CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

GEOLOGY AND GEOCHEMISTRY
OF THE
STAKE CLAIM GROUP

Claim Sheet 92-I-9-W

Lat. : 50°31'N
Long. : 120°28'W

Claims:
STAKE 1:   Units 1-15
STAKE 2:   Units 1-15
Kamloops Mining Division
British Columbia

by:
J.R. Hill, B.Sc.

Work Completed During the Period July 7-Sept. 3, 1978

Contents

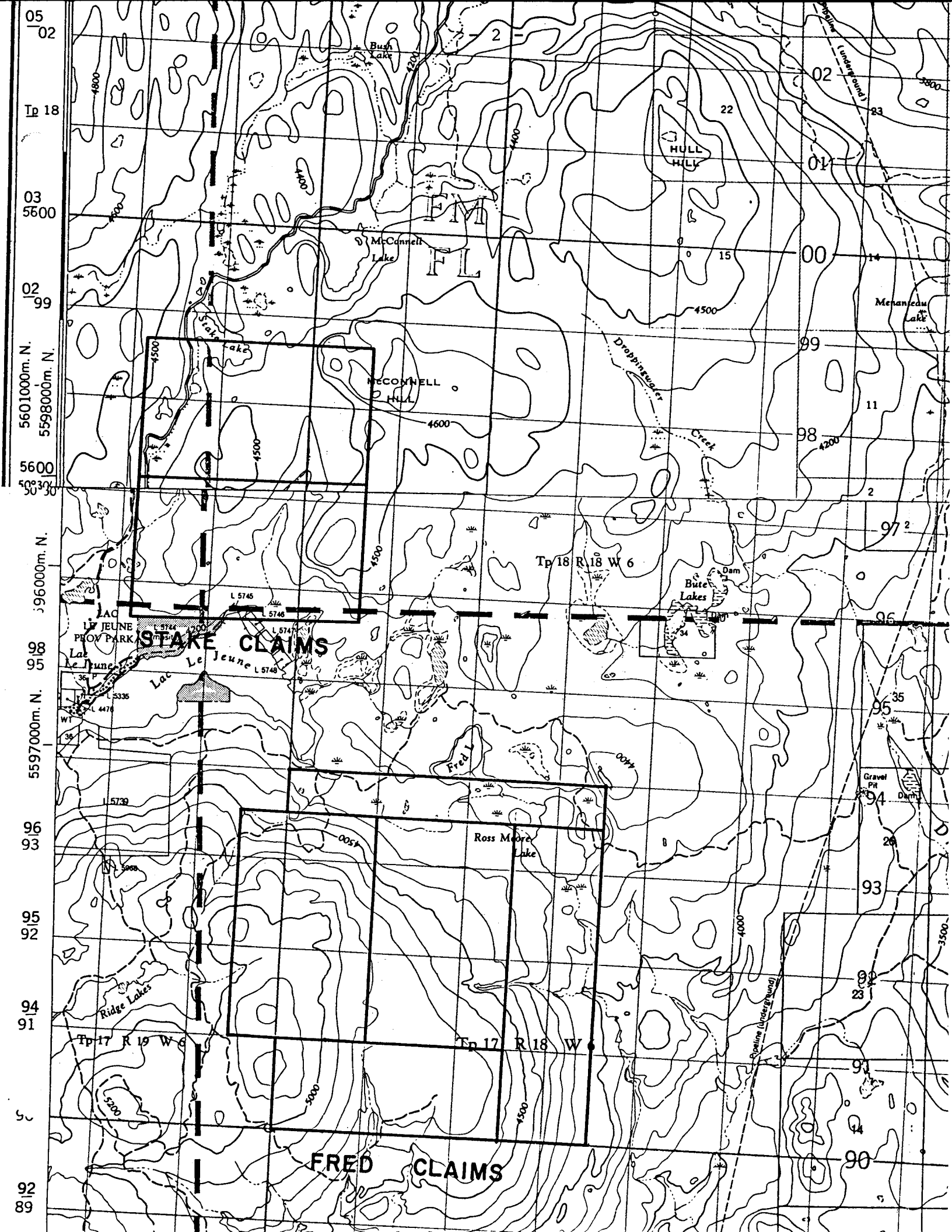PLANS ACCOMPANYING REPORT

50A: Sediment Geochemistry   )
50B: Water Geochemistry   )
50C: Heavy Mineral Geochemistry   )   In Back Pocket
50D: Geology and Rock Geochemistry)

Summary

The STAKE Claims are underlain to the west by Upper Triassic Nicola volcanics which are intruded, along the centre of the area, by the Early Tertiary interior phase of the Nicola Batholith, a homogeneous granodiorite to quartz-monzonite; this is unconformably overlain to the east by the Eocene volcanics of the Kamloops Group.

The original Canadian Oxy stream sediments contained up to 113 ppm uranium and on this basis the STAKE Claims were acquired. Detailed follow-up surveys replicated this anomaly with values up to 160 ppm uranium being obtained. There is good correlation between the original neutron activation analysis and the later fluorometric analysis, this suggests that little uranium is tied up in resistate minerals. However, uranium values in waters from the claim group are relatively low, with the highest value being 2.1 ppb. Elsewhere, there is a good correlation between high sediment values and high water values; to the west of the claims along the Nicola volcanic - batholith contact (12.5 ppb U); and to the north of the claims along the batholith - Eocene contact (8.9 ppb U).

Thus, scintillometer surveys, geological mapping and soil and rock geochemical surveys should be done over the STAKE Claims and work should be extended to the north along the batholith-Eocene contact and to the southwest along the batholith - Nicola contact. In the latter area a 2000 ppb gold value in a heavy mineral sample should be followed-up

Bush Lake

McConnell Lake

FM FL

McCONNELL HULL

STAKE Lake

Tp 18

05/02

03/5600

02/99

99

98

5601000m. N.
5598000m. N.

5600
50°30'

596000m. N.

98/95

5597000m. N.

96/93

95/92

94/91

92/89

HULL HILL

Menanteau Lake

Droppingwater Creek

Tp 18 R 18 W 6

Bute Lakes

Dam

Dam

34

22

15

14

02

01

00

99

98

97

96

95

94

93

91

90

2

11

2

35

26

2

23

14

LAC
LE JEUNE
PROV PARK

STAKE CLAIMS

L 5745
L 5746
L 5744
L 574?
L 5748

Lac Le Jeune

Lac Le Jeune

Lae Le Jeune

36

L 5335

L 4476

WT

36

L 5739

N 5068

Ridge Lakes

Fred L

Ross Moore Lake

Gravel Pit

Dam

FRED CLAIMS

Tp 17 R 19 W 6

Tp 17 R 18 W

Pipeline (underground)

4800
4200
4400
4500
4600
4500
4500
4500
4600
4200
4500
4400
4500
4000
4500
5000
5200
5000
4500
3500

by detailed panning to locate the source.

Location and Access

Area 126 and the STAKE Claims are located 18 km SSW of the city of Kamloops. The area covers 28 km^2 just to the north of Lac Le Jeune and is on NTS map Sheets 92I/8W and 92I/9W.

The Ashcroft/Logan Lake Road runs through Area 126. Access to the north shore of Lac Le Jeune is via Lac Le Jeune Provincial Park road.

Physiography and Vegetation

Relief over the area is only 150 m, the highest point being McConnell Hill in the east-central portion of the area, it has an elevation of 1600 m. The drainage is highly disorganized and intermittent but is generally southward following swampy channels into Lac Le Jeune.

Vegetation consists of thick coniferous forest, with abundant deadfall except on the hillsides where the bush is less thick.

Work Completed

The STAKE Claim group was staked on June 21 to cover the original uranium geochemical anomaly. A total of 30 units were staked for Canadian Oxy by Eastern Associates Ltd. of Whitehorse, Y.T.

Geochemical sampling and prospecting was completed by Canadian Oxy within Area 126 on July 7 and Sept. 3. A total of 7 man-days of work was required to collect 56 stream and lake silts, 49 stream and lake waters and 3 heavy mineral samples.

As well, Hill and Anderson prospected the southern half of the area and collected 2 rock chip samples for geochemical analysis. A Scintrex BGS-1SL scintillometer was used.

Geology and Rock Geochemistry (Plan 50D)

The oldest rocks in the area are volcanics of the Upper Triassic Nicola group outcropping along the western margin of the area. Intrusives belonging to the interior, homogeneous phase of the Nicola Batholith underlie the centre of Area 126 and are overlain to the east by Upper Eocene volcanics and sediments of the Kamloops Group.

A massive cliff of the Eocene volcanics was sampled just to the north of Lac Le Jeune. The rock is a basic to intermediate, vesicular volcanic flow, displaying abundant $CaCo_3$ on fracture surfaces, and containing large quantities of magnetite. The outcrop is characterized by a scintillometer response of 75 cps and a chip sample contains 0.5 ppm U. Approximately 200 m SW of the cliff a small outcrop of the Nicola Batholith was sampled. The rock is a medium to coarse-grained biotite granodiorite, very slightly foliated and registers 120 cps on the scintillometer. A chip sample contains less than 0.5.

Geochemistry

Sediments (Plan 50A) - The most anomalous stream sediment U values (7-160 ppm) come from an area underlain by Tertiary granitic rocks, however, sample 12391 (7 ppm) appears to be underlain by Tertiary volcanic rocks. West of the claims sample 12340, which contains 23 ppm U, lies at the contact of Nicola group volcanics and the Tertiary acid intrusive. Waters at this site are also high in U.

Waters (Plan 50B) - Water anomalies (2.1-8.9 ppb U) are highest in a stream draining McConnell Lake and the Tertiary volcanic - intrusive contact, sporadic increases of U in sediments (up to 11 ppm) occur with the water anomalies. The waters are moderately conductive (325-700 m mhos), alkaline (7.1-8.3) and contain 82-230 mg/l HCO_3.

Heavy Minerals (Plan 50C) - The highest U value in the 3 pan concentrates taken from this area is 2.5 ppm U in sample 12354 which was taken north of McConnell Lake. This sample also contains 50% sphene and it is underlain by Tertiary granodiorite - quartz monzonite.

In the southwest part of the area a good Au anomaly (2000 ppb) is present where the Tertiary granodiorite - quartz monzonite intrudes Nicola Group volcanics.

Conclusions

High U values in stream sediments from the STAKE Claims originate in Tertiary granodiorite - quartz monzonite. To the north of the claims, at McConnell Lake, U in water anomalies occur where Upper Tertiary volcanics overlie Lower Tertiary acid intrusives.
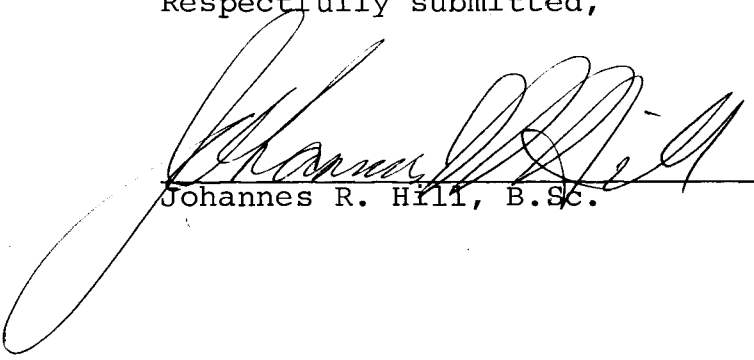
In the southwest corner of the area and west of the STAKE Claims there is a good coincident U sediment and water anomaly. A heavy mineral concentrate in the vicinity contains 2000 ppb Au. Geologically, these anomalies appear to occur in Triassic Nicola Group volcanics near its contact with Tertiary granodiorite - quartz monzonite.

Recommendations

      Prospecting, geological evaluation and rock geochemistry should be done around McConnell Lake. Similar work should be done over the south part of the STAKE Claims and west of them where a good coincident U water and sediment anomaly occurs. The gold anomaly should be followed-up by additional panning upstream.

Respectfully submitted,

Johannes R. Hill, B.Sc.

TORONTO

November, 1978

APPENDIX 1 - <u>Petrography</u>

<u>Specimen No.</u> - 126-50 (8081)

<u>Rock name</u> - biotite microgranite, probably of metasomatic origin

<u>Mineralogy</u> - essential - quartz
                              K-feldspar
                              plagioclase
                              biotite
                              epidote

                 accessory - magnetite
                             sphene
                             apatite

owing to the confused
and patchy nature of
this rock, an estimate
of relative percentages
was not made

<u>Description</u> - This rock has the mineralogical composition of
a quartz rich granite, but an extremely variable texture
and grain size which suggests that it is of metamorphic, rather
than igneous origin.   The main portion of the rock is fine
grained, but there are occasional 'porphyroblasts' of K-feldspar
up to about 5 mm across.   These are slightly perthitic, and
tend to contain small marginal inclusions of the other rock
minerals.   They are anhedral.   Irregularily shaped clots of
clear and relatively coarse quartz mosaic are fairly frequent,
and may represent original detrital quartz fragments in a
sediment.   No very large plagioclase crystals were present,
but there are abundant plagioclase crystals of irregular shape,
up to about 1 mm long.   These are typified by the presence of
abundant small inclusions of fresh looking biotite flakes.
The plagioclase itself is otherwise fresh.   Biotite, in this
rock, is not evenly distributed, but tends to occur in clots
and stringers which are often intermingled with some fine
grained epidote.   In between the relatively large crystals of
feldspar, and the patches of quartz mosaic, the base of the
rock consists of a very fine grained equigranular smooth sided,
mosaic of quartz anhedra, intermingled with varying proportions
of plagioclase and K-feldspar anhedra, and dotted throughout
by tiny flakes of frsh biotite.   There are accessory amounts
of magnetite, apatite and sphene disseminated through the rock.
All of the minerals in this rock are very fresh looking.

    The erratic variations in grain size and texture,
the presence of large crystals with a porphyroblastic, rather
than typically porphyritic appearance, the abundant inclusions
of biotite within feldspar, and the rather uneven distribution
of the constituent minerals, along with the high proportion of
quartz and presence of clots of relatively coarse quartz,
all combine together to suggest a metamorphic origin for this
rock.

Specimen No. - 126-51 (8082)

Rock name - porphyritic olivine basalt, with sedimentary xenolith
and occasional phenocrysts of nepheline

Mineralogy - phenocrysts - olivine (largely pseudomorphed)
                           clinopyroxene
                           nepheline
                           plagioclase

         groundmass - plagioclase
                      chloritic alteration products
                      clinopyroxene
                      magnetite

       xenolith - quartz, feldspar, clinopyroxene,
                   chloritic material, iron oxides.

Description - This is a porphyritic rock, with abundant small
phenocrysts of olivine, occasional phenocrysts of clinopyroxene,
and very sparse phenocrysts of nepheline and plagioclase, set
in a very fine grained matrix.   The thin section includes a
small, finely laminated, sedimentary xenolith.

   Olivine forms by far the most abundant phenocryst type.
It occurs in small, generally rounded, crystals up to about
2 mm across, but usually less than 1 mm.   The olivine is
always partly, and frequently completely, replaced by secondary
minerals.   The replacement is predominantly iddingsitic, but the
iddingsite is intermingled in the cores of the crystals with
other micaceous and chloritic minerals of varying composition.
Clinopyroxene phenocrysts are quite sparse, and typically form
angular anhedra which are characterised by dusky reaction rims
made up of clinopyroxene of a slightly different composition from
the crystal core, impregnated by a fine dust of iron oxides.
Apart from the reaction rims, the clinopyroxene is very fresh.
Plagioclase phenocrysts are extremely rare, in small angular
anhedra which are generally untwinned and rather turbid looking.
They also tend to be surrounded by reaction rims of fine iron
oxides in some cases, and of bright yellow chloritic material
in others.   A few small phenocrysts of nepheline, ranging from
euhedral hexagonal, to anhedral, are also present.   These are
turbid, but the turbidity is too fine to be identified.

   The groundmass is extremely fine grained.   It consists of
a mass of tiny matted needles of plagioclase (which make up
slightly less than half of the groundmass) throughout which
are scattered abundant small rounded clots of iddingsitic
material.   These presumably represent original small olivine
crystals.   The groundmass also contains a fairly high
proportion of small granular clinopyroxene anhedra, and a
considerable amount of finely disseminated magnetite granules.
In addition to the compact iddingsitic clots, there is a great
deal of greenish and brownish, generally chloritic to micaceous,
material of varying composition, finely disseminated in tiny

Specimen No. - 126-51

patches interstitial to the plagioclase needles.

The thin section also contains scattered, irregularily shaped, patches, rimmed by iddingsitic material, and filled by material of similar, but very slightly different composition. These probably represent original vesicles.

The sedimentary xenolith is about 1 cm long.   It is finely laminated, the laminae resulting from varying proportions of the constituent minerals.   The base of the xenolith consists of a fine grained, equigranular, smooth sided, mosaic of quartz and feldspar.   Through this there are disseminated varying amounts of very fine iron oxides, tiny prismatic crystals of clinopyroxene, and tiny compact patches of a yellowish chloritic material.   The chloritic patches become quite abundant in some laminae.

There is another small patch, which may represent a small xenolith of igneous origin.   This is about 2 mm across, and now consists virtually entirely of very finely massed iron oxides, through which there can be faintly discerned a few lath shaped crystals of plagioclase.

Geochemistry Values and Statistics

AREA 126   FLOW SITE   PRINIC 1978 GEOCHEMICAL SURVEY

LIST OF VALUES AND THEIR RANK IN % FROM THE TOP

SAMPLE	U-SILT PPM	RANK %	U-WATER PPB	RANK %	PH	RANK %	COND MMHO	RANK %	HCO3 MG/L	RANK %
12305	0.2	100	0.1	100	7.3	62	545	62	172.0	16
12306	2.0	62	1.8	50	7.6	22	660	22	200.0	8
12307	1.5	74	3.6	22	8.1	5	600	46	103.0	92
12308	0.2	100	1.9	42	7.4	38	650	27	124.0	76
12309	7.5	36	-0.1	0	-0.1	0	0	0	-0.1	0
12310	2.5	54	0.1	100	7.5	32	700	19	148.0	49
12323	1.0	77	0.1	100	7.7	19	600	46	111.0	86
12326	25.0	13	1.8	50	7.0	84	550	57	127.0	68
12328	0.2	100	1.8	50	6.8	97	2000	3	212.0	5
12329	8.0	33	0.1	100	6.8	97	740	14	124.0	76
12330	5.0	49	0.9	56	6.8	97	1200	8	177.0	11
12331	24.0	15	0.8	64	6.7	100	1725	5	168.0	19
12332	9.0	31	0.8	64	7.2	65	750	11	161.0	27
12333	89.0	5	2.1	39	7.0	84	430	84	124.0	76
12334	160.0	3	0.8	64	6.9	89	450	81	173.0	14
12335	9.0	31	0.1	100	7.1	76	600	46	143.0	54
12336	0.2	100	0.1	100	7.5	32	725	16	131.0	65
12337	19.0	21	-0.1	0	-0.1	0	0	0	-0.1	0
12339	6.5	44	4.0	19	7.8	16	455	78	71.1	97
12340	23.0	18	12.5	3	8.0	11	500	76	70.1	100
12341	0.2	100	4.1	17	8.3	3	325	100	82.2	95
12342	1.5	74	-0.1	0	-0.1	0	0	0	-0.1	0
12343	1.5	74	2.7	33	7.3	62	400	95	112.0	84
12344	0.5	85	2.1	39	7.4	38	400	95	122.0	81
12345	-4.0	0	3.5	25	7.1	76	500	76	132.0	59
12346	6.5	44	4.6	14	7.1	76	610	32	139.0	57
12347	0.5	85	5.6	8	8.0	11	590	49	151.0	35
12348	6.0	46	5.0	11	7.8	16	650	27	149.0	43
12349	2.0	62	3.3	28	7.5	32	625	30	146.0	51
12350	0.5	85	3.2	31	7.3	62	550	57	149.0	43
12351	1.5	74	0.1	100	6.9	89	600	46	230.0	3
12352	11.0	26	8.9	6	7.1	76	600	46	150.0	38
12353	2.0	62	1.7	53	7.5	32	555	51	148.0	49
12354	-0.1	0	-0.1	0	-0.1	0	0	0	-0.1	0
12361	35.0	10	-0.1	0	-0.1	0	0	0	-0.1	0
12362	0.2	100	-0.1	0	-0.1	0	0	0	-0.1	0
12371	-0.1	0	-0.1	0	-0.1	0	0	0	-0.1	0
12383	1.5	74	0.1	100	7.3	62	545	62	152.0	32
12384	2.5	54	0.1	100	7.3	62	530	65	167.0	22
12385	-4.0	0	0.4	72	7.3	62	515	68	154.0	30
12386	-4.0	0	0.1	100	7.0	84	510	70	161.0	27
12387	-4.0	0	0.4	72	7.3	62	400	95	131.0	65
12388	40.0	8	0.6	67	7.3	62	400	95	123.0	78
12389	17.0	23	-0.1	0	7.3	62	355	97	104.0	89
12391	7.0	38	-0.1	0	-0.1	0	0	0	-0.1	0
VALUES	39		36		37		37		37	

HEAVY MINERAL VALUES AND RANK IN % FROM THE TOP

SAMPLE	AG PPM	RANK %	AU PPB	RANK %	U-HM PPM	RANK %	W PPM	RANK %	SN PPM	RANK %
12354	0.1	100	0	0	2.5	33	4	33	1	100
12362	0.1	100	2000	50	0.2	100	2	100	1	100
12371	0.1	100	5	100	1.5	67	2	100	1	100
VALUES	3		2		3		3		3	

AREA 126 FLCW SITE PFINIC 1978 GEOCHEMICAL SURVEY

STATISTICAL SUMMARY CF ALL SAMPLES

ELEMENT	AR. MEAN	STD DEV	GEOM MEAN	LN DEV	RANGE MIN	MAX	SMPLS	<DET LIM
U-S	13.6	29.1	3.3	6.2	0.2	160.0	39	6
U-W	2.2	2.7	0.9	4.9	0.1	12.5	36	10
PH	7.3	0.4	7.3	1.1	6.7	8.3	37	0
COND	636.2	334.8	585.9	1.4	325.0	2000.0	37	0
HCO3	141.7	34.4	137.3	1.3	70.1	230.0	37	0
AG	0.1	0.0	0.1	1.0	0.1	0.1	3	3
AU	1002.5	1410.7	103.0	69.2	5.0	2000.0	2	1
U-HM	1.4	1.2	0.9	3.8	0.2	2.5	3	1
W	2.7	1.2	2.5	1.5	2.0	4.0	3	0
SN	1.0	0.0	1.0	1.0	1.0	1.0	3	0

DEVIATIONS FROM MEANS : VALUES AND % FROM TOP OF GROUP

ELEMENT	MEAN-2 DEV VALUE	%	MEAN-1 DEV VALUE	%	MEAN VALUE	%	MEAN+1 DEV VALUE	%	MEAN+2 DEV VALUE	%	
U-S	-44.6	0	-15.5	0	13.6	23	42.7	5	71.8	5	ARITH
U-S	0.1	100	0.5	77	3.3	49	20.2	18	124.2	3	LOG
U-W	-3.1	0	-0.5	0	2.2	33	4.9	11	7.6	6	ARITH
U-W	0.0	100	0.2	72	0.9	53	4.4	14	21.5	0	LOG
PH	6.6	100	6.9	84	7.3	38	7.7	16	8.1	3	ARITH
PH	6.6	100	7.0	84	7.3	38	7.7	16	8.1	3	LOG
COND	-33.4	0	301.4	100	636.2	27	971.0	8	1305.8	5	ARITH
COND	279.0	100	404.3	84	585.9	49	849.0	8	1230.2	5	LOG
HCO3	72.9	95	107.3	86	141.7	54	176.1	11	210.5	5	ARITH
HCO3	81.7	95	105.9	86	137.3	57	178.1	8	230.9	0	LOG
AG	0.1	100	0.1	100	0.1	100	0.1	0	0.1	0	ARITH
AG	0.1	100	0.1	100	0.1	100	0.1	0	0.1	0	LOG
AU	-1818.9	0	-408.2	0	1002.5	50	2413.2	0	3823.9	0	ARITH
AU	0.0	100	1.4	100	100.0	50	6917.2	0	478482.3	0	LOG
U-HM	-0.9	0	0.2	67	1.4	67	2.6	0	3.7	0	ARITH
U-HM	0.1	100	0.2	67	0.9	67	3.5	0	13.1	0	LOG
W	0.4	100	1.5	100	2.7	33	3.8	33	5.0	0	ARITH
W	1.1	100	1.7	100	2.5	33	3.8	33	5.6	0	LOG
SN	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	ARITH
SN	1.0	100	1.0	100	1.0	100	1.0	100	1.0	100	LOG

AREA 126 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

CORRELATION COEFFICIENTS, LEVEL OF SIGNIFICNCE, NUMBER OF SAMPLES

	U-S	U-W	PH	CCND	HCO3	AG	AU	U-HM	W	SN
U-S	***** / ***-** / *****	0.11 / 0-50 / 32	-0.36 / 95-99 / 33	-0.12 / 50-60 / 33	-0.10 / 0-50 / 33	***** / ***-** / 1	***** / ***-** / 1	***** / ***-** / 1	***** / ***-** / 1	***** / ***-** / 1
U-W	0.11 / 0-50 / 32	***** / ***-** / *****	0.35 / 95-99 / 36	-0.09 / 0-50 / 36	-0.37 / 95-99 / 36	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0
PH	-0.36 / 95-99 / 33	0.35 / 95-99 / 36	***** / ***** / *****	-0.43 / 99-** / 37	-0.59 / 99-** / 37	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0
CCND	-0.12 / 50-60 / 33	-0.09 / 0-50 / 36	-0.43 / 99-** / 37	***** / ***** / *****	0.52 / 99-** / 37	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0
HCO3	-0.10 / 0-50 / 33	-0.37 / 95-99 / 36	-0.59 / 99-** / 37	0.52 / 99-** / 37	***** / ***-** / *****	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0
AG	***** / ***-** / 1	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / *****	***** / ***-** / 2	0.00 / 0-50 / 3	0.00 / 0-50 / 3	0.00 / 0-50 / 3
AU	***** / ***-** / 1	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 2	***** / ***** / *****	***** / ***-** / 2	***** / ***-** / 2	***** / ***-** / 2
U-HM	***** / ***-** / 1	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	0.00 / 0-50 / 3	***** / ***-** / 2	***** / ***-** / *****	0.66 / 0-50 / 3	0.00 / 0-50 / 3
W	***** / ***-** / 1	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	0.00 / 0-50 / 3	***** / ***-** / 2	0.66 / 0-50 / 3	***** / ***** / *****	0.00 / 0-50 / 3
SN	***** / ***-** / 1	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	***** / ***-** / 0	0.00 / 0-50 / 3	***** / ***-** / 2	0.00 / 0-50 / 3	0.00 / 0-50 / 3	***** / ***-** / *****

AREA 126 FLOW SITE   PRINIC 1978 GEOCHEMICAL SURVEY

U S HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV PPM	SAMPLES	CUM FR %
	6	
0.50		15.38
	3	
1.00		23.08
	1	
1.50		25.64
	5	
2.00		38.46
	3	
2.50		46.15
	2	
3.00		51.28
	0	
3.50		51.28
	0	
4.00		51.28
	0	
4.50		51.28
	0	
5.00		51.28
	1	
5.50		53.85
	0	
6.00		53.85
	3	
7.00		61.54
	2	
8.00		66.67
	1	
9.00		69.23
	2	
10.00		74.36
	0	
11.00		74.36
	1	
12.50		76.92
	0	
14.00		76.92
	0	
16.00		76.92
	1	
18.00		79.49
	1	
20.00		82.05
	0	
22.50		82.05
	2	
25.00		87.18
	1	
28.00		89.74
	0	
32.00		89.74
	4	
99999.00		100.00

TOTAL SAMPLES=   39   VALUES < DETECTION =   6   RANGE=   0.2   TO   160.0

AREA 126 FLOW SITE   PRINIC 1978 GEOCHEMICAL SURVEY

U W HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV PPB	SAMPLES	CUM FR %	
	10		
0.20		27.78	+
	0		+
0.40		27.78	+
	2		
0.50		33.33	+
	0		
0.60		33.33	+
	1		
0.80		36.11	+
	4		
1.00		47.22	+
	0		
1.20		47.22	+
	0		
1.60		47.22	+
	5		
2.00		61.11	+
	2		
2.50		66.67	+
	1		
3.20		69.44	+
	4		
4.00		80.56	+
	3		
5.00		88.89	+
	2		
6.30		94.44	+
	0		
8.00		94.44	+
	1		
10.00		97.22	+
	0		
12.50		97.22	+
	1		
16.00		100.00	+
	0		
20.00		100.00	+
	0		
25.00		100.00	+
	0		
32.00		100.00	+
	0		
40.00		100.00	+
	0		
50.00		100.00	+
	0		
63.00		100.00	+
	0		
80.00		100.00	+
	0		
100.00		100.00	+
	0		
99999.00		100.00	+

TOTAL SAMPLES= 36 VALUES < DETECTION = 10 RANGE= 0.1 TO 12.5

AREA 126 FLCW SITE   PRINIC 1978 GEOCHEMICAL SURVEY

PH HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV	SAMPLES	CUM FR %
4.00	0	0.00
6.70	0	0.00
6.80	1	2.70
6.90	3	10.81
7.00	2	16.22
7.10	3	24.32
7.20	4	35.14
7.30	1	37.84
7.40	9	62.16
7.50	2	67.57
7.60	4	78.38
7.70	1	81.08
7.80	1	83.78
7.90	2	89.19
8.00	0	89.19
8.10	2	94.59
8.20	1	97.30
8.30	0	97.30
8.40	1	100.00
8.50	0	100.00
8.60	0	100.00
8.70	0	100.00
8.80	0	100.00
8.90	0	100.00
9.00	0	100.00
9.10	0	100.00
99999.00	0	100.00

TOTAL SAMPLES=   37   VALUES < DETECTION =   0   RANGE=   6.7 TO   8.3

COND   HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV MMHO	SAMPLES	CUM FR %	
	0		
1.00		0.00	
	0		
225.00		0.00	
	0		
250.00		0.00	
	0		
280.00		0.00	
	0		
320.00		0.00	
	2		
360.00		5.41	+
	0		
400.00		5.41	+
	5		
450.00		18.92	+
	2		
500.00		24.32	+
	10		
560.00		51.35	+
	8		
630.00		72.97	+
	4		
710.00		83.78	+
	3		
800.00		91.89	+
	0		
900.00		91.89	+
	0		
1000.00		91.89	+
	1		
1250.00		94.59	+
	0		
1400.00		94.59	+
	0		
600.00		94.59	+
	1		
2000.00		97.30	+
	1		
2500.00		100.00	+
	0		
3200.00		100.00	+
	0		
4000.00		100.00	+
	0		
5000.00		100.00	+
	0		
6300.00		100.00	+
	0		
8000.00		100.00	+
	0		
9000.00		100.00	+
	0		
99999.00		100.00	+

TOTAL SAMPLES=   37   VALUES < DETECTION =   0   RANGE= 325.0 TO 2000.0

HCO3 HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV MG/L	SAMPLES	CUM FR %
	0	
1.00		0.00
	0	
63.00		0.00
	1	
71.00		2.70
	1	
80.00		5.41
	1	
90.00		8.11
	0	
100.00		8.11
	3	
112.00		16.22
	6	
125.00		32.43
	5	
140.00		45.95
	10	
160.00		72.97
	7	
180.00		91.89
	0	
200.00		91.89
	2	
225.00		97.30
	1	
250.00		100.00
	0	
280.00		100.00
	0	
320.00		100.00
	0	
360.00		100.00
	0	
400.00		100.00
	0	
450.00		100.00
	0	
500.00		100.00
	0	
560.00		100.00
	0	
630.00		100.00
	0	
710.00		100.00
	0	
800.00		100.00
	0	
1000.00		100.00
	0	
1250.00		100.00
	0	
99999.00		100.00

TOTAL SAMPLES= 37   VALUES < DETECTION = 0   RANGE= 70.1 TO 230.0
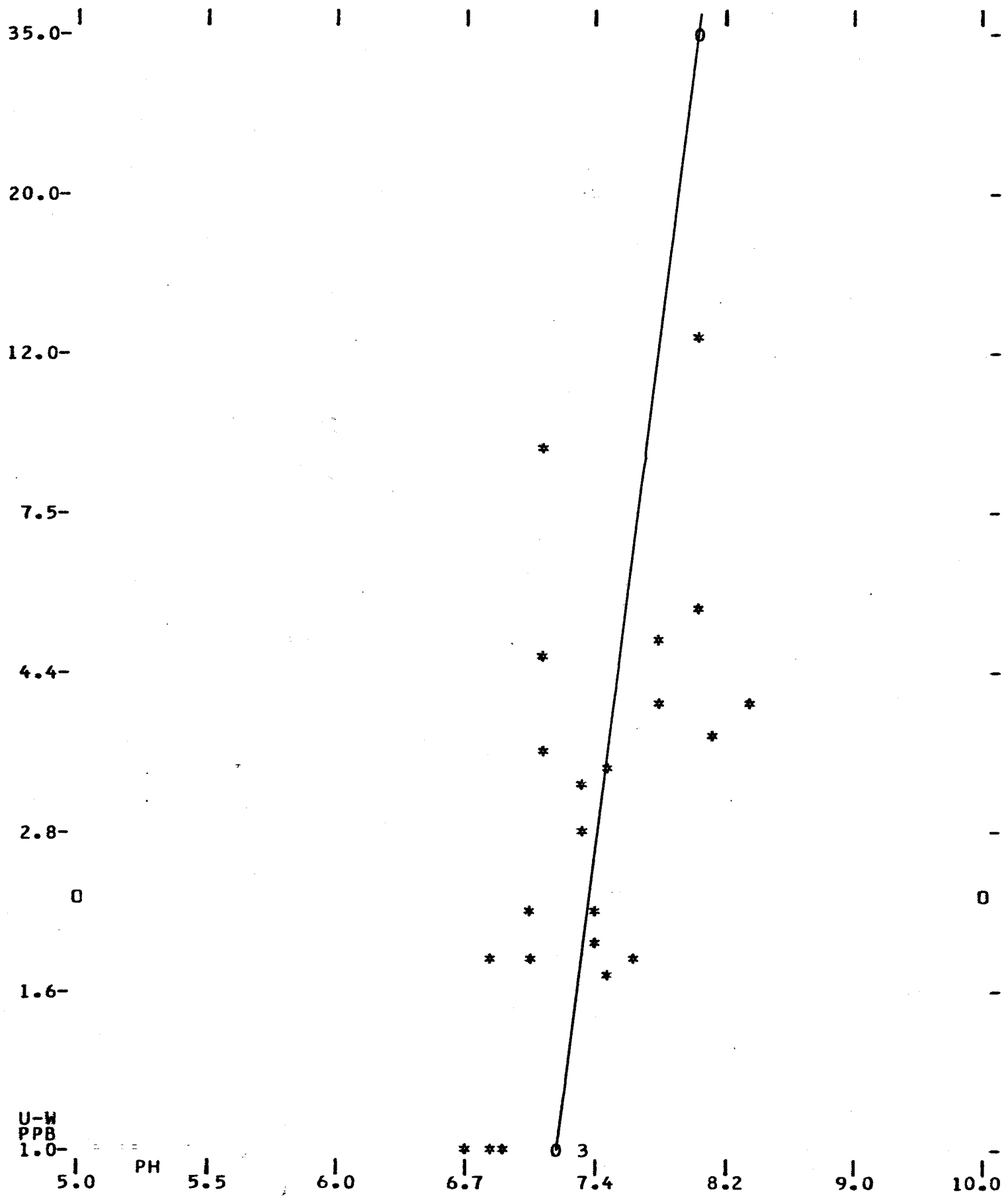
```
35.0-|       |          |          |          |          |          0 |          |          |
                                                                   /
20.0-                                                             /                          -
                                                                 /
                                                                /
12.0-                                                          *                             -
                                                             /
                                                            /
                                                      *    /
7.5-                                                      /                                   -
                                                        /
                                                       /
                                                      /                 *
                                                    */
4.4-                                               *    *                                     -
                                               *  /  *              *
                                             */ *
2.8-                                        */                                                -
                                           /
  0                                      */*                                                  0
                                      *  /*
                                    *  */*
1.6-                               *  /  *                                                    -
                                  /
                                 /
U-W                            /
PPB                           /
1.0-   = = = =            * **0 3                                                             -
    5.0      PH      5.5      6.0       6.7        7.4        8.2        9.0        10.0
```
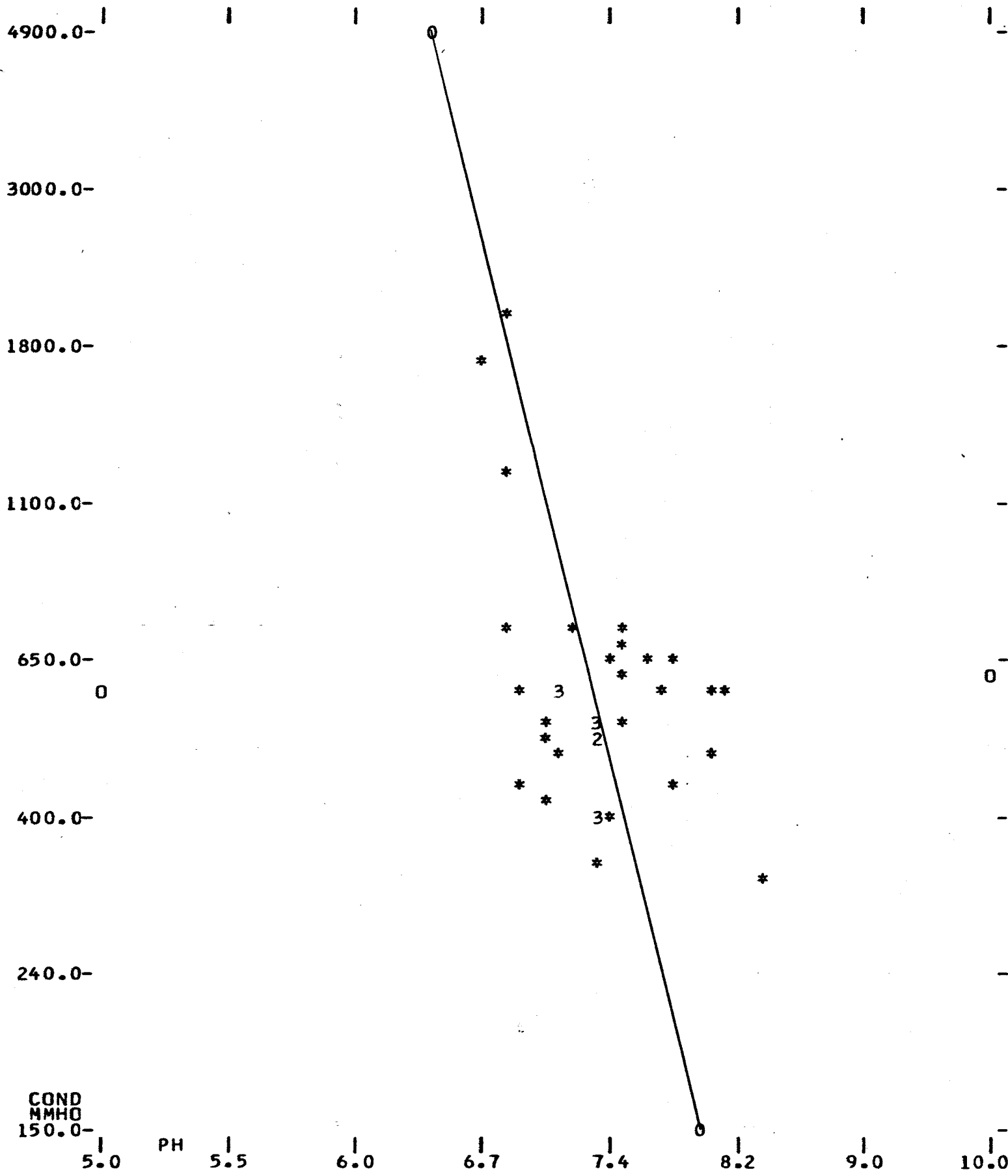
26 SETS USED−−VALUES<DETECTION: 0 PH   10   U−W−−COR COEF= 0.50−−PREDICT 25%

AREA   126   FLCW   SITE   PRINIC 1978 GEOCHEMICAL SURVEY
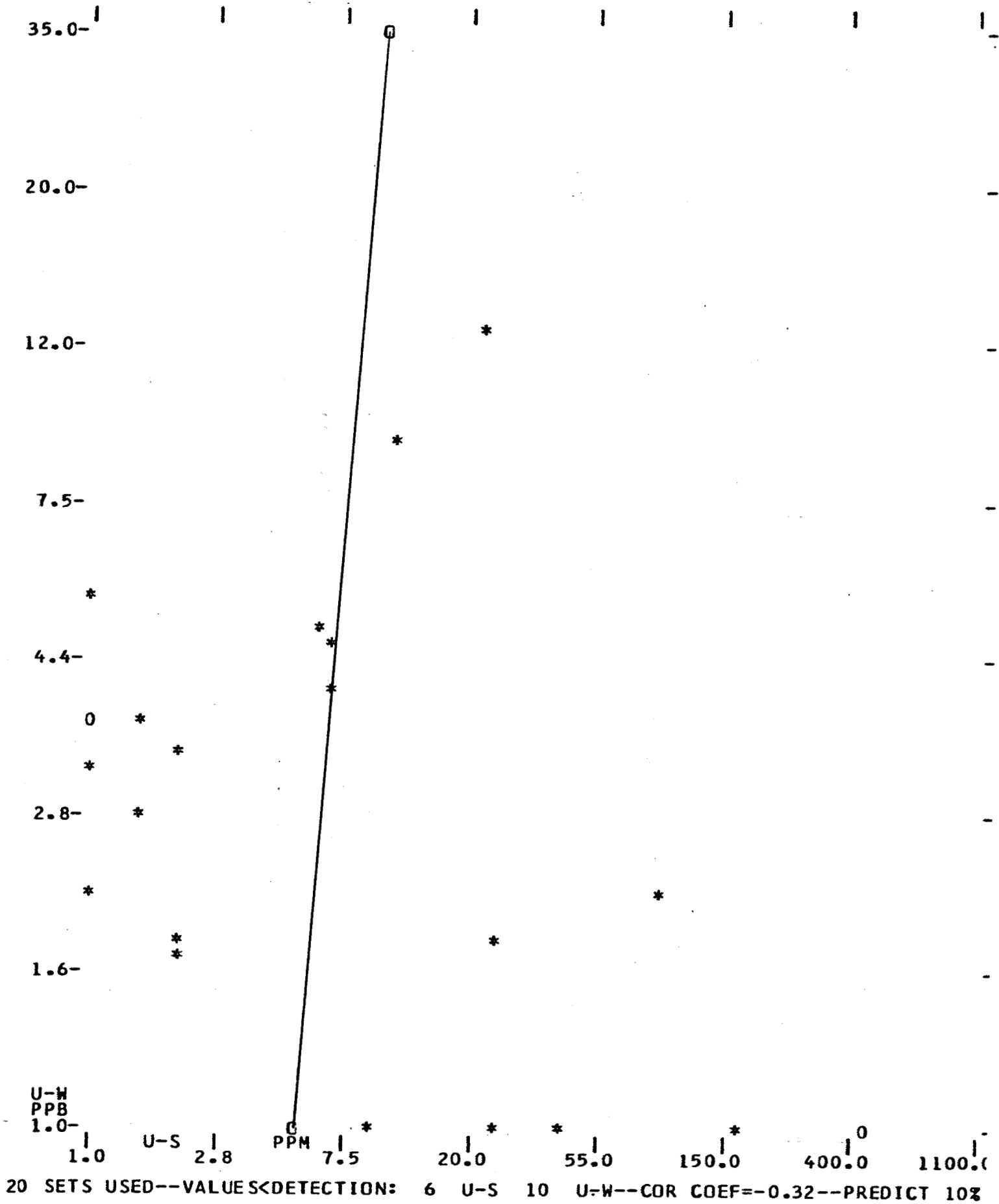   SCATTERGRAM AND LINEAR REGRESSION OF   U-W   VS   COND
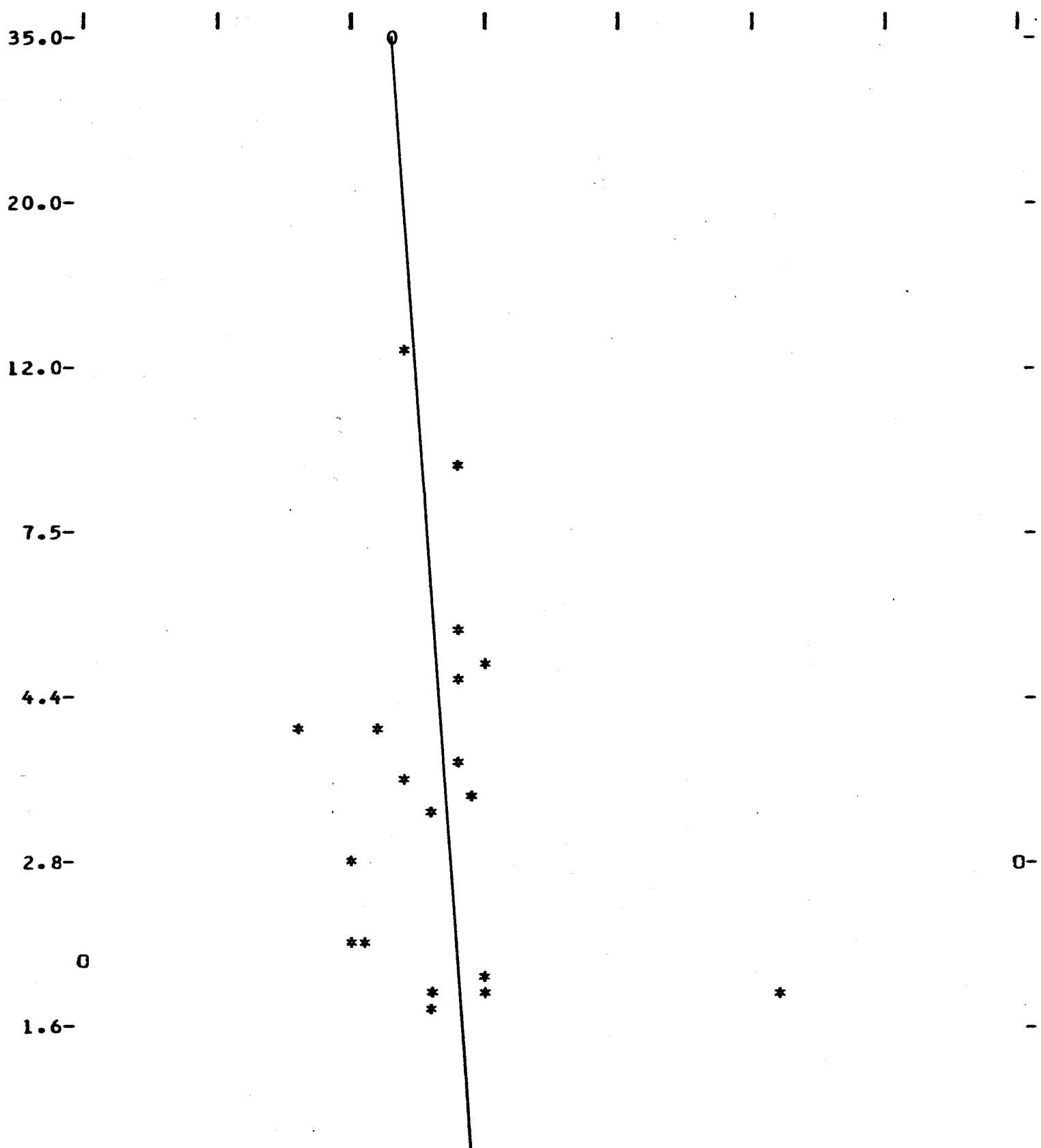
26 SETS USED--VALUES<DETECTION: 0 COND   10   U-W--COR COEF=-0.14--PREDICT   2%

COND
MMHO

PH

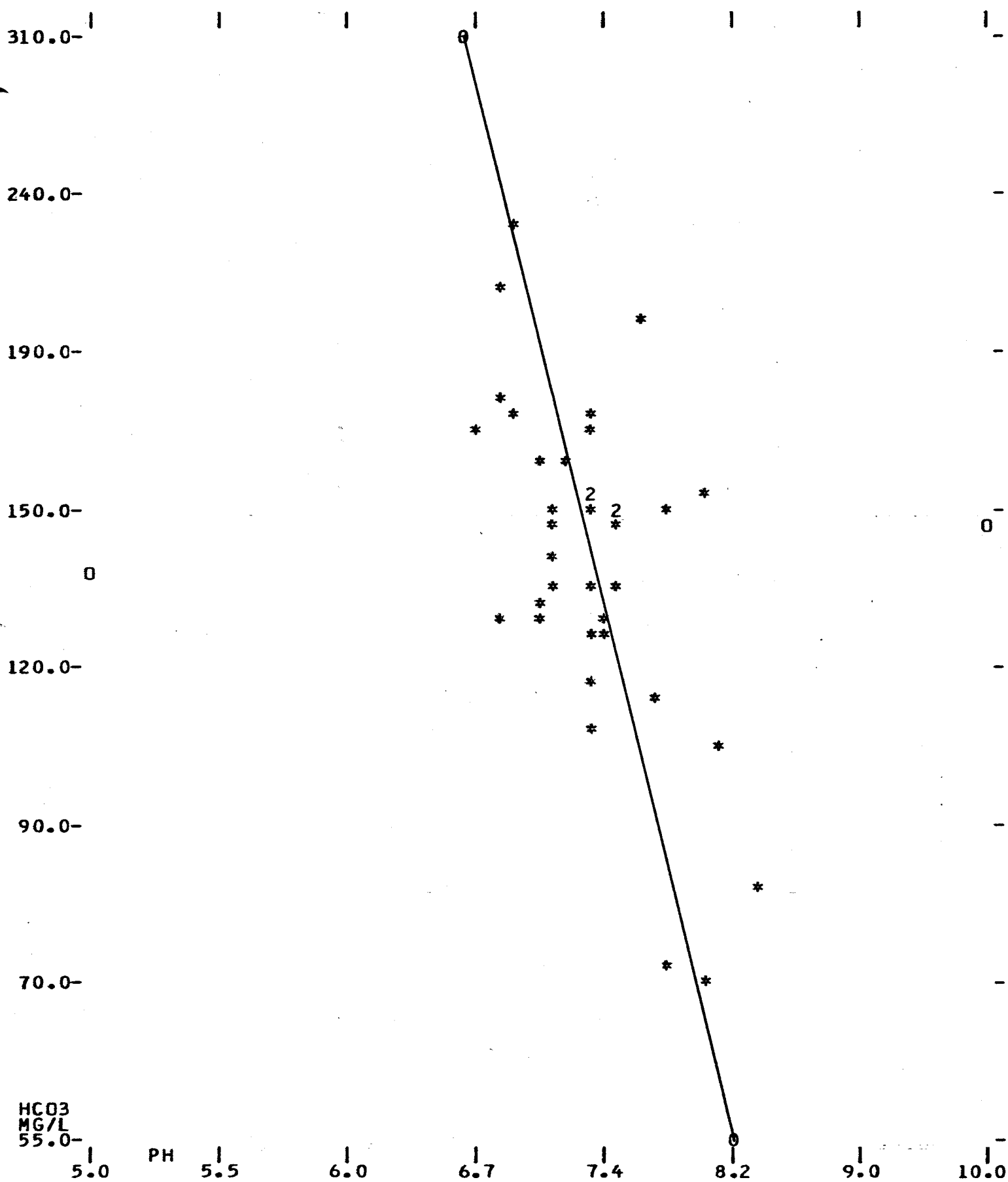37 SETS USED--VALUES<DETECTION: 0 PH   0 COND--COR COEF=-0.43--PREDICT 18%
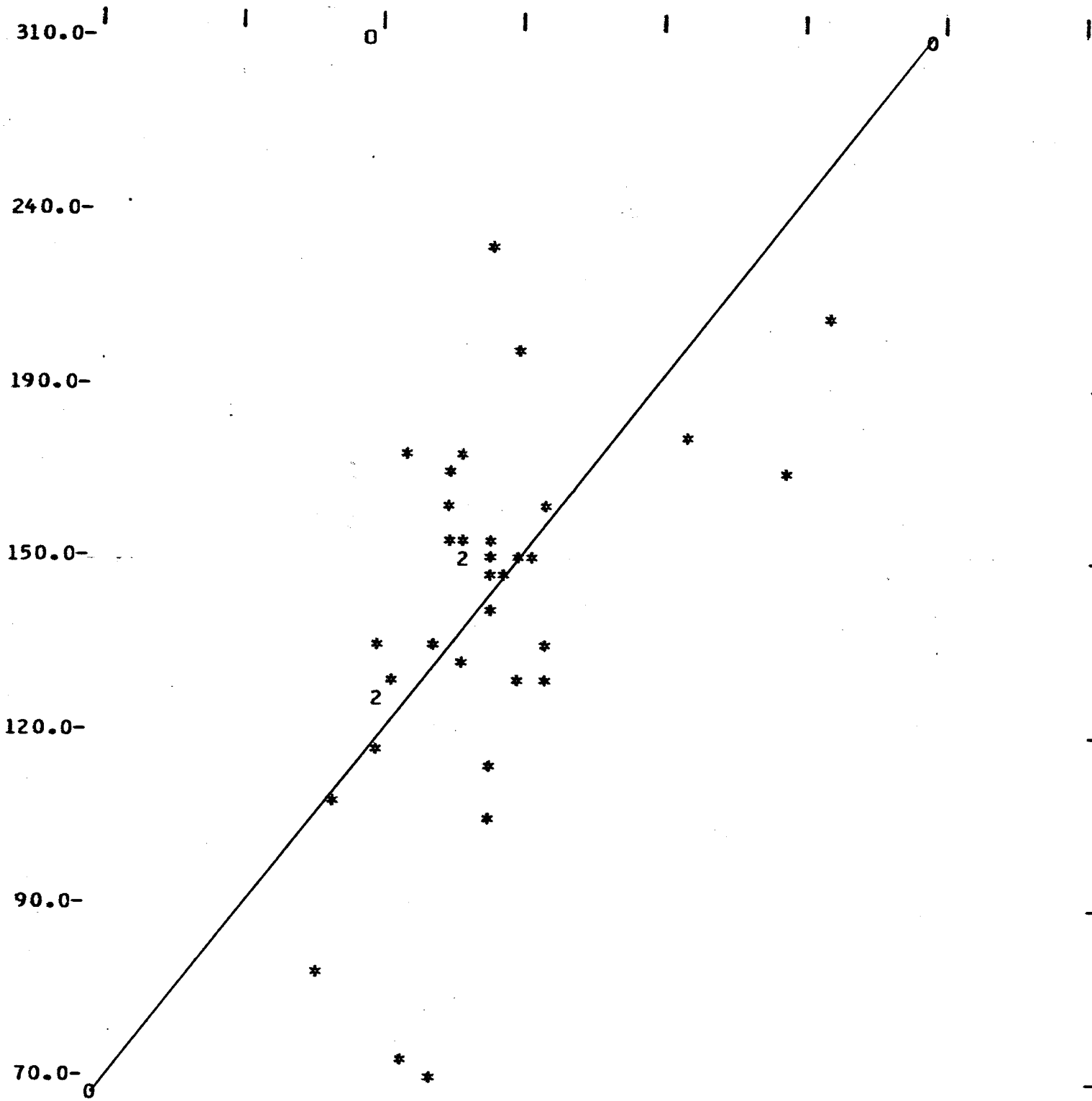
35.0-

20.0-

12.0-

7.5-

4.4-

0

2.8-

1.6-

U-W
PPB
1.0-

U-S   PPM

       1.0   2.8   7.5   20.0   55.0   150.0   400.0   1100.0

20 SETS USED--VALUES<DETECTION: 6 U-S   10 U-W--COR COEF=-0.32--PREDICT 10%

HCO3
MG/L

37 SETS USED--VALUES<DETECTION: 0 COND   0 HCO3--COR COEF= 0.52--PREDICT 27%

HCO3
MG/L

55.0–

310.0–

240.0–

190.0–

150.0–

120.0–

90.0–

70.0–

U-W   PPB

1.0   1.6   2.8   4.4   7.5   12.0   20.0   35.0
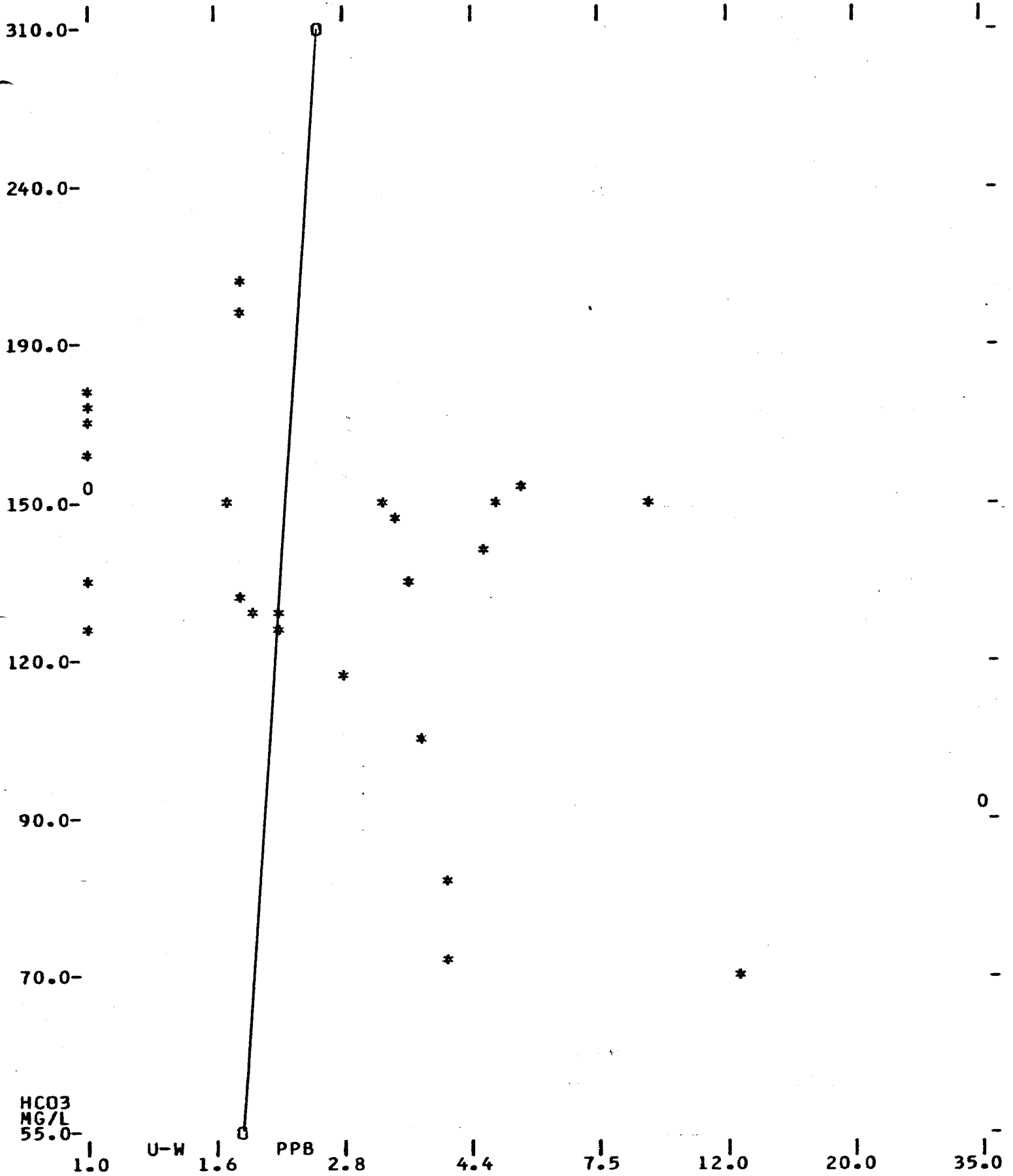
26 SETS USED--VALUES<DETECTION: 10 U-W   0 HCO3--COR COEF=-0.44--PREDICT 19%
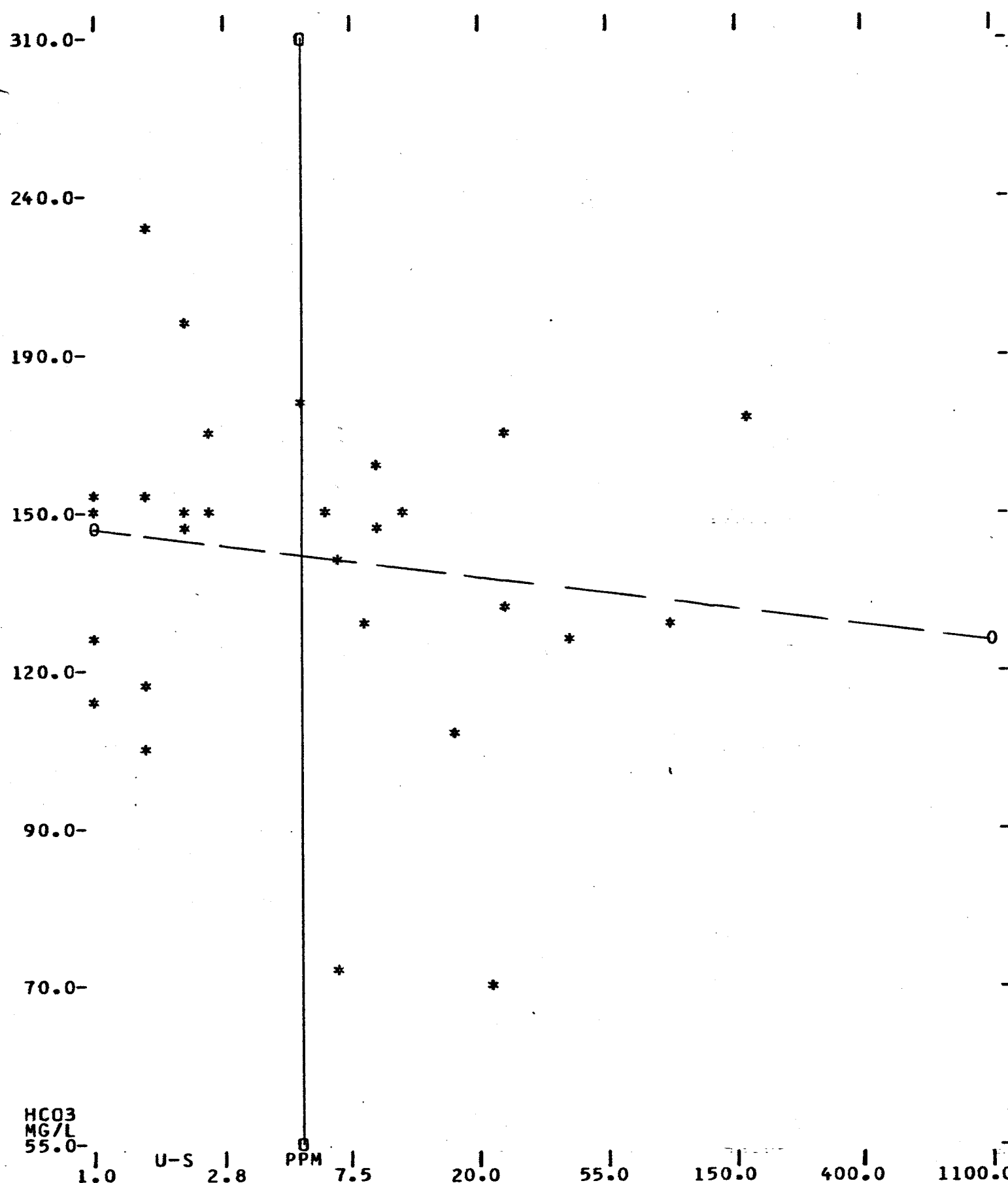
```
        I          I          I          I          I          I          I          I
310.0- I                      0                                                         -
        (
240.0-                                                                                  -
              *

                   *
190.0-                                                                                  -

                         *
        *          *                    *                              *
150.0- *    *          * *        *         *                                           -
        0                    *         *
                              *
                                   *
        *                                        *
120.0-                                                      *                           -
             *                                                  *
             *
                   *
90.0-                                                                                   -

                          *
70.0-                              *                                                    -

HCO3
MG/L
55.0-  0
        I    U-S  I      PPM  I          I          I          I          I          I
        1.0       2.8         7.5        20.0       55.0       150.0      400.0   1100.0
```

28 SETS USED--VALUES<DETECTION: 6   U-S   0 HCO3--COR COEF=-0.14--PREDICT   2%

AREA 126   LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY

LIST OF VALUES AND THEIR RANK IN % FROM THE TOP

SAMPLE	U SILT PPM	RANK %	U WATER PPB	RANK %	PH	RANK %	COND MMHO	RANK %	HCO3 MG/L	RANK %
12301	0.1	0	0.1	100	7.0	100	325	92	83.1	69
12302	4.0	67	0.3	77	7.3	92	355	85	113.0	46
12303	5.5	50	1.8	38	7.8	46	650	23	102.0	54
12304	4.5	58	0.8	62	7.3	92	545	38	114.0	38
12321	0.2	100	2.0	31	8.8	15	675	15	139.0	23
12322	1.0	92	2.4	23	8.8	15	675	15	156.0	8
12324	7.0	42	0.9	54	7.4	69	475	54	54.1	100
12325	9.5	25	1.0	46	7.5	54	425	62	57.5	77
12327	28.0	17	2.8	15	8.1	31	400	69	57.0	85
12338	2.5	75	3.0	8	7.9	38	550	31	54.4	92
12381	1.0	92	0.1	100	7.3	92	500	46	146.0	15
12382	43.0	8	0.1	100	7.4	69	385	77	118.0	31
12390	7.0	42	0.3	77	8.3	23	300	100	87.4	62
VALUES	12		13		13		13		13	

HEAVY MINERAL VALUES AND RANK IN % FROM THE TOP

SAMPLE	AG PPM	RANK %	AU PPB	RANK %	U-HM PPM	RANK %	W PPM	RANK %	SN PPM	RANK %
VALUES	0		0		0		0		0	

AREA 126 LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY

STATISTICAL SUMMARY OF ALL SAMPLES

ELEMENT	AR. MEAN	STD DEV	GEOM MEAN	LN DEV	RANGE MIN	MAX	SMPLS	<DET LIM
U S	9.4	12.9	4.2	4.4	0.2	43.0	12	1
U W	1.2	1.1	0.7	3.7	0.1	3.0	13	3
PH	7.8	0.6	7.7	1.1	7.0	8.8	13	0
COND	481.5	130.7	465.2	1.3	300.0	675.0	13	0
HCO3	98.6	36.2	92.1	1.5	54.1	156.0	13	0
AG	0.0	0.0	0.0	0.0	0.0	0.0	0	0
AU	0.0	0.0	0.0	0.0	0.0	0.0	0	0
U HM	0.0	0.0	0.0	0.0	0.0	0.0	0	0
W	0.0	0.0	0.0	0.0	0.0	0.0	0	0
SN	0.0	0.0	0.0	0.0	0.0	0.0	0	0

DEVIATIONS FROM MEANS : VALUES AND % FROM TOP CF GROUP

ELEMENT	MEAN-2 DEV VALUE	%	MEAN-1 DEV VALUE	%	MEAN VALUE	%	MEAN+1 DEV VALUE	%	MEAN+2 DEV VALUE	%	
U S	-16.4	0	-3.5	0	9.4	25	22.3	17	35.2	8	ARITH
U S	0.2	92	1.0	92	4.2	58	18.2	17	79.7	0	LOG
U W	-0.9	0	0.1	77	1.2	38	2.3	23	3.3	0	ARITH
U W	0.0	100	0.2	77	0.7	62	2.4	15	9.1	0	LOG
PH	6.6	100	7.2	92	7.8	46	8.3	15	8.9	0	ARITH
PH	6.7	100	7.2	92	7.7	46	8.3	15	9.0	0	LOG
COND	220.2	100	350.8	85	481.5	46	612.2	23	742.9	0	ARITH
COND	268.3	100	353.3	85	465.2	54	612.5	23	806.5	0	LOG
HCO3	26.2	100	62.4	69	98.6	54	134.8	23	171.0	0	ARITH
HCO3	42.1	100	62.2	69	92.1	54	136.3	23	201.8	0	LOG
AG	-0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	ARITH
AG	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	LOG
AU	-0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	ARITH
AU	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	LOG
U HM	-0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	ARITH
U HM	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	LOG
W	-0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	ARITH
W	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	LOG
SN	-0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	ARITH
SN	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	LOG

CORRELATION COEFFICIENTS, LEVEL OF SIGNIFICNCE, NUMBER OF SAMPLES

	U-S	U-W	PH	COND	HCO3	AG	AU	U-HM	W	SN
U-S	***** **-** *****	-0.23 50-60 12	-0.46 80-90 12	-0.64 95-99 12	-0.51 90-95 12	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0
U-W	-0.23 50-60 12	***** **-** *****	0.64 95-99 13	0.63 95-99 13	-0.30 60-80 13	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0
PH	-0.46 80-90 12	0.64 95-99 13	***** **-** *****	0.46 80-90 13	0.21 0-50 13	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0
COND	-0.64 95-99 12	0.63 95-99 13	0.46 80-90 13	***** **-** *****	0.33 60-80 13	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0
HCO3	-0.51 90-95 12	-0.30 60-80 13	0.21 0-50 13	0.33 60-80 13	***** **-** *****	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0
AG	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** *****	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0
AU	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** *****	***** **-** 0	***** **-** 0	***** **-** 0
U-HM	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** *****	***** **-** 0	***** **-** 0
W	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** *****	***** **-** 0
SN	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** 0	***** **-** *****

U S HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV PPM	SAMPLES	CUM FR %
	1	
0.50		8.33
	0	
1.00		8.33
	2	
1.50		25.00
	0	
2.00		25.00
	0	
2.50		25.00
	1	
3.00		33.33
	0	
3.50		33.33
	0	
4.00		33.33
	1	
4.50		41.67
	1	
5.00		50.00
	0	
5.50		50.00
	1	
6.00		58.33
	0	
7.00		58.33
	2	
8.00		75.00
	0	
9.00		75.00
	1	
10.00		83.33
	0	
11.00		83.33
	0	
12.50		83.33
	0	
14.00		83.33
	0	
16.00		83.33
	0	
18.00		83.33
	0	
20.00		83.33
	0	
22.50		83.33
	0	
25.00		83.33
	0	
28.00		83.33
	1	
32.00		91.67
	1	
99999.00		100.00

TOTAL SAMPLES= 12   VALUES < DETECTION = 1   RANGE= 0.2 TO 43.0

INTERV PPB	SAMPLES	CUM FR %
	3	
0.20		23.08
	0	
0.30		23.08
	2	
0.40		38.46
	0	
0.50		38.46
	0	
0.60		38.46
	0	
0.80		38.46
	2	
1.00		53.85
	1	
1.20		61.54
	0	
1.60		61.54
	1	
2.00		69.23
	2	
2.50		84.62
	2	
3.20		100.00
	0	
4.00		100.00
	0	
5.00		100.00
	0	
6.30		100.00
	0	
8.00		100.00
	0	
10.00		100.00
	0	
12.50		100.00
	0	
16.00		100.00
	0	
20.00		100.00
	0	
25.00		100.00
	0	
32.00		100.00
	0	
40.00		100.00
	0	
50.00		100.00
	0	
63.00		100.00
	0	
80.00		100.00
	0	
99999.00		100.00

TOTAL SAMPLES= 13   VALUES < DETECTION = 3   RANGE= 0.1 TO 3.0

INTERV	SAMPLES	CUM FR %
	0	
4.00		0.00
	0	
7.00		0.00
	1	
7.10		7.69
	0	
7.20		7.69
	0	
7.30		7.69
	3	
7.40		30.77
	2	
7.50		46.15
	1	
7.60		53.85
	0	
7.70		53.85
	0	
7.80		53.85
	1	
7.90		61.54
	1	
8.00		69.23
	0	
8.10		69.23
	1	
8.20		76.92
	0	
8.30		76.92
	1	
8.40		84.62
	0	
8.50		84.62
	0	
8.60		84.62
	0	
8.70		84.62
	0	
8.80		84.62
	2	
8.90		100.00
	0	
9.00		100.00
	0	
9.10		100.00
	0	
9.20		100.00
	0	
9.30		100.00
	0	
9.40		100.00
	0	
99999.00		100.00

TOTAL SAMPLES=   13   VALUES < DETECTION =   0   RANGE=   7.0   TO   8.8

AREA 126 LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY

COND HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV MMHO	SAMPLES	CUM FR %
	0	
1.00		0.00
	0	
225.00		0.00
	0	
250.00		0.00
	0	
280.00		0.00
	1	
320.00		7.69
	2	
360.00		23.08
	1	
400.00		30.77
	2	
450.00		46.15
	1	
500.00		53.85
	3	
560.00		76.92
	0	
630.00		76.92
	3	
710.00		100.00
	0	
800.00		100.00
	0	
900.00		100.00
	0	
1000.00		100.00
	0	
1250.00		100.00
	0	
1400.00		100.00
	0	
1600.00		100.00
	0	
2000.00		100.00
	0	
2500.00		100.00
	0	
3200.00		100.00
	0	
4000.00		100.00
	0	
5000.00		100.00
	0	
6300.00		100.00
	0	
8000.00		100.00
	0	
9000.00		100.00
	0	
99999.00		100.00

TOTAL SAMPLES=   13   VALUES < DETECTION =   0   RANGE= 300.0 TO   675.0

AREA 126 LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY

HCO3 HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV MG/L	SAMPLES	CUM FR %
	0	
1.00		0.00
	0	
50.00		0.00
	2	
56.00		15.38
	2	
63.00		30.77
	0	
71.00		30.77
	0	
80.00		30.77
	2	
90.00		46.15
	0	
100.00		46.15
	1	
112.00		53.85
	3	
125.00		76.92
	1	
140.00		84.62
	2	
160.00		100.00
	0	
180.00		100.00
	0	
200.00		100.00
	0	
225.00		100.00
	0	
250.00		100.00
	0	
280.00		100.00
	0	
320.00		100.00
	0	
360.00		100.00
	0	
400.00		100.00
	0	
450.00		100.00
	0	
500.00		100.00
	0	
560.00		100.00
	0	
630.00		100.00
	0	
710.00		100.00
	0	
800.00		100.00
	0	
99999.00		100.00

TOTAL SAMPLES= 13   VALUES < DETECTION = 0   RANGE= 54.1 TO 156.0

AREA   126   LAKE   SITE   PRINIC 1978 GEOCHEMICAL SURVEY
   SCATTERGRAM AND LINEAR REGRESSION OF   U-W   VS   PH

U-W
PPB
0.1-
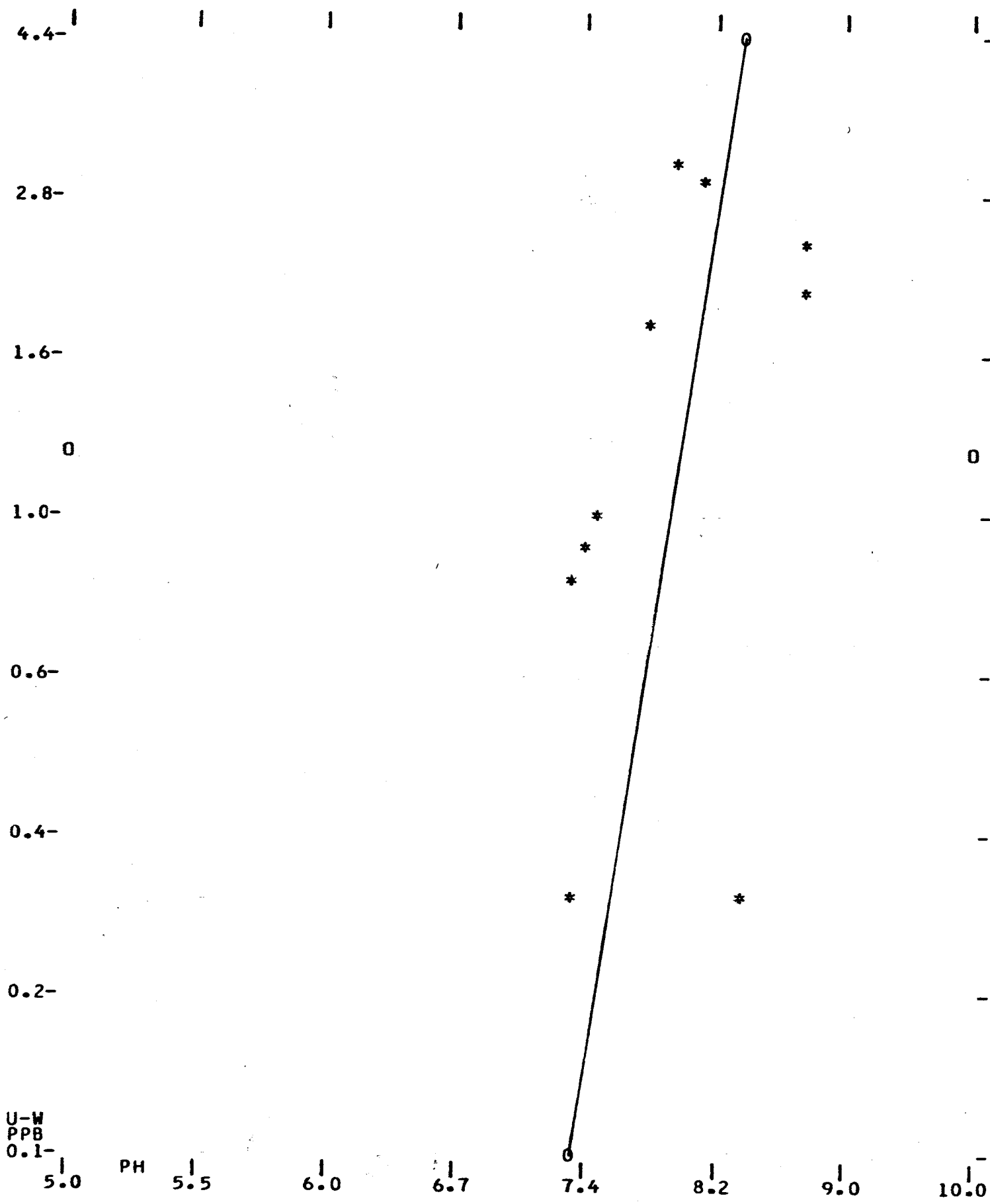
         PH
   5.0   5.5   6.0   6.7   7.4   8.2   9.0   10.0
10 SETS USED--VALUES<DETECTION: 0 PH   3 U-W--COR COEF= 0.45--PREDICT 20%

AREA   126   LAKE   SITE   PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF   U-W   VS   COND

U-W
PPB

10 SETS USED--VALUES<DETECTION: 0 COND   3 U-W--COR COEF= 0.71--PREDICT 51
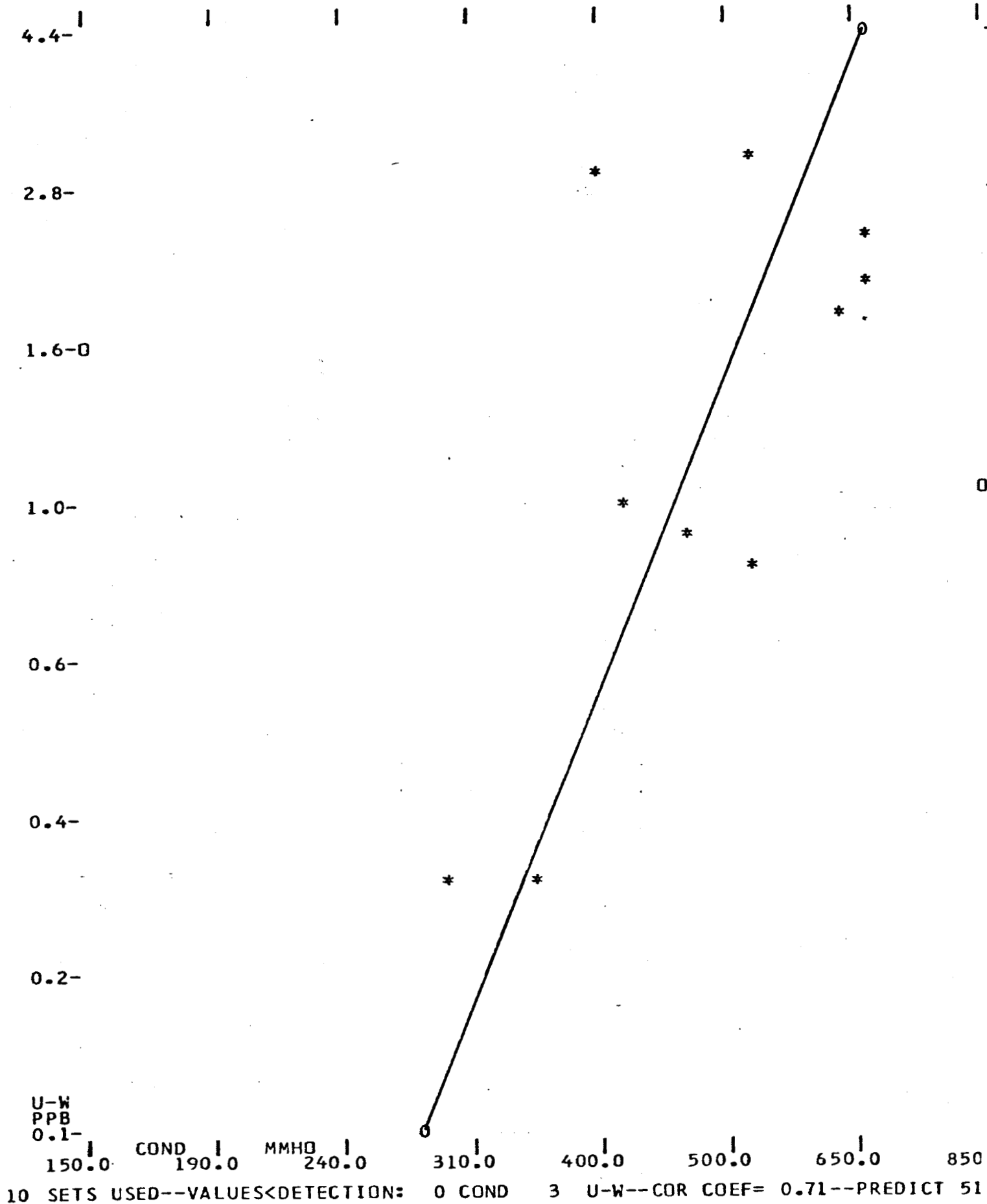
AREA 126 LAKE SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF COND VS PH
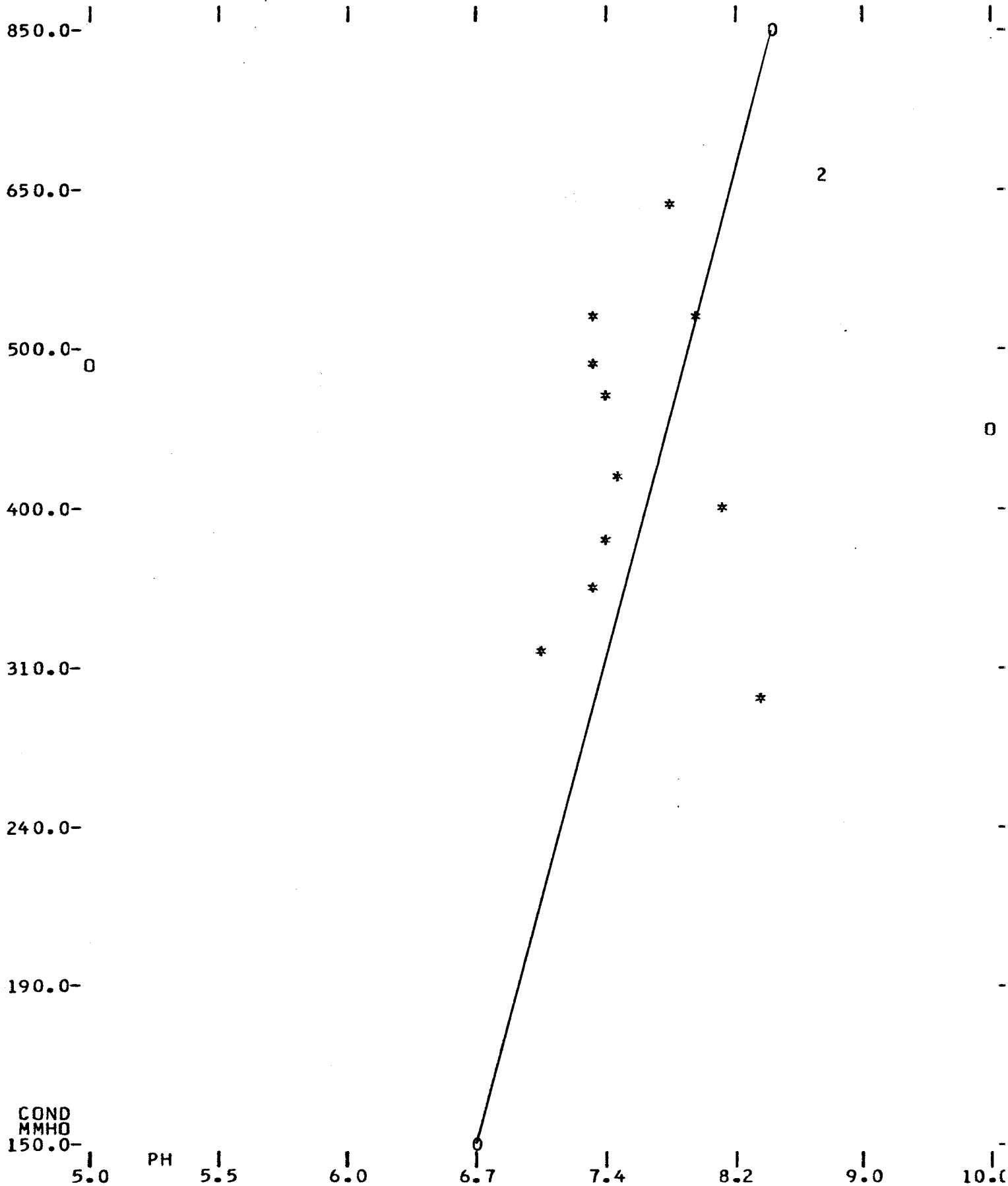
COND
MMHO

13 SETS USED--VALUES<DETECTION: 0 PH 0 COND--COR COEF= 0.46--PREDICT 21%

AREA 126 LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF   U-W   VS   U-S


```
U-W
PPB
```
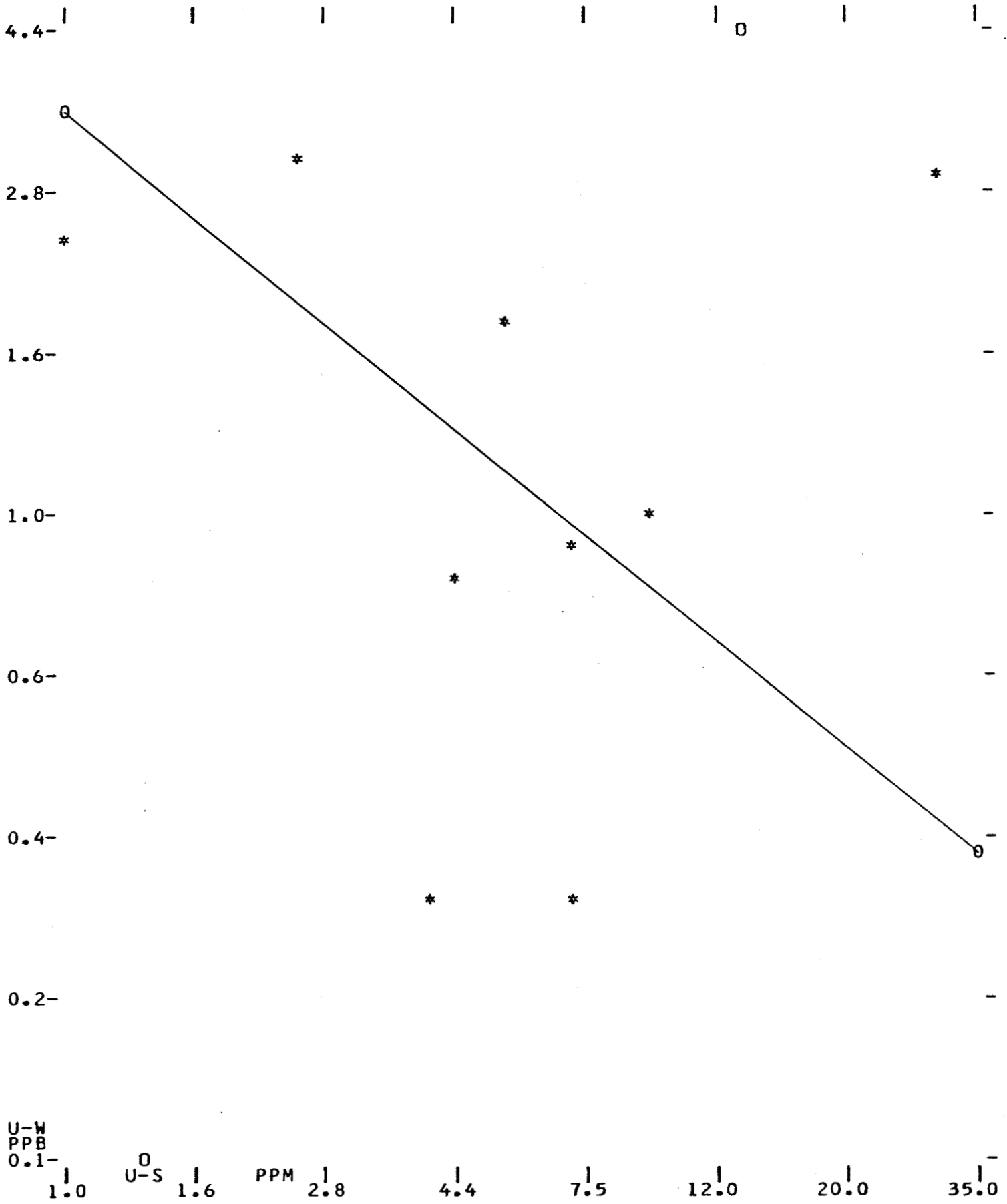
9 SETS USED--VALUES<DETECTION: 1 U-S   3 U-W--COR COEF=-0.08--PREDICT 1%

AREA 126 LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF HCO3   VS   COND
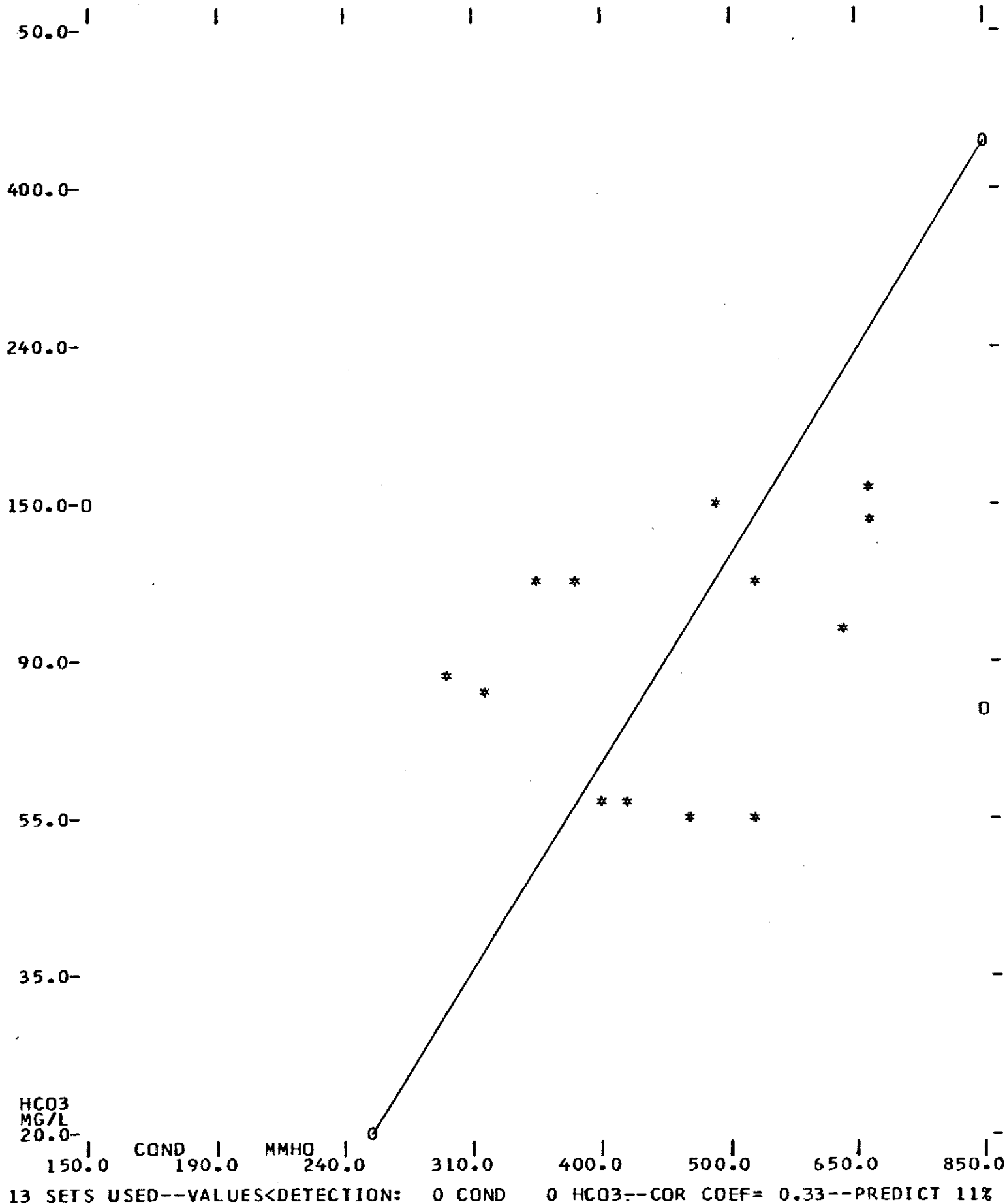
HCO3
MG/L
13 SETS USED--VALUES<DETECTION: 0 COND   0 HCO3--COR COEF= 0.33--PREDICT 11%

AREA 126 LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF HCO3   VS   PH
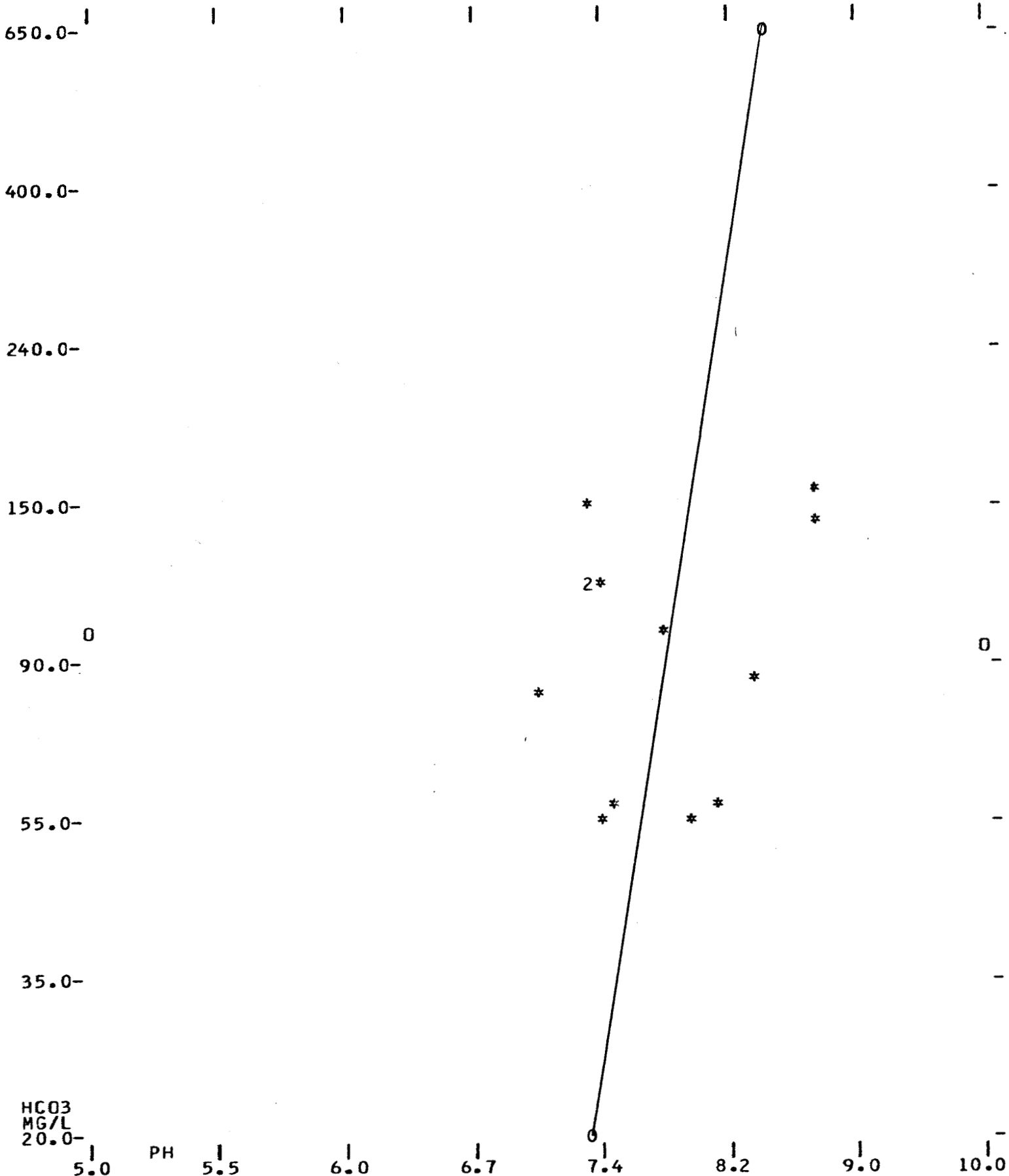
13 SETS USED--VALUES<DETECTION: 0   PH   0 HCO3--COR COEF= 0.21--PREDICT   4%

AREA 126 LAKE SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF HCO3 VS U-W
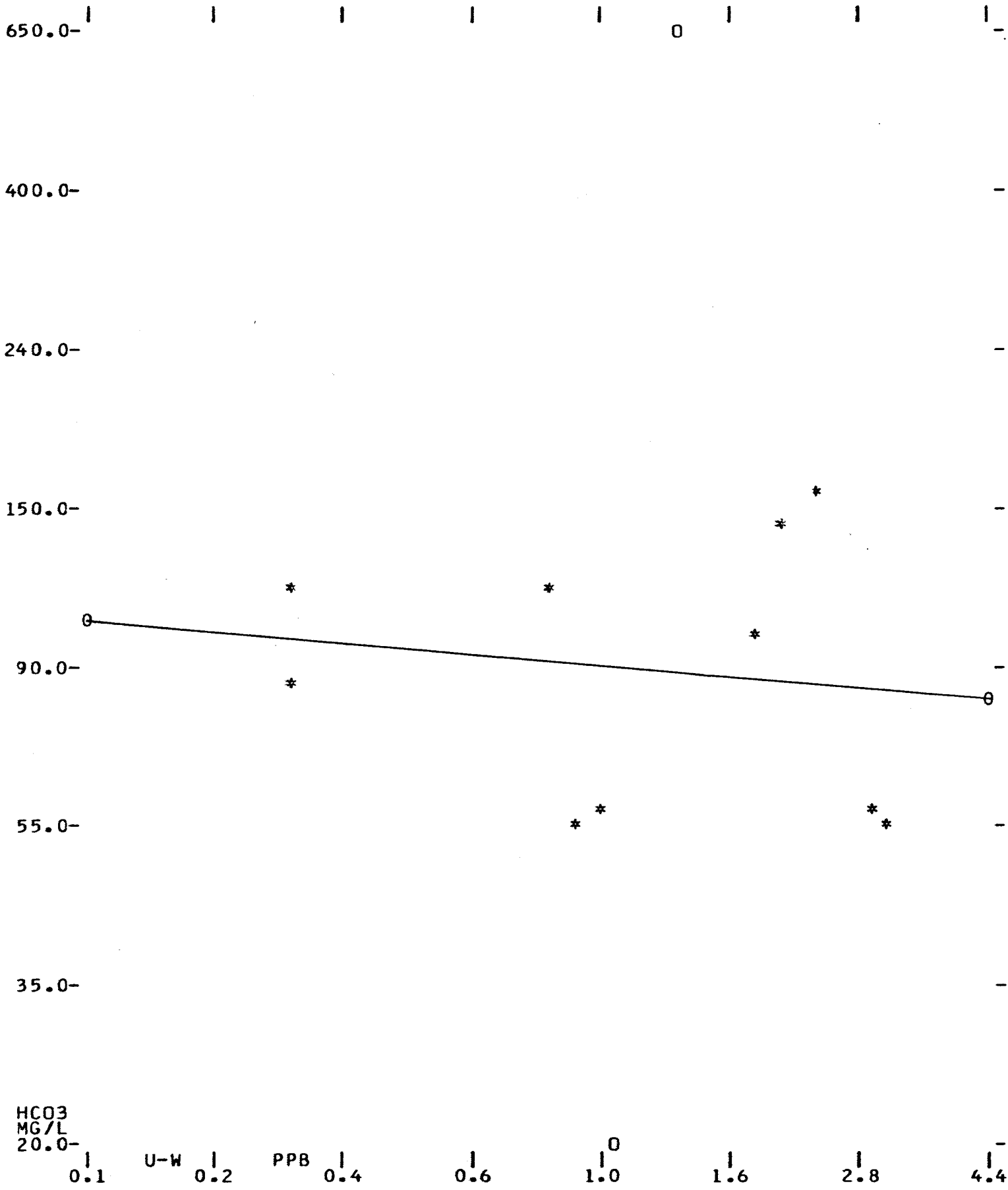
HCO3
MG/L

10 SETS USED--VALUES<DETECTION: 3 U-W 0 HCO3--COR COEF=-0.11--PREDICT 1%

AREA   126 LAKE SITE   PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF   HCO3   VS   U-S
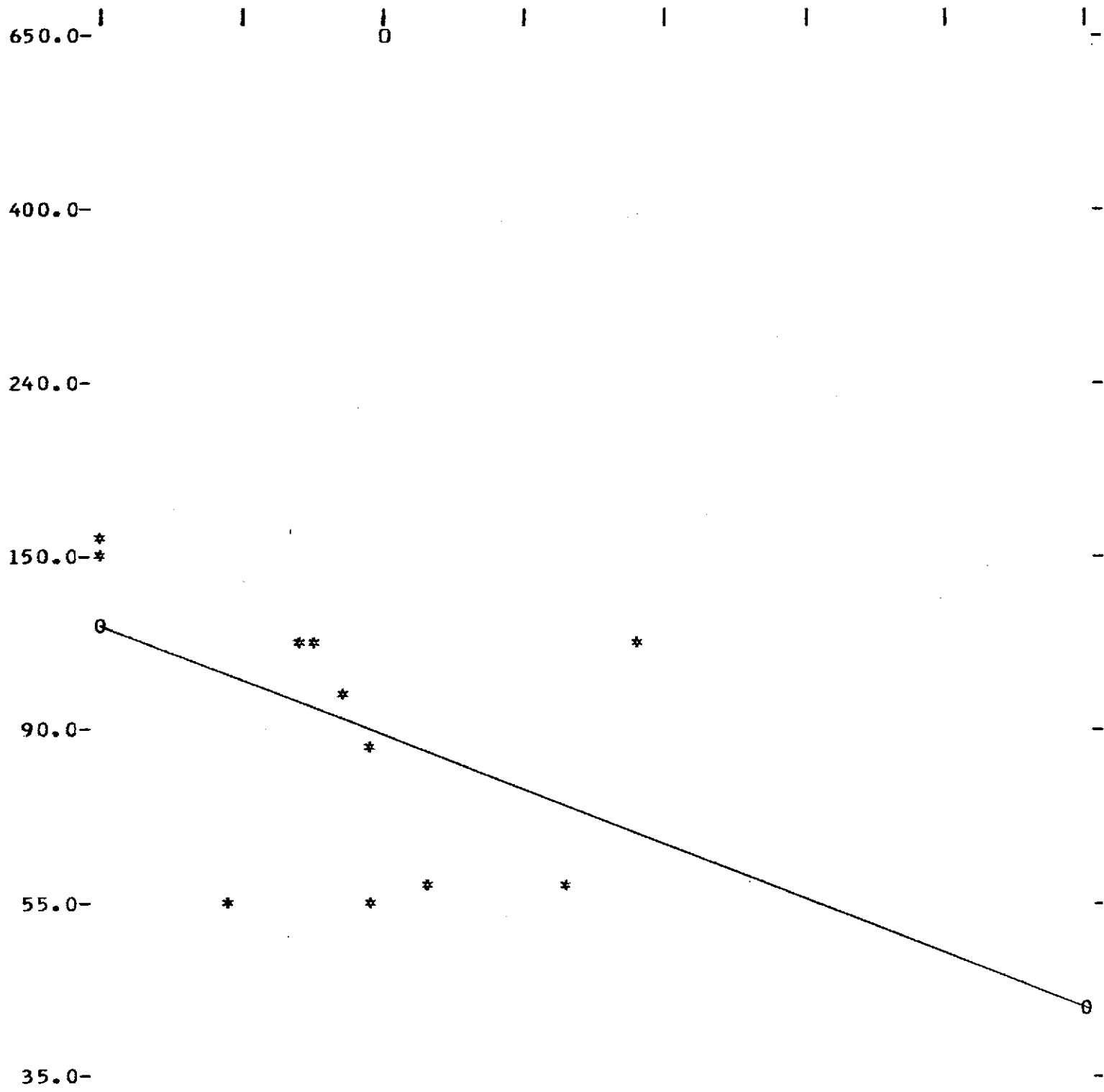
```
         I          I          I          I          I          I          I          I
650.0- I          I          O          I          I          I          I          I

400.0-                                                                                  -

240.0-                                                                                  -

        *
150.0-*                                                                                 -

     0
          **                                        *
             *
90.0-       *                                                                           -

                                 *      *
55.0-      *          *                         *                                       -

35.0-                                                                           0       -

HCO3
MG/L
20.0-                                                                                    -
     1.0    U-S   2.8    PPM  7.5     20.0      55.0     150.0     400.0    1100.0
        O
```

11 SETS USED--VALUES<DETECTION: 1 U-S   0 HCO3--COR COEF=-0.43--PREDICT 18%

APPENDIX 3

GUIDE TO THE STATISTICAL REPORT

1. LIST OF VALUES AND RANK.
    The Sample Number is followed by the measured analytical value
    and % Rank for each element or parameter. For measured values
    below the detection limit, the assigned value is 1/2 of the
    detection limit. A - sign indicates that no analytical value
    is available. The number of samples with values for a given
    element is given at the end of the table.
    The Rank specifies the position of the corresponding measured
    value in a sequence from the highest to the lowest values;
    it is given in % of the number of values for that element to
    the nearest integer. For example if there are 55 samples,
    all values below detection are ranked 100 (there are no lower
    values). The highest value is ranked 2 (1 sample is 2% of 55).
    Missing values are given 0 rank.

2. STATISTICAL SUMMARY TABLE.
    For Element E with N values

    a) AR (Arithmetic) MEAN: $MA = \bar{E} = \dfrac{1}{N} \sum E$

    b) STD DEV (Standard Deviation): $SD = \sqrt{\dfrac{1}{N-1} \sum (E-\bar{E})^2}$

    c) GEOM (Geometric) MEAN: $MG = Exp\left[\dfrac{1}{N} \sum \ln (E)\right]$

    d) LN DEV (Deviation of the Logarithms):

$$LD = Exp\left[\sqrt{\dfrac{1}{N-1} \sum \left[(\ln(E) - \ln(MG)\right]^2}\,\right]$$

    In the formulas ln indicates the Natural Logarithm, Exp the
    exponential function.

The Geometric Mean and Logarithmic Deviation are expressed in the same measuring units as the corresponding arithmetic parameters.

e) The RANGE gives the Minimum and Maximum values

f) SMPLS is the total number of samples with values for the element (including below detection)

g) < DET LIM indicates how many of the sample values are below the detection limit.

3. DEVIATIONS FROM THE MEANS.
The table gives the VALUE of the MEAN and at 1 and 2 deviations below and above the mean. The % indicates the RANK of such value, or what percentage of the measured values would be above it. The deviations are given for both the Arithmetic (ARITH) and Logarithmic (LOG) parameters. All Values are expressed in the same measuring units.
Example. Given MA = 10.0 ppm
                SD = 15.0 ppm
                MG =   7.0   ln (MG) = 1.95
                LD =   2.0   ln (LD) = 0.69
For Mean + 2 DEV
ARITH - VALUE is $10 + 2 \times 15 = 40$ ppm
LOG - VALUE is $\text{Exp}\left[\ln (MG) + 2 \times \ln (LD) \right] = \text{Exp}(3.33) = 28$ ppm

The LOG value could also be computed directly in true units:

$$V = MG \times (LD)^2 = 7 \times 4 = 28$$

4. HISTOGRAM AND CUMULATIVE FREQUENCY.
The INTERVAL limits values, the number of SAMPLES in each interval and the Cumulative Frequency are printed. The scaled Bar Diagram (****) illustrate the number of samples in the interval.
The + plots the Cumulative Frequency Curve, rising to 100% at the right. The Number of Samples, the number below the detection limit and the Minimum and Maximum values are shown in the last line.

5. CORRELATION COEFFICIENTS.
The table consists of cells for pairs of elements. In each cell the first value is the Linear Correlation Coefficient for the pair. The second line is the range of the level of significance; it indicates the % probability that the correlation is due to causes other than random measuring errors and is computed by a modified Student-t test at the 50, 60, 80, 90, 95 and 99% levels.

A 0-50 range means that there is better than 50% chance that the correlation is caused by random errors.
A 99-** range means that there is less than 1% probability that errors cause the correlation, or that there is better than 99% certainty that the coefficient reflects the true behaviour of the data.
The third value in the cell indicates the number of samples in the pair, including values below detection.

For N pairs of elements X and Y with means $\bar{X}$ and $\bar{Y}$ and deviations sX and sY, the correlation coefficient R is

$$R = \frac{\sum XY - N\,\bar{X}\bar{Y}}{N \cdot sX \cdot sY}$$

6. SCATTERGRAM AND LINEAR REGRESSION.
For selected pairs of elements the values are plotted in the scattergram using logarithmic scales on both axes; the labels are in true measuring units. An * indicates one occurrance of a pair of values, a 2 is for two pairs at the same position, 3 for three pairs, etc. up to 9. For ten or more pairs a + is used.
The linear regression is computed assuming errors in both elements, thus the fit minimizes the sum of the distances from the occurrances to the regression line.
Two possible fits result, the more logical being shown by the regression line.
The last line in the page specifies the number of sets of pairs plotted, the additional number of values for each element below the detection limit (not plotted), the linear correlation coefficient for the plotted values and the percentage of the values which can be predicted from the correlation.

APPENDIX 4

LABORATORY   PROCEDURES

All analytical determinations were done by Chemex Labs. Ltd. in Vancouver, B.C. Analytical methods for uranium, as well as for Sn, W, Ag, and Au presently being used at Chemex are as follows:

a) Sediment samples - dried at 60°C and screened to - 80 mesh. Coarse material is retained if the screened fraction is small. A 0.25 gm sample of - 80 mesh material is weighed into a 100 ml pyrex beaker. The sample is ashed at 550°C to remove organics. The ashed residue is digested in 5 mls 4M HNO_3 and taken to dryness twice. The residue is leached in 50 mls HNO_3. The solution is swirled and allowed to settle. A few microlitres of the clear solution is transferred by micropipette to a platinum dish. The sample is evaporated to dryness and fused with a 0.50 gm tablet of carbonate - fluoride flux at 650°C. The fused disc is removed from the platinum dish and uranium fluorescence is determined using a G.K. Turner III Fluorometer or Jannell-Ash 26-000 Fluorometer. Detection limit is 0.50 ppm U, and the upper limit of the analytical method is 400 ppm U.

Assay methods (as % U_3O_8) are as follows:

1 gram of homogenized sample pulp is weighed into a Teflon dish and digested with 10 mls 52% HF, 5 mls 70% $HClO_4$ and 5 mls conc. HNO^3 to dryness. The residue is dissolved in 25 mls 9M HCl. The uranium is separated from interfering elements by anion exchange procedures. The absorbed uranium is eluted from the resin and a suitable portion of the

uranium bearing solution is reduced, filtered and then complexed using Arsenazo III reagent. Absorbance is measured using "Spectronic 700" Spectrophotometer. The U_3O_8 concentration is evaluated by correlation with a standard reference curve. Concentration range 0.001% U_3O_8 to 10.0% U_3O_8.

    b) Water samples - a 75 ml aliquot of the water sample is transferred to a clear 100 ml pyrex beaker. Three ml of concentrated HNO_3 is added and the solution is evaporated to dryness at low uniform temperature. The dry residue after ashing is dissolved in 3 ml of warm 4M HNO_3. An aliquot of the dissolved residue is transferred to a small platinum dish, dried, and fused with a 0.50 gm tablet of carbonate-fluoride flux at 650°C. The fused disc is removed from the platinum dish and uranium fluorescence is determined using a G.K. Turner III Flurometer or Jarrell-Ash 26-000 Flurometer. Detection limit is 0.20 ppb U. If quenching by manganese or other interferring metals is suspected during fusion, a new aliquot of the dissolved residue is diluted 8 X and then fused. This process raises the detection limit to 4.0 ppb U.

    Bicarbonate alkanity of the water samples was calculated at Chemex by titrating standardized H_2SO_4 against a known aliquot of the sample. The bicarbonate alkalinity was then calculated according to "Standard Methods for the Examination of Waters and Waste Waters" 14th ed, pp.278-282.

    c) Heavy Mineral samples - dried and screened to separate -20 mesh material. The total -20 and +20 mesh material is

weighed. The heavy minerals are separated from the -20 mesh fraction using tetrabaromethane (S.G. 2.96). The weight of the dried light and heavy fractions is recorded and the lights are discarded. A small fraction of the heavy minerals is removed and returned to Canadian Oxy for microscopic examination. The remaining heavy mineral fraction is hand pulverized and homogenized before analysing for U, Sn, W, Ag & Au.

1) Tin determination - 1 gm sample. Amonium iodide sublimation - extraction of stannous iodide and atomic absorption analysis (1ppm detection)

2) Tungsten determination - 0.20 gm sample. Fusion followed by calometric analysis of tungsten using zinc dithiol procedure (4ppm detection)

3) Uranium determination - 0.25 gm sample. Ashing and 4M HNO_3 digestion. Fluorometric analysis to 0.5 ppm. Without ashing a perchloric - nitric acid digestion is required.

4) Silver determination - 0.50 gram sample. $HClO_4$ - HNO_3 digestion. Corrected atomic absorption analysis to 0.2 ppm.

5) Gold determination - 5.00 gm sample. Ashing and aqua regia digestion (twice). Extraction with HBr - MIBK. Extract analysed by atomic absorption (detection 15 ppb).

APPENDIX 5

AUTHOR'S QUALIFICATION

Johannes Robert Hill received his B.Sc (Honours) degree in Geological Sciences in 1975 graduating from Queen's University at Kingston, Ontario. At time of writing, the author has been employed by Canadian Occidental Petroleum Ltd., Minerals Division, as a geologist for a period of three years.

STATEMENT OF EXPENDITURES

STAKE   Claims

Salaries 7 man days @ $158/m.d.	$ 1,106
Travel and accommodation	764
Geochemical analysis	785
Computer analysis	547
Consultant fees	320
Drafting and reproduction	191
Camp costs and supplies	226
Rental of equipment	44
Other work	357

Total $ 4,340

Note:

1) Above expenditures pro-rated on basis of   7   man days
   work on claims out of total 107 man days work on Prinic
   claims. See also Prinic Statement of Expenditures attached.

2) Above expenditures are allocated equally to surveys as
   follows:

i)	Geological survey	$ 1,446	$206/m.d.	or $48/unit
ii)	Geochemical "	1,447	206/m.d.	48/ "
iii)	Geophysical "	1,447	206/m.d.	48/ "

Totals $ 4,340 $620/m.d. $145/unit

Project PRINIC Assessment Expenditures - 1978

Salaries	$ 16,905
Travel and accommodation	11,671
Geochemical analyses	12,002
Computer analysis	8,365
Consultant fees	4,901
Drafting and reproduction	2,925
Camp costs and supplies	3,455
Rental of Equipment	665
Other work	5,451
Total	$ 66,340

Notes

1) Salaries - Canadian Oxy field personnel salaries and benefits while engaged on project and report writing. Avg. cost ($16,905 ÷ 107 man days) = $158/m.d. or $29.05/claim unit.

2) Travel and accommodation - Costs of moving men, material and equipment to various claim areas and living costs while completing surveys. Avg. cost ($11,671 ÷ 107 m.d.) = $109/m.d. or $20.05 per claim unit.

3) Geochemical analyses - Samples analyzed by Chemex Labs, Vancouver. Total of 1807 samples analyzed for U, W, Ag. Au, HCO_3, etc., at cost of $12,002. Avg. cost $6.64/sample.

4) Computer analysis - computer plotting of 1807 determinations by C.A.S.E. Ltd., Toronto. Total cost of $8,365 or avg. cost of $4.63/determination.

5) Consultant fees - student instruction, and data interpretation by C.F. Gleeson and Associates Ltd. Avg. cost ($4,901 ÷ 12 days) = $408/day.

6) Drafting and reproduction - report and map compilation and drafting by R. Paluoja Mapping. Toronto. Reproduction completed by Paragon Reproduction Services, Toronto. Avg. cost ($2,925 ÷ 582) = $5.03/unit.

7) Camp costs and supplies - food and field items purchased for the project - Avg. cost ($3,455 ÷ 107) = $32.29/m.d. or $5.94/unit.

8) Rental of Equipment - company truck (1900 miles @ 35¢/mi)=$665.

9) Other work - Sundry project expenses (communications, typing) and project supervision and administration. Avg. cost ($5,451 ÷ 107) = $50.94/m.d. or $9.37/unit.

The above expenditures cover geological, geophysical and geochemical surveys and could be broken down as follows:

Geological Surveys - $22,113 or $620/m.d. or $38/unit
Geochemical Surveys -   22,112   "   "
Geophysical Surveys -   22,114   "   "

         Total $66,340 $620/m.d. $38/unit

PROJECT PRINIC CLAIMS - 1978

Name	No. of Units	Man-Days	Work filed	PAC	Cash in lieu	Total
Bald	62	8	$4,960	$1,490	–	$ 6,450
Short	12	5	3,100	930	–	4,030
Coma	36	11	6,820	2,045	–	8,865
Dark	76	4	2,480	745	4,400	7,625
Demuth	20	2	1,240	370	400	2,010
Tok	80	8	4,960	1,490	1,600	8,050
Shin	33	4	2,480	745	100	3,325
Clark	83	15	9,300	2,790		12,090
Fred	30	8	4,960	1,490		6,450
Stake	30	7	4,340	1,300		5,640
Link	42	14	8,680	2,600		11,280
Fox	12	9	5,580	1,675		7,255
Eneas	66	12	7,440	2,230		9,670
	582	107	$66,340	$19,900	$6,500	$92,740

ANOMALOUS > 10
PROB. ANOM. 5 - 9
THRESHOLD -

SYMBOLS

C.O. 1978 (STREAMS, SPRINGS)

ppmU ⊕ Sample Nº

C.O. 1978 (LAKES, SWAMPS)

ppmU ⬧ Sample Nº

G.S.C. [URP] 1976
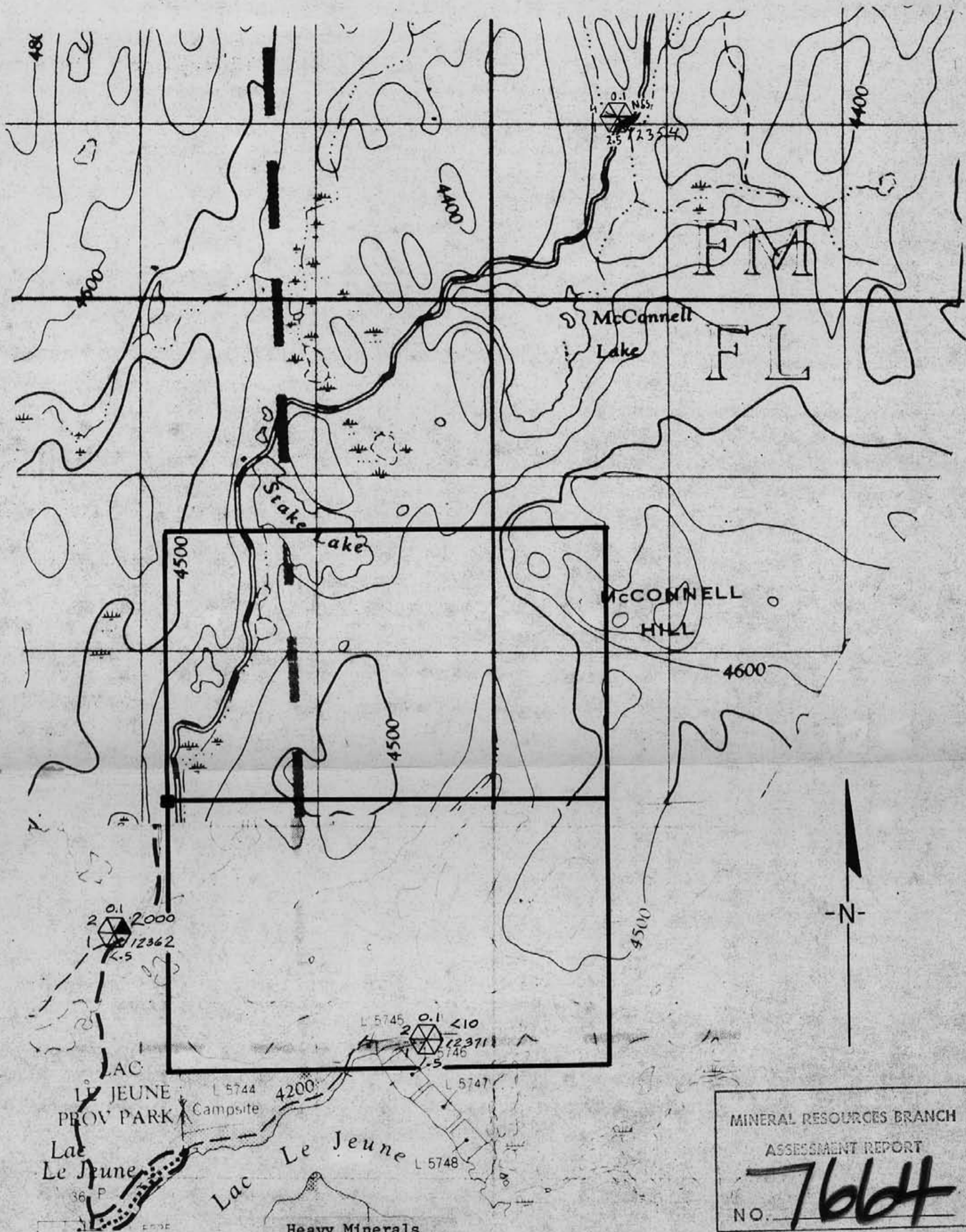
ppmU ⊞ Sample Nº

C.O. PRINCETON / NICKY 1973, 1974

ppmU ⬡

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

PROJECT PRINIC
SOUTHERN BRITISH COLUMBIA

AREA ———— 126

SEDIMENT GEOCHEMISTRY
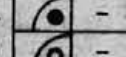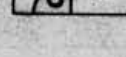
STAKE CLAIMS

Scale 1:25,000

September 1978   N.T.S. 91-I/8&9W   **PLAN 50A**
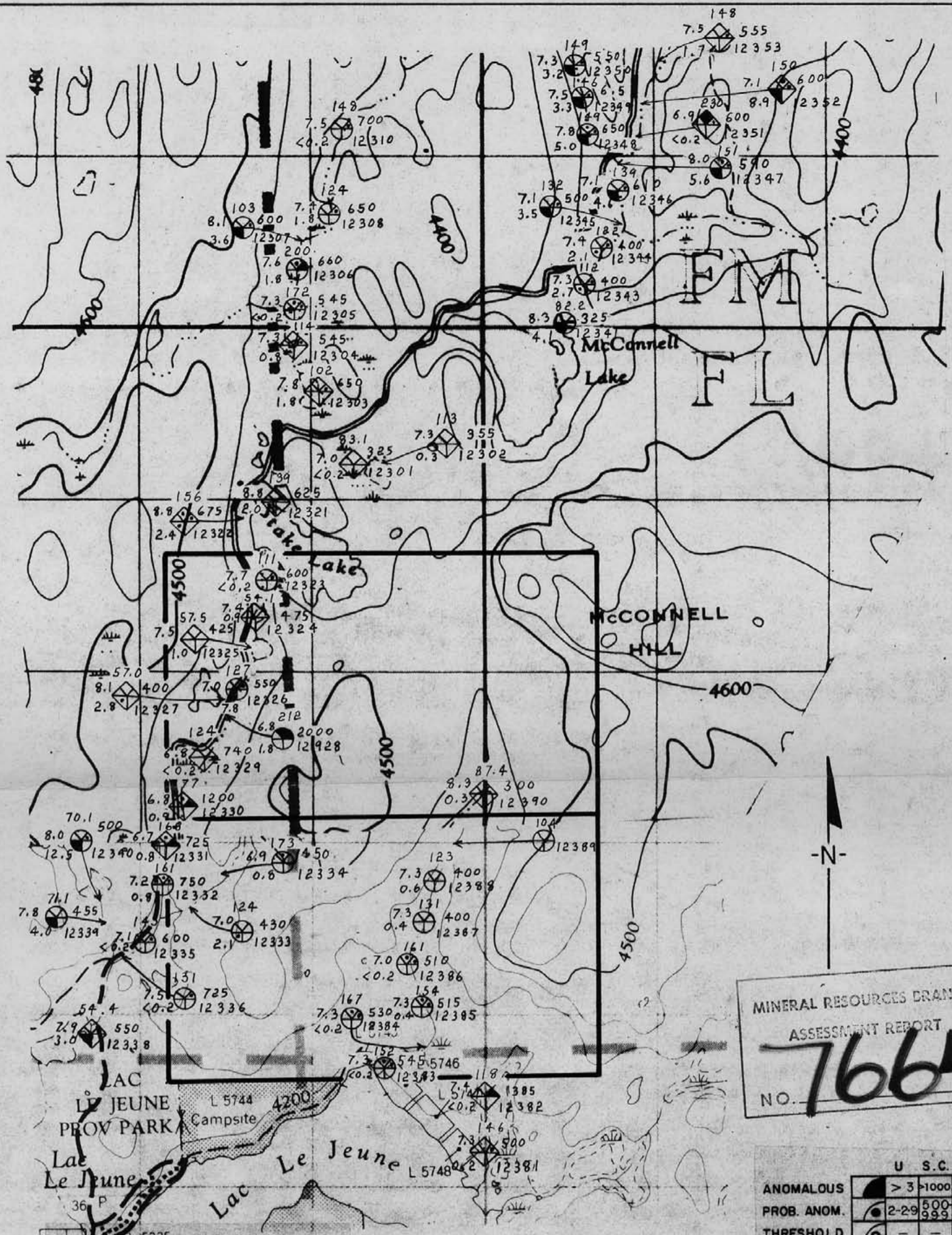
MINERAL RESOURCES BRANCH

ASSESSMENT REPORT

NO. **7664**

SYMBOLS

C.O. 1978 (STREAMS, SPRINGS)

pH ⊕ S.C.
ppbU   Sample N⁰

pH HCO₃ S.C.
ppbU   Sample N⁰

C.O. 1978 (LAKES, SWAMPS)

pH ◇ S.C.
ppb U Sample N⁰

HCO₃
pH ◇ S.C.
ppbU   Sample N⁰

G.S.C. [URPJ 1976

pH ⊞
ppbU Sample N⁰

HCO₃ in mg/l
S.C. in μ mhos

		U	S.C.	HCO₃
ANOMALOUS		> 3	>1000	>200
PROB. ANOM.		2-2·9	500-999	150-199
THRESHOLD		—	—	—

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

PROJECT PRINIC
SOUTHERN BRITISH COLUMBIA

AREA ———— 126

WATER GEOCHEMISTRY

STAKE CLAIMS

Scale 1:25,000

September 1978   N.T.S. 91-I/8&9W

PLAN 50 B

FM
FL
McConnell
Lake

McCONNELL
HILL

4600

4500

4500

-N-

SYMBOLS

C.O. 1978
ppm Ag
ppm W ⬡ ppb Au
ppm Sn ⬡ Sample Nº
ppm U

	Au
ANOMALOUS	>2000
PROB. ANOM.	-
THRESHOLD	-

Heavy Minerals
Area 126

		%
12354:	SPHN	50
	AMPH	25
	PYRX	20
	MGNT	5
12362	AMPH	50
	PYRX	25
	APTT	15
	MGNT	5
	SPHN	5
12371	AMPH	45
	PYRX	30
	SPHN	15
	APTT	10

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION
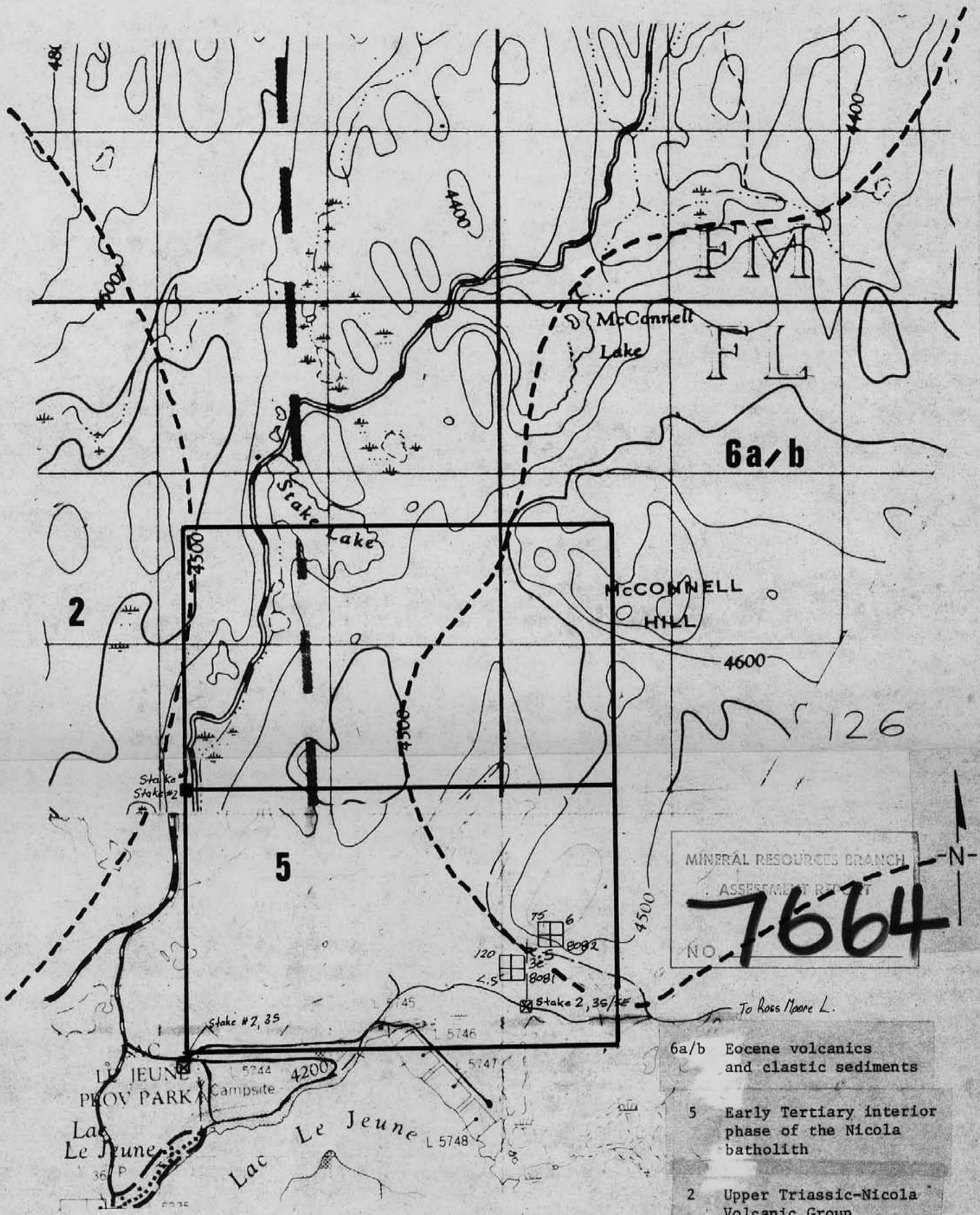
PROJECT PRINIC
SOUTHERN BRITISH COLUMBIA
AREA ———— 126

HEAVY MINERAL GEOCHEMISTRY

STAKE CLAIMS

Scale 1:25,000

September 1978   N.T.S. 91-I / 8 & 9 W

PLAN 50C

FM

FL

McConnell Lake

6a/b

McCONNELL HILL

4600

2

4500

126

5

75   6

120   8082

<.5   3E 5

8081

Stake 2, 3G/5E

To Ross Moore L.

LE JEUNE PROV PARK

Campsite

Lac Le Jeune

Lac Le Jeune   L 5748

5744   4200

5745

5746

5747

-N-

6a/b   Eocene volcanics
and clastic sediments

5   Early Tertiary interior
phase of the Nicola
batholith

2   Upper Triassic-Nicola
Volcanic Group

SYMBOLS

C.O. 1978

Scintillometer   ▦ Rock Unit
(cps)
ppmU   ▦ Sample N°

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

PROJECT PRINIC
SOUTHERN BRITISH COLUMBIA

AREA ————— 126

GEOLOGY & ROCK GEOCHEMISTRY

STAKE CLAIMS

Scale 1:25,000

September 1978   N.T.S.91-I/8&9W   PLAN 50D