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CSIRO
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Australian Mineral Industries Research Association Limited ACN 004 448 266

THE PETROGRAPHY, MINERALOGY AND GEOCHEMISTRY OF A FELSIC, MAFIC, ULTRAMAFIC AND METASEDIMENTARY WEATHERED PROFILE AT RAND PIT, REEDY MINE - CUE, WESTERN AUSTRALIA

Volume 2 - Appendices

I.D.M. Robertson, M.A. Chaffee and G.F. Taylor

CRC LEME OPEN FILE REPORT 39

September 1998

(CSIRO Division of Exploration Geoscience Report 102R, 1990. Second impression 1998)

CRC LEME is an unincorporated joint venture between The Australian National University, University of Canberra, Australian Geological Survey Organisation and CSIRO Exploration and Mining, established and supported under the Australian Government's Cooperative Research Centres Program.

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Headquarters: CRC LEME c/o CSIRO Exploration and Mining, Private Bag, PO Wembley, Western Australia, 6014

RESEARCH ARISING FROM CSIRO/AMIRA REGOLITH GEOCHEMISTRY PROJECTS 1987-1993

In 1987, CSIRO commenced a series of multi-client research projects in regolith geology and geochemistry which were sponsored by companies in the Australian mining industry, through the Australian Mineral Industries Research Association Limited (AMIRA). The initial research program, "Exploration for concealed gold deposits, Yilgarn Block, Western Australia" (1987-1993) had the aim of developing improved geological, geochemical and geophysical methods for mineral exploration that would facilitate the location of blind, buried or deeply weathered gold deposits. The program included the following projects:

P240: Laterite geochemistry for detecting concealed mineral deposits (1987-1991). Leader: Dr R.E. Smith.
Its scope was development of methods for sampling and interpretation of multi-element laterite geochemistry data and application of multi-element techniques to gold and polymetallic mineral exploration in weathered terrain. The project emphasised viewing laterite geochemical dispersion patterns in their regolith-landform context at local and district scales. It was supported by 30 companies.

P241: Gold and associated elements in the regolith - dispersion processes and implications for exploration (1987-1991). Leader: Dr C.R.M. Butt.
The project investigated the distribution of ore and indicator elements in the regolith. It included studies of the mineralogical and geochemical characteristics of weathered ore deposits and wall rocks, and the chemical controls on element dispersion and concentration during regolith evolution. This was to increase the effectiveness of geochemical exploration in weathered terrain through improved understanding of weathering processes. It was supported by 26 companies.

These projects represented "an opportunity for the mineral industry to participate in a multi-disciplinary program of geoscience research aimed at developing new geological, geochemical and geophysical methods for exploration in deeply weathered Archaean terrains". This initiative recognised the unique opportunities, created by exploration and open-cut mining, to conduct detailed studies of the weathered zone, with particular emphasis on the near-surface expression of gold mineralisation. The skills of existing and specially recruited research staff from the Floreat Park and North Ryde laboratories (of the then Divisions of Minerals and Geochemistry, and Mineral Physics and Mineralogy, subsequently Exploration Geoscience and later Exploration and Mining) were integrated to form a task force with expertise in geology, mineralogy, geochemistry and geophysics. Several staff participated in more than one project. Following completion of the original projects, two continuation projects were developed.

P240A: Geochemical exploration in complex lateritic environments of the Yilgarn Craton, Western Australia (1991-1993). Leaders: Drs R.E. Smith and R.R. Anand.
The approach of viewing geochemical dispersion within a well-controlled and well-understood regolith-landform and bedrock framework at detailed and district scales continued. In this extension, focus was particularly on areas of transported cover and on more complex lateritic environments typified by the Kalgoorlie regional study. This was supported by 17 companies.

P241A: Gold and associated elements in the regolith - dispersion processes and implications for exploration. Leader: Dr. C.R.M. Butt.
The significance of gold mobilisation under present-day conditions, particularly the important relationship with pedogenic carbonate, was investigated further. In addition, attention was focussed on the recognition of primary lithologies from their weathered equivalents. This project was supported by 14 companies.

Although the confidentiality periods of the research reports have expired, the last in December 1994, they have not been made public until now. Publishing the reports through the CRC LEME Report Series is seen as an appropriate means of doing this. By making available the results of the research and the authors' interpretations, it is hoped that the reports will provide source data for future research and be useful for teaching. CRC LEME acknowledges the Australian Mineral Industries Research Association and CSIRO Division of Exploration and Mining for authorisation to publish these reports. It is intended that publication of the reports will be a substantial additional factor in transferring technology to aid the Australian Mineral Industry.

This report (CRC LEME Open File Report 39) is a first revision of CSIRO, Division of Exploration Geoscience Restricted Report 102R, first issued in 1990, which formed part of the CSIRO/AMIRA Project P241.

Copies of this publication can be obtained from:
The Publication Officer, CRC LEME, CSIRO Exploration and Mining, PMB, Wembley, WA 6014, Australia. Information on other publications in this series may be obtained from the above or from http://leme.anu.edu.au/
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APPENDIX 1

Tabulated Geochemistry

Oxides in weight %
Trace Elements in ppm
Mine co-ordinates in metres

REEDY MINE- RAND PIT - SOUTH FACE

Sample Numbers			Co-ordinates				ICP	ICP	XRF	ICP	INAA	ICP	ICP	AAS	AAS	XRF	ICP	GRAV	GRAV		GRAV
Field No	Lab Seq	Lib No	East	North	R.L.	Unit	SiO2	Al2O3	Fe2O3	Fe2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	TiO2	LOD	LOI	Total	S.G.
RE 001	L08-032	08-001	10062.287	11268.308	419.714	U2	51.15	6.50	8.86	8.12	8.08	22.20	5.59	0.13	0.02	0.22	0.30	0.38	5.60	100.65	2.719
RE 002	L08-002	08-002	10058.253	11265.760	420.162	U2	55.93	6.66	8.58	8.33	7.88	24.70	0.47	0.05	0.36	0.30	0.35	1.80	8.00	106.85	2.595
RE 003	L08-052	08-003	10053.450	11263.355	419.961	U2	55.79	6.34	9.01	8.29	8.03	23.40	0.90	0.03	0.01	0.26	0.31	0.58	6.70	103.01	2.517
RE 004	L08-057	08-004	10050.242	11262.410	419.849	U2	55.65	6.53	8.44	6.88	7.62	22.90	0.22	0.08	0.36	0.28	0.30	1.87	8.10	104.42	2.599
RE 005	L08-012	08-005	10048.433	11262.300	419.800	U2	58.15	6.94	8.72	8.47	7.55	24.30	0.69	0.06	0.23	0.28	0.33	1.07	7.30	107.74	2.718
RE 006	L08-017	08-006	10046.666	11262.200	419.900	P2	81.88	13.16	1.43	1.80	1.18	0.38	0.22	6.30	1.02	0.21	0.22	0.15	0.70	105.44	2.608
RE 007	L08-077	08-007	10044.937	11262.091	420.293	P2	73.89	14.63	1.29	0.00	0.94	0.90	0.20	7.04	1.50	0.30	0.30	0.17	0.83	100.74	2.556
RE 009	L08-037	08-008	10044.055	11261.857	420.750	P2	57.66	11.94	12.01	11.14	10.58	8.77	0.27	0.33	3.88	0.67	0.60	2.87	8.30	106.70	2.381
RE 011	L08-058	08-009	10041.460	11261.750	421.210	P2	58.35	12.25	20.73	22.09	21.02	0.00	0.17	2.20	3.62	1.07	0.94	1.37	4.40	104.16	2.183
RE 012	L08-003	08-010	10040.970	11261.728	421.353	S3	63.38	16.11	9.44	10.44	9.82	1.01	0.07	0.14	6.31	0.98	0.85	0.18	2.88	100.49	2.344
RE 013	L08-055	08-011	10039.914	11262.456	420.421	M3	53.81	16.81	10.29	8.63	9.42	8.98	0.22	0.55	1.92	0.85	0.71	2.32	9.10	104.85	2.066
RE 014	L08-006	08-012	10037.414	11263.113	420.209	M3	63.91	17.23	10.01	10.42	9.15	5.17	0.47	3.10	2.33	0.82	0.84	2.23	6.90	112.17	2.159
RE 015	L08-056	08-013	10034.722	11263.581	420.450	U4	56.80	7.66	8.86	7.18	7.83	21.70	0.31	0.03	0.01	0.27	0.36	0.53	6.70	102.86	2.703
RE 016	L08-064	08-014	10031.159	11266.878	419.831	U4	57.75	14.14	10.58	8.92	9.21	15.00	0.68	1.35	0.75	0.50	0.63	1.33	7.10	109.18	2.581
RE 017	L08-078	08-015	10029.709	11270.464	419.835	U4	54.88	9.49	10.01	9.03	8.76	17.60	5.88	0.85	0.09	0.30	0.73	0.28	4.78	104.16	2.743
RE 018	L08-075	08-016	10035.457	11275.952	414.923	U4	54.23	7.61	9.44	7.89	8.59	20.70	4.74	0.07	0.01	0.23	0.34	0.17	5.20	102.39	2.678
RE 019	L08-043	08-017	10036.348	11272.471	414.891	U4	57.74	15.44	8.86	9.87	7.82	11.00	0.40	0.03	0.00	0.21	0.71	0.53	6.50	100.72	2.608
RE 020	L08-011	08-018	10037.368	11269.524	415.821	U4	61.08	8.46	9.15	9.37	7.86	23.40	4.05	0.06	0.01	0.24	0.40	0.41	6.10	112.96	2.713
RE 021	L08-053	08-019	10038.377	11268.531	416.110	M3	60.94	15.22	9.72	8.10	8.42	5.42	0.40	3.93	2.83	0.84	0.68	1.93	5.60	106.83	2.410
RE 022	L08-082	08-020	10039.082	11268.226	415.906	M3	64.18	14.31	10.15	10.01	9.31	2.23	0.26	4.30	1.94	0.72	1.06	2.03	5.40	105.52	2.255
RE 023	L08-070	08-021	10040.660	11267.751	415.893	M3	55.60	14.89	9.86	7.77	8.56	7.35	0.40	2.31	2.97	0.85	0.66	1.11	5.30	100.64	2.342
RE 025	L08-059	08-022	10042.885	11267.528	415.473	P2	79.48	12.49	1.57	0.28	1.27	0.66	0.18	5.55	1.92	0.17	0.17	0.08	0.84	102.93	2.565
RE 026	L08-035	08-023	10043.799	11267.303	415.564	U2	47.87	8.23	8.86	8.32	7.91	24.50	0.14	0.03	0.00	0.37	0.43	0.15	7.70	97.86	2.434
RE 028	L08-001	08-024	10046.751	11266.970	415.521	U2	50.42	6.44	9.01	8.02	7.79	24.30	0.23	0.03	0.08	0.32	0.34	0.49	7.20	98.52	2.675
RE 029	L08-028	08-025	10050.275	11267.407	415.605	U2	59.00	7.09	8.72	8.69	7.72	23.90	0.13	0.03	0.03	0.31	0.33	0.32	6.70	106.23	2.624
RE 030	L08-083	08-026	10055.342	11268.927	415.782	U2	55.65	6.01	9.01	8.22	8.35	20.70	1.55	0.05	0.03	0.20	0.48	0.79	6.80	100.79	2.548
RE 031	L08-023	08-027	10059.756	11271.874	416.058	U2	56.15	6.86	8.44	7.84	7.58	21.50	3.67	0.11	0.16	0.33	0.33	0.77	6.20	104.19	2.682
RE 032	L08-067	08-028	10074.685	11234.401	440.558	S1	69.59	15.37	5.58	4.34	5.12	2.02	0.09	0.09	4.31	0.73	0.67	0.99	4.39	103.16	2.151
RE 033	L08-042	08-029	10072.694	11231.887	441.006	M1	53.88	6.09	10.15	7.98	9.09	22.70	0.27	0.06	0.25	0.75	0.29	3.87	11.30	109.32	2.107
RE 034	L08-004	08-030	10064.533	11228.047	441.848	U2	53.74	8.73	10.15	9.32	8.68	19.80	0.43	0.10	0.02	0.41	0.42	3.52	10.70	107.60	2.013
RE 035	L08-048	08-031	10055.375	11229.094	440.489	U2	55.30	10.19	9.01	8.46	7.86	18.10	0.38	0.13	0.07	0.57	0.51	3.89	11.60	109.24	1.994
RE 036	L08-036	08-032	10053.596	11227.089	441.798	P2	72.54	14.69	2.72	2.10	2.07	0.42	0.07	0.29	3.12	0.28	0.23	0.46	5.60	100.19	1.866
RE 037	L08-073	08-033	10050.514	11228.280	441.299	U2	57.00	6.43	8.01	6.27	7.18	20.60	0.24	0.06	0.07	0.28	0.30	2.52	8.70	103.91	2.535
RE 038	L08-031	08-034	10047.984	11229.013	440.945	P2	73.41	13.90	2.00	1.73	1.64	0.65	0.09	0.27	7.64	0.38	0.32	0.58	2.89	101.82	2.366
RE 039	L08-005	08-035	10046.787	11228.826	441.011	P2	75.54	14.42	2.14	2.12	1.89	0.72	0.11	0.18	6.34	0.31	0.30	1.36	4.47	105.60	2.243
RE 040	L08-054	08-036	10043.529	11229.796	440.723	U2	52.12	7.03	8.72	7.15	7.95	23.00	0.18	0.05	0.01	0.23	0.24	2.27	9.10	102.70	2.489
RE 041	L08-076	08-037	10035.258	11228.640	441.843	M3	56.23	14.36	10.87	9.80	11.04	11.70	0.13	0.04	0.01	1.17	0.87	1.58	8.70	104.79	1.780
RE 042	L08-020	08-038	10034.592	11227.940	442.492	S3	68.00	18.40	4.00	3.94	3.39	1.29	0.03	0.12	5.17	1.08	0.96	0.35	4.62	103.06	2.315
RE 043	L08-024	08-039	10033.469	11228.914	442.030	M3	59.57	12.23	14.30	14.04	13.12	8.49	0.48	0.08	0.03	0.65	0.59	4.31	11.50	111.64	2.358
RE 044	L08-063	08-040	10026.947	11231.830	441.756	U4	58.13	6.15	8.72	7.46	7.86	22.80	0.21	0.04	0.01	0.25	0.29	2.06	8.00	106.38	2.647
RE 045	L08-065	08-041	10025.366	11232.403	441.758	U4	52.85	5.72	9.29	7.69	8.41	24.70	0.11	0.03	0.01	0.21	0.25	1.16	7.40	101.48	2.627
RE 046	L08-034	08-042	10022.124	11234.219	441.884	U4	52.36	9.68	10.15	8.98	9.08	16.80	3.51	0.25	0.20	0.41	0.44	1.27	7.60	102.23	2.647
RE 047	L08-045	08-043	10017.772	11236.619	442.066	M5	56.27	14.18	12.58	12.64	11.91	8.92	0.52	1.35	0.80	0.67	0.65	3.63	10.00	108.93	2.417
RE 048	L08-069	08-044	10014.321	11238.458	442.942	M5	51.75	12.75	10.72	8.42	9.62	11.10	0.52	0.81	0.06	0.59	0.58	4.05	11.00	103.35	2.218

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	INAA Ag	XRF Ag	ES Ag	INAA As	P.ICP As	INAA Au	ES B	ICP Ba	INAA Ba	XRF Ba	ICP Be	XRF Bi	P.ICP Bi	INAA Br	XRF Cd	P.ICP Cd	INAA Ce	INAA Co	ICP Cr	INAA Cr	INAA Cs	ICP Cu
RE 001	4.3	1	N	0.4	<5	0.002	N	14	61	0	0	0	<2	0.5	0	0.2	6.0	73.9	2662	2790	0.53	0
RE 002	5.8	1	2.0	0.4	<5	0.007	N	49	79	31	0	5	6	0.5	3	0.3	8.0	89.3	2927	2900	5.73	49
RE 003	4.4	0	N	0.4	<5	0.032	N	17	63	6	0	0	<2	0.4	0	0.2	6.9	90.0	2578	2650	0.69	19
RE 004	4.5	2	N	0.4	<5	0.002	N	39	68	30	0	2	<2	0.5	0	0.3	10.3	79.8	2616	2700	4.77	17
RE 005	5.1	0	N	1.1	<5	0.003	<10	36	69	26	0	0	<2	0.5	0	0.2	8.3	80.9	2963	2710	2.61	10
RE 006	4.5	0	<.5	0.7	<5	0.007	N	113	94	108	0	9	7	0.8	0	<.1	29.0	9.7	38	31	0.63	6
RE 007	4.8	2	0.5	1.0	<5	0.005	N	137	100	141	0	0	<2	1.2	0	<.1	30.4	4.6	50	28	0.67	22
RE 009	5.4	1	N	27.5	32	1.870	<10	523	474	441	0	1	<2	0.9	0	0.7	28.6	115.0	744	748	2.82	152
RE 011	8.2	1	<.5	49.2	49	0.380	<10	527	501	477	0	3	3	2.1	2	2.1	7.4	61.9	42	73	1.66	182
RE 012	5.9	1	<.5	2.2	<5	1.090	15	788	927	915	0	3	4	1.1	0	0.7	43.9	10.5	314	316	2.27	68
RE 013	6.7	1	<.5	2.7	<5	0.043	<10	189	217	192	0	0	<2	1.0	1	0.6	55.7	87.0	335	346	2.07	22
RE 014	6.0	0	N	6.5	<5	0.090	<10	564	545	515	0	0	<2	1.2	0	1.2	33.3	35.6	114	108	1.43	98
RE 015	4.6	2	N	0.6	<5	0.004	<10	2	67	3	0	2	<2	0.4	0	0.3	10.3	79.6	2220	2270	0.57	24
RE 016	6.8	0	N	1.6	<5	0.019	<10	191	195	119	0	0	<2	0.6	0	0.7	25.4	60.1	493	481	0.84	1
RE 017	5.1	0	N	0.5	<5	0.015	N	31	75	11	0	0	<2	0.5	0	0.1	12.7	67.4	1702	1740	0.62	72
RE 018	4.9	1	N	0.7	<5	0.003	N	9	70	1	0	0	<2	0.6	0	0.2	12.9	76.5	2535	2650	0.60	0
RE 019	4.1	1	N	0.6	<5	0.009	N	49	58	0	0	0	<2	0.5	0	0.2	7.4	83.6	429	2720	0.51	39
RE 020	5.3	0	N	2.0	<5	0.008	<10	10	74	5	0	0	<2	0.5	0	0.2	9.1	77.7	3131	2720	0.64	22
RE 021	7.2	1	0.5	3.7	<5	2.950	<10	472	454	400	0	0	<2	1.1	3	1.0	41.4	65.4	111	116	0.98	62
RE 022	5.6	1	N	11.9	11	6.420	<10	147	133	145	0	1	3	1.3	2	0.9	20.9	68.1	121	117	0.69	34
RE 023	7.7	4	N	6.3	<5	0.918	<10	540	681	493	0	0	<2	1.0	2	0.4	33.1	90.7	286	299	1.43	231
RE 025	4.4	2	N	0.7	<5	0.025	N	221	181	208	0	0	<2	4.2	2	0.4	27.6	30.0	37	20	1.23	26
RE 026	4.4	0	0.5	1.5	<5	0.019	N	11	63	0	0	1	<2	0.9	0	0.4	13.4	60.6	3016	3070	0.55	3
RE 028	5.1	1	N	0.7	<5	0.003	N	24	80	15	0	2	<2	0.4	0	0.1	8.1	69.7	3268	3330	0.63	181
RE 029	4.2	0	N	0.8	<5	0.002	N	16	60	4	0	0	<2	0.4	1	0.2	10.0	83.8	2794	2630	0.52	15
RE 030	4.5	1	N	1.8	<5	0.019	N	18	65	0	0	0	<2	0.5	0	<.1	9.1	124.0	2497	2670	0.70	9
RE 031	5.1	2	N	0.4	<5	0.003	<10	24	73	21	0	0	<2	0.5	0	0.1	9.9	73.4	2454	2400	2.29	24
RE 032	4.7	3	N	7.8	7	0.120	20	823	863	841	0	1	<2	0.5	0	0.3	36.0	5.4	339	331	2.45	31
RE 033	4.9	0	N	1.7	<5	0.043	<10	12	73	48	0	0	<2	1.4	0	0.9	34.8	45.4	2624	414	0.61	29
RE 034	6.0	1	N	4.7	<5	0.020	<10	44	115	37	0	0	<2	1.5	1	0.3	15.5	82.4	3012	2930	0.73	29
RE 035	5.1	0	N	7.8	<5	0.004	N	25	76	12	0	1	<2	2.2	0	<.1	19.7	115.0	3463	3470	0.63	22
RE 036	3.4	1	N	4.3	5	0.003	<10	521	596	583	0	3	2	2.9	1	<.1	40.8	148.0	63	42	1.64	284
RE 037	4.2	0	<.5	4.0	<5	0.013	N	8	60	6	0	0	<2	0.4	1	0.2	5.1	73.5	2334	2490	0.70	34
RE 038	3.5	2	1.0	1.2	<5	0.004	10	537	642	575	0	1	<2	2.6	0	<.1	52.3	5.3	45	27	2.72	0
RE 039	2.9	2	0.7	1.2	<5	0.010	15	373	455	391	0	1	<2	3.7	0	<.1	52.6	6.1	57	42	2.38	227
RE 040	4.3	1	<.5	2.6	<5	0.057	<10	4	62	1	0	0	<2	0.4	3	0.1	16.5	78.6	2759	2860	0.54	11
RE 041	6.0	0	N	16.4	12	0.089	N	12	88	17	0	1	<2	0.8	0	0.7	18.5	54.5	905	957	0.71	20
RE 042	6.7	3	2.0	1.3	<5	18.400	50	813	905	919	0	6	4	1.1	1	0.2	84.4	1.4	692	617	2.35	39
RE 043	6.4	1	<.5	3.2	5	0.159	<10	11	89	13	0	2	<2	0.6	0	1.2	18.2	86.1	720	688	1.41	63
RE 044	4.6	0	N	1.1	<5	0.003	N	9	66	5	0	1	<2	0.4	0	0.1	7.4	86.0	2778	2750	0.56	37
RE 045	4.2	0	0.7	0.4	<5	0.002	<10	6	59	2	0	1	<2	0.4	0	<.1	4.7	89.0	2478	2570	0.68	0
RE 046	4.9	0	N	0.5	<5	0.003	<10	72	79	62	0	0	<2	0.6	1	0.4	15.0	73.0	1576	1690	0.60	0
RE 047	5.6	0	N	2.1	<5	0.007	<10	230	192	199	0	1	<2	0.8	0	1.1	25.3	88.4	410	415	1.15	12
RE 048	6.0	0	N	0.8	<5	0.010	<10	18	86	23	0	2	<2	0.6	0	0.6	8.3	57.7	796	861	1.29	38

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	XRF Cu	INAA Eu	XRF Ga	XRF Ge	INAA Hf	XRF In	INAA Ir	INAA La	AAS Li	INAA Lu	ICP Mn	XRF Mn	INAA Mo	XRF Nb	ICP Ni	XRF Ni	XRF Pb	INAA Rb	XRF Rb	INAA Sb	INAA Sc	INAA Se
RE 001	0	0.51	9	0	1.15	0	0.007	3.50	52	0.17	1257	1396	2.8	0	479	599	3	18	0	0.09	25.0	2.6
RE 002	48	0.21	7	1	0.74	2	0.009	4.99	82	0.17	690	708	3.2	2	624	709	131	26	16	0.11	26.5	4.1
RE 003	8	0.29	8	1	1.32	0	0.008	5.31	52	0.16	1032	1113	2.6	2	547	666	2	7	1	0.08	22.9	2.8
RE 004	13	0.29	11	0	1.09	0	0.008	6.39	80	0.17	661	739	2.7	3	565	673	3	24	15	0.09	22.2	2.9
RE 005	18	0.26	13	3	1.02	0	0.008	5.65	63	0.13	932	932	2.9	2	592	644	4	24	8	0.09	23.7	3.0
RE 006	33	0.61	13	1	2.48	0	0.009	22.00	4	0.06	243	134	5.0	2	0	33	6	20	24	0.24	2.0	3.2
RE 007	12	0.88	14	0	3.32	1	0.011	23.10	5	0.13	110	125	5.0	3	3	37	4	34	36	0.13	3.9	3.4
RE 009	78	1.23	16	0	2.13	0	0.009	18.80	46	0.47	953	1117	3.3	4	472	642	7	102	100	0.15	33.8	3.4
RE 011	146	0.61	13	0	2.18	0	0.014	3.01	5	0.32	1692	1586	5.0	1	0	151	18	130	87	0.30	31.9	5.0
RE 012	45	1.30	29	2	4.80	0	0.010	29.10	42	0.43	140	133	3.2	10	0	54	29	139	147	0.11	29.7	3.7
RE 013	209	1.90	21	1	2.92	1	0.012	35.90	72	0.81	479	554	3.4	2	326	531	6	42	49	0.13	38.4	4.2
RE 014	65	0.74	18	0	2.89	0	0.018	28.20	26	0.50	733	731	5.0	5	0	136	8	20	60	0.20	39.8	5.0
RE 015	0	0.28	8	0	1.37	1	0.008	6.47	44	0.16	719	819	2.6	3	508	624	0	10	0	0.20	25.9	2.9
RE 016	101	0.84	15	1	2.70	0	0.012	18.00	70	0.34	983	1107	3.4	4	109	259	2	17	18	0.16	33.0	4.3
RE 017	23	0.63	11	1	1.72	0	0.009	7.61	36	0.23	1187	1294	2.9	3	342	452	1	17	2	0.10	30.3	3.2
RE 018	0	0.52	7	1	1.21	2	0.008	8.09	32	0.21	1165	1309	3.0	3	385	510	2	8	0	0.10	27.4	3.1
RE 019	4	0.17	7	1	1.01	0	0.007	5.25	35	0.12	548	748	2.7	1	66	695	3	9	1	0.09	23.6	2.5
RE 020	0	0.42	10	2	1.28	1	0.010	5.66	43	0.17	1418	1345	3.0	2	606	640	2	8	1	0.12	27.0	3.2
RE 021	42	1.83	17	0	3.14	0	0.013	29.70	28	0.68	428	499	5.0	4	115	272	6	56	68	0.18	37.3	4.5
RE 022	19	0.85	15	1	2.42	0	0.012	14.60	13	0.38	651	718	5.0	4	88	228	12	43	48	0.18	28.6	3.7
RE 023	67	0.72	18	1	2.50	0	0.014	25.00	69	0.32	713	884	4.0	3	252	448	6	56	72	0.15	34.2	5.0
RE 025	34	0.48	12	1	2.39	0	0.009	20.20	6	0.08	281	284	5.0	1	59	74	17	17	48	0.14	3.9	3.1
RE 026	204	0.74	18	1	1.47	0	0.008	7.69	53	0.21	1091	1240	2.9	4	265	371	7	16	1	0.53	27.3	3.4
RE 028	35	0.40	13	1	0.88	2	0.009	4.80	53	0.19	843	958	3.0	2	422	536	3	10	3	0.09	26.1	3.1
RE 029	10	0.28	9	0	1.06	0	0.007	6.81	50	0.15	889	930	2.7	0	537	599	0	14	1	0.09	22.6	2.6
RE 030	0	0.25	7	1	1.11	0	0.008	6.13	63	0.14	873	1007	2.8	4	851	984	4	17	2	0.09	29.2	2.8
RE 031	3	0.31	7	0	1.25	0	0.008	5.94	64	0.16	1038	1077	3.0	0	547	616	0	18	6	0.10	23.9	3.0
RE 032	189	1.09	23	0	3.34	1	0.009	26.60	46	0.40	206	228	2.7	7	0	40	11	79	96	0.85	26.4	3.1
RE 033	74	1.08	16	1	2.78	2	0.009	26.20	82	0.45	666	553	5.0	3	566	229	4	18	9	0.11	35.5	2.9
RE 034	13	0.47	10	0	1.69	1	0.010	9.64	54	0.20	762	681	3.3	2	612	760	8	13	0	0.11	33.5	3.6
RE 035	14	0.66	11	0	1.88	3	0.009	13.10	83	0.20	564	603	3.9	3	979	1203	1	9	4	0.12	26.4	3.2
RE 036	18	0.93	15	0	2.95	0	0.006	28.20	20	0.20	4748	5185	2.3	1	383	422	4	73	78	0.08	10.0	2.2
RE 037	22	0.27	9	1	1.38	0	0.007	2.73	49	0.16	577	673	2.6	5	484	614	2	7	2	0.08	21.0	2.6
RE 038	27	0.77	13	0	3.76	1	0.005	36.80	12	0.20	101	97	1.9	3	0	47	7	162	187	0.10	3.3	1.8
RE 039	25	1.03	12	0	3.49	0	0.007	38.90	17	0.17	99	110	2.3	3	27	64	5	138	158	0.16	3.2	2.5
RE 040	322	0.50	13	1	0.76	0	0.008	12.00	38	0.15	726	826	2.8	1	529	600	2	9	1	0.20	20.2	2.9
RE 041	23	1.01	28	2	3.63	4	0.010	12.10	68	0.53	1000	1205	3.4	4	0	219	13	28	1	0.14	53.1	3.5
RE 042	10	2.84	31	1	4.64	0	0.013	63.30	52	1.20	72	82	5.0	7	0	32	22	87	107	0.18	40.9	5.7
RE 043	232	1.05	16	0	2.41	2	0.011	12.50	41	0.46	648	619	3.2	2	397	533	0	19	3	0.13	36.8	3.6
RE 044	4	0.30	8	2	0.99	2	0.008	5.55	35	0.11	689	738	2.8	0	609	713	2	8	0	0.09	22.1	2.9
RE 045	16	0.24	6	1	0.97	0	0.010	3.08	23	0.13	569	633	2.6	0	1076	1236	3	7	1	0.08	17.4	2.7
RE 046	31	0.75	11	1	1.81	0	0.008	9.68	49	0.23	921	1024	2.9	3	298	436	4	13	5	0.10	31.9	2.9
RE 047	54	0.88	16	0	2.67	0	0.010	17.70	40	0.30	886	858	5.0	3	149	289	7	21	23	0.13	32.8	3.3
RE 048	30	0.38	16	2	1.98	1	0.010	4.68	51	0.18	531	633	3.0	3	200	377	3	12	4	0.12	32.4	3.6

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	XRF Se	INAA Sm	XRF Sn	XRF Sr	INAA Ta	AAS Te	INAA Th	AAS Tl	INAA U	ICP V	XRF V	INAA W	XRF Y	ES Y	INAA Yb	INAA Zn	XRF Zn	P.ICP Zn	ICP Zr	XRF Zr
RE 001	0	1.43	1	11	0.3	0.010	1.93	<.05	0.9	141	117	1.0	11	<10	1.07	133	62	15	39	44
RE 002	10	1.13	0	7	0.5	0.170	2.22	0.15	1.3	189	161	2.8	9	<10	0.83	168	75	25	23	47
RE 003	1	1.13	0	6	0.3	0.010	1.93	<.05	0.8	150	122	0.9	9	<10	0.96	128	78	28	50	46
RE 004	0	1.29	0	14	0.4	0.025	1.76	0.15	0.9	180	161	0.8	8	N	0.81	165	111	43	38	44
RE 005	1	1.17	1	10	0.4	0.035	1.82	0.10	0.9	263	218	0.9	9	10	0.85	213	132	58	3	42
RE 006	1	2.89	0	166	0.5	0.160	5.64	0.20	1.3	0	34	19.1	6	N	0.26	70	9	7	0	113
RE 007	0	2.56	0	252	1.8	0.120	5.50	0.25	1.4	47	52	16.8	9	N	0.63	115	19	19	140	159
RE 009	0	3.70	0	43	0.6	0.180	4.32	0.75	1.2	346	347	7.2	27	15	2.72	350	298	250	86	97
RE 011	2	1.56	2	105	1.1	0.160	0.79	0.50	1.5	526	498	46.7	15	10	2.28	408	209	210	64	62
RE 012	1	4.79	9	52	1.4	0.170	7.83	0.75	1.1	504	466	22.1	20	15	2.26	203	84	94	214	187
RE 013	2	7.73	1	41	0.8	0.080	5.79	0.35	1.3	324	308	16.1	48	20	4.48	516	444	360	108	129
RE 014	0	4.49	0	152	2.5	0.180	5.02	0.35	1.9	566	486	20.0	36	20	2.92	328	140	110	135	124
RE 015	0	1.52	0	3	0.3	0.015	2.66	N	0.9	159	147	2.3	11	<10	0.97	127	64	23	45	51
RE 016	2	3.32	0	34	2.0	0.230	4.05	0.10	1.3	220	212	1.2	20	10	1.91	212	72	47	90	102
RE 017	0	2.14	0	19	1.1	0.015	2.78	0.05	1.0	193	177	1.1	14	10	1.51	135	51	20	53	66
RE 018	0	1.65	0	4	0.6	0.240	2.28	0.05	1.0	175	156	1.0	11	10	0.97	136	73	27	49	50
RE 019	0	1.15	0	1	0.5	N	1.67	<.05	0.9	237	128	1.1	8	10	0.79	120	68	17	113	40
RE 020	0	1.50	0	4	0.4	0.045	1.93	<.05	1.0	169	137	1.9	9	10	0.91	144	67	26	18	54
RE 021	1	5.72	1	113	1.3	0.120	5.22	0.40	1.8	327	346	9.0	53	20	4.04	291	157	130	106	125
RE 022	0	2.93	0	66	0.6	0.260	4.21	0.30	1.9	286	280	11.5	21	10	1.86	251	172	150	91	105
RE 023	0	3.18	0	207	1.7	0.045	4.39	0.50	1.6	292	308	7.3	18	10	1.77	461	304	250	100	122
RE 025	2	2.79	0	173	1.0	0.045	4.14	0.35	1.3	26	33	10.9	6	N	0.28	74	25	19	89	101
RE 026	13	1.63	0	3	0.6	0.130	2.71	<.05	0.9	440	377	1.1	12	10	1.16	277	233	98	64	62
RE 028	0	1.28	0	3	0.4	0.030	1.98	0.05	0.9	352	312	0.9	12	10	0.97	190	129	45	28	48
RE 029	0	1.31	0	4	0.4	0.020	1.96	0.10	0.9	154	128	0.9	11	10	0.89	132	87	38	46	48
RE 030	0	1.27	1	7	0.3	<.005	1.89	<.05	0.9	161	150	1.1	11	10	0.86	179	118	66	34	40
RE 031	0	1.35	0	15	0.4	0.005	1.95	0.05	1.0	119	118	1.0	9	<10	0.86	133	59	19	0	47
RE 032	3	4.29	6	16	1.0	0.230	6.70	0.70	1.0	278	256	11.0	24	15	2.13	165	90	70	117	140
RE 033	0	4.33	1	27	1.2	0.090	4.81	0.10	1.0	143	209	5.4	27	15	2.81	271	198	160	30	124
RE 034	2	1.71	2	21	0.5	0.020	2.30	<.05	1.1	163	155	1.3	10	10	1.27	190	101	58	42	63
RE 035	0	2.38	0	25	0.4	0.160	2.84	<.05	1.2	178	165	1.7	10	10	1.13	170	105	66	68	78
RE 036	0	4.00	0	116	0.7	0.180	7.21	9.90	0.8	88	96	16.0	11	<10	1.12	72	36	34	132	135
RE 037	0	0.80	0	16	0.3	0.065	2.21	<.05	0.9	114	107	2.7	6	N	0.74	135	88	47	50	57
RE 038	1	4.36	1	147	1.2	0.190	7.87	1.50	0.6	56	61	9.4	11	<10	1.02	61	23	20	140	156
RE 039	0	4.01	0	125	0.6	0.100	7.61	1.10	0.8	42	53	24.6	8	<10	0.88	75	23	20	147	150
RE 040	0	2.16	0	12	0.4	0.090	1.52	<.05	0.9	156	141	0.9	8	<10	0.86	258	219	120	25	36
RE 041	2	3.42	0	10	0.9	0.250	5.73	0.15	1.3	730	741	14.1	20	15	3.12	252	176	120	134	145
RE 042	1	11.80	7	56	0.5	0.200	7.71	0.60	2.0	443	402	19.8	120	70	5.97	174	20	10	168	191
RE 043	0	3.94	2	34	0.5	0.150	3.56	<.05	1.1	273	258	4.8	21	20	2.71	352	280	230	64	94
RE 044	0	1.17	0	11	0.3	N	1.31	<.05	0.9	139	124	1.1	6	<10	0.67	118	75	27	40	43
RE 045	1	0.77	0	6	0.3	<.005	1.58	<.05	0.8	106	92	0.8	5	<10	0.62	126	80	27	35	41
RE 046	1	2.29	0	13	0.5	0.015	2.90	<.05	1.0	178	159	1.5	17	15	1.52	159	74	43	61	71
RE 047	0	3.25	3	48	1.1	0.020	4.49	0.15	1.2	296	256	1.5	19	15	1.98	158	81	59	99	107
RE 048	1	1.60	1	46	0.8	0.040	3.79	<.05	1.6	227	231	4.4	12	10	1.34	144	58	40	77	96

REEDY MINE- RAND PIT - SOUTH FACE

Sample Numbers Field No	Lab Seq	Lib No	Co-ordinates East	North	R.L.	Unit	ICP SiO2	ICP Al2O3	XRF Fe2O3	ICP Fe2O3	INAA Fe2O3	ICP MgO	ICP CaO	AAS Na2O	AAS K2O	XRF TiO2	ICP TiO2	GRAV LOD	GRAV LOI	Total	GRAV S.G.
RE 049	L08-021	08-045	10013.157	11238.970	442.877	U6	53.30	9.80	10.72	9.82	9.48	18.80	6.12	0.12	0.02	0.34	0.47	0.51	6.00	105.74	2.658
RE 050	L08-030	08-046	10009.642	11243.426	442.861	U6	50.47	8.85	10.01	8.86	8.66	18.90	6.24	0.31	0.02	0.29	0.42	0.23	5.50	100.82	2.759
RE 051	L08-072	08-047	10008.313	11246.579	442.637	U6	51.99	9.14	10.44	8.53	9.34	17.70	5.85	0.98	0.03	0.32	0.41	0.64	5.10	102.18	2.777
RE 052	L08-015	08-048	10010.967	11192.918	470.860	U4	55.24	12.81	11.58	11.16	9.68	14.60	0.62	0.06	0.02	0.55	0.63	9.00	17.20	121.69	2.041
RE 053	L08-026	08-049	10018.283	11192.199	470.198	U4	54.02	18.28	9.29	8.66	7.96	6.62	0.39	0.03	0.27	0.93	0.85	4.06	13.20	107.10	1.726
RE 054	L08-029	08-050	10023.884	11191.814	469.498	U4	59.29	8.06	7.29	6.53	6.32	18.60	0.26	0.03	0.01	0.38	0.38	2.42	9.10	105.44	2.259
RE 055	L08-079	08-051	10028.652	11191.767	468.805	M3	68.53	24.87	1.57	1.35	1.31	0.36	0.08	0.06	1.81	1.42	2.21	0.75	8.10	107.56	1.777
RE 056	L08-071	08-052	10036.926	11190.920	467.957	M3	66.78	21.62	1.00	0.00	0.89	0.00	0.04	0.04	0.01	0.97	0.79	0.37	8.40	99.23	1.626
RE 057	L08-047	08-053	10039.180	11190.702	467.780	M3	50.95	29.83	6.00	6.40	5.68	1.35	0.17	0.03	0.02	1.94	1.71	2.05	13.50	105.85	1.776
RE 058	L08-040	08-054	10040.405	11190.568	467.649	M3	46.31	29.71	5.00	5.26	5.12	1.63	0.20	0.04	0.02	2.03	1.73	2.91	14.80	102.65	1.804
RE 059	L08-022	08-055	10042.044	11190.565	467.289	U2	63.10	17.72	2.29	2.16	1.82	11.60	0.07	0.03	0.01	0.94	0.84	0.76	8.90	105.41	1.674
RE 060	L08-007	08-056	10045.433	11190.475	466.818	U2	60.96	10.55	6.58	6.22	5.56	19.40	0.27	0.05	0.02	0.46	0.51	2.35	9.50	110.13	1.988
RE 061	L08-010	08-057	10047.480	11190.384	466.496	U2	63.39	9.28	6.86	6.60	5.82	19.30	0.29	0.04	0.02	0.36	0.45	2.54	9.30	111.38	
RE 062	L08-038	08-058	10051.628	11190.408	466.383	U2	53.83	9.23	8.86	8.42	7.92	20.60	0.31	0.04	0.02	0.38	0.42	3.22	10.30	106.79	2.204
RE 063	L08-050	08-059	10056.169	11190.858	465.292	U2	54.71	7.43	7.86	7.21	6.85	22.60	0.24	0.03	0.01	0.34	0.34	1.70	8.80	103.72	2.138
RE 064	L08-039	08-060	10063.898	11191.521	465.270	M1	56.36	18.08	9.72	8.84	8.62	4.10	0.23	0.04	0.22	0.89	0.83	2.49	10.60	102.73	1.807
RE 065	L08-014	08-061	10068.273	11193.087	464.868	M1	61.62	19.85	9.58	9.60	8.52	4.44	0.30	0.04	0.12	0.95	0.95	2.75	11.30	110.95	1.974
RE 066	L08-062	08-062	10069.990	11194.141	464.942	S1	70.38	15.13	10.44	10.11	9.91	0.45	0.09	0.06	1.96	0.67	0.65	1.18	6.10	106.46	1.859
RE 067	L08-027	08-063	10070.758	11194.785	464.627	S1	86.26	7.69	4.58	4.54	4.22	0.10	0.04	0.04	1.57	0.44	0.40	0.33	2.42	103.47	2.232
RE 068	L08-025	08-064	10072.592	11195.869	464.618	M1	58.21	23.67	10.72	10.94	9.98	0.83	0.19	0.03	0.04	1.15	1.12	2.16	12.50	109.49	1.782
RE 069	L08-049	08-065	10074.516	11197.242	464.618	M1	57.85	19.63	10.29	10.58	9.84	0.58	0.16	0.03	0.05	1.02	0.90	1.97	11.00	102.57	1.732
RE 070	L08-061	08-066	10076.912	11199.130	464.428	M1	57.54	27.54	5.72	5.18	5.39	0.00	0.11	0.03	0.10	1.66	1.55	1.86	12.00	106.56	1.468
RE 071	L08-074	08-067	10083.199	11190.603	480.664	M1	61.72	24.24	3.86	2.53	3.45	0.63	0.21	0.02	0.03	0.73	0.65	2.93	12.40	106.77	1.882
RE 072	L08-080	08-068	10081.393	11188.976	480.663	M1	69.35	20.82	1.57	1.86	1.79	1.02	0.24	0.03	0.38	1.45	1.39	3.20	11.10	109.16	1.779
RE 073	L08-066	08-069	10079.991	11187.613	481.025	M1	60.70	18.76	5.43	3.80	4.72	0.67	0.21	0.04	0.04	0.86	0.72	3.73	12.00	102.43	1.978
RE 074	L08-018	08-070	10078.270	11186.145	481.154	M1	68.28	11.61	8.86	8.69	8.41	0.80	0.26	0.05	0.49	0.63	0.55	4.02	9.80	104.80	1.939
RE 075	L08-081	08-071	10077.379	11185.032	481.797	M1	63.40	17.22	7.58	7.19	6.95	0.78	0.29	0.04	0.10	0.84	1.31	4.40	12.70	107.35	1.870
RE 076	L08-060	08-072	10070.998	11181.625	481.222	M1	66.98	23.06	2.72	1.24	2.13	0.05	0.13	0.02	0.12	1.06	0.94	1.90	10.50	106.54	1.817
RE 077	L08-019	08-073	10062.628	11179.769	481.244	M1	62.56	21.20	5.86	5.66	5.10	0.00	0.09	0.06	0.12	1.12	1.00	1.03	10.10	102.13	1.592
RE 078	L08-008	08-074	10055.864	11179.341	481.180	U2	61.88	11.07	8.29	7.97	7.26	15.80	0.06	0.05	0.03	0.52	0.54	0.60	7.70	106.00	1.748
RE 079	L08-013	08-075	10046.566	11179.447	481.200	U2	62.93	17.95	2.86	2.83	2.26	11.40	0.34	0.03	0.08	0.71	0.76	4.76	13.90	114.96	1.968
RE 080	L08-016	08-076	10042.063	11179.814	481.135	M3	77.10	17.12	1.86	1.74	1.49	0.37	0.15	0.04	0.08	0.31	0.29	2.18	9.10	108.31	1.920
RE 081	L08-033	08-077	10037.697	11180.282	481.242	M3	56.27	26.87	1.57	1.38	1.29	0.00	0.19	0.11	0.14	1.17	1.14	1.41	12.80	100.52	1.740
RE 082	L08-009	08-078	10029.510	11180.416	481.800	M3	63.55	24.39	4.00	3.98	3.32	0.74	0.23	0.04	0.47	1.23	1.20	2.76	12.20	109.61	1.751
RE 083	L08-044	08-079	10026.691	11180.982	481.305	M3	51.50	28.38	9.15	9.47	8.32	0.50	0.17	0.04	0.05	1.29	1.22	2.33	13.70	107.11	1.720
RE 084	L08-068	08-080	10024.718	11181.203	481.498	U4	46.62	27.50	7.43	5.90	6.63	1.21	0.28	0.03	0.03	1.33	1.13	4.69	16.30	105.42	1.816
RE 085	L08-051	08-081	10021.868	11181.630	481.497	U4	51.04	25.66	8.44	7.81	7.18	0.74	0.20	0.03	0.04	1.25	1.12	3.52	14.60	105.51	1.924
RE 086	L08-508	08-478	10013.530	11183.176	482.630	U4	68.30	15.50	2.57	2.22	2.04	0.32	0.08	0.03	0.03	1.05	0.96	1.18	8.00	97.06	1.603
RE 087	L08-484	08-479	10009.540	11185.047	481.911	U6	46.50	15.40	10.44	9.50	8.84	11.30	0.61	0.04	0.02	0.48	0.70	5.80	15.50	106.09	1.955
RE 088	L08-482	08-480	10000.708	11184.820	482.656	U6	38.60	14.20	25.73	24.90	22.79	6.73	0.24	0.07	0.06	1.64	1.86	3.12	13.30	103.69	1.586
RE 089	L08-480	08-481	9997.278	11185.887	482.315	U6	32.30	18.00	31.74	31.40	30.30	0.99	0.11	0.06	0.04	1.67	2.57	1.32	12.90	99.14	1.480
RE 090	L08-498	08-482	10039.772	11180.053	482.684	S3	46.70	26.30	10.29	11.50	10.54	0.51	0.15	0.13	1.79	1.40	1.43	0.61	17.00	104.88	1.776
RE 091	L08-506	08-483	10017.149	11180.155	486.764	U6	73.70	13.10	2.29	1.86	1.86	0.67	0.25	0.08	0.10	0.58	0.61	2.65	9.20	102.61	2.056
RE 092	L08-486	08-484	10024.507	11179.606	486.426	U4	46.00	18.60	17.16	17.80	17.13	0.88	0.27	0.06	0.11	1.05	0.87	3.25	14.30	101.67	1.949

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	INAA Ag	XRF Ag	ES Ag	INAA As	P.ICP As	INAA Au	ES B	ICP Ba	INAA Ba	XRF Ba	ICP Be	XRF Bi	P.ICP Bi	INAA Br	XRF Cd	P.ICP Cd	INAA Ce	INAA Co	ICP Cr	INAA Cr	INAA Cs	ICP Cu
RE 049	5.9	2	N	0.5	<5	0.007	<10	7	81	5	0	0	<2	0.6	0	0.2	11.4	79.1	2345	2270	0.71	82
RE 050	4.9	0	N	0.5	<5	0.003	N	13	71	3	0	0	<2	0.5	0	0.1	14.2	70.5	2283	2360	0.61	91
RE 051	5.7	0	N	0.5	<5	0.003	N	10	83	6	0	0	<2	0.6	1	<.1	8.7	68.9	2074	2170	0.70	19
RE 052	6.5	0	N	1.1	<5	0.004	N	34	92	25	0	0	<2	1.4	0	0.6	64.2	90.8	3433	2980	0.79	43
RE 053	5.8	0	N	0.9	<5	0.004	<10	62	88	52	0	0	<2	0.6	0	0.7	70.9	61.6	510	489	0.73	47
RE 054	5.0	1	N	0.5	<5	0.006	N	40	73	31	0	0	<2	0.6	0	0.1	27.4	122.0	2855	2930	0.62	45
RE 055	5.7	0	N	2.8	<5	0.105	10	209	242	242	0	0	<2	0.6	2	<.1	25.0	10.7	191	158	3.64	0
RE 056	6.2	1	N	27.9	28	0.017	N	0	93	9	0	0	<2	1.4	2	<.1	3.7	9.2	1115	1110	0.73	36
RE 057	6.6	1	<.5	22.5	24	2.060	15	11	98	26	0	5	5	0.8	0	0.3	6.3	9.4	1441	1340	1.33	38
RE 058	7.7	2	0.5	19.7	18	0.689	15	10	158	25	0	8	6	1.5	0	0.3	5.9	8.7	1809	1760	0.91	17
RE 059	8.8	0	N	0.8	<5	0.009	20	1	130	14	0	0	<2	0.9	0	<.1	47.8	26.8	6406	5830	1.00	22
RE 060	6.8	0	N	3.8	<5	0.007	<10	34	96	24	0	0	<2	1.2	0	0.1	28.6	105.0	4125	3890	1.03	114
RE 061	5.8	0	N	3.9	<5	0.056	10	35	80	22	0	0	<2	0.8	0	<.1	18.6	95.0	3631	3340	0.69	212
RE 062	5.4	0	N	5.1	<5	0.004	<10	22	78	6	0	0	<2	0.6	0	<.1	14.0	107.0	3359	3330	0.66	258
RE 063	4.5	0	N	15.3	11	0.004	N	32	78	19	0	0	<2	0.6	0	<.1	15.0	143.0	3416	3580	0.56	85
RE 064	5.7	0	N	10.2	11	0.004	<10	33	86	36	0	0	<2	0.7	0	0.6	67.8	70.9	168	170	1.62	335
RE 065	6.0	0	N	7.7	5	0.011	10	68	99	67	0	0	<2	1.2	0	0.8	38.9	63.7	318	285	1.33	193
RE 066	4.8	0	N	35.4	38	0.034	15	631	646	629	0	3	<2	0.9	2	0.7	39.0	10.6	258	251	1.86	106
RE 067	3.2	1	N	30.9	33	0.225	30	381	398	422	0	1	<2	0.3	0	0.3	4.3	5.2	188	175	2.90	108
RE 068	6.6	0	N	14.0	12	0.016	10	26	95	32	0	1	<2	0.7	1	0.4	44.7	32.9	1278	1160	0.80	51
RE 069	6.8	1	0.5	22.0	24	0.016	10	56	99	67	0	0	<2	0.9	3	0.6	54.1	26.9	1031	1060	0.88	167
RE 070	8.1	2	N	6.2	6	0.005	10	0	100	26	0	1	<2	0.8	0	0.4	5.1	13.8	126	108	0.94	81
RE 071	4.4	2	N	2.9	<5	0.003	15	65	99	59	0	1	<2	0.5	0	<.1	21.4	27.5	347	325	0.63	103
RE 072	4.1	0	N	0.9	<5	0.003	50	69	62	239	0	0	<2	0.5	0	<.1	4.3	15.3	492	458	4.45	45
RE 073	5.6	0	N	5.9	5	0.012	10	11	83	29	0	0	<2	1.4	0	<.1	1.9	34.1	881	901	0.68	387
RE 074	4.8	2	N	18.2	19	0.019	20	155	249	185	0	0	<2	0.9	0	0.6	4.9	22.4	346	351	6.70	284
RE 075	4.5	0	N	4.6	5	0.016	10	58	67	61	0	1	<2	1.6	1	0.3	4.9	43.3	411	420	1.34	87
RE 076	6.2	0	N	0.5	<5	0.022	<10	7	91	21	0	0	<2	0.6	0	<.1	3.2	9.2	370	340	1.99	80
RE 077	6.9	0	N	4.5	<5	0.929	15	41	101	58	0	2	<2	1.7	2	0.3	8.5	9.3	415	382	0.82	88
RE 078	6.4	0	N	4.8	<5	0.336	10	38	89	33	0	0	<2	1.1	0	<.1	4.4	49.3	4300	4160	0.76	87
RE 079	7.4	0	N	0.9	<5	0.026	30	250	225	226	0	1	<2	1.8	0	<.1	5.4	45.5	6019	5300	0.92	131
RE 080	3.8	0	N	1.4	<5	0.062	10	107	153	122	0	0	<2	0.9	0	<.1	14.6	48.0	278	251	1.15	84
RE 081	6.2	0	N	3.9	6	0.229	10	152	188	186	0	0	<2	1.1	0	<.1	6.0	10.0	1395	1360	0.74	125
RE 082	7.4	1	N	1.9	<5	0.035	20	213	268	257	0	0	<2	0.7	0	0.1	6.4	26.4	310	263	3.02	27
RE 083	5.6	0	N	0.6	<5	0.018	15	49	82	53	0	0	<2	1.6	1	0.4	5.3	40.9	650	595	1.47	13
RE 084	6.3	2	N	0.8	<5	0.009	15	161	166	134	0	0	<2	0.6	2	0.4	9.1	49.6	741	744	0.76	16
RE 085	7.4	0	N	1.0	<5	0.016	10	54	100	52	0	0	<2	0.8	1	0.4	4.4	26.4	1191	1140	0.87	21
RE 086	5.9	-	N	0.6	<5	0.008	10	39	91	31	5	0	<2	0.7	1	<.1	79.0	8.6	170	153	0.70	60
RE 087	7.4	-	N	0.6	<5	0.004	<10	23	100	14	0	0	<2	1.3	0	0.2	39.8	96.5	4037	3946	0.86	55
RE 088	8.5	-	N	1.4	<5	0.004	<10	69	100	96	0	1	<2	2.1	0	0.8	8.0	111.8	4829	4403	3.29	308
RE 089	10.2	-	N	1.8	<5	0.005	20	1	100	35	0	2	<2	1.6	0	0.8	4.6	52.4	4639	4409	1.00	423
RE 090	8.8	-	N	9.2	8	0.018	<10	310	369	386	1	0	<2	1.7	3	0.5	64.2	7.9	301	280	1.02	174
RE 091	4.1	-	N	0.5	<5	0.026	10	134	110	130	1	0	<2	1.1	2	<.1	8.6	18.4	151	146	0.69	70
RE 092	7.4	-	N	3.0	<5	0.022	15	143	257	164	0	5	<2	0.9	0	0.8	2.0	40.2	1305	1266	1.42	153

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	XRF Cu	INAA Eu	XRF Ga	XRF Ge	INAA Hf	XRF In	INAA Ir	INAA La	AAS Li	INAA Lu	ICP Mn	XRF Mn	INAA Mo	XRF Nb	ICP Ni	XRF Ni	XRF Pb	INAA Rb	XRF Rb	INAA Sb	INAA Sc	INAA Se
RE 049	8	0.78	11	4	1.61	2	0.010	6.65	48	0.24	1177	1234	3.2	3	675	581	3	16	1	0.11	34.2	3.4
RE 050	0	0.56	9	1	1.58	4	0.008	8.19	45	0.23	1128	1278	3.0	3	417	552	0	11	1	0.10	30.1	3.0
RE 051	3	0.54	12	2	1.20	1	0.010	4.51	40	0.21	1105	1273	3.2	3	387	533	3	13	1	0.20	29.3	3.6
RE 052	48	2.70	13	0	1.67	2	0.011	36.30	51	0.46	752	699	3.9	3	665	806	3	11	1	0.16	35.1	4.0
RE 053	78	2.32	21	3	3.82	0	0.010	45.80	41	0.60	788	723	3.3	5	68	273	9	38	35	0.16	42.3	3.6
RE 054	88	0.77	9	1	1.28	0	0.009	16.00	35	0.26	820	819	3.2	2	724	881	3	14	1	0.47	32.3	3.1
RE 055	15	1.13	27	1	4.85	2	0.010	21.40	62	0.41	50	62	2.9	8	0	51	14	50	54	0.53	57.4	3.5
RE 056	35	0.25	23	1	3.43	0	0.017	1.35	52	0.31	20	36	3.1	6	0	104	2	6	0	0.16	61.4	3.7
RE 057	43	0.51	39	2	6.42	0	0.011	5.96	25	0.45	47	28	5.0	12	0	121	23	8	1	0.15	68.0	3.9
RE 058	46	0.46	40	3	6.79	0	0.013	6.06	28	0.50	36	27	5.0	13	0	136	22	9	1	0.17	85.8	4.4
RE 059	4	1.09	19	1	2.97	1	0.015	29.20	16	0.27	136	155	5.0	4	101	306	20	10	2	0.18	81.0	5.3
RE 060	47	0.75	12	1	1.60	2	0.012	19.70	30	0.21	526	537	3.9	2	581	700	5	12	0	0.13	37.8	4.1
RE 061	45	0.89	10	1	1.60	0	0.010	13.90	31	0.24	517	503	3.4	2	673	781	2	14	0	0.62	33.1	3.5
RE 062	15	0.55	12	2	1.50	5	0.009	10.20	40	0.25	569	580	3.4	1	764	919	0	15	2	0.12	38.3	3.2
RE 063	5	0.49	9	1	1.51	1	0.007	6.02	47	0.16	749	844	3.6	5	788	942	2	22	0	0.13	16.6	2.8
RE 064	120	2.08	21	2	3.66	0	0.010	39.00	36	0.56	634	671	5.0	5	126	339	7	38	18	0.13	41.2	3.4
RE 065	200	0.75	23	0	3.54	0	0.010	9.84	39	0.44	651	610	4.9	6	49	248	7	22	8	0.14	38.0	3.3
RE 066	266	1.19	23	1	3.89	0	0.009	13.80	21	0.54	87	88	2.6	9	0	71	19	50	40	0.13	25.2	3.7
RE 067	83	0.42	14	1	2.85	2	0.006	4.66	13	0.35	68	58	1.8	5	0	27	25	37	36	0.23	15.9	2.0
RE 068	322	0.96	26	1	4.36	1	0.011	7.92	32	0.51	182	146	3.4	4	21	250	14	25	2	0.81	58.6	3.7
RE 069	196	1.26	21	1	3.63	0	0.011	14.60	27	0.48	269	289	4.1	7	0	179	18	20	5	0.55	49.2	3.8
RE 070	91	0.46	30	3	2.47	2	0.014	5.88	49	0.19	138	86	5.0	1	0	164	4	9	9	0.93	82.9	4.5
RE 071	109	0.46	25	2	4.51	0	0.008	4.37	32	0.34	223	192	2.3	6	10	134	11	9	2	0.12	30.4	2.6
RE 072	19	0.30	27	0	3.30	0	0.007	4.71	24	0.28	141	58	2.2	8	0	50	13	24	53	0.25	32.3	2.5
RE 073	203	0.14	20	0	3.34	1	0.010	3.71	18	0.18	29	38	2.8	6	0	139	5	7	2	0.69	43.1	3.3
RE 074	89	0.33	15	1	2.80	3	0.008	5.15	15	0.18	36	41	5.0	5	0	105	6	33	25	0.12	24.2	2.7
RE 075	95	0.28	19	0	3.38	3	0.008	5.26	18	0.17	27	31	3.9	4	0	116	5	11	6	0.25	35.9	2.6
RE 076	46	0.19	24	1	4.00	0	0.011	2.75	21	0.15	30	34	2.8	5	0	78	3	21	8	0.13	58.6	3.6
RE 077	351	0.54	25	1	3.69	0	0.012	4.38	30	0.41	26	32	5.0	5	0	89	29	20	8	0.14	57.5	3.9
RE 078	293	0.51	11	1	1.80	0	0.011	3.25	14	0.24	175	187	3.7	4	480	598	21	11	2	0.12	35.8	3.8
RE 079	93	0.45	19	1	2.14	1	0.013	4.70	17	0.25	1064	937	4.2	4	183	360	2	11	6	0.15	63.3	4.5
RE 080	97	0.54	13	1	2.86	0	0.007	6.18	60	0.23	428	501	3.4	4	279	351	2	6	6	0.15	17.5	2.2
RE 081	91	0.32	29	2	4.57	0	0.011	2.04	52	0.40	26	14	5.0	7	0	228	3	10	9	0.17	66.8	3.5
RE 082	89	0.41	24	0	4.80	2	0.012	3.32	28	0.42	319	360	2.8	7	0	90	3	9	20	0.14	58.4	4.0
RE 083	136	0.68	28	2	4.55	0	0.009	5.93	54	0.36	94	79	3.0	10	18	315	6	14	4	0.13	50.3	3.1
RE 084	82	0.32	29	2	4.55	2	0.011	4.10	51	0.20	653	478	3.0	10	66	369	5	8	3	0.13	51.7	3.7
RE 085	129	0.32	31	1	4.36	5	0.018	3.34	51	0.22	146	91	3.3	6	100	398	6	14	2	0.14	74.3	4.2
RE 086	49	2.06	19	1	11.67	0	0.011	44.31	29	0.99	14	25	3.5	16	119	131	5	13	0	0.13	41.5	3.8
RE 087	51	1.90	18	2	2.40	2	0.013	30.40	37	0.34	387	430	4.1	4	692	774	0	11	1	0.14	49.1	4.6
RE 088	345	1.86	27	0	2.75	0	0.014	6.29	15	0.33	1102	747	4.3	2	1507	1626	4	51	26	0.15	59.9	5.0
RE 089	475	1.30	36	2	4.24	2	0.016	2.76	10	0.33	970	419	5.0	6	1116	1168	7	23	2	0.25	80.9	5.0
RE 090	159	0.67	28	1	2.87	2	0.015	19.05	36	0.34	157	144	4.1	2	63	59	14	48	48	0.18	80.4	5.0
RE 091	59	0.74	16	1	11.21	0	0.007	2.95	7	0.78	109	79	2.4	15	78	81	1	10	4	0.11	24.1	2.5
RE 092	154	0.33	26	1	4.91	0	0.012	4.09	33	0.20	75	65	3.4	5	318	341	6	34	8	0.17	52.9	4.1

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	XRF Se	INAA Sm	XRF Sn	XRF Sr	INAA Ta	AAS Te	INAA Th	AAS Tl	INAA U	ICP V	XRF V	INAA W	XRF Y	ES Y	INAA Yb	INAA Zn	XRF Zn	P.ICP Zn	ICP Zr	XRF Zr
RE 049	0	2.15	1	6	0.9	0.020	2.51	N	1.1	204	182	1.5	15	15	1.42	145	70	31	13	59
RE 050	0	1.94	3	11	0.4	0.010	2.30	N	1.0	185	160	1.1	12	10	1.36	129	65	24	49	57
RE 051	0	1.97	1	32	0.7	0.010	2.49	N	1.1	189	166	1.1	14	10	1.20	178	65	28	53	55
RE 052	1	8.60	1	35	0.8	0.010	3.05	<.05	1.2	191	176	1.5	35	30	2.83	197	125	91	52	81
RE 053	0	8.30	0	26	0.7	0.030	5.58	0.05	1.2	296	257	1.6	52	30	3.76	180	104	79	121	142
RE 054	0	3.02	1	18	0.5	0.015	2.20	0.05	1.0	162	150	1.2	13	10	1.46	250	198	150	42	55
RE 055	0	3.98	0	8	0.8	N	8.03	0.15	1.1	414	402	12.5	24	15	2.58	132	11	3	171	203
RE 056	0	0.78	1	3	0.6	0.025	5.26	<.05	1.2	370	386	13.5	14	10	1.72	123	10	3	114	144
RE 057	0	1.51	6	15	1.1	21.000	7.20	<.05	1.4	523	465	12.6	23	15	2.77	165	23	4	245	290
RE 058	0	1.46	3	17	1.8	8.000	8.73	<.05	1.8	423	391	11.5	26	15	2.89	195	20	<2	233	283
RE 059	1	4.82	0	4	0.6	0.035	4.55	<.05	1.7	311	295	1.9	11	10	1.23	218	25	<2	69	124
RE 060	0	3.07	2	18	0.6	0.025	2.76	<.05	1.2	186	169	1.5	8	<10	1.02	221	137	85	42	75
RE 061	0	2.82	0	19	0.4	0.060	2.50	<.05	1.1	183	154	2.7	12	10	1.40	203	131	80	42	67
RE 062	0	2.36	2	24	0.4	0.240	2.36	<.05	1.1	212	188	1.4	9	10	1.49	244	161	110	57	63
RE 063	0	1.56	0	16	0.3	0.015	1.91	<.05	1.1	148	128	1.5	8	<10	0.99	224	160	97	53	52
RE 064	0	7.81	0	20	0.8	0.055	5.84	0.15	1.2	256	240	22.5	34	20	3.36	284	218	180	113	133
RE 065	0	2.52	0	20	0.4	0.040	6.09	0.20	1.0	309	271	7.5	21	20	2.65	377	306	250	150	150
RE 066	1	4.10	1	14	1.2	0.170	6.42	0.25	0.9	318	284	12.2	24	15	3.02	126	55	43	161	168
RE 067	3	1.36	2	5	0.6	0.190	4.42	0.25	1.4	140	128	9.3	14	10	1.93	76	18	15	93	117
RE 068	1	2.95	1	12	0.4	0.045	7.07	0.05	1.2	448	383	1.5	18	15	3.03	208	106	87	160	166
RE 069	0	4.60	0	13	0.5	0.100	6.18	0.15	1.5	488	430	2.3	16	10	2.99	260	95	72	129	145
RE 070	0	2.01	0	8	0.4	0.100	0.82	0.05	1.4	587	509	1.5	8	N	1.31	179	29	5	73	95
RE 071	0	1.29	2	16	1.0	N	5.92	0.05	0.8	153	138	1.2	11	10	2.04	91	15	7	183	207
RE 072	0	0.92	1	8	0.4	<.005	3.29	0.40	0.8	166	401	3.3	25	<10	1.33	91	11	<2	117	204
RE 073	0	0.73	1	20	0.7	0.035	4.13	<.05	1.0	251	248	19.9	7	<10	1.01	145	61	34	104	132
RE 074	0	1.04	2	23	0.5	0.200	4.59	0.15	0.9	242	219	14.0	9	<10	1.09	96	23	10	70	112
RE 075	0	0.99	0	25	0.5	0.025	3.72	0.05	0.9	269	261	10.6	7	N	0.91	92	24	13	120	146
RE 076	0	0.74	2	9	0.7	0.060	4.95	0.10	1.1	182	173	1.5	6	N	1.21	109	7	<2	142	172
RE 077	2	2.00	0	9	0.5	0.180	8.35	0.05	1.2	393	375	8.0	12	10	2.30	150	13	11	149	178
RE 078	0	1.72	2	8	0.4	0.010	2.95	<.05	1.2	305	278	3.2	6	<10	1.26	146	44	11	60	81
RE 079	1	1.53	0	29	0.8	0.170	3.42	0.10	1.4	287	264	1.5	14	15	1.36	174	25	<2	80	116
RE 080	0	1.99	0	19	0.3	0.100	4.86	0.10	0.7	86	107	12.9	12	<10	1.22	82	23	3	76	113
RE 081	1	0.98	0	35	1.2	0.050	9.63	0.15	1.2	387	368	3.7	15	15	2.15	161	7	2	162	206
RE 082	1	1.24	3	22	0.7	0.170	7.94	0.10	1.5	517	471	6.7	16	10	2.45	159	6	<2	212	207
RE 083	0	2.23	0	16	0.9	0.025	6.79	0.05	1.1	501	415	1.6	15	10	2.02	143	36	<2	175	192
RE 084	0	1.23	0	25	0.5	0.150	4.89	0.10	1.2	331	312	1.3	12	10	1.40	117	31	<2	163	196
RE 085	0	1.18	0	17	0.8	0.050	6.15	0.05	1.3	469	435	1.3	10	10	1.47	138	7	<2	171	193
RE 086	0	9.73	2	8	1.8	N	25.71	0.15	1.5	118	143	1.8	39	30	5.61	100	10	<2	381	493
RE 087	0	7.57	0	38	1.0	0.020	4.02	N	1.4	168	191	1.3	16	10	1.73	160	89	57	75	105
RE 088	1	4.71	0	21	1.0	0.055	0.64	0.05	1.5	472	593	1.4	20	15	2.17	232	165	100	95	116
RE 089	2	3.34	0	10	0.8	0.060	0.56	<.05	2.0	610	797	2.0	15	10	2.01	166	99	73	135	155
RE 090	3	2.60	2	38	0.8	0.170	1.39	0.25	1.6	442	526	29.9	21	20	2.25	128	13	5	61	98
RE 091	0	2.49	0	32	1.6	N	21.20	0.30	1.2	49	58	1.2	25	20	4.34	65	1	<2	357	432
RE 092	1	1.09	0	30	1.0	0.170	15.50	0.10	1.3	569	644	4.9	8	10	1.18	103	10	7	160	199

REEDY MINE- RAND PIT - SOUTH FACE

Sample Numbers			Co-ordinates				ICP	ICP	XRF	ICP	INAA	ICP	ICP	AAS	AAS	XRF	ICP	GRAV	GRAV		GRAV
Field No	Lab Seq	Lib No	East	North	R.L.	Unit	SiO2	Al2O3	Fe2O3	Fe2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	TiO2	LOD	LOI	Total	S.G.
RE 093	L08-495	08- 485	10027.425	11179.004	486.999	U4	49.50	16.60	11.29	11.70	12.22	1.39	0.34	0.06	0.11	0.85	0.65	4.19	15.50	99.82	1.822
RE 094	L08-485	08-486	10029.670	11179.173	486.107	M3	47.30	23.70	15.87	15.60	14.64	0.45	0.18	0.05	0.09	1.00	0.91	1.89	12.80	103.33	1.918
RE 095	L08-505	08-487	10031.500	11178.954	486.067	M3	58.80	22.90	3.86	3.42	3.12	0.73	0.20	0.07	0.82	1.02	0.95	2.11	19.30	109.81	1.944
RE 096	L08-502	08-488	10040.190	11177.767	486.871	M3	68.10	14.10	2.86	2.10	2.03	0.85	0.25	0.06	0.08	0.79	0.54	2.36	9.90	99.33	2.249
RE 097	L08-492	08-489	10041.937	11178.203	485.749	U2	51.30	17.00	12.44	12.80	12.85	1.19	0.22	0.05	0.16	0.88	0.76	2.51	13.00	98.75	2.340
RE 098	L08-500	08-490	10045.296	11177.360	487.048	U2	66.00	16.40	3.15	2.51	2.40	1.25	0.27	0.05	0.14	0.41	0.33	2.80	11.50	101.96	1.939
RE 099	L08-494	08-491	10049.517	11177.279	486.646	U2	58.30	14.00	2.72	2.06	2.02	9.72	0.17	0.07	0.10	0.63	0.54	1.21	9.60	96.52	1.733
RE 100	L08-478	08-492	10056.121	11176.936	487.292	U2	60.70	15.20	4.43	3.93	3.42	9.27	0.12	0.05	0.07	0.57	0.66	0.78	8.90	100.09	1.768
RE 101	L08-489	08-493	10063.104	11177.774	486.689	M1	64.30	21.60	0.86	0.64	0.65	0.32	0.12	0.03	0.04	0.94	0.92	1.42	10.60	100.23	2.042
RE 102	L08-481	08-494	10072.142	11180.097	485.376	M1	57.40	25.00	4.15	3.74	3.48	0.54	0.17	0.02	0.02	1.06	0.95	2.12	12.50	102.98	1.969
RE 103	L08-488	08-495	10077.786	11184.246	485.473	M1	60.00	17.80	6.43	5.62	5.76	0.78	0.30	0.05	0.14	0.93	0.80	4.34	13.40	104.18	1.716
RE 104	L08-503	08-496	10078.679	11185.134	484.706	M1	60.50	17.10	6.00	5.00	5.04	0.78	0.25	0.04	0.26	0.88	0.72	2.87	11.80	100.47	1.996
RE 105	L08-497	08-497	10082.196	11187.955	484.964	M1	58.80	22.00	4.72	4.74	4.56	0.49	0.13	0.02	0.03	1.07	0.88	1.64	11.40	100.31	2.195
RE 106	L08-490	08-498	10084.151	11189.455	484.979	M1	60.90	19.40	3.00	2.58	2.38	1.05	0.26	0.03	0.41	0.93	0.78	3.08	11.70	100.77	2.078
RE 107	L08-496	08-499	10085.779	11190.704	484.993	M1	55.60	25.40	3.43	3.05	2.91	0.34	0.11	0.02	0.02	1.54	1.33	1.37	11.80	99.63	2.039
RE 108	L08-487	08-500	10004.738	11181.711	485.922	U6	47.40	12.20	13.58	12.60	12.11	10.50	0.44	0.09	0.07	0.82	1.02	5.10	14.20	104.40	1.751
RE 109	L08-491	08-501	10000.910	11182.203	485.843	U6	44.50	16.00	15.87	15.20	15.13	3.63	0.31	0.06	0.05	1.61	2.12	4.65	14.70	101.38	2.031
RE 110	L08-499	08-502	10082.741	11401.011	430.998	B0	59.60	15.60	7.72	6.90	6.54	3.56	0.25	0.08	3.41	0.79	0.72	1.66	8.50	101.17	2.492
RE 111	L08-483	08-503	10084.277	11591.073	448.008	B0	68.20	11.90	6.00	5.69	5.35	4.37	0.16	0.10	1.92	0.42	0.46	1.18	6.30	100.56	2.321
RE 112	L08-501	08-504	10088.109	11608.836	468.988	B0	75.30	13.40	3.15	2.94	2.72	0.54	0.07	0.10	2.94	0.56	0.54	0.74	4.50	101.30	2.101
RE 113	L08-504	08-505	10091.533	11624.206	481.716	B0	71.30	12.60	5.43	5.16	5.01	0.41	0.05	0.08	2.53	0.59	0.57	0.35	3.88	97.22	2.067

STANDARDS

Sample Numbers			Co-ordinates				ICP	ICP	XRF	ICP	INAA	ICP	ICP	AAS	AAS	XRF	ICP	GRAV	GRAV		GRAV
Field No	Lab Seq	Lib No	East	North	R.L.	Unit	SiO2	Al2O3	Fe2O3	Fe2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	TiO2	LOD	LOI	Total	S.G.
STD 3	L08-479	08-506	-	-	-	-	64.70	11.30	14.30	15.10	13.50	0.32	0.03	0.33	1.45	0.46	0.39	0.45	5.30	98.64	-
STD 3	L08-041	08-082	-	-	-	-	-	-	-	-	13.94	-	-	0.33	1.49	-	-	0.22	5.10	7.14	-
Mean	-	-	-	-	-	-	64.70	11.30	14.30	15.10	13.72	0.32	0.03	0.33	1.47	0.46	0.39	0.34	5.20	91.11	-
Pre.Val	-	-	-	-	-	-	66.06	11.53	15.05	15.05	15.05	0.25	0.02	0.33	1.48	0.46	0.46	0.25	5.10	100.53	-

Sample Numbers			Co-ordinates				ICP	ICP	XRF	ICP	INAA	ICP	ICP	AAS	AAS	XRF	ICP	GRAV	GRAV		GRAV
Field No	Lab Seq	Lib No	East	North	R.L.	Unit	SiO2	Al2O3	Fe2O3	Fe2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	TiO2	LOD	LOI	Total	S.G.
STD 6	L08-493	08-507	-	-	-	-	69.50	17.50	0.57	0.38	0.39	0.32	0.03	0.40	3.51	0.36	0.40	0.34	4.13	96.66	-
STD 6	L08-046	08-083	-	-	-	-	-	-	-	-	0.38	-	-	0.40	3.59	-	-	0.25	4.06	8.30	-
Mean	-	-	-	-	-	-	69.50	17.50	0.57	0.38	0.38	0.32	0.03	0.40	3.55	0.36	0.40	0.30	4.10	96.62	-
Pre.Val	-	-	-	-	-	-	73.08	18.43	0.43	0.43	0.43	0.26	0.01	0.40	3.54	0.37	0.37	0.25	4.03	100.80	-

Sample Numbers			Co-ordinates				ICP	ICP	XRF	ICP	INAA	ICP	ICP	AAS	AAS	XRF	ICP	GRAV	GRAV		GRAV
Field No	Lab Seq	Lib No	East	North	R.L.	Unit	SiO2	Al2O3	Fe2O3	Fe2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	TiO2	LOD	LOI	Total	S.G.
STD 8	L08-507	08-508	-	-	-	-	43.50	20.70	16.73	17.00	16.28	1.03	0.28	1.74	4.81	0.53	0.48	0.84	7.80	97.96	-
Pre.Val	-	-	-	-	-	-	44.57	21.49	17.52	17.52	17.52	0.94	0.20	1.72	4.83	0.53	0.53	0.04	7.20	99.04	-

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	INAA Ag	XRF Ag	ES Ag	INAA As	P.ICP As	INAA Au	ES B	ICP Ba	INAA Ba	XRF Ba	ICP Be	XRF Bi	P.ICP Bi	INAA Br	XRF Cd	P.ICP Cd	INAA Ce	INAA Co	ICP Cr	INAA Cr	INAA Cs	ICP Cu
RE 093	5.7	-	N	2.0	<5	0.044	15	414	400	308	1	0	<2	1.4	1	0.6	30.6	70.0	766	794	0.82	115
RE 094	7.0	-	N	0.8	<5	0.008	10	66	97	79	0	0	<2	0.6	0	0.8	5.4	23.4	1038	987	1.67	129
RE 095	6.2	-	N	1.7	<5	0.022	15	194	186	222	1	1	<2	0.7	0	0.1	4.8	9.4	393	363	4.73	75
RE 096	5.3	-	N	2.5	<5	0.121	15	58	85	56	0	0	<2	2.6	1	<.1	8.2	24.2	829	852	0.81	46
RE 097	7.3	-	N	57.6	50	0.040	10	1325	1383	1175	0	0	<2	2.1	0	0.6	8.9	57.9	1093	1098	1.13	172
RE 098	4.3	-	N	2.2	<5	0.021	15	562	616	556	0	0	<2	1.5	1	<.1	23.4	23.8	625	621	0.51	52
RE 099	6.8	-	N	0.6	<5	0.032	20	194	155	205	0	0	<2	0.7	0	<.1	9.6	31.9	4235	4291	0.78	56
RE 100	7.5	-	N	5.2	<5	0.034	10	108	100	120	0	0	<2	1.2	1	<.1	9.3	29.0	3306	3019	0.86	117
RE 101	6.1	-	N	0.7	<5	0.058	10	157	192	156	1	0	<2	0.6	0	<.1	5.1	8.0	971	964	0.86	43
RE 102	6.7	-	N	2.0	<5	0.006	10	208	256	190	0	0	<2	0.9	0	<.1	118.2	27.8	559	518	0.77	68
RE 103	5.5	-	N	0.7	<5	0.039	20	199	228	203	0	0	<2	1.4	0	0.2	6.2	32.4	533	543	1.98	65
RE 104	5.4	-	N	3.8	<5	0.019	20	83	117	96	0	0	<2	0.9	2	<.1	4.3	16.5	550	561	4.36	73
RE 105	7.0	-	N	7.6	6	0.015	10	29	99	36	0	0	<2	1.3	0	<.1	6.0	13.3	1217	1189	1.45	87
RE 106	5.5	-	N	2.8	<5	0.016	50	233	266	241	0	2	<2	0.5	1	<.1	45.6	28.3	546	554	6.76	69
RE 107	7.4	-	N	5.4	<5	0.005	15	26	104	26	0	1	<2	0.7	0	0.1	7.1	10.8	466	457	0.84	67
RE 108	6.4	-	N	0.5	<5	0.011	10	19	89	13	0	0	<2	3.5	0	0.2	7.3	117.2	4159	4140	0.91	588
RE 109	7.5	-	N	1.4	<5	0.016	10	30	100	42	0	0	<2	2.5	0	0.5	2.7	54.4	3644	3611	0.87	132
RE 110	4.9	-	0.5	4.1	<5	0.170	50	1016	1158	1092	0	1	<2	0.5	3	0.3	42.3	17.1	394	383	4.12	231
RE 111	4.7	-	N	5.3	<5	0.038	10	307	344	347	0	1	<2	0.7	3	0.1	84.2	15.9	187	175	2.76	115
RE 112	4.5	-	0.7	11.0	9	0.244	30	473	522	513	0	0	<2	1.6	0	<.1	9.3	5.6	792	763	3.02	69
RE 113	4.9	-	N	9.3	9	0.017	15	432	478	471	0	1	<2	1.3	0	<.1	4.1	10.0	315	315	1.13	173

STANDARDS

Sample Field No	INAA Ag	XRF Ag	ES Ag	INAA As	P.ICP As	INAA Au	ES B	ICP Ba	INAA Ba	XRF Ba	ICP Be	XRF Bi	P.ICP Bi	INAA Br	XRF Cd	P.ICP Cd	INAA Ce	INAA Co	ICP Cr	INAA Cr	INAA Cs	ICP Cu
STD 3	6.9	-		1441.0	-	2.121	100	300	317	-	0	0	<2	10.4	4	1.0	15.1	40.6	2350	2140	0.94	154
STD 3	6.6	-		1480.0	-	2.140			432	-	-	-	-	9.2	-		16.6	42.7	-	2260	0.79	-
Mean	6.8	-		1460.5	-	2.130	100	300	375	-	0	0	<2	9.8	4	1.0	15.9	41.6	2350	2200	0.87	154
Pre.Val	0.0	0	0.0	1514.0	1514	2.188	-	344	344	344	-	1	1	10.0	1	1.3	19.0	42.0	2283	2283	1.40	168

Sample Field No	INAA Ag	XRF Ag	ES Ag	INAA As	P.ICP As	INAA Au	ES B	ICP Ba	INAA Ba	XRF Ba	ICP Be	XRF Bi	P.ICP Bi	INAA Br	XRF Cd	P.ICP Cd	INAA Ce	INAA Co	ICP Cr	INAA Cr	INAA Cs	ICP Cu
STD 6	3.6	-		2.2		0.082	70	305	287	-	0	0	<2	5.1	0	<0.1	31.3	1.1	120	121	7.51	18
STD 6	2.9	-		2.1		0.082	-	-	341	-	-	-	-	4.4	-	-	29.3	0.4	-	121	7.15	-
Mean	3.3	-		2.2		0.082	70	305	314	-	0	0	<2	4.8	0	<0.1	30.3	0.7	120	121	7.33	18
Pre.Val	0.8	1	0.8	2.0	2	0.087	-	324	324	324	1	0	0	4.6	0	0.4	31.0	<1	120	120	7.70	2

Sample Field No	INAA Ag	XRF Ag	ES Ag	INAA As	P.ICP As	INAA Au	ES B	ICP Ba	INAA Ba	XRF Ba	ICP Be	XRF Bi	P.ICP Bi	INAA Br	XRF Cd	P.ICP Cd	INAA Ce	INAA Co	ICP Cr	INAA Cr	INAA Cs	ICP Cu
STD 8	5.0			1104.1		5.426	70	3054	3461		1	52	47	12.1	0	0.7	105.3	173.8	150	134	8.61	186
Pre.Val	0.9	1	0.9	1108.0	-	5.499	-	3400	3400	3400	0	47	-	11.0	1	-	116.0	172.0	138	138	9.60	208

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	XRF Cu	INAA Eu	XRF Ga	XRF Ge	INAA Hf	XRF In	INAA Ir	INAA La	AAS Li	INAA Lu	ICP Mn	XRF Mn	INAA Mo	XRF Nb	ICP Ni	XRF Ni	XRF Pb	INAA Rb	XRF Rb	INAA Sb	INAA Sc	INAA Se
RE 093	104	0.63	19	0	3.04	0	0.010	10.05	28	0.27	105	99	2.9	4	206	248	7	23	7	0.29	34.8	3.3
RE 094	123	0.60	22	0	4.04	0	0.012	5.94	32	0.32	73	60	3.2	6	187	206	4	23	6	0.13	50.1	4.0
RE 095	61	0.19	25	1	4.02	0	0.011	2.76	27	0.19	31	22	3.0	8	68	69	0	35	38	0.13	52.6	3.5
RE 096	38	0.21	17	1	2.18	0	0.009	2.38	32	0.20	108	119	3.2	5	140	173	0	13	3	0.23	39.5	3.1
RE 097	199	0.44	26	1	3.39	0	0.012	7.49	20	0.23	78	77	3.5	6	135	155	4	22	10	0.27	58.2	4.2
RE 098	48	0.23	19	1	2.34	0	0.008	5.17	18	0.13	94	88	2.3	4	87	98	1	6	8	0.21	26.0	2.6
RE 099	55	0.24	17	2	1.91	0	0.012	3.27	12	0.18	304	334	3.8	4	261	296	3	8	5	0.13	59.4	4.1
RE 100	136	0.41	19	1	2.23	0	0.013	4.70	12	0.21	113	122	3.6	2	312	338	8	8	4	0.14	65.7	4.4
RE 101	39	0.36	23	1	4.71	1	0.010	3.17	23	0.27	25	17	2.9	9	94	107	4	7	2	0.12	55.5	3.5
RE 102	78	0.91	29	1	4.32	0	0.011	4.18	21	0.45	799	646	3.1	6	94	99	18	7	2	0.26	57.5	3.9
RE 103	62	0.18	20	1	3.97	0	0.009	6.79	41	0.18	49	47	2.6	8	119	130	5	17	11	0.13	40.7	3.2
RE 104	72	0.26	21	2	3.14	0	0.009	5.08	20	0.17	33	35	2.8	5	94	108	3	19	16	0.14	37.9	3.2
RE 105	82	0.16	23	2	3.62	0	0.012	2.73	30	0.18	30	28	3.3	6	104	122	6	8	2	0.66	62.8	4.0
RE 106	83	0.42	25	1	3.63	0	0.010	6.75	19	0.31	682	607	2.7	5	71	76	5	30	29	0.28	43.3	3.2
RE 107	62	0.26	29	2	2.93	0	0.012	3.01	34	0.15	61	53	3.3	4	100	110	7	11	0	0.61	71.0	4.1
RE 108	144	1.31	18	0	1.34	1	0.011	8.03	15	0.25	325	275	3.7	0	1411	1618	0	28	23	0.12	35.4	4.0
RE 109	130	0.41	30	2	3.99	3	0.012	3.06	10	0.14	500	251	3.9	4	496	614	4	28	3	0.26	59.9	4.4
RE 110	304	0.89	24	1	3.37	2	0.009	25.10	41	0.30	565	588	2.8	8	99	99	9	70	77	0.13	26.3	3.1
RE 111	123	2.43	20	0	8.59	0	0.010	74.85	33	1.40	203	205	3.2	12	207	181	4	45	50	0.13	16.9	3.7
RE 112	64	0.32	17	0	2.51	0	0.008	2.93	14	0.21	48	47	3.0	8	39	40	17	72	83	0.17	27.9	2.8
RE 113	194	0.40	24	0	3.45	0	0.013	2.80	9	0.27	29	17	2.6	13	77	78	3	61	60	0.13	32.3	2.9

STANDARDS

Sample Field No	XRF Cu	INAA Eu	XRF Ga	XRF Ge	INAA Hf	XRF In	INAA Ir	INAA La	AAS Li	INAA Lu	ICP Mn	XRF Mn	INAA Mo	XRF Nb	ICP Ni	XRF Ni	XRF Pb	INAA Rb	XRF Rb	INAA Sb	INAA Sc	INAA Se
STD 3	166	1.00	14	0	0.66	1	0.013	6.30	7	0.23	417	406	5.0	0	561	499	81	54	44	10.10	40.8	5.0
STD 3	-	1.09	-	-	0.53	-	0.012	6.62	9	0.27	-	-	5.0	-	-	-	-	50	-	9.46	43.1	4.4
Mean	166	1.05	14	0	0.60	1	0.013	6.46	8	0.25	417	406	5.0	0	561	499	81	52	44	9.78	42.0	4.7
Pre.Val	168	1.10	14	-	<1	0	<0.020	6.40	8	0.31	402	402	<5	1	503	503	84	46	46	10.10	43.0	-

Sample Field No	XRF Cu	INAA Eu	XRF Ga	XRF Ge	INAA Hf	XRF In	INAA Ir	INAA La	AAS Li	INAA Lu	ICP Mn	XRF Mn	INAA Mo	XRF Nb	ICP Ni	XRF Ni	XRF Pb	INAA Rb	XRF Rb	INAA Sb	INAA Sc	INAA Se
STD 6	5	0.47	22	5	2.59	0	0.007	22.50	13	0.12	15	3	2.2	3	12	8	9	94	109	13.27	14.4	2.7
STD 6	-	0.58	-	-	2.71	-	0.006	22.10	11	0.15	-	-	2.1	-	-	-	-	91	-	13.00	14.2	2.1
Mean	5	0.53	22	5	2.65	0	0.007	22.30	12	0.14	15	3	2.2	3	12	8	9	93	109	13.14	14.3	2.4
Pre.Val	2	0.45	22	5	2.60	0	<0.020	21.00	11	<0.2	8	8	3.0	3	8	8	9	94	94	13.00	13.8	<5

Sample Field No	XRF Cu	INAA Eu	XRF Ga	XRF Ge	INAA Hf	XRF In	INAA Ir	INAA La	AAS Li	INAA Lu	ICP Mn	XRF Mn	INAA Mo	XRF Nb	ICP Ni	XRF Ni	XRF Pb	INAA Rb	XRF Rb	INAA Sb	INAA Sc	INAA Se
STD 8	207	2.21	31	1	3.29	0	0.012	46.68	16	0.18	347	344	5.0	7	104	92	13	139	127	8.21	10.2	4.8
Pre.Val	208	2.20	30	2	3.30	0	<0.020	46.00	21	0.27	339	339	<5	6	94	94	14	129	129	8.10	10.2	<5

REEDY MINE- RAND PIT - SOUTH FACE

Sample Field No	XRF Se	INAA Sm	XRF Sn	XRF Sr	INAA Ta	AAS Te	INAA Th	AAS Tl	INAA U	ICP V	XRF V	INAA W	XRF Y	ES Y	INAA Yb	INAA Zn	XRF Zn	P.ICP Zn	ICP Zr	XRF Zr
RE 093	0	2.63	0	40	0.5	0.055	5.99	0.15	1.1	300	320	1.1	14	15	1.67	72	20	<2	88	131
RE 094	1	2.03	0	20	0.8	0.055	9.28	0.10	1.2	366	418	1.3	12	10	2.05	122	36	17	109	154
RE 095	0	0.72	0	25	0.5	0.170	5.81	0.25	1.2	261	350	9.6	10	<10	1.34	82	4	<2	125	167
RE 096	0	0.66	2	30	0.7	0.130	3.40	0.10	1.0	172	285	14.9	7	<10	1.07	78	6	<2	70	106
RE 097	1	1.49	0	53	0.5	0.170	7.68	0.15	1.3	433	533	11.9	10	10	1.52	105	9	<2	95	134
RE 098	0	0.86	0	42	0.6	0.140	4.08	0.15	1.2	105	154	11.0	7	<10	0.76	66	9	2	74	107
RE 099	1	0.94	0	30	0.7	0.120	2.95	0.15	1.3	210	286	1.7	7	<10	1.08	131	37	3	54	86
RE 100	0	1.37	1	19	0.4	0.090	6.06	0.05	2.0	265	304	3.2	10	10	1.58	129	29	5	91	128
RE 101	0	1.13	2	16	0.9	0.015	7.57	0.25	1.1	203	282	4.8	12	<10	1.71	100	3	<2	158	223
RE 102	0	2.84	0	13	1.0	0.090	11.03	0.10	1.1	179	204	9.1	17	10	2.65	105	10	4	141	199
RE 103	0	1.07	0	40	0.4	0.060	4.95	0.10	1.0	109	128	4.5	8	<10	1.16	100	25	8	115	162
RE 104	0	1.00	0	22	0.6	0.140	4.56	0.15	1.0	180	241	10.4	7	<10	1.14	96	20	6	106	154
RE 105	2	0.71	2	11	0.4	0.090	6.49	0.10	1.3	258	305	5.2	6	<10	1.06	105	13	3	113	155
RE 106	0	1.61	2	25	0.4	0.150	3.05	0.40	1.0	113	148	7.4	11	<10	1.68	93	14	<2	102	159
RE 107	1	0.78	3	10	0.4	0.110	2.72	0.10	1.3	288	373	1.9	5	<10	1.13	124	19	<2	75	123
RE 108	2	3.62	4	35	0.9	0.045	0.29	0.05	1.2	269	315	1.1	13	10	1.36	176	133	77	48	65
RE 109	1	1.30	0	24	0.9	0.055	0.92	0.05	1.5	397	494	1.4	7	<10	0.97	170	60	17	108	142
RE 110	0	4.39	4	24	0.8	0.170	6.42	0.15	1.0	173	204	6.3	14	15	1.78	181	127	95	110	149
RE 111	0	13.33	2	18	2.6	0.110	12.46	0.20	1.1	89	106	4.5	77	50	7.30	184	133	110	274	339
RE 112	4	0.92	6	10	0.6	0.060	5.61	0.70	0.9	133	168	11.1	7	<10	1.02	74	11	<2	86	117
RE 113	4	1.24	2	12	0.9	0.180	8.37	0.35	1.3	139	164	3.5	10	10	1.62	74	9	4	121	153

STANDARDS

Sample Field No	XRF Se	INAA Sm	XRF Sn	XRF Sr	INAA Ta	AAS Te	INAA Th	AAS Tl	INAA U	ICP V	XRF V	INAA W	XRF Y	ES Y	INAA Yb	INAA Zn	XRF Zn	P.ICP Zn	ICP Zr	XRF Zr
STD 3	0	2.10	0	28	0.5	0.000	0.38	0.00	2.0	221	278	15.8	15	15	1.30	268	177	180	12	31
STD 3	-	2.17	-	-	0.4	-	0.34	-	2.0	-	-	18.3	-	-	1.49	315	-	-	-	-
Mean	0	2.14	0	28	0.5	0.000	0.36	0.00	2.0	221	278	17.1	15	15	1.40	292	177	180	12	31
Pre.Val	-	2.30	1	28	<0.5	-	0.72	-	<2	276	276	17.0	14	14	1.30	176	176	-	31	31

Sample Field No	XRF Se	INAA Sm	XRF Sn	XRF Sr	INAA Ta	AAS Te	INAA Th	AAS Tl	INAA U	ICP V	XRF V	INAA W	XRF Y	ES Y	INAA Yb	INAA Zn	XRF Zn	P.ICP Zn	ICP Zr	XRF Zr
STD 6	0	2.23	0	67	0.5	0.000	4.50	0.00	1.2	69	107	6.5	8	<10	0.74	71	5	<2	77	121
STD 6	-	2.19	-	-	0.5	-	4.44	-	1.2	-	-	5.2	-	-	0.69	66	-	-	-	-
Mean	0	2.21	0	67	0.5	0.000	4.47	0.00	1.2	69	107	5.9	8	<10	0.72	69	5	<2	77	121
Pre.Val	<5	2.30	1	69	0.4	-	4.50	-	<2	103	103	5.7	8	8	0.82	3	3	-	117	117

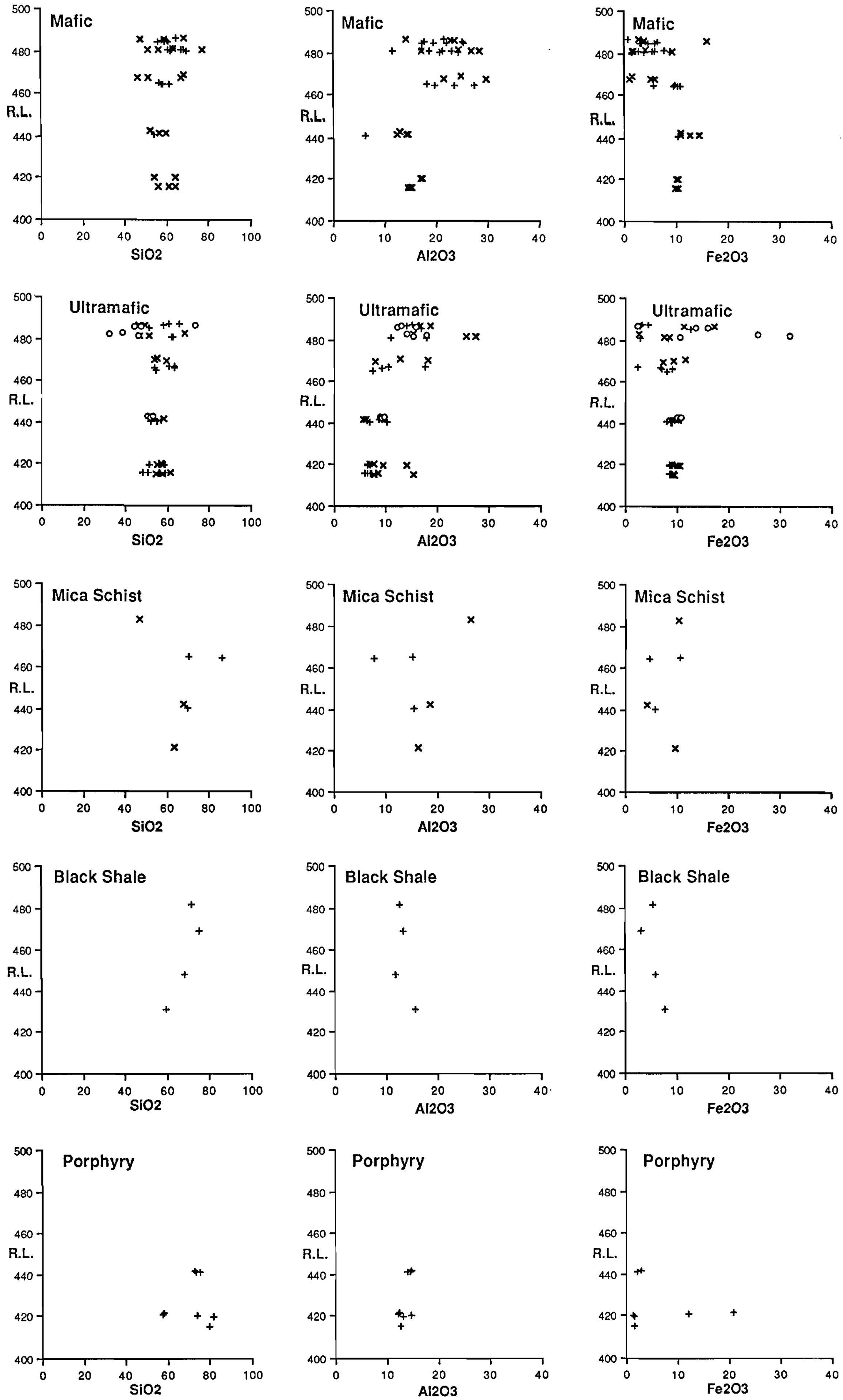
Sample Field No	XRF Se	INAA Sm	XRF Sn	XRF Sr	INAA Ta	AAS Te	INAA Th	AAS Tl	INAA U	ICP V	XRF V	INAA W	XRF Y	ES Y	INAA Yb	INAA Zn	XRF Zn	P.ICP Zn	ICP Zr	XRF Zr
STD 8	0	8.12	0	101	0.8	0.000	6.41	0.00	2.0	123	115	34.7	15	15	1.01	125	97	70	150	158
Pre.Val	<5	8.60	2	102	<1	-	7.10	-	<2	117	117	32.6	16	16	1.30	97	97	-	158	158

APPENDIX 2

Graphed Geochemistry

Showing Rock Types

(Si, Al, Fe, Mg, Ca, Na, K, Ti as
wt. oxide %. LOI as wt. %.
Remainder as ppm except Au and Ir in ppb)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Black Shale
Porphyry
R.L.
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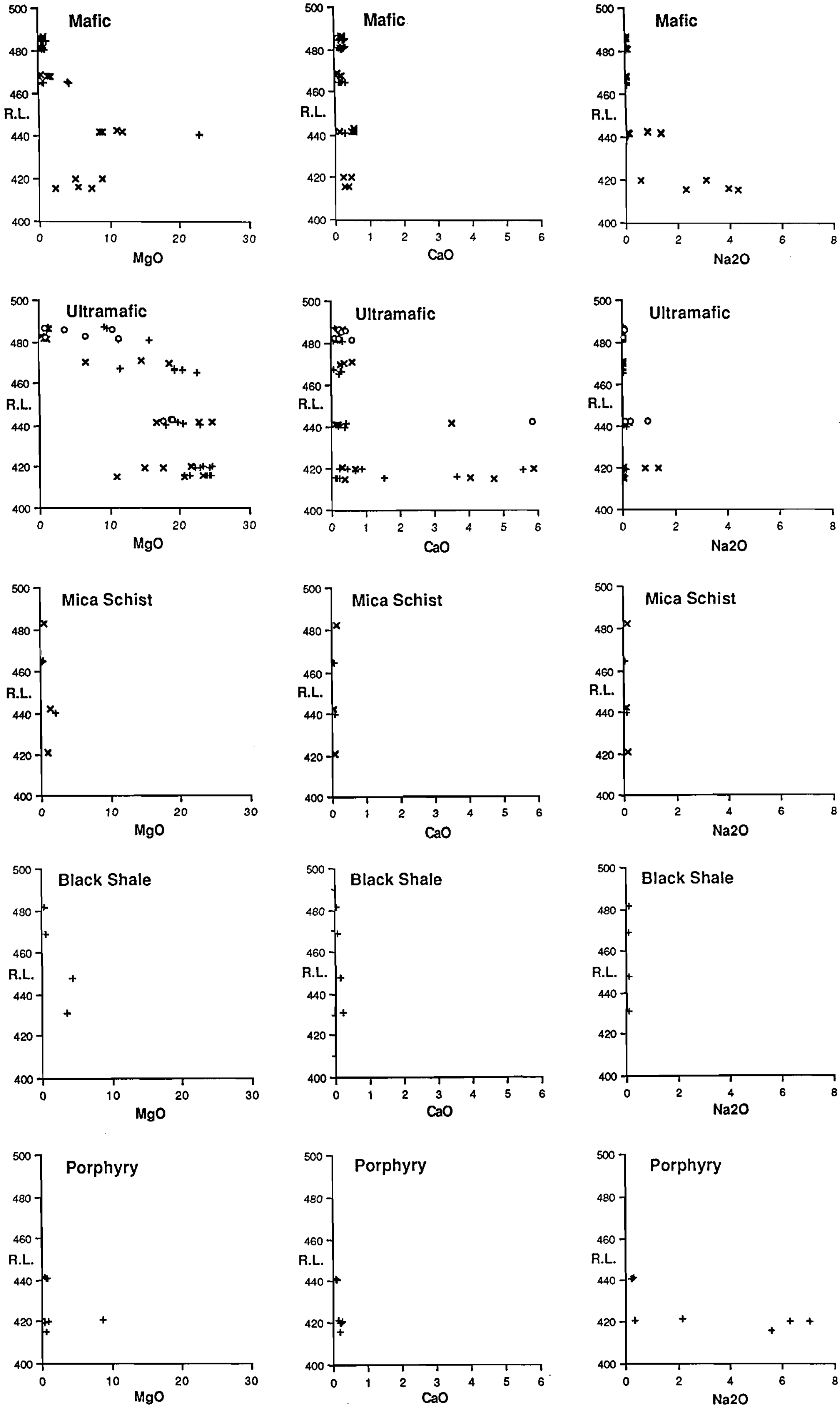
Al2O3
Fe2O3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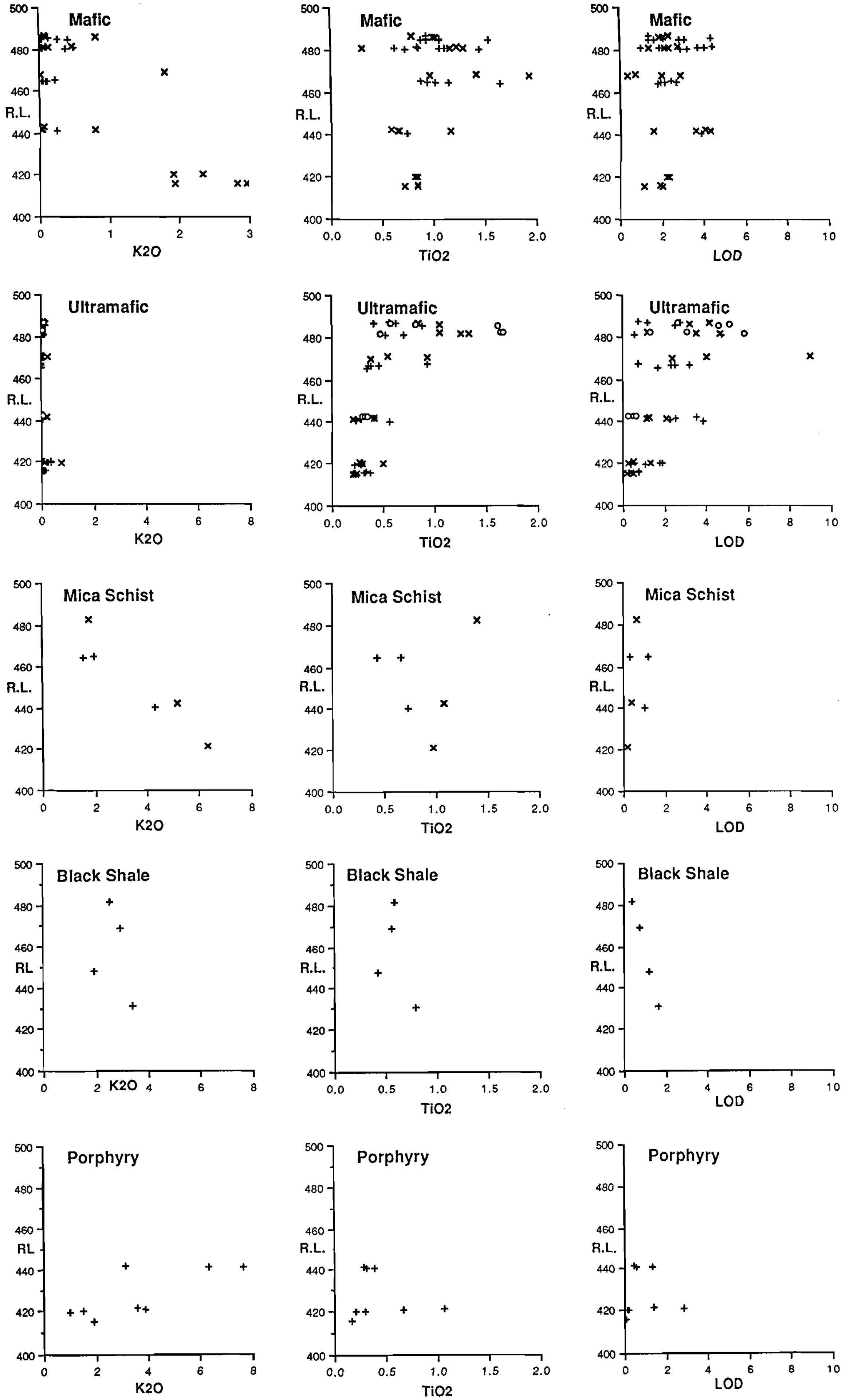
Na2O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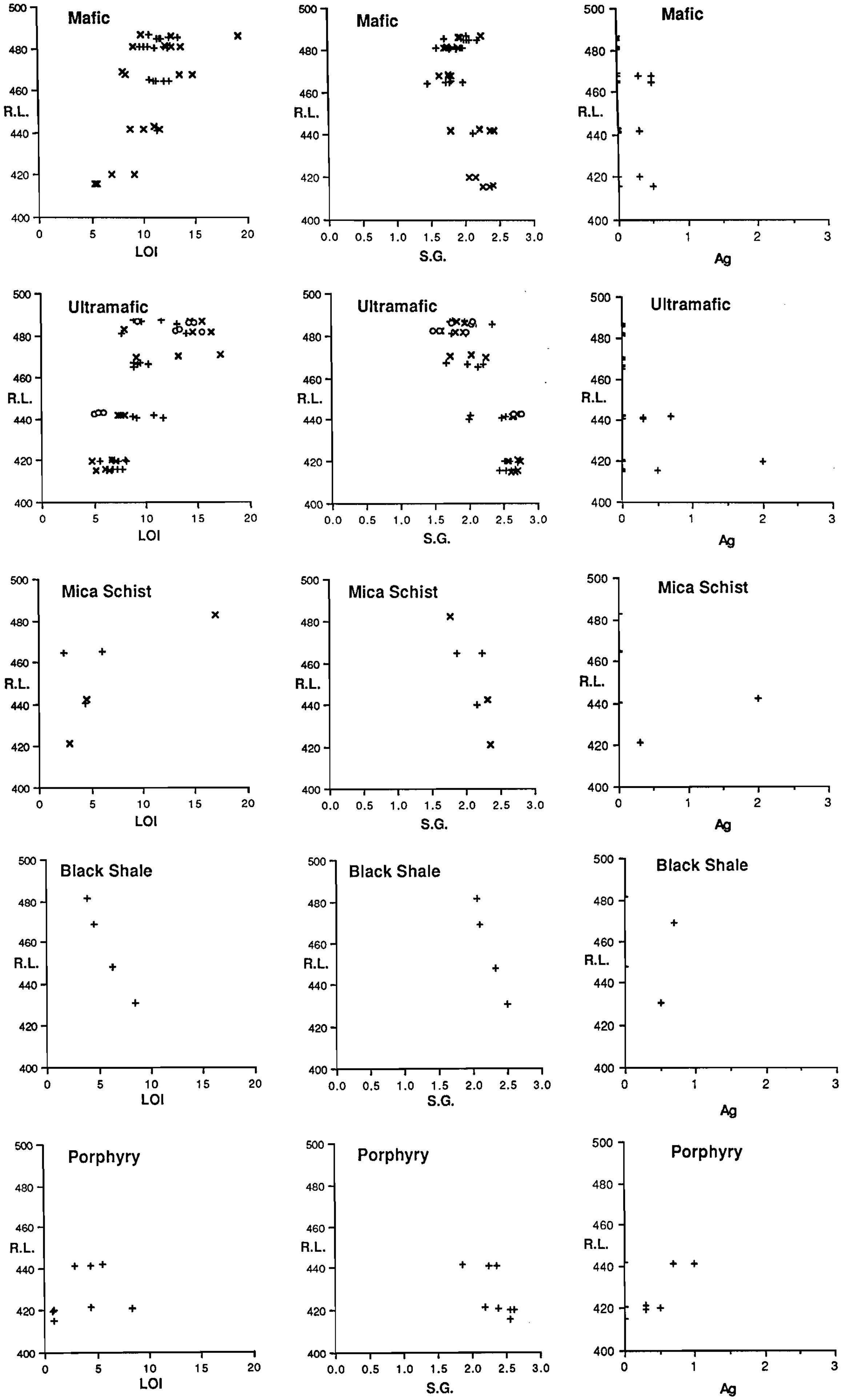
R.L.
RL
K2O
TiO2
LOD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Ultramafic
Mica Schist
Black Shale
Porphyry
R.L.
LOI
S.G.
Ag
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420
440
460
480
500
0
5
10
15
20
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1.5
2.0
2.5
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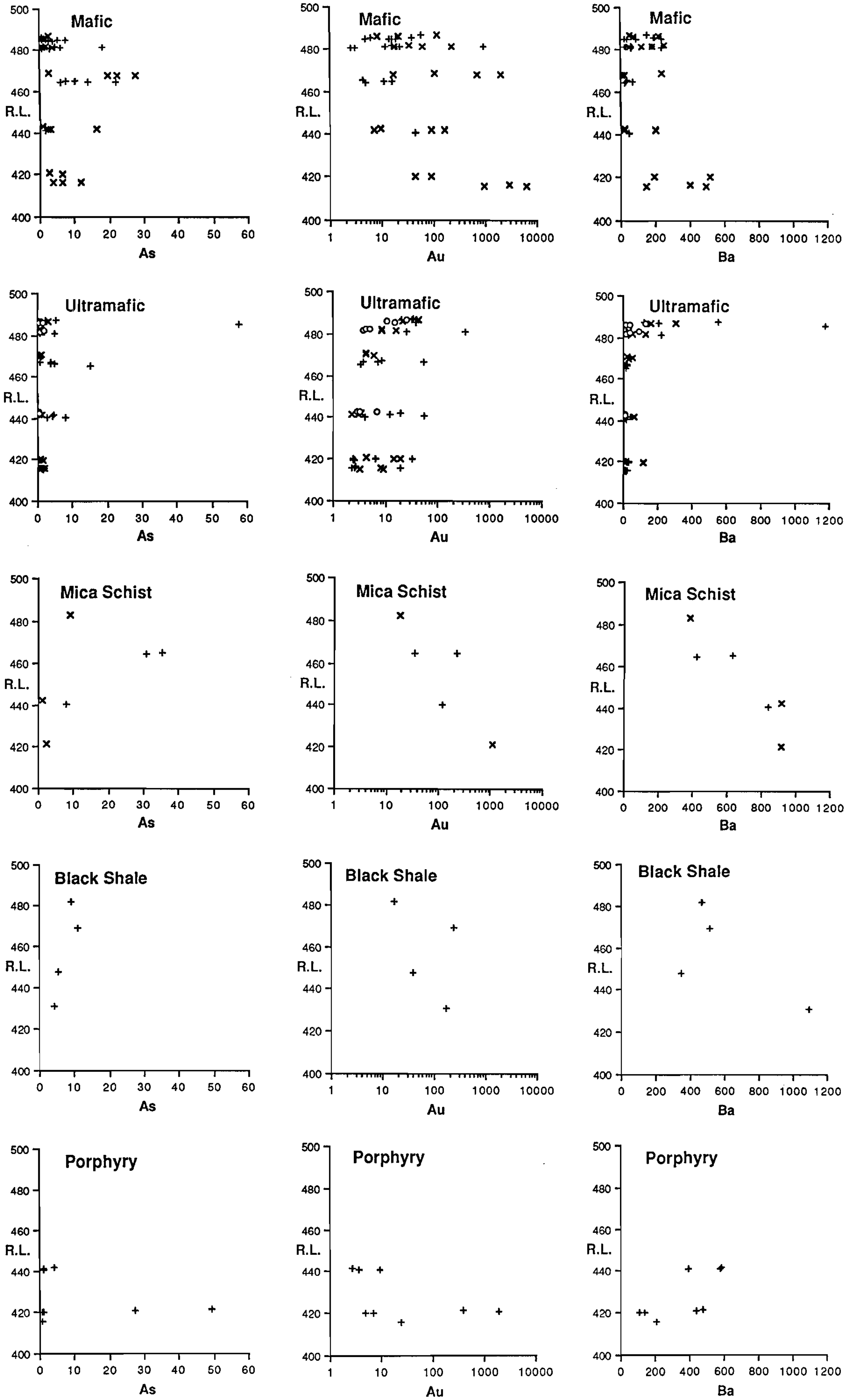
1
2
3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Ultramafic
Mica Schist
Black Shale
Porphyry
R.L.
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420
440
460
480
500
As
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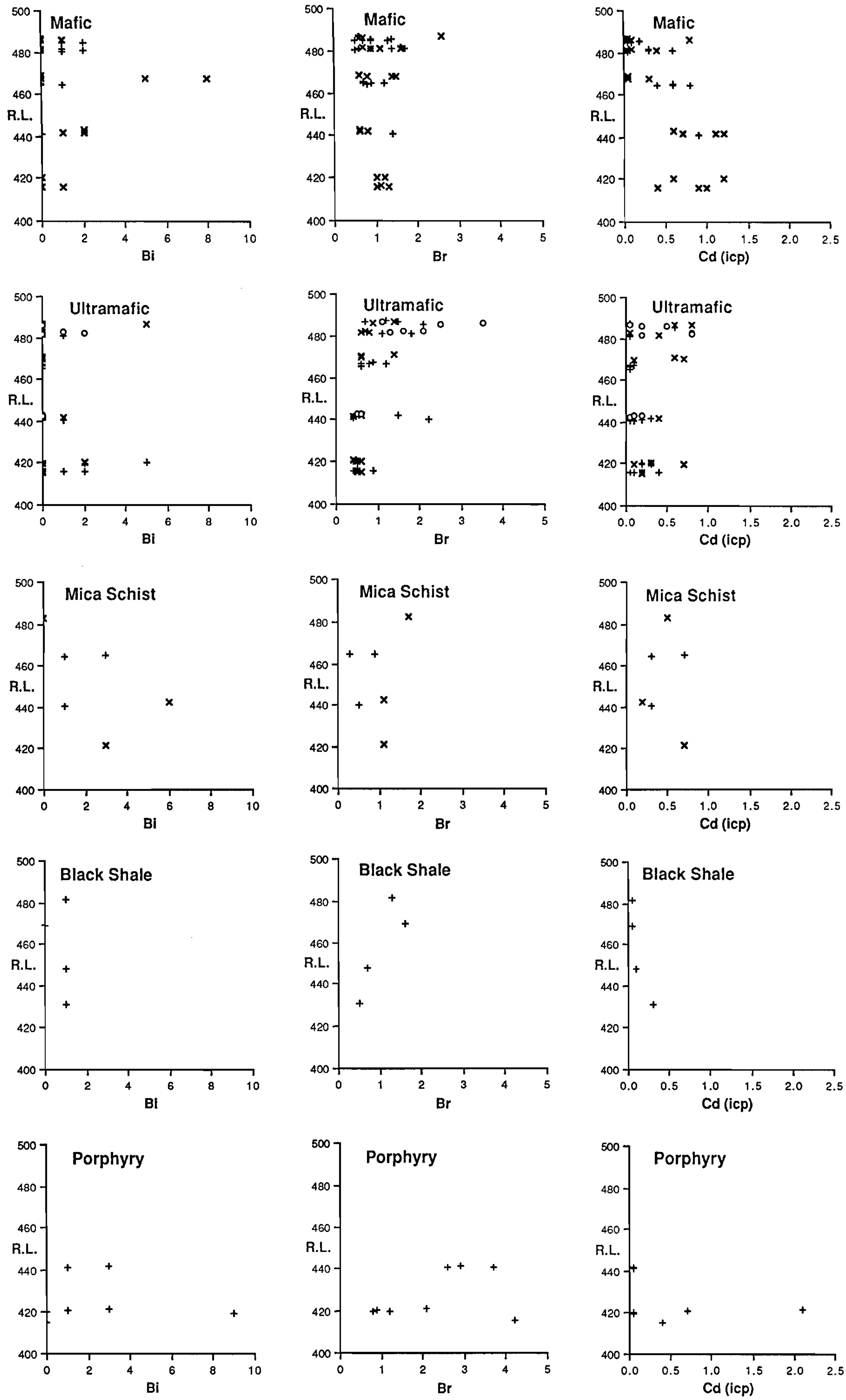
Au
1 10 100 1000 10000
Ba
0 200 400 600 800 1000 1200


Mafic
Ultramafic
Mica Schist
Black Shale
Porphyry
R.L.
Bi
Br
Cd (icp)
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480
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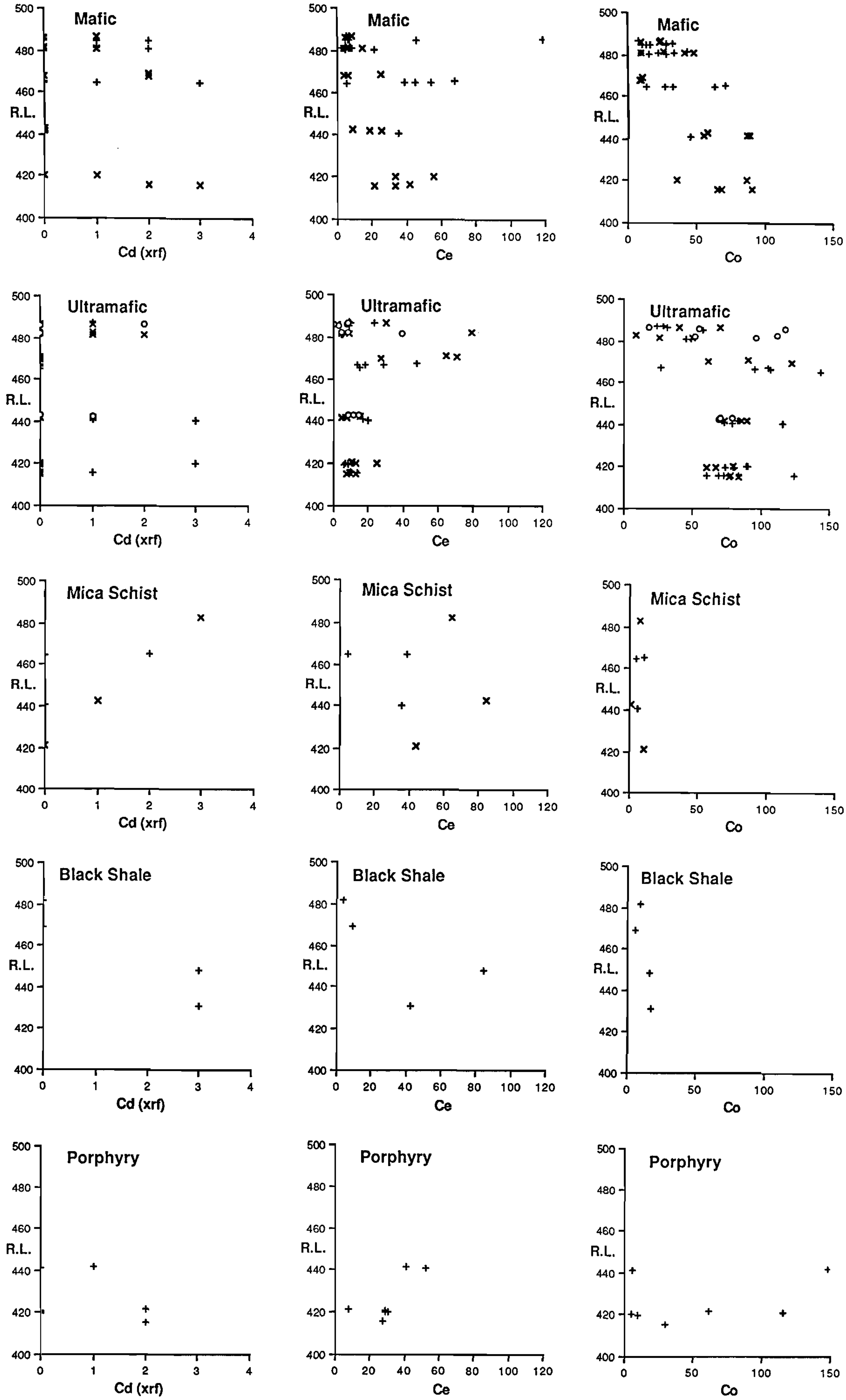
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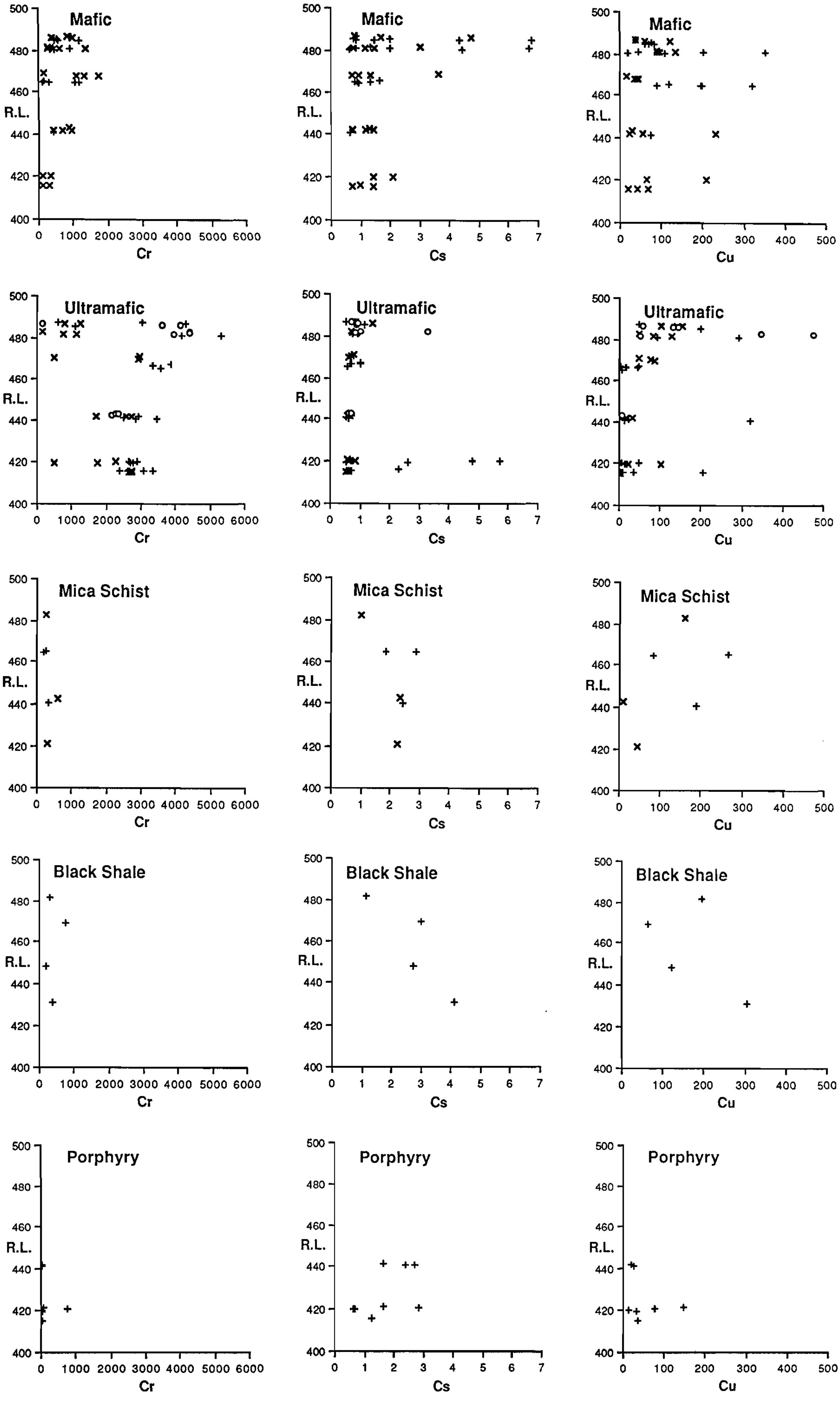
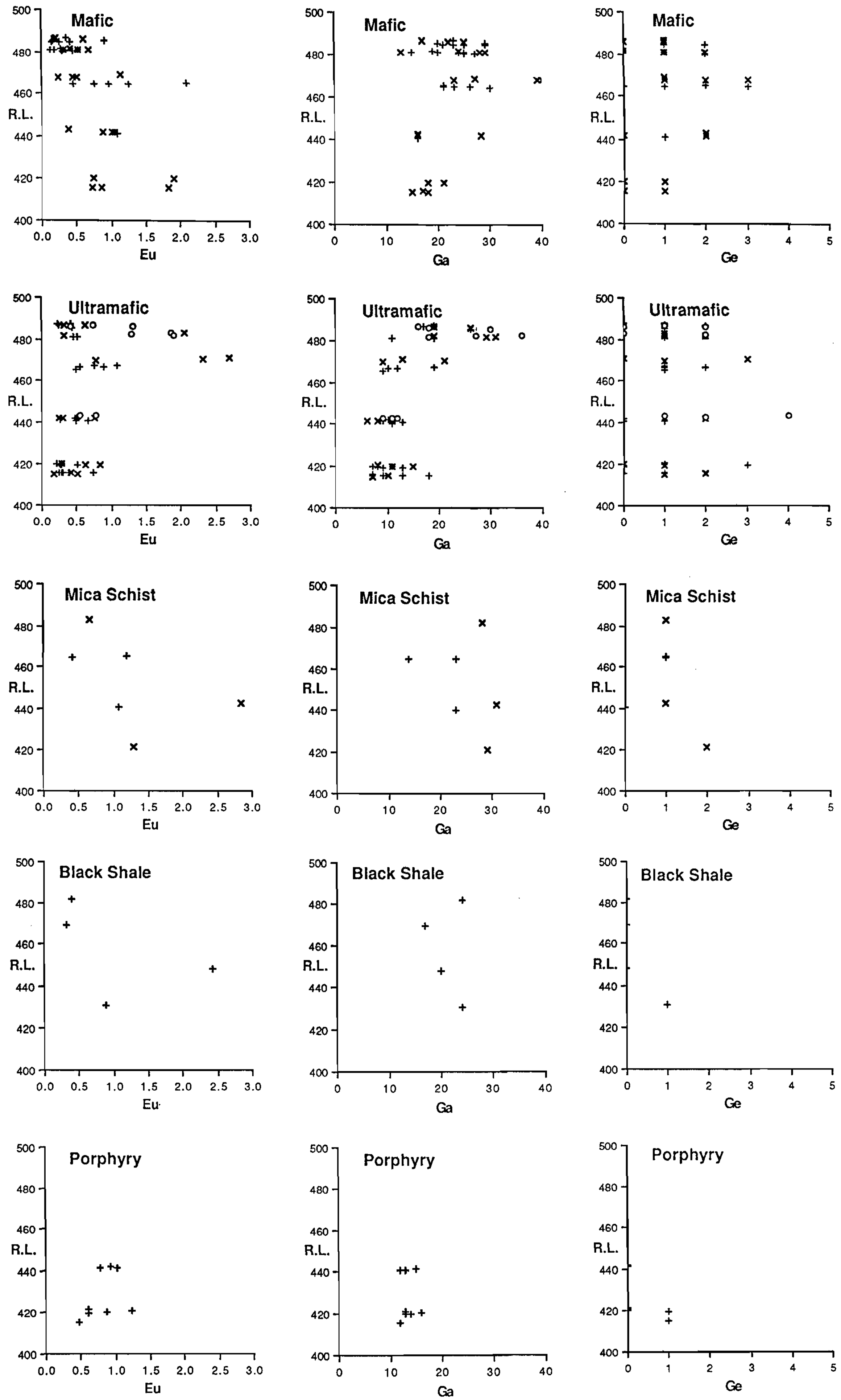
Ultramafic
Mica Schist
Black Shale
Porphyry
R.L.
Cd (xrf)
Ce
Co

Cr, Cs, Cu


Mafic
Ultramafic
Mica Schist
Black Shale
Porphyry
R.L.
Cr
Cs
Cu
500
480
460
440
420
400
0 1000 2000 3000 4000 5000 6000
0 1 2 3 4 5 6 7
0 100 200 300 400 500

Eu, Ga, Ge



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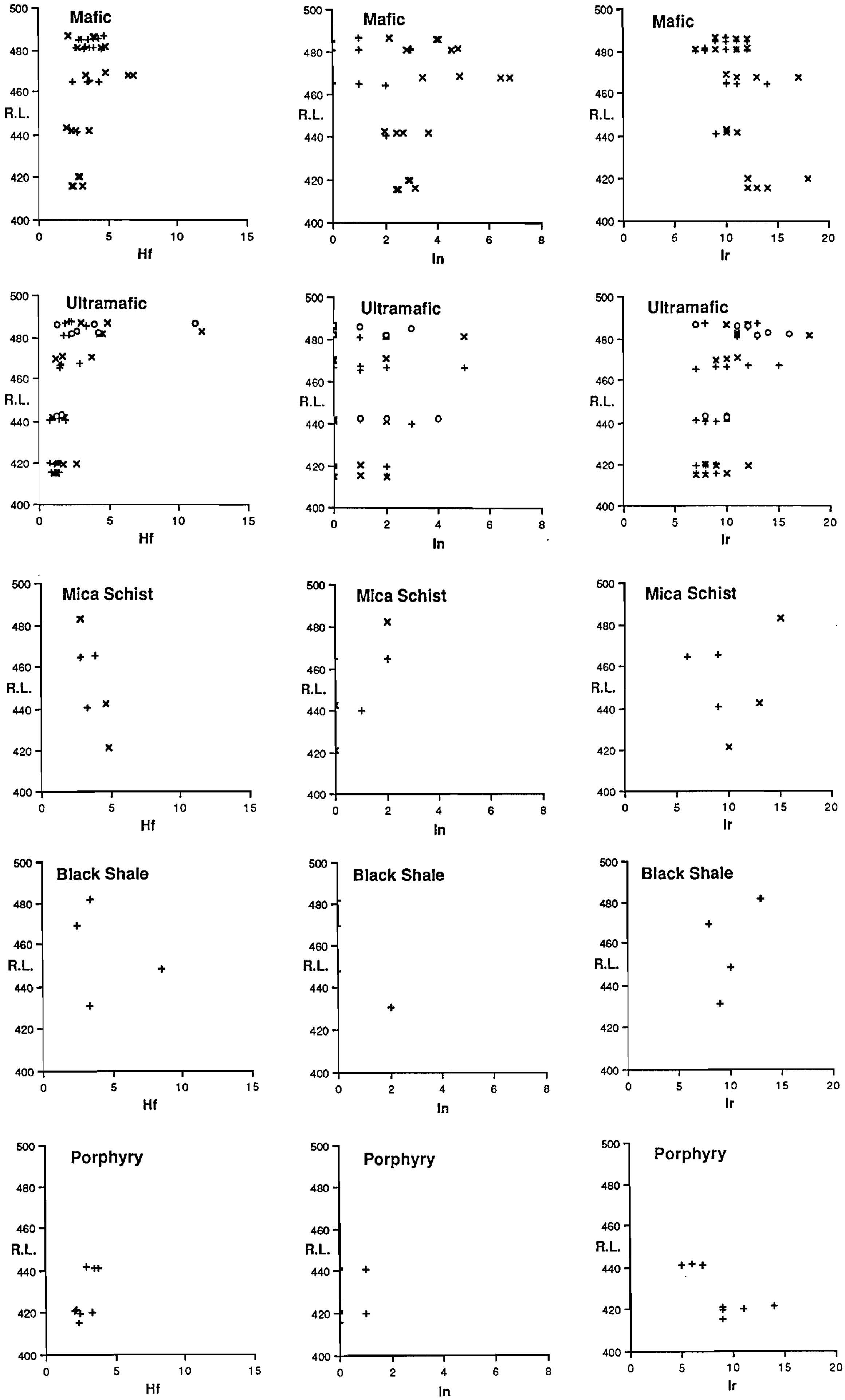
Mafic
Ultramafic
Ultramafic
Ultramafic
Mica Schist
Mica Schist
Mica Schist
Black Shale
Black Shale
Black Shale
Porphyry
Porphyry
Porphyry
R.L.
Eu
Ga
Ge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R.L.
Hf
Mafic
R.L.
In
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R.L.
Ir
Ultramafic
R.L.
Hf
Ultramafic
R.L.
In
Ultramafic
R.L.
Ir
Mica Schist
R.L.
Hf
Mica Schist
R.L.
In
Mica Schist
R.L.
Ir
Black Shale
R.L.
Hf
Black Shale
R.L.
In
Black Shale
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Ir
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Hf
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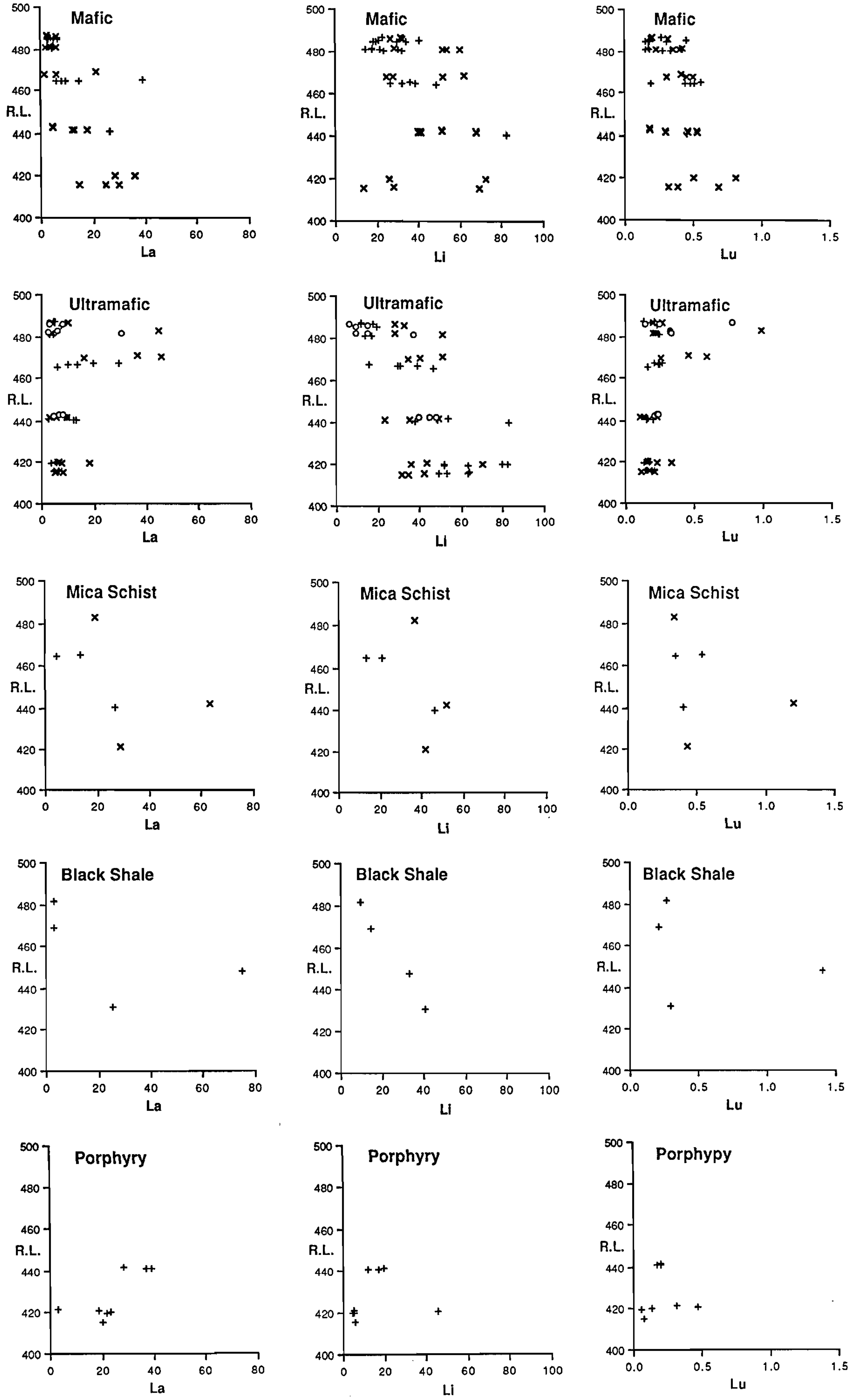
R.L.
In
Porphyry
R.L.
Ir

La, Li, Lu



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Porphyry
Porphypy
R.L.
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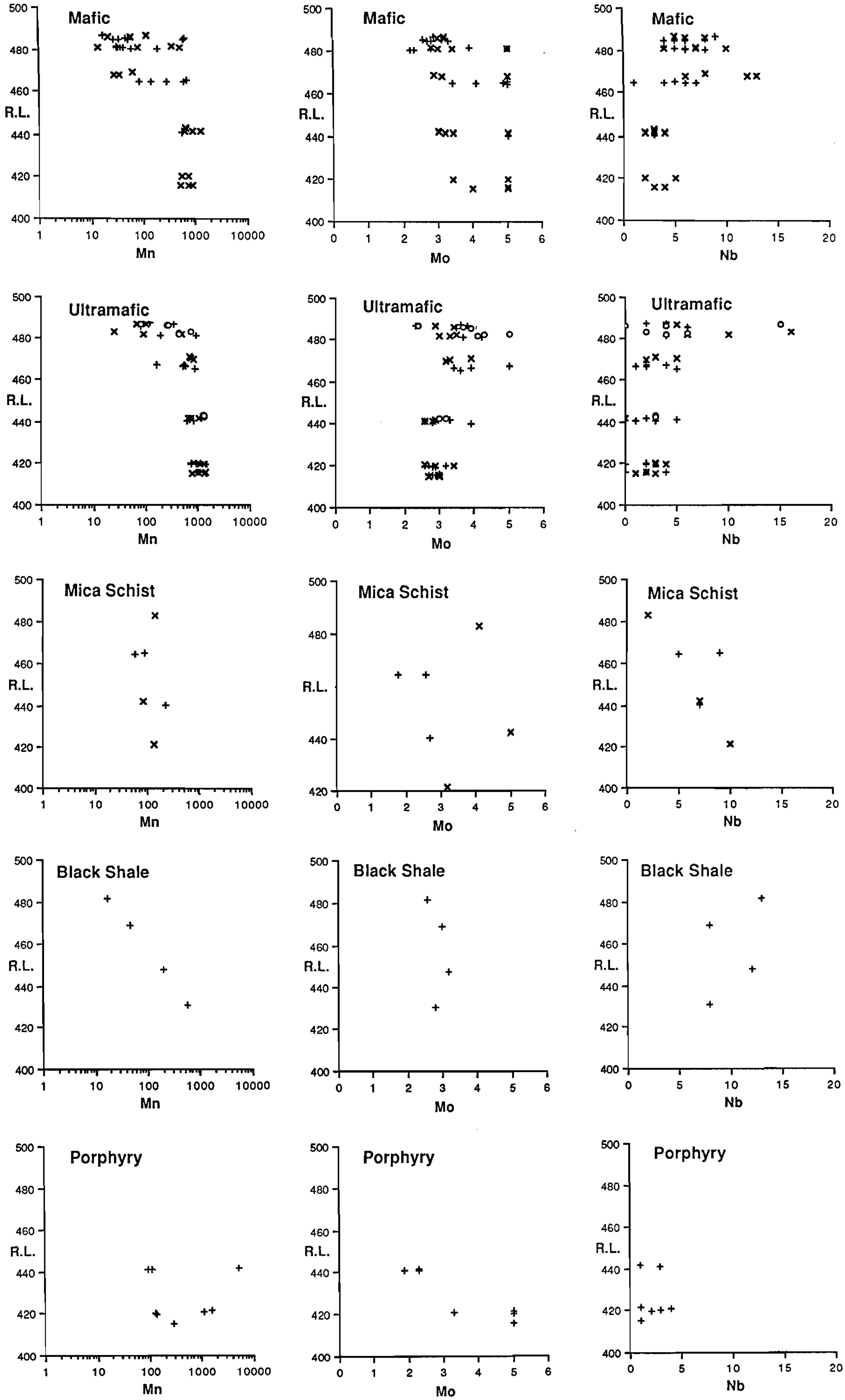
1.5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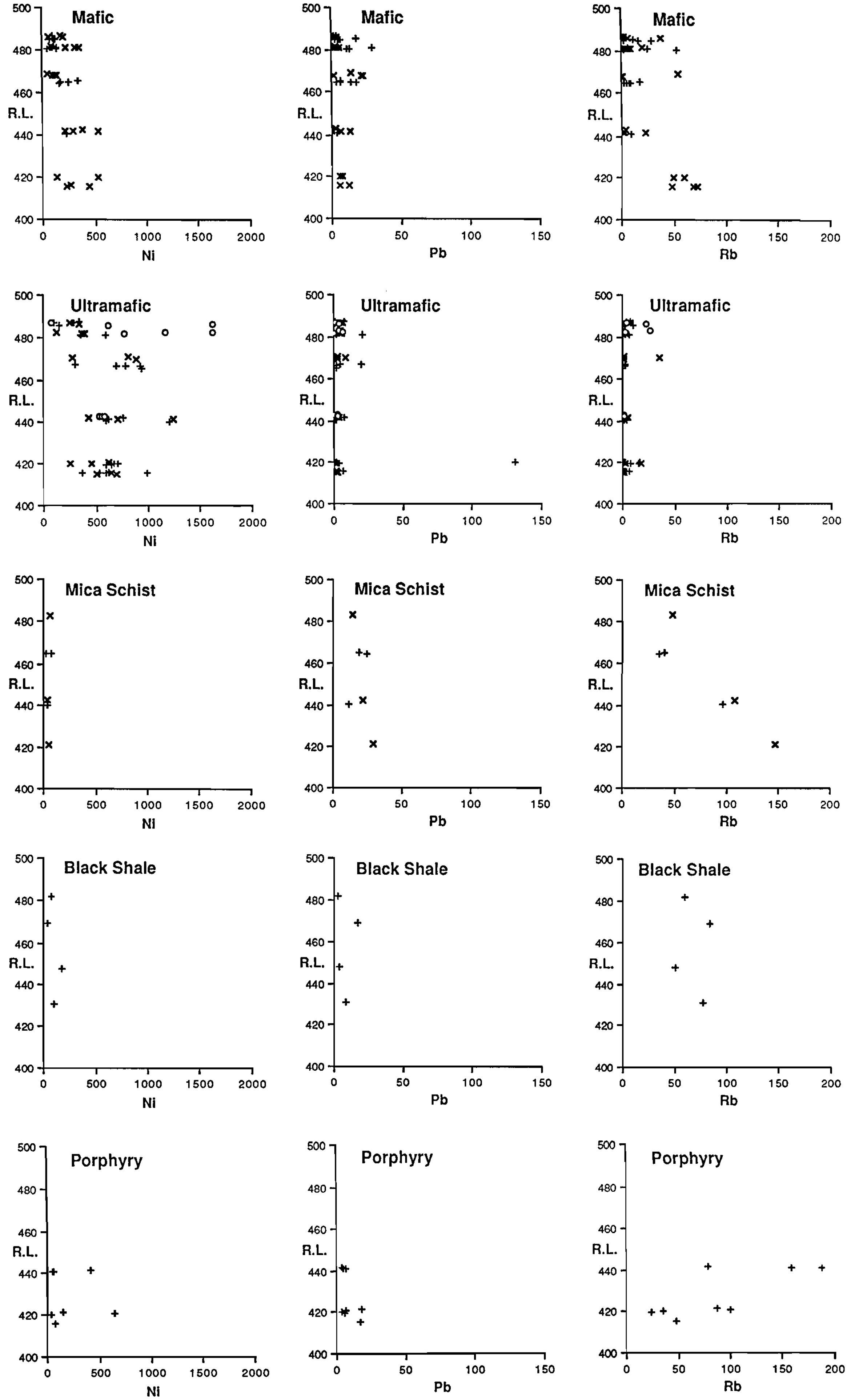
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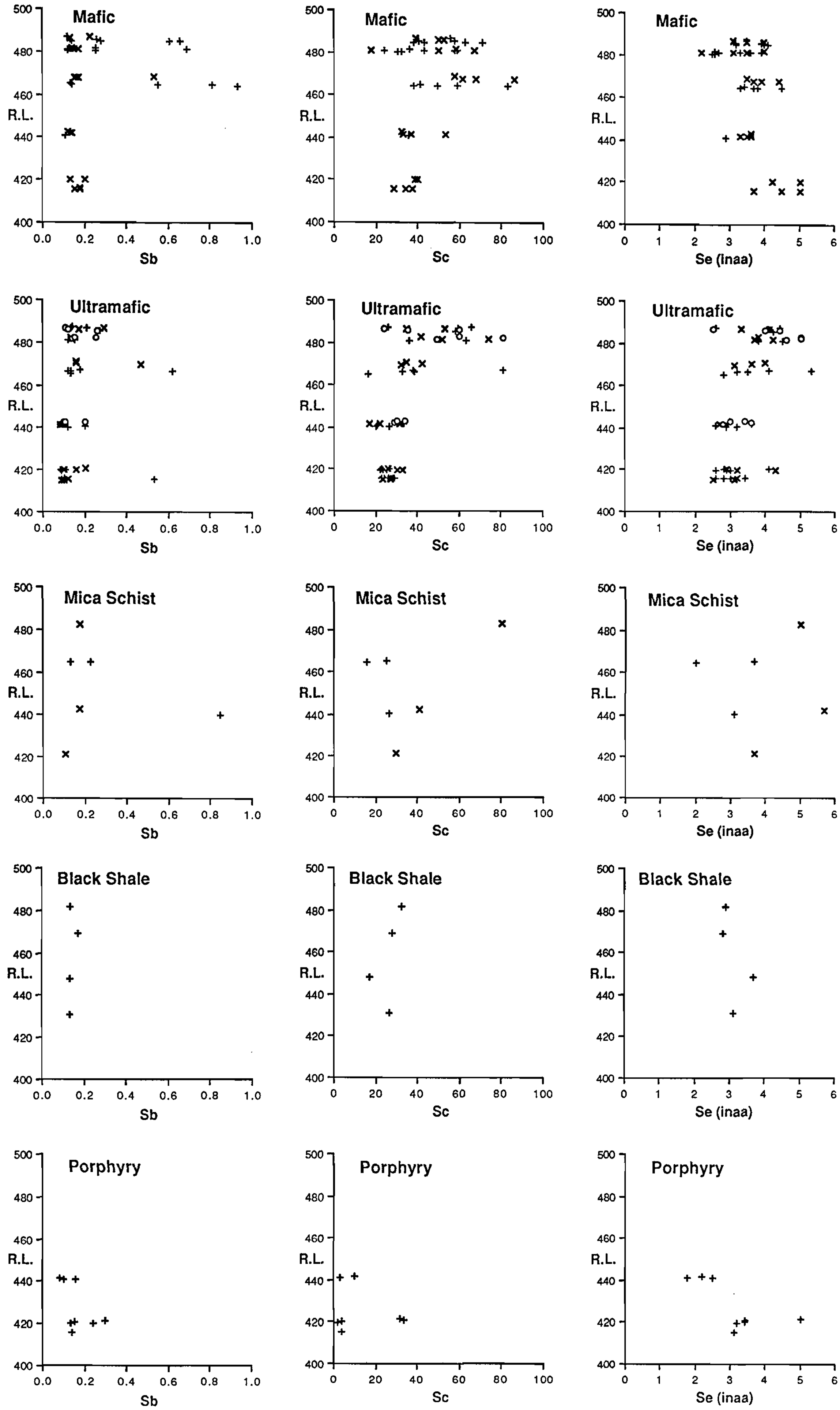
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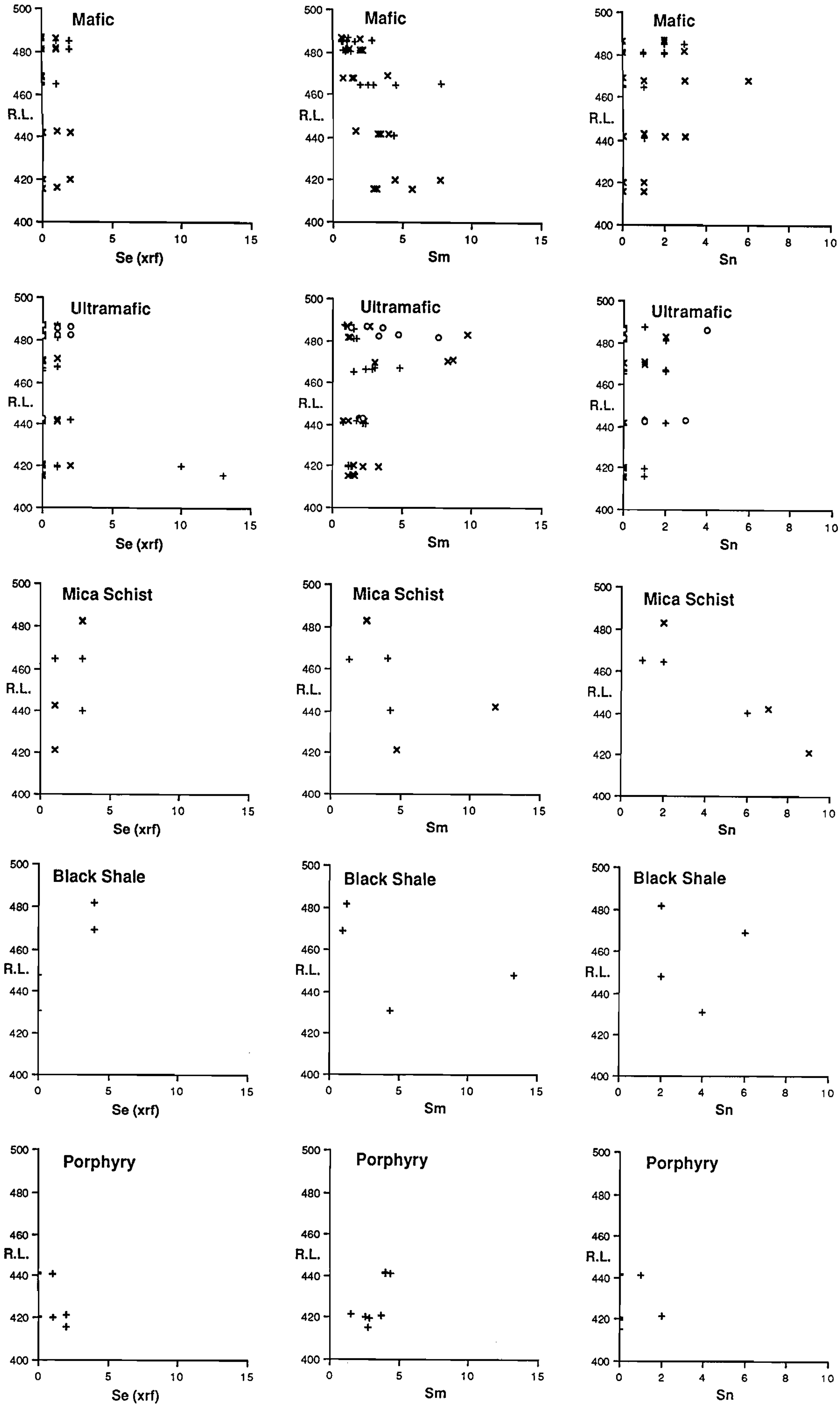
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Porphyry
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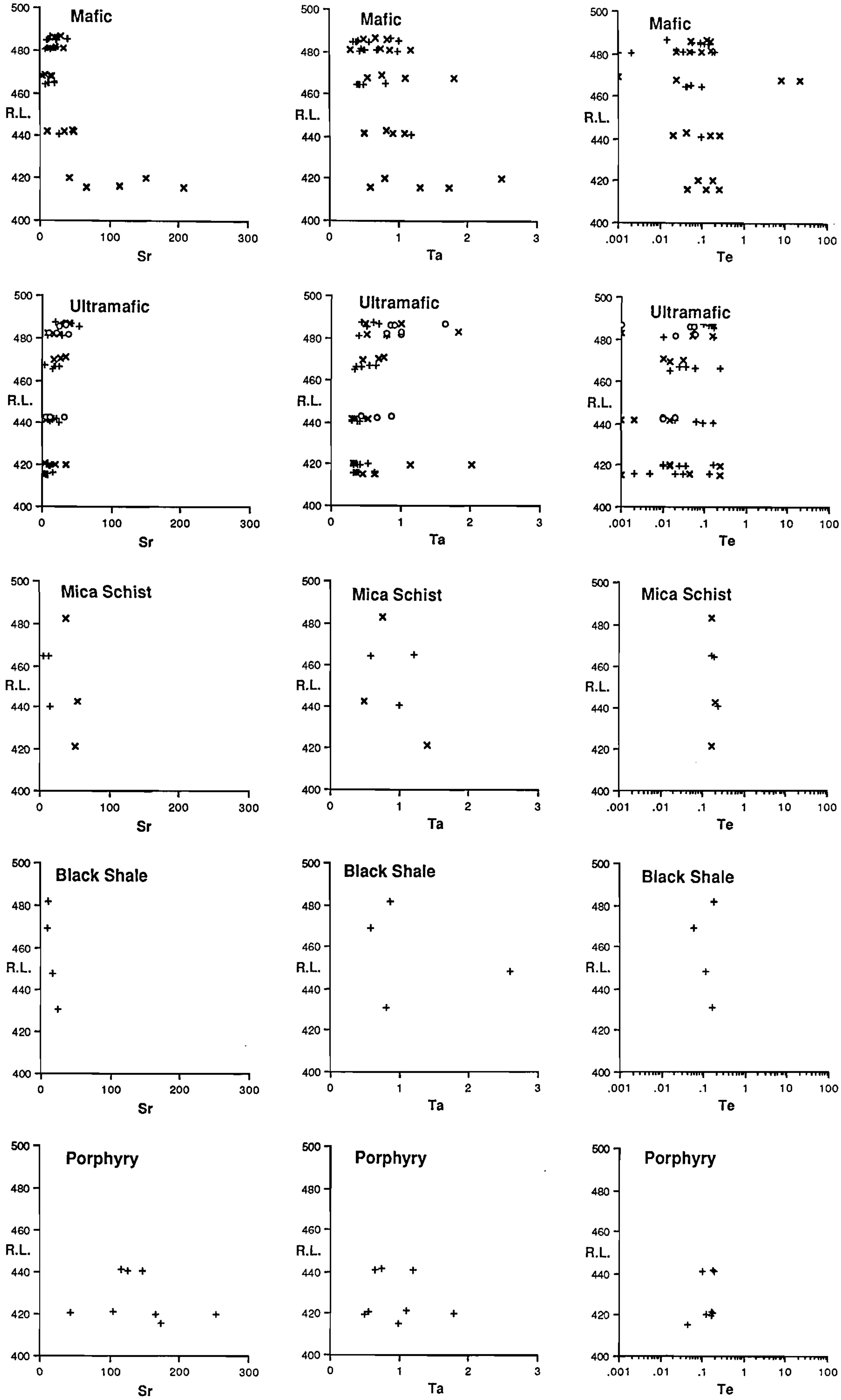
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Porphyry
R.L.
Sr
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Te
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300
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2
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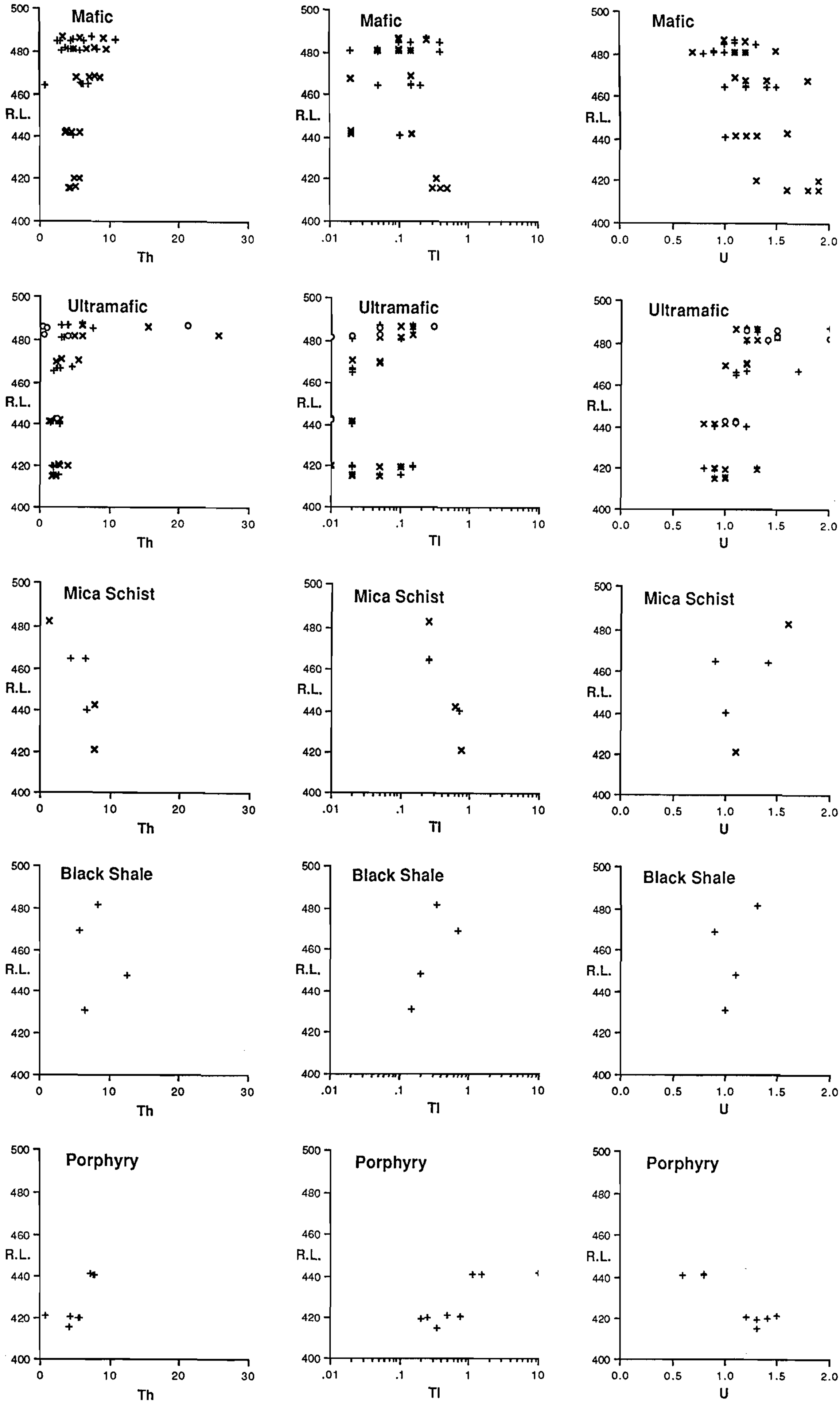
.01
.1
10
100

Th, Tl, U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Tl
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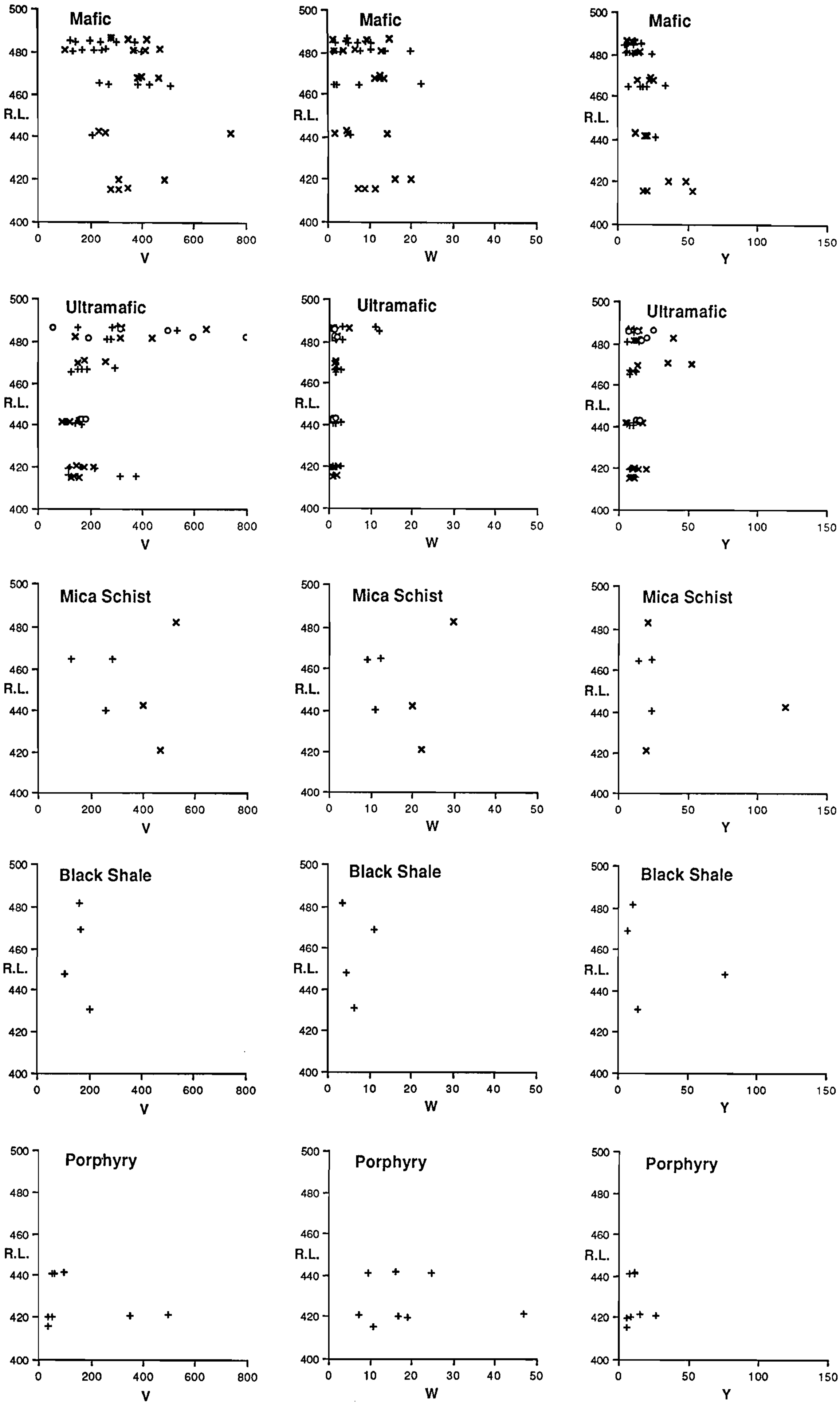
1.5
2.0

V, W, Y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Black Shale
Porphyry
R.L.
V
W
Y
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0
200
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800
10
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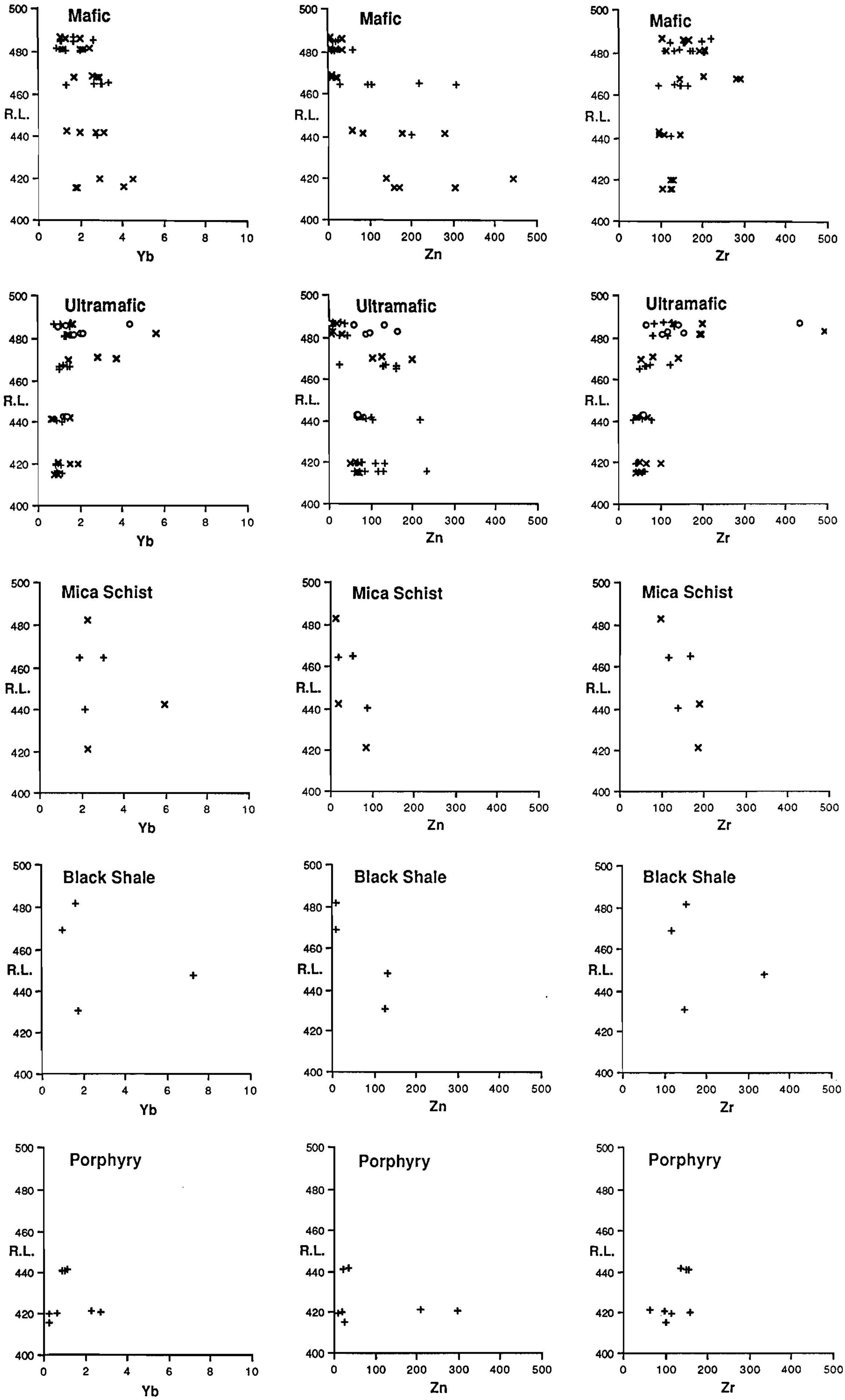
30
40
50
100
150

Yb, Zn, Zr


Mafic
Ultramafic
Mica Schist
Black Shale
Porphyry
R.L.
Yb
Zn
Zr

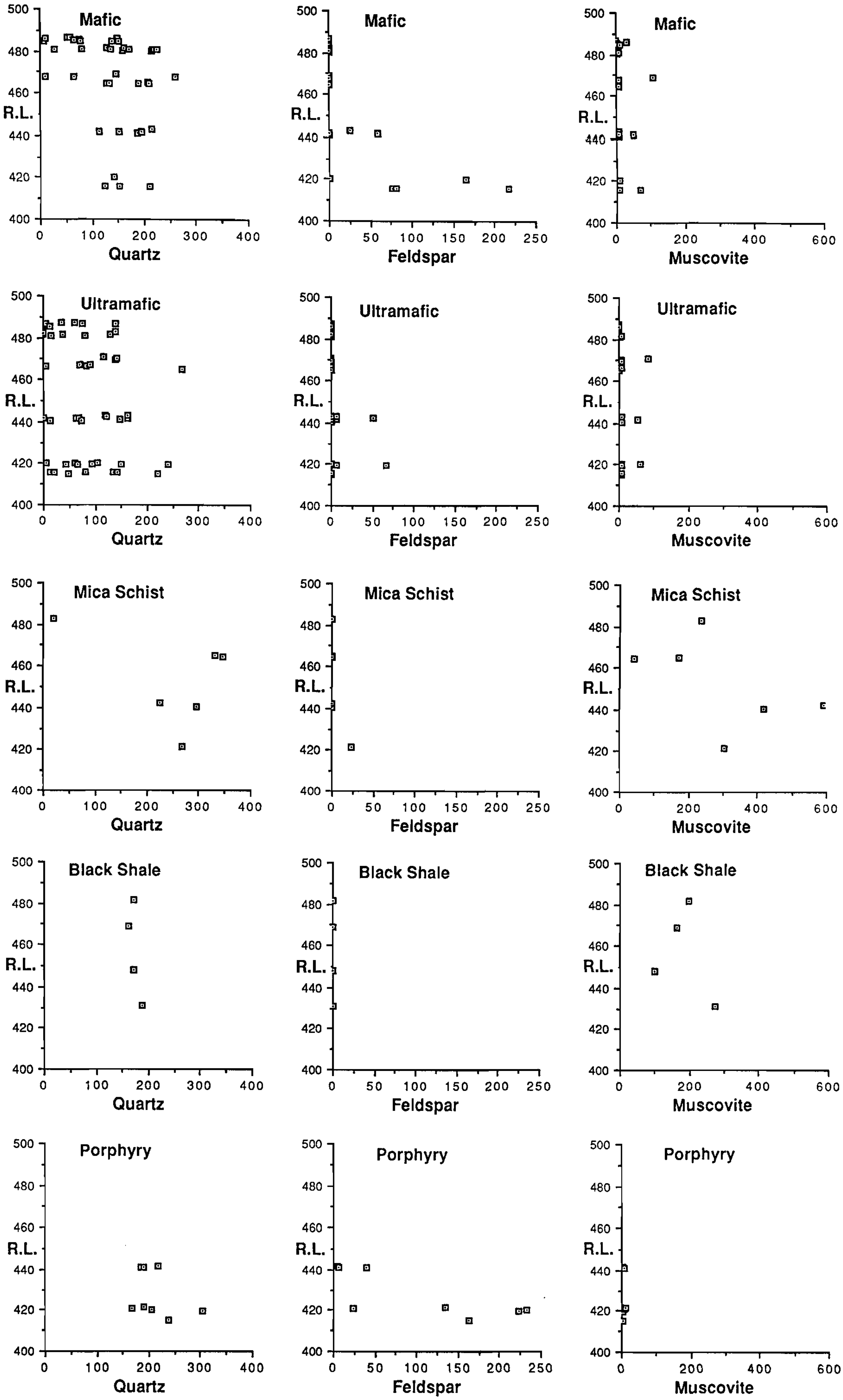
APPENDIX 3

Graphed Mineralogy

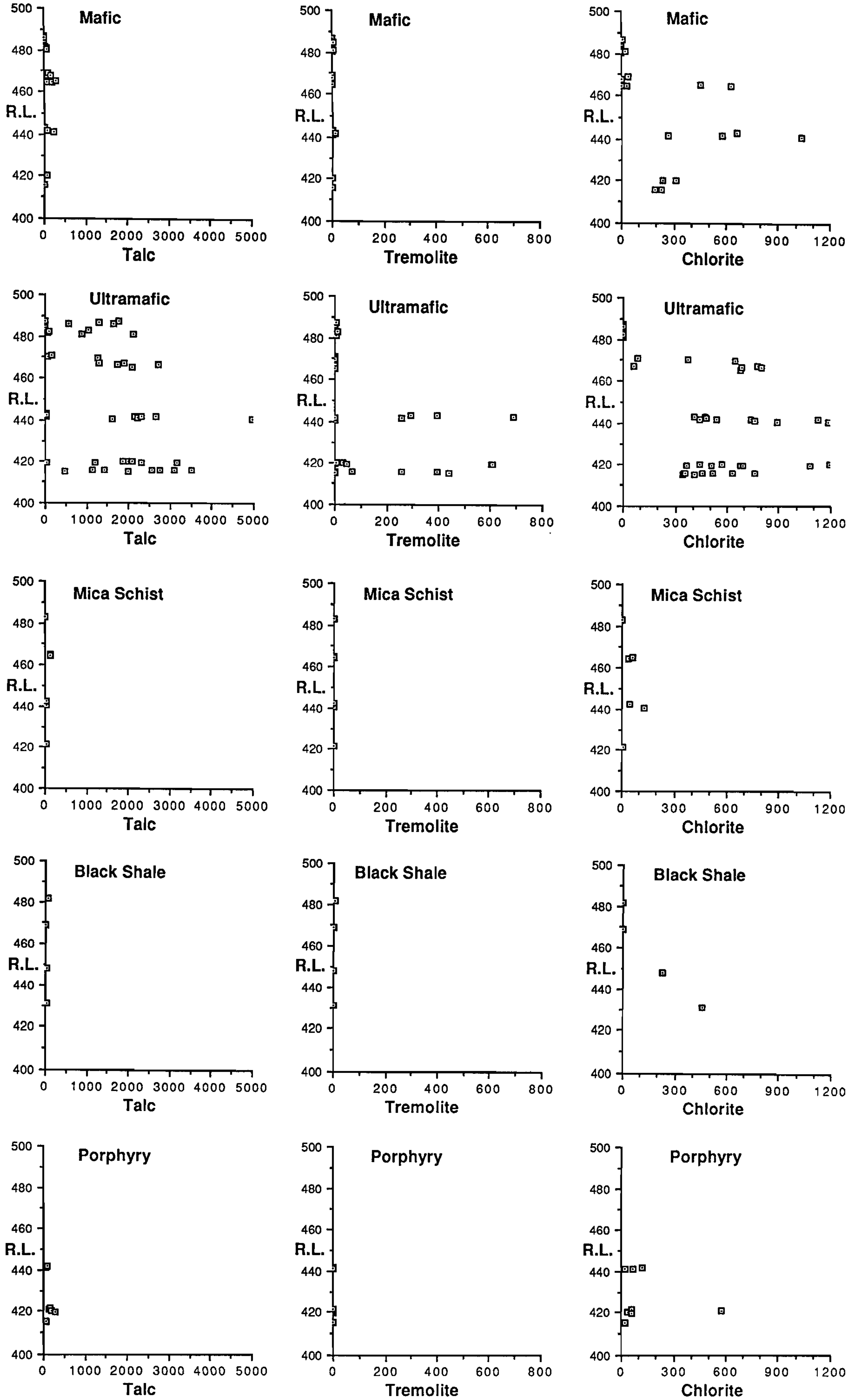
Showing Rock Types,

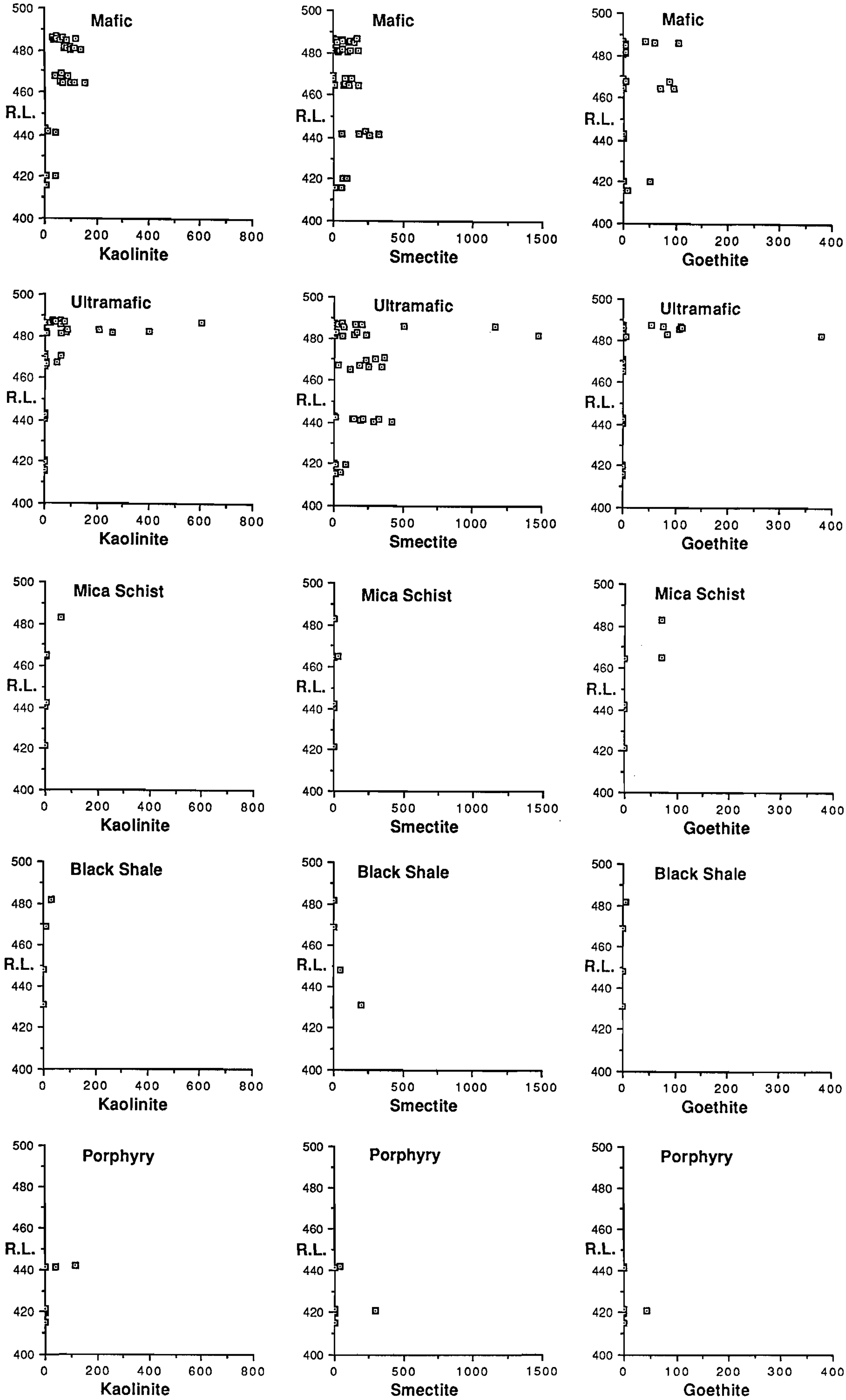
(Units related to XRD peak height
after correction for matrix)

Quartz, Feldspar, Muscovite



Talc, Tremolite, Chlorite

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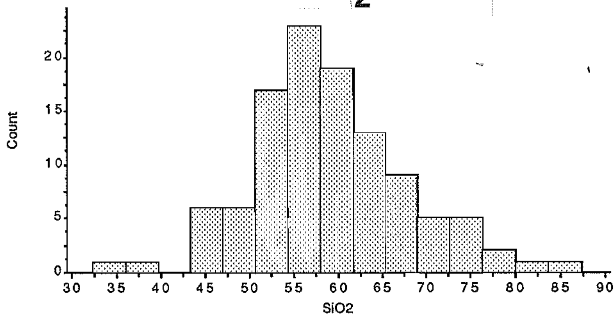
Mafic
Mafic
Ultramafic
Ultramafic
Ultramafic
Mica Schist
Mica Schist
Mica Schist
Black Shale
Black Shale
Black Shale
Porphyry
Porphyry
Porphyry
R.L.
400
420
440
460
480
500
Kaolinite
0
200
400
600
800
Smectite
0
500
1000
1500
Goethite
0
100
200
300
400

APPENDIX 4

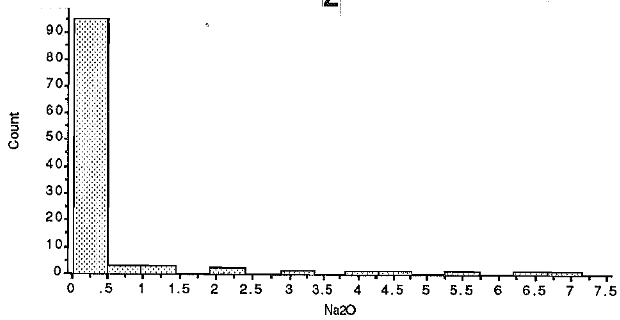
Frequency Distributions

Oxides in weight %
Trace Elements in ppm
except for Au and Ir in ppb

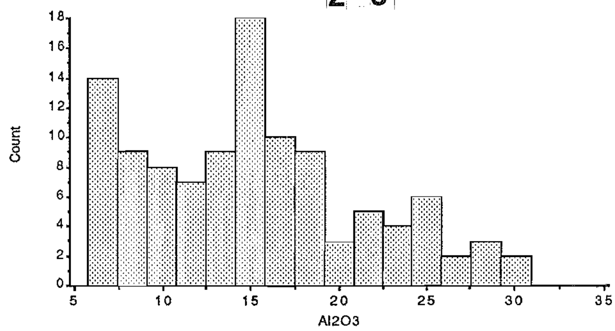
SiO_2



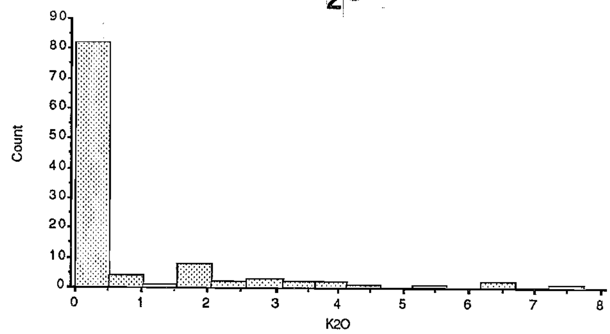
Na_2O



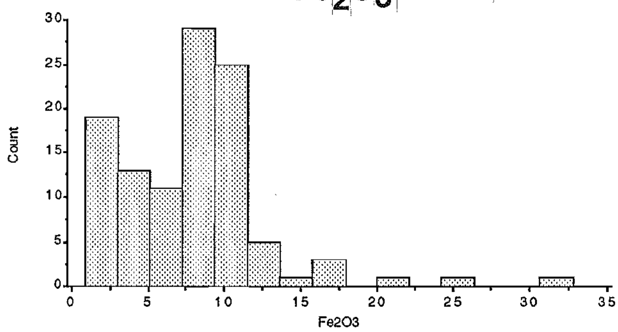
Al_2O_3



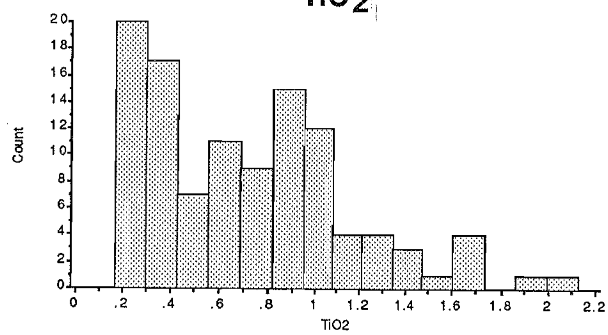
K_2O



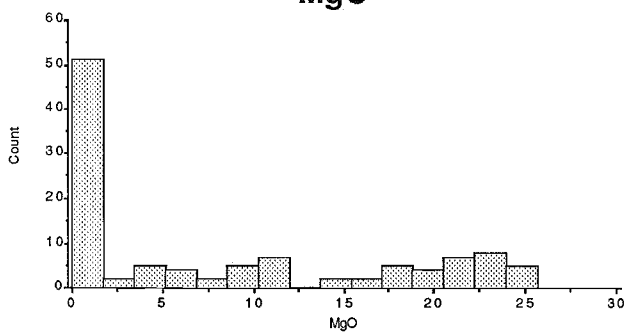
Fe_2O_3



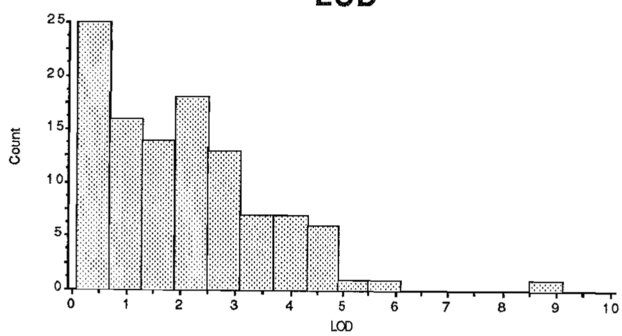
TiO_2



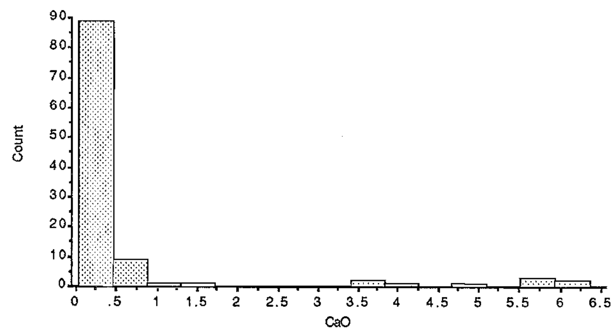
MgO



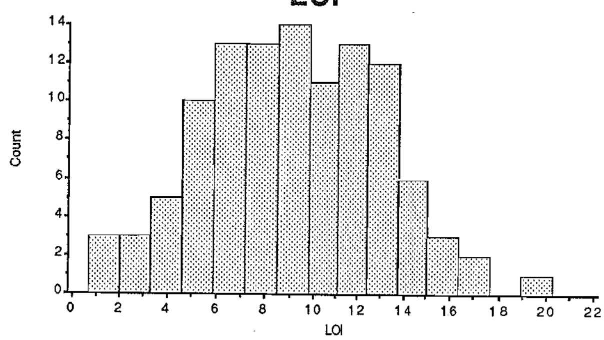
LOD



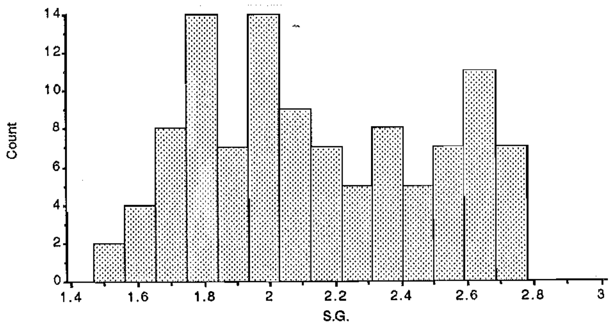
CaO



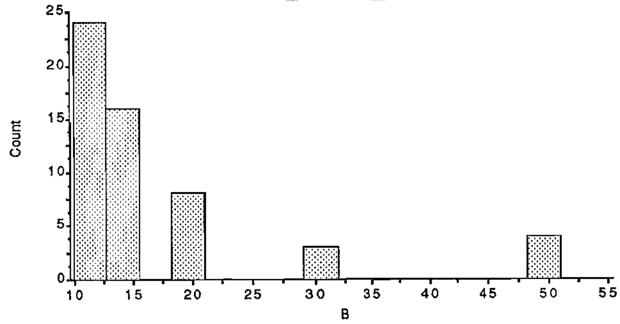
LOI



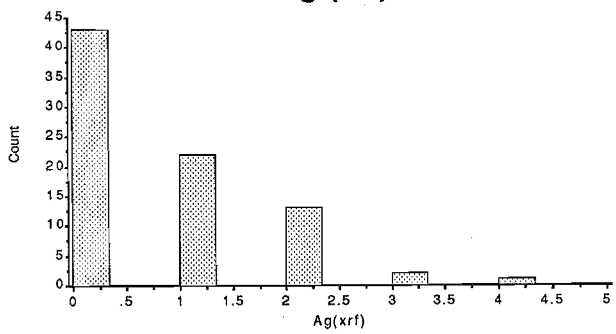
S.G.



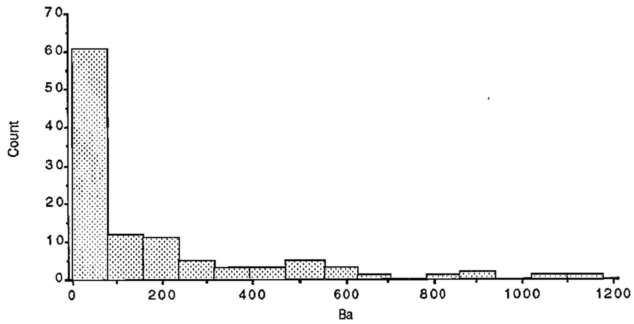
B



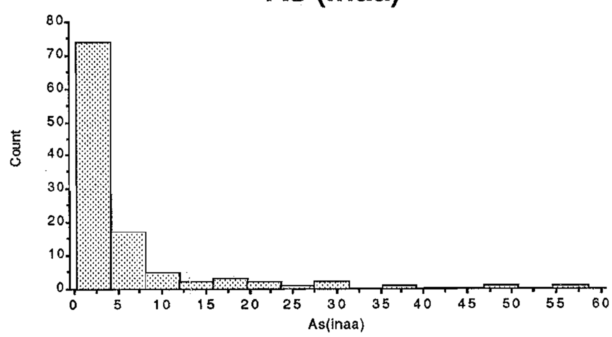
Ag (xrf)



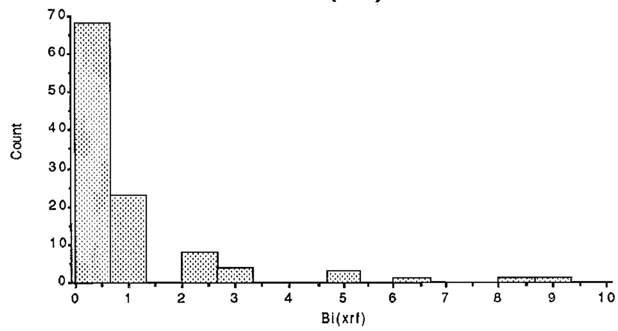
Ba



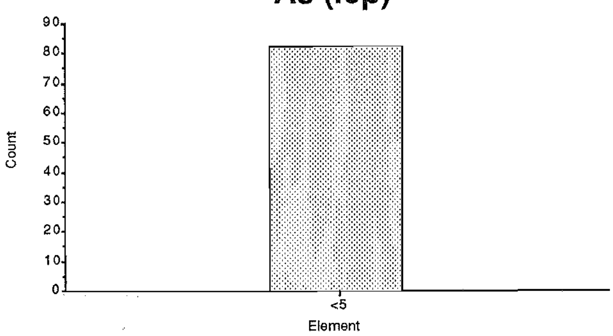
As (inaa)



Bi (xrf)



As (icp)



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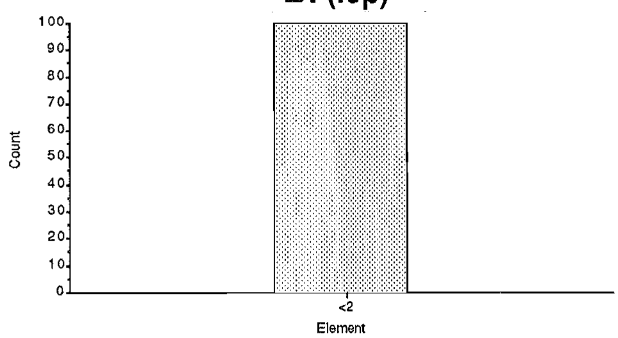
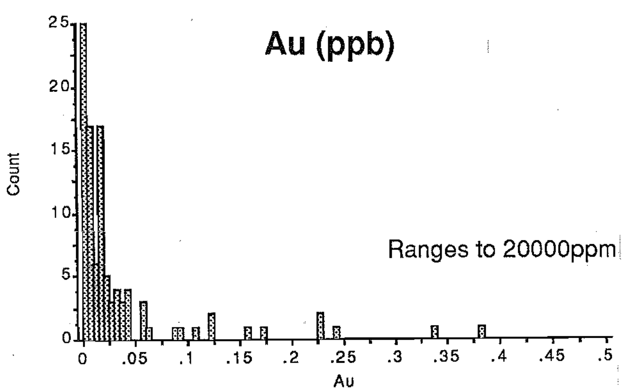
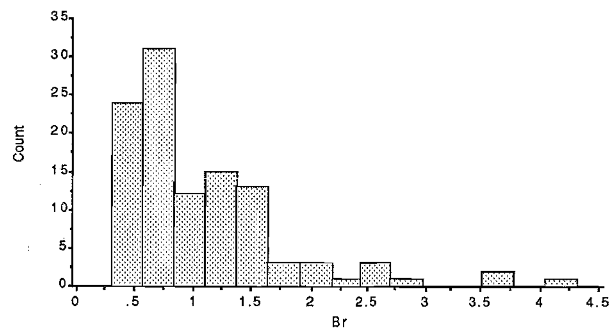


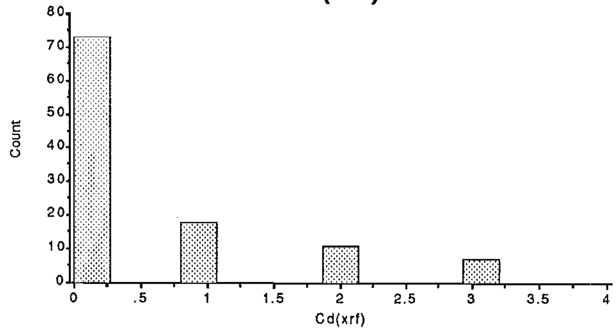
Au (ppb)



Br



Cd (xrf)



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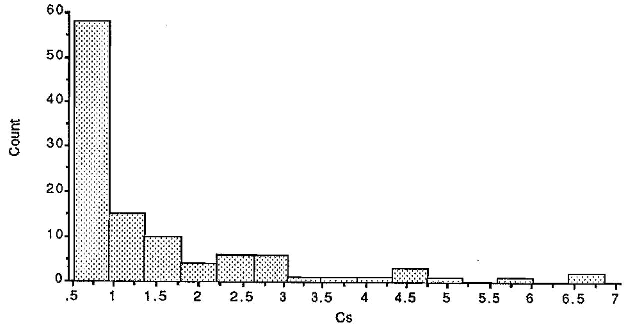

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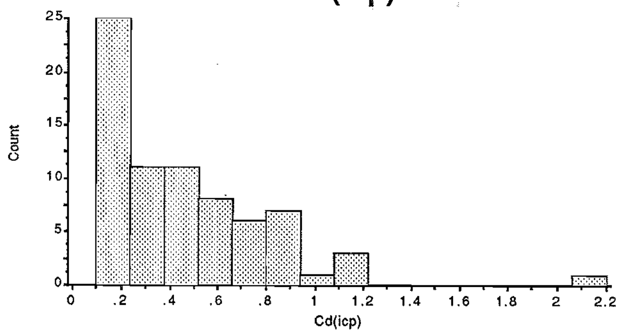

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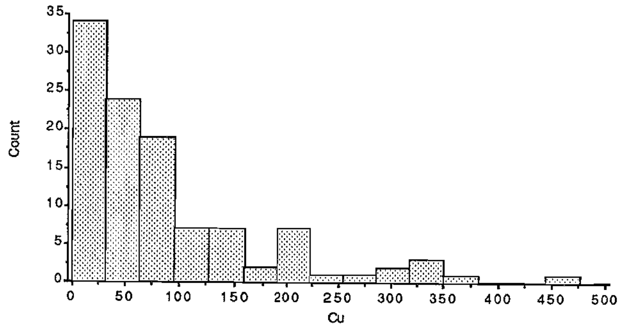

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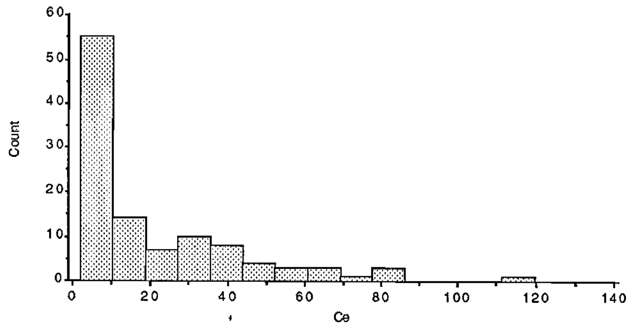

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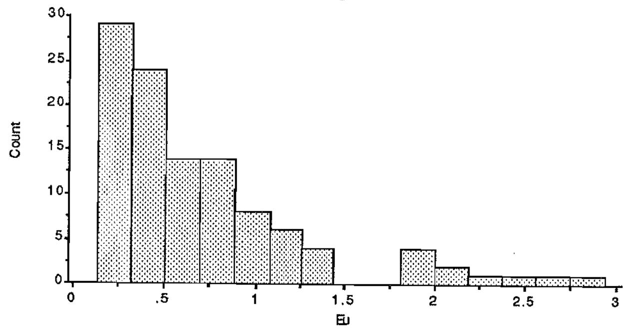

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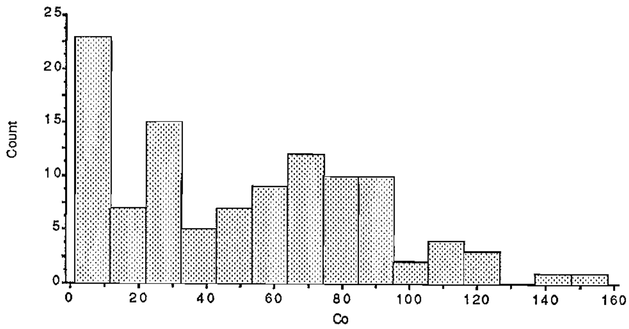

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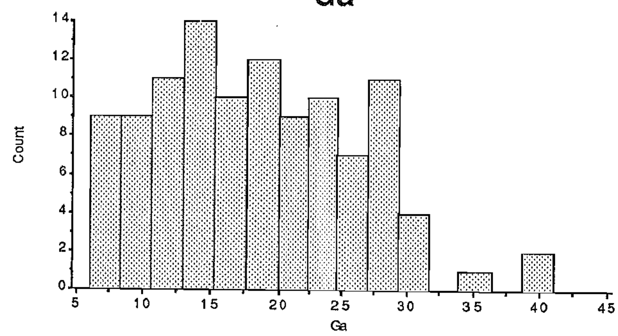

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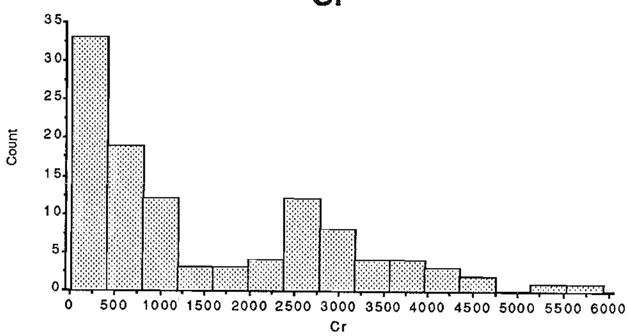

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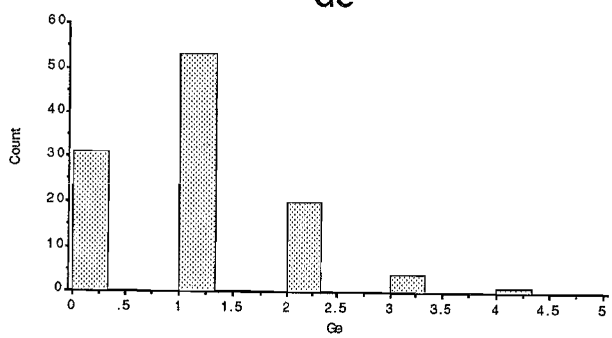

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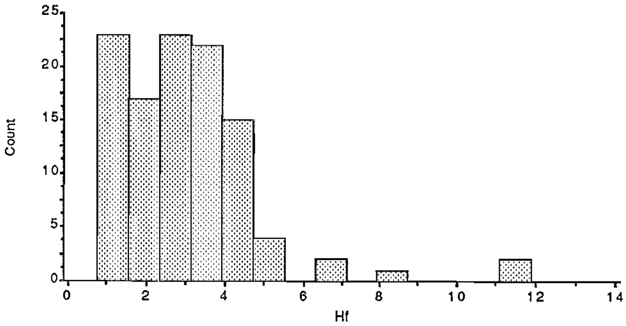

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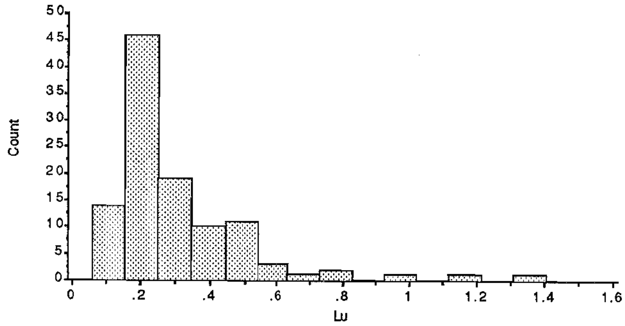

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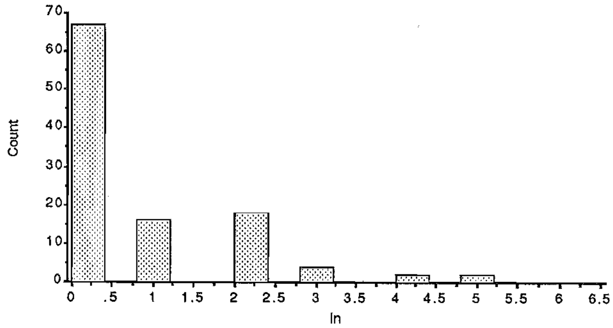

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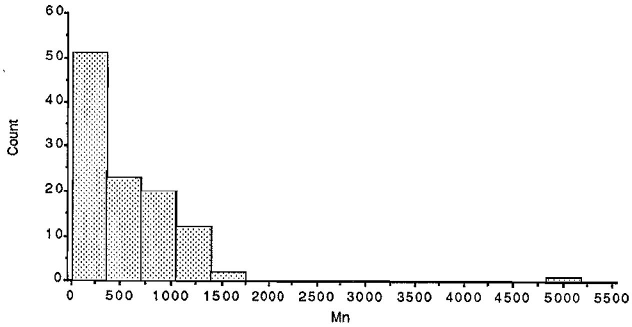

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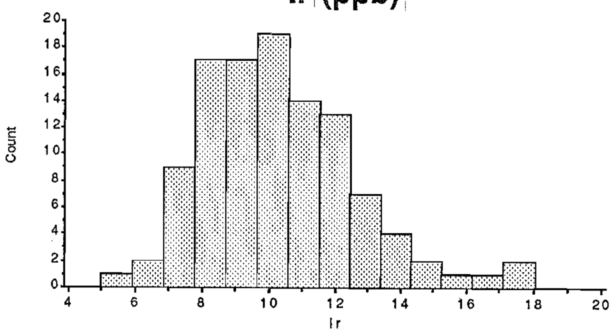

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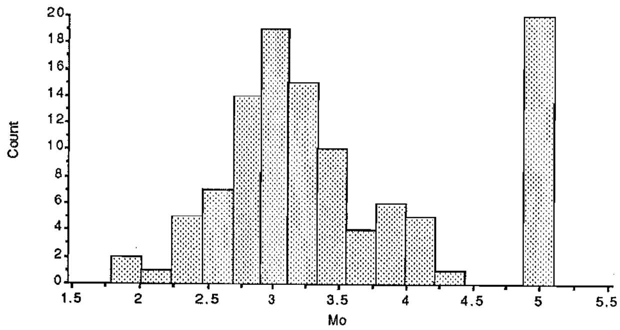

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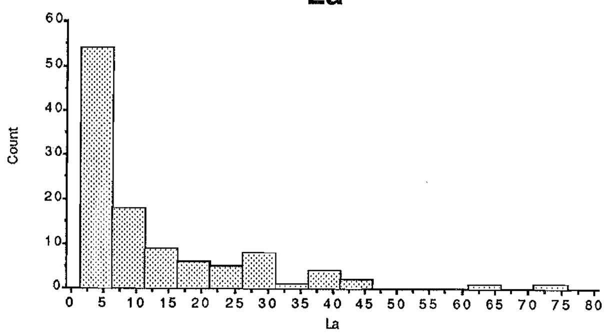
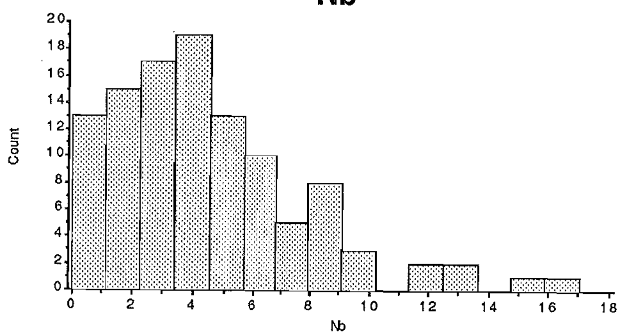


Nb



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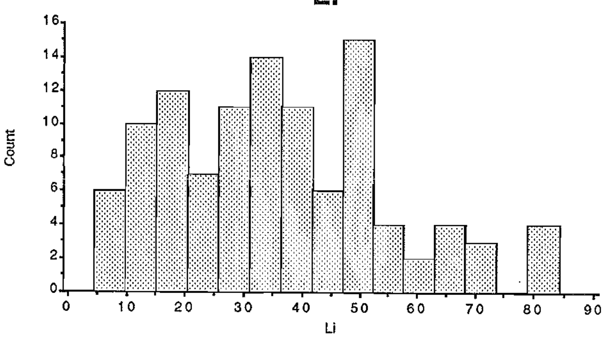

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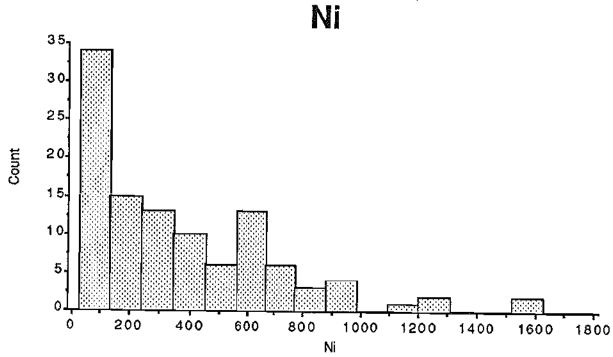

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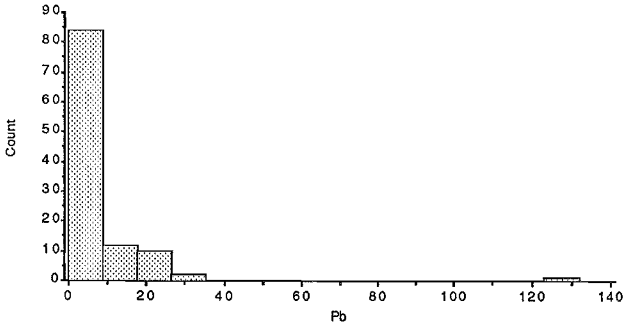
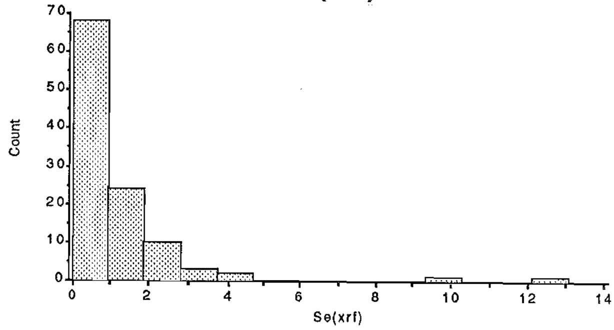


Se (xrf)



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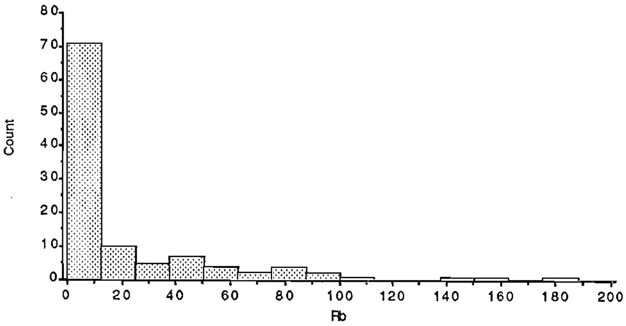
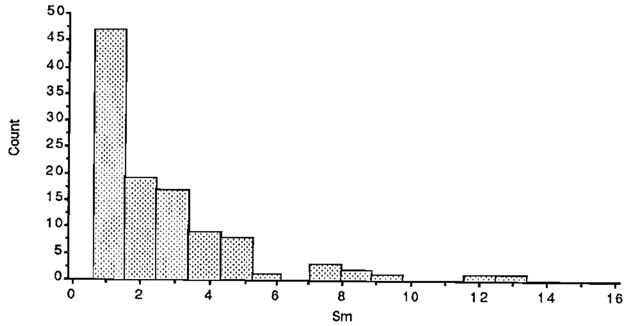


Sm



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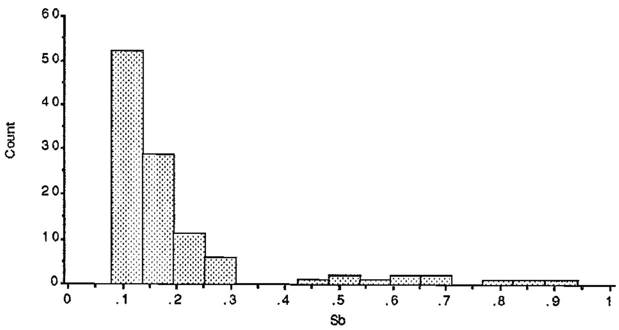
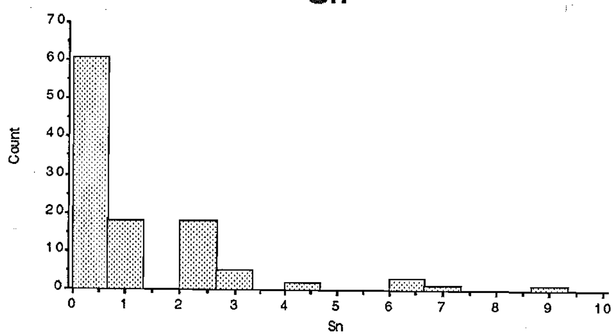


Sn



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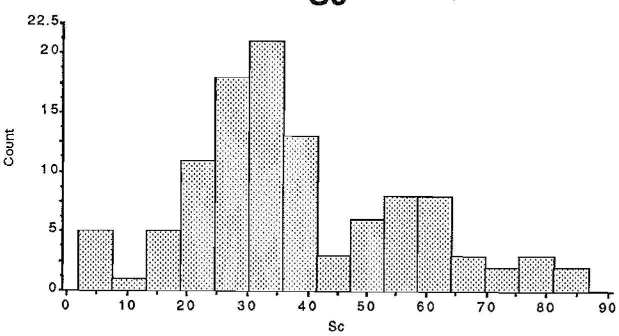
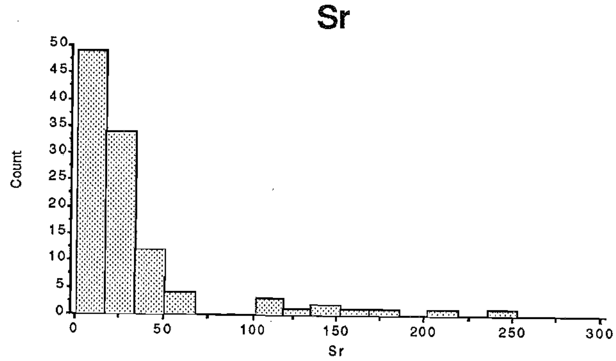
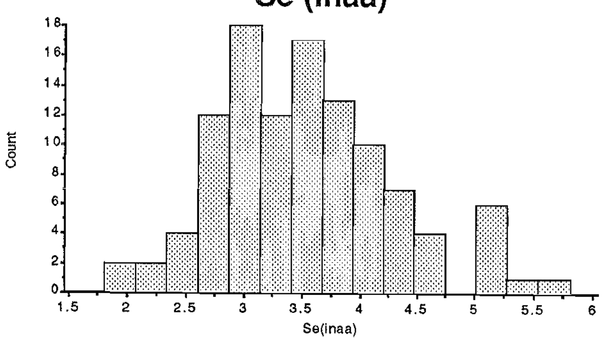


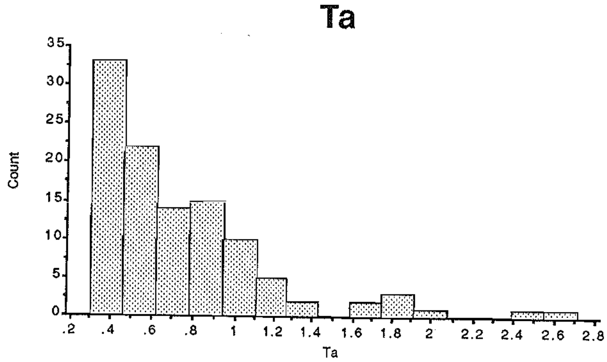
Sr



Se (inaa)

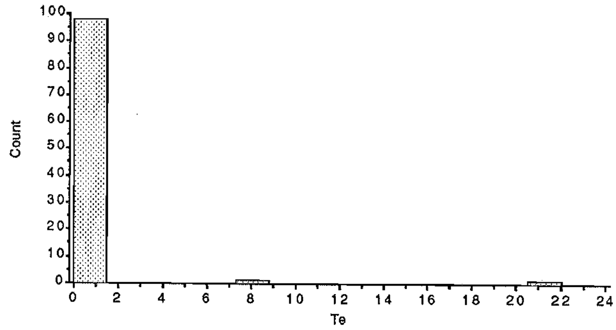


Ta

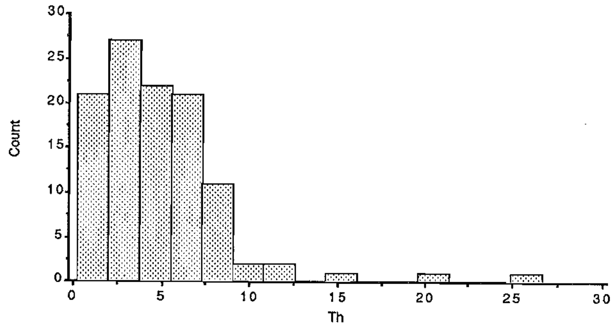


Te, Th, Tl, U, V, W, Y, Yb, Zn, Zr

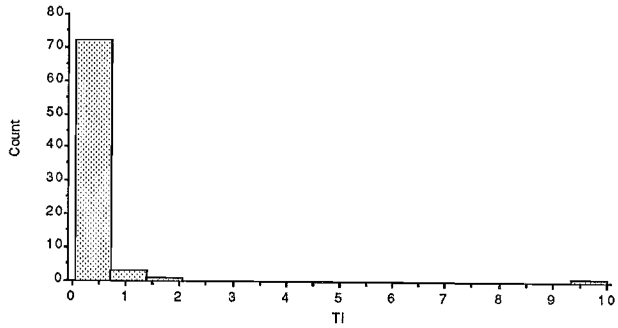
Te



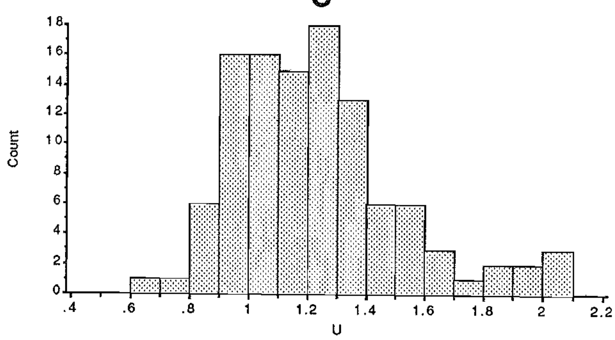
Th



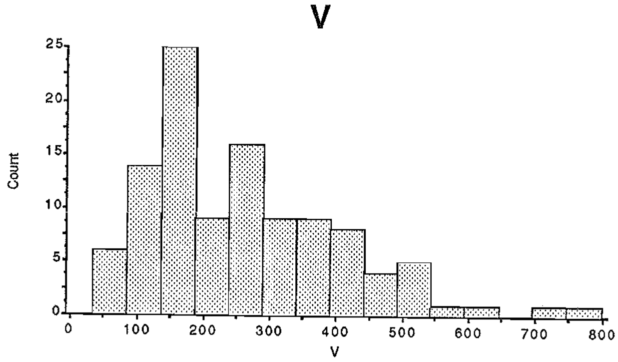
Tl



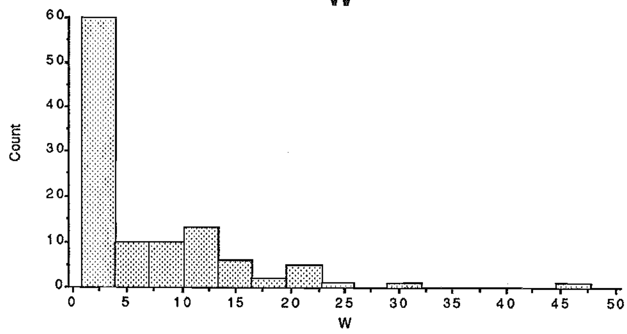
U



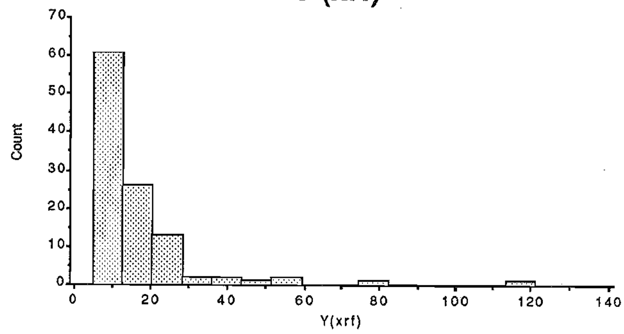
V



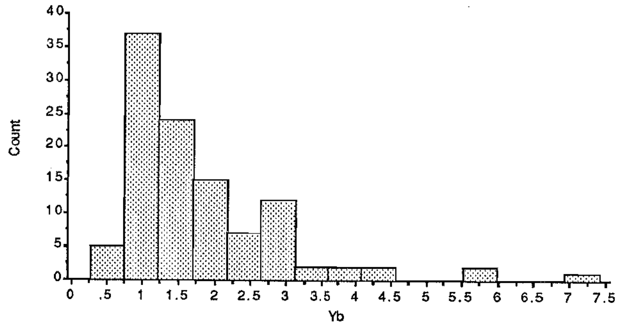
W



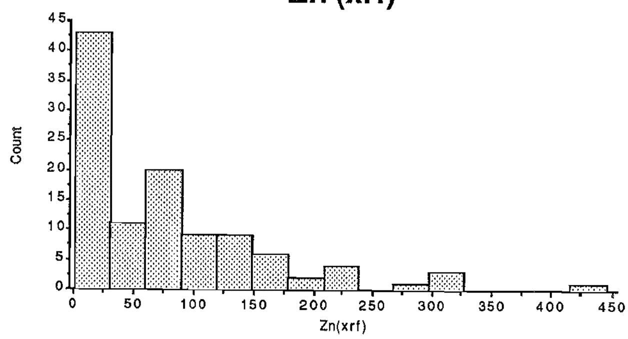
Y (xrf)



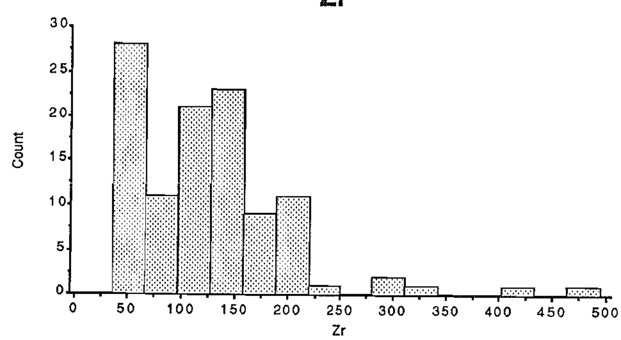
Yb



Zn (xrf)

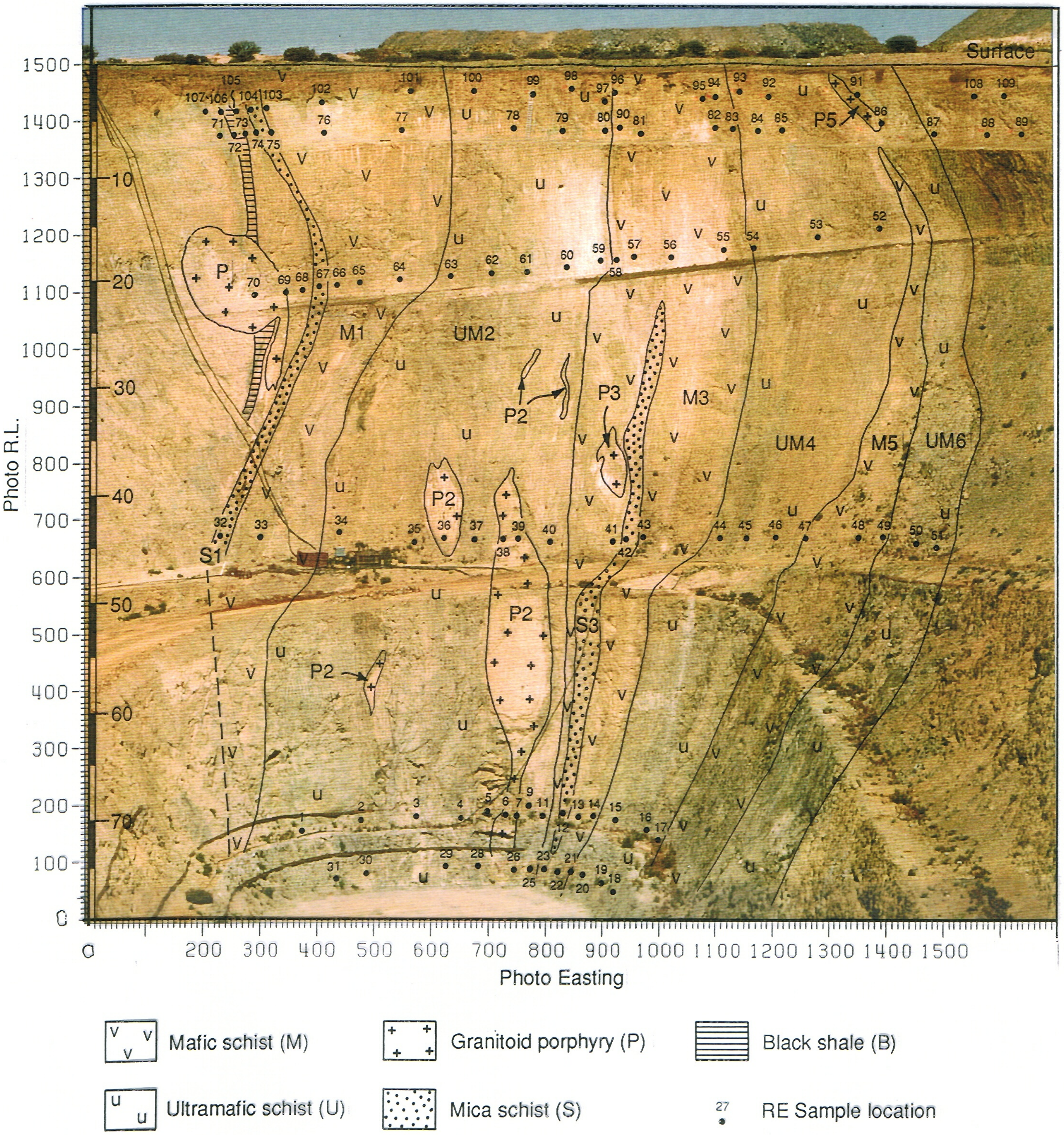


Zr



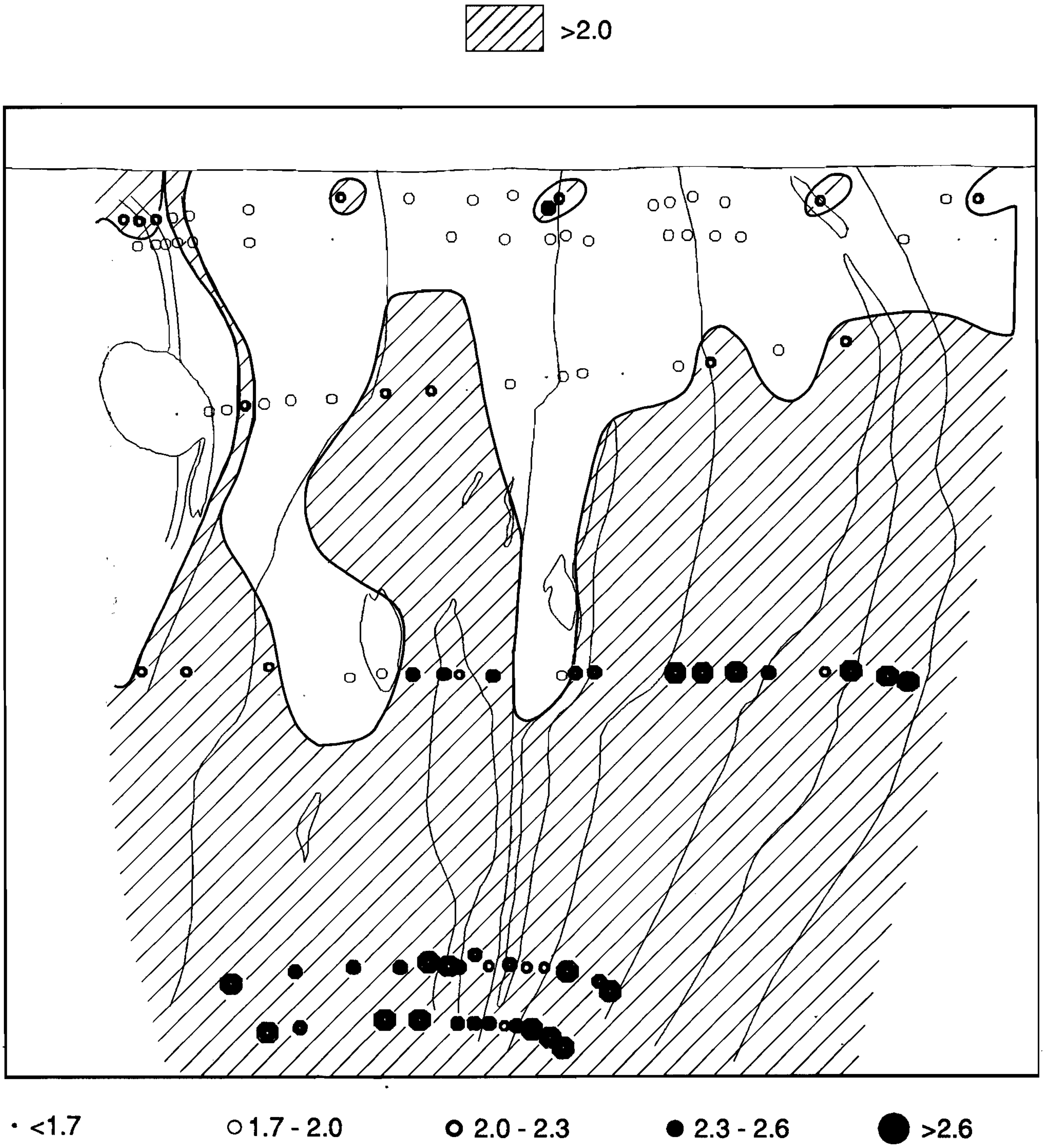
APPENDIX 5

Geology and Geochemistry of the South Face of the Rand Pit

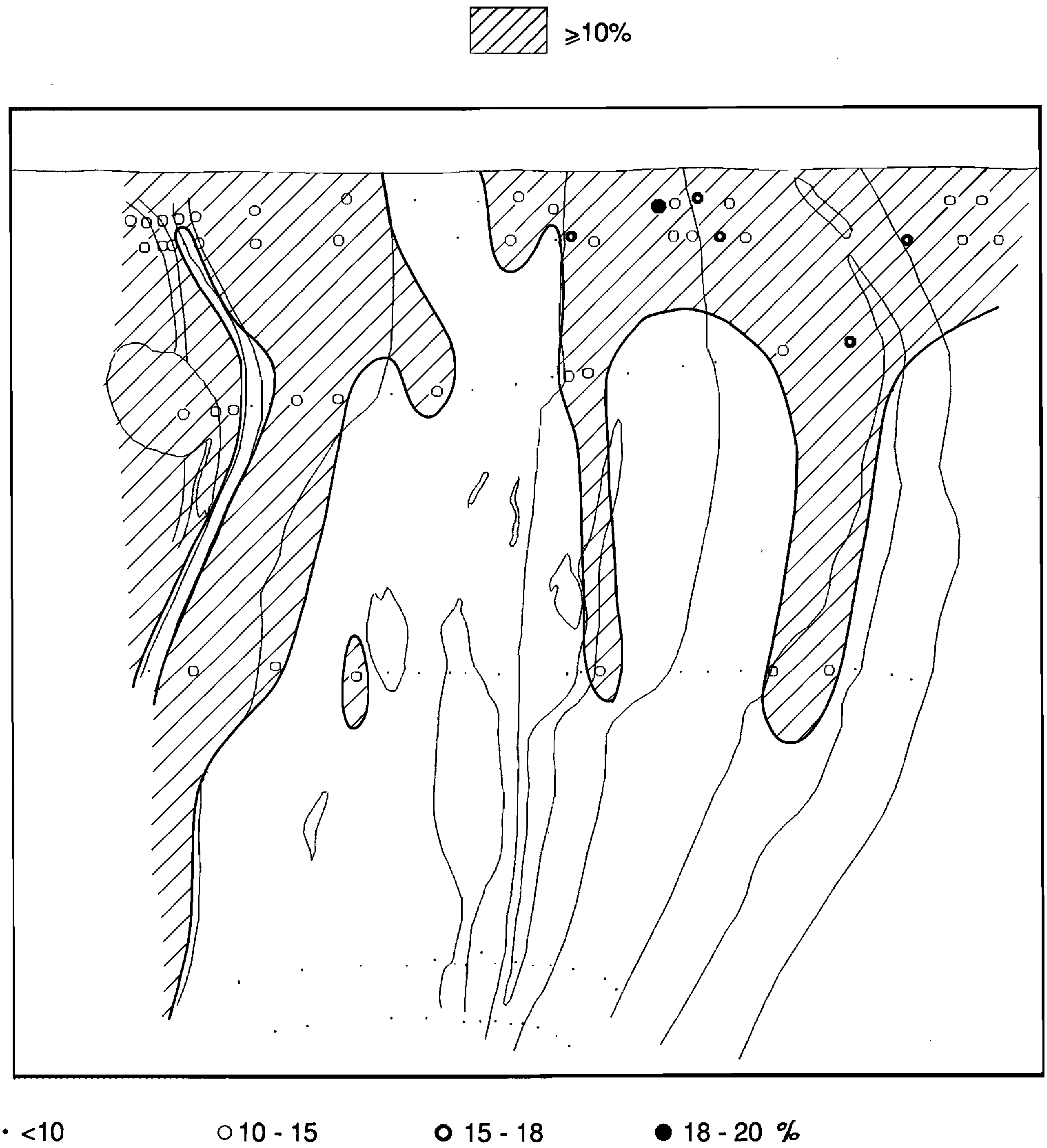


Photograph by L.M. Lawrance

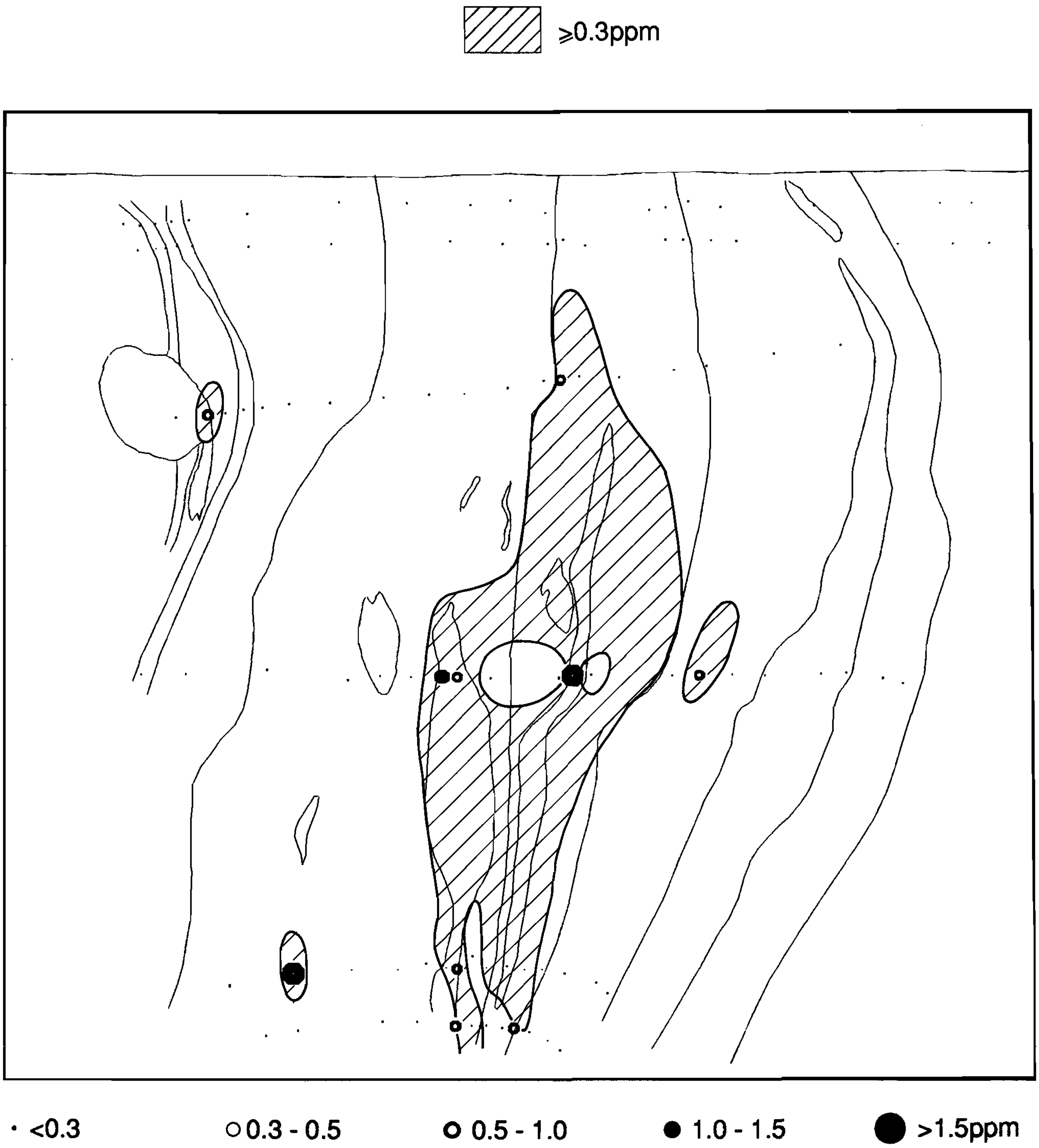
SG



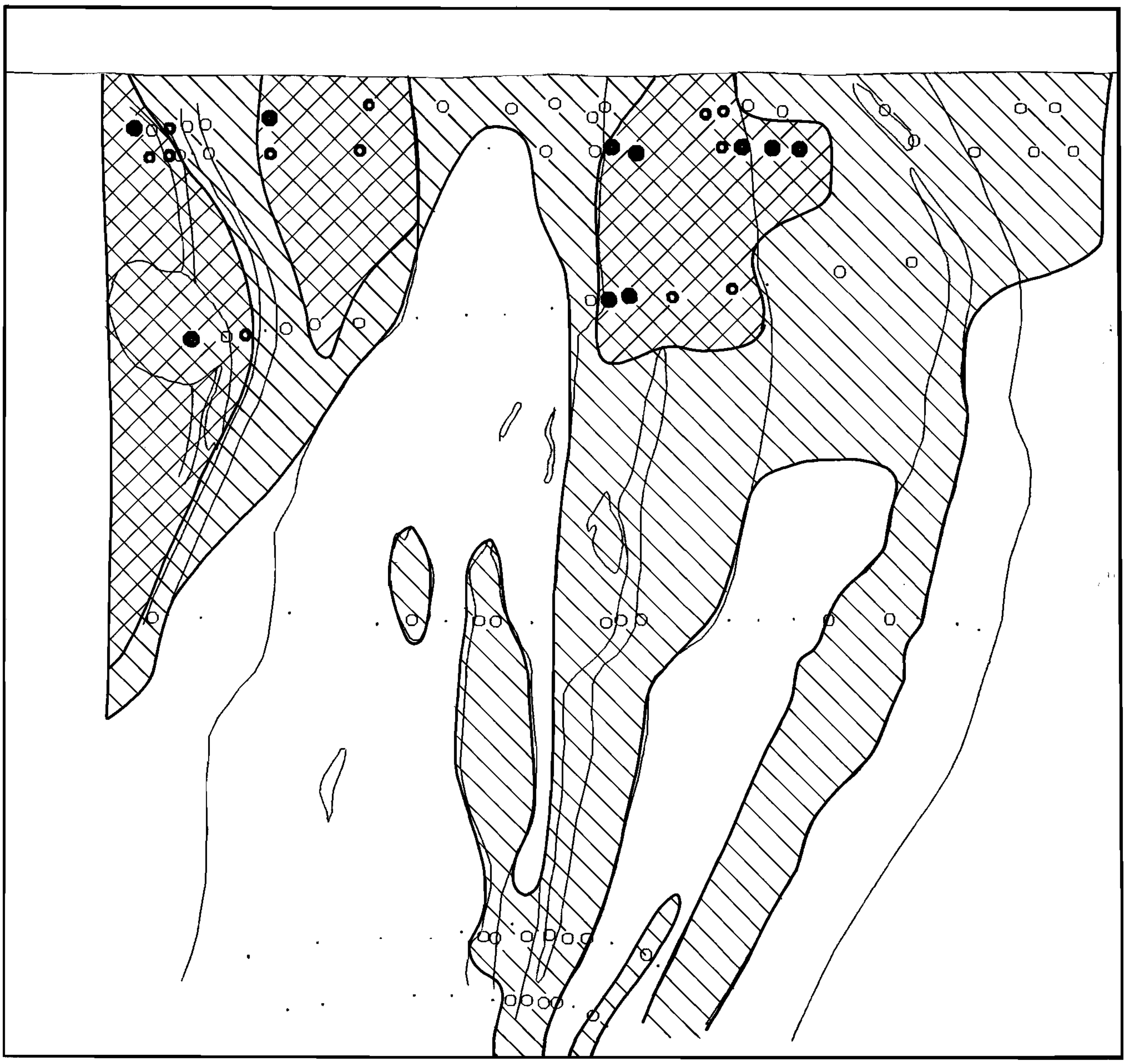
LOI



Ag (es)



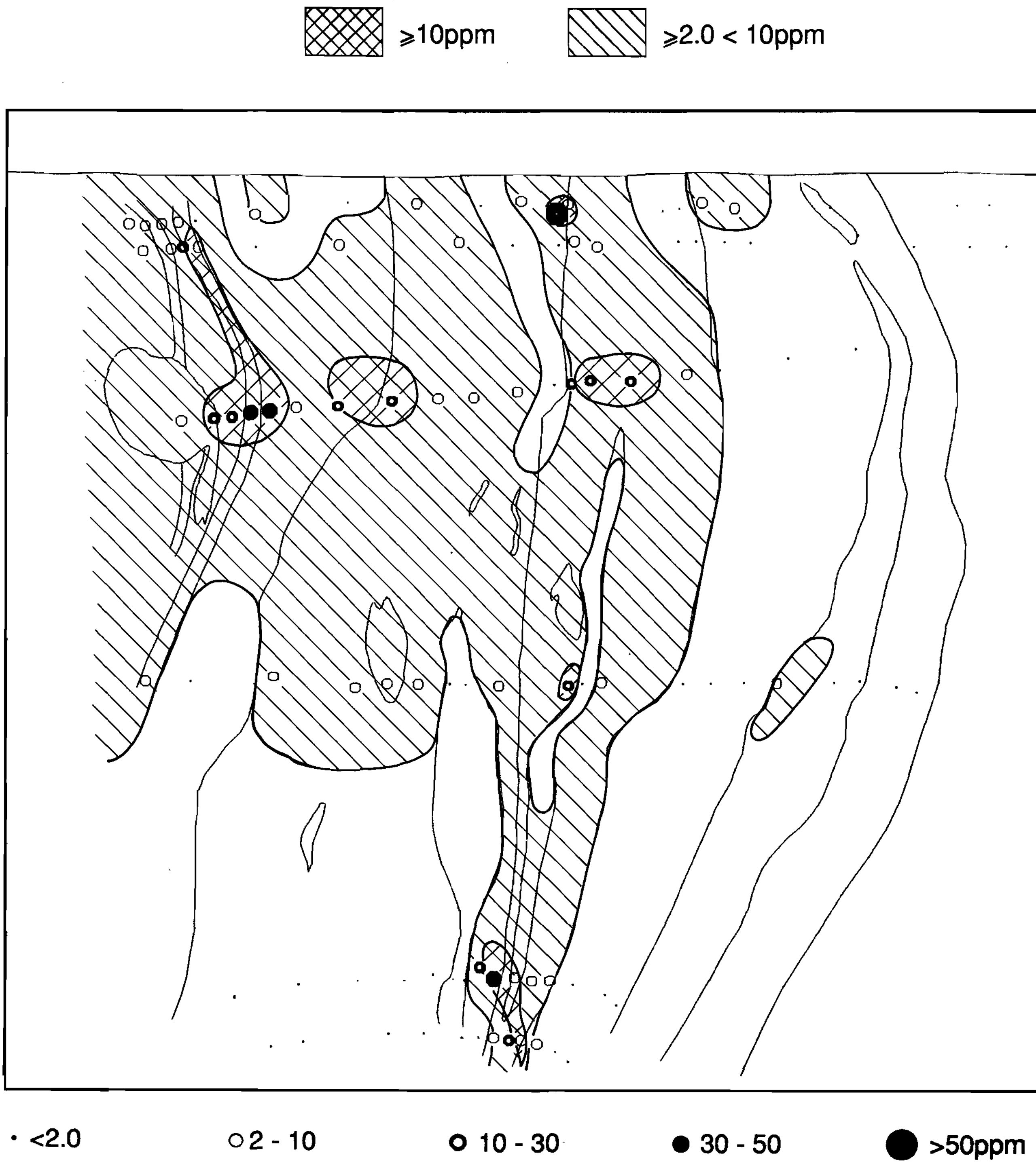
≥20% ≥12 < 20% Al_2O_3



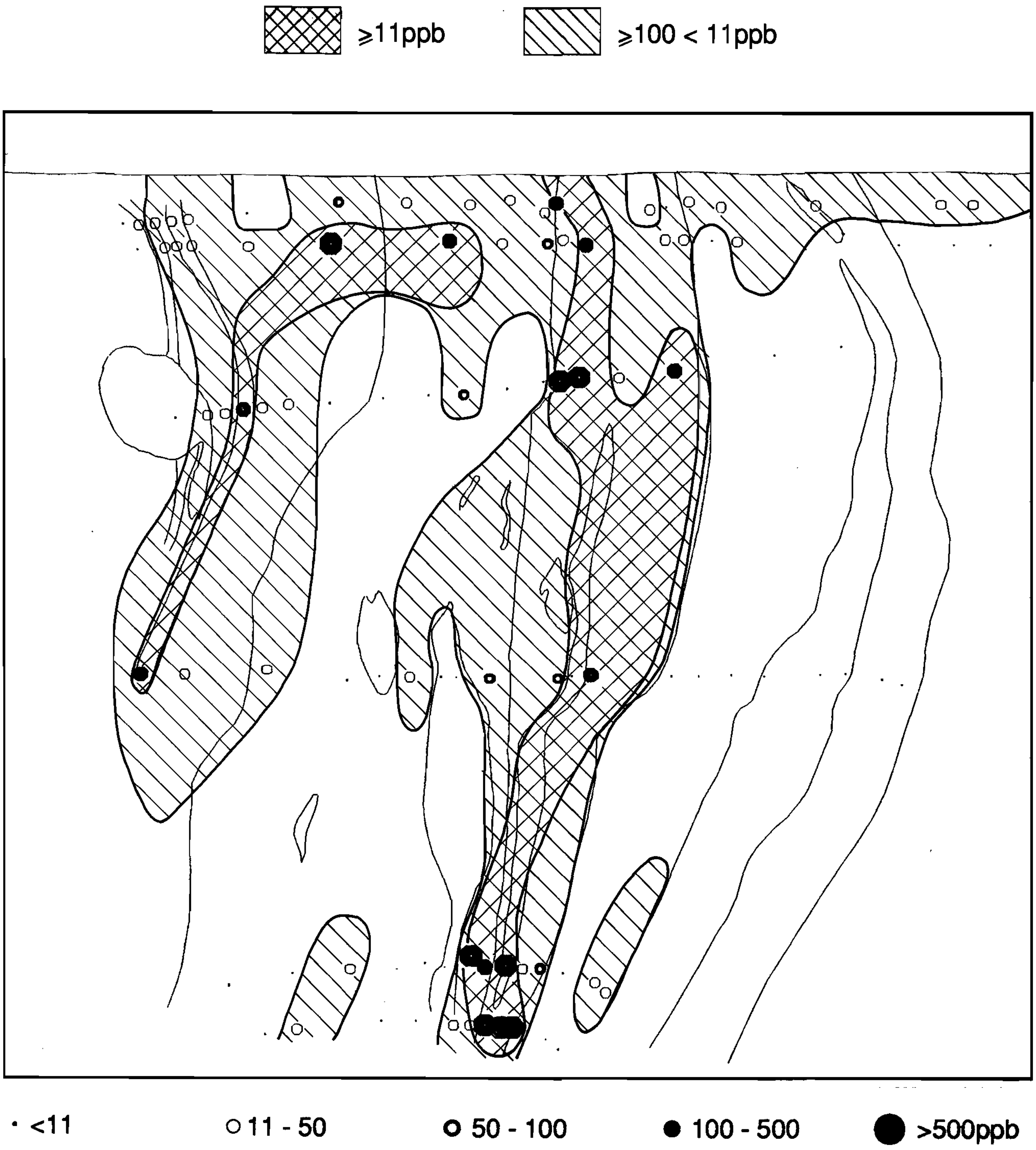
• <12 ○ 12 - 20 **o** 20 - 25 ● 25 - 30 %

Al_2O_3

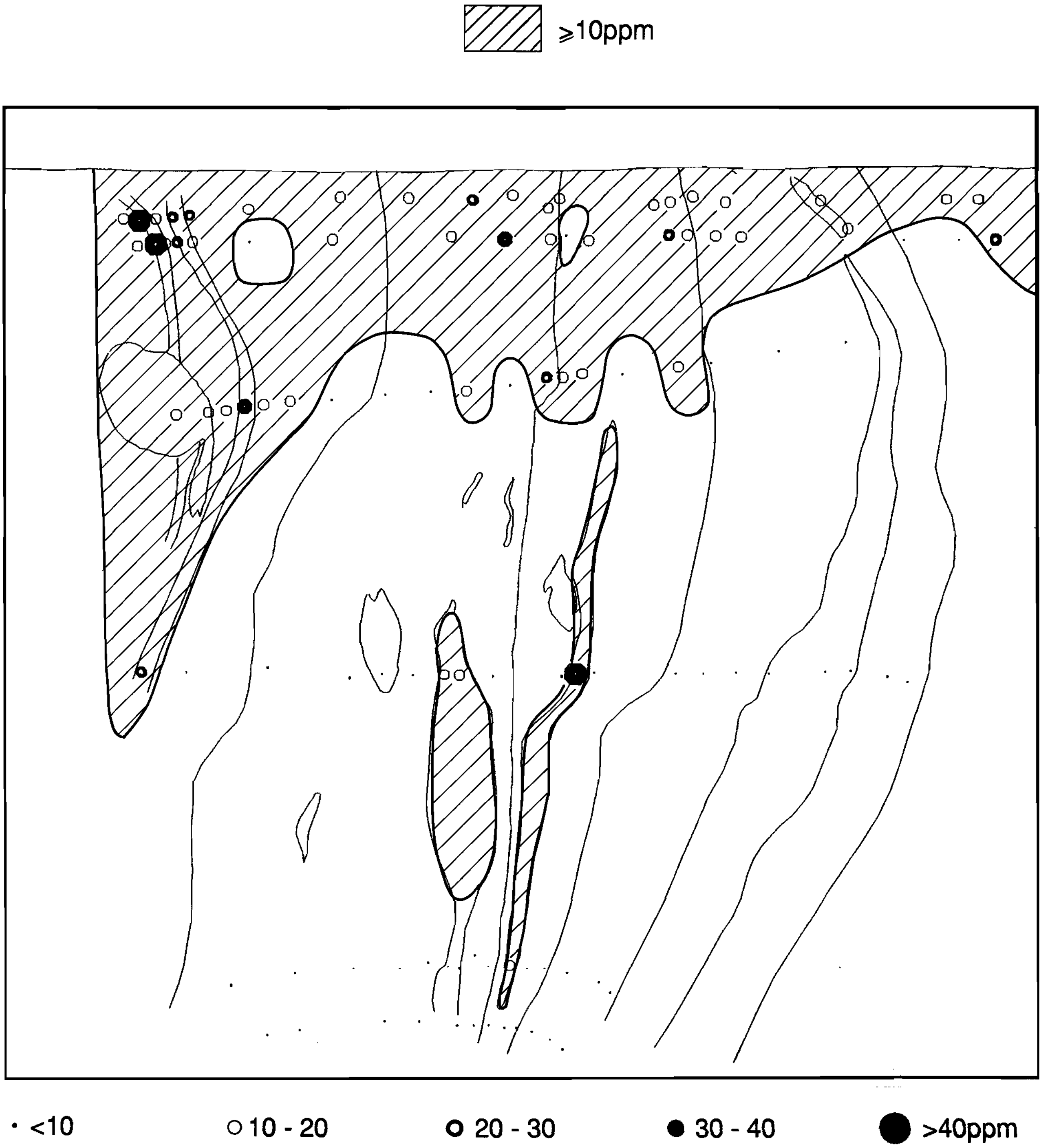
As (inaa)



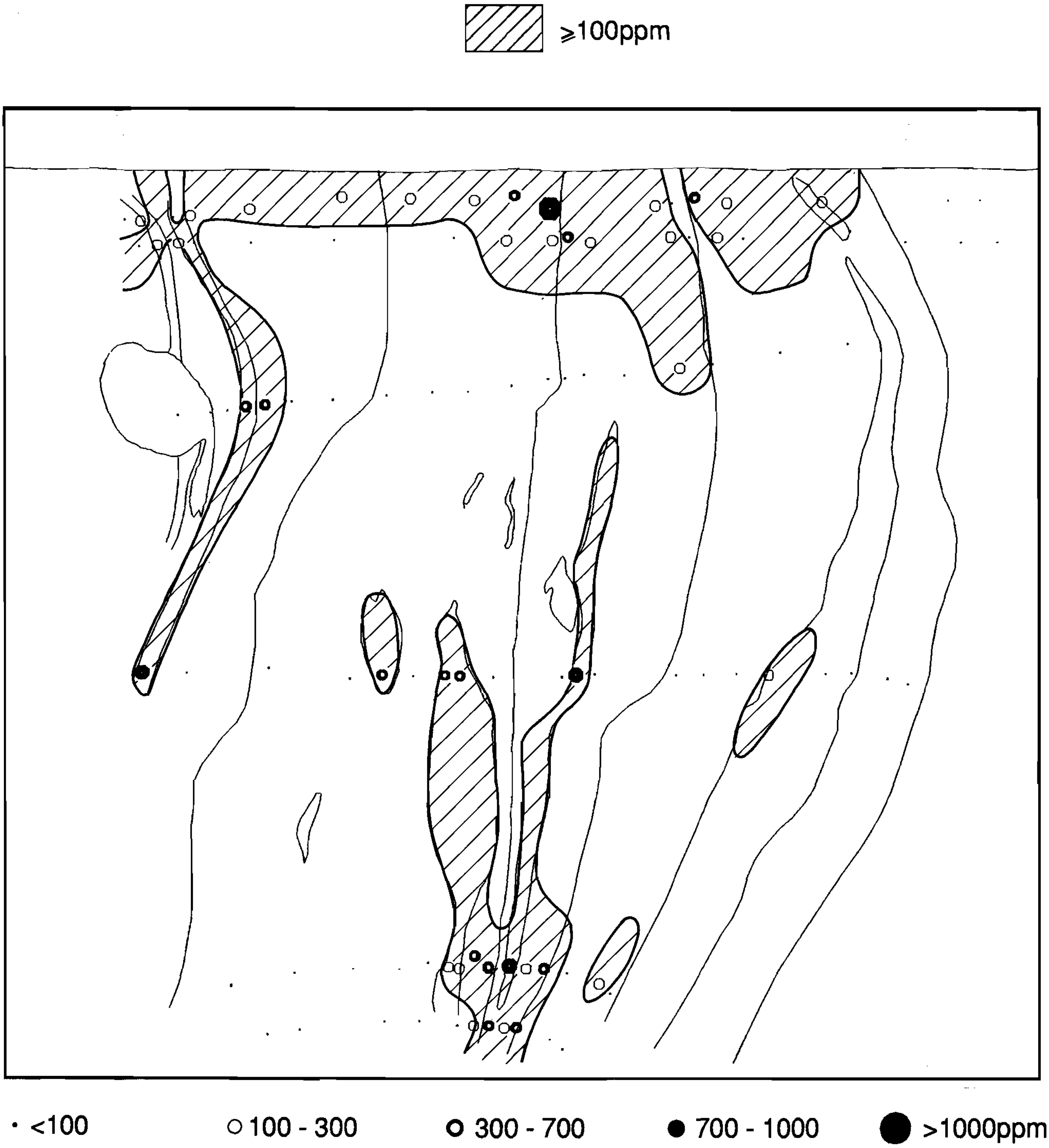
Au



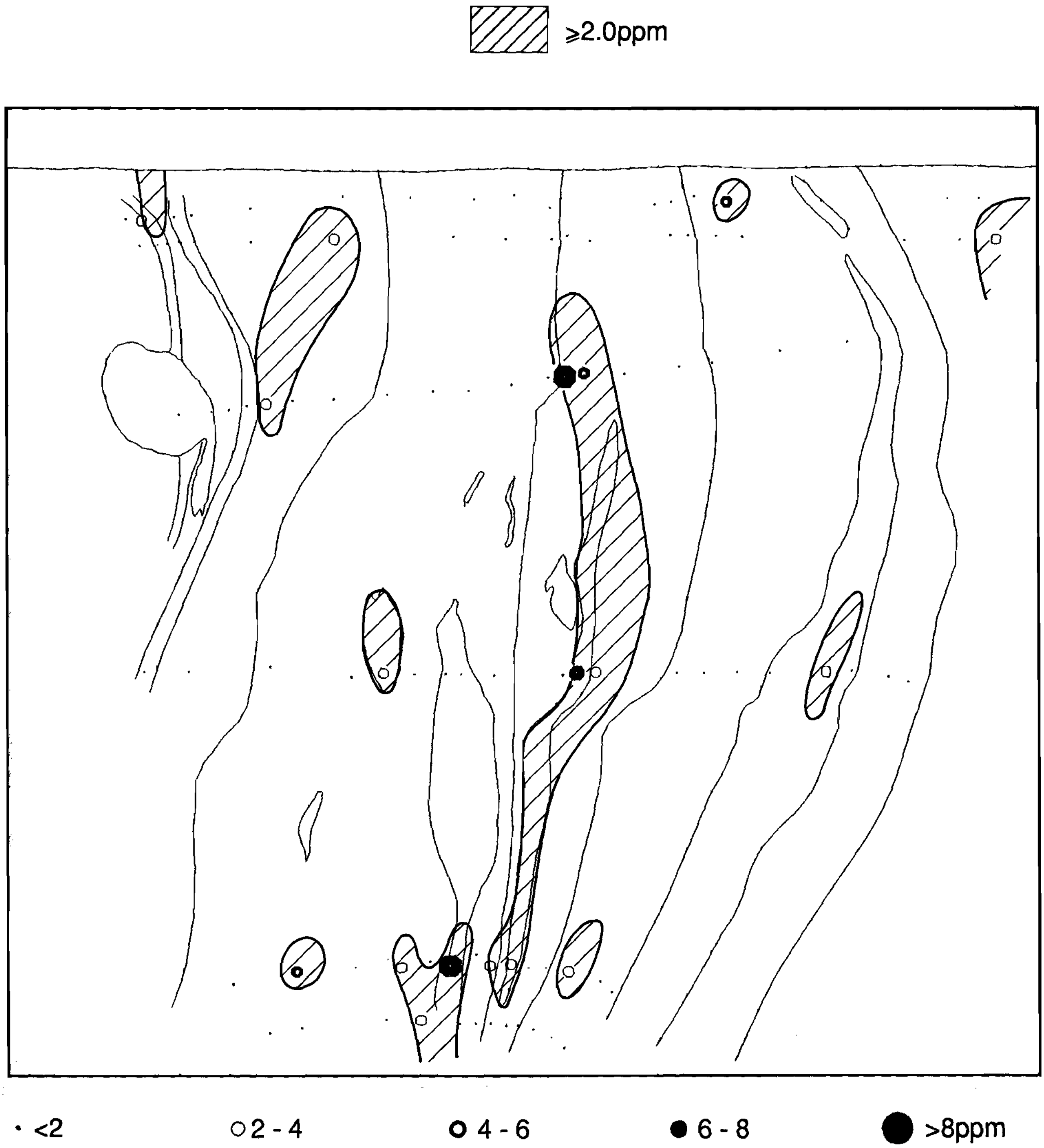
B



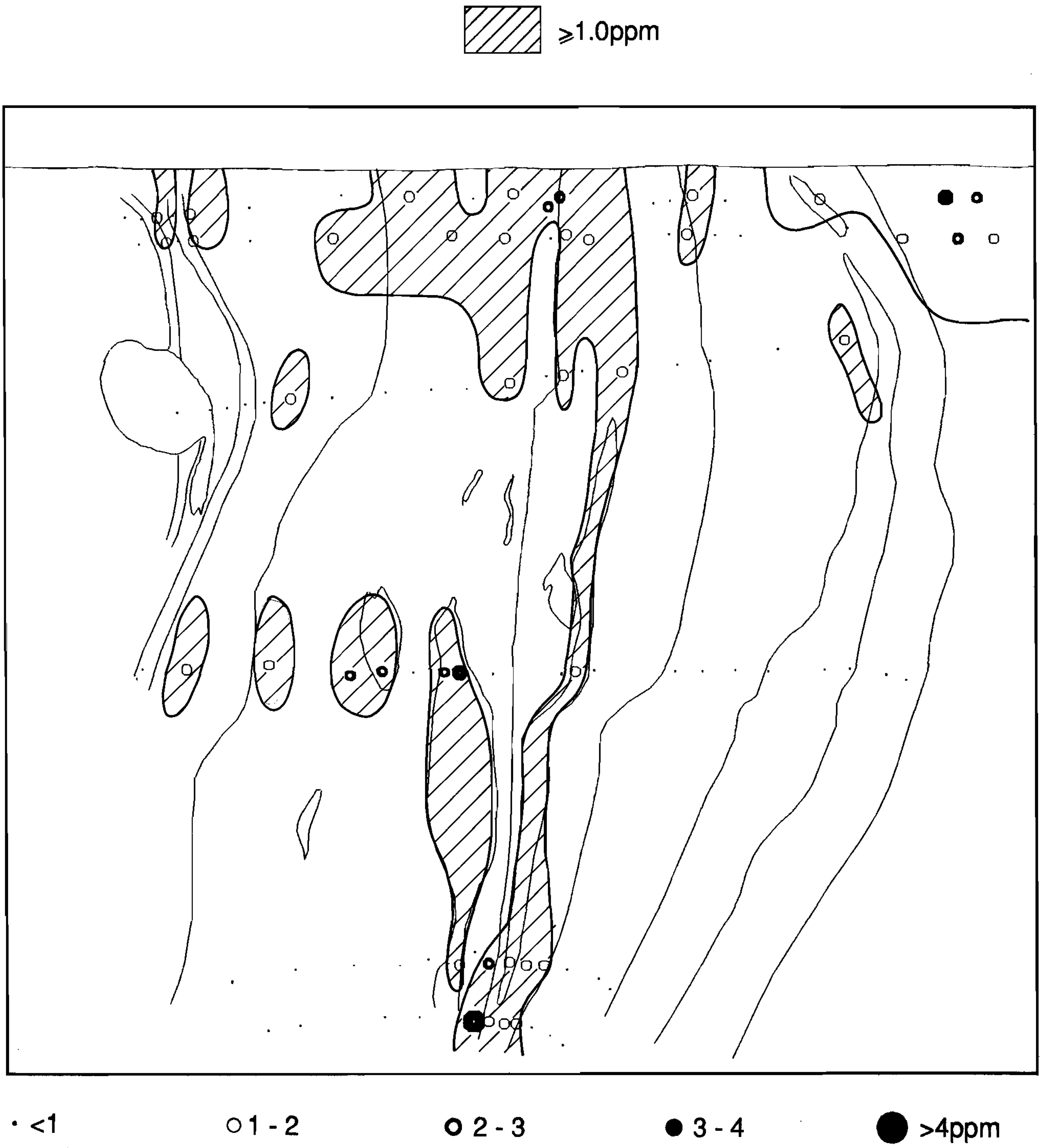
Ba (xrf)



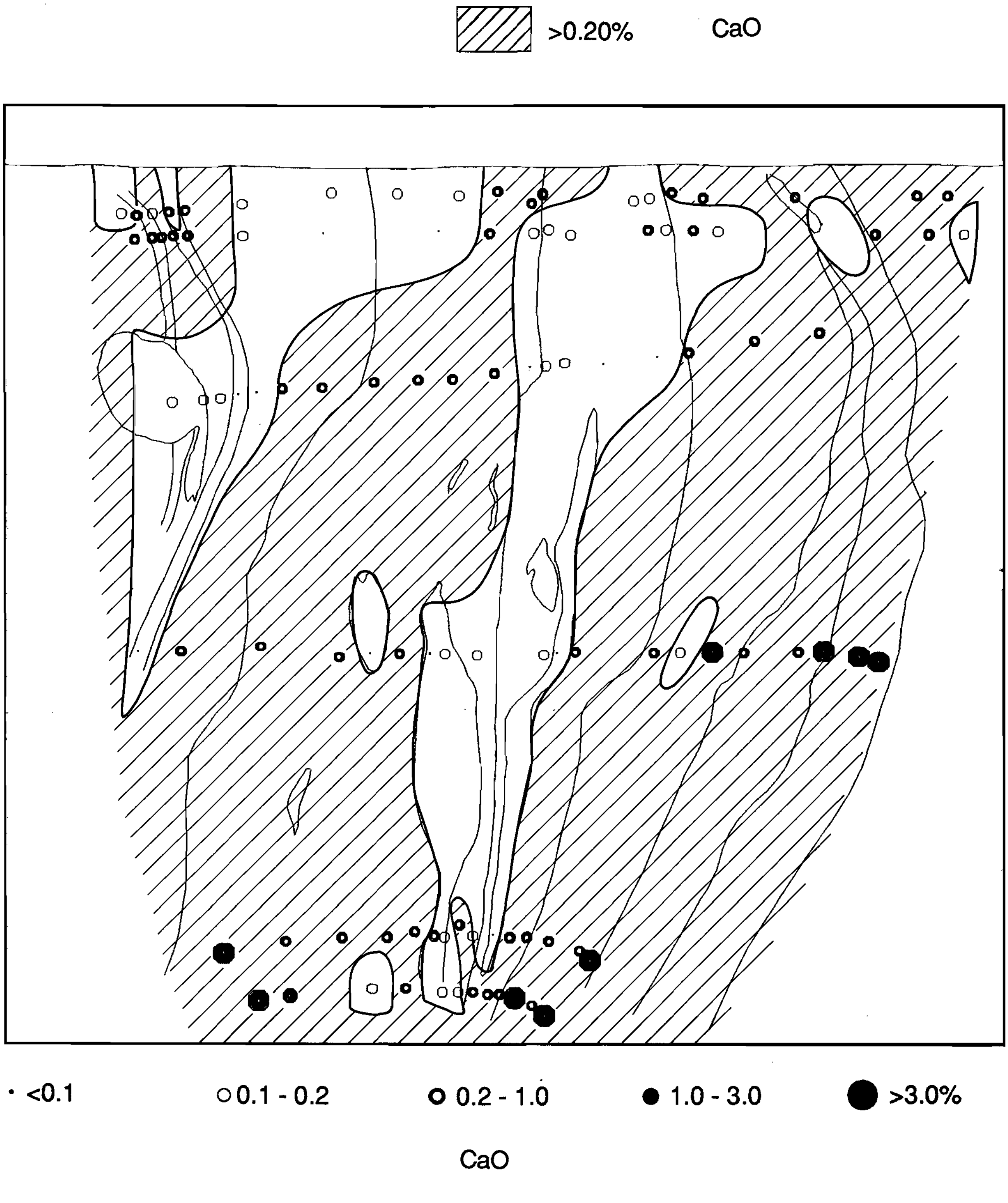
Bi (xrf)



Br

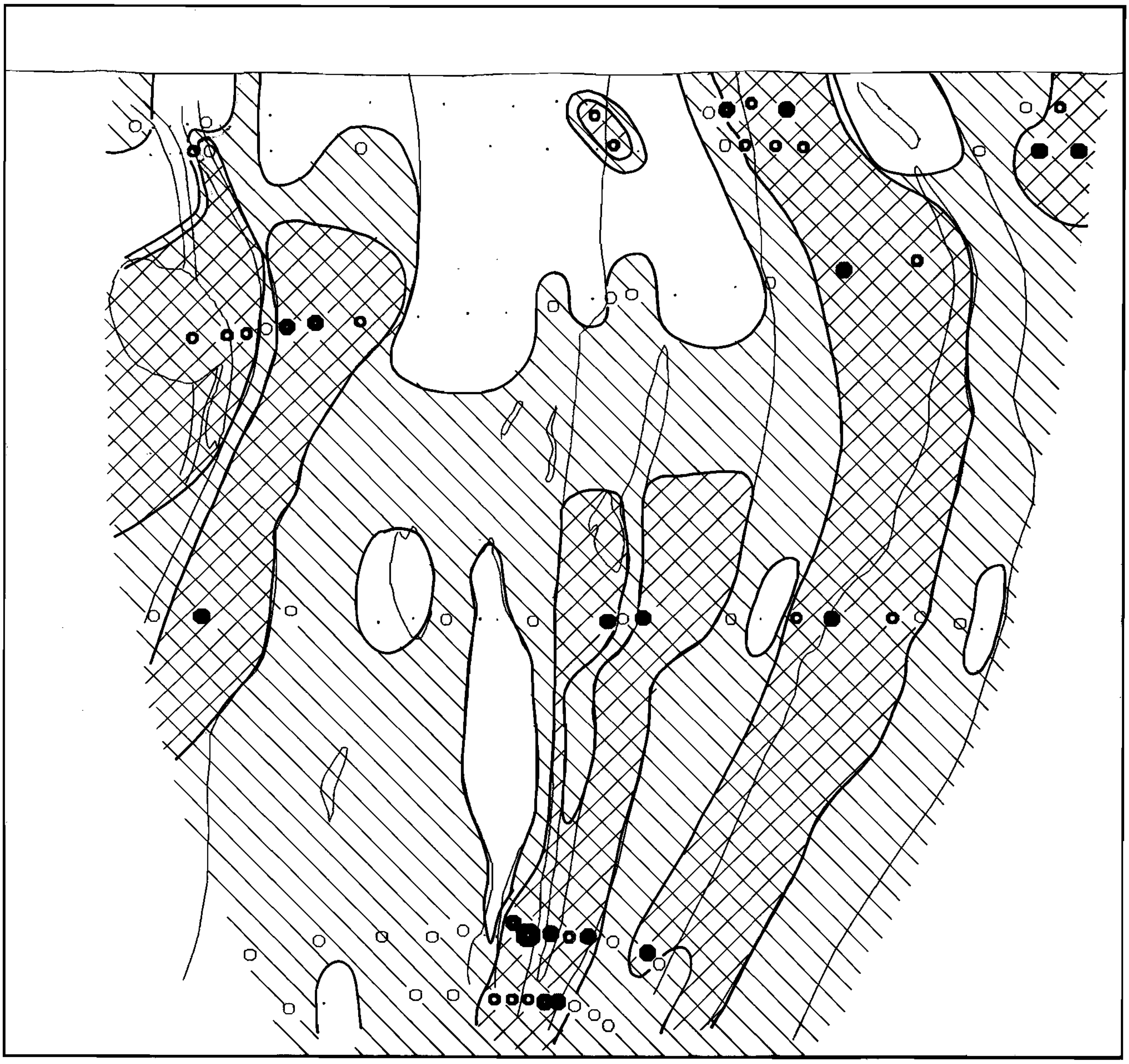


Ca



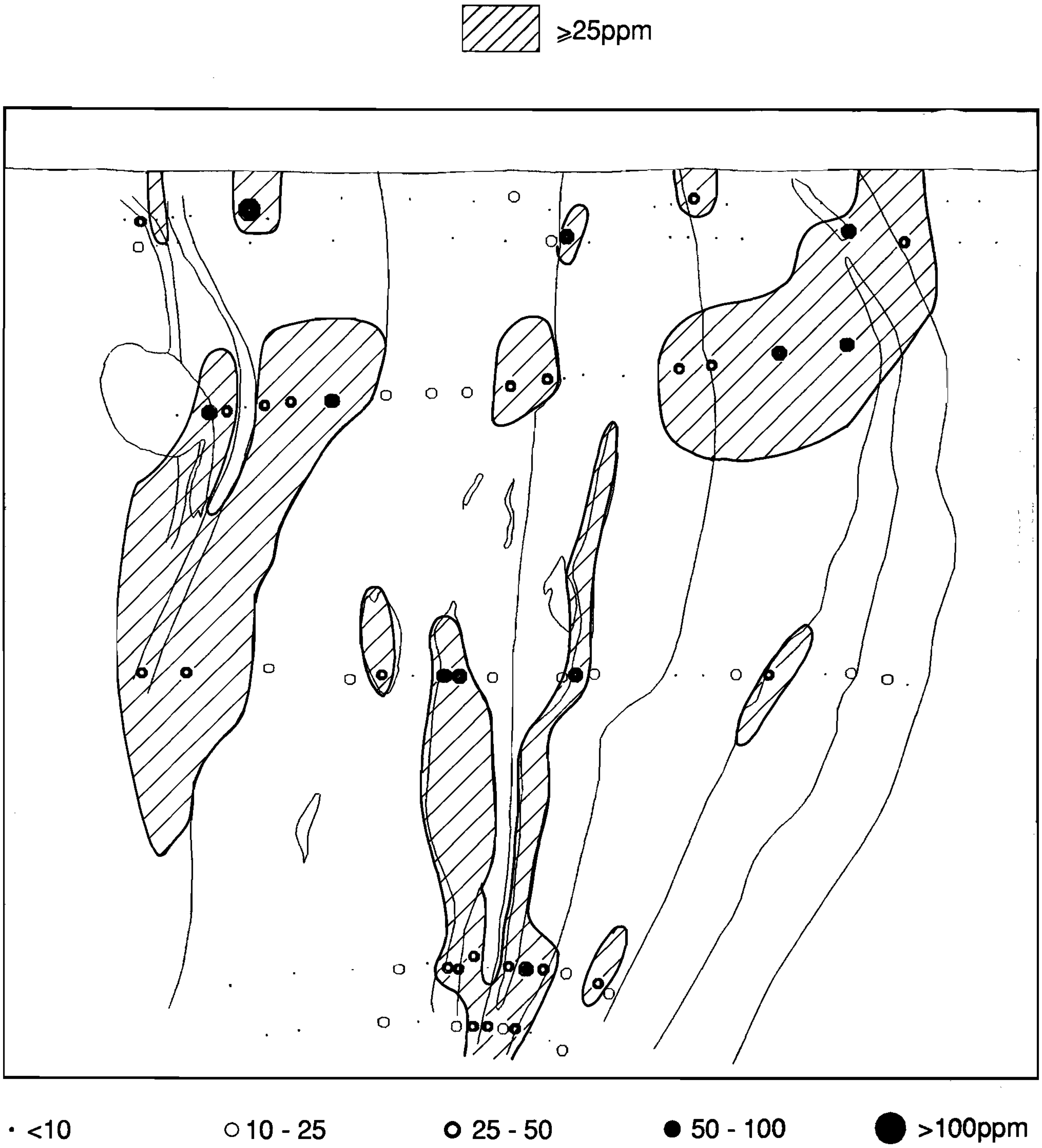
Cd (icp)

⩾0.40ppm | ⩾0.10 < 0.4ppm | <0.10ppm

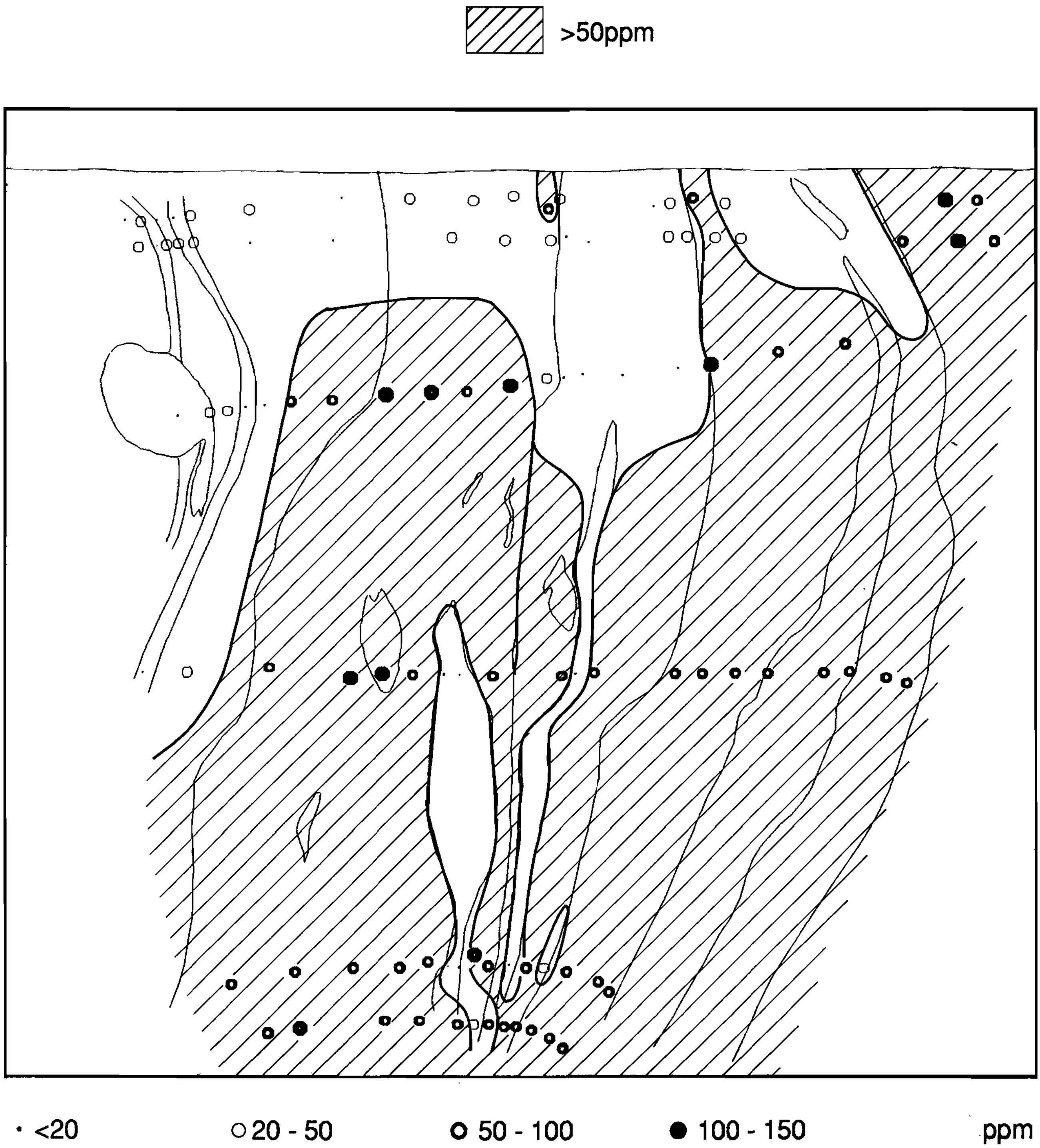


· <0.1 ○ 0.1 - 0.4 **o** 0.4 - 0.7 ● 0.7 - 2.0 ⬤ >2.0ppm

Ce

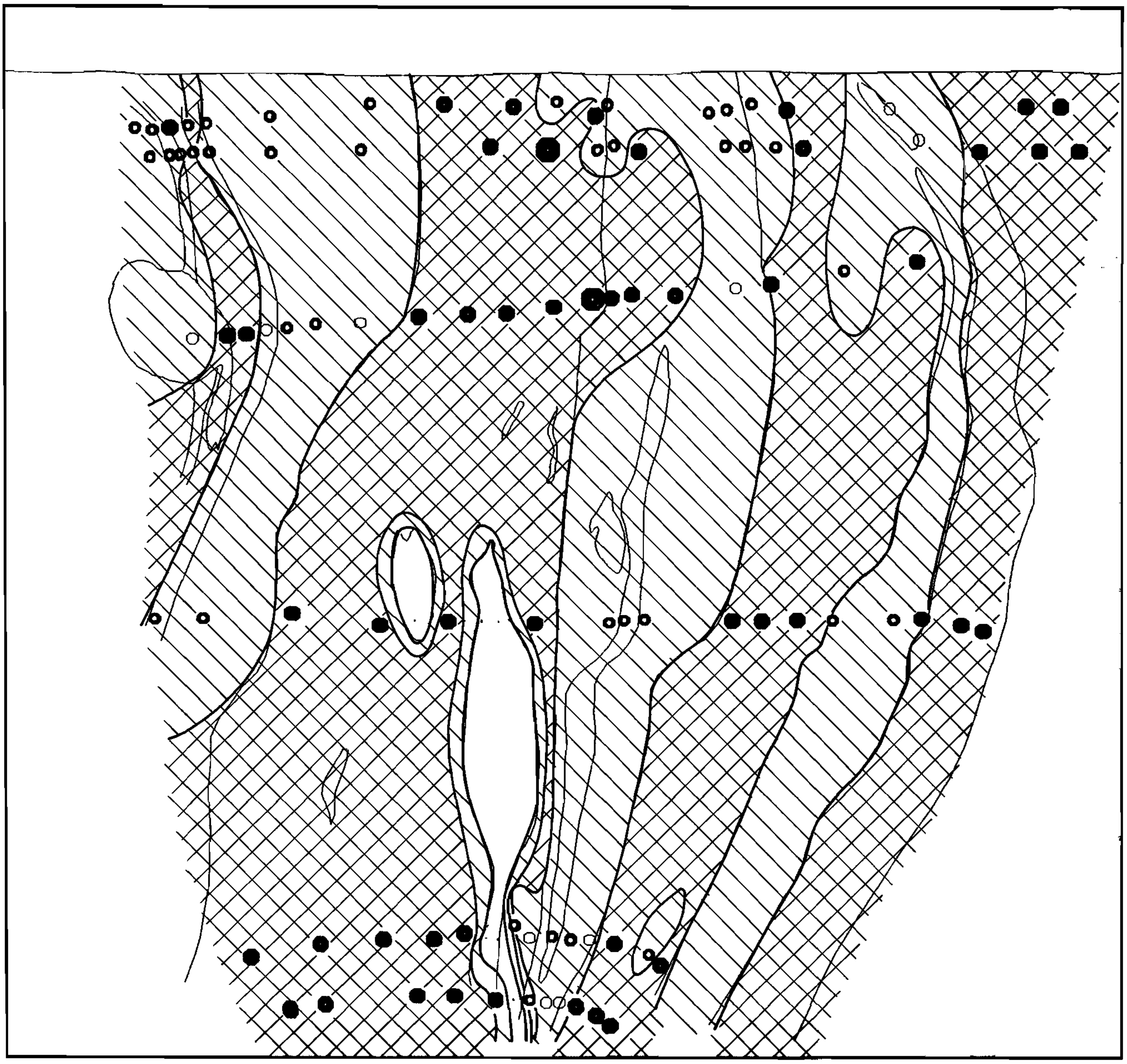


Co



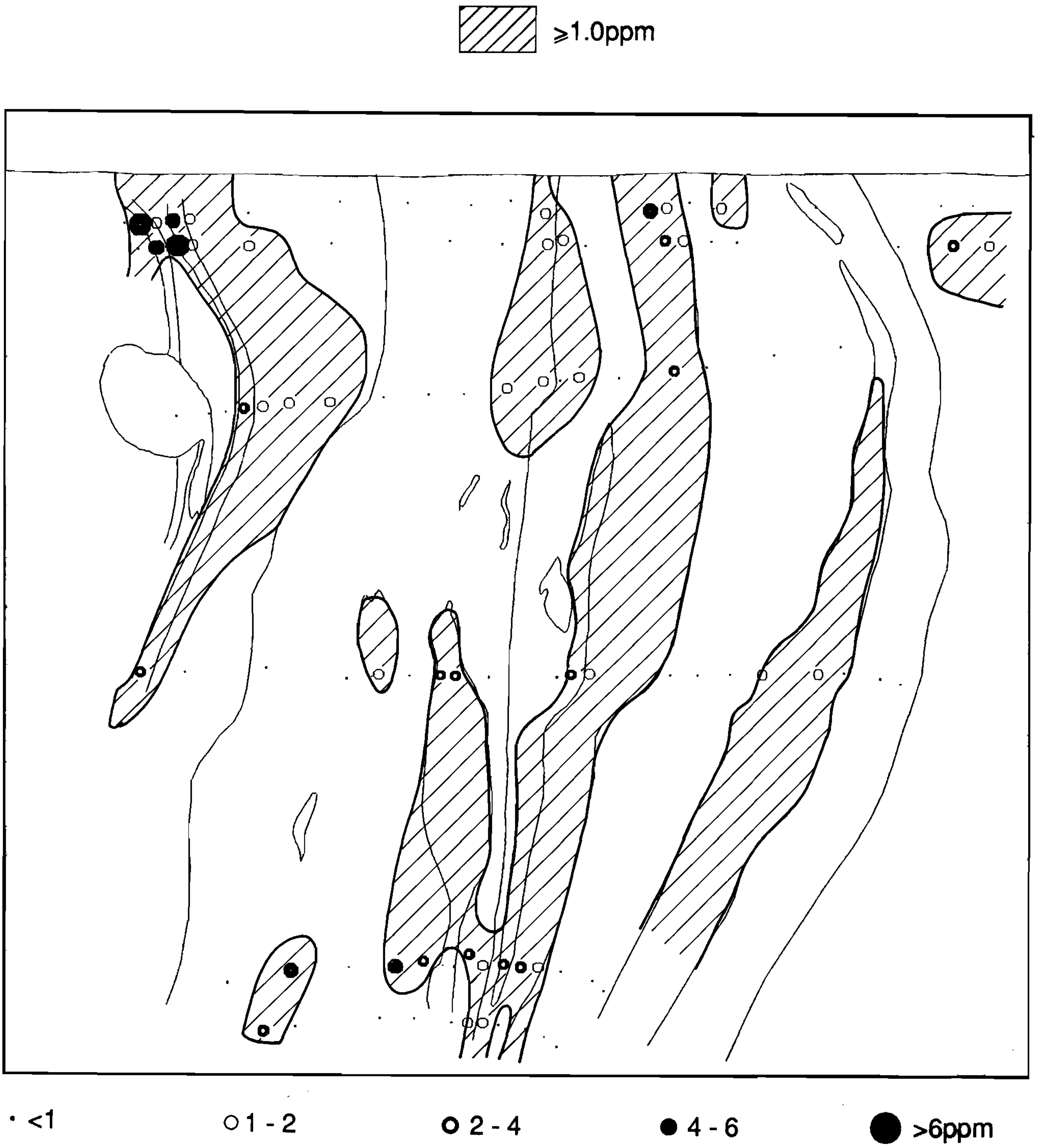
Cr (inaa)

≥1000ppm ≥50 < 1000ppm < 50ppm

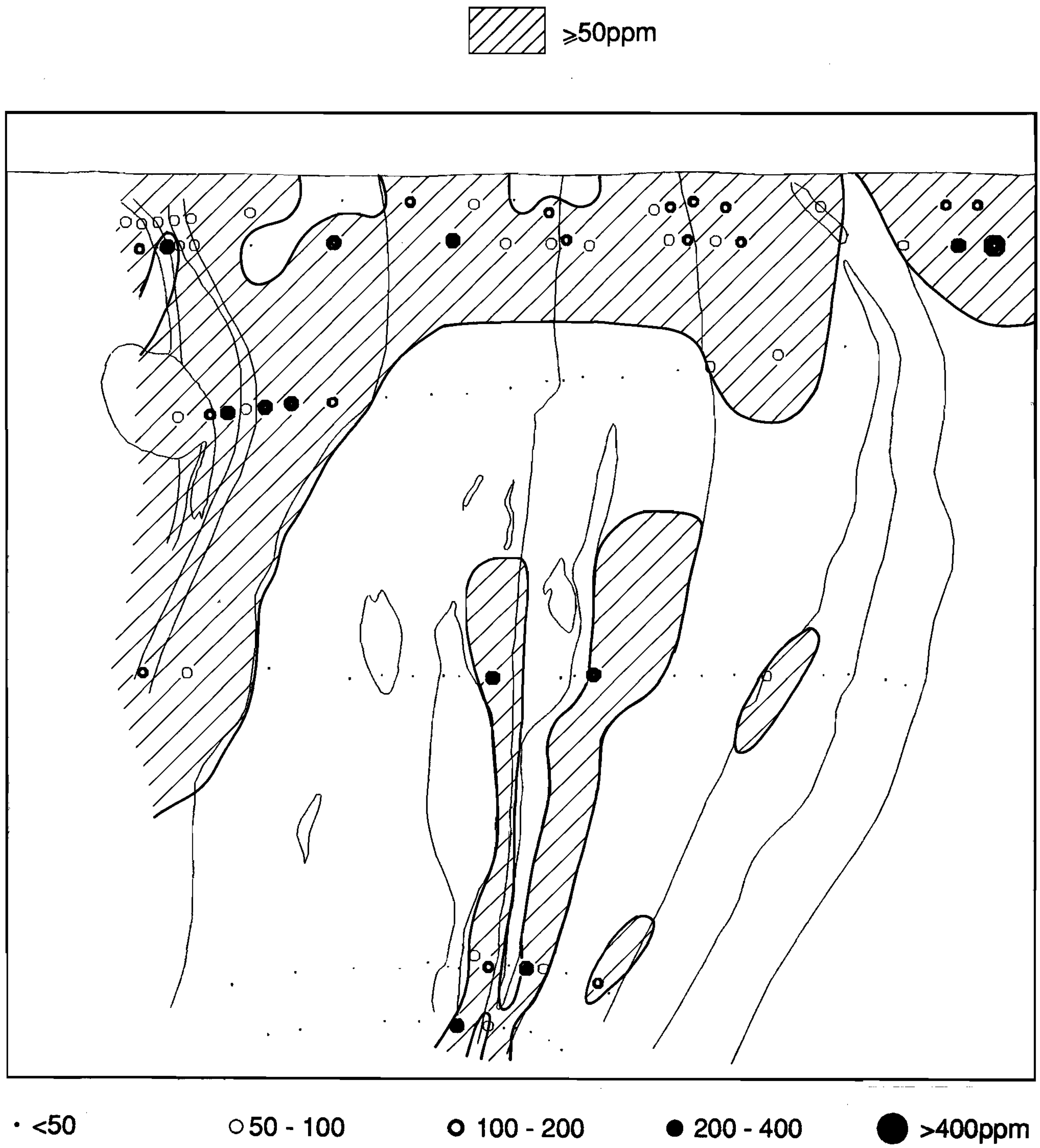


• <50 ○ 50 - 200 ○ 200 - 1000 ● 1000 - 5000 ● >5000ppm

Cs

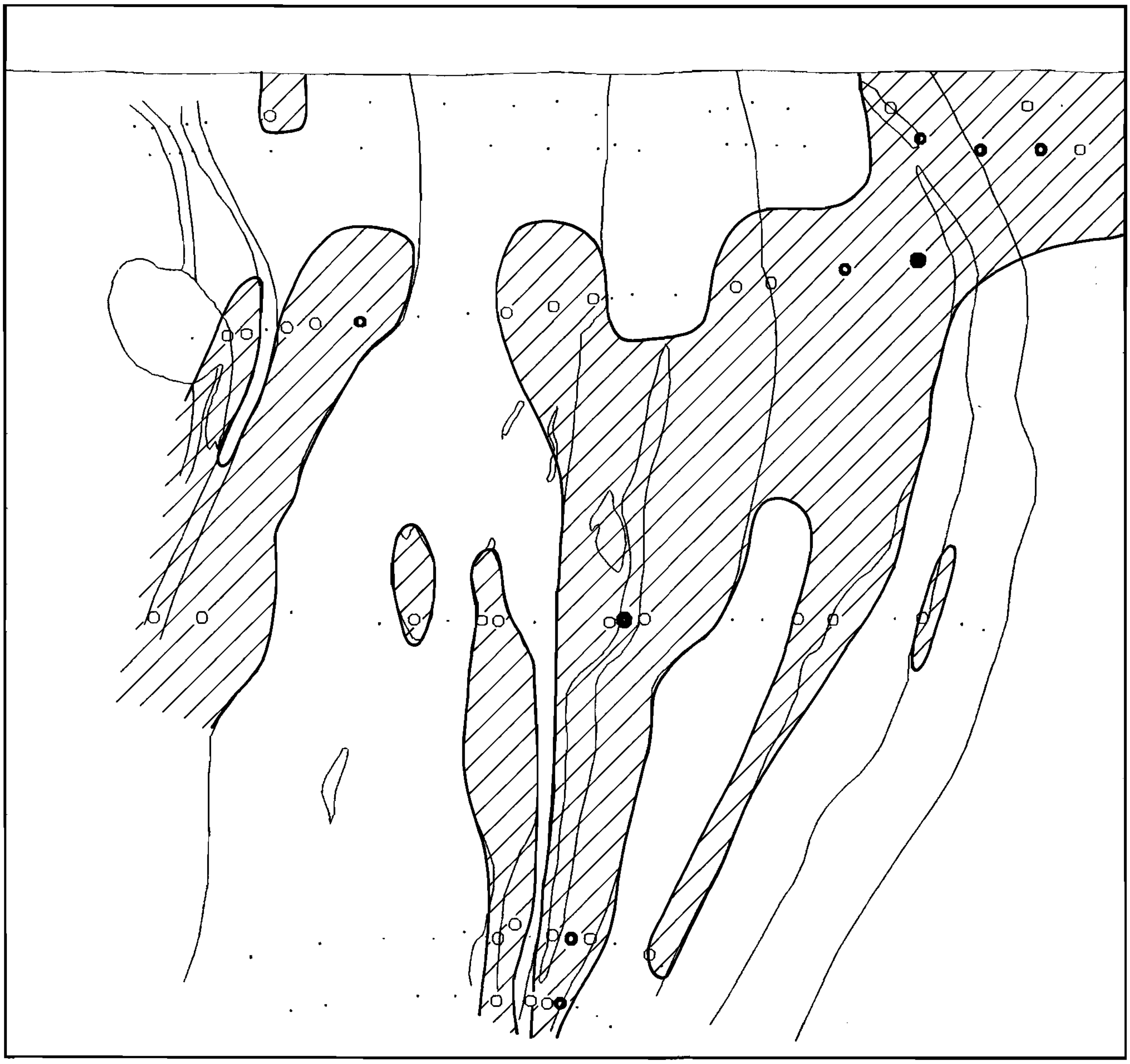


Cu (xrf)



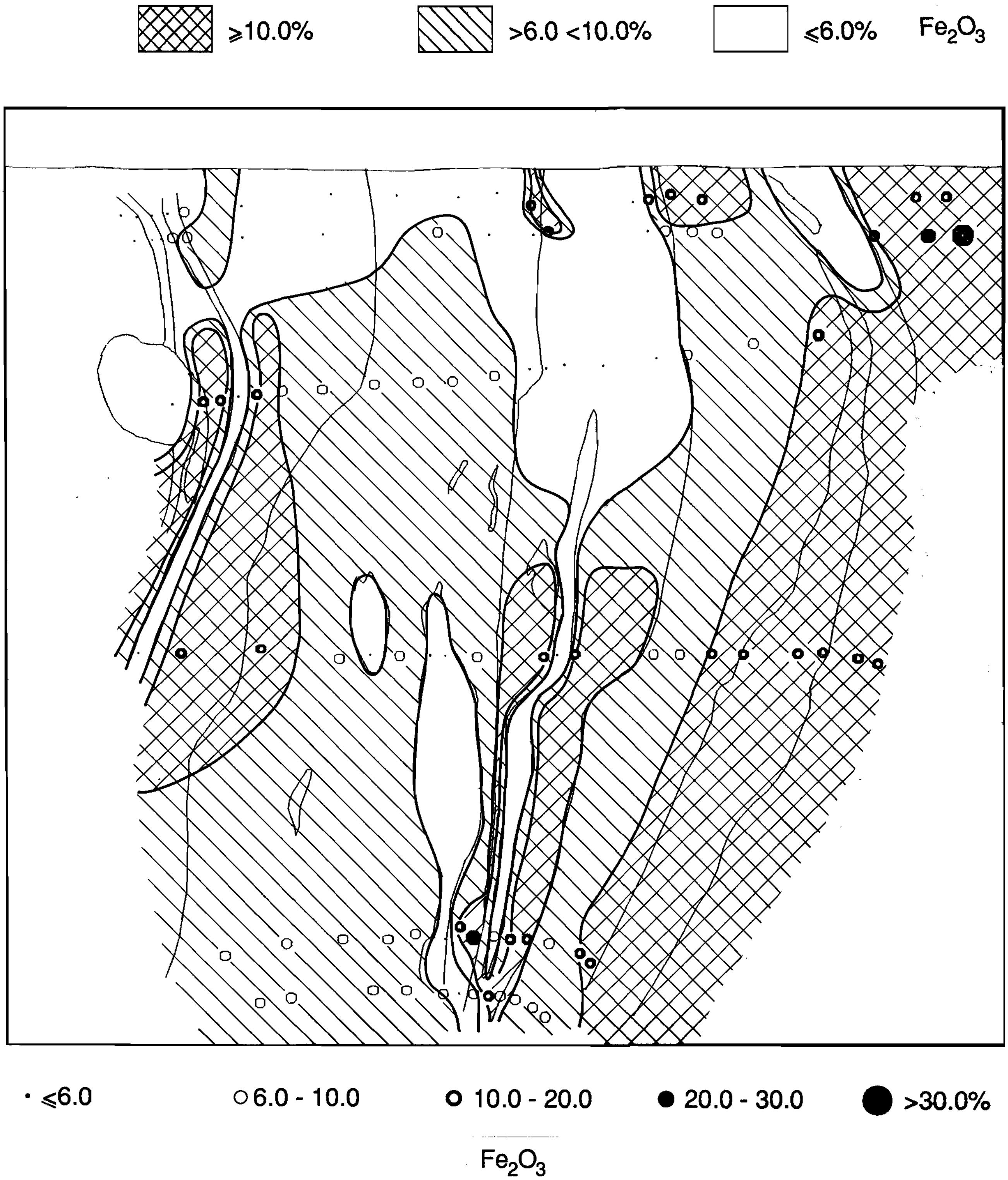
Eu

≥0.70ppm

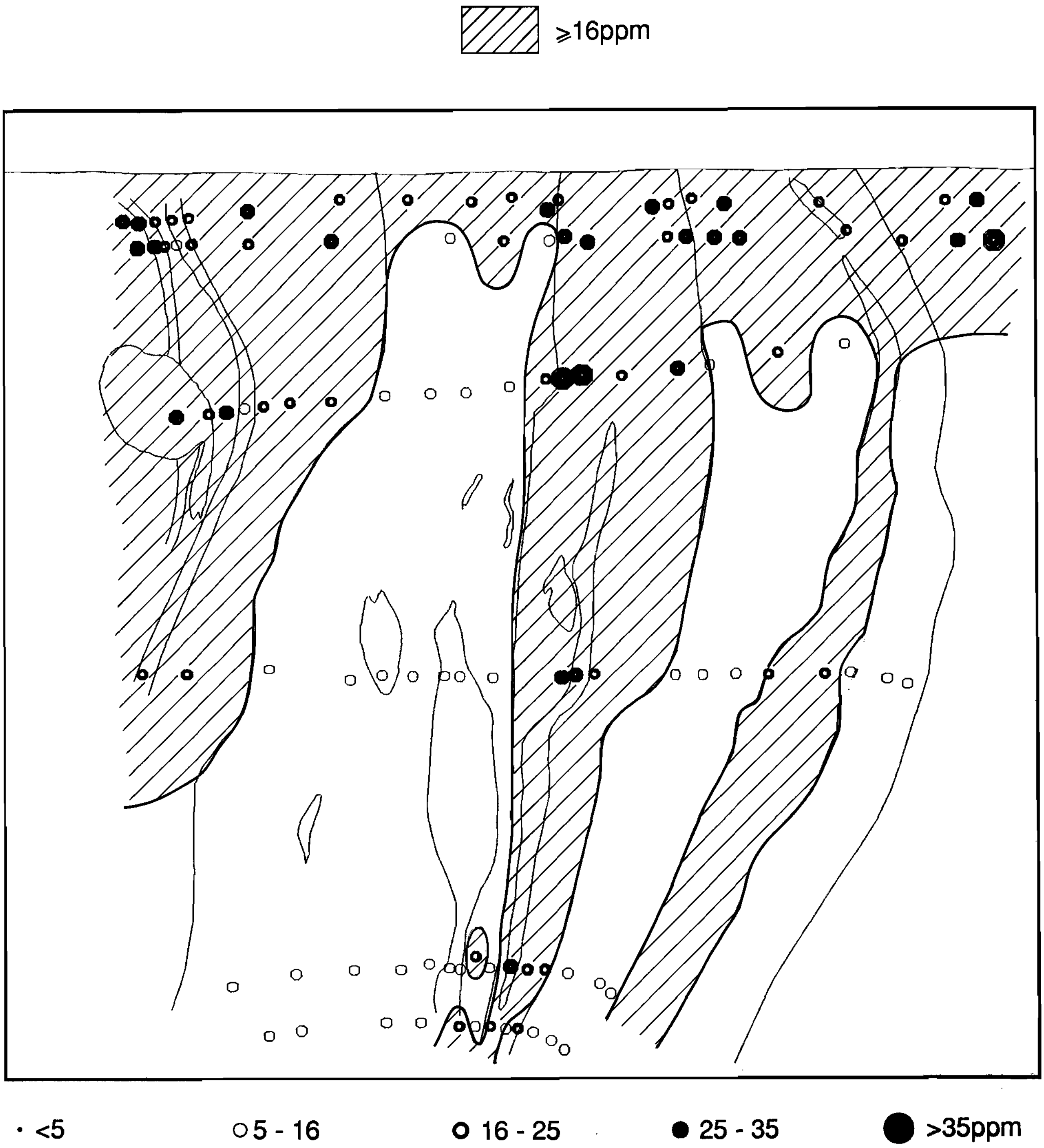


• <0.7 ○ 0.7 - 1.5 **o** 1.5 - 2.5 ● 2.5 - 3.0 ppm

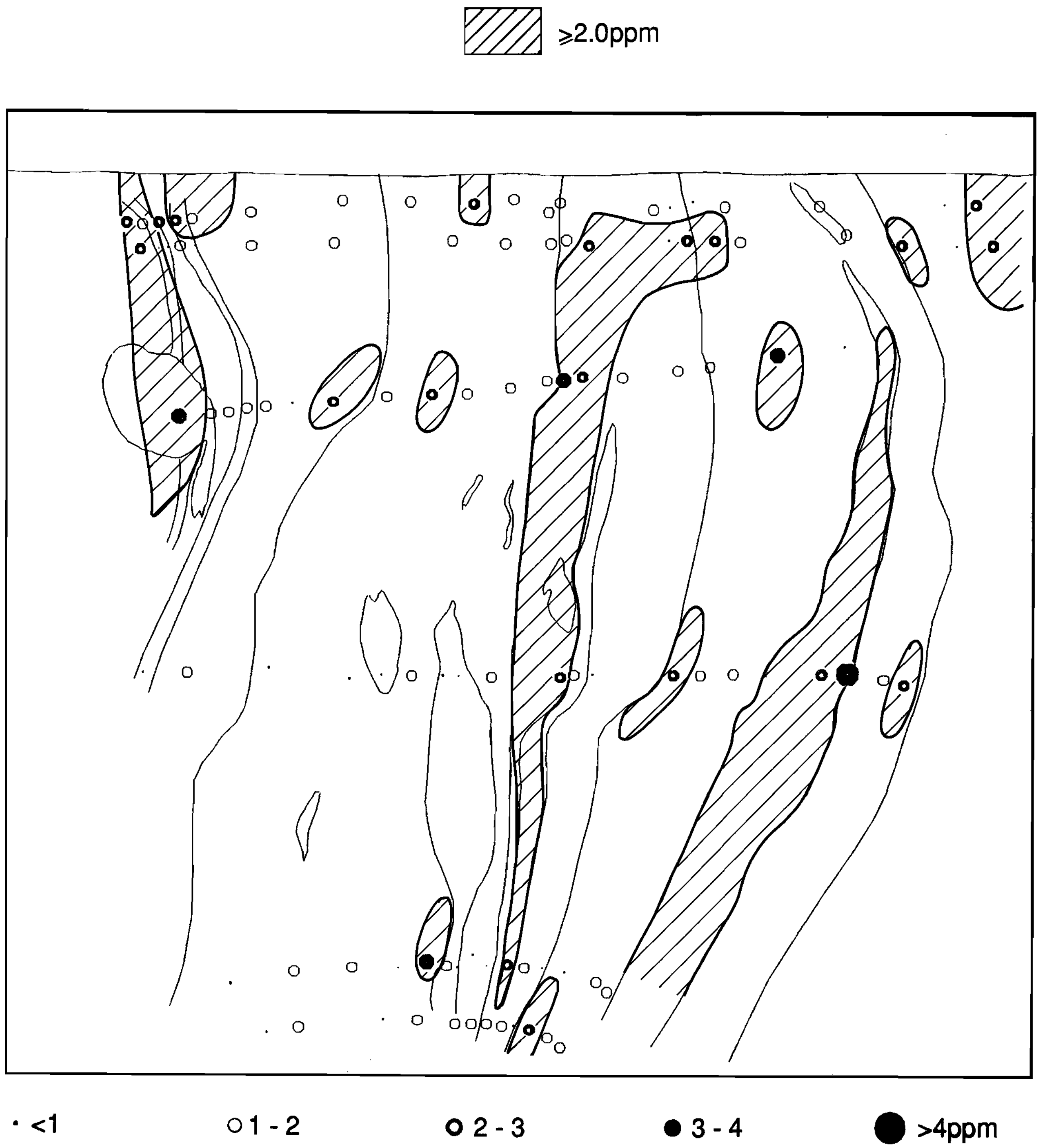
Fe



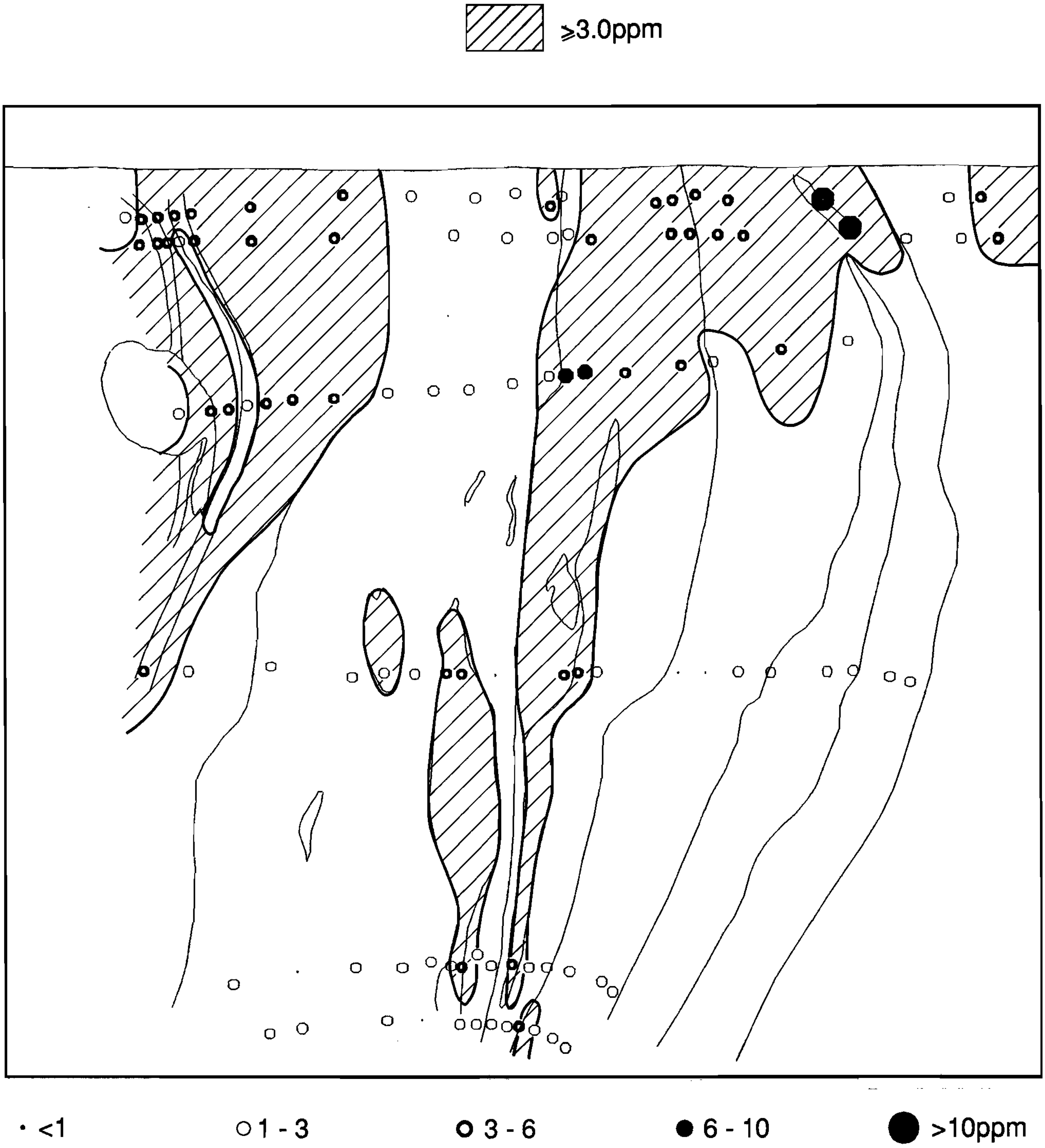
Ga



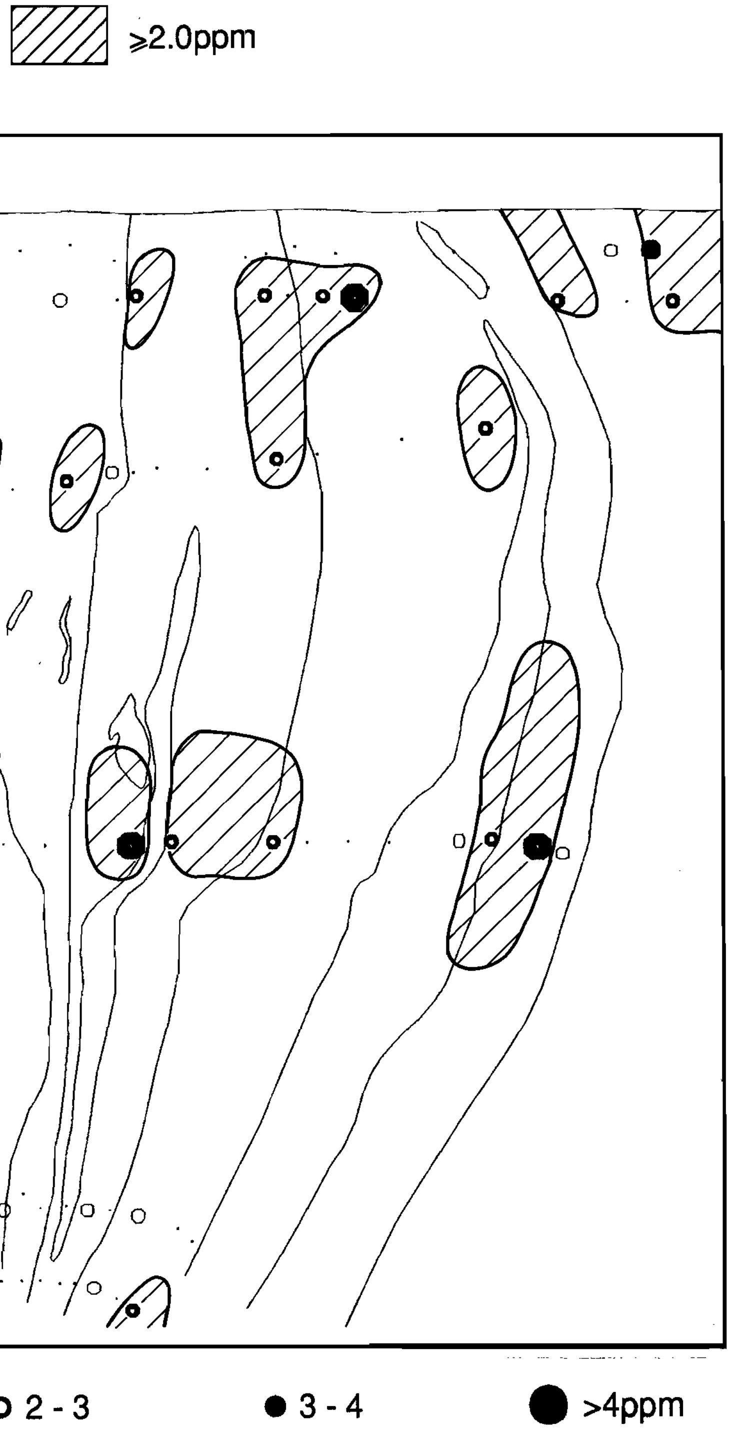
Ge



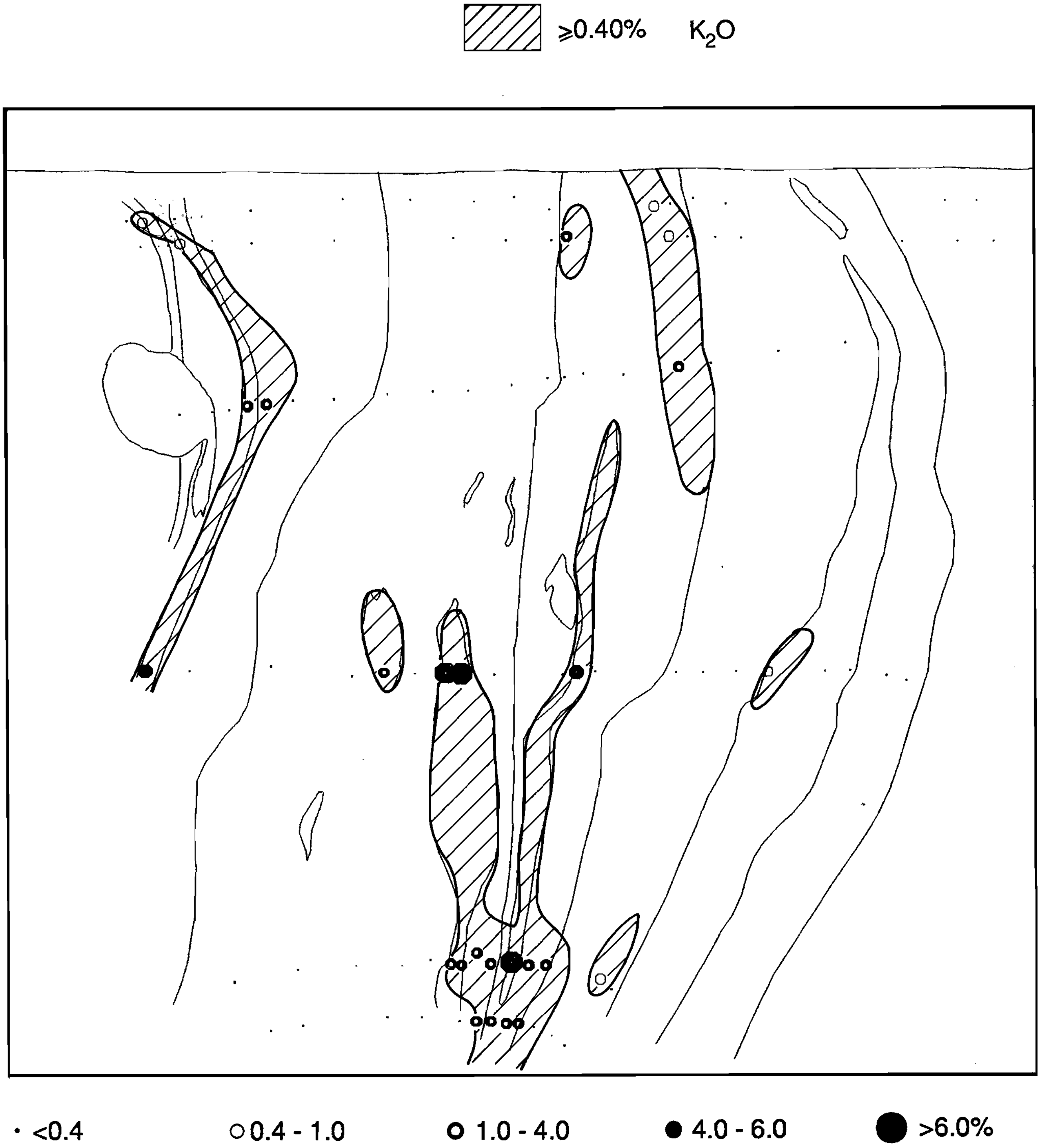
Hf



In



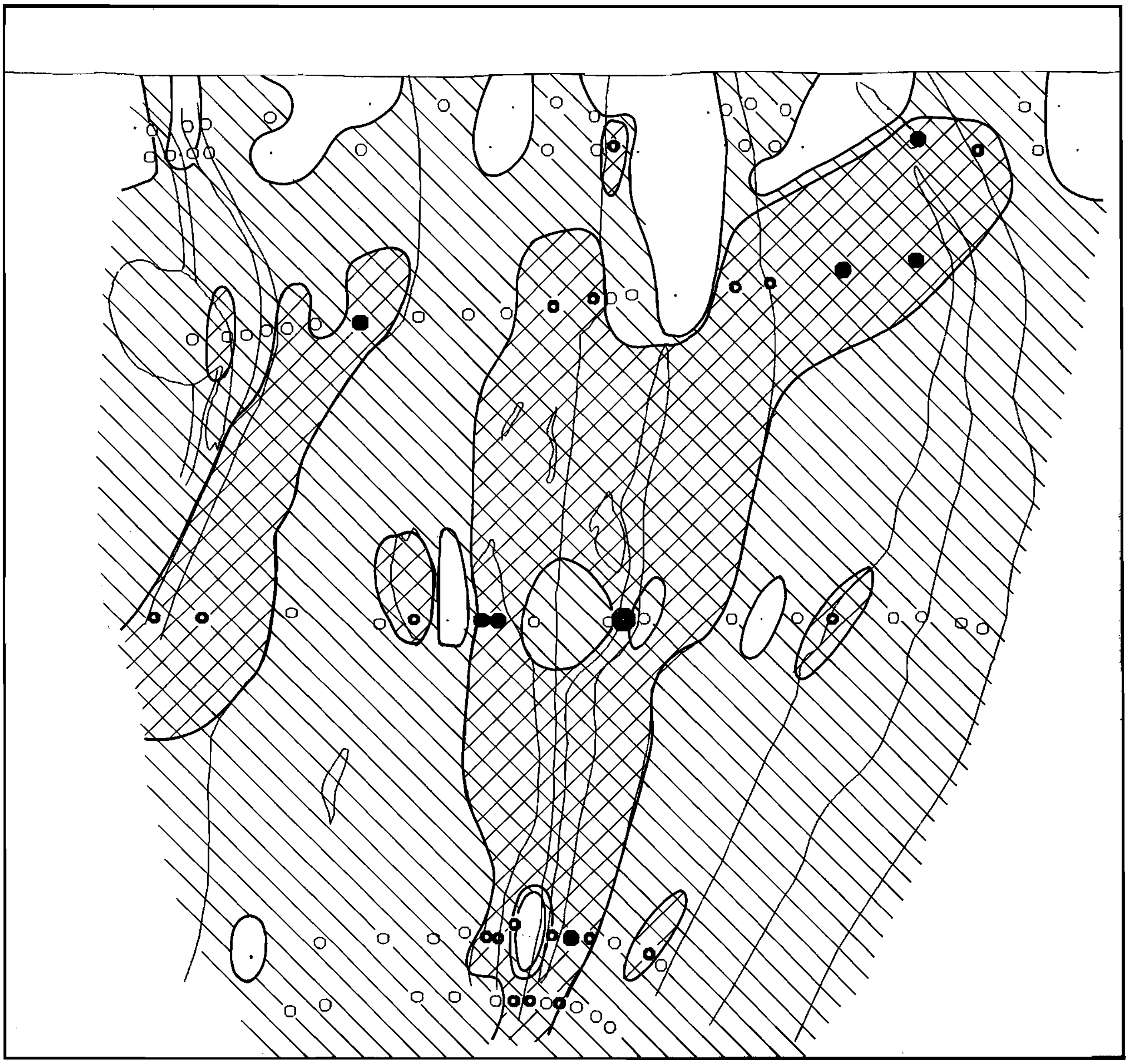
K



K_2O

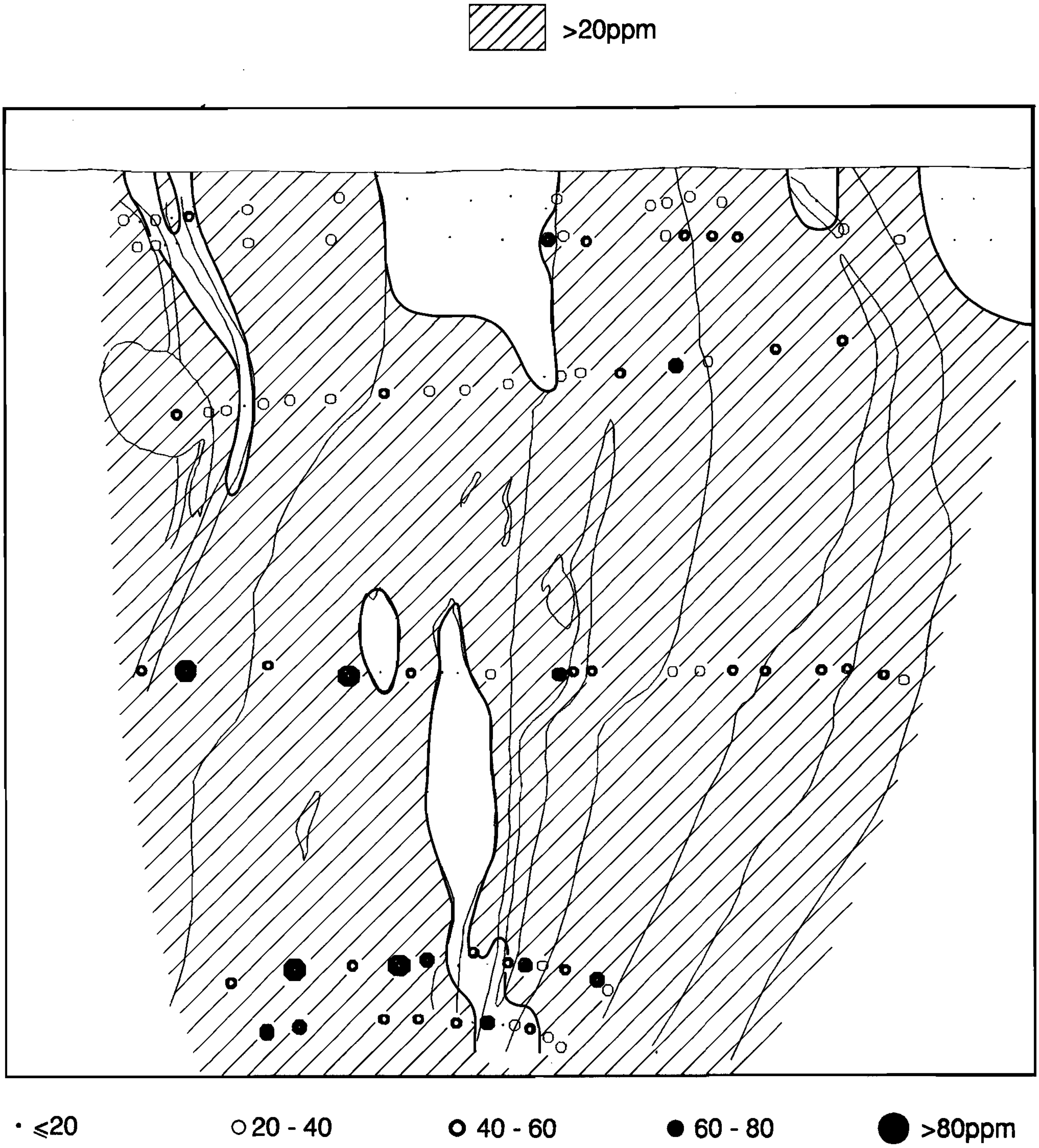
La

≥15ppm   >4 < 15ppm   ≤4ppm

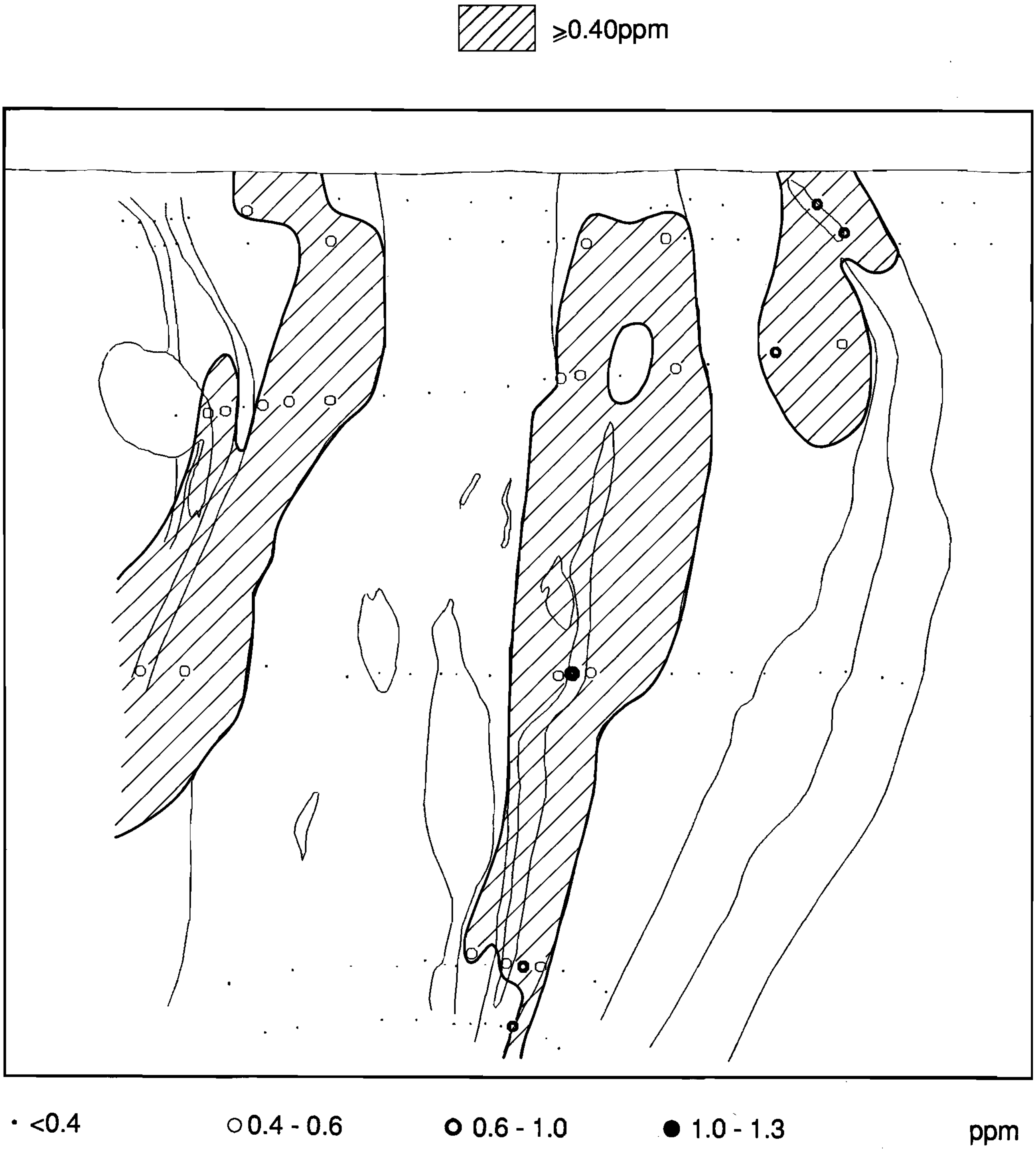


• ≤4   ○ 4 - 15   ○ 15 - 35   ● 35 - 60   ● >60ppm

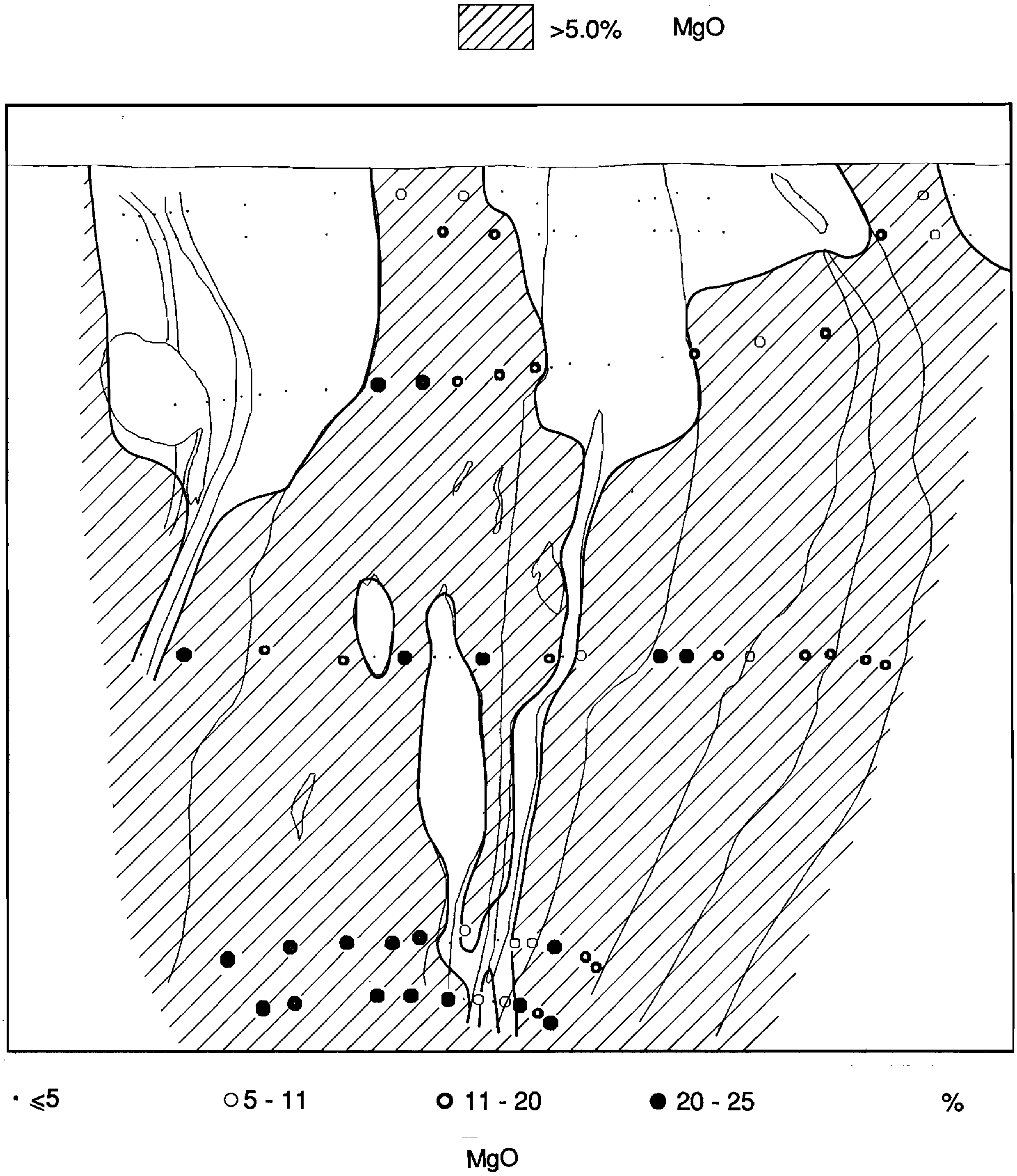
Li



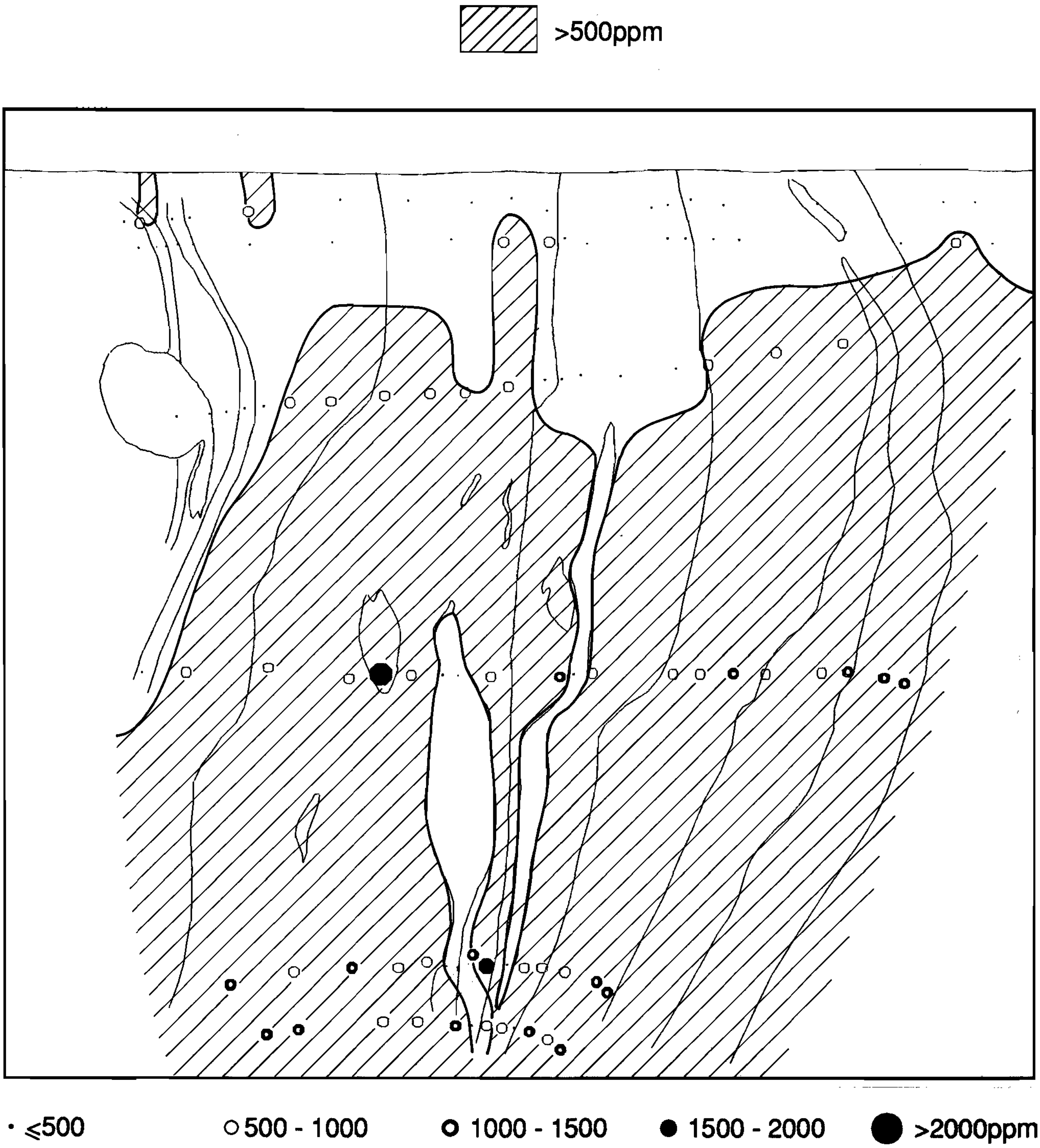
Lu



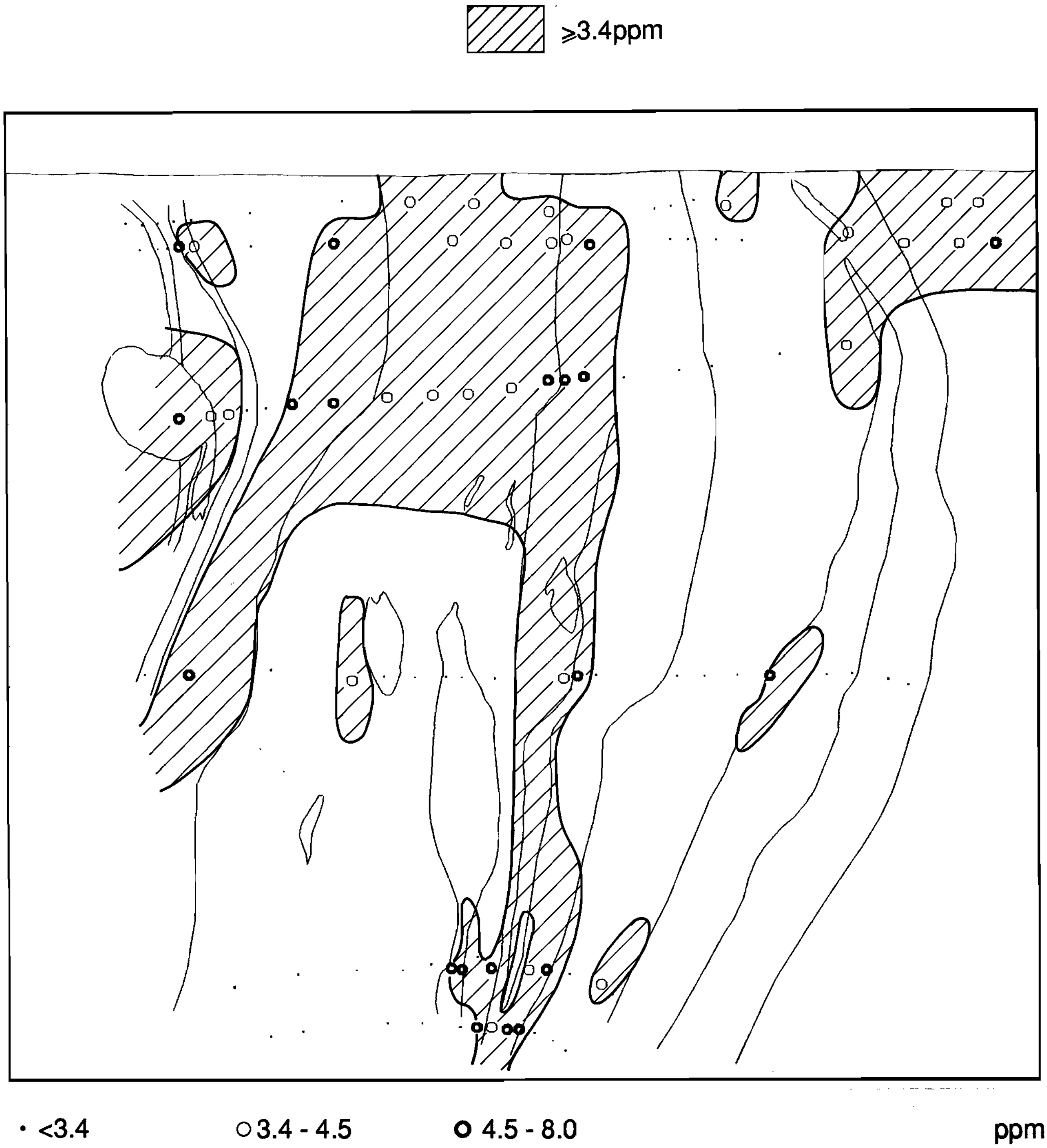
Mg



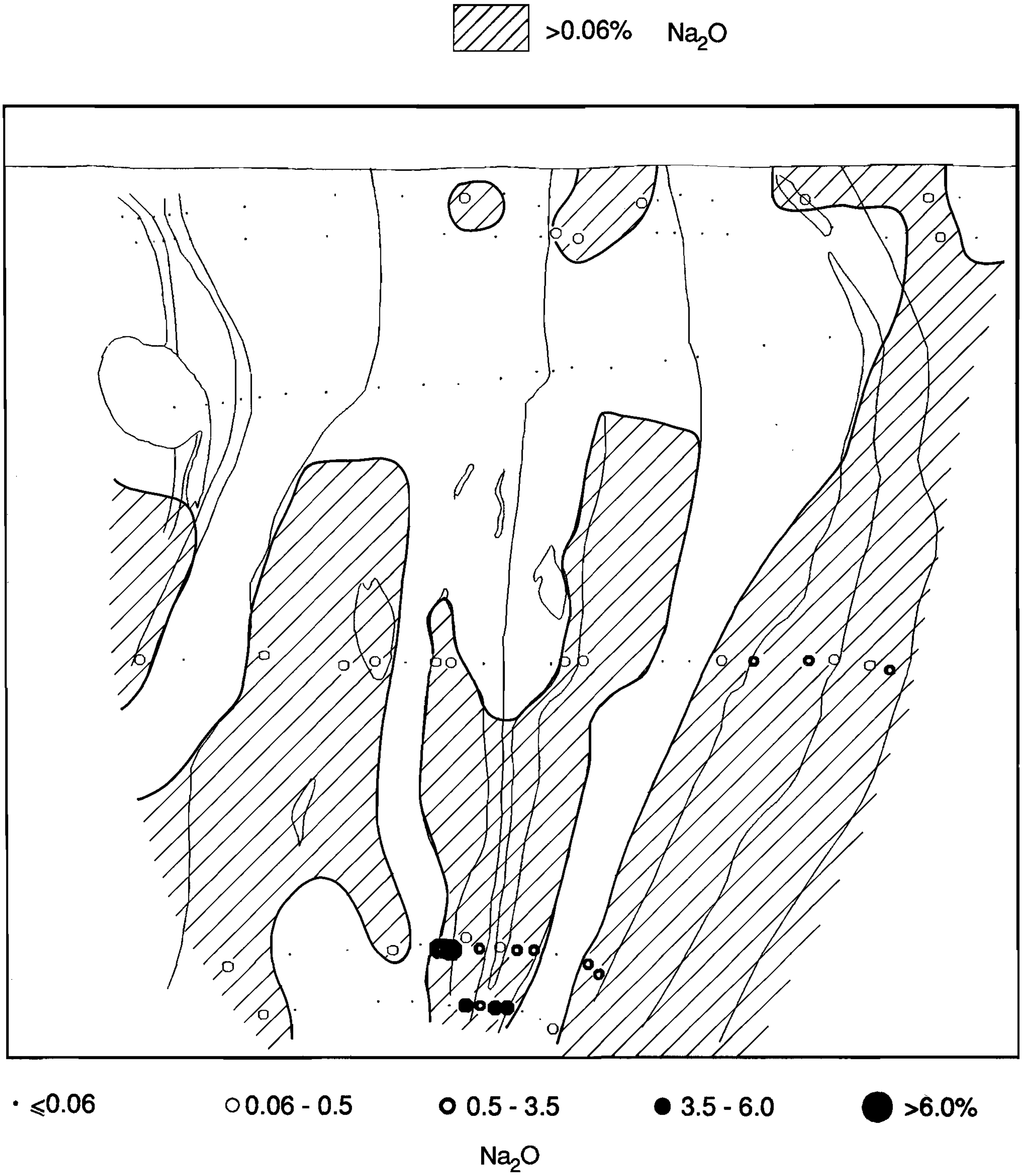
Mn (xrf)



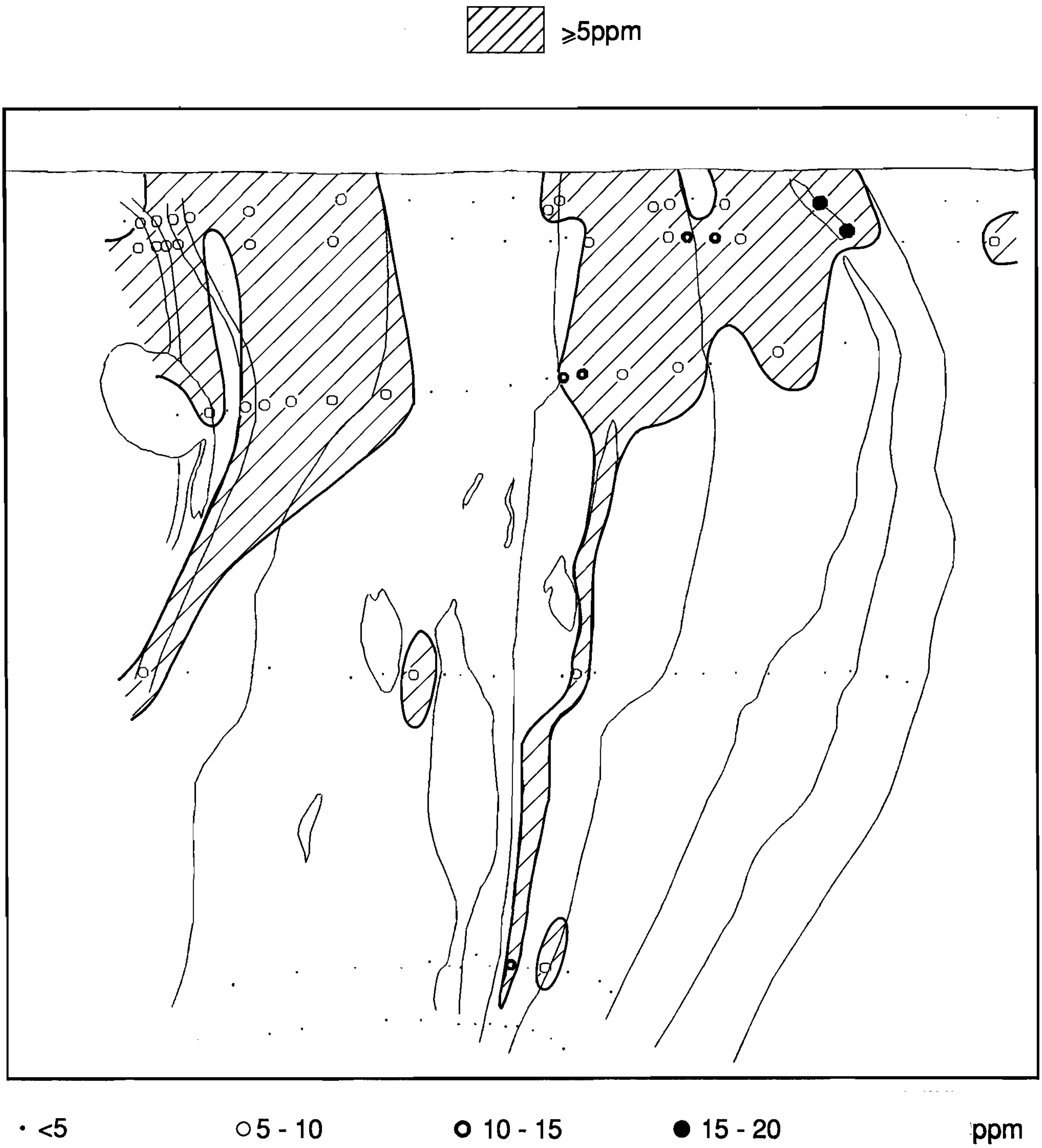
Mo



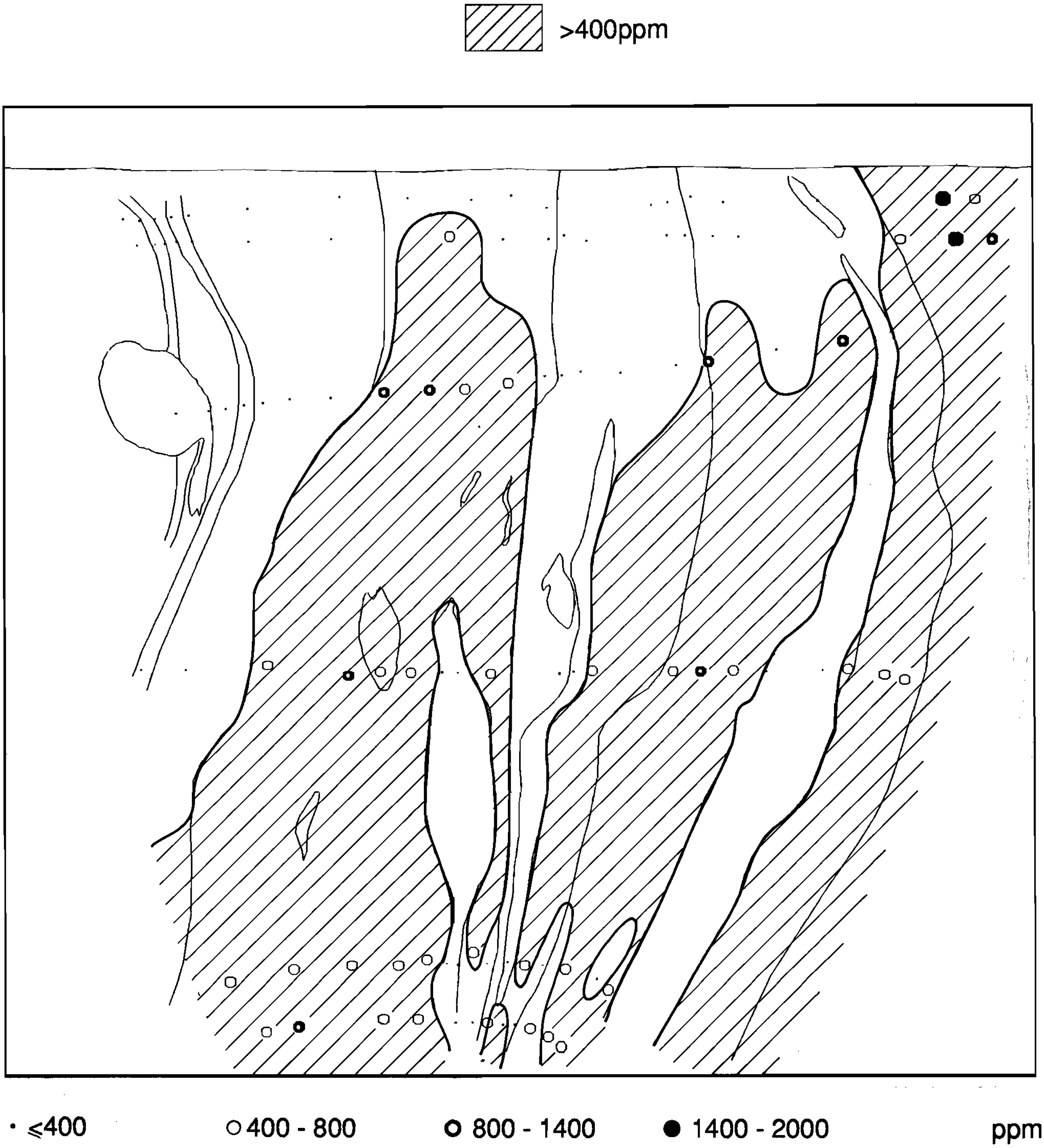
Na



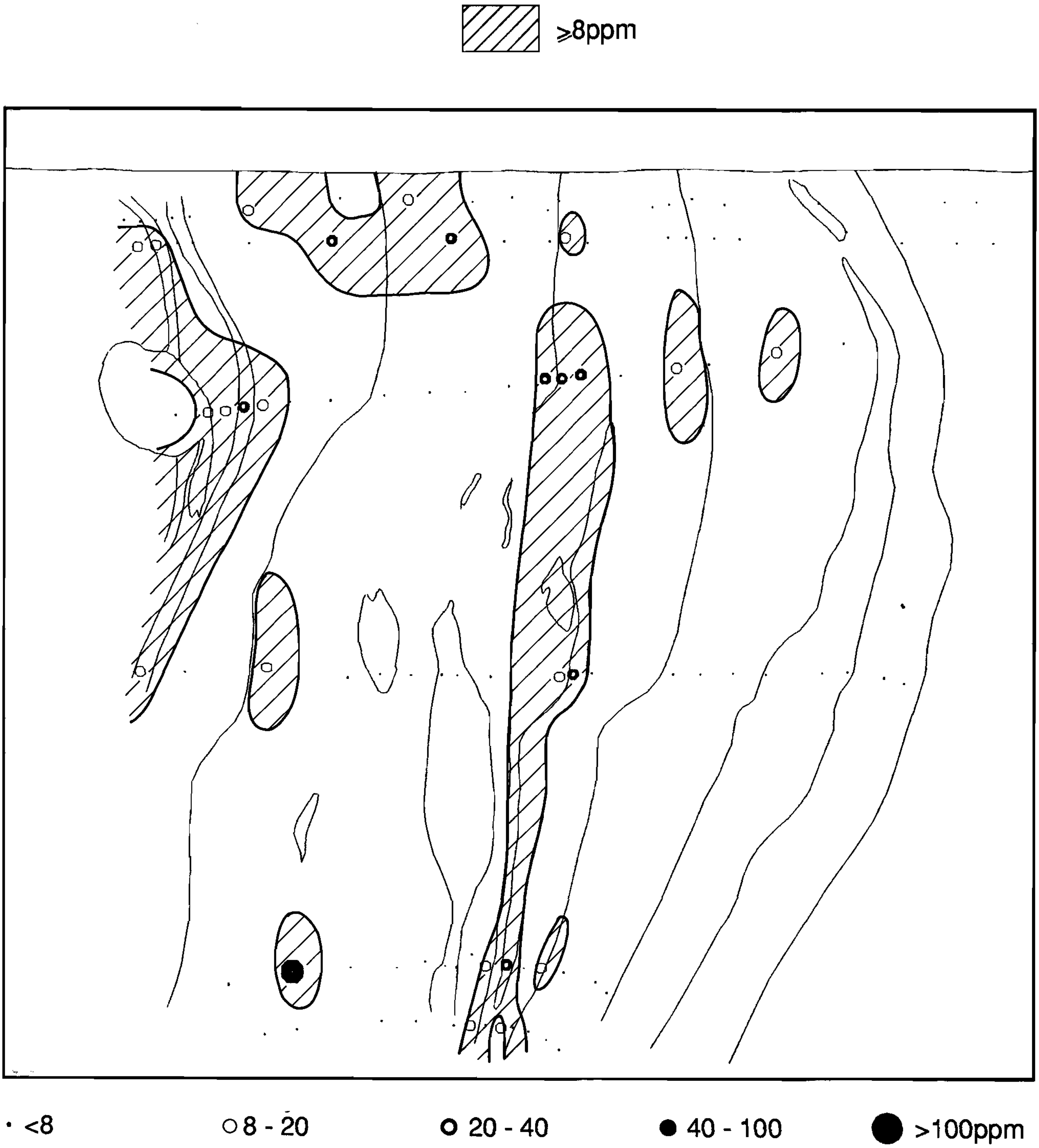
Nb



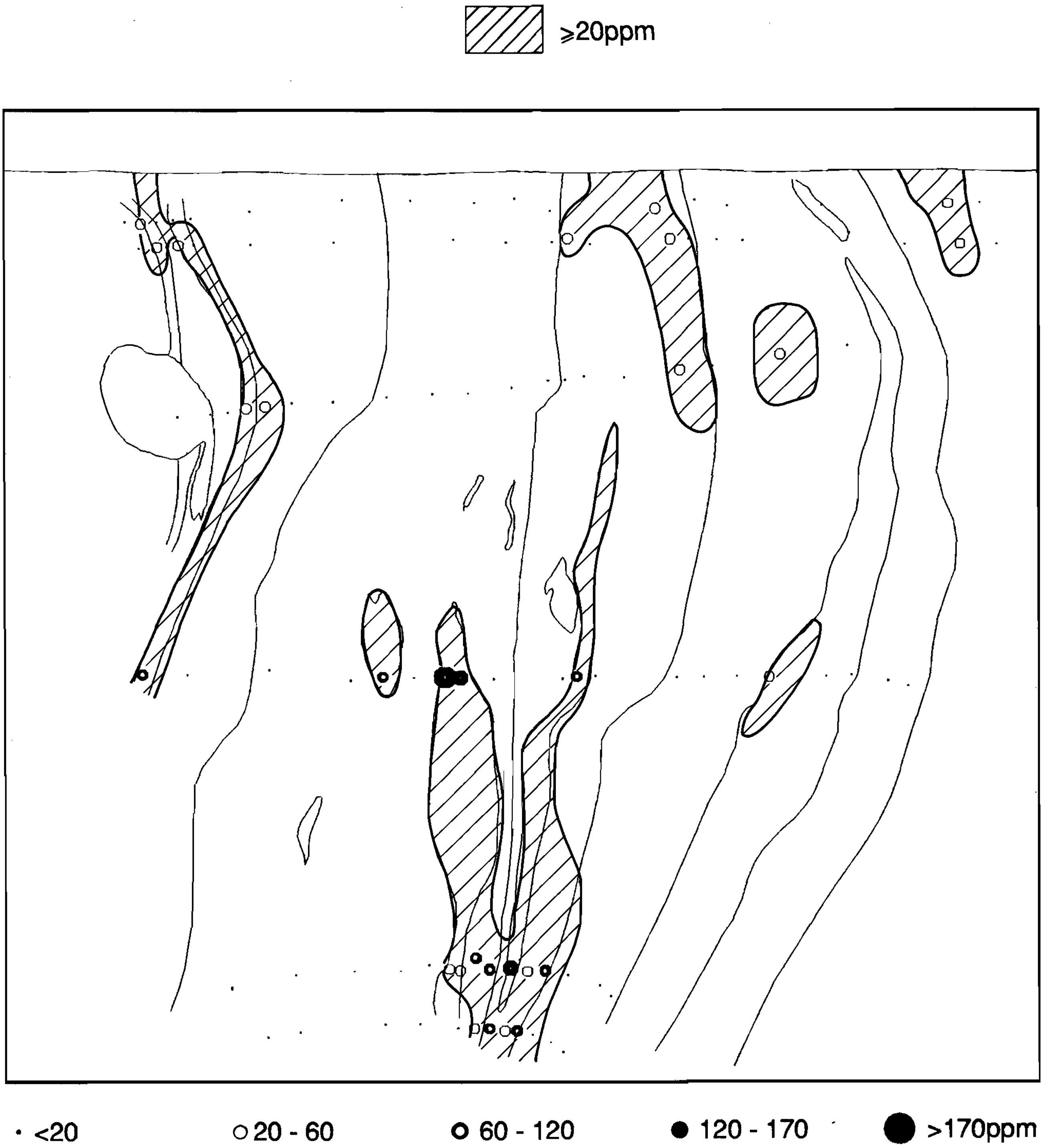
Ni (xrf)



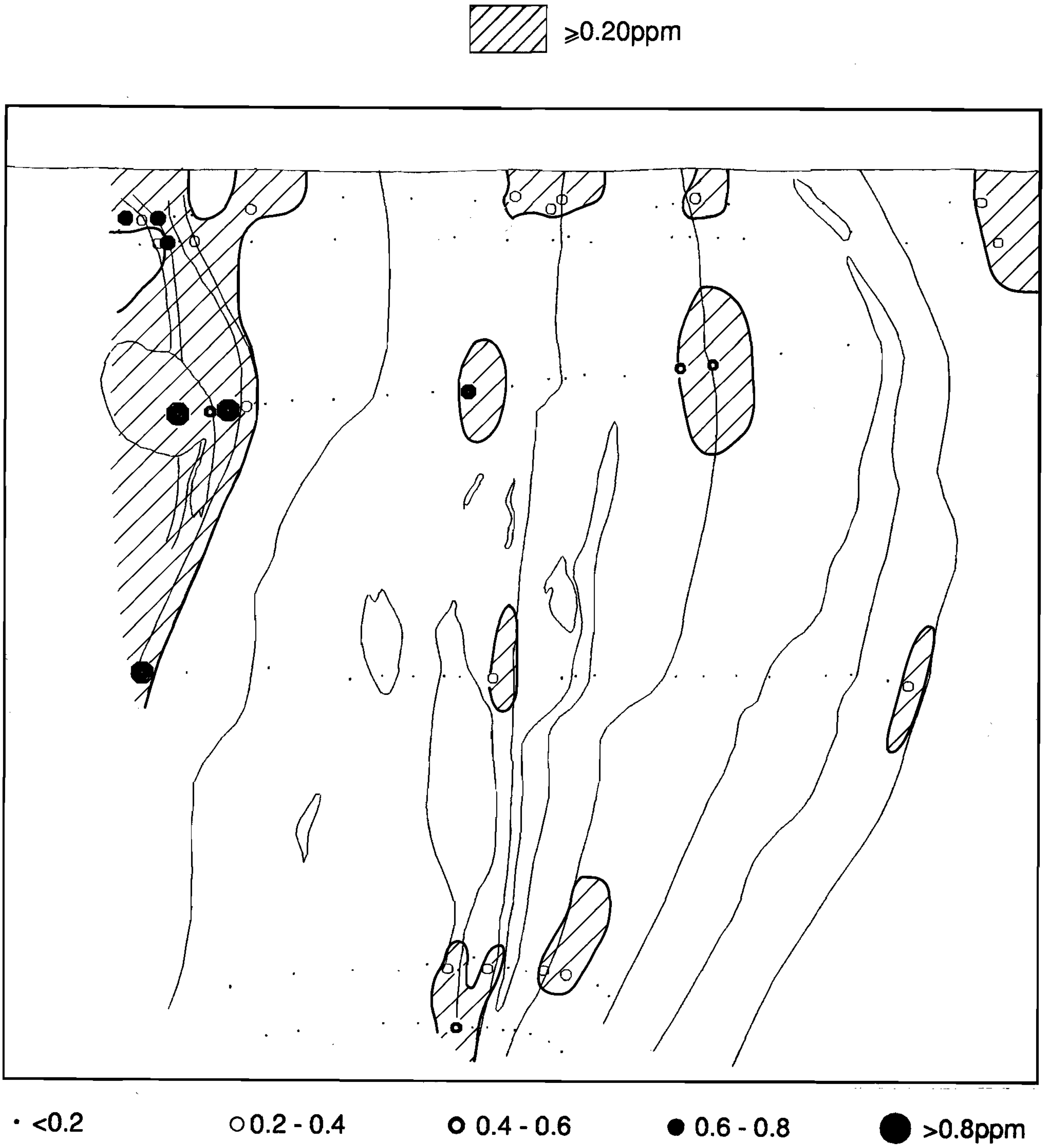
Pb



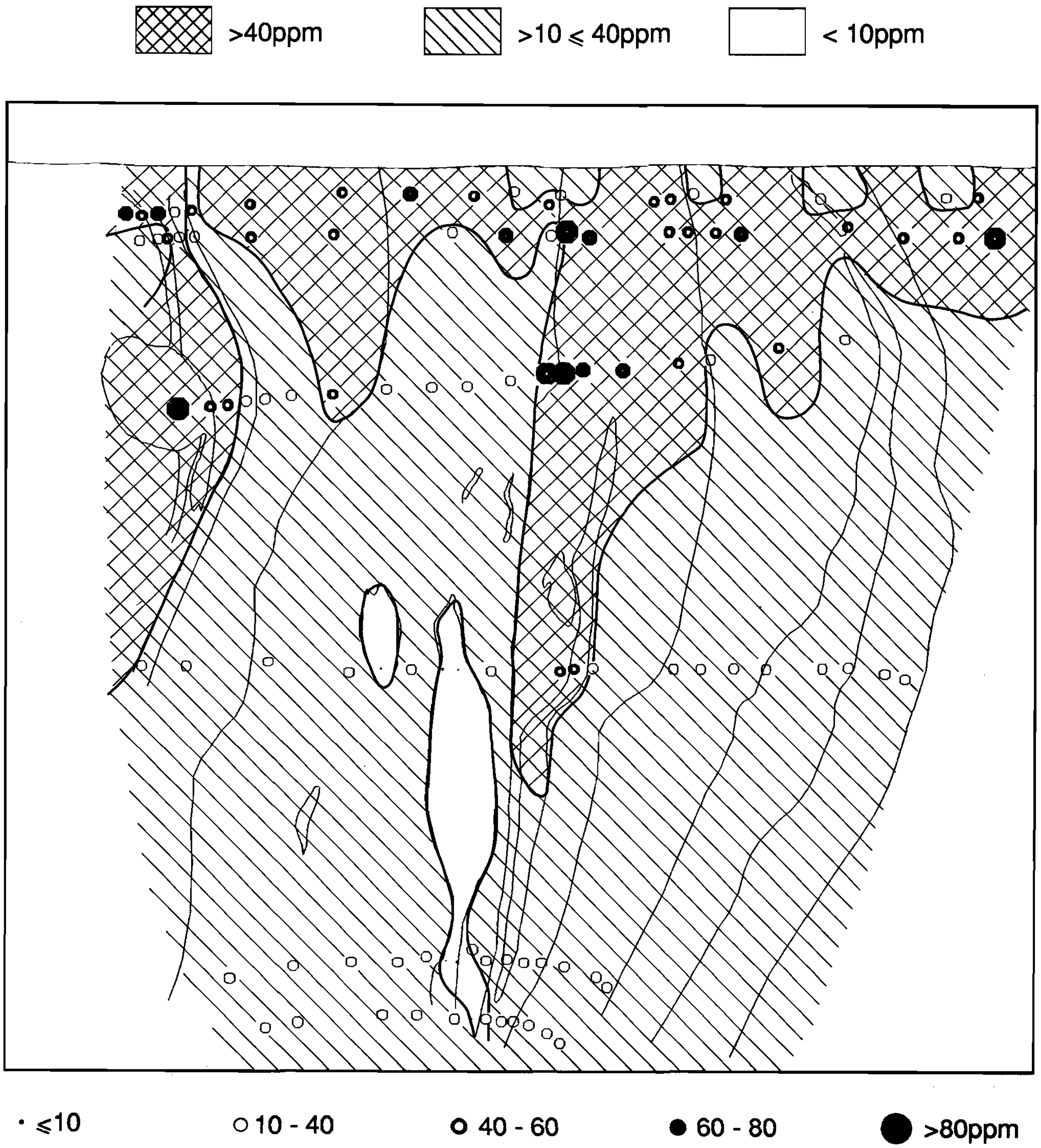
Rb (xrf)



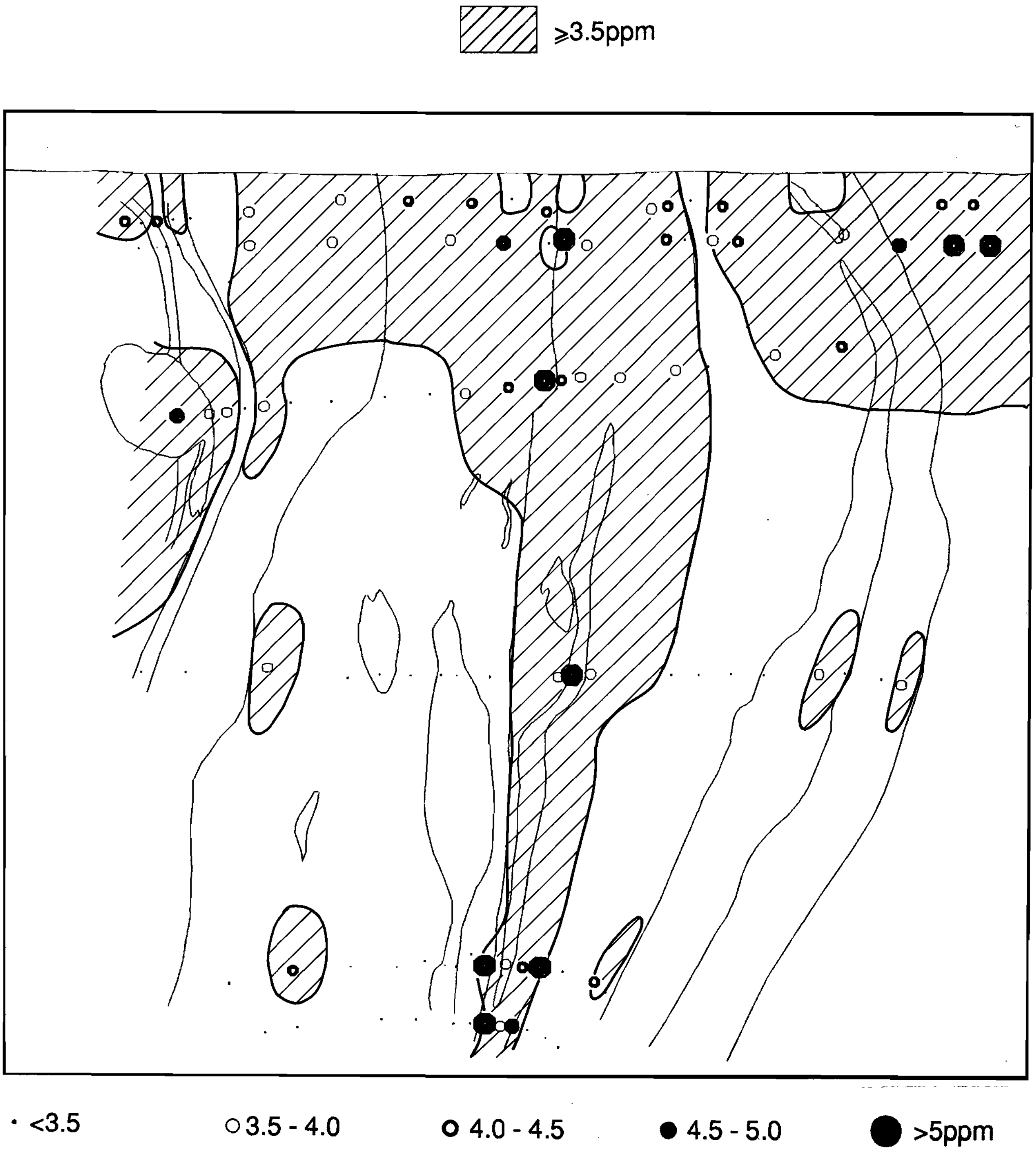
Sb



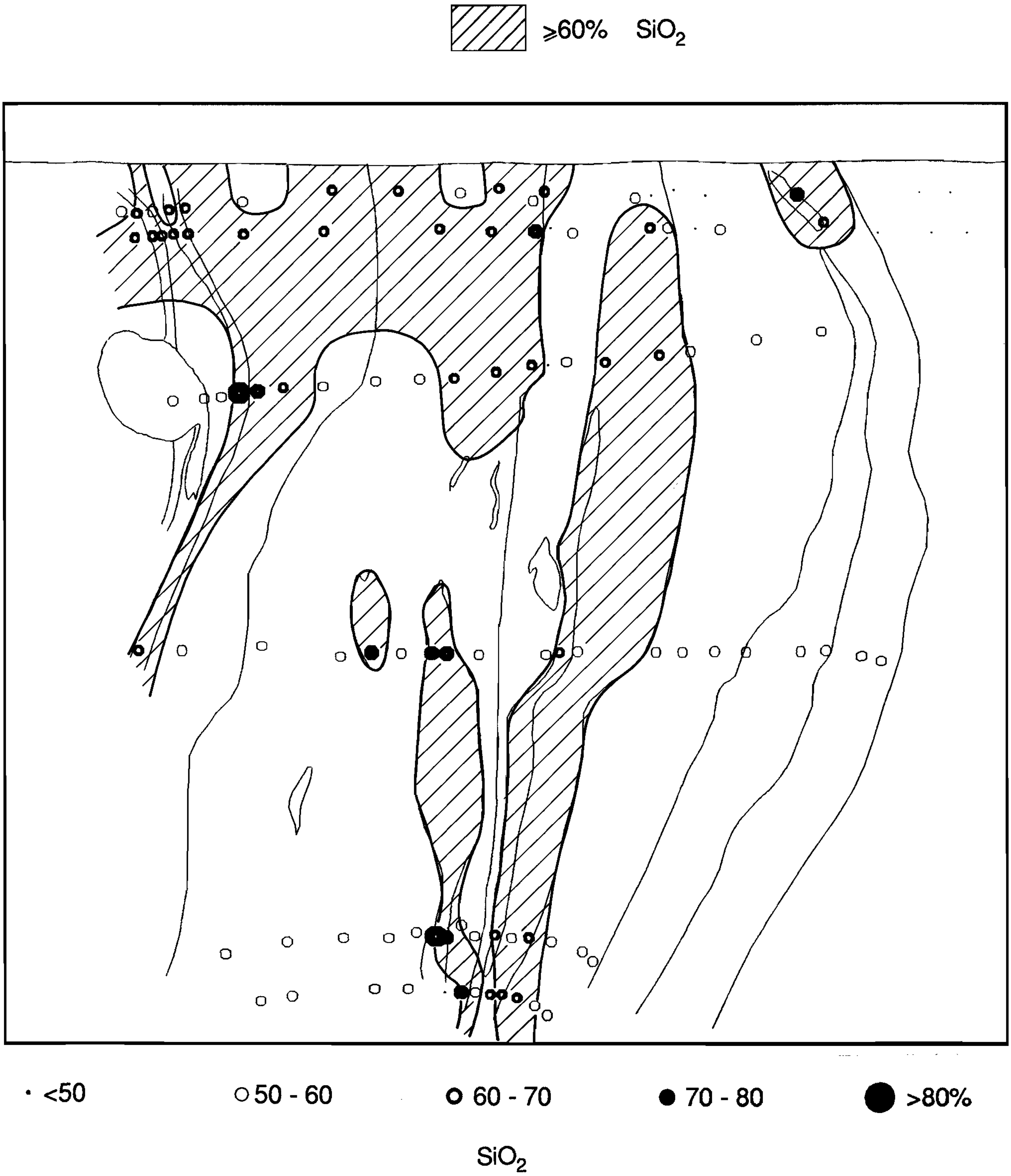
Sc



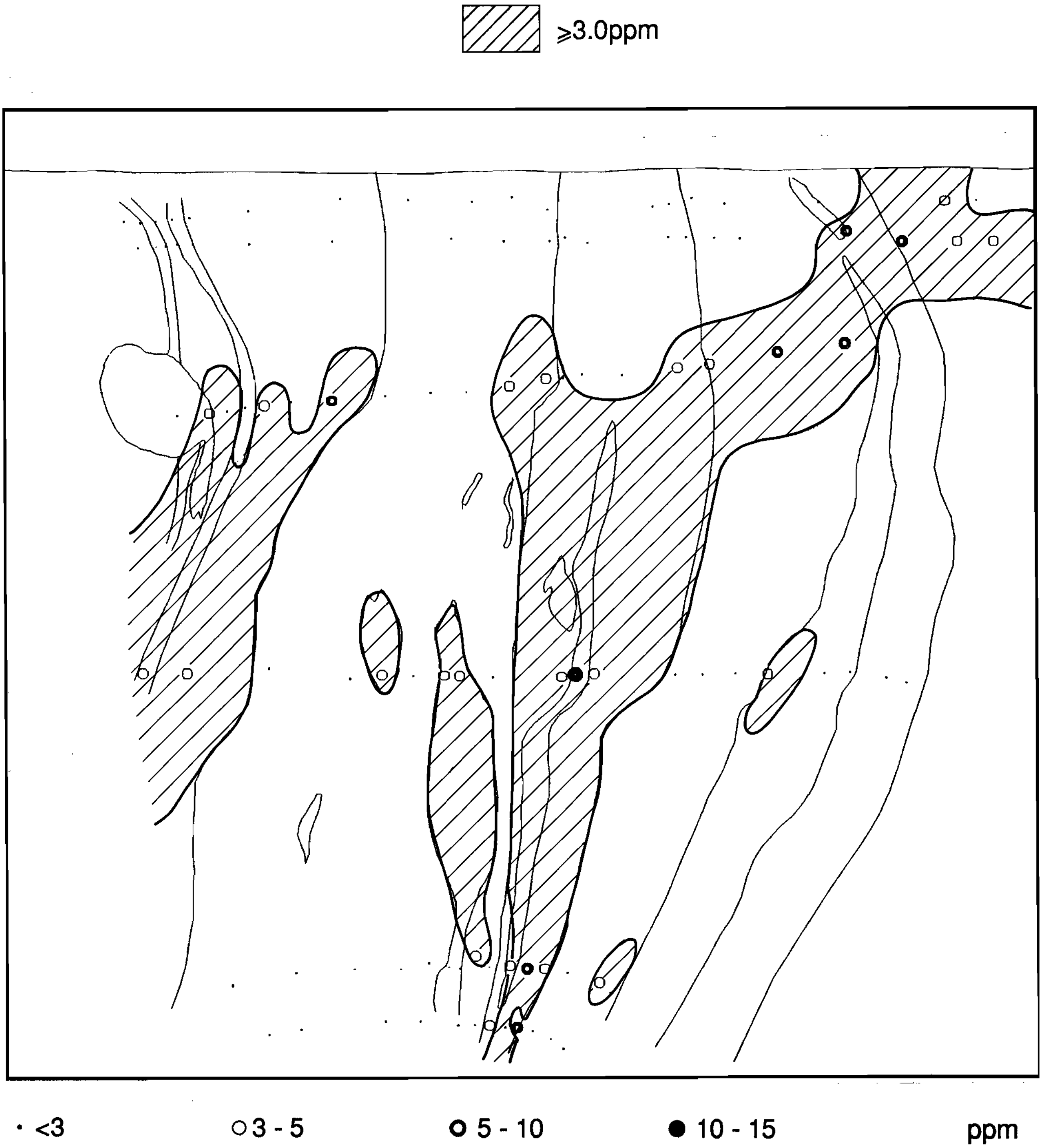
Se (inaa)



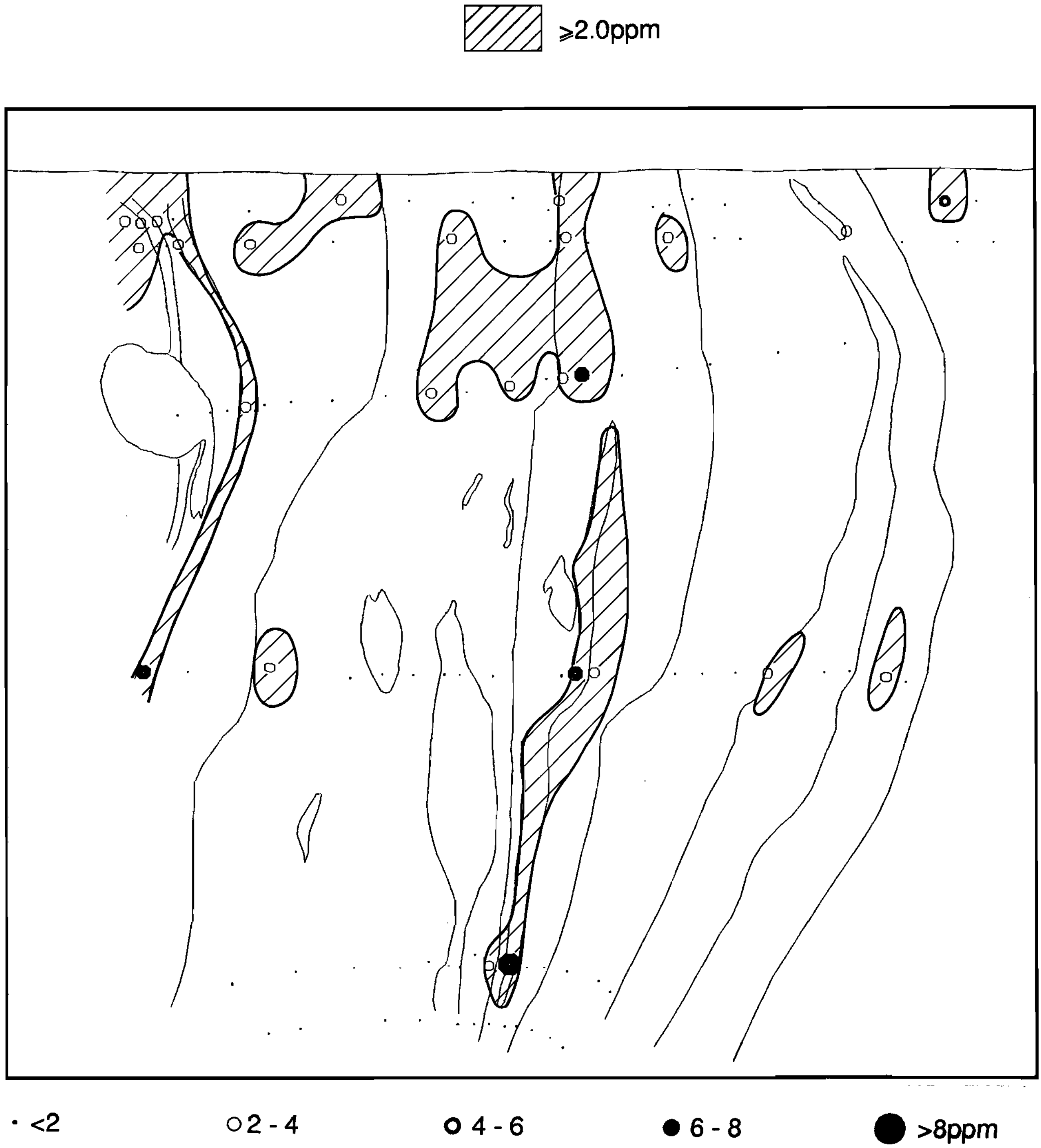
Si



Sm

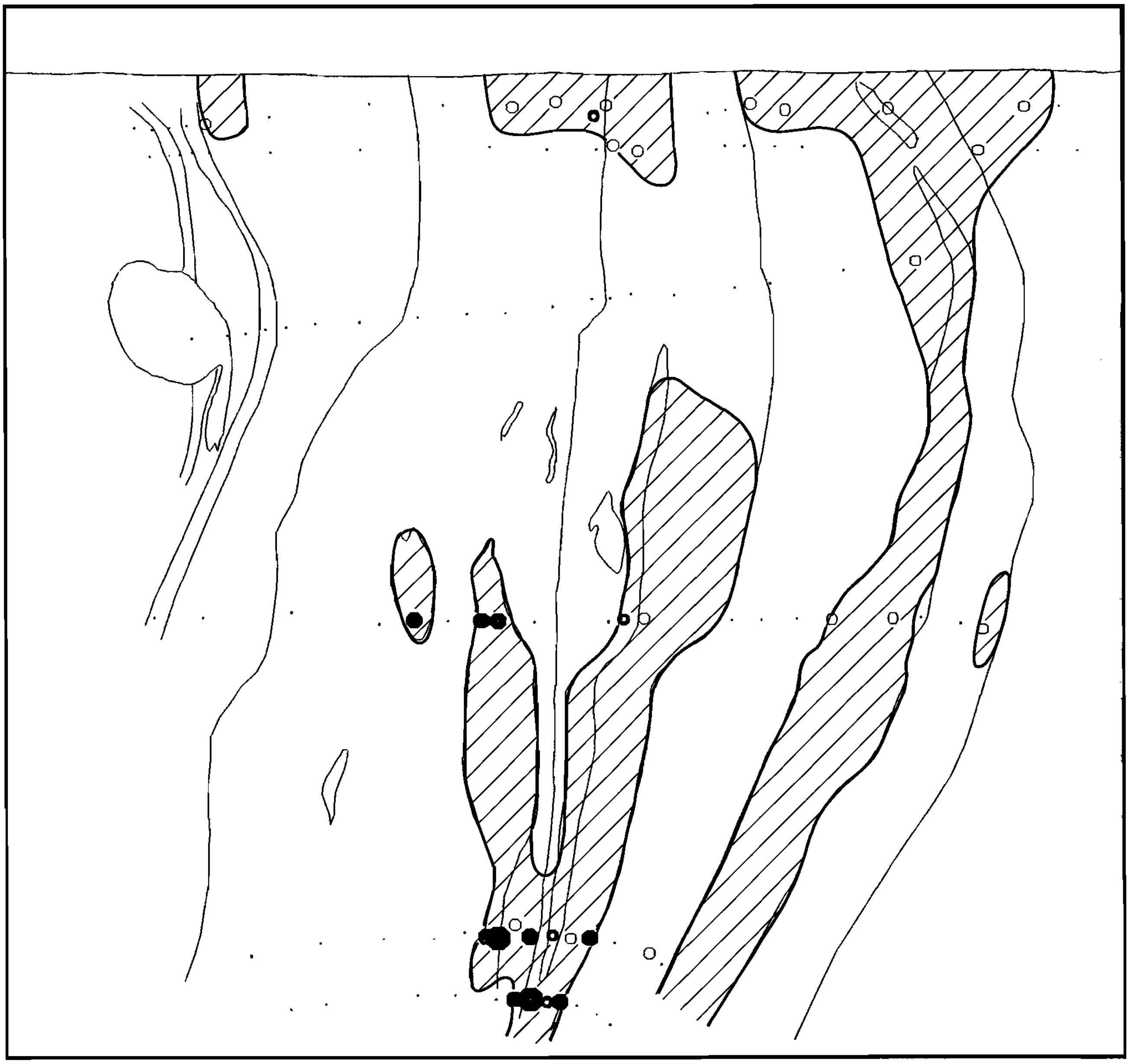


Sn



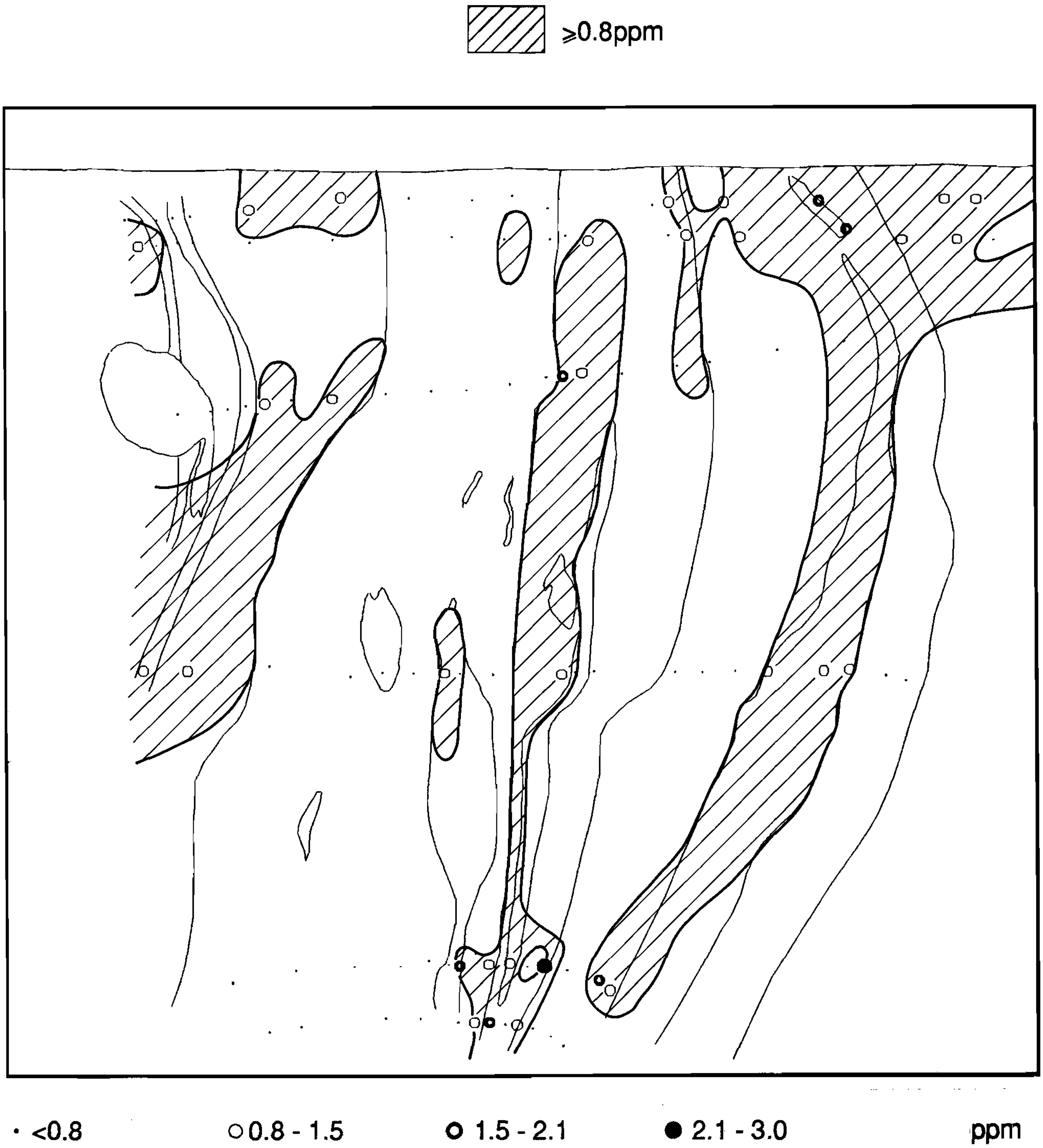
Sr

≥30ppm

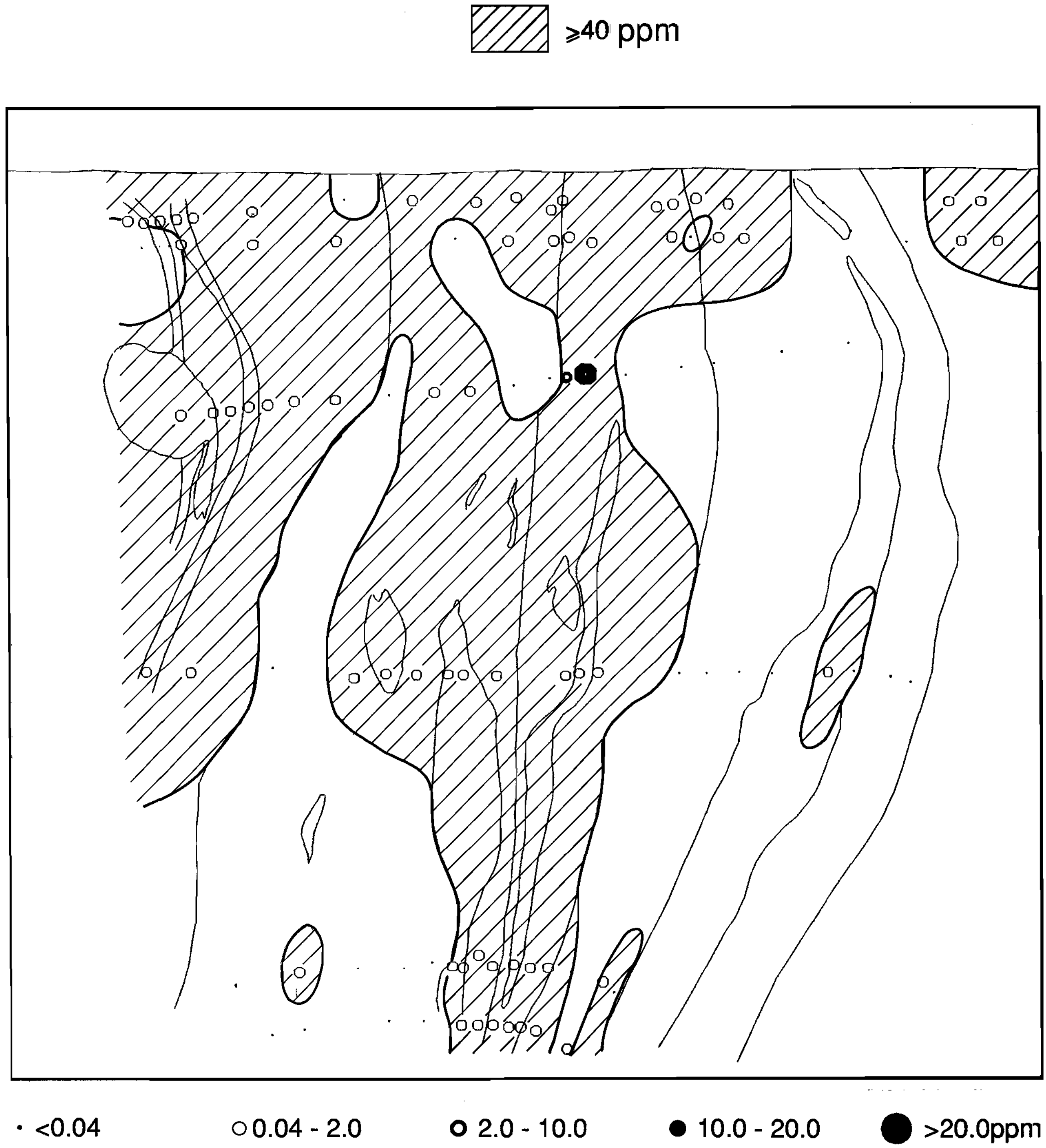


• <30   ○ 30 - 50   o 50 - 100   ● 100 - 200   ● >200ppm

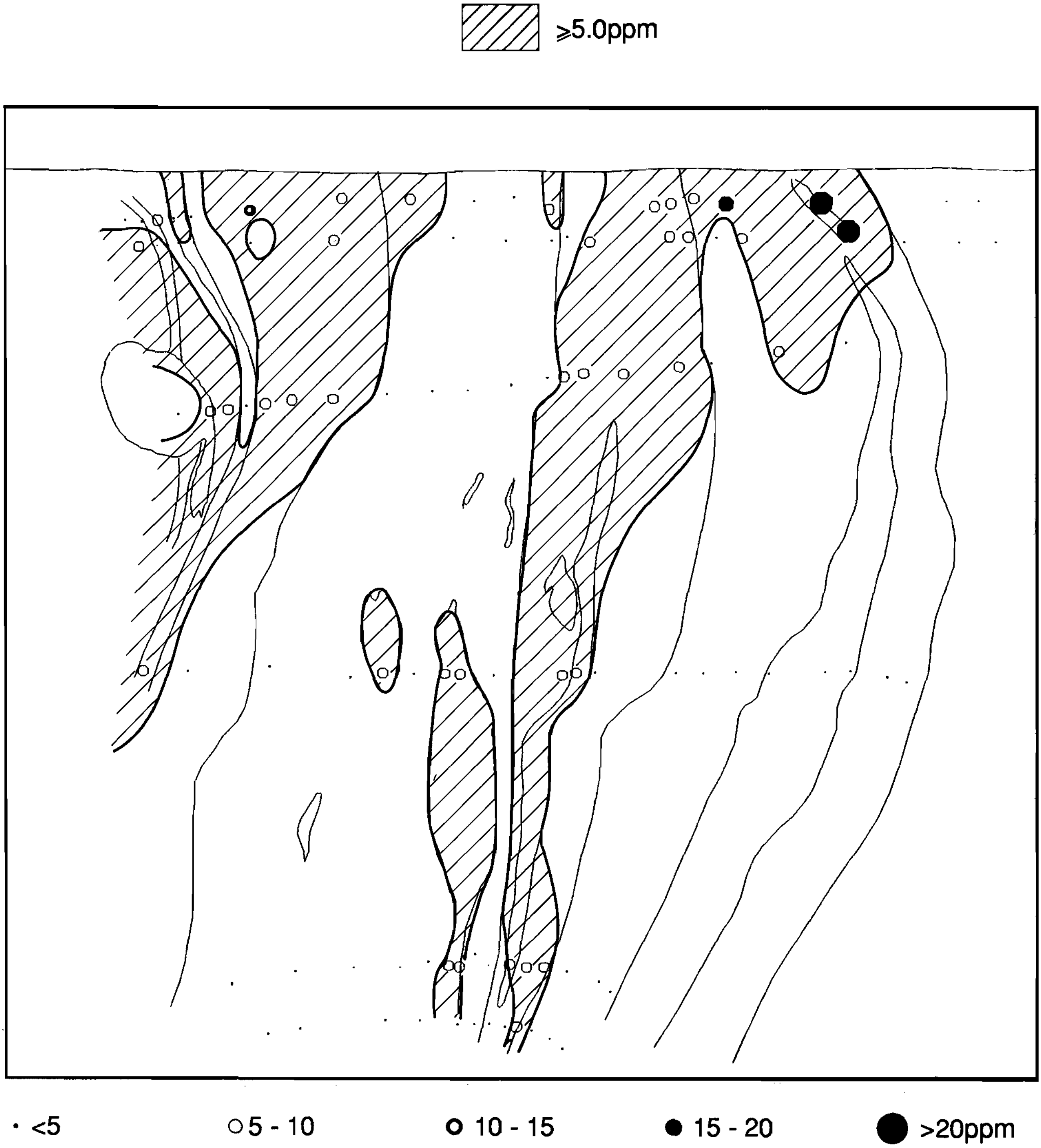
Ta



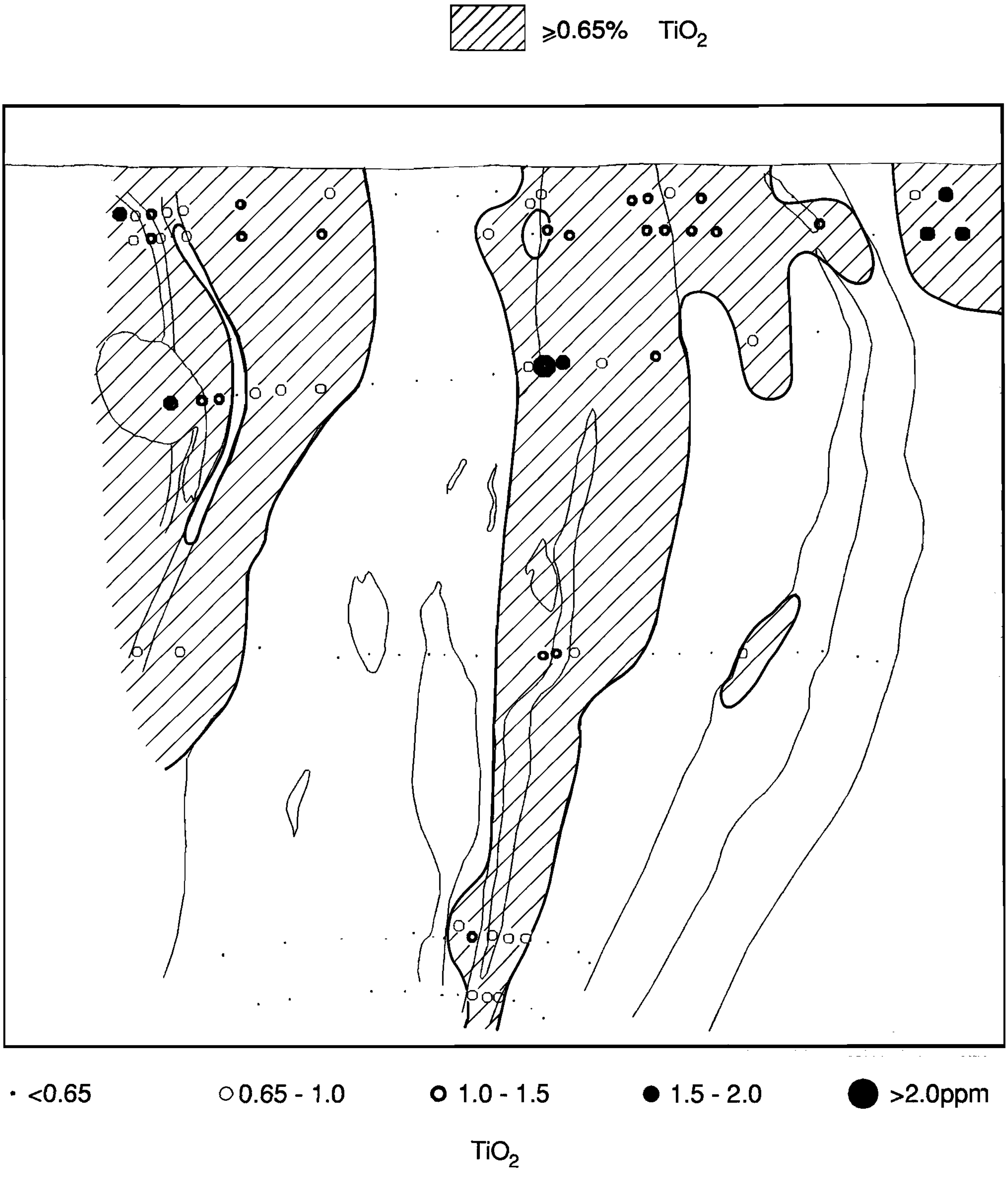
Te



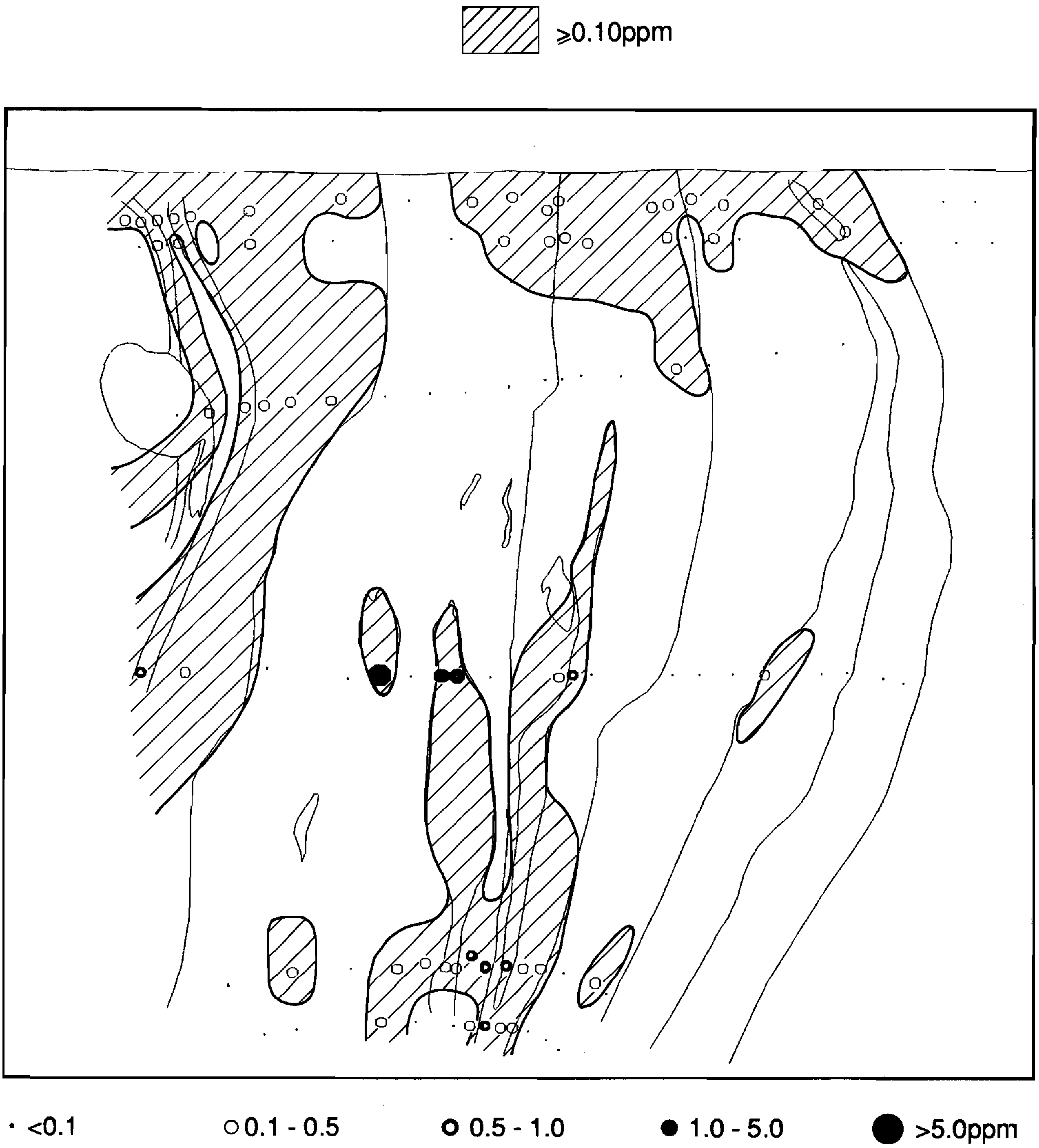
Th



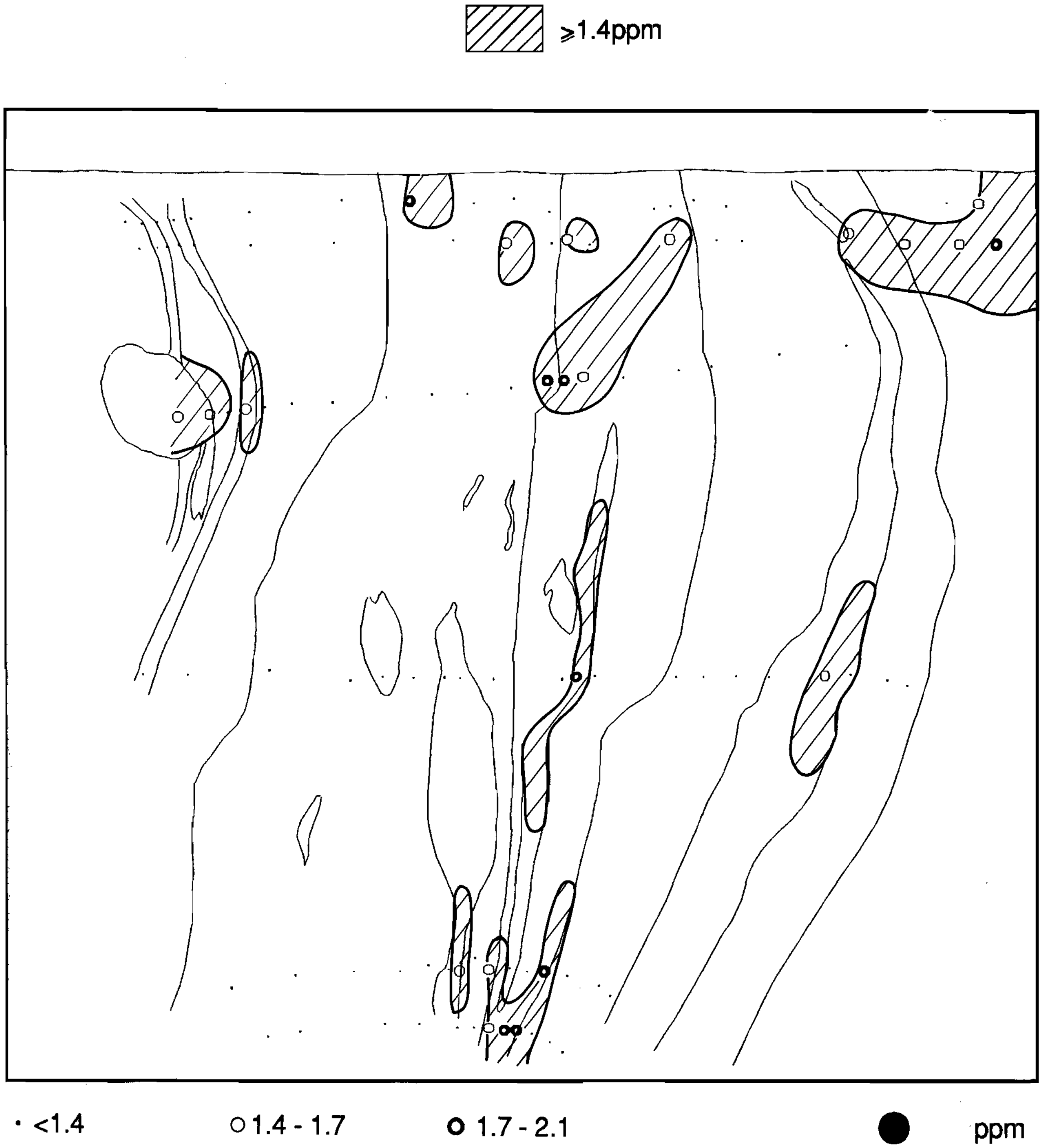
Ti



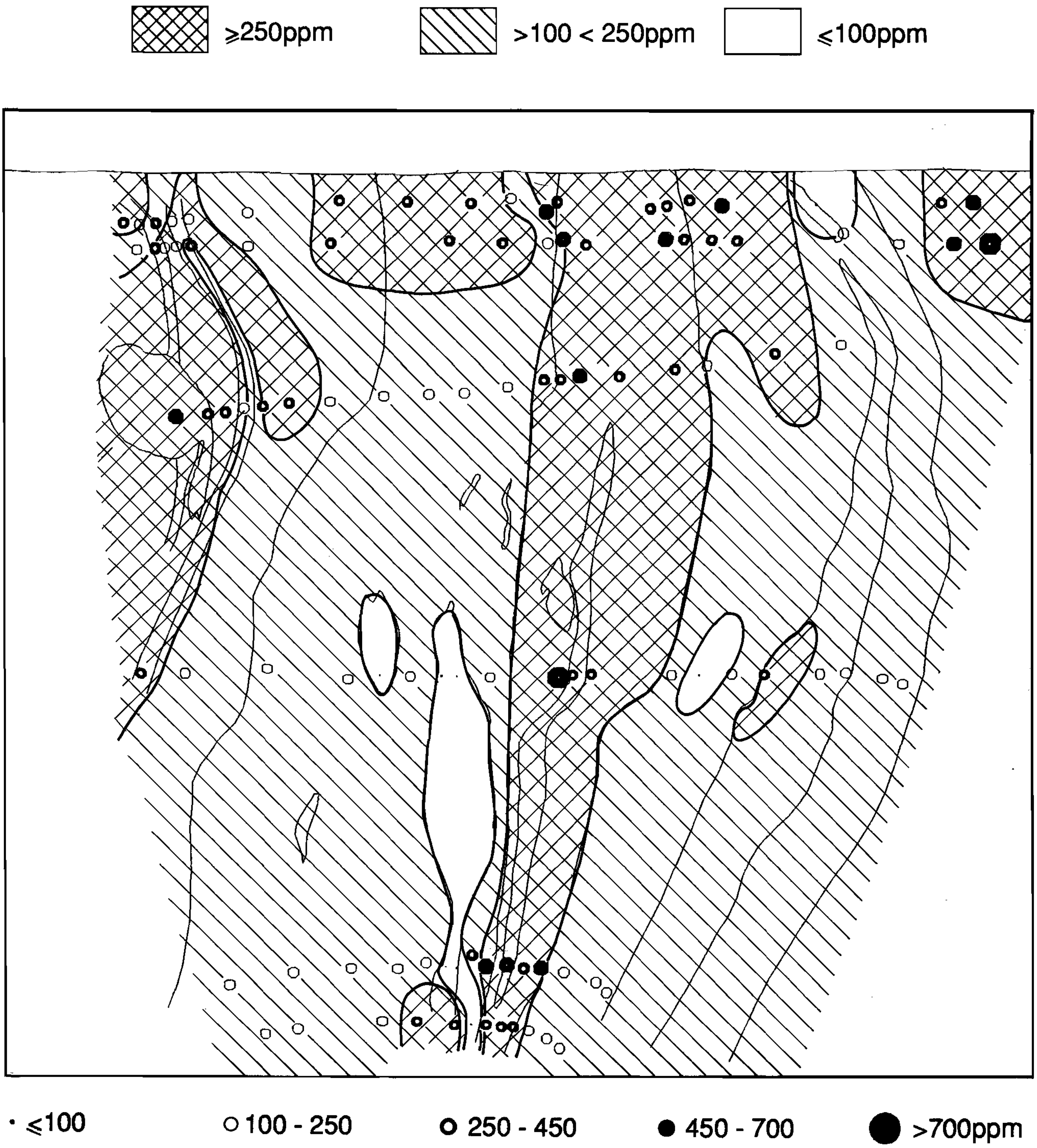
Tl



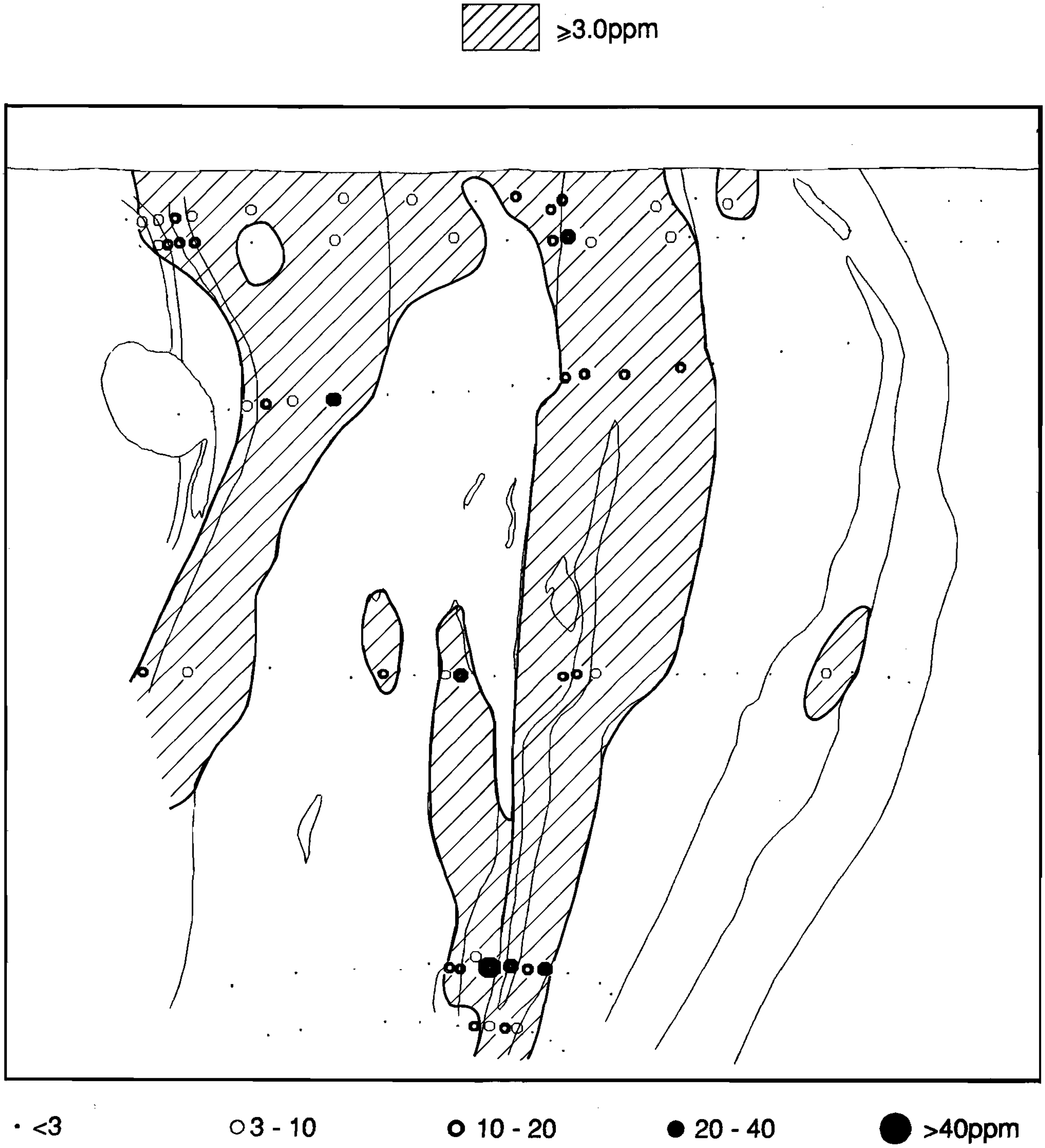
U



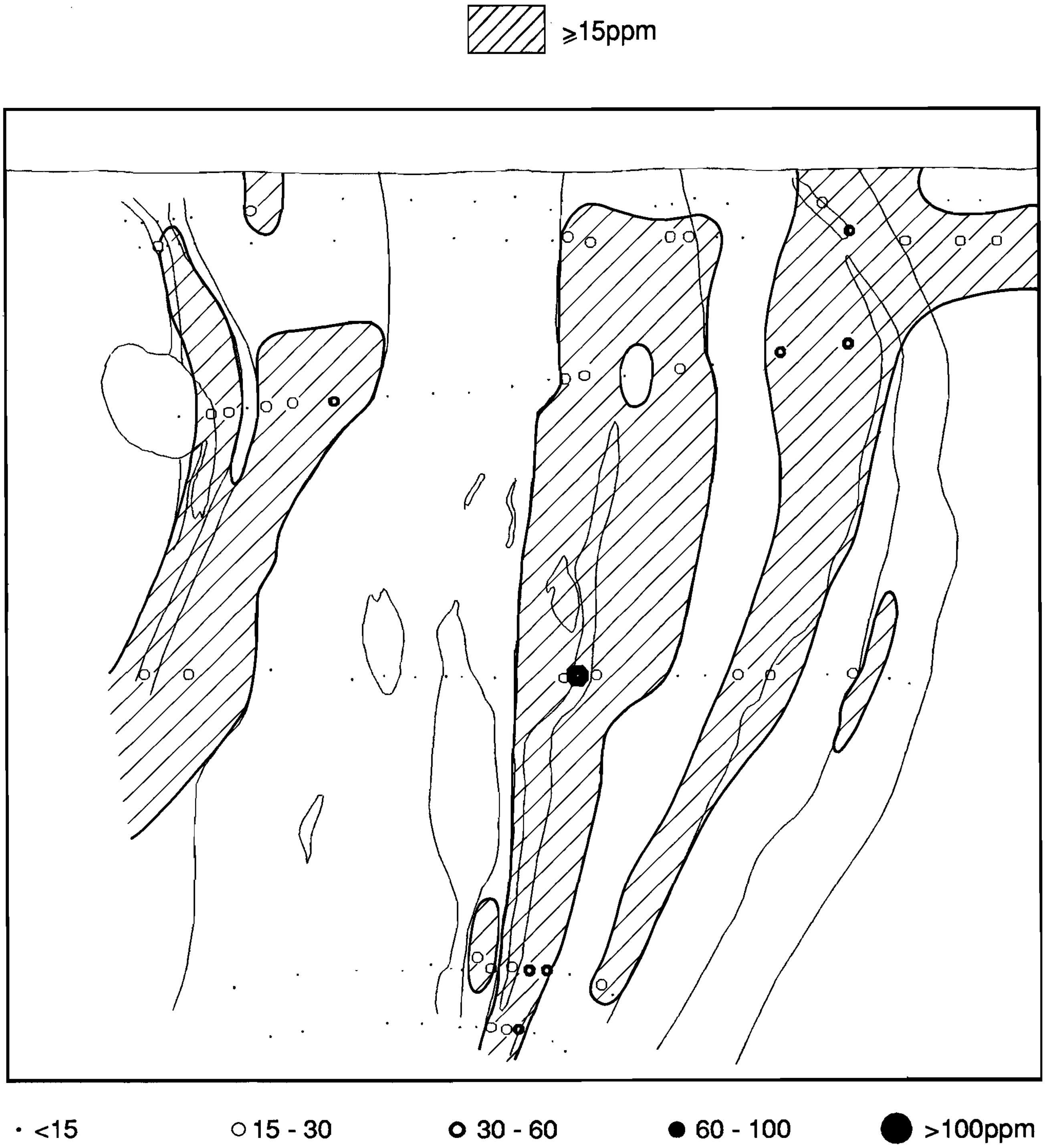
V (xrf)



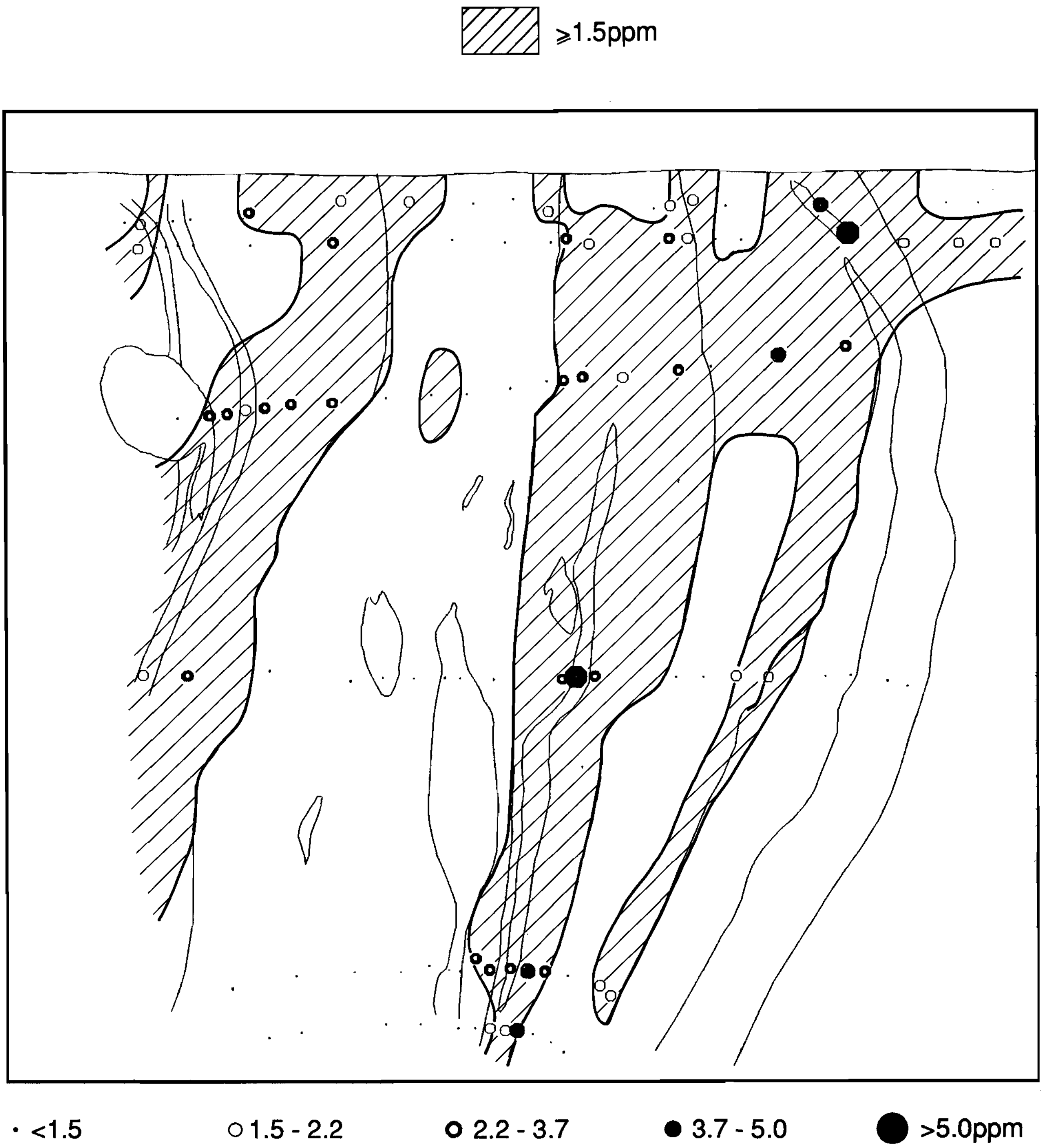
W



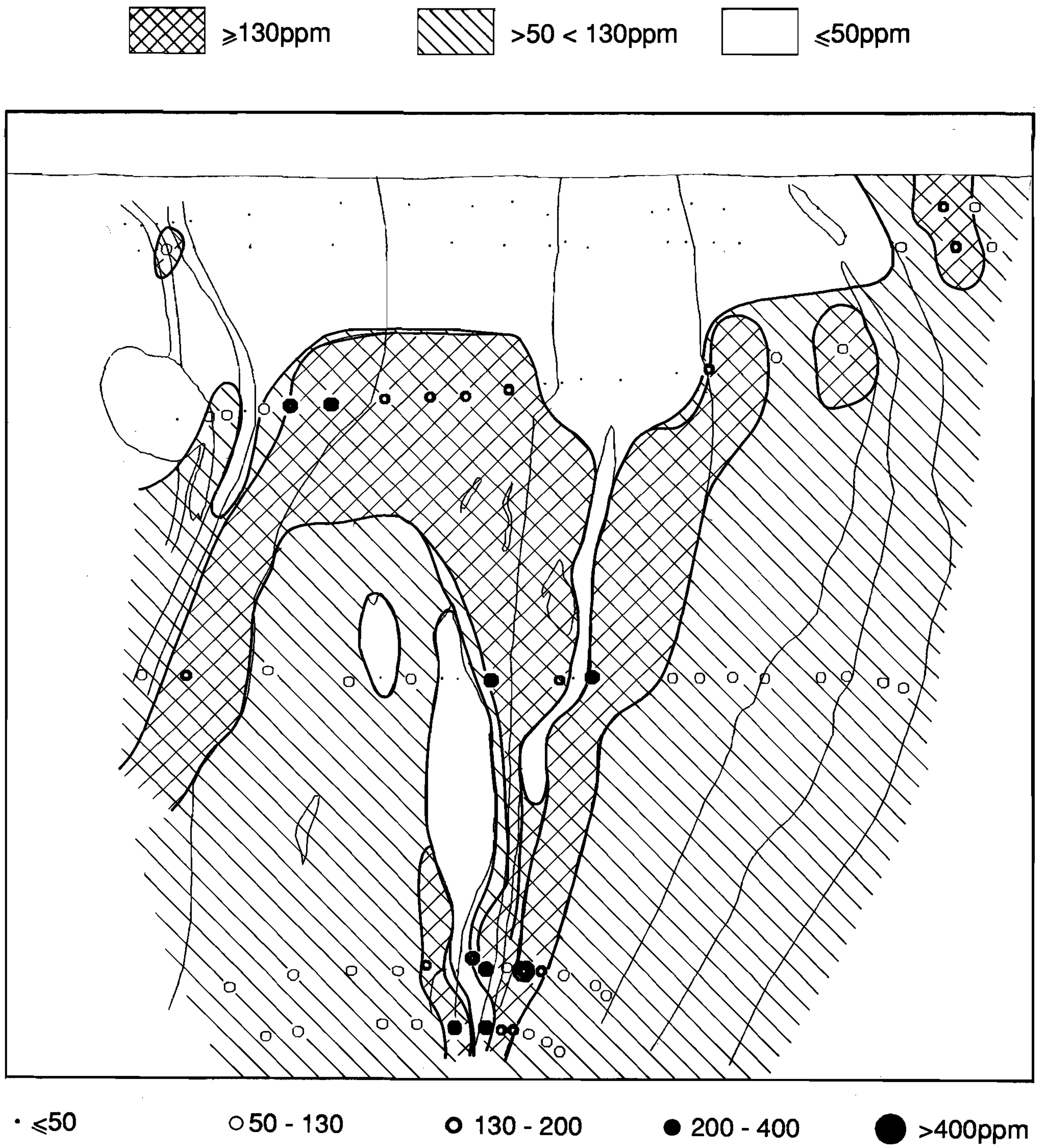
Y (xrf)



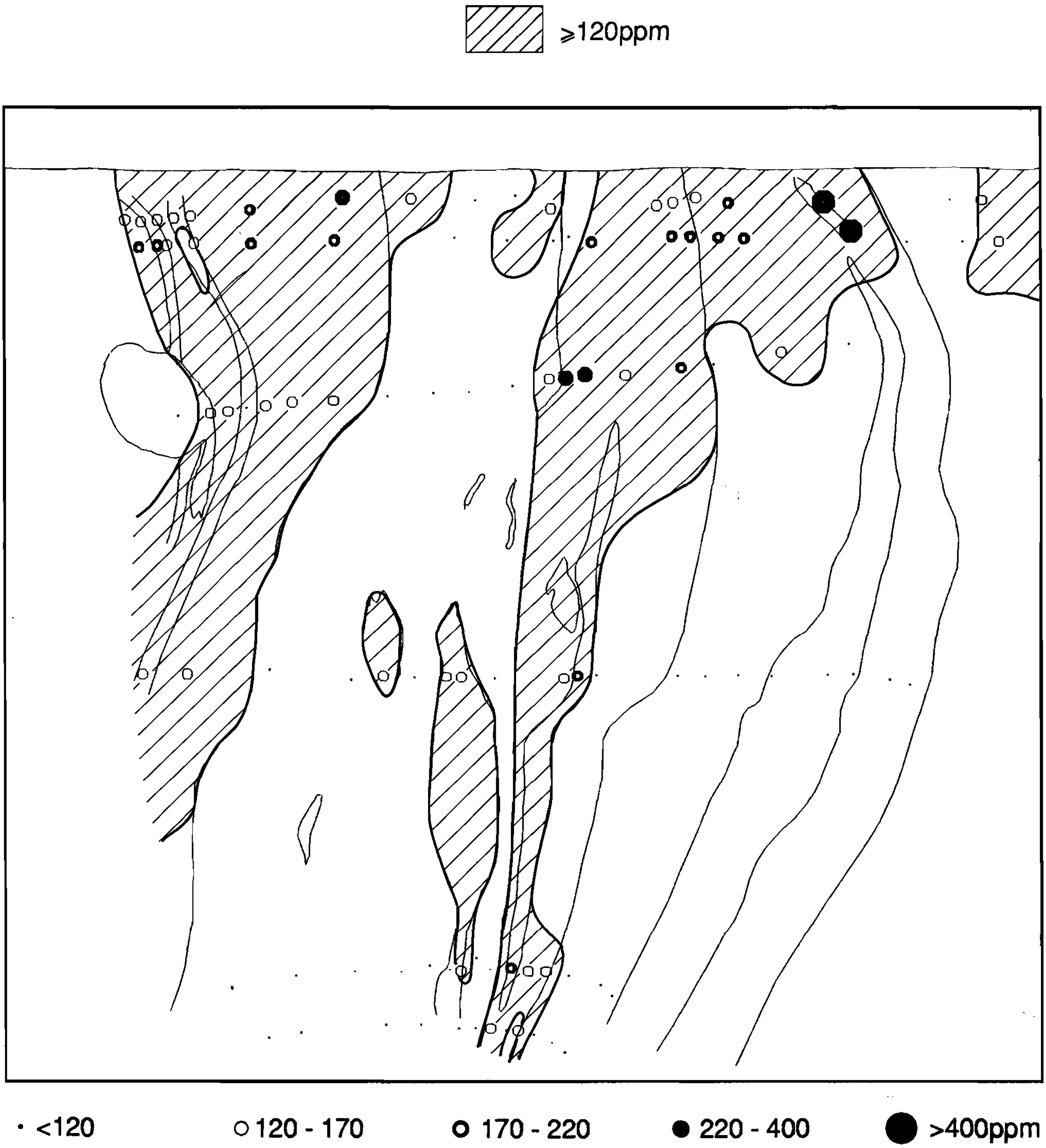
Yb



Zn (xrf)



Zr (xrf)



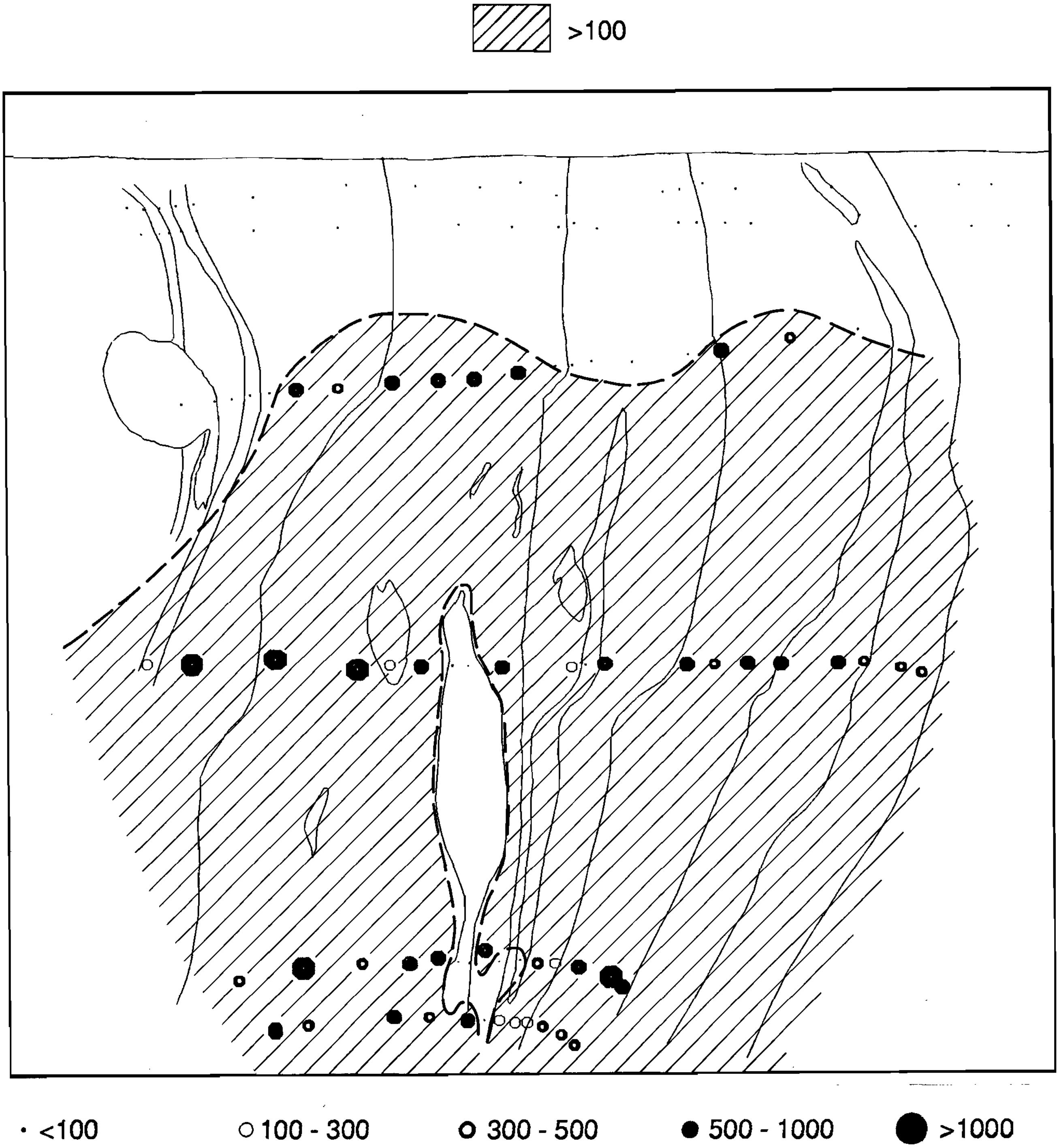
APPENDIX 6

Mineralogy of the South Face of the Rand Pit

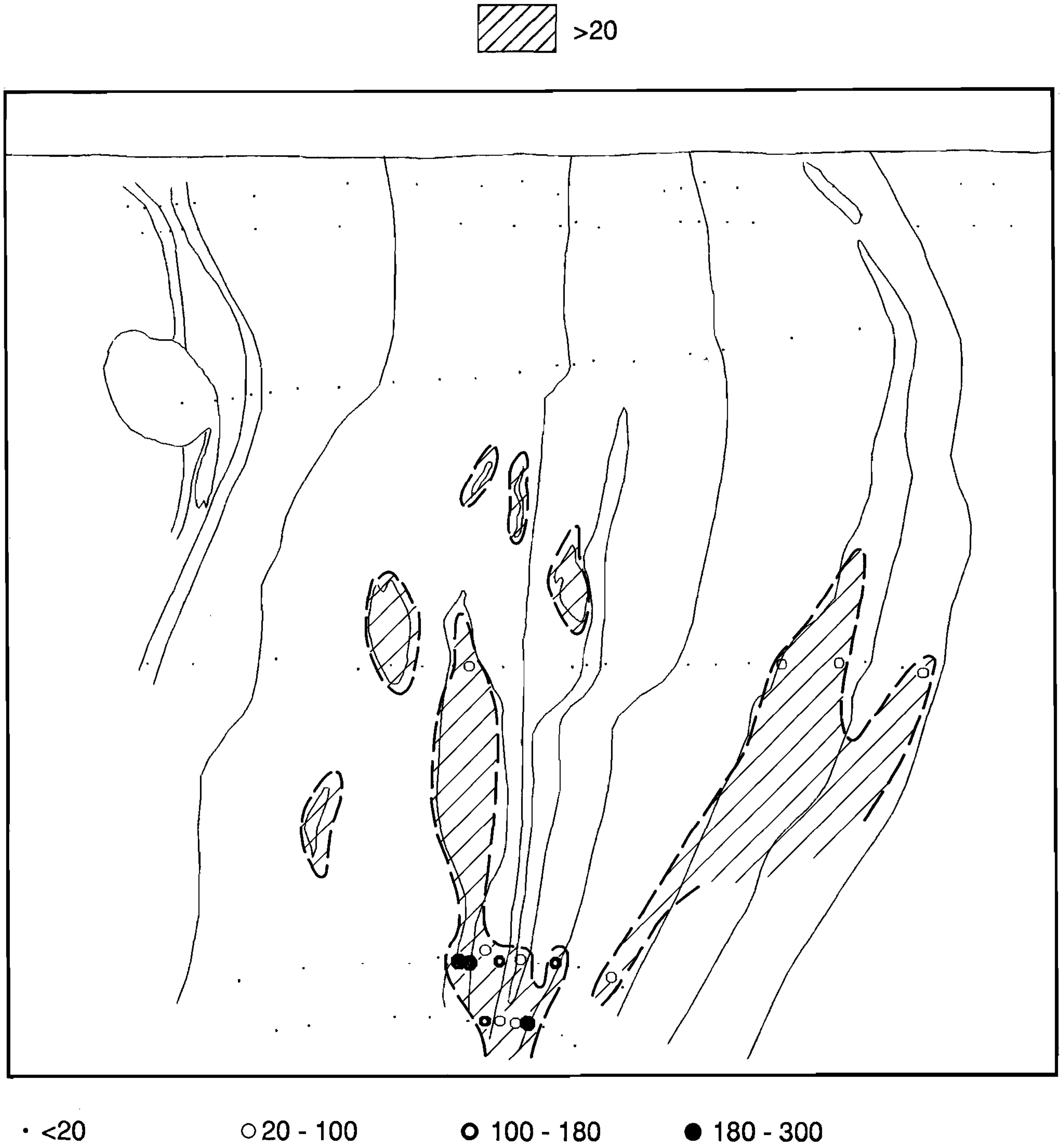
(See photo in Appendix 5 for geology)

(Arbitrary units related to XRD peak height)

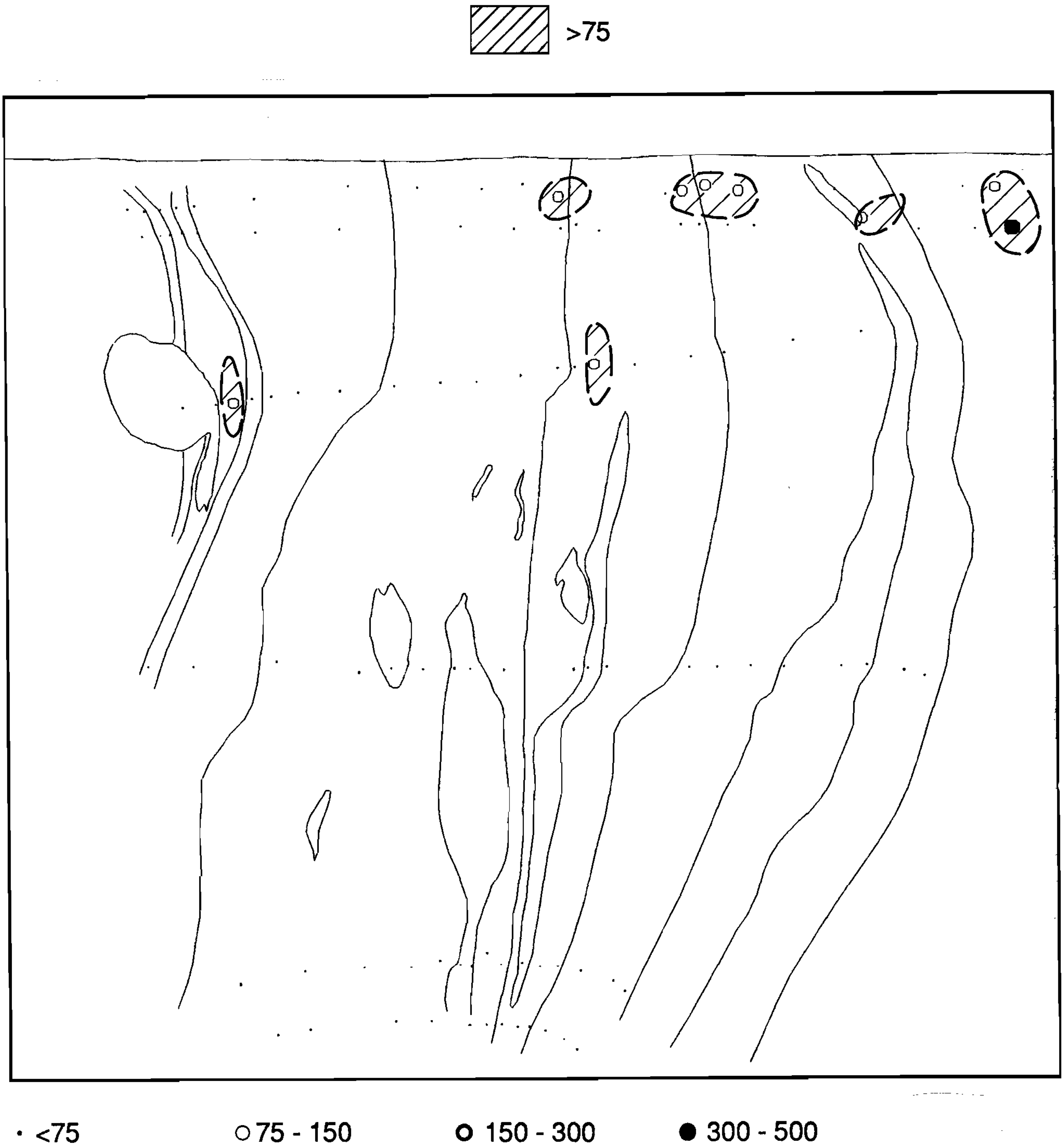
Chlorite



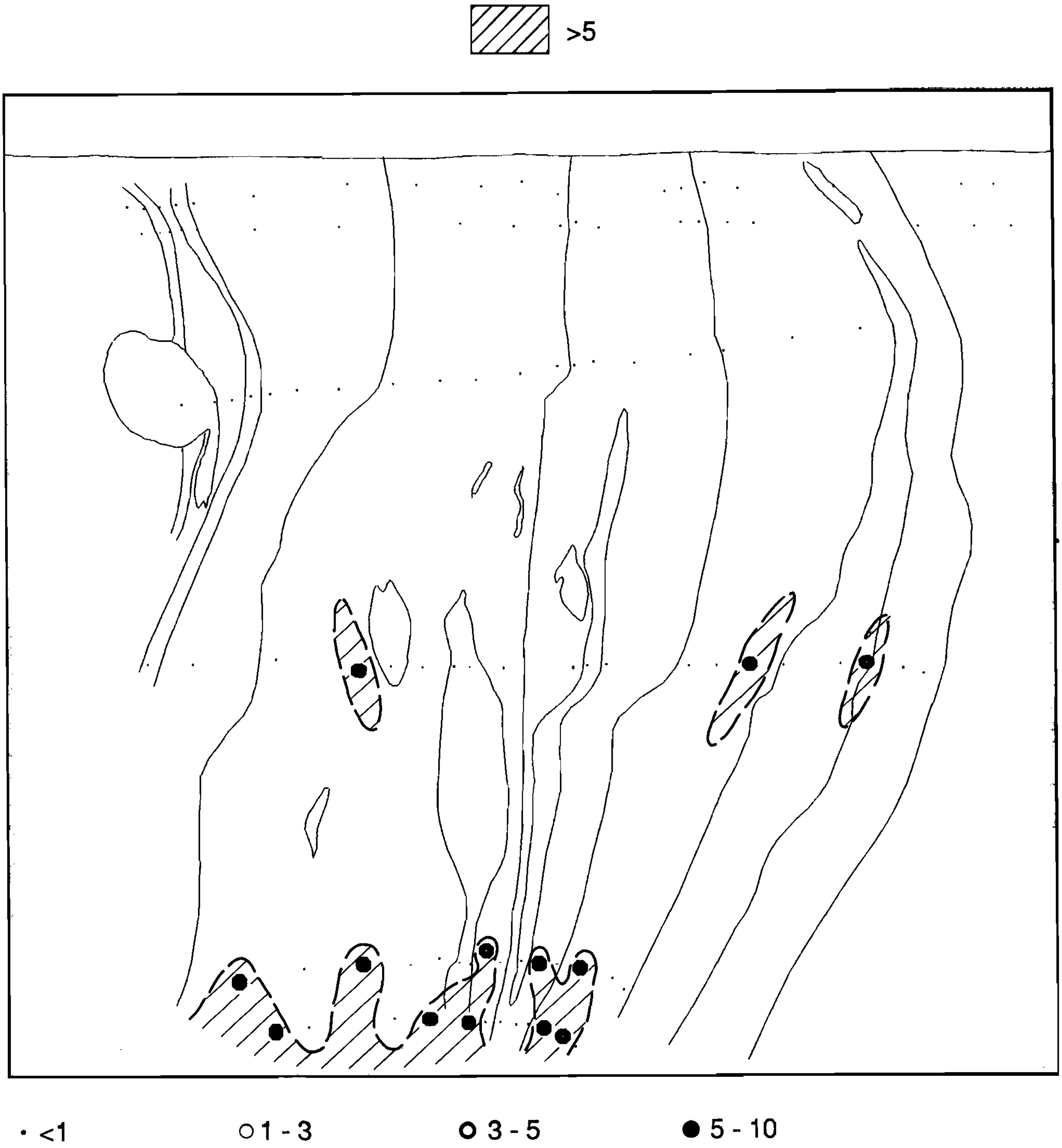
Feldspar



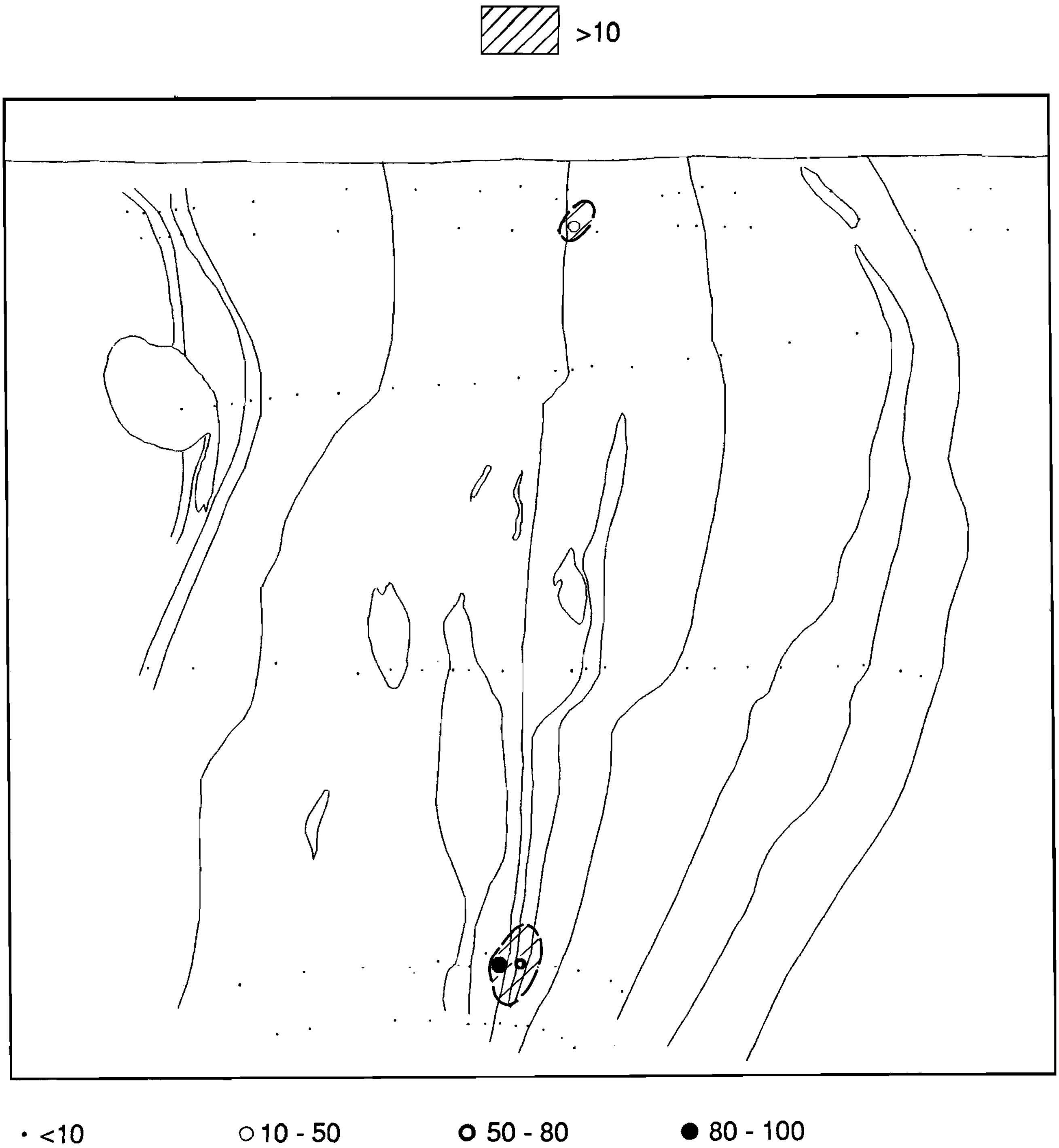
Goethite



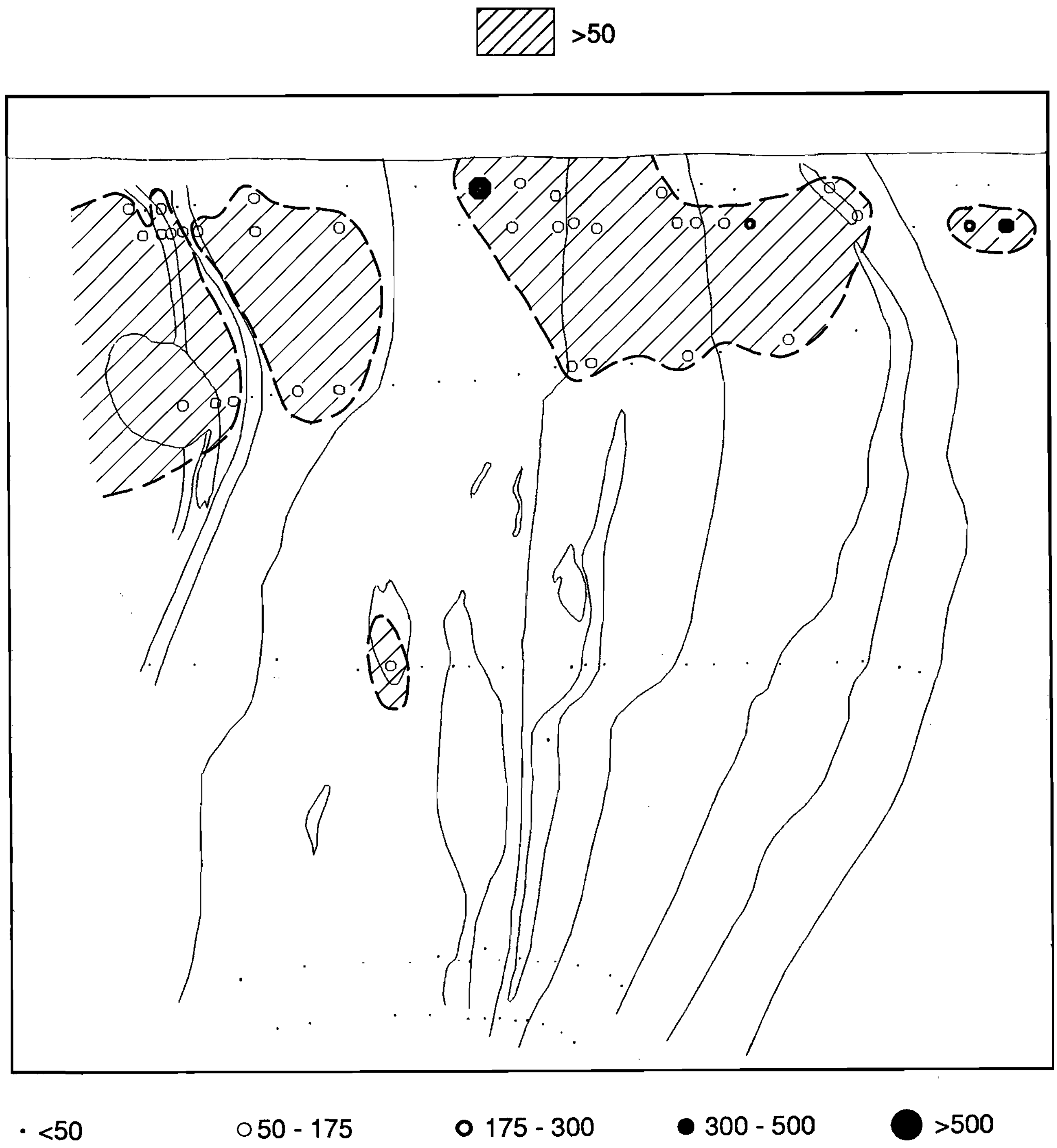
Halite



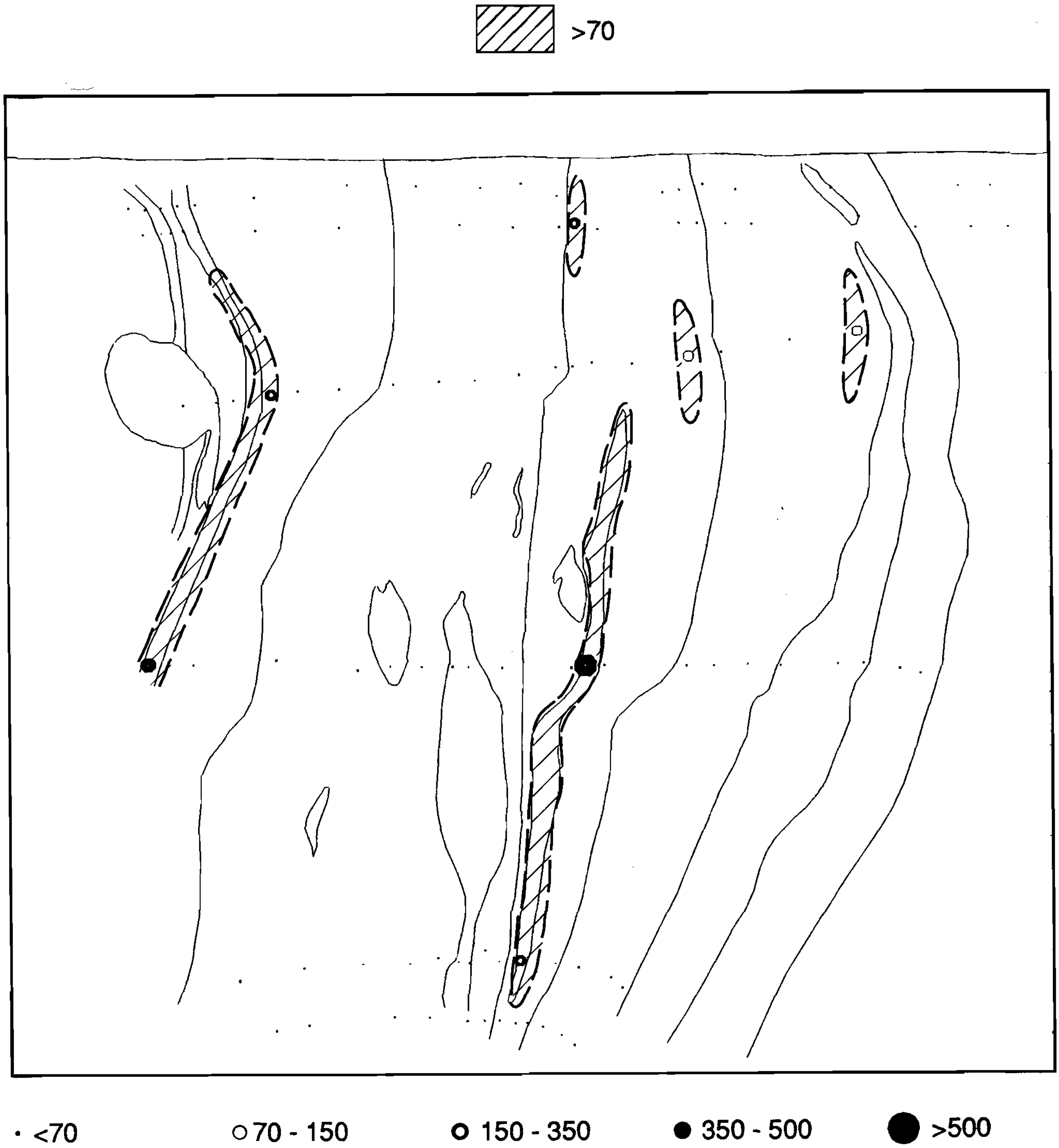
Hematite



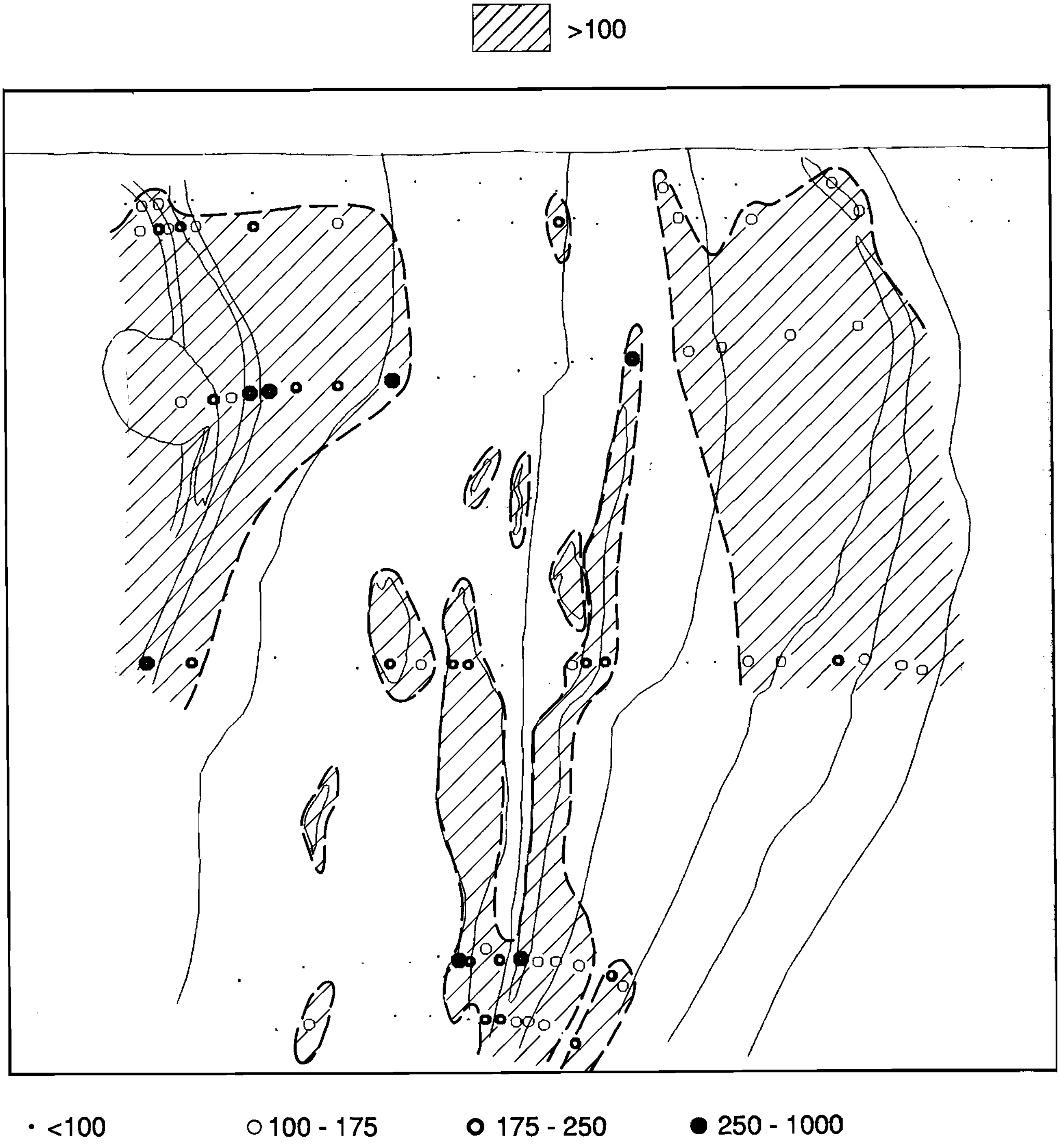
Kaolinite



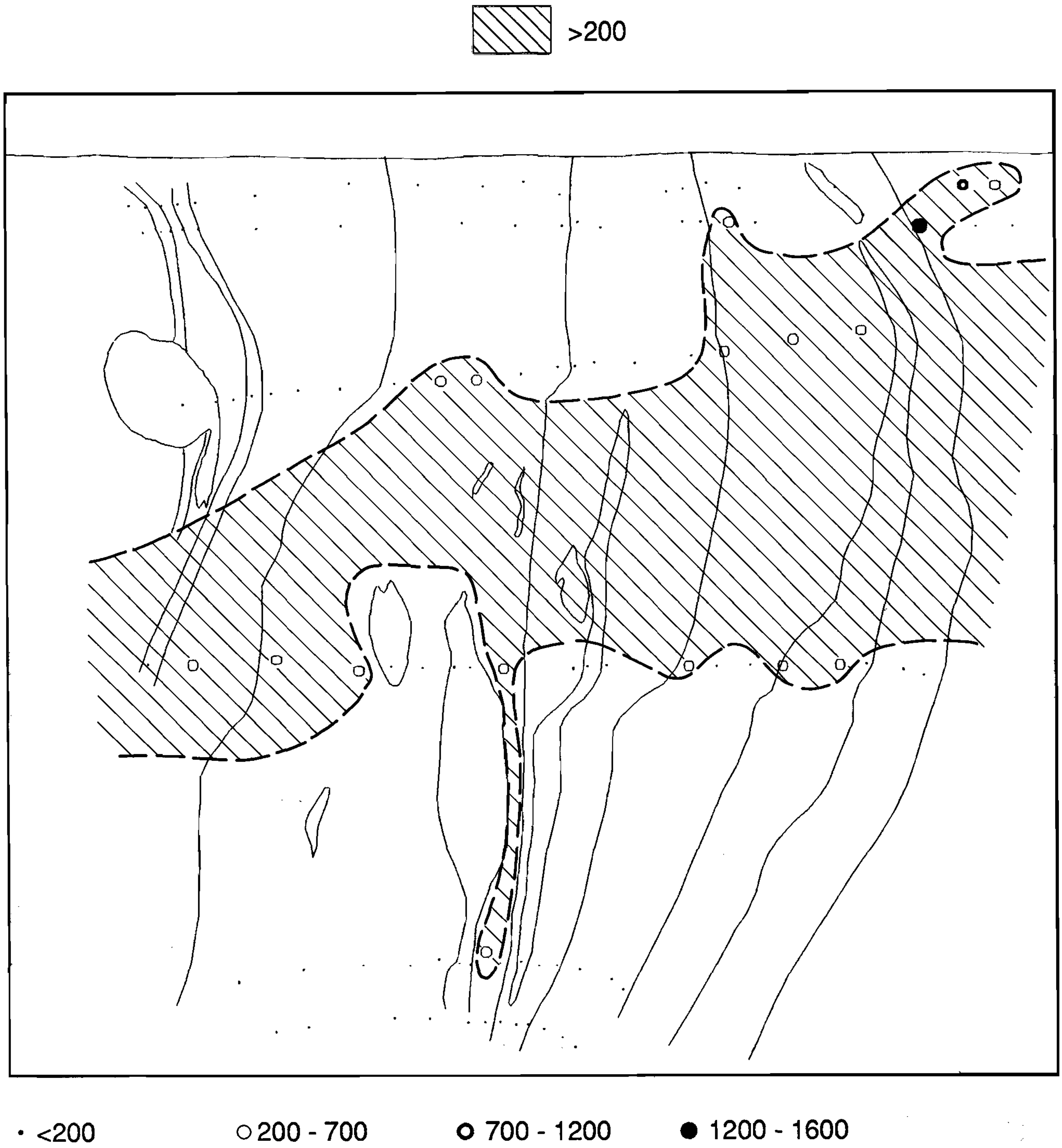
Muscovite



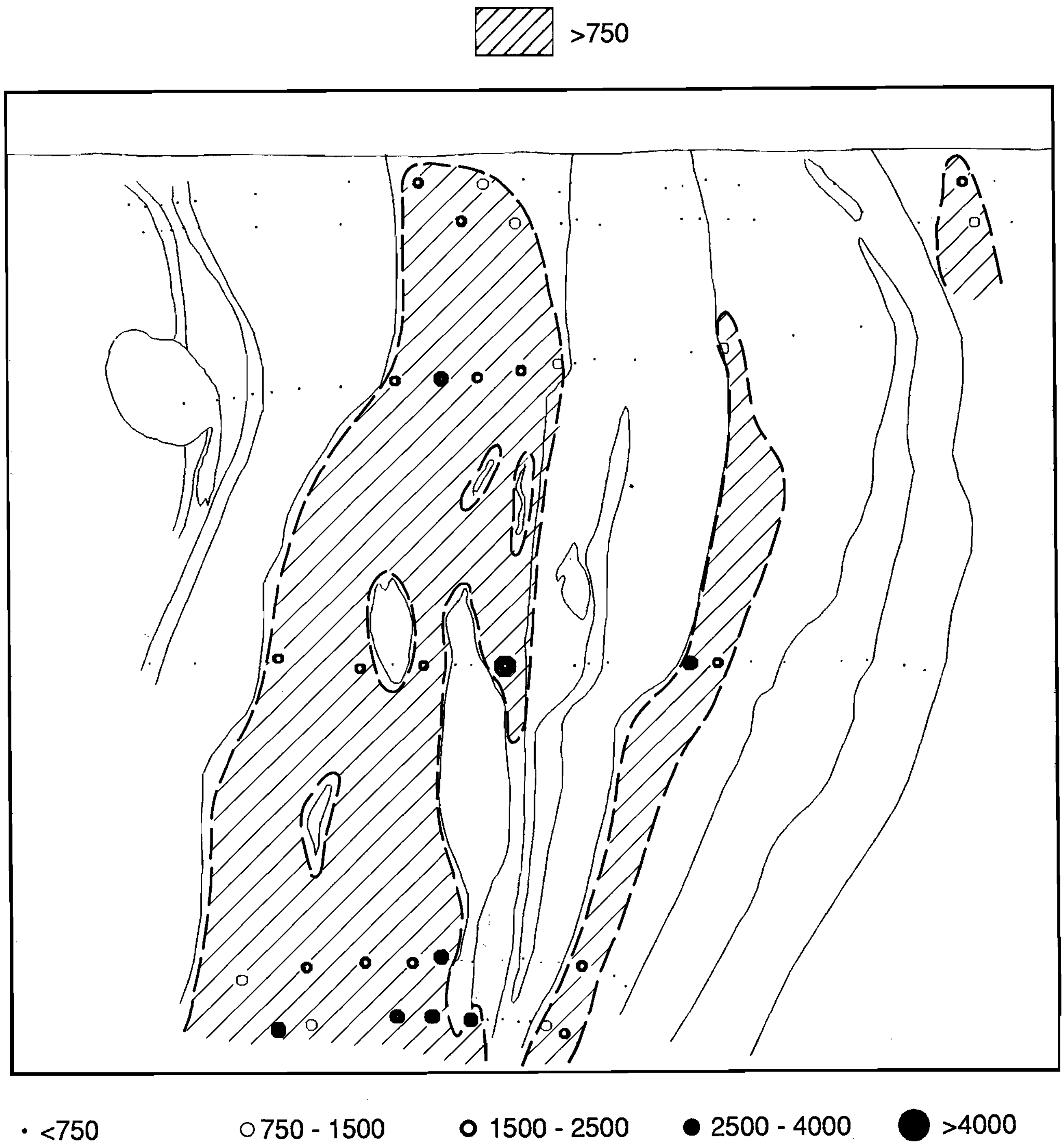
Quartz



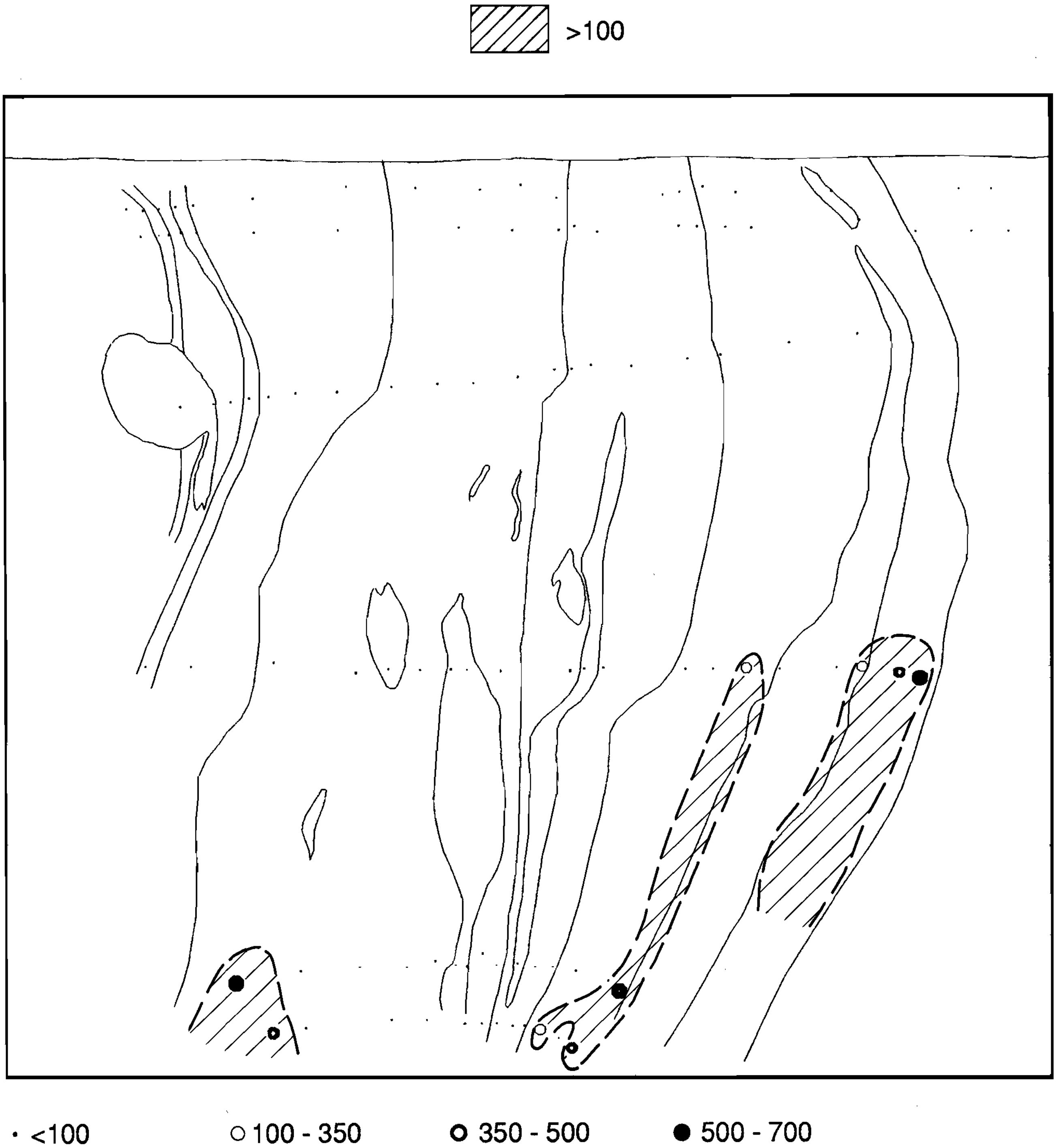
Smectite



Talc



Tremolite



APPENDIX 7

Tabulated Mineralogy

Mine co-ordinates in metres
Photo co-ordinates in 0.1 mm
Mineralogical abundances in arbitrary units
after correction for mass absorption

M = Mafic
U = Ultramafic
S = Mica Schist
B = Black Shale
P = Porphyry

Sample Numbers			Co-ordinates				Photo co-ord		Attenu											
Field No	Lab Seq	Lib No	East	North	R.L.	Unit	Ph-East	Ph-R.L.	Factor	Quartz	Fspar	Musc	Talc	Trem	Kaolin	Chlor	Smect	Hemat	Goeth	Halite
RE 001	L08-032	08-001	10062.287	11268.308	419.714	U2	373	153	1.3403	94	0	7	1193	603	0	362	7	0	0	7
RE 002	L08-002	08-002	10058.253	11265.760	420.162	U2	478	173	1.2404	6	0	6	1861	6	0	1191	0	0	0	0
RE 003	L08-052	08-003	10053.450	11263.355	419.961	U2	574	180	1.2515	60	0	0	2090	28	0	438	0	0	0	6
RE 004	L08-057	08-004	10050.242	11262.410	419.849	U2	650	180	1.2079	66	0	0	2319	0	0	676	0	0	0	0
RE 005	L08-012	08-005	10048.433	11262.300	419.800	U2	697	190	1.2697	44	0	0	3174	44	0	508	6	0	0	0
RE 006	L08-017	08-006	10046.666	11262.200	419.900	P2	730	183	1.0148	304	223	5	294	0	0	61	0	0	0	0
RE 007	L08-077	08-007	10044.937	11262.091	420.293	P2	748	181	0.9719	204	233	0	194	0	0	39	0	0	0	0
RE 009	L08-037	08-008	10044.055	11261.857	420.750	P2	773	202	1.4843	168	24	7	131	0	0	579	297	0	42	7
RE 011	L08-058	08-009	10041.460	11261.750	421.210	P2	796	183	1.9130	191	134	10	168	0	0	57	0	96	0	0
RE 012	L08-003	08-010	10040.970	11261.728	421.353	S3	830	185	1.4524	269	23	305	29	0	0	7	0	73	0	0
RE 013	L08-055	08-011	10039.914	11262.456	420.421	M3	858	180	1.3410	141	0	7	48	0	40	315	67	0	0	7
RE 014	L08-006	08-012	10037.414	11263.113	420.209	M3	887	180	1.4292	143	164	7	29	0	7	236	93	0	51	0
RE 015	L08-056	08-013	10034.722	11263.581	420.450	U4	925	173	1.2325	105	0	62	1997	0	0	567	0	0	0	6
RE 016	L08-064	08-014	10031.159	11266.878	419.831	U4	977	157	1.3870	240	67	7	44	0	0	1082	90	0	0	0
RE 017	L08-078	08-015	10029.709	11270.464	419.835	U4	995	140	1.4450	149	7	7	7	607	0	694	0	0	0	0
RE 018	L08-075	08-016	10035.457	11275.952	414.923	U4	917	47	1.3706	219	0	0	480	439	0	411	0	0	0	0
RE 019	L08-043	08-017	10036.348	11272.471	414.891	U4	896	64	1.2257	47	0	6	1998	0	0	343	6	0	0	6
RE 020	L08-011	08-018	10037.368	11269.524	415.821	U4	866	77	1.4223	135	0	0	1124	256	0	356	0	0	0	7
RE 021	L08-053	08-019	10038.377	11268.531	416.110	M3	841	83	1.3917	125	216	7	7	0	0	223	0	0	0	0
RE 022	L08-082	08-020	10039.082	11268.226	415.906	M3	821	83	1.3803	152	76	69	7	0	7	193	55	0	7	0
RE 023	L08-070	08-021	10040.660	11267.751	415.893	M3	796	87	1.3565	210	81	68	7	0	0	231	7	0	0	0
RE 025	L08-059	08-022	10042.885	11267.528	415.473	P2	771	87	1.0181	239	163	5	59	0	0	24	0	0	0	0
RE 026	L08-035	08-023	10043.799	11267.303	415.564	U2	744	87	1.1737	12	0	0	3521	0	0	763	0	0	0	6
RE 028	L08-001	08-024	10046.751	11266.970	415.521	U2	682	93	1.1930	20	0	0	3102	0	0	453	0	0	0	6
RE 029	L08-028	08-025	10050.275	11267.407	415.605	U2	625	93	1.2527	81	0	6	2756	0	0	514	0	0	0	0
RE 030	L08-083	08-026	10055.342	11268.927	415.782	U2	485	80	1.2472	143	0	1	1409	65	0	349	50	0	0	0
RE 031	L08-023	08-027	10059.756	11271.874	416.058	U2	432	72	1.3085	82	0	7	2552	393	0	628	0	0	0	7
RE 032	L08-067	08-028	10074.685	11234.401	440.558	S1	227	670	1.2321	296	0	419	34	0	0	129	0	0	0	0
RE 033	L08-042	08-029	10072.694	11231.887	441.006	M1	300	670	1.2919	187	0	6	220	0	39	1034	258	0	0	0
RE 034	L08-004	08-030	10064.533	11228.047	441.848	U2	436	678	1.2779	64	0	0	2300	0	0	1125	319	0	0	0
RE 035	L08-048	08-031	10055.375	11229.094	440.489	U2	569	660	1.2350	74	0	6	1606	0	0	1186	284	0	0	6
RE 036	L08-036	08-032	10053.596	11227.089	441.798	P2	622	667	1.0369	218	5	5	83	0	114	119	41	0	0	0
RE 037	L08-073	08-033	10050.514	11228.280	441.299	U2	672	665	1.1709	146	0	0	2225	0	0	759	187	0	0	0
RE 038	L08-031	08-034	10047.984	11229.013	440.945	P2	724	666	1.1460	189	6	6	49	0	0	69	0	0	0	0
RE 039	L08-005	08-035	10046.787	11228.826	441.011	P2	749	665	1.1349	185	40	6	31	0	40	23	0	0	0	0
RE 040	L08-054	08-036	10043.529	11229.796	440.723	U2	804	663	1.1817	12	0	0	4963	0	0	886	414	0	0	0
RE 041	L08-076	08-037	10035.258	11228.640	441.843	M3	917	663	1.3390	114	0	7	64	0	0	268	54	7	0	0
RE 042	L08-020	08-038	10034.592	11227.940	442.492	S3	940	667	1.1873	226	0	594	36	0	6	47	0	0	0	0
RE 043	L08-024	08-039	10033.469	11228.914	442.030	M3	971	668	1.5098	196	0	8	30	8	8	581	181	0	0	0

Sample Numbers			Co-ordinates			Unit	Photo co-ord		Attenu											
Field No	Lab Seq	Lib No	East	North	R.L.		Ph-East	Ph-R.L.	Factor	Quartz	Fspar	Musc	Talc	Trem	Kaolin	Chlor	Smect	Hemat	Goeth	Halite
RE 044	L08-063	08-040	10026.947	11231.830	441.756	U4	1104	667	1.2294	68	0	0	2668	0	0	738	209	0	0	0
RE 045	L08-065	08-041	10025.366	11232.403	441.758	U4	1149	667	1.2181	0	0	0	2156	0	0	439	146	0	0	0
RE 046	L08-034	08-042	10022.124	11234.219	441.884	U4	1204	668	1.3541	162	7	54	27	257	0	542	135	0	0	7
RE 047	L08-045	08-043	10017.772	11236.619	442.066	M5	1257	667	1.4395	151	58	50	50	0	0	576	324	0	0	0
RE 048	L08-069	08-044	10014.321	11238.458	442.942	M5	1350	668	1.2734	216	25	6	6	0	0	662	229	0	0	0
RE 049	L08-021	08-045	10013.157	11238.970	442.877	U6	1393	670	1.4821	163	0	7	7	296	0	474	0	0	0	7
RE 050	L08-030	08-046	10009.642	11243.426	442.861	U6	1453	660	1.4146	120	7	7	42	396	0	410	0	0	0	0
RE 051	L08-072	08-047	10008.313	11246.579	442.637	U6	1486	651	1.4385	122	50	0	43	690	0	475	7	0	0	0
RE 052	L08-015	08-048	10010.967	11192.918	470.860	U4	1386	1212	1.3735	117	0	82	165	0	0	84	357	0	0	0
RE 053	L08-026	08-049	10018.283	11192.199	470.198	U4	1276	1198	1.2365	142	0	6	62	0	62	371	297	0	0	0
RE 054	L08-029	08-050	10023.884	11191.814	469.498	U4	1164	1178	1.1530	138	0	6	1268	0	0	646	231	0	0	0
RE 055	L08-079	08-051	10028.652	11191.767	468.805	M3	1111	1172	1.0126	147	0	106	81	0	66	35	0	0	0	0
RE 056	L08-071	08-052	10036.926	11190.920	467.957	M3	1019	1160	0.8658	260	0	4	52	0	43	3	0	0	0	0
RE 057	L08-047	08-053	10039.180	11190.702	467.780	M3	953	1161	1.1015	66	0	6	165	0	88	0	88	0	88	0
RE 058	L08-040	08-054	10040.405	11190.568	467.649	M3	922	1156	1.0102	10	0	0	20	0	91	0	131	0	5	0
RE 059	L08-022	08-055	10042.044	11190.565	467.289	U2	894	1155	0.9553	91	0	5	1290	0	48	57	29	0	0	0
RE 060	L08-007	08-056	10045.433	11190.475	466.818	U2	834	1143	1.1587	70	0	0	1912	0	6	776	185	0	0	0
RE 061	L08-010	08-057	10047.480	11190.384	466.496	U2	763	1133	1.1826	83	0	6	1738	0	6	686	244	0	0	0
RE 062	L08-038	08-058	10051.628	11190.408	466.383	U2	704	1132	1.2138	6	0	0	2731	0	0	801	340	0	0	0
RE 063	L08-050	08-059	10056.169	11190.858	465.292	U2	629	1128	1.1643	268	0	0	2096	0	0	675	116	0	0	0
RE 064	L08-039	08-060	10063.898	11191.521	465.270	M1	541	1119	1.2533	207	0	0	269	0	63	457	88	0	0	0
RE 065	L08-014	08-061	10068.273	11193.087	464.868	M1	473	1117	1.3111	190	0	0	184	0	72	629	184	0	0	0
RE 066	L08-062	08-062	10069.990	11194.141	464.942	S1	430	1111	1.4129	332	0	170	120	0	7	57	24	0	71	0
RE 067	L08-027	08-063	10070.758	11194.785	464.627	S1	398	1108	1.1583	347	0	41	122	0	6	41	0	0	0	0
RE 068	L08-025	08-064	10072.592	11195.869	464.618	M1	368	1101	1.3460	128	0	7	47	0	114	0	74	0	97	0
RE 069	L08-049	08-065	10074.516	11197.242	464.618	M1	339	1098	1.2809	211	0	6	64	0	102	0	110	0	70	0
RE 070	L08-061	08-066	10076.912	11199.130	464.428	M1	286	1094	1.1101	133	0	6	67	0	155	27	6	0	0	0
RE 071	L08-074	08-067	10083.199	11190.603	480.664	M1	222	1371	0.9978	160	0	5	52	0	140	0	36	0	0	0
RE 072	L08-080	08-068	10081.393	11188.976	480.663	M1	252	1374	0.9538	215	0	5	48	0	100	0	105	0	0	0
RE 073	L08-066	08-069	10079.991	11187.613	481.025	M1	268	1375	1.0345	171	0	5	36	0	88	0	124	0	0	0
RE 074	L08-018	08-070	10078.270	11186.145	481.154	M1	287	1377	1.2412	217	0	6	31	0	74	0	180	0	6	0
RE 075	L08-081	08-071	10077.379	11185.032	481.797	M1	312	1378	1.1675	128	0	6	47	0	99	0	70	0	6	0
RE 076	L08-060	08-072	10070.998	11181.625	481.222	M1	406	1377	0.9812	226	0	0	34	0	118	25	29	0	0	0
RE 077	L08-019	08-073	10062.628	11179.769	481.244	M1	542	1382	1.0962	137	0	5	33	0	110	5	0	0	5	0
RE 078	L08-008	08-074	10055.864	11179.341	481.180	U2	738	1387	1.2330	80	0	0	2121	0	6	0	0	0	0	0
RE 079	L08-013	08-075	10046.566	11179.447	481.200	U2	826	1382	0.9883	15	0	5	889	5	59	0	59	0	0	0
RE 080	L08-016	08-076	10042.063	11179.814	481.135	M3	901	1382	0.9580	220	0	0	48	0	86	5	0	0	0	0
RE 081	L08-033	08-077	10037.697	11180.282	481.242	M3	964	1379	0.8581	28	0	0	30	4	86	4	0	0	0	0
RE 082	L08-009	08-078	10029.510	11180.416	481.800	M3	1095	1388	1.0542	163	0	5	32	0	74	0	63	0	0	0

Sample Numbers			Co-ordinates			Unit	Photo co-ord		Attenu	Quartz	Fspar	Musc	Talc	Trem	Kaolin	Chlor	Smect	Hemat	Goeth	Halite
Field No	Lab Seq	Lib No	East	North	R.L.		Ph-East	Ph-R.L.	Factor											
RE 083	L08-044	08-079	10026.691	11180.982	481.305	M3	1126	1388	1.2394	81	0	6	37	0	87	0	43	0	0	0
RE 084	L08-068	08-080	10024.718	11181.203	481.498	U4	1172	1387	1.1043	39	0	6	22	0	83	0	232	0	0	0
RE 085	L08-051	08-081	10021.868	11181.630	481.497	U4	1214	1385	1.1763	129	0	6	6	0	259	0	141	0	6	0
RE 086	L08-508	08-478	10013.530	11183.176	482.630	U4	1390	1397	0.9224	138	0	0	0	0	87	0	9	0	83	0
RE 087	L08-484	08-479	10009.540	11185.047	481.911	U6	1481	1380	1.2263	0	0	6	74	0	5	0	1472	0	0	0
RE 088	L08-482	08-480	10000.708	11184.820	482.656	U6	1572	1380	1.9632	0	0	0	1060	10	208	0	165	0	0	0
RE 089	L08-480	08-481	9997.278	11185.887	482.315	U6	1632	1380	2.2149	0	0	0	100	0	399	0	0	0	377	0
RE 090	L08-498	08-482	10039.772	11180.053	482.684	S3	926	1388	1.2985	21	0	234	0	0	62	0	0	42	70	0
RE 091	L08-506	08-483	10017.149	11180.155	486.764	U6	1345	1444	0.9329	140	0	0	0	0	75	0	30	0	0	0
RE 092	L08-486	08- 484	10024.507	11179.606	486.426	U4	1188	1442	1.5443	5	0	0	0	0	43	0	154	0	108	0
RE 093	L08-495	08- 485	10027.425	11179.004	486.999	U4	1135	1451	1.2430	1	0	0	0	0	35	0	199	0	75	0
RE 094	L08-485	08-486	10029.670	11179.173	486.107	M3	1097	1442	1.5188	9	0	0	0	0	29	0	23	0	106	0
RE 095	L08-505	08-487	10031.500	11178.954	486.067	M3	1070	1438	0.9951	149	0	30	14	0	70	0	68	0	60	0
RE 096	L08-502	08-488	10040.190	11177.767	486.871	M3	916	1449	0.9279	58	0	0	0	0	46	0	167	0	43	0
RE 097	L08-492	08-489	10041.937	11178.203	485.749	U2	897	1433	1.3219	13	0	0	0	0	61	0	63	7	106	0
RE 098	L08-500	08-490	10045.296	11177.360	487.048	U2	839	1454	0.9361	62	0	0	9	0	60	0	60	0	52	0
RE 099	L08-494	08-491	10049.517	11177.279	486.646	U2	773	1447	0.8880	75	0	0	1288	0	604	0	0	0	0	0
RE 100	L08-478	08-492	10056.121	11176.936	487.292	U2	668	1450	1.0039	36	0	0	1757	5	28	0	0	0	0	0
RE 101	L08-489	08-493	10063.104	11177.774	486.689	M1	556	1451	0.8403	54	0	0	0	0	47	4	0	0	0	0
RE 102	L08-481	08-494	10072.142	11180.097	485.376	M1	404	1432	0.9883	75	0	5	0	0	119	0	71	0	0	0
RE 103	L08-488	08-495	10077.786	11184.246	485.473	M1	307	1421	1.0835	67	0	5	0	0	48	0	128	0	5	0
RE 104	L08-503	08-496	10078.679	11185.134	484.706	M1	279	1418	1.0598	8	0	5	2	0	42	0	117	0	5	0
RE 105	L08-497	08-497	10082.196	11187.955	484.964	M1	252	1415	1.0070	151	0	0	0	4	60	0	28	0	5	0
RE 106	L08-490	08-498	10084.151	11189.455	484.979	M1	225	1412	0.9283	139	0	13	0	0	37	0	149	0	5	0
RE 107	L08-496	08-499	10085.779	11190.704	484.993	M1	199	1415	0.9480	78	0	0	0	0	85	0	11	0	0	0
RE 108	L08-487	08-500	10004.738	11181.711	485.922	U6	1552	1446	1.3800	1	0	0	1656	0	7	0	1159	0	0	0
RE 109	L08-491	08-501	10000.910	11182.203	485.843	U6	1604	1446	1.4773	0	0	0	579	0	18	0	502	0	112	0
RE 110	L08-499	08-502	10082.741	11401.011	430.998	B0	-	-	1.2485	187	0	275	20	0	0	454	200	0	0	0
RE 111	L08-483	08-503	10084.277	11591.073	448.008	B0	-	-	1.1496	172	0	97	16	0	0	230	46	0	0	0
RE 112	L08-501	08-504	10088.109	11608.836	468.988	B0	-	-	1.0778	162	0	165	0	0	11	0	0	0	0	0
RE 113	L08-504	08-505	10091.533	11624.206	481.716	B0	-	-	1.1446	172	0	197	55	6	32	0	0	0	6	0

APPENDIX 8

Systematic Petrography

APPENDIX 8

SYSTEMATIC PETROGRAPHY

This Appendix is a catalogue of the petrography, the essential features of which have been summarised in Section 5. Reference should be made to the photomicrographs in Figures 6 to 10.

A scanning electron microscope (SEM) was used to aid mineral identification and the elements identified are given in parentheses. Where necessary, mineral species were confirmed using Debye-Scherrer diffractograms (D-S). Details of the methods are described in Section 3.

Specimen numbers refer to the Field Numbers in Appendix 1, where the specimen co-ordinates may be found as well as their geochemistry. Details of their mineralogy are given in Appendix 7 and the locations of the specimens are shown on a photograph of the south face of the Rand pit in Appendix 5 (except for Specimens 110-113, the locations of which are given in Figure 2). The five major rock units are identified as:-

Black Shale	B
Mafic schist	M
Ultramafic schist	UM
Mica Schist	S
Granitoid porphyry	P

This is followed by, and combined with, a number indicating the specific band in which the specimen occurs. The R.L. of each specimen is also given, the surface approximating to R.L. 489m. Some specimens were insufficiently coherent for sectioning.

RE 1 UM2 419.714

Talc-chlorite-tremolite schist. Talc forms a mat and the schistosity of the talc is crenulated by a later, open-spaced chloritic cleavage. There are a few individual grains and small clusters of quartz which are generally associated with coarse talc and appear to occupy strain-shadow positions. Broad blades of decussate tremolite lie in the talc but, where they are caught in the cleavage, they become needle-like, are aligned with and in places are broken by the cleavage. Small wedge-shaped sphene crystals are scattered in the rock. Halite, which was found in the XRD study, was not seen and was probably lost in sectioning.

RE 2 UM2 420.162

Talc-chlorite schist. It consists of a mat of talc, cut by a chlorite-filled cleavage, which is also followed by quartz veins containing granoblastic polygonal grains. A few needle-like, decussate tremolite needles are also cut by the chloritic cleavage and the needles are broken. The rock is also pocked by minor feathery patches of anatase and globular Fe ore.

RE 3 UM2 419.961

Talc-chlorite schist. This is a mat of talc with some chlorite related to an ill-defined cleavage. Globular patches of Fe oxide and feathery patches of anatase are common. Quartz forms strings of grains related to the cleavage.

RE 4 UM2 419.849

Talc-chlorite schist. This is a talc rock but with a well-developed chloritic cleavage. There is very little quartz. A few lenses of goethite and anatase are aligned to the schistosity and appear to have weathered from magnetite and ilmenite (Ti, Fe). There is also some carbon in the cleavage (dark in BSE mode) which may have migrated from the carbonaceous shales.

RE 5 UM2 419.800

Talc-chlorite schist. The talc is schistose and is cut by a chloritic cleavage. A large quartz vein covers part of the specimen. In another part of the rock, goethite (D-S) has penetrated stylolitic fractures, the cleavage and the margins of the quartz vein. A goethitic stain has spread into the silicates from there.

RE 6 P2 419.900

Granitoid Porphyry. It consists of coarse-grained, hypidiomorphic to xenomorphic crystals of plagioclase, set in granoblastic polygonal quartz, with a few clusters of small microcline granules, with sutured margins and flakes of chlorite. Where the fabric has been crushed by intergranular movement, the gaps between grain boundaries have been filled with slightly weathered pyrite, leaving a brown stain, which has spread along grain boundaries.

RE 7 P2 420.293

Granitoid Porphyry. The rock consists of early xenomorphic plagioclase, surrounded by granoblastic, polygonal quartz. Late xenomorphic microcline occurs as slightly larger grains among the quartz and occupies healed fractures within the plagioclase. Some chlorite occurs in shears and there has been minor intergranular staining which has diffused from patches of goethite (after pyrite). This rock is similar to RE 25 but there is slightly more microcline and all pyrite has altered to goethite.

RE 9 P2 420.750

Mixed rock. The thin section shows a lens of quartz-microcline granitoid in a strongly cleaved talc-chlorite schist. The granitoid is composed of xenomorphic grains of microcline set in granoblastic, polygonal quartz. There has been some intergranular movement along an anastomosing cleavage, where the crystal margins have been granulated and their margins are sutured. Red-brown and yellow-brown goethite pseudomorphs cubic pyrite grains. Chains of goethite granules are included in the cleavage which, where strongly developed, is marked by chlorite. The talc-chlorite schist consists of wisps of talc and lenses of very fine-grained, granular, cleavage-associated quartz, set with lenses and patches of Fe-stained smectite.

RE 11 P2 421.210

Granitoid Porphyry. It is composed of a fine-grained groundmass of plagioclase and microcline feldspars and quartz, set with large hypidiomorphic to xenomorphic phenocrysts of plagioclase and microcline. Some phenocrysts have been fractured and strained and the fine-grained groundmass is cut by sinuous lenses of granoblastic quartz. There has been intense staining of the grain boundaries by red-brown hematite.

RE 12 S3 421.353

Mica schist. Very fine-grained muscovite (Si, Al, K > > Fe) is the major component, with minor talc. The fabric has been penetrated by quartz and granitoid veins (quartz and minor microcline). Where muscovite is included in the quartz, it is coarser-grained. Hematite (D-S) stains the grain boundaries, penetrates the cleavage and fills a few spaces.

RE 13 M3 420.421

Quartz-chlorite-schist. It consists of a fine-grained groundmass of granular quartz and completely kaolinised feldspar, cut by a strong foliation of chlorite, with minor muscovite and talc. Small, lensoid, sinuous clusters of quartz and larger quartz veins lie parallel to the foliation. Granular goethite and goethite staining preferentially follow the quartz veins and clusters.

RE 14 M3 420.209

Quartz-feldspar-chlorite schist. The groundmass contains unusually coarse quartz and feldspar and this is cut by an open-spaced chloritic cleavage, near which lie sinuous quartz veins. Goethite patches and stains are associated more with quartz and the coarse-grained feldspars than with the chlorite.

RE 15 UM4 420.450

Talc-chlorite-quartz schist. Large islands of relatively coarse talc and quartz are separated by a well-developed and discrete, open-spaced, crenulated, chloritic cleavage (Figure 8G). A large quartz vein cuts obliquely across the schistosity. Small quantities of magnetite and sphene are the only accessory minerals.

RE 16 UM4 419.831

Quartz-chlorite schist. It is a schistose mass of fine-grained, granular quartz and feldspar and the cleavage is marked by chlorite and minor talc. A later generation of slightly coarser-grained quartz forms patches and lenses in the cleavage. Granular sphene is scattered in the cleavage. This could be reclassified as mafic but it's major element chemistry lies on the border between the two.

RE 17 UM4 419.835

Chlorite-tremolite-quartz schist. This consists of islands of broad-bladed tremolite, granular quartz and minor albite, cut by a strong chloritic cleavage in which lie needle-like tremolite crystals. Crenulated quartz veins cut obliquely across both earlier fabrics. Fresh wedge-shaped sphene crystals and some very minor granular Fe oxides are the only accessory minerals. This rock is unweathered.

RE 18 UM4 414.923

Tremolite-chlorite-quartz schist. This rock is highly schistose. It consists of needles of tremolite and flakes of chlorite aligned with the schistosity, interspersed with fine-grained, granular quartz. A few larger tremolite crystals form islands in the schistose fabric and have been rotated by it. Granules, patches and lenses of magnetite lie in the fabric which is essentially fresh but, where it is cut by late fractures, Fe staining has spread from altered Fe nuclei and cryptomelane (SEM) coats some voids.

RE 19 UM4 414.891

Talc-chlorite schist. A talc mat is cut by a slightly crenulated, very open-spaced chloritic cleavage. Small granules of fresh sphene are scattered in the section and patches of smectite occur in the talc mat.

RE 20 UM4 415.821

Talc-tremolite-chlorite schist. This is a talc-tremolite schist containing large decussate tremolite and patches of quartz and needle-like tremolite, cut by a late chloritic cleavage. Small wedge-shaped sphene crystals are sparsely scattered in the talcose fabric.

RE 21 M3 416.110

Quartz-albite-chlorite schist. The granular groundmass of quartz and sodic plagioclase is unusually coarse-grained (0.2 mm). It is cut by a cleavage marked by chlorite (D-S). Lenses of quartz follow the foliation and some of these have been extensively stained by brown goethite.

RE 22 M3 415.906

Quartz-feldspar-chlorite schist. The groundmass consists of granular quartz and untwinned albite, partly altered to very fine-grained kaolinite. This is cut by a weakly schistose fabric of muscovite, talc and chlorite. The more mafic and cleaved parts have much Fe staining and there are a few cubic structures presumably after pyrite, now pseudomorphed by goethite.

RE 23 M3 415.893

Quartz-feldspar-chlorite schist. Granular quartz and untwinned albite, together with lenticular patches of chlorite, with the flakes aligned across the width of the lenses, are cut by a strong foliation, marked by muscovite and talc, and a later, more open-spaced fracture cleavage, marked by chlorite (Figure 6A). Small lenses and veinlets of quartz lie parallel to this fabric. Granules of magnetite and minor ilmenite are scattered in the fabric and some of these have weathered to yellow-brown goethite which penetrates along quartz grain boundaries and along the cleavage. A trace of smectite was reported in the XRD investigation.

RE 25 P2 415.473

Granitoid Porphyry. Large xenomorphic crystals of plagioclase are set in a granular groundmass of plagioclase and granoblastic quartz. The edges of the large plagioclases have crushed margins and the granule margins are sutured. An open-spaced cleavage is marked by chains of granular microcline which cross-cut both plagioclase crystals and groundmass. Quartz and minor flaky mixed chlorite and kaolinite (D-S) occupy intergranular positions. Patches of pyrite, with small inclusions of galena and possibly some sphalerite (SEM) are associated with minor microcline. There is also some penetration of Fe staining along intergranular surfaces.

RE 26 UM2 415.564

Talc-chlorite schist. This is a cleaved mass of talc and chlorite. The chlorite depicts a poorly-defined, open-spaced cleavage. Iron staining (Figure 8E) is associated with granular goethite (D-S) with some cubic structures, presumably after pyrite. Some Fe oxide granules are unaltered.

RE 28 UM2 415.52

Talc-chlorite schist. A discrete fracture cleavage, marked by grey birefringent chlorite, cuts a mat of talc. A few decussate tremolite crystals lie in the talc but appear to have been disrupted by the cleavage. Lenses of quartz lie in the chloritic cleavage, which is partly stained with goethite. Goethite staining has also formed around small patches of Fe ore. Halite was reported in the XRD examination but this was lost in sectioning.

RE 29 UM2 415.605

Talc-chlorite schist. A cleaved talc-chlorite rock with a large amount of quartz in the cleavage and occupying pressure shadow locations. There appear to be two types of chlorite, a brown birefringent type and an anomalous berlin blue type; both types of chlorite are associated with the cleavage (Figure 8A). Iron oxide has been feathered into the cleavage and is largely fresh though there is some very minor yellow and yellow-brown Fe staining restricted to a few cleavage planes. Another but semi-opaque mineral, with a creamy colour in oblique reflected light, is scattered in the slide and appears to be sphene or its alteration product (Ca, Ti).

RE 30 UM2 415.782

Talc-chlorite schist. This shows a mat of talc and chlorite with much quartz and a few scattered tremolite needles. The chlorite forms an anastomosing fabric, presumably an ill-defined cleavage. No tremolite needles were found cutting the chlorite. A very pale yellow (oblique reflected light) dusty, cloudy, mineral, presumably smectite, occurs on both chlorite and talc. Quartz occurs as individual grains or forms small patches and clusters. A feathery, opaque mineral, with a creamy colour in reflected light is a common accessory and this appears to be either sphene (Ca, Ti) or its alteration product.

RE 31 UM2 416.058

Talc-chlorite-tremolite schist. This is a lightly cleaved talc-chlorite schist with numerous needles of tremolite (Figure 8C). Some yellowish brown goethite stains the cleavage intermittently around Fe oxide granules and there are also opaque pale yellow patches. Some fractures and joints, now on the outside of the specimen, are coated with cryptomelane (Mn> >K). Manganese minerals have also locally spread from stylolitic veins and cavities in the rock.

RE 32 S1 440.558

Quartz-muscovite-chlorite schist. Small quartz granules and flakes of muscovite (D-S) are aligned with a well-developed crenulated schistosity (Figure 10A). This schistosity appears to approximate bedding as there is one lenticular layer of coarser-grained quartz lying parallel to the schistosity. Small, round clots of chlorite and bladed mixed chlorite and muscovite (Mg Al Si > Fe > > K; D-S) lie in the foliation and have been partly rotated by it. Both yellowish and red goethite staining has penetrated the cleavage, particularly where it has been opened by the crennulation.

RE 33 M1 441.006

Mafic quartz-chlorite-talc schist. It consists of flakes of mixed kaolinite and chlorite (D-S), aligned with the schistosity, among granules of quartz and kaolinised feldspar. Minor yellow-brown goethite has penetrated from wide-spaced fractures and stylolitic solution channels which cut obliquely across the foliation. The goethite has penetrated along the boundaries between quartz grains and stained the chlorite which is turbid and probably smectitic. Feathery ilmenite crystals, now yellow-brown goethite and anatase are scattered throughout.

RE 34 UM2 441.848

Talc-chlorite schist. The talc mat has been intensively cleaved and the chlorite in the cleavage is yellow-brown and slightly opaque. In oblique reflected light it is seen to have a yellowish, dusty coating of smectite. There are a few wisps of graphite and some minor granular ilmenite. Feathery and in places wedge-like grains which are opaque and yellowish brown, appear to be altered sphene, now anatase, at least in part.

RE 35 UM2 440.489

Iron-stained talc-chlorite schist. It consists of a cleaved mat of talc and chlorite which is set with numerous quarts grains, clusters and lenses. This is cut by a few needles of tremolite. Red-brown goethite has penetrated and stained the schistosity. In many instances tremolite needles have been either almost completely dissolved or replaced by Fe oxides (Figure 9A).

RE 36 P2 441.798

Granitoid Porphyry. It consists of a granulated groundmass of quartz and completely kaolinised microcline (Figure 10C), injected with vein quartz. The clay pseudomorph after microcline is partly stained with goethite and the margins of the quartz vein and spaces between the quartz crystals are filled with cryptomelane (Mn> >K, SEM).

RE 37 UM2 441.299

Talc-chlorite schist. The talc forms a mat which has been pervasively cleaved. The chlorite is largely related to this cleavage. Feathery wisps of graphite follow what appears to be an early schistosity within the talc which is cut by the chloritic cleavage. There is a small amount of largely fracture-related goethite staining. There are also a few small clusters of quartz grains.

RE 38 P2 440.945

Granitoid Porphyry. Large, xenomorphic, twinned crystals of microcline are surrounded by later granoblastic quartz in which are set patches of mixed chlorite and kaolinite (D-S) with radiating flakes, anatase and amorphous Fe oxide (D-S), probably goethite. These mafic patches may represent micro-xenoliths. The microcline, which is a fingerprint perthite is dusted with fine-grained kaolinite.

RE 39 P2 441.011

Granitoid Porphyry. It consists of xenomorphic twinned microcline perthite crystals, lightly dusted with kaolinite, set in much granoblastic polygonal quartz. Some large quartz grains show strain shadows but there is none of the intergranular crushing seen in other granitoids. The microcline is a fingerprint perthite but parts of the crystal show very low birefringence, possibly due to extensive kaolinisation of the plagioclase phase of the perthite (D-S). There are a few patches of muscovite and chlorite.

RE 40 UM2 440.723

Talc-chlorite schist. This rock is intensely cleaved and chlorite is associated with a discrete, open-spaced, sinuous cleavage. Minor quartz occurs as patches and lenses. Some lenses of brown goethite are associated with the cleavage and some cleavages contain traces of silvery graphite. Lenticular patches of anatase also lie in the cleavage, probably representing weathered, deformed sphene.

RE 41 M3 441.843

Quartz-chlorite schist. Most of the rock consists of unusually coarse-grained grey to yellow birefringent chlorite which occurs as decussate books and sheaves. This is cut by a finer-grained, cleavage-associated, berlin-blue birefringent chlorite. Lenses of quartz occur parallel with the cleavage. The cleavage is also followed by lenticular patches of powdery hematite and cloudy, cream-coloured kaolinite.

RE 42 S3 442.492

Quartz-muscovite schist. Layers of schistose muscovite alternate with layers rich in granular quartz. Intrusive lenses of much coarser granular to sutured quartz follow the cleavage. In places the cleavage is also followed by hematite staining, which also fills some open spaces.

RE 43 M3 442.030

Quartz-chlorite schist. It consists of granular quartz and completely kaolinised feldspar (Figure 6C), cut by a strong cleavage marked by chlorite and minor smectite and muscovite. The quartz forms small lensoid clusters in the cleavage. Iron staining is associated with lenses of goethite in the cleavage.

RE 44 UM4 441.756

Talc-chlorite schist. A slightly opaque but open-spaced chloritic cleavage cuts through large and relatively coarse-grained talc, with minor quartz. The turbid appearance of the chlorite is probably due to small amounts of smectite and kaolinite. Slight Fe staining has penetrated discrete fractures within the cleavage, some of which are stylolitic. Numerous feathery opaque crystals consist largely of sphene and anatase.

RE 45 UM4 441.758

Talc-chlorite schist. A mat of talc, cleaved with chlorite makes up the bulk of this rock. Small feathery opaque crystals, apparently weathered ilmenite (Ti>Fe), with a yellowish appearance in oblique reflected light, are abundant and there is very minor Fe staining. The chloritic cleavage is slightly turbid with minor smectite. There is also a trace of silvery-grey graphite.

RE 46 UM4 441.884

Chlorite-tremolite-quartz schist. Lensoid islands of decussate tremolite and granular quartz with minor albite are cut by a chloritic cleavage with needle-like tremolite. The chlorite is turbid with smectite. Chains of sphene crystals are abundant in the chlorite as are feathery altered ilmenite in the quartz-tremolite fabric.

RE 47 M5 442.066

Quartz-feldspar-chlorite-mica schist. It consists of a fine-grained, schistose mass of fine-grained granular quartz and poikiloblastic albite, set with schistose chlorite, talc, muscovite and smectite (XRD). There are very few quartz stringers and the grains that compose them show very little separation (Figure 10E). A few granules of Fe oxide are partly altered to goethite but there has been little Fe staining of the cleavage.

RE 48 M5 442.942

Quartz-feldspar-chlorite-mica schist. It consists of granular quartz and feldspar and schistose phyllosilicates (chlorite, muscovite, talc and smectite; XRD) set with numerous lenses and patches of coarse quartz which shows no appreciable separation. Some of the cleavage is intensely Fe stained.

RE 49 UM6 442.877

Chlorite-tremolite-quartz schist. Lensoid patches of decussate tremolite lie in a massive chlorite schistosity. Minor quartz forms lenses in the cleavage and occupies strain shadow locations around the larger tremolite crystals. Granular sphene lies largely in the chloritic cleavage.

RE 50 UM6 442.861

Tremolite-chlorite schist. Poorly-defined lensoid islands of tremolite and minor granular quartz and feldspar are set in a massive schistosity filled with chlorite and tremolite needles. Granules and hypidiomorphic crystals of sphene are liberally scattered in the fabric and in places form chains of granules in the cleavage.

RE 51 UM6 442.637

Tremolite-chlorite schist. It consists of lensoid granular islands of quartz and albite with decussate tremolite, surrounded by a cleavage filled with schistose chlorite and needle-like tremolite. Minor sphene also occurs as chains of small grains.

RE 52 UM4 470.860

Talc-smectite-chlorite-quartz schist. This is very strongly cleaved. It consists of highly birefringent lenses of talc and smectite, set amongst very schistose low birefringent (dark grey) smectite (D-S). It seems that the talc fabric was a relatively minor component of the rock and this formed islands in a mass of strongly cleaved chlorite. Weathering has replaced the majority of the chlorite with low birefringent smectite.

RE 53 UM4 470.198

Chlorite-quartz-smectite schist. This rock is mildly schistose and consists of a mat of mixed low birefringent smectite with minor kaolinite (D-S) and high birefringent mixed kaolinite and chlorite (D-S + glycol) set with clusters of fine-grained, granular, strain-related quartz. Limited Fe staining has spread outward from feathery, altered ilmenites.

RE 54 UM4 469.498

Talc-chlorite-quartz schist. This has a well-developed island and stream fabric. The islands consist of flaky talc and granular quartz. Partly Fe-stained, turbid chlorite, talc and muscovite depict the cleavage. Feathery opaques indicate altered ilmenite.

RE 55 M3 468.805

Quartz-muscovite-kaolinite schist. The metamorphic fabric is well-preserved as schistose layers of mixed muscovite and talc alternating with quartz and completely kaolinised feldspar. Coarser-grained xenoblastic crystals and clusters of quartz are scattered in the fabric.

RE 56 M3 467.957

Quartz-kaolinite schist. This has an unusually well-preserved, metamorphic fabric (Figure 6E) of numerous lenses of granular quartz, set in schistose kaolinite, depicting two acutely intersecting foliations. Numerous, creamy-brown, feathery anatase patches follow both foliations. Limited Fe staining occurs around a few Fe ore (magnetite or ilmenite) grains and has penetrated a small quartz vein.

RE 57 M3 467.780

Kaolinite-smectite-quartz schist. The kaolinite, apparently mixed with some smectite, talc and muscovite, has a well-preserved schistose fabric and contains lenses and segregations of granoblastic to granular quartz. Creamy, feathery patches of anatase lie in the foliation. The clay fabric is cut by numerous sinuous fractures and channelways which generally follow the foliation but in places cut obliquely across it and here the clays are locally aligned with their walls. There are a few red-brown goethite patches from which limited staining has spread.

RE 58 M3 467.649

Quartz-kaolinite-smectite rock. This consists of fine-grained, low birefringent kaolinite with minor talc (D-S) and a high birefringent mixed kaolinite and smectite (D-S) which occurs as patches with a sworled fabric, as well as sinuous segregations of quartz which has been extensively stained along grain boundaries by brown and yellow-brown goethite and has also stained the clays. Patches of the kaolinite are dusted with powdery secondary kaolinite and contain creamy-white, feathery patches of anatase (SEM). The rock contains numerous vermiform fractures and solution channels.

RE 59 UM2 467.289

Talc-kaolinite rock. This consists of a mass of fine-grained and matted blue coloured kaolinite in which are set patches of wispy and matted talc and chlorite. The kaolinite carries a trace of chromium (SEM) which explains the blue colour of the rock. A few large clots of a black opaque Mn-Co mineral (asbolane) are found scattered in both the talc and kaolinite fabrics. Quartz occurs a small but discrete patches. There are small patches of creamy and slightly feathery anatase after sphene (Ti-SEM).

RE 60 UM2 466.818

Talc-chlorite schist. It consists of islands of talc cut by a chloritic cleavage. The talc contains numerous needle-like voids with typical amphibole cross sections, apparently after tremolite. There appears to be an early schistosity in the talc which contains a few quartz patches. Quartz lenses are also associated with the later chloritic cleavage. Brown, feathery Ti-rich granules occur throughout and from some limited Fe staining has pervaded the chloritic part of the fabric or has formed by weathering of the chlorite.

RE 61 UM2 466.496

Talc-chlorite schist. Mats of talc are separated by a strong cleavage, outlined by chlorite, which has been slightly altered to smectite. There are also few cleavage-related lenses of quartz but the quartz is very fine-grained, suggesting tectonic recrystallisation. Slight goethite staining has penetrated a few thin fractures within the cleavage and has penetrated along the margins of quartz veins. There are a number of feathery yellow-brown goethite stained patches of anatase after sphene. SEM examination shows no remnant Ca in these.

RE 62 UM2 466.383

Talc-chlorite schist. It consists of islands of matted talc, possibly with some kaolinite, cut by a cleavage marked by chlorite and smectite which is lightly stained by goethite. There is also some goethite staining in the talc. A few lensoid cavities in the rock seem to be the product of solution.

RE 63 UM2 465.292

Talc-chlorite schist. This has a "river and island" fabric with mats of talc interspersed by ribbons of cleavage-related chlorite. The talc contains needle-like tremolite crystals which are now either cavities or completely pseudomorphed by black goethite. Though the talc is fresh, the chlorite is partly weathered to smectite. Quartz occurs as small xenomorphic crystals in the talc. A chain of xenomorphic, black, opaque manganese-rich material cuts across part of the slide. SEM examination suggested asbolane ($Mn(O,OH)_2 \cdot (Co,Ni,Ca)_x (OH)_{2x} \cdot nH_2O$), with small amounts of ilmenite and an indeterminate vanadium mineral. There are feathery anatase (D-S) pseudomorphs after sphene.

RE 64 M1 465.270

Quartz-talc-chlorite schist. It consists of relatively coarse-grained schistose talc and chlorite as well as granular quartz, set with patches and clusters of coarser-grained strained quartz and irregular areas of very fine-grained kaolinite. The whole rock is dusted with powdery yellow-brown goethite which has stained both the kaolinite and the talc-chlorite. A few small cross-fractures are filled with granular hematite.

RE 65 M1 464.868

Quartz-chlorite-talc-smectite schist. It consists of a schistose fabric of turbid, moderate to highly birefringent kaolinite intergrown with chlorite and smectite (D-S) and granular quartz, in which are set globular patches of very fine-grained kaolinite (D-S) (Figure 7C). Both major phases, particularly the chlorite, have been stained by powdery goethite.

RE 66 S1 464.942

Quartz-muscovite schist. It consists of flakes of muscovite, chlorite (D-S) and shardy fragments of quartz aligned with a strong schistosity. It varies widely in its proportions of muscovite to quartz across the foliation. Goethite staining is rife but it tends to be discrete to apparently high strain parts of the foliation where the schist is muscovite-rich but it becomes pervasive and follows the boundaries of quartz crystals, where the quartz content is high.

RE 67 S1 464.627

Quartz-muscovite schist (shown by XRD to contain talc, chlorite and kaolinite as well). It consists of granular quartz and muscovite (D-S) aligned to a schistosity which has been lightly stained with red-brown goethite. There are also a few creamy anatase patches.

RE 68 M1 464.618

Quartz-talc-kaolinite schist. Layers of birefringent kaolinite alternate with lenses of granular quartz and patches of flaky, fine-grained kaolinite. The increased birefringence appears to be due to intergrowth of the kaolinite with some smectite (D-S). Coarser-grained quartz occurs as later lenses which cut acutely across the foliation. Both the phyllosilicate and the kaolinite are stained patchily by yellow-brown goethite and red hematite which have penetrated the cleavage.

RE 69 M1 464.618

Quartz-kaolinite-talc-smectite schist. Kaolinite of variable birefringence forms a schistose mass with fine-grained granular quartz. Increased birefringence is due to intergrowth of the kaolinite with a small amount of smectite (D-S). The cleavage has been extensively penetrated by yellow-brown, dusty goethite which has stained the phyllosilicates. This staining has been introduced from small, wide-spaced microfaults which cut the foliation obliquely. Minor muscovite was reported (XRD).

RE 70 P0 464.428

Kaolinite-quartz rock. It consists of a non-schistose mat of flaky, low-birefringent kaolinite, set with shards and small granular clusters of quartz. The kaolinite is dusted with a pale yellow goethite and spotted with red patches of hematite.

RE 71 M1 480.664

Slide impossible to make

RE 72 M1 480.663

Quartz-kaolinite-smectite rock. It consists of a matted mass of kaolinite (D-S) with patches of granular quartz and is set with vesicles and solution channels lined with yellow stained, poorly crystalline kaolinite (D-S).

RE 73 M1 481.025

Quartz-kaolinite-smectite rock. This consists of a mat of flaky, low birefringent kaolinite (D-S) set with shardy quartz. The fabric is cut by bands of higher birefringent kaolinite which contains some smectite and possibly a trace of talc (D-S). This foliation resembles a palimpsest cleavage. The kaolinite has been stained yellow-brown in small patches around granular goethite, probably after ilmenite.

RE 74 M1 481.154

Quartz-smectite-kaolinite schist. It consists of a mat of kaolinite and shardy quartz cut by a strong schistosity marked by a highly birefringent intergrowth of kaolinite, smectite and talc. Both large and small quartz veins cut the fabric parallel with the schistosity. The quartz in the veins is granoblastic polygonal in fabric. Iron has penetrated discrete cleavage planes and has left a turbid brown stain.

RE 75 M1 481.797

Slide impossible to make

RE 76 M1 481.222

Kaolinite-quartz schist. Part of the fabric consists of a mat of relatively coarse-grained flaky kaolinite, set with slightly shardy quartz granules, which are cut by the almost completely kaolinised remnants of a phyllosilicate cleavage (Figure 6G). In some parts this earlier fabric has been replaced by patches of very fine-grained kaolinite which is surrounded by zones of shardy quartz (Figure 7E). This later fabric truncates the earlier schistose fabric. Some patches of fine-grained kaolinite have been lightly stained yellow by Fe. Their margins are dusted with white, fine-grained, powdery, secondary kaolinite. Bulk XRD indicates minor smectite, talc and chlorite. Granular quartz occurs as meandering veinlets and there is a dusting of secondary kaolinite associated with the margins of these quartz patches and with the cleavage. It seems that as the later fabric developed by recrystallisation of the kaolinite, the quartz was not consumed and was concentrated on the margins of the developing fine-grained kaolinite patches.

RE 77 M1 481.244

Quartz-kaolinite schist. It consists of bands of an unusually coarse-grained kaolinite (D-S), marking the cleavage and bands of granular quartz. Round and slightly lenticular blobs of very fine-grained kaolinite are set in this cleavage and these are surrounded by quartz granules. Lenses and granules of goethite occur parallel to the foliation and are generally associated with quartz-rich bands. The goethite has penetrated the boundaries of quartz crystals and the kaolinitic foliation, staining it yellow-brown. A few small vesicles are scattered in the fabric, some of which are goethite-lined.

RE 78 UM2 481.180

Talc-chlorite schist. It consists of matted talc cut by a goethite-stained chloritic cleavage. Within the talc are numerous lath-like structures, presumably after tremolite, but are now either pseudomorphed by goethite or are voids whose interiors are coated with goethite. Small clusters of quartz are associated with an early, pervasive schistosity in the talc, which has also been stained by goethite to some extent. There are also a few granules of ilmenite.

RE 79 UM2 481.200

Talc-kaolinite-smectite rock. It consists of matted talc, kaolinite and smectite, set with a few clusters of granoblastic quartz. The rock is cut by a few small open fractures, some of which are lined with pyrolusite. There are numerous vesicles around which kaolinite is slightly concentrated.

RE 80 M3 481.135

Quartz-kaolinite rock. This rock contains two distinct and segregated clay phases and segregations of quartz. The wide variety of grain sizes, strain and slightly sutured grain margins indicate that the sinuous quartz patches represent vein quartz. One clay phase shows low birefringence (white to yellow) and is kaolinite (D-S). Some of it is very fine-grained and flaky but most of it contains recrystallised vermiform books, stacks and accordion structures which show a generally parallel alignment (Figure 7A). These reach 0.5 mm in length. In places the books are more stumpy and less well aligned. The other clay phase, which is kaolinite with minor smectite (D-S) shows no birefringence, is extremely fine-grained and has a slightly pinkish yellow-brown colour. It has a few inclusions of quartz and the other clay phase. It has a dusting of secondary kaolinite.

RE 81 M3 481.242

Quartz-kaolinite-talc schist. It consists largely of a very fine-grained, schistose mass of mixed kaolinite and talc, giving a material of moderate (1st order white) birefringence, together with very fine-grained granular quartz. This is cut at a very acute angle by stringers of quartz and feathery patches of creamy anatase are scattered in the fabric. A number of lenticular vesicles and chains of vesicles form solution channels parallel to the schistosity. One solution channel has been filled with round fragments of the schist, supported by a coarse-grained, flaky kaolinite of low birefringence.

RE 82 M3 481.800

Quartz-kaolinite-smectite schist. It consists of a mat of relatively coarse-grained kaolinite with some talc which follows a weak foliation, set with sinuous veinlets and lenses of quartz, which also follow the old foliation. The individual quartz granules are now non-contiguous. This is cut by an open-spaced cleavage, now marked by coarse-grained smectite after chlorite. There are also a few patches of goethite and feathery, creamy anatase patches.

RE 83 M3 481.305

Quartz-kaolinite-smectite schist. It consists largely of a relatively coarse-grained mat of flaky kaolinite intermixed with wisps of talc and muscovite. This is set with patches and lenses of granular quartz, which was probably original quartz vein material but the grains are now separated (Figure 10G). The whole fabric has been patchily stained with yellow-brown Fe oxides. There are numerous vermiform, globular and lensoid vesicles, some of which have a very thin lining of ferruginous clay.

RE 84 UM4 481.498

Smectite-kaolinite rock. This rock is relatively non-schistose and consists of a flaky, relatively coarse-grained clay mat, pocked with a few vermiform and lensoid vesicles. The clays surrounding these vesicles are more birefringent (yellows) than those of the main body (grey). Though the rock is unstained, there are two discrete patches of goethite.

RE 85 UM4 481.497

Kaolinite-smectite-quartz schist. This consists of a slightly schistose mat of kaolinite (D-S) which have been variably stained with Fe. Small clusters of fine-grained quartz form stringers and ill-defined lenses in the fabric. Part of the clay mat in pocked with small vesicles, some of which have coalesced into solution channels.

RE 86 UM4 482.630

Kaolinite-quartz rock. The kaolinite (D-S) is relatively coarse and matted and in places forms stumpy stacks (Figure 9C). A large amount of quartz occurs as patches and stringers of granules, which meander throughout the fabric, and as a few large crystals. Iron staining is common but patchy and is centred on patches of anatase. A few unaltered granules of ilmenite remain.

RE 87 UM6 481.911

Talc-chlorite schist. It consists of a mat of schistose chlorite (D-S) with minor talc forming small islands in the fabric. There has been a variable amount of Fe staining along cleavage. A few small quartz patches and patches of feathery anatase are aligned to the cleavage.

RE 88 UM6 482.656

Talc-kaolinite-smectite schist. This is intensely Fe stained (Figure 9G) along the cleavage and contains very small lenses of unstained phyllosilicate. Needles of ilmenite lie largely parallel with the cleavage but in a few islands of talc they have been rotated by the cleavage.

RE 89 UM6 482.315

Kaolinite-goethite-talc schist. This has been very intensely Fe stained and is now almost completely opaque. The schistose and some flaky fabric may still be seen despite the opacity of the section. Some small patches of mixed kaolinite and smectite have survived. The whole section is set with lath-like crystals of ilmenite (SEM) which are unaltered.

RE 90 S3 482.684

Muscovite-kaolinite-quartz schist. It consists of a mat of mixed kaolinite (D-S) and muscovite of moderate and variable birefringence, set with granules and lenticular, cleavage associated clusters of quartz and with vesicles. Goethite, hematite and anatase patches and lenses are associated with margins of the quartz veins and the cleavage and surround and stain the margins of vesicles.

RE 91 P5 486.764

Granitoid Porphyry. It consists of quartz, kaolinite and smectite. The rock is intensely veined by quartz but parts of the fabric suggest a micrographic intergrowth of quartz and feldspar (Figure 10D), suggesting a granitoid.

RE 92 UM4 486.426

Kaolinite-smectite-goethite breccia. This rock has a breccia fabric and consists of very fine-grained, fragments of mixed goethite and kaolinite (D-S), with subrounded quartz, set in a flaky, variably goethite-stained phyllosilicate matrix. These in places also form subrounded fragments, together with a lesser quantity of quartz, in a later generation matrix of less-stained flaky kaolinite (D-S). This fabric is in turn cut by a broad vein of very coarse, unstained kaolinite (D-S). All components contain late vesicles and solution cavities.

RE 93 UM4 486.999

Saprolite-fragment breccia. A wide variety of sizes of angular, polymictic, saprolite fragments (Figure 9E), consisting of matted kaolinite with and without smectite and a 10.8 Å mineral (not inconsistent with palygorskite, D-S), are supported by a matrix of smaller similar fragments and small aggregates of kaolinite and rare goethite fragments. A few granules of quartz are incorporated in the fragments and a few quartz shards occur in the matrix. The fragments of the matrix are more rounded. Part of the matrix appears to have dissolved, leaving cavities. Some of the larger fragments show a variety of Fe staining, suggesting that Fe staining took place before the fragments were included in the breccia.

RE 94 M3 486.107

Kaolinite-smectite-goethite schist. It consists of a very schistose fabric of flaky kaolinite, smectite and minor granular quartz which has been intensely stained by yellow-brown and red-brown goethite. In this are set a few cleavage associated quartz lenses and numerous small vesicles.

RE 95 M3 486.067

Quartz-kaolinite-smectite breccia. The matrix of this rock consists of a matted mass of kaolinite and smectite flakes scattered with subangular granules of quartz. This contains a variety of rounded to subangular saprolite fragments which are finer grained than the matrix and are variably Fe stained. These vary in size from 2 to 7 mm. The matrix is also scattered with quartz grains and it is suspected that these were derived from vein material which is now completely disaggregated.

RE 96 M3 486.871

Quartz-kaolinite-smectite rock. It consists of large angular fragments of slightly strained quartz set in a matrix of coarse, flaky kaolinite and smectite. Some quartz fragments consist of composite grains, each separated from the other by intergranular clay (Figure 10F), but having a similar crystallographic alignment. It shows a complete sequence of separation of quartz crystals from vein material, through disaggregated clusters of fragments to completely separate grains (Figure 10H). In addition to quartz fragments, there are numerous small clay fragments, generally with a finer-grained and different fabric from the matrix and these appear to be saprolite remnants. There are also a few creamy anatase patches (SEM) but there is no goethite staining.

RE 97 UM2 485.749

Kaolinite-smectite-goethite rock. It consists of yellow, stained, matted kaolinite (D-S) and stained kaolinite (D-S) with minor quartz as patches. This is set with goethite pseudomorphs after pyrite, showing cubic and triangular outlines and chains of a finer-grained globular goethite which follows microfractures. Globular and lenticular vesicles are common.

RE 98 UM2 487.048

Quartz-kaolinite rock. A fine-grained mat of kaolinite and smectite set with meandering patches and lenses of slightly strained, granular quartz which make up about half the rock. The phyllosilicate mat has two distinct phases, a coarser, more birefringent clay, shown (D-S) to be kaolinite possibly with a trace of smectite and a fine-grained clay of low birefringence which consists of kaolinite (D-S). The ratios of the clays vary considerably but in general the smectite tends to form islands which is surrounded and penetrated by kaolinite. Small amounts of goethite occur as patches and granules. Elsewhere it has stained the fabric by penetrating along the boundaries of quartz grains and staining outwards from these.

RE 99 UM2 486.646

Talc-kaolinite schist. It consists largely of matted to schistose blue-green talc, cut by a cleavage containing kaolinite and talc (D-S). Clusters and lenses of granoblastic quartz grains are scattered in the fabric and they are surrounded by either slightly coarser talc or muscovite. Granules and feathery clusters of Ba-bearing cryptomelane occur in the fabric and in places are associated with small fractures.

RE 100 UM2 487.292

Talc-kaolinite schist. An early mat of talc contains needle-like voids after tremolite. This has been extensively cleaved and crenulated and the presumably chloritic cleavage altered to smectite and this in turn altered to kaolinite which is now extensively stained with goethite. Opaque minerals are fresh black chromite and somewhat altered red-brown chromian ilmenite. Small quartz granules are scattered throughout.

RE 101 M1 486.689

Quartz-kaolinite rock. It consists of a small amount of a fine-grained mat of flaky kaolinite and granular quartz, with a hint of a preserved early foliation. This has been cut by arcuate fractures, some still open and others filled with a lining of grey low birefringent clay (Figure 7G) and a discontinuous core of yellow, highly birefringent kaolinite and smectite (D-S). Surrounding these fractures is a coarse-grained kaolinite mat, scattered with a few patches and granules of quartz. In places this mat has become pervasive.

RE 102 M1 485.376

Slide impossible to make

RE 103 M1 485.473

Slide impossible to make

RE 104 M1 484.706

Slide impossible to make

RE 105 M1 484.964

Quartz-kaolinite-smectite rock. It consists of a mat of flaky kaolinite, liberally scattered with granular quartz. The quartz in places occurrs as patches, in others as separate granules. The rock is cut by sinuous veinlets and wisps of a slightly more birefringent kaolinite (D-S) which in many instances have formed in the walls of open channels. Parts of the clay fabric of the rock is variably stained yellow and this colour is strong in the clays of some veinlets. A few patches of very fine-grained kaolinite have developed and these are unstained.

RE 106 M1 484.979

Quartz-smectite-kaolinite rock. It consists of a mat of flaky kaolinite, smectite and granular quartz, cut by a weak phyllosilicate foliation. A second generation of aligned, birefringent kaolinite and smectite follows chains of vesicles and sinuous channelways. There is some weak development of patches of very fine-grained kaolinite.

RE 107 M1 484.993

Slide impossible to make

RE 108 UM6 485.922

Talc-smectite schist. The cleavage is strongly-developed and is intensely stained with goethite. An earlier folded foliation has been differentially accentuated by the Fe staining, possibly representing variations in the composition of the talc. This rock seems to represent an original talc-chlorite schist.

RE 109 UM6 485.843

Talc-smectite-goethite rock. The fabric is strongly mottled with Fe staining. The kaolinitic part of the fabric is not stained but the mixed talcose and kaolinitic part is intensely stained with goethite (D-S).

RE 110 B0 430.998

Black shale. The rock consists of fine-grained schistose mat of quartz, chlorite, muscovite and smectite, with minor talc. This is cut by an open fracture cleavage. Though graphite (silvery-grey in reflected light; D-S) is scattered throughout the rock, it is found concentrated in this later cleavage or where the schistosity intersects this cleavage, suggesting migration of C precursors during cleavage formation. Minor Fe staining is also associated with this cleavage.

RE 111 B0 448.008

Black Shale. It consists of very fine-grained quartz, chlorite, muscovite, minor talc and Carbonaceous material. It is richer in quartz and poorer in muscovite and chlorite than RE 110. The schistosity of this specimen is accentuated by C-rich and C-poor bands so it is probable that this lamination at least approximates to bedding. An open-spaced crenulation, in places passing into a fracture cleavage contains concentrations of C.

RE 112 B0 468.988

Black shale. Bedded, schistose quartz, muscovite and kaolinite form the majority of this rock. A few sinuous lenses of granular quartz, with minor C, lie sub-parallel to the bedding (Figure 10B). This rock is not as rich in C as the others but much of the C is concentrated in and around the fracture cleavage. Red-brown goethite has stained the schistosity and the cleavage in places and is found surrounding and staining carbonaceous patches.

RE 113 B0 481.716

Black shale. This is similar to RE 112 but the C is concentrated in clots in both the schistosity and the cleavage where it is more intensively but still patchily stained by goethite.

APPENDIX 9

Correlation Matrix

Correlations of >0.2 are significant

(95% confidence)

	Si	Al	Fe	Mg	Ca	Na	K	Ti	LOD	LOI	S.G.	Ag	As	Au	Ba	Bi	Br	Cd	Ce	Co	Cr	Cs	Cu	Eu	Ga	Ge	Hf	In	Ir	La	Li	Lu	Mn	Mo	Nb	Ni	Pb	Rb	Sb	Sc	Se	Sm	Sn	Sr	Ta	Te	Th	Tl	U	V	W	Y	Yb	Zn	Zr
Si	1.00	-0.03	-0.70	-0.36	-0.22	0.32	0.43	-0.29	-0.29	-0.55	0.04	0.13	0.09	0.11	0.34	0.06	0.13	-0.25	0.18	-0.43	-0.49	0.22	-0.23	-0.03	-0.17	-0.27	0.20	-0.20	-0.31	0.24	-0.31	0.11	-0.13	-0.14	0.19	-0.56	0.08	0.42	0.03	-0.45	-0.39	0.08	0.16	0.34	0.10	-0.13	0.32	0.25	-0.18	-0.46	0.35	0.07	0.05	-0.28	0.24
Al	-0.03	1.00	-0.21	-0.78	-0.35	-0.07	0.00	0.82	0.19	0.54	-0.69	-0.08	0.11	0.07	0.13	0.12	0.12	0.05	0.12	-0.59	-0.41	0.07	0.24	0.03	0.85	0.22	0.56	-0.07	0.48	-0.03	-0.20	0.22	-0.42	0.24	0.50	-0.51	0.05	0.04	0.33	0.70	0.39	0.01	0.14	0.00	0.20	0.30	0.37	0.00	0.34	0.52	0.22	0.12	0.27	-0.35	0.59
Fe	-0.70	-0.21	1.00	0.22	0.14	-0.08	-0.12	0.15	0.22	0.20	0.04	-0.08	0.15	-0.05	-0.09	0.03	0.02	0.65	-0.12	0.46	0.30	-0.09	0.45	0.23	0.02	-0.01	-0.21	0.17	0.26	-0.09	0.09	0.01	0.19	0.22	-0.26	0.55	-0.02	-0.12	-0.06	0.13	0.34	0.09	-0.11	-0.12	0.02	-0.06	-0.31	-0.15	0.23	0.48	-0.08	0.03	0.06	0.45	-0.29
Mg	-0.36	-0.78	0.22	1.00	0.43	-0.15	-0.32	-0.62	-0.11	-0.21	0.62	0.02	-0.27	-0.12	-0.43	-0.15	-0.35	-0.15	-0.19	0.69	0.66	-0.22	-0.30	-0.12	-0.70	0.03	-0.64	0.16	-0.31	-0.12	0.51	-0.28	0.44	-0.18	-0.54	0.65	-0.03	-0.35	-0.29	-0.34	-0.20	-0.12	-0.21	-0.28	-0.30	-0.11	-0.50	-0.16	-0.30	-0.36	-0.48	-0.16	-0.31	0.37	-0.66
Ca	-0.22	-0.35	0.14	0.43	1.00	-0.01	-0.17	-0.34	-0.25	-0.27	0.51	-0.13	-0.18	-0.07	-0.23	-0.17	-0.23	-0.13	-0.15	0.25	0.20	-0.18	-0.29	-0.08	-0.38	0.15	-0.30	0.13	-0.19	-0.14	0.19	-0.16	0.37	-0.15	-0.25	0.20	-0.14	-0.20	-0.18	-0.17	-0.15	-0.11	-0.06	-0.13	-0.10	-0.05	-0.24	-0.09	-0.18	-0.24	-0.24	-0.08	-0.16	-0.02	-0.32
Na	0.32	-0.07	-0.08	-0.15	-0.01	1.00	0.23	-0.18	-0.20	-0.47	0.28	0.11	0.00	0.12	0.09	0.18	0.20	0.23	0.09	-0.08	-0.28	-0.12	-0.15	0.06	-0.16	-0.15	-0.06	-0.14	0.14	0.19	-0.26	-0.06	0.02	0.44	-0.18	-0.19	0.01	0.21	-0.05	-0.33	0.11	0.07	-0.12	0.80	0.33	-0.04	-0.03	0.03	0.32	-0.15	0.32	0.04	-0.08	0.06	-0.05
K	0.43	0.00	-0.12	-0.32	-0.17	0.23	1.00	-0.05	-0.28	-0.49	0.13	0.46	0.15	0.35	0.73	0.22	0.33	0.18	0.39	-0.25	-0.43	0.30	-0.02	0.31	0.06	-0.28	0.13	-0.14	-0.06	0.53	-0.14	0.25	0.02	-0.04	0.10	-0.33	0.14	0.98	0.01	-0.33	-0.01	0.36	0.41	0.52	0.30	-0.05	0.17	0.36	0.04	-0.03	0.55	0.33	0.21	0.09	0.12
Ti	-0.29	0.82	0.15	-0.62	-0.34	-0.18	-0.05	1.00	0.26	0.58	-0.72	-0.05	0.21	0.12	0.08	0.19	0.13	0.26	0.02	-0.44	-0.22	0.12	0.36	0.13	0.91	0.24	0.53	0.05	0.57	-0.07	-0.15	0.29	-0.40	0.36	0.47	-0.27	0.10	0.00	0.34	0.81	0.55	0.05	0.21	-0.13	0.21	0.36	0.24	-0.11	0.49	0.77	0.19	0.20	0.35	-0.14	0.54
LOD	-0.29	0.19	0.22	-0.11	-0.25	-0.20	-0.28	0.26	1.00	0.72	-0.37	-0.17	-0.04	-0.11	-0.15	-0.11	0.17	0.23	0.02	0.19	0.08	0.06	0.12	0.19	0.18	-0.04	0.07	0.26	0.12	0.00	0.03	0.04	-0.17	0.13	0.04	0.19	-0.12	-0.22	0.00	0.21	0.14	0.12	-0.09	-0.09	-0.01	0.02	-0.03	-0.14	0.06	0.12	-0.15	0.03	0.09	0.12	0.09
LOI	-0.55	0.54	0.20	-0.21	-0.27	-0.47	-0.49	0.58	0.72	1.00	-0.61	-0.27	-0.03	-0.16	-0.24	-0.11	0.04	0.07	-0.07	-0.01	0.14	0.01	0.28	-0.01	0.51	0.19	0.21	0.17	0.32	-0.23	0.05	0.01	-0.27	0.10	0.18	0.11	-0.09	-0.43	0.12	0.66	0.30	-0.08	-0.14	-0.38	-0.12	0.15	0.03	-0.19	0.14	0.44	-0.21	-0.06	0.08	-0.09	0.22
S.G.	0.04	-0.69	0.04	0.62	0.51	0.28	0.13	-0.72	-0.37	-0.61	1.00	0.22	-0.16	0.05	0.00	0.03	-0.26	-0.08	-0.09	0.35	0.11	-0.05	-0.41	-0.17	-0.68	-0.10	-0.49	-0.03	-0.44	0.02	0.26	-0.24	0.37	-0.26	-0.41	0.19	-0.04	0.07	-0.24	-0.64	-0.35	-0.11	-0.03	0.16	-0.09	-0.13	-0.31	-0.06	-0.34	-0.52	-0.12	-0.07	-0.29	0.19	-0.51
Ag	0.13	-0.08	-0.08	0.02	-0.13	0.11	0.46	-0.05	-0.17	-0.27	0.22	1.00	0.01	0.52	0.28	0.50	0.06	0.05	0.21	-0.12	-0.09	0.25	-0.03	0.21	-0.01	-0.08	-0.01	-0.07	-0.05	0.30	0.06	0.20	-0.07	0.08	0.01	-0.08	0.60	0.42	-0.05	-0.20	0.13	0.23	0.32	0.22	0.01	0.15	0.03	0.06	0.12	-0.05	0.27	0.36	0.15	0.06	0.00
As	0.09	0.11	0.15	-0.27	-0.18	0.00	0.15	0.21	-0.04	-0.03	-0.16	0.01	1.00	0.03	0.39	0.16	0.12	0.39	-0.04	-0.11	-0.21	0.07	0.21	-0.02	0.20	-0.03	0.09	-0.06	0.16	-0.09	-0.19	0.13	-0.06	0.16	0.16	-0.22	0.13	0.13	0.17	0.13	0.14	-0.06	0.11	0.03	0.05	0.22	0.05	0.02	0.18	0.32	0.45	0.03	0.16	0.09	0.06
Au	0.11	0.07	-0.05	-0.12	-0.07	0.12	0.35	0.12	-0.11	-0.16	0.05	0.52	0.03	1.00	0.32	0.34	0.02	0.07	0.27	-0.12	-0.12	0.05	-0.10	0.38	0.18	-0.01	0.10	-0.11	0.15	0.37	0.03	0.44	-0.07	0.27	0.10	-0.13	0.13	0.30	-0.02	0.02	0.31	0.38	0.37	0.11	-0.02	0.10	0.08	0.04	0.39	0.13	0.22	0.68	0.39	0.01	0.10
Ba	0.34	0.13	-0.09	-0.43	-0.23	0.09	0.73	0.08	-0.15	-0.24	0.00	0.28	0.39	0.32	1.00	0.17	0.22	0.18	0.31	-0.31	-0.42	0.31	0.17	0.21	0.25	-0.23	0.20	-0.16	0.05	0.36	-0.20	0.26	-0.05	-0.06	0.27	-0.42	0.11	0.72	0.06	-0.13	0.10	0.26	0.43	0.35	0.26	-0.06	0.25	0.30	0.11	0.14	0.47	0.32	0.24	-0.06	0.20
Bi	0.06	0.12	0.03	-0.15	-0.17	0.18	0.22	0.19	-0.11	-0.11	0.03	0.50	0.16	0.34	0.17	1.00	0.02	0.13	0.03	-0.16	-0.11	0.15	0.04	0.07	0.25	0.08	0.16	-0.10	0.06	0.11	-0.07	0.13	0.00	0.23	0.14	-0.13	0.40	0.19	0.00	0.01	0.18	0.08	0.27	0.16	0.09	0.40	0.13	0.16	0.23	0.15	0.30	0.20	0.11	-0.10	0.16
Br	0.13	0.12	0.02	-0.35	-0.23	0.20	0.33	0.13	0.17	0.04	-0.26	0.06	0.12	0.02	0.22	0.02	1.00	0.11	0.08	-0.04	-0.05	-0.06	0.13	0.10	0.12	-0.22	0.07	-0.05	0.12	0.13	-0.36	-0.07	-0.01	0.24	-0.08	0.01	-0.02	0.36	-0.02	-0.02	0.11	0.08	0.01	0.45	0.15	-0.01	0.03	0.32	0.14	0.09	0.36	-0.07	-0.09	-0.10	0.07
Cd	-0.25	0.05	0.65	-0.15	-0.13	0.23	0.18	0.26	0.23	0.07	-0.08	0.05	0.39	0.07	0.18	0.13	0.11	1.00	0.10	0.12	-0.24	0.01	0.31	0.29	0.14	-0.14	0.01	-0.01	0.35	0.12	0.01	0.23	0.10	0.44	-0.08	-0.03	0.09	0.19	0.02	0.10	0.38	0.21	0.00	0.21	0.27	-0.01	-0.06	-0.04	0.35	0.48	0.37	0.23	0.29	0.45	-0.05
Ce	0.18	0.12	-0.12	-0.19	-0.15	0.09	0.39	0.02	0.02	-0.07	-0.09	0.21	-0.04	0.27	0.31	0.03	0.08	0.10	1.00	-0.10	-0.28	0.03	0.03	0.74	0.13	-0.10	0.31	-0.11	0.07	0.79	0.01	0.63	0.03	0.15	0.14	-0.22	0.08	0.38	0.04	-0.08	0.20	0.79	0.14	0.24	0.34	-0.08	0.36	0.16	0.14	-0.11	0.26	0.61	0.61	0.19	0.30
Co	-0.43	-0.59	0.46	0.69	0.25	-0.08	-0.25	-0.44	0.19	-0.01	0.35	-0.12	-0.11	-0.12	-0.31	-0.16	-0.04	0.12	-0.10	1.00	0.52	-0.22	-0.14	0.07	-0.57	-0.10	-0.57	0.13	-0.21	-0.05	0.37	-0.22	0.65	-0.06	-0.57	0.81	-0.12	-0.25	-0.27	-0.30	-0.10	0.01	-0.30	-0.07	-0.27	-0.15	-0.48	0.18	-0.18	-0.20	-0.33	-0.12	-0.22	0.57	-0.60
Cr	-0.49	-0.41	0.30	0.66	0.20	-0.28	-0.43	-0.22	0.08	0.14	0.11	-0.09	-0.21	-0.12	-0.42	-0.11	-0.05	-0.24	-0.28	0.52	1.00	-0.24	-0.01	-0.08	-0.31	0.11	-0.46	0.20	0.06	-0.25	0.08	-0.32	0.17	0.03	-0.38	0.74	-0.03	-0.44	-0.17	0.14	0.17	-0.15	-0.17	-0.36	-0.32	-0.01	-0.46	-0.20	0.03	-0.01	-0.51	-0.25	-0.34	0.11	-0.46
Cs	0.22	0.07	-0.09	-0.22	-0.18	-0.12	0.30	0.12	0.06	0.01	-0.05	0.25	0.07	0.05	0.31	0.15	-0.06	0.01	0.03	-0.22	-0.24	1.00	0.04	-0.01	0.13	-0.16	0.09	-0.01	-0.13	0.07	-0.01	0.06	-0.12	-0.14	0.15	-0.20	0.33	0.39	-0.02	-0.09	-0.07	0.02	0.19	-0.01	-0.04	-0.02	0.03	0.09	-0.12	0.03	0.18	0.07	0.04	-0.07	0.11
Cu	-0.23	0.24	0.45	-0.30	-0.29	-0.15	-0.02	0.36	0.12	0.28	-0.41	-0.03	0.21	-0.10	0.17	0.04	0.13	0.31	0.03	-0.14	-0.01	0.04	1.00	0.18	0.42	-0.07	0.16	-0.04	0.31	-0.06	-0.22	0.18	-0.20	0.16	0.14	0.03	0.08	-0.01	0.28	0.30	0.29	0.11	0.02	-0.13	0.05	-0.05	0.06	-0.09	0.18	0.45	0.05	0.02	0.21	0.22	0.14
Eu	-0.03	0.03	0.23	-0.12	-0.08	0.06	0.31	0.13	0.19	-0.01	-0.17	0.21	-0.02	0.38	0.21	0.07	0.10	0.29	0.74	0.07	-0.08	-0.01	0.18	1.00	0.17	-0.06	0.31	-0.02	0.20	0.82	0.06	0.76	0.04	0.31	0.15	0.08	0.01	0.31	-0.01	0.00	0.37	0.95	0.19	0.14	0.38	-0.05	0.27	0.08	0.31	0.12	0.14	0.78	0.75	0.36	0.28
Ga	-0.17	0.85	0.02	-0.70	-0.38	-0.16	0.06	0.91	0.18	0.51	-0.68	-0.01	0.20	0.18	0.25	0.25	0.12	0.14	0.13	-0.57	-0.31	0.13	0.42	0.17	1.00	0.28	0.60	0.00	0.52	0.02	-0.18	0.35	-0.42	0.27	0.58	-0.41	0.08	0.09	0.31	0.73	0.48	0.12	0.29	-0.09	0.27	0.35	0.35	-0.03	0.43	0.71	0.20	0.26	0.39	-0.21	0.62
Ge	-0.27	0.22	-0.01	0.03	0.15	-0.15	-0.28	0.24	-0.04	0.19	-0.10	-0.08	-0.03	-0.01	-0.23	0.08	-0.22	-0.14	-0.10	-0.10	0.11	-0.16	-0.07	-0.06	0.28	1.00	0.07	0.13	0.12	-0.13	0.11	-0.04	-0.08	0.11	0.11	-0.03	0.05	-0.29	0.07	0.36	0.16	-0.08	-0.01	-0.24	-0.04	0.19	-0.05	-0.18	0.15	0.17	-0.15	-0.05	-0.02	-0.12	0.06
Hf	0.20	0.56	-0.21	-0.64	-0.30	-0.06	0.13	0.53	0.07	0.21	-0.49	-0.01	0.09	0.10	0.20	0.16	0.07	0.01	0.31	-0.57	-0.46	0.09	0.16	0.31	0.60	0.07	1.00	-0.12	0.19	0.30	-0.26	0.65	-0.38	0.09	0.83	-0.49	0.02	0.13	0.07	0.30	0.16	0.37	0.21	0.02	0.56	0.25	0.87	0.04	0.26	0.22	0.15	0.39	0.67	-0.28	0.98
In	-0.20	-0.07	0.17	0.16	0.13	-0.14	-0.14	0.05	0.26	0.17	-0.03	-0.07	-0.06	-0.11	-0.16	-0.10	-0.05	-0.01	-0.11	0.13	0.20	-0.01	-0.04	-0.02	0.00	0.13	-0.12	1.00	0.09	-0.06	0.19	-0.10	0.01	0.05	-0.17	0.20	0.02	-0.16	0.00	0.14	0.05	-0.04	0.00	-0.14	-0.13	-0.08	-0.21	-0.11	0.03	0.14	-0.11	-0.12	-0.09	0.06	-0.13
Ir	-0.31	0.48	0.26	-0.31	-0.19	0.14	-0.06	0.57	0.12	0.32	-0.44	-0.05	0.16	0.15	0.05	0.06	0.12	0.35	0.07	-0.21	0.06	-0.13	0.31	0.20	0.52	0.12	0.19	0.09	1.00	0.06	-0.12	0.23	-0.25	0.55	0.13	-0.04	0.04	-0.07	0.16	0.71	0.87	0.16	0.04	0.11	0.32	0.07	0.05	-0.19	0.75	0.63	0.17	0.21	0.27	0.03	0.19
La	0.24	-0.03	-0.09	-0.12	-0.14	0.19	0.53	-0.07	0.00	-0.23	0.02	0.30	-0.09	0.37	0.36	0.11	0.13	0.12	0.79	-0.05	-0.25	0.07	-0.06	0.82	0.02	-0.13	0.30	-0.06	0.06	1.00	0.08	0.68	0.04	0.21	0.13	-0.15	0.03	0.52	-0.05	-0.22	0.20	0.93	0.21	0.36	0.46	-0.06	0.32	0.21	0.18	-0.12	0.26	0.75	0.64	0.26	0.28
Li	-0.31	-0.20	0.09	0.51	0.19	-0.26	-0.14	-0.15	0.03	0.05	0.26	0.06	-0.19	0.03	-0.20	-0.07	-0.36	0.01	0.01	0.37	0.08	-0.01	-0.22	0.06	-0.18	0.11	-0.26	0.19	-0.12	0.08	1.00	0.06	0.22	-0.12	-0.18	0.26	0.10	-0.16	-0.08	-0.06	-0.05	0.08	-0.08	-0.26	-0.12	-0.07	-0.18	-0.13	-0.21	-0.03	-0.25	0.14	0.06	0.36	-0.27
Lu	0.11	0.22	0.01	-0.28	-0.16	-0.06	0.25	0.29	0.04	0.01	-0.24	0.20	0.13	0.44	0.26	0.13	-0.07	0.23	0.63	-0.22	-0.32	0.06	0.18	0.76	0.35	-0.04	0.65	-0.10	0.23	0.68	0.06	1.00	-0.14	0.22	0.51	-0.23	0.09	0.23	0.01	0.13	0.34	0.81	0.29	-0.02	0.53	0.10	0.58	-0.01	0.35	0.20	0.18	0.88	0.99	0.23	0.62
Mn	-0.13	-0.42	0.19	0.44	0.37	0.02	0.02	-0.40	-0.17	-0.27	0.37	-0.07	-0.06	-0.07	-0.05	0.00	-0.01	0.10	0.03	0.65	0.17	-0.12	-0.20	0.04	-0.42	-0.08	-0.38	0.01	-0.25	0.04	0.22	-0.14	1.00	-0.14	-0.44	0.34	-0.09	0.01	-0.21	-0.33	-0.18	0.02	-0.21	0.09	-0.09	-0.10	-0.28	0.68	-0.21	-0.20	-0.03	-0.06	-0.14	0.31	-0.40
Mo	-0.14	0.24	0.22	-0.18	-0.15	0.44	-0.04	0.36	0.13	0.10	-0.26	0.08	0.16	0.27	-0.06	0.23	0.24	0.44	0.15	-0.06	0.03	-0.14	0.16	0.31	0.27	0.11	0.09	0.05	0.55	0.21	-0.12	0.22	-0.14	1.00	-0.03	-0.02	0.11	-0.05	0.06	0.35	0.59	0.26	0.04	0.31	0.27	0.23	-0.02	-0.15	0.62	0.37	0.28	0.26	0.23	0.18	0.07
Nb	0.19	0.50	-0.26	-0.54	-0.25	-0.18	0.10	0.47	0.04	0.18	-0.41	0.01	0.16	0.10	0.27	0.14	-0.08	-0.08	0.14	-0.57	-0.38	0.15	0.14	0.15	0.58	0.11	0.83	-0.17	0.13	0.13	-0.18	0.51	-0.44	-0.03	1.00	-0.49	0.08	0.10	0.04	0.27	0.07	0.20	0.32	-0.16	0.43	0.30	0.73	-0.07	0.17	0.18	0.07	0.30	0.52	-0.31	0.84
Ni	-0.56	-0.51	0.55	0.65	0.20	-0.19	-0.33	-0.27	0.19	0.11	0.19	-0.08	-0.22	-0.13	-0.42	-0.13	0.01	-0.03	-0.22	0.81	0.74	-0.20	0.03	0.08	-0.41	-0.03	-0.49	0.20	-0.04	-0.15	0.26	-0.23	0.34	-0.02	-0.49	1.00	-0.11	-0.32	-0.24	-0.11	0.03	-0.02	-0.21	-0.22	-0.26	-0.11	-0.49	-0.07	-0.08	-0.06	-0.46	-0.16	-0.23	0.40	-0.51
Pb	0.08	0.05	-0.02	-0.03	-0.14	0.01	0.14	0.10	-0.12	-0.09	-0.04	0.60	0.13	0.13	0.11	0.40	-0.02	0.09	0.08	-0.12	-0.03	0.33	0.08	0.01	0.08	0.05	0.02	0.02	0.04	0.03	0.10	0.09	-0.09	0.11	0.08	-0.11	1.00	0.15	0.04	0.04	0.19	0.02	0.16	-0.03	0.02	0.14	0.04	0.00	0.18	0.10	0.15	0.08	0.07	-0.06	0.05
Rb	0.42	0.04	-0.12	-0.35	-0.20	0.21	0.98	0.00	-0.22	-0.43	0.07	0.42	0.13	0.30	0.72	0.19	0.36	0.19	0.38	-0.25	-0.44	0.39	-0.01	0.31	0.09	-0.29	0.13	-0.16	-0.07	0.52	-0.16	0.23	0.01	-0.05	0.10	-0.32	0.15	1.00	0.00	-0.31	-0.02	0.35	0.38	0.52	0.28	-0.06	0.16	0.37	0.01	0.00	0.54	0.32	0.20	0.08	0.13
Sb	0.03	0.33	-0.06	-0.29	-0.18	-0.05	0.01	0.34	0.00	0.12	-0.24	-0.05	0.17	-0.02	0.06	0.00	-0.02	0.02	0.04	-0.27	-0.17	-0.02	0.28	-0.01	0.31	0.07	0.07	0.00	0.16	-0.05	-0.08	0.01	-0.21	0.06	0.04	-0.24	0.04	0.00	1.00	0.31	0.17	-0.03	0.10	-0.09	-0.10	-0.03	-0.01	-0.06	0.10	0.28	0.09	-0.03	0.03	-0.04	0.06
Sc	-0.45	0.70	0.13	-0.34	-0.17	-0.33	-0.33	0.81	0.21	0.66	-0.64	-0.20	0.13	0.02	-0.13	0.01	-0.02	0.10	-0.08	-0.30	0.14	-0.09	0.30	0.00	0.73	0.36	0.30	0.14	0.71	-0.22	-0.06	0.13	-0.33	0.35	0.27	-0.11	0.04	-0.31	0.31	1.00	0.67	-0.07	0.05	-0.35	0.04	0.23	0.10	-0.22	0.54	0.72	-0.06	0.04	0.20	-0.18	0.30
Se	-0.39	0.39	0.34	-0.20	-0.15	0.11	-0.01	0.55	0.14	0.30	-0.35	0.13	0.14	0.31	0.10	0.18	0.11	0.38	0.20	-0.10	0.17	-0.07	0.29	0.37	0.48	0.16	0.16	0.05	0.87	0.20	-0.05	0.34	-0.18	0.59	0.07	0.03	0.19	-0.02	0.17	0.67	1.00	0.32	0.12	0.11	0.32	0.10	0.02	-0.19	0.80	0.64	0.17	0.37	0.36	0.13	0.15
Sm	0.08	0.01	0.09	-0.12	-0.11	0.07	0.36	0.05	0.12	-0.08	-0.11	0.23	-0.06	0.38	0.26	0.08	0.08	0.21	0.79	0.01	-0.15	0.02	0.11	0.95	0.12	-0.08	0.37	-0.04	0.16	0.93	0.08	0.81	0.02	0.26	0.20	-0.02	0.02	0.35	-0.03	-0.07	0.32	1.00	0.20	0.18	0.45	-0.06	0.35	0.11	0.27	0.02	0.15	0.82	0.78	0.32	0.34
Sn	0.16	0.14	-0.11	-0.21	-0.06	-0.12	0.41	0.21	-0.09	-0.14	-0.03	0.32	0.11	0.37	0.43	0.27	0.01	0.00	0.14	-0.30	-0.17	0.19	0.02	0.19	0.29	-0.01	0.21	0.00	0.04	0.21	-0.08	0.29	-0.21	0.04	0.32	-0.21	0.16	0.38	0.10	0.05	0.12	0.20	1.00	-0.07	0.14	0.32	0.13	0.01	0.09	0.11	0.25	0.31	0.26	-0.08	0.22
Sr	0.34	0.00	-0.12	-0.28	-0.13	0.80	0.52	-0.13	-0.09	-0.38	0.16	0.22	0.03	0.11	0.35	0.16	0.45	0.21	0.24	-0.07	-0.36	-0.01	-0.13	0.14	-0.09	-0.24	0.02	-0.14	0.11	0.36	-0.26	-0.02	0.09	0.31	-0.16	-0.22	-0.03	0.52	-0.09	-0.35	0.11	0.18	-0.07	1.00	0.42	-0.04	0.07	0.30	0.23	-0.12	0.46	0.08	-0.04	0.09	0.04
Ta	0.10	0.20	0.02	-0.30	-0.10	0.33	0.30	0.21	-0.01	-0.12	-0.09	0.01	0.05	-0.02	0.26	0.09	0.15	0.27	0.34	-0.27	-0.32	-0.04	0.05	0.38	0.27	-0.04	0.56	-0.13	0.32	0.46	-0.12	0.53	-0.09	0.27	0.43	-0.26	0.02	0.28	-0.10	0.04	0.32	0.45	0.14	0.42	1.00	0.16	0.48	0.05	0.35	0.13	0.23	0.40	0.54	0.04	0.54
Te	-0.13	0.30	-0.06	-0.11	-0.05	-0.04	-0.05	0.36	0.02	0.15	-0.13	0.15	0.22	0.10	-0.06	0.40	-0.01	-0.01	-0.08	-0.15	-0.01	-0.02	-0.05	-0.05	0.35	0.19	0.25	-0.08	0.07	-0.06	-0.07	0.10	-0.10	0.23	0.30	-0.11	0.14	-0.06	-0.03	0.23	0.10	-0.06	0.32	-0.04	0.16	1.00	0.10	-0.02	0.15	0.16	0.11	0.07	0.12	-0.09	0.27
Th	0.32	0.37	-0.31	-0.50	-0.24	-0.03	0.17	0.24	-0.03	0.03	-0.31	0.03	0.05	0.08	0.25	0.13	0.03	-0.06	0.36	-0.48	-0.46	0.03	0.06	0.27	0.35	-0.05	0.87	-0.21	0.05	0.32	-0.18	0.58	-0.28	-0.02	0.73	-0.49	0.04	0.16	-0.01	0.10	0.02	0.35	0.13	0.07	0.48	0.10	1.00	0.11	0.14	0.03	0.10	0.32	0.58	-0.26	0.88
Tl	0.25	0.00	-0.15	-0.16	-0.09	0.03	0.36	-0.11	-0.14	-0.19	-0.06	0.06	0.02	0.04	0.30	0.16	0.32	-0.04	0.16	0.18	-0.20	0.09	-0.09	0.08	-0.03	-0.18	0.04	-0.11	-0.19	0.21	-0.13	-0.01	0.68	-0.15	-0.07	-0.07	0.00	0.37	-0.06	-0.22	-0.19	0.11	0.01	0.30	0.05	-0.02	0.11	1.00	-0.13	-0.12	0.23	0.02	-0.02	-0.04	0.05
U	-0.18	0.34	0.23	-0.30	-0.18	0.32	0.04	0.49	0.06	0.14	-0.34	0.12	0.18	0.39	0.11	0.23	0.14	0.35	0.14	-0.18	0.03	-0.12	0.18	0.31	0.43	0.15	0.26	0.03	0.75	0.18	-0.21	0.35	-0.21	0.62	0.17	-0.08	0.18	0.01	0.10	0.54	0.80	0.27	0.09	0.23	0.35	0.15	0.14	-0.13	1.00	0.53	0.19	0.37	0.37	0.03	0.25
V	-0.46	0.52	0.48	-0.36	-0.24	-0.15	-0.03	0.77	0.12	0.44	-0.52	-0.05	0.32	0.13	0.14	0.15	0.09	0.48	-0.11	-0.20	-0.01	0.03	0.45	0.12	0.71	0.17	0.22	0.14	0.63	-0.12	-0.03	0.20	-0.20	0.37	0.18	-0.06	0.10	0.00	0.28	0.72	0.64	0.02	0.11	-0.12	0.13	0.16	0.03	-0.12	0.53	1.00	0.20	0.16	0.25	0.07	0.20
W	0.35	0.22	-0.08	-0.48	-0.24	0.32	0.55	0.19	-0.15	-0.21	-0.12	0.27	0.45	0.22	0.47	0.30	0.36	0.37	0.26	-0.33	-0.51	0.18	0.05	0.14	0.20	-0.15	0.15	-0.11	0.17	0.26	-0.25	0.18	-0.03	0.28	0.07	-0.46	0.15	0.54	0.09	-0.06	0.17	0.15	0.25	0.46	0.23	0.11	0.10	0.23	0.19	0.20	1.00	0.21	0.18	0.04	0.13
Y	0.07	0.12	0.03	-0.16	-0.08	0.04	0.33	0.20	0.03	-0.06	-0.07	0.36	0.03	0.68	0.32	0.20	-0.07	0.23	0.61	-0.12	-0.25	0.07	0.02	0.78	0.26	-0.05	0.39	-0.12	0.21	0.75	0.14	0.88	-0.06	0.26	0.30	-0.16	0.08	0.32	-0.03	0.04	0.37	0.82	0.31	0.08	0.40	0.07	0.32	0.02	0.37	0.16	0.21	1.00	0.86	0.23	0.37
Yb	0.05	0.27	0.06	-0.31	-0.16	-0.08	0.21	0.35	0.09	0.08	-0.29	0.15	0.16	0.39	0.24	0.11	-0.09	0.29	0.61	-0.22	-0.34	0.04	0.21	0.75	0.39	-0.02	0.67	-0.09	0.27	0.64	0.06	0.99	-0.14	0.23	0.52	-0.23	0.07	0.20	0.03	0.20	0.36	0.78	0.26	-0.04	0.54	0.12	0.58	-0.02	0.37	0.25	0.18	0.86	1.00	0.24	0.63
Zn	-0.28	-0.35	0.45	0.37	-0.02	0.06	0.09	-0.14	0.12	-0.09	0.19	0.06	0.09	0.01	-0.06	-0.10	-0.10	0.45	0.19	0.57	0.11	-0.07	0.22	0.36	-0.21	-0.12	-0.28	0.06	0.03	0.26	0.36	0.23	0.31	0.18	-0.31	0.40	-0.06	0.08	-0.04	-0.18	0.13	0.32	-0.08	0.09	0.04	-0.09	-0.26	-0.04	0.03	0.07	0.04	0.23	0.24	1.00	-0.31
Zr	0.24	0.59	-0.29	-0.66	-0.32	-0.05	0.12	0.54	0.09	0.22	-0.51	0.00	0.06	0.10	0.20	0.16	0.07	-0.05	0.30	-0.60	-0.46	0.11	0.14	0.28	0.62	0.06	0.98	-0.13	0.19	0.28	-0.27	0.62	-0.40	0.07	0.84	-0.51	0.05	0.13	0.06	0.30	0.15	0.34	0.22	0.04	0.54	0.27	0.88	0.05	0.25	0.20	0.13	0.37	0.63	-0.31	1.00

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APPENDIX 10

Geochemical Data Disc

This DOS formatted 360 kb disc contains four ASCII files:

REP102R.TAB	A tab- (ASCII 9) delimited file which can be read by Microsoft Excel and similar spreadsheets.
REP102R.CMR	A comma-delimited file which can be read by Borland's Quattro.
REPT102R.DAT	A fixed field format file which can be read by FORTRAN programs, with a format (4A8, 43F10.3, 38I10). Data begins on Line 5.
README.DOC	An ASCII file with the format information.