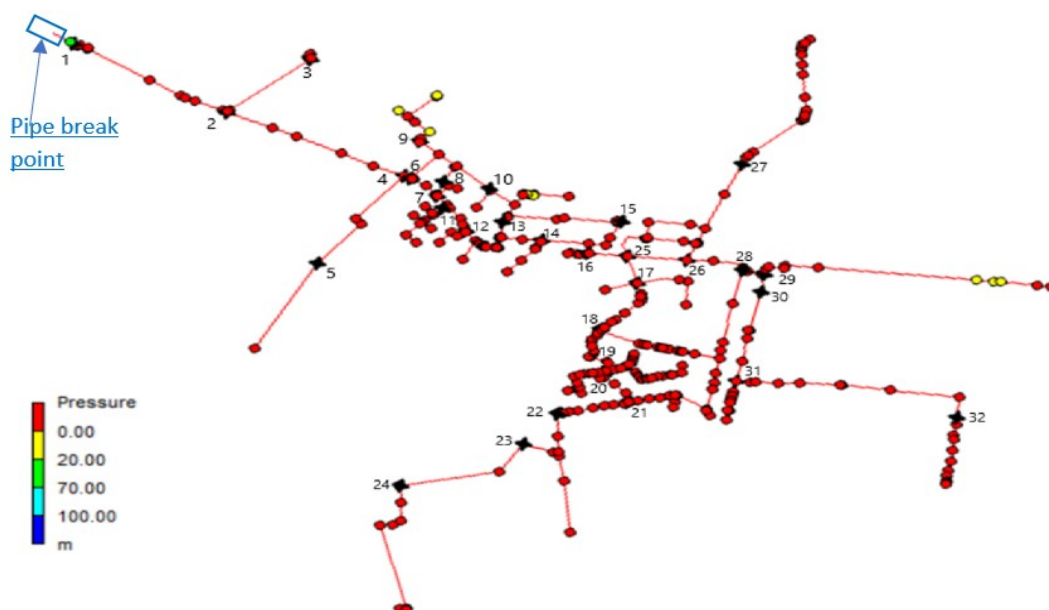Supplementary figures

Figure S1 Pipe break point, intrusion nodes, the displayed nodal pressure distribution is the lowest pressure observed at the node in scenario 2 for a 5-hour event.
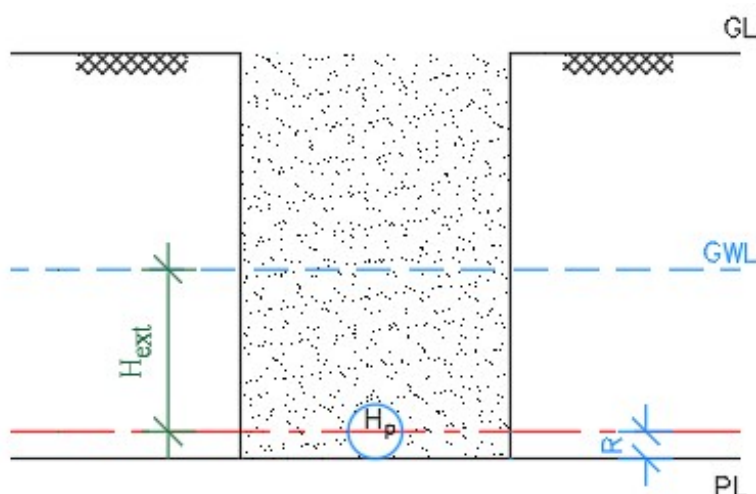

Figure S2: The position of a WDN pipe (cross-sectional view) in relation to the ground level (GL) and groundwater level (GWL) where: H_{ext} represents the external piezometric head (elevation of groundwater-surface), PL is the pipe level, R is the pipe radius (R) and H_p is the internal piezometric head. (Note: GWL is in meters above sea level (m.asl) while PL, and GWL are measured from the GL).
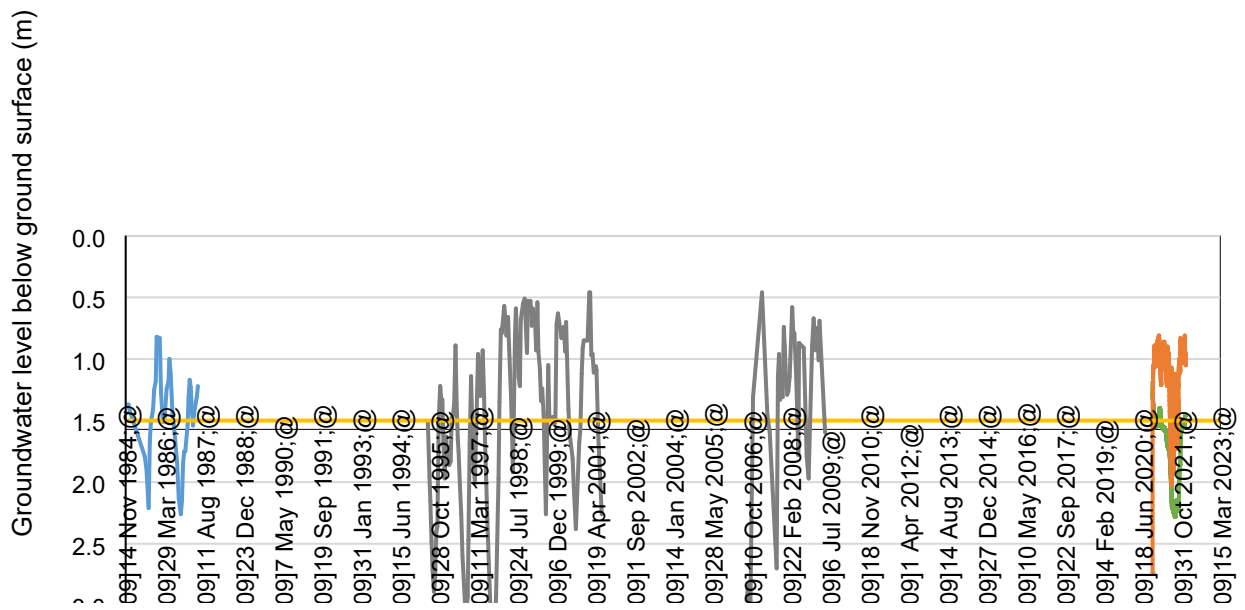
Figure S3: Groundwater levels for four different observation boreholes from 1984 to 2022. Green represents borehole 1, orange represents borehole 2, grey represents borehole 3, blue represents borehole 4 and yellow represents the assumed pipe level (Geological Survey of Sweden [65]).
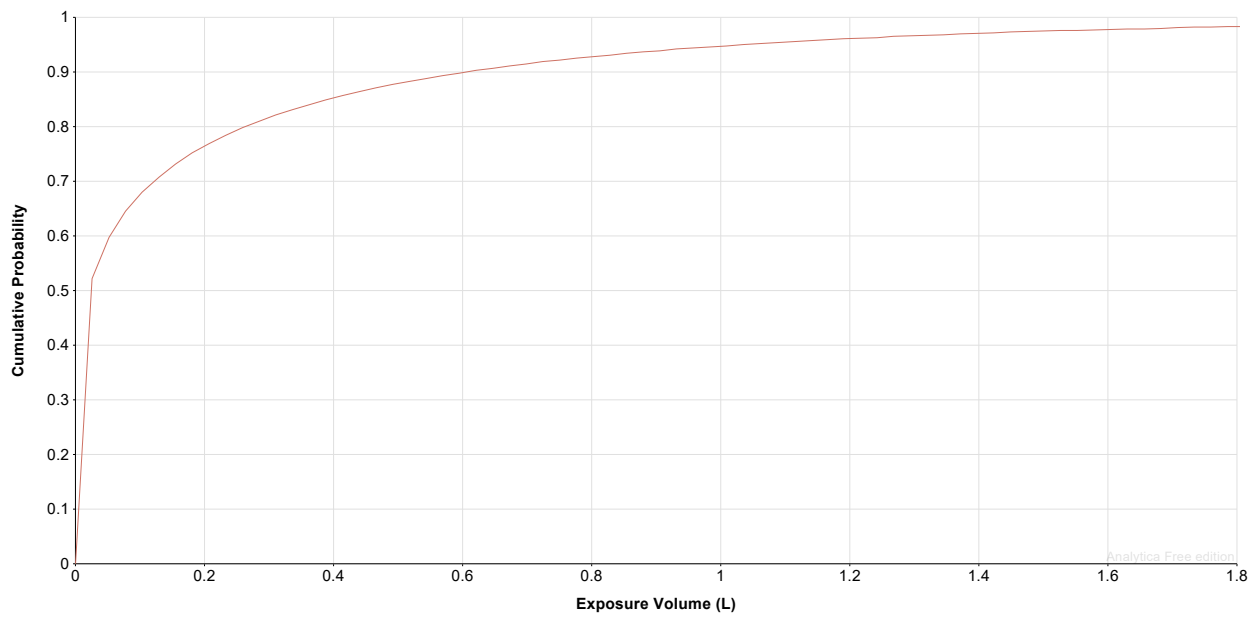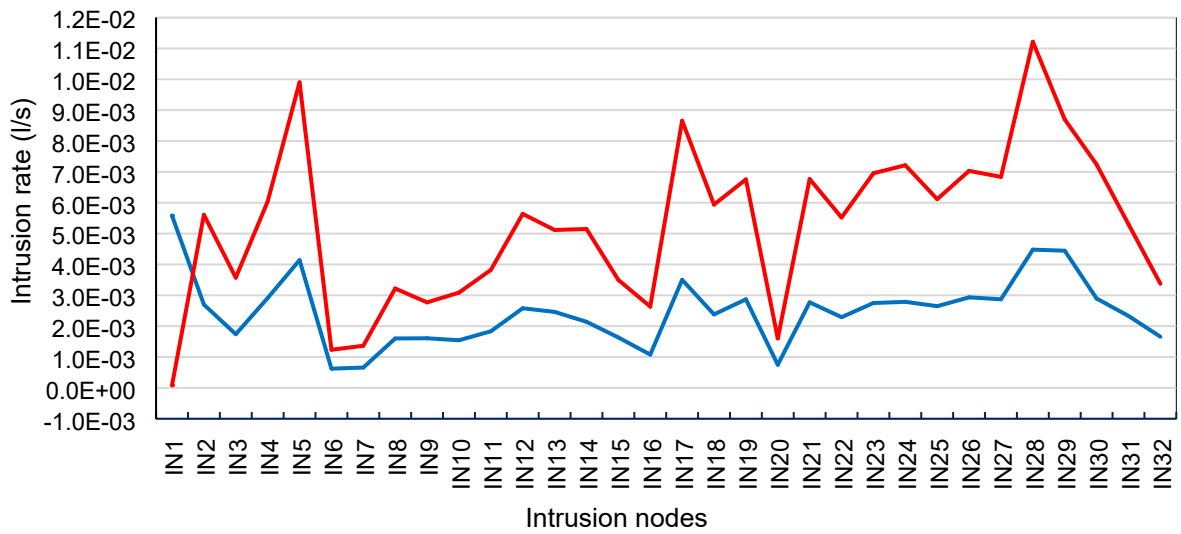

Figure S4: Cumulative probability density function for the consumption pattern used in the health risk assessment.
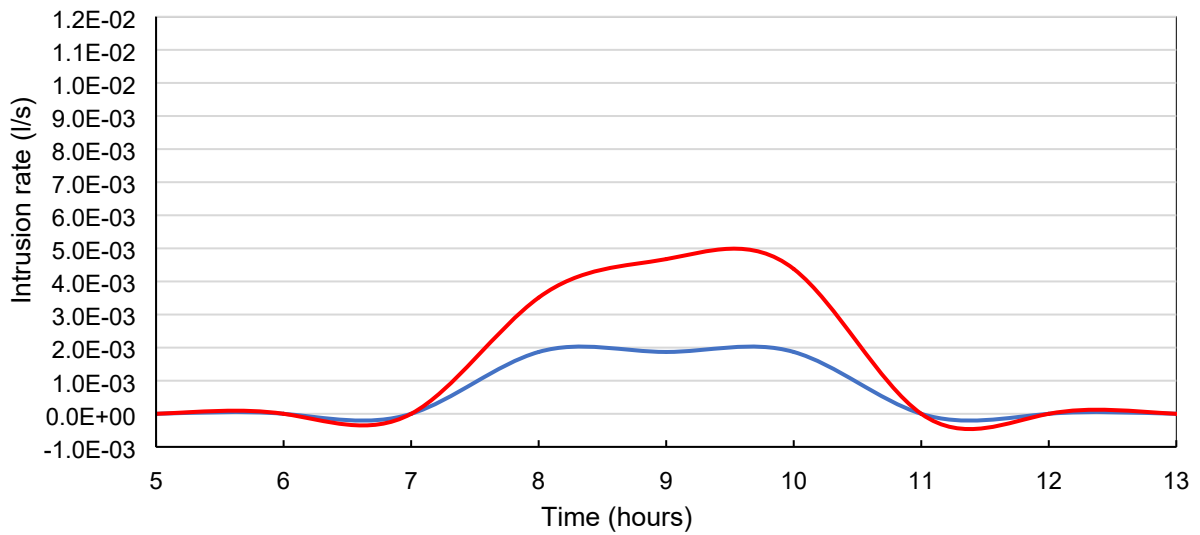
a)

b)

Figure S5: Variation of intrusion volume rate in scenario 2: a) maximum intrusion rates at different intrusion nodes, b) intrusion rate at different hours in Intrusion node 12 (IN12) – blue represents intrusions with groundwater levels and pressure assumed constant and red represents intrusions with dynamic groundwater levels and pressures.