



Guidelines for wastewater-treatment facilities during a flood

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Flooding poses many problems and challenges for municipalities and industries. Among these are the protection and continued operation of wastewater-treatment facilities (WWTFs). This fact sheet provides guidance for WWTF operators in preparing for potential floods and working to recover operation after their facilities have been affected by a flood.

Avoid bypassing if possible

Obviously, every WWTF operator wants to avoid bypassing untreated wastewater at all times, if possible. However, sometimes it becomes necessary for a number of reasons, including:

Power outages — Cities and industries can avoid or minimize bypassing due to power outages if generators are available to provide emergency electricity to power lift pumps. For those facilities that have emergency generators available, it is important to start the generators ahead of the need to make sure they will operate properly in emergency situations. It is also prudent to plan ahead for fuel for the generators.

Lift pump failures — The most common problem during floods is failure of overworked lift pumps. If possible, lift pumps should be inspected and serviced ahead of a potential flood so they will operate at peak efficiency

as flows begin to rise. If your lift pumps have had recurring problems with specific parts or components in the past, it might be wise to have spare replacement parts on hand to repair pumps in emergency situations.

Excess flows — As floodwaters rise, sump pumps begin running full time and water may find its way into the sanitary collection system through leaky manholes, open connections or cracked and leaky collection pipes. Lift pumps can be overwhelmed and unable to transport all of the flow to the treatment system. Sump pumps should be disconnected from the sanitary system. If possible, some manhole cover sealing can be done. Open connections should be located and sealed.

Treatment system problems — Pond systems are normally very full in the spring. Extra water from flooding can raise water in ponds to critical levels. In this situation, it is preferable to open the discharge structure to allow water to leave the pond system at the same rate it is entering. Be cautious of allowing water to continue to accumulate in the ponds to the top of the dikes. The clay dike core or vinyl liner does not extend all the way to the dike top. Maintaining water above the core or liner can lead to catastrophic dike failure.

Check the MPCA Web site at www.pca.state.mn.us for more information about flooding and cleaning up afterward.

If you must bypass

If bypassing is the only alternative, remember that your first obligation is to contact the Minnesota Duty Officer at (800) 422-0798 or (651) 649-5451. If you need assistance or advice from the Minnesota Pollution Control Agency (MPCA), you can inform the Minnesota Duty Officer or contact the MPCA directly.

Your second obligation is to discontinue the bypass as soon as possible. If a bypass is expected to last for more than a day or two, contact your MPCA representative and keep him or her informed of your problems and progress.

Other potential problems

Fuels in sewers —A number of mishaps can occur during floods that can lead to spills of fuel, which enter the WWTF collection system. Significant amounts of fuels can cause many problems for treatment systems whether they are pond or mechanical systems. If a fuel spill enters the collection system, call the Duty Officer immediately. Determine the origin of the spill and approximate volume. Fuels are lighter than water and they will float, so it is sometimes possible to contain the spill in the wet well by adjusting float levels or running the pumps manually, so the water level does not pump all the way down. If the spill does reach the treatment system, the type of system and amount of fuel will determine how serious the problem becomes. Fuels can completely kill beneficial bacteria in a mechanical system and it may need to be “reseeded” after the fuel has passed. Pond systems can handle some fuel without major problems. The fuel should be contained in a single pond, where it may be recoverable with proper equipment.

Flooding around a pond system —During the 1997 flood, many pond systems in the Red River Valley had floodwaters rise to within a foot or two of the tops of the dikes. One of the problems this poses is that dikes become saturated from inside and out. This can weaken dikes and, as floodwaters recede, may lead to dike failure from the pressure of

the water in the ponds pushing against saturated dikes. During the 1997 flood, pond operators were advised to open gates and valves and allow water in the ponds to go down with the receding floodwaters. This should only be done when absolutely necessary and after consultation with MPCA staff.

Plan ahead.

Finally, if you believe you may have to face flooding problems, contact MPCA staff to discuss potential problems. Make sure you have any emergency numbers you may need in a handy place and make sure that other staff who may assist you are aware of these numbers and of the need to contact the Minnesota State Duty Officer or others for assistance.

For further assistance

If you need further assistance, call the Customer Assistance Center at the MPCA in St. Paul at (651) 297-2274 (or, if you are calling from outside the Twin Cities metro area, call the MPCA toll free at 800/646-6247 and ask for the Customer Assistance Center).

Assistance is available also from these MPCA offices outside the Twin Cities metro area:

Brainerd - (218) 828-2492

DETROIT LAKES - (218) 847-1519

Duluth - (218) 723-4660

Mankato - (507) 389-5977

Marshall - (507) 537-7146

Rochester - (507) 285-7343

Willmar - (320) 214-3786

To report a bypass or a fuel spill of more than five gallons, call the Minnesota Duty Officer at (800) 422-0798 or (651) 649-5451.