

BC Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

Geological Survey Branch
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SURFICIAL GEOLOGY OF THE CHEZACUT AREA
NTS 93C/8
Geology by D.E. Kerr and T.R. Giles
1:50 000

Scale: 1:50,000

For an overview of the surficial geology of the Chezacut map area please refer to the report entitled "Surficial Geology in the Chilako Forks (93C/1) and Chezacut (93C/8) Areas" by T.R. Giles and D. E. Kerr in Geological Fieldwork 1992, B. C. Ministry of Energy, Mines and Petroleum Resources, Paper 1993-1. Geology based on air photo interpretation followed by ground verification. Fieldwork completed in 1992.

MAP UNIT LETTER NOTATION

SIMPLE TERRAIN UNIT SYSTEM

Surficial material — surface expression

COMPOSITE UNITS

Ob The component (Ob) above the symbol designates the low level (Mb)

Mb The component (Mb) in front of the symbol is more extensive than the one that follows (R)

SURFICIAL EXPRESSION

b blanket (> 1 metre)
f fan
h hummocky
t terraced
v veneer (< 1 metre)

TEXTURES

c clay
s silt
g gravel
b boulder
d diamicton

GEOLOGICAL BOUNDARIES

Definite ———
Approximate - - - - -

ON-SITE SYMBOLS

Drumlin, conical hill
Slope, groove (see flow direction symbols, elsewhere)
Fluting
Moraine ridge (major, minor)
Esker (flow direction major, minor)
Meltwater channel (major, minor)
Erosion
Cliff
Glacier flow
Strandline
Landslide (headwall scar)

QUATERNARY GEOLOGY NOTES

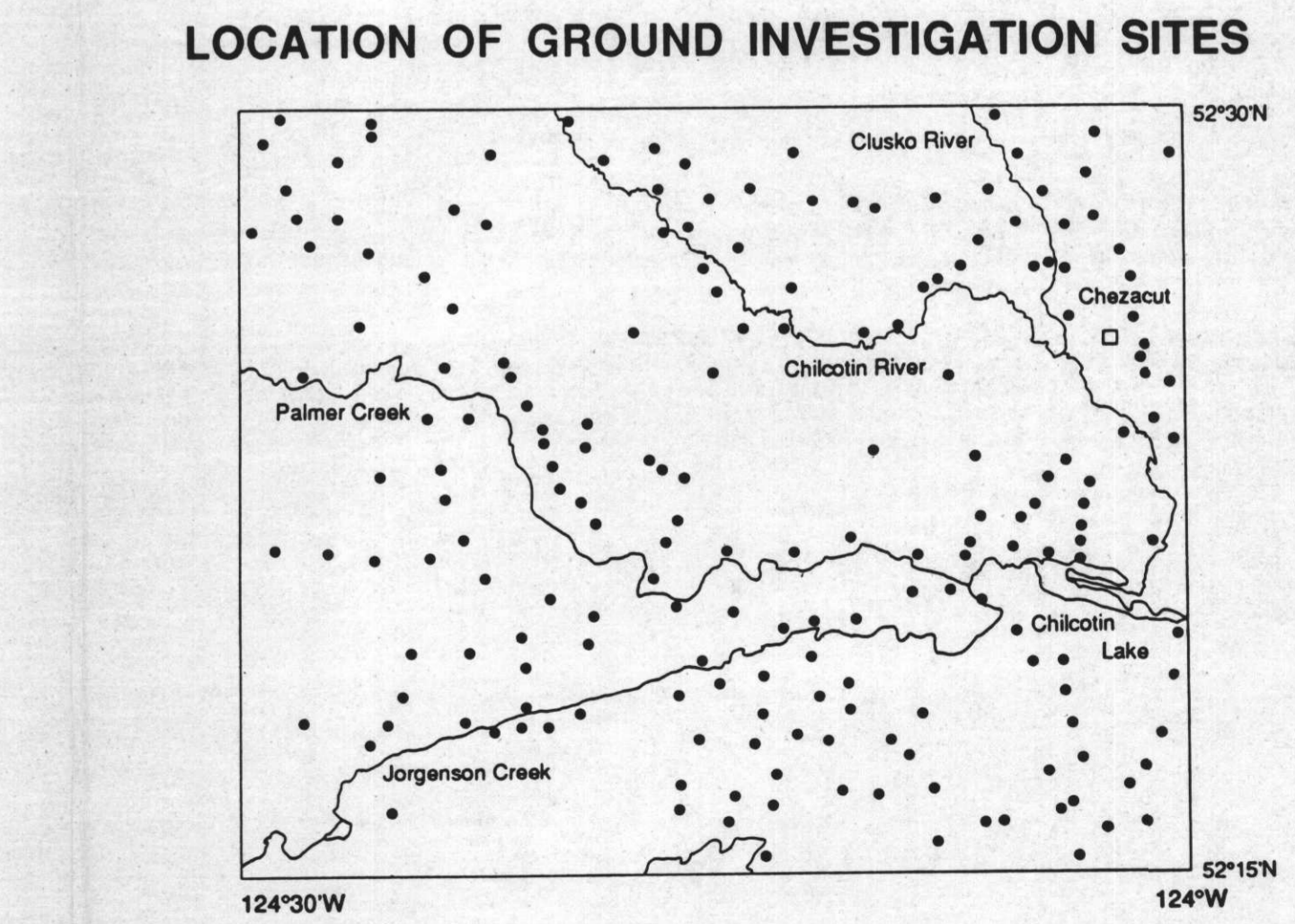
GLACIAL HISTORY

The Chezacut map area was entirely covered by Late Wisconsinan Cordilleran ice during the last (Fraser) glaciation. Ice originating in the Coast Mountains flowed north, northeast and east onto the Interior Plateau. Coast-Mountain ice extended as far east as the Fraser River before coalescing with Cariboo Mountain ice flowing to the west and northwest (Tipper 1971). During deglaciation of the Anahim Lake region, ice flow was increasingly controlled by topography as ice masses became isolated and stagnated in areas of low topographic relief. Fluted bedrock and drumlins developed in till are rare; isolated occurrences are found in the central and southern uplands at elevations of 1082 to 1234 metres. These large-scale ice-directional features indicate a flow toward the northeast between 045° and 070°. Glacial stations, noted in only one locality south of Luck Mountain, trend between 040° and 055°. The latter may reflect ice flow that was influenced by local topography during waning stages of glaciation. Large boulders of exotic lithologies were found throughout the study region. Rounded erratics found up to elevations of 1500 metres in the north-central parts of the Chezacut map area indicate that ice completely covered the region during the Fraser glaciation.

SURFICIAL GEOLOGY

The dominant sediment on the uplands of the map area is till, a poorly-sorted diamicton deposited by glaciers. It forms a blanket of variable thickness across much of the region; surface exposures are up to 10 metres thick but generally 2 metres or less. Till sediments are expressed as hummocky and knitted (Mb), or more commonly as fluted or relatively flat terrain (Mb). Till in valley bottoms are rarely exposed as they have been buried by glaciofluvial outwash sediments. Sand and gravel glaciofluvial outwash (Fg) is found along most valleys and in areas associated with hummocky till. Steep-sided valleys with terraces on the walls and cobble or boulder lags on the valley floor are typical. Terrace deposits attain thicknesses of 20 metres in the Chilcotin River valley but more often are 1 to 5 metres thick. Well-sorted sand deposits are common in the Chilcotin River valley. Sand and gravel esker-ridges are typically tens of metres wide, hundreds of metres long and up to 15 metres high. Esker complexes in the lower Palmer Creek valley are evidence of topographically controlled subglacial or englacial meltwater flow. Parallel-laminated sand, silt and clay deposits in the Clusko River, Chilcotin Lake and lower Palmer Creek valleys are interpreted as glaciofluvial deposits (Lg). In the Clusko River area they occur as an ubiquitous veneer, 20 centimetres to 1 metre thick, overlying till. In the Chilcotin Lake area, these deposits are finely laminated to thinly bedded fine sand and silt exhibiting climbing ripples or horizontal stratification. On steep slopes and ridges, a loose cover of weathered and broken bedrock grades downhill into a thin veneer of colluvial diamicton derived from weathered bedrock and till. A colluvial veneer (Ov) is commonly found overlying till on steeper slopes in lower lying areas. Colluvial sediment is differentiated from till by its loose unconsolidated character; the presence of coarse angular blocks of bedrock, and crude stratification. The open, flat terrain in the western half of the Chezacut map area is characterized by marshes and shallow lakes filled with organic sediment (O). Organic deposits are also common in the broad, shallow valleys of Palmer, Knoll and Jorgensen creeks.

Tipper, H.W. (1971): Glacial Geomorphology and Pleistocene History of Central British Columbia. Geological Survey of Canada, Bulletin 196, 89 pages.



BASE MAP PRODUCED BY THE MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES, OTTAWA.

SW QUADRANT	NW QUADRANT (continued)	SW QUADRANT	NW QUADRANT (continued)	NE QUADRANT (continued)	NE QUADRANT (continued)	SE QUADRANT (continued)	SE QUADRANT (continued)
1 till (> 1 m)	30 glaciofluvial sand and gravel (> 50 cm)	24 colluvium (< 2 m) over bedrock	31 glaciofluvial sand and gravel (> 50 cm)	64 till (> 50 cm)	89 glaciofluvial silty clay (> 2 m)	108 glaciofluvial sand and gravel (> 50 cm)	133 till (> 50 cm)
2 till (> 50 cm)	32 glaciofluvial sand and gravel (> 50 cm)	25 colluvium (< 1 m) over bedrock	32 glaciofluvial sand and gravel (> 50 cm)	163 till (> 50 cm)	101 glaciofluvial silt (< 20 cm) over till (> 30 cm)	109 glaciofluvial sand and gravel (> 50 cm)	134 glaciofluvial sand (> 50 cm)
3 glaciofluvial sand and gravel (> 2 m)	33 colluvium (< 1 m) over glaciofluvial silt (> 2 m) over till (> 10 m)	26 glaciofluvial sand and gravel (> 2 m)	33 colluvium (< 1 m) over glaciofluvial silt (> 2 m) over till (> 10 m)	164 glaciofluvial sand and gravel (> 50 cm)	102 colluvium (< 1 m) over bedrock	111 glaciofluvial sand and gravel (> 50 cm)	135 till (> 50 cm)
4 till (> 1 m)	34 glaciofluvial sand and gravel (> 50 cm)	27 till (> 1 m)	34 glaciofluvial sand and gravel (> 50 cm)	165 eolian sand (> 50 cm)	103 colluvium (< 50 cm) over till (> 50 cm)	112 glaciofluvial silt (> 50 cm)	136 glaciofluvial sand and gravel (> 2 m)
5 glaciofluvial sand (< 1 m) over bedrock	35 glaciofluvial sand and gravel (> 50 cm)	28 till (> 2 m)	35 glaciofluvial sand and gravel (> 50 cm)	166 till (> 50 cm) over till (> 60 cm)	104 colluvium (< 50 cm) over bedrock	113 till (> 50 cm)	137 glaciofluvial sand (> 1 m)
6 glaciofluvial sand (< 10 cm) over till (> 2.5 m)	36 till (> 50 cm)	29 till (> 2 m)	36 till (> 50 cm)	167 till (> 50 cm)	105 colluvium (< 50 cm) over bedrock	114 till (> 50 cm)	138 till (> 50 cm)
7 till (> 2 m)	37 till (> 50 cm)	30 till (> 2 m)	37 till (> 50 cm)	168 till (> 50 cm)	106 till (> 50 cm)	115 glaciofluvial sand and gravel (> 2.5 m)	139 till (> 50 cm)
8 till (> 75 cm)	38 till (> 50 cm)	31 till (> 2 m)	38 till (> 50 cm)	169 till (> 50 cm)	107 till (> 50 cm)	116 till (> 50 cm)	140 till (> 50 cm)
9 till (> 2 m)	39 till (> 50 cm)	32 till (> 2 m)	39 till (> 50 cm)	170 till (> 50 cm)	108 till (> 50 cm)	117 glaciofluvial sand and gravel (> 50 cm) over till (> 2 m)	141 till (> 50 cm)
10 till (> 3 m)	40 till (> 5 m)	33 till (> 2 m)	40 till (> 5 m)	171 till (> 50 cm)	109 till (> 50 cm)	118 till (> 50 cm)	142 till (> 50 cm)
11 colluvium (< 1 m) over till (> 2 m)	41 till (> 40 cm)	34 till (> 2 m)	41 till (> 40 cm)	172 glaciofluvial silt (< 30 cm)	110 till (> 50 cm)	119 till (> 50 cm)	143 till (> 50 cm)
12 till (> 40 cm)	42 till (> 50 cm)	35 till (> 2 m)	42 till (> 50 cm)	173 till (> 50 cm)	111 till (> 50 cm)	120 till (> 50 cm)	144 till (> 50 cm)
13 till (> 50 cm)	43 till (> 50 cm)	36 till (> 2 m)	43 till (> 50 cm)	174 glaciofluvial silt (< 1 m) over till (> 60 cm)	112 till (> 50 cm)	121 till (> 50 cm)	145 till (> 50 cm)
14 glaciofluvial sand and gravel (> 4 m)	44 till (> 50 cm)	37 till (> 2 m)	44 till (> 50 cm)	175 till (> 50 cm)	113 till (> 50 cm)	122 till (> 50 cm)	146 till (> 50 cm)
15 till (> 50 cm)	45 till (> 1 m)	38 till (> 2 m)	45 till (> 1 m)	176 till (> 50 cm)	114 till (> 50 cm)	123 till (> 50 cm)	147 till (> 50 cm)
16 till (> 4 m)	46 glaciofluvial sand and gravel (> 2.5 m)	39 till (> 2 m)	46 glaciofluvial sand and gravel (> 2.5 m)	177 till (> 50 cm)	115 till (> 50 cm)	124 till (> 50 cm)	148 till (> 50 cm)
17 till (> 40 cm)	47 till (> 50 cm)	40 till (> 2 m)	47 till (> 50 cm)	178 till (> 50 cm)	116 till (> 50 cm)	125 till (> 50 cm)	149 till (> 50 cm)
18 till (> 2 m)	48 glaciofluvial sand and gravel (> 1.5 m)	41 till (> 2 m)	48 glaciofluvial sand and gravel (> 1.5 m)	179 till (> 50 cm)	117 till (> 50 cm)	126 till (> 50 cm)	150 till (> 50 cm)
19 till (> 3 m)	49 till (> 50 cm)	42 till (> 2 m)	49 till (> 50 cm)	180 till (> 50 cm)	118 till (> 50 cm)	127 till (> 50 cm)	151 till (> 50 cm)
20 glaciofluvial sand and gravel (> 1.5 m)	50 till (> 50 cm)	43 till (> 2 m)	50 till (> 50 cm)	181 till (> 50 cm)	119 till (> 50 cm)	128 till (> 50 cm)	152 till (> 50 cm)
21 till (> 2.5 m)	51 colluvium (< 1 m) over till (< 1 m) over bedrock	44 till (> 2 m)	51 colluvium (< 1 m) over till (< 1 m) over bedrock	182 till (> 50 cm)	120 till (> 50 cm)	129 till (> 50 cm)	153 till (> 50 cm)
22 colluvium (< 1 m) to > 1 m) over till (> 4 m)	52 colluvium (< 1 m) over till (< 1 m) over bedrock	45 till (> 2 m)	52 colluvium (< 1 m) over till (< 1 m) over bedrock	183 till (> 50 cm)	121 till (> 50 cm)	130 colluvium (< 1 m sand & 1 m) over bedrock	154 till (> 50 cm)
23 colluvium (< 1 m) and (> 1 m) over bedrock	53 glaciofluvial sand and gravel (> 50 cm)	46 glaciofluvial sand and gravel (> 2.5 m)	53 glaciofluvial sand and gravel (> 50 cm)	184 till (> 50 cm)	122 till (> 50 cm)	131 till (> 50 cm)	155 till (> 50 cm)
24 glaciofluvial sand and gravel (> 25 m)	54 glaciofluvial sand and gravel (> 50 cm)	47 till (> 2 m)	54 glaciofluvial sand and gravel (> 50 cm)	185 till (> 50 cm)	123 till (> 50 cm)	132 till (> 50 cm)	156 till (> 50 cm)
25 glaciofluvial sand and gravel (> 50 cm)	55 till (> 50 cm)	48 till (> 2 m)	55 till (> 50 cm)	186 till (> 50 cm)	124 till (> 50 cm)	133 till (> 50 cm)	157 till (> 50 cm)
	56 till (> 50 cm)	49 till (> 2 m)	56 till (> 50 cm)	187 till (> 50 cm)	125 till (> 50 cm)	134 till (> 50 cm)	158 till (> 50 cm)
	57 till (> 50 cm)	50 colluvium (< 1 m) over till (< 1 m) over bedrock	57 till (> 50 cm)	188 till (> 50 cm)	126 till (> 50 cm)	135 till (> 50 cm)	159 till (> 50 cm)
	58 till (> 50 cm)	51 colluvium (< 1 m) over till (< 1 m) over bedrock	58 till (> 50 cm)	189 till (> 50 cm)	127 till (> 50 cm)	136 till (> 50 cm)	160 till (> 50 cm)
	59 colluvium (< 1 m) over till (< 1 m) over bedrock	52 colluvium (< 1 m) and (> 1 m) over bedrock	59 colluvium (< 1 m) over till (< 1 m) over bedrock	190 till (> 50 cm)	128 till (> 50 cm)	137 till (> 50 cm)	161 till (> 50 cm)
	191 colluvium (< 50 cm) over bedrock		191 colluvium (< 50 cm) over bedrock				