag disposal information.

Battery Replacement

Potential Environmental Impacts:

If handled improperly, lead acid batteries pose certain hazards. Battery components are toxic and corrosive, and can also be a fire and explosion hazard. Lead and sulfuric acid can contaminate the air, soil, and water. Direct contact with sulfuric acid can burn the skin and eyes. Exposure to lead in the environment can pose a serious health hazard to children. Lead is also very toxic to aquatic life and can enter marina basins through stormwater when spent lead acid batteries are not managed properly.

Legal Requirements:

<p>Universal Waste Rule:</p> <p>Label</p> <p>Store < 1 year</p> <p>Keep in container</p> <p>Contain spills</p> <p>Package appropriately</p> <p>Shipment</p> <p>Collection</p>	<p><input type="checkbox"/> Marinas that store less than 5,000 kilograms (11,000 pounds) of spent lead-acid batteries would be classified as “Small Quantity Handlers” under the Universal Waste Rule. Such handlers are required to do the following [40 CFR 273 Subpart B; DHEC R.61-79.273]:</p> <ol style="list-style-type: none"> 1. Mark all batteries (or containers holding such batteries) with the words “Universal Waste – Batteries,” “Waste Batteries,” or “Used Batteries.” 2. Store batteries for no more than one year before sending them off-site for recycling. 3. Place any battery that shows signs of leakage, spillage, or damage in a container that is kept closed, is structurally sound, and is compatible with the contents of the battery. 4. Immediately contain any releases of batteries or electrolyte. 5. Before shipping batteries off-site, ensure that they are packaged, marked, labeled, and placarded in accordance with U.S. DOT rules for hazardous materials. 6. Ship the batteries to another Universal Waste handler, or to an authorized destination facility for recycling. Prior to shipment, ensure that the receiving facility agrees to receive the shipment. Any shipments that are rejected must be taken back, or directed to another handler or destination facility. In addition, if you transport batteries from one site to another, you must comply with Universal Waste transporter requirements [40 CFR 273 Subpart D; DHEC R.61-79.273.18]. 7. A marina that accepts lead acid batteries from the public for temporary storage prior to recycling must be registered with DHEC. [DHEC R.61-107.8].
<p>Make hazardous waste determination</p>	<p><input type="checkbox"/> A hazardous waste determination must be conducted on spilled acid and broken lead acid batteries, and any materials used to clean a spill, to establish whether or not their disposal is subject to hazardous waste regulations [RCRA; 40 CFR 262.11; DHEC R.61-79.273.18].</p>
<p>If > 500 lbs stored onsite</p>	<p><input type="checkbox"/> If over 500 pounds of batteries are stored on-site, report the chemicals in lead acid batteries (sulfuric acid and lead) as part of your hazardous and toxic chemical inventory and notifications required under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) [40 CFR 355].</p>

Best Management Practices:

Limit long term storage	<input type="checkbox"/> Avoid long-term storage of lead acid batteries by sending accumulated batteries to a reclaimer within six months of receipt. Limit accumulation of large quantities of spent batteries. If necessary, ship more frequently.
Store properly	<input type="checkbox"/> Store spent lead acid batteries upright in a secure location, protected from the elements. <input type="checkbox"/> Never stack batteries directly on top of each other. Layer with wood. <input type="checkbox"/> Never drain batteries or crack the casings.
Broken batteries	<input type="checkbox"/> Place cracked or leaking batteries in a sturdy, acid-resistant, leak-proof, sealed container (e.g., a sealable 5-gallon plastic pail). The container should be kept closed within the battery storage area.
Transport properly	<input type="checkbox"/> Strap batteries to pallets or wrap batteries and pallet in plastic during transport.
Keep records	<input type="checkbox"/> Keep written records of weekly inspections of spent lead acid batteries.

Relevant Sections and Appendices:

- ⇒ Appendix A for hazardous substance management information.
- ⇒ Appendix B for hazardous waste management information.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.
- ⇒ Hazardous waste section.

Upland Engine Operations

Potential Environmental Impacts:

Working on boat engines has potential environmental impacts. If engine fluids are not well managed, they may be transported by stormwater into the marina basin, where they can harm fish and other aquatic life. If certain fluids are mixed, they may become subject to hazardous waste requirements and be more expensive to dispose. Waste fluids from upland engine operations may include: engine oil, transmission fluid, power steering fluid, brake fluid, hydraulic fluid and antifreeze, all of which are recyclable liquids. Many of these fluids can be hazardous, and may pick up contaminants (e.g., lead from bearings) during use in an engine.

Legal Requirements:

Make hazardous waste determination	<input type="checkbox"/> A hazardous waste determination must be conducted to establish whether or not disposal of waste fluids is subject to hazardous waste regulations [RCRA; 40 CFR 262.11; DHEC R.61-79.262.11]. A hazardous waste determination must also be conducted on any materials used to clean a spill.
------------------------------------	--

Best Management Practices:

Don't discharge fluids	<input type="checkbox"/> Never pour waste fluids down any drains, including stormwater drains, or onto the ground. Exception: waste fluids may be discharged into sealed and permitted blind sumps that capture contaminants for proper treatment and disposal. <input type="checkbox"/> Do not dispose of liquid waste in dumpsters.
Separate and recycle fluids	<input type="checkbox"/> Recycle fluids whenever possible. In general, the purer the waste stream, the higher the value to the recycler. Never mix gasoline, antifreeze, or chlorinated solvents into used oil because it may cause the used oil to become a hazardous waste, therefore requiring higher disposal costs.

Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste management information.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.
- ⇒ Appendix C for used oil and antifreeze management.
- ⇒ Antifreeze section.
- ⇒ Oil section.
- ⇒ Rags and Oil Absorbent Pads section.

Commissioning Engines

Potential Environmental Impacts:

The waste fluids generated when commissioning engines on the upland, if not properly managed, can potentially enter the water in stormwater runoff. Contact with the fluids can harm fish and other marine and aquatic life. If certain fluids are mixed, they may become subject to hazardous waste requirements and be more expensive to dispose. Waste fluids from commissioning engines may include engine oil, gasoline, diesel fuel, and antifreeze.

Legal Requirements:

Gasoline disposal	<input type="checkbox"/> If stale gasoline cannot be reconditioned, dispose of it as hazardous waste [40 CFR 262.11; DHEC R.61-79.262.11].
-------------------	--

Best Management Practices:

Check for leaks	<input type="checkbox"/> Inspect fuel lines for leaks or potential leaks such as cracks and loose connections. These can be persistent sources of engine fluids to the bilge.
Encourage boaters	<input type="checkbox"/> Household hazardous waste programs may accept unwanted gasoline and gas/oil blends generated by individual boat owners. Encourage marina patrons to dispose of their waste gasoline through their own municipal household hazardous waste collection programs, if appropriate.

Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste minimization tips.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.
- ⇒ Antifreeze section.
- ⇒ Oil section.
- ⇒ Rags and Oil Absorbent Pads section.

Decommissioning Engines

Potential Environmental Impacts:

The waste fluids generated when decommissioning engines on the upland, if not properly managed, can potentially enter the water in stormwater runoff. Contact with the fluids can harm fish and other marine and aquatic life. If certain fluids are mixed, they may become subject to hazardous waste requirements and be more expensive to dispose. Waste fluids from decommissioning engines may include engine oil, gasoline, diesel fuel and antifreeze.

Legal Requirements:

Gasoline disposal	<input type="checkbox"/> If stale gasoline cannot be reconditioned, dispose of it as hazardous waste [40 CFR 262.11; DHEC R.61-79.262.11].
-------------------	--

Best Management Practices:

Use pink antifreeze	<input type="checkbox"/> Use propylene glycol antifreeze (usually pink) to winterize all systems except “closed,” or freshwater cooling systems. Propylene glycol antifreeze is much less toxic than ethylene glycol antifreeze. Use the minimum amount of antifreeze necessary for the job.
Use stabilizers	<input type="checkbox"/> Where appropriate, add stabilizers to fuel to protect engines against corrosion and the formation of sludge, gum, and varnish. Stabilizers are available for gasoline and diesel fuels, and for crankcase oil. This also eliminates the problem of stale fuel disposal in the spring. Check manufacturer’s warranty on engine before adding fuel stabilizers.
Fill fuel tank only 90%	<input type="checkbox"/> Fill fuel tanks to 85-90% full to prevent flammable fumes from accumulating and to minimize the possibility of condensation leading to corrosion. Do not fill the tank more than 90% full if the boat has an external overflow vent. The fuel will expand as it warms in the springtime, and fuel will spill out the vent line of a full inboard tank.
Unwanted gas	<input type="checkbox"/> Household hazardous waste programs may accept unwanted gasoline and gas/oil blends generated by individual boat owners. Encourage marina patrons to dispose of their waste gasoline through their own municipal household hazardous waste collection programs, if appropriate.

Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste minimization tips.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.
- ⇒ Antifreeze section.
- ⇒ Battery Replacement section.
- ⇒ Oil section.
- ⇒ Rags and Oil Absorbent Pads section.

Zinc Replacement

Potential Environmental Impacts:

Sacrificial zinc anodes fight corrosion in salt water by deterring corrosion of metal hull and engine parts. Elevated levels of zinc in marina sediments have been found to be associated with boat operation and maintenance. Zinc, in high concentrations, can be toxic to marine life, and can be potentially toxic to humans who eat contaminated shellfish or fish.

Legal Requirements:

Make hazardous waste determination	<input type="checkbox"/> A hazardous waste determination must be performed on waste zinc anodes being disposed of [RCRA; 40 CFR 262.11; DHEC R.61-79.262.11]. However, if the anodes can be recycled as scrap metal, they do not have to be managed as hazardous waste.
------------------------------------	---

Best Management Practices:

Recycle	<input type="checkbox"/> Recycle zinc anodes with other scrap metals. Scrap metal dealers will take spent zinc anodes.
Storage	<input type="checkbox"/> Store zinc anodes with other recyclable scrap metals in clearly marked containers protected from the elements.

Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste management information.
- ⇒ Appendix F and Stormwater Runoff Management Practices section for stormwater discharge information.

Refrigerants

Potential Environmental Impacts:

Refrigerants become an environmental problem when they escape into the air. Chlorofluorocarbons (CFCs, or Freon™) are gases used primarily as refrigerants in motor vehicle air conditioners, building air conditioning units, refrigerators, and freezers. When CFCs are released into the air, they rise into the upper atmosphere where they damage the protective ozone layer in the stratosphere. A single CFC molecule can destroy 100,000 molecules of ozone. The ozone layer absorbs the sun's harmful ultraviolet (UV) radiation and when it is damaged living things on the earth become exposed to harmful UV.

Legal Requirements:

Air conditioner service	<ul style="list-style-type: none"> <input type="checkbox"/> Everyone who services air conditioners must be certified in the proper use of CFC recovery and recycling equipment [Clean Air Act, Title VI, Section 608 and 609, 40 CFR 82.34]. <input type="checkbox"/> The Clean Air Act prohibits release of CFCs and halons. Anyone repairing or servicing motor vehicle air conditioners must recover or recycle CFCs on-site or recover CFCs and send them off-site for recycling [40 CFR 82.34].
-------------------------	--

Best Management Practices:

Refrigerant alternatives	<ul style="list-style-type: none"> <input type="checkbox"/> Investigate alternatives to ozone-depleting refrigerants. These include HFC-134 (or R-134a), R-409a and R-404a.
Repair leaks	<ul style="list-style-type: none"> <input type="checkbox"/> The EPA does not require that leaks be repaired, although it recommends that vehicle owners consider repairing leaks to reduce emissions and extend the useful life of their air conditioner. Repair of leaking systems will help vehicle owners avoid the need to continue to refill systems with high priced refrigerant.
CFC handling	<ul style="list-style-type: none"> <input type="checkbox"/> For more information on CFC handling, contact the EPA at (800) 821--1237, or the National CFC Hotline at (800) 296-1996, between 7:00 a.m. to 1:00 p.m. Monday through Friday.

