

GEOLOGICAL LEGEND

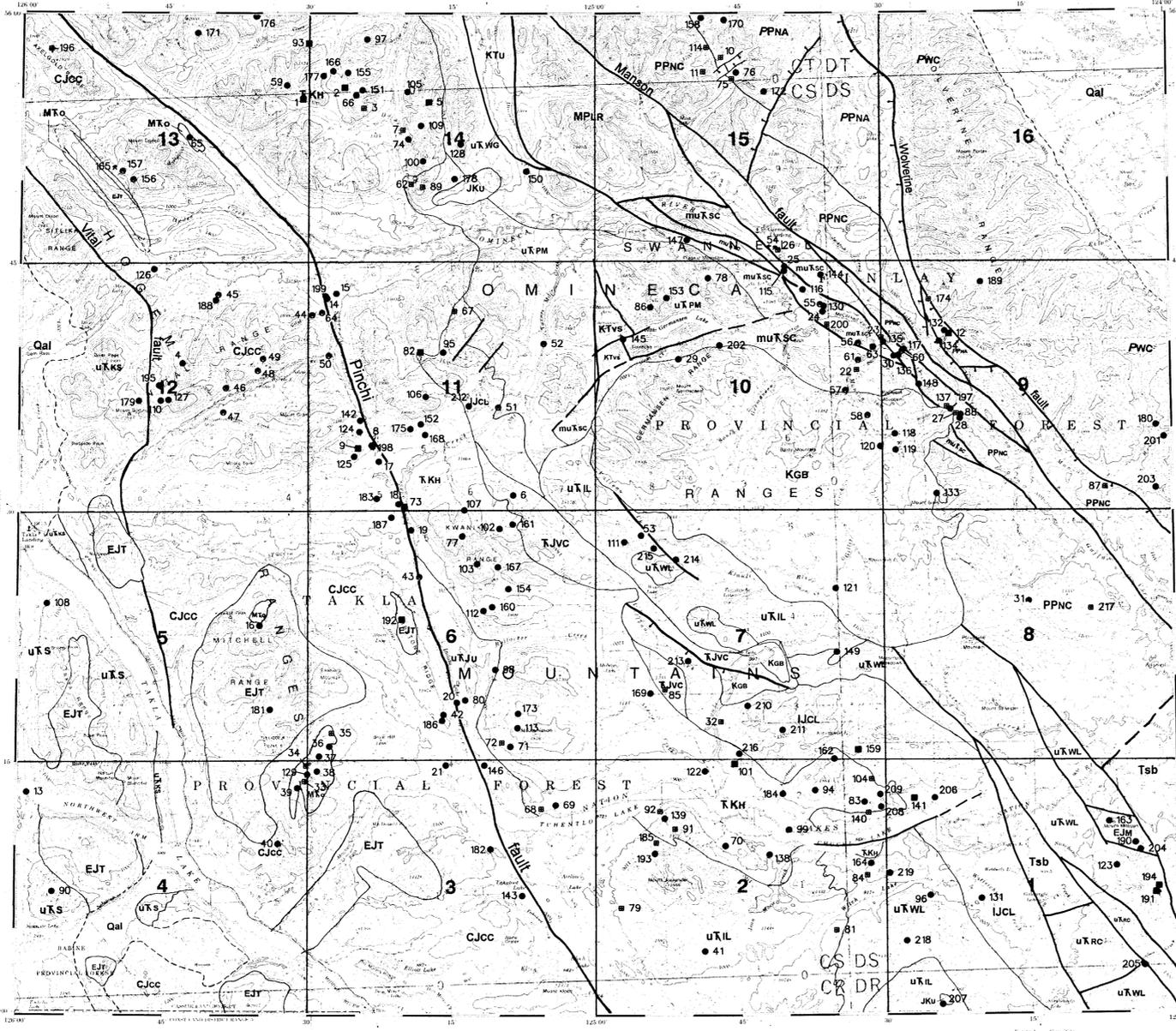
LAYERED ROCKS EAST OF THE PINCHI FAULT

CENOZOIC	QUATERNARY	Qal	Unconsolidated glacial till and alluvium
TERTIARY	Tsb	Basal, volcanic wacke and fossiliferous volcanic ash-rich mudstone	
CENOZOIC AND MESOZOIC	CRETACEOUS TO TERTIARY(?)	KTvs	Plagioclase-hornblende biotite, quartz-eye rhyolite tuff and flow, minor mafic lapilli tuff, siltstone, sandstone, quartzofeldspathic conglomerate
		KTu	USUKA FORMATION: conglomerate, sandstone, siltstone and mudstone; minor coal
MESOZOIC	UPPER TRIASSIC	uTks	UNDIVIDED KUTCHO AND SANJA FORMATIONS: andesitic flows, tuffs and breccias with minor mafic intrusions, chlorite and hornblende schists, minor argillite, chert and limestone
		uTs	STUHNI GROUP: mafic and intermediate flows and tuffs, tuffaceous wackes, biotite plagioclase porphyry, siltstone, limestone, and minor shale
MESOZOIC AND PALEOZOIC	CARBONIFEROUS TO JURASSIC	Cjcc	CACHE CREEK COMPLEX: ribbon chert, limestone, argillaceous quartzite, argillite, slate, mafic intrusions, minor conglomerate, greywacke and metamorphosed equivalents
JURASSIC	LOWER JURASSIC	Ujc	TWIN CREEK FORMATION: heterolithic lapilli tuff, plagioclase-quartz porphyritic flows and agglomerate/tuff breccia
		Ujcl	CHURCH LAKE FORMATION: plagioclase-rhyolite porphyry flows and fragmental volcanics
TRIASSIC	UPPER TRIASSIC	uTpm	PLUKHAT MOUNTAIN FORMATION: predominantly green augite-plagioclase porphyritic basalt flows and fragmentals, mafic basalt, amygdaloidal olivine porphyritic basalt, heterolithic lapilli tuff, volcanic sandstone and siltstone, and limestone
		uTwl	WITCH LAKE FORMATION: green and maroon, augite-plagioclase and hornblende plagioclase porphyritic flows and volcanics
		uTws	WELLY GEORGE SEQUENCE: augite-plagioclase lapilli tuff, crystal tuff, sedimentary breccia, arkose/wacke, argillite, siltstone
		uTkl	IZANA LAKE FORMATION: green tuff, lapilli tuff, grey siltstone and slate
		uTkc	RAINBOW CREEK FORMATION: grey slate, thin-bedded siltstone, minor volcanoclastic sediments
	MIDDLE TO UPPER TRIASSIC	muTsc	SLATE CREEK FORMATION: grey slate, siltstone, argillite, and limestone
PALEOZOIC	PENNSYLVANIAN TO PERMIAN	PPnc	NINA CREEK GROUP: undivided Mount Howell and Pillow Ridge formations; grey to black argillite, green and red ribbon chert, diabase sills, pillow basalt, varicolites, diabase-gabbro sills; within Manson fault zone, may contain Manson Lakes Ultramafites
	MISSISSIPPIAN TO PERMIAN	MPLR	LAY RANGE ASSEMBLAGE: green and maroon augite-plagioclase and augite/olivine porphyritic basalt, crystal and lapilli tuff, volcanic sandstone, siltstone, siliceous argillite, chert and quartzite-bearing grit
PALEOZOIC AND PROTEROZOIC	UPPER PROTEROZOIC TO PERMIAN	PPna	UNDIVIDED INGENWA, AYAN, RAZORBACK MOUNTAIN, ECHO LAKE, OTTER LAKES, BOULDER CREEK, BIG CREEK AND COOPER RIDGE GROUPS: megacrystic rocks of North American affinity dominated by siliciclastics; quartzite, impure quartzite, limestone, argillite and wacke
PROTEROZOIC	UPPER PROTEROZOIC	Pwc	WOLVERINE COMPLEX: amphibolite and calcic gneiss, schist, marble, granulite and pegmatite dikes and sills (intrusive bodies are Cretaceous to Tertiary in age)

LAYERED ROCKS WEST OF THE PINCHI FAULT

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MESOZOIC	UPPER TRIASSIC	uTks	UNDIVIDED KUTCHO AND SANJA FORMATIONS: andesitic flows, tuffs and breccias with minor mafic intrusions, chlorite and hornblende schists, minor argillite, chert and limestone
		uTs	STUHNI GROUP: mafic and intermediate flows and tuffs, tuffaceous wackes, biotite plagioclase porphyry, siltstone, limestone, and minor shale
MESOZOIC AND PALEOZOIC	CARBONIFEROUS TO JURASSIC	Cjcc	CACHE CREEK COMPLEX: ribbon chert, limestone, argillaceous quartzite, argillite, slate, mafic intrusions, minor conglomerate, greywacke and metamorphosed equivalents
MESOZOIC	MIDDLE TO LATE CRETACEOUS	Kob	GERMANSSEN BATHOLITH: coarse-grained granite, granodiorite, related pegmatite phases and apite dikes (includes the Kiewit stock)
JURASSIC	EARLY JURASSIC	EJM	MOUNT MILLIGAN INTRUSIVE COMPLEX: granite, hornblende granite and monzonite; contains minor granitic intrusions of Cretaceous and Tertiary(?) age
		EJT	TORLEY INTRUSIONS: granodiorite, quartz diorite, diorite, minor granite, syenite, gabbro and pyroxenite
TRIASSIC AND CRETACEOUS	LATE TRIASSIC TO EARLY CRETACEOUS	TKh	HOGEM INTRUSIVE COMPLEX: medium to coarse-grained syenite, monzonite, quartz monzonite, granodiorite and diorite; JKU: undivided contemporaneous intrusions
TRIASSIC TO JURASSIC	LATE TRIASSIC TO EARLY JURASSIC	TJvc	VALLEAU CREEK COMPLEX: fine to coarse-grained diorite, gabbro, pyroxenite and hornblende
MESOZOIC AND PALEOZOIC	MISSISSIPPIAN TO TRIASSIC	MTko	OCEANIC ULTRAMAFITES: peridotite, dunite, minor pyroxenite and serpentinite

Geological map and legend derived from:
 Armstrong, J.E. (1949). Fort St. James Map area, Cassiar and Coast Districts, British Columbia; Geological Survey of Canada, Memoir 252, Map 907A, Scale 1:300,150.
 Felt, F. and Mahlie, D.M. (unpubl. in preparation). Geology of the Germansen Landing - Manson Creek Area, B.C. Ministry of Energy, Mines and Petroleum Resources.
 Garnett, J.A. (1978). Geology and Mineral Occurrences of the Southern Hogen Batholith, B.C. Ministry of Energy, Mines and Petroleum Resources, Bulletin 70, Scale 1:125,000.
 Nelson, J.L., Bellefleur, K.A., Green, K.C. and MacLean, M. (1991). Geology and Mineral Potential of the Vichasica Creek and Tezcon Creek Map Areas (03N1, 03N16), B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1991-3, 4 map sheets, Scale 1:50,000.
 Nelson, J.L., Bellefleur, K.A., MacLean, M.E. and Rees, C.J. (1992). Geology and Mineral Potential of the Churn Lake and Howie Lake Map Areas (03N12, 03N13), B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1992-4, 2 map sheets, Scale 1:50,000.
 Nelson, J.L., Bellefleur, K.A., Mourily, K.E. and MacLean, M.E. (1993). Geology and Geochemistry of the Kwanika Creek Map Area (03N11E), B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1993-3, 1 map sheet, Scale 1:50,000.
 Bailey, D., Nelson, J.L., Bellefleur, K.A. and Mourily, K.E. (1993). Geology and Geochemistry of the Kwanika Creek Map Area (03N11E), B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1993-4, 1 map sheet, Scale 1:50,000.
 Nelson, J.L., Bellefleur, K.A., Mourily, K.E. and MacLean, M.E. (1993). Geology and Geochemistry of the Discovery Creek Map Area (03N14E), B.C. Ministry of Energy, Mines and Petroleum Resources, Open File 1993-5, 1 map sheet, Scale 1:50,000.
 Whistler, J.O. and McCreely, P. (compilers) (1987). Tectonic Assemblage Map of the Canadian Cordillera and Adjacent Parts of the United States of America, Geological Survey of Canada, Map 1712A, Scale 1:2,000,000.



BC
 Ministry of Energy, Mines and Petroleum Resources

Geological Survey Branch
**MINFILE MAP
 NTS 093N
 MANSON RIVER**

This MINFILE release researched and compiled by:
 D.M. Melville, D.M. Nelles, G.J. Payis, K. Bellefontaine and F. Ferri

Date Revised: January 1993
 Scale 1:250 000

Total Number of Mineral Occurrences: 219

Status	094D	094C	094B
Producer	093M	093N	093O
Developed Prospect	093L	093K	093J
Prospect			
Showing			

MAP LEGEND - 093N

MINFILE NUMBER	NAME	COMMODITIES
001	MISTY	CU
002	LORNAHE	CU
003	JENO	CU
004	SWW	CU
005	ATQ	CU
006	KC	CU
007	DIPNOTHY	CU
008	BRODRIE TANKA	CU
009	LUSTOIST	CU
010	JEMMA	CU
011	NINA	CU
012	LOHNE	CU
013	BRALDINE BB	CU
014	BRON	CU
015	MITCHELL RANGE	CU
016	DIAN	CU
017	WANKA	CU
018	INATA LAKE MERCURY	CU
019	TOHENTLO	CU
020	BLACK HAWK	CU
021	FARWELL	CU
022	MOTHERLODE	CU
023	FARWELL	CU
024	SUNSET	CU
025	ASPEN	CU
026	ERICKSON (GERM)	CU
027	KATY	CU
028	BLACKBURN	CU
029	SMITH	CU
030	SIMPSON	CU
031	BOB	CU
032	HIGH	CU
033	BOB	CU
034	HOGEM RANGES (K)	CU
035	ALM	CU
036	FE	CU
037	BOLD 1	CU
038	SMOOK	CU
039	MD	CU
040	SMOOK	CU
041	LEO CREEK	CU
042	CHURCH LANE	CU
043	INDATA LAKE MANGANESE	CU
044	WANKA CREEK	CU
045	VITAL CREEK	CU
046	QUARTZITE QUARTZ CREEK	CU
047	HARRISON CREEK	CU
048	ALICE CREEK	CU
049	KELLY CREEK	CU
050	SILVER KENNY CREEK	CU
051	TWIL CREEK	CU
052	TWENTY MILE CREEK	CU
053	VALLEAU CREEK	CU
054	GERMANSSEN RIVER NORTH	CU
055	GERMANSSEN RIVER SOUTH	CU
056	LEE	CU
057	LEE	CU
058	CHURCH LAKE	CU
059	PERRETT'S GLIFF	CU
060	KILDARE CREEK	CU
061	BLAKE CREEK	CU
062	HEATH #1	CU
063	HEATH #2	CU
064	HEATH #3	CU
065	HEATH #4	CU
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197	HEATH #36	CU
198	HEATH #37	CU
199	HEATH #38	CU
200	HEATH #39	CU

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MINFILE NUMBER	NAME	COMMODITIES
201	WILL	TH
202	CA	LA
203	MCN	CE
204	MCN	TA
205	RANBOW CREEK	CU
206	MCN	CU
207	KBE	CU
208	RIS BRECCIA	CU
209	GDITE	CU
210	GDITE	CU
211	HANNAH	CU
212	GRUBSKOG	CU
213	VALLEY	CU
214	TRAY	CU
215	VALLEY	CU
216	TRAY	CU
217	TRAY	CU
218	TRAY	CU
219	TRAY	CU

COMMODITY LEGEND

CODE INDEX	COMMODITY INDEX
AB	Asbestos
AG	Agave
AS	Arsenic
BA	Baryte
BE	Bentonite
BR	Bromine
CH	Chromite
CO	Cobalt
CR	Chromite
CU	Copper
DI	Diatomite
DO	Dolomite
FE	Ferrous
FL	Fluorite
GM	Gypsum
GR	Graphite
HT	Hematite
IG	Iron
LD	Lignite
LA	Lanthanum
LE	Lead
LI	Lithium
LS	Limestone
MA	Manganese
MC	Mica
MO	Molybdenum
NE	Nickel
NO	Niobium
NI	Nickel
NS	Niobium
PD	Potash
PL	Platinum
PT	Potash
RD	Rare Earths
RS	Rosin
SA	Silver
SI	Silica
SO	Sulfur
TA	Tantalum
TE	Tellurium
TI	Titanium
TR	Tron
UR	Uranium
VO	Vanadium
ZN	Zinc
ZR	Zirconium