



2002 Compilation of Alberta Ultramafic Rock Occurrences: Location, Ground Geophysics, Drillhole Logs and Diamond Content

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Alberta Geological Survey

June 2003

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Creighton, S.D. and Eccles, D.R. (2003): 2002 compilation of Alberta ultramafic rock occurrences: location, ground geophysics, drillhole logs and diamond content; Alberta Energy and Utilities Board, EUB/AGS Geo-Note 2002-23.

Published June 2003 by:

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1 About this Project

In Alberta, if a prospector or company wants the exploration rights to a specific area, an application must be made for a Metallic and Industrial Minerals Permit with the Department of Resource Development. A permit holder must do assessment work on the land so the permit remains valid and in good standing with the Crown. During each two-year period, the permit holder is required to submit an assessment file report, that documents work results, and an itemized statement of expenditures. The information in the report is kept confidential for one year and then made available to the public.

The objective of this report was to compile selected assessment file report information from ultramafic rock occurrences in Alberta into a single, usable document for government, industry and the public.

Compiled information in this report includes

- 1) the location of 50 ultramafic rock occurrences in Alberta, which include
 - Buffalo Head Hills field: 33 kimberlites on the southeastern flanks of the Buffalo Head Hills, north-central Alberta (there are actually 38 reported pipes, but 5 locations are still unknown);
 - Birch Mountains field: 8 kimberlites in the Birch Mountains, northeastern Alberta;
 - Mountain Lake field: 2 alkaline ultrabasic diatremes directly north of Mountain Lake, northwestern Alberta;
 - Sweet Grass Intrusives: 7 hypabyssal (dykes, plugs) intrusions in the Milk River area of southeastern Alberta (including 1 hypabyssal diorite porphyry, Black Coulee);
- 2) a brief overview of the exploration history of each ultramafic rock occurrence field or cluster;
- 3) diamond content results for 31 diamondiferous kimberlites (29 in Buffalo Head Hills and 2 in the Birch Mountains) and from the Black Butte minette in southern Alberta;
- 4) 157 drill logs from drillholes completed on 29 diatremes; and
- 5) 30 ground geophysical maps from surveys over 44 diatremes and the results of 1 aeromagnetic survey flown in the vicinity of the Sweet Grass Intrusives.

Assessment file reports and selected publication references that were used during this compilation on Alberta ultramafic rock occurrences include :

- Buffalo Head Hills: Skelton and Bursey (1998, 1999)
- Birch Mountains: Aravanis (1999)
- Mountain Lake: Wood and Williams (1994), Leckie et al. (1997); Wood et al. (1998)
- Sweet Grass Intrusives: Kjarsgaard (1994), Ash et al. (1995), Ross et al. (1997)

In addition to assessment file reports, information was culled from various news releases, particularly for diamond contents (Ashton Mining of Canada Inc., 1997a, 1997b, 1997c, 1997d, 1998, 1999a, 1999b, 2001).

2 Navigating this Report

This report makes use of the Adobe Acrobat® portable document format (PDF) standard to preserve fidelity in reproducing maps, diagrams and tables exactly as they were designed. Integral to the report is the ability to link PDF documents together. This allows the user to navigate through the various documents that make up the report. Links to other areas of information are identified by buttons, blue text or a change in the 'hand cursor' from an open hand to a pointing finger.

Each page in the document contains nonprinting 'Back' and 'Home' buttons. These buttons function similar to the back and home button in a web browser: the back button changes the view back to the previously opened document and the home button returns the view to the main page of the document.

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