Stormwater Best Management Practices:
Potable Water Line Discharges

BACKGROUND

Potable water is chlorinated. The discharge of chlorine to surface waters can damage aquatic life. New potable water lines are often flushed with "super-chlorinated" water: water that is treated at a higher-than-normal dosage of chlorine. Discharge of super-chlorinated water (greater than 5 mg/L) poses acute toxicity risk to aquatic environments. Operators need to understand the importance of ensuring that super-chlorinated water does not reach "State waters", without adequate dissipation or treatment to prevent harm to the environment. To a lesser degree, lower levels of chlorine (less than 5 mg/L) in distribution water can also adversely affect aquatic environments under certain conditions.

Discharges of potable water are a type of industrial activity with short-term infrequent discharges that with proper management are not expected to contain pollutants in concentrations that are toxic or in concentrations that would cause or contribute to a violation of a water quality standard. The typical pollutant of concern is total residual chlorine, however, depending on how the discharge occurs, total suspended solids and oil and grease may become pollutants of concern. These pollutants can be handled using de-chlorination techniques, filters, oil booms, and other best management practices (BMPs). When the BMPs are implemented, the CDHPE/ Water Quality Division will not actively pursue permitting or enforcement for the discharge of potable water, unless on a case-by-case basis the Division finds that a discharge has resulted in an adverse impact to the quality of any state waters receiving the discharge.

AFFECTED FACILITIES

These BMPs apply to all municipal and county water utilities, fire hydrants, and potable water distribution systems.

BEST MANAGEMENT PRACTICES

- Do not discharge super-chlorinated water to any storm drain, street, ditch or State surface water.
- Super-chlorinated water may only be discharged after de-chlorination by aeration, retention, dissipation, or chemical treatment to "no measurable chlorine" content. Please see Potable Water Guidance document at: https://www.colorado.gov/pacific/cdphe/water-quality-permitting-policies.
- A State of Colorado Discharge Permit may be required for discharging chlorinated or super-chlorinated waters. Please contact the Colorado Department of Public Health and Environment, Water Quality Control Division at 303-692-3500 or at their website: https://www.colorado.gov/pacific/cdphe/news/water-quality-permits.
- The discharge of cleaning materials or chemicals is strictly prohibited and should be sent to the sanitary sewer, with permission of the local wastewater treatment facility, or otherwise collected and disposed of.
- The potable water shall **not** be used in any additional process. Processes include, but are not limited to, any type of washing, heat exchange, manufacturing, and hydrostatic testing of pipelines not associated with treated water distribution systems.

- The discharge shall be of potable water from a potable water distribution system, including tanks and storage facilities that are part of that system. This includes lines supplying potable source water to other systems, not separated by a backflow preventer; where free mixing with the potable system occurs (e.g. fire suppression lines, irrigation lines, etc.). A system has been "maintained for potable water distribution use" when it will be or is currently delivering or storing potable water (i.e. existing systems).
- The discharge shall not cause erosion of a land surface.
- The discharge shall not contain solid materials in concentrations that can settle to form bottom deposits detrimental to the beneficial uses of the state waters or form floating debris, scum, or other surface materials sufficient to harm existing beneficial uses.
- All discharges must comply with the lawful requirements of federal agencies, municipalities, counties, drainage districts, ditch owners, and other local agencies regarding any discharges to storm drain systems, conveyances, ditches or other water courses under their jurisdiction.
- If the discharge is directly to a "State surface water" (any stream, creek, gully, whether dry or flowing), it must not contain any residual chlorine. The operator is responsible for determining what is necessary for removing chlorine from the discharge. If the discharge is to a ditch, chlorine content may be limited by the owner of the ditch. However, if the ditch returns flow to classified state waters, it must not contain any residual chlorine at the point where it discharges to the classified state water.
- BMPs should be implemented as necessary to meet the conditions above, by anyone discharging potable water. These BMPs will help ensure that the discharge will not negatively affect water quality. Please refer to Low Risk Discharge Guidance - Discharges of Potable Water at: https://www.colorado.gov/pacific/sites/default/files/LOW_RISK_POTABLE_2016-1.pdf
- For discharge to the ground, the water should not cause any toxicity to vegetation. When discharging, allow the water to drain slowly so that it soaks into the ground as much as possible.
- If discharge is to the sanitary sewer, contact the local wastewater treatment facility prior to discharge. System owners may grant blanket authorization to discharge to their systems. This must be done to ensure that the facility is able to accept the discharge. Not all facilities are able to accept such discharges. Note that additional restrictions or local guidelines may apply.
- Removal of any residual chlorine must be done for any direct discharge to state surface waters or for any discharge to a storm sewer or conveyance where the chlorine will not dissipate prior to reaching a State surface water.
- If the discharge is directly to a state surface water (any stream, creek, gully, whether dry or flowing), it must not contain any residual chlorine in excess of 0.011 mg/L. The operator is responsible for determining what is necessary for removing chlorine from the discharge.(See: https://www.colorado.gov/pacific/sites/default/files/LOW_RISK_POTABLE_2016-1.pdf)
- De-chlorination, if necessary, may be achieved by allowing water to stand uncovered until no chlorine is detected, or by de-chlorination using a portable de-chlorinator. Pay particular attention when handling super-chlorinated waters. A longer time is needed to dissipate chlorine from super-chlorinated waters.

- The discharge should be conducted to minimize the potential to pick up additional suspended solids. When possible, a best management practice, or combination of practices, for filtering or settling suspended solids and other debris, or a combination of practices, should be used to remove suspended solids or other debris. Examples of suspended solid removal practices include, but are not limited to check dams, filter bags, and inlet protection. These devices should be used and maintained in accordance with the manufacturers specifications.
- The discharge should be conducted to minimize the potential that it will not pick up any oil and grease. When possible, an absorbent oil pad, boom or similar device should be used to eliminate oil from the discharge.
- During emergency discharges such as water main breaks or when water mains must be flushed at high velocity and high volume due to a human health concern, shut the water down as soon as possible in such a manner that is protective of human health and safety and implement BMPs to protect storm drains from the discharge or contaminants.

REQUIRED STRUCTURES AND EQUIPMENT

- De-chlorination system for water line or hydrant flushing
- Neutralizing chemicals to reduce residual chlorine concentrations
- Sediment traps (i.e. sand/oil separators, gravel filter berms, filter bags, etc.)
- Storm drain protection devices (berms, dykes, covers, waddles etc.)

INSTALLATIONS REQUIRED FOR NEW CONSTRUCTION OR RENOVATIONS

- See: *New Building Construction BMPs*.

REQUIRED EMPLOYEE AND CONTRACTOR TRAINING

- Train all current employees and contractors who perform potable water line flushing.
- Train all new hires and job transferees who will conduct potable line flushing on this BMP.
- Conduct refresher training on this BMP for all employees and contractors who conduct potable line flushing as needed.
- Contracts should stipulate that all contracted employees have been trained in proper stormwater management BMPs.

RECORDS

- Keep records of employee and contractor trainings.
- Keep records of the volumes of water discharged to storm drains, ditches or surface waters including the analytical test results showing “no measurable chlorine” content.

REFERENCES

1. Colorado’s Phase II Municipal Guidance, October 2001

2. *California Stormwater BMP Handbook*, January 2003

3. *Knoxville (TN) BMP Manual, Activities & Methods*, January 2001

4. *City of Tacoma: Surface Water Management Manual (Vol. IV Source Control BMPs)*, January 2003

5. *Municipal Facility Runoff Control Plan* (City of Lakewood, CO)

6. *Best Management Practices for Industrial Storm Water Pollution Control* (Santa Clara Valley, CA)

7. Colorado Department of Public Health and Environment, Water Quality Control Division's, "Low Risk Discharge Guidance: Discharges of Potable Water"