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# ENVIRONMENTAL Fact Sheet

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WD-DWGB-22-6

2010

## Best Management Practices for Fueling and Maintenance of Excavation and Earthmoving Equipment

Env-Wq 401, Best Management Practices for Groundwater Protection, applies to a variety of businesses and activities considered potential contamination sources under the Groundwater Protection Act, RSA 485-C. If you operate a *permanent* facility for fueling or maintenance of excavation or earthmoving equipment (or other vehicles), consult DES fact sheet WD-DWGB-22-4, Best Management Practices for Groundwater Protection. **If you fuel or maintain excavation or earthmoving equipment *in the field***, this fact sheet explains how to meet the requirements of the best management practices (BMP) rules. The BMP rules apply to “regulated containers” holding five or more gallons of a regulated substance, **which include motor fuels, lubricants, hydraulic fluids, other petroleum products, degreasers, and other substances that are capable of contaminating drinking water.**<sup>1</sup> The rules do not apply to petroleum storage tanks regulated under Env-Wm 1401 Underground Storage Facilities (USTs) or Env-Wm 1402 Control of Aboveground Petroleum Storage Facilities (ASTs), but may apply to the transfer of fuel or other petroleum products between ASTs/USTs and equipment or portable containers.

### **1. Store fuels and regulated substances in sealed, clearly labeled containers.**

Regulated containers must be labeled (specifying contents), closed and sealed at all times, except to add or remove fluids.

### **2. Store regulated containers on a stable, level, impervious surface.**

Regulated containers must be stored in such a way that they will not easily tip over. Fueling, fuel storage, and maintenance areas, where transfers of fuel/fluids or work on equipment or vehicles that might result in spills, must be located on level ground with an impervious floor surface constructed of concrete, asphalt, chemically compatible polymer material or any other impervious surface that will contain gas, oil or other fluids in use. If the facility is subject to Env-Wm 1402 (AST rules; see above) the impervious surface must be concrete. Impervious surfaces together with secondary containment barriers (e.g., tank vaults, positive limiting barriers, containment berms) can effectively contain spills or tank failures. Containers must not be stored on pervious surfaces (wood, soil) or otherwise come in contact with moist earth.

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<sup>1</sup> Under Env-Wq 401, “Regulated substance” means any of the following, with the exclusion of ammonia, sodium hypochlorite, sodium hydroxide, acetic acid, sulfuric acid, potassium hydroxide, and potassium permanganate:

(1) Oil as defined in RSA 146-A:2, III; (2) Any substance that contains a regulated contaminant for which an ambient groundwater quality standard has been established pursuant to RSA 485-C:6; and (3) Any substance listed in 40 CFR 302, 7-1-05 edition.

### **3. Provide secondary containment around fuel storage containers and during transfers.**

Secondary containment must be provided for all regulated containers and be in place during refueling activities involving transfers of fuel from “on-road” delivery trucks, “off-road” tank trucks (referred to as “mobile refuelers”) or portable containers to field equipment.

**Option 1 (Mobile Fueling):** This involves fueling earthmoving or excavation equipment from a tank truck or some other container that is moved around the site. Secondary containment equipment used during mobile fueling should be sized to contain the *most likely* volume of fuel to be spilled during a fuel transfer.<sup>2</sup> Portable containment equipment should be positioned to catch any fuel spills due to overfilling the equipment and any other spills that may occur at or near the fuel filler port to that equipment. The selection of containment equipment and its positioning and use should take into account all of the drip points associated with the fuel filling port and the hose from the fuel delivery truck.<sup>3</sup> Personnel must attend to the fueling process to ensure that any spills will be of limited volume. See the diagram in Figure 1A and Attachment 1, photos A and B for examples of portable spill containment that may be used during mobile fuel transfers.

**Option 2 (Fuel Storage and Transfer Areas):** This involves fueling equipment in a fixed location on the site. Refueling containers (skid-mounted tanks, drums, five-gallon cans) must have secondary containment. Secondary containment areas for fuel storage tanks must be able to contain 110 percent of the volume of the largest fuel storage container and have an impervious floor. Tanks may be placed within a metal, plastic, polymer or pre-cast concrete vault providing 110 percent of the volume of the largest fuel storage container. For smaller volumes stored in fuel drums, containment pallets provide suitable secondary containment. See Attachment 1, photos E and F. Fuel transfer should be done over a flat, impervious fuel transfer area adjacent to the fuel storage tank(s). The impervious fuel transfer area should extend beyond the full reach (length) of the fuel hose to avoid spills directly onto a pervious surface. See Figure 1B. Portable containment equipment may provide both secondary containment for the fuel storage tank (110 percent of the volume) and the required impervious area (typically raised at the perimeter) necessary for conducting fuel transfers. See Attachment 1, photos C and, D. Tank storage and fuel transfers may also be within secondary containment areas constructed by forming a basin sloped down to a central low point or bermed along the perimeter, lined with a continuous sheet of 20 mil (or greater) polymer material or appropriate geomembrane liner<sup>4</sup>, and backfilled with at least six inches of sand.

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<sup>2</sup> The “most likely” volume to be spilled is dependent upon factors such as the fuel transfer rate (gallons per minute), amount of fuel being transferred, the distance between the hose nozzle and pump shut off switch, and the response time of personnel and equipment available at the facility.

<sup>3</sup> Drip points include any points from which fuel may drip to the ground if leaked from or spilled near the fuel tank filler port or the fuel nozzle on the hose. Portable containment systems typically include a floor having an impervious geotextile with an attached berm or sidewall to contain spilled fluids.

<sup>4</sup> Portable containment products must be used according to manufacturer’s specifications including those related to environmental, chemical resistance limits including exposure time, bonded seam strength, and puncture and tear strength. An ASTM Puncture rating (D4833) of 200 lbs or greater and tear strength (D4533) to equal 30/30 lb should be minimum requirements for all liners.

Figure 1A  
Containment with Impervious Surface (in grey)  
for Mobile Fuel Transfers

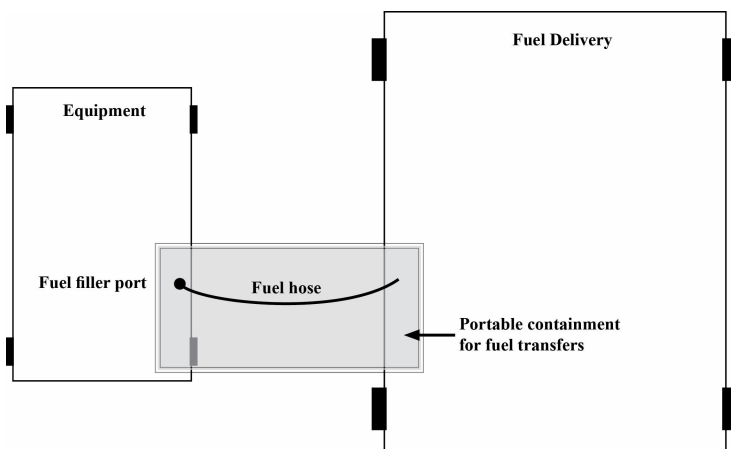
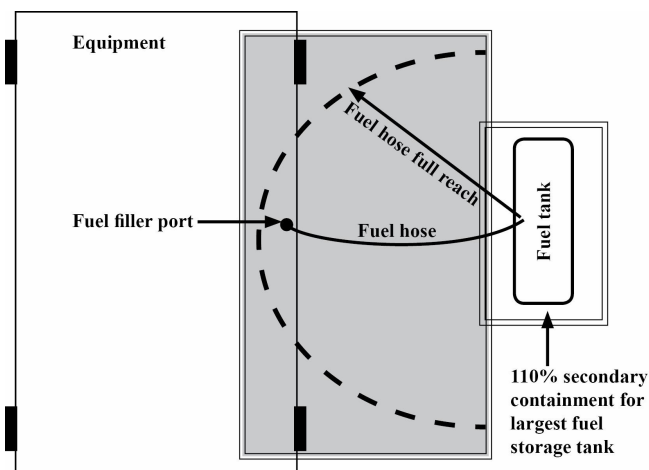


Figure 1B  
Tank Containment with Impervious Surface  
(in grey) for Fuel Transfers



#### 4. Keep secondary containment area covered and dry.

Secondary containment for outdoor storage areas (for fuel or other regulated substances) must be covered with a roof, plastic sheeting, or waterproof tarpaulins to keep containers dry, except when materials are being added or removed. The area must be kept free of rain, snow, and ice to ensure sufficient containment volume remains to contain a release from the largest storage tank. For relatively small storage areas, spill containment pallets and covers are commercially available. (See Attachment 1, photos E and F) If the water collected from the containment area has a visible sheen, DES must be contacted at (603) 271-3644 before disposal of the water.

#### 5. Comply with Related State and Federal Requirements

Construction, installation or use of aboveground tanks storing petroleum products with a capacity greater than 660 gallons in any one tank, or a combined volume of petroleum products tanks on a site greater than 1,320 gallons, must be pre-approved and registered with DES per Env-Wm 1402. (Contact the AST Program at 271-3644)

Sites storing more than a total of 1,320 gallons (in containers 55-gallons or larger) of oil products are also regulated under the federal Spill Prevention Control and Countermeasure (SPCC) Rule, 40 CFR 112. In addition to secondary containment requirements for “bulk storage” these sites must also provide spill containment during mobile fuel transfers complying with the rule’s provisions.<sup>5</sup> Both fuel trucks that come to the site to deliver fuel (e.g. “on-road”) and vehicles only used at the site to dispense fuel to equipment (e.g., “mobile refuelers”) are subject to the SPCC rules involving secondary containment during fuel transfers. Guidance on the SPCC rule with examples of secondary containment options may be found within *EPA’s Spill Prevention, Control, and Countermeasure (SPCC) Guidance for Regional Inspectors*. For a copy of this guide, please see [www.epa.gov/OEM/content/spcc/spcc\\_guidance.htm#Content](http://www.epa.gov/OEM/content/spcc/spcc_guidance.htm#Content).<sup>6</sup>

<sup>5</sup> Tanks regulated under Env-Wm 1402 (AST rules) must also comply with the federal (SPCC) and must conduct fueling activities in accordance with a facility plan summarizing the structural and/or non-structural measures in place or in use to contain spills or releases of “oil” as defined under the rule.

<sup>6</sup> For more information concerning the SPCC rule, contact the EPA Region 1 SPCC Enforcement Coordinator (Joseph Canzano) at (617) 918-1763 or [canzano.joseph@epa.gov](mailto:canzano.joseph@epa.gov).

Stationary fuel tanks over 60 gallons and portable containers under 60 gallons that provide fuel to off-road vehicles (e.g. excavators) must also comply with National Fire Protection Association (NFPA) standards, specifically NFPA 30 Flammable and Combustible Liquids Code, and, if fueling “on-road” vehicles, NFPA 30A Motor Fuel Dispensing Facilities and Repair Garages. NFPA standard 30 establishes minimum fabrication standards for tanks and containers holding flammable and combustible liquids, limits on the amount of materials that can be stored in any one pile or rack, distances between piles or racks, property line setbacks and accessibility.

Any fuel container larger than 60 gallons must meet UL standard 142, *Steel Aboveground Tanks for Flammable and Combustible Liquids* establishing minimum requirements for fabrication, installation and inspection for aboveground storage tanks.<sup>7</sup>

#### **6. Train employees to prevent, contain, and clean up spills.**

Train employees in all aspects of proper storage and handling of fuel or other regulated substances. Instruct employees to use spill prevention equipment (e.g., drip pans, etc.), be present during all fuel transfers, and *immediately* clean up spills and contaminated soil. Absorbents to pick up spills and leaks must be located in the immediate area where fuels are transferred, used, or stored. In addition, spill response information must be posted at all storage areas (poster available from DES).

#### **7. Immediately report significant or uncontrolled spills.**

Small spills that are quickly cleaned up do not need to be reported. However, if *any* of the following occurs, the spill must be immediately reported to the N.H. Department of Environmental Services at (603) 271-3899 or (603) 271-3636 after 4 p.m. on weekdays or on weekends:

- ✓ The spill is 25 gallons or more.
- ✓ The spill is not contained immediately.
- ✓ The spill and contamination are not completely removed within 24 hours.
- ✓ There is impact or potential impact to groundwater or surface water.

#### **8. Properly store and dispose of contaminated soil and materials.**

Store small quantities of contaminated soil, leaking drums/cans or used absorbent materials in covered, water-tight containers. If you are going to transport contaminated absorbents or leaking drums/cans, they must be shipped in a DOT or UN Salvage Drum that complies with DOT 49 CFR 173.3 (c). Do not mix absorbents contaminated with different petroleum products or other regulated substances. This can create a hazardous waste that requires disposal by a licensed hauler. If wastes with petroleum or other regulated substances are mixed, contact DES to determine whether it is necessary to manage the waste as a hazardous or solid waste. Determining whether the waste is hazardous may require lab testing. Contact the Hazardous Waste Management Bureau’s Compliance Section at (603) 271-2942 for more information. Information concerning proper disposal of petroleum contaminated solid wastes (e.g., absorbents) is available from the Solid Waste Bureau’s Compliance Section at (603) 271-2925.

#### **9. Keep storage areas secure.**

Fuel storage areas must be kept secure. Employ a locked gate at the entrance to the site, a fence and a locked gate around the storage area, and/or store regulated substances in a locked trailer or shed. Access to storage areas must be under lock whenever the site is unattended. If the site is inactive for a period, the storage area must be inspected weekly for leaks and security. To keep storage areas secure from collision damage, berms or boulders should be used and the storage area should be located away from the active portion of the site.

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<sup>7</sup> See Underwriters Laboratory Standards at <http://ulstandardsinfont.ul.com/> for access to a complete copy of the standards.

**10. Keep containers away from surface waters, catch basins (stormwater), private and public water supply wells.**

Containers must be kept at least 50 feet from catch basins and surface waters, 75 feet from private wells, and outside the sanitary radius (varies from 150 to 400 feet) of a public well. Contact the local public water supplier or DES (271-0688) to determine the sanitary radius for the well.

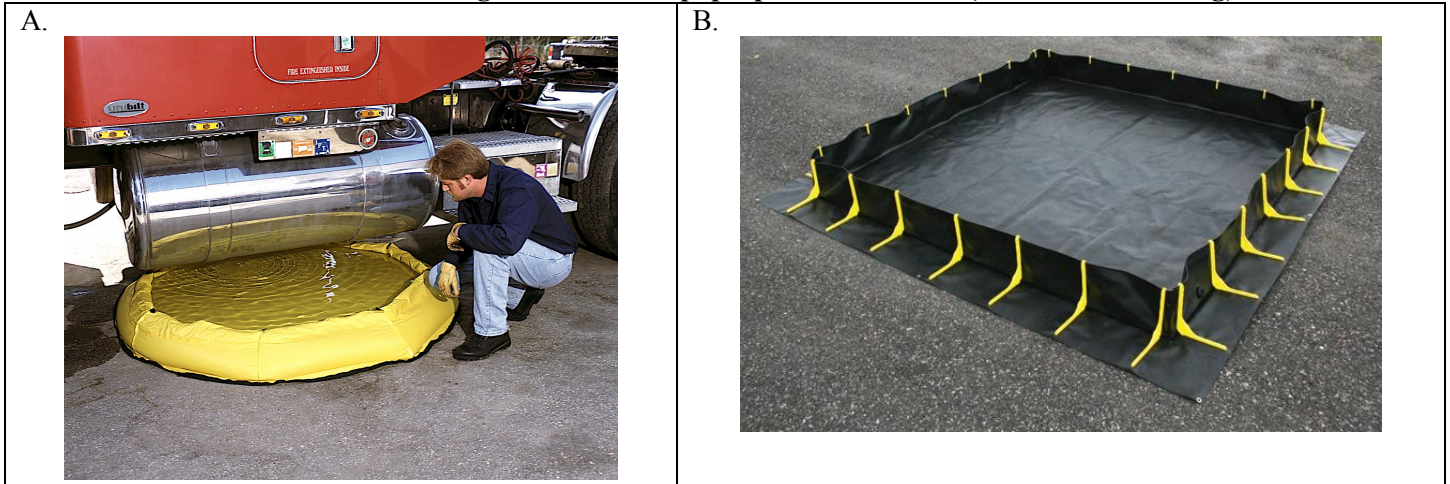
**Waivers**

While the BMP rules are intended to apply to a variety of circumstances, DES recognizes that strict compliance may not fit every situation. Requests for specific waivers should be directed to DES at (603) 271-2947.

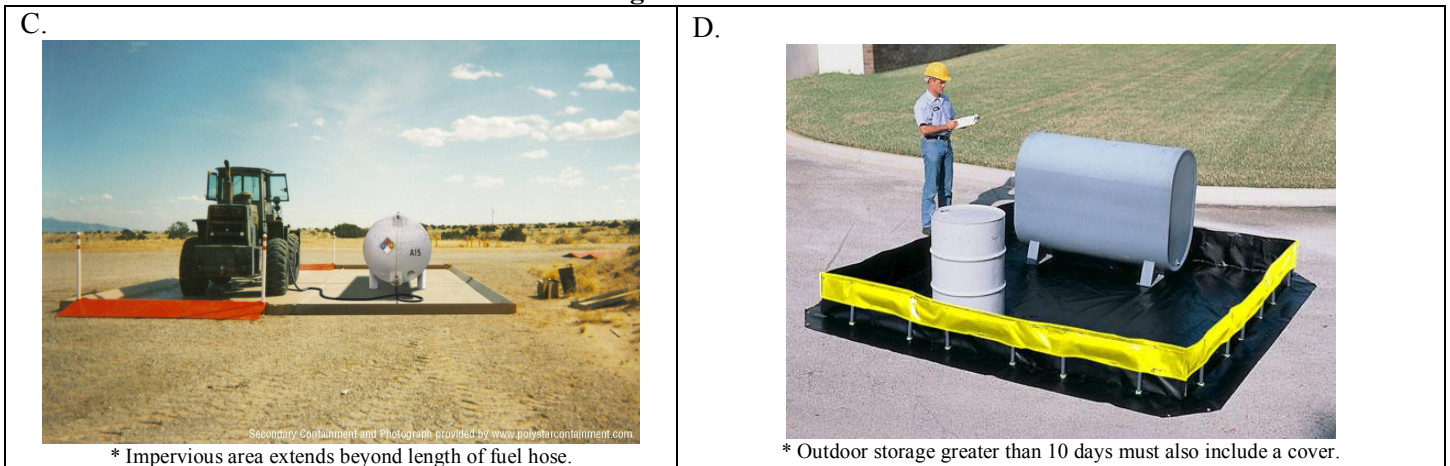
This fact sheet is a statement of DES's policy for interpreting Env-Wq 401, in terms of its applicability to fueling and maintenance of earthmoving and excavation equipment. Information contained in this fact sheet is current as of March 2010. Statutory or regulatory changes that may occur after this date may change this information. If there are any questions concerning the status of the information, please contact DES at (603) 271-2947.

**Attachment 1**  
Portable Containment, Storage and Cover<sup>8</sup>

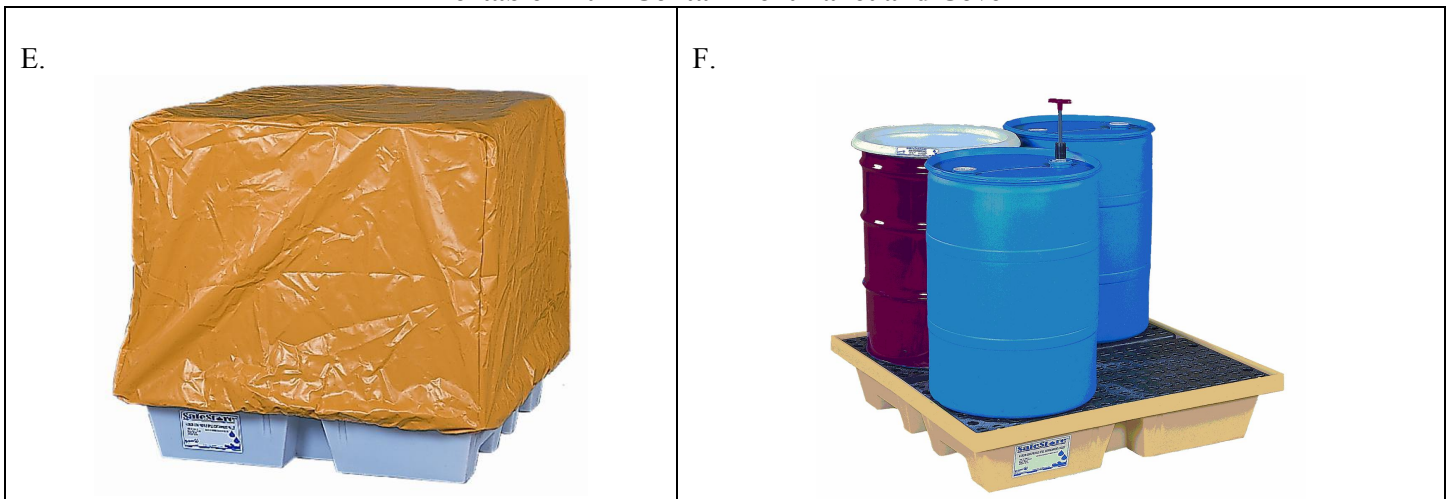
**Containment with Rigid or Flexible “pop-up” Pool or Berm (for mobile refueling)**



**Tank Storage and Fuel Transfer Area**



**Portable Drum Containment Pallet and Cover**



<sup>8</sup> Photos have been provided courtesy of Dawg Inc., Interstate Inc., Safetyshop, UltraTech International Inc., and PolyStar Inc.