

# VEHICLE and EQUIPMENT WASHING SERVICES

(2012-07)

## DESCRIPTION

Vehicle and equipment washing involves removing dust and dirt from the exterior of trucks, boats and other vehicles, as well as cleaning cargo areas, engines and other mechanical parts. Note that wash water from engine degreasing may be considered a hazardous waste and must be disposed of accordingly. Wash water from a trailer interior that has come in contact with a significant source of pollutants, such as crude oil, salt brine or septic waste, also must be contained and disposed of accordingly.

## TARGET POLLUTANTS

Washing of vehicles and equipment generates oil, grease, sediment and metals in the wash water, as well as degreasing solvents, cleaning solutions and detergents. The U.S. Environmental Protection Agency (EPA) considers wash water to be a non-stormwater discharge (i.e., processed wastewater). Therefore, wash water from the facility must be directed to a sanitary sewer or treated on site prior to discharge. Each facility must minimize oil and grease in any waste stream and make provisions for its removal and management. Further information about managing used oil may be found in *Managing Used Oil: A Guide for Businesses* (NDDoH, April 2009).

## PROHIBITIONS

North Dakota law prohibits polluting any waters of the state, including the placement of any waste in a location that could cause water pollution. In addition, solid waste (including liquids) must be collected and taken to a permitted facility.

## TREATMENT

### Sanitary Sewer Discharge

The preferred option is to discharge all wash water (except engine-degreasing water) to a wastewater treatment plant with the approval of the plant owner (usually the city).

### Holding Tanks

In areas not served by a sanitary sewer, a holding tank should be constructed to collect water from the wash station. The contents of the holding tank should then be disposed of in accordance with *Guideline 39 – Septage, Sump and Pit Waste, and Restaurant Grease Trap Waste Management* (NDDoH, May 2010). Allow the contents of the holding tank to separate (oil/water/solids) prior to disposal. Using an oil/water separator or other appropriate measure is advised to prevent oil/grease in any waste water or solid accumulation. Similarly, systems can better manage solids if mud and solids can be removed without significant or added amounts of water. Solid waste disposal facilities in North Dakota cannot accept liquids.

### On-site Treatment

Another suitable option is using a detention pond or bermed area to retain and treat all wash water on site to evaporate and infiltrate. An individual North Dakota Pollutant Discharge Elimination System (NDPDES) permit from the North Dakota Department of Health is needed to drain water off site from such a treatment system. The discharge of vehicle wash water is not

covered under the general NDPDES storm water permits. Separate containment is required for salt brine.

Vehicles should be washed in an area where the wash water can be treated and/or prevented from infiltrating to ground water. The primary best management practice (BMP) is the designation of select areas where washing operations can be conducted and wash water can be directed to a place for treatment or collected for proper discharge. Additional BMPs for washing operations and/or handling of wash water include:

- Minimizing rain water or snowmelt run-on to wash area.
- Using practices to minimize and/or remove any oil or grease.
- Directing wash water to a sanitary sewer system or containing the wash water.
- Constructing a concrete wash pad.
- Recycling/reusing wash water.

If vehicles are being washed on an outside lot, here are some suggestions:

- Initially clean vehicles without using water (e.g., sweep loose material from cargo areas).
- Conserve water when rinsing and washing vehicles.
- Prevent seepage of salt brine into ground water.

An existing building could be used or a concrete/asphalt pad constructed that is large enough for at least one vehicle to be washed. The pad should have a collection sump, and the wash water would flow by gravity or be pumped from the collection point to a sanitary sewer line. The sump should be equipped with an oil water separator and have easy access for removal of solids (mud, sand, etc.). A roof over the washing area is recommended to keep clean storm water out.

### **Vehicle Washing Services**

Practices that dispose of wash water underground are regulated by the North Dakota Underground Injection Control (UIC) Program (N.D.A.C. Chapter 33-25-01). Underground waste disposal systems (e.g., septic tanks and drainfields) that receive water from washing operations are classified as Class V industrial waste underground injection wells. Generally, these types of waste disposal wells are “authorized-by-rule,” and the injection of waste water is authorized indefinitely, subject to UIC regulations. However, under certain circumstances the operator of a Class V well may be required to obtain a UIC permit from the department (e.g., the well has the potential to adversely impact groundwater resources). Measures should be provided to minimize oil/grease and other contaminants.

All owners of Class V wells must submit the following information to the North Dakota Department of Health, Division of Water Quality:

- Name of owner/operator of the well and legal contact
- Number of wells
- Location of wells by township, range and section
- Composition and volume of the injected fluids
- Waste disposal system construction details
- Any other information requested by the department

No owner/operator of a Class V well may inject fluid into an underground drinking water source if the fluid contains contaminants that may violate any maximum contaminant level or adversely affect public health. Individuals or businesses considering the underground disposal of vehicle wash water should contact the Division of Water Quality prior to waste system construction to determine what regulations apply to their proposed disposal practices.

### **Collection of Wash Water from Mobile Washers**

Collecting wastewater is more difficult in situations where a fleet of parked vehicles is washed by a mobile washer. If the parking lot has a catch basin connected to a storm sewer, this can be used as a collection point. The storm sewer could be temporarily blocked or plugged so that a temporary pump or vacuum could collect the wash water and dispose of it in a sanitary sewer or holding tank. Measures should be provided to minimize oil/grease and other contaminants.

### **Washing on Gravel or Dirt Lots**

Infrequent washing on permeable soils may not create a surface water discharge, but may impact ground water. Avoid washing vehicles repeatedly in the same location to reduce the chance of wash water infiltrating to the depth of ground water. Washing should be avoided in Wellhead Protection Areas ([www.ndhealth.gov/wq/gw/sourcewater.htm](http://www.ndhealth.gov/wq/gw/sourcewater.htm)) or areas of known shallow ground water, unless there is a liner system in place to prevent wash water from infiltrating the ground. Measures should be provided to minimize oil/grease and other contaminants.

### **Recycling the Wash Water**

Recycle units clean wash water only enough so that the water is suitable for washing but not rinsing. This reduces detergent use; however, rinsing must be done with fresh water. Normally, recycle units do not remove detergents, dissolved solids or heavy metals. When the wash water is recycled enough times, these substances become more concentrated. The wash water could become a hazardous waste requiring disposal at a hazardous waste facility.

### **Cleaning Chemicals**

Cleaning chemicals can contain ingredients that pose threats to human health if they enter ground water and drinking water supplies and can be highly toxic to fish and other aquatic life. The following are considerations in the use of cleaning chemicals:

- Evaluate the goals for using chemical cleaners (e.g., aesthetics). Consider pressure cleaning with plain water, then steam cleaning without chemicals to see whether these goals can still be achieved. Consider elimination of some or all cleaning chemicals. Ask vendors to provide the complete ingredient list for each cleaner so the potential risks can be evaluated, since these cleaning chemicals will be introduced (even indirectly via the sanitary sewer) into the environment. When disposing of wash wastewater, it is important to know 100 percent of the composition of cleaners that may increase environmental liabilities. Dispersants and emulsifiers can limit the effectiveness and efficiencies of wastewater treatment systems, especially in the removal of sediments, metals, oils and petroleum hydrocarbon pollutants. If immersion cleaning is used, emulsifiers may not be needed. Consider eliminating the use of chemical cleaners containing dispersants and emulsifiers. Alkylphenol ethoxylate (APE) non-ionic surfactant ingredients can biodegrade to compounds that are highly toxic, environmentally persistent, and may have

adverse estrogenic or reproductive effects. Petroleum distillates (e.g., kerosene, white spirits, mineral spirits, Stoddard solvent, petroleum naphtha) can be unlabelled carrier solvents in some cleaners and may be considered hazardous waste after use. They can contain risky volatile organic compound (VOC) contaminants, such as hexane, methyl ethyl ketone (MEK), toluene, xylenes and naphthalene. Alkyl benzene sulfonates (ABS) and linear alkyl sulfonates (LAS) ingredients can be toxic to aquatic life and may take a long time to biodegrade. Molybdates are sometimes corrosion-inhibitor ingredients in cleaners; molybdenum poses ground water contamination concerns. Caustic soda (sodium hydroxide) and potassium hydroxide are ingredients in many aqueous alkaline cleaners. If manufactured by the mercury cell process, these ingredients can contain significant levels of mercury. Be sure to request a low-level mercury analysis from the vendor of any product batch purchased with these chloralkali ingredients. Acrylamide monomer, as well as acrylonitrile, is a potential carcinogen. Both may be trace ingredients or degradation products of some acrylic polymers, particularly polyacrylamides. Acrylic polymers, often used as chelating agents in industrial cleaners, may be very persistent in the natural water environment. Phosphates are often used as chelating agents in industrial cleaners. Phosphorus poses water pollution concerns, especially for lakes. Some cleaners, such as those with glycols, may deplete dissolved oxygen levels in surface waters when they biodegrade. Acids also may be used as cleaning agents, causing low pH and dissolved metals in the wash stream.

## **CONTACT**

For further information, contact the North Dakota Department of Health, Division of Water Quality, at 701.328.5210, or visit the division website at [www.ndhealth.gov/wq](http://www.ndhealth.gov/wq).