

MELTWATER TREATMENT PRACTICES (MTPs):
THE BASICS

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Abstract: An update and re-cap of past observations and research on management of meltwater in cold climates, as well as management in-sight gained from a recent international conference in Sweden are presented. The handling of meltwater as it moves from snowpack to receiving water is complicated by cold weather and by historic design approaches that do not consider frozen conditions. Large volumes of polluted water, layers of ice, freeze-thaw cycles, slowed biological activity and complex pollutant partitioning mean that typical warm weather approaches to runoff management simply all work against effective water quality improvement when the need is highest. Adapting typical BMPs (best management practices) to make them effective MTPs is possible through alternative design measures and retrofitting existing structures. Examples of some alternatives will be presented, along with thoughts on research and practical needs.

Most of the material presented for this paper has been previously presented. New information will be presented on chlorides in surface and ground water. Previously published management of meltwater information from the author can be obtained from the reports listed below. A copy of the slides that are presented will be available at the presentation.

Marsalek, J., G.L. Oberts, K. Exall and M. Viklander, 2003. Review of the operation of urban drainage systems in cold weather: Water quality considerations. In *Proceedings - Urban Drainage and Highway Runoff in Cold Climate*, March 25-27, 2003, Riksgränsen, Sweden, pp.1-11.

Oberts, G.L., 1990. Design considerations for management of urban runoff in wintry conditions. In *Proceedings - International Conference on Urban Hydrology under Wintry Conditions*, March 19-21, 1990, Narvik, Norway.

Oberts, G.L., 2003. Cold climate BMPs: Solving the Management Puzzle. In *Proceedings - Urban Drainage and Highway Runoff in Cold Climate*, March 25-27, 2003, Riksgränsen, Sweden, pp.13-31.

Oberts, G.L., P.J. Wotzka and J.A. Hartsoe, 1989. *The Water Quality Performance of Select Urban Runoff Treatment Systems*, Metropolitan Council, St. Paul, MN, Publication No. 590-89-062a, 170 p.

UNESCO, 2000. *Urban Drainage in Specific Climates: Vol.II. Urban Drainage in Cold Climates*. ed. by S. Saegrov, J. Milina and S.T. Thorolfsson. IHP-V, Technical Documents in Hydrology, No. 40, Vol. II, Paris.

Water Science and Technology (IWA). A collection of papers presented at Riksgränsen in March 2003 will be contained in *WST*, Vol. 48(9).