McCOOL TOWNSHIP

DISTRICT OF COCHRANE, ONTARIO

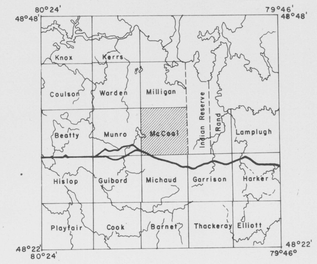


TABLE OF LITHOLOGICAL UNITS
KIRKLAND LAKE DATA SERIES

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 Kimberlite

INTRUSIVE CONTACT

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

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

UNCONFORMITY

PRECAMBRIAN
LATE PRECAMBRIAN (PROTEROZOIC)
MAFIC INTRUSIVE ROCKS[f]
14 Diabase dikes

INTRUSIVE CONTACT

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

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

INTRUSIVE CONTACT

COBALT GROUP
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 Diabase dikes

INTRUSIVE CONTACT

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

INTRUSIVE CONTACT

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

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

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

INTRUSIVE CONTACT

FELSIC METAVOLCANICS AND VOLCANICS[j]
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 Undifferentiated
2a Gabbro, diorite
2b Peridotite, dunite, pyroxenite, serpentinite

INTRUSIVE CONTACT

INTERMEDIATE AND MAFIC METAVOLCANICS[d,j]
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 Halleyburian
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.
- 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.
- Shaft; depth in feet.
- Mineral occurrence at surface.
- Airborne electromagnetic anomaly (Canadian Aero System).
- Airborne electromagnetic anomaly (Questor 6 Channel Input System).
- 2 channel response.
- 3 channel response.
- 4 channel response.
- 5 channel response.
- 6 channel response and coincident magnetic anomaly.
- Airborne magnetometer anomaly.
- Ground magnetometer anomaly.
- Ground electromagnetic conductor (VEM-Vert-loop; HEM-Horizontal loop; VLF-Very low freq.; Turam; JEM-Crone EM-16).
- Induced Polarization anomaly
- Spontaneous Polarization anomaly
- Gravity anomaly
- Radiometric anomaly
- Resistivity anomaly

METAL AND MINERAL REFERENCE

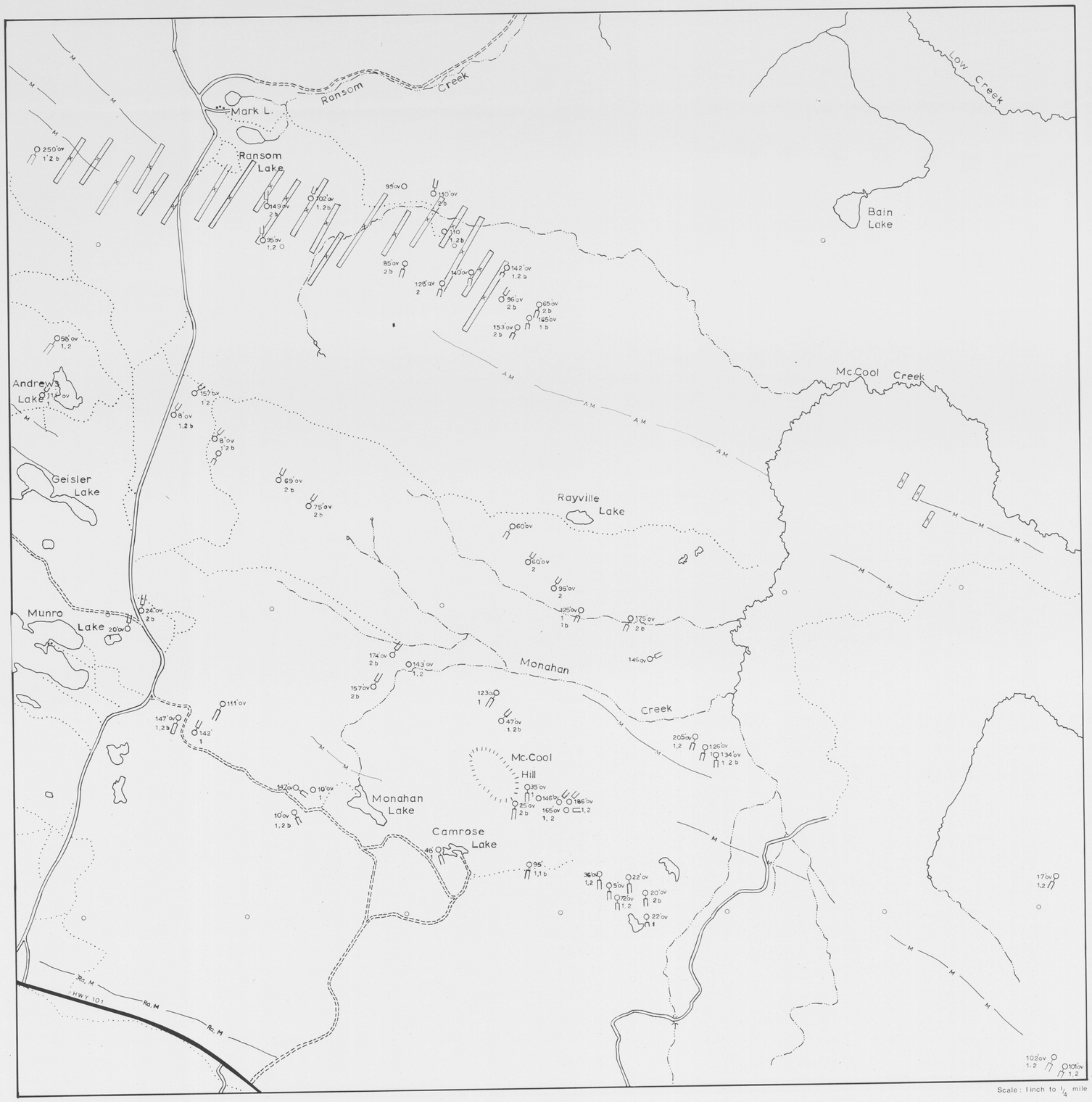
For Kirkland Lake Data Series

Ag ..... Silver
asb ..... Asbestos
Au ..... Gold
Cd ..... Cadmium
Co ..... Cobalt
cp ..... Chalcopyrite
Cr ..... Chromium
Cu ..... Copper
ep ..... Epidote
Fe ..... Iron
fl ..... Fluorite
gf ..... Graphite
gn ..... Galena
mag ..... Magnetite
mar ..... Marcasite
ml ..... Millerite
mo ..... Molybdenite
Ni ..... Nickel
Pb ..... Lead
Pd ..... Palladium
pent ..... Pentlandite
po ..... Pyrrhotite
Pt ..... Platinum
py ..... Pyrite
qcv ..... Quartz-carbonate vein
qv ..... Quartz vein
serp ..... Serpentine
sp ..... Sphalerite
spec ..... Specularite
talc ..... Talc
Sn ..... Tin
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 A/9
ODM-GSC Aeromagnetic Map 2960 (rev.)
ODM Geological Compilation Series Map 2046
ODM Annual Report, vol. 61, Pt. 5, 1952
GSC Surficial Geology Map 46-1959



Scale: 1 inch to 1/4 mile

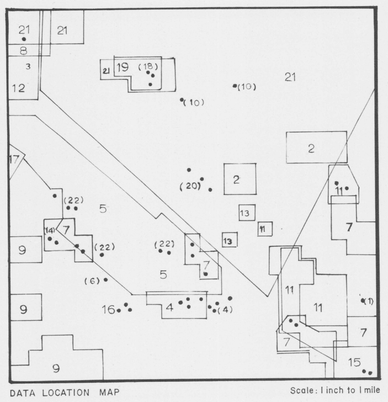
DATA FILED WITH THE
ONTARIO DEPARTMENT OF MINES
AND NORTHERN AFFAIRS
RESIDENT GEOLOGIST
AT KIRKLAND LAKE
Through April 30, 1972

		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.	Area Mines Ltd.		63													
2.	Arrow Timber Company					50										
3.	**Betts Mining Syndicate Ltd.**		54			54										
4.	Camrose Gold & Metal Mining Co.		51													
5.	Canadian Johns-Manville Co. Ltd. "Bird, S.J. Property"		50													
6.	Canadian Johns-Manville Co. Ltd. "Harris property"		50													
7.	Canadian Johns-Manville Co. Ltd. "McCool"		61													
8.	Canadian Johns-Manville Co. Ltd. "McCool-Munro"	49	50													
9.	Consolidated Ranwick Uranium			54												
10.	Desjardins Mines Ltd.		61													
11.	Dominion Gulf-Asbestos Corp. "Group II"		63													
12.	Flagro Mines Ltd.					52										
13.	Grey, A.J.B.		51			54										
14.	International Nickel Co. of Canada, Ltd., The		63													
15.	Kruk, T.		52			52										
16.	Lariat Exploration & Development Ltd.		53													63*
17.	**Leitch Gold Mines Ltd.**					64										
18.	Mid North Engineering Services Ltd.		63													71**
19.	Northwest Canalask Nickel Mines Ltd.															
20.	Rayville Matheson Asbestos		51													
21.	Union Carbide Explorations Ltd.			64	64											
22.	Young Davidson Mines Ltd.	#	61,63													

* Electromagnetic survey not defined as to type

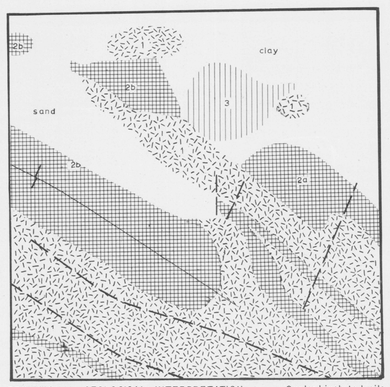
** Prospectus only

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.

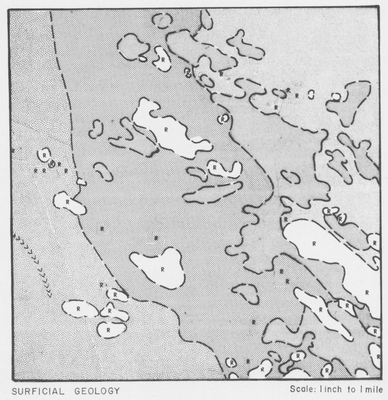


DATA LOCATION MAP — Scale: 1 inch to 1 mile

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