

## Phosphorus Reduction Tips at a Glance

**Prevention First** Here are some quick tips for selecting phosphorus reduction strategies for business users—commercial, industrial and institutional operations; your wastewater treatment facility (WWTF); residential or domestic sources and the drinking water treatment plant that prevent or minimize phosphorus releases. The Minnesota Pollution Control Agency (MPCA) and the Minnesota Technical Assistance Program (MnTAP) have a number of fact sheets that offer guidance on reduction and best management practices.

| Phosphorus Contributors                                                                                                                                                                                                                                                                                                                                                                                            | Tips to Reduce Phosphorus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <b>All business users—<br/>Industrial, commercial and institutional</b><br><br>Including agricultural co-ops, car/truck washing facilities, dairies, food processing plants, meat packing and locker plants, metal finishing facilities, municipal water treatment plants that add phosphorus to drinking water, nursing homes, restaurants, schools and other businesses or institutions with phosphorus sources. | <b>Cleaning &amp; sanitizing</b> <ul style="list-style-type: none"> <li>Establish purchasing criteria for cleaning products</li> <li>Use low or non-phosphorus cleaners and detergents</li> <li>Use proper concentrations of cleaners and detergents</li> <li>Use cleaners and detergents as directed by manufacturer</li> <li>Do not accept sample cleaners from vendors</li> </ul> MnTAP fact sheet: <i>Phosphorus: Reducing Releases from Industrial Cleaning and Sanitizing Operations</i> [#11]                                                                                                        |
| <b>Industrial / metal finishers</b>                                                                                                                                                                                                                                                                                                                                                                                | <b>Metal preparation, finishing &amp; painting</b> <ul style="list-style-type: none"> <li>Evaluate low- and non-phosphorus systems</li> <li>Reuse water where it will enhance cleaning</li> <li>Maintain proper levels of phosphate in the bath</li> <li>Keep process solutions in their tanks by reducing carryover</li> <li>Use deionized reverse osmosis water for process baths and rinses</li> <li>Ensure all process controls are properly set, calibrated and maintained</li> <li>Keep spray nozzles cleaned and maintained</li> </ul> MnTAP fact sheet: <i>Metal Phosphatizing Operations</i> [#64] |
| <b>Industrial / food processors</b><br><br>Including dairies, meat packing and locker plants.                                                                                                                                                                                                                                                                                                                      | <b>Food processing</b> <ul style="list-style-type: none"> <li>Keep food by-products off the floor and out of drains</li> <li>Use dry cleanup practices prior to wet cleaning</li> <li>Reduce spills, leaks and tank overflows</li> <li>Use an automatic clean-in-place (CIP) system</li> <li>Reuse food by-products for animal feed, composting or land spreading</li> </ul> MnTAP fact sheets: <i>Phosphorus: Reducing Releases from Dairy Operations</i> [#116], <i>Phosphorus: Reducing Releases from Meat Packing Operations</i> [#118] and <i>Phosphorus:</i>                                          |



| Phosphorus Contributors  | Tips to Reduce Phosphorus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|                          | <i>Reducing Releases from Poultry Processing Plants</i> [#71]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Municipal sources</b> | <ul style="list-style-type: none"> <li>• Institute environmentally preferred purchasing with policies to limit phosphorus containing products for your municipal operations</li> <li>• Institute a public education campaign to raise awareness about phosphorus issues and sources</li> <li>• Optimize the addition of phosphorus to the drinking water supply to prevent pipe corrosion.</li> <li>• Evaluate the use of water treatment plant filter backwash residuals as a possible mechanism for phosphorus removal at the WWTF</li> <li>• Optimize stormwater management policies, such as minimizing run-off from parking lots and other surfaces</li> </ul>                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Domestic</b>          | <ul style="list-style-type: none"> <li>• Institute environmentally preferable purchasing in your household. Find sources for low- or non-phosphorus dishwashing liquids and soaps</li> <li>• Use laundry detergent purchased in Minnesota or other states in which only low- and non-phosphorus detergent is sold</li> </ul> <p>Prevent phosphorus from entering storm sewers</p> <ul style="list-style-type: none"> <li>• Wash the car on the lawn to prevent phosphorus-laden rinse water from running into stormwater sewers</li> <li>• Collect organic material (leaves, grass clippings, etc.) from street drains and gutters. Check fall leaf pick-up dates to take advantage of composting services</li> <li>• Use phosphorus-free lawn fertilizer</li> <li>• Restore natural shoreland or streambank habitat to prevent phosphorus-laden runoff from entering surface water</li> <li>• Use lawn mowers that chop up grass clippings and leave them on the lawn. These mulching mowers reduce the need for fertilizers</li> </ul> |
| <b>Your WWTF</b>         | <ul style="list-style-type: none"> <li>• Optimize the WWTF operations for phosphorus removal</li> <li>• Improve phosphorus removal using biological or chemical treatment methods</li> <li>• Feed supernatant back to the plant at a rate the phosphorus can be removed</li> </ul> <p>MPCA fact sheet: <i>WWTF Optimization for Phosphorus Removal and Phosphorus Treatment and Removal Technology</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**Water Conservation** Reducing effluent flows from businesses may reveal hidden phosphorus concentrations. See the MnTAP fact sheet *Water Use Tips* [#119] for water conservation idea for businesses.