

A GEOLOGICAL & GEOCHEMICAL REPORT

on the

RIETA and WO CLAIMS



Claim Sheets 105 H-2 and 105 H-7  
Frances Lake Area  
128°38'W Long.; 61°15'N Lat.  
Watson Lake Mining Division  
Yukon Territory

July 3-31, August 19-26, 1973

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$18,647.71

for

D.B. Craig  
Resident Geologist or  
~~Resident Mining Engineer~~

PAN OCEAN OIL LTD. - ~~CANADA~~ ~~ALBERTA~~ representation work under Section 53 (4) Yukon Quartz Mining Act.

by

[Signature]  
Commissioner of Yukon Territory

John S. Vincent, P.Eng.  
Consulting Geologist.

September 13, 1973.

Vancouver, B.C.

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## INTRODUCTION

The purpose of this report is to describe the results of a geological and geochemical evaluation of tungsten mineralization discovered on the Rieta claim group; Watson Lake Mining Division. The known occurrences were studied, sampled and mapped in detail while the remainder of the property was mapped on a reconnaissance scale in an attempt to expand the known zones of mineralization and locate new ones. Geochemical analysis of soil, bedrock and stream sediments was utilized for support.

The work was carried out by a senior geologist, Mr. Volker Ahlborn, an assistant, Mr. Helmut Johansen, and supervised by Mr. John S. Vincent, P.Eng. The initial phase of the program was completed in the period July 3 - 31, 1973 and, following an analysis of the results, a second phase was carried out during the period August 19 - 26, 1973. Mobilization was facilitated by helicopter from Watson Lake, 90 air miles to the south.

The body of this report consists of an outline of the property, location and access, and a discussion of the survey technique, geology and geochemistry. The economic potential is summarized along with the conclusions and recommendations.

The report is illustrated by a geological map, and a map showing the location and results of soil, rock and stream sediment analysis. Several maps are included to show the detailed mapping and soil sampling carried out on specific grids.

PROPERTY, LOCATION AND ACCESS

The property consists of 58 mineral claims located approximately 90 miles north of the town of Watson Lake and 20 miles east of the bottom end of Frances Lake, at 128°38'W. Longitude and 61°15'N. Latitude. The claims are recorded in the name of Mr. Cliff Turner of Watson Lake and are presently held under the terms of an option agreement by Pan Ocean Oil Ltd. of Calgary, Alberta. They are located in the Watson Lake Mining Division, and the claim names and record numbers are listed as follows: (N.T.S. 105H-2, 105 H-7).

Rieta 1 - 26, Grant Nos. Y64853 - 64878 inclusive

WO 1 - 32, Grant Nos. Y70244 - 70275 inclusive

The claim posts are located on the Geological Map and the boundaries are shown on the Geochemical Reconnaissance Map.

The present survey was carried out on behalf of Pan Ocean Oil Ltd.

The property is accessible from Mile 47 on the Cantung Highway by a gravel road which runs through the camp of Monarch Metal Mines. The property lies a total distance of 22 miles from the Cantung road, and beyond the Monarch campsite 4 x 4 capability is required. Camp support is most effectively facilitated by helicopter from Watson Lake.



MOUNT HUNT

NIPPLE MTN.

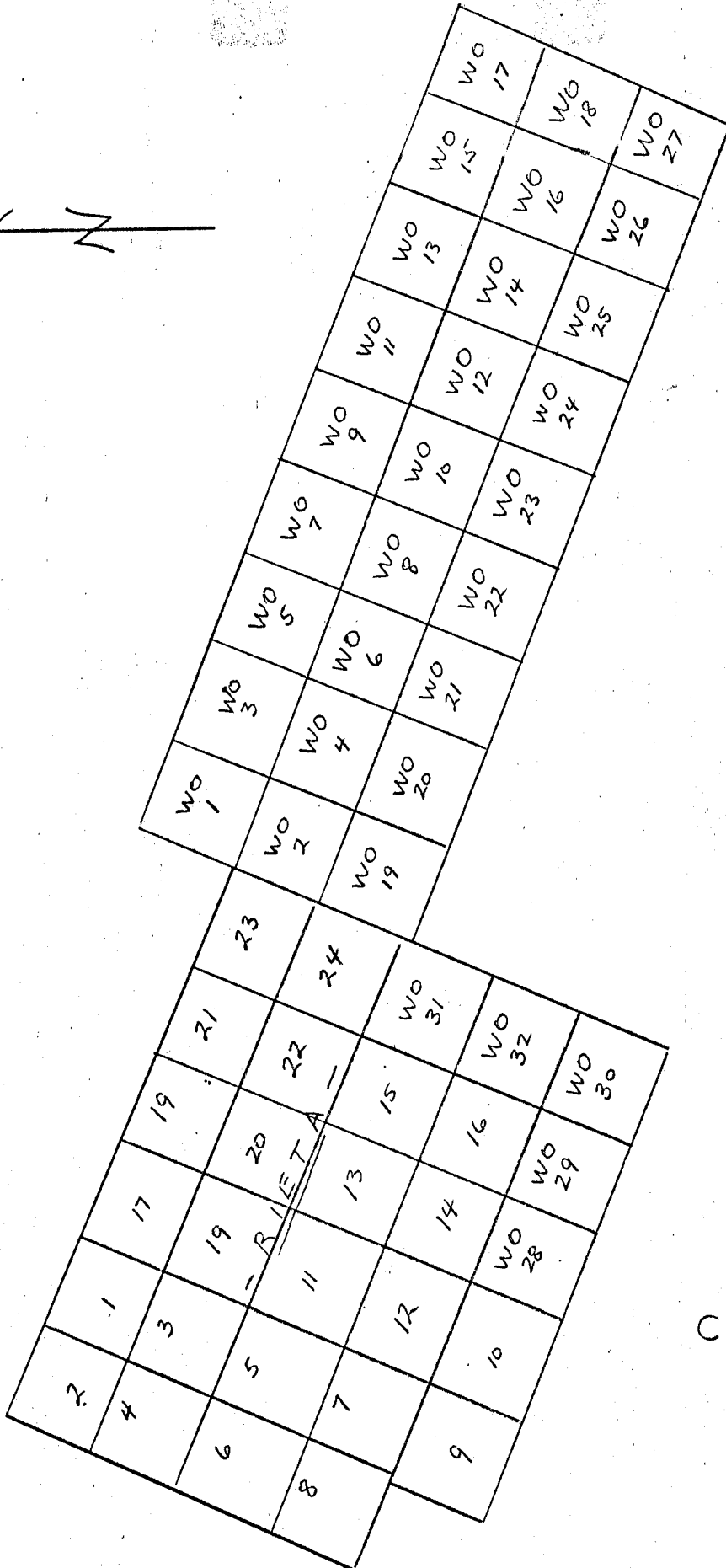
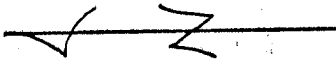
Frances Lake

MOUNT BILLINGS

FIG. 1  
SHEET 105H  
THIRD EDITION

Scale 1:250,000  
1 Inch to 4 Miles Approximately

13' 129°00' 45' 30'



CLAIM SKETCH

1 in 1/2 mi

FIG. 2

SURVEY TECHNIQUE

The basic concept was to carry out a geological evaluation of the exposed mineralization and the overall economic potential of the property. This was accomplished by detailed mapping in the immediate area of the known showings and reconnaissance mapping of the remaining area. Geochemistry was used for support and the evaluation of areas with limited bedrock exposure. Ground control was obtained from air photos enlarged to a scale of 1 inch equals 500 feet. Grids over specific areas were chained and flagged by means of a topofil.

Samples for assay or geochem were analysed for copper, lead and zinc. Assays for tungsten tri-oxide ( $WO_3$ ) and silver were carried out on rock samples, while geochem samples were run for tungsten (W).

## GEOLOGY

### REGIONAL

The regional setting is described on the Frances Lake Map Sheet published by the GSC: Granitic intrusive rock probably of cretaceous (?) age intrudes Devono-Mississippian (?) hornfelsed pelitic sedimentary rocks. The claim group is underlain by an area of pelitic rocks enclosed by irregularly shaped granitic bodies. The indicated attitudes of the beds of the metasediments suggest a poly-deformed basin structure giving the whole sedimentary unit the appearance of a large roof pendant in a granitic batholith which extends approximately 50 miles to the north and 20 miles to the south.

### LOCAL

The west part of the mapped area is underlain mainly by sedimentary rock and metasediments containing numerous granodioritic dykes and sills. These sedimentary sequences are in contact to the west with a predominantly granodioritic body along a N/S trending fault. The east part of the investigated area is covered by glacial sediments, swamps and coniferous vegetation as well as buckbrush. Only a few outcrops of sedimentary rocks could be located.

#### The Sedimentary Rocks and Metasediments:

The sedimentary rock sequences are dominated by light grey mudstones, grey siltstones and by recrystallized impure limestone.

The metasediments are represented by phyllitic mudstone, bluish black

slate, quartzite, schists, gneisses and remobilized limestone. The most prominent carbonate sequence exposed lies along the shear contact and measures approximately 80-100 ft. in thickness. The limestone is generally medium to coarse grained, thinly bedded and strongly foliated close to igneous contacts. There is evidence of remobilization in several places where isolated igneous dyke sediments and folded granodiorite lenses were observed in laminated carbonates.

The Igneous Rocks:

The igneous rocks all belong to the granitic clan, and biotite granodiorite dominates. Minor quartz monzonite was seen locally. The main body of intrusive rock lies to the west of the area examined.

Along the shear contact a variation in composition of the igneous rock was observed. The rock texture is generally medium grained and porphyritic, and the composition varies along the shear contact from north to south:

- (1) Porphyritic biotite granodiorite (thermally metamorphosed).
- (2) Monzonitic rock with rare hornblende phenocrysts.
- (3) Porphyritic hornblende quartz monzonite.
- (4) Hornblende granodiorite (dynamically metamorphosed).
- (5) Porphyritic biotite granodiorite.

In the dykes and sills traversing the metasediments a fine grained biotite granodiorite is most common. Pegmatites, orthogneisses, a rare andesite and a garnetiferous muscovite granodiorite (dynamic metamorphism) occur in

in minor amounts.

Tremolite and actinolite skarns occur mainly at contacts of igneous rocks and carbonate units. Minor occurrences were seen in vuggy altered zones within the granodiorite, associated with muscovite and euhedral quartz crystals.

### STRUCTURE

The sedimentary rock sequences dip north-easterly at a moderate angle in structurally undisturbed areas.

A group of large scale N/S trending faults with steep dips to the east and west traverse the mapped area cutting the rock into slices of up to 200 ft. in width. Within these slices, the rock types, their abundance and degree of metamorphism is similar. One of the faults constitutes the shear contact between the sedimentary sequence and the igneous complex to the west. Offsets along the faults vary from tens to hundreds of feet, and evidence of dip slip and/or strike slip movements along the fault planes is apparent. The rock along the faults is badly fractured and granitic rock cut by the faults often has a cataclastic texture and contains small garnets. In the vicinity of the faults the strike of the bedding planes and the schistosity of the meta-sediments divert from the general attitude and take on strike directions sub-parallel to that of the major faults.

A second common fault direction trends at 70° and dips both northerly and southerly at medium to steep angles. In the east part of the western map sheet several grabens and a system of synforms and antiforms have similar trends.

Two phases of deformation are indicated in dragfolds and minor accessory folds, which may be directly related to one another. The directions of most of the minor fold axes approximate the trends of the major failure planes. Minor right recumbent structures were observed in remobilized limestone close to the shear contact which may represent flow phenomena since they are not reflected on a larger scale within the metasedimentary sequences.

Joint sets and homogenous fractures are generated by regional stresses which also gave rise to relaxation along the major failure planes.

Schistosity coincides with the bedding in the metasediments.

Flow foliation within intrusive igneous rock and orthogneisses simplifies the determination of attitudes of sills and some of the dykes.

#### MINERALIZATION

The mineralization of immediate interest shows very little structural control with respect to shearing or faulting. Such features transect and may offset mineralized zones, and appear "post-ore" rather than "pre-ore". Folding could conceivably produce significantly thickened limestone beds which would be conducive to the development of mineralized skarn zones.

Two types of mineralization can be distinguished, of which the most common is associated with the development of skarn at the contact of granodiorite dykes, sills and recrystallized impure limestone. The second type occurs either in vuggy alteration zones or as thin fracture fillings within the granodiorite.

While the first type has a stratigraphic association, the second type is structurally controlled.

The various mineral occurrences are summarized in Table 1.

Skarn Type Mineralization: Besides the main showing, six additional occurrences were located, one of which is located on Dusty Mac property (location 336). The main showing lies very close to the boundary and may also be on Dusty Mac ground. In general the occurrences are spotty and of limited extent. The skarn is commonly of the tremolite-epidote variety and has a vuggy and earthy appearance. The rock is massive and brown-black in colour. Although the mineralization of interest is associated with skarn, all skarn is not mineralized.

The main showing examined and sampled in 1972 by Pan Ocean personnel was opened up with a trench 18 feet long, exposing a face 3 to 4 feet high. Sample intervals were based on the visible variation in mineralization, and the results are summarized in Table 2. A second trench was opened up 12 feet to the west and, although skarn was located, the mineralization was very light. There is lively fluorescence under the UV light, but the source is mainly hydrozincite.

The associated minerals in the various showings examined vary, but the predominant groupings show up as follows:

1. Galena, Sphalerite, Chalcopyrite;
2. Pyrrhotite, Sphalerite, Scheelite;
3. Pyrrhotite, Sphalerite.

TABLE 1

## MINERAL OCCURRENCES

Location #	Trench	Type	Mineralization	Sample #	Distances Sampled	Characteristics	Host Rock Geol. Environ.	Structure	Comments
1	I (a) (possibly Dusty Mac)	Skarn	Pb, Zn, Cu	Assay 9826-31	Intervals of 2-3 ft.	Segmented, Massive, fine to coarse grained	Skarn, Granod. contacting imp. limestone	Dissecting faults & shearing 61/88E 74/88N	Status of ground uncertain
1	I (b) 8 y <sup>3</sup> (possibly Dusty Mac)	Skarn	Pb, Zn, Cu	Assay 9847 1.80% Cu 13.30% Pb 9.70% Zn 0.75% WO <sub>3</sub>	2 x 3 ft.	Segmented, open to SW Massive, fine to coarse gr.	- " -	Faults str 72, & 54/72N 72/66N	Status of ground uncertain
10	-	Thin fracture coatings	Pb, Zn, Ag	Assay 9841 .08% WO <sub>3</sub>	Grab sample	Small sporadic pockets & frac- ture fillings Thin, massive, layered	Granodiorite to (?) qtz. monzonite	Fractures in structurally disturbed rock	Relative high Ag = 0.98 oz.
17	-	Skarn	Pb, Cu, & ?	Rock geoch. 5334 315ppm Pb 10 ppm W	Grab sample	Broken up, open to all sides Dissem. in trem. epid. skarn	Earthy looking spongy skarn adjacent to granodiorite sill 20' wide Skarn zone ex- tends for about 150 ft.	Contact zone lies in line(N/S) with #10 = fault direc- tion	Largest skarn zone found
33a	- Dusty Mac ground	Alteration zone	Pb, & ?	Rock geoch. 5338 7150ppm Pb 2200ppm Ag 60 ppm W	Grab sample	Limited to 1.5' wide alteration zone, coatings, sporadic pockets Blebs of raisin sized aggregates of cubic galena xls. assoc. with musc. & euhedr. qtz.	Granodiorite	Limited to altera- tion zone cut by N/S trending fault in line (30°) with 33b	Functioned possibly as plumbing system for sulphides found in assoc. with skarns at granod/Lst. contacts. D.M.
33b	- Dusty Mac ground	Skarn	Pyrrh, Zn	Assay 9842 0.01% WO <sub>3</sub>	9 ft.	Open to all sides; exposure ≈45 x 20 ft. Massive, west part cont. More Pb limonitiza- tion vuggy & spongy. Alt. rock resembles lava	Granod. cont. 5 relict Lst. units which measure ≈30' in one dimension	Tracing of 33a lead to the dis- covery of 33b	Association with iron sulphides suggests mag follow-up to delineate extent. High zinc va- lues. Dusty Mac prop.

Location	Trench	Type	Mineralization	Sample #	Distances Sampled	Characteristics	Host Rock Geol. Environ.	Structure	Comments	
39	-	Skarn	Pb, Zn, Cu	Assay 9843 0.01% WO <sub>3</sub>	8 ft.	Sporadic pockets	Minor Pb dissem. in vuggy skarn assoc. with musc. & euhedral qtz. crystals	Granodiorite contacting recr. imp. Lst. 40 Dissem. in vuggy skarn, assoc. with quartz	Shear zone 78/88 S in line with 1 & 40	Was useful as marker for the discovery of 40
40	II 2 y <sup>3</sup>	Skarn	Pb, Zn, Cu	Assay 9844 0.01% WO <sub>3</sub>	3.5 ft.	Open to all sides. Exposure ≈4x3'. Broken up.	Distrib. in pockets; dissem. aggregates; malachite & azurite stain	Altered, brittle granodiorite with boulders of recr. Lst. next to it.	No structure recognized. Large boulders in situ (?)	Requires extension of exposure to evaluate potential; lies in line with 39 & 1 and may possibly be lined with 41
41	III 2 y <sup>3</sup>	Skarn	Py, Zn, Tung.	Assay 9845 0.30% WO <sub>3</sub>	17 ft.	Exposed for 20'; ≈2 ft. wide zone open to NE	Massive, SW part cont. More Pb than NE extension; limonite stain	Along granod/limestone contact	Contact zone mineralized plane 102/34°S	Highest tungsten values of all new discoveries. Mag. survey recommended
187	-	Skarn	Pb, Zn, Ag	Assay 9846 9.4 oz. Ag .01% WO <sub>3</sub>	2 ft.	Exposed for 2 x 2 ft. Open to all sides. Broken up material.	Massive, broken up.	Massive, earthy looking, strongly weathered, skarny material	Lies in shear zone ≈8°/76W. Broken up	High silver, lead, zinc values. Requires exposure to evaluate potential.

TABLE 2

Trench 1 - Sample Results

Sample Number	Sample Length	Cu	Pb	Zn	WO <sub>3</sub>	Ag	Remarks
9826	1.5 ft.	0.01%	0.01%	0.01%	0.01%	tr.	Crystalline limestone.
9827	2.5	1.30	5.55	4.00	0.34	.02 oz.	Skarn, 30% sulphide.
9828	1.5	0.02	0.16	0.16	0.01	tr.	Skarn, strong shear zone.
9829	4.0	2.55	8.90	6.60	0.32	.55 oz.	Massive sulphide; relict foliation apparent.
9830	2.0	0.12	1.09	0.51	0.47	.24	Shear zone and skarn grading into the granodiorite: occ. erratic patches of 30% sulphide.
9831	4.0	0.23	0.83	0.21	0.11	.13	Granodiorite.
9832	-	3.05	11.20	8.80	0.85	.84	Composite of massive sulphide samples.

The galena - sphalerite type is the most dominant, and the occurrence of pyrrhotite perhaps the most limited. The material typically occurs in erratic pods associated with the development of skarn and it seems apparent that significant economic potential will require larger and more continuous limestone beds than was observed in the area of showings 1, 39, 40 and 41. The thickest bed observed is only 4 to 6 feet, and these interfinger with the argillaceous sediments which predominate. The largest bed, or beds, occur in the area of location 187 where it is estimated that the limestone is approximately 250 feet thick. This area also coincides with the projected contact zone between the sedimentary sequence and the intrusives to the west.

The Second Type of Mineralization: This is of no apparent economic significance but deserves description to complete the picture. In one instance fine cubic crystals of galena are disseminated in vuggy altered and limonitic zones in the granodiorite. Occasional networks of fine fractures filled with chalcopyrite and rare galena-sphalerite were observed, and it is suggested that this type of material may be responsible for some of the sporadic geochem highs picked up in the contour soil samples.

GEOCHEMISTRY

The purpose of the geochemical phase of the program was to evaluate the property on a reconnaissance scale, and try to outline or extend areas of known mineralization. To this latter end, two detailed grids were initially laid out over mineral occurrences and soil samples were collected on 100 to 200 foot centres; Main Showing and Grid No. 1.

On a reconnaissance scale, stream sediments were collected at varying intervals and soil samples were collected along several contours, line traverses and claim lines. Several specific areas of interest were indicated by anomalous samples; these were followed up with sample grids 1, 2, 3 and 4 during the second phase of the program.

Occasional bedrock samples were analysed for tungsten to provide a comparison with the overlying soils.

A total of 969 samples were analysed by Barringer Research for copper, lead, zinc and tungsten. Tungsten analysis was carried out on the -30 mesh fraction by the  $\text{CO}_2$  fusion and zinc dithiol extraction technique and colorimetric determination. The -80 mesh fraction was analysed for copper, lead, and zinc by extraction in  $\text{HClO}_4$  and AA determination. The results are plotted on the appropriate maps and copies of the analytical reports are included in the appendix.

The arithmetic means and standard deviations were calculated for

copper, lead and zinc for the soil and stream sediments, and the level of significance was chosen as the mean plus 2 standard deviation. That is, values equal to, or greater than, the mean plus 2 standard deviation are regarded as significant and probably anomalous: those equal to, or greater than the mean plus 3 standard deviation are definitely anomalous. These parameters are tabulated as follows:

	Soil			Stream Sediment		
	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>
Mean $\bar{x}$	22	53	105 ppm	27	70	162 ppm
St.Dev. s	14	18	52	16	28	59
$\bar{x} + 1 s$	36	71	157	43	98	221
$\bar{x} + 2 s$	50	89	209	59	126	280
$\bar{x} + 3 s$	64	107	261	75	154	339

There was no need to calculate these levels for the tungsten results since a background content of 4 ppm is readily apparent. The level of significance was selected as 8 ppm with values equal to, or greater than, regarded as anomalous.

Soil samples were taken at a depth of 10 - 12 inches using a grub hoe, and notes were made at each sample site to record the nature of the soil, vegetation, slope and drainage characteristics. The soil is very similar in most of the locations sampled, and is generally sandy with varying proportions of grit and clay. In the areas of interest where detailed grids were sampled, the vegetation is mainly moss and scattered buck-brush and the slopes are

gentle to moderate; 5 - 20°. The slopes are well drained and swamp concentration does not pose a problem.

Soil development in the cirque where the main showing is located is poor and contains a high proportion of organic material. Scree, boulders and occasional gravel is covered with varying thicknesses of moss and scrub spruce, and soil sampling is of questionable value.

The available stream sediment material is generally fine and well sorted, and it was sometimes difficult to get a sample with a coarse fraction for tungsten analysis.

Since the movement of tungsten values is more dependent on mechanical transport than chemical, a -30 mesh was preferred for both soils and stream sediments.

#### RESULTS:

The sample locations and results of the reconnaissance survey are plotted on the accompanying sheets at a scale of 500 feet to the inch. The detailed sample grids are located on the 500 scale reconnaissance maps and numbered in order of importance: 1, 2, 3 and 4.

In area 1, a traverse was run across location 187 where massive galena was discovered in a gully. Eight consecutive anomalous samples were returned over a length of 1700 feet, and six were high in tungsten. Outcrop indicates a substantial thickness of limestone in an area underlain by the

contact zone between the sediments to the east and intrusives to the west. It was concluded that follow-up was warranted and a detailed grid was laid out and sampled as shown on the map labelled Grid No. 1.

In the cirque where areas 2, 3 and 4 are situated, the stream sediments returned consistently anomalous copper-zinc values in the central creek. The values increase very significantly up stream and a detailed grid was sampled across the upper 1000 feet. The results plotted on Grid No. 2 are disappointing inasmuch as the source suggested by the stream sampling is not supported or explained: 4 samples returned anomalous values of which only 2 are consecutive.

The soil profile run along the south side of the cirque returned 4 samples anomalous in tungsten and one in copper. Grids 3 and 4 were laid out to evaluate and hopefully define a larger anomalous area. The results are disappointing, and it appears that values are erratic.

#### DISCUSSION OF RESULTS:

Bedrock exposure above Grids 2, 3 and 4 is continuous around the south edge of the cirque and consists of an easterly-dipping sequence of gneissic and schistose metasediments with the occasional band of limestone and mudstone. There is no exposed sulphide mineralization, and the geologic environment does not appear favourable for its occurrence. Although a "second look" would be of interest, it cannot be assigned a high priority.

The detailed sampling over Grid No. 1 returned 47 samples anomalous in tungsten within an area 700 feet by 800 feet; about 40 of these are consecu-

tive and this must be regarded as a significant anomaly. The material sampled is a sandy medium brown soil on a slope which averages about 10°. A narrow strip of reddish soil lies across the bottom of the zone, but there is no apparent influence on the tungsten content. One exposure of crystalline limestone with small sills of granodiorite outcrops on the eastern edge of the zone, and it appears that this unit is at least 250 feet thick. The projected shear-contact zone lies immediately west of the anomalous area.

It is reasonable to conclude that this anomaly should be further evaluated by trenching.

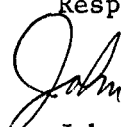

In addition to the tungsten anomaly, an interesting cluster of high lead-zinc-tungsten values lies in the northwest quadrant and "trails" down the west side of the grid. The upper scree slope runs over this area and soil-quality is questionable in some cases. Blocks of skarn were noted and it is conceivable that mineralized float may be present. However, there are a significant number of consecutive anomalous samples in addition to the scattered values, and follow-up trenching is justified on a priority 2 basis.

Geologically this area is attractive because it lies across, or within, the contact zone between the granodiorite and the limestone which is of significant thickness and extent. The potential is there for the development of reasonable quantities of contact metasomatic mineralization.

CONCLUSIONS AND RECOMMENDATIONS

The geological evaluation of exposed mineralization indicates that conditions are favourable for the occurrence of galena, sphalerite, chalcopryrite and scheelite, but the economic potential is limited by the thickness and lateral extent of the necessary limestone horizon. The mineralization examined in the area of Rieta 1, 2, 3 and 4 occurs in erratic pods and zones which are limited to less than 100 feet and are associated with limestone beds 6 feet thick at most. A second look at these showings should be assigned a low priority and undertaken only if work on the project is continued elsewhere on the property.

The reconnaissance geochemical survey in conjunction with the geological mapping was of value in defining an area definitely anomalous in tungsten on Rieta claim 7 and the open fraction adjacent to the south. The area is approximately 700 by 800 feet and is underlain by a crystalline limestone unit at least 250 feet thick. The strength of the anomaly and the geologic potential strongly indicate that this is an attractive target, and bulldozer trenching is recommended for further evaluation.

Respectfully submitted,  
  
John S. Vincent  


EXPENDITURES

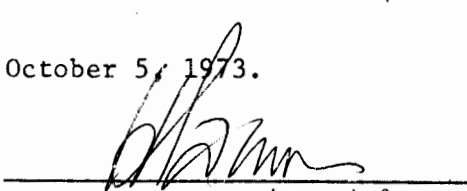
RIETA and WO CLAIMS

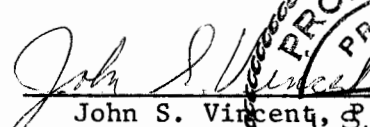
The expenses listed below were incurred during the periods July 3-31 and August 19-26, 1973.

1. Salaries and wages	\$ 4,080.58
2. Supervision and Consulting	2,100.00
3. Camp Costs	734.73
4. Travel:	
a) Mobilization and demobilization	579.56
b) Truck rental	414.02
c) Helicopter	4,641.50
5. Geochemical analysis and assay costs	5,088.03
6. Magnetometer rental	280.00
7. Gasoline plugger rental and powder costs	454.29
8. Expediting	69.00
9. Administrative costs	200.00
Total Expenditures:	<u>\$ 18,641.71</u>

I, John S. Vincent, P.Eng., of the City of Vancouver, in the Province of British Columbia, do hereby certify that the above expenditures were incurred on the Rieta and Wo claim groups in carrying out the work described in this report.

October 5, 1973.

  
A Notary Public in and for  
British Columbia

  
John S. Vincent, P. Vincent

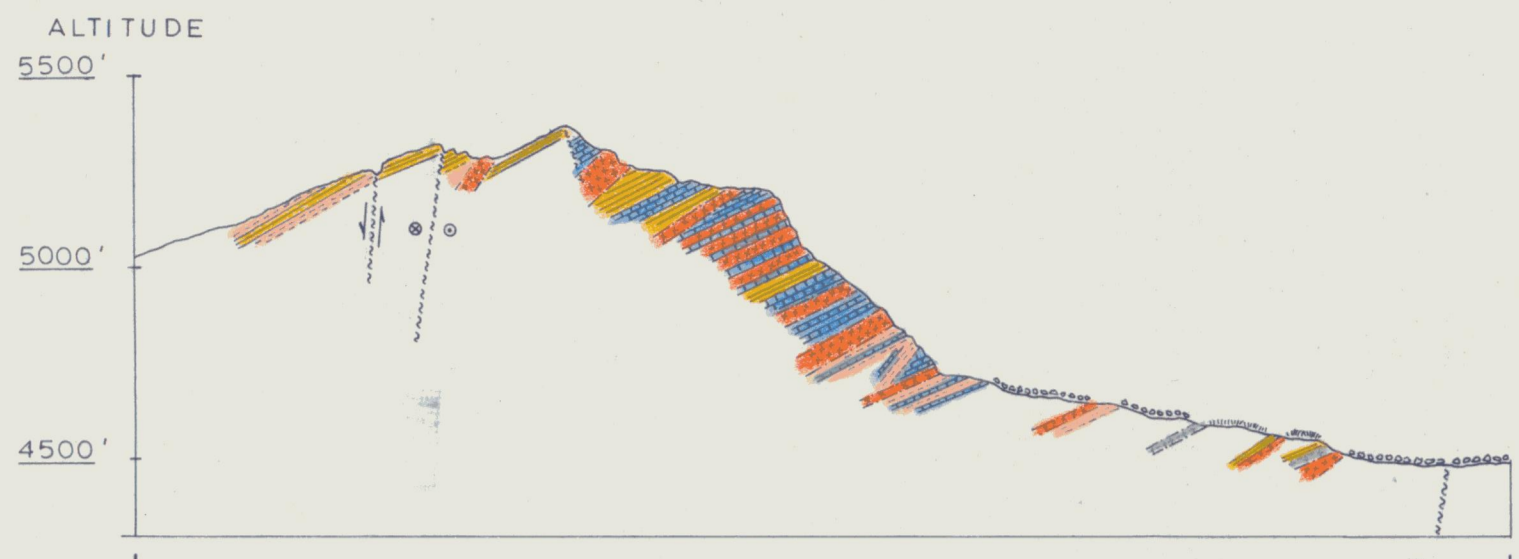
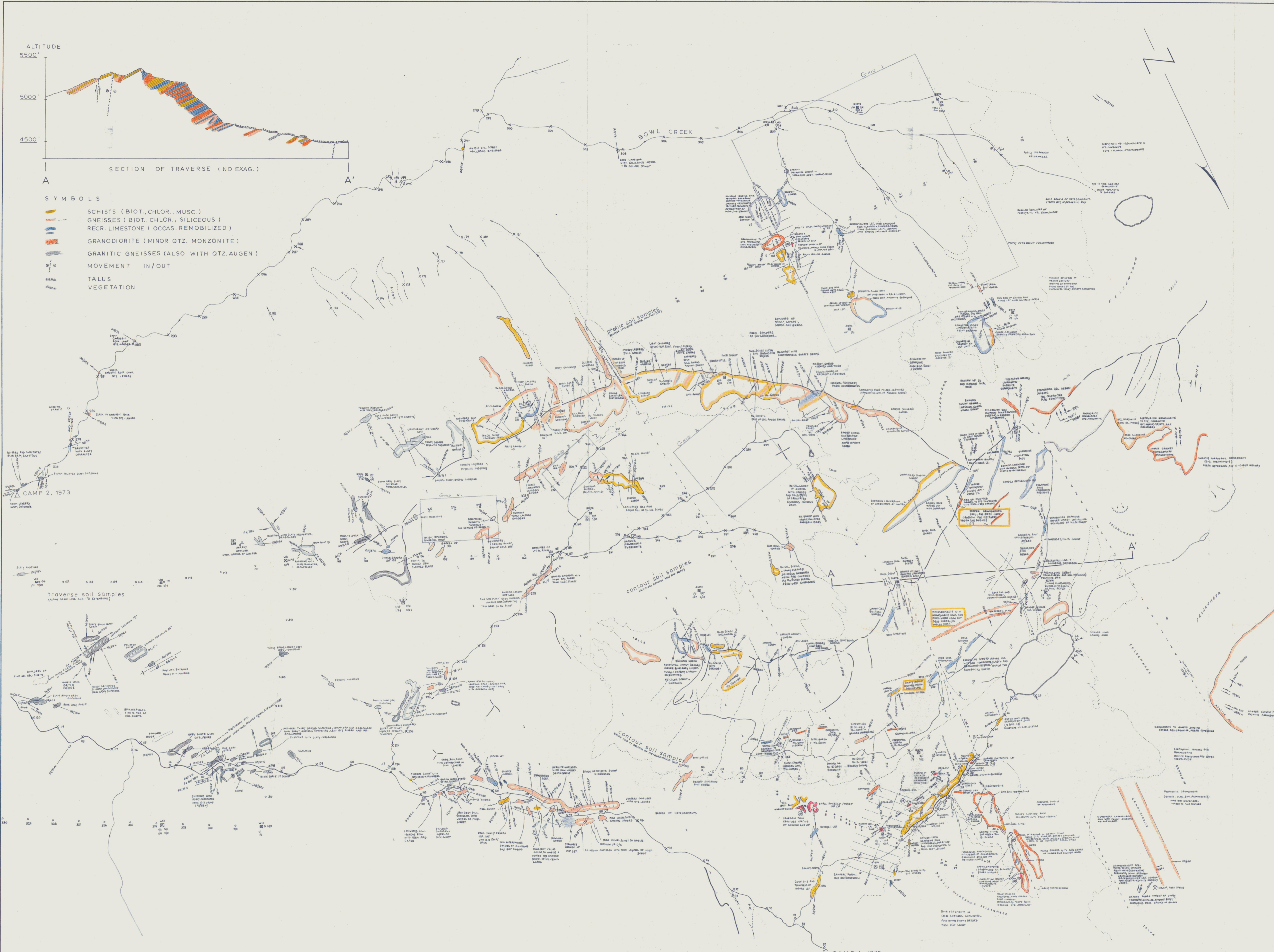






- LEGEND**
- METASEDIMENTS**
- MUDSTONE
  - SILTSTONE
  - SLATE
  -
- SYMBOLS**
- OUTCROP
  - BOULDERS
  - CREEK
  - DRY CREEK
  - LAKE
  - BEDDING
  - FRACTURE
  - LOCATION OF SAMPLE
  - STREAM SEDIMENT SAMPLE
  - SOIL SAMPLE (TRAVERSE)
  - CLAIM POSTS (LOCATED WITHIN 200 FT IN AREAS OF POOR RESOLUTION, ELSEWHERE WITHIN 25 FT)
  - CAMP SITE
  - AIR PHOTO CENTER

JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG. 3	FL PROJECT
WO CLAIM GROUP	EAST SHEET
RECONNAISSANCE GEOLOGY	
GOVT. AIR PHOTO NO. A 12249 - 235	
WHITEHORSE AUG. 3, 1973	VOLKER AHLBORN
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>500</span> <span>0</span> <span>500</span> <span>1000</span> </div> <p style="text-align: center; margin-top: 5px;">FEET</p>	



- SYMBOLS**
- SCHISTS (BIOT., CHLOR., MUSC.)
  - GNEISSES (BIOT., CHLOR.; SILICEOUS)
  - RECR. LIMESTONE (OCCAS. REMOBLIZED)
  - GRANODIORITE (MINOR QTZ. MONZONITE)
  - GRANITIC GNEISSES (ALSO WITH QTZ. AUGEN)
  - MOVEMENT IN/OUT
  - TALUS
  - VEGETATION

- LEGEND**
- IGNEOUS AND ASSOCIATED ROCKS**
- MINERALIZATION
  - SKARN
  - PEGMATITE
  - APHANITIC ACIDIC ROCK, QTZ. RICH
  - GRANODIORITE**
    - PORPHYRITIC BIOTITE GRANODIORITE
    - PORPHYRITIC HORNBLENDE GRANODIORITE
    - CATACLASTIC MUSCOVITE GRANODIORITE, CONT. OCCASIONALLY VERY SMALL RED GARNETS
  - MONZONITIC ROCK
  - PORPHYRITIC HORNBLENDE QUARTZ MONZONITE, CONT. LOCALLY ANDESITE XENOLITHS
  - LAMINATED SILICEOUS IGNEOUS ROCK, GRANITIC GNEISS
- SEDIMENTARY ROCK AND METASEDIMENTS**
- LIGHT GREY PHYLLITIC MUDSTONE
  - BLUE-BLACK SHALE TO SLATE
  - GREY SILTSTONE
  - QUARTZITE
  - MUSCOVITE SCHIST, CONT. OCCASIONALLY RED BROWN MUSCOVITE BIOTITE SCHIST
  - MUSCOVITE CHLORITE SCHIST
  - MUSCOVITE GNEISS, MUSCOVITE BIOTITE GNEISS, SILICEOUS GNEISSES
  - RECRYSTALLIZED IMPURE LIMESTONE, ALSO REMOBLIZED, FLOW LAMINATED AND TIGHTLY FLOW FOLDED

- SYMBOLS**
- OUTCROP
  - BROKEN UP ROCK, ILL-DEFINED O/C BOUNDARY
  - TALUS
  - CREEK
  - WATERFALL
  - TOPOGRAPHIC-LOW, DRY CREEK
  - LAKE
  - RIDGE
  - PEAK
  - ROCK SLIDE
  - CONTACT
  - SHEARING
  - FAULT
  - FAULT, INFERRED
  - BEDDING
  - SCHISTOSITY, FOLIATION
  - FRACTURE
  - GRABEN
  - DIKE
  - AXIS OF ACCESSORY FOLD (PLUNGE DIR./AMOUNT)
  - AXIAL TREND OF SYNFORM
  - AXIAL TREND OF ANTIFORM
  - TRENCH
  - SHOWING
  - LOCATION OF MINERALIZATION
  - LOCATION OF SAMPLE
  - STREAM SEDIMENT SAMPLE
  - SOIL SAMPLE (CONTOUR, PROFILE, TRAVERSE)
  - ROCK CHIP SAMPLE (TRAVERSE)
  - FLOAT
  - CLAIM POSTS (LOCATED WITHIN 200 FT IN AREAS OF POOR RESOLUTION, ELSEWHERE WITHIN 25')
  - CAMP SITE
  - AIR PHOTO CENTER

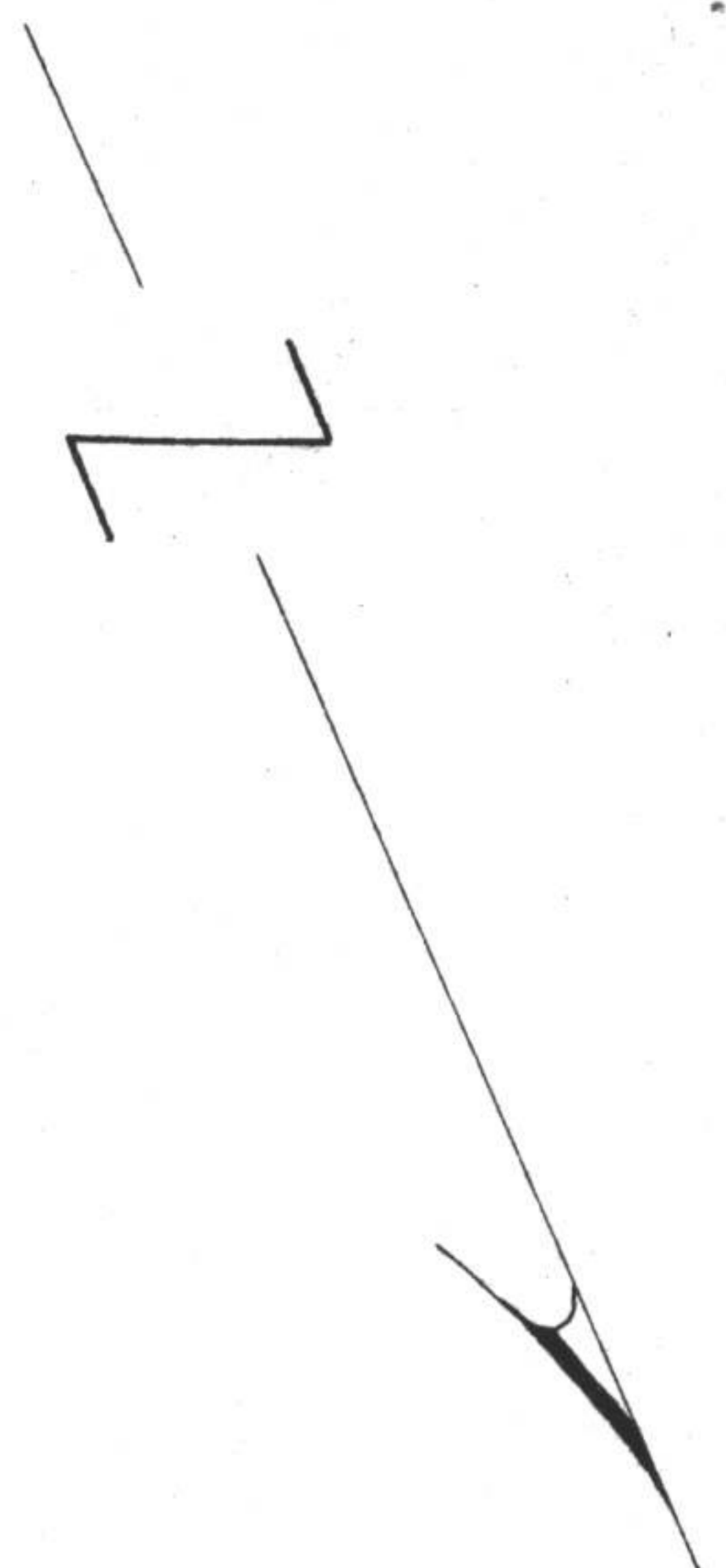
JOHN S. VINCENT LTD.  
 PAN OCEAN OIL LTD.

**FIG 3** FL PROJECT  
 RIETA/WO CLAIM GROUPS WEST SHEET  
 RECONNAISSANCE GEOLOGY

GOVT. AIR PHOTO NO. A 12249 - 222

CAMP 2 JULY 30, 1973 V. A.

500 0 500 1000  
 FEET

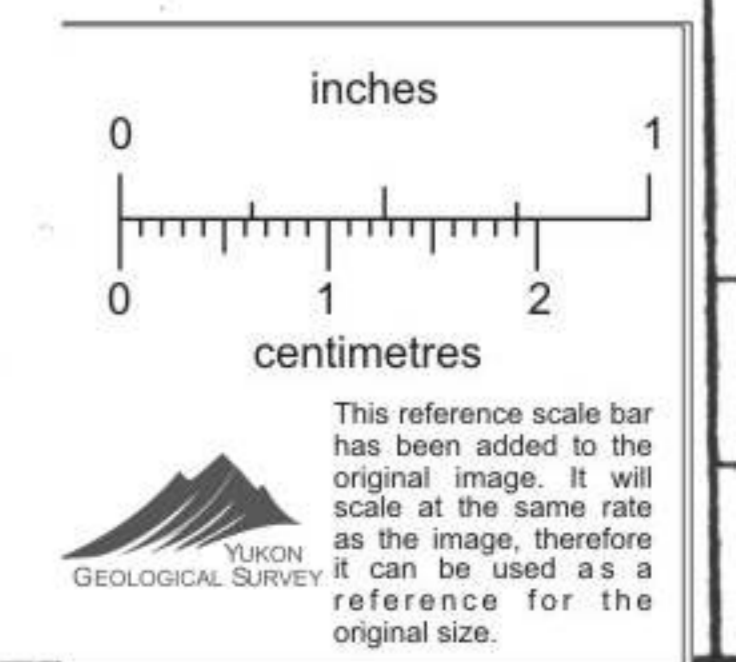


SOIL					STREAM SEDIMENT			
MEAN $\bar{x}$	Cu	Pb	Zn	W	Cu	Pb	Zn	W
22	53	105			27	70	162	
ST DEV. S	14	18	52		16	28	59	
$\bar{x} + 1 S$	36	71	157		43	98	221	
$\bar{x} + 1.5 S$	43	80	183		51	112	251	
$\bar{x} + 2 S$	50	89	209		59	126	280	
$\bar{x} + 3 S$	64	107	261		75	154	339	
N	283	282	271		165	163	139	

STREAM SEDIMENT SAMPLE  
 SOIL SAMPLE

SAMPLE SITE  $Zn \oplus W \geq \bar{x} + 2 S \oplus$   
 $Cu \oplus Pb$   
 ☒ CLAIM POSTS (LOCATED WITHIN 200 FT IN AREAS OF POOR RESOLUTION, ELSEWHERE WITHIN 25 FT)

JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG. 4	FL PROJECT
WO CLAIM GROUP	EAST SHEET
RECONNAISSANCE GEOCHEM	
GOVT. AIR PHOTO NO. A 12249 - 235	
WHITEHORSE	AUG. 3, 1973
V. A.	
500 0 500 1000	
FEET	



060144



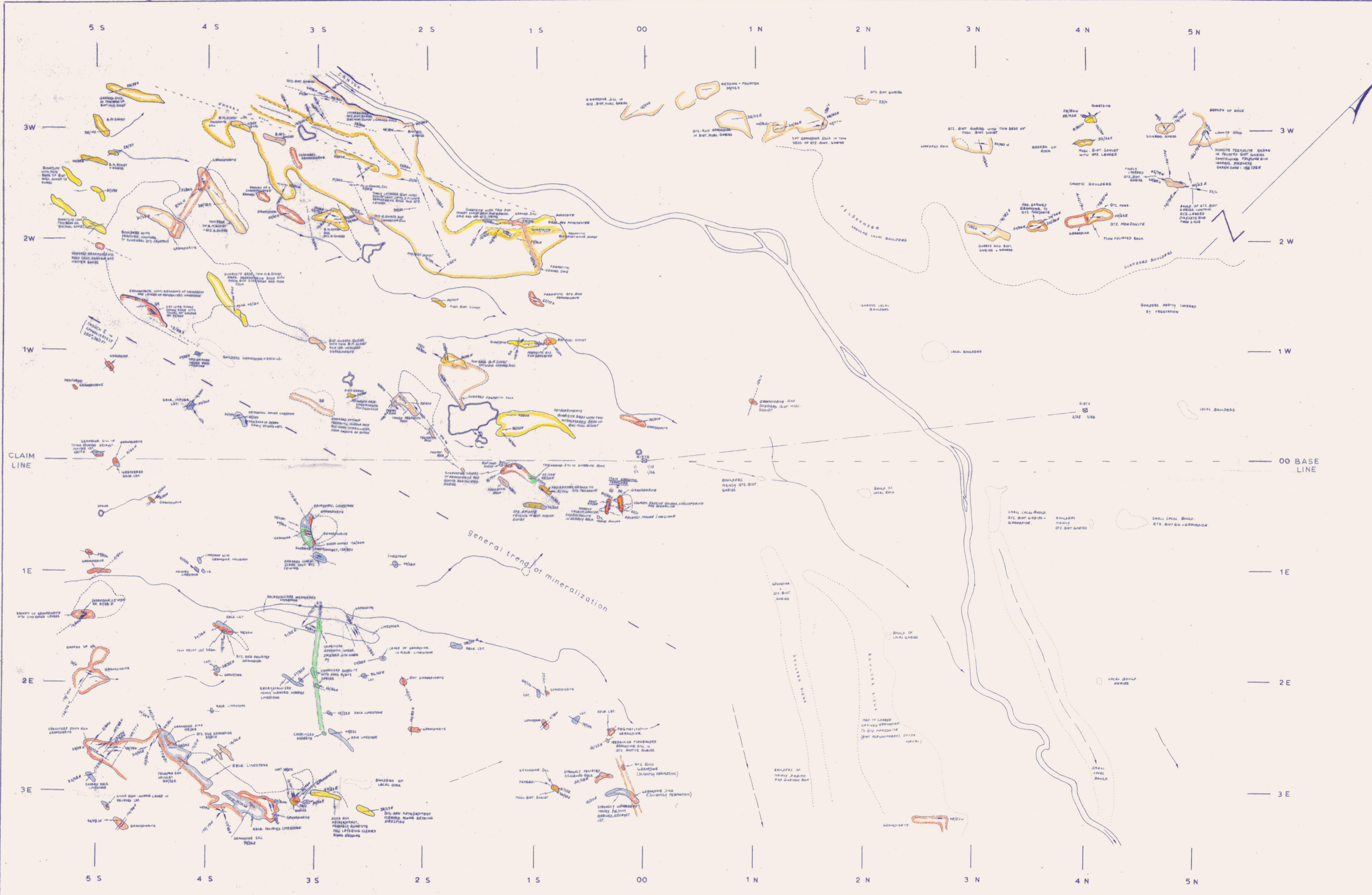
	SOIL				STREAM SEDIMENT				ROCK CHIPS
	Cu	Pb	Zn	W	Cu	Pb	Zn	W	
MEAN $\bar{X}$	22	53	105		27	70	162		
ST. DEV. S	14	18	52		16	28	59		
$\bar{X} \pm 1 S$	36	71	157		43	98	221		
$\bar{X} \pm 1.5 S$	43	80	183		51	112	251		
$\bar{X} \pm 2 S$	50	89	209		59	126	280		
$\bar{X} \pm 3 S$	64	107	261		75	154	339		
N	283	282	271		165	163	139		

SYMBOLS  $\bigcirc$   $\bigcirc$   $\bigcirc$

SAMPLE SITE Zn W  $\oplus$   $\oplus$   
Cu Pb  $\ominus$   $\ominus$

$\boxtimes$  CLAIM POSTS (LOCATED WITHIN 200 FT IN AREAS OF POOR RESOLUTION, ELSEWHERE WITHIN 25 FT)

JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG 4	FL PROJECT
RIETA/WO CLAIM GROUPS	WEST SHEET
RECONNAISSANCE GEOCHEM	
GOVT. AIR PHOTO NO. A 12249 222	
WHITEHORSE AUG. 5, 1973	V. A.
500 0 500 1000 FEET	



**LEGEND**

**IGNEOUS ROCKS AND ASSOCIATES**

- MINERALIZATION
- SKARN
- PEGMATITIC ROCK
- CHLORITIZED ANDESITE
- QUARTZ MONZONITE
- GRANODIORITE

**MÉTASEDIMENTS**

- QUARTZITE
- BIOTITE MUSCOVITE SCHIST
- QTZ. BIOT. MUSC. GNEISS
- BIOT. MUSC. GNEISS, QTZ. BIOT. GNEISS
- RECRYSTALLIZED, IMPURE LIMESTONE

**SYMBOLS**

- OUTCROP
- TALUS, BROKEN UP O/C, ILL-DEFINED O/C
- BOULDERS, LOCAL ROCK
- BOUNDARY
- CREEK
- CREEKLET
- TOPOGRAPHIC LOW
- POND
- CLIFF
- CONTACT
- CONTACT, INFERRED
- SHEARING
- FAULT
- SHEAR CONTACT
- BEDDING
- SHISTOSITY, FOLIATION
- FRACTURE
- LOCATION NUMBER
- CLAIM LINE
- CLAIM POSTS
- BASE LINE

JOHN S. VINCENT LTD.  
PAN OCEAN OIL LTD.

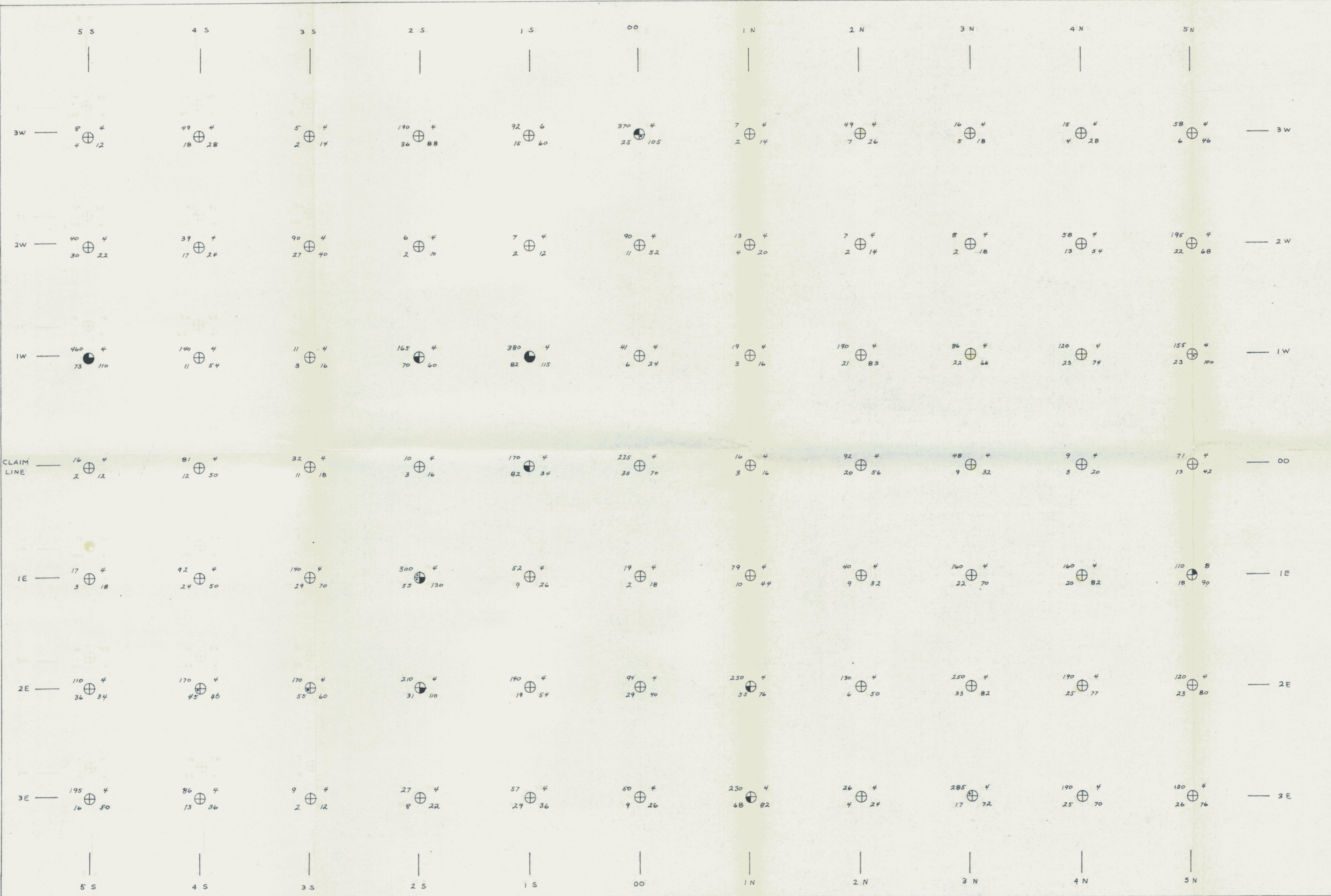
**FIG. 5** FL PROJECT

**GEOLOGY**  
MAIN SHOWING

---

CAMP 1, JULY 16, 1973 V. A.

50 0 50 100  
FEET

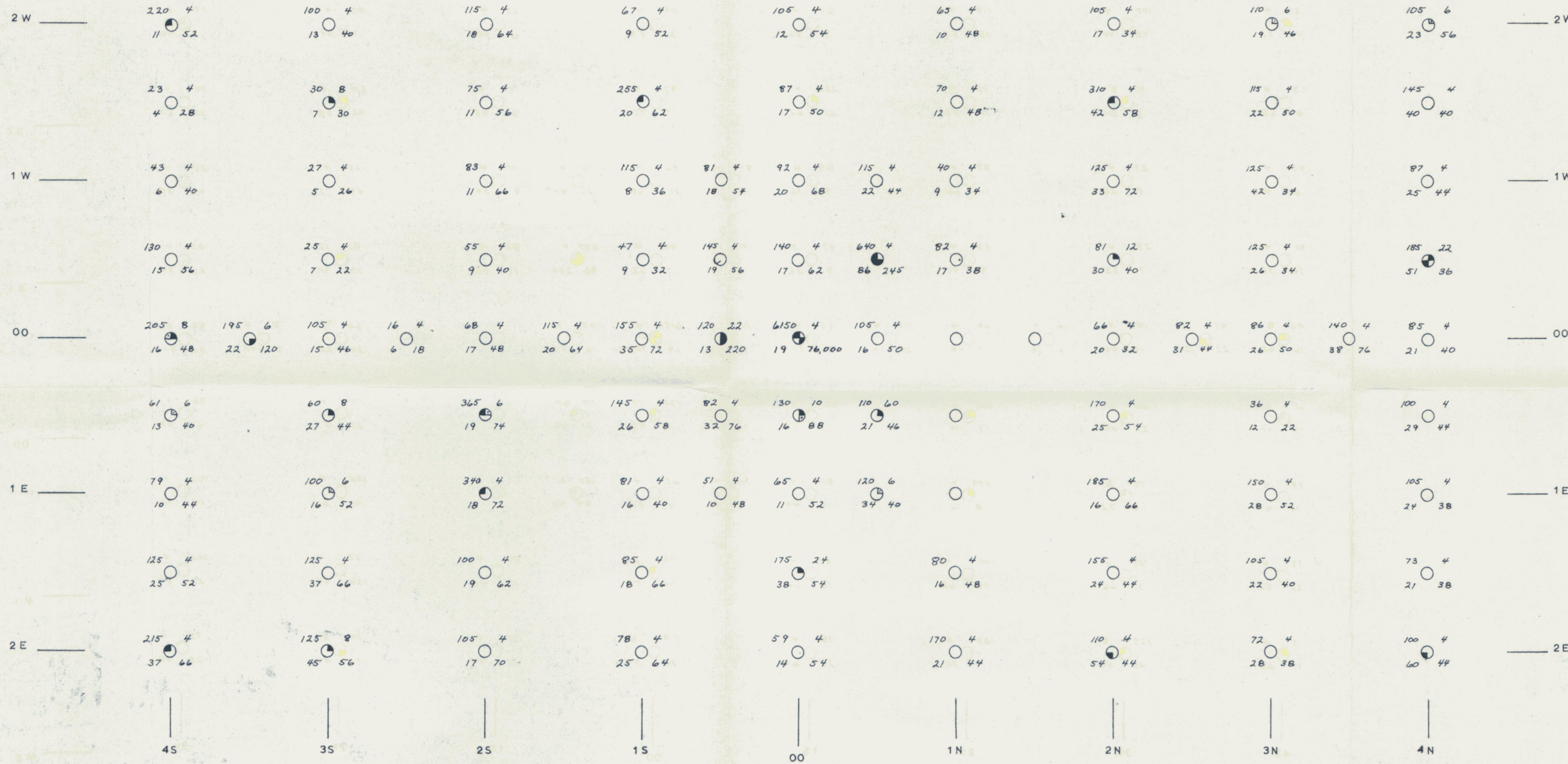


Cu Pb Zn W  
 Mean  $\bar{x}$   
 St. Dev. S  
 $\bar{x} + 1.5S$   
 $\bar{x} + 2S$



Sample site

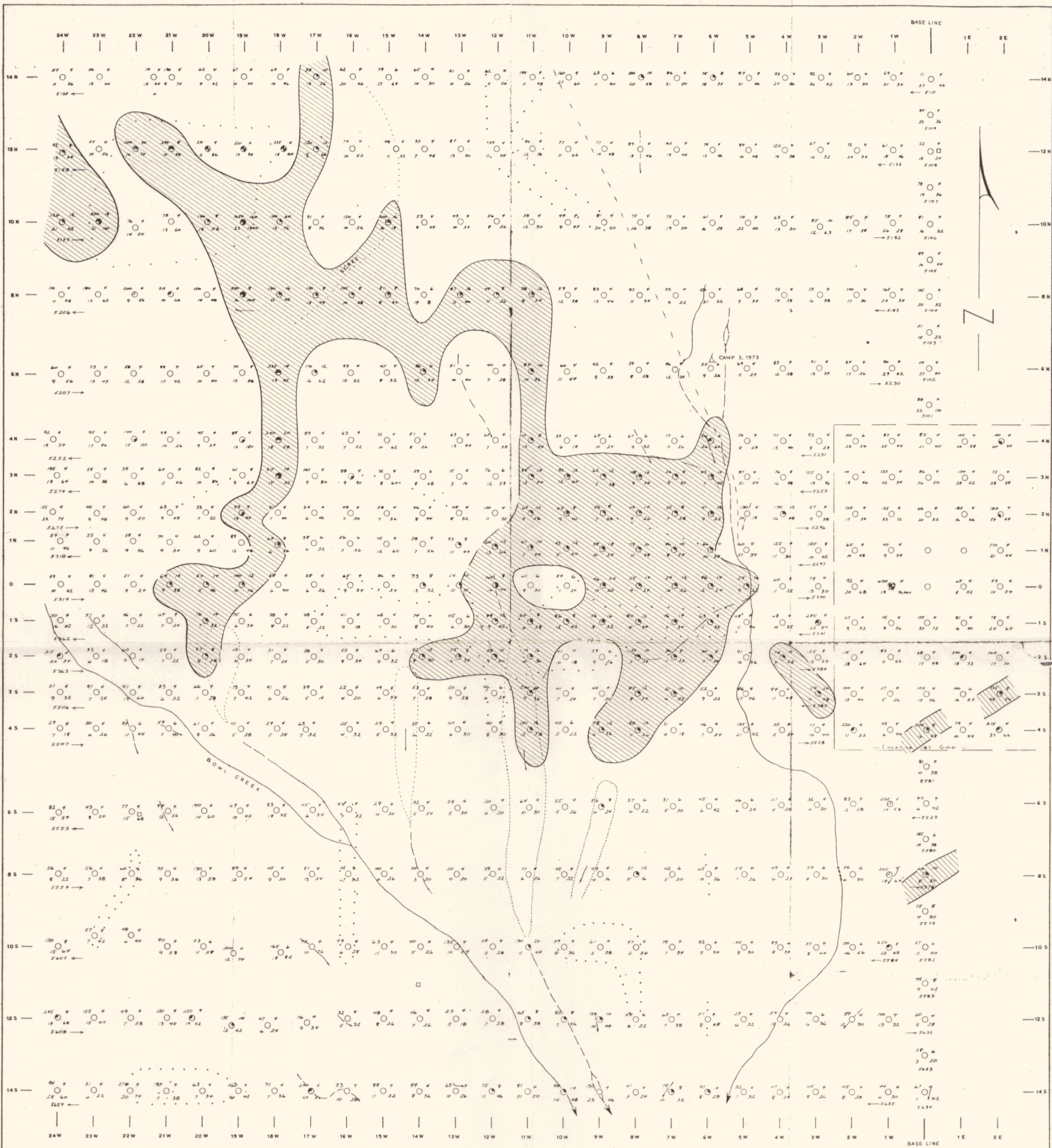
JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG. 6	FL PROJECT
SOIL GEOCHEMISTRY	
MAIN SHOWING	
WHITEHORSE JULY 20, 73	VOLKER AHLBORN



		Cu	Pb	Zn	W
Mean	$\bar{x}$	22	53	105	
St Dev.	S	14	18	52	
$\bar{x} + 2S$		50	89	209	⊙

Sample site Zn W  
Cu Pb

JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG. 7	
FL PROJECT	
SOIL GEOCHEMISTRY	
LOCATION 187	
RIETA 12	
WHITEHORSE AUG. 7, 1973	VOLKER AHLBORN



**LEGEND**

- CREEK
- TEMPORARY DRAINAGE
- WATERFALL
- GULLY
- SCREE
- SCARRY ROCK
- ABUNDANT REMOBI LESTONE WITH IRREG. IGNEOUS INCLUSIONS + DIKES
- IRON OXIDE STAINED SOIL
- CLAIM POSTS

AREA OF TUNGSTEN VALUES IN SOIL

MODIFIED JUNE 30, 1980



	Cu	Pb	Zn	W
MEAN $\bar{x}$	2.2	8.3	10.5	
ST DEV S	1.4	1.8	3.2	
$\Sigma + 1.5$				
$\Sigma + 2.5$	1.0	8.9	2.0	
$\Sigma + 3.5$				

SAMPLE SITE  $\Sigma + 2.5$

FIGURE 7.

JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG B	FL PROJECT
GRID NO. 1	
GEOCHEMISTRY	
SOIL SURVEY	
WHITEHORSE AUG 25, 1973	VOLKER AHLBORN
100 0 100 200	

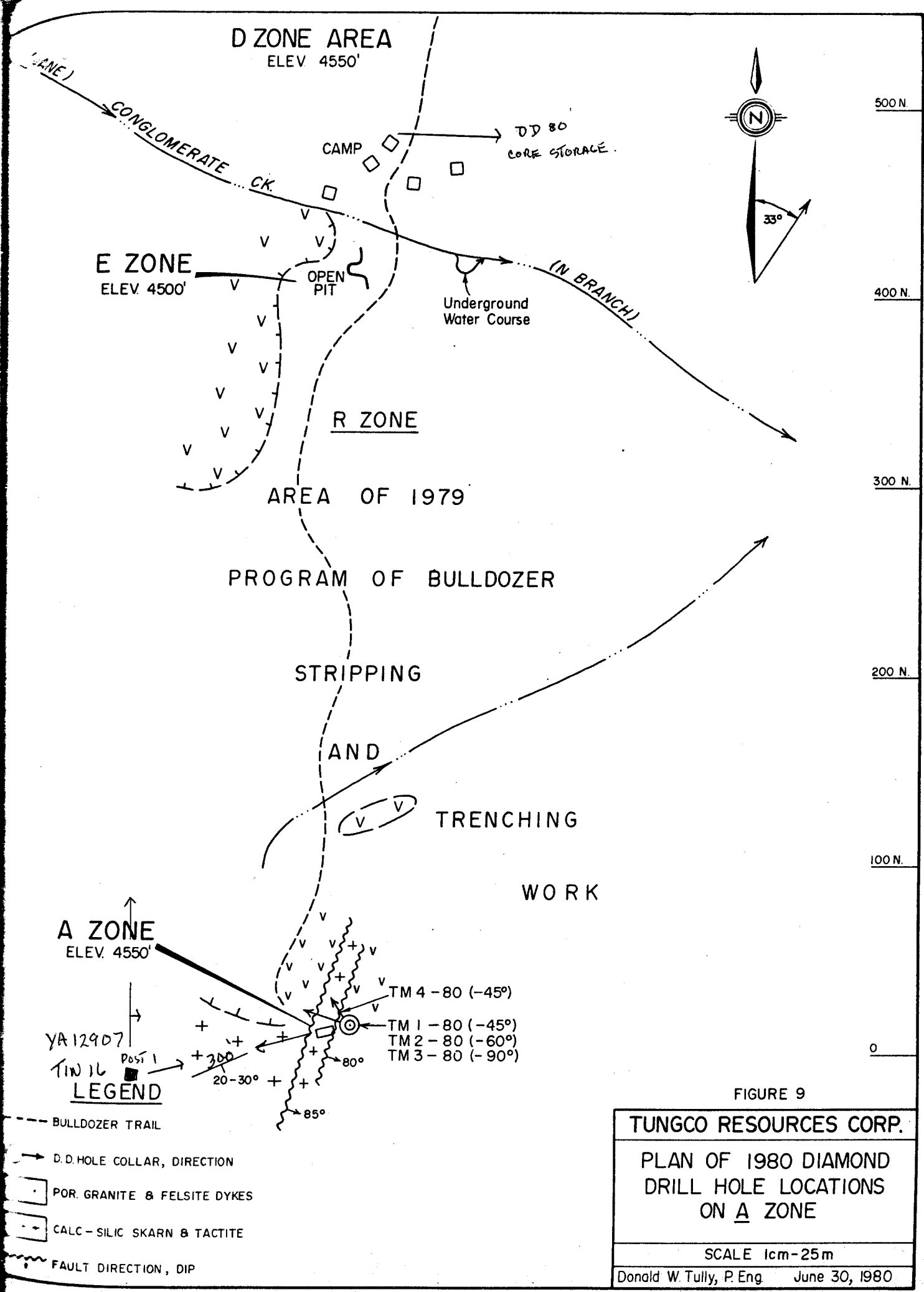


**LEGEND**

- CREEK
- TEMPORARY DRAINAGE
- WATERFALL
- GULLY
- SCREE
- SCARRY ROCK
- ABUNDANT REMOBI. LIMESTONE WITH IRREG. IGNEOUS INCLUSIONS • DIKES
- IRON OXIDE STAINED SOIL
- CLAIM POSTS

	Cu	Pb	Zn	W
MEAN $\bar{x}$	2.2	5.3	10.5	
ST. DEV. S	1.4	1.8	5.2	
$\bar{x} \pm 1 S$				
$\bar{x} \pm 1.5 S$				
$\bar{x} \pm 2 S$	3.0	8.9	20.9	
$\bar{x} \pm 3 S$				

JOHN S. VINCENT LTD.  
 PAN OCEAN OIL LTD.  
 FIG. 8 FL PROJECT GRID NO. 1  
**GEOCHEMISTRY**  
 SOIL SURVEY  
 WHITEHORSE AUG 25, 1973 VOLKER AHLBORN  
 100 0 100 200  
 FEET



D ZONE AREA  
ELEV. 4550'

E ZONE  
ELEV. 4500'

R ZONE

A ZONE  
ELEV. 4550'

AREA OF 1979  
PROGRAM OF BULLDOZER  
STRIPPING  
AND  
TRENCHING  
WORK

YA12907  
Pos 1  
TINIL  
**LEGEND**

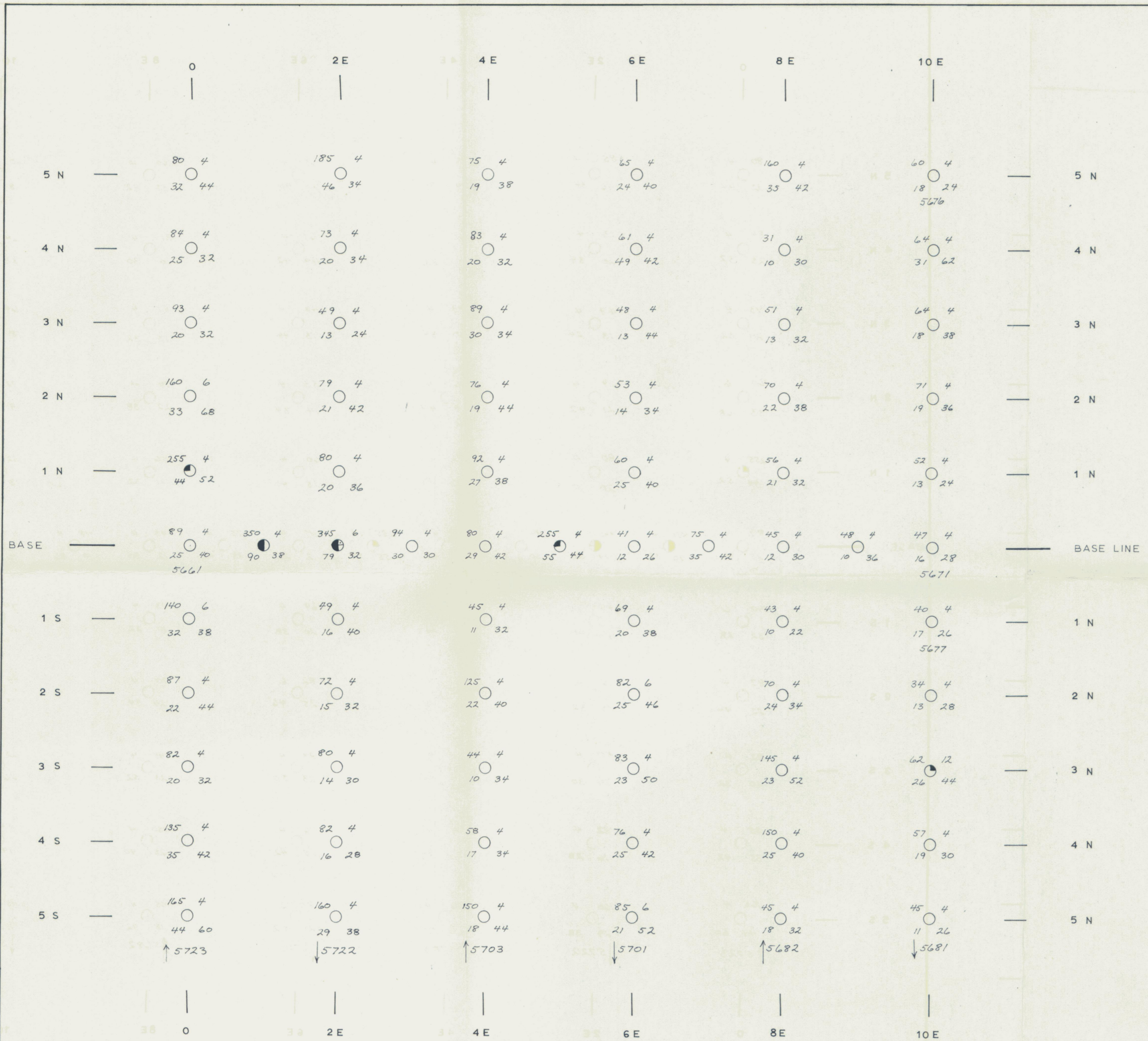
TM 4 - 80 (-45°)  
TM 1 - 80 (-45°)  
TM 2 - 80 (-60°)  
TM 3 - 80 (-90°)

- - - BULLDOZER TRAIL
- D.D. HOLE COLLAR, DIRECTION
- POR. GRANITE & FELSITE DYKES
- ▭ CALC-SILIC SKARN & TACTITE
- ~ FAULT DIRECTION, DIP

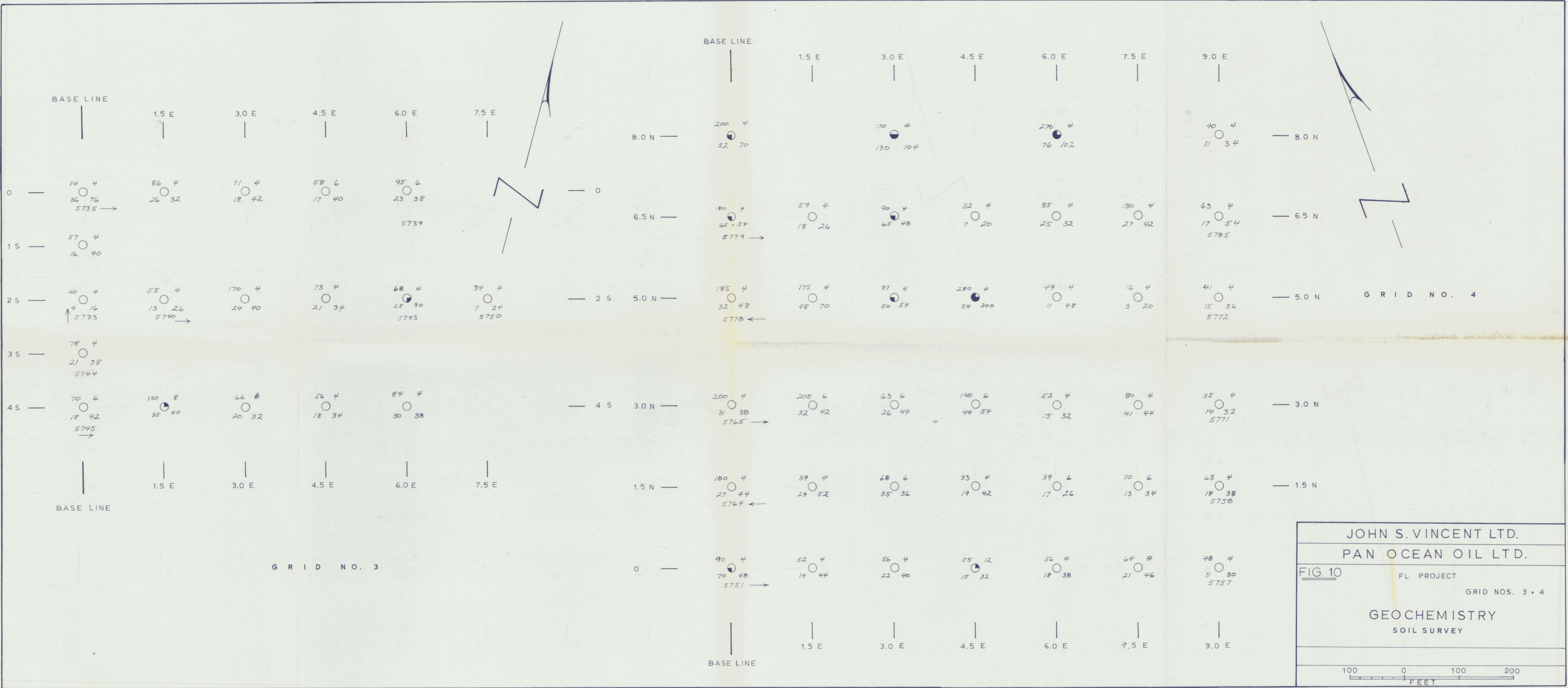


500 N  
400 N  
300 N  
200 N  
100 N  
0

FIGURE 9  
**TUNGCO RESOURCES CORP.**  
PLAN OF 1980 DIAMOND  
DRILL HOLE LOCATIONS  
ON A ZONE  
SCALE 1cm-25m  
Donald W. Tully, P. Eng June 30, 1980



JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG 9	FL PROJECT
GRID NO. 2	
GEOCHEMISTRY	
SOIL SURVEY	
WHITEHORSE AUG. 26, 1973	VOLKER AHLBORN



GRID NO. 3

GRID NO. 4

JOHN S. VINCENT LTD.	
PAN OCEAN OIL LTD.	
FIG. 10	FL PROJECT
GRID NOS. 3 + 4	
GEOCHEMISTRY	
SOIL SURVEY	