Wash Water Control

A New Requirement—and the Coming Opportunity

by Jerry McMillen

Increasingly complex legislation regarding discharge of any type of waste water into storm drains means that pressure washer operators face new challenges in performing routine (until now) washing tasks. Storm drains discharge directly into lakes, rivers, or the sea without any treatment whatsoever and, thus, pose an environmental threat should polluted water enter the system.

Federal and state regulations and, more recently, stringent local ordinances are being enacted that not only forbid anything other than "precipitation" water (rain and snow) from entering into storm sewers, but also provide heavy penalties to those found violating these rules. Pressure washer operators are thus likely to be the object of intense municipal scrutiny as these new regulations become enforced.

Some Typical Municipal Regulations

Local laws identify "Storm Water Conveyance Systems," by which it is meant the roads, streets (even the gutters), or any other means of storm water flow into lakes, rivers, or the sea. With minor exceptions, it has become unlawful to discharge any type of non-storm water into the Storm Water Conveyance System. Depending on the locality, some of these exceptions are: individuals washing their cars; excess landscape and lawn watering which impinges on streets, and those flows resulting

from fire-fighting. Pressure washing operations are not among the exceptions, and we have heard of an operator being cited and fined merely for using the street gutter to receive water being vacuumed up—none of it flowing away anywhere! He had put his waste water into the "Storm Water Conveyance System!"

While the above incident is possibly an example of enthusiastic over-interpretation of the regulations, the implications for the industry are clear. Waste water must be controlled, and operators must be trained in the basics, in order to avoid fines and adverse publicity.

With the concerns of residents and tourists alike at stake, cities and towns are understandably nervous at the prospect of polluted water from storm drains adversely affecting the aesthetics of their river and beach areas. As an example of municipal interest in the pressure washing industry, the city of San Diego, California has issued a set of plastic-encased cards giving a synopsis of the regulations, and offering "Best Management Practices" (BMPs) that may help in carrying out the intention of the law. The cards are free to local owners and operators of commercial pressure washing equipment.

The San Diego BMPs for prevention of storm water pollution give a capsule view of what will be required nationwide in the industry in coming years. These recommended practices can be summarized as follows:

Planning for waste water capture—Before starting washing operations, plan how the waste water will be collected, avoiding storm drains and discharging into streets. Plan what to do with the collected water. Arrange water barriers and covers to minimize the possibility of an improper or accidental discharge into the storm drain.

Cleaning and washing activities—Use dry methods to pre-clean. Remove the residue to approved containers, if deemed hazardous. Minimize amount of water used during washing.

If hazardous wastes are created during washing operations, avoid mixing with non-hazardous wash water, to reduce disposal costs.

Collecting and disposing of wash water—Recycle or otherwise dispose of covered wash water in the proper manner. The captured waste water (if no hazardous pollutants are present) may usually be discharged onto landscaped areas, with the owner's permission, and as long as there is no runoff to storm drains.

However, some beach communities located in regions of steep cliffs forbid this disposal method. Some desert localities prohibit ground discharge since it might harm native plants. Otherwise, the property owner's sewer connection

Some Internet Resources

EPA Fact Sheet—Non-Storm Water Discharges to Storm Sewers
http://epa.gov/owm/mtb/nonstorm.pdf

San Diego, California, Municipal Code—Storm Water Management and Discharge Control
http://clerkdoc.sannet.gov/legtrain/mc/MuniCode Chapter04/Ch04Art03Division03

City of Phoenix—Best Management Practices for Mobile Cleaning
http://www.dcs1.com/del/delpg5/phenxbmp.html

City of Boston, Mass—Discharge Prohibitions
http://www.bwsc.org/tab_menus/frameset4.htm

West Valley City, Utah—Best Management Practices for Mobile Cleaning
www.ci.west-valley.ut.us/pworks/Storm%20Water%20Utility/bmp6.html

City of Tallahassee, Florida—Pretreatment Program
http://talgov.com/citytlh/utilities/water/pretreat.html

City of Fort Worth, Texas—Environment Code, Stormwater Protection
http://www.stormwatercenter.net/Model%20Ordinances/Final%20Illicit%20Connection%20Ordinances/city_of_fort_worth_environment_c.htm

City of Superior, Wisconsin—Wastewater Treatment & Links to Stormwater Related Sites
http://www.ci.superior.wi.us/publicwks/wastewater/StormwaterLinks.htm

Illicit Discharge Detection and Elimination Manual—A Handbook for Municipalities
http://www.neiwpcc.org/iddmanual.pdf

(sink, toilet, etc.) may be used if the flow rate does not exceed (typically) 20 gpm. Other fairly common restrictions include a maximum discharge (without a permit) of 2,500 gallons per day from exterior mobile power washing, and 25 gallons per day (after suitable treatment) from engine washing. Some communities require (and charge for) a discharge permit—regardless of flow quantity. Many local codes are available over the Internet.

Enforcement

The regulations come with teeth. Violations of the no-discharge rules can be classed as misdemeanors and (in San Diego) are subject to fines of up to $10,000 per day per violation, up to a maximum of $100,000 for any related series of violations. Other localities may have lesser penalties, but fines approaching this magnitude are scary enough to oblige operators to train their personnel in water recovery as well as washing techniques. It is likely that seminars and workshops on water recovery topics will be a regular feature at future industry conventions and trade shows.

Methods and Techniques of Wash Water Control

While the rules, regulations, and enforcement codes are available and definite, a real dilemma for the average operator is how to comply. Commercially available techniques make up a relatively short list:

- Sump pumps
- Wet/dry vacuums with internal sump pump
- Vacuum pumps
- Vacuum booms or berms
- Portable dams, booms, and berms
- Portable plastic wash mats and pits
- Drain covers
- Tarps and hand equipment

Sump pumps—For wash water control use, these are small units, typically completely submersible, which have the pump inlet at or near the base, to remove standing water. Typical submersible sump pumps have fractional horsepower motors operating on power cords and garden hose outlets, and will pump 30–40 gallons per minute at low head. Some units will pump down to as low as ⅛ inch of standing water. If a low spot or an area created by portable dams or booms can be arranged, a sump pump could be the answer. Many styles are available from under $100 to $200 or so.

Wet/dry vacuum with internal sump pump—Vacuums of this type are especially useful for sweeping up standing water from floors, walks, etc. and are typically much more rugged than the "shop vacs" sold to homeowners. In addition to more powerful motors (up to two hp, typically) for applying suction, the vacuum tank includes a sump pump to remove and discharge accumulated water to (usually) the sanitary sewer. The maximum suction lift obtainable with these vacuums is from 82 inches of water (six inches of mercury) to over 130 inches of water (nine and one-half inches of mercury). Excellent quality machines are priced at slightly under $1,000.

Vacuum pumps—Roots-blower, positive-displacement type vacuum pumps are a step up in power and capacity, and are advantageous in that they have the additional power to screen and filter the recovered water as it is picked up, thus reducing the need for additional equipment. The higher power also permits multiples of 50 feet hose lengths to the water recovery site. Engine-driven versions are also independent of (possibly limited) on-the-job power sources. Typical units feature a 6.5 hp engine driving the blower, rated at 12 inches of mercury suction at 200 cfm air-water flow. Higher power units are available. Units complete with vacuum boom, screen, and filter tank with automatic pump-out, hoses, etc. rated at waste water recoveries up to 40 gpm are in the region of $4,000 to $7,000.

Vacuum booms and berms—These are flexible dams of around four to six inches in height, which can be arranged to intercept ground water resulting from washing operations. Hooked to a vacuum system, they employ rows of holes at the ground surface to suck up the water which has been impounded by the boom. The best designs trap and collect every bit of the water flowing against the boom; a dry surface on the lee side of the boom is common. Available in

various lengths, expect to pay $60–$75 per foot of length.

Portable dams, booms, and berms—These are five- to six-inch diameter plastic tubes of various lengths (typically 4–5 feet) that are filled with a heavy substance, either sand, a mixture of sand and polystyrene pellets, or water, and arranged to block or deflect running waste water into collection areas. The weight and flexibility of the tube forms a tight seal against the ground surface—thus, controlling runoff. These are inexpensive—three to five dollars per foot, and two or more should be on every contractor's truck, just in case.

Portable plastic wash mats and pits—These are used principally to control waste water when washing vehicles, although many other applications come to mind. They consist of heavy plastic, watertight sheeting arranged with foam or inflatable berms all around, thus forming a catchment area. Typically, vehicles are driven onto the wash mat; double berms at each end reducing the likelihood of water loss upon entering or leaving the pit. After vehicles are washed, the waste water on the pit is removed with a sump pump or vacuum. For the general pressure washing contractor, versions are available to catch water from interior or exterior wall washing, for example. Prices vary according to size and function.

Drain covers—These are plastic sheeting arrangements designed to cover storm-drain openings as a precaution against accidental failure of other waste water collection devices. Several versions are available. For horizontal openings, a small version of the "wash-mat" can be filled with water; the weight thus seals off the area surrounding the storm-sewer grate. A version containing magnetic material can be used where steel grate and surrounds are present. However, it should be stressed that water approaching a storm drain is already in the "Storm Water Conveyance System" and, so, drain covers are something of a precautionary measure or a last resort.

Tarps and hand equipment—These are traditional, but not to be forgotten, and include mops, buckets, and grease absorbers to use before washing.

Complete Water Recycling

Several companies offer complete recycling systems which re-use water originating from power washing. Basically, these systems consist of a portable storage tank of 50 gallons or so, which is the feed for the high pressure washer. Waste water is then diverted by suitable dams or booms to the entrance of a vacuum berm, powered by vacuum pumps of the fan or blower type. The waste water is then conveyed by vacuum to a tank or series of tanks, where it is screened and filtered. The resulting fluid is then pumped out of the final tank, and through more filters, by a sump pump in the tank, to the storage tank for re-use. A complete recycling is thus achieved.

The scheme is certainly environmentally correct, and may be essential in locations where water must be hauled to the site. Two considerations involved here are perhaps minor: due to evaporation, not all the water used in washing can be recovered, and allowance for this loss, which may amount to approximately 20%—depending on temperature and humidity—may increase the volume of storage tank required. Another factor seems to be that, occasionally, the recycled water gradually loses quality in spite of filtering, due to bacterial contamination. Control can be achieved by chlorine, UV, and/or ozone generators.

Training, Certification, and Documentation

Since it appears that, in most states, the property owner is also the legal owner of the waste water produced at his property, actions to prevent citation for violation of discharge rules by the power washing operator should yield a competitive advantage. These actions would include not only a suite of proper equipment, but also workmen who are trained in both the laws and regulations, as well as how best to use the equipment to meet the requirements of the laws. A training course covering most of the topics of this article would seem to be a must.

Seminars and workshops may be available at annual conventions of power washer operators. The training can then be passed on to the front-line personnel, in an organized, structured way—complete with hand-outs and documentation. While this may cover the rules and regulations, training on the job in the proper use of the waste water control equipment is essential. Certifying that your workmen have this training may be just the edge you need to win that next big contract!

It may also impress the local regulatory authorities. Some municipalities have issued *"Letters of Approval of Environmental Power Wash Procedures,"* again a possible competitive edge. A *"Letter of Acceptance of Environmental Waste Water,"* for operators discharging only to the sanitary sewer system, is another possibility. Documents regarding training and regulatory approval certainly give the property owner greater assurance that he will not get involved in an environmental legal dispute due to power washing operations.

The Opportunities

While the rules, regulations, and equipment requirements to meet the environmental standards gradually being imposed seem overly onerous, there is no sense trying to "beat City Hall!" Operators who gear up for this challenge will be the ones who get the contracts, and not the fines!

Jerry McMillen is the owner of Cleaning Systems Specialists, a manufacturer of power washers and waste water recycling equipment in Santee, California. Dr. J.W. Hoyt, a consultant to CSS, assisted in preparing this article. **CT**