



Geological Survey Branch  
**OPEN FILE 2003-4**  
 MAP 1  
**GEOLOGICAL SETTING OF THE LORRAINE ALKALINE CU-AU PORPHYRY, NORTH-CENTRAL BRITISH COLUMBIA**  
 NTS 93N/14  
 Mapping and Compilation by  
**Graham T. Nixon**  
 Scale 1:5000

**Jurassic or Cretaceous**  
 Jsp Plagioclase +/- hornblende porphyry dikes  
 Jsa Granite to aplite dikes, medium to fine-grained  
**Early Jurassic**  
**Duckling Creek Syenite Suite**  
 Phase 2  
 J2a Leuco-syenite dikes (generally <5% mafics), medium to coarse grained or locally pegmatitic  
 J2b Megacrystic syenite (potassium feldspar <4 cm), generally leucocratic (<5% mafics), rarely mesocratic (15-20% mafics)  
 Phase 1  
 J1a Monzonite, medium to coarse grained, mesocratic (15-20% mafics); may include minor syenite and clinopyroxene-syenodiorite  
 J1b Monzonite cut by anastomosing leuco-syenite dikes  
 J1c Mafic-syenite, medium grained, (generally 20-40% mafics), may grade locally into mesocratic syenite (15-20% mafics)  
 J1d Undifferentiated monzonite-syenite, may include minor clinopyroxene-syenodiorite  
 J1e Butte clinopyroxene-syenodiorite (interstitial feldspar 0-50%), medium to coarse grained  
 J1f Butte clinopyroxene-syenodiorite with potassium feldspar oikocrysts (>3 cm)  
 J1g Butte clinopyroxene-syenodiorite porphyry (potassium feldspar <2 cm)  
 J1h Butte clinopyroxene-syenodiorite and undifferentiated monzonite, medium to coarse grained, locally cut by anastomosing leuco-syenite dikes  
 J1i Monzonite and subordinate clinopyroxene-syenodiorite cut by anastomosing leuco-syenite dikes  
 J1j Mafic-syenite dike, fine to medium grained, generally laminated, locally cut by anastomosing leuco-syenite dikes  
 J1k Duckling Creek Syenite Suite, undifferentiated  
 J1l Rocks affected by intense potassic metasomatism: probably largely monzonite-syenite with minor clinopyroxene-syenodiorite and leuco-syenite dikes  
**Late Triassic to Early Jurassic**  
**"Hogem Basic Suite"**  
 J3a Monzodiorite - quartz monzonite, mesocratic (10-20% mafics), medium grained

**LEGEND**

Geological contact, defined or approximate  
 Geological contact, inferred  
 Geological contact, gestational  
 Fault, high-angle, defined or approximate  
 Fault, high-angle, inferred  
 Approximate extent of intense potassic alteration  
 Limit of mapping  
 Road  
 Stream  
 100m Contour  
 20m Contour  
 Diamond drillhole collar (sample described in text)  
 Igneous contact, facing unknown  
 Plutonic platy mineral foliation  
 Plutonic platy mineral foliation, vertical  
 Steeple mineral foliation and/or diffuse veining  
 Steeple mineral foliation, vertical  
 Cleavage, fault-related  
 Cleavage, fault-related, vertical  
 Vein (i.e. quartz + carbonate ± tremolite; of quartz-dolomite feldspar; magnetite; quartz-calcoprite)  
 Vein, vertical  
 Dike  
 Dike, vertical  
 Dike, dip unknown  
 MNFLE mineral occurrence  
 1 Page 2 B3top 3 UM (New)

**SYMBOLS**

**Lithogeochemistry**  
 Table 1  
 Granitic dike  
 Leuco-syenite dike  
 Megacrystic potassium feldspar porphyry  
 Monzonite  
 Mafic-syenite  
 Clinopyroxene-syenodiorite  
 Oikocrystic clinopyroxene-syenodiorite  
 Porphyritic clinopyroxene-syenodiorite  
 Mafic-syenite dike  
 Metasomatized protolith  
 Monzonite ("Hogem Basic Suite")  
 Syenite  
 Monzonite  
**Relict protolith in metasomatized rocks**  
 Syenite  
 Monzonite

North American Datum 1983 (NAD 83)  
 Universal Transverse Mercator Zone 10  
 Altitude in metres above mean sea level  
 Contour Interval 20 metres  
 Magnetic Declination  
 Approximate mean magnetic declination 2002 for centre of map area: 22 degrees 37 minutes East decreasing annually 14 minutes  
 Digital cartography by G. T. Nixon  
 Digital base map by B. C. Ministry of Sustainable Resource Management

**REFERENCES**

Sources of data selectively used in the geological compilation:  
 Cornell, J. A. (1978). Geology and mineral occurrences of the southern Hogem Belt: B. C. Ministry of Mines and Petroleum Resources, Bulletin 70, 75 pages.  
 Hurwiel, C. (1972). Aspects of the geology and petrology of an area within Hogem Belt: central British Columbia. Unpublished B.Sc. thesis, The University of British Columbia, Vancouver, British Columbia, 46 pages.  
 Humphreys, N. and Blims, J. (1991). Assessment report on the geological mapping, soil sampling, geochemical drilling and SF survey on the Block Steaks property, Duckling Creek area, north-central B. C. B. C. Ministry of Energy, Mines and Petroleum Resources, Assessment Report 2192, 99 pages.

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