

31°15'

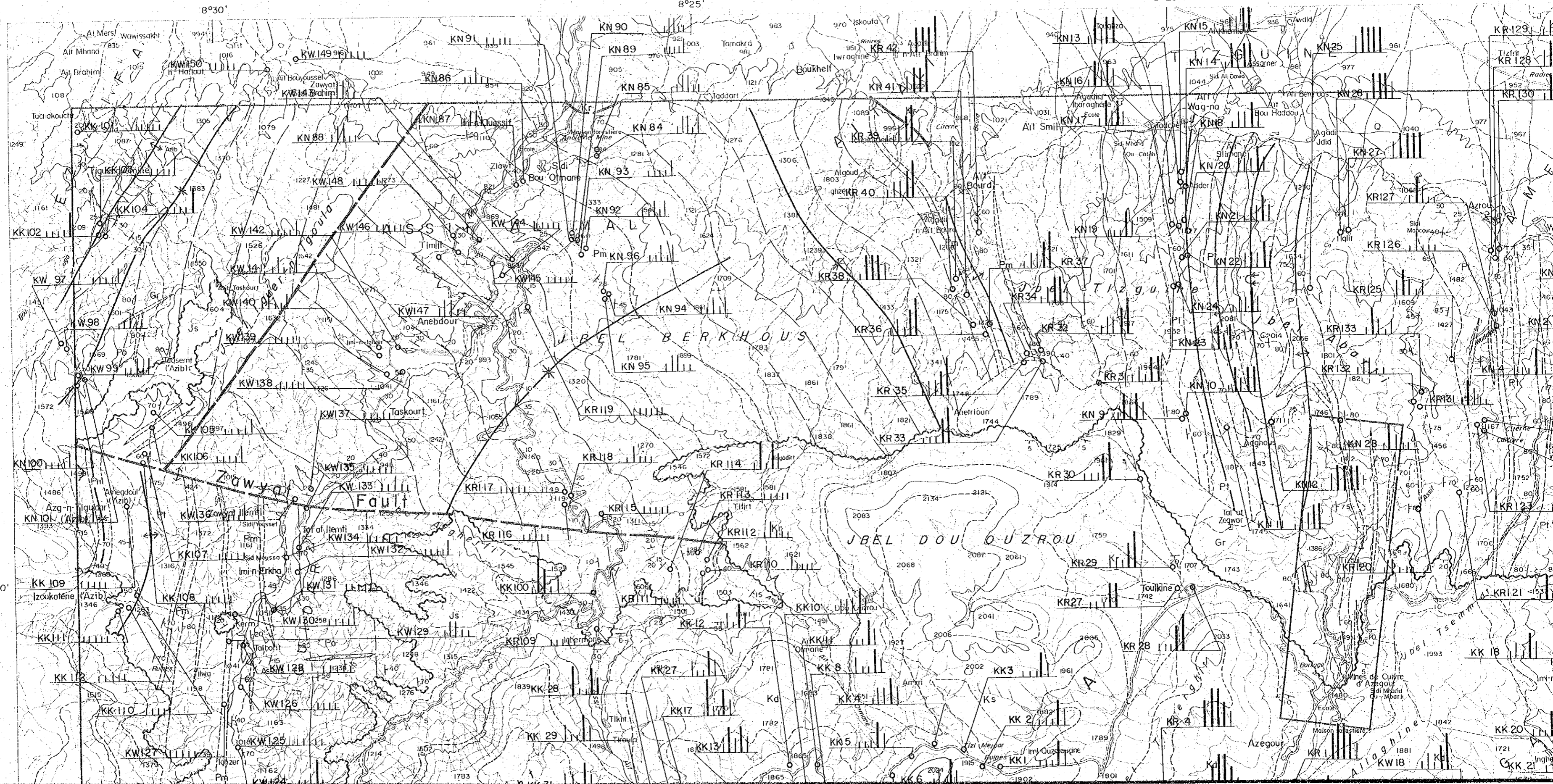
8°30'

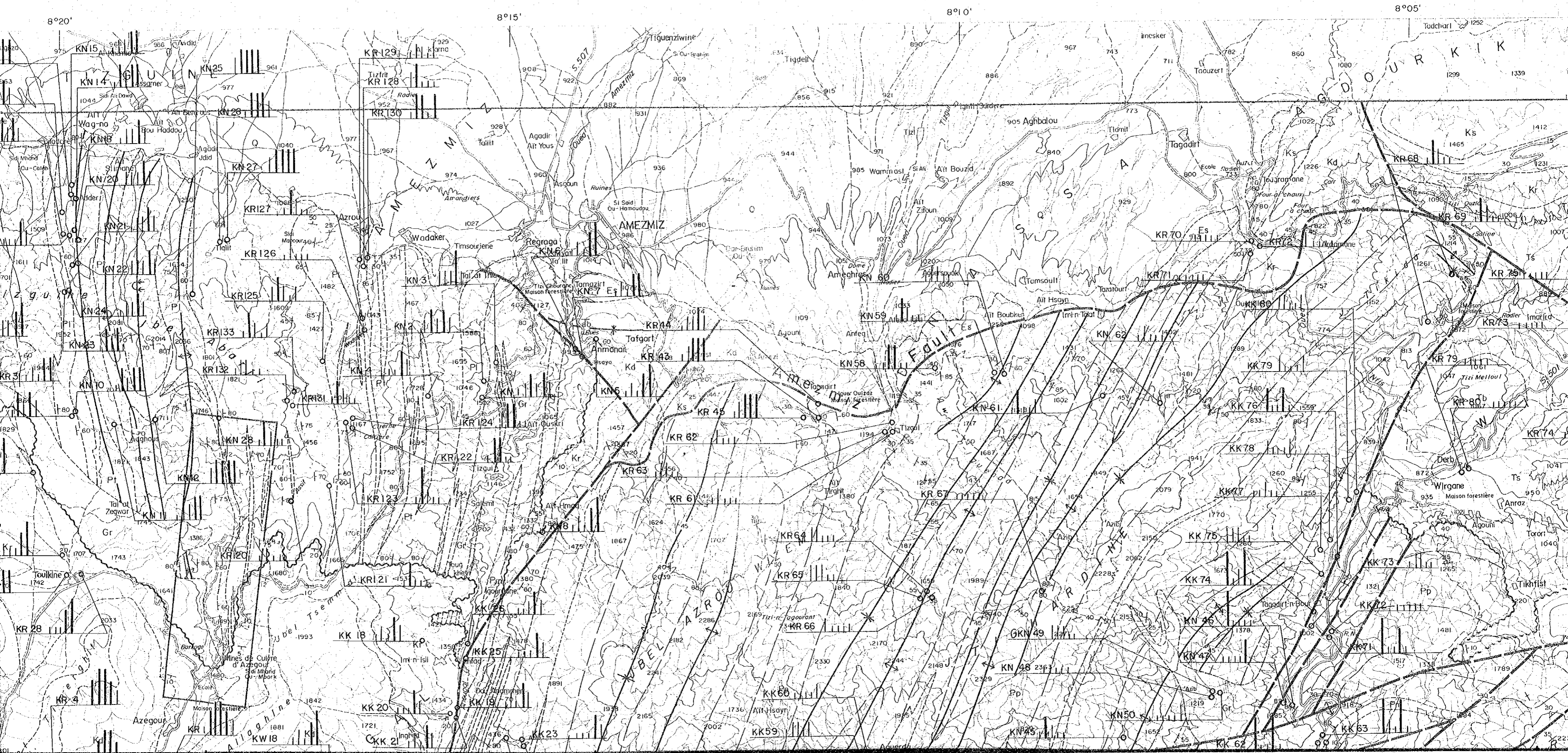
8°25'

8°20'

31°15'

31°10'





国際協力事業団

11636

資料室蔵書

PL. 7

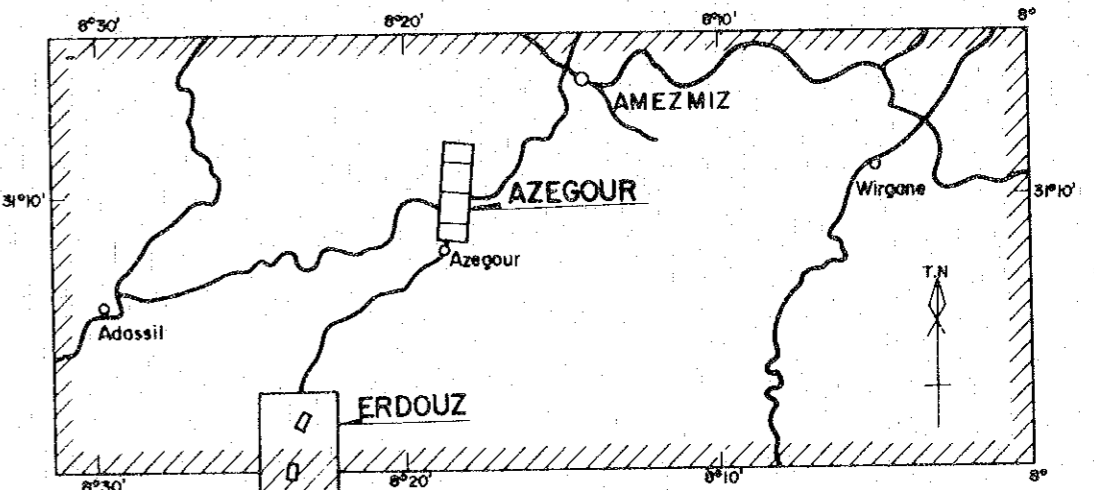
GEOLOGICAL SURVEY

OF

HAUT ATLAS OCCIDENTAL AREA, MOROCCO

(PHASE I)

GEOCHEMICAL MAP FOR Cu, Pb, Zn, Mo AND W IN NORTHERN AREA

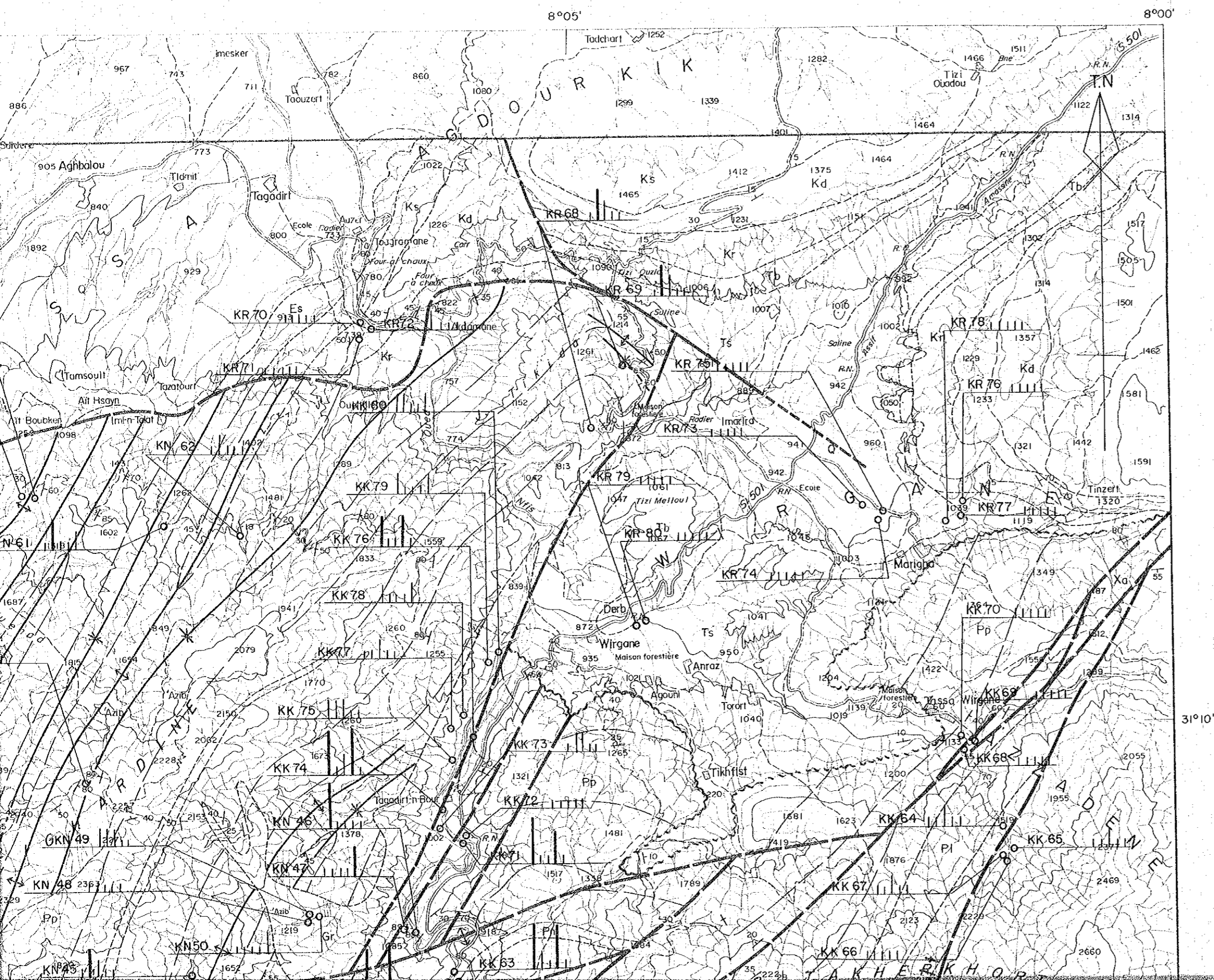


JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

JANUARY 1984

Prepared by MINDECO

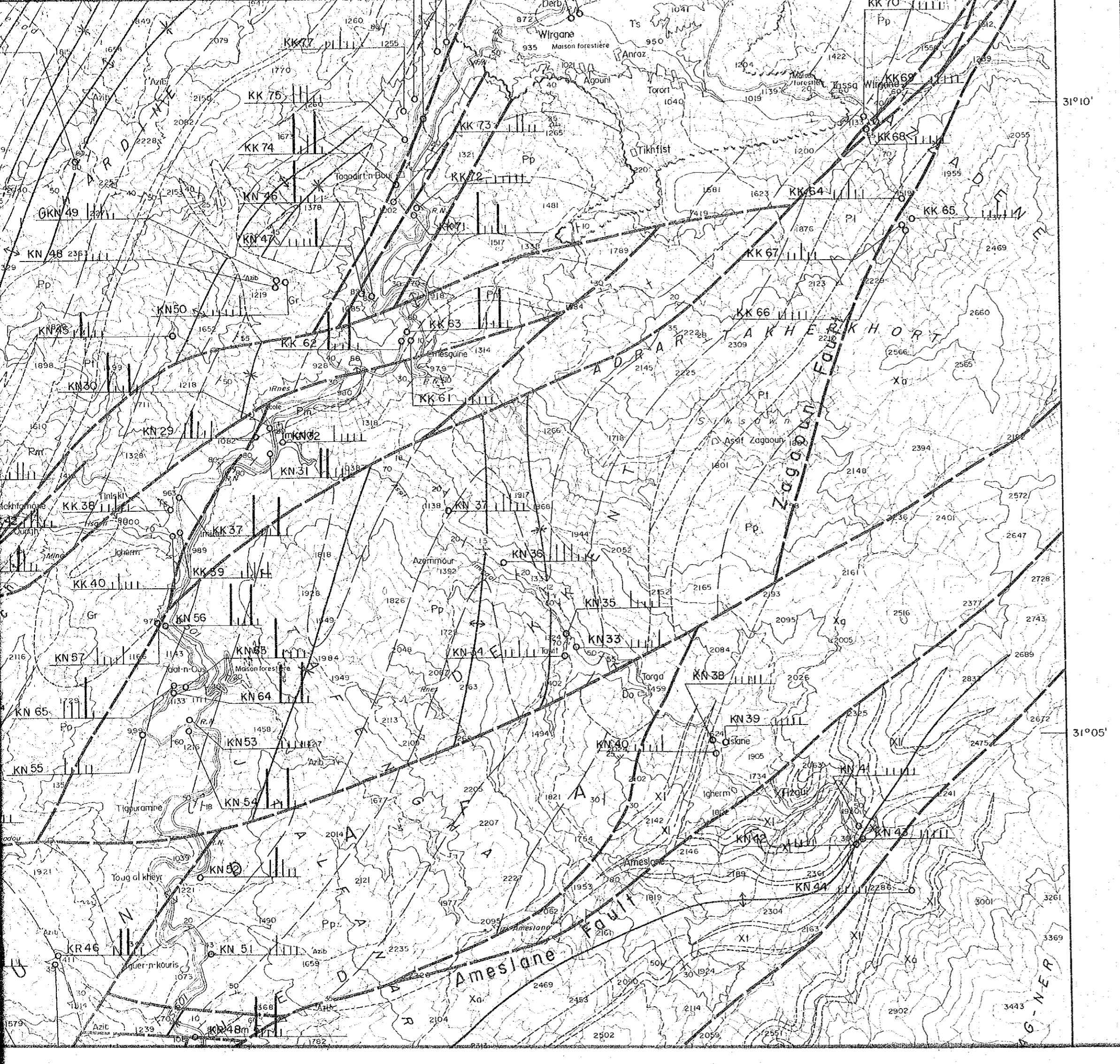
Scale 1 : 50,000



31° 10'

31° 05'





JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

JANUARY 1984

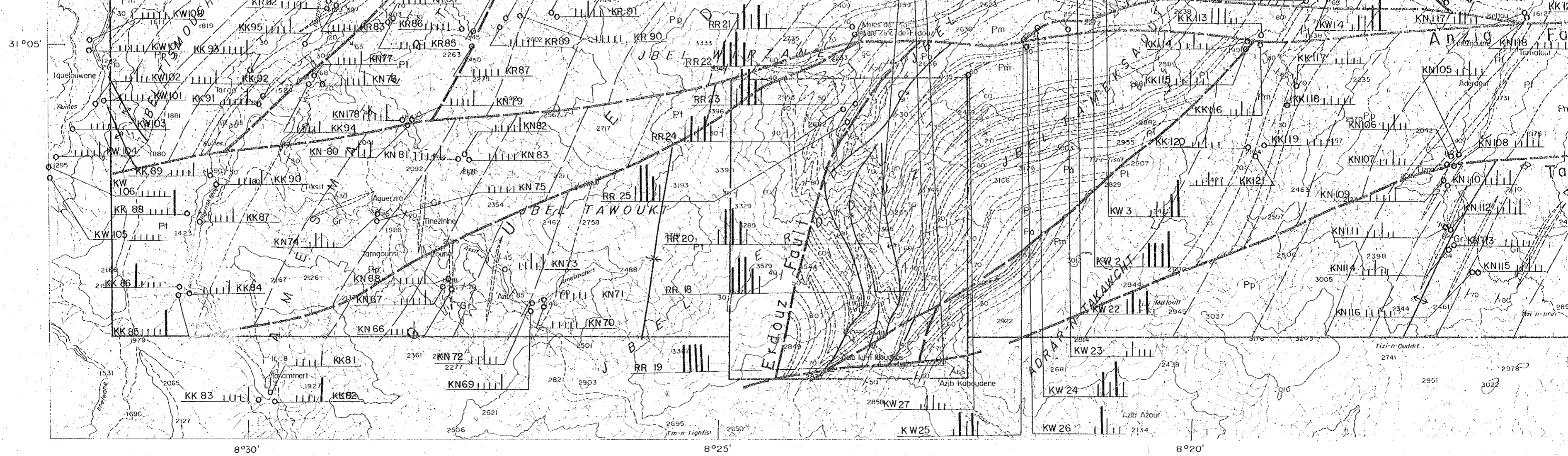
Prepared by MINDECO

Scale 1 : 50,000



LEGEND

Quaternary	Q	sand , gravel , travertine
Tertiary	Es	sandstone
	Ks	sandstone , siltstone
Cretaceous	Kd	dolomite , siltstone , sandstone
	Kr	red sandstone
Jurassic	Js	sandstone , siltstone
Triassic	Tb	basalt
	Ts	sandstone , siltstone
Palaeozoic	Pp	pelitic schist
	Pm	psammitic schist
	Pt	green schist (tuff, tuff breccia)
	Pl	limestone
	Pa	calcareous schist
Pre - Cambrian	Xa	andesite
	XI	limestone
	Xi	tuff , tuff breccia, lapilli tuff
Intrusive rock	Gr	granite , diorite
	Po	porphyrite
	Do	dolerite



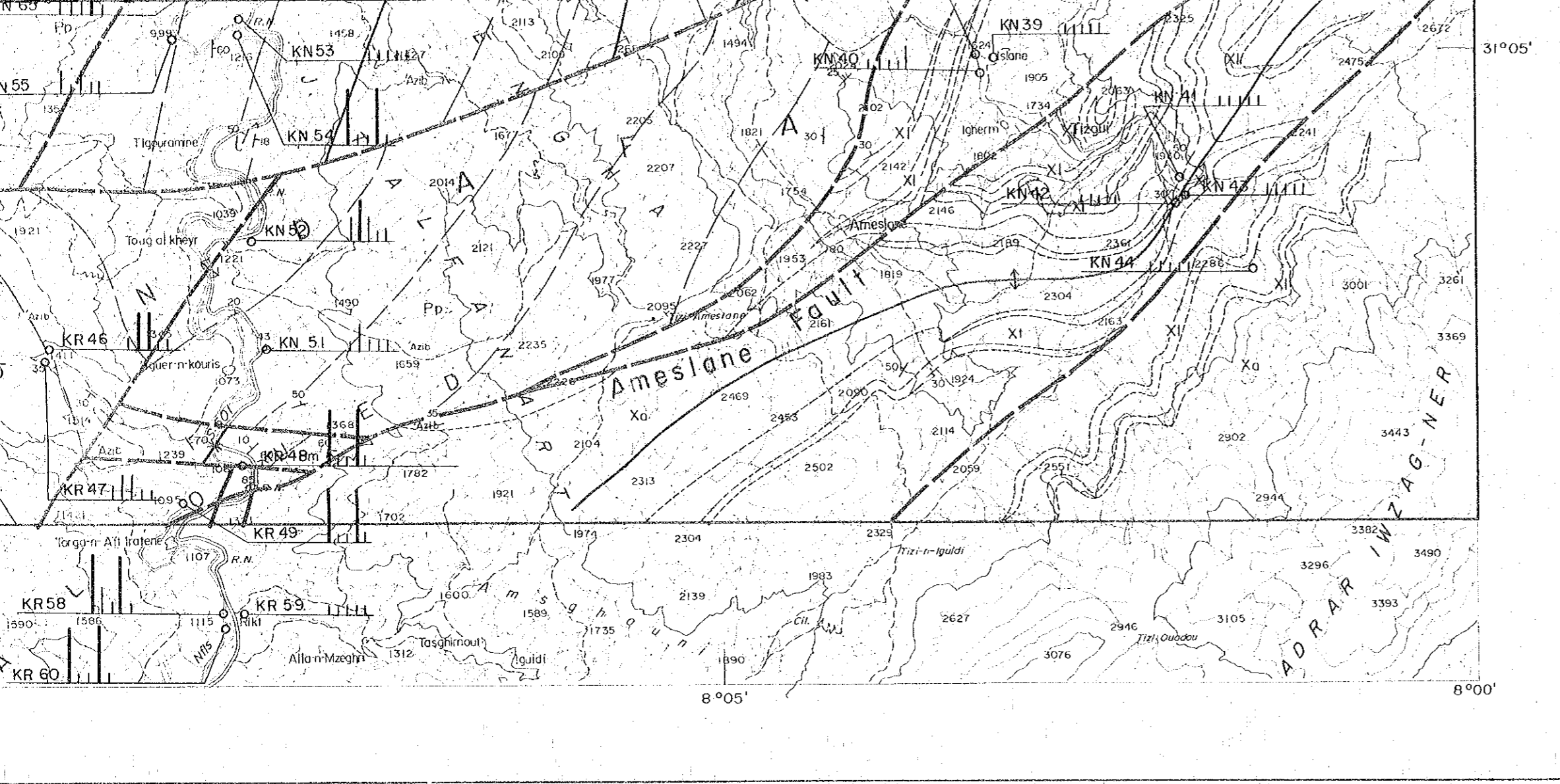
Metal Contents of Geochemical Samples

No.	Sample No.	Grade (ppm)					No.	Sample No.	Grade (ppm)				
		Cu	Pb	Zn	Mo	W			Cu	Pb	Zn	Mo	W
1	KR - 1	95	340	2300	<5	<5	33	KR - 33	10	30	40	<5	520
2	KR - 2	125	430	3200	<5	<5	34	KR - 34	30	90	340	<5	<5
3	KR - 3	60	160	920	<5	<5	35	KR - 35	30	50	180	<5	180
4	KR - 4	95	350	2200	<5	<5	36	KR - 36	10	60	90	<5	480
5	KR - 5	90	350	2400	<5	<5	37	KR - 37	25	50	120	<5	550
6	KR - 6	45	110	420	<5	48	38	KR - 38	30	100	470	<5	<5
7	KR - 7	50	70	160	<5	<5	39	KR - 39	15	30	120	<5	450
8	KR - 8	35	70	150	<5	<5	40	KR - 40	25	60	250	<5	152
9	KR - 9	85	430	2750	<5	<5	41	KR - 41	15	50	370	<5	240
10	KR - 10	45	190	480	<5	<5	42	KR - 42	25	140	400	<5	152
11	KR - 11	130	1100	3000	<5	<5	43	KR - 43	25	80	360	<5	40
12	KR - 12	190	100	720	<5	<5	44	KR - 44	25	80	250	<5	<5
13	KR - 13	130	830	3700	<5	<5	45	KR - 45	30	80	270	<5	48
14	KR - 14	100	810	2400	<5	<5	46	KR - 46	20	200	300	<1	<4
15	KR - 15	110	130	650	<5	<5	47	KR - 47	20	50	150	<1	<4
16	KR - 16	95	520	2500	<5	<5	48	KR - 48	3000	30	50	30	<4
17	KR - 17	85	70	400	<5	<5	49	KR - 49	1500	15	50	20	<4
18	KR - 18	80	350	2100	<5	<5	50	KR - 50	70	15	100	<1	<4
19	KR - 19	85	100	380	<5	<5	51	KR - 51	20	15	100	<1	<4
20	KR - 20	60	620	1900	<5	<5	52	KR - 52	20	15	100	<1	<4
21	KR - 21	50	100	220	<5	<5	53	KR - 53	30	50	100	<1	8
22	KR - 22	75	250	650	<5	<5	54	KR - 54	50	2000	700	<1	4
23	KR - 23	75	1200	2300	<5	<5	55	KR - 55	20	50	150	<1	4
24	KR - 24	35	110	230	<5	<5	56	KR - 56	70	100	200	<1	4
25	KR - 25	65	370	690	<5	<5	57	KR - 57	100	70	150	<1	4
26	KR - 26	65	490	1100	<5	<5	58	KR - 58	3000	50	70	50	4
27	KR - 27	25	30	110	<5	20	59	KR - 59	20	15	50	2	4
28	KR - 28	15	20	50	<5	140	60	KR - 60	2000	30	50	30	4
29	KR - 29	10	70	60	<5	420	61	KR - 61	20	50	100	1	4
30	KR - 30	10	20	60	<5	480	62	KR - 62	30	70	100	<1	4
31	KR - 31	25	40	100	<5	20	63	KR - 63	30	50	150	<1	4
32	KR - 32	30	80	250	<5	80	64	KR - 64	50	50	100	<1	4
							65	KR - 65	50	50	150	<1	4
							66	KR - 66	50	20	70	<1	4

No.	Sample No.	Grade (ppm)					No.	Sample No.	Grade (ppm)				
		Cu	Pb	Zn	Mo	W			Cu	Pb	Zn	Mo	W
67	KR - 67	20	20	100	<1	4	101	KR - 101	30	30	100	2	4
68	KR - 68	30	150	150	1	4	102	KR - 102	20	15	150	1	4
69	KR - 69	20	200	200	1	4	103	KR - 103	30	15	100	1	4
70	KR - 70	30	20	70	2	4	104	KR - 104	30	15	70	2	4
71	KR - 71	10	20	50	2	4	105	KR - 105	20	200	150	1	4
72	KR - 72	50	30	70	3	4	106	KR - 106	50	150	100	2	4
73	KR - 73	30	7	50	1	4	107	KR - 107	30	15	70	1	4
74	KR - 74	15	10	50	1	4	108	KR - 108	50	150	100	1	4
75	KR - 75	20	10	30	1	4	109	KR - 109	30	15	70	1	4
76	KR - 76	20	7	50	1	4	110	KR - 110	50	10	30	3	4
77	KR - 77	20	7	50	1	4	111	KR - 111	20	20	20	3	4
78	KR - 78	20	10	50	1	4	112	KR - 112	20	70	100	1	4
79	KR - 79	10	10	50	1	4	113	KR - 113	15	10	50	1	4
80	KR - 80	15	15	30	3	4	114	KR - 114	20	200	70	5	9
81	KR - 81	20	10	50	<1	4	115	KR - 115	15	15	50	2	4
82	KR - 82	20	15	70	1	4	116	KR - 116	30	20	70	3	4
83	KR - 83	15	7	50	<1	4	117	KR - 117	20	20	70	2	4
84	KR - 84	30	10	50	<1	4	118	KR - 118	15	70	100	2	4
85	KR - 85	20	10	100	<1	4	119	KR - 119	30	15	100	2	4
86	KR - 86	20	15	100	<1	4	120	KR - 120	20	50	70	1	<2
87	KR - 87	30	20	100	<1	4	121	KR - 121	15	150	70	1	4
88	KR - 88	30	15	100	<1	4	122	KR - 122	30	200	500	3	<2
89	KR - 89	20	15	70	<1	4	123	KR - 123	30	500	200	1	<2
90	KR - 90	20	15	70	<1	4	124	KR - 124	50	200	300	3	2
91	KR - 91	20	20	150	<1	4	125	KR - 125	50	150	150	<1	5
92	KR - 92	20	15	100	<1	4	126	KR - 126	20	50	100	<1	2
93	KR - 93	20	15	100	<1	4	127	KR - 127	30	100	150	1	4
94	KR - 94	30	20	50	1	4	128	KR - 128	50	200	100	1	3
95	KR - 95	20	10	50	1	4	129	KR - 129	15	50	100	<1	6
96	KR - 96	20	20	70	2	4	130	KR - 130	30	100	300	2	24
97	KR - 97	30	10	100	<1	4	131	KR - 131	30	100	200	<1	<2
98	KR - 98	20	10	50	1	4	132	KR - 132	30	50	200	<1	2
99	KR - 99	30	20	100	1	4	133	KR - 133	30	150	150	<1	5
100	KR - 100	30	15	70	1	4	134	KR - 1	20	10	50	<5	<5

No.	Sample No.	Grade (ppm)					No.	Sample No.	Grade (ppm)				
		Cu	Pb	Zn	Mo	W			Cu	Pb	Zn	Mo	W
135	KR - 2	20	10	40	<5	<5	169	KR - 36	55	20	70	<5	<5
136	KR - 3	30	10	30	<5	<5	170	KR - 37	1500	30	100	50	4
137	KR - 4	20	40	120	<5	<5	171	KR - 38	15	30	150	2	4
138	KR - 5	25	30	110	<5	<5	172	KR - 39	30	70	150	2	10
139	KR - 6	15	30	90	<5	<5	173	KR - 40	20	50	100	<1	4
140	KR - 7	30	20	30	<5	<5	174	KR - 41	20	50	150	1	4
141	KR - 8	50	30	40	<5	<5	175	KR - 42	20	70	150	<1	4
142	KR - 9	55	40	50	<5	<5	176	KR - 43	70	200	200	2	4
143	KR - 10	75	70	150	<5	<5	177	KR - 44	30	100	150	<1	4
144	KR - 11	20	30	40	<5	<5	178	KR - 45	30	50	150	1	4
145	KR - 12	30	40	60	<5	<5	179	KR - 46	1000	200	300	<1	<4
146	KR - 13	45	100	170	<5	<5	180	KR - 47	70	70	150	<1	4
147	KR - 14	315	20	70	<5	<5	181	KR - 48	20	50	150	1	<6
148	KR - 15	825	20	70	<5	<5	182	KR - 49	15	50	150	<1	<4
149	KR - 16	75	10	90	<5	<5	183	KR - 50	15	30	150	<1	<4
150	KR - 17	200	30	60	<5	<5	184	KR - 51	20	70	150	2	4
151	KR - 18	15	90	20	<5	<5	185	KR - 52	20	50	100	2	6
152	KR - 19	25	50	100	<5	<5	186	KR - 53	20	70	500	<1	6
153	KR - 20	15	30	50	<5	<5	187	KR - 54	20	50	150	1	6
154	KR - 21	30	50	100	<5	<5	188	KR - 55	15	15	50	<1	6
155	KR - 22	30	40	110	<5	<5	189	KR - 56	20	50	150	1	6
156	KR - 23	25	30	100	<5	<5	190	KR - 57	20	30	150	<1	6
157	KR - 24	30	40	130	<5	<5	191	KR - 58	20	50	150	2	6
158	KR - 25	30	20	100	<5	<5	192	KR - 59	20	70	200	2	6
159	KR - 26	30	70	120	<5	<5	193	KR - 60	20	70	100	1	6
160	KR - 27	45	20	80	<5	<5	194	KR - 61	20	15	70	1	<6
161	KR - 28	80	30	80	<5	40	195	KR - 62	700	30	100	10	<4
162	KR - 29	55	10	80	<5	<5	196	KR - 63	1000	50	100	15	<4
163	KR - 30	55	20	80	<5	<5	197	KR - 64	20	70	150	<1	<4
164	KR - 31	40	40	110	<5	<5	198	KR - 65	20	30	150	1	<4
165	KR - 32	60	20	80	<5	<5	199	KR - 66	30	20	100	<1	<4
166	KR - 33	40	50	200	<5	<5	200	KR - 67	30	20	150	1	<4
167	KR - 34	30	30	220	<5	<5	201	KR - 68	20	30	70	2	<4
168	KR - 35	30	20	120	<5	<5	202	KR - 69	15	15	70	3	<4

No.	Sample No.	Grade (ppm)					No.	Sample No
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- Pp pelitic schist
- Pm psammitic schist
- Pl green schist (tuff, tuff breccia)
- Pl limestone
- Pa calcareous schist
- Xa andesite
- Pre - Cambrian XI limestone
- Xt tuff, tuff breccia, lapilli tuff
- Intrusive rock Gr granite, diorite
- Po porphyrite
- Do dolerite
- fault
- unconformity
- anticlinal / synclinal axis / overturned fold
- stratigraphic boundary
- bedding plane

No.	Sample No.	Grade (ppm)					No.	Sample No.	Grade (ppm)				
		Cu	Pb	Zn	Mo	W			Cu	Pb	Zn	Mo	W
338	KN - 73	27	10	150	<1	10	371	KN - 106	20	10	150	<1	3
339	KN - 74	30	70	150	2	4	372	KN - 107	15	10	150	<1	3
340	KN - 75	20	20	100	1	4	373	KN - 108	20	15	150	<1	5
341	KN - 76	20	15	100	<1	6	374	KN - 109	20	15	100	<1	6
342	KN - 77	20	10	50	<1	8	375	KN - 110	20	20	150	<1	6
343	KN - 78	20	70	100	1	6	376	KN - 111	20	20	150	<1	2
344	KN - 79	20	10	100	3	6	377	KN - 112	30	15	150	<1	10
345	KN - 80	20	15	150	<1	6	378	KN - 113	30	20	100	<1	4
346	KN - 81	15	10	100	<1	8	379	KN - 114	30	30	150	<1	2
347	KN - 82	20	15	100	2	6	380	KN - 115	20	20	150	<1	2
348	KN - 83	20	15	100	1	4	381	KN - 116	15	15	50	<1	2
349	KN - 84	20	70	150	<1	6	382	KN - 117	30	50	150	<1	2
350	KN - 85	20	50	150	<1	4	383	KN - 118	30	10	100	<1	2
351	KN - 86	20	30	150	2	4	384	KN - 1	40	110	90	<5	60
352	KN - 87	15	50	150	<1	4	385	KN - 2	45	120	460	<5	160
353	KN - 88	20	50	150	1	4	386	KN - 3	30	60	170	<5	140
354	KN - 89	15	20	70	2	8	387	KN - 4	40	100	370	<5	140
355	KN - 90	20	50	150	<1	4	388	KN - 5	55	160	300	<5	80
356	KN - 91	15	30	70	<1	4	389	KN - 6	35	50	220	<5	100
357	KN - 92	20	30	150	3	6	390	KN - 7	30	30	200	<5	80
358	KN - 93	15	15	100	<1	8	391	KN - 8	30	60	200	<5	60
359	KN - 94	15	30	150	1	6	392	KN - 9	50	60	190	<5	100
360	KN - 95	20	50	150	3	4	393	KN - 10	35	20	180	<5	60
361	KN - 96	15	30	150	<1	8	394	KN - 11	60	130	410	<5	160
362	KN - 97	15	15	70	<1	6	395	KN - 12	30	20	210	<5	140
363	KN - 98	20	30	150	2	4	396	KN - 13	30	40	170	<5	88
364	KN - 99	20	30	150	<1	10	397	KN - 14	25	30	200	<5	60
365	KN - 100	15	20	100	1	8	398	KN - 15	30	50	180	<5	80
366	KN - 101	20	30	150	<1	10	399	KN - 16	120	250	390	<5	200
367	KN - 102	15	10	30	2	4	400	KN - 17	55	90	190	<5	280
368	KN - 103	15	10	50	<1	7	401	KN - 19	20	50	80	<5	80
369	KN - 104	15	10	15	<1	2	402	KN - 19	60	100	210	<5	700
370	KN - 105	20	15	150	<1	2	403	KN - 20	100	130	510	<5	80
371	KN - 105	20	70	100	<1	4	404	KN - 21	20	50	80	<5	<5

No.	Sample No.	Grade (ppm)					No.	Sample No.	Grade (ppm)				
		Cu	Pb	Zn	Mo	W			Cu	Pb	Zn	Mo	W
405	KN - 22	50	150	200	5	4	438	KN - 129	30	50	150	3	4
406	KN - 23	30	70	100	2	4	440	KN - 130	20	15	50	2	6
407	KN - 24	50	200	200	7	8	441	KN - 131	30	30	30	3	4
408	KN - 25	30	150	150	5	8	442	KN - 132	20	15	70	2	6
409	KN - 26	30	150	200	3	4	443	KN - 133	20	30	150	1	4
410	KN - 27	30	70	150	1	4	444	KN - 134	20	15	70	1	4
411	KN - 101	30	20	160	1	4	445	KN - 135	15	15	100	<1	4
412	KN - 102	20	20	150	1	4	446	KN - 136	20	30	50	2	6
413	KN - 103	20	15	70	3	4	447	KN - 137	15	15	50	1	5
414	KN - 104	30	20	100	<1	8	448	KN - 138	15	10	50	1	4
415	KN - 105	30	15	70	3	4	449	KN - 139	20	15	70	2	5
416	KN - 106	30	15	50	1	4	450	KN - 140	20	50	100	2	6
417	KN - 107	20	15	100	2	4	451	KN - 141	20	70	100	2	6
418	KN - 108	30	15	70	1	4	452	KN - 142	15	15	70	<1	6
419	KN - 109	50	10	100	1	4	453	KN - 143	20	70	150	2	4
420	KN - 110	20	15	100	1	4	454	KN - 144	15	20	100	1	4
421	KN - 111	20	10	50	2	4	455	KN - 145	20	15	70	1	4
422	KN - 112	50	20	100	2	4	456	KN - 146	20	30	100	<1	4
423	KN - 113	30	15	100	2	8	457	KN - 147	15	50	150	1	4
424	KN - 114	20	15	100	2	4	458	KN - 148	20	20	100	<1	4
425	KN - 115	30	15	100	3	6	459	KN - 149	15	20	100	<1	4
426	KN - 116	20	15	100	2	8	460	KN - 150	10	10	50	1	4
427	KN - 117	70	100	70	2	4							
428	KN - 118	20	15	100	1	4							
429	KN - 119	30	15	100	2	8							
430	KN - 120	30	15	100	2	4							
431	KN - 121	30	15	70	1	4							
432	KN - 122	30	20	100	1	4							
433	KN - 123	20	15	100	1	6							
434	KN - 124	30	15	50	5	4							
435	KN - 125	20	15	70	3	4							
436	KN - 126	20	15	70	2	4							
437	KN - 127	30	70	100	1	4							
438	KN - 128	30	15	70	2	4							

* Were checked chemical analysis

$Cu \geq 177, Pb \geq 273, Zn \geq 599, Mo \geq 67, W \geq 54$

$177 > Cu \geq 75, 273 > Pb \geq 98, 599 > Zn \geq 267, 67 > Mo \geq 34, 54 > W \geq 17$

$75 > Cu \geq 32, 98 > Pb \geq 36, 267 > Zn \geq 119, 17 > W \geq 5$

$32 > Cu, 36 > Pb, 119 > Zn, 67 > Mo, 5 > W$

