

Legend

QUATERNARY

Q Solifluction deposits, talus, local fluvial deposits; few if any outcrops

CENOZOIC

Post-mineral faulting (<51 Ma)

LATE CRETACEOUS

Vein faulting, mineralization, sericitization (ca. 89-68 Ma)

INTRUSIVE ROCKS

EARLY LATE CRETACEOUS

TOMBSTONE SUITE

LK1p Fresh to altered biotite-bearing lamprophyre (minette) sills and dikes (ca. 89 Ma)

LK1s Fine-grained buff apatite and quartz porphyry sills (ca. 94 Ma)

LK1a Regional deformation and metamorphism (ca. 110-100 Ma)

LATE TRIASSIC

GALENA SUITE

Tgn Chlorite-adamellite ± calcite greenstone sills; local relict phaneritic texture (ca. 232 Ma)

LAYERED ROCKS

MISSISSIPPIAN - PERMIAN?

Keno Hill Quartzite

Sourdough Hill Member

Msc Green and grey-green schist (undifferentiated)

Msls Light to medium grey limestone (undifferentiated)

Mslgr Pale green to grey clear quartz meta-grit (undifferentiated)

Mslgu Medium to dark grey graphitic schist and siliceous schist, locally limy (undifferentiated)

Msq UPPER QUARTZITE: Light to dark grey, platy quartzite; dark grey graphitic schist (phyllite) layers

Mss SERICITE SCHIST MARKER: Sericite ± chlorite schist (phyllite); rare clear quartz grain gritty siliceous schist

Mslg GRAPHITIC SCHIST MARKER: Medium to dark grey schist (phyllite) and siliceous schist (phyllite); locally calcareous

Basal Quartzite Member

Mkq BASAL QUARTZITE: Blocky buff, light to medium grey quartzite locally calcareous; includes graphitic schist layers and greenstone sills

Mkg Graphitic schist

Mks Sericite ± chlorite schist

MIDDLE DEVONIAN - LOWER MISSISSIPPIAN

EARN GROUP

Dcg Silvery green chlorite-sericite schist (phyllite) and green chlorite ± sericite schist (phyllite)

Deg Grey graphitic schist (phyllite)

NEOPROTEROZOIC - LOWER CAMBRIAN

HYLAND GROUP

Yusezyu Formation

Py Pale green muscovite-chlorite quartz-rich gritty schist, muscovite-chlorite schist, silver grey quartz-rich schist

Radiometric Dates

| Sample Number | Mineral | Date (Ma) | Material | Deposit | Depth (m) down DDH |
|--|------------|--------------|---|------------|--------------------|
| U/Pb zircon dates | | | | | |
| D09-EF-05* | Zircon | 93.6 ± 1.4 | Apatite - Fisher Veins | Fisher | 36.0 to 39.3 |
| | Zircon | 93.5 ± 1.2 | Apatite - Duncan Creek | Fisher | Surface |
| ⁴⁰Ar/³⁹Ar dates | | | | | |
| P689KAR | Phlogopite | 89.02 ± 0.28 | Lamprophyre dike | Formo | Surface |
| K-12-0443 | Muscovite | 88.8 ± 1.1 | Quartz-muscovite-pyrite vein | Mackeno | 80.08 to 80.24 |
| K-18-0700 | Muscovite | 79.0 ± 2.9 | Quartz-muscovite-pyrite vein | Eagle | 363.05 |
| K-18-0714 | Muscovite | 77.55 ± 0.47 | Quartz-muscovite-pyrite vein | No Cash | 287.1 |
| K-17-0673 | Muscovite | 77.44 ± 0.63 | Vuggy vein with muscovite and dickite | Birmingham | 239.6 |
| K-11-0384A | Muscovite | 68.45 ± 0.63 | Quartz-muscovite-galena-sphalerite vein | Elsa Mine | 388.15-388.30 |
| K-17-0652 | Muscovite | 61.18 ± 0.34 | Quartz-rich ± pyrite vein with deformed muscovite flakes cut by siderite veinlets | Birmingham | 333 |

* from Tupper and Bennett, Yukon Exploration and Geology, 2009, p. 305-330.

Faults

post-mineral fault, defined or drill intersect

post-mineral fault, indicated from drilling or geophysics

post-mineral fault, inferred

vein and post-mineral fault, defined

vein fault, mapped, projected from underground mine workings or from drill hole intercepts

vein fault, historically mapped

vein fault, inferred from geophysics

thrust, approximate

Fold Axial Traces

anticline, overturned

syncline, overturned

antiform

synform

Other

contact, defined

contact, inferred

limit of mapping

open pit

mine shaft

adit

occurrence

outcrop area

bedding

foliation

fold axis

dip, vein

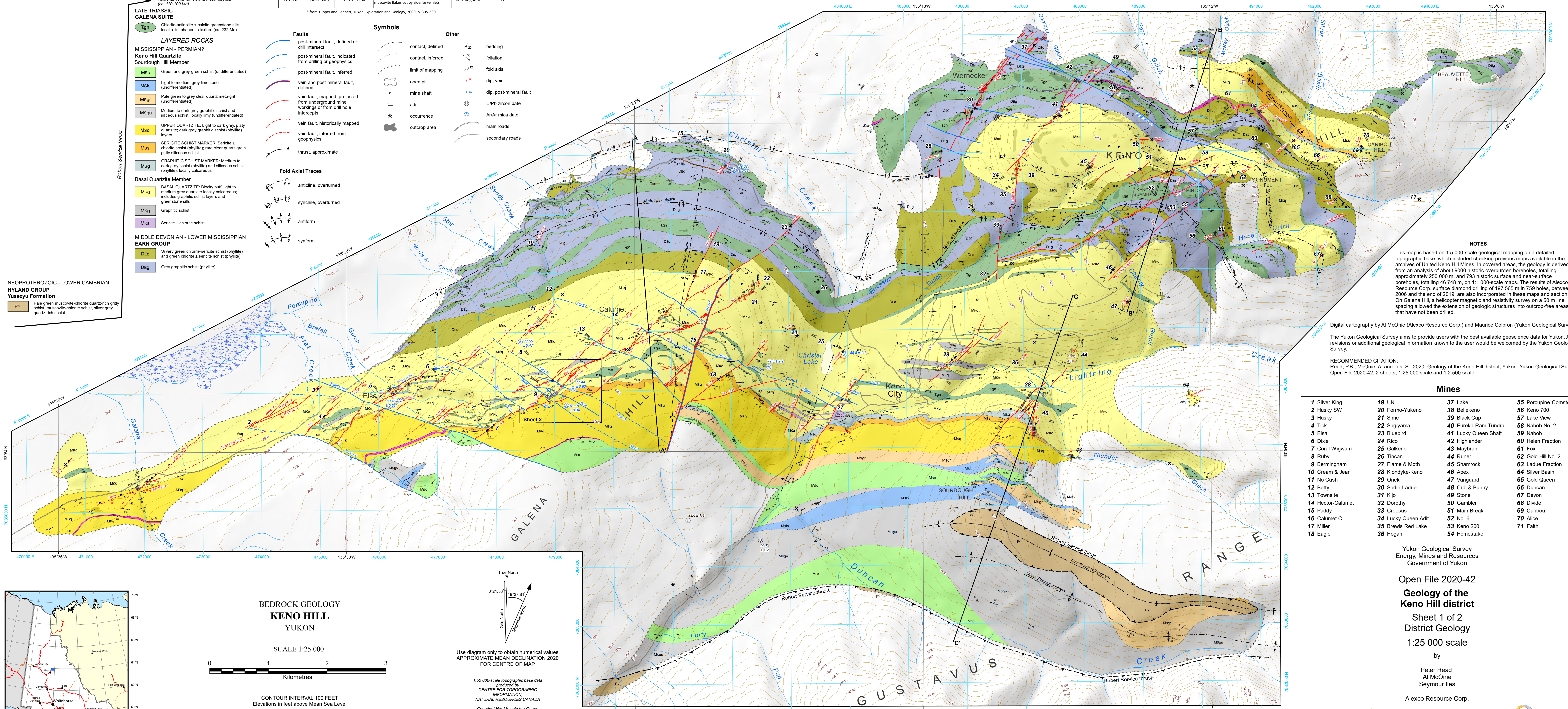
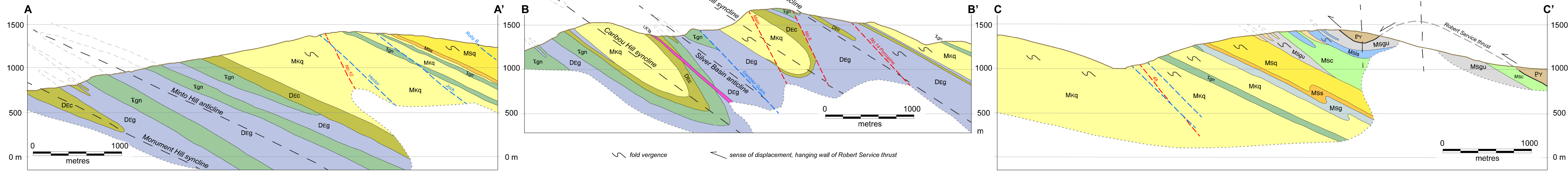
dip, post-mineral fault

U/Pb zircon date

Ar/Ar mica date

main roads

secondary roads



NOTES

This map is based on 1:5 000-scale geological mapping on a detailed topographic base, which included checking previous maps available in the archives of United Keno Hill Mines. In covered areas, the geology is derived from an analysis of about 9 000 historic overburden boreholes, totalling approximately 250 000 m, and 783 historic surface and near-surface boreholes, totalling 46 748 m, on 1:1 000-scale maps. The results of Alexco Resource Corp. surface diamond drilling of 197 565 m in 759 holes, between 2006 and the end of 2019, are also incorporated in these maps and sections. On Galena Hill, a helicopter magnetic and resistivity survey on a 50 m line spacing allowed the extension of geologic structures into outcrop-free areas that have not been drilled.

Digital cartography by Al McOnie (Alexco Resource Corp.) and Maurice Colpron (Yukon Geological Survey).

The Yukon Geological Survey aims to provide users with the best available geoscience data for Yukon. Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey.

RECOMMENDED CITATION:
Read, P.B., McOnie, A. and Iles, S., 2020. Geology of the Keno Hill district, Yukon. Yukon Geological Survey, Open File 2020-42, 2 sheets, 1:25 000 scale and 1:2 500 scale.

Mines

| | | | |
|-------------------|---------------------|----------------------|-----------------------|
| 1 Silver King | 19 UN | 37 Lake | 55 Porcupine-Comstock |
| 2 Husky SW | 20 Formo-Yukeno | 38 Bellekeno | 56 Keno 700 |
| 3 Husky | 21 Sime | 39 Black Cap | 57 Lake View |
| 4 Tick | 22 Sugiyama | 40 Eureka-Ram-Tundra | 58 Nabob No. 2 |
| 5 Elsa | 23 Bluebird | 41 Lucky Queen Shaft | 59 Nabob |
| 6 Dixie | 24 Rico | 42 Highlander | 60 Helen Fraction |
| 7 Coral Wigwam | 25 Galkeno | 43 Maybrun | 61 Fox |
| 8 Ruby | 26 Tincan | 44 Runer | 62 Gold Hill No. 2 |
| 9 Birmingham | 27 Flame & Moth | 45 Shamrock | 63 Ladue Fraction |
| 10 Cream & Jean | 28 Klondyke-Keno | 46 Apex | 64 Silver Basin |
| 11 No Cash | 29 Onek | 47 Vanguard | 65 Gold Queen |
| 12 Betty | 30 Sadie-Ladue | 48 Cub & Bunny | 66 Duncan |
| 13 Townsite | 31 Kijo | 49 Stone | 67 Devon |
| 14 Hector-Calumet | 32 Dorothy | 50 Gambler | 68 Divide |
| 15 Paddy | 33 Croesus | 51 Main Break | 69 Caribou |
| 16 Calumet C | 34 Lucky Queen Adit | 52 No. 6 | 70 Alice |
| 17 Miller | 35 Brewis Red Lake | 53 Keno 200 | 71 Faith |
| 18 Eagle | 36 Hogan | 54 Homestake | |



BEDROCK GEOLOGY

KENO HILL

YUKON

SCALE 1:25 000

0 1 2 3 Kilometres

CONTOUR INTERVAL 100 FEET
Elevations in feet above Mean Sea Level

ONE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 8

True North
0°21'53"
Grid North
19°37'51"
Magnetic North

Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION 2020
FOR CENTRE OF MAP

1:50 000-scale topographic base data
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Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2020-42
**Geology of the
Keno Hill district**
Sheet 1 of 2
District Geology
1:25 000 scale

by
Peter Read
Al McOnie
Seymour Iles

Alexco Resource Corp.

Yukon

ALEXCO