SWEATMAN TOWNSHIP

DISTRICT OF COCHRANE, ONTARIO

TABLE OF LITHOLOGICAL UNITS
KIRKLAND LAKE DATA SERIES

CENOZOIC
PLEISTOCENE AND RECENT
- 18a ORGANIC DEPOSITS — Open and semi-open bogs
- 18b COCHRANE DEPOSITS — Clay till
- 18c BARLOW-OJIBWAY DEPOSITS — Varved sediments; Sand and gravel deposits
- 18d GLACIO-FLUVIAL DEPOSITS — Esker complexes; associated outwash sand and gravel deposits
- 18e GROUND MORAINE DEPOSITS — Sandy grey boulder till, with minor contained stratified drift, resting on bedrock.

UNCONFORMITY

MESOZOIC — 17
- 17 Kimberlite

INTRUSIVE CONTACT

PALEOZOIC — 16
LOWER AND MIDDLE SILURIAN
- 16a Clinton (Thornloe Formation: limestone, dolomite, sandstone
- 16b Wabi Formation: limestone, shale

15
MIDDLE AND UPPER ORDOVICIAN
- 15a Dawson Point Formation: shale
- 15b Farr Formation: limestone
- 15c Rucke Formation: limestone, shale
- 15d Gulgues Formation: sandstone

UNCONFORMITY

PRECAMBRIAN
LATE PRECAMBRIAN (PROTEROZOIC)
MAFIC INTRUSIVE ROCKS[g] — 14
- 14 Diabase dikes

INTRUSIVE CONTACT

MIDDLE PRECAMBRIAN (PROTEROZOIC)
ALKALIC INTRUSIVE ROCKS[e] — 13
- 13 Syenite, nepheline syenite, lamprophyre

MAFIC INTRUSIVE ROCKS[f] — 12
- 12 Diabase, transition rock, and granophyre sheets and dikes

INTRUSIVE CONTACT

COBALT GROUP — 11, 10
- 11 Lorrain Formation: quartzite, arkose
- 10 Gowganda formation
- 10 Undifferentiated
- 10a Firstbrook Member: argillite, siltstone, greywacke, arkose
- 10b Coleman Member: conglomerate, greywacke, quartzite, arkose, argillite

UNCONFORMITY

EARLY PRECAMBRIAN (ARCHEAN)
MAFIC INTRUSIVE ROCKS[e] — 9
- 9 Diabase dikes

INTRUSIVE CONTACT

ALKALIC INTRUSIVE ROCKS[d] — 8
- 8 Syenite, monzonite, lamprophyre[h]

INTRUSIVE CONTACT

ALKALIC METAVOLCANICS[b] — 7
- 7 Trachyte, leucitic trachyte; flows, tuff, breccia

METASEDIMENTS[j] — 6, 5
- 6 Conglomerate, greywacke, siltstone, slate, argillite, iron formation[b]
- 5 Greywacke, siltstone, slate, iron formation[g]

FELSIC INTRUSIVE ROCKS[d] — 4
- 4 Granitic intrusive rocks
- 4a Quartz porphyry, quartz-feldspar porphyry, feldspar porphyry, granophyre, felsite[h]
- 4b Trondhjemite, granodiorite, quartz monzonite; simple batholiths and stocks[b]
- 4c Trondhjemite, granodiorite, quartz monzonite, quartz diorite, aplite, pegmatite, migmatite; complex batholiths

INTRUSIVE CONTACT

FELSIC METAVOLCANICS AND VOLCANICS[a,j] — 3
- 3 Undifferentiated, rhyolite
- 3a Iron formation and ferruginous chert
- 3b Flows
- 3c Pyroclastic rocks

INTRUSIVE CONTACT

METAMORPHOSED MAFIC AND ULTRAMAFIC INTRUSIVE ROCKS[c,j] — 2
- 2 Undifferentiated
- 2a Gabbro, diorite
- 2b Peridotite, dunite, pyroxenite, serpentinite

INTRUSIVE CONTACT

INTERMEDIATE AND MAFIC METAVOLCANICS[a,j] — 1
- 1 Undifferentiated dacite, andesite, and basalt
- 1a Intermediate flows
- 1b Intermediate pyroclastic rocks
- 1c Mafic flows
- 1d Mafic pyroclastic rocks

a Formerly classified as Keewatin
b Formerly classified as Timiskaming
c Formerly classified as Haileyburian
d Formerly classified as Algoman
e Includes north-trending dikes of Matachewan swarm
f Includes Nipissing and Sudbury-type
g Includes Keweenawan
h Several ages; some units appear to be intrusive equivalents of volcanic formations whereas others postdate volcanism
j Rocks in these groups are subdivided lithologically; the order does not necessarily imply age relationship within or among groups

GEOLOGICAL AND MINING SYMBOLS FOR KIRKLAND LAKE DATA SERIES

- Glacial striae.
- Esker, medial ridge.
- R — Small bedrock outcrop.
- Bedding, top unknown; (inclined, vertical).
- Bedding, top (arrow) from grain gradation; (inclined, vertical, overturned).
- Bedding, top (arrow) from cross bedding; (inclined, vertical, overturned).
- Lava flow; top (arrow) from pillows shape and packing.
- Schistosity; (horizontal, inclined, vertical).
- Gneissosity, (horizontal, inclined, vertical).
- Layering, (horizontal, inclined, vertical).
- Lineation with plunge.
- Geological boundary, observed.
- Geological boundary, position interpreted.
- Geological boundary, deduced from geophysics.
- Fault; (observed, assumed). Spot indicates down throw side, arrows indicate horizontal movement.
- Lineament.
- Jointing; (horizontal, inclined, vertical).
- Drag folds with plunge.
- Anticline, syncline, with plunge.
- Drill hole; (projected vertically). Overburden shown.
- Drill hole in overburden only; (vertical or collar, inclined). Overburden shown.
- 90° — Shaft; depth in feet.
- Mineral occurrence at surface.
- Airborne electromagnetic anomaly (Canadian Aero System).
- Airborne electromagnetic anomaly (Quester 6 Channel Input System).
- 2 channel response.
- 3 channel response.
- 4 channel response.
- 5 channel response.
- 6 channel response and coincident magnetic anomaly.
- AM — Airborne magnetometer anomaly.
- M — Ground magnetometer anomaly.
- Ground electromagnetic conductor (VEM-Vert-loop; HEM-Horizontal loop; VLF-Very low freq.; Turam; JEM-Crone EM-16).
- IP — Induced Polarization anomaly
- SP — Spontaneous Polarization anomaly
- Gr — Gravity anomaly
- Ra — Radiometric anomaly
- R — Resistivity anomaly

METAL AND MINERAL REFERENCE

For Kirkland Lake Data Series

Ag	Silver	mo	Molybdenite
asb	Asbestos	Ni	Nickel
Au	Gold	Pb	Lead
Cd	Cadmium	Pd	Palladium
Co	Cobalt	pent	Pentlandite
cp	Chalcopyrite	po	Pyrrhotite
Cr	Chromium	Pt	Platinum
Cu	Copper	py	Pyrite
ep	Epidote	qcv	Quartz-carbonate vein
Fe	Iron	qv	Quartz vein
fl	Fluorite	serp	Serpentine
gf	Graphite	sp	Sphalerite
gn	Galena	spec	Specularite
mag	Magnetite	talc	Talc
mar	Marcasite	Sn	Tin
ml	Millerite	Zn	Zinc

Sources of Information

Compiled by the Geological Survey of Canada in co-operation with the Ontario Department of Mines and Northern Affairs from data on file with the Resident Geologist (Ontario Department of Mines and Northern Affairs), Kirkland Lake.

NTS Reference 42 H/1, 42 H/2, 42 A/15, 42 A/16
ODM-GSC Aeromagnetic Maps 2337G, 2338G, 2355G, 2356G
ODM Geological Compilation Series Maps 2046, 2161
GSC Surficial Geology Map 46-1959

Scale: 1 inch to 1/4 mile

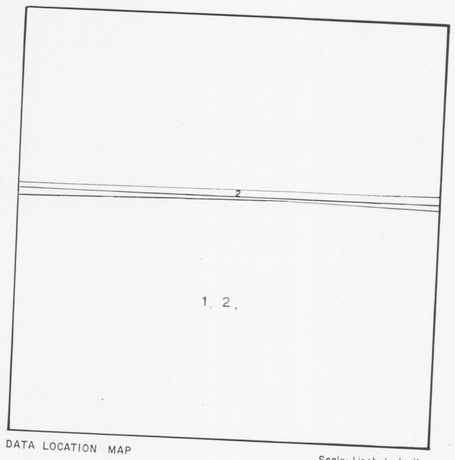
DATA FILED WITH THE ONTARIO DEPARTMENT OF MINES AND NORTHERN AFFAIRS RESIDENT GEOLOGIST AT KIRKLAND LAKE

Through February 1972

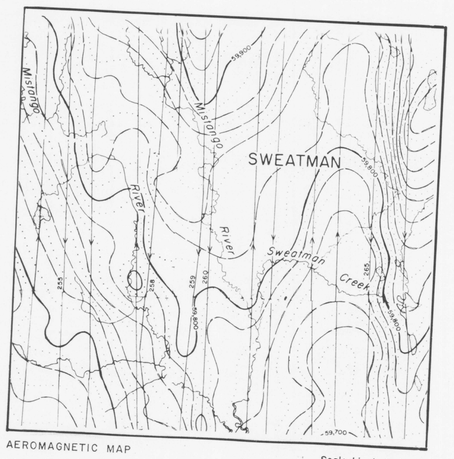
		GEOLOGICAL	DIAMOND DRILLING	AIRBORNE MAGNETOMETER	AIRBORNE ELECTROMAGNETOMETER	GROUND MAGNETOMETER	VERTICAL LOOP ELECTROMAGNETOMETER	HORIZONTAL LOOP ELECTROMAGNETOMETER	TURAM ELECTROMAGNETOMETER	JEM	INDUCED POLARIZATION	VLF	RESISTIVITY	GRAVITY	GEOCHEMICAL	OTHERS
1.	Glen Lake Silver Mines Ltd.			63												
2.	North American Rare Metals Ltd.				62*											

* Quote from file "The electromagnetic and airborne magnetic survey indicates an unusually large number of anomalies no attempt has been made to classify the electromagnetic anomalies"

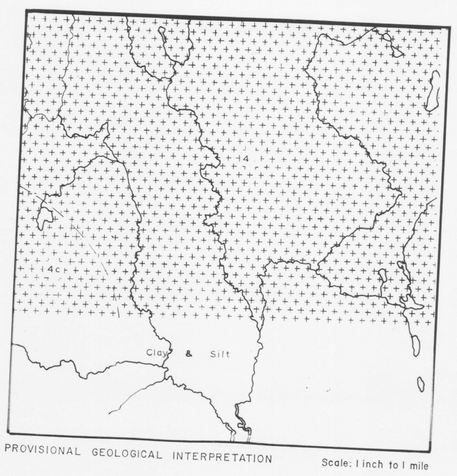
Note: The numbers on the above list stand for the year when the work was done, e.g., 66 for 1966. On the accompanying DATA LOCATION MAP, only areas for which work was submitted to the Department are outlined, and thus a company may hold more ground than indicated here. The numbers on the DATA LOCATION MAP and any circled numbers refer to the company list above.



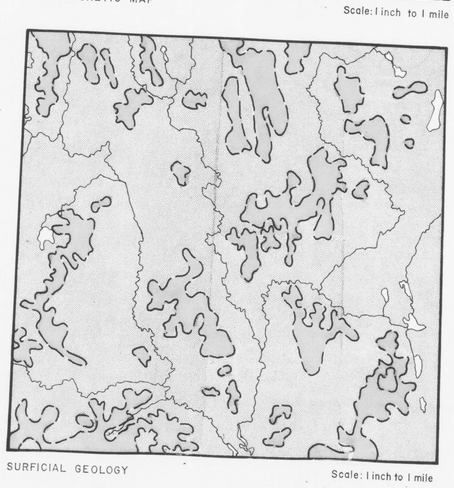
DATA LOCATION MAP — Scale: 1 inch to 1 mile



AEROMAGNETIC MAP — Scale: 1 inch to 1 mile



PROVISIONAL GEOLOGICAL INTERPRETATION — Scale: 1 inch to 1 mile



SURFICIAL GEOLOGY — Scale: 1 inch to 1 mile

OPEN FILE
104
JUN 1972
GEOLOGICAL SURVEY,
OTTAWA

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