REPORT ON GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL SURVEYS ON MINERAL CLAIM GROUPS

GROUP I: A1-8, AB21-24, AB45-48
GROUP II: A9-16, AB17-20, AB41-44
GROUP III: B1-4, AB49-60

Claims sheet 116-B-11
Latitude 64°32'
Longitude 139°07'

July 1 - 16,1976

for

STANDARD OIL COMPANY OF BRITISH COLUMBIA LIMITED

by

Helmut H. Wober, P.Eng.
of
Chevron Standard Limited

01016

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 $10,500.00

Resident Geologist or
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER
~~Supervising Mining Recorder~~
for Commissioner of Yukon Territory

TABLE OF CONTENTS

MAPS:

1) Claims

This report covers work performed on the following Claim groups, all held in the name of Standard Oil Company of British Columbia Limited:

Group I:	A 1-8	YA 2326 - YA 2333 incl.
	AB 21-24	YA 2767 - YA 2770 incl.
	AB 45-48	YA 2791 - YA 2794 incl.
Group II:	A 9-16	YA 2334 - YA 2341 incl.
	AB 17-20	YA 2763 - YA 2766 incl.
	AB 41-44	YA 2787 - YA 2790 incl.
Group III:	B 1-4	YA 2322 - YA 2325 incl.
	AB 49-60	YA 2795 - YA 2806 incl.

2) Introduction

The claims were staked in 1975 based on reconnaissance airborne radiometry and reconnaissance streamsilt sampling. The work program in 1976 was carried out by staff of Chevron Standard Ltd., Minerals Staff, Suite 901, 355 Burrard St., Vancouver on behalf of Standard Oil Company of British Columbia Limited, the registered owner of the claims.

The work was aimed at the discovery of uranium mineralization

3) General Geology and Economic Geology

Reference is made to G.S.C. Memoir 364, by L. H. Green which contains maps and description of the general geology of the area.

The claim groups are underlain by unit 21b of L. H. Green which consists of hornblende and hornblende/biotite syenite belonging to an east-west trending chain of cretaceous intrusive stocks of varying composition. The stock at hand, which is also referred to as the Deadman Stock belongs to a group of syenitic stocks. The other stocks are the Tombstone-Brenner stock and the Antimony Stock on Antimony Mountain to the east and southeast of the Deadman Stock. A number of discrete smaller plugs fringe the main intrusives.

Preliminary geological investigations indicate that the Deadman Stock is a multiphase intrusive the main phases of which are:

Pink and grey equigranular hornblende biotite syenite.
Pseudoleucite-Tinguaite
Quartz Monzonite

Phase boundaries and texture of some of the phases indicate that they have intruded as a semiconsolidated crystal mush into already consolidated earlier phases and that they are dyke like in shape.

Other fine grained aplitic dykes carry disseminated phyrrhotite.

The entire assemblage intrudes into Precambrian sediments and volcanics (unit 3 and 4 of L. H. Green) with volcanics predominating on the west flank of the stock.

Uranium and Thorium mineralization of varying ratio composition has been observed in float and in place, however, relationships to phases and/or structures are still uncertain at this stage.

4) Work Performed

a) General

Four men, two geologists and two helpers were engaged in carrying out the work described below. The writer, in his capacity as Senior Geologist and Project Supervisor spent six days on the property carrying out geological work prospecting and sampling.

The crews were mobilized from Whitehorse to Dawson City from where both crew and equipment were flown to the property by T.N.T.A. helicopter, using a 206B Jet Ranger. Supplies during the program were brought by helicopter from Dawson City as well.

b) Geological Mapping and Sampling

Geological mapping was carried out by traversing on foot using 9" x 9" airphotos as a base. Samples of the different rock types were collected both for analysis and for later study of thin sections. The present mapping and interpretation is based on field observations and the study of handspecimen.

An attempt was made to map phase boundaries of the various phases, however, outcrop is confined mainly to the ridges and large portions of the claims are covered by talus and glacial debris which obscure the relationships in those areas. The accompanying map covers not only the claim groups described in this report but also adjoining claim groups of the same owners. Part of the time and work spent on geological mapping will also be applied to these groups. G. Walton and G. Dales, the two geologists employed in the survey give the following account of their field observations:

"Petrology

The major rock types located in Deadman Stock and surrounding areas, based on field examination, are:

1) crumbly weathering syenite
2) black and white syenite
3) pink qtz monzonite
4) sheared/flow banded, foliated rocks
5) dyke rocks
6) contact rocks including volcanics and sediments

The crumbly weathering and black and white syenites can be described as follows; coarse grained, equigranular but locally porphyritic, often highly weathered, containing interstitial calcite and a high percentage K-feldspar and showing varying degrees of potassic alteration. They differ primarily in mafic content; the black and white variety containing 10 - 20% hornblende and/or biotite while the crumbly weathering syenite contains 0 - 5% hornblende and/or biotite. Both show variations in color.

The pink qtz monzonite appears to be the central core of the intrusive and is fine to medium grained, pink, 10% hornblende and/or biotite, equigranular, highly resistant to weathering and often forms the hanging wall of mineralized zones.

The highly foliated rocks (sheared, flow banded) are the most interesting within the stock. They are composed of two to five rock types depending on the location of the cross-section. They are always highly fractured. One unit contains rounded to octohedral pseudomorphic aggregates of qtz, feldspar and sometimes mafics. Phenocrysts of feldspar are stretched and lie within a fine to medium grained matrix showing some limonite staining. Only a limited number of minerals are recognizable in hand specimen within the unit.

The dyke rocks vary in thickness from 4 feet to a surface expression of 500 feet. They are fine to medium grained, equigranular contain 30% mafics, pyrite, pyrrhotite and occasionally bornite.

Contact rocks examined include sediments (chert, sandstone, siltstone) and volcanics (andesites, tuffs with interbedded cherts). Two localities of massive sulphide of apparent ore grade were noticed and float recovered but no outcrop noticed.

Structure

The structural elements observed in the area are:

1) minor faulting
2) jointing
3) foliation

Faulting appears to be of little or no consequence as the only visible offsets were in the order of inches or tens of inches. Major faulting may be present but is not easily documented.

Joints having 3 main orientations have been developed. They are accompanied by several other randomly oriented and more infrequently occurring fracture planes of less significance. The fracture density varies from ca. 1/foot to ca. 7-10/foot in specific zones. The near vertical, north-trending joints generally dominate, many of them smooth and mineral coated; some of which respond to a U.V. lamp.

A foliation, partly due to primary flow banding and partly due to coeval or subsequent shear has been developed in specific areas or zones of the stock. The density of fissile planes is ca. 5/inch. Associated with the foliation are deformed clasts or pseudomorphous which show strain effects (pressure shadows, rotation, cataclasis)."

c) Geophysical Surveys

Ground radiometric surveys were carried out using 5 Scintrex BGS-1SL total count scintillometers (Serial Nos. 602315 to 602319 incl.). The instruments feature a 1.5" x 1.5" Thallium activated Sodium-Iodide crystal detector coupled to a photomultiplier tube and give radiation readouts in counts per second.

The instruments also have a variable threshold audio alarm signal.

All station readings were taken at waistlevel. Where the steep terrain and talus slopes did not allow the establishing of a line grid, radiometric surveys were carried out along regular elevation contour intervals, using Thommen altimeters and Topofil chains for control.

Changes in radioactivity were found to reflect both mineralization and different lithologies. The changes in background due to lithological boundaries are probably caused by variations in potash-feldspar content as well as by geochemically different levels of Uranium and Thorium contained in the rocks.

The unusually high background of radiation in the entire stock (200 - 400 counts per second on the above instruments) is thought to be largely due to potassium (^{40}K) content.

The instruments were used both for systematic line grid and contour grid surveys and were also carried"switched on" on all geological traverses.

d) Geochemical Surveys

The purpose of the soil sampling surveys was threefold:

i) to determine the mobility of uranium in the surficial environment of the area.

ii) to detect mineralization in place, covered by overburden and/or glacial debris, the halo of which would have been carried upward by capillary groundwater action in the permanently frozen cover.

iii) to indicate any mobilization of uranium from areas covered by talus slopes on the flanks of the valleys into the soils at the valley bottoms.

The 'B' horizon was sampled, the samples packed in craft paperbags and dried in the field. Analysis of the -80 mesh fraction was carried out by Bondar-Clegg & Company Ltd., 1500 Pemberton Avenue, North Vancouver, B. C. A hot nitric acid digestion followed by a fluorimetric determination method was used. The results of the soil sampling surveys proved to be inconclusive.

5) Conclusion and Recommendations

The fieldwork, consisting of geological mapping, sampling radiometric and geochemical surveys, has to date not indicated any clear rules with regard to primary distribution of uranium mineralization or remobilization thereof. It is felt, however, that the Thorium rich mineralization is associated with primary magmatic differentiation whereas the high Uranium - low Thorium mineralization is related to processes which are still poorly understood and need further study in order to establish whether it is related to late hypogene hydrothermal processes or to surficial weathering processes.

Further work, consisting of drilling and blasting of radioactive zones on surface and possibly some core drilling to determine if surface leaching is a major factor are recommended.

6) Personnel and Qualifications

Graeme Dales, Geologist, B.A. University of Alberta, 1974.
Graduate work in Precambrian Geology, Geochemical Exploration Methods, Structural Geology and Metamorphic Petrology, University of Toronto 1975/76.
Five summers exploration experience with Western Warner Oils and Modesto Exploration.
May - September, 1975, Mines Branch, Energy, Mines and Resources, Calgary.

Godfrey Walton, Geologist, B.Sc. Honours 1974
M.Sc. Queen's University, 1976
Alberta Research - summers of 1971, 72, 73.
International Nickel Co. - summers 1974, 1975.

John Gajda, Field Assistant, 3rd year Geology Major, U.B.C.
Six summers of field experience in mineral exploration.

Warren Pritchard, Field Assistant, experience with Rio Tinto, summer 1974.

AB GROUP 1-76

B GROUP 1-4

A GROUP 1-16

GRID 'AB' WEST

GRID B

GRID A

CONTOUR GRID "A"

CONTOUR GRID "I"

5500

4500

6000

MAP 1

CHEVRON STANDARD LIMITED

MINERALS STAFF

CLAIM GROUPS A, B & 'AB'

DEADMAN STOCK

CLAIM & GRID LOCATION MAP

PROJECT 0435

SCALE 1:12,500

61

60

59

58

57

56

7155000m. N.

64°30'

139°00'

10'

05'

595000m. E.

AB GROUP 1-76

B GROUP 1-4

A GROUP 1-16

LEGEND

CRETACEOUS

- Crumbly weathing syenite
- Black and white syenite
- Quartz monzonite
- Flow banded syenite
- Dykes

PRECAMBRIAN

- Sediment and volcanics

SYMBOLS

- Geological boundary observed

Association of Professional Engineers of Ontario
HELMUT WEBER
MINING
ENGINEER

CHEVRON STANDARD LIMITED
MINERALS STAFF

CLAIM GROUPS A, B & 'AB'
DEADMAN STOCK

GEOLOGICAL MAP

PROJECT 0435

SCALE 1:12,500

MAP 2

64°30'

139°00'

10'

05'

595000m. E.

7155000m. N.

N 112° E / CL. 4 N

N 158° W / TL. A1

4N 8N 12N 16N 20N 24N 28N 32N 36N 40N 44N 48N 52N 56N 60N

28W 22W 20W 16W 12W 8W 4W 0+00

4N	8N	12N	16N	20N	24N	28N	32N	36N	40N	44N	48N	52N	56N	60N
280			420		380		430			420				
330	350	410	380	400	440	340	360	560	400	440	420	450	400	310
380		380	400	420	400	430	470	580	380	450	420	430	380	300
360	390	340	400	500	540	420	440	480	330	500	420	440	350	300
330	350	370	410	480	440	360	430	600	420	480	420	490	320	300
370	350	370	380	420	440	370	420	520	420	480	400	390	330	330
370	360	370	400	400	460	360	350	600	420	480	400	380	340	340
340	320	370	400	400	380	340	360	480	440	500	400	370	370	350
400	340	320		400	380	330	380	500	390	460	380	390	390	330
430	320	320			400	350	400	380	400	460	370	360	370	300
440	350	290				320	430	340	400	400	340	370	350	300
420	400						350	420	410	420	340	370	350	270
400	2500 380	510						440	350	400		380	350	300
460	350	480						380	390	400		330	350	230
380	420	460						340	340	300	340	290	300	220
1700														
450	550	480						320		300	280	280	280	210
430	510	450						300		280	260	320	220	190
530	480	480						300	330	270	240	310	200	200
530	470	520						280	270	270	220	230	200	200
550	500	400	550	260	280	260	260	300	250	260	220	210	190	200
440	400	400	540	300	240	280	290	280	260	260	220	200	190	210
360	350	500	420	300	240	220	290	280	260	280	230	200	200	200
230	330	500	400	300	280	270	300	280	270	240	240	180	200	200
240	330	550	400	300	280	280	300	280	250	240	270	190	280	180
230	300	650	460	300	300	240	270	320	300	280	240	200	290	200
220	250	700	420	300	300	240	300	280	280	340	300	240	220	220
250	210		420	280	300	280	300	300	260	300	330	280	230	250
220	220	340	500	300	300	280	270	300	270	300	380	290	240	270
220	240	220	300	300	300	280	230	320	300	300	330	300	280	
220	240	300	300	280	320	250	240	320	340	320	340	310	290	280
270	240		300	240	230	260	210		310	300	320	310	170	290
270	250	320	320	260	280	300	210	250	280	360 250	320	340	300	320
230		330		280						300		420		

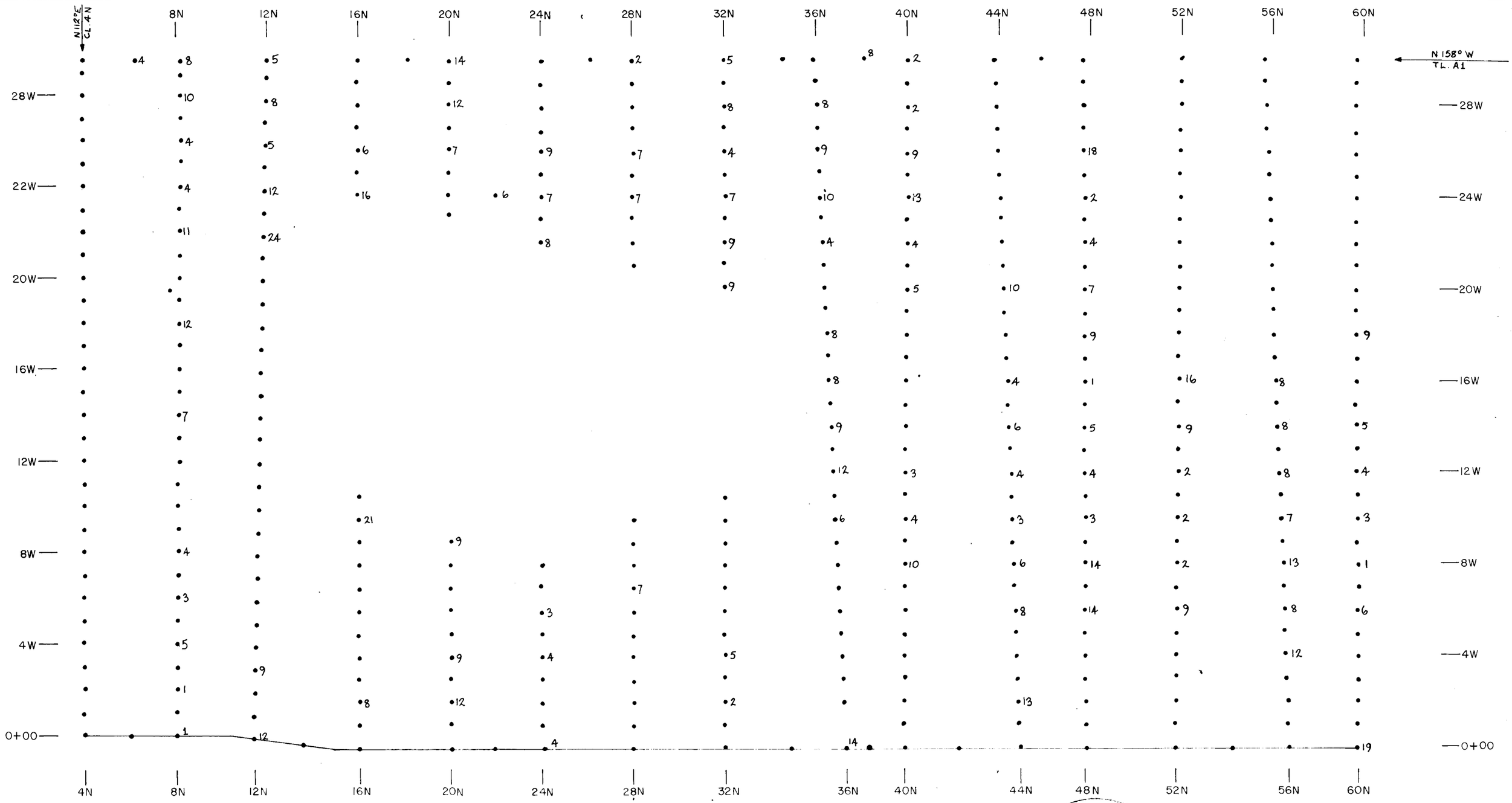
LEGEND

• 510 Scintillometer value in counts per second
Instrument :-Scintrex BGS ISL.

Professional Engineer — HELMUT WOBER

MAP 3

CHEVRON STANDARD LIMITED
MINERALS STAFF
CLAIM GROUP
RADIOMETRIC SURVEY
GRID A
PROJECT C435
SCALE IN FEET
400 0 400 800



LEGEND

•10 Uranium value in ppm

Professional Engineer
HELMUT WOBER

MAP 4

CHEVRON STANDARD LIMITED
MINERALS STAFF
CLAIM GROUP
SOIL SAMPLING SURVEY
GRID A
PROJECT C435
SCALE IN FEET
400 0 400 800

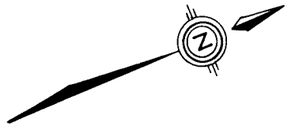
N 112° E
CL. 4 N

N 158° W
TL. A1

4N 8N 12N 16N 20N 24N 28N 32N 36N 40N 44N 48N 52N 56N 60N

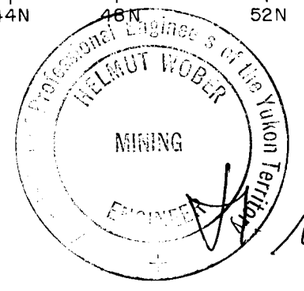
28W
24W
20W
16W
12W
8W
4W
0+00

28 62 52 45 36 59 49 63
65 71 58 69 84 70
77 97 73 129 50 43 61 52
48 60 50 58 62 95 29 38 35 13 31 45 30
34 43 43 43 52 52 50 33 81 33
42 43 48 37 20 58 37 38 48 50 58
34 18 43 60 34 52 34 37 43
17 58 38 43 25 25 36 64
84 31 37 45 67 15 31 35 49 44
53 54 21 21 20 39
40 31 33 30 37 69
29 32 26 20 41 37 84



LEGEND

•30 Thorium value in ppm.

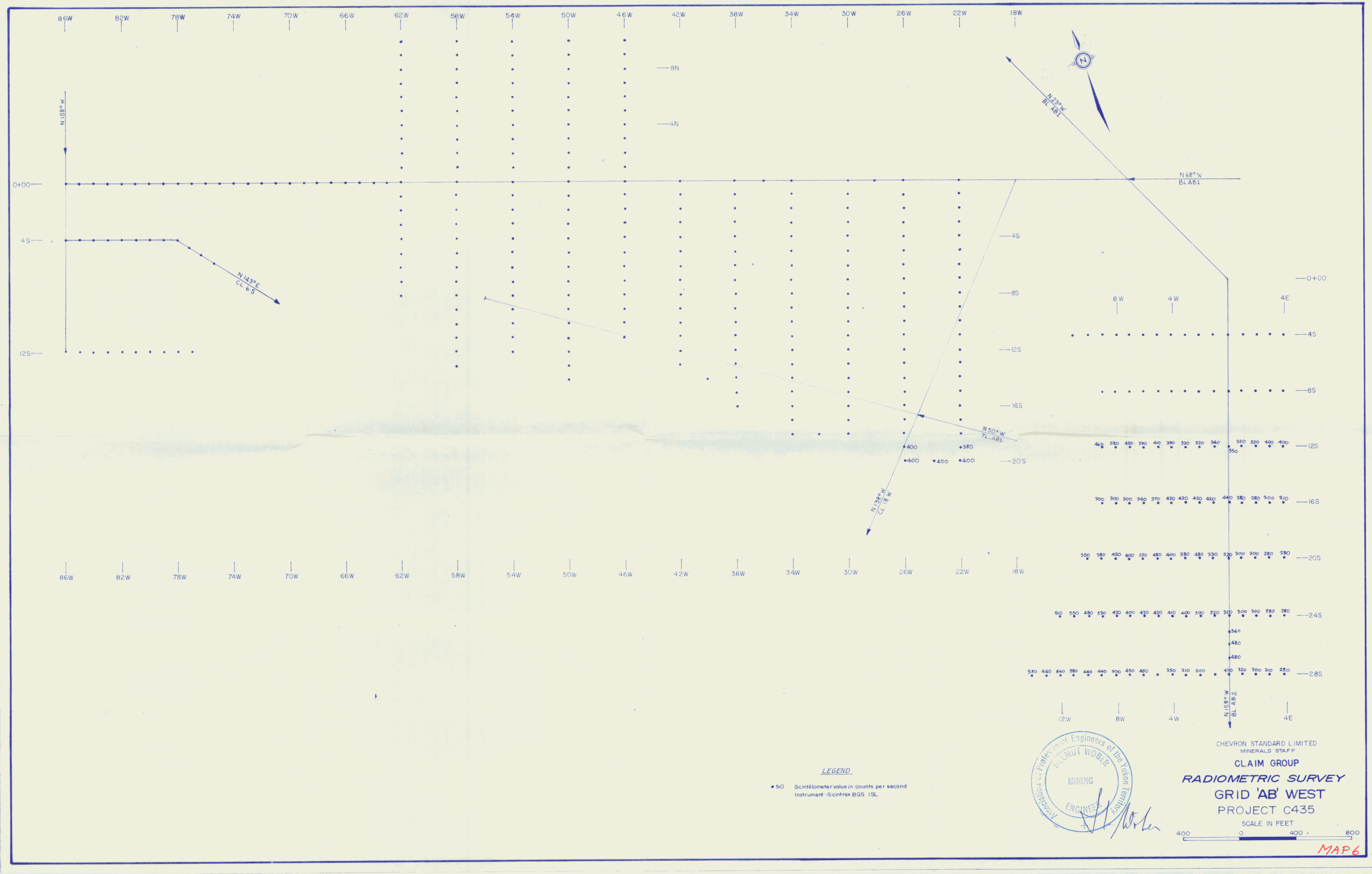


MAP 5

CHEVRON STANDARD LIMITED
MINERALS STAFF
CLAIM GROUP

SOIL SAMPLING SURVEY
GRID A
PROJECT C435

SCALE IN FEET
400 0 400 800



LEGEND

• 510 Scintillometer value in counts per second
Instrument -Scintrex BGS 1SL

Association of Professional Engineers of the Yukon Territory
HELMUT WOBLER
MINING
ENGINEER

CHEVRON STANDARD LIMITED
MINERALS STAFF

CLAIM GROUP

RADIOMETRIC SURVEY

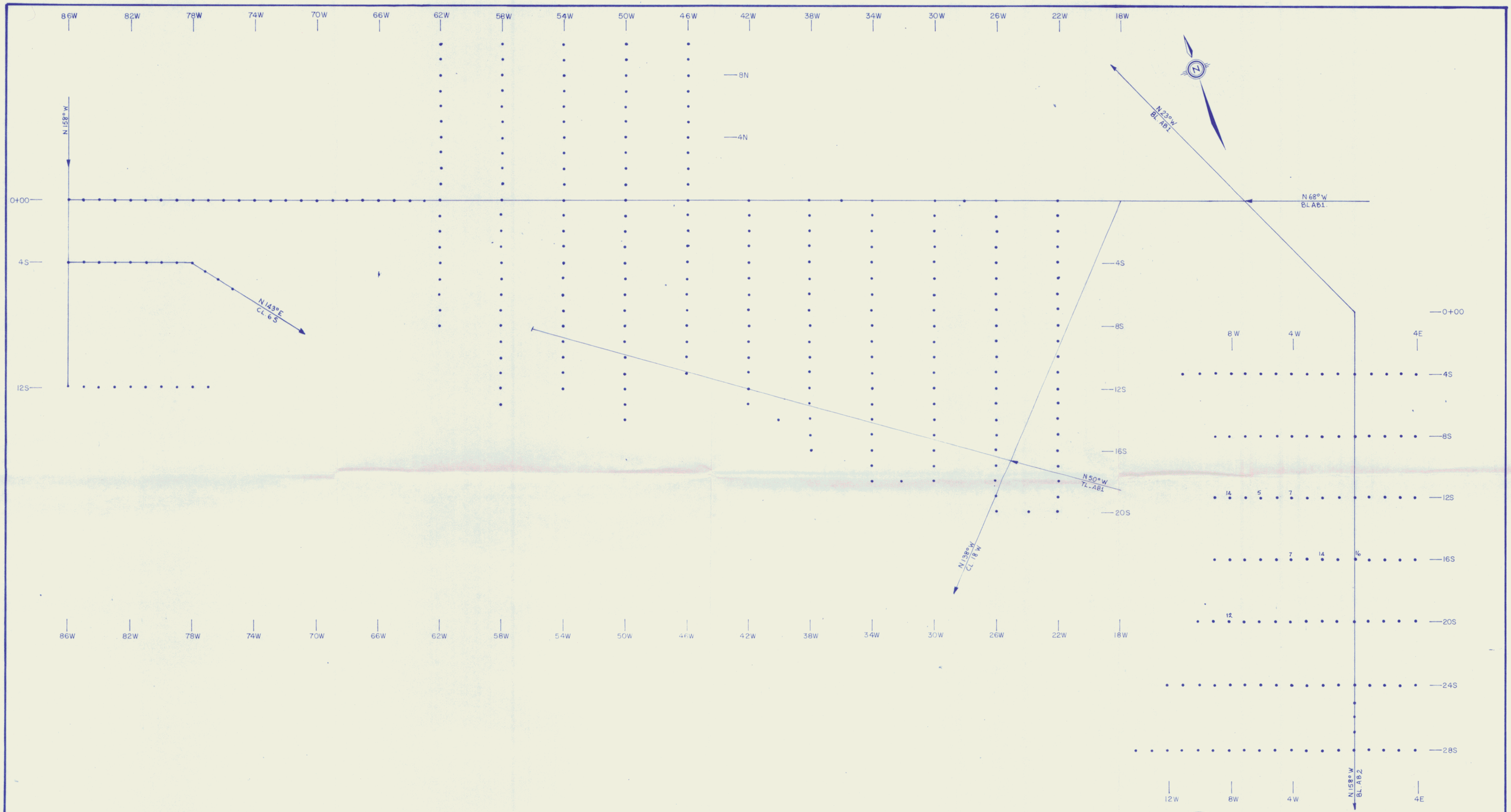
GRID 'AB' WEST

PROJECT C435

SCALE IN FEET

400 0 400 800

MAP 6



LEGEND

•10 Uranium value in ppm.

Professional Engineers of the Yukon Territory
HELMUT WOBER
MINING
ENGINEER

CHEVRON STANDARD LIMITED
MINERALS STAFF

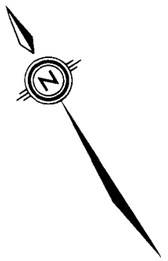
CLAIM GROUP

SOIL SAMPLING SURVEY
GRID 'AB' WEST
PROJECT C435

SCALE IN FEET

400 0 400 800

MAP 7



4800'																								4800'
4900'																								4900'
5000'																								5000'
5100'																								5100'
5200'																								5200'
5300'																								5300'
5400'																								5400'
5500'																								5500'

4800' 4900' 5000' 5100' 5200'

•360 •360 •320 •330 •370 •380 •390 •310 •290 •270

•340 •— •320 •340 •360 •340 •370 •— •320 •320 •—

•340 •320 •330 •370 •320 •— •— •270

5300': •320 •300 •310 •340 •320 •410 •410 •400 •390 •350 •370 •330 •340 •330 •300 •310 •270 •260 •230

5400': •380 •340 •350 •400 •320 •460 •320 •330 •— •340 •330 •370 •360 •— •340 •340 •340 •340 •380

5500': •370 •400 •700 •420 •420 •600 •400 •360 •250 •300 •250 •320 •390 •350 •330 •300

LEGEND

Scintillometer value in counts per second
Instrument:- Scintrex BGS ISL.

Elevation interval 100 feet

CHEVRON STANDARD LIMITED
MINERALS STAFF

CLAIM GROUP

RADIOMETRIC SURVEY

CONTOUR GRID #1

PROJECT C435

SCALE IN FEET

400 0 400 800

MAP 8

5500'

5400'

5300'

5200'

5100'

5000'

4900'

4800'

Bedrock in stream bed

•480 •600 •640 •600 •500 •560 •580 •520 •590 •680 •620 •620 •460 •500 •500 •560 •520 •440 •440 •420 •420

•470 •540 •530 •560 •420 •470 •480 •510 •520 •590 •570 •500 •450 •460 •440 •440 •510 •490 •520 •480 •420

•500 •480 •500 •620 •520 •560 •510 •580 •470 •530 •470 •470 •440 •440

•500 •500 •540 •450 •470 •470 •430 •500

•— •420 •420 •440 •— •540 •360 •400 •500 •600 •520 •460 •470

•450 •380 •400 •460 •350 •350 •340 •350 •410 •475 •400 •380 •390

N

LEGEND

•510 Scintillometer value in counts per second
Instrument:-Scintrex BGS ISL.

Contour 500 counts per second

Contour 600 counts per second

Elevation interval 100 feet

CHEVRON STANDARD LIMITED
MINERALS STAFF

CLAIM GROUP

RADIOMETRIC SURVEY

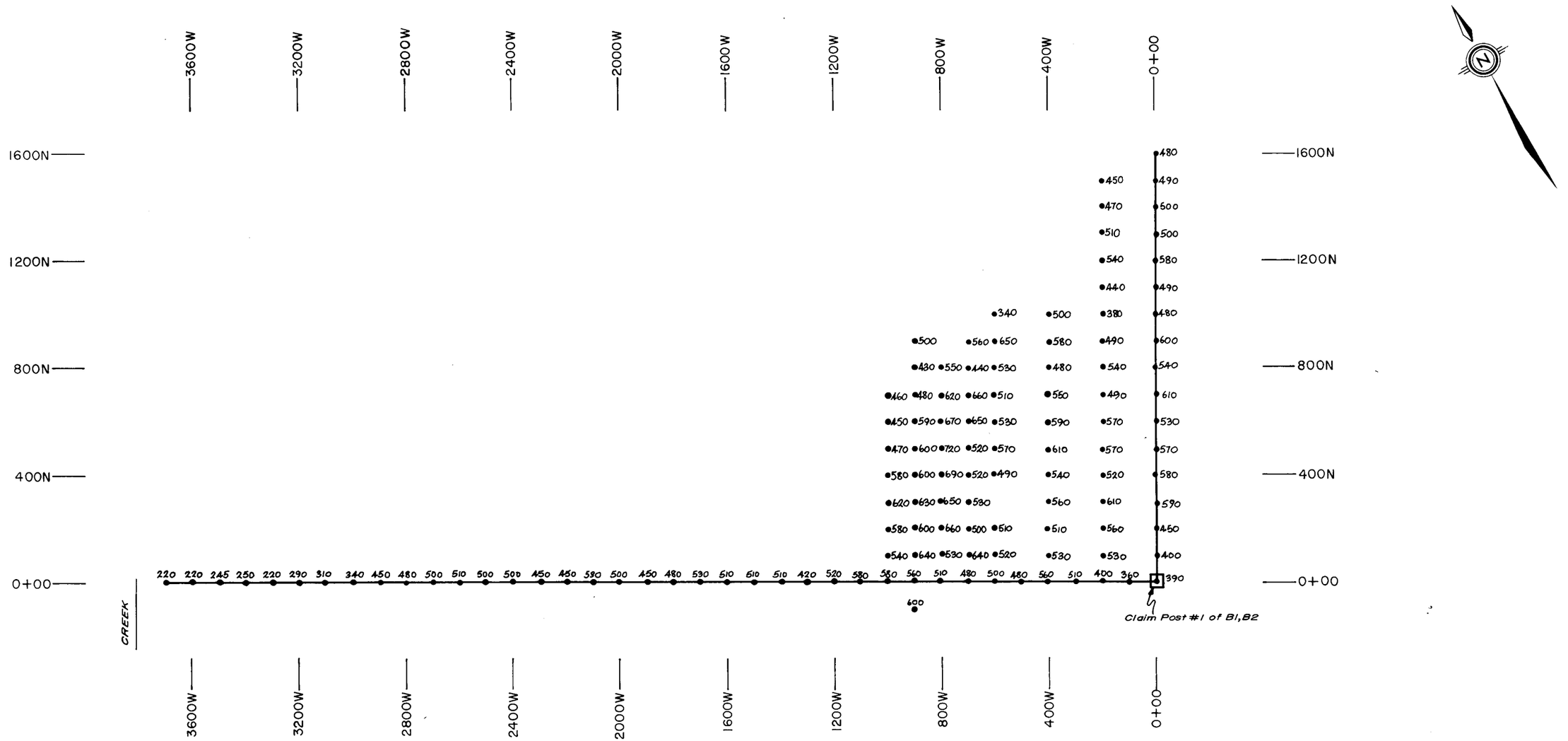
CONTOUR GRID #2

PROJECT C435

SCALE IN FEET

400 0 400 800

MAP 9



LEGEND

●510 Scintillometer value in counts per second
Instrument:- Scintrex BGS ISL.

Association of Professional Engineers of the Yukon
HELMUT WOBER
MINING

CHEVRON STANDARD LIMITED
MINERALS STAFF

CLAIM GROUP

RADIOMETRIC SURVEY

GRID 'B'

PROJECT C435

SCALE IN FEET

400 0 400 800

MAP 10