

EPA REGION 10 - UNDERGROUND INJECTION CONTROL PROGRAM

**Class V Shallow Injection Well Fact Sheet
C. Deichl - No. 3
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Motor Vehicle Waste Disposal Wells and their Impacts on Ground Water Quality

What's a Motor Vehicle Waste Disposal Well?

Motor vehicle waste disposal wells are a type of shallow disposal system that is used to dispose of motor vehicle waste fluids into the subsurface. These disposal systems can be generally found at facilities that perform vehicle repair and/or maintenance activities, such as an auto body repair shops, car dealerships, specialty vehicle repair shops, and/or any other facility that repairs vehicles. Fire stations, parking garages, and other facilities that park or house vehicles may also have garage bay drains that are connected to motor vehicle waste disposal wells. While there are many types of shallow disposal systems used throughout the country, these types of systems are usually found in areas where sanitary sewer system connections are few, fluid waste disposal or recycling centers are limited, and the population usually depends on private and semi-private water systems for their drinking water supply. Due to the nature of the waste fluid being disposed, motor vehicle waste disposal wells represent a significant source of soil and ground water contamination.

What's the new rule about Motor Vehicle Waste Disposal Wells?

On December 7, 1999, EPA published new Underground Injection Control (UIC) regulations that take effect on April 5, 2000. The new rule specifically (1) prohibits the construction of new motor vehicle waste disposal wells and (2) requires the closure of existing wells that are located within (a) ground water based source water protection areas, and (b) any other sensitive ground water area identified by the appropriate UIC program. In some cases, an owner/operator may be able to obtain a waiver from the ban and apply for a permit to continue operating the existing motor vehicle waste disposal well if they can treat the waste fluid to meet drinking water standards prior to disposal. However, in most cases, these systems can be eliminated to reduce any potential threat to the soil and/or ground water by implementing industry established Best Management Practices (BMPs).

EPA Region 10 - Underground Injection Control Program

What are the Risks from Ground Water Contamination Using Motor Vehicle Waste Disposal Wells?

The UIC program regulations are devised to protect ground water from pollution by the underground discharge of fluids. These regulations were recently revised to specifically regulate motor vehicle waste disposal wells because of the threat that they typically pose to ground water quality. The potential risk to ground water contamination by using a motor vehicle waste disposal well can be very high. Often, the types of waste fluids that are used to clean parts, used motor oil, coolant, and other fluids can be characterized as hazardous and/or dangerous wastes. The waste fluids, if washed down a drain and into a motor vehicle waste disposal well, could pose a serious risk to human health if ground water were to become contaminated. Table 1 provides a list of typical wastes that could be washed into a motor vehicle waste disposal well, and eventually make their way to ground water.

Table 1. Typical Automotive Fluid Wastes (from EPA. Guides to Pollution Prevention: The Automotive Repair Industry)
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Operation	Waste Material	Pollutants
Shop Cleanup	Out-dated Supplies	Solvents, caustic cleaners, oils, alcohols, ethylene glycol, acids.
	Alkaline Floor Cleaner	Caustics, oil and grease, heavy metals.
Parts Cleaning	Solvents	Petroleum distillates, aromatic hydrocarbons, mineral spirits, naphtha, chlorinated compounds, oil and grease, heavy metals.
	Aqueous Cleaners	Acids and alkalis, oil and grease, heavy metals, blended heavy oils.
Auto Maintenance	Motor Oil	Blended mineral oil, heavy metals.
	Transmission Fluid	Blended mineral oil, heavy metals.
	Engine Coolant	Ethylene glycol, lead.
	Batteries	Sulfuric acid, lead.

If these compounds enter ground water, the public can be exposed in a variety of ways. The most serious risk of exposure is through the consumption of contaminated ground water, but exposure may also occur through the direct contact to the skin or by breathing in water vapor. The various health effects caused by the materials listed in Table 1 range from acute to chronic. For example, overexposure to 2-Butoxyethanol, a compound found in some cleaning solvents, often results in irritation of the skin, eyes, throat and nose, as well as destruction of red blood cells. Tetrachloroethylene and perchloroethylene (chlorinated compounds) are often found in brake cleaning solvents. Overexposure to these compounds may result in eyes, nose, and throat irritation, nausea, dizziness, incoordination, headache, drowsiness, and

EPA Region 10 - Underground Injection Control Program

liver damage. There is also evidence suggesting the carcinogenicity of these compounds. Ethylene glycol and diethylene glycol are extremely harmful compounds found in antifreeze. Ingesting either of these compounds may result in stimulation of the CNS (Central Nervous System) followed by depression; vomiting; coma; respiratory failure; convulsions; and possibly death. In addition to these potential human health threats, motor vehicle wells also cause soil and ground water contamination that may threaten aquatic ecosystems that depend on ground water.

What can I do if I have a Motor Vehicle Waste Disposal Well?

Proper closure of motor vehicle waste disposal wells can be simple or complex depending upon the facility, soil type, depth to ground water, and the subsurface geology. In order to ensure that motor vehicle waste disposal wells are closed in a manner that prevents any future ground water contamination, the appropriate UIC program must be contacted at least 30 days prior to closure. Technical guidance about how to prepare a closure plan for EPA or state review can be obtained from the UIC contacts listed below.

Proper closure of motor vehicle waste disposal wells will prevent owner/operators from facing environmental liability, which can be very costly and complicate property transactions.

The implementation of various Best Management Practices (BMPs) can replace the need for motor vehicle waste disposal wells altogether. The emphasis of these BMPs should be on pollution prevention and waste minimization. There are four basic steps owner/operators should follow in terms of adopting BMPs: (1) select the least hazardous cleaner, (2) maximize cleaning efficiency, (3) segregate cleaning wastes, and (4) maximize recycling and reuse of all materials.

Some of the most fundamental BMPs are good housekeeping methods to reduce the occurrence of leaks and spills and to improve material use efficiency. Examples of these include training employees in proper materials handling, use, and storage, and monitoring materials inventory. Using drip pans and trays throughout the shop for fluid collection and using absorbents for spills, such as corncob or sawdust, will help ensure a dry shop floor, thus reducing the amount of fluid waste. In addition, using brushes for parts cleaning to remove larger pieces of grease and grime will decrease the need for solvent use.

Solvent substitution, in combination with a solvent service company contract, is a good practice in pollution prevention and waste minimization. Substituting non-chlorinated solvents and aqueous cleaners for chlorinated solvents reduces health risks associated with chlorinated solvents. In terms of solvent service company contracts, various companies, such as Safety-Kleen Corp., provide shops with solvent sinks and recycle the spent solvent or take it to a solvent recovery facility. Shop owners may also consider installing their own solvent recovery equipment, depending on the economic feasibility. Considering some of these example options as well as other BMPs, will increase shop efficiency, save money, limit environmental liabilities, and protect your drinking water resource. More information on pollution prevention and hazardous wastes reduction BMPs can be obtained from EPA, State, and local environmental departments.

References

EPA Region 10 - Underground Injection Control Program

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