



Rapid Response

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Rapid Response Research Service

Title: Are there environmentally friendly options for washing vehicles into a storm drain?

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Request An Oregon city fire department is interested in finding out whether environmentally benign soaps could be used for washing vehicles into a storm drain. A second question is whether a small oil/water separator could be used on sight for wash water before sending it to a storm drain. They hope to be able to avoid the large plumbing expense necessary to connect the wash facility with drainage to sanitary sewer.

Key Findings / Recommendations

Soaps

All soaps would have negative environmental consequences if released into storm drains, and their use is prohibited under State law. The most benign soaps such as phosphate free, and biodegradable soaps, when breaking down, would increase the biological oxygen demand (BOD), drain oxygen from the water, and possibly make the water septic. In addition, the disposal of wash waters from vehicle and equipment cleaning activities to the ground or to surface waters is prohibited by Oregon Administrative Rule 340-45-015 unless a permit is first obtained from the DEQⁱ.

Oregon DEQ wash water Permit 1700A is applicable to all “vehicle, equipment, building, and pavement washing that discharges wash water to surface waters or storm sewers”. This permit states that using any soap, chemicals or hot water is illegal. Under this permit, washing up to eight vehicles per week is allowed by exemption. However, there are still specific restrictions specified for washing up to eight vehicles under the exemption. Those restrictions are detailed in the sections in the 1700A permit that specify the allowed deminimis, or “virtually safe” activities:

- The washing of **new or used vehicles or equipment** awaiting sale, lease or delivery is permitted provided chemicals, soaps, detergents, steam, or heated water are not used, and washing is restricted to the outside of the vehicle or piece of equipment (no engines, transmissions, or undercarriages). Rental vehicles and rented equipment are not included in this exemption.
- **Businesses** that wash **less than eight** vehicles or pieces of equipment per week are permitted provided chemicals, soaps, detergents, steam, or heated water are not used. Washing shall be restricted to the exterior of the vehicle or equipment (no engines, transmissions, or undercarriages). When washing large trucks, the tractor and trailer are counted as separate piecesⁱⁱ.

Oil/Water Separator

An oil/water separator could be used to pre-treat wash water, however it still needs to go to a sewer.

De-Ionized Water

If the fire department wants to continue to wash vehicles into the storm drain under the deminimis exclusion for up to eight vehicles per week, a de-ionized water system could be used instead of soap. De-ionized water does not leave water spots. High water pressure and hand scrubbing will also remove dirt from vehicles.

However, de-ionized water is not the best environmental option since the grime that is washed off of the vehicles will end up in the creeks or streams. Also, the deionized allowances do not apply if there is enough grime or dirt coming off of the vehicles so that it causes more than 10% turbidity in surface water. In summer when water is low, it would be very easy to exceed 10% turbidity, which means that entities cannot legally wash vehicles if the wash water will flow into a storm drain.

Under 1700A, the entire city would probably be considered as one “business”. This means that collectively, throughout the entire city fleet, the wash water from only eight vehicles per week would be allowed to be washed into storm drains. The fire station would have to coordinate with other city fleets to keep the weekly washing to eight vehicles or fewer.

Conclusions

There are three recommended options for the City which will protect groundwater, as well as avoid violation of current and future regulationsⁱⁱⁱ. These are;

1. Install a washing system that **recycles** all wastewater. Recycling systems remove oil and solids from the wastewater so that the water may be reused. Installation may require approval or a permit from the local planning department. A full recycle system, which has no discharge, does not require a DEQ permit.
2. Discharge wastewater to **sanitary sewer**. This usually requires the permission of your local sanitary authority or public works department. Also, certain jurisdictions may require pre-treatment of the wastewater before discharge to sanitary sewer is allowed. You may also be able to connect to the sanitary system through existing floor drains if the drains are already connected to sanitary sewer. Discharging to a sanitary sewer does not require a DEQ permit.
3. Wash your vehicles at a commercial vehicle washing operation with an approved disposal system. Check to make sure that the facility you choose has an appropriate permit. Not all wash facilities dispose of their wastewater properly.
4. If none of the above options are feasible, you may be able to discharge to the storm drainage system or to the ground if you first obtain a permit from DEQ. There is a fee for this permit. Please contact the appropriate DEQ Water Quality Program in the appropriate regional office for specifics.

Other options include;

- Share a wash pad with other city fleets in order to minimize expense;
- Install a permitted, re-circulating car washing facility for use by the entire city;
- *Waterless car wash products and microfiber towels may be of use, although some abrasion may occur from grit rubbed on fire truck surface without rinse water*
<http://www.freedomwaterlesscarwash.com/freedom-original.html>

Additional Resources or Information

- National Pollutant Discharge Elimination System (NPDES), Stormwater Discharges From Municipal Separate Storm Sewer Systems (MS4s) <http://cfpub.epa.gov/npdes/stormwater/munic.cfm>
- *Case Study from the City of Brentwood, CA* - On an as needed bases, vehicles/equipment may be washed at the Public Works Facilities, however, all storm water drains into onsite basins. From http://www.ccleanwater.org/pdfs/members/0708_AnnualReport/VolumeIICVIndiv/BWD/0708_MUNI_BWD/0708MUNIBWD.doc.

Oregon Best Practices and Resources

- OREGON DEQ RECOMMENDED BEST MANAGEMENT PRACTICES FOR WASHING ACTIVITIES <http://www.deq.state.or.us/WQ/wqpermit/docs/general/wpcf1700b/bmp.pdf>
- Vehicle Washing, Preventing Pollution, Oregon DEQ, <http://www.oracwa.org/files/news/184/Vehicle.pdf>
- Clean Water Services has an excellent PowerPoint presentation about the Washington County Fire Department and their washing operation at: [Fire Dept. Wash Water Operations 2007.pdf](http://www.cws.org/files/2007/07/Fire_Dept._Wash_Water_Operations_2007.pdf)

Washington Resources and Best Practices

- Vehicle and Equipment Washwater Discharges Best Management Practices Manual, June 1995 (Revised 9/2007) <http://www.ecy.wa.gov/pubs/95056.pdf>

Select and pave an area to wash vehicles, discharge wash water from vehicle cleaning operations to a sanitary sewer, holding tank, or process treatment system or use an enclosed recycling system. If area is uncovered, Department of Ecology practices must be followed.

Wash areas should be well marked with signs showing where and how washing is to be done. Engine or part cleaning may be done in a designated wash area. This is only if the area is paved and no petroleum products are used (detergents or surfactants may be used). The local sewer authority must grant approval to discharge wash water to the sewer system. The wash water must be discharged to a sanitary sewer, and the area equipped with a process treatment system approved by the City.

Oil changes and other engine maintenance should not be conducted in the designated vehicle washing area.

- The City of Seattle has free “Fish Friendly Car Wash Kits” for fundraisers, or hosted car wash events. While probably not currently used by fleets, it is conceivable that this method could be used by a city fleet that does not wash much/often. The equipment includes a pumping system temporarily installed

in the storm catch basin –and is connected to a long hose. The equipment pumps the wash water out to a garden or landscaped area to allow ‘filtration’ of the wash water via a natural landscape.

- If you discharge to a POTW (sewer) over 25,000 gallons per day, this may cause interference and/or pass through at a POTW 5% or more of the average dry weather hydraulic or organic capacity of the POTW, and/or categorical industrial, you will probably be permitted.
- If a discharge is to evaporative pond or land application, they will probably have a permit.
- In any case, they have to do AKART (RCW 90.48).

Idaho Resources

There are no specific state rules in Idaho, though the municipalities regulated under Phase II of the federal stormwater regulations have passed or will be passing ordinances that regulate this activity. The City of Boise developed a guidance^{iv}. They restrict wash water disposal in the same way as the state of Washington. EPA also has fact sheet for this practice^v. can be found through this link:

<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=132&minmeasure=6>

- Vehicle Wash Water Disposal Options: [CarWashOptionsLtr-20090529.pdf](#)
- Guidance for Mobile Car, Truck and Commercial Washing Operations and Charity Car Washes: [ID-Car Wash Guidance.pdf](#)
- Shallow Injection Well Criteria: [UIC Shallow Interpretation1.pdf](#)

ⁱ RECOMMENDED BEST MANAGEMENT PRACTICES FOR STORM WATER DISCHARGES, Page 17, Oregon DEQ,

<http://www.cleanwaterservices.org/content/Documents/Business%20and%20Industry/DEQ%20Stormwater%20BMP%20Guidance.pdf>

ⁱⁱ Full text of 1700 A Permit; DEQ, Accessed September 11, 2009,

<http://www.deq.state.or.us/WQ/wqpermit/docs/general/npdes1700a/permit.pdf>

ⁱⁱⁱ ibid

^{iv} Boise stormwater guidance^{iv}. http://www.cityofboise.org/Departments/Public_Works/PDF/StormwaterNon-stwaterDisposalBMPGuidebook.pdf

^v EPA wash water fact sheets

<http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=132&minmeasure=6>