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EVALUATION OF THE EXPLORATION OF THE SINK CLAIM GROUP

ANVIL DISTRICT, YUKON TERRITORY

by:

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SUMMARY

An airborne magnetometer anomaly was covered with 47 SINK claims by Anvil Mining Corporation Limited in 1972. Subsequently, geological, geochemical, and geophysical surveys were conducted to determine if near surface massive sulfides were associated with the magnetic anomaly.

All the exploration work to date suggest that no massive sulfide deposits are located within the top 500 feet of the surface. The magnetic anomaly are believed to be caused by magnetite in an amphibolite.

The SINK claims should be allowed to lapse.

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INTRODUCTION

Fourty — seven full and fractional mineral claims were staked in 1972 to cover an airborne magnetometer detected anomaly which is similar to those found spatially closely associated with the SWIM and Swim Lake sulfide deposits. These are located to the south and east of the staked anomaly.

An airborne electromagnetic survey over the SINK claims indicated several conductor zones in the area of the magnetic anomaly.

A soil geochemical survey conducted in 1972 revealed no zones of anomalous base metals in soils from the SINK claims.

A ground magnetometer survey conducted in 1973 located the position of the source causing the AMAG anomaly. A Turam survey of the SINK claims revealed four broad zones of conductors. These were not directly related to the AMAG anomaly. A gravity survey was selected to check for potential mass concentrations with the conductor zones.

The surface geology of the SINK claims was mapped in 1972. Only limited outcrop was found. Both amphibolites and phyllites are present on the claims, but none was mapped in the area of anomalous magnetics or conductors.

All the available exploration data are compiled on and shown on Figure I.

Location and Access:

The SINK mineral claims are located about 16 miles southeast of the Anvil minesite, 2 miles northeast of the SWIM sulfide deposit, and 1.5 miles north of Swim Lake. The location of the claims is shown on Figure 2.

The SINK claims can be reached by foot or tracked vehicle from Swim Lake, to which access can be gained by roads and bulldozer trails constructed during previous exploration seasons. The junction of the main road to Swim Lake near Blind Creek is one mile northeast from the old Pelly River ferry crossing.

A clearing was cut in 1972 to allow access by helicopter to the central part of the SINK claim group.

GEOLOGY

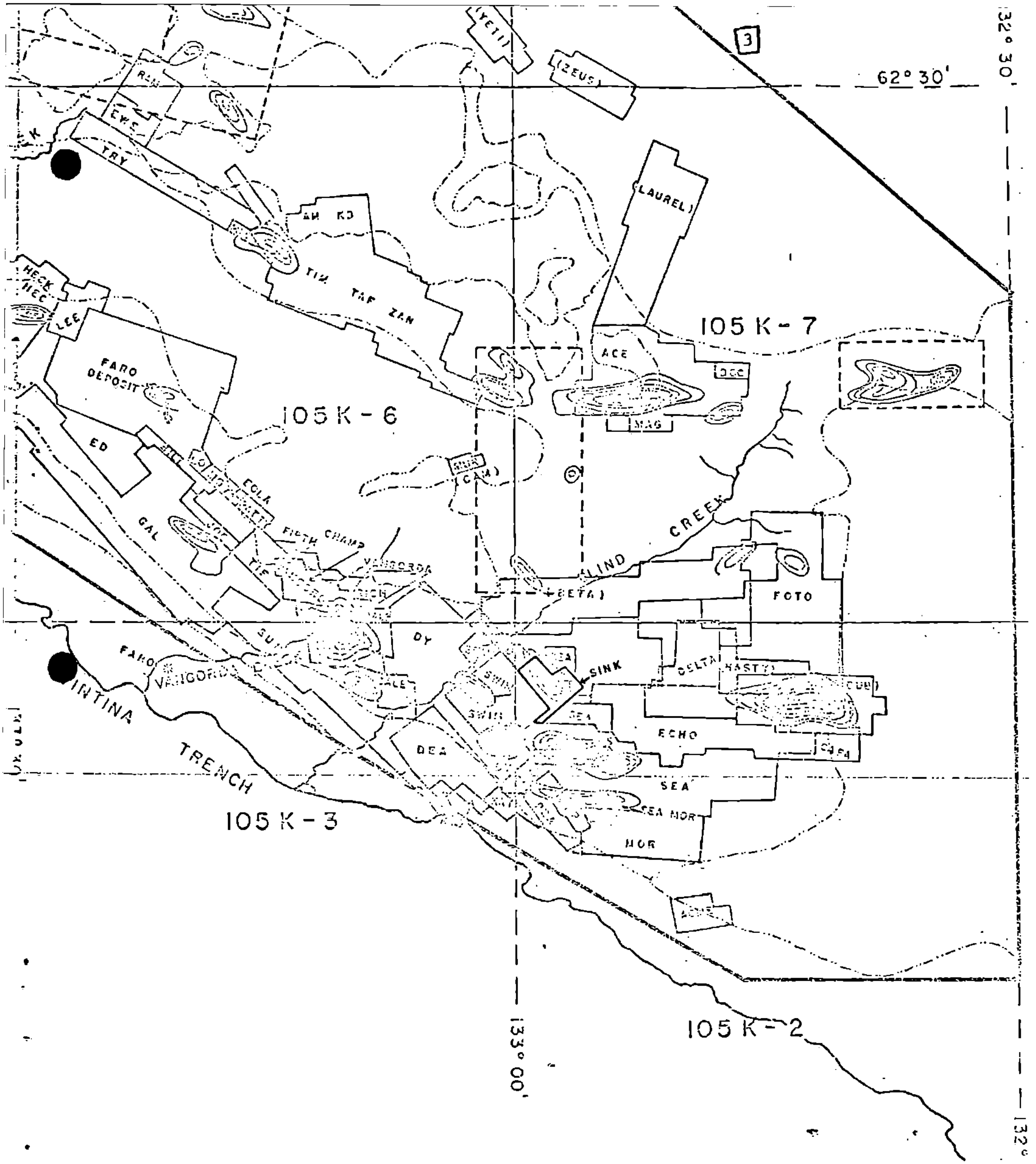
The surface geology of the SINK claims was mapped by Anvil Mining Corporation Ltd. personnel in 1972. Rock outcrop in the area is very sparse (about 1 to 2%) and found only in the eastern third of the claim area. The largest outcrop is a metabasite and the associated banded chloritic tuff. Small areas of biotite-muscovite phyllite were exposed along a bulldozer cut geophysics grid. The sparse, but wide, distribution of outcrop precludes the construction of a reliable geological interpretation for the SINK claims.

GEOPHYSICAL SURVEYS

Airborne Magnetic Survey:

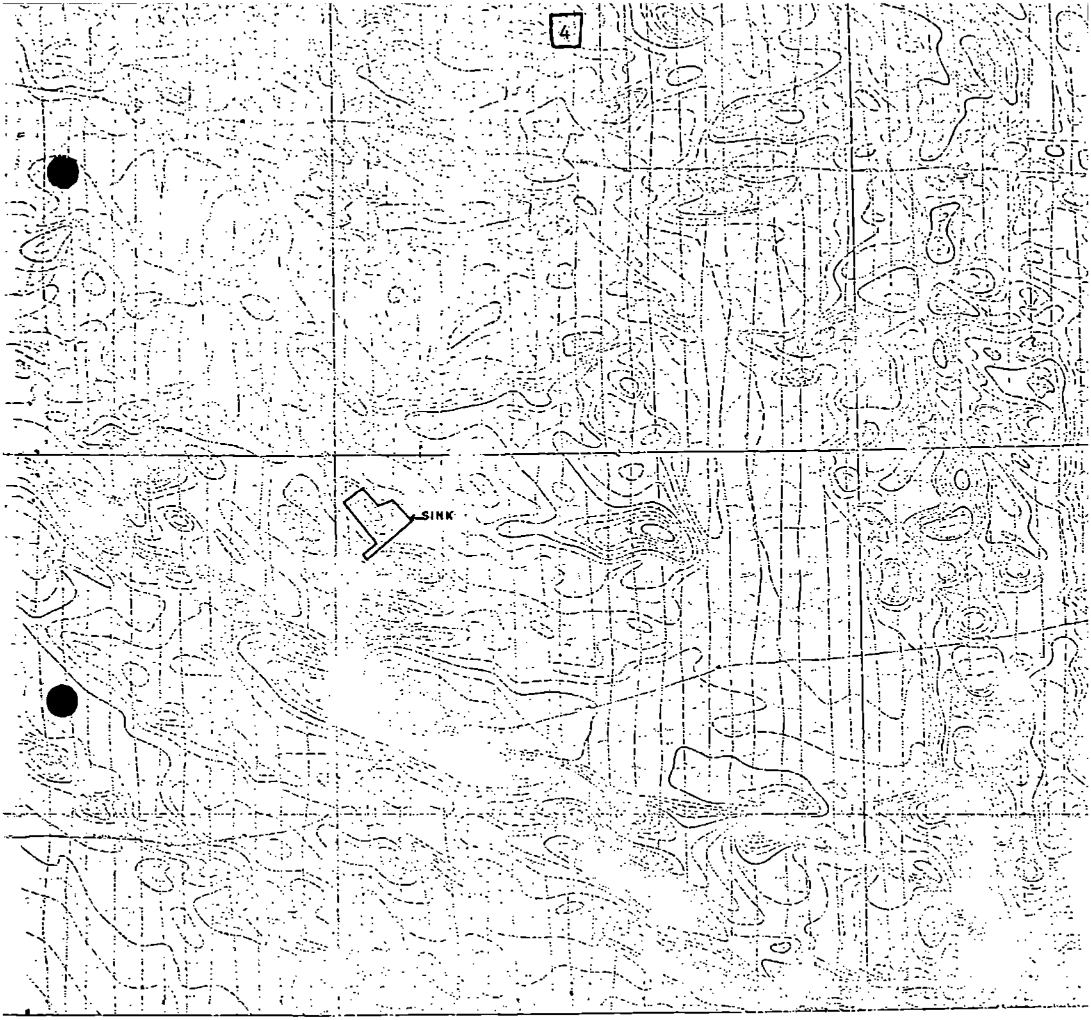
Airborne magnetometer surveys of the SINK claim area have been conducted by the Federal Government (Map 7839 G, Figure 3) and by Kerr Addison Mines Limited.

The Federal Government's magnetometer survey of the Swim Lake area and Anvil Range indicates a good correlation between some of the known positive magnetic anomalies and massive sulfide deposits, such as at Vangorda and Swim Lake, but other magnetic anomalies are related to magnetite bearing amphibolites. One of the anomalies, of 80 intensity, in an area inferred to be underlain by phyllites, had not been staked in 1972. This anomaly was staked by Anvil as the SINK claim group.



Location of Claim Groups and Airborne Magnetic Anomalies, Anvil District
Yukon Territory

Figure 2



Airborne Magnetometer Survey
Anvil Range Area, Yukon Territory

Figure 3

The Kerr Addison Mines Limited airborne magnetometer survey, flown in about 1963, did not indicate any magnetic anomalies in this area. (This Kerr Addison survey was instrumental in leading to the discovery of the SWIM base metal sulfide deposit and the sulfide deposits in the east arm of Swim Lake).

Airborne Electromagnetic Survey:

A Lockwood 4,000 Hz in-phase/out-of-phase airborne electromagnetic survey was conducted in 1965 over the area covered by the SINK claims (Figure 4).

This survey detected three zones of anomalous conductors. These are referred to as the eastern, central and western zones:

1) Eastern Zone:

   6000 foot by 4500 foot east-west trend, four approximately 1000 foot wide parallel east-west trending conductors defined within the broad zone. The maximum amplitude of the in-phase response of the primary field is 10 ppm and the maximum measured in-phase to out-of-phase ratio is 5.9, but the most common range is between 1.0 and 2.5. The presence of moderate conductors is indicated.

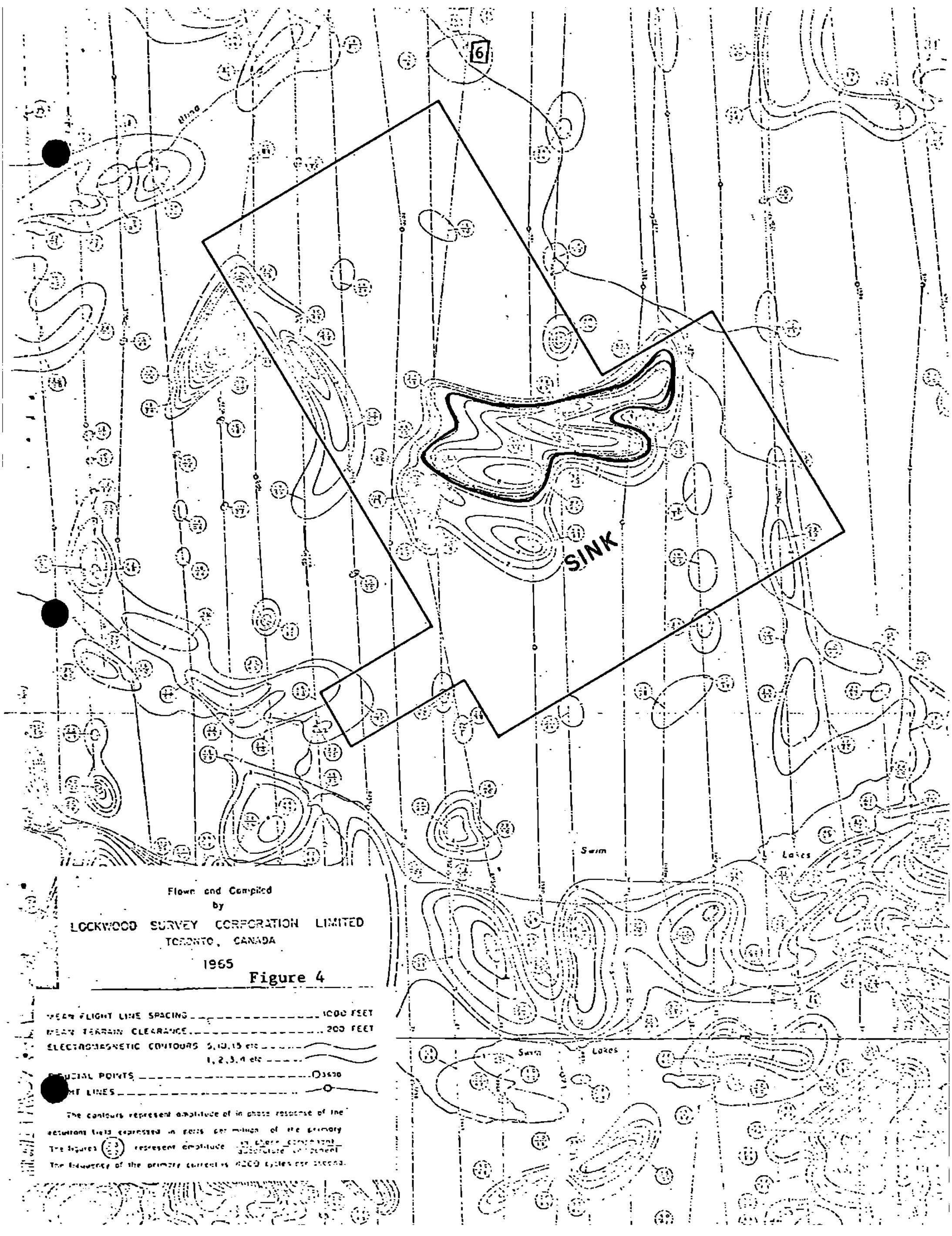
2) Central Zone:

   4500 Foot by 1000 Foot, long, narrow zone with essentially north-south trend; maximum in-phase response of the primary field is 5 ppm, a maximum in-phase to out-of-phase ratio of 1.5. Electromagnetic responses are suggestive of poor conductors.

3) Western Zone:

   2300 foot by 1500 foot north-south trend; maximum in-phase response of the primary is 19 ppm, the maximum in-phase to out-of-phase ratio is 2.0. Electromagnetic responses are suggestive of underlying moderate conductors.

The Lockwood EM survey was also flown over the known massive sulfide deposits in the Anvil Range. None of the deposits could be distinguished from the high conductive background in the vicinity of the sulfide deposits, which suggests a close spatial relationship between graphitic rock units and sulfide deposits.



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SINK
Swim
Lakes
Swim
Lakes
Flown and Compiled
by
LOCKWOOD SURVEY CORPORATION LIMITED
TORONTO, CANADA
1965
MEAN FLIGHT LINE SPACING 1000 FEET
MEAN TERRAIN CLEARANCE 200 FEET
ELECTROMAGNETIC CONTOURS 5,10,15 etc
1,2,3,4 etc
FIDUCIAL POINTS
FLIGHT LINES

Figure 4

Turam Electromagnetic Survey:

A Turam survey was conducted on the SINK claims in 1972 by Peter E. Walcott and Associates, for Anvil Mining Corporation Limited. This survey was conducted at 100 foot stations on lines spaced 800 feet apart. A 400 Hz primary field and 100 foot coil separations were used.

The overall trend of all the detected Turam conductors combined is east-west, but within this general trend four smaller, cross trends can be distinguished. The general trend of these sub-zones is to the southeast. Within these sub-zones several parallel bands of conductors can be identified. Variable conductivities can be defined for these parallel conductors. The gross trend of these to the southwest parallels the inferred strike of the rock units in this area.

Within the 'background' electromagnetic responses areas of different underlying rock units can be inferred. Most of the area, except for the broad east-west conductors shows low electromagnetic susceptibility. By comparing these electromagnetic response characteristics to response characteristics in areas where the underlying rock units are well known, it is inferred that most of the area is underlain by chlorite and biotite phyllites and in part by amphibolite.

Gravity Survey:

Four gravity profiles were obtained for parts of anomalous conductors to determine if any zones of associated mass concentrations are present. These Bouguer gravity profiles had smooth slopes of the regional gradient and no suggestion of anomalous mass concentrations were found.

Ground Magnetometer Survey:

A ground magnetometer survey was conducted in 1973 over approximately the western half of the SINK geophysics grid to locate the aeromagnetic anomaly and explore the conductor zones. The variations in the earth's total vertical magnetic field were measured using a McPhar M700 fluxgate magnetometer.

This survey, though highly variable in the station to station readings, could be used to locate the anomaly first indicated by the airborne magnetometer survey.

An 80 gamma anomaly was coincident with a zone of no electromagnetic conductor response. The observed electrical response characteristics had been interpreted previously as indicating an underlying amphibolite rock unit.

The main zone of high magnetic response is to the south of the Turam indicated conductor anomalies. Therefore, near surface large magnetic conductive (sulfide) deposits are not indicated on the SINK claims.

GEOCHEMICAL SURVEY

A soil geochemical survey was conducted on the SINK claims in 1972. The 'B' horizon soil samples were collected for chemical analysis on 400 foot sample stations on lines spaced 1200 feet apart. The total copper, lead and zinc content in these samples was determined by a commercial laboratory (Warnock-hersey Ltd., Vancouver).

The average metal content in soil samples from the Swim Lake area had been determined as 26 ppm Cu, 16 ppm Pb and 70 ppm Zn for a large number of samples. Metal content in samples greater than two times the arithmetic average was defined as anomalously high. Samples with anomalous metal content were grouped by contouring isochemical values with intervals at 2, 3, 4 etc. times the average metal content. While lead anomalies are generally broad and extensive, the copper and zinc anomalies are one station 'high' values.

Recalculation of the average metal content in only the SINK claims soil samples indicates that the metal content in these is significantly higher in lead and the copper and zinc are similar to the overall Swim Lake samples. The average metal contents of the SINK soil samples is 20 ppm Cu, 30 ppm Pb and 58 ppm Zn.

With these values, four scattered and widely separated samples contain high (more than 2 times the average) lead. The copper and zinc content in the samples also suggests a scattered random distribution of samples with anomalous metal content. The samples with high metal values cannot be grouped readily to indicate zones of anomalous soil geochemical values that might be related to a large base metal deposit.

Two samples, each at opposing ends of the claim block, have anomalous contents of copper, lead and zinc. One sample located near the center of the claim area contains anomalous copper and zinc and four soil samples with higher than two times the copper content. This zone of high copper and copper and zinc geochemical samples is near the peak of the airborne magnetic anomaly which lead to the staking of the SINK claims. Zones with high copper and specially high copper combined with high zinc are frequently related to amphibolites and other meta-volcanic rocks elsewhere in the district.

The source of the metals for soils with high copper, lead and zinc is not known.

The soil geochemical survey indicates that the overall background metal contents are higher, especially in lead, for the SINK claim samples than for the rest of the sampled Swim Lake area. Within this zone of higher background, significant size anomalies are not found that might be related to near surface base metal deposits.

INTERPRETATION OF RESULTS AND RECOMMENDATION

Airborne magnetometer survey data published by the Federal Government lead to the staking of the SINK claims. This magnetic anomaly was pinpointed on the claims by a ground magnetometer survey.

The soil geochemical surveys indicated a general copper-zinc anomaly to be related to the magnetic anomaly.

The Turam electromagnetic survey located four bands of conductors, but none was related to the magnetic anomaly. In the area of the magnetic anomaly, no electromagnetic conductors were found. The electromagnetic results in the area of the magnetic anomaly were similar to that of amphibolite in other areas of the district.

Questionable reliability!

Gravity and ground magnetometer surveys were used to explore electromagnetic conductors. Zones of coinciding anomalies were not found.

The magnetic anomaly on which the claims were staked is believed to be caused by magnetite in amphibolite.

The exploration data do not suggest the presence of economically significant base metal sulfide deposit.

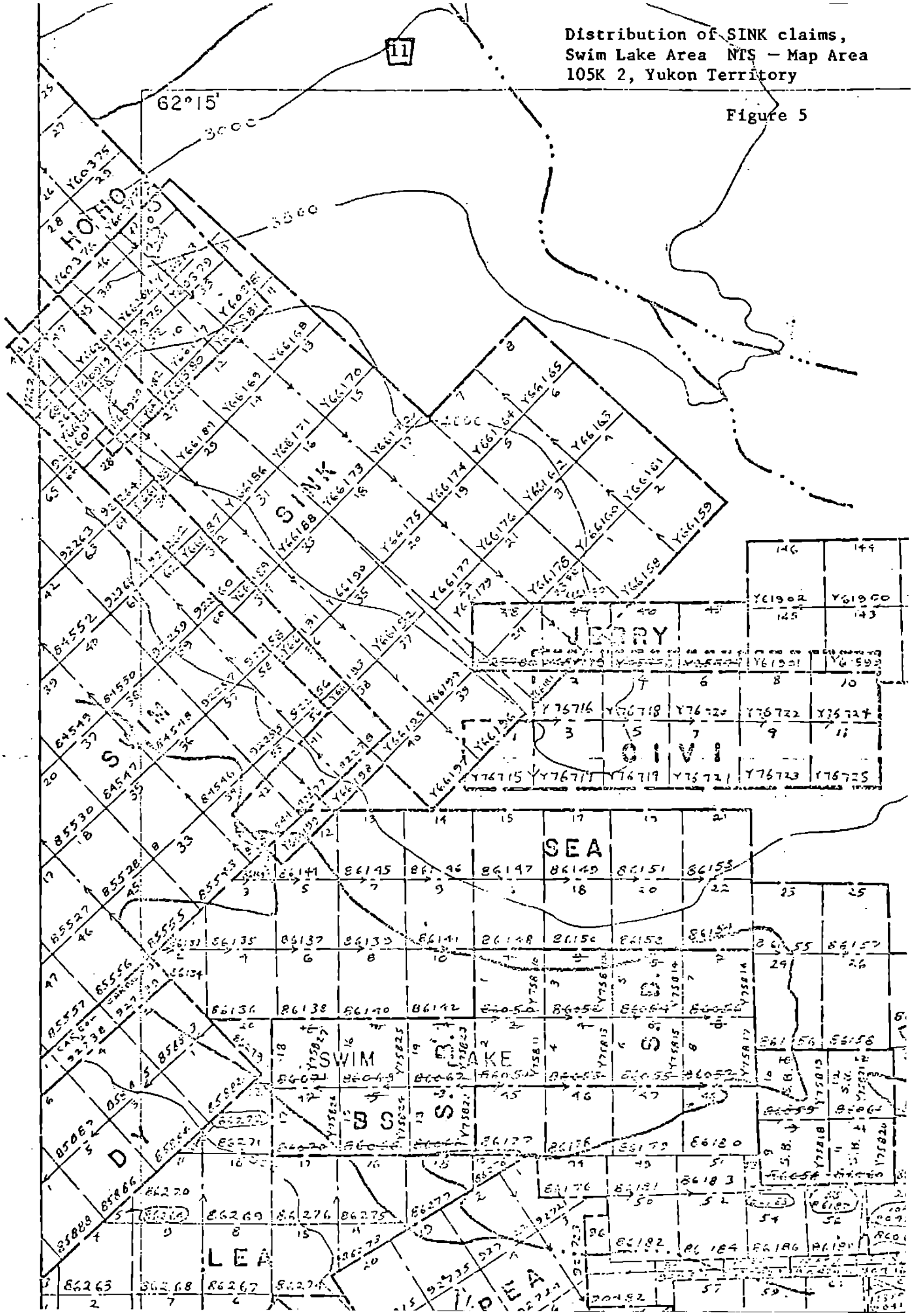
Worthwhile drill targets cannot be extracted from the exploration data.

The SINK claims should be allowed to lapse.

PROPERTY STATUS

SINK claims 1 – 29, and 43 – 47 are in good standing to May 2, 1974. SINK claims 30 – 42 are in good standing until May 2, 1973. A list of the SINK claims, their grant numbers, and their expiry date is persecuted in Appendix A.

The spatial distribution of the SINK claims is shown on Figure 5.



Distribution of SINK claims, Swim Lake Area NTS — Map Area 105K 2, Yukon Territory

Figure 5

APPENDIX "A"

S I N K

May 2, 1973

CLAIMS	GRANT NUMBER	1974	1975	1976	1977
SINK 1	Y 66158	May 2			
2	Y 66159	May 2			
3	Y 66160	May 2			
4	Y 66161	May 2			
5	Y 66162	May 2			
6	Y 66163	May 2			
7	Y 66164	May 2			
8	Y 66165	May 2			
9	Y 66166	May 2			
10	Y 66167	May 2			
11	Y 66168	May 2			
12	Y 66169	May 2			
13	Y 66170	May 2			
14	Y 66171	May 2			
15	Y 66172	May 2			
16	Y 66173	May 2			
17	Y 66174	May 2			
18	Y 66175	May 2			
19	Y 66176	May 2			
20	Y 66177	May 2			
21	Y 66178	May 2			
22 (Fr.)	Y 66179	May 2			
23 (Fr.)	Y 66180	May 2			
24 (Fr.)	Y 66181	May 2			
25	Y 66182	May 2			
26	Y 66183	May 2			
27	Y 66184	May 2			
28	Y 66185	May 2			
29	Y 66186	May 2			
30	Y 66187		May 2		
31	Y 66188		May 2		
32	Y 66189		May 2		
33	Y 66190		May 2		
34	Y 66191		May 2		
35	Y 66192		May 2		
36	Y 66193		May 2		
37	Y 66194		May 2		
38	Y 66195		May 2		
39	Y 66196		May 2		
40	Y 66197		May 2		
SINK 41	Y 66198		May 2		
42	Y 66199		May 2		
43 (Fr.)	Y 66204	May 2			
44	Y 66200	May 2			
45	Y 66201	May 2			
46	Y 66202	May 2			
47	Y 66203	May 2			