pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Planned and Unplanned Discharges of Chlorinated Water to Surface Waters

This fact sheet addresses the management of chlorinated water discharges, including water disinfected by chloramines, from drinking water systems to surface waters and storm sewers. Chlorinated water discharges may occur during planned routine operation and maintenance activities such as hydrant flushing, or due to unplanned or accidental releases such as water main breaks.

Water suppliers should be prepared to manage planned discharges and to quickly resolve accidental releases of chlorinated and chloraminated water not only to restore water for customers, but also to prevent water pollution and environmental damage.

How can drinking water cause a problem when discharged to surface water?

Chlorine, chloramine, and other treatment chemicals commonly added in amounts that are necessary to disinfect and to prepare water for public consumption and use, can be toxic to fish and other aquatic life. Discharges may also wash away street trash or cause soil erosion, carrying debris or sediment to the receiving water. These pollutants may endanger or compromise water quality, the environment, public health and safety, and may even cause a fish kill.

Can a chlorinated water discharge be directed to the nearest storm drain?

In general, no – drinking water system releases cannot be discharged directly to surface waters or to storm sewers, which are considered waters of the commonwealth under Pennsylvania's Clean Streams Law. A discharge may occur only if the water does not contain detectable concentrations of Total Residual Chlorine (TRC). To discharge potable water to a stream or to a storm drain, best management practices (BMPs) for dechlorination must be followed.

Where else can a chlorinated water discharge be released?

Chlorinated water could be disposed of into the sanitary sewer or at a sewage treatment plant (with permission only), at an authorized disposal site, or through land disposal, e.g., distribution of the water to vegetated areas for infiltration, assuming a large enough area is available.

So a discharge can be released directly to these other facilities or onto the ground?

Not exactly – the discharge must comply with any requirements or guidelines of the sewer system or other disposal site. For land application, the discharge may not cause harm to vegetation and, therefore, might need to be dechlorinated and should be managed to avoid ponding and soil erosion.

What types of <u>planned or routine</u> operation and maintenance activities result in a discharge?

Hydrant and line flushing and testing, storage tank or reservoir draining for cleaning or maintenance, disinfection of system components, such as wells, new pipelines or valve replacement, and hydrostatic testing of pipelines are examples of planned activities that may result in a release of chlorinated water and other pollutants.

What does the Pennsylvania Department of Environmental Protection (DEP) expect from water suppliers and other sources when conducting planned chlorinated water discharges?

Water suppliers should notify DEP in advance of the planned activity and take necessary steps to prevent a discharge of chlorinated water directly to waters of the commonwealth including storm sewers, streams, and rivers.

For example, for a planned hydrant flushing, the supplier should notify DEP where the discharge will occur, and be prepared to control the manner and rate of discharge to minimize and reduce the potential for erosion and to collect and/or dechlorinate the water discharged from the hydrant(s).

Where automatic flushing devices are used, DEP should be notified of the device location(s) in advance. These devices should be fitted with dechlorinating devices and checked regularly to ensure proper operation.

What kinds of non-routine activities cause unplanned discharges?

Water line breaks, leaks, tank overflows, fire hydrant shearing and other accidents, and emergency flushing are considered unplanned releases.

Should an unplanned discharge of chlorinated water to surface water be reported to DEP?

Yes, immediate notification is required. If a release of chlorinated water discharges, or may discharge, into waters of the commonwealth, Section 91.33 of DEP's Rules and Regulations requires immediate notification to DEP by phone of the location and nature of the discharge. A written report may also be required; DEP's *Chlorinated Water Discharge – Incident Report Form* (3800-FM-BCW0530) can be used to provide the release or incident information.

How are unplanned discharges of chlorinated water reported to DEP?

Report unplanned discharges by calling the Clean Water Program in the regional office of DEP that has jurisdiction where the incident is located. If you are unable to reach someone, do not leave a message; contact the 24-hour emergency number for the regional office or DEP's statewide emergency response number.

Regional Office Emergency Response Phone Numbers:

Northwest: 800-541-2050	North-central: 570-327-3636	Northeast: 570-826-2511
Southwest: 412-442-4000	South-central: 800-541-2050	Southeast: 484-250-5900

DEP Statewide Emergency Response: 800-541-2050

Do any other agencies need to be notified and when?

Discharges that result in a fish kill or that are or could cause an impact to aquatic life must also be immediately reported to the Pennsylvania Fish and Boat Commission at **855-347-4545**.

What other problems can be caused by a water main break?

When a large diameter water pipe breaks, physical damage can be caused by the flood of water, such as eroding soil, destroying roads and building foundations, and washing away utilities, in addition to contaminating nearby bodies of water with debris and chlorinated water.

How can public water suppliers prevent environmental harm from a chlorinated water discharge?

1. Develop a pollution prevention and control (PPC) plan and/or an emergency response plan that includes the implementation of BMPs to handle both planned and unplanned discharges of chlorinated water, and training for staff who will be involved in responses to those discharges.

   For example, prior to a discharge reaching a surface water, all water releases should be dechlorinated, and, if needed, erosion and sediment control actions implemented, such as containment or the installation of silt fencing. Other typical BMPs may include the use of tablet dechlorination, hay bales to reduce water velocity, blocking of storm sewer inlets, the use of dechlorination storm drain mats, and hydrant dechlorination diffusers, among others.

   NOTE: Dechlorinating agents introduced into chlorinated water discharges must be monitored closely to ensure that the dissolved oxygen, pH, or ammonia levels in the receiving stream are not negatively impacted.

2. Develop and implement an Operation and Maintenance Plan (O&M Plan), as required by DEP's Safe Drinking Water regulations. Every O&M Plan should include both a line replacement program

based on such factors as the age of the water line(s), pipe material, and proximity to surface water, and the procedures to follow during line installation.

3. Establish a procedure to properly handle the discharge of superchlorinated water (>25 mg/L) used for disinfection after pipe installation or repair, as described in Section II of the American Water Works Association (AWWA) Standard for Disinfecting Water Mains (C651-14).
4. Develop contingency plans and prior approvals for disposal when the chlorinated water cannot be dechlorinated or otherwise made safe for stream discharge.

What are the public water supplier's responsibilities following a water line break or other unplanned chlorinated water discharge?

In addition to the water supplier's system management responsibilities under the Safe Drinking Water Regulations, all unplanned and accidental releases, should be handled as quickly as possible.

When notified that a water line has broken, a water supplier should be prepared to immediately visit the site, assess the situation, and obtain the following information relating to possible environmental impacts:

1. Could or is chlorinated water entering a nearby surface water?
2. What is the concentration of TRC entering the surface water? Are there visible effects on aquatic life in the surface water (killed or stressed fish or macroinvertebrates)?
3. What is the size, in inches, of the water line that broke? Prepare an estimate of the water loss.
4. Provide an estimate of how long the repair will take.
5. What dechlorination procedures or other BMPs are or could be used to minimize impacts of the release?

Could a supplier be penalized if a discharge of chlorinated water causes pollution?

Yes. If DEP determines that a discharge of chlorinated water to waters of the commonwealth is in violation of Section 301, 307 and 401 of the Clean Streams Law and DEP's Rules and Regulations, the responsible party could be liable for civil penalties up to $10,000 per day.

A real-life example of how a chlorinated water discharge caused environmental damage:

DEP biologists conducting a stream survey found a section of Class A trout stream devoid of aquatic life. Further investigation identified an old public water supply connection that had been improperly disconnected. This release of chlorinated water to a surface water depleted the population of macroinvertebrate life in the stream and ultimately caused a fish kill.

Questions?

Contact the Clean Water Program in DEP's regional offices. Visit DEP's website at www.dep.pa.gov and select "Regional Resources" on the banner under the photograph for up-to-date contact information.