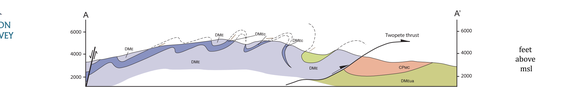
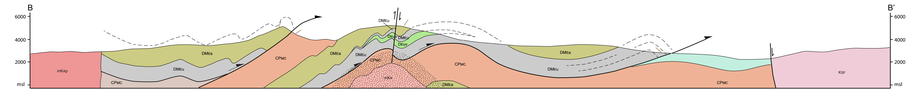
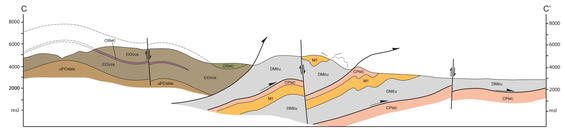
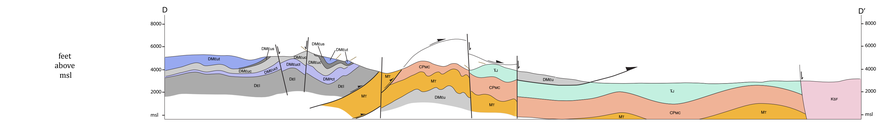



## QUATERNARY

**Q** — Unconsolidated glacial, glaciofluvial and glaciolacustrine deposits; fluviatile silt, sand, and gravel, and local volcanic ash, in part with cover of soil and organic deposits

## INTRUSIVE ROCKS

### MID CRETACEOUS

ANVIL PLUTONIC SUITE

**mKA** — blocky, medium to coarse-grained, biotite ± hornblende granodiorite

**mKAp** — porphyritic: medium-grained biotite ± hornblende granodiorite with phenocrysts of feldspar up to 5 cm long (K-spar based on regional descriptions)

**mKAl** — luecogranite

### ORDOVICIAN TO SILURIAN

MENZIE CREEK FORMATION

**OSMg** — medium-grained, dark green pyroxene bearing gabbro that forms sills and dikes

## LAYERED ROCKS

### MID CRETACEOUS

SOUTH FORK VOLCANIC ROCKS

**mKF** — dark brown weathering, locally columnar jointed, massive, densely welded, biotite-quartz-hornblende-feldspar crystal and crystal lithic tuff

### MIDDLE TO UPPER TRIASSIC

JONES LAKE FORMATION

**TJ** — Fossiliferous, fine-grained, light grey, calcareous sandstone, well-developed cross-laminations occur locally; massive and medium-bedded grey limestone and silty limestone

### CARBONIFEROUS TO PERMIAN

MOUNT CHRISTIE FORMATION

**CPMc** — Rusty orange to brown weathering, grey, dark grey, grey-green, maroon and black ribbon-banded chert with dark and light grey siltstone interbeds; locally east of Twopete Mountain grey limestone with thin interbeds of dark grey siltstone and calcareous sandstone with cross-laminations appear to be a part of the Mount Christie chert succession

### MISSISSIPPIAN

TAY FORMATION

**MT** — Thin-bedded, calcareous, grey-brown siltstone interbedded with fine grained calcareous sandstone, locally fossiliferous; medium-bedded, variably siliceous and fossiliferous, dark grey siltstone and calcareous, cross-bedded, biege sandstone interbedded with silty limestone

### DEVONIAN AND MISSISSIPPIAN

EARN GROUP (Northwest of Upper Anvil Creek)

**DM/?Il** — Limestone debris flow: light grey weathering, thin-bedded, purplish-grey limestone and calcareous sandstone; heterogeneous, very poorly sorted, dominantly matrix supported debris flow deposit comprising boulders of massive to cross-bedded limestone in a slump folded muddy to sandy matrix

**DMe** — Undifferentiated thin-bedded, fine-grained sandstone and muddy siltstone that is commonly rhythmically bedded; dark grey, laminated quartzose siltstone and fine-grained quartzose sandstone; includes fine grained, purple and green striped hornfels with rare, cm-scale limestone lenses; rare medium-grained, massive arenite

**DMEc** — Chert: thin-bedded, black chert and siliceous siltstone

EARN GROUP (Southeast of Upper Anvil Creek)

UPPER

**DMEua** — Arenite: massive, light grey quartz arenite; quartz arenite thickly interlayered with mildly carbonaceous, dark grey siltstone containing plant stem fossils and beige weathering, medium-grained, calcareous arkose that has a distinct sugary texture; black weathering, thick-bedded, dark grey chert, minor quartz-rich, fine-grained, dark grey lithic sandstone, locally contains; minor grey limestone with black chert nodules and abundant macrofossils; very minor silty limestone and calcareous siltstone; rare medium-bedded packstone interbedded with dark grey siltstone; rare quartz-phyric crystal tuff

**DMEu** — Undifferentiated thick bedded chert quartz arenite and wacke, dark grey chert pebble conglomerate with rare, black shale lenses; thin-bedded, fine-grained sandstone rhythmically interbedded with siltstone, mudstone and calcareous siltstone; massive, dark grey siliceous siltstone; grey and brown weathered, thin-bedded to laminated quartzose siltstone with minor sandy beds; black shale with rare plant stem fossils; black and grey, massive to bedded chert; includes small tuff horizons equivalent to DMEuct

**DEuv** — Volcanic rocks: fine to medium-grained, grey-green feldspar ± pyroxene-phyric andesitic flow

**DMEut** — Tuff: fine to medium-grained crystal tuff to intermediate flows with large shale clasts up to 30 cm in diameter, volcanic breccia with distinct orange weathered carbonate clasts, rare orange weathered, dolomitic lens; light green, altered, highly amygdaloidal flows; minor blocky, medium-grained, brown weathered, grey fresh, quartz-rich sandstone

**DMEus** — Siltstone and sandstone: orangey-brown weathered, medium-bedded, fine-grained sandstone, and muddy, mottled siltstone, dewatering structures, scour surfaces and burrows common, minor orange weathered, fossiliferous dolomite horizons; minor thick beds of grey, fine to medium-grained quartz arenite

**DMEuc** — Conglomerate: thick-bedded chert quartz arenite and wacke, dark grey weathering chert pebble conglomerate with rare black shale lenses; grey and grey brown shale

**DMEuct** — Crystal tuff: light and medium grey, quartz and feldspar-phyric crystal tuff with minor shale chips and localized shale horizon

LOWER

**DEl** — Recessive dark grey and black, variably carbonaceous shale with rare fossiliferous lenses; medium-bedded black chert and siltstone

### ORDOVICIAN AND SILURIAN

ROAD RIVER GROUP

**OSR** — Orange and biege weathering, thin-bedded, burrowed, dolomitic mudstone, siltstone and chert

MENZIE CREEK FORMATION

**OSMs** — Volcaniclastic sandstone: dark grey-green weathering, thin-bedded, medium-grained greywacke interlayered with mafic sills; grey-brown weathering, thin-bedded to laminated siltstone; buff weathering, massive purplish-grey hornfelsed siltstone; laminated, mildly hornfelsed, fine-grained sandstone and siltstone and striped green, purple and beige calc-silicate hornfels

**OSM** — Dark green amygdaloidal basalt, locally pillowed, green, monolithic basalt breccia, grey-green weathering, green heterolithic volcanic conglomerate, thin-bedded, grey-green tuffaceous siltstone and fine-grained tuffaceous sandstone

### UPPER CAMBRIAN AND ORDOVICIAN

VANGORDA FORMATION

**COVm** — Marble: thin-bedded, light brown-grey marble and calcareous sandstone

**COVa** — Amphibolite: dark purple and dark green striped schistose rock interlayered with green, purple and beige striped calc-silicate hornfels and schist; garnet-bearing amphibolite phyllite and schist

**COVcs** — Calc-silicate: green, purple and beige striped calc-silicate hornfels and schist; locally calc-silicate schist contains cordierite porphoblasts

### PRE-UPPER CAMBRIAN (?)

MOUNT MYE FORMATION

**uPCMs** — Quartz-muscovite-biotite schist (±garnet±sillimanite±staurolite±andalusite) and minor marble; locally porphyroblastic (dominantly cordierite) biotite-muscovite schist

Hornfels: fine to coarse-grained biotite, muscovite, cordierite and andalusite metamorphic mineral growth in units DMEuas, DME, COVcs and OSMs near contacts with Anvil Plutonic Suite; COVa and uPCMs may be hornfelsed near the contact with the main plutonic body but hornfelsing is not observable at outcrop scale; COVa may be metamorphosed equivalent to OSM

## SYMBOLS

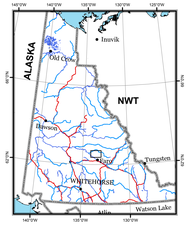
- geologic contacts (defined, approximate, inferred, covered)
- limit of outcrop
- fault; movement not known (known, approximate, inferred, covered)
- thrust fault (known, approximate, inferred, covered)
- normal fault (known, approximate, inferred, covered)
- fold axial trace (antiform; synform; overturned antiform; overturned synform)
- bedding (tops unknown, upright bedding, overturned)
- foliation (dominant, late)
- elongation or mineral lineation
- intersection lineation
- fold axis (first phase, second phase, vergence known)
- crenulation lineation
- joint, fault
- Yukon MINFILE location
- field station
- new mineralized area
- fossil location
- U-Pb geochronology sample
- apparent dip of bedding (applies to cross sections)

**FOSSILS**

| Locality | GSC-NO | Fossil Type | Age | Reference |
|---|---|---|---|---|
| Unit TJ | | | | |
| 50 | O-093485 | conodont | Late Norian-Rhaetian | Gordey, S.P., 2013 |
| 51 | C-118141 | conodont, ichthyoliths | Late Carnian | Gordey, S.P., 2013 |
| 52 | C-118140 | conodont | Middle Norian-Rhaetian | Gordey, S.P., 2013 |
| 53 | O-093484 | conodont, ichthyoliths | Late Carnian | Gordey, S.P., 2013 |
| 54 | 42928 | | Probably Mississippian-Triassic | Gordey, S.P., 2013 |
| 55 | C-118142 | | Late Triassic, Early Norian | Gordey, S.P., 2013 |
| 56 | 42893 | | Late Triassic, Norian, Monotis subcircularis zone | Gordey, S.P., 2013 |
| 57 | O-086346 | microfossil | Late Triassic, Middle Norian | Gordey, S.P., 2013 |
| Unit CPMc | | | | |
| 46 | C-103779 | conodont | Early Permian | Gordey, S.P., 2013 |
| 47 | C-103813 | conodont | Late Carboniferous-Early Permian | Gordey, S.P., 2013 |
| 48 | C-118137 | | Late Carboniferous(Pennsylvanian), probably late Namurian-Bashkirian | Gordey, S.P., 2013 |
| 49 | C-117361 | conodont | Ordovician to Triassic | Gordey, S.P., 2013 |
| Unit MT | | | | |
| 14 | C-102594 | conodonts? | Early Carboniferous, early to middle Tournaisian | Gordey, S.P., 2013 |
| 15 | C-118109 | conodont | Ordovician to Triassic | Gordey, S.P., 2013 |
| 16 | C-118123 | conodont, tubes | Devonian to Carboniferous? | Gordey, S.P., 2013 |
| 17 | C-142522 | conodont, ichthyolith | Ordovician to Triassic | Gordey, S.P., 2013 |
| 18 | 42927 | bivalve | ? Mississippian | Gordey, S.P., 2013 |
| 19 | C-076499 | trilobite indet. | Devonian to Permian | Gordey, S.P., 2013 |
| 20 | O-087056 | conodont | Early-middle Tournaisian | Gordey, S.P., 2013 |
| 21 | O-093483 | conodont, radiolarian? | Tournaisian | Gordey, S.P., 2013 |
| 22 | C-076500 | bivalve | Probably Paleozoic | Gordey, S.P., 2013 |
| 23 | 80029 | bivalve | Carboniferous or Permian | Gordey, S.P., 2013 |
| 24 | 80028 | bivalve, coral | Late Tournaisian or early Visean (tentative) | Gordey, S.P., 2013 |
| 25 | C-117357 | conodont | Eifelian to Tournaisian | Gordey, S.P., 2013 |
| 26 | C-142549 | conodont, ichthyolith | Famennian-Tournaisian | Gordey, S.P., 2013 |
| 27 | C-142544 | conodont, ichthyolith, conularid | Early-middle Tournaisian | Gordey, S.P., 2013 |
| 28 | C-142542 | conodont | Famennian-Tournaisian | Gordey, S.P., 2013 |
| 29 | C-142539 | conodont, conularid | Tournaisian | Gordey, S.P., 2013 |
| 30 | C-142533 | conodont, echinoderm | Ordovician to Triassic | Gordey, S.P., 2013 |
| 31 | C-142530 | conodont, ichthyoliths, conularid | Early-middle Tournaisian | Gordey, S.P., 2013 |
| 32 | C-142529 | conodont | Famennian-Tournaisian | Gordey, S.P., 2013 |
| 33 | C-142521 | conodont | Famennian-Tournaisian | Gordey, S.P., 2013 |
| 34 | C-142519 | conodont | Tournaisian | Gordey, S.P., 2013 |
| 35 | C-142517 | conodont, conularid | Early-middle Tournaisian | Gordey, S.P., 2013 |
| 36 | C-118111 | conodont | Early middle Tournaisian | Gordey, S.P., 2013 |
| 37 | C-118110 | conodont | Late Famennian-middle Tournaisian | Gordey, S.P., 2013 |
| 38 | C-118108 | conodont | Probably Tournaisian | Gordey, S.P., 2013 |
| 39 | C-103574 | corals, bivalves | Middle Tournaisian to earliest Visean | Gordey, S.P., 2013 |
| 40 | C-103831 | conodont | Eifelian to Tournaisian | Gordey, S.P., 2013 |
| 41 | C-103811 | conodont | Ordovician to Triassic | Gordey, S.P., 2013 |
| 42 | C-103806 | conodont | Early Carboniferous, early to middle Tournaisian | Gordey, S.P., 2013 |
| 43 | C-107903 | coral | Middle Tournaisian to earliest Visean | Gordey, S.P., 2013 |
| 44 | 13-RC-018-1 | coral | Silurian-Permian | Preliminary by Blodgett, R. |
| 45 | C-103829 | | Mississippian, Tournaisian | Gordey, S.P., 2013 |
| unit DME | | | | |
| 2 | C-103804 | conodont | Famennian | Gordey, S.P., 2013 |
| 3 | 13-RC-029 | radiolarian | Devonian to Carboniferous, possibly Mississippian | Gordey, 2014 |
| 4 | 13-RC-100 | radiolarian | Late Devonian to Mississippian | Gordey, 2014 |
| 5 | 13-RC-012 | stringocephalid brachiopod; productid brachiopod; crinoid ossicles | late middle Devonian | Preliminary by Blodgett, R. |
| 6 | 13-RC-109 | crinoid columnals | Ordovician to Permian | Preliminary by Blodgett, R. |
| 7 | 13-RC-230 | polygnathus sp. Cf. P. spicatus | Early Mississippian (Tournaisian) | Preliminary by Blodgett, R. |
| 8 | 13-RC-233 | icriodus? lowaensis | Upper Devonian | Preliminary by Blodgett, R. |
| 9 | 13-RC-030 | crinoid columnals | late Early Devonian to Early Middle Devonian (Emsian-Eifelian) | Preliminary by Blodgett, R. |
| 10 | 13-RC-108-2 | plant debris and stem fragments | Probably Silurian-Early Devonian | Preliminary by Blodgett, R. |
| 11 | 13-RC-132-1 | crinoid ossicles; brachiopod; bryozoan | Mississippian | Preliminary by Blodgett, R. |
| 12 | O-42858 | Phillipsia sp., Cleiothyridina sp., Spirifer sp., productids | Carboniferous, probably Mississippian | Gordey, S.P., 2013 |
| 13 | O-42859 | Phillipsia sp., productids | Probably Mississippian | Gordey, S.P., 2013 |
| unit OSR | | | | |
| 1 | 13-RC-011 | orthoceric cephalopod; brachiopod | Middle Ordovician to Silurian | Preliminary by Blodgett, R. |

**GEOCHRON**

| Locality | Type | Station # | Mineral | Age | Interpretation | Reference |
|---|---|---|---|---|---|---|
| 1 | U-Pb | 13-RC-028 | zircon | 363.30 ± 0.11 | crystallization | preliminary by Crowley, J. |
| 2 | U-Pb | 13-RC-108 | zircon | 364.76 ± 0.15 | crystallization | preliminary by Crowley, J. |
| 3 | U-Pb | 13-RC-111 | zircon | 363.31 ± 0.11 | crystallization | preliminary by Crowley, J. |
| 4 | U-Pb | 13-RC-129 | zircon | 363.50 ± 0.10 | crystallization | preliminary by Crowley, J. |
| 5 | U-Pb | 13-RC-280 | zircon | 363.65 ±0.12 | crystallization | preliminary by Crowley, J. |
| 6 | U-Pb | 13-RC-177 | zircon | 93± 3 | crystallization | preliminary by Crowley, J. |
| 7 | K/Ar | GGA-83-35F3 | whole rock | 52.3 ± 3.6 | crystallization | Jackson et al., 1986 |
| 8 | U-Pb | AR-4 | monazite | 94.9 ± 0.6 | crystallization | unpublished by Mortensen, J.K. and Pigage, L.C. |

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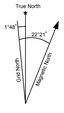


Use diagram to obtain numerical values
APPROXIMATE MEAN DECLINATION 2013
FOR CENTRE OF MAP
Annual change decreasing 24.4'

# Geological Map
# ANVIL LAKE AREA
CENTRAL YUKON

SCALE 1:50 000

0 1 2 3 4 5 kilometres

CONTOUR INTERVAL 100 FEET
Elevations in feet above Mean Sea Level
North American Datum 1983
Universal Transverse Mercator Projection

| | | |
|---|---|---|
| NTS 105L/16 Earn Lake | NTS 105K/13 Stokes Lake | NTS 105K/14 Mount Gillis |
| NTS 105L/09 Menzie Creek | THIS MAP | |
| NTS 105L/01 Glenlyon Lake | NTS 105K/05 Rose Mountain | NTS 105K/06 Mount Mye |

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## RECOMMENDED CITATION

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Digital cartography and drafting by Rosie Cobbett, Yukon Geological Survey.


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A digital PDF (Portable Document File) file of this map may be downloaded free of charge from the Yukon Geological Survey website: www.geology.gov.yk.ca.

Mineral Occurrences
Yukon MINFILE

| ID Number | Primary Name | Status | Deposit Type |
|---|---|---|---|
| 105K 073 | Twopete | drilled prospect | unknown |
| 105K 074 | Colt | drilled prospect | SEDEX |
| 105K 075 | Blue | unknown | unknown |
| 105K 076 | Hoot | anomaly | Pb-Zn Skarn |
| 105K 077 | Owl | drilled prospect | Polymetallic Veins |
| 105K 078 | Keg | deposit | Skarn Cu |
| 105K 079 | Ivan | drilled prospect | Plutonic Related Au |
| 105K 080 | Shannon | anomaly | unknown |
| 105K 085 | Yeti | showing | unknown |
| 105K 096 | Jon | anomaly | unknown |
| 105K 102 | Sellmer | anomaly | unknown |


Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2015-2


# Geological Map of the Anvil Lake area, central Yukon, parts of NTS 105K11 and 105K12, (1:50 000 scale)


by
Rosie Cobbett