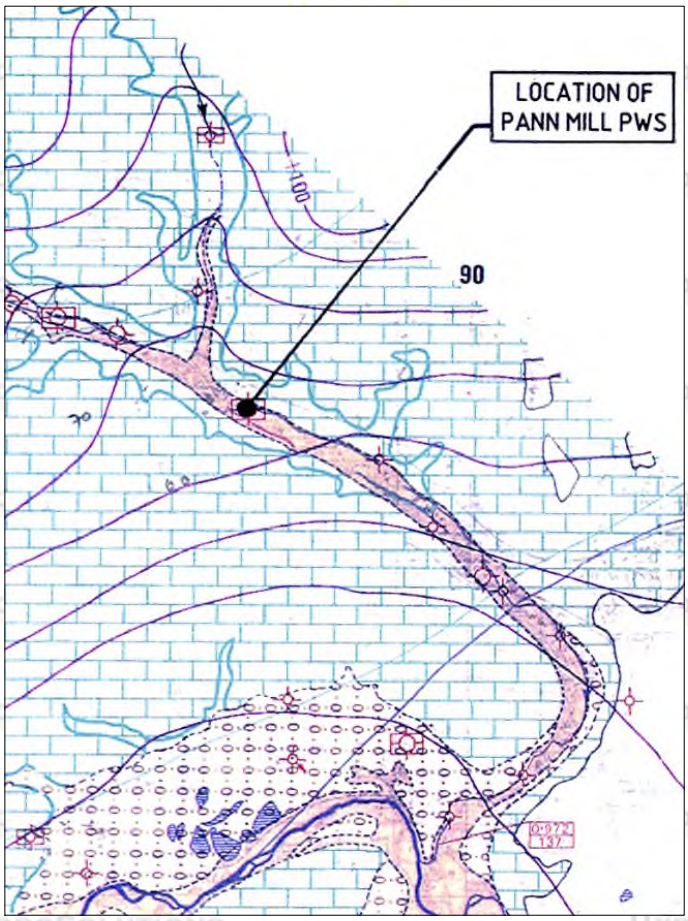
Hydro15

WATER UNDERTAKER
Resource investigation of a 22ML/d Public Water Supply bore affected by phenols



The potential to realise the licensed yield at a major groundwater PWS affected by phenolic contamination was undertaken. A desk study examined the history of contamination: phenol & other organo-chlorine (OC) contaminants were periodically present in raw water, restricting operation of the source. Two potential sources for the phenol were identified; a former town-gas works, and a former wood mill using OC preservatives.

A site investigation program included on and off site soil bores to obtain unsaturated zone cores: interstitial fluids were removed via centrifuge for analysis. Off-site groundwater monitoring bores were constructed throughout the river valley adjacent to the source.

A major pumping test program was undertaken over two weeks at the maximum licensed abstraction rate of 22 ML/d.

Low-level non-chlorinated phenols were analysed on one occasion at commencement of the test, with other organic contaminants including phthalate esters identified periodically. However a nearby satellite bore was found to contain high concentrations of phenols. It was concluded that contaminants were present from the former gas works operations, although numerical modeling indicated that the lateral extent was strongly influenced by large-scale abstraction up and down gradient with the river valley.

Overall, the existing combined abstractions were beneficial in promoting natural attenuation of the residual urban contaminants. The licensed yield could be obtained safely, provided an on-going monitoring program was in place.

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