

# **Regional Perspective of Groundwater Resources in Buried Bedrock Valleys of North-eastern Alberta**

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Regional hydrogeological investigations have been conducted for a number of oil sands recovery projects in the area extending from Cold Lake to Fort McMurray, Alberta. Oil sand projects have utilized groundwater from the buried bedrock valleys including the Helina, Sinclair, Wiau and Christina Valleys to provide groundwater for steam to aid in oil recovery. With over 20 years of hydrogeological data collected in some areas, information exists to characterize the hydrogeology which will allow a better understanding of the newer areas of intensive groundwater use. Issues relate to establishing the geologic framework in, and between, the buried bedrock valleys and the possibility of hydraulic connection between them. This has implications to the interpretation of groundwater/surface water interaction, basin yield, groundwater flow modeling and the layout of regional groundwater monitoring well networks. A regional groundwater well network is being established in the vicinity of the oil sands projects to document baseline groundwater quality and hydraulic head distribution. A better method of dissemination and distribution of hydrogeological data would improve the knowledge base to industry, government and the public.