

State of Oregon
Department of Environmental Quality

Memorandum

Date: May 19, 1997

To: Interested Parties
From: Water Quality Division, DEQ
Subject: Chlorinated Water Discharges

Attached please find the *final* guidance on "Management Practices for the Disposal of Chlorinated Water." In December 1996, the Department distributed a draft version of this guidance and invited comments. In response to the comments received, the Department has revised the draft guidance. The following is a summary of the changes made to the draft guidance.

The final guidance includes a statement that the Department recognizes the importance of activities which result in the discharge of chlorinated water and supports the continuation of these activities. Other changes include redefining system water as containing up to 4 mg/l total residual chlorine in accordance with EPA's Proposed National Primary Drinking Water Regulations. Based on data gathered by water utilities, the Department has revised the typical distance necessary for chlorine dissipation from 1 mile to 1000 feet or more. While the Department expects all activities that generate chlorinated water to use non-discharge options where feasible, the final guidance states that the water should be dechlorinated when discharging to a stream with a flow rate of 50 cubic feet per second (cfs) or less. For larger streams (i.e. flow rate greater than 50 cfs), the Department believes that travel time and dilution within the storm sewer system, in addition to the dilution available in larger streams, will be adequate to prevent water quality impacts.

To aid water utilities and fire districts, the Department has included a flow chart that outlines a decision matrix that can be utilized for the disposal of chlorinated water. It should be noted that the management practices in the guidance were developed with information currently available. As more information becomes available and as water districts and fire departments gain experience with these management practices, the Department will revisit this guidance and revise it accordingly.

If you would like to submit information for consideration in future revisions to the guidance, please send it to the following address:

Department of Environmental Quality
Water Quality Division
811 SW 6th Avenue
Portland, OR 97204
Attn: Surface Water Management

We look forward to working with you in implementing practices that fit your needs while protecting the state's water resources.

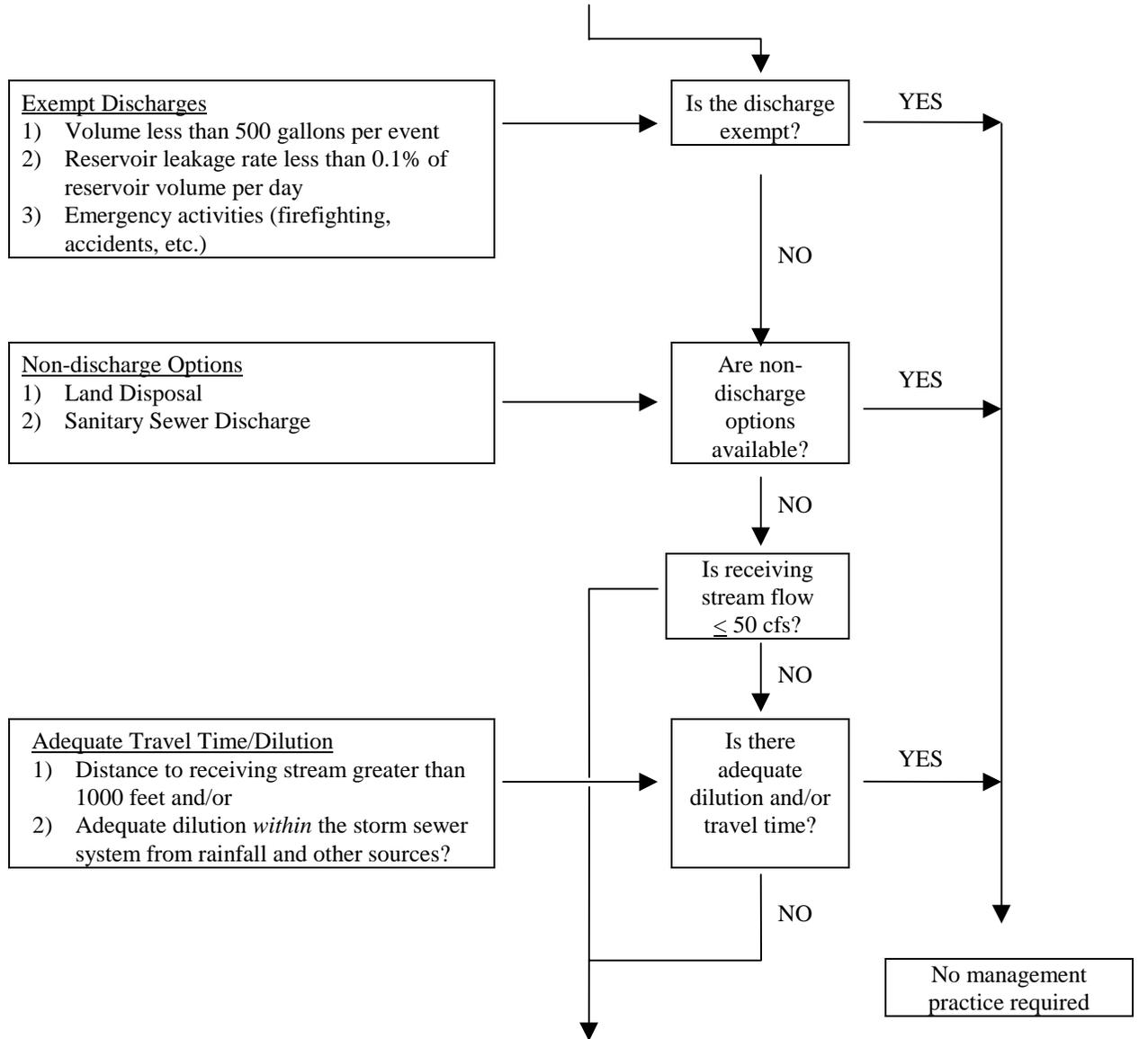
Decision Matrix for the Disposal of Chlorinated Water

Discharge Information

- 1) Activity Type _____
- 2) Location _____
- 3) Chlorine Concentration _____ mg/l
- 4) Discharge Flow or Volume generated over time _____ cubic feet per second (cfs) or gallons per time

Additional Information (if applicable)

- 5) Expected Dilution *within* storm sewer system _____
- 6) Distance to Receiving Stream _____ (feet/miles)
- 7) Receiving Stream Flow _____ cfs



Exempt Discharges

- 1) Volume less than 500 gallons per event
- 2) Reservoir leakage rate less than 0.1% of reservoir volume per day
- 3) Emergency activities (firefighting, accidents, etc.)

Non-discharge Options

- 1) Land Disposal
- 2) Sanitary Sewer Discharge

Adequate Travel Time/Dilution

- 1) Distance to receiving stream greater than 1000 feet and/or
- 2) Adequate dilution *within* the storm sewer system from rainfall and other sources?

Discharge Options / Management Practices

- 1) Dechlorinate to 0.1 mg/l total residual chlorine or less if discharge is to a stream with flow less than 50 cfs. Test prior to discharge.
- 2) Collect and hold water in a detention pond/tank to allow chlorine to dissipate. Chlorine concentrations should be 0.1 mg/l or less when discharging to a stream with flow less than 50 cfs. Test prior to discharge.

NOTE: Super-chlorinated water (i.e., water with chlorine concentrations above 4 mg/l) should not be discharged to surface waters or storm sewers. Non-discharge options such as land disposal or sanitary sewer discharge should be used.

MANAGEMENT PRACTICES FOR THE DISPOSAL OF CHLORINATED WATER



To maintain drinking water distribution systems and fire hydrants, and to ensure the quality of the drinking water being distributed, many activities are conducted that result in the discharge of chlorinated and super-chlorinated water. These activities include fire hydrants flushing, water line pressure testing and maintenance, hydrostatic testing, water line flushing, leakage from water reservoirs, flushing of reservoirs and tanks, and other distribution system discharges (from pressure relief valves, air/vacuum release valves, reservoir and tank overflows, and sampling activities). The Department recognizes the importance of these activities and wants them to proceed. Unfortunately, chlorine is toxic to aquatic life even in low concentrations. This fact sheet was developed by the Department of Environmental Quality (DEQ) to provide you with information on management practices that will minimize the impact of chlorinated water discharges. DEQ believes that as long as these management practices are followed, a discharge permit is not necessary for these activities.

SUPER-CHLORINATED WATER

(Defined as greater than 4 mg/l total residual chlorine.)

Regardless of volume, super-chlorinated water must not be discharged to surface waters or storm sewers. Non-discharge alternatives must be used; these include sanitary sewer disposal (either by connecting to a sanitary sewer or by hauling to a sewage treatment plant) and land disposal or irrigation.

CHLORINATED WATER

(Defined as containing up to 4 mg/l total residual chlorine.)

The following 'Best Management Practices' apply to chlorinated water discharges that exceed 500 gallons per event and reservoirs that leak excessively (i.e., greater than the typical design rate of 0.1 percent of the volume of the reservoir per day). Activities that result in discharges under these rates are not subject to the management practices specified below. Discharges of chlorinated water from emergency activities such as firefighting are also exempt from these practices.

- Wherever practicable, chlorinated water should be disposed so it does not enter storm sewers or surface waters. Non-discharge alternatives such as land disposal or irrigation and sanitary sewer disposal should be evaluated before considering a direct discharge to surface waters or a storm sewer.
- When non-discharge options are not feasible, chlorinated water may be discharged to a storm sewer if the travel time and/or dilution in the storm sewer system before the water enters a stream is sufficient to allow the dissipation of chlorine. Typically, a distance of 1000 feet or more should be adequate to allow chlorine to dissipate. Shorter distances may also be adequate if there is dilution available within the storm sewer system.
- When non-discharge options are not feasible and the travel time/dilution in the storm sewer system is either insufficient or unknown, the chlorinated water should be de-chlorinated when discharging to a stream that has a flow rate of 50 cubic feet per second (cfs) or less. Dechlorination should be sufficiently effective to reduce total residual chlorine concentration to 0.1 mg/l or less and the water should be tested before discharge. For discharges to larger streams (i.e., greater than 50 cfs), the travel time and dilution within the storm sewer system in addition to the dilution available in larger streams should be adequate to prevent water quality impacts.
- When non-discharge options are not available, the chlorinated water may be collected in a closed vessel or an open-air detention facility and held for sufficient time to allow the chlorine to dissipate. Detention time should be sufficient to reduce chlorine levels to 0.1 mg/l or less when discharging to a stream that has a flow rate of 50 cubic feet per second (cfs) or less. The water should be tested before discharge and the discharge rate should be controlled so that it is not greater than the expected discharge rate from the operation that yielded the water.

For further information, please contact the DEQ regional office in your area (refer to map on back).

DEQ REGIONAL & WATER QUALITY BRANCH OFFICES

<p style="text-align: center;">NORTHWEST REGION: <i>(County)</i></p> <table style="width: 100%; border: none;"> <tr> <td>◆ Clatsop</td> <td>◆ Washington</td> </tr> <tr> <td>◆ Columbia</td> <td>◆ Multnomah</td> </tr> <tr> <td>◆ Tillamook</td> <td>◆ Clackamas</td> </tr> </table> <p style="text-align: center;">WESTERN REGION: <i>(County)</i></p> <table style="width: 100%; border: none;"> <tr> <td>◆ Yamhill</td> <td>◆ Lane</td> </tr> <tr> <td>◆ Polk</td> <td>◆ Douglas</td> </tr> <tr> <td>◆ Lincoln</td> <td>◆ Coos</td> </tr> <tr> <td>◆ Benton</td> <td>◆ Curry</td> </tr> <tr> <td>◆ Marion</td> <td>◆ Josephine</td> </tr> <tr> <td>◆ Linn</td> <td>◆ Jackson</td> </tr> </table> <p style="text-align: center;">EASTERN REGION: <i>(County)</i></p> <table style="width: 100%; border: none;"> <tr> <td>◆ Hood River</td> <td>◆ Wheeler</td> </tr> <tr> <td>◆ Wasco</td> <td>◆ Grant</td> </tr> <tr> <td>◆ Sherman</td> <td>◆ Baker</td> </tr> <tr> <td>◆ Gilliam</td> <td>◆ Deschutes</td> </tr> <tr> <td>◆ Morrow</td> <td>◆ Crook</td> </tr> <tr> <td>◆ Umatilla</td> <td>◆ Klamath</td> </tr> <tr> <td>◆ Union</td> <td>◆ Lake</td> </tr> <tr> <td>◆ Wallowa</td> <td>◆ Harney</td> </tr> <tr> <td>◆ Jefferson</td> <td>◆ Malheur</td> </tr> </table>	◆ Clatsop	◆ Washington	◆ Columbia	◆ Multnomah	◆ Tillamook	◆ Clackamas	◆ Yamhill	◆ Lane	◆ Polk	◆ Douglas	◆ Lincoln	◆ Coos	◆ Benton	◆ Curry	◆ Marion	◆ Josephine	◆ Linn	◆ Jackson	◆ Hood River	◆ Wheeler	◆ Wasco	◆ Grant	◆ Sherman	◆ Baker	◆ Gilliam	◆ Deschutes	◆ Morrow	◆ Crook	◆ Umatilla	◆ Klamath	◆ Union	◆ Lake	◆ Wallowa	◆ Harney	◆ Jefferson	◆ Malheur	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Eugene Office:</p> <p>1102 Lincoln St., #210 Eugene, OR 97401 Telephone: (541) 686-7838 FAX: (541) 686-7551</p> </div> <div style="width: 33%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Northwest Region Office:</p> <p>2020 SW 4th Avenue, #400 Portland, OR 97201-5884 Telephone: (503) 229-5263 FAX: (503) 229-6945</p> </div> <div style="width: 33%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Salem Office:</p> <p>750 Front Street NE, #120 Salem, OR 97310 Telephone: (503) 378-8240 FAX: (503) 373-7944</p> </div> <div style="width: 33%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Coos Bay Branch Office:</p> <p>340 N Front Street Coos Bay, OR 97420 Telephone: (541) 269-2721 FAX: (541) 269-7984</p> </div> <div style="width: 33%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Roseburg Office:</p> <p>725 SE Main Roseburg, OR 97470 Telephone: (541) 440-3338 FAX: (541) 440-3396</p> </div> <div style="width: 33%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Medford Office:</p> <p>221 Stewart Avenue, Suite 201 Medford, OR 97501 Telephone: (541) 776-6010 FAX: (541) 776-6262</p> </div> <div style="width: 33%; border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Bend Office:</p> <p>300 SE Reed Market Road Bend, OR 97702 Telephone: (541) 388-6146 FAX: (541) 388-8283</p> </div> <div style="width: 33%; border: 1px solid black; padding: 5px;"> <p>Pendleton Office:</p> <p>700 SE Emigrant, #330 Pendleton, OR 97801 Telephone: (541) 276-4063 FAX: (541) 278-0168</p> </div> </div> <p style="text-align: right; font-size: small;">WH6008D.PPT</p>
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