Explanation of the various data in “Pre and post results PRM 130.5 to PRM 128.1.xlsx

The spreadsheet contains data for the pre-dam and post-dam (0.5 degC release temperature) scenarios for 1984-85 freeze up for the sections between PRM 128.1 and PRM 130.5. The data includes hourly WSE, water temp, discharge, and ice parameters versus time.  The parameters supplied that relate to the ice cover are:

fraction of channel covered by border ice versus time

maximum border ice thickness versus time

equivalent ice thickness versus time (excluding border ice)

equivalent ice thickness versus time (including border ice)

surface ice concentration versus time

equivalent ice thickness versus time (excluding border ice) is calculated as follows:

tIceEq(no border) = {tsi + [(1-ef) + ef/si]\*tfs}

where:

tsi = solid ice thickness

tfs = frazil slush ice thickness

ef = porosity of the frazil slush = 0.5

si = specific density of ice = 0.92

equivalent ice thickness versus time (including border ice) is calculated as follows:

tIceEq(with border) = Ci\*(1-fb)\*tIceEq(no border) + fb\*tb/2

where:

Ci = surface ice concentration

fb = fraction of the channel covered by border ice

tb = maximum border ice thickness