BASAL-TYPE URANIUM DEPOSITS SOUTH CENTRAL BRITISH COLUMBIA (82E and 82L)

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Exploration for 'basal type' uranium deposits in the Okanagan area was stimulated in 1977 by encouraging exploration results obtained by several companies and by the release of uranium geochemical data by the Federal and Provincial Governments for NTS areas 82E, 82L, and 82M in May.

A program of regional mapping between Beaverdell and Lumby was carried out at a scale of 1:20 000 to help define geological settings of known deposits, to provide an improved geological base for a litho-geochemical study of potential source rocks, and to clarify the distribution of plateau basalts and potentially favourable underlying sediments.

Mapping and sampling of basement rocks were carried out near Lassie Lake where mineralized areas have been located by Power Reactor and Nuclear Fuel Development Corporation (PNC) on the Fuki and Donen claims and by Lacana Mining Corporation (Norcen Energy Resources' option) on the Beverly claim. In the Hydraulic Lake area (*see* Geological Fieldwork, 1976), mapping was modified and extensive sampling of basement rocks was completed.

Geological mapping in NTS area 82L north of Hydraulic Lake showed that with the exception of Eocene (?) acid volcanic rocks at Bluenose Mountain, Tertiary volcanic rocks mapped by Jones (1959) between Harris Creek and Wood and Kalamalka Lakes are olivine plateau basalts which are underlain by poorly consolidated sediments. The Harris-Vidler Creek area is underlain by extensive acid flows, tuffs, and associated volcaniclastic sedimentary rocks. Devitrification of these volcanic rocks along fault zones appears to be releasing uranium and may explain the geochemical anomalies in stream sediments and waters found during the 1976 Uranium Reconnaissance Program. Sediments associated with the volcanic rocks are of interest as possible sites for uranium deposition.

Mapping of the Blizzard, Beverly, etc., claims of Lacana and the Fuki-Donen claims of PNC has demonstrated that high uranium background granitic rocks are associated with the uranium deposits. Syenitic (Coryell) rocks and leucocratic, often pegmatitic phases of quartz monzonite composition are the key basement rocks. The quartz monzonite appears to have features that correlate with Valhalla rocks described by Little (1960) in the Nelson area and with phases of the Loon Lake batholith in adjacent Washington State.

About 200 rock samples were collected for a litho-geochemical study of basement rocks as part of an M.Sc. thesis project to be carried out by Thomas K. Sills and supervized by Dr. A. A. Levinson at the University of Calgary. The cooperation and assistance of PNC, Noranda, Kerr Addision, Norcen, Union Carbide, and K. L. Daughtry in obtaining samples for this study are appreciated.

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