

MINERAL RESEARCH BRANCH
NO. 6358

REPORT ON
GEOCHEMICAL SURVEYS AND TRENCHING
CONDUCTED ON THE ZAP CLAIM GROUP
MT. TEGART, GOLDEN M. D., B. C.
(50° 26' N, 115° 52' 30" W)
M429

CHEVRON CANADA LIMITED,
901 - 355 Burrard Street,
Vancouver, B. C.

by

D. P. Taylor, P. Eng.

August, 1977

Vancouver, B. C.

SUMMARY:

Work conducted on the ZAP claims during the last two summers has indicated the property to be of potential economic interest and worthy of further exploration expenditures.

Geochemical surveys conducted for lead and zinc content in soil samples have delineated some anomalous areas that should be further investigated and defined. One of three trenches blasted into outcrop has produced assays of 4.15% zinc across 6 meters.

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Property Location Map - following Page 1

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Trenches and Sample Results - following Page 5

Geochemistry Pb - ppm - in pocket

Geochemistry Zn - ppm - in pocket

INTRODUCTION:

The ZAP claim group was staked in August, 1976 after barite on the claims was found to contain minor galena and to react strongly to zinc-zap spray.

Wide spaced reconnaissance soil sampling was conducted on the property and it was prospected by a party led by M. Lomenda, geologist.

Fill-in geochemical surveying was performed in July, 1977 and three trenches were cut in bedrock using a rock drill and dynamite. This work was performed by or under the direction of D. P. Taylor, P.Eng.

LOCATION AND ACCESS:

The property is located on the southwest slopes of Mt. Tegart, eight kilometres southeast of Windermere, in the Golden M.D., B. C.
Co-ordinates are:

50⁰ 26' N
115⁰ 52' 30' W
on Map sheet 82J/5W

Access to the property is good using the old Highway 93-95 and logging roads that leave the highway just north of Madias Creek.

TOPOGRAPHY AND CLIMATE:

Elevations on the property vary from 3,000 to 5,300 feet A. S. L.

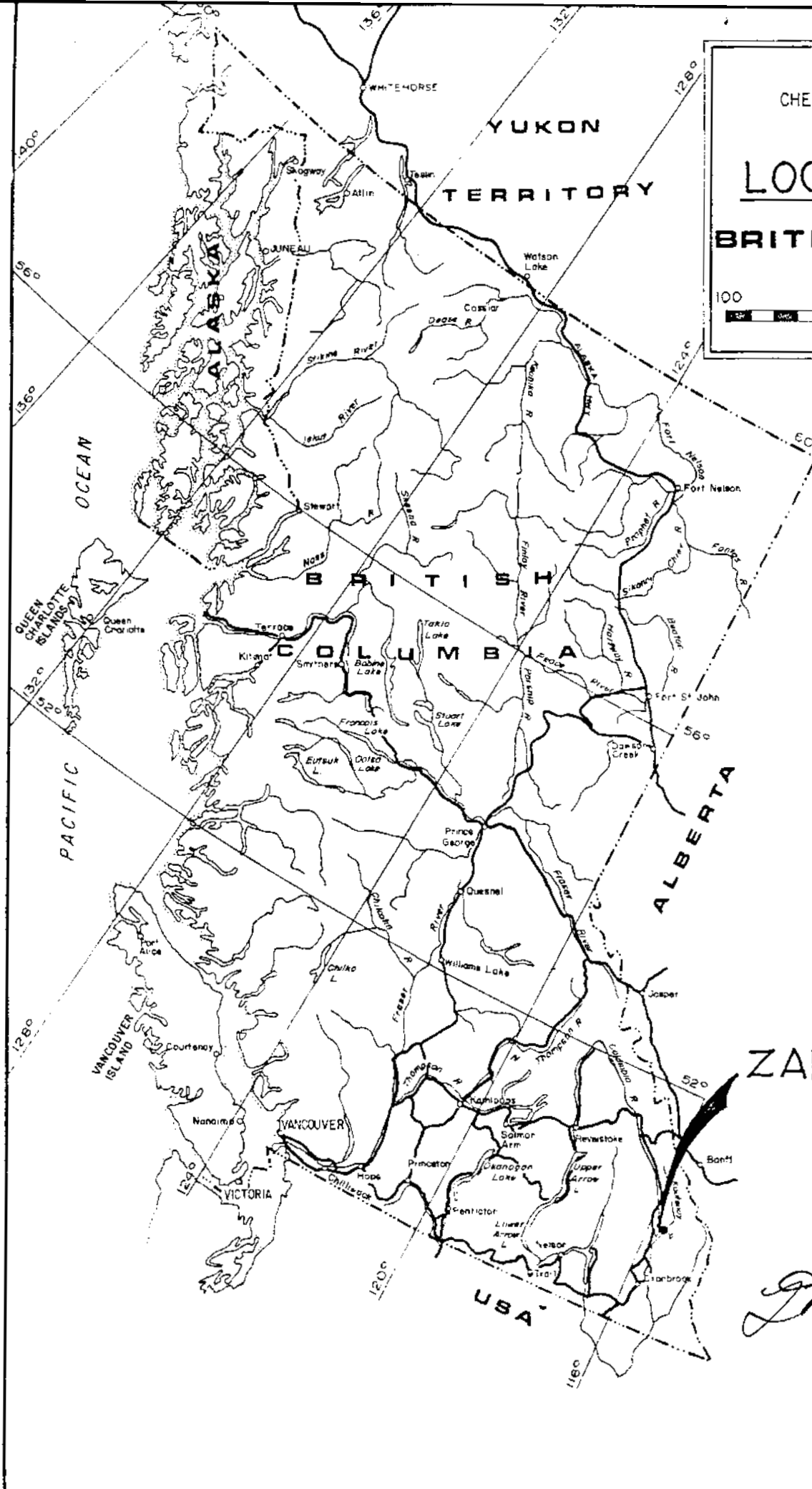
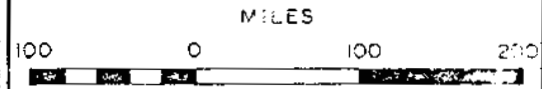
The property is generally flat to the southwest and rises sharply to the northeast with some areas of bluff. All areas can be traversed, though at times with difficulty over short sections.

The climate in this area is generally dry with hot summers and sub-zero winters with moderate snowfall. Annual precipitation is moderate and water for exploration purposes may have to be pumped over appreciable distances in many areas.

FIG.1

M429
CHEVRON STANDARD LIMITED
MINERALS STAFF

LOCATION MAP BRITISH COLUMBIA



ZAP CLAIMS

J.P. Harper

PROPERTY:

The property consists of 4 claims totalling 16 units.

<u>Claim</u>	<u>Units</u>	<u>Recording Date</u>	<u>Record No.</u>
ZAP 1	6	August 26, 1976	86
ZAP 2	2	"	87
ZAP 3	6	"	88
ZAP 4	2	"	89

The claims are owned by Chevron Canada Limited and, by observation of posts and lines in the field, appear to have been staked in accordance to the Minerals Act.

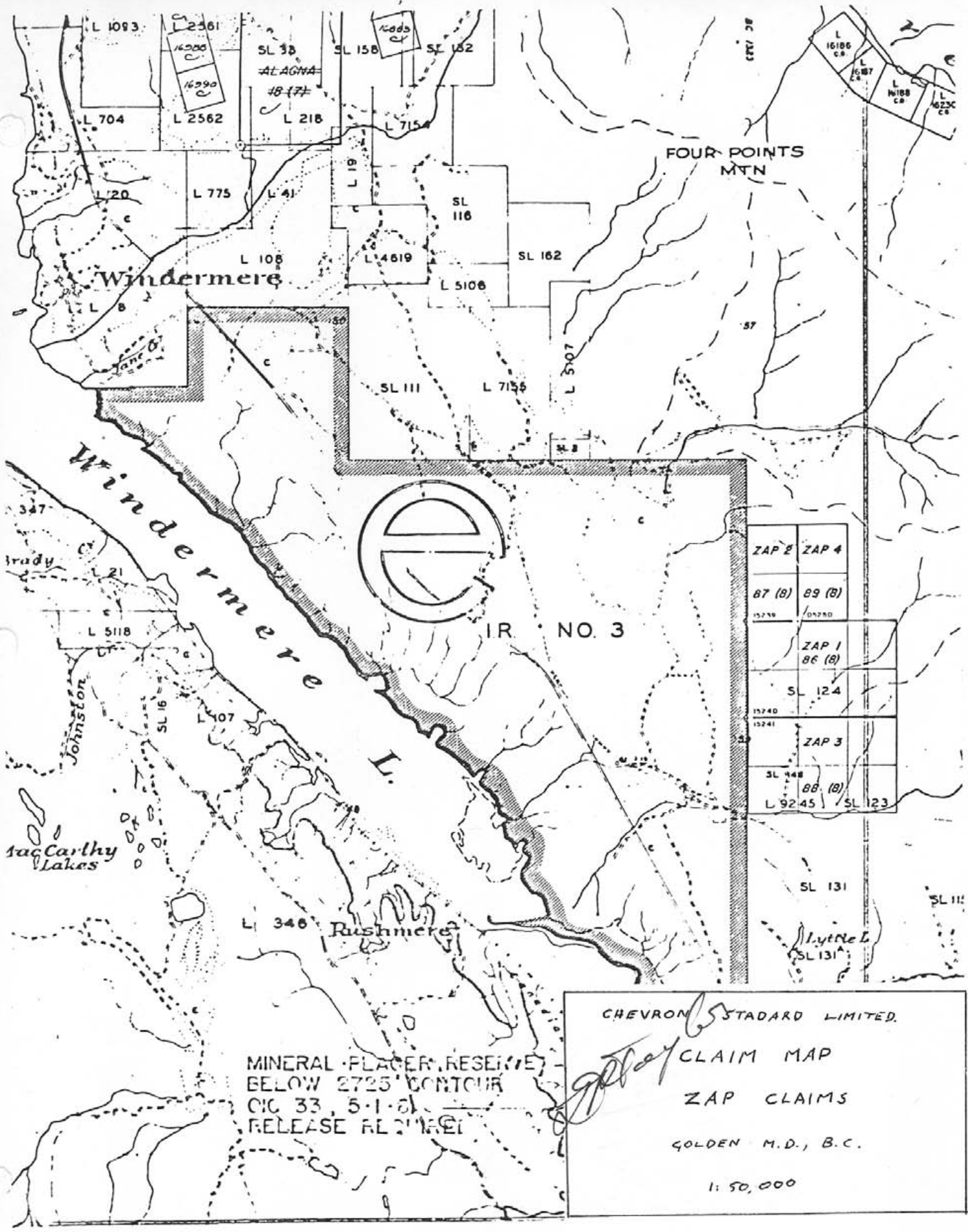
REGIONAL GEOLOGY:

The ZAP claims lie on the western flank of the Stanford Range, east of the Columbia River. The property is underlain by Middle and/or Upper Cambrian Jubilee Formation consisting of massive to laminated dolomites. A small window of Proterozoic Horsethief Creek Formation quartzite is exposed on the northeast edge of the property.

These rocks lie toward the base of a thick sedimentary pile ranging from Proterozoic to Middle Devonian in age which have been quite intensively folded on a north-northwest axial trend, forming the Stanford Range between the Columbia and Kootenay Rivers. Major regional faulting tends to parallel the axial trend.

PROPERTY GEOLOGY:

The geological map of the Stanford Range of Henderson (B.C., D.O.M. Bull. 35, 1954) shows the ZAP claim area to be almost entirely underlain by Jubilee Formation dolomites. A major inferred contact on Henderson's map is believed to be a 040° striking fault observable on air photos.



MINERAL PLACER RESERVE
 BELOW 2725' CONTOUR
 CIG 33, 5-1-61
 RELEASE REQUIRED

CHEVRON STANDARD LIMITED.
Gray
 CLAIM MAP
 ZAP CLAIMS
 GOLDEN M.D., B.C.
 1:50,000

Folding on the western flank of the Stanford Range is more complex than the central and eastern parts. Wave lengths decrease and although isoclinal features are not observed, there are indications of tighter folding in this area, possibly complicated by unrecognized axial faulting.

Most of the dolomites observed on the ZAP claims tend to be massive, consequently dips are difficult to determine. Minor beds of siliceous dolomite and narrow fragmental sections have been observed. Detailed mapping of the property geology has not been conducted to date.

Of possible economic significance on the property are sulphide bearing barite veins which generally crosscut the stratigraphy.

Although all of the barite occurrences on the property are not sulphide bearing, sulphides do tend to be associated with barite. There is some evidence that in some places at least sphalerite mineralization may migrate into the wall-rocks of barite zones.

Five lead-zinc-barite mineralized areas were located in 1976. The Lucky Barite and Lucien showings were known for some years and in the past a small amount of barite has been produced from a small glory hole in the Lucky Barite showing. Rare flecks of galena and malachite can be found in the barite in this quarry.

The Lucien was visited in 1952 by one of Henderson's mapping party. It consists of a rusty recessive barite bearing shear trending $215^{\circ}/80^{\circ}\text{NW}$. The showing is about 5 m wide and 10 m long. Grab samples from this showing have produced some interesting assays but sulphide mineralization is very patchy.

What has been named the T3 showing south of the Lucky Barite, has at some time been trenched in 3 places. This barite vein is exposed for over 70 metres but is only 0.7 to 1.0 m thick, its attitude is $080^{\circ}/65\text{N}$. Although well mineralized in some areas, sulphides are only noted in the barite, which

is too thin to be of economic interest in itself. No wallrock sulphides have been observed.

Two unreported showings were found in 1976, those are now named the T1 and T2.

The T1 showing may be an offset extension of the Lucien. Although its attitude varies at $020^{\circ}/90^{\circ}$ only 150 metres separate the two occurrences. The T1 consists of a shear partially filled and replaced by barite. Areas of galena and sphalerite were noted, galena in the barite and sphalerite in the dolomite on the barite contact. The sulphides are apparently distinctly deposited for some unspecified reason. The barite tends to pinch out at the top of the showing but swells to a maximum of 10 m in thickness. It is exposed for 70 metres and is concealed by talus at its base, the back pinches out into unsheared dolomite.

The T2 showing is poorly exposed. On the face of a scree slope barite is exposed in sub-outcropping rocks. Exploration with zinc zap spray revealed a good anomalous area just topographically above the barite. A trench cut in fractured dolomite with minor veinlets of barite yielded 6 m of 4.15% Zn with very low 0.1 - 0.01% Pb. Again some apparent segregation of Pb and Zn is noted. Scattered barite and zinc zap spray reactive rocks are found over an area of about 100 m diameter in the T2 zone. However, it is impossible without much more extensive trenching to determine the degree of downslope migration of zinc oxides in this steep area, the higher grade showing being at the break of slope at the top of the hill.

One thing noted during sampling was strong compass disorientation in the area of overburden between lines 0 and 2N and between lines 14 and 16N. It is not known what caused this to happen and unfortunately a magnetometer was not available to check the area.

TRENCHING:



Three trenches were blasted on the ZAP claims in July, 1977. Two were cut in the T2 showing and one in the T1 showing.

Trench 1, cut in T2 was the most successful one cut. The trench is in sub-outcrop and trouble was encountered keeping it clear of dry soil which tended to flow into it. North striking dolomite with minor barite veining was found in the trench, apparent attitude of the rocks was $340^{\circ}/35^{\circ}W$. The barite veining is not conformable to bedding. Lead assays in this trench are not economically significant. From top to bottom (E to W) zinc assays were as follows:

<u>Sample No.</u>	<u>Length</u>	<u>% Zn</u>
ZAP 1	2 m	0.03%
ZAP 2	2 m	3.20%
ZAP 3	1 m	3.76%
ZAP 4	1 m	8.10%
ZAP 5	1.5 m	1.55%
ZAP 6	0.5 m	8.70%
Weighted average across 6 m		4.15% Zn

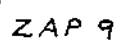
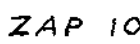

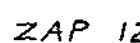
The western most (lowest) sample in the trench was from rusty oxidized material plunging to depth below dirt. The extension to the west is thus open for at least 15 m to the next outcrop exposure down the hill. Total rock moved in this trench was about 12 m^3 .

Trench 3 was cut in a siliceous dolomite outcrop that reacted well to zinc zap spray. The trench is about 50 metres north-northwest of trench 1. After the first round of blasting it was found that the zinc oxide was purely a transported surface feature on the outcrop, the zinc having been transported down the hill and deposited on exposed surfaces and in cracks and fissures in the outcrop. After removing 6 m^3 of rock this trench was abandoned.

 ZAP 8 Pb 1480 ppm
 Zn 5200 ppm
 Ag 2.4 ppm
 ZAP 7 Pb 0.04%
 Zn 0.18%

TRENCH 2

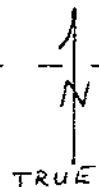
20m³ of rock removed

 ZAP 9 Pb 8800 ppm
 Zn 9600 ppm
 Ag 4.7 ppm.
 ZAP 10 Pb 1000 ppm
 Zn 1300 ppm.
 ZAP 11 Pb 480 ppm
 Zn 17000 ppm
 ZAP 12 Pb 200 ppm
 Zn 7600 ppm.

TRENCH 3

6 m³ of rock removed

NOT SAMPLED
 NO INDICATED OR
 VISIBLE MINERALISATION.

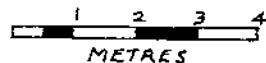


TRENCH 1

ZAP 6 ZAP 5 ZAP 4 ZAP 3 ZAP 2 ZAP 1

Zn 8.70%	Zn 1.55%	Zn 3.10%	Zn 3.76%	Zn 3.20%	Zn 0.03%
Pb 0.10%	Pb 0.01%	Pb 0.10%	Pb 0.10%	Pb 0.06%	Pb <0.01%

12m³ of rock removed



[Handwritten signature]

CHEVRON STANDARD LIMITED
 ZAP CLAIMS - M429
 MT TEGART, GOLDEN M.D
 TRENCHES 1-3
 SCALE 1:125
 LOCATIONS ON GEOCHEMICAL MAPS
 JULY, 1977
 D.P.T.

Trench 2 was blasted into the T1 showing at the base of the bluff exposure of barite. A large section of the bluff face was blasted out and two single holes were blasted into the shear zone. Assay returns are not encouraging, however, their validity is not entirely trusted. One sample (ZAP 8) contained good visible sphalerite yet returned only 0.52% Zn, another sample (ZAP 9) contained considerable visible galena yet returned only 0.88% Pb and 0.96% Zn. Short sections sampled in this outcrop in 1976 gave 7.20% Zn across 5 feet and 2.50% Zn across 3 feet, though the exact location from which these samples came could not be determined in 1977. About 20m³ of rock were moved from this cut which is 9 m long. Two 1 m holes were blasted in the shear at the northwest end of the cut about 3 metres from its end.

In all about 41 m³ of rock were removed in the trenching of 1977.

GEOCHEMICAL SURVEY:

The ZAP claims were geochemically tested for ppm Pb and Zn in 1976 by lines 200 metres apart with samples taken every 100 metres along the east-west lines. A total of 231 samples were collected in 1976.

Fill-in sampling was done in 1977 with 247 samples being collected over two anomalous areas. 170 samples were collected on fill-in lines 50 metres apart with sample spacing of 50 metres around the area of T2 showing. 77 samples were collected on a similar grid north of the Lucky Barite showing. These samples were also tested for ppm Pb and Zn content.

SAMPLE COLLECTION AND ANALYSIS:

No soil horizon development was noted on the ZAP claims. Samples were collected from 15 cm depth from holes dug with a mattock. Samples were spooned into kraft paper bags provided by the laboratory. All samples were shipped to the laboratory of Bondar-Clegg & Company Ltd. at 1500 Pemberton Ave., North Vancouver, B. C. Analysis was performed on minus 80 mesh material using hot aqua regia extraction and atomic absorption quantitative reading methods for ppm content of Pb and Zn

GEOCHEMICAL RESULTS:

Results for the 1977 survey results have been graphically treated on semi-log paper, the graphs append this report.

Lead results range from 10 to 3000 ppm and background levels for all 1977 lead results is 27 ppm; the anomalous population is that above 47 ppm.

Zinc results range from 22 to 10,000 ppm. Background level for 1977 results have been interpolated at 112 ppm, the anomalous samples are those above 165 ppm.

There appears to be two populations in the southern detailed grid, probably related to overburden covered areas or, conversely, proximity to outcrop. Attempts to separate these two populations have not been successful. Background and anomalous values derived from the combined grid populations are considered to be statistically viable, within reasonable limits.

GEOCHEMISTRY INTERPRETATION:

Due to the lack of soil profile development on the ZAP claims, and also due to the highly calcareous nature of the soil, it is believed the geochemical surveys conducted to date have sufficiently investigated the areas covered. Zinc fixes very quickly in alkaline environments and lead is not very mobile in any normal geochemical environment.

There is a marked tendency for anomalous values to group around outcrop areas and also around areas of known sulphide mineralization. Although, generally speaking, zinc values are low, anomalies are considered worth further investigation due to the fact mentioned of the general lack of mobility of the element in this calcareous environment. Anomalous lead values are almost exclusively associated with zinc anomalies. The fact that zinc anomalous samples occur alone may be due to the relative mobility of zinc or to the

phenomenon observed in places on the property of spatial segregation of lead and zinc in relationship to barite.

Five areas stand out as particularly high on the property. The area around T2 showing has good expression and is over 150 metres in length in a southeasterly direction. With grades indicated in T2 trench it needs further investigation. There is a very general suggestion of extension of this anomaly in lower values grouped around each end. These lower values are in areas of shallow overburden. The trend crosses the geological trends at an angle of about 25° .

The only other very high samples on the southern grid are two samples taken in 1976 on line 2N. These samples are isolated and in an area of deep overburden and seem to be erratic. They should be check-sampled next time work is conducted on the property. The north grid has four rather small anomalies on it. The most significant is on the northeast corner of the grid. A north south anomaly of very high values has developed at station 5+50E on lines 14+50 to 15+50N. This is an area of sub-talus slope. The anomaly is weakly supported by flanking values and follows general regional trend.

The strong values encountered on line 14N in last year's survey have not been supported by any new anomalous values; they should be check-sampled.

Weaker anomalies are located on the western flank of the northern grid, copper stained barite with zinc zap spray reaction was noted in the field on the northern one of these at 0+50W on line 14+50N. The southern flanking anomaly is in an area of talus and outcrop.

CONCLUSIONS:

Work on the ZAP claims to date has been generally encouraging. Of the showings investigated the T2 appears to be of the most economic interest at this time.

The possibility of extension of known mineralization to the northwest and southeast is suggested by soil sample anomalies.

On the northern grid a strong anomaly has developed on the northeast sector in an area of sub-outcrop and talus. This anomaly needs further investigation as it is at least 150 metres long. Check sampling should be performed on the anomaly on line 14N. The anomalies on the western flank of the grid are both in areas of outcrop. Other anomalous samples on the grid are generally scattered and relatively low.

No conclusions can be made at present as to the controls relating to either the barite or the sulphide mineralization found on the ZAP claims. Barite veining tends to cross geological trends and may or may not be mineralized with sulphides. The sulphides tend to associate with barite, with galena in barite and sphalerite in and around the barite. The sulphides are believed to be of a later age than the barite and both modes of mineralization appear to be related to structures transgressing stratigraphy.

The possibility of any intrusive activity in the area is not suggested by any alteration noted on surface but may be indicated by compass variations noted.

Some relationship between mineralization and the northeast bearing fault on the property may possibly be defined as further work is done on the property.

RECOMMENDATIONS:

Some extension of the northern grid toward the east (200 m) and the south (200 m) is suggested to close off minor anomalies on the flank of the grid. The northeast corner of the grid should be extended out a similar distance to close off the strong anomaly in this area.

Further geochemical definition within present detailed grid areas is considered superfluous. The property is not amenable to geophysical exploration methods - gravity surveys might possibly be used to define areas

of barite; however most of the barite observed is unmineralized by significant quantities of sulphide and this tool is not recommended at this time.

Some magnetometer surveying should be done on the areas of compass disorientation noted on lines 0-2N and 14-16N. Should any magnetometer anomalies be found a complete survey should be conducted. Magnetic anomalies in this situation would most probably indicate intrusive activity.

Bulldozer trenching of anomalies will be the most cost-effective tool for the ZAP claims in the next stage of exploration. This will entail a certain amount of access construction in the northern part of the property but in terms of rock exposure for geological and grade return it is considered the best tool.

Detailed geological mapping might follow bulldozer trenching - present exposures do not lend themselves to close mapping and it is not thought at this time that mineralization is related to stratigraphic but rather to imposed structural phenomena.

Any significant mineralization or mineralized structures exposed in bulldozer trenching should be considered for diamond drilling.

Cost estimates on the bulldozer trenching stage of work are: -

100 hours of D-7 @ \$50.00/hr.	\$5,000.
Completion of geochemical sampling assay 140 samples @ \$5.00	700.
Rock sample assays say 100 @\$10/sample	1,000.
Geological supervision plus helper(s) 1 month	5,000.
Accommodation and Food	1,600.
Truck and fuel	400.
Maps, reports	1,000.
Mobilization - demobilization	3,000.
Magnetometer surveying	<u>500.</u>
	\$18,200.
Contingency 10%	<u>1,820.</u>
	<u>\$20,020.</u>

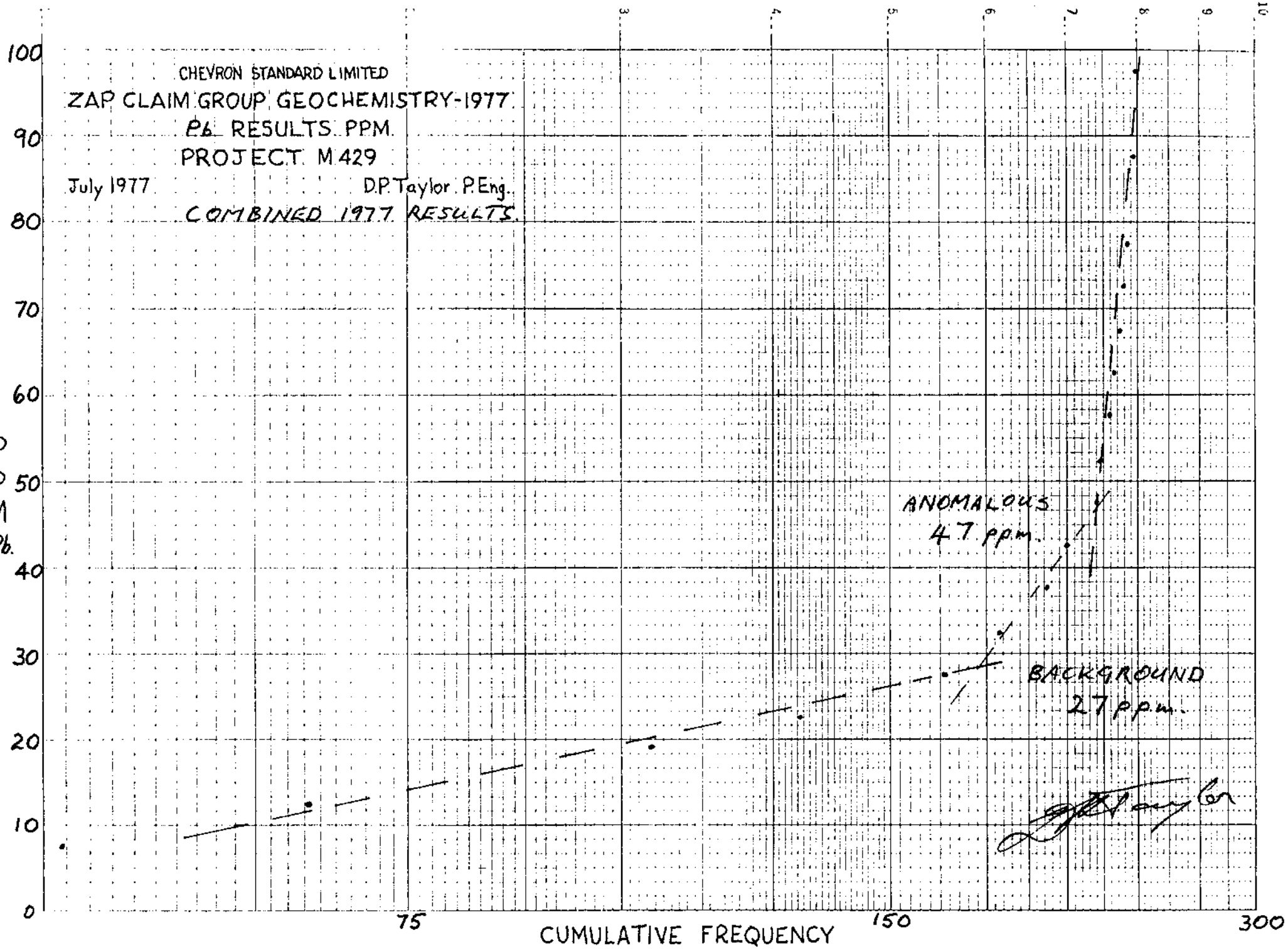
Contingent on the results of this work, diamond drilling using at least NQ core size should be considered.

Respectfully submitted



D.P. Taylor, P.Eng.
August 8, 1977.

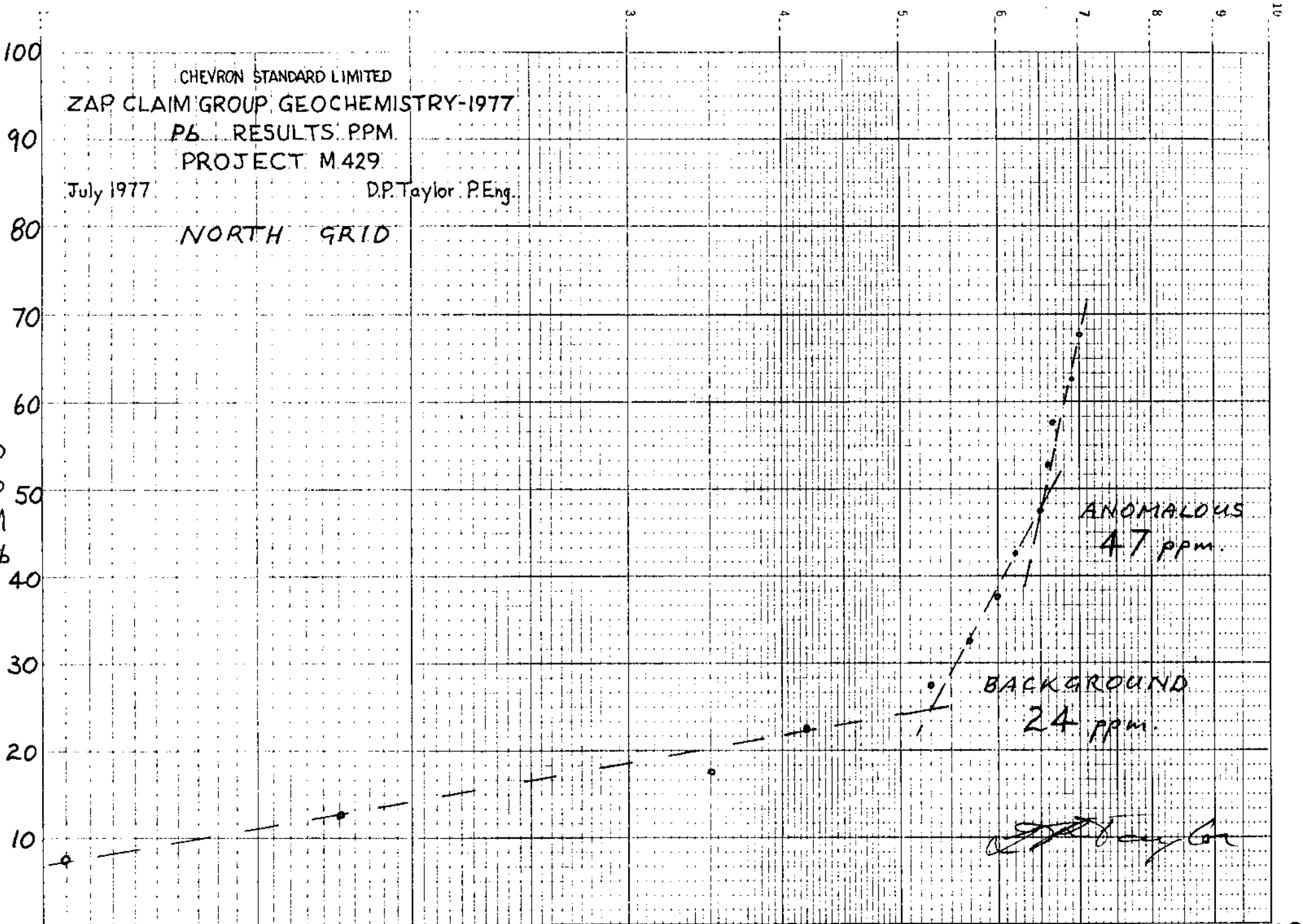
Vancouver, B. C.



CHEVRON STANDARD LIMITED
ZAP CLAIM GROUP GEOCHEMISTRY-1977
Pb RESULTS PPM
PROJECT M429
July 1977 D.P. Taylor P.Eng.

NORTH GRID

P
P
M
Pb



25 CUMULATIVE FREQUENCY 50

100

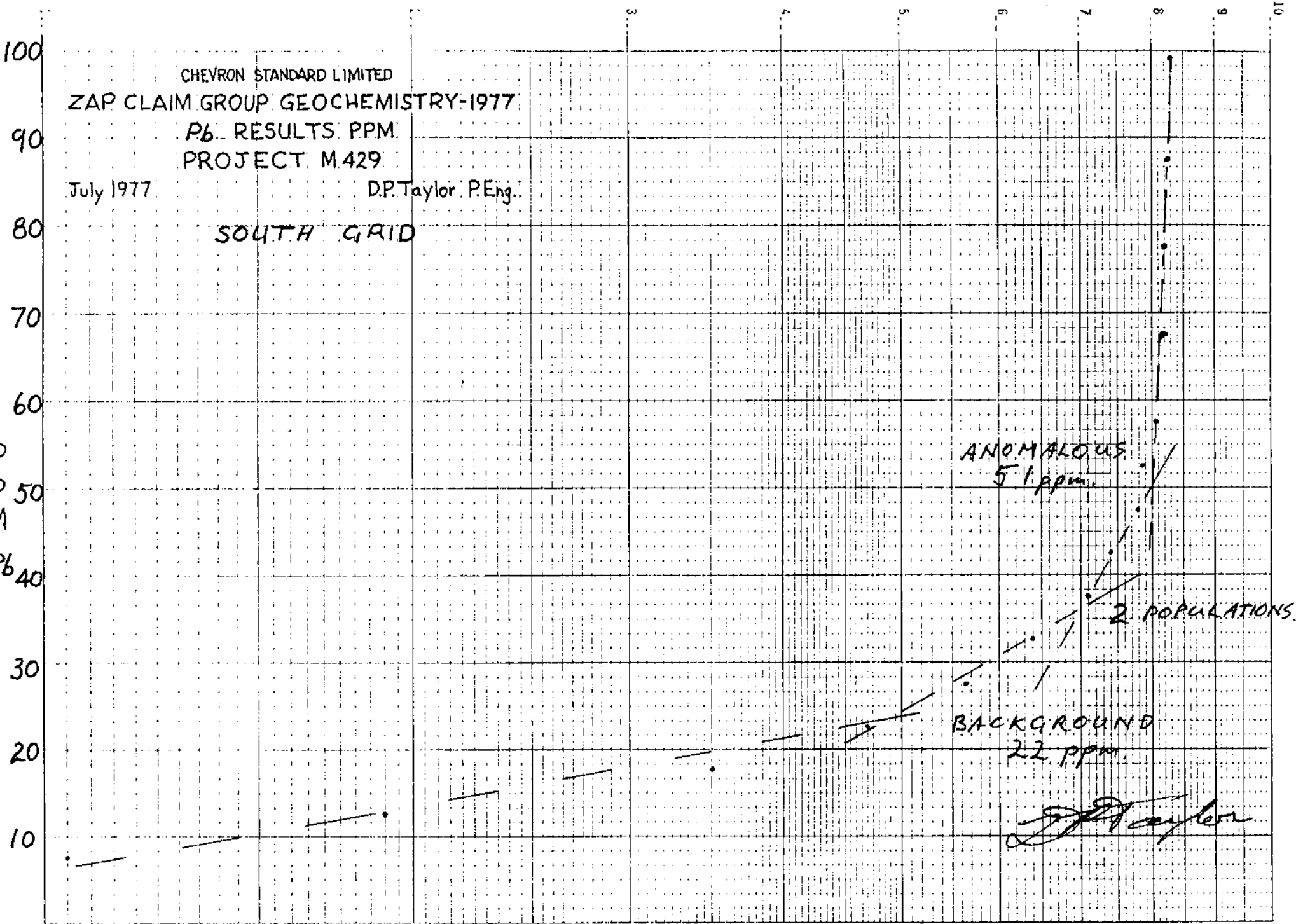
CHEVRON STANDARD LIMITED
ZAP CLAIM GROUP GEOCHEMISTRY-1977
Pb RESULTS PPM
PROJECT M429

July 1977

D.P. Taylor, P.Eng.

SOUTH GRID

P
P
M
Pb



50 CUMULATIVE FREQUENCY

100

200

CHEVRON STANDARD LIMITED
ZAP CLAIM GROUP GEOCHEMISTRY-1977
Zn RESULTS PPM
PROJECT M 429

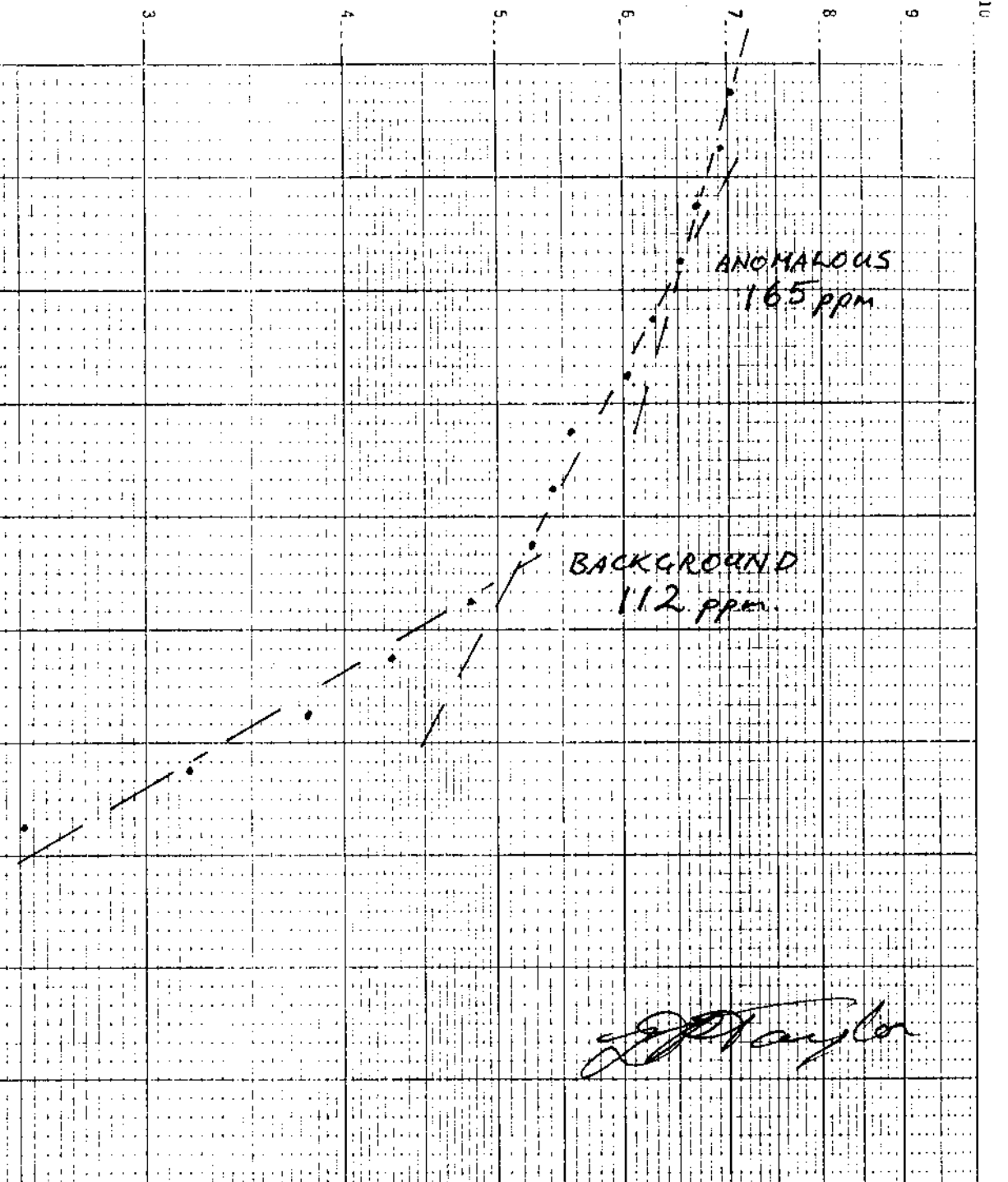
July 1977

D.P. Taylor P.Eng.

COMBINED 1977 RESULTS

P
P
M

200
180
160
140
120
100
80
60
40
20



CUMULATIVE FREQUENCY

D.P. Taylor

CHEVRON STANDARD LIMITED
ZAP CLAIM GROUP GEOCHEMISTRY-1977
Zn RESULTS PPM
PROJECT M429

July 1977 D.P. Taylor P.Eng.

SOUTH GRID

2 POPULATIONS
ANOMALOUS
170 PPM.

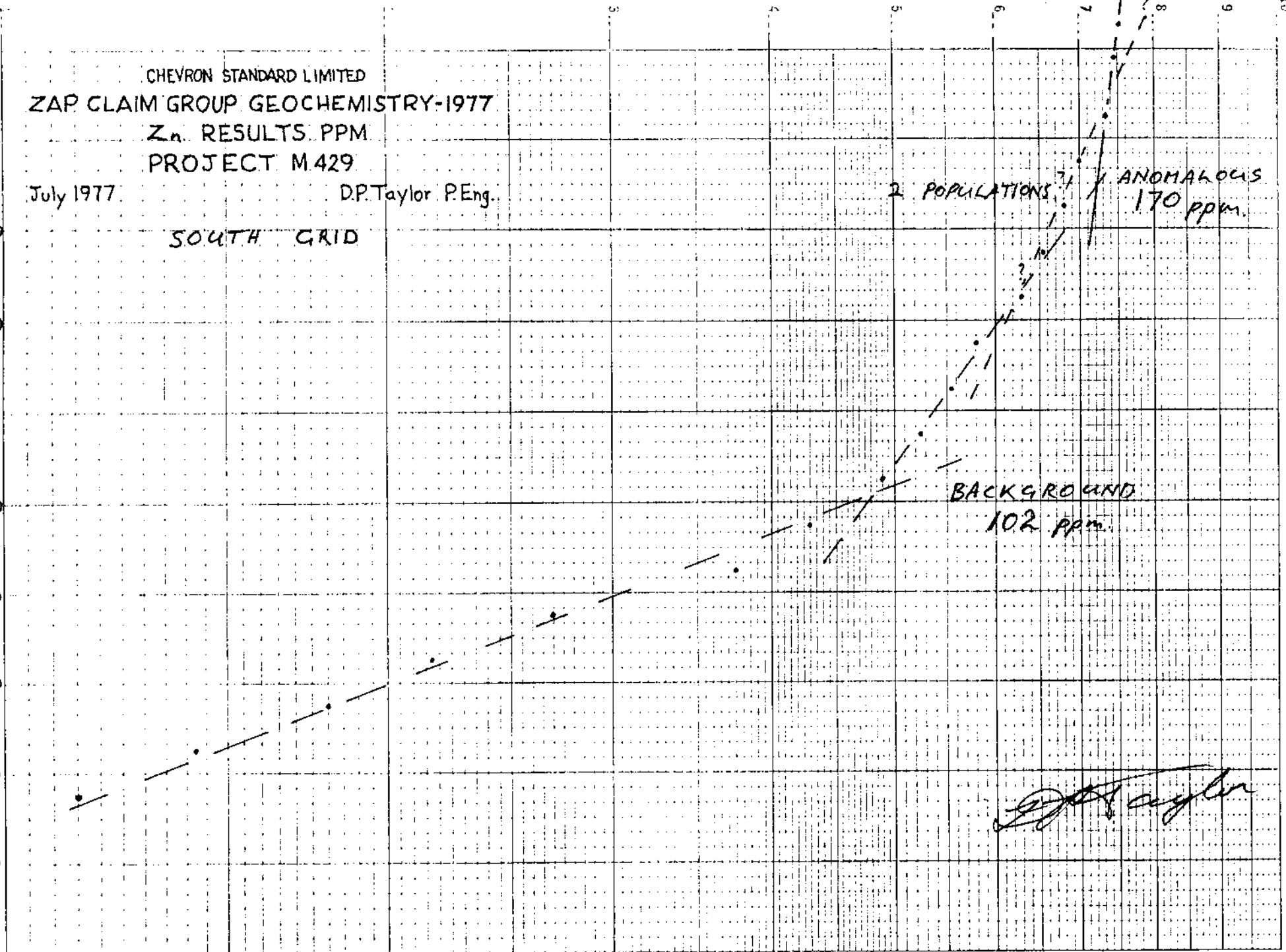
BACKGROUND
102 PPM.

P
P
M
Zn

200
180
160
140
120
100
80
60
40
20

50 CUMULATIVE FREQUENCY 100 200

D.P. Taylor



CHEVRON STANDARD LIMITED
ZAP CLAIM GROUP, GEOCHEMISTRY-1977
Zn RESULTS, PPM
PROJECT M429

July 1977 D.P. Taylor, P.Eng.

NORTH GRID

ANOMALOUS
159 ppm

BACKGROUND
90 ppm

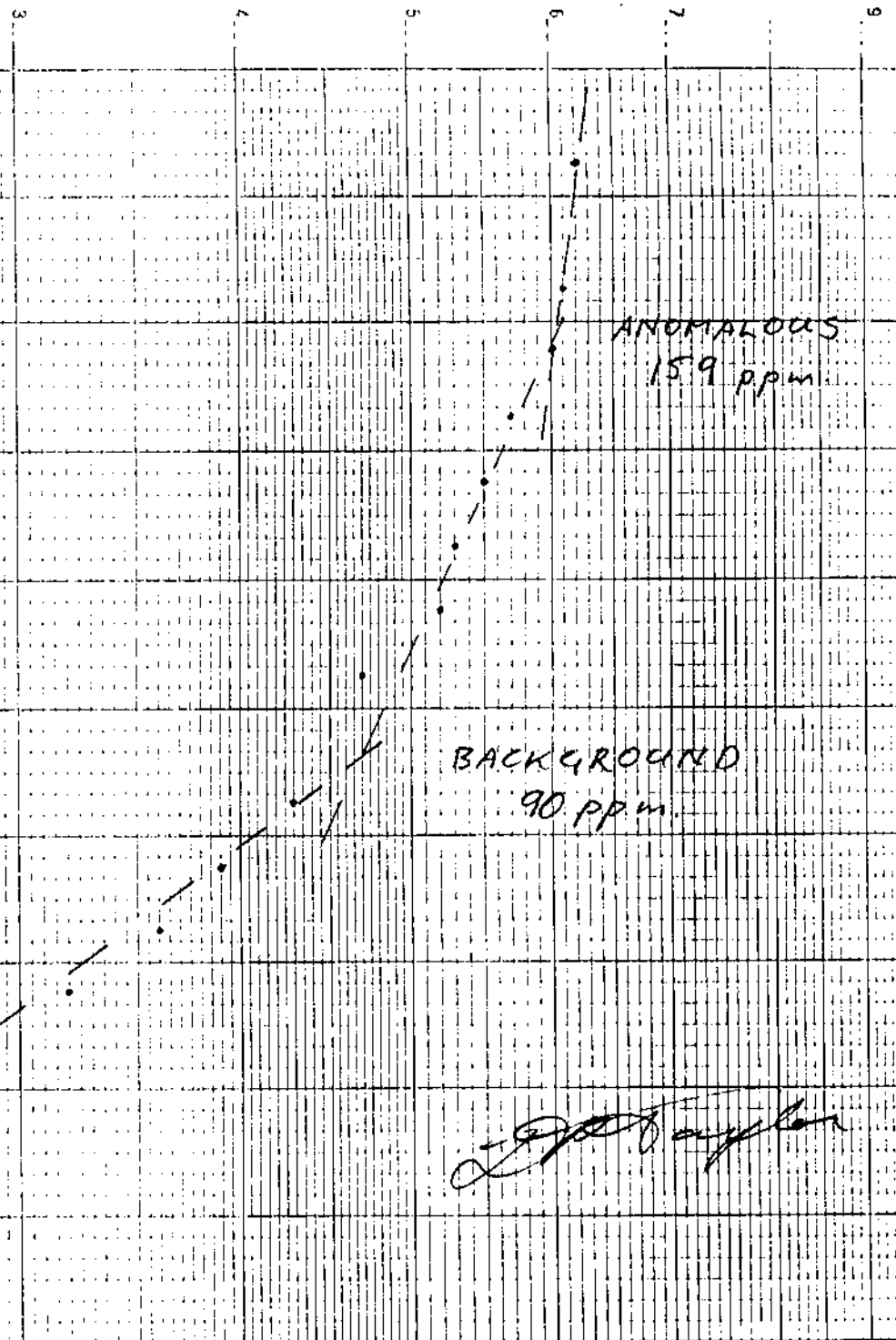
D.P. Taylor

P
P
M
Zn

200
180
160
140
120
100
80
60
40
20

25 CUMULATIVE FREQUENCY 50


100



CERTIFICATION

I, David P. Taylor 1884 West 7th Avenue, Vancouver, B. C.
do hereby certify that:

1. I am an exploration geologist residing at the above address.
2. I am a registered member of the Association of Professional Engineers of the Province of British Columbia.
3. I have practiced as an exploration geologist for eight years in B. C., Yukon and Northwest Territories, Saskatchewan, Washington State, and Fiji.
4. The 1977 work programme reported herein was performed by myself or under my direct supervision.
5. I have no nor do I expect to acquire any interest in the ZAP claims nor in Chevron Canada Limited or any of its affiliates.



D. P. Taylor, P.Eng.

August 8, 1977

Vancouver, B. C.

DOMINION OF CANADA: }
PROVINCE OF BRITISH COLUMBIA. }
To Wit:

In the Matter of expenditures on geochemical sampling
and trenching work performed on the
ZAP 1-4 claims, Mt. Tegart, Golden M.D.,
B.C.

I, David P. Taylor, P.Eng.

of Vancouver

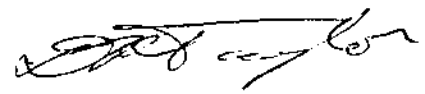
in the Province of British Columbia, do solemnly declare that the following monies have been expended:

M. Lomenda, geologist, between Aug. 10 - 24, 1976 total 7 days @\$88/day	\$ 616.
R. Sargent, assistant, between Aug. 10 - 24, 1976 total 7 days @ 48/day	336.
Sampling performed on claims staked but not recorded	
Food and accommodation, 1976	350.
Vehicle and fuel, 1976	250.
R & K McGuire - drilling and mucking June 26 - 29 and July 15 - 17, 1977 7 days @ \$125/day	875.
D. P. Taylor, P.Eng., June 24 to Aug. 10, 1977, 10 days including field work and report @ \$125/day	1,250.
L. Dekker, geologist, July 14 - 15, 1977 and Aug. 9, 1977, 3 days @\$150/day	450.
R. Saunders, assistant, July 12 - 15, 1977, 4 days @\$ 58/day	232.
Vehicle and fuel, 1977	477.
Food and Accommodation, 1977	440.
Geochemical analysis and assays 1976 and 1977 488 analyses @2.40 and 37 assays @5.50	1,374.
Drafting - 10 hours @\$10/hr.	100.
	<u>\$6,750.</u>

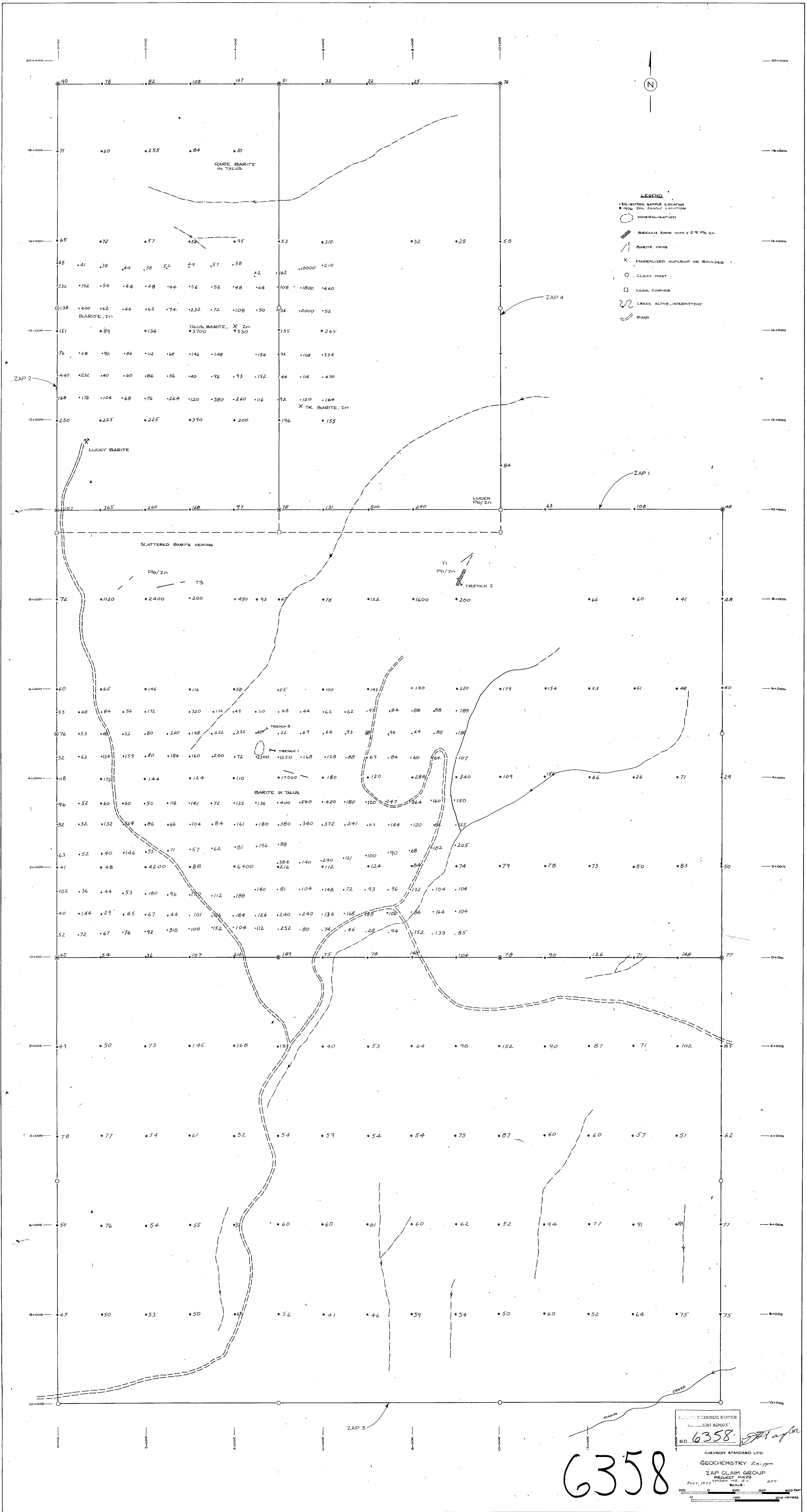
physical - 2292
this report 4458

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of
the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the *City*
of *Vancouver*, in the
Province of British Columbia, this *12th*
day of *August*, 1977, A.D.

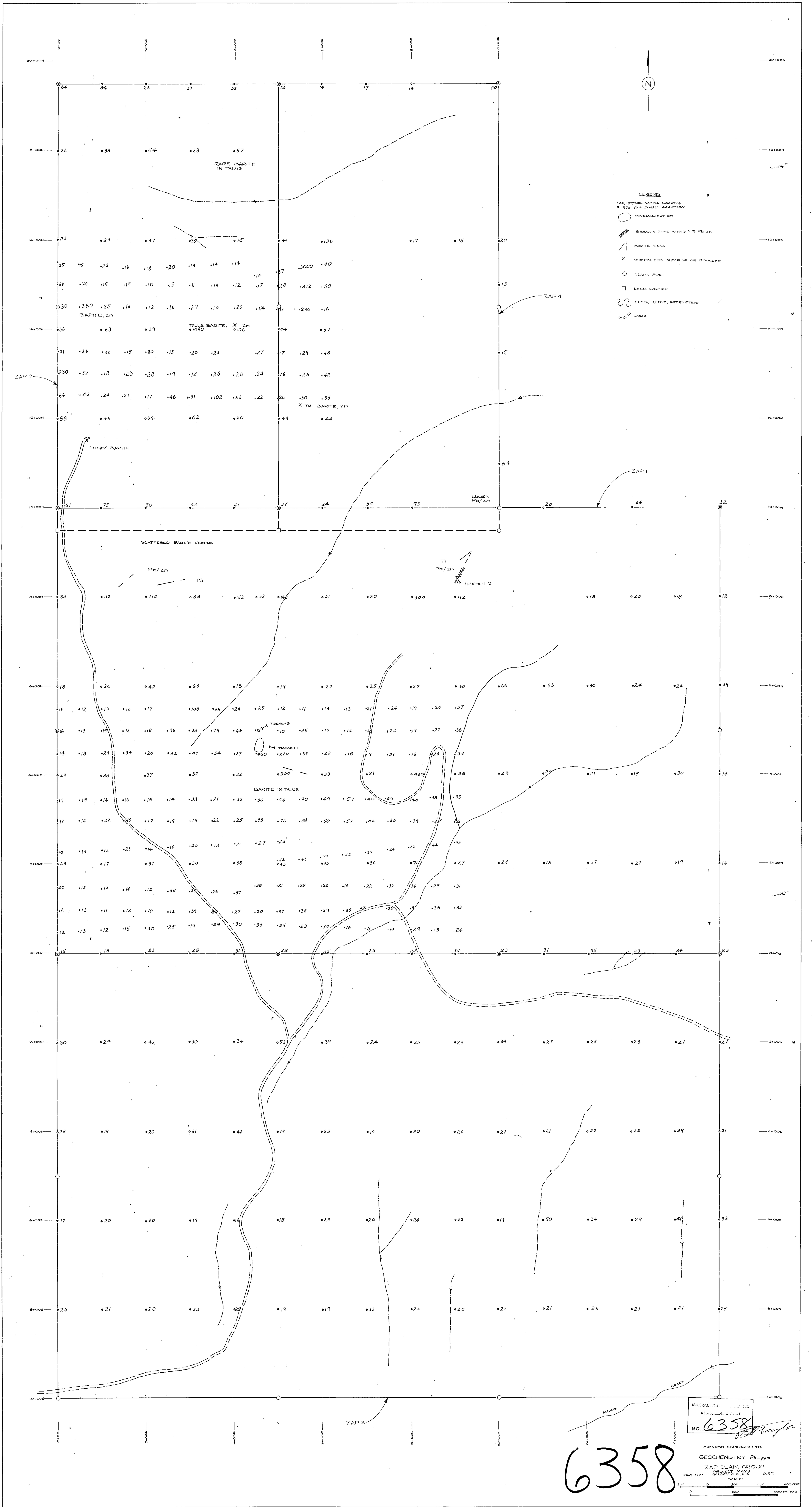


John Saul **Sub-Mining Registrar**
A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.



6358

CHEVRON RESOURCES BRANCH
 GEOCHEMISTRY ZAP CLAIM GROUP
 PROJECT 14509
 JULY, 1973
 SCALE: 1:5000
 DPT: B.C.
 NO. 6358
 CHEVRON STANDARD LTD.
 GEOCHEMISTRY ZAP CLAIM GROUP
 PROJECT 14509
 JULY, 1973
 SCALE: 1:5000
 DPT: B.C.



- LEGEND**
- 20, 1975/76 SAMPLE LOCATION
 - 1970-80 SAMPLE LOCATION
 - MINERALIZATION
 - ▨ BARRICADE ZONE WITH > 2% Pb, Zn
 - ▤ BARITE VEINS
 - X MINERALIZED OUTCROP OR BOULDER
 - CLAIM POST
 - LEGAL CORNER
 - ~ CREEK ACTIVE, INTERMITTENT
 - ROAD

RARE BARITE
IN TALUS

LUCKY BARITE

SCATTERED BARITE VEINING

BARITE IN TALUS

T1
Pb/Zn
TRENCH 2

TRENCH 1
TRENCH 3

MINERAL RESOURCES SECTION
ASSIGNMENT REPORT

No. 6358

CHEVRON STANDARD LTD.
GEOCHEMISTRY Pb-Zn

ZAP CLAIM GROUP

JULY, 1977
PROJECT 2422

SCALE: 1:5000
D.P.T.

6358

