TIMBER TALK

TECHNICAL QUESTIONS & ANSWERS FOR THE FOREST PRODUCTS INDUSTRY

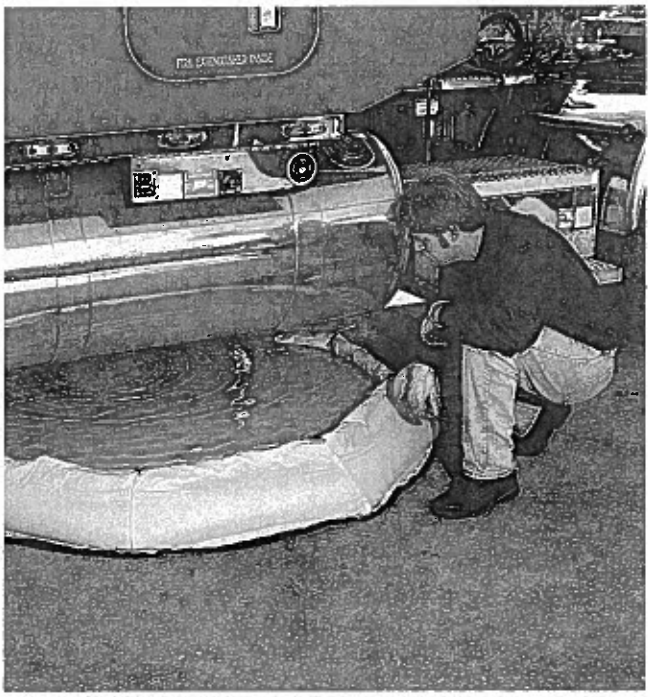
We had a bad oil spill on our job recently and I was wondering what the current standards are for preventing and cleaning up spills of oil, fuel, antifreeze, etc.

We asked Pierce Rigrod with the New Hampshire Department of Environmental Services, Drinking Water Source Protection Program. He oversees projects that reduce contamination risks to water supplies and works with a variety of public and private entities "to ensure New Hampshire can continue to use its rivers, lakes and aquifers as clean sources of drinking water."

Petroleum spills can be expensive, dangerous and time consuming, so minimizing the potential for accidents is important for a number of reasons. Spills of hazardous or toxic substances that result in soil and water contamination create issues with landowners and neighbors as well as local and state officials. Despite the wide array of equipment used to harvest timber, most harvesting equipment uses a short list of petroleum based products including diesel fuel; transmission, brake, and hydraulic fluids and antifreeze. Properly managing these fluids can be important for "bottom line" reasons such as protecting employees, limiting liability, avoiding clean up expenses.

New Hampshire is fortunate to have valuable and abundant timber and water resources and most loggers and foresters are familiar with the standard "BMPs" used to reduce the volume of stormwater runoff and potential sedimentation or stream channel erosion. However, proper spill control plans and related preparation to prevent and contain petroleum spills is a topic being given more attention at logging workshops primarily to minimize the cost associated with cleaning up or treating contaminated soil and water resources.

Petroleum products are typically a mixture of toxic substances that can contaminate drinking water wells if allowed to infiltrate through soils into groundwater. Drinking water is very vulnerable to contamination associated with petroleum spills. In New Hampshire petroleum spills are the most common type of spill incidents reported to the Department of Environmental Services (NHDES). Petroleum products can affect the taste and odor of drinking water at very low concentrations (parts per billion) and at greater concentrations petroleum contaminants must be removed by expensive water treatment systems. Public water supply wells must adhere to stringent state and federal health-based standards for drinking water supplied to customers. For example, benzene, an organic compound added to diesel and gasoline to enhance combustion, has a maximum contaminate level (MCL) in drinking water of 5 parts per billion (ppb). Benzene is known to cause cancer in humans. Allowing one ounce of benzene to infiltrate and reach groundwater could contaminate over 1.5 million gallons of drinking water. Many spills can be easily prevented, saving property owners, taxpayers, water suppliers and businesses millions of dollars in clean up and water treatment costs, not to mention the time and money lost when employees must stop work to deal with a spill during a fuel transfer, a leaky drum or ruptured hydraulic line.



This inflatable spill protection pool from Ultra Tech, Inc. is an example of one of the many tools that can be used to prevent and/or minimize spills.

Pre-Harvest Site Planning

Plans to protect water resources from spills and accidental releases should be reflected within the layout of a timber harvest. Pre-harvest site planning (laying out the site, roads, landings, etc.) is an important preliminary step to establish where petroleum products will be delivered, stored and handled at the site. The site plan should identify the safest location for the delivery of fuel and storage of all petroleum products. Preferably all use, storage and transfer of petroleum products (or any other toxic or hazardous chemicals) will be done on a flat surface (perhaps at landings) far from surface water or wetlands, water bars, filter (stream/pond buffer) areas, or any water supply wells. Runoff should be directed away from petroleum storage areas and set up to follow BMPs. In New Hampshire, as in many states, most water resources information (digital mapping) is available online and can be reviewed and used to plan the layout of harvesting activities. This information is available on NHDES's website at www.des.nh.gov (see the One Stop Web GIS viewer).

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On a trip to New York City, he watched a giant crane set steel from behind a building on another street. The operator couldn't see the project at all. Every move was directed by radio commands. This impressed the fixer to the point of going to work for Bethlehem Steel. After a while, even though the pay was huge, he didn't like living in hotels and missed the woods and the lifestyle he loved so much.

For a time in later years, George had a shop in East Jamaica, Vermont, where he worked wonders with iron, did fixings and tinkered. A huge boiler fueled with old ties and scrap—not a pollution solution and hard on saw chains—provided massive amounts of heat for the shop, the aging proprietor and the coffee pot.

That made for a good setup. Lots of stuff in the valley needed fixing and the narrow gauge railroad ran right by—when it did run. It wasn't called "thirty-six miles of trouble" for nothing. There was always railroad work to be done and plenty of coal for the big forge. The homestead farm where he grew up was right across the tracks and the Alder Swamp was filled with woodcock. It was about as close to Heaven as a man like Uncle George could get.

George Carey Coates has passed away, the narrow gauge is gone—the tracks are torn up and he shop is no more. Only part of the foundation remains. The homestead farm is no more and the woods shacks have given up to nature.

Sometimes driving up Rt. 30 in East Jamaica, I think I hear the ringing sound of a hammer on anvil or the flat bark of an old 10-gauge in the Alder Swamp.

I agree that my Uncle George was born in the wrong century, but he made it work.

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Spill Control Plans

Harvest sites and operations can vary significantly depending upon the site conditions (terrain, soils, etc.) and equipment in use; however, all timber harvesting operations should have spill plans that are easy to understand and follow. A spill plan outlines spill prevention measures (inspection of tanks or hoses), preparedness measures (how much and where spill absorbents will be on-site), identifies employees responsible for containing and cleaning up spills and includes appropriate state or private contractor contact information. Response time after a spill is critical to limit the extent and contact of petroleum or other substances with soil and water resources. Spill plans should focus on an immediate employee response and the resources necessary to do the following:

1) Stop the spill using appropriate tools/materials.
2) Contain the spill using a spill kit drip pan, pail, hubcap, or shovel or by spreading absorbent material, such as saw dust, wood chips or kitty litter.
3) Collect the contaminated soil, absorbent and other clean up materials and place in a secure location.

Guidance for the logging industry concerning spill planning, preventive measures and spill response has recently been developed by the Oregon Operator's Association of Loggers. The association's guidance documents, "Spill Management Plan and Spill Plan Workbook" are useful industry resources to refer to and are available from the association upon request.

Small spills can often be quickly absorbed, scooped up and disposed of properly. With a larger spill, the priority should be to quickly contain it before it reaches surface water or other water resource and then remove any underlying soil or water that comes in contact with the product. Larger spills may need to be handled by a professional clean-up service and the site manager must determine, based on the size and extent of the spill, whether the spill exceeds the operation's capacity to effectively contain and clean it up. In New Hampshire, it is necessary to contact NHDES for any petroleum or chemical spill that exceeds 25 gallons. Resources are available from NHDES as well as the New Hampshire Department of Safety to quickly respond to large spills. A quick response to a spill, leak or other release can minimize potential clean up costs and the impact upon water resources.

Selected Best Management Practices to Limit Spills or Leaks

After you have laid out your harvesting operations at a site and prepared for a potential spill as outlined in a spill plan, all operations involving petroleum or other hazardous substances should follow certain best management practices to limit spills or leaks. These include the following:

1. Use appropriate containers for collecting and storing oils, fuels, coolants or hazardous wastes. The OSHA approved containers must be in good shape (not rusted, dented), have a water-tight cap and a label and be stored on a flat surface away from work areas to avoid puncturing or knocking them over.

2. Store petroleum products safely and away from sensitive water resources. As mentioned earlier, harvesting site plans should identify sensitive resources and determine the most suitable location(s) for storage, transfer and use of petroleum products. Maintaining a minimum distance to water resources allows physical space and time to contain and clean up spills and limit the potential impact to nearby surface water and water supplies. In New Hampshire, on-site storage of containers holding five gallons or more of a "regulated substance" (regulated substances include most petroleum products) must be set back from surface water (50 ft), storm drains (50 ft), private wells (75 ft) and outside an established "protective radius" (typically between 150-400 ft) of a public water supply well. A 2002 study of petroleum contamination travel distances (how far the product moved in groundwater) at sites in Maine found the average distance traveled from the release was 295 feet for gasoline constituents and 140 feet for diesel/fuel oil constituents; however, diesel/fuel oil products in nearly 20 percent of the cases traveled over 300 feet.

   In New Hampshire, all regulated substances in five-gallon or larger containers stored on location for

more than ten days must be stored upon an impervious surface, protected from precipitation by a roof or other type of cover, and have some form of "secondary containment." These requirements can be met in a variety of ways. Options include using commercially available portable storage and containment products (spill pallets with a cover, outdoor drum storage units) or fabrication of a storage and containment structure using a larger water tight metal tank or drum.

3. Use portable spill control equipment when refueling or transferring petroleum products. Fuel spills that occur during refueling of vehicles or equipment are common and in New Hampshire, MtBE, formerly used an additive to gasoline, has been detected in over 400 public water supply wells. In New Hampshire, refueling of equipment must be done over an impervious surface. This requirement can be satisfied by using a portable spill containment product to catch potential spills. Portable containment equipment used during mobile fueling should be sized to contain the most likely volume of fuel to be spilled during a fuel transfer. 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 storage tank or delivery truck.

4. Have spill kits containing absorbent materials on or near harvesting equipment. Absorbent materials should be part of the spill kit. Absorbents are composite materials made to absorb liquid, particularly accidental leaks or spills of petroleum and industrial chemicals. Hay or sawdust may be adequate for very small spills; however, having the right type of absorbent material nearby is critical to controlling larger spills. Synthetic polypropylene absorbents absorb 10 to 25 times their weight in fluid. Once the spilled liquid is absorbed by the absorbent product, clean-up is made easier, and the saturated materials can then be readily removed from the logger's jobsite for safe disposal. Traditional absorbents are also useful, such as sawdust, wood chips, kitty litter/clay, or rags. Retailers have a variety of improved synthetic/polypropylene absorbents available, which absorb many times their volume of oil.

Contents for Small and Large Spil Kits

Small Spill Kit	Large Spill Kit
• Suggested location: Vehicles	• Suggested location: Large jobsite
• Portable, 5 gallon-size bucket, tub or bag	• Primary, 35- to 55-gallon barrel or drum
• Absorbs 5 to 15 gallons of discharge	• Absorbs 20 to 90 gallons of discharge
Containing supplies:	**Containing supplies:**
• Oil absorbent socks	• Oil absorbent booms, with stakes & ties
• Oil absorbent pads or pillows	• Oil absorbent socks
• Plastic disposal bag	• Oil absorbent pads and pillows
• Protective gloves	• Oil absorbent granule/binder jug or bag
• Safety glasses	• Leak plug compound/epoxy/putty
• Spill checklist (actions by employees) and contact information	• Plastic disposal bags
• Shovel, readily available on jobsite	• Protective gloves
	• Safety glasses
	• Spill checklist (actions by employees) and contact information
	• Shovel, readily available on jobsite

Fuel delivery trucks (either your own trucks or contractors who deliver fuel) should have spill kits on-board to handle the most likely spill. Employees should be present during fuel transfers and know how to properly use the spill kit materials. Smaller spill kits should be located on or near equipment to respond to leaks (e.g. hydraulic line failure) while larger spill kits (capable of handling larger spills up to 100 gallons) should be placed next to containers storing fuel or other petroleum products. Spill kits should contain plugs and clamps to control hydraulic line breaks, a container to hold leaking fluids, sponges (which come in a variety of shapes—snake, pillow, or roll), a shovel, and absorbent material such as sawdust or kitty litter. Additionally, having bags to hold petroleum laden soils, used absorbent materials or other materials used in cleaning up the spill is a good idea. The accompanying table lists the items that should be included in small and large spill kits.

5. Maintain and repair all equipment away from sensitive water resources. Regularly inspect hoses, fuel trucks, and vehicle tanks for leaks, and make repairs immediately. Vehicle fluids should be changed off-site or over portable containment equipment and fluids should be kept in separate containers for proper recycling or disposal. If a hose or line containing hydraulic or brake fluid or other petroleum products fails during use, the equipment should immediately be shut down and cleanup begun, as continued use and movement of the equipment will spread contaminants and increase clean-up time.

Making Changes That Prevent Spills and Leaks

Employees will carry out spill response activities so proper training is important. Employees must know how to use the spill kits properly, including deployment of containment measures and the use of personal protective equipment. Employees must also be able to recognize when it is necessary to contact private clean-up services and/or appropriate state agencies. Training resources may be available from experts within forestry amd logging associations, representatives of companies that market spill control and containment equipment and your state department of environmental protection or forestry. Evaluating each harvest site to determine the best place to store or transfer petroleum, having an effective spill response and incorporating basic storage and containment BMPs will limit risks to employees and legal liability, and minimize time lost to spill containment and clean-up activities. Taking this approach will also serve to protect valuable and sensitive water resources.