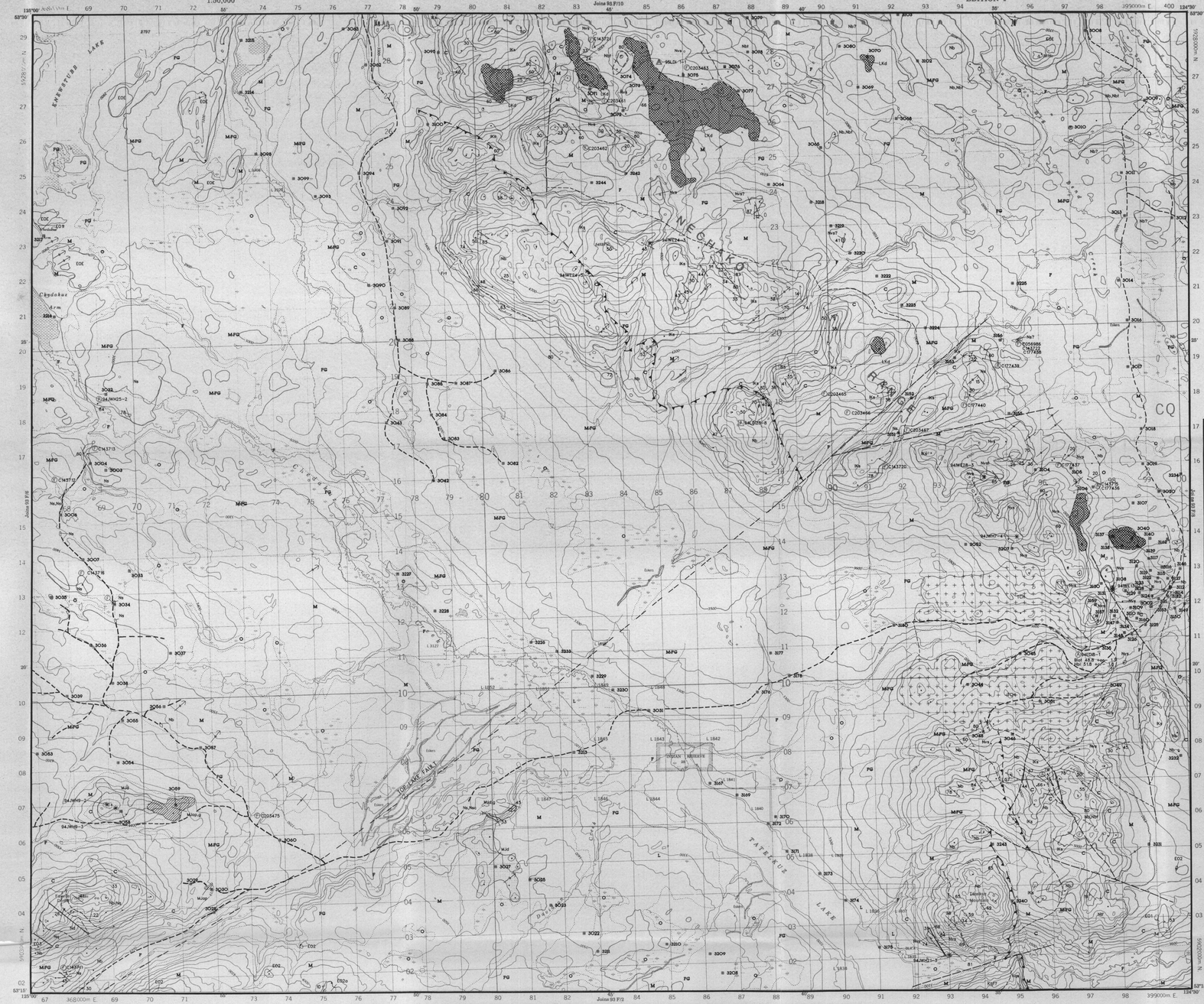

ASSAY DATA

	UTM			Au	Ag	Cu	Mo	Pb	Zn	As	Sb
				ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Field No.	*East*	*North*	*Rock Description*								
IWE 13-2	397950	5912500	stratabound sulphides exposed in a trench	2813	6.7	1193	13	81	51772	19762	14
IWE 17-14	374650	5983450	disseminated and shear hosted pyrite in volcanic rock	31	2.9	89	4	146	2668	41	2
IWE 22-9	399049	5889063	pyritic shears in basalt	10	0.1	171	19	2	534	6	2
IWE 24-3	384800	5922650	quartz veins in mudstones and siltstones	6	0.1	4	1	2	17	5	2
IWE 24-5a	383073	5921862	quartz veining and potassic alteration	28	0.1	2	4	4	17	191	3
IWE 24-5b	383073	5921862	quartz veining and potassic alteration	65	0.5	2	6	2	26	358	5
IWE 24-5c	383073	5921862	quartz veining and potassic alteration	59	0.2	1	7	2	15	172	2
IWE 28-3	394350	5915650	pyritic laminated rhyolite	9	0.1	44	3	6	<5	9	2
JWH 7-4	395225	5913956	pyrite and chlorite bearing hornfels	1	0.1	52	2	2	83	7	2
JWH 9-2	368750	5907050	pyrite and chalcopyrite in pyroxene porphyry	10	0.8	646	2	9	48	2	2
JWH 9-3	369100	5906975	disseminated pyrite in maroon to green silicified rock	4	0.2	82	3	18	105	7	2
JWH 16-10	375120	5985775	pervasively silicified zone with ~3% pyrite	19	0.2	88	5	6	1236	234	2
JWH 17-8	368214	5885863	gouge zone and quartz vein in intrusion	3	0.1	51	2	2	71	13	2
JWH 21-3	393050	5902080	quartz vein with malachite/pyrite at an intrusive contact	57	17.5	4611	7	59	41	7	2
JWH 32-8	373604	5882916	altered maroon flows with quartz veining	1	0.1	7	2	11	24	4	3
LDI 18-1	368121	5875599	quartz breccia with malachite in maroon flows	1	50.8	31647	5	16	8	29	5

Analytical method: all elements by ICP from a 0.5 gram sample; Au by FA/ICP from a 20 gram sample.

1895 - 1995
100 YEARS OF GEOLOGICAL SURVEYING

BC Ministry of Energy, Mines and Petroleum Resources

Geological Survey Branch
OPEN FILE 1995-17
(Sheet 1 of 1)

BEDROCK AND SURFICIAL GEOLOGY OF THE CHEDAKUZ CREEK MAP AREA

NTS 93F/7

By L.J. Diakow, I.C.L. Webster, J.A. Whittles, T.A. Richards, T.R. Giles V.M. Levson and G.F Weary

Scale 1:50000

KILOMETRES 0 1 2 3 4

SURFICIAL SEDIMENTS

QUATERNARY
HOLOCENE

F **Fluvial sand, pebble gravel and silt:** typically stratified and moderately well sorted; shallow water tables common; includes floodplain, terrace, delta and alluvial fan deposits; commonly veneered by organics; unit locally includes other surficial deposits too small to be mapped individually.

C **Colluvium:** unsorted or very poorly sorted diamicton with abundant angular clasts of local bedrock; occurs mainly as veneers less than 1 metre thick over bedrock in upland areas; locally includes thicker colluvial fan and talus deposits at the base of steep slopes.

O **Organic deposits:** accumulations of decayed vegetative material; includes peat bog, swamp, and marsh deposits; shallow water table common.

LATE PLEISTOCENE

L **Glaciolacustrine sand, silt or clay:** well sorted, laminated or thinly bedded; may contain ice-rafted stones, normal faults and slump structures; locally kettled; often overlain by organics.

FG **Glaciofluvial pebble to boulder gravel and sand:** poorly to well sorted and stratified; often interbedded with glacial debris flow deposits; includes kettled outwash, raised deltas, eskers and kame terraces; occurs with morainal deposits in hummocky terrain and fluvial or organic deposits in valleys.

M **Morainal diamicton:** dominantly basal tills and glacially-derived debris flow deposits; unsorted to very poorly sorted, massive or crudely stratified and compact; diamicton matrix sandy to silty clay; clasts up to boulder size; flutings and crag-and-tail features common; deposits thin (<1 m thick) on steep upper slopes and thicker on lower slopes; locally includes areas of exposed rock or colluvium.

M;FG **Resedimented glacial debris:** sandy diamicton, gravel and sand; dominantly glacial debris flow deposits and interbedded sands and gravels that accumulated on or near the margins of melting glaciers; discontinuously mantled by FG; small meltwater channels and local areas of hummocky topography common; in low areas often occurs with small organic, fluvial and glaciofluvial deposits.

VOLCANIC AND SEDIMENTARY ROCKS

TERTIARY
EOCENE TO OLIGIOCENE
ENDAKO GROUP

EOE **Andesite lava flows:** black; aphanitic, commonly amygdaloidal with translucent opalescent silica infillings, often vesicular; some hematized scoriaceous flow top breccia.
Flows are flat to gently inclined and cover the low-lying area adjacent to Knewstubb Lake. They are distinguished from lithologically similar flows of the Chilcotin Group by the absence of olivine and the presence of microscopic augite and hypersthene. An excellent section of flows can be seen in the quarry at the Kenney Dam.

EOCENE
OOTSA LAKE GROUP
In the southern Fawnie Range, between Top Lake and Tsacha Mountain (93 F/2), an Eocene volcanic outlier is delimited by several large-scale normal faults that strike northeast. The major valley occupied by Top Lake approximates the trace of a northeast trending fault that juxtaposes Middle Jurassic rocks to the north against Eocene rocks to the south. A parallel fault is mapped between Mount Davidson and Tsacha Mountain. Eocene volcanic rocks preserved in the area between these faults are as much as 700 metres thick. They consist of a crudely layered sequence of flow banded rhyolite at the base (Unit EO1), overlain by porphyritic andesite flows (Unit EO2), which in turn are capped by rhyolitic ash-flow tuff (Unit EO3). A thin succession of porphyritic andesite flows, laharic breccia and bedded tuffs (Unit EO4) locally overlie the ash-flow tuff unit along the ridge axis north of Mount Davidson (map sheet 93 F/2).

EO3 **Rhyolite ash-flow tuff:** well indurated, unwelded to very weakly welded; 25-30 per cent crystal pyroclasts characterized by resorbed and prismatic quartz (~5-15%, avg. 2 mm diameter), plagioclase, potassium feldspar (2-7%), and rare sericitized biotite. Fragments (5-20%) are typically lapilli-size and dominated by porphyritic andesite (resembling Unit EO2) and cognate fragments containing sparse quartz phenocrysts; the groundmass accepts a weak to moderate K-spar stain; minor block-lapilli tuff; rare, parallel layered volcanogenic quartz-bearing sandstone.
Lithic poor ash-flow tuff is about 400 metres thick in an apparent volcanic depression centered on Mount Davidson. These deposits have a conformable lower contact with flows of Unit EO2. Peripheral to this depression outflow(?) sheets rest directly on Jurassic volcanic rocks. Biotite-plagioclase porphyritic dacite sills (Unit Tbfp) locally cut the ash-flow deposits.

EO2 **Andesite lava flows:** light maroon and greyish green; seriate texture imparted by phenocrysts 1-5 mm in length, rarely to 1 cm; phenocrysts (20-30%) listed in order of abundance include: plagioclase, microscopic augite and rare quartz. Other local textural variants of the flows are amygdaloidal with chalcedonic silica, calcite, chlorite and zeolite amygdules, and plagioclase porphyry characterized by phenocrysts up to 1.5 centimetres long (EO2a); minor tuff breccia and laharic deposits.
The lower contact with Unit EO1 is conformable. In the absence of diagnostic bounding Eocene strata, these flows are easily confused with lithologically similar flows (Unit Nb) of the Middle Jurassic Naglico formation.

EO1 **Rhyolite lava flows:** mauve, light green or cream colored; aphanitic and flow laminated textures predominate, sometimes sparsely porphyritic with feldspar, rare quartz and very rare sericitized biotite; primary textures are commonly overprinted by solitary and coalescing spherulites; lithophysae are present in some flows; local autoclastic breccia (EO1bx); minor crudely bedded lapilli tuff and block-lapilli tuff dominated by rhyolitic fragments (EO1t); unconformable lower contact with Jurassic strata.

LOWER CRETACEOUS

1Ks **Conglomerate:** rounded pebbles and cobbles of light grey and green chert and black mudstone; inter-layered greyish sandstone and siltstone. This sedimentary succession is exposed mainly along the axis of the Nechako Range, unconformably overlying Jurassic strata.

MIDDLE JURASSIC - EARLY BAJOCIAN TO EARLY CALLOVIAN
Naglico formation
The Naglico formation is composed mainly of dark green and maroon andesitic and basaltic flows characterized by vitreous pyroxene phenocrysts. Sparsely distributed sediments, dominated by feldspathic sandstone and siltstone and lesser black mudstone, locally contain abundant fossils. These rocks are variably altered to an epidote-quartz assemblage that is found as clots and lines fractures in the flows. Hematite is pervasively distributed throughout the groundmass, imparting a maroon color; it sometimes selectively coats pyroxene crystals (~2 mm) resulting in a "hematite-spotted" appearance.

Nb **Basalt and andesite lava flows:** dark green and maroon; characterized by fresh pyroxene phenocrysts (trace to 20%); flow textures include: crowded plagioclase porphyry (~35-40% equant subhedral plagioclase grains <3 mm in diameter), dense aphanitic flows and amygdaloidal porphyry with rounded chlorite, epidote-quartz and rarely, chalcedony filled amygdules (up to 15 cm in diameter).

Note: Compound lithologic symbols indicate interfingered rock sequences in which the dominant lithology is listed first, followed by strata of lesser relative abundance (*e.g.* Unit Nb, Nd: basaltic and andesitic rocks predominate and are interlayered with subordinate dacitic rocks).

Subordinate rock units interlayered with flows of Unit Nb

Nq **Lapilli tuff, ash tuff and crystal-ash tuff:** maroon and green; glassy broken quartz grains (generally <1.5 mm in diameter) may or may not be present in trace quantities; scarce accretionary lapilli tuff.

Ns **Sandstone and sharpstone conglomerate:** dark green; dominated by angular feldspar and volcanic lithic fragments; locally abundant shelly fauna; some black mudstone; rare chert pebble conglomerate interlayered with sandstone (Unit Nsc).

Nbt **Andesitic lapilli tuff:** rare accretionary lapilli and debris flow deposits dominated by fragments of Unit Nb.

Nd **Dacite porphyry flows.**

LOWER AND MIDDLE JURASSIC - EARLY TOARCIAN TO AALENIAN?
Kuyakuz Mountain Rhyolitic Tuffs and Volcaniclastic Sediments: Stratigraphically conformable with the underlying Nechako Range sedimentary assemblage on Kuyakuz Mountain (93F/2).

Kqs **Volcanic sandstone and siltstone:** contains angular feldspar and quartz grains; sparse marine bivalves.

Kqf **Rhyolitic flows:** contain trace quartz phenocrysts.

Fawnie Range Subaerial Rhyolitic Volcanic Sequence:
The upper contact of this sequence is stratigraphically continuous with conformably overlying flows of Unit Nb. The lower contact is not exposed. Exposures of rhyolitic flows and pyroclastic rocks representative of this sequence are most extensive in the eastern part of the Entiako Spur and the Naglico Hills in the Fawnie Creek map area (formerly Unit Nr in 93 F/3). Correlative rocks are found in the southern Fawnie Range, underlying Tsacha Mountain, and locally along the western flank of the northern Nechako Range. These rhyolitic rocks represent subaerial deposits that are replaced towards the east in the Nechako Range by a marine, volcanic-sourced sedimentary assemblage.

Frt **Ash-flow tuff:** grey, weak to moderately welded; characterized by resorbed quartz (3%) up to 5 mm; pyroclasts include flow-laminated rhyolite, porphyritic andesite and rare equigranular granodiorite.

Fr **Rhyolite flows:** grey-black, off white or light pink; thinly laminated; contain diagnostic quartz phenocrysts as in Unit Frt.

Nechako Range Marine Volcanogenic Sedimentary Assemblage:
The upper contact of this assemblage is stratigraphically conformable with the Kuyakuz Mountain rhyolitic volcanic sequence. The lower contact is not exposed. These sediments are characterized by crystal and lithic detritus derived from a felsic volcanic source. Scarce ammonites suggest that deposition occurred mainly during Toarcian time.

Nvs **Crystal-rich sandstone and siltstone:** dominated by angular plagioclase and locally abundant aphanitic felsic volcanic clasts; medium to thick tabular beds; minor black siltstone and argillite may contain discrete off-white tuffaceous laminae (positive K-spar stain); rare brownish limey and concretionary mudstone.

Nvst **Felsic tuff.**

INTRUSIVE ROCKS

EOCENE

TCH **CH stock:** white or light pink; coarse-grained biotite-hornblende (20% combined) granodiorite.

LATE CRETACEOUS?

Kd **Porphyritic diorite:** contains anhedral pyroxene grains (<2 mm in diameter, ~7-10%) in a grey-green aphanitic groundmass.

MIDDLE JURASSIC?
Mafic plutons that are probable feeders to Unit Nb. Textural variations include:

MJd **Diorite:** mottled white-green; medium-grained equigranular texture.

MJgc **Augite porphyry:** contains subhedral and euhedral augite phenocrysts (2-6 mm diameter; <20%) and randomly oriented plagioclase laths averaging 1-2 mm in diameter and rarely up to 1 cm long.

MJg **Coarse-grained gabbro.**

SYMBOLS

- Bedrock unit boundary[1]
- Quaternary unit boundary[2]
- Bedrock field station
- Geologic contact (assumed)
- High-angle fault (approximate, inferred)
- Contractional fault (assumed)
- Plutonic contact (inferred from aeromagnetic data)
- Bedding — 28
- Igneous layering — 20
- Cleavage — 69
- Glacial striae
- Glacial fluting
- Drumlin, crag-and-tail
- Fossil site (GSC catalogue number) — C143714
- Age determination site (field number, age in Ma)
  - Ar-Ar — A 94LD28–8
  - K-Ar — K 94LDB–1
  - U-Pb — U 94WE22–2
- Bedrock assay sample site — ✱ 94LDI8–1
- Till geochemical sample site[2] — ■ 1002

[1] Bedrock and surficial mapping in the Tsacha Lake (93F/2) and Chedakuz Creek (93F/7) map areas was conducted during the summer of 1994. These data are current to May, 1995. Six radiometric age determinations are in progress.

[2] Surficial map units are generalized from Giles and Levson (1995). Till geochemical results will be released at a later date.

ACKNOWLEDGMENTS

H.W. Tipper, J.W. Haggart and T.P. Poulton of the Geological Survey of Canada identified macrofossils from the study area. E.S. Carter processed samples for microfossils; however, none yielded identifiable forms. We thank D. Fleming and A. Davis of Kennecott Canada Inc. for contributing several fossil collections. Potassium-argon age determinations are by J. Harakal of the University of British Columbia. At present, three argon-argon age determinations are in progress by P. Reynolds at Dalhousie University. Four uranium-lead age determinations are in progress by K. Kyser at the University of Saskatchewan. We acknowledge K. Schimann of Cogema Canada Ltd. and W. Bates of Granges Inc. for their geologic contributions on properties located near Brewster Lake and at Mount Davidson. Field assistance for surficial mapping and till sampling was provided by E. O'Brien.

REFERENCES

Diakow, L.J., Webster, I.C.L., Whittles, J.A. and Richards, T.A. (1995): Stratigraphic Highlights of Bedrock Mapping in the Southern Nechako Plateau, Northern Interior Plateau Region (93F/2 and 7); *in* Geological Fieldwork 1994, B. Grant and J.M. Newell, Editors, *B.C. Ministry of Energy, Mines and Petroleum Resources*, Paper 1995-1, pages 171-176.

Giles, T.R. and Levson, V.M. (1995): Surficial Geology and Quaternary Stratigraphy of the Tsacha Lake Area (NTS 93F/7); *B.C. Ministry of Energy, Mines and Petroleum Resources*, Open File 1995-10.

Lane, R.A. and Schroeter, T.G. (1995): Mineral Occurrence Investigations and Exploration Monitoring in the Nechako Plateau (93F/2,3,7,10,11,12,14,15 and 93C/9 and 16); *in* Geological Fieldwork 1994, B. Grant and J.M. Newell, Editors, *B.C. Ministry of Energy, Mines and Petroleum Resources*, Paper 1995-1, pages 177-192.

Tipper, H.W. (1963): Nechako River Map-area, British Columbia; *Geological Survey of Canada*, Memoir 324, 59 pages.