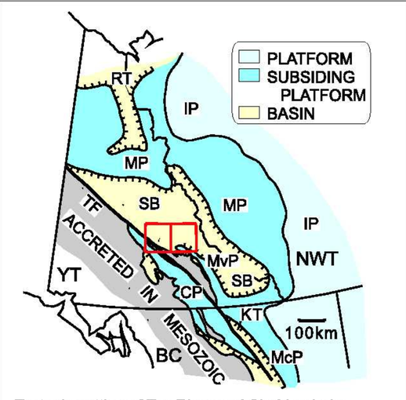
Natural Resources Canada / Ressources naturelles Canada

GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

TECTONIC SETTING



Tectonic setting of Tay River and Sheldon Lake areas (red). Tectonic Elements: Richardson Trough (RT), Selwyn Basin (SB), Kechika Trough (KT), Interior Platform (IP), McEvoy Platform (MvP), Cassiar Platform (CP), Mackenzie Platform (MP), Macdonald Platform (McP), Tintina Fault (TF)

This map is one of a set of two 1:250 000 scale Open File maps that describe the geological framework of some 22,975 square kilometres of east-central Yukon (see inset and index maps).

Much of Sheldon Lake and Tay River areas (105J, K) northeast of Tintina Fault is underlain by uppermost Proterozoic and Lower Paleozoic basinal strata (Selwyn Basin) that formed in a re-entrant within shallow water carbonate and clastic strata (Mackenzie Platform) along the outer margin of ancestral North America. The oldest exposed strata consist of latest Proterozoic to Cambrian turbiditic quartz sandstone (PY) and maroon slate (PЄN) (2500+ m thick) succeeded by local Cambrian shale (ЄG) (up to 700 m) capped by a widespread basinal limestone and siltstone of Cambro-Ordovician age (ЄOR) (300 m). A starved sequence of shale, chert and siltstone (OSR) (450 m) with local volcanics (OM) was deposited during Ordovician to Middle Devonian time. Regional sub-Upper Cambrian (ЄOR) and other local unconformities suggest intermittent extension and syn-depositional faulting. In the Silurian and Devonian the basin was flanked on the southwest by shallow water carbonate and clastics of McEvoy Platform (SDc, Ssp) (300+ m). Large stratiform zinc-lead deposits are known in strata of Early Cambrian (Faro) and Early Silurian (Howards Pass, to east of area) age.

In the Late Devonian, turbiditic quartz-chert sandstone, and chert pebble conglomerate were deposited in submarine fan complexes as shale deposition transgressed far northeastward onto the ancestral margin (DME, MC, DMP, DP). The coarse clastics, 1200(?) m in aggregate thickness, were derived from elevated fault blocks of Selwyn Basin strata to the north and west, including latest Proterozoic gritty quartzose clastic rocks and Ordovician-Silurian chert. An extensional or transtensional event is indicated by an absence of compressional deformation, local felsic volcanism (Mv), and widespread stratiform barite (+/- lead-zinc) occurrences (e.g. Tom, Jason to east of area). A regional unconformity occurs beneath upper Upper Devonian strata (DMP).

Succeeding Lower Mississippian and Triassic carbonate and siliciclastic sediments separated by Carboniferous to Permian chert and shale (MT, CPMC, TJ) (total 1700 m) were likely deposited on a silty to muddy, at times euxinic, shallow marine shelf. A regional unconformity occurs beneath Middle to Upper Triassic (TJ), and possibly beneath Upper Mississippian strata (CPMC).

Rare Lower Cretaceous chert-bearing clastic rocks (KBT) (120+ m), the first signal of Jura-Cretaceous orogenic uplift to the west, disconformably overlie Upper Triassic strata.

Ancestral margin strata southwest of Tintina Fault comprise two distinct successions separated by the northwest trending St. Cyr fault. On the southwest, the Pelly Mountains assemblage (3500 m) consists of relatively deep water, late Proterozoic to Silurian fine clastic and carbonate strata (PЄp, ЄOsl, OSl) succeeded by shallow water, Siluro-Devonian carbonate and clastic rocks (Sst, SDdq; Cassiar Platform), in turn overlain by Devono-Mississippian shale and chert-bearing sandstone (DMs). The Devono-Mississippian strata are analogous in tectonic affinity to the Earn Group (DME) northeast of Tintina Fault. To the south of Tay River map area the succession includes felsic volcanic rocks that host volcanogenic massive sulphide occurrences (e.g. Wolf). Unconformities occur at the base of the Lower Silurian (Sst) and upper Upper Devonian (DMs). In the narrow belt between St. Cyr and Tintina faults, the St. Cyr assemblage (1600+ m) differs from the Pelly Mountains assemblage in the lack of Paleozoic shallow water clastic or carbonate strata, as well as in the presence of a unique and enigmatic unit of Late Devonian limestone-phyllite (DMcsl). Cambro-Ordovician to Devonian strata consist chiefly of fine grained pelitic (ODsl) and carbonate (ЄOc) rocks of probable deep water origin. Scattered remnants of Carboniferous to Triassic strata include chert (Mt), siltstone, carbonate and shale (DMs, Csl, uTsc) that resemble equivalent strata in adjacent regions southwest of St. Cyr Fault.

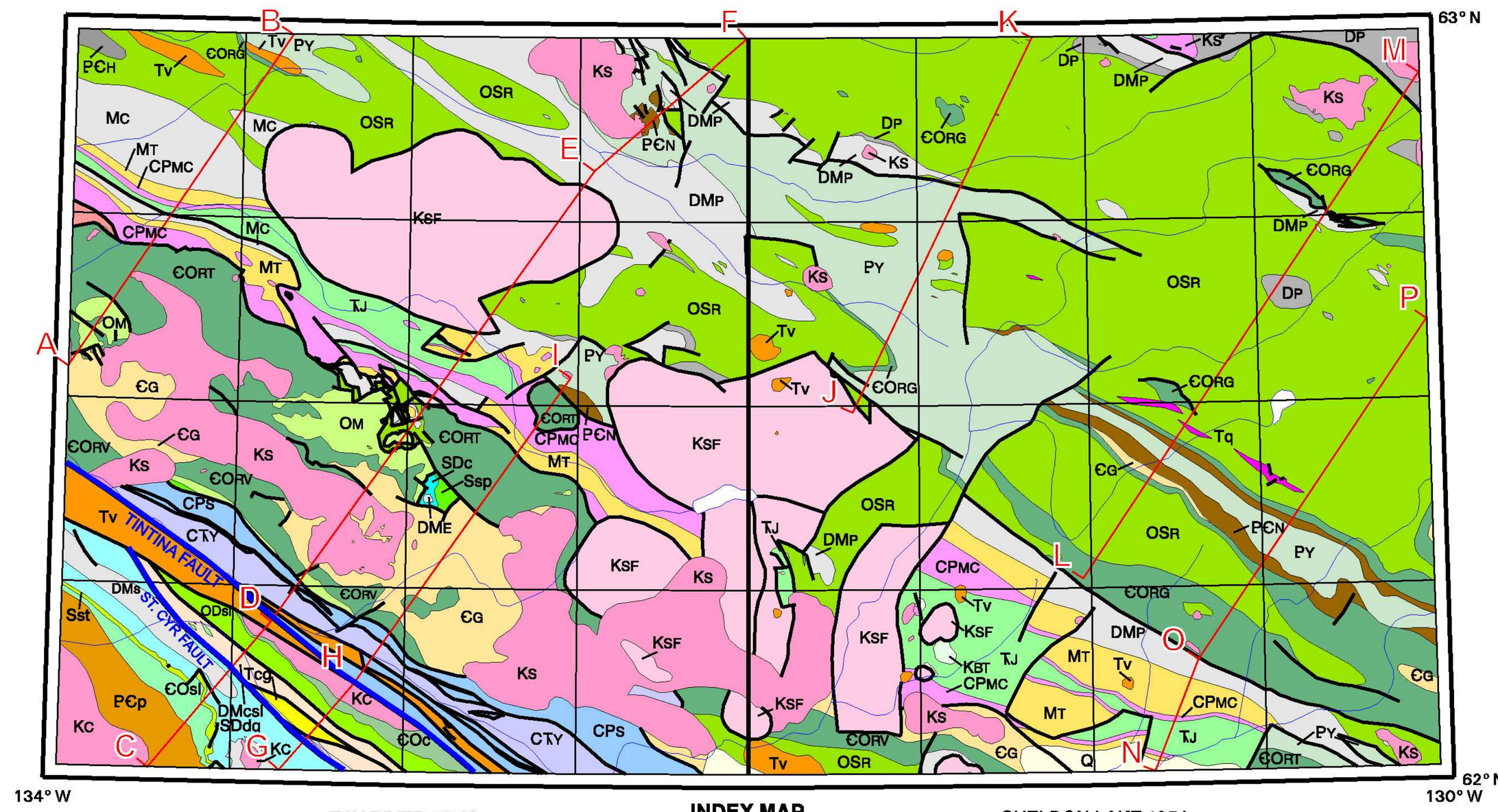
In the Early Cretaceous, northeast-southwest compression led to northwest-trending, regional scale folds and extensive, shallow-dipping thrust faults. Incompetent Ordovician to Devonian shale and chert are complexly deformed above a regional, flat-lying, buried detachment (see cross-sections, sheet 3). Shortening in Cambro-Ordovician to Devonian strata is at least 50%, indicating that the paleogeographic width of the Selwyn Basin was twice as much as is currently represented. Folds and faults ultimately root in a basal detachment that extends beneath the region and across the entire deformed belt. Upper Paleozoic oceanic rocks of the Slide Mountain terrane (CPs), and metasediments of the Yukon-Tanana terrane (CTY), were emplaced as thrust sheets during this deformation. Deformation is bracketed as younger than affected Early Cretaceous strata (KBT), and older than intrusion of the mid-Cretaceous Selwyn Plutonic Suite (KS) and eruption of dacitic pyroclastics of the coeval South Fork Volcanics (KSF). The plutons are regionally associated with tungsten-copper skarn (e.g. Mactung) and base metal vein occurrences. The volcanics are notably barren.

Cretaceous-Tertiary dextral slip along Tintina Fault zone, which transects the southwest part of the area, amounted to at least 430 km. Pull-apart basins along the fault zone accumulated fluvial clastics (Ts) and bimodal volcanic rocks (Tv) that host epithermal precious metal veins (e.g. Grew Creek).

ACKNOWLEDGMENTS

Excellent field assistance was provided by T. Frakes (1982), D. Thorkelson (1983), B. Thomas (1985, 1986), S. Gareau (1986), S. Irwin (1986), and D. Rhys (1987). During 1986 and 1987, a base camp was shared in Ross River with Lionel Jackson of the Geological Survey, who was mapping surficial geology in Tay River map area. Brian and Colleen Hemsley, proprietors of the Ross River Service Centre, are commended for excellent expediting. Helicopter pilot John Witham (Trans North Turbo Air), skillfully performed many difficult landings that were required in parts of the region. His knowledge of the terrain and of local history were invaluable. Northern Mountain Helicopters provided efficient charter service from Macmillan Pass in 1982, and Danny Perrault gave excellent fixed-wing service from Ross River in 1987. J. Morin, then Chief Geologist, Whitehorse office of Indian and Northern Affairs Canada, encouraged the project, and kindly made available office, mail, and warehouse facilities in Whitehorse. The mapping benefited greatly from friendly and open discussion on the geology of the Anvil Range, its deposits and environs with L. Pigage and G. Jilson (then of Curragh Resources Ltd.).

Charles Roots is thanked for his constructive review.



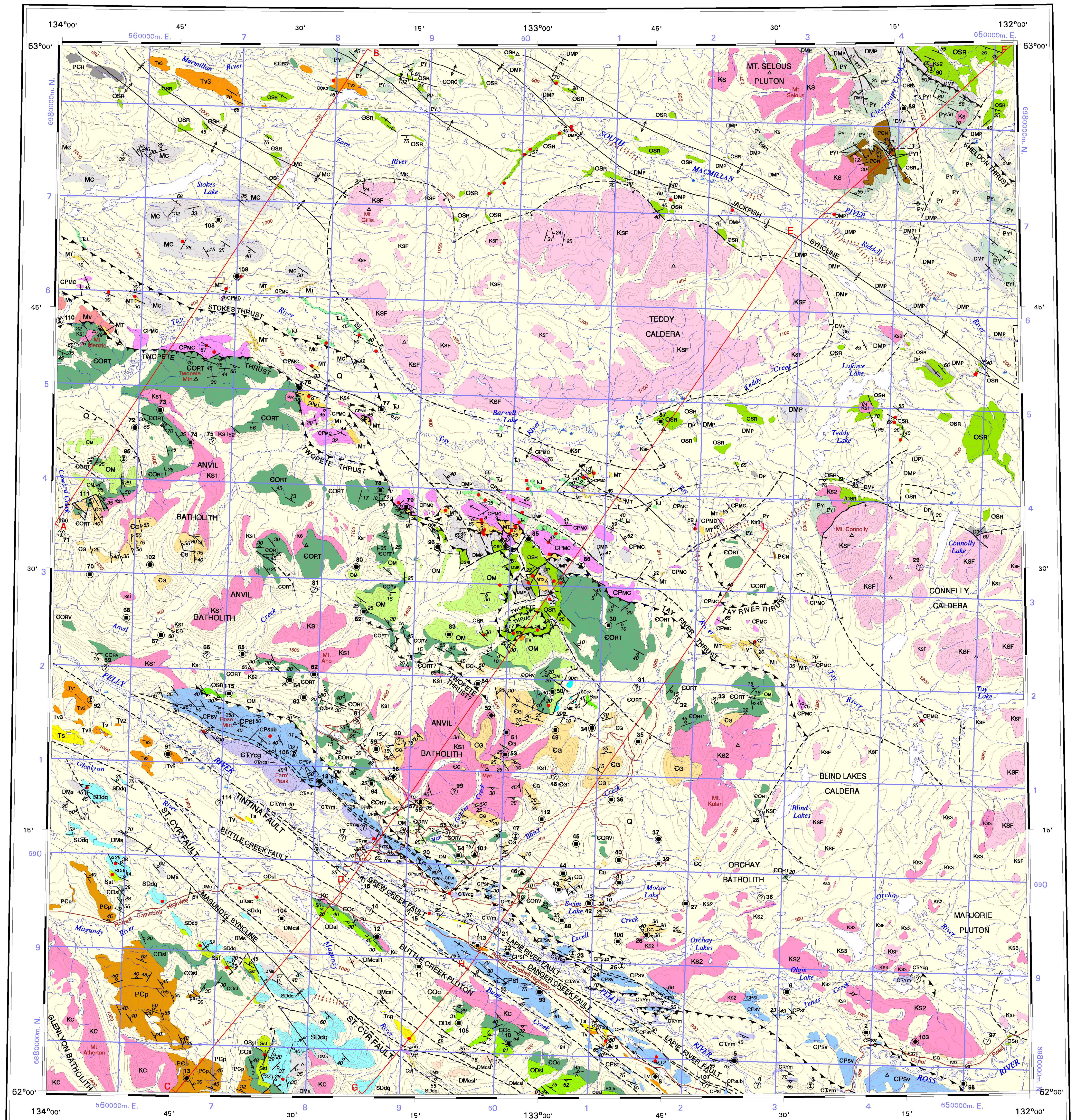
TAY RIVER 105K — INDEX MAP (Scale 1 : 1 000 000) — SHELDON LAKE 105J

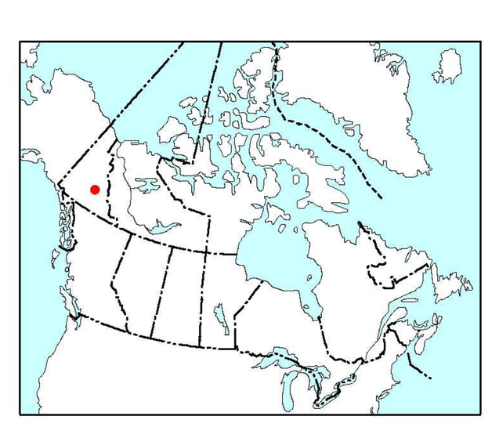
MINERAL PROSPECTS (FROM YUKON MINFILE[2])

MINFILE[1]	NAME	STATUS	DEPOSIT TYPE	COMMODITY (MAJOR/MINOR/TRACE)
1	SKEENA	UNKNOWN	UNKNOWN	-/-/-
2	WOP	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZN + -AU	Mo, Cu/-/-
3	RAGS	SHOWING	CUAG QUARTZ VEINS	Cu/-/-
4	PEN	UNKNOWN	VOLCANOGENIC MASSIVE SULPHIDE	-/-/-
5	DEEJAY	ANOMALY	UNKNOWN	-/-/-
6	OLGIE	DRILLED PROSPECT	CU SKARN	Cu/-/-
7	CITATION	UNKNOWN	UNKNOWN	-/-/-
8	MOURNE	PROSPECT	EPITHERMAL AU-AG-CU: HIGH SULPHIDATION	-/-/-
9	GREW CREEK	DEPOSIT	EPITHERMAL AU-AG: LOW SULPHIDATION	Ag, Au/-/-
10	FARGO	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Ag, Pb, Zn/-/-
11	LYN	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZNAU	Zn, Ag, Pb/-/-
12	CASCA	ANOMALY	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	-/-/-
13	THOMAS	PROSPECT	PB-ZN SKARN	Zn/Sn, Pb/-
14	TILLMAN	UNKNOWN	UNKNOWN	-/-/-
15	EYE	UNKNOWN	EPITHERMAL AU-AG-CU: HIGH SULPHIDATION	-/-/-
16	BRIDGE	UNKNOWN	UNKNOWN	-/-/-
17	FAN-TAN	UNKNOWN	UNKNOWN	-/-/-
18	TAKU	ANOMALY	UNKNOWN	-/-/-
19	GLYN	UNKNOWN	UNKNOWN	-/-/-
20	NESBITT	SHOWING	UNKNOWN	Cu/-/-
21	SPIT	UNKNOWN	UNKNOWN	-/-/-
22	BOBCAT	DRILLED PROSPECT	EPITHERMAL AU-AG-CU: HIGH SULPHIDATION	-/-/-
23	GREEN VALLEY	SHOWING	UNKNOWN	-/Cu, Zn, Sb, Ag, Pb/Au
24	HOLLY	UNKNOWN	UNKNOWN	-/-/-
25	ORCHAY	SHOWING	GABBROID CU-NI-PGE	Cu/-/-
26	SOCK	DRILLED PROSPECT	UNKNOWN	-/-/-
27	SPUR	DRILLED PROSPECT	UNKNOWN	Pb, Ag, Zn/-/-
28	DOMO	UNKNOWN	UNKNOWN	-/-/-
29	NORTHMAN	UNKNOWN	UNKNOWN	-/-/-
30	LAUREL	DRILLED PROSPECT	UNKNOWN	-/-/-
31	TRUMP	UNKNOWN	UNKNOWN	-/-/-
32	LODGE	UNKNOWN	UNKNOWN	-/-/-
33	JET	UNKNOWN	UNKNOWN	-/-/-
34	ADAMSON	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Cu/Pb, Zn/-
35	TEL	DRILLED PROSPECT	UNKNOWN	-/-/-
36	BETA	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Pb/Zn/-
37	BLIND	ANOMALY	UNKNOWN	-/-/-
38	VALRAY	UNKNOWN	UNKNOWN	-/-/-
39	CUB	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZNAU	Pb/-/-
40	NASTY	DRILLED PROSPECT	UNKNOWN	-/-/-
41	ABRAHAM	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZNAU	-/-/-
42	SEA	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Zn, Ag, Pb/Cu/-
43	SB	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Pb, Ag, Zn/Cu/-
44	BLACKWOOD	DRILLED PROSPECT	PB-ZN SKARN	Pb, Cu, Zn/-/-
45	BEA	DRILLED PROSPECT	UNKNOWN	-/-/-
46	SWIM	DEPOSIT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Ag, Zn, Pb/Au, Cu/-
47	WANN	SHOWING	POLYMETALLIC VEINS AG-PB-ZNAU	Zn/Cu, Pb/-
48	ELBOW	UNKNOWN	UNKNOWN	-/-/-
49	ST. LUCIE	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Cu/-/-
50	O'CONNOR	DRILLED PROSPECT	UNKNOWN	-/-/-
51	ACTION	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZNAU	Pb, Ag, Au/-/-
52	MYE	PROSPECT	POLYMETALLIC VEINS AG-PB-ZNAU	Au, Ag/-/-
53	MUR	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZNAU	Pb, Ag, Zn/Au/-
54	SHRIMP	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	-/-/-
55	VANGORDA	OPEN PIT PAST PRODUCER	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Zn, Pb/Ag/Au
56	GRUM	OPEN PIT PAST PRODUCER	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Pb, Zn/Ag/Au
57	KULAN	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Pb, Zn, Ag/-/-
58	KIM	PROSPECT	UNKNOWN	Cu/-/-
59	LO	DRILLED PROSPECT	UNKNOWN	-/-/-
60	TAY	UNKNOWN	UNKNOWN	-/-/-
61	FARO	OPEN PIT PAST PRODUCER	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Zn, Pb/Ag/Au
62	FLAGSTONE	DRILLED PROSPECT	CU SKARN	Cu/-/-
63	BRIDEN	DRILLED PROSPECT	UNKNOWN	-/-/-
64	JACOLA	DRILLED PROSPECT	PLUTONIC RELATED AU	Ag, Zn, Pb/-/-
65	CROWN	DRILLED PROSPECT	UNKNOWN	-/-/-
66	LEON	UNKNOWN	UNKNOWN	-/-/-
67	LORNA	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Pb/-/-
68	RESERVE	DRILLED PROSPECT	CU SKARN	Cu/-/-
69	PARADOX	UNKNOWN	UNKNOWN	-/-/-
70	MARY	DRILLED PROSPECT	UNKNOWN	-/-/-
71	COWARD	UNKNOWN	CUAG QUARTZ VEINS	Cu/-/-
72	PAIGE	ANOMALY	PLUTONIC RELATED AU	-/-/-
73	TWOPETE	DRILLED PROSPECT	UNKNOWN	-/-/-
74	COLT	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Zn/-/-
75	BLUE	UNKNOWN	UNKNOWN	-/-/-
76	HOOT	ANOMALY	PB-ZN SKARN	Pb/-/-
77	OWL	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZN + -AU	Pb, Zn, Ag/Cu/-
78	KEGLOVIC	DRILLED PROSPECT	PLUTONIC RELATED AU	Zn, Cu/Ag, Pb/-
79	IVAN	DRILLED PROSPECT	PLUTONIC RELATED AU	Pb + Zn, Cu/-/-
80	SHANNON	ANOMALY	UNKNOWN	-/-/-
81	COMPLICATION	UNKNOWN	UNKNOWN	-/-/-
82	TRY	DRILLED PROSPECT	UNKNOWN	-/-/-
83	REBEL	DRILLED PROSPECT	UNKNOWN	Zn, Pb, Cu/-/-
84	KANGAROO	DRILLED PROSPECT	UNKNOWN	-/-/-
85	YETI	ANOMALY	UNKNOWN	-/-/-
86	MARKS	SHOWING	POLYMETALLIC MANTO AG-PB-ZN	Zn, Pb/-/-
87	TEDDY	DRILLED PROSPECT	VOLCANOGENIC MASSIVE SULPHIDE	Zn/Cu/-
88	SIROLA	DRILLED PROSPECT	UNKNOWN	-/-/-
89	ANDREW	DRILLED PROSPECT	POLYMETALLIC VEINS AG-PB-ZN + -AU	Zn, Pb, Ag/Cu/-
90	SOLO	SHOWING	POLYMETALLIC VEINS AG-PB-ZN + -AU	Ag, Pb, Sb/Zn, Sn, Au/-
91	EL PINO	ANOMALY	EPITHERMAL AU-AG: LOW SULPHIDATION	-/-/Sb, As, Au
92	GALWAY	SHOWING	POLYMETALLIC VEINS AG-PB-ZNAU	-/Hg, Ag, Pb, Au, As, Zn/-
93	PARLIAMENT	ANOMALY	EPITHERMAL AU-AG-CU: HIGH SULPHIDATION	-/-/-
94	CESSNA	DRILLED PROSPECT	UNKNOWN	-/-/-
95	BUNBURY	SHOWING	UNKNOWN	-/-/-
96	JON	ANOMALY	UNKNOWN	-/-/-
97	PETANCIC	UNKNOWN	UNKNOWN	-/-/-
98	CHAPLIN	DRILLED PROSPECT	VOLCANOGENIC MASSIVE SULPHIDE	Zn, Ag, Pb/Au, Cu/-
99	O'NEILL	UNKNOWN	UNKNOWN	-/-/-
100	MOR	DRILLED PROSPECT	UNKNOWN	Cu/-/-
101	DY	DEPOSIT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Ag, Pb, Zn/Au/-
102	SELLMER	ANOMALY	UNKNOWN	-/-/-
103	TENAS	PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Pb, Zn/Au/As, Bi
104	DEV	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Pb, Zn/Ag/-
105	SIR JOHN A.	DRILLED PROSPECT	SEDIMENTARY EXHALATIVE ZN-PB-AG (SEDEX)	Zn/Pb/-
106	URN	SHOWING	SEDIMENT-HOSTED BARITE	Ba/-/-
107	WEDEKIND	UNKNOWN	EPITHERMAL AU-AG-CU: HIGH SULPHIDATION	-/-/-
108	LADY DI	DRILLED PROSPECT	PLUTONIC RELATED AU	Pb, Ag, Zn/-/-
109	PRINCE CHARLES	ANOMALY	UNKNOWN	-/-/-
110	MT. MENZIE	SHOWING	SEDIMENT-HOSTED BARITE	Ba/-/-
111	UNION	SHOWING	W SKARN	Zn, Ag, Cu/Mo/-
112	STARLIGHT	DRILLED PROSPECT	CUAG QUARTZ VEINS	Zn/Cu/-
113	PONTOON	DRILLED PROSPECT	EPITHERMAL AU-AG-CU: HIGH SULPHIDATION	-/-/-
114	GREAT DANE	UNKNOWN	UNKNOWN	-/-/-
115	MULTI	DRILLED PROSPECT	UNKNOWN	-/-/-

[1] For full MINFILE number, add prefix "105K", "105K0", or "105K00" as appropriate, e.g. MINFILE 15 = "105K015"

[2] Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 - A database of mineral occurrences. Yukon Geological Survey, CD-ROM. (updated March, 2008 from Yukon Minfile online at http://www.geology.gov.yk.ca)





LOCATION MAP

Author: S.P. Gordey

Geology by S.P. Gordey, Geological Survey of Canada 1980, 1982-1983, 1985-1987, with contributions from previous work by J.A. Roddick and L.H. Green

Digital cartography by R. Cocking, R. Chan, and S.P. Williams Geological Survey of Canada

OPEN FILE 5438

GEOLOGY

SELWYN BASIN (105J AND 105K) YUKON

TAY RIVER (105K)

Scale 1:250 000/Échelle 1/250 000

kilometres 5 0 5 10 15 20 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983

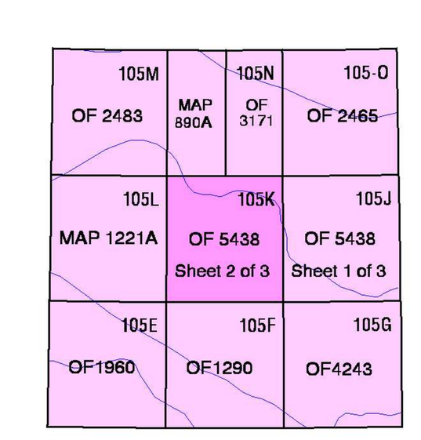
Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983

Any revisions or additional geological information known to the user would be welcomed by the Geolgical Survey of Canada

Digital base map from data compiled by Geomatics Canada, modified by GSC Pacific

Mean magnetic declination 2008, 24°21'E, decreasing 25.6' annually. Readings vary from 24°04'E in the SW corner to 24°37'E in the NE corner of the map

Elevations in meters above mean sea level



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

LEGEND

SOUTHWEST

NOTE: Rock units on legend arranged to reflect their geographical distribution (ie. from northeast to southwest) and time equivalence. Units projecting beneath cover appear in brackets.

MESOZOIC

MID-CRETACEOUS

- **Kc** — *CASSIAR PLUTONIC SUITE: resistant, grey weathering, locally foliated, biotite ± hornblende diorite, granodiorite, and granite*

PELLY MOUNTAINS ASSEMBLAGE

PALEOZOIC

UPPER DEVONIAN AND MISSISSIPPIAN

- **DMs** — *Black Clastic Unit: recessive, black weathering with rusty streaks, thin bedded, black siliceous slate and minor interbedded chert wacke and chert-granule grit*

SILURIAN AND DEVONIAN

- **SDdq** — *Dolostone Unit: resistant, medium grey to buff weathering, medium- to thick-bedded dolomite, sandy dolomite and quartz arenite*

ORDOVICIAN AND SILURIAN

UPPER SILURIAN

- **Sst** — *Platy Siltstone Unit: tan weathering, thin bedded, dolomitic, platy siltstone*

UPPER ORDOVICIAN AND LOWER SILURIAN

- **OSsl** — *Black Shale Unit: black weathering, thin bedded, black graptolitic shale preserved between ЄOsl and Sst at one locality, 62° 2.25´N, 133° 33.20´W, UTM: 575556E, 6879184N*

UPPER CAMBRIAN AND ORDOVICIAN

- **ЄOsl** — *Phyllite Unit: grey-orange weathering, finely interlaminated, calcareous phyllite and grey limestone; abundant quartz-carbonate veins and pods*

PROTEROZOIC AND LOWER CAMBRIAN

- **PЄp** — *Lower Slate Unit: dark brown weathering, non-calcareous, dark blue-grey slate, siltstone and minor limestone; PЄp1, buff-orange to light grey weathering, thin bedded, argillaceous limestone and calcareous phyllite; metamorphosed equivalents near Glenlyon Batholith are biotite-muscovite-quartz schist and minor marble*

ST. CYR FAULT

CENOZOIC

PLEISTOCENE AND RECENT

- **Q** — *Unconsolidated glacial and alluvial deposits*

TERTIARY

- **Tv** — *Bimodal Volcanic Unit: undivided Tv; Tv1, small stocks and necks of white weathering, flow-banded, rhyolitic, quartz-sanidine porphyry; Tv2, laminated rhyolitic ash-flow tuffs and flows; Tv3, dark grey weathering, locally amygdaloidal, dark grey-green basalt necks and flows*
- **Ts** — *Alluvial Clastic Unit: recessive, thick bedded to massive, pebble to boulder chert-quartz conglomerate, chert sandstone and thin bedded, dark brown sandstone and shale*
- **Tcg** — *Limestone Conglomerate Unit: resistant, grey-orange weathering, massive, limestone conglomerate*

MESOZOIC

MID-CRETACEOUS

- **Kc** — *CASSIAR PLUTONIC SUITE: resistant, grey weathering, locally foliated, biotite ± hornblende diorite, granodiorite, and granite*

ST. CYR ASSEMBLAGE

MESOZOIC

TRIASSIC

- **uTsc** — *Shale-Limestone Unit: dark brown to black weathering, grey to black, fine crystalline limestone, platy limestone and shale; rare grey, thin-bedded chert*

PALEOZOIC

MISSISSIPPIAN TO (?)PERMIAN

- **Csl** — *Limey Clastic Unit: recessive, dark grey weathering, thin bedded, interlaminated, buff-yellow siltstone and brown argillite; strongly bioturbated*

MISSISSIPPIAN

- **Mtf** — *Chert Unit: resistant, rusty orange weathering, thin bedded, apple green and dark grey chert and cherty tuff*

UPPER DEVONIAN AND MISSISSIPPIAN

- **DMs** — *Black Clastic Unit: recessive, black weathering with rusty streaks, thin bedded, black siliceous slate and minor interbedded chert wacke and chert-granule grit*

UPPER DEVONIAN OR YOUNGER

- **DMcsl** — *Limestone-Phyllite Unit: recessive, buff-orange weathering, orange to dark blue-grey phyllite and thinly laminated phyllitic limestone; minor laminated calcareous siltstone, green slate, and rare chert; DMcsl1, limestone, rare dolostone and quartz arenite*

ORDOVICIAN TO DEVONIAN

- **ODsl** — *Black Slate Unit: moderately resistant, black weathering, siliceous, graphitic, black siliceous and pyritic slate*

UPPER(?) CAMBRIAN AND ORDOVICIAN

- **ЄOc** — *Silty Limestone Unit: buff, orange and orange-brown weathering, thinly interlaminated calcareous shale and silty limestone*

TINTINA FAULT

NORTHEAST

CENOZOIC

TERTIARY

- **Tv** — *Bimodal Volcanic Unit: undivided Tv; Tv1, small stocks and necks of white weathering, flow-banded, rhyolitic, quartz-sanidine porphyry; Tv2, laminated rhyolitic ash-flow tuffs and flows; Tv3, dark grey weathering, locally amygdaloidal, dark grey-green basalt necks and flows*
- **Ts** — *Alluvial Clastic Unit: recessive, thick bedded to massive, pebble to boulder chert-quartz conglomerate, chert sandstone and thin bedded, dark brown sandstone and shale*

MESOZOIC

MID-CRETACEOUS

- **KSF** — *SOUTH FORK VOLCANICS: dark brown weathering, locally columnar jointed, massive, densely welded, biotite-quartz-hornblende-feldspar crystal- and crystal-lithic tuff*
- **KS** — *SELWYN PLUTONIC SUITE: grey weathering, resistant, medium- to coarse-grained, locally megacrystic (K-spar), biotite ± hornblende ± muscovite granite, quartz monzonite and granodiorite; KS1, plutons without hornblende; KS2, plutons with hornblende; KS3, porphyritic biotite-hornblende granite characterized by large smokey grey quartz phenocrysts and locally K-feldspar phenocrysts; KS4, mafic-free granite*

ALLOCHTHONOUS

PALEOZOIC - MESOZOIC

PENNSYLVANIAN AND PERMIAN

- **CPs** — *SLIDE MOUNTAIN TERRANE: undivided CPs; Volcanic Unit: CPsv, resistant, dark weathering, dark grey-green basalt, tuff and breccia; Chert Unit: CPst, thin bedded, grey-green, jasper-red and apple-green chert and siliceous tuff; Limestone Unit: CPsl, light grey weathering, massive, fine crystalline, dark grey limestone; Ultramafic Unit: CPsub, recessive, green weathering serpentinite*

CARBONIFEROUS TO TRIASSIC

- **CTY** — *YUKON-TANANA TERRANE: undivided CTY; Schist Unit: CTYm, grey weathering, muscovitic, quartz blastomylonite; recessive, muscovitic quartzite and quartz - muscovite - biotite ± glaucophane schist with local pods of eclogite; Conglomerate Unit: CTYcg, resistant, massive, poorly sorted, conglomerate with pebble- to cobble-size clasts of basalt, chert, mylonite, and limestone; CTYcg1, thin bedded, grey, calcareous slate, locally with interbedded argillaceous limestone*

ALLOCHTHONOUS TERRANES EMPLACED IN JURA-CRETACEOUS

MESOZOIC

TRIASSIC

- **TJ** — *JONES LAKE FORMATION: brown weathering, medium- to thick-bedded, calcareous siltstone, sandstone and shale; ripple cross-laminated*

PALEOZOIC

CARBONIFEROUS TO PERMIAN

- **CPMC** — *MOUNT CHRISTIE FORMATION: resistant, orange to buff weathering, thin-to medium-bedded, light grey-green to black chert*

LOWER MISSISSIPPIAN

- **MT** — *TAY FORMATION: recessive, dark brown weathering, thin- to medium-bedded, calcareous, dark grey to brown siltstone, sandstone and shale; thin to thick interbeds of fine crystalline, dark grey limestone; MT1, light grey weathering, thick bedded to massive, dark grey limestone; MT2, resistant, coarse-grained quartz sandstone (105K7)*

DEVONIAN AND MISSISSIPPIAN

EARN GROUP (DP, DMP, MC and MV)

- **DME** — *EARN GROUP: undivided, mostly MC, DMP, minor DP*

LOWER MISSISSIPPIAN

- **MV** — *Felsic Volcanic Unit: orange weathering, massive, aphanitic, altered felsic volcanic and/or subvolcanic*
- **MC** — *CRYSTAL PEAK FORMATION: resistant, dark grey weathering, massive chert-pebble conglomerate and chert-quartz sandstone; minor brown weathering, dark blue-grey shale*

UPPER DEVONIAN TO MID-MISSISSIPPIAN

- **DMP** — *PREVOST FORMATION: recessive, brown weathering, thin bedded, laminated, dark blue-grey to black slate with thin to thick interbeds of fine- to medium-grained chert-quartz arenite and wacke, and chert-pebble conglomerate; DMP1, recessive, dark grey to black limestone and shale (105K/16)*

LOWER DEVONIAN TO UPPER DEVONIAN

- **DP** — *PORTRAIT LAKE FORMATION: black, gun-blue or silvery white weathering, thin bedded, siliceous, black siltstone, slate and chert*

SILURIAN AND DEVONIAN

UPPER SILURIAN(?) TO MIDDLE DEVONIAN

- **SDc** — *Carbonate-Sandstone Unit: SDc1, minor massive, medium-grained quartz arenite; (105K/7) SDc2, light grey weathering, massive- to thick-bedded, fine crystalline limestone and dolostone, locally cherty (105K/7)*

SILURIAN AND(?) EARLY DEVONIAN

- **Ssp** — *Siltstone Unit: tan weathering, thin bedded, dolomitic, platy siltstone (105K/7)*

ORDOVICIAN AND SILURIAN

- **OSR** — *ROAD RIVER GROUP: undivided Duo Lake and Steel formations (may include infolds of ЄOR and DP) STEEL FORMATION (Upper Silurian): orange weathering, thin bedded, burrowed, dolomitic, grey-green mudstone, siltstone and chert; thin bedded, black chert; rare black graptolitic shale; DUO LAKE FORMATION (Lower Ordovician to Lower Silurian): resistant, grey weathering, thin- to medium-bedded, green, grey and black chert; recessive, gunsteel weathering, black graptolitic shale*

CAMBRIAN AND ORDOVICIAN

UPPER CAMBRIAN AND LOWER ORDOVICIAN

- **OM** — *MENZIE CREEK FORMATION: resistant, dark weathering, massive, locally pillowed, dark grey-green andesite to basalt, tuff and breccia*

RABBITKETTLE FORMATION

- **ЄORG** — *GOLD CREEK FACIES: grey-buff weathering, laminated to thin bedded, locally nodular limestone and shaly limestone; limestone conglomerate; light grey weathering, dark grey, thin-bedded limestone separating members of dark brown weathering, black shale; medium green weathering, green shale*
- **ЄORT** — *TWOPETE FACIES: resistant, dark grey weathering, massive to laminated, blocky, white to light grey quartzose siltstone and chert, and rare black slate; strikingly laminated, very fine grained, tuffaceous siltstone and chert; minor grey phyllitic limestone, calcareous phyllite, and greenstone*
- **ЄORV** — *VANGORDA FACIES: silver-grey weathering, laminated to thin bedded, dark grey, shaly limestone to calcareous phyllite*

LOWER AND MIDDLE(?) CAMBRIAN

- **ЄG** — *GULL LAKE FORMATION: recessive, brown weathering, non-calcareous, dark grey to black slate and siltstone; metamorphosed equivalents near Anvil and Orchay batholiths include quartz-muscovite-biotite schist (± garnet ± sillimanite ± staurolite ± andalusite) and minor marble; ЄG1, grey-white weathering, laminated, medium crystalline marble with minor lenses and pods of mica schist*

PRECAMBRIAN

PROTEROZOIC AND LOWER CAMBRIAN

HYLAND GROUP (PY, PЄN)

PROTEROZOIC AND LOWER CAMBRIAN

- **PЄH** — *HYLAND GROUP: undivided YUSEZYU and NARCHILLA formations*
- **PЄN** — *NARCHILLA FORMATION: recessive, maroon weathering, interbedded maroon and apple-green slate; rare grey-brown weathering, medium- to thick-bedded quartz sandstone and quartz-pebble conglomerate*

PROTEROZOIC

- **PY** — *YUSEZYU FORMATION: grey brown weathering, thin- to thick-bedded, interbedded, quartz sandstone, local quartz-pebble conglomerate, and grey-green to dark grey slate; PY1, grey weathering, dark grey, fine crystalline limestone*

TINTINA FAULT

SYMBOLS

- Geological boundary (defined, approximate, assumed or extrapolated beneath overburden, outcrop boundary)
- Fault, steeply dipping (defined, approximate, assumed or extrapolated beneath overburden; solid circle indicates downthrown side)
- Fault, thrust (defined, approximate, assumed or extrapolated beneath overburden; teeth indicate upthrust side)
- Anticline (approximate or extrapolated beneath overburden)
- Syncline (approximate or extrapolated beneath overburden)
- Cross-section lines
- Bedding, top known (inclined)
- Bedding, top unknown (inclined, vertical)
- Cleavage, foliation (inclined, vertical)
- Axis of small-scale fold of bedding (inclined)
- Minfile status (Anomaly, Deposit, Drilled Prospect, Open Pit)
- Minfile status (Prospect, Showing, Unknown)
- Fossil locality

OPEN FILE DOSSIER PUBLIC 5438
GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
2008
SHEET 2 OF 3 / FEUILLET 2 DE 3

Open files are products that have not gone through the GSC formal publication process.
Les dossiers publics sont des produits qui n'ont pas été soumis au processus officiel de publication de la CGC.

Sheet 2 of 3: Tay River (105K)

Recommended citation:
Gordey, S.P.
2008: Geology, Selwyn Basin (105J and 105K), Yukon; Geological Survey of Canada, Open File 5438, 2 maps at 1:250 000 scale and 1 sheet cross-sections at 1:100 000 scale.

Canada