CANADIAN OCCIDENTAL PETROLEUM LTD.

MINERALS DIVISION

GEOLOGY AND GEOCHEMISTRY OF THE

DARK CLAIM GROUP

Claim Sheet 82-E-12W
Lat. : 49°41'N
Long.: 119°54'W

Claims:
DARK #1: Units 1-16
DARK #2: Units 1-16
DARK #3: Units 1-16
DARK #4: Units 1-16
DARK #5: Units 1-12

Osoyoos Mining Division
British Columbia

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

Work Completed During the Period

August 23rd, 1978

Contents

PLANS ACCOMPANYING REPORT

13A: Sediment Geochemistry)
13B: Water Geochemistry)
13C: Heavy Mineral Geochemistry) in back pocket
13D: Geology & Rock Geochemistry)

Summary

The DARK Claims are underlain by Jurassic Valhalla granodiorite and Similkameen quartz diorite. The original Canadian Oxy coverage showed values of up to 126 ppm U occurred in stream sediments, hence the claims were staked.

Detailed re-collection showed replication of this anomaly with a maximum value of 350 ppm U in stream sediments. Water samples from this area are also anomalous (5.9-11 ppb U). These high values in the waters are not due to environmental variation as waters in the southern part of the area have equally high pH, bicarbonate and conductivity but have less uranium.

Two heavy mineral samples have high uranium values (4-9 ppm U) and have a high content of sphene (15-20%) and magnetite (35-50%) suggesting that some of the high sediment values are due to mechanical dispersion; this is also suggested by the contrast between neutron activation values and fluorometric values for the same sites (36-96 ppm versus 0.5-9 ppm); however, the extremely high values in both sediment and water and their close spacial grouping make detailed scintillometer prospecting and geological mapping, soil and rock geochemistry obligatory.

Location and Access

The area is located on the plateau above the north slope of the Trout Creek valley extending north to the edge of the Darke Creek valley and Munro Lake. It covers an area of 30 km^2 on NTS map sheet 82E/12W.


DARKE LAKE
PROVINCIAL PARK
L 3920
L 3923
L 3918
L 3921
L 3924
L 3910
L 3919
L 3932
4243
L 4240
L 3761
Mount Acland
5500
5200
5000
4500
4000
3000
L 4239
L 4469
L 3951
L 4470
O K A N A G A N
DARK CLAIMS
L 4477
Kirton
Gate
2491
L 3899
P R O V I N C I A L
L 3595
CANADIAN
PACIFIC
2900
L 4773
L 3406
L 3772
L 3784
L 3389
2829
Crump
3500

Access is via the Trout Creek logging road from Summerland. Turn off at Mile 4 onto the W and W logging road which extends through the centre of the area. Numerous side roads provide access to many parts of Area 37 and DARK Claim group.

Physiography and Vegetation

Relief over the area is 650 m. Much of the area covers a relatively flat-lying plateau separating the Darke Creek and Trout Creek valleys. There is, however, a very steep drop-off into Darke Creek on the NE edge.

All drainage flows either NE into Darke Creek or SW into Trout Creek. The bush is relatively open, consisting of a mature coniferous forest with little underbrush. Extremely heavy logging activity is presently localized in the southern half of the area.

Previous Work

A total of 14 stream silt samples were collected by Canadian Oxy within the Area 37 during the Princeton/Nicky Program. The samples range in value from 6.4 to 126.0 ppm U with a background of approximately 20 ppm U.

Work Completed

During the period June 27-29 the DARK Claim group were staked by Eastern Associates Ltd. of Whitehorse, Y.T. A total of 76 units covers the area of the originally anomalous streams.

Hill, Smith, O'Hearn and Gardner completed geochemical sampling and prospected over the area on Aug. 23, being 4 man-day of work. A total of 45 stream and lake silts, 28 stream and lake waters and 2 heavy mineral samples were collected.

As well, Hill prospected a portion of the central part of the area using a scintillometer and collected 1 rock chip sample for geochemical analysis.

Geology and Rock Geochemistry

The area is underlain by intrusives belonging to the Lower Cretaceous to Upper Jurassic Valhalla granodiorites and Nelson Plutonics. The contact between the two units approximately bisects the area on a NE/SW trend.

Rock examined by Hill was a medium to fine-grained biotite quartz diorite or granodiorite. The outcrops were characterized by a scintillometer response of 100 cps compared to a background average response of 80 cps. Geochemical analysis of one chip sample showed less than 0.5 ppm U.

Geochemistry

Sediments (Plan 13A) - Stream sediment anomalies (22-350 ppm U) are derived from an area in the northwest part of the claims (DARK 4 and 5) that is underlain by Jurassic Valhalla granodiorite.

Waters (Plan 13B) - Several water samples from the above area are also anomalous in U (5.9-11 ppb). Increases in specific conductivity measurements (127-187 m mhos), HCO_3 (36-57 mg/l) and pH (7.2-7.7) occur in the samples which are anomalous in U. However, in the south part of the claims there are alkaline waters that contain above normal amounts of HCO_3 and have above average conductivities that are lower in U (less than 1 ppb).

Heavy Minerals (Plan 13C) - Two heavy mineral samples from streams draining the southern part of the claim block

contain 4 and 9 ppm U. Other metals analyzed for (Ag, Au, W, and Sn) are low. One heavy mineral sample north of the claims contains above normal amounts of W (35 ppm) and Ag (0.4 ppm). This stream drains the MUN Claims held by Canadian Oxy. Magnetite (35-50%), amphibole (30-35%), sphene (15-20%) and pyroxene (5%) are the major heavy minerals derived from the Valhalla granodiorite. Some of the U in the area may be found in the sphene and/or magnetite. The high U values (36-96 ppm) found in some stream sediments by neutron activation analysis versus the lower values (0.5-9 ppm) obtained fluorometrically indicates that some U is bound to resistate minerals.

Conclusions

Stream sediment and water U anomalies (22-350 ppm and 5.9-11 ppb respectively) are derived from Jurassic Valhalla granodiorite underlying the northwest part of the claim block.

Recommendations

Systematic geological mapping, prospecting, soil and rock geochemistry for U should be concentrated over DARK claim blocks 2, 4 and 5. Air photo interpretation should be carried out prior to this field work.

Respectfully submitted,

Johannes R. Hill, B.Sc.

TORONTO

November, 1978

APPENDIX 1

Petrography

Specimen No. - 37-50 (8074)

Rock name - fresh biotite hornblende granodiorite

Mineralogy - essential - plagioclase - 40%
quartz - 25%
K-feldspar - 15%
biotite - 10%
hornblende - 5%

accessory - magnetite
sphene
apatite

secondary - sericite
epidote group minerals
chlorite

Description - This rock is medium grained, hypidiomorphic granular, non-porphyritic, with an average grain size of around 1-3 mm. It consists of subhedra of plagioclase, and scattered crystals of hornblende and biotite, surrounded by interstitial anhedra of quartz and K-feldspar. It has an interlocking mosaic texture, with a rather uneven grain size.

The plagioclase crystals are typically in the form of tabular subhedra. They are typically zoned, often with complex zoning patterns. The zoning ranges from calcic andesine to sodic oligoclase. Plagioclase crystals are mostly quite fresh, but some crystals are moderately altered, particularily in the cores of the crystals. The alteration takes the form of a mixture of very fine sericite and clinozoisite, the latter often predominating over the sericite. Some plagioclase crystals contain occasional, relatively large, granular crystals of epidote and there are also occasional interstitial epidote crystals found throughout the rock (which may be of primary origin) K-feldspar crystals form very irregularily shaped interstitial anhedra, which are usually quite small but occasionally reach up to about 7mm across. These large crystals have an amoeboid form, penetrating between the surrounding crystals, and are also dotted by very numerous inclusions of the other rock minerals. The K-feldspar is extremely fresh and sometimes shows microcline twinning. There is sometimes a slight development of myrmekite where it abuts onto plagioclase. Quartz forms irregular interstitial anhedra, often in patches of several crystals, which are typically highly strained looking. Biotite flakes are usually fairly compact, and typically fresh. A few crystals show very slight signs of chloritisation. Hornblende crystals are small, compact, and range from subhedral to anhedral. They are very fresh looking, tend to be associated with biotite, and sometimes contain small biotite inclusions. Accessory amounts of magnetite and sphene tend to be associated with the ferromagnesian minerals, and there are also accessory amounts of apatite, in tiny prismatic crystals, scattered throughout the rock.

APPENDIX 2

PAGE 1

Geochemistry Values and Statistics

AREA 37 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 %
16002	17.0	35	0.4	85	7.3	44	79	81	19.5	89
16003	9.5	44	0.5	74	7.4	30	71	93	18.5	93
16005	16.0	37	-0.1	0	-0.1	0	0	0	-0.1	0
16006	12.0	40	-0.1	0	-0.1	0	0	0	-0.1	0
16007	28.0	26	-0.1	0	-0.1	0	0	0	-0.1	0
16008	5.5	60	-0.1	0	-0.1	0	0	0	-0.1	0
16009	58.0	12	-0.1	0	-0.1	0	0	0	-0.1	0
16010	1.0	79	9.0	7	7.7	7	187	4	52.3	7
16011	0.2	100	3.8	11	7.6	15	181	7	57.2	4
16012	2.5	74	-0.1	0	-0.1	0	0	0	-0.1	0
16013	0.2	100	1.0	41	7.6	15	152	15	44.7	11
16014	0.5	81	1.1	33	7.7	7	166	11	42.9	19
16015	5.0	65	-0.1	0	-0.1	0	0	0	-0.1	0
16021	29.0	23	0.9	48	6.5	93	96	67	21.4	78
16022	33.0	19	0.6	59	6.8	81	111	56	31.7	59
16023	22.0	28	0.4	85	6.9	74	100	63	27.2	70
16024	45.0	16	0.6	59	7.0	70	114	52	32.9	56
16025	72.0	9	1.1	33	7.2	63	135	26	34.8	44
16026	18.0	33	1.0	41	7.2	63	140	22	42.6	22
16027	3.5	72	0.1	100	6.5	93	80	78	20.8	85
16028	3.5	72	0.1	100	6.5	93	85	74	22.2	74
16029	9.5	44	0.3	89	7.0	70	107	59	31.0	63
16030	5.0	65	0.4	85	7.2	63	119	48	35.5	37
16031	8.0	53	0.5	74	7.3	44	131	33	33.5	52
16032	8.5	49	0.5	74	7.3	44	120	44	30.0	67
16033	4.5	67	0.6	59	7.5	26	133	30	35.4	41
16034	6.0	58	0.5	74	7.5	26	121	41	34.1	48
16041	19.0	30	1.1	33	6.0	96	74	89	37.1	30
16042	2.0	77	0.1	100	5.3	100	75	85	42.9	19
16043	0.2	100	-0.1	0	-0.1	0	0	0	-0.1	0
16044	0.2	100	-0.1	0	-0.1	0	0	0	-0.1	0
16045	9.0	47	-0.1	0	-0.1	0	0	0	-0.1	0
16046	8.0	53	-0.1	0	-0.1	0	0	0	-0.1	0
16047	0.2	100	-0.1	0	-0.1	0	0	0	-0.1	0
16048	0.2	100	-0.1	0	-0.1	0	0	0	-0.1	0
16049	0.2	100	-0.1	0	-0.1	0	0	0	-0.1	0
16050	-0.1	0	-0.1	0	-0.1	0	0	0	-0.1	0
16081	0.2	100	-0.1	0	-0.1	0	0	0	-0.1	0
16082	100.0	7	5.9	15	7.5	26	140	22	35.9	33
16083	165.0	5	1.1	33	7.2	63	89	70	21.2	81
16084	6.0	58	-0.1	0	-0.1	0	0	0	-0.1	0
16085	50.0	14	1.2	19	6.8	81	66	96	17.7	100
16086	350.0	2	11.0	4	7.2	63	127	37	40.8	26
16087	31.0	21	0.9	48	7.3	44	65	100	18.2	96
VALUES	43		27		27		27		27	

PAGE 2

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

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 %
16034	0.1	100	20	50	9.0	50	2	100	1	100
16050	0.1	100	5	100	4.0	100	2	100	1	100
VALUES	2		2		2		2		2	

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

STATISTICAL SUMMARY OF ALL SAMPLES

ELEMENT	AR. MEAN	STD DEV	GEOM MEAN	LN DEV	RANGE MIN	RANGE MAX	SMPLS	<DET LIM
U-S	27.1	59.3	5.8	7.8	0.2	350.0	43	8
U-W	1.8	3.0	0.8	3.4	0.1	11.0	27	3
PH	7.1	0.5	7.1	1.1	5.3	7.7	27	0
COND	113.5	34.4	108.5	1.4	65.0	187.0	27	0
HCO3	32.7	10.6	31.0	1.4	17.7	57.2	27	0
AG	0.1	0.0	0.1	1.0	0.1	0.1	2	2
AU	12.5	10.6	10.0	2.7	5.0	20.0	2	1
U-HM	6.5	3.5	6.0	1.8	4.0	9.0	2	0
W	2.0	0.0	2.0	1.0	2.0	2.0	2	0
SN	1.0	0.0	1.0	1.0	1.0	1.0	2	0

DEVIATIONS FROM MEANS : VALUES AND % FROM TOP OF GROUP

ELEMENT	MEAN-2 VALUE	DEV %	MEAN-1 VALUE	DEV %	MEAN VALUE	%	MEAN+1 VALUE	DEV %	MEAN+2 VALUE	DEV %	
U-S	-91.4	0	-32.2	0	27.1	26	86.3	7	145.6	5	ARITH
U-S	0.1	100	0.7	79	5.8	58	45.7	14	358.1	0	LOG
U-W	-4.2	0	-1.2	0	1.8	15	4.8	15	7.9	11	ARITH
U-W	0.1	100	0.2	89	0.8	48	2.7	15	9.4	4	LOG
PH	6.0	96	6.5	81	7.1	63	7.6	7	8.2	0	ARITH
PH	6.0	96	6.5	93	7.1	63	7.7	7	8.3	0	LOG
COND	44.7	100	79.1	78	113.5	52	147.9	15	182.3	4	ARITH
COND	58.7	100	79.8	78	108.5	56	147.5	15	200.5	0	LOG
HCO3	11.5	100	22.1	74	32.7	56	43.3	11	53.8	4	ARITH
HCO3	15.8	100	22.1	74	31.0	63	43.4	11	60.7	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	-8.7	0	1.9	100	12.5	50	23.1	0	33.7	0	ARITH
AU	1.4	100	3.8	100	10.0	50	26.7	0	71.0	0	LOG
U-HM	-0.6	0	3.0	100	6.5	50	10.0	0	13.6	0	ARITH
U-HM	1.9	100	3.4	100	6.0	50	10.6	0	18.9	0	LOG
W	2.0	100	2.0	100	2.0	100	2.0	100	2.0	100	ARITH
W	2.0	100	2.0	100	2.0	100	2.0	0	2.0	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 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

CORRELATION COEFFICIENTS, LEVEL OF SIGNIFICNCE, NUMBER OF SAMPLES

	U-S	U-W	PH	COND	HCO3	AG	AU	U-HM	W	SN
U-S	*****	0.12	-0.12	-0.38	-0.45	*****	*****	*****	*****	*****
	-	0-50	0-50	95-99	95-99	**-**	**-**	**-**	**-**	**-**
	*****	27	27	27	27	1	1	1	1	1
U-W	0.12	*****	0.52	0.55	0.46	*****	*****	*****	*****	*****
	0-50	**-**	99-**	99-**	95-99	**-**	**-**	**-**	**-**	**-**
	27	*****	27	27	27	1	1	1	1	1
PH	-0.12	0.52	*****	0.60	0.16	*****	*****	*****	*****	*****
	0-50	99-**	**-**	99-**	50-60	**-**	**-**	**-**	**-**	**-**
	27	27	*****	27	27	1	1	1	1	1
COND	-0.38	0.55	0.60	*****	0.81	*****	*****	*****	*****	*****
	95-99	99-**	99-**	**-**	99-**	**-**	**-**	**-**	**-**	**-**
	27	27	27	*****	27	1	1	1	1	1
HCO3	-0.45	0.46	0.16	0.81	*****	*****	*****	*****	*****	*****
	95-99	95-99	50-60	99-**	**-**	**-**	**-**	**-**	**-**	**-**
	27	27	27	27	*****	1	1	1	1	1
AG	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	1	1	1	1	1	*****	2	2	2	2
AU	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	1	1	1	1	1	2	*****	2	2	2
U-HM	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-	**-**	**-**	**-**	**-**	**-**	**-**	*****	**-**	**-**
	1	1	1	1	1	2	2	*****	2	2
W	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	1	1	1	1	1	2	2	2	*****	2
SN	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	1	1	1	1	1	2	2	2	2	*****

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

U.S HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV PPM	SAMPLES	CUM FR %
	8	
0.50		18.60
	1	
1.00		20.93
	1	
1.50		23.26
	0	
2.00		23.26
	1	
2.50		25.58
	1	
3.00		27.91
	0	
3.50		27.91
	2	
4.00		32.56
	0	
4.50		32.56
	1	
5.00		34.88
	2	
5.50		39.53
	1	
6.00		41.86
	2	
7.00		46.51
	0	
8.00		46.51
	3	
9.00		53.49
	3	
10.00		60.47
	0	
11.00		60.47
	1	
12.50		62.79
	0	
14.00		62.79
	0	
16.00		62.79
	2	
18.00		67.44
	2	
20.00		72.09
	1	
22.50		74.42
	0	
25.00		74.42
	0	
28.00		74.42
	3	
32.00		81.40
	8	
99999.00		100.00

TOTAL SAMPLES= 43 VALUES < DETECTION = 8 RANGE= 0.2 TO 350.0

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

U-W HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV PPB	SAMPLES	CUM FR %
	3	
0.20		11.11
	0	
0.30		11.11
	1	
0.40		14.81
	3	
0.50		25.93
	4	
0.60		40.74
	3	
0.80		51.85
	2	
1.00		59.26
	6	
1.20		81.48
	1	
1.60		85.19
	0	
2.00		85.19
	0	
2.50		85.19
	0	
3.20		85.19
	0	
4.00		85.19
	0	
5.00		85.19
	1	
6.30		88.89
	0	
8.00		88.89
	2	
10.00		96.30
	1	
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= 27 VALUES < DETECTION = 3 RANGE= 0.1 TO 11.0

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

PH HISTOGRAM AND CUMULATIVE FREQUENCY

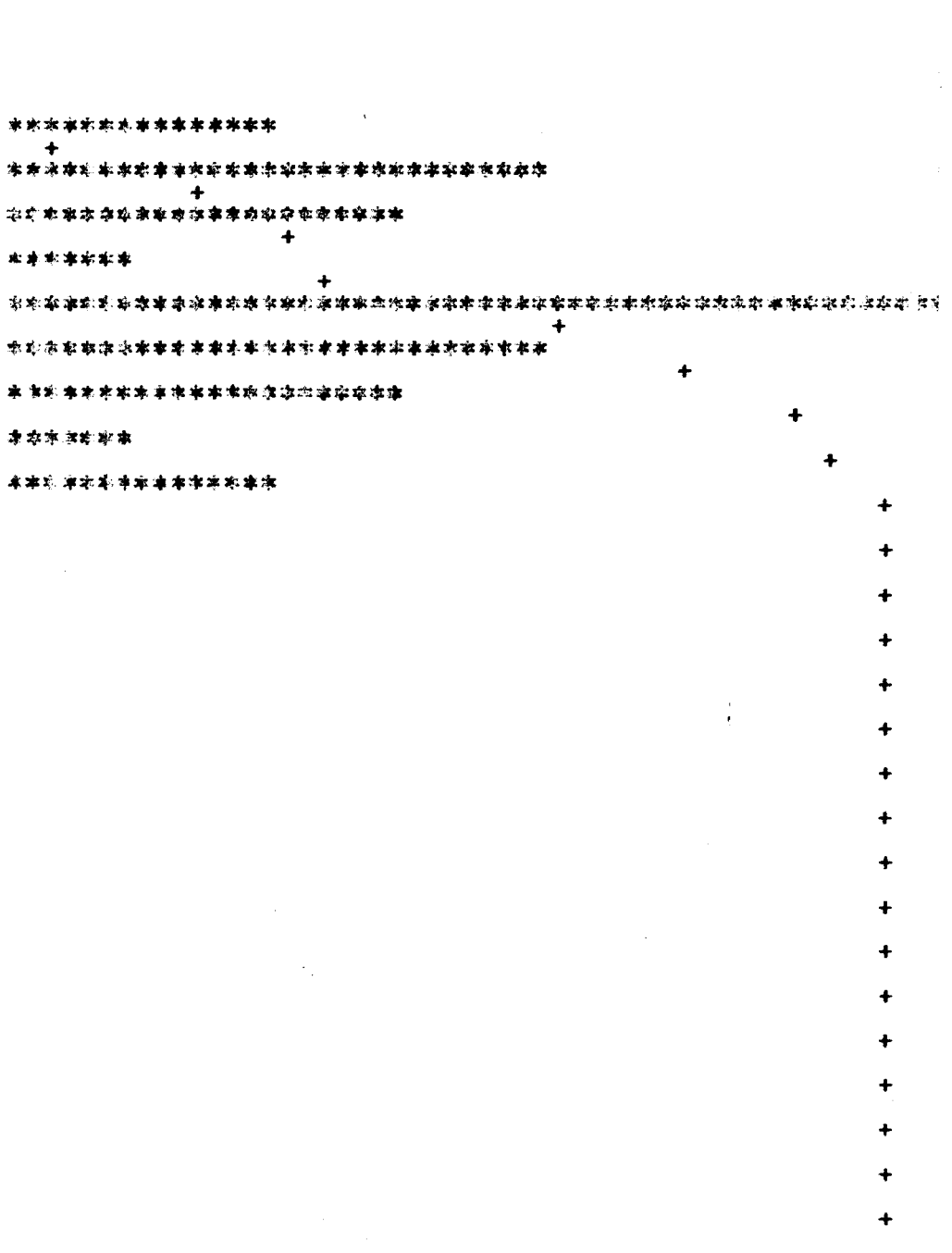
INTERV	SAMPLES	CUM FR %
	0	
4.00		0.00
	0	
5.30		0.00
	1	
5.40		3.70
	0	
5.50		3.70
	0	
5.60		3.70
	0	
5.70		3.70
	0	
5.80		3.70
	0	
5.90		3.70
	0	
6.00		3.70
	1	
6.10		7.41
	0	
6.20		7.41
	0	
6.30		7.41
	0	
6.40		7.41
	0	
6.50		7.41
	3	
6.60		18.52
	0	
6.70		18.52
	0	
6.80		18.52
	2	
6.90		25.93
	1	
7.00		29.63
	2	
7.10		37.04
	0	
7.20		37.04
	5	
7.30		55.56
	4	
7.40		70.37
	1	
7.50		74.07
	3	
7.60		85.19
	2	
7.70		92.59
	2	
99999.00		100.00

TOTAL SAMPLES= 27 VALUES < DETECTION = 0 RANGE= 5.3 TO 7.7

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

COND HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV MMHO	SAMPLES	CUM FR %
1.00	0	0.00
63.00	0	0.00
71.00	2	7.41
80.00	4	22.22
90.00	3	33.33
100.00	1	37.04
125.00	7	62.96
140.00	4	77.78
160.00	3	88.89
180.00	1	92.59
200.00	2	100.00
225.00	0	100.00
250.00	0	100.00
280.00	0	100.00
320.00	0	100.00
360.00	0	100.00
400.00	0	100.00
450.00	0	100.00
500.00	0	100.00
560.00	0	100.00
630.00	0	100.00
710.00	0	100.00
800.00	0	100.00
900.00	0	100.00
1000.00	0	100.00
1250.00	0	100.00
99999.00	0	100.00

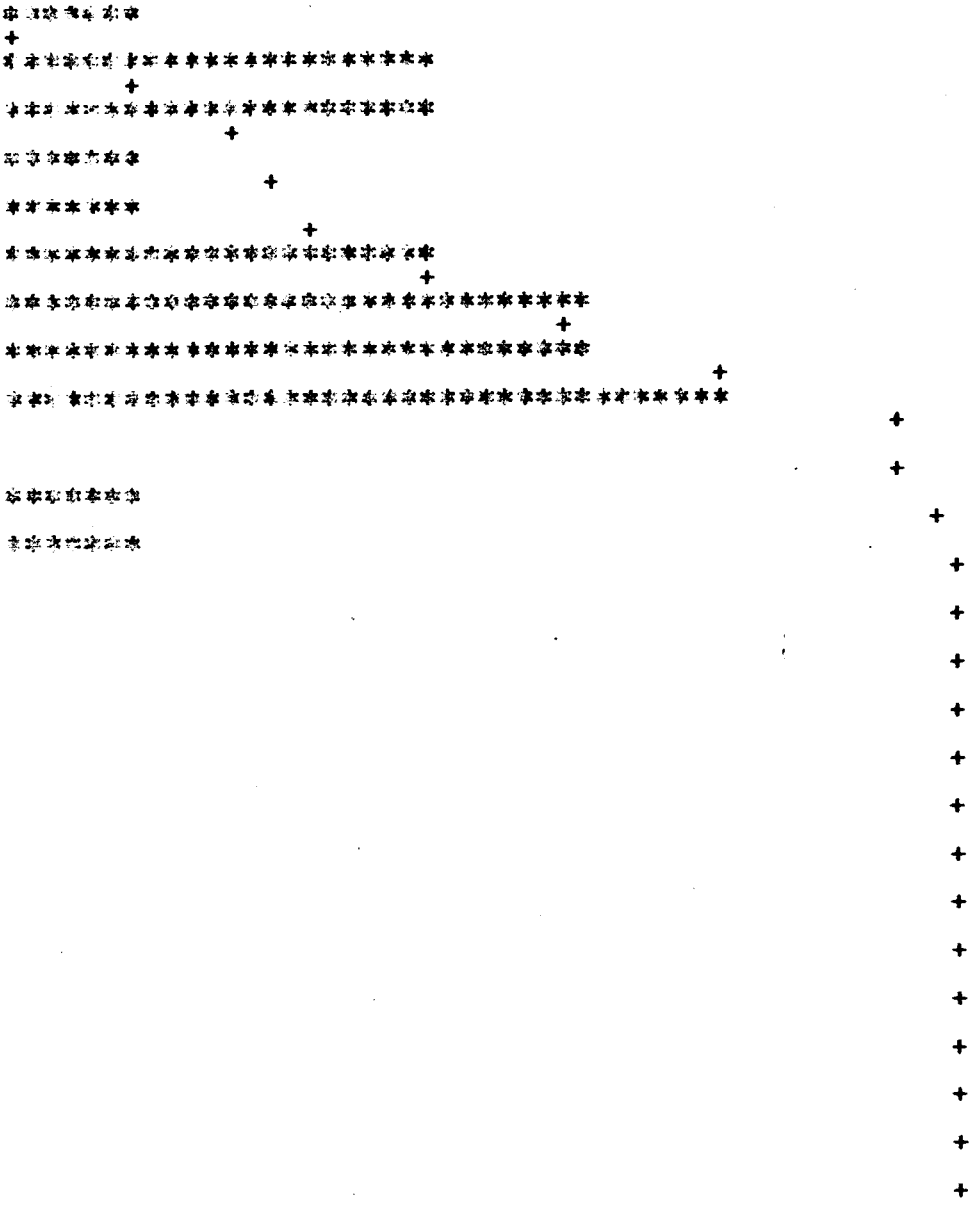


TOTAL SAMPLES= 27 VALUES < DETECTION = 0 RANGE= 65.0 TO 187.0

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY

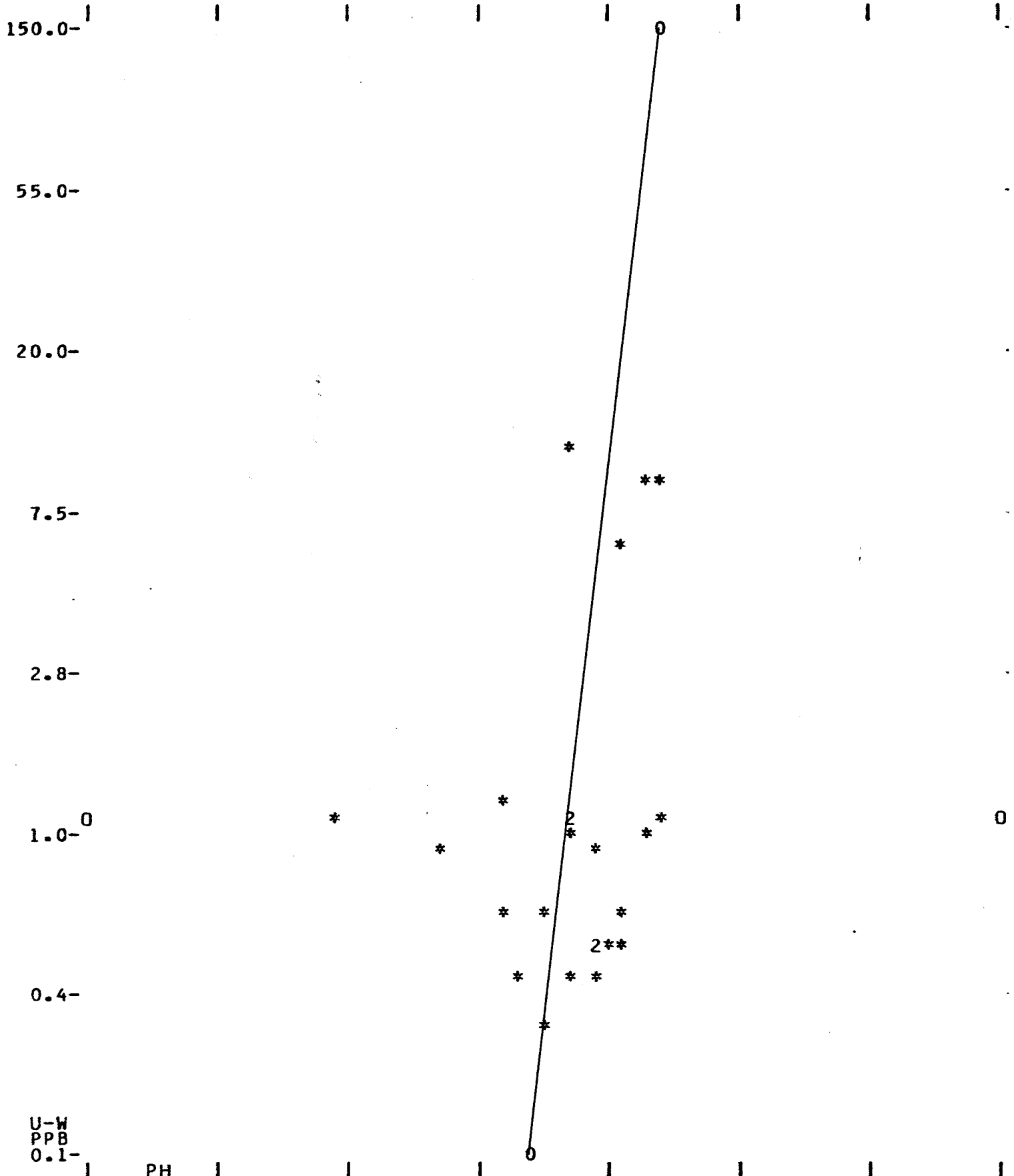
HCO3 HISTOGRAM AND CUMULATIVE FREQUENCY

INTERV MG/L	SAMPLES	CUM FR %
1.00	0	0.00
16.00	0	0.00
18.00	1	3.70
20.00	3	14.81
22.00	3	25.93
25.00	1	29.63
28.00	1	33.33
32.00	3	44.44
35.00	4	59.26
40.00	4	74.07
45.00	5	92.59
50.00	0	92.59
56.00	1	96.30
63.00	1	100.00
71.00	0	100.00
80.00	0	100.00
90.00	0	100.00
100.00	0	100.00
112.00	0	100.00
125.00	0	100.00
140.00	0	100.00
160.00	0	100.00
180.00	0	100.00
200.00	0	100.00
225.00	0	100.00
250.00	0	100.00
99999.00	0	100.00



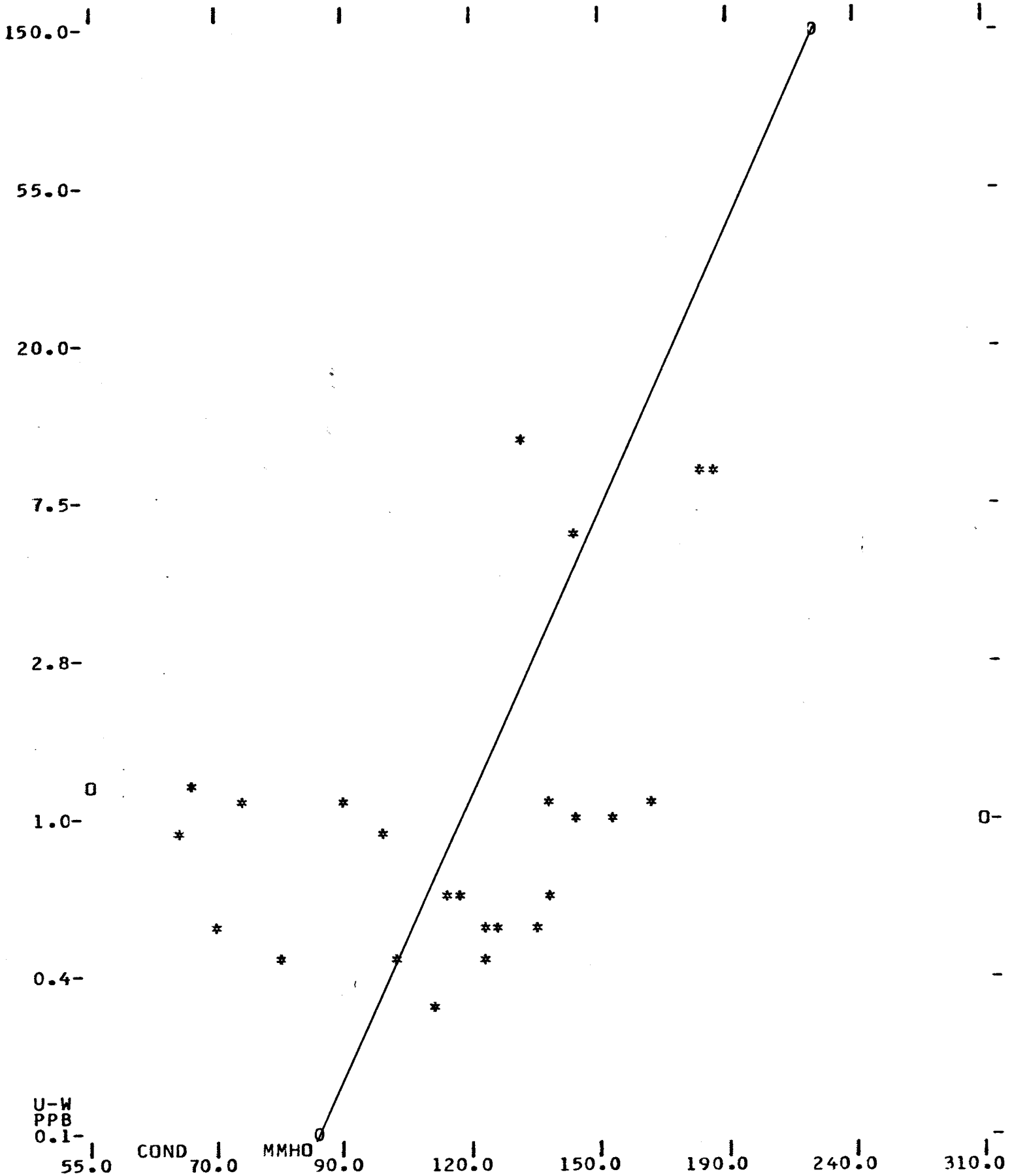
TOTAL SAMPLES= 27 VALUES < DETECTION = 0 RANGE= 17.7 TO 57.2

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF U-W VS PH



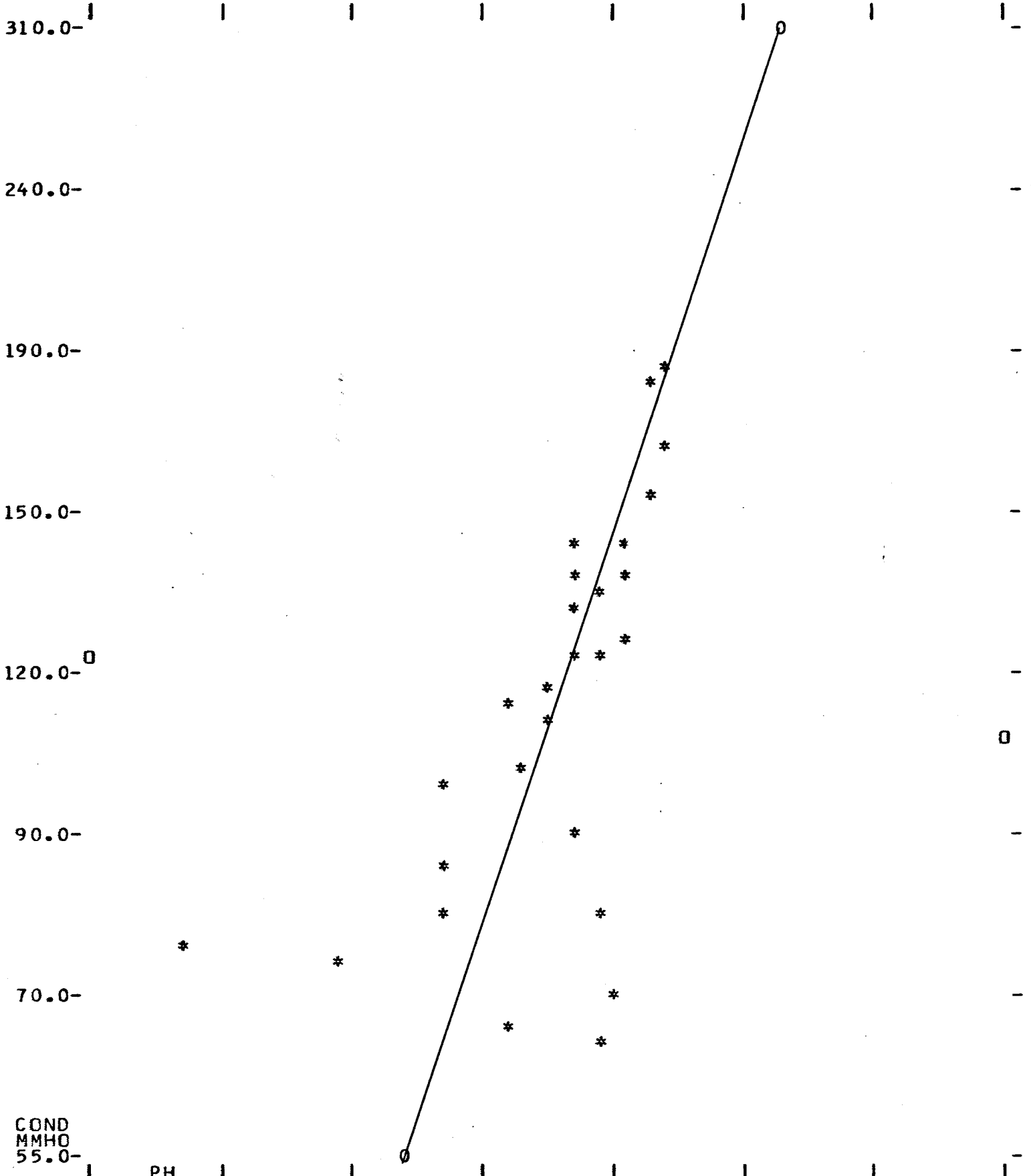
24 SETS USED--VALUES<DETECTION: 0 PH 3 U-W--COR COEF= 0.25--PREDICT 6%

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF U-W VS COND



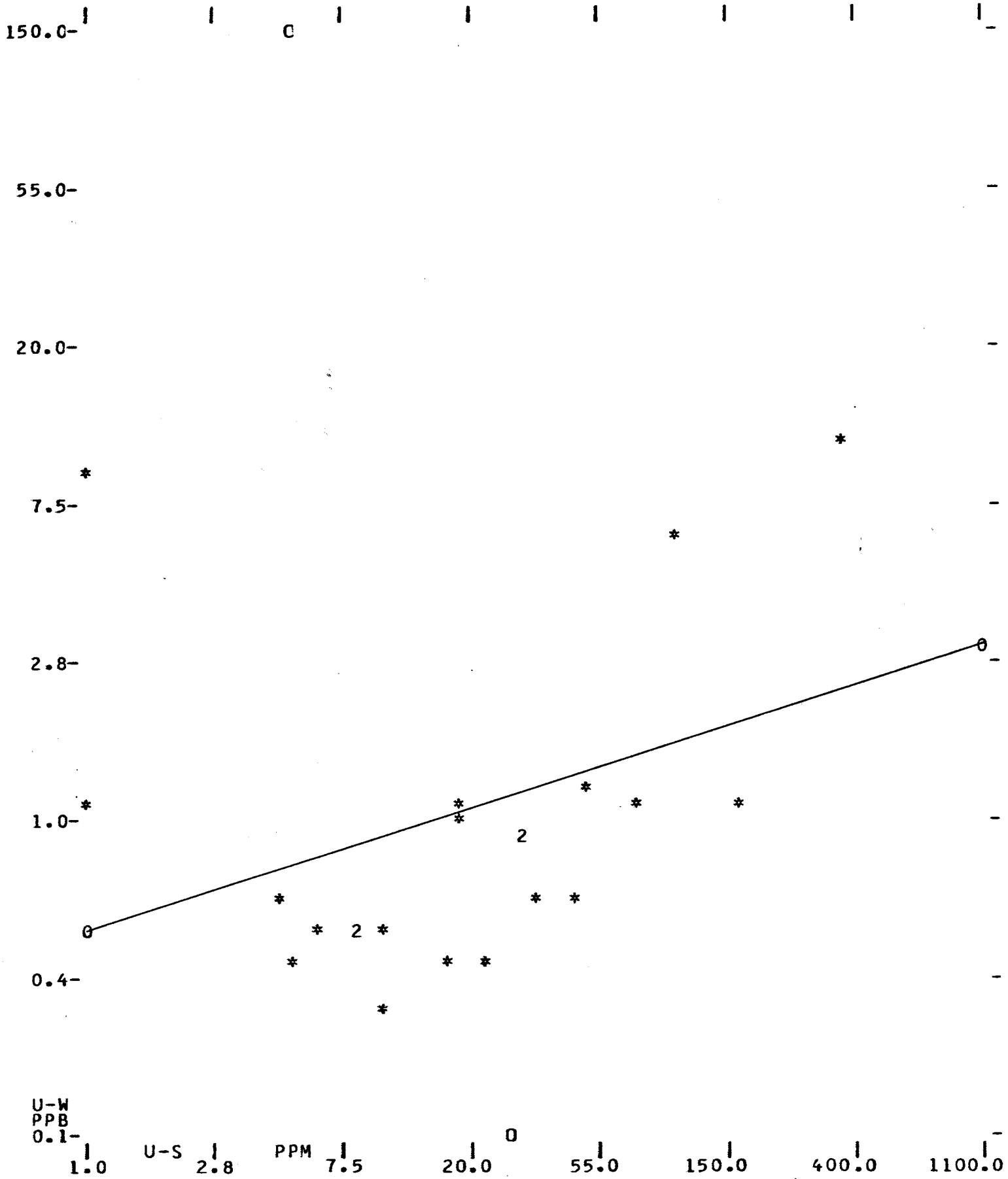
24 SETS USED--VALUES<DETECTION: 0 COND 3 U-W--COR COEF= 0.45--PREDICT 20%

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF COND VS PH



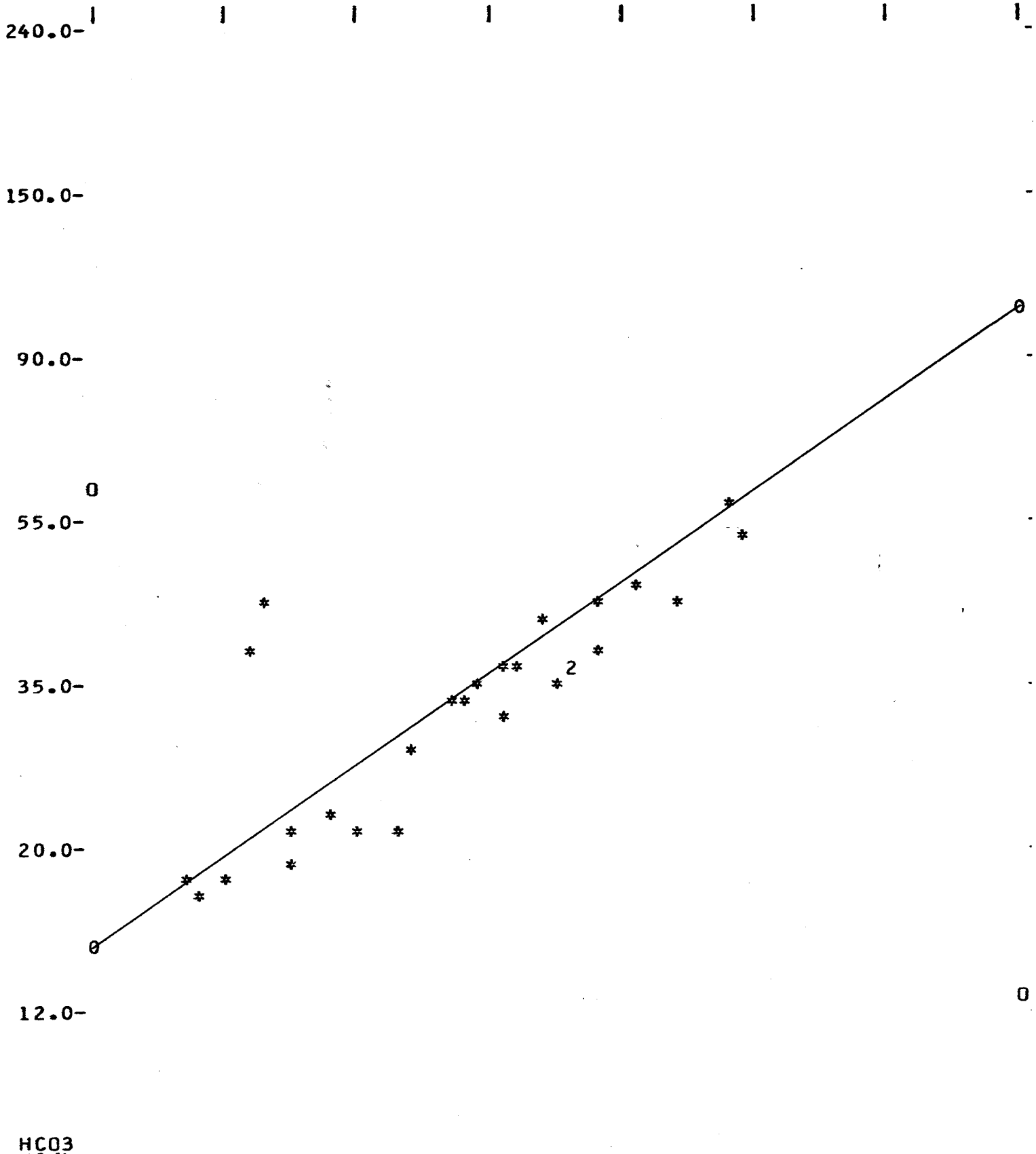
27 SETS USED--VALUES<DETECTION: 0 PH 0 COND--COR COEF= 0.60--PREDICT 36%

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF U-W VS U-S



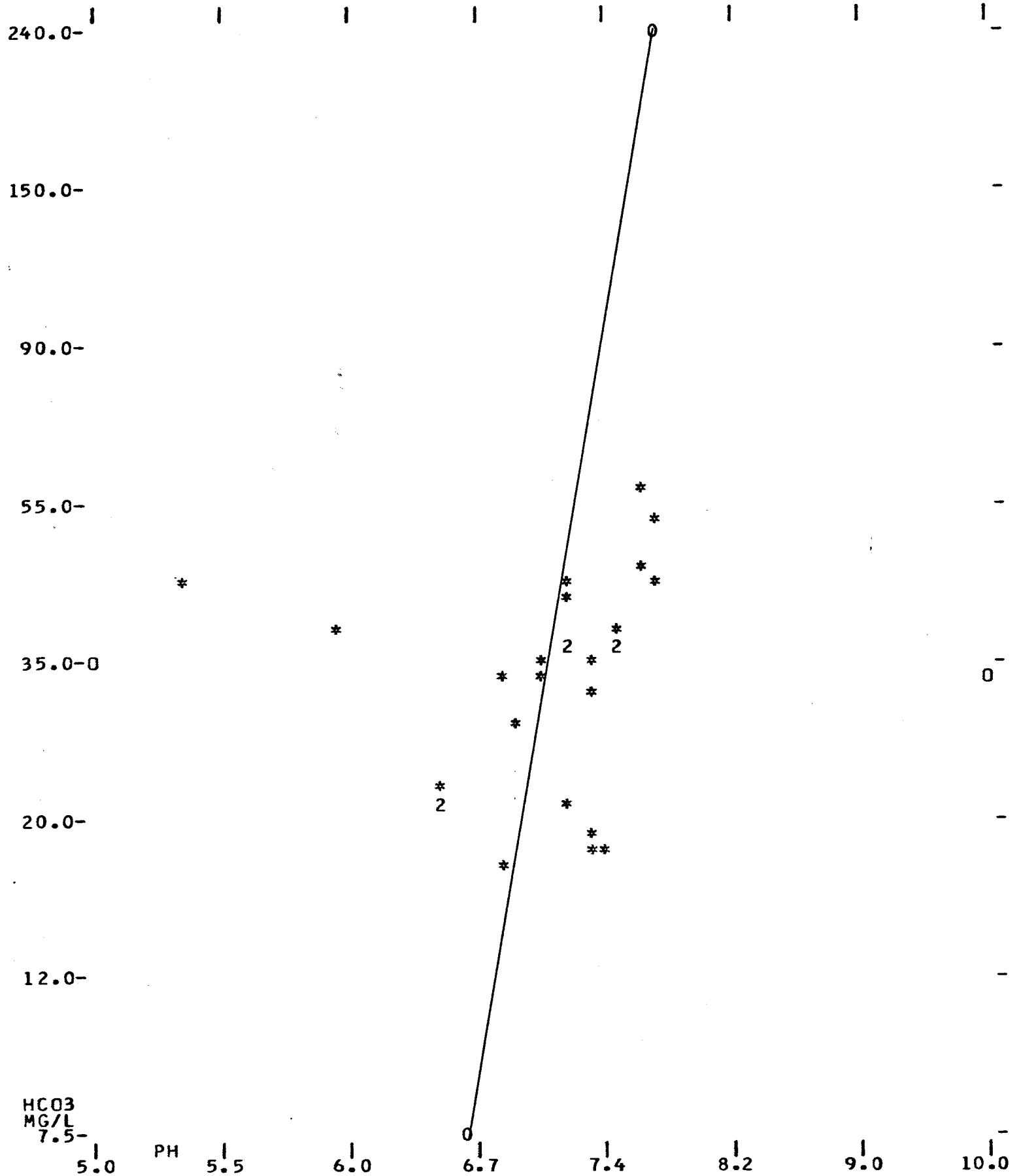
22 SETS USED--VALUES<DETECTION: 8 U-S 3 U-W--COR COEF= 0.25--PREDICT 6%

AREA 37 FLCW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF HCO3 VS COND



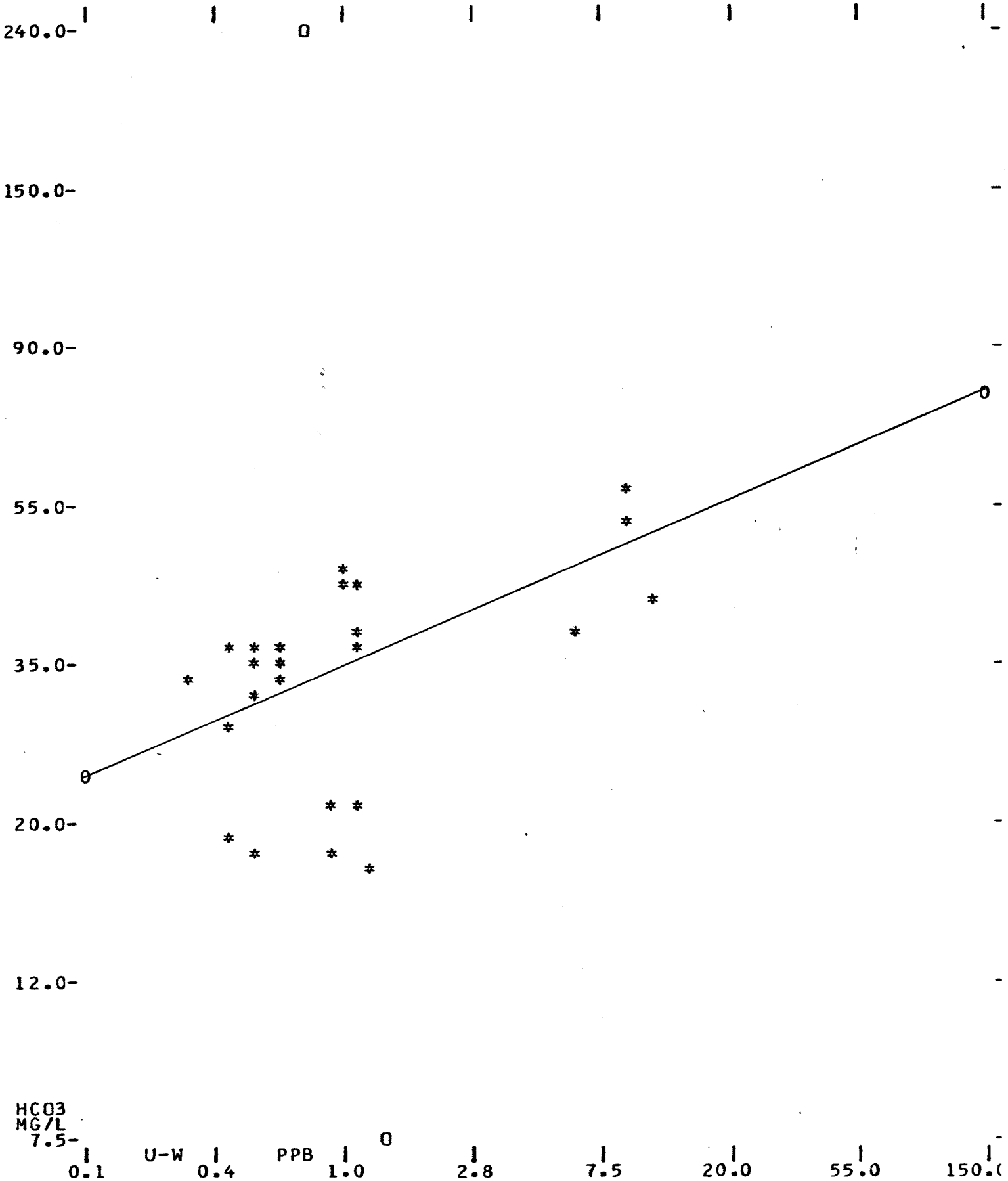
27 SETS USED--VALUES<DETECTION: 0 COND 0 HCO3--COR COEF= 0.81--PREDICT 66%

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF HCO3 VS PH



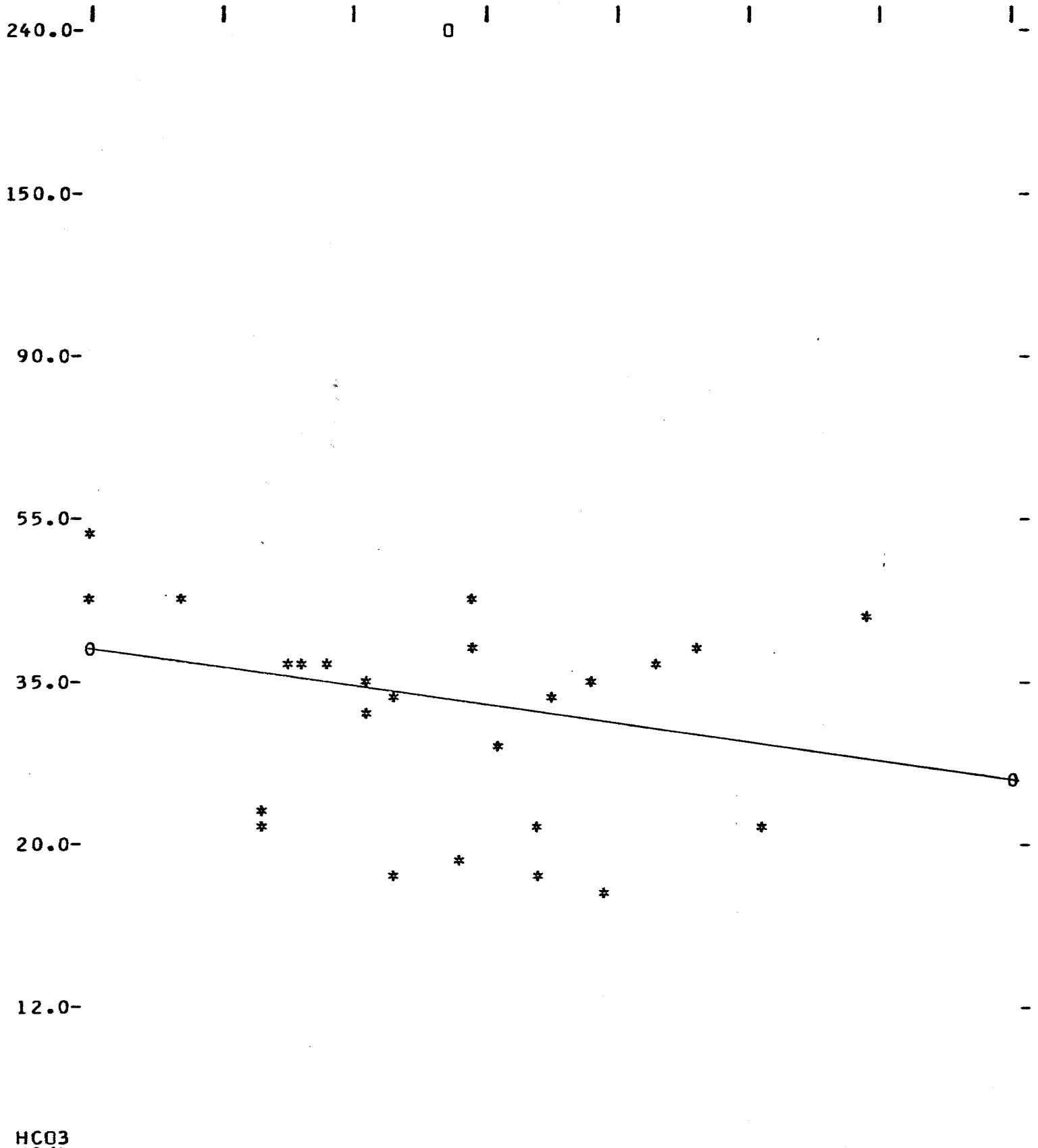
27 SETS USED--VALUES<DETECTION: 0 PH 0 HCO3--COR COEF= 0.15--PREDICT 2%

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF HCO3 VS U-W



24 SETS USED--VALUES<DETECTION: 3 U-W 0 HCO3--COR COEF= 0.50--PREDICT 25%

AREA 37 FLOW SITE PRINIC 1978 GEOCHEMICAL SURVEY
SCATTERGRAM AND LINEAR REGRESSION OF HCO3 VS U-S



25 SETS USED--VALUES<DETECTION: 8 U-S 0 HCO3--COR COEF=-0.27--PREDICT 7%

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: $MA = \overline{E} = \frac{1}{N} \sum E$

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

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

d) LN DEV (Deviation of the Logarithms):

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

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.

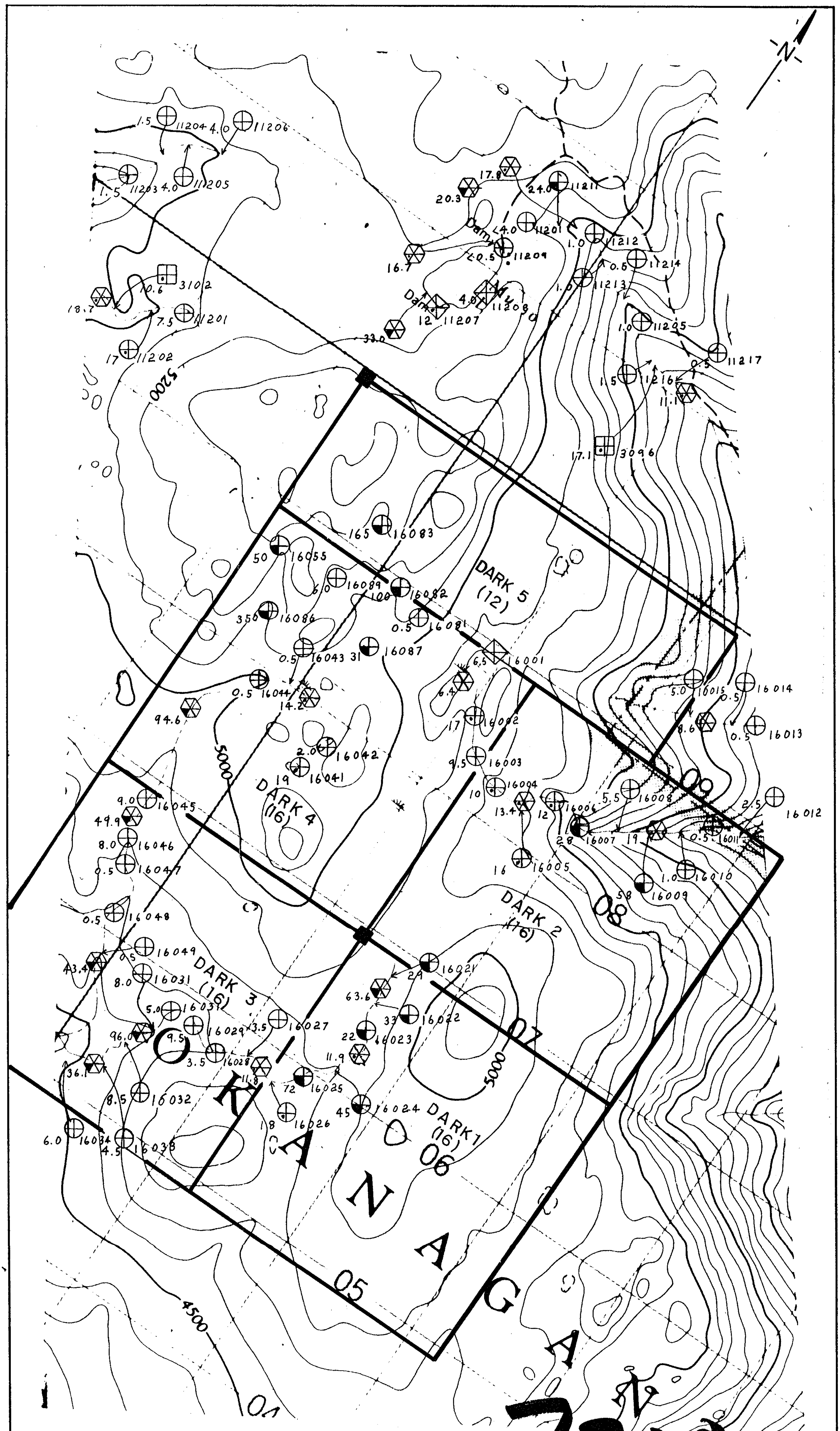
5. CORRELATION COEFFICIENTS.
The table consists of cells for pairs of elements. In each cell the first value is the Linear Correlation Coefficient for the pair. The second line is the range of the level of significance; it indicates the % probability that the correlation is due to causes other than random 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.



SYMBOLS

C.O. 1978 (STREAMS, SPRINGS)

ppm U Sample N°

C.O. 1978 (LAKES, SWAMPS)

ppmU Sample N°

G.S.C. [URP] 1976

ppm U Sample N°

C.O. PRINCETON / NICKY 1973, 1974

ppmU

	U
ANOMALOUS	> 20
PROB. ANOM.	10-19
THRESHOLD	-

CANADIAN OCCIDENTAL PETROLEUM LTD
MINERALS DIVISION

PROJECT PRINIC

SOUTHERN BRITISH COLUMBIA

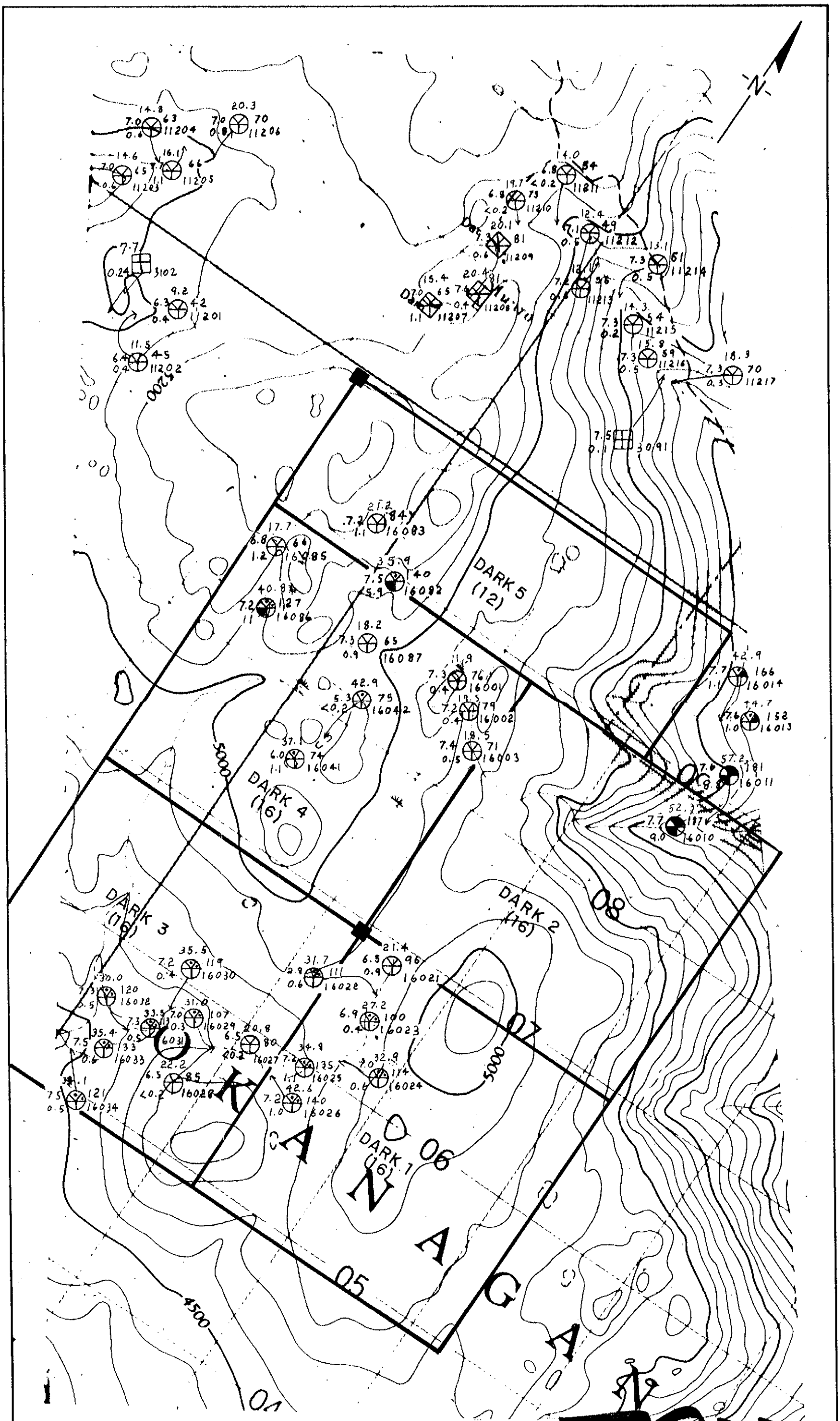
AREA ——— 37,38

SEDIMENT GEOCHEMISTRY

DARK CLAIMS

Scale 1:25,000

September 1978 N.T.S. 82/12W **PLAN** 13A



	U	S.C.	HCO_3
ANOMALOUS	> 5	>150	>50
PROB. ANOM.	–	100 - 149	25 - 49
THRESHOLD	–	–	–

SYMBOLS

C.O. 1978 (STREAMS, SPRINGS)

pH S.C. / ppbU Sample N° — pH HCO_3 S.C. / ppbU Sample N°

C.O. 1978 (LAKES, SWAMPS)

pH S.C. / ppb U Sample N° — pH HCO_3 S.C. / ppbU Sample N°

G.S.C. EURPJ 1976

pH / ppbU Sample N°

HCO_3 in mg/l
S.C. in μ mhos

7310

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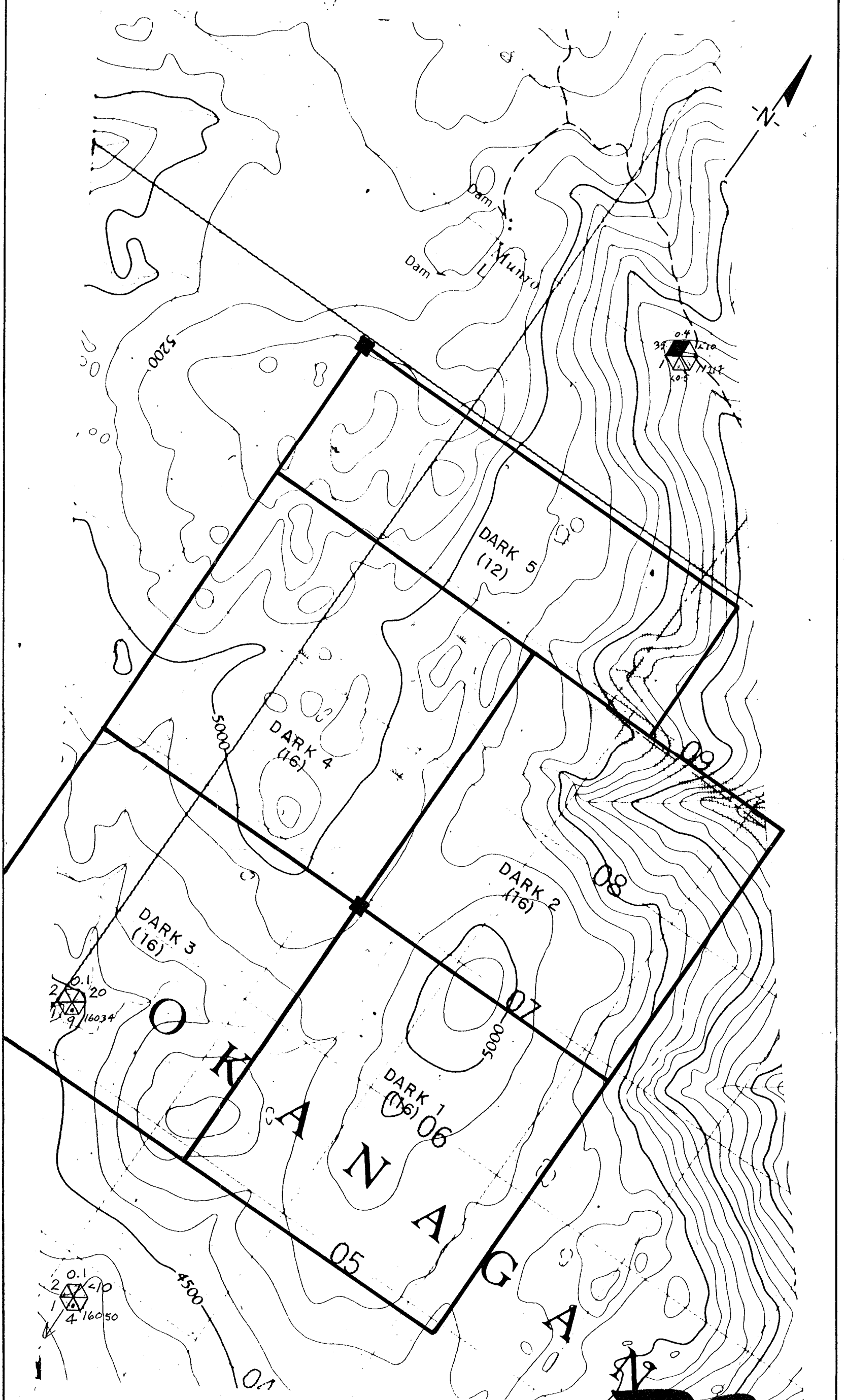
WATER GEOCHEMISTRY

DARK CLAIMS

Scale 1:25,000

September 1978 — N.T.S. 82E / 12W — PLAN 13B



Heavy Minerals
Area 37,38

		%
11217:	MGNT	50
	AMPH	25
	PYRX	10
	SPHN	10
	EPDT	5
16034:	AMPH	40
	MGNT	35
	SPHN	20
	PYRX	5
16050:	MGNT	50
	AMPH	30
	SPHN	15
	PYRX	5

SYMBOLS
C.O. 1978

ppm Ag
ppm W — ppb Au
ppm Sn — Sample Nº
ppm U

	U	Sn	W	Ag	Au
ANOMALOUS	>10	-	>35	>0·4	-
PROB. ANOM.	3-9	-	-	-	-

7310

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MINERALS DIVISION

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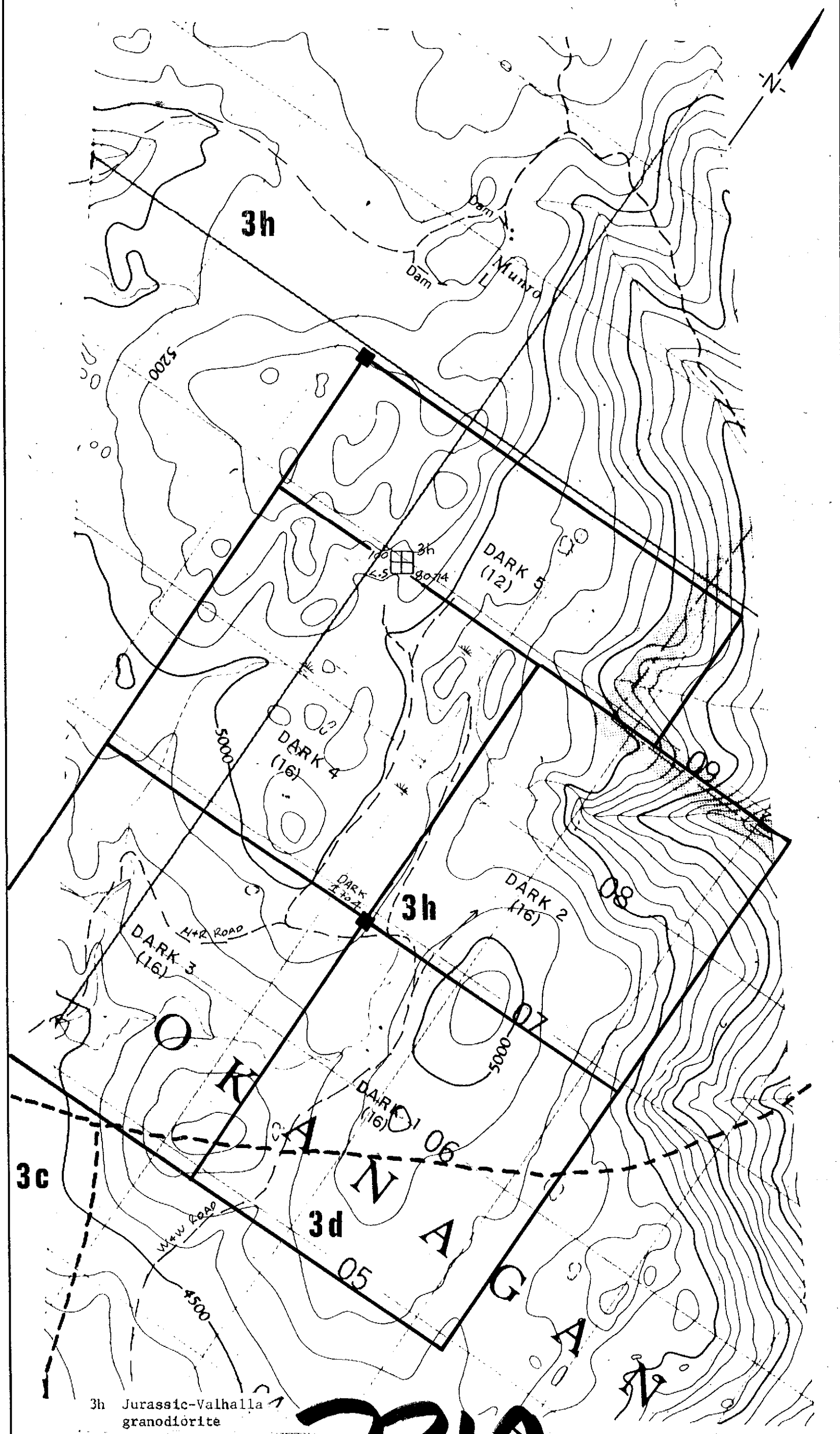
HEAVY MINERAL GEOCHEMISTRY

DARK CLAIMS

Scale 1:25,000

September 1978 — N.T.S. 82 E/12 W — PLAN 13C



3h Jurassic-Valhalla granodiorite

3d Jurassic-Similkameen quartz diorite

3c Jurassic-Kirton diorite

7310

SYMBOLS

C.O. 1978

Scintillometer (cps) / ppm U — Rock Unit / Sample N°

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AREA ——— 37,38

GEOLOGY & ROCK GEOCHEMISTRY

DARK CLAIMS

Scale 1:25,000

September 1978 — N.T.S. 82 E/12 W — PLAN 13D