

SUMMARY OF 1975  
EXPLORATION WORK -  
ANVIL PROJECT

By: U. Jansons

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CYPRUS ANVIL MINING CORPORATION

EXPLORATION REPORT  
ANVIL PROJECT

The 1975 exploration work on the Anvil Project can be divided into three areas of interest. These are:

1. Swim Lake area,
2. Grum-Vangorda area,
3. Faro Claim area.

The bulk of this work was diamond drilling, followed by geophysics and geology.

Two new zones of sulfide mineralization on Cyprus Anvil controlled ground were discovered - one under Swim Lake and one on the Tie claims. The Faro sulfide zone was shown to extend downdip for at least 1,600 feet, probably as one continuous mineralized sheet.

Electromagnetic, magnetic, and gravity surveys were conducted in selected areas on the Gal and Ed claims. Turam electromagnetic and ground magnetometer surveys were conducted to provide this type of information for most of Cyprus Anvil's claim holdings on the southwest side of the Anvil Range. On the Faro claims, Turam electromagnetic, ground magnetic, and gravity surveys were completed on the West Faro extension grid to the northwest of the Faro ore zones. On the Tie claims, a gravity survey on the 1966 grid evaluated magnetic and conductor anomalies previously delineated. On the SB and Sea claims, a ground magnetometer survey was completed to cover Swim Lake. On the Rich claims, a short gravity survey explored for potential massive sulfides associated with a Turam electromagnetic anomaly.

Induced potential test surveys were conducted on the Faro ore body and Faro claims.

#### DIAMOND DRILLING

Eighteen diamond drill holes, totalling 22,045 feet, were drilled by Exploration on the Anvil claims on the Anvil Project in the Anvil District, Yukon Territory. Five drill holes were completed in the Swim Lake area, defined as all Cyprus Anvil held ground to the southeast of Blind Creek. Four holes were drilled in the Vangorda area, defined as ground from the Anvil Mine Road - Mye Creek, southeast to Blind Creek. Nine holes were drilled in the Faro area, defined as the ground from Next Creek southeast to the Anvil Mine road at the Vangorda turnoff. In addition to these holes, Exploration also participated in Engineering Holes 75-10 and 75-11 at the mine with the Mine Engineering Department, to test for repetition of the Faro sulfide horizon at depth. The costs of drilling more than 50 feet past the sulfides were paid by Exploration.

In the Swim Lake area, significant zones of sulfide mineralization (mainly pyrite and pyrrhotite) were encountered in three holes; a fourth hole was abandoned before reaching the sulfide horizon and the fifth hole at the east end of the Sea claim block was barren of sulfides. In the Vangorda area, three holes intersected extensions of the Grum horizons on Cyprus Anvil controlled ground, and the fourth, an assessment hole, was located on the Dy claims to resolve geology and geophysical interpretation problems. In the Faro area, two holes intersected downdip projections of the Faro sulfides, three were spotted on minor geophysical targets, and three were part of a fence of the deep drill test program for the downdip projection of the Faro sulfide horizon.

The drill hole data are summarized in Table No. 1.

TABLE 1  
 1975 DIAMOND DRILL HOLE SUMMARY  
 ANVIL DISTRICT, YUKON TERRITORY

Hole	Location	Grid	Footage	Claim	Notes
456-75-01	12S 92E	Swim Lake	1,039	SB 4	50' H <sub>2</sub> O; sulfides 825-908'.
456-75-02	9S 76E	Swim Lake	442	SB 2	162' H <sub>2</sub> O; Stuck - lost hole.
456-75-03	2N 56E	Swim Lake	1,189	SEA 10	176' H <sub>2</sub> O; sulfides 935-1,011'.
456-75-04	4S 76E	Swim Lake	925	SB 1/SB 2	Sulfides 802-925'.
456-75-05	7+50N 258E	East Sea Turam	400	SEA 164	Assessment hole. 182' overburden. Schist.
456-65-06	14N 72W	AEX (Extended) on Doal Lake	516	RICH 36	Lost hole. Intercepted updip projection of Grum sulfides.
456-75-07	12N 72W	AEX (Extended) on Doal Lake	946	RICH 36	Updip projection Grum sulfide sections. Batholith at 910'.
456-75-08	21S 48E	Gale-Dy	757	DY 185	Assessment hole. All uniform carbonate chlorite sericite phyllite.
456-75-09	1N 116W	AEX Grid	1,720	TIE 23	Test of down plunge projection of Grum deposit. Intercepted top of sulfides at 1,429'.
456-75-10	6W 32S	Bill, Lo, Joe	957	GAL 71	Gravity EM target. Graphite.
456-75-11	13E 8N 859.29S 14,756.26E 3,656.56 277,954.77 22,683 409.10	Bill, Lo, Joe Anvil Mine Co-ords. T.P.C.	1,486	FARO 58	Strat. test, downdip from Faro No. 2. Graphite 540-570'. No massive sulfides.
5 456-75-12	7,607.80N 12,638.88E 3,959.67 Elev.	Anvil Mine Co-ords.	2,406	FARO 68	Strat. test, downdip from Faro No. 3. Geol. Sec. 118.

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<u>Hole</u>	<u>Location</u>	<u>Grid</u>	<u>Footage</u>	<u>Claim</u>	<u>Notes</u>
456-75-13	5,867.04N 11,096.62E	Anvil Mine Co-ords.	2,632	BILL 38	Strat. test, downdip from Faro No. 3. Geol. Section 118.
456-74-14	4,523.86N 9,586.04E 3,728.75 Elev.	Anvil Mine Co-ords.	2,417	BILL 37	Strat. test, downdip from Faro No. 3. Geol. Sec. 118. 0 - 1,459 NQ.
456-75-15	6,790.65N 14,397.24E 3,728.8 Elev.	Anvil Mine	821	FARO 66	IP test, downdip from Faro No. 3. Sulfides.
456-75-16	9,207.92N, 12,011.78E 4,206.48 Elev.	Anvil Mine	1,207	FARO 45	Strat. test, downdip from Faro No. 1. No sulfides.
456-75-17	Unsurveyed. 19+50 on BL cut in 1975	Anvil Mine.	777	FARO 62	Down plunge from Faro zones. 2,000' from Faro No. 2.
456-75-18	7,603.0N, 13,966E	Anvil Mine	1,410	FARO 66	Sulfide test between Faro No. 3 and sulfides in 71 DS 1 -60° hole. Sulfides 721-77.
<u>DIRECT EXPLORATION DRILLING</u>			22,045		
75-10	9,302.37N 15,100.79E	Anvil Mine	957	FARO	Engineering hole through Faro orebody. Lost, move to 75-11.
75-11	6+50N 59+00W 8,878.29N 14,097.03E	Faro Grid Anvil Mine	2,159	FARO	Engineering hole through Faro orebody. Lost at 2,159. Exploration account 625-2,159.
<u>TOTAL (Exploration plus Engineering)</u>			25,161		

Summaries for the drill holes are given below.

Hole 456-75-1, at 92E, 12S, Swim Lake Grid, was drilled to 1,039' and encountered:

0 -	50	Water.
50 -	165	Lake bottom sediments.
165 -	414	Chlorite sericite graphite quartz phyllite. /
414 -	497	Chlorite sericite quartz phyllite.
497 -	504	Quartzite.
504 -	660	Chlorite sericite quartz phyllite.
660 -	678	Graphitic sericite chlorite quartz phyllite.
678 -	825	Chlorite sericite quartz phyllite - minor graphite.
825 -	1,039	Sericite chlorite quartz phyllite; 20% <u>sulfide mineralization</u> 825 - 912'.

Hole 456-75-2, at 9S, 76E of Swim Lake Grid, was drilled to 442' and encountered:

0 -	162	Water.
162 -	178	Lake bottom sediments.
178 -	335	Sericite chlorite graphite carbonate phyllite. Minor galena.
335 -	363	Medium grey, carbonate rich, phyllite.
363 -	378	Sericite chlorite graphite quartz phyllite.
378 -	395	Quartzite, with minor chlorite.
395 -	442	Sericite chlorite graphite quartz phyllite.

10 - 15% total sulfides 378.5 - 419' with minor galena and sphalerite.

Hole lost and drill moved to 456-75-4 site.

Hole 456-75-3, at 2N, 56E of the Swim Lake Grid, was drilled to 1,189' and encountered:

0 - 176	Water.
176 - 227	Lake bottom sediments.
227 - 663	Chlorite sericite quartz phyllite.
663 - 688	Graphitic chlorite sericite quartz phyllite.
688 - 813	Chlorite sericite quartz phyllite.
813 - 878	Quartz chlorite sericite phyllite.
878 - 926	Chlorite sericite quartz phyllite.
926 - 1,030	Quartz chlorite sericite quartz phyllite.
1,030 - 1,087	Chlorite sericite quartz phyllite.
1,087 - 1,151	Diorite dike.
1,151 - 1,189	Chlorite sericite quartz phyllite.

Main mineralized (mainly pyrite and pyrrhotite) intervals 624.6 - 648';  
838 - 876.9'; 925.5 - 1,030'.

Hole 456-75-4, at 4S, 76E on the Swim Lake grid, was drilled to 925' and encountered:

0 - 150	Water.
150 - 230	Lake bottom sediments.
230 - 282	Sericite chlorite phyllite.
282 - 289	Quartzite-quartzitic phyllite.
289 - 356	Sericite chlorite quartz phyllite.
356 - 369	Quartzite.
369 - 637	Sericite chlorite phyllite, with minor graphite.
637 - 802.3	Sericite chlorite quartz phyllite.

802.3 - 923        Quartzite with minor bleached chlorite sericite  
                         phyllite.

923    - 925        Chlorite graphite quartz phyllite.

Main mineralized (pyrite and pyrrhotite) 802.2 - 925'.

May have been terminated prematurely.

Hole 456-75-5, at 37+50N, 258+00E on the East Sea Turam grid, was drilled to test the bedrock at a site with high zinc in overburden and also for assessment requirements. This hole encountered:

0 - 176        Overburden.  
176 - 400      Chlorite biotite quartz schist.

Hole 456-75-6, at 14N, 72W on an extension of the AEX grid, was drilled to test for the updip projection of the Grum horizon onto Cyprus Anvil's Rich claims. This hole encountered:

0 - 121        Doal Lake water and overburden.  
121 - 516      Various chlorite sericite biotite quartz graphite  
                         phyllites.

Minor sulfide mineralization was present at 251 - 267', 324 - 422', 433 - 463'.  
Hole lost and drill moved to 456-75-7 site.

Hole 456-75-7, at 12N, 72W of the AEX grid, was drilled to 946' to test for the updip projection of the Grum horizon onto Cyprus Anvil's Rich claims.  
This hole encountered:

0    -    3        Doal Lake water.  
3    - 62      Lake bottom sediments and overburden.

62	- 112	Sericite carbonate phyllites.
112	- 300	Sericite graphite quartz phyllites.
300	- 321.5	Quartzite with sericite and micas. <u>Mineralized.</u>
321.5	- 675	Various sericite chlorite graphite quartz phyllites.
675	- 730	Biotite (brown mica) chlorite carbonate phyllite.
730	- 762	Various sericite and sericite graphite phyllites; fault brecciated, altered in part.
762	- 786	Sericite graphite quartz phyllite.
786	- 789	Diorite dike.
789	- 815	Chlorite schist to biotite chlorite schist.
815	- 862	Graphitic sericite phyllite.
862	- 912	Sericite chlorite biotite graphitic quartz phyllites.
912	- 946	Anvil batholith.

Mineralized sections at 296.5 - 321', 500 - 532.8'.

Hole 456-75-8, at 21S, 48+00E, Gale Dy Grid, was drilled to 757' for geology assessment requirements. This hole encountered:

0	- 6	Overburden.
6	- 15	Triconed.
15	- 757	Sericite chlorite carbonate phyllite.

Hole 456-75-9, at 1N, 116W of the AEX grid and on Tie No. 23 mineral claim, was terminated in the Anvil batholith at 1,720'. This hole encountered:

0	- 21	Overburden.
21	- 1,429	Sericite chlorite carbonate phyllite.

1,429 - 1,631 Mainly graphitic phyllite. Mineralized.  
1,631 - 1,720 Anvil batholith.

In mineralized section, short sections of massive sulfides and longer sections of banded ore are present. Best assays over longer intercepts are:

Banded Ore

1,431.3 - 1,436.5	5.1'	0.07% Cu	1.47% Pb	2.55% Zn
1,462.6 - 1,465.2	2.6'	0.04% Cu	1.89% Pb	2.69% Zn
1,469.2 - 1,474.4	5.2'	0.08% Cu	1.37% Pb	1.71% Zn

Massive Sulfides

1,459.25 - 1,460.25	1.0'	0.34% Cu	3.15% Pb	11.10% Zn
1,462.5 - 1,463.3	0.8'	0.04% Cu	1.50% Pb	1.78% Zn
1,464.0	1.1'	0.04% Cu	3.03% Pb	4.56% Zn

Hole 456-75-10 was drilled to 955', at 6W, 32S on the Bill Lo Joe grid on a coincident gravity/E-M target. This hole encountered:

0 - 10 Overburden.  
10 - 60 Graphitic phyllite.  
60 - 955 Biotite muscovite schist.

Hole 456-75-11, located at 13E, 8N of the 1966 Bill Lo Joe grid and Faro 58 mineral claim on a gravity anomaly. This hole encountered:

0 - 30 Overburden.  
30 - 540 Biotite muscovite schist.  
540 - 570 Graphitic schist.  
570 - 1,486 Biotite muscovite schist.

Hole 456-75-12 was drilled to 2,100' by June 25 and is designed to reach the Anvil batholith. To date, this hole has encountered:

- 0 - 91 Overburden.
- 91 - 535 Calc-silicate unit.
- 535 - 2,302 Biotite muscovite schist with late, acid dike appearing between 1,900 and 2,000'. These acid dikes have been encountered near the batholith contact in previous drilling in the mine area.
- 2,302 - 2,406 Dike.

Etch type dip tests indicate that the hole had deviated  $34^{\circ}$  from the vertical at the bottom but the direction of deviation is not known from measurements. The bottom of the hole has lateral off-set from the hole surface location by about 650'.

Hole 456-75-13, located below the mine dump near the load-out about 4,000' downdip from the Faro ore bodies, encountered:

- 0 - 29 Overburden.
- 29 - 865 Calc-silicate unit.
- 865 - 2,632 Biotite muscovite andalusite schist with several graphitic sections encountered between 1,100 - 1,390'.

The hole was abandoned at 2,632' due to caving ground conditions and slow progress. The section of the Faro ore zone had been passed and the depth of batholith was thought to be too deep to be reached with the set up on site.

The location of the graphitic section is in the approximate site of the downdip projection of graphitic rocks related to the Faro ore horizon. Only minor pyrrhotite and pyrite have been encountered to date. The bottom contact of the calc-silicate unit - schist unit was also encountered at the projected depth.

Hole 456-75-14, located on Pelly River Mines Bill 37 mineral claim located just to the east of the main mine townsite road, was terminated at 2,417 feet in the lower schist unit. The top 1,459' of hole were drilled NQ and, from there, completed BQ. The main rock units encountered were:

0 -	1	Phyllite.
1 -	562	Calc-silicate.
562 -	641	Diorite.
641 -	796	Carbonaceous schist.
796 -	953	Andalusite schist.
953 -	1,239	Schists and metabasites.
1,239 -	1,774	Graphitic schist with graphite content highly variable, occasional fills of minor metabasite units.
1,774 -	2,417	Schist.

Hole 456-75-15, located within the mine area between dumpsite hole 71 DS 1, which contained a 48' intersection of sulfides, and Faro #3 ore zone, was terminated at 821' after intersecting about 50' of sulfides. This hole was drilled in the mine area by the Exploration Department because of the reluctance of the Engineering Department to drill off the extensions of known sulfides from the Faro ore bodies.

This hole encountered:

0	-	9.5	Overburden.
9.5	-	436	Calc-silicate unit.
436	-	623	Andalusite schist.
623	-	647	Graphitic schist.
647	-	710	Andalusite schist.
710	-	716.5	Bleached schist with minor pyrite.
716.5	-	767	Sulfide section.
767	-	773	Bleached schist.
773	-	821	Andalusite schist.

The best mineralized section, from 722.5 - 767', averaged 0.10% Cu, 2.92% Pb and 5.03% Zn.

Hole 456-75-16, located near the mine overlook, was drilled to 1,207' with the down dip projection of sulfides from the Faro No. 1 ore body as a target. This hole was drilled in the mine area by the Exploration Department because of the reluctance of the Engineering Department to drill off the extensions of known sulfides from the Faro ore bodies.

This hole encountered:

0	-	72	Overburden.
72	-	469	Calc-silicate.
469	-	901	Andalusite schist.
901	-	1,207	Schist.

Hole 456-75-17, a vertical hole drilled to 777', was located 2,000' south-east of the Faro No. 2 ore body and is on the east bank of the North Fork

of Rose Creek. The position of this drill hole will be surveyed to obtain an exact location. This hole was located to test the down plunge projection of the Faro mineralized horizon. This hole encountered:

- 0 - 51 Overburden.
- 51 - 653 Schist. Highly altered and brecciated 162 - 210' (fault zone). Bleached schist to 425'. Skarn 501 - 607.5'.
- 653 - 777 Bleached diorite dike (?).

This hole must be in a large fault zone. The bleaching is probably a product of weathering along the fault zone. This hole is probably collared in the foot wall below the Faro mineralized horizon.

Hole 456-75-18, a 1,410', -60° hole bearing N 52 E, was located on mine section co-ordinate 124/12 or mine grid co-ordinates 7,603.00N, 13,966E.

This hole penetrated:

- 0 - 8 Triconed.
- 8 - 270 Calc-silicate unit.
- 270 - 653 Upper, andalusite bearing, schist unit.
- 653 - 672 Graphitic schist.
- 672 - 721.4 Upper, andalusite bearing, schist.
- 721.4 - 771.1 Mineralized section.
- 771.1 - 1,410 Upper, andalusite bearing, schist unit with incipient staurolite at 1,002'. At 972.5' is a 0.05' fragment of massive sulfides. Assay results are attached as a separate page.

This hole was located to test for the down dip extensions of the Faro No. 3 ore zone, and to test for an anomalous, steeply dipping, conductor first

identified by the IP test line described below. The sulfides were intersected deeper than would be anticipated by the direct projection of the Faro No. 3 ore zone, indicating that the dip of the ore horizon is increased sharply from dips near  $10^{\circ}$  to about  $30^{\circ}$ , all to the southwest. This change in dip of the ore horizon is reflected on the surface by the  $S_2$  foliation. This change in dip suggests that dump site holes drilled to the west of Hole 456-75-18 were terminated above the ore horizon.

The assayed sections contained:

720.0 - 771.5	51.5'	0.13% Cu	2.19% Pb	2.75% Zn	1.89 oz. Ag
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The best sections were:

720.0 - 729.5	9.5'		4.42% Pb	4.16% Zn	5.22 oz. Ag
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720.0 - 748.0	28.0'		3.02% Pb	3.95% Zn	2.73 oz. Ag
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#### Engineering Holes

Two holes proposed for and being drilled in the pit area by the Engineering Department were of interest to Exploration, first, to determine if additional ore zones exist under the presently-known ore body and, secondly, to determine the depth of the contact of the Anvil batholith in order to define the areas below which massive ores will not be found. It would be possible then to define the areas and sizes of deposits that could still be found by geophysical survey methods.

Hole 75-10, drilled through the ore, was terminated at 957' in schists due to the twisting off of the core barrel and following additional operating problems.

Hole 75-11 was drilled through the known ore zone to test for a repeat of the mineralized section at depth by folding. This hole was abandoned in the schist unit at 2,159 feet after the core barrel was stuck and could not be recovered. The postulated underfolded sulfide horizon did not materialize at the drilled depth, about 1,500' below the Faro ore bodies.

The costs of both holes will be shared by the Engineering Department with a contribution of \$25,000.

#### GEOPHYSICS

Turam electromagnetic, ground magnetic, and gravity surveys were undertaken in various parts of the Anvil claims. Two lines of IP were conducted to determine if the rock type distribution below the surface could be identified.

In the district, all gravity surveys have been tied by metering and surveying in the preparation of the overall district gravity map.

Ground magnetometer grids were tied in the West Faro, Gal-Ed, and Hek areas in planning for a district-wide ground magnetic map.

#### Electrical Surveys

##### Turam Surveys

The district-wide Turam coverage was continued in 1975 with surveys covering the West Faro Extension Grid and the Hek Grid to the northwest of the Faro claims, and partially covered the Gal-Ed claims.

On the West Faro Extension Grid, coverage included the Davis E-M gravity (1971) anomaly and extended to the northwestern border of the Faro claim group. Significant individual exploration targets were not outlined by this

survey. It did, however, outline the presence of a greenstone unit that had not been mapped previously, and delineated its distribution. Stratigraphically, this greenstone unit is above the schist unit and below(?) or near the base of the phyllite unit.

The 36-mile Hek Grid was covered by a Turam electromagnetic survey and it identified four bands of characteristic conductors and has traced them across the entire grid. These are generally east-west striking rock units. The area north of Rose Creek shows a poor E-M response and is believed to be underlain by the calc-silicate unit. The area to the south of Rose Creek is underlain by rocks with more varied E-M response, and these are believed to represent the phyllite unit. Within the phyllite unit are two near-surface zones of good conductors - possibly graphitic phyllites separated by a band of less conductive phyllites. A field check will be required to verify the underlying rock units.

On the Gal-Ed claims, approximately the western third of the grid was covered by Turam survey, leaving the middle third of the grid still to be completed. On this survey, it appears that most of the area is underlain by phyllites, and that the southwestern ends of the grid lines are on the amygdaloidal chlorite phyllite. Again, as in previous Turam surveys, no significant high priority exploration targets were revealed, but the secondary benefit - that of mapping the distribution of rock units - has been obtained.

#### Induced Polarization Surveys

Two induced polarization test lines were completed to determine the effectiveness of this method in mapping the general subsurface geology in the Anvil district. The main test was from Rose Creek, starting on Line 192W of

the Gal-Ed grid and extending to the northeast along a line parallel to the deep drill holes 456-75-12, 456-75-13, 456-75-14, across Faro No. 3 ore body and into the Anvil batholith. The second test line was along Line 184W of the West Faro extension grid, also from Rose Creek to the northeast to the end of the grid line. The results along Line 192W, along the line of section of deep drilling, shows a good general correlation between the known rock distribution and chargeability and resistivity results of this survey. The correlation is general because of the 600-foot "a" spacings and up to 4n separations. This spacing and wide separations were used because theoretically they would give a penetration of over 2,000' and this would be close to the depth of the drill holes.

Basically, the IP survey, on Line 192, allows a plot of four zones of characteristic chargeability resistivity associations which correlate well with the known surface and subsurface rock distribution. Of more immediate exploration significance is the definition of three conductors which are interpreted as graphitic rock units, two of which may represent one "stratigraphic" horizon on two limbs of a fold. This is in the area of the mine and may be the unit spatially related to the Faro mineralized horizon. The third unit is "stratigraphically" higher than the lower unit. Corroberating evidence for three conductors comes from the 1964 Lockwood airborne E-M survey which defined three near-surface conductors in the same area where the IP defined conductors might project to the surface.

The IP survey, on Line 184W of the West Faro grid, using 300 foot "a" electrode spacing, tested the system away from sources of extraneous man-made interference as could have been present at the mine and, in addition, it provided an evaluation at depth of the gravity high. The results of this

line are still with the contractor but neither large zones of anomalous resistivity nor high chargeability, suggestive of sulfide mineralization, were detected.

A group of University of Utah geophysics students is running IP studies to determine the response characteristics of Anvil type ore and graphite to determine if frequency related characteristic response changes could be used to distinguish sulfide ores from graphitic rocks. Graduate students W. H. Pelton and J. D. Klein, of the Department of Geology and Geophysics at the University of Utah, were in to study in-situ IP response, variations with frequency of signal to determine response characteristics of sulfide mineralized zones and graphitic zones. The Faro deposit is one of numerous deposits across North America for which similar data are being gathered.

The sulfides of the Faro deposit are excellent IP responders. Graphites had responses different from sulfides at the same frequencies.

#### Gravity Surveys

Gravity surveys were conducted on the Rich Grid, Tie Grid, and West Faro Extension Grid.

#### Rich Grid

A 1.5 mile gravity survey was completed on a Turam anomaly on the Rich Grid. Four lines (36W, 44W, 52W, 60W, from 20S to 40S) of gravity were metered across a 1974 Turam anomaly on the Rich Grid. The Bouguer gravity profiles of three of these lines are 'flat' in the sense that they do not show any anomalous excess mass accumulations in the area of the anomalous conductor response. The nature of the zone yielding the conductor anomaly is not known. Previous trenching of the conductor near Station 31, south on Line 36W,

showed the area to be underlain by chlorite phyllites. The conductivity of similar rocks elsewhere in the district did not yield similar E-M response.

#### Tie Grid

A gravity survey was conducted on the 1966 Tie Grid to determine if gravity anomalies are present in this area of multiple magnetic anomalies. The initial interpretation of the gravity survey suggests no large zones of anomalous mass concentrations which could be related to a large, near-surface, massive sulfide deposit.

#### West Faro Extension Grid

This grid was tied on to the original Faro Grid to provide gravity coverage for the entire Faro claim block. This survey would also provide a re-evaluation of the 1971 Davis gravity anomaly. A broad zone of gravity highs was defined coincident with the zone of poor conductors, which were trenched and shown to be underlain by greenstones. The character of the anomalies suggests a deeper seated cause, but the relationship to the greenstone is so good to make it too fortuitous to be just coincident.

#### Magnetometer Surveys

Ground magnetometer surveys were conducted on the eastern end of Swim Lake, the Hek Grid, the Gal-Eld Grid, and the West Faro Extension Grid.

#### Swim Lake

The survey was tied to the 1974 survey and completed coverage of Swim Lake. While the distribution of the main anomaly could be determined, the tie to the 1974 was poor and causes a "step" in the magnetic values between the 1974 and 1975 values.

### Gal-Ed Grid

This survey was completed from Line 8W to Line 344W by P. E. Walcott and Associates. The map is not yet available for interpretation.

### West Faro Extension Grid

This survey revealed small variations in the results across the grid and no magnetic anomalies that would be high priority exploration follow-up targets. The magnetometer data are useful in interpreting other geophysical data and tracing of rock units. The only magnetic high values that have been field checked show the anomalous zones to be underlain by greenstone.

### OTHER SURVEYS

In progress are surveys to tie all previous gravity and magnetometer surveys with the goal of producing one district gravity and magnetic map.

### TRENCHING

Bulldozer trenching to bedrock was completed on the Tie Grid, Gale Grid, Faro and West Faro Extension Grids.

### Tie Claims

A trench on L12W from 0-400N on a magnetic anomaly found no magnetic minerals in place and the cause of the anomaly is somewhat in doubt, but amphibolites and other greenstones underlie magnetic anomalies on the 1966 Tie Grid. Follow-up is required.

### Gale Claims

A trench on L8E from 400 to 650S Gale-Dy Grid on a gravity anomaly exposed an amphibolite knob. The cause of the gravity anomaly in part is due to a bedrock ridge and overburden thinning and probably an accompanying change in rock type.

Faro Claims

Three trenches were cut on the West Faro Extension gravity highs and one was cut on the "Davis" anomaly to determine the nature of and sample bedrock and determine the depth to bedrock. The following zones were trenched:

L184W	30+65S to 33S	30+65S to 32S - Chlorite sericite phyllite. 32+00S to 33+00S - Chlorite phyllite and greenstone.
L176W	30+00S to 32+00S	Biotite and biotite graphite phyllites, chlorite greenstone.
L120W	44+00S to 46+00S	44+00S to 45+00S - Phyllite. 45+00S to 46+00S - Graphitic phyllite.
L148W	15+00S to 17+00S (Davis Anomaly)	Bedrock not reached. Trench to 16' deep at 14+50S. Only chlorite phyllite greenstone float found in trench.

Densities were determined for surface samples taken over the zone of the gravity anomaly. The greenstone samples had a density of 2.9 g/cc to 3.0 g/cc, while the phyllites had a density of 2.6 g/cc to 2.7 g/cc. This suggests that the gravity high reflects this higher density rock unit. (The size, distribution and shape of anomaly had led to this conclusion originally.)

In addition to the above trenching, four samples of different materials were taken for chemical analysis from a trench cut on L224W, 28+00S to 31+00S on the West Faro Extension Grid. This trench was cut to expose any source of high lead in soil samples from this area, but no high lead values were found in the trench samples.

Results of the West Faro Extension soil geochemical survey were plotted. Several zones of high metal content in soil were located. Most of these may be related to changes in the underlying rock type, but one zone on Lines 224W and 232W, over 500 foot lengths of sampled line, contained up to several thousand parts per million lead.

#### SOIL GEOCHEMICAL SURVEYS

Soil samples were taken from the West Faro Extension and Hek Grids and their total copper, lead and zinc contents determined using atomic absorption spectrophotometric methods by Acme Analytical Labs, Ross River, Y.T. A hot aqua regia digestion was used to release the base metals into solution.

#### Faro Grid

Soil samples were collected on the West Faro Extension Grid on a 200-foot sample station on lines spaced 800 feet apart. The material collected was below the organic and ash layer. Sampling was contracted out to and conducted by John Young.

Several individual high one station anomalies of several hundred parts per million lead and/or zinc appear randomly scattered through the sample area. Two adjacent lines, 224W and 232W, contained anomalous high lead values (to 2,360 ppm) in samples taken between 24S and 34S and 8S to 14S respectively. No outcrop was found in these areas. A bulldozer trench on L224W between 28S to 31S exposed greenstone with minor pyrite and a one foot graphite-quartz vein, but no source for the lead. The source of the lead in samples on L232W is not known. Immediately to the north of the anomalous sample station are greenstone outcrops, but on basis of E-M data, the rocks underlying the anomalous section are thought to be phyllite or possibly the calc-silicate unit.

A first impression of the data is that some underlying rock types yield characteristic combinations (or ratios) of base metal values in soils. Three lines, which had some of the isolated high base metal values, were re-sampled and the high values were not always reported in the analyses. This re-sampling was undertaken when a poor match was obtained in the base metal contents in soils between the 1965 and the 1975 results. The significance of the non-reproducibility is that the differences were not systematic, but were random. A set of check samples sent to Acme suggests that the difference in the results is due to sampling rather than analytical.

#### Hek Grid

On the Hek Grid, soil geochemical survey was conducted on "C" horizon material collected at 200 foot sample stations on the lines spaced 800 feet apart.

The arithmetic average and standard deviation of the metal content in the soil samples was determined using all values except those obviously highly anomalous. The average copper content is 36 ppm with a standard deviation of 24 ppm for 787 samples, the average lead content is 21 ppm, with a standard deviation of 37 ppm for 777 samples; and the average zinc content is 59 ppm, with a standard deviation of 33 ppm for 778 samples.

Samples with a metal content higher than average plus three standard deviations were defined as anomalous. When samples with these anomalous values are grouped, the highest values locate along Rose Creek and probably represent the above-mentioned contamination from the tailings spill.

On the north side of the base line are only one high zinc and one lead value, not in the same sample. These are located on the east end of the

sample grid. On the south side of the base line are several zones of anomalous high base metal content. Four samples with anomalously high zinc content found on Lines 72W and 80W from 64S to 72S. In this same area are three samples containing average plus two to three standard deviations (125 ppm to 158 ppm) zinc. This is the only area of the grid with a multi-station zinc in soil anomaly. All other samples with moderately high zinc content are randomly distributed one station anomalies.

The soil samples with anomalous lead content show a similar distribution to those of zinc, with four of the highly anomalous values (those greater than 108 ppm) coming from sediments along Rose Creek valley. Only two samples with anomalously high values were found elsewhere on the grid and these came from widely separated sites. One of these (at Line 200N, 8+00E) has an associated moderately high zinc content and it represents the only true multi-element anomalous soil geochemical sample.

Soil samples with anomalous copper content also show a distribution similar to that of lead and zinc, with the largest number of anomalous samples found along the Rose Creek valley. Five other samples with high copper content come from wide, randomly scattered sites along Rose Creek valley.

The largest number of samples with anomalous metal content and also those with the highest metal content were found along Rose Creek valley and probably reflect the contamination from the 1975 tailings spill. Only one other cluster of six samples with high zinc content was found on the grid and is on two adjacent lines at the western-most corner of the soil grid. This area, on the basis of outcrop and geophysical data, is inferred to be underlain by an amygdaloidal chloritic phyllite unit which, elsewhere in the

district, is known to contain high, but uneconomic, grades of zinc mineralization with no associated lead and only minor copper. The only sample with anomalous lead and zinc content is found in an area underlain by the calc-silicate unit. There are no zones of soils with high metal content that suggest the presence of near-surface, sub-outcropping, massive sulfide deposits over the phyllites.

#### Tie Claims

During the 1975 operations of underground exploration of the Grum deposit by Canadian Mine Services for Kerr Addison, one of the greenstone outcrops on the Tie claims was used as a source of road ballast. One hand specimen found in the quarry contained chalcopyrite and sphalerite along fracture surfaces. Following the discovery of the mineralized fragment, five additional bulk samples were taken for assay to determine the possible extent of this mineralization within the greenstones. The results of the analyses, which were performed at the Anvil Mine Assay Lab, are shown on the following table:

		<u>Sample Analyses by Anvil Mine-Assay Lab</u>		
		<u>Pb</u>	<u>Zn</u>	<u>Cu</u>
	Hand Specimen	0.01%	0.77%	0.15%
#1	Rock Chip	20 ppm	15 ppm	12 ppm
#2	Rock Chip	16 ppm	26 ppm	8 ppm
#3	Rock Chip	19 ppm	24 ppm	8 ppm
#4	Rock Chip	10 ppm	15 ppm	12 ppm
#5	Drill Cuttings	18 ppm	14 ppm	8 ppm

The significance of these assays is that they show erratic high copper and zinc values similar to some soil geochemical results throughout the district

where the area is underlain by amphibolites and greenstone.

#### STAKING

Six Gran claims, numbered 1 through 6, were restaked. These claims are located on the east side of the Rose Creek valley, approximately 12 miles northwest of the Faro claims.

#### SURVEYING

Elevation control was obtained from Vangorda Creek to Swim Lake and Anvil mine site. Control was from a geodetic station at the Faro townsite. Survey was by Hosford, Impey and Welter, land surveyors and engineers, Whitehorse.

#### LINE CUTTING

Five grids were cut in 1975. These are:

1. Tie Grid - 8.9 miles, re-cut of 1966 grid for gravity survey.
2. Faro Grid - ("Davis anomaly") - 8.9 miles re-chain and picket for Turam survey.
3. Gal-Ed Grid - re-chain and picket 80 miles for completion of Turam survey.
4. Hek Grid - approximately 36 miles to be cut on HEK, DA, FUBAR, etc., claims involved in Cyprus Anvil - Hecla joint venture.
5. West Faro Extension Grid - approximately 35 miles as a tie-on grid to the west of original Faro grid. Lines to be cut to the west end of the Faro claim block, north to the batholith contact and south to Rose Creek.

OUTSIDE WORK

1. On the Kirk claims, option from M. Early of Ross River, and which are located about 15 miles south of Faro, a five-mile gravity grid was located and a gravity survey to test for possible mass concentrations related geochemical anomaly was completed. In general, no short sections of gravity highs were located during the traverse in the zones of geochemical anomalies. The property was returned to M. Early.
2. Arrangements were made with CIL at Faro to store the Exploration skidoo for the winter. John Topham of CIL is the man to contact regarding same.
3. Arrangements were made to fix Exploration's two-wheel drive 1973 Ford pickup at the mine. The truck was left with D. Hansen, Mine Geologist at Faro. E. Koch of the Mechanical Department is to look after the required mechanical repairs.
4. Lead-zinc prospects in MacMillan Pass area brought to Cyprus Anvil by Wm. Grant of Carcross.

Respectfully submitted,

U. JANSONS

UJ/cb

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