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AMIRA
Australian Mineral Industries Research Association Limited ACN 004 448 266

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REPORT
SERIES

THE REGOLITH GEOLOGY AND GEOCHEMISTRY OF THE AREA AROUND THE HARMONY GOLD DEPOSIT, (BAXTER MINING CENTRE), PEAK HILL, WESTERN AUSTRALIA

Volume 2

I.D.M. Robertson, C. Phang and T.J. Munday

CRC LEME OPEN FILE REPORT 94

March 2001

(CRC LEME Restricted Report 5R/
CSIRO Division of Exploration and Mining Report 194R, 1996.
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CRC LEME is an unincorporated joint venture between The Australian National University,
University of Canberra, Australian Geological Survey Organisation and CSIRO Exploration and Mining
Headquarters: CRC LEME c/o CSIRO Exploration and Mining, Private Bag No 5, PO Wembley, Western Australia, 6913.

RESEARCH ARISING FROM CSIRO/AMIRA YILGARN REGOLITH GEOCHEMISTRY PROJECTS 1987-1996

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" 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 commenced with 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 (1991-1993). 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.

Most reports related to the above research projects were published as CRC LEME Open File Reports Series (Nos 1-74), with an index (Report 75), by June 1999. Publication now continues with release of reports from further projects.

P252: Geochemical exploration for platinum group elements in weathered terrain. Leader: Dr C.R.M. Butt.
This project was designed to gather information on the geochemical behaviour of the platinum group elements under weathering conditions using both laboratory and field studies, to determine their dispersion in the regolith and to apply this to concepts for use in exploration. The research was commenced in 1988 by CSIRO Exploration Geoscience and the University of Wales (Cardiff). The Final Report was completed in December 1992. It was supported by 9 companies.

P409: Geochemical exploration in areas of transported overburden, Yilgarn Craton and environs, WA.
Leaders: Drs C.R.M. Butt and R.E. Smith.
About 50% or more of prospective terrain in the Yilgarn is obscured by substantial thicknesses of transported overburden that varies in age from Permian to Recent. Some of this cover has undergone substantial weathering. Exploration problems in these covered areas were the focus of Project 409. The research was commenced in June 1993 by CSIRO Exploration and Mining but was subsequently incorporated into the activities of CRC LEME in July 1995 and was concluded in July 1996. It was supported by 22 companies.

Although the confidentiality periods of Projects P252 and P409 expired in 1994 and 1998, respectively, the reports have not been released previously. CRC LEME acknowledges the Australian Mineral Industries Research Association and CSIRO Division of Exploration and Mining for authority 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 94) is a second impression (second printing) of CSIRO, Division of Exploration and Mining Restricted Report 194R, first issued in 1996, which formed part of the CSIRO/AMIRA Project P409.

Copies of this publication can be obtained from:
The Publication Officer, c/- CRC LEME, CSIRO Exploration and Mining, Private Bag 5, Wembley, WA 6913, Australia. Information on other publications in this series may be obtained from the above or from http://leme.anu.edu.au/
Cataloguing-in-Publication:
Robertson, I.D.M.
The regolith geology and geochemistry of the area around the Harmony Gold Deposit, (Baxter Mining Centre), Peak Hill, Western Australia.
ISBN v1: 0 643 06689 6 v2: 0 643 06690 X Set: 0643 06691 8
1. Regolith - Western Australia - Yilgarn Block 2. Gold ores - Western Australia - Yilgarn Block 3. Geochemistry - Western Australia - Yilgarn Block 4. Geology - Western Australia - Yilgarn Block
I. Phang, C. II. Munday, T.J. III. Title
CRC LEME Open File Report 94.
ISSN 1329-4768

APPENDICES

Appendix

APPENDIX 1

TABULATED GEOCHEMISTRY
SUBSURFACE FERRUGINOUS BASEMENT SAMPLING

Regolith types

Appendix 1 Anand *et al.*, (1989)

Duricrust of lateritic residuum	LT100
Mottles	MZ100
Ferruginous saprolite	SP200

Note: SP200 is a proposed addition to Anand et al., (1989)

Lib No	East	North	HoleNo	Method Element DetnLim Type	XRF SiO2 0.01 %	XRF Al2O3 0.01 %	XRF Fe2O3 0.01 %	XRF MnO 0.002 %	XRF MgO 0.01 %	XRF CaO 0.001 %	XRF Na2O 0.01 %	XRF K2O 0.00 %	XRF TiO2 0.003 %	XRF P2O5 0.002 %	Grav LOD - %	Grav LOI - %	- Total - %
08-1630	10040	11361	714	LT100	21.31	17.38	48.14	0.024	0.39	0.19	0.04	0.02	1.04	0.026	-	-	88.56
08-1631	9600	11360	1067	LT100	11.5	10.14	64.27	0.038	0.38	0.17	0.03	0.15	0.48	0.036	-	-	87.19
08-1632	9040	11360	1081	LT100	47.72	23.47	16.14	0.014	0.52	0.25	0.08	0.11	1.44	0.009	-	-	89.75
08-1633	8480	11360	1156	LT100	44.74	23.8	19.09	0.04	0.07	0.06	0.06	0.07	1.29	0.016	-	-	89.24
08-1634	8255	11824	359	LT100	33.17	24.88	28.22	0.009	0.17	0.12	0.05	0.03	1.13	0.014	-	-	87.79
08-1635	8800	11820	1014	MZ100	23.64	14.65	47.35	0.046	1.22	1.42	0.02	0.02	0.28	0.029	-	-	88.68
08-1636	9280	11820	1002	LT100	12.47	16.33	60.11	0.014	0.34	0.17	0.03	0.12	1.23	0.033	-	-	90.85
08-1637	9760	11820	984	SP200	29.27	15.01	13.99	0.074	4.2	14.56	0.05	0.27	0.43	0.012	-	-	77.87
08-1638	10520	12160	1198	SP200	27.03	15.88	43.56	0.017	0.84	0.29	0.08	1.48	0.76	0.007	-	-	89.94
08-1639	10080	12159	839	LT100	13.65	23.09	43.27	0.034	0.41	0.18	0.04	0.03	1.78	0.02	-	-	82.50
08-1640	9554	12213	496	SP200	36.57	16.7	29.42	0.066	1.87	0.49	0.08	0.15	1.19	0.061	-	-	86.60
08-1641	9080	12239	677	LT100	11.56	26.29	49.18	0.038	0.31	0.24	0.05	0.19	3.08	0.027	-	-	90.97
08-1642	8556	12271	340	LT100	43.55	23.67	20.43	0.012	0.44	0.25	0.1	0.16	1.12	0.002	-	-	89.73
08-1643	8240	12400	1174	MZ100	15.04	7.79	65.15	0.243	0.71	0.7	0.01	0.02	1.38	0.019	-	-	91.06
08-1644	8400	12800	967	LT100	28.16	16.81	41.9	0.022	0.4	0.26	0.07	0.18	2.72	0.013	-	-	90.54
08-1645	8753	12619	321	SP200	55.15	16.43	17.51	0.061	0.54	0.22	0.06	0.6	1	0.039	-	-	91.61
08-1646	9203	12619	471	SP200	42.63	11.79	31.25	0.377	3.37	0.22	0.07	0.5	0.8	0.063	-	-	91.07
08-1647	9840	12640	882	LT100	23.02	23.94	37.94	0.013	0.11	0.03	0.01	0.01	0.34	0.039	-	-	85.45
08-1648	10200	12640	799	SP200	40.76	23.02	21.76	0.086	0.81	0.32	0.35	2.37	0.73	0.02	-	-	90.23
08-1649	10840	12640	1124	LT100	31.32	24.4	30.7	0.094	0.5	0.31	0.11	0.06	1.5	0.009	-	-	89.00
08-1650	10097	13132	164	LT100	21.87	15.07	52.24	0.092	0.53	0.26	0.13	0.35	0.72	0.013	-	-	91.28
08-1651	9600	13115	610	LT100	45.24	19.3	21.76	0.613	0.55	0.22	0.26	1.43	0.87	0.043	-	-	90.29
08-1652	9008	13571	299	LT100	28.07	20.96	37.77	0.045	0.38	0.24	0.08	0.14	0.91	0.012	-	-	88.61
08-1653	9440	13519	545	LT100	8.31	11	69.06	0.037	0.27	0.14	0.05	0.22	1.45	0.031	-	-	90.57
08-1654	9998	13529	309	MZ100	24.88	18.62	43.58	0.121	0.43	0.18	0.1	0.14	0.78	0.01	-	-	88.84
08-1655	9601	12623	487	LT100	29.67	19.22	37.17	0.111	0.38	0.15	0.04	0.1	1.34	0.038	-	-	88.22
09-3500	9400	13777	294	SP200	20.03	14.90	16.02	0.043	2.26	20.61	0.58	0.92	0.51	0.018	1.26	23.38	100.54
09-3501	9103	13803	297	LT100	29.83	22.69	33.93	0.070	0.44	0.24	0.13	0.11	1.09	0.010	2.75	10.04	101.33
09-3502	8800	13760	1328	LT100	31.34	20.60	35.28	0.060	0.41	0.24	0.10	0.10	1.25	0.008	2.60	9.33	101.31
09-3503	8560	13760	1329	LT100	43.97	27.14	13.27	0.037	0.37	0.17	0.10	0.09	1.56	0.009	2.45	10.18	99.34
09-3504	8320	13760	1330	LT100	23.60	15.70	48.03	0.108	0.85	0.18	0.09	0.98	1.33	0.021	1.91	7.46	100.25
09-3505	8080	13760	1331	LT100	38.03	20.43	28.44	0.046	0.41	0.20	0.08	0.23	0.98	0.021	1.73	10.11	100.71
09-3506	8200	13600	1332	SP200	55.35	17.70	13.05	0.076	1.10	0.33	0.10	1.46	0.77	0.017	2.77	7.74	100.47
09-3507	8440	13600	1333	LT100	35.62	16.53	35.50	0.085	0.49	0.24	0.08	0.23	1.36	0.017	2.26	8.47	100.88
09-3508	8720	13600	1334	MZ100	43.02	18.43	26.12	0.085	0.51	0.21	0.07	0.33	0.89	0.025	2.21	9.14	101.03
09-3509	9598	13759	292	LT100	23.80	20.05	42.62	0.078	0.43	0.77	0.20	0.45	0.56	0.010	1.80	10.94	101.71
09-3510	9894	13734	289	LT100	29.44	21.68	37.48	0.157	0.46	0.20	0.16	0.33	0.85	0.016	2.16	8.43	101.36
09-3511	10092	13716	287	MZ100	23.57	18.22	43.72	0.508	0.86	0.75	0.12	0.24	1.04	0.017	2.54	9.74	101.31
09-3512	10300	13500	312	MZ100	30.26	21.04	34.81	0.313	0.41	0.21	0.11	0.20	1.13	0.024	3.24	10.08	101.82
09-3513	9680	13500	539	LT100	19.81	19.15	48.55	0.028	0.35	0.56	0.12	0.30	0.54	0.010	1.78	9.10	100.30
09-3514	9206	13562	301	LT100	34.82	22.79	27.71	0.079	0.84	0.34	0.13	0.23	0.81	0.010	2.98	10.58	101.32
09-3515	9540	13361	565	SP200	22.75	15.48	7.88	0.064	6.97	17.61	0.18	0.88	0.52	0.005	1.36	26.52	100.22
09-3516	9803	13360	559	LT100	14.44	37.88	35.42	0.028	0.35	0.23	0.16	0.47	1.05	0.019	2.10	9.26	101.41
09-3517	9800	13119	605	LT100	29.05	23.11	33.61	0.095	0.42	0.25	0.12	0.15	0.90	0.014	2.19	11.22	101.13
09-3518	9120	13440	1337	LT100	34.78	23.14	28.07	0.028	0.35	0.24	0.08	0.08	0.98	0.012	2.70	10.99	101.46
09-3519	8800	13440	1339	SP200	41.73	22.58	20.25	0.099	0.88	0.35	0.33	1.83	0.92	0.029	3.08	8.81	100.89
09-3520	7880	13440	1343	SP200	56.46	14.72	15.83	0.135	0.89	0.39	0.08	0.77	0.60	0.021	3.39	7.68	100.98
09-3521	7920	13280	1344	SP200	55.50	19.68	11.12	0.094	0.79	0.26	0.14	2.15	0.81	0.023	2.21	7.53	100.30
09-3522	8160	13280	1345	SP200	42.08	18.60	24.48	0.105	1.19	0.38	0.12	1.63	0.71	0.036	3.08	8.83	101.25
09-3523	8400	13280	1346	SP200	57.60	16.41	11.93	0.227	1.10	0.41	0.09	1.03	0.75	0.030	3.47	7.55	100.60
09-3524	8560	13280	1347	SP200	61.09	12.42	15.64	0.181	0.78	0.22	0.05	1.67	0.84	0.027	1.68	5.89	100.48
09-3525	9040	13280	1350	MZ100	36.80	21.49	27.99	0.061	0.42	0.28	0.08	0.13	0.88	0.012	2.62	10.73	101.49
09-3526	9200	13280	1351	MZ100	38.52	15.51	33.16	0.284	0.40	0.26	0.08	0.29	1.08	0.026	2.56	9.30	101.47
09-3527	8640	13120	1354	SP200	34.43	13.09	2.18	0.038	3.77	20.14	0.04	0.69	0.72	0.004	0.78	24.17	100.04
09-3528	8960	13120	1352	MZ100	35.42	20.86	30.76	0.058	0.40	0.21	0.08	0.45	1.10	0.023	2.27	9.89	101.52
09-3529	8480	13120	1355	SP200	60.83	15.89	9.82	0.118	1.11	0.37	0.08	0.94	0.69	0.021	2.83	7.48	100.17
09-3530	8240	13120	1356	SP200	55.65	17.85	15.07	0.056	0.51	0.22	0.10	1.22	1.17	0.017	1.59	7.32	100.77
09-3531	7760	13120	1358	MZ100	40.02	20.09	26.75	0.193	0.55	0.28	0.09	0.31	0.41	0.035	2.46	9.87	101.06
09-3532	8000	13120	1357	LT100	14.46	14.16	60.68	0.044	0.26	0.13	0.02	0.28	2.62	0.021	1.49	5.88	100.05
09-3533	8080	12960	1364	LT100	36.80	22.10	25.25	0.062	0.80	0.38	0.11	0.32	0.82	0.011	3.77	10.33	100.76
09-3534	8400	12960	1362	MZ100	44.12	21.85	19.99	0.057	0.61	0.26	0.10	1.26	1.38	0.011	1.86	8.94	100.44
09-3535	8720	12960	1360	SP200	57.23	15.10	15.79	0.145	0.71	0.26	0.05	1.06	0.97	0.037	2.02	7.27	100.65
09-3536	8880	12960	1359	SP200	49.18	18.23	13.39	0.089	1.49	3.10	0.14	2.90	0.89	0.028	1.96	8.60	100.00
09-3537	9240	12960	692	SP200	44.72	24.07	14.41	0.053	1.26	1.07	0.25	1.94	1.04	0.012	2.29	9.61	100.72
09-3538	9360	12879	626	SP200	47.68	21.05	18.68	0.205	0.48	0.26	0.32	2.09	0.91	0.028	1.52	7.41	100.63
09-3539	9680	12880	751	LT100	18.00	21.83	46.36	0.125	0.37	0.39	0.05	0.04	0.81	0.011	2.18	9.27	99.44
09-3540	9920	12880	729	LT100	23.07	21.70	42.26	0.053	0.53	0.26	0.17	0.61	0.67	0.015	2.90	8.71	100.96
09-3541	10240	12880	744	LT100	24.98	19.00	43.70	0.062	0.36	0.24	0.13	0.54	0.73	0.017	2.13	8.92	100.81
09-3542	9480	12799	577	LT100	35.49	19.40	31.01	0.111	0.47	0.24	0.07	0.27	1.03	0.017	1.83	10.82	100.74

Lib No	INAA As 2 ppm	INAA Au 5 ppb	XRF Ba 30 ppm	XRF Bi 2 ppm	INAA Br 2 ppm	INAA Ce 10 ppm	XRF Cl 20 ppm	INAA Co 1 ppm	INAA Cr 5 ppm	INAA Cs 1 ppm	XRF Cu 10 ppm	INAA Eu 1 ppm	XRF Ga 3 ppm	XRF Ge 2 ppm	INAA Hf 1 ppm	INAA La 0.5 ppm	INAA Lu 0.2 ppm	INAA Mo 5 ppm	XRF Nb 4 ppm	XRF Ni 10 ppm
08-1630	75.8	14.6	100	0	2.7	10	70	15.9	953	1.2	213	0.4	38	0	2.1	7.5	0.08	6	4	129
08-1631	53.5	17.2	274	1	1.3	7	100	127.0	553	3.0	91	0.3	18	0	1.7	3.0	0.18	8	2	214
08-1632	15.8	21.0	227	0	0.8	55	10	13.0	1038	0.8	8	1.1	30	2	6.6	14.1	0.47	4	12	124
08-1633	22.0	3.5	285	1	2.1	37	10	12.3	792	0.5	5	0.8	67	1	7.4	9.1	0.23	3	8	81
08-1634	34.6	4.3	100	0	0.8	7	20	10.0	865	0.6	5	0.3	67	2	7.2	4.1	0.12	6	3	58
08-1635	7.0	6.5	16	0	1.4	24	40	41.0	253	1.6	196	0.8	10	2	0.9	9.5	0.24	5	1	79
08-1636	13.7	17.3	69	2	0.9	15	100	22.5	1121	2.4	53	0.5	50	1	3.5	3.9	0.27	4	5	95
08-1637	52.0	87.1	100	2	1.3	13	0	8.5	2548	1.2	45	0.6	14	0	1.2	7.0	0.13	3	2	303
08-1638	11.1	7.4	834	0	1.1	10	70	5.6	1227	3.9	36	0.4	28	1	4.2	5.7	0.13	4	3	59
08-1639	1513.8	16.5	167	0	3.6	5	140	24.8	8511	1.1	13	0.6	40	1	3.2	2.8	0.48	8	7	218
08-1640	10.7	4.7	39	1	0.9	10	20	70.1	951	0.7	243	1.6	19	0	1.6	3.8	0.75	4	2	958
08-1641	34.2	147.0	324	0	1.3	11	30	6.8	1637	2.3	18	0.6	88	4	8.3	7.0	0.42	4	16	35
08-1642	15.3	49.3	15	0	1.1	13	20	7.9	407	1.8	26	0.7	33	2	4.5	8.4	0.32	4	1	88
08-1643	16.2	5.0	405	0	0.9	51	150	302.1	831	0.8	5	1.4	21	0	4.3	27.7	0.24	4	16	708
08-1644	12.6	18.5	213	0	0.8	15	120	5.1	1060	1.6	12	0.8	56	1	9.6	11.3	0.43	12	12	32
08-1645	11.5	79.3	408	2	1.4	16	320	3.1	291	2.4	41	0.4	21	2	3.5	17.0	0.16	3	3	46
08-1646	27.2	72.1	355	0	1.7	55	30	11.2	807	1.5	25	1.4	26	1	4.6	41.5	0.31	4	3	72
08-1647	23.3	8.4	15	1	1.5	14	110	13.8	4102	1.2	128	0.5	24	1	1.6	3.0	0.28	7	2	419
08-1648	8.3	12.7	1399	1	1.8	38	10	8.7	406	5.7	30	0.9	35	2	4.2	9.6	0.24	3	6	192
08-1649	14.2	3.5	37	1	0.8	41	140	54.8	418	2.2	34	0.6	39	4	4.4	11.7	0.26	4	5	151
08-1650	14.7	5.1	180	0	2.5	19	30	13.9	933	3.6	29	0.5	30	1	3.5	12.0	0.17	7	2	55
08-1651	13.9	18.5	875	0	2.0	63	10	37.4	491	4.2	31	0.6	29	2	4.3	16.1	0.21	3	4	87
08-1652	33.9	4.1	20	0	1.3	9	110	12.3	382	3.0	55	0.4	38	3	4.2	3.7	0.21	4	11	57
08-1653	21.6	1438.5	168	0	1.5	13	30	2.0	1425	2.4	48	0.7	57	3	6.3	6.4	0.28	7	4	14
08-1654	13.9	8.8	35	0	1.5	15	30	14.1	653	2.6	58	0.3	33	2	3.2	4.2	0.18	9	5	73
08-1655	41.8	13.0	776	0	1.4	49	80	17.0	763	1.6	134	2.2	26	1	3.1	24.0	0.22	4	14	252
09-3500	7.0	16.0	195	-	1.0	7	20	2.8	312	3.9	22	0.2	19	-	2.1	3.9	0.10	2	9	35
09-3501	12.7	18.1	60	-	1.0	12	0	11.1	541	0.5	51	0.2	38	-	4.2	7.1	0.10	2	15	65
09-3502	22.1	2.0	44	-	3.7	18	10	7.2	733	2.6	39	0.72	37	-	5.2	10.9	0.26	2	15	52
09-3503	9.9	2.0	21	-	1.0	13	50	8.5	464	1.1	24	0.52	35	-	6.5	4.0	0.28	2	16	97
09-3504	48.2	2.0	345	-	2.3	26	10	5.0	1120	4.7	41	0.71	48	-	8.2	17.7	0.27	2	20	16
09-3505	18.9	2.0	211	-	2.2	20	40	7.2	609	3.7	29	0.51	33	-	5.4	7.1	0.23	2	17	65
09-3506	4.5	27.1	463	-	1.0	14	30	6.9	260	3.2	33	0.2	22	-	3.7	9.3	0.10	2	16	50
09-3507	9.3	2.0	176	-	1.0	20	20	8.4	392	3.1	15	0.72	33	-	5.1	10.8	0.29	2	18	55
09-3508	15.3	2.0	1178	-	1.0	39	30	8.6	491	3.6	59	0.93	28	-	5.0	17.1	0.29	2	13	77
09-3509	11.4	2.0	175	-	1.0	13	20	5.4	550	2.6	90	0.2	36	-	2.4	6.0	0.10	2	9	52
09-3510	18.3	30.1	121	-	1.0	20	30	6.6	775	2.5	24	0.2	31	-	4.4	7.1	0.10	2	13	82
09-3511	11.4	2.0	545	-	2.5	45	20	26.6	569	2.4	53	0.75	34	-	2.9	32.2	0.26	2	18	92
09-3512	19.8	2.0	212	-	1.0	20	0	11.5	466	2.3	34	0.2	27	-	3.8	5.2	0.10	2	17	91
09-3513	12.1	112.0	167	-	3.6	11	10	2.6	1070	3.0	36	0.2	37	-	4.6	5.8	0.10	2	14	47
09-3514	12.8	129.0	397	-	1.0	45	40	9.0	456	2.9	70	1.06	32	-	3.8	17.5	0.40	2	10	79
09-3515	2.2	14.4	145	-	1.0	8	30	5.0	350	1.5	24	0.2	16	-	2.6	3.1	0.10	2	8	52
09-3516	7.6	28.9	188	-	1.0	12	10	8.7	989	3.4	16	0.2	57	-	4.9	5.7	0.23	2	12	104
09-3517	25.3	2.0	84	-	1.0	26	20	14.3	603	0.5	40	0.87	37	-	3.6	13.6	0.32	2	12	116
09-3518	19.9	18.8	155	-	3.4	18	50	7.5	506	0.5	38	0.65	37	-	3.7	8.5	0.25	2	14	90
09-3519	19.4	2.0	521	-	1.0	11	30	8.7	372	3.6	99	0.2	35	-	4.3	6.8	0.27	2	12	107
09-3520	6.0	12.3	1045	-	1.0	25	30	9.7	275	3.6	27	0.2	19	-	3.0	9.2	0.10	2	7	55
09-3521	10.1	23.2	601	-	1.0	23	40	12.5	304	2.6	62	0.63	24	-	3.1	12.4	0.25	2	10	89
09-3522	13.7	20.5	541	-	1.0	17	20	7.8	495	3.3	67	0.2	24	-	3.4	7.4	0.27	2	9	83
09-3523	7.8	15.3	836	-	1.0	31	50	11.6	366	3.8	28	0.63	22	-	3.7	16.0	0.10	2	10	63
09-3524	6.8	8.9	612	-	1.0	16	50	8.6	316	2.3	43	0.2	20	-	3.2	5.5	0.20	2	9	47
09-3525	15.0	21.0	127	-	1.0	15	40	8.7	341	5.6	19	0.58	26	-	3.9	8.5	0.10	2	11	71
09-3526	16.9	19.9	375	-	1.0	29	10	15.0	335	1.5	41	0.75	23	-	4.5	10.4	0.22	2	15	38
09-3527	-1.0	16.7	349	-	1.0	4	30	1.6	145	2.0	-7	0.2	11	-	3.0	1.8	0.22	2	12	9
09-3528	10.6	31.6	235	-	1.0	15	10	4.8	645	4.7	27	0.2	38	-	5.3	9.9	0.10	2	11	53
09-3529	4.1	48.9	440	-	1.0	23	50	9.2	269	2.0	18	0.51	20	-	2.6	13.1	0.10	2	7	82
09-3530	2.1	14.9	550	-	1.0	16	10	6.9	279	2.2	29	0.2	25	-	4.0	11.3	0.21	2	11	47
09-3531	9.7	13.6	538	-	1.0	39	20	9.0	509	1.8	88	0.88	21	-	1.9	23.5	0.10	2	7	82
09-3532	13.9	2.0	387	-	1.0	17	0	6.9	894	3.1	27	0.72	104	-	8.1	9.0	0.39	2	33	34
09-3533	13.5	19.7	188	-	1.0	42	10	7.2	524	3.8	39	0.55	31	-	4.9	11.1	0.27	2	15	78
09-3534	3.8	44.4	549	-	1.0	8	30	6.7	347	3.0	31	0.2	30	-	4.8	3.9	0.25	2	12	88
09-3535	6.0	37.7	502	-	1.0	10	40	6.3	261	1.9	25	0.2	21	-	3.4	4.1	0.10	2	10	49
09-3536	7.0	9.1	426	-	1.0	24	40	6.7	348	4.4	46	0.59	24	-	3.8	15.4	0.28	2	15	57
09-3537	7.1	70.2	538	-	1.0	13	50	4.4	288	2.6	109	0.2	29	-	3.4	7.0	0.27	2	12	112
09-3538	6.8	2.0	505	-	1.0	24	30	8.1	453	2.6	101	0.2	24	-	3.1	10.3	0.10	2	8	92
09-3539	492.0	2.0	2282	-	2.5	17	20	24.6	4940	0.5	58	0.52	32	-	2.4	13.4	0.32	2	12	444
09-3540	11.5	2.0	180	-	1.0	13	0	3.7	1020	4.4	27	0.2	51	-	6.4	7.4	0.10	2	10	52
09-3541	13.8	2.0	193	-	1.0	20	20	4.9	979	8.9	54	0.53	34	-	4.0	11.5	0.10	2	11	70
09-3542	20.2	137.0	170	-	3.4	48	10	12.9	504	2.4	55	0.8	30	-	4.5	13.1	0.29	2	14	82

Lib No	XRF Pb 5 ppm	XRF Rb 5 ppm	XRF S 10 ppm	INAA Sb 0.5 ppm	INAA Sc 0.1 ppm	INAA Se 10 ppm	INAA Sm 0.2 ppm	XRF Sr 5 ppm	INAA Ta 1 ppm	INAA Th 0.5 ppm	INAA U 2 ppm	XRF V 5 ppm	INAA W 2 ppm	XRF Y 5 ppm	INAA Yb 0.5 ppm	XRF Zn 5 ppm	XRF Zr 5 ppm
08-1630	2	1	130	3.72	123.35	6	1.56	15	0.7	5.38	2	1003	3.0	5	0.70	30	89
08-1631	2	8	270	1.34	41.70	4	1.52	24	0.5	5.85	2	948	2.8	10	1.42	19	60
08-1632	30	1	110	1.18	51.08	3	4.61	17	2.0	19.87	1	334	2.1	19	3.44	7	222
08-1633	33	0	170	1.05	32.96	3	3.63	8	1.7	26.53	1	629	1.4	20	1.82	23	242
08-1634	30	2	160	1.37	43.68	3	1.32	14	1.8	30.95	1	898	2.0	0	0.86	9	231
08-1635	2	5	40	0.83	76.35	4	2.93	23	0.7	1.07	2	790	3.3	12	1.82	53	21
08-1636	6	17	40	3.25	52.08	4	2.24	23	1.4	8.71	1	1196	2.1	6	2.21	14	125
08-1637	15	10	200	0.68	43.77	3	1.89	91	0.5	3.28	1	213	1.7	8	1.01	32	40
08-1638	15	66	450	2.16	47.13	3	1.63	46	1.2	36.50	2	600	2.7	5	1.00	18	135
08-1639	11	2	280	11.62	29.40	7	1.26	13	0.6	3.76	3	1030	4.3	22	2.71	18	136
08-1640	16	10	60	1.47	53.16	3	4.25	27	0.9	0.95	1	460	2.1	18	5.38	146	44
08-1641	16	26	160	3.68	29.17	3	2.14	28	2.0	16.59	1	1165	16.1	19	2.95	19	283
08-1642	25	14	50	1.41	65.82	3	2.80	16	1.5	14.21	2	390	2.8	17	2.48	12	157
08-1643	14	0	90	1.55	17.91	3	4.83	33	2.1	4.05	1	1055	2.2	26	2.11	14	166
08-1644	14	18	200	4.15	26.50	3	2.95	26	1.9	26.19	7	1047	1.9	24	3.07	18	342
08-1645	13	23	200	1.02	35.36	3	1.93	23	0.7	7.51	1	352	1.8	7	1.12	32	110
08-1646	31	34	170	0.81	26.57	3	6.58	31	1.2	19.84	1	359	2.5	32	2.41	34	151
08-1647	2	2	440	4.99	84.28	6	1.97	2	0.5	5.45	2	355	3.3	14	2.10	55	57
08-1648	24	123	340	0.90	35.61	3	4.06	62	0.9	13.52	1	255	1.6	14	2.02	35	130
08-1649	36	8	40	1.11	38.33	3	3.30	14	1.5	10.83	1	611	2.1	13	1.81	8	156
08-1650	34	42	70	2.45	48.92	4	2.63	41	1.0	25.55	2	713	2.2	7	1.28	11	149
08-1651	50	82	120	1.35	40.74	3	3.09	44	1.0	19.67	1	258	1.8	13	1.65	64	148
08-1652	20	13	10	1.99	51.41	3	1.51	20	1.1	12.28	1	729	2.5	12	1.50	16	146
08-1653	9	11	640	3.96	76.18	5	2.67	18	0.8	25.50	2	1086	4.9	8	2.03	23	247
08-1654	12	16	0	2.27	101.07	7	1.49	22	0.7	12.03	5	670	3.5	8	1.43	14	137
08-1655	1	6	430	4.87	66.18	4	8.47	46	1.4	7.04	2	970	2.4	19	2.01	33	115
09-3500	3	52	170	1.68	52.00	2	1.15	91	0.5	4.92	1	223	1.0	10	1.17	52	81
09-3501	19	7	50	2.68	51.90	2	2.03	27	0.5	13.70	1	605	1.0	12	1.17	8	150
09-3502	30	8	50	2.54	51.10	2	3.4	27	1.4	21.70	1	757	1.0	25	1.86	10	210
09-3503	21	3	70	0.99	57.80	2	1.71	9	2.0	20.70	1	291	1.0	19	1.94	11	231
09-3504	23	64	170	3.96	31.50	2	3.75	34	1.8	55.00	1	991	1.0	22	2.07	17	304
09-3505	31	15	140	1.36	66.30	2	2.11	21	1.3	32.80	2.83	616	1.0	14	1.95	15	205
09-3506	15	72	120	1.06	24.90	2	1.89	44	0.5	11.50	1	218	1.0	16	1.49	20	121
09-3507	3	18	120	1.35	18.00	2	3.37	30	1.9	14.70	1	680	1.0	20	2.17	23	197
09-3508	26	18	370	1.34	54.70	2	4.67	42	0.5	18.90	1	486	1.0	18	2.22	34	189
09-3509	8	33	80	2.32	100.00	2	1.91	25	0.5	13.90	1	632	1.0	8	1.2	12	112
09-3510	24	31	60	1.96	75.20	2	1.86	35	1.7	17.60	1	548	1.0	5	1.36	9	149
09-3511	37	25	110	2.03	62.50	2	4.87	35	0.5	15.20	3.42	777	1.0	16	2.06	9	148
09-3512	23	16	140	1.73	45.70	2	1.44	26	0.5	16.70	1	654	1.0	9	1.29	11	159
09-3513	14	35	150	2.96	124.00	2	1.65	21	1.2	25.50	1	712	1.0	7	1.03	7	190
09-3514	29	22	140	2	76.10	2	5.55	36	1.2	12.20	1	455	1.0	26	2.68	8	138
09-3515	2	52	110	0.49	28.20	2	0.95	147	0.5	4.70	1	176	1.0	8	1	20	85
09-3516	14	40	190	3.49	42.80	2	1.74	33	0.5	14.90	1	505	1.0	8	1.49	7	178
09-3517	19	18	80	1.97	77.50	2	4.24	21	1.6	15.40	3.45	665	1.0	20	2.23	10	133
09-3518	30	0	140	1.71	61.50	2	3.29	20	1.6	15.70	1	594	1.0	18	2.04	6	157
09-3519	19	110	180	0.91	40.60	2	1.26	52	0.5	12.30	1	299	1.0	14	1.77	46	153
09-3520	25	52	270	0.62	25.10	2	2.07	48	1.2	12.90	1	186	1.0	11	1.37	35	107
09-3521	26	114	130	0.58	33.20	2	2.92	40	0.5	9.70	1	196	1.0	20	1.68	149	115
09-3522	26	93	240	2.43	39.00	2	1.9	51	0.5	12.90	1	258	1.0	15	1.81	36	117
09-3523	20	55	190	0.57	26.40	2	2.82	48	0.5	12.50	1	217	1.0	15	1.46	31	129
09-3524	15	64	110	0.87	29.80	2	1.5	24	0.5	10.70	2.84	252	1.0	15	1.45	24	117
09-3525	23	9	130	1.37	52.80	2	2.94	22	0.5	11.30	1	616	1.0	15	1.71	12	132
09-3526	8	18	100	1.83	29.50	2	3.19	26	1.6	12.80	1	601	5.8	14	1.81	24	184
09-3527	7	32	180	1.58	18.80	2	0.73	133	0.5	3.98	1	133	1.0	13	1.37	8	97
09-3528	33	35	220	2.09	31.10	2	2.29	21	0.5	21.10	1	684	1.0	18	1.76	12	207
09-3529	17	50	100	0.41	24.10	2	2.43	39	0.5	9.18	1	167	1.0	17	1.36	45	92
09-3530	17	52	130	0.51	36.10	2	2.39	26	0.5	9.07	1	305	1.0	20	1.82	27	152
09-3531	21	21	260	2.49	38.40	2	4.07	37	0.5	6.32	1	529	1.0	19	1.53	33	74
09-3532	1	20	240	2.25	28.50	2	2.72	24	2.6	26.10	1	1213	1.0	31	3.32	19	304
09-3533	21	30	130	1.03	57.90	2	3.33	23	1.2	21.30	1	461	1.0	17	1.98	24	172
09-3534	30	66	130	1.34	42.80	2	1.27	29	1.0	12.80	1	405	1.0	17	1.86	44	171
09-3535	24	45	170	0.65	35.90	2	1.22	28	0.5	9.14	1	264	1.0	12	1.39	22	113
09-3536	28	133	110	0.62	36.20	2	3.03	36	0.5	11.30	1	233	1.0	19	2.01	47	138
09-3537	20	103	90	0.51	44.70	2	1.76	53	1.1	7.84	2.46	273	1.0	22	2.22	55	107
09-3538	19	107	100	0.99	42.50	2	2.11	46	0.5	10.10	1	248	1.0	9	1.16	36	117
09-3539	12	3	560	4.34	49.20	2	2.21	34	0.5	4.90	1	898	1.0	16	2.09	9	80
09-3540	28	61	110	2.26	59.60	2	1.98	39	0.5	57.90	1	467	1.0	9	1.19	9	233
09-3541	25	55	170	2.08	58.50	2	3.12	31	0.5	37.90	1	539	1.0	17	1.48	11	159
09-3542	13	22	70	1.59	63.10	2	4.01	23	1.2	12.90	1	545	1.0	19	2.24	20	160

				Method	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	Grav	Grav	-
				Element	SiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOD	LOI	Total
				DetnLim	0.01	0.01	0.01	0.002	0.01	0.001	0.01	0.00	0.003	0.002	-	-	-
Lib No	East	North	HoleNo	Type	%	%	%	%	%	%	%	%	%	%	%	%	%
09-3543	9080	12799	587	fs	65.54	15.12	9.57	0.169	0.57	0.17	0.06	0.54	0.98	0.022	1.13	6.67	100.54
09-3544	8080	12640	1367	dur	32.88	20.77	34.82	0.043	0.28	0.13	0.05	0.27	1.05	0.029	1.35	9.56	101.23
09-3545	8240	12640	1368	dur	42.83	23.51	18.97	0.028	0.43	0.23	0.10	0.14	1.19	0.015	2.28	11.20	100.92
09-3546	8558	12618	319	dur	40.07	17.58	28.16	0.077	0.71	0.32	0.07	0.43	1.07	0.020	2.66	10.33	101.49
09-3547	8850	12600	323	fs	40.88	22.57	20.38	0.132	0.90	0.34	0.14	1.62	0.88	0.038	2.11	10.26	100.26
09-3548	10040	12640	877	fs	35.94	23.63	26.11	0.180	0.69	0.22	0.61	2.28	1.00	0.033	1.52	8.30	100.52
09-3549	9720	12480	795	fs	51.18	17.80	16.19	0.088	1.07	0.28	0.04	0.36	0.40	0.019	2.69	10.34	100.46
09-3550	9800	12240	959	fs	51.29	16.20	16.35	0.112	1.70	0.27	0.06	0.30	0.40	0.065	2.48	10.82	100.04
09-3551	9357	12217	500	fs	33.93	19.23	32.91	0.225	0.78	0.37	0.07	0.28	1.14	0.047	1.43	10.64	101.05
09-3552	8850	12248	423	dur	23.59	20.30	44.51	0.067	0.40	0.22	0.07	0.36	0.93	0.011	1.69	9.22	101.36
09-3553	8359	12284	338	dur	35.06	20.02	32.31	0.053	0.47	0.21	0.09	0.32	1.30	0.021	1.79	9.56	101.20
09-3554	8650	12420	444	dur	37.22	23.22	25.40	0.044	0.43	0.23	0.07	0.20	0.89	0.018	1.99	10.95	100.65
09-3555	8954	12419	438	dur	14.92	14.49	55.14	0.126	0.41	0.16	0.05	0.15	2.98	0.035	1.37	10.72	100.56
09-3556	9103	12422	436	fs	43.54	23.00	16.90	0.095	0.96	0.47	0.14	1.30	0.92	0.014	2.23	10.98	100.55
09-3557	9320	12360	863	fs	28.23	16.73	43.10	0.120	0.35	0.16	0.03	0.25	1.16	0.099	0.93	9.81	100.98
09-3558	10000	12321	848	dur	29.90	28.56	26.62	0.092	0.11	0.05	0.05	0.05	0.46	0.035	0.93	13.74	100.59
09-3559	10120	12321	845	mz	30.70	21.70	31.50	0.208	0.66	0.28	0.08	0.23	0.91	0.014	2.36	11.91	100.55
09-3560	10100	11500	63	dur	9.34	23.23	55.89	0.051	0.15	0.13	0.06	0.06	4.62	0.039	0.97	5.85	100.39
09-3561	9901	11494	61	dur	6.57	17.15	63.08	0.037	0.15	0.12	0.02	0.02	6.93	0.043	0.83	4.68	99.62
09-3562	9680	11500	1042	dur	13.92	22.54	50.06	0.043	0.39	0.14	0.04	0.23	1.42	0.029	1.14	10.34	100.29
09-3563	9480	11519	655	dur	21.98	17.19	50.91	0.055	0.36	0.20	0.05	0.09	0.78	0.022	1.40	6.88	99.92
09-3564	8920	11520	1055	mz	38.44	23.30	23.54	0.034	0.39	0.22	0.07	0.07	1.38	0.010	1.90	11.32	100.67
09-3565	8450	11600	369	dur	30.33	16.54	8.51	0.050	0.86	17.76	0.08	0.25	0.90	0.009	2.46	18.96	96.71
09-3566	8150	11600	372	dur	36.45	24.28	25.92	0.010	0.16	0.11	0.07	0.09	0.71	0.011	1.56	11.22	100.59
09-3567	8720	11680	950	mz	32.66	19.69	34.22	0.133	0.32	0.21	0.07	0.04	1.26	0.012	2.85	9.76	101.23
09-3568	9160	11680	1027	dur	24.30	21.46	38.46	0.047	0.51	0.20	0.09	0.03	1.44	0.009	2.85	12.06	101.46
09-3569	10280	12160	834	fs	38.65	20.91	25.74	0.110	0.73	0.36	0.10	1.07	0.39	0.016	2.41	10.62	101.10
09-3570	9960	12000	820	fs	40.61	16.43	27.71	0.091	0.43	0.26	0.06	0.23	1.79	0.139	2.12	10.39	100.26
09-3571	9640	12000	824	fs	42.89	25.25	11.16	0.112	2.04	0.29	0.07	0.22	1.07	0.014	4.85	12.31	100.28
09-3572	9400	12000	973	fs	50.06	15.72	22.59	0.067	0.50	0.28	0.09	0.19	0.95	0.032	2.19	8.39	101.07
09-3573	9204	11995	512	mz	26.42	23.29	36.58	0.035	0.39	0.19	0.11	0.34	0.37	0.004	2.23	11.56	101.52
09-3574	8930	12012	413	dur	22.91	11.20	53.09	0.121	0.31	0.16	0.04	0.17	1.93	0.028	1.29	9.24	100.49
09-3575	8707	11993	517	mz	24.43	19.94	39.73	0.064	0.43	0.17	0.07	0.03	2.08	0.011	2.25	11.81	101.01
09-3576	8400	12000	1171	sp	57.84	23.65	2.70	0.015	1.07	0.32	0.07	1.69	1.01	0.004	3.40	8.65	100.42
09-3577	8553	11821	362	dur	39.26	23.36	23.32	0.017	0.36	0.20	0.07	0.06	1.38	0.010	2.52	10.20	100.77
09-3578	9040	11820	1008	dur	19.78	17.12	47.27	0.051	0.54	0.21	0.08	0.03	1.25	0.009	2.43	11.51	100.28
09-3579	9520	11820	990	fs	42.25	20.54	20.86	0.035	1.04	0.40	0.10	0.19	1.17	0.023	3.99	10.13	100.73
09-3580	10050	11808	95	fs	34.39	18.17	31.25	0.084	0.64	0.27	0.07	0.18	1.84	0.048	2.20	11.46	100.61
09-3581	10200	11920	1233	dur	16.25	13.85	57.48	0.064	0.28	0.12	0.04	0.15	4.83	0.028	1.39	6.07	100.55
09-3582	9320	11360	1074	dur	9.74	7.54	67.05	0.227	0.85	0.25	0.01	0.02	1.01	0.012	1.95	11.12	99.78
09-3583	8760	11360	1088	dur	31.44	24.09	31.87	0.007	0.20	0.10	0.05	0.06	0.84	0.007	1.77	10.65	101.10
09-3584	9800	11360	1062	dur	9.75	26.50	44.26	0.023	0.32	0.26	0.06	0.04	4.73	0.019	2.36	12.52	100.83

Lib No	INAA As 2 ppm	INAA Au 5 ppb	XRF Ba 30 ppm	XRF Bi 2 ppm	INAA Br 2 ppm	INAA Ce 10 ppm	XRF Cl 20 ppm	INAA Co 1 ppm	INAA Cr 5 ppm	INAA Cs 1 ppm	XRF Cu 10 ppm	INAA Eu 1 ppm	XRF Ga 3 ppm	XRF Ge 2 ppm	INAA Hf 1 ppm	INAA La 0.5 ppm	INAA Lu 0.2 ppm	INAA Mo 5 ppm	XRF Nb 4 ppm	XRF Ni 10 ppm
09-3543	5.4	74.3	479	-	1.0	31	30	5.6	296	0.5	31	0.57	18	-	3.2	13.3	0.25	2	11	53
09-3544	22.8	60.7	267	-	2.2	22	0	8.4	938	0.5	48	0.2	38	-	5.8	8.2	0.25	2	17	73
09-3545	11.1	16.2	94	-	1.0	18	40	8.4	588	1.2	32	0.74	29	-	6.4	8.5	0.27	2	13	81
09-3546	9.2	25.5	714	-	1.0	19	20	5.6	428	2.3	89	0.64	27	-	4.8	11.6	0.29	2	11	62
09-3547	8.6	95.3	1260	-	1.0	21	30	7.5	411	2.4	57	0.61	26	-	3.4	11.5	0.26	2	8	118
09-3548	14.7	2.0	826	-	1.0	41	40	11.8	1150	6.1	44	1.33	33	-	4.9	21.7	0.46	2	14	129
09-3549	62.0	18.3	151	-	2.2	33	10	41.3	3110	1.5	68	0.73	19	-	1.2	12.8	0.38	2	3	510
09-3550	503.0	2.0	170	-	2.5	14	40	20.8	1880	0.5	58	0.58	16	-	1.7	8.3	0.22	2	4	489
09-3551	18.7	62.7	471	-	2.1	32	10	11.6	483	1.5	171	0.91	30	-	3.4	18.1	0.26	2	12	107
09-3552	23.0	2.0	203	-	2.9	14	30	7.4	618	4.4	51	0.2	36	-	4.3	9.4	0.23	2	9	84
09-3553	18.7	168.0	238	-	2.9	37	30	14.1	942	3.4	43	1.09	34	-	6.3	15.5	0.29	2	17	102
09-3554	15.3	61.5	112	-	1.0	30	50	7.4	683	1.4	49	0.52	35	-	5.6	7.2	0.10	2	14	94
09-3555	57.1	400.0	228	-	1.0	18	0	10.7	756	2.6	81	0.79	78	-	7.0	10.7	0.28	2	28	22
09-3556	23.1	977.0	511	-	1.0	8	50	10.6	399	3.3	59	0.2	29	-	3.4	4.3	0.10	2	11	114
09-3557	33.6	15.1	214	-	1.0	29	10	19.6	488	2.0	177	0.81	25	-	3.8	11.9	0.30	2	12	61
09-3558	271.0	2.0	110	-	1.0	19	100	21.2	2290	0.5	113	0.2	31	-	1.6	2.8	0.25	2	7	402
09-3559	104.0	2.0	549	-	1.0	38	10	42.1	914	3.2	40	0.82	31	-	3.7	12.6	0.25	2	16	146
09-3560	527.0	105.0	68	-	3.5	26	120	15.1	5720	0.5	11	1.32	88	-	11.2	11.9	0.70	2	70	132
09-3561	127.0	16.2	188	-	1.0	18	30	8.2	5760	0.5	15	0.79	106	-	11.7	7.9	0.47	2	76	89
09-3562	64.5	16.8	187	-	2.0	24	10	18.7	3070	1.6	31	0.88	54	-	5.5	11.7	0.25	2	26	114
09-3563	32.5	50.8	205	-	1.0	37	20	10.6	1360	0.5	71	1.1	35	-	3.3	16.4	0.37	2	7	105
09-3564	30.7	85.6	286	-	1.0	38	50	18.1	1140	0.5	31	1.41	37	-	6.9	19.3	0.56	2	21	149
09-3565	19.1	2.0	52	-	2.3	38	40	11.1	535	0.5	16	1.66	18	-	5.3	36.0	0.40	2	21	87
09-3566	31.8	2.0	803	-	2.1	10	60	5.7	950	0.5	-4	0.2	64	-	7.1	7.6	0.10	2	10	82
09-3567	14.5	2.0	78	-	1.0	36	20	45.5	122	0.5	62	0.95	34	-	4.1	49.6	0.10	2	19	79
09-3568	15.2	2.0	102	-	1.0	86	20	92.9	648	0.5	24	1.53	37	-	5.1	25.2	0.45	2	21	222
09-3569	19.1	2.0	745	-	1.0	14	50	11.6	297	2.1	78	0.2	23	-	1.3	6.5	0.10	2	2	90
09-3570	1660.0	33.8	1408	-	3.4	13	60	23.6	2380	0.5	151	1.06	25	-	3.8	6.6	0.31	2	21	620
09-3571	90.8	2.0	131	-	1.0	13	50	9.2	3620	0.5	173	0.54	26	-	2.2	4.6	0.34	2	12	460
09-3572	7.2	109.0	199	-	1.0	20	70	11.4	234	0.5	147	0.86	17	-	2.2	10.1	0.47	2	7	82
09-3573	18.5	2.0	439	-	3.7	17	20	8.9	413	5.3	60	0.2	30	-	2.5	3.2	0.10	2	4	71
09-3574	13.0	2.0	61	-	1.0	14	40	69.0	186	3.0	99	0.2	24	-	3.0	3.4	0.31	2	11	84
09-3575	12.4	2.0	167	-	1.0	69	30	102.0	493	0.5	13	1.4	37	-	6.9	25.1	0.49	2	25	243
09-3576	1.5	2.0	295	-	1.0	8	70	6.7	247	2.6	25	0.57	32	-	5.7	1.9	0.46	2	13	118
09-3577	26.7	17.0	63	-	1.0	68	80	12.4	1220	0.5	19	1.14	37	-	7.0	13.7	0.42	2	25	126
09-3578	15.0	2.0	38	-	1.0	83	20	142.0	588	1.4	33	1.61	34	-	4.3	19.4	0.41	2	26	283
09-3579	19.7	183.0	1053	-	1.0	12	50	6.8	1010	0.5	53	0.2	28	-	3.4	9.0	0.20	2	8	128
09-3580	1830.0	135.0	178	-	3.9	18	30	47.4	3000	0.5	250	1.34	27	-	2.8	7.9	0.25	2	29	1187
09-3581	269.0	212.0	207	-	1.0	29	20	18.0	2260	4.1	47	1.06	77	-	6.9	14.7	0.68	2	60	120
09-3582	13.4	2.0	255	-	2.4	73	40	309.0	668	1.8	33	2.45	17	-	2.9	43.4	0.46	2	17	391
09-3583	10.8	2.0	65	-	1.0	34	0	14.6	554	2.0	43	0.87	34	-	4.1	15.0	0.36	2	12	88
09-3584	150.0	193.0	86	-	3.6	29	30	17.9	2710	1.6	31	1.3	74	-	9.6	8.7	0.42	2	51	178

Lib No	XRF Pb 5 ppm	XRF Rb 5 ppm	XRF S 10 ppm	INAA Sb 0.5 ppm	INAA Sc 0.1 ppm	INAA Se 10 ppm	INAA Sm 0.2 ppm	XRF Sr 5 ppm	INAA Ta 1 ppm	INAA Th 0.5 ppm	INAA U 2 ppm	XRF V 5 ppm	INAA W 2 ppm	XRF Y 5 ppm	INAA Yb 0.5 ppm	XRF Zn 5 ppm	XRF Zr 5 ppm
09-3543	19	23	90	0.94	28.80	2	2.47	27	0.5	7.79	1	232	1.0	19	1.74	18	106
09-3544	27	20	120	1.74	96.90	2	2.44	22	0.5	33.30	1	622	1.0	17	1.78	20	232
09-3545	30	6	80	1.38	67.70	2	2.67	19	0.5	19.00	1	419	1.0	21	2.3	10	223
09-3546	21	34	220	1.84	40.50	2	2.74	27	0.5	14.40	3.65	543	1.0	20	2.09	11	165
09-3547	27	83	270	-0.2	46.50	2	2.67	45	1.1	10.00	1	268	1.0	21	1.92	52	119
09-3548	56	112	140	7	51.90	2	6.08	65	2.4	23.40	1	278	1.0	28	3.39	29	166
09-3549	13	31	150	0.66	54.70	2	3.72	26	0.5	4.37	1	213	1.0	21	2.68	52	48
09-3550	15	15	80	2.93	46.50	2	2.22	24	0.5	3.56	1	182	1.0	19	1.6	43	39
09-3551	6	20	160	0.77	71.50	2	4.35	37	1.0	8.52	1	665	1.0	23	2.15	86	118
09-3552	24	37	20	1.93	82.20	2	2.33	24	0.5	18.80	1	879	1.0	14	1.91	11	144
09-3553	36	28	70	1.66	74.40	2	4.22	25	2.3	25.90	1	633	1.0	23	2.68	16	231
09-3554	31	13	50	1.05	87.40	2	2.14	21	0.5	23.00	1	523	1.0	11	1.37	16	186
09-3555	14	10	380	3.1	52.10	2	3.42	20	2.9	25.40	1	1468	1.0	20	2.38	66	256
09-3556	18	82	60	0.57	42.80	2	1.24	39	0.5	9.19	1	306	1.0	7	0.7	39	106
09-3557	7	18	200	0.77	50.40	2	3.6	26	0.5	8.88	1	545	31.1	14	2.28	78	126
09-3558	20	0	270	3.33	67.20	2	1.61	5	0.5	5.32	1	583	1.0	14	1.9	32	64
09-3559	7	26	100	2.92	46.80	2	3.74	29	1.2	11.90	1	648	1.0	19	1.87	14	138
09-3560	5	3	240	8.09	38.00	2	4.92	18	4.8	10.10	1	1104	13.7	48	4.39	31	439
09-3561	8	6	190	10.1	27.80	2	2.87	28	5.5	5.59	1	1782	11.1	13	2.97	9	400
09-3562	20	16	370	5.28	66.70	2	4.2	26	1.7	28.20	1	933	1.0	14	2.19	18	210
09-3563	14	5	80	2.08	95.50	2	4.27	28	1.7	12.20	1	997	1.0	16	2.98	16	109
09-3564	41	4	70	1.51	60.30	2	5.85	22	1.7	28.10	1	521	1.0	22	4.01	6	248
09-3565	5	16	20	1.06	33.30	2	7.25	43	1.7	12.00	1	199	1.0	29	2.74	16	178
09-3566	36	1	250	1.3	36.60	2	1.8	21	1.3	36.50	1	1016	1.0	8	0.91	6	213
09-3567	14	4	0	0.64	30.20	2	4.41	28	1.7	6.77	1	826	1.0	12	1.47	7	148
09-3568	12	3	30	1.65	50.70	2	6.67	21	1.3	10.10	1	717	1.0	25	3.72	5	172
09-3569	10	41	240	2.48	68.10	2	2.13	37	0.5	3.73	1	508	1.0	9	1.02	18	36
09-3570	26	9	430	3.35	49.90	2	3.26	53	1.1	4.40	1	364	1.0	22	2.09	102	136
09-3571	12	6	70	0.9	82.70	2	1.82	20	0.5	2.28	1	387	9.1	24	2.34	20	69
09-3572	13	8	60	0.68	54.80	2	3.19	34	0.5	3.18	1	515	1.0	24	3.54	110	72
09-3573	11	37	30	1.58	90.70	2	1.92	24	0.5	23.50	1	709	1.0	8	1.48	11	91
09-3574	12	14	60	1.16	54.40	2	1.35	14	1.7	1.73	1	913	1.0	13	2.11	54	112
09-3575	20	4	30	2.01	48.10	2	6.53	23	2.4	11.00	1	793	1.0	29	3.77	6	250
09-3576	19	82	20	0.74	33.80	2	1.9	23	1.4	10.70	3.97	166	1.0	20	3.27	33	197
09-3577	51	2	50	1.6	53.00	2	4.44	16	2.3	30.90	1	514	1.0	19	3.27	4	252
09-3578	8	2	10	1.34	43.00	2	6.16	18	1.9	9.62	1	832	1.0	22	3.52	5	159
09-3579	10	12	270	0.78	74.80	2	1.74	45	0.5	4.60	1	1041	1.0	10	1.53	18	101
09-3580	12	15	120	4.31	80.70	2	3.23	30	1.4	3.42	1	553	1.0	25	2.41	81	140
09-3581	6	15	90	20.8	42.20	2	4.47	23	5.5	7.46	1	1652	38.7	40	4.77	15	259
09-3582	3	8	60	2	19.00	2	9.21	20	0.5	3.45	1	768	1.0	31	4.01	10	102
09-3583	16	10	30	1.39	134.00	2	4.68	14	2.8	17.20	1	726	1.0	22	2.79	6	135
09-3584	8	3	20	4.44	45.70	2	4.66	28	3.5	8.55	1	996	1.0	18	3.23	8	342

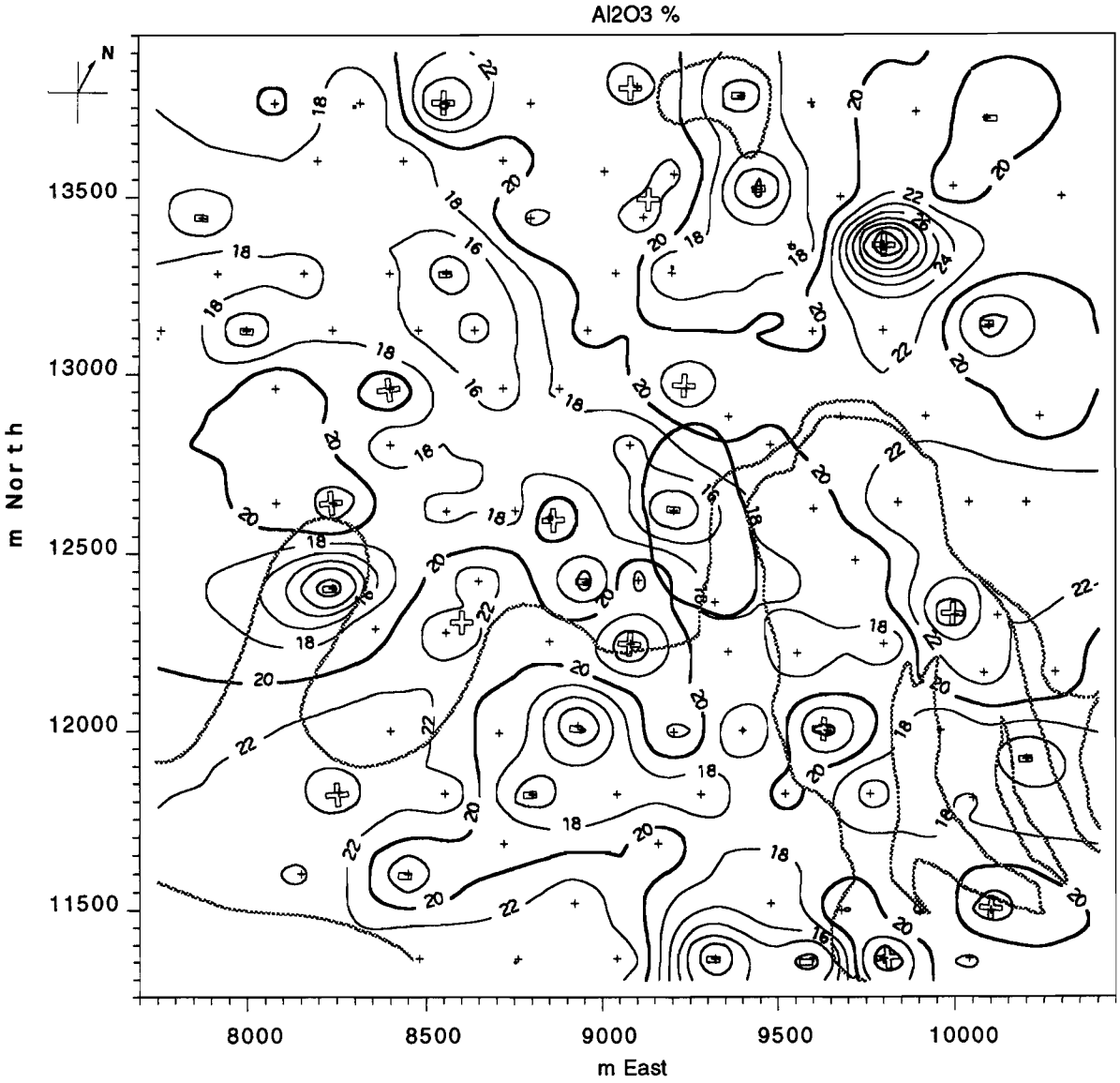
APPENDIX 2

CONTOURED GEOCHEMISTRY AND NORMAL PROBABILITY PLOTS OF SUBSURFACE FERRUGINOUS BASEMENT MATERIALS

(Including ferruginous saprolite mottles and lateritic residuum)

Thresholds are shown with a heavy contour line and as => on normal probability plots.

Co-ordinates refer to a local grid inclined at 29° west.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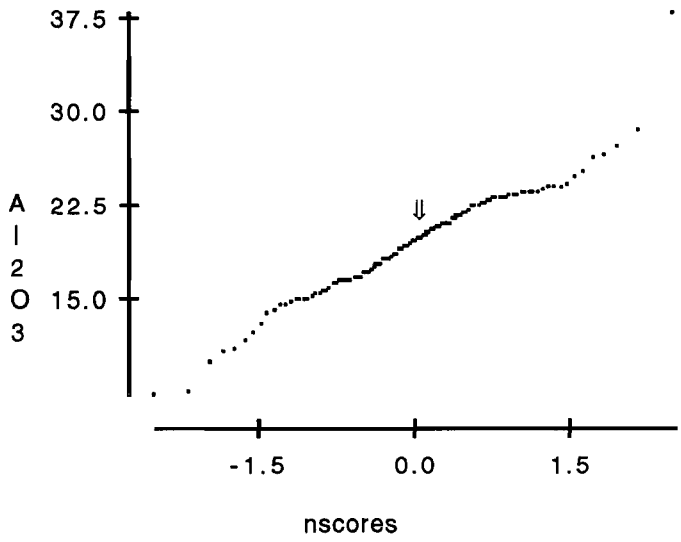
m East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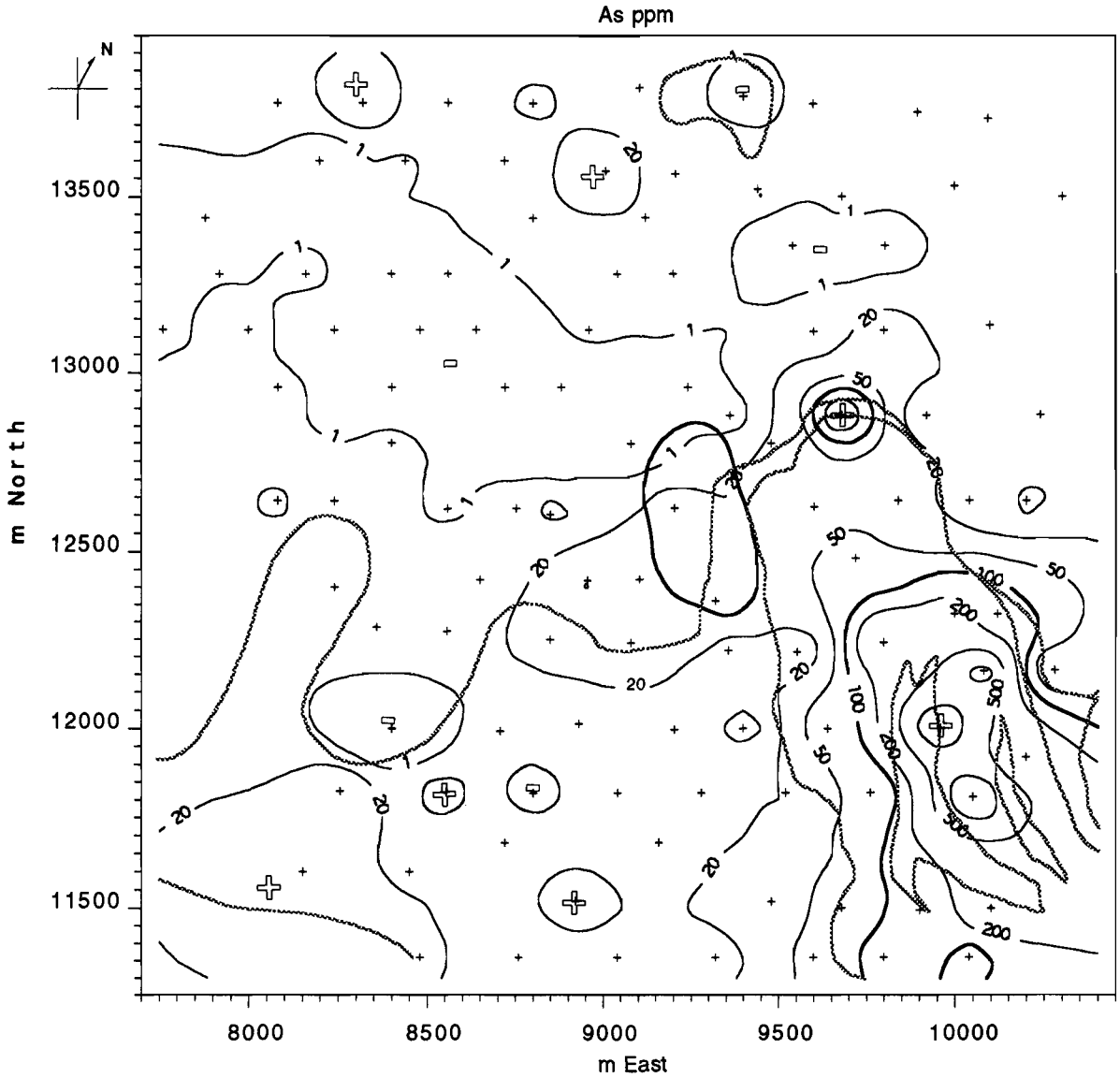
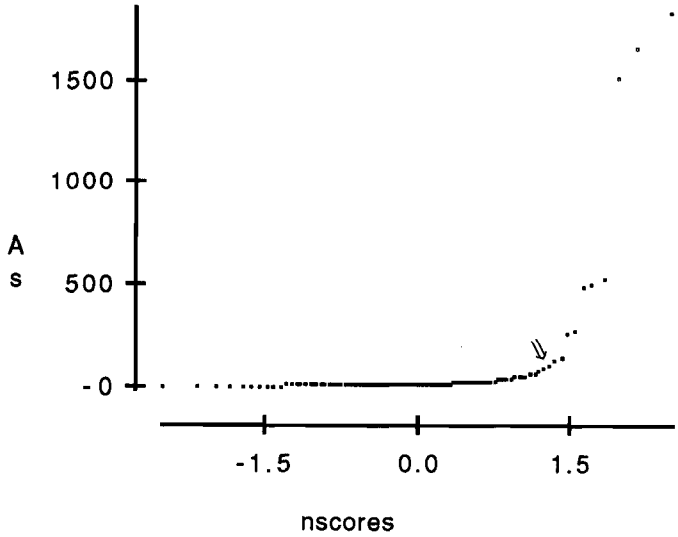

As ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East
1
20
50
100
200
300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1000
500
0
As
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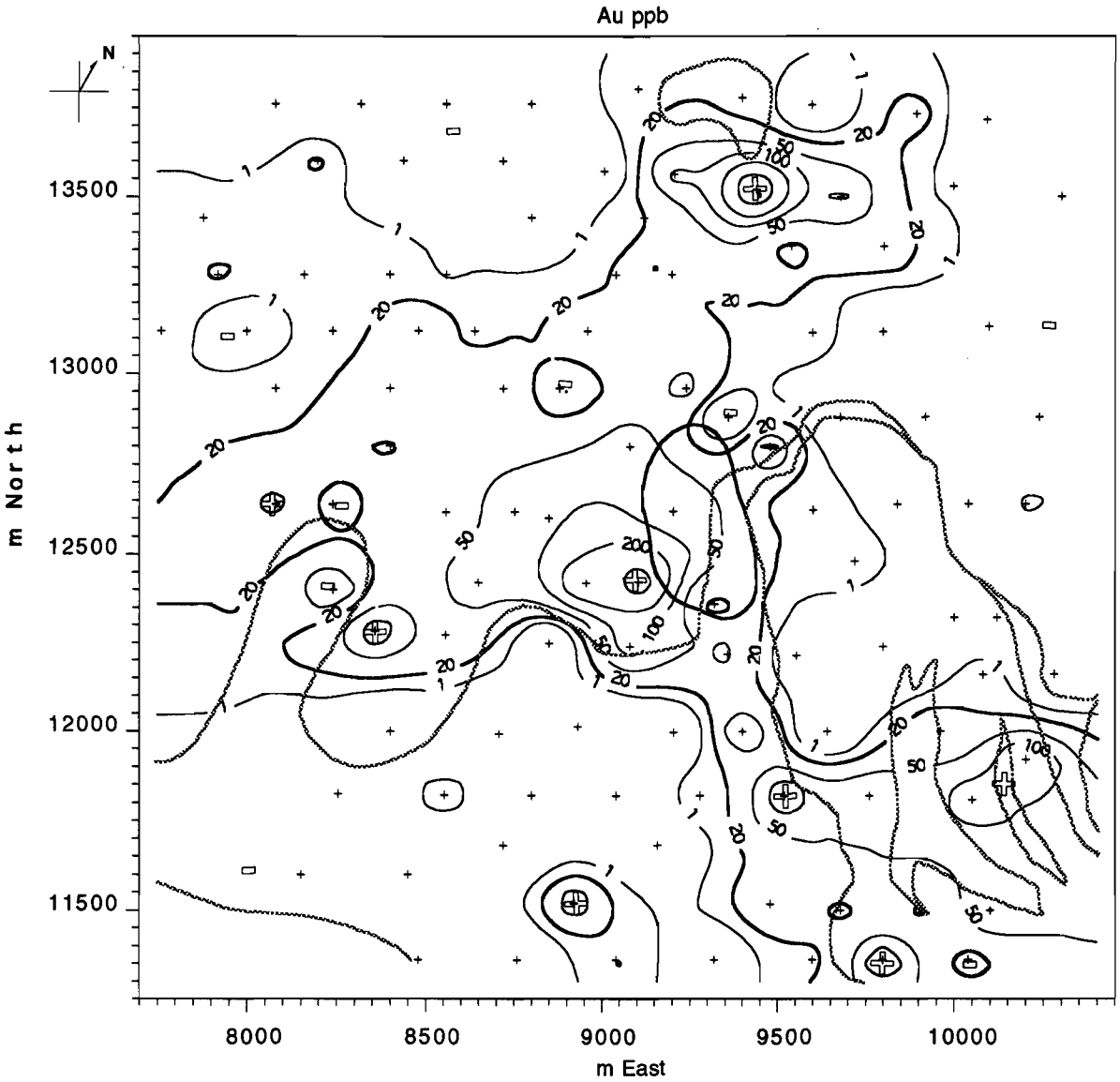
0.0
1.5
nscores


Au ppb
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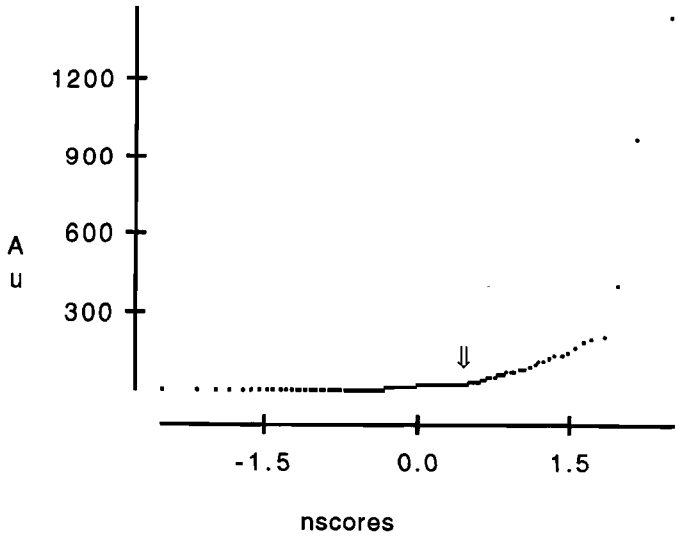
10000
m East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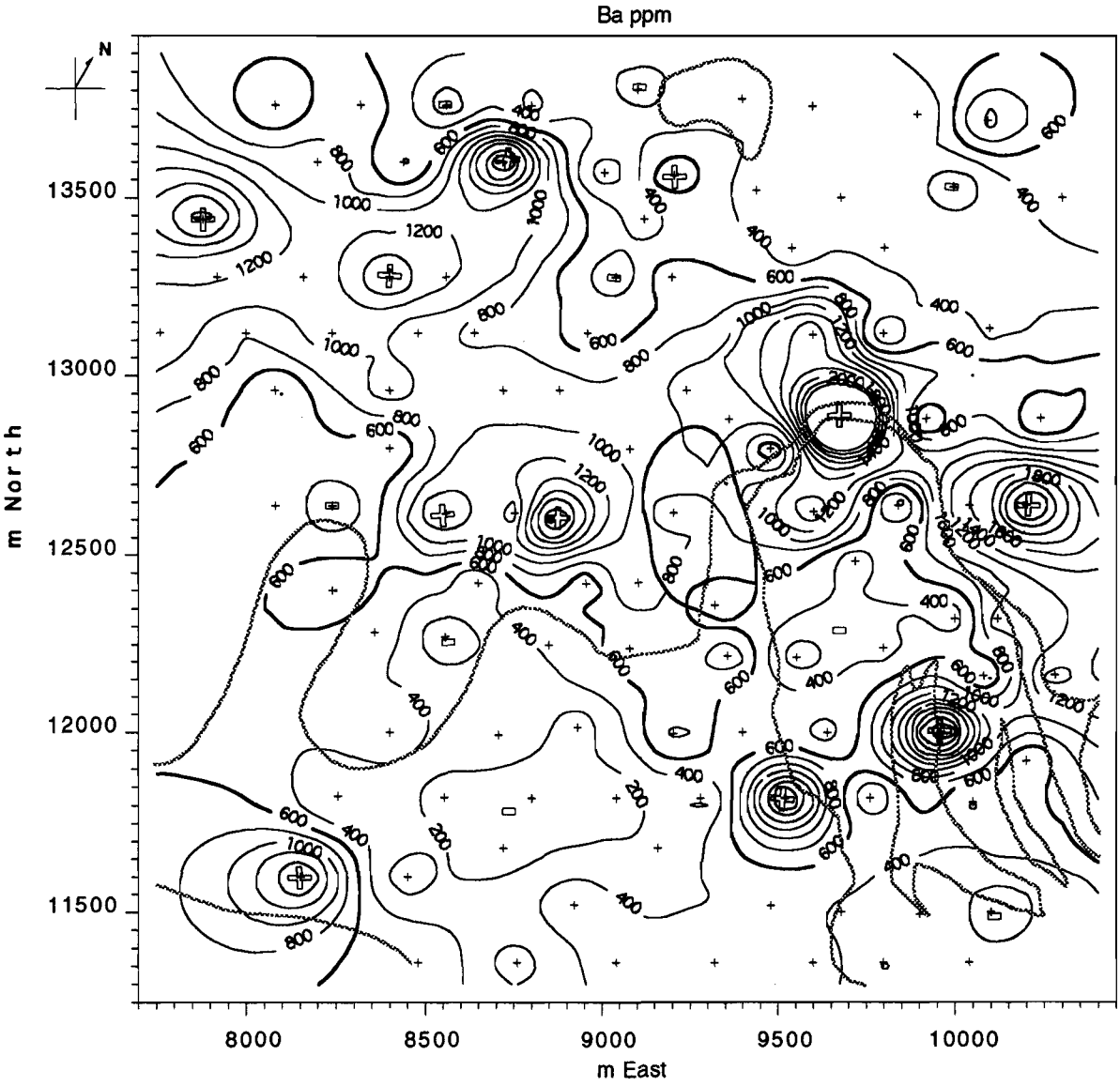
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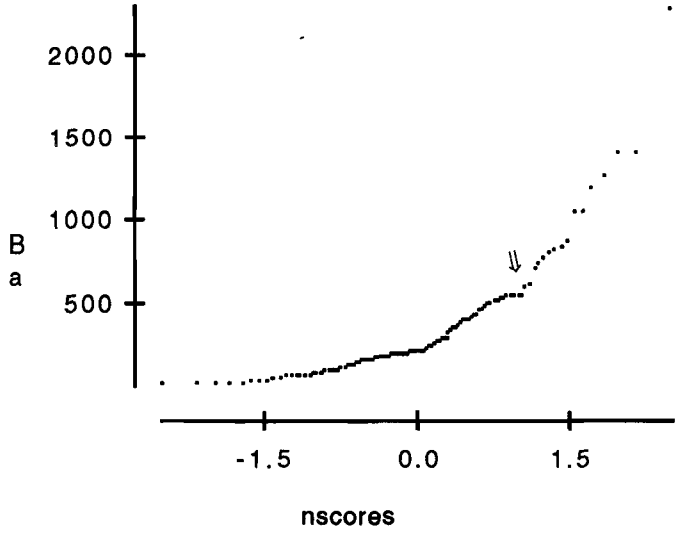
2000
1500
1000
500
B
a
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0.0
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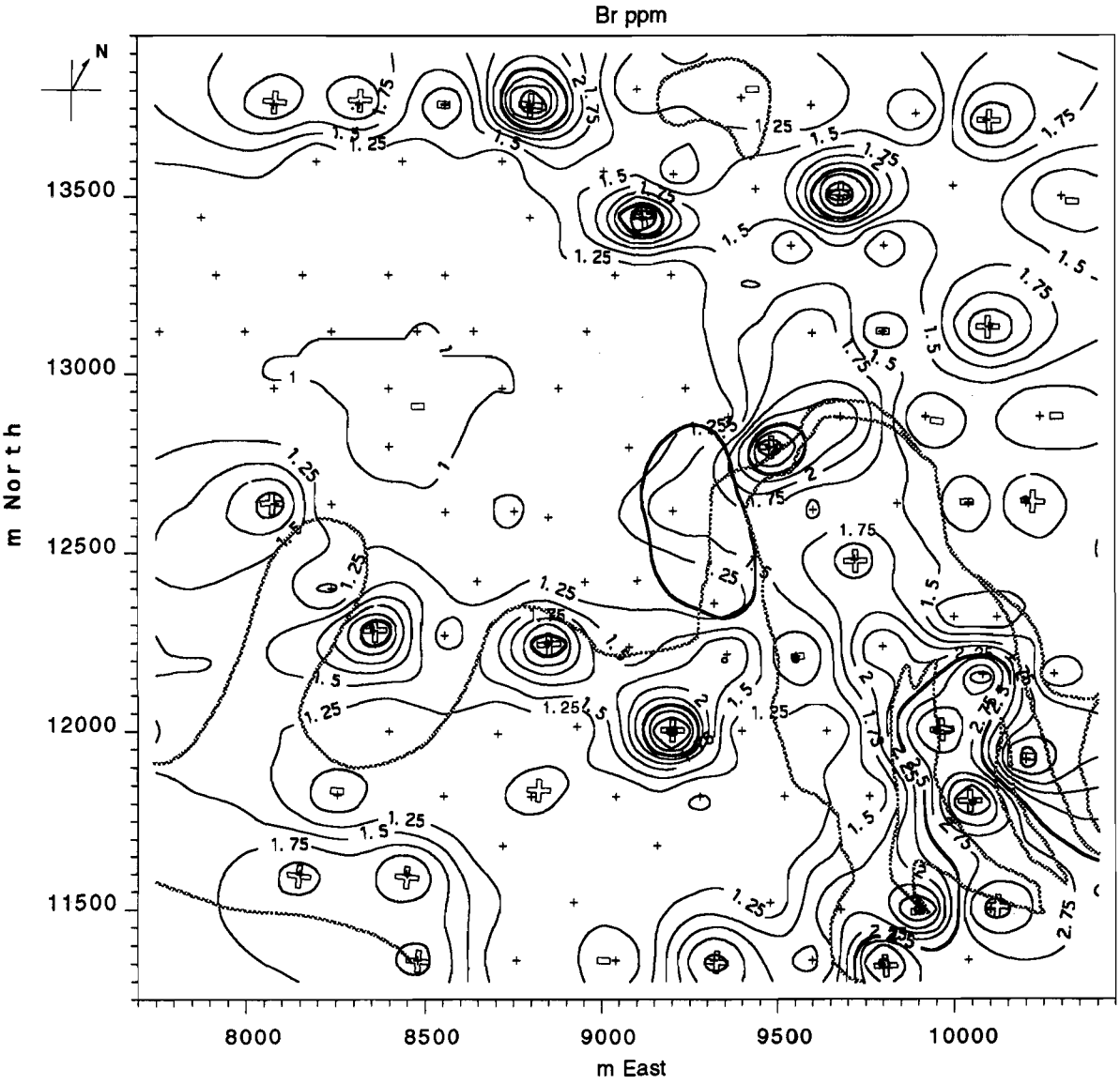
nscores


Br ppm
N
13500
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12000
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m North
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9000
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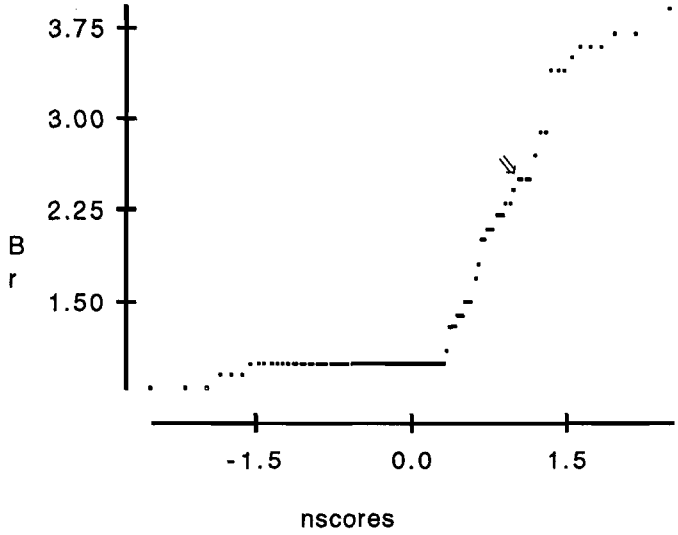
10000
m East


3.75
3.00
2.25
1.50
B
r
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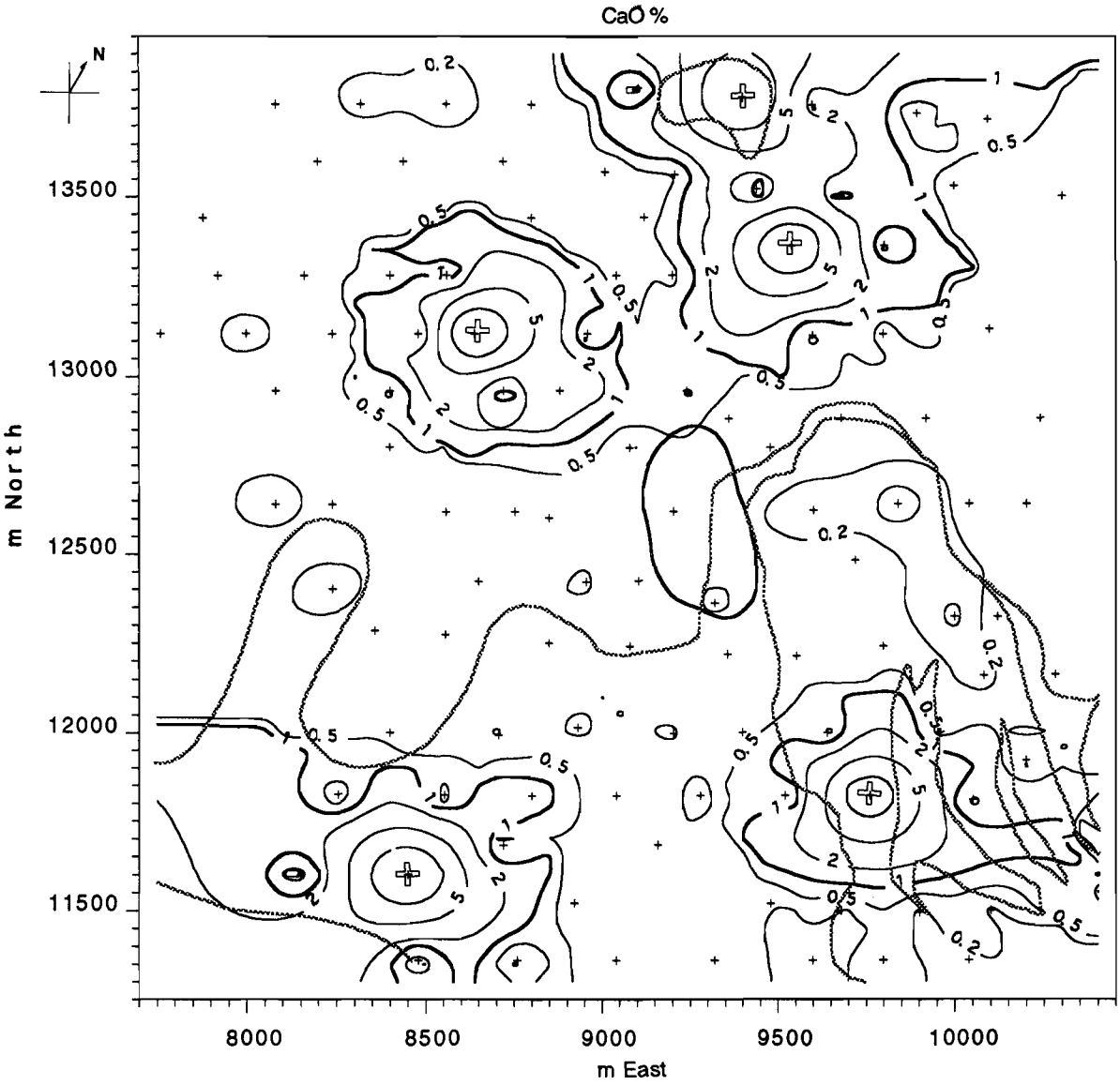
1.5
nscores


CaO %
N
13500
13000
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12000
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m North
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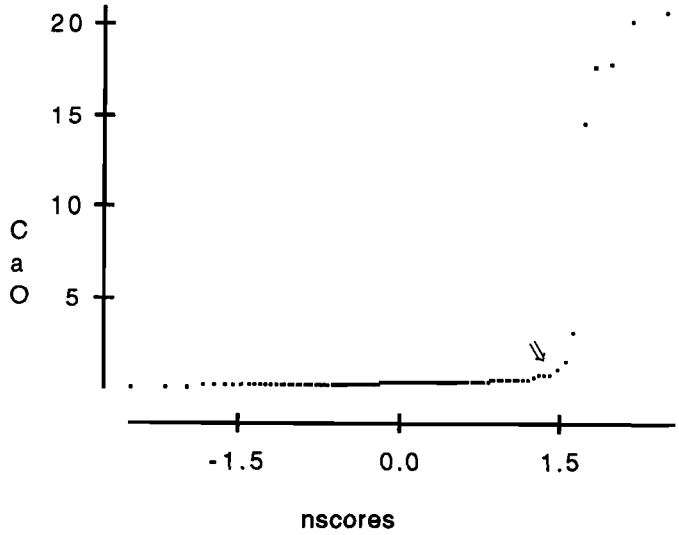
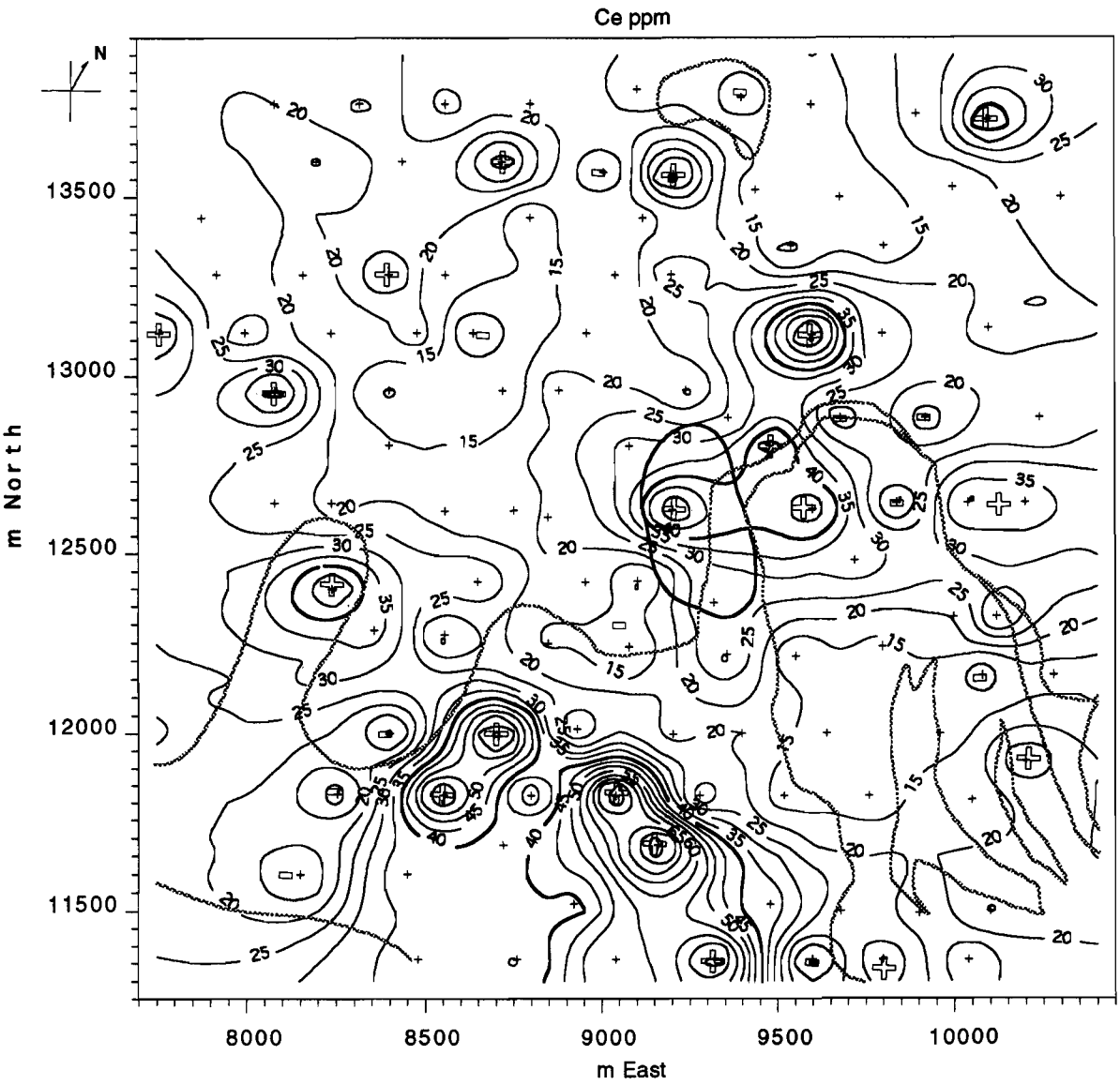
9000
9500
10000
m East


20
15
10
5
CaO
-1.5
0.0
1.5
nscores


Ce ppm
N
13500
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12000
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m North
8000
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9000
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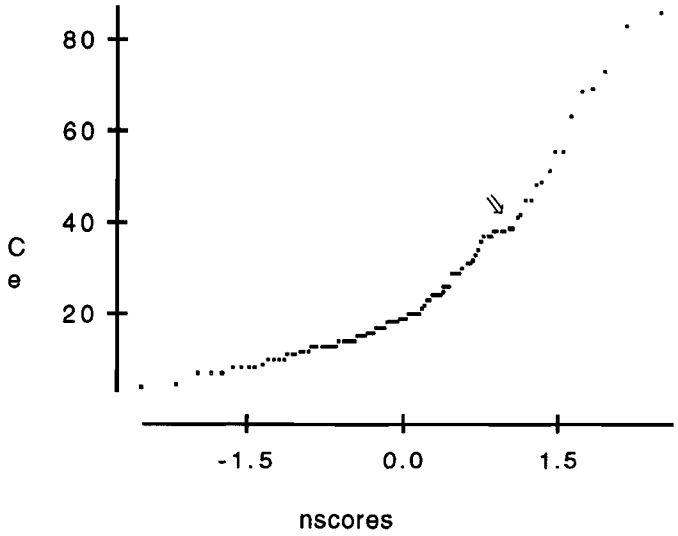
10000
m East


80
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40
20
Ce
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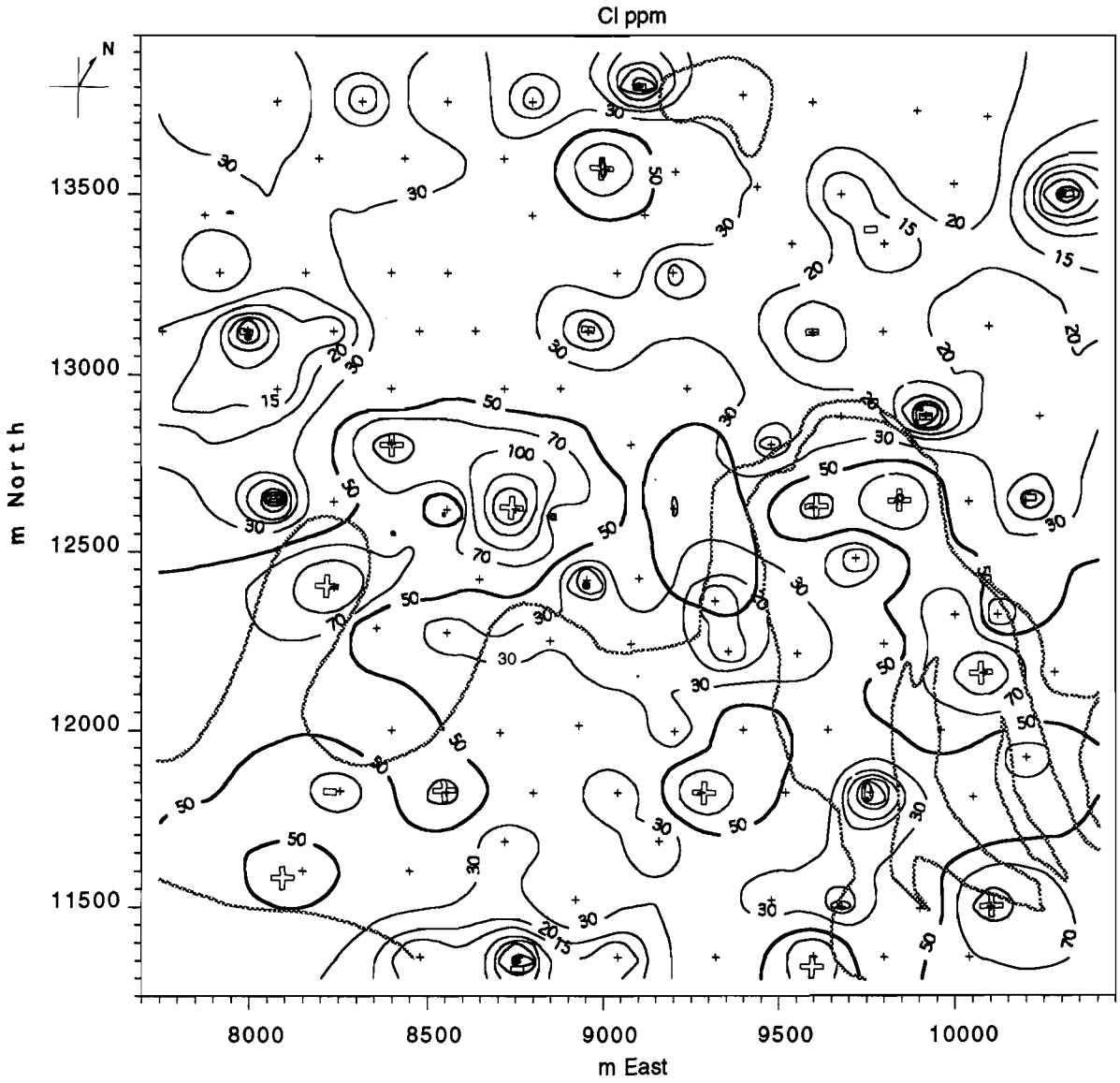
0.0
1.5
nscores


Cl ppm
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12500
12000
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m North
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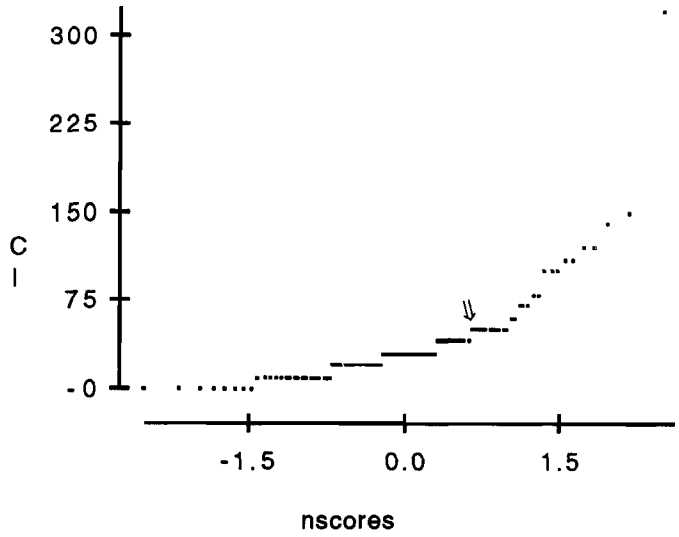
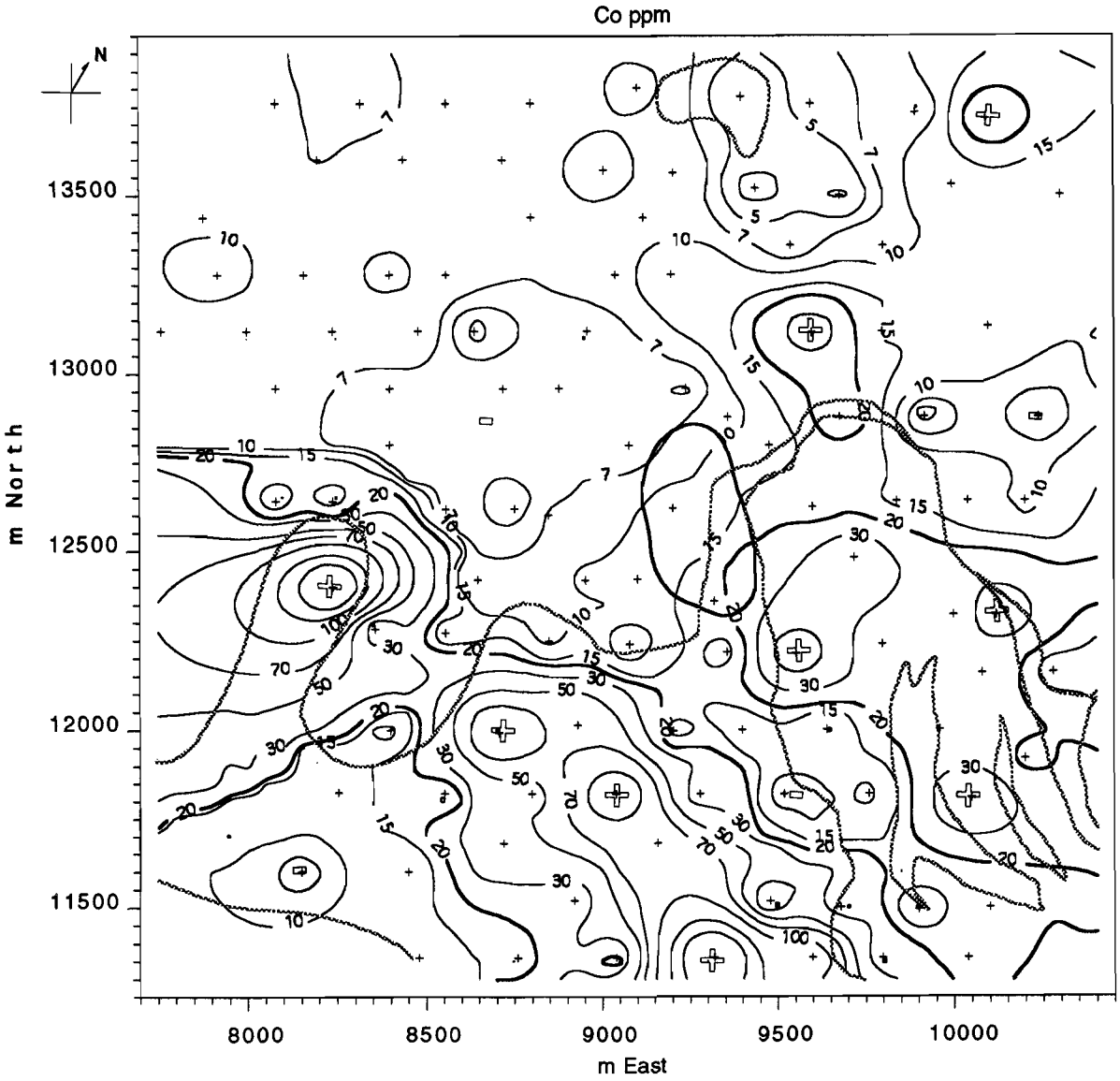
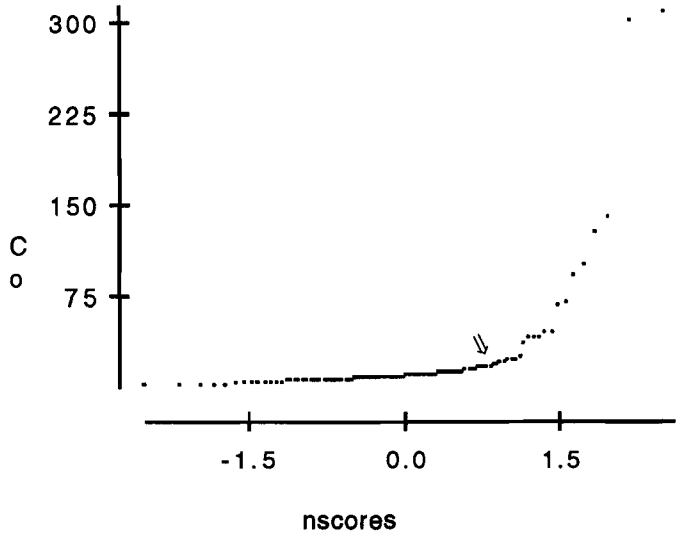
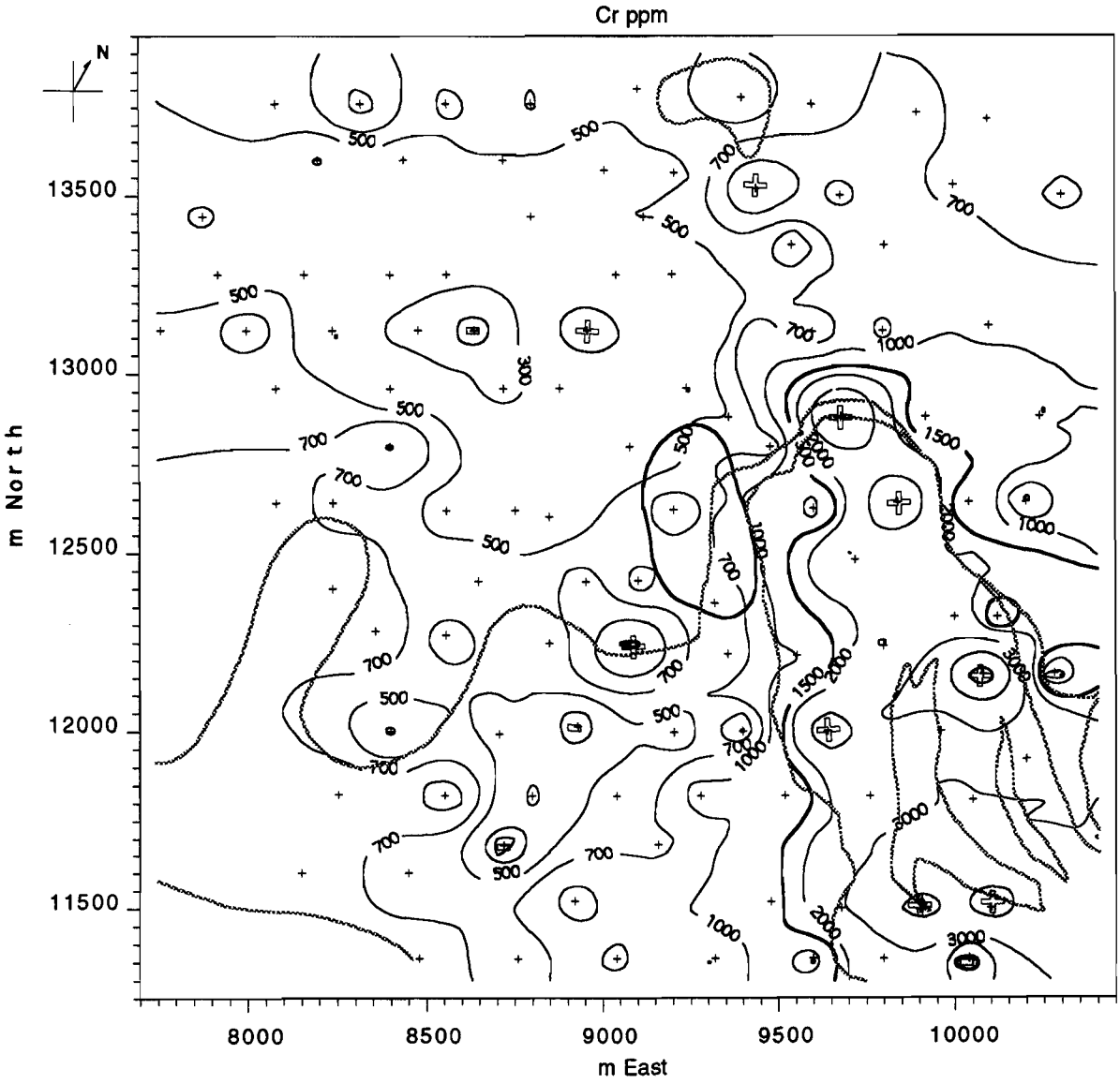
10000
m East


300
225
150
75
0
Cl
-1.5
0.0
1.5
nscores


Co ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


300
225
150
75
Co
-1.5
0.0
1.5
nscores


Cr ppm
N
13500
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12500
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11500
m North
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8500
9000
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10000
m East
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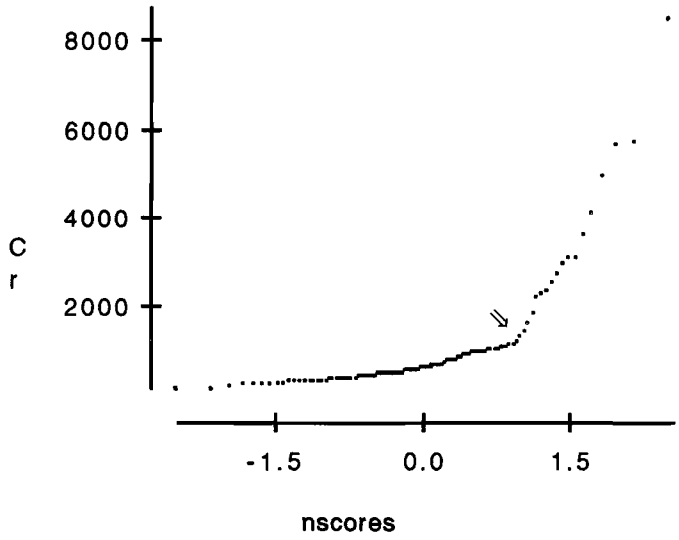
700
1000
1500
2000
3000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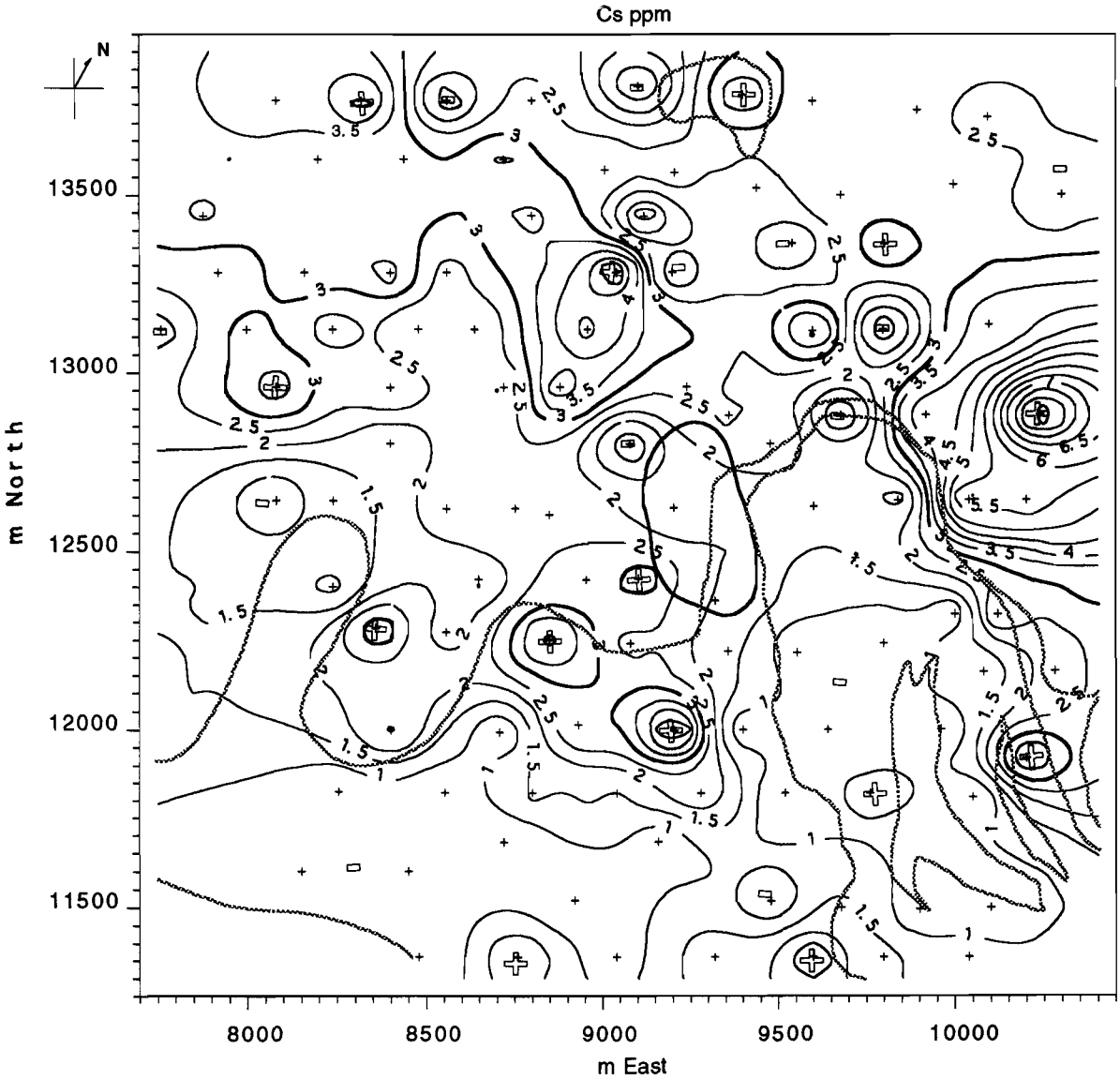
Cr
-1.5
0.0
1.5
nscores


Cs ppm
N
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13000
12500
12000
11500
m North
8000
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9000
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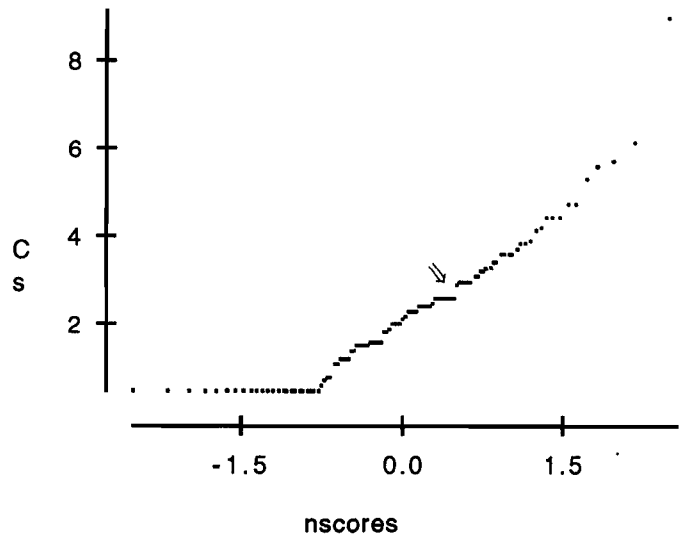
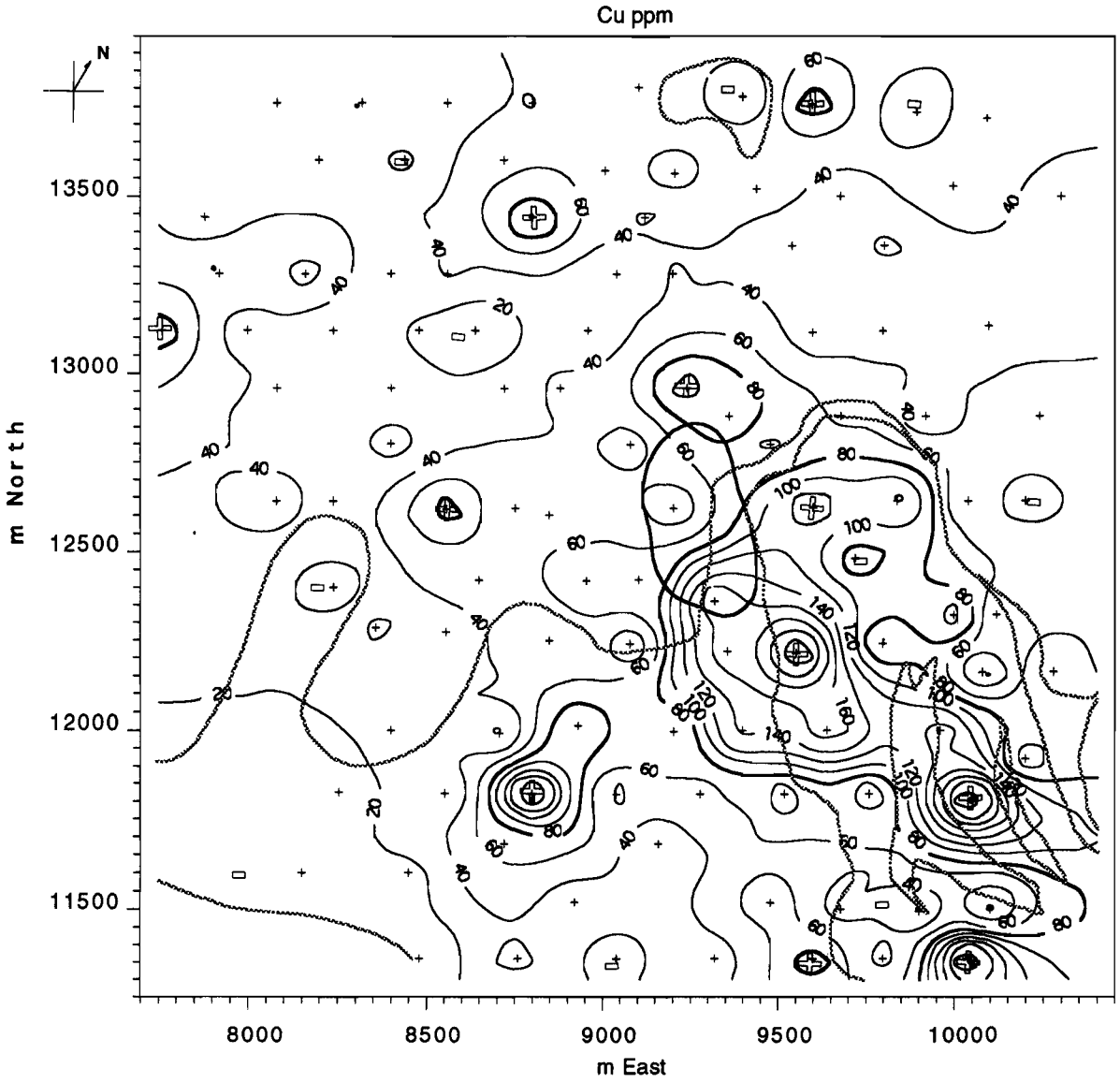
10000
m East


8
6
4
2
C
s
-1.5
0.0
1.5
nscores


Cu ppm
N
13500
13000
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m North
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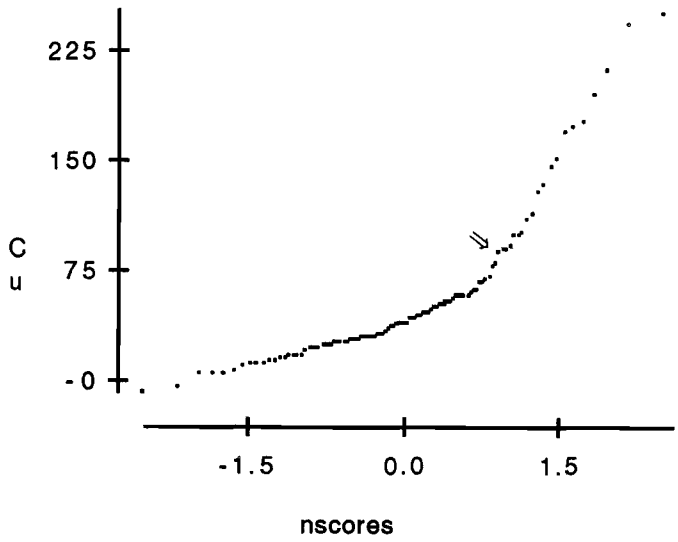
9000
9500
10000
m East


225
150
75
-0
C
u
-1.5
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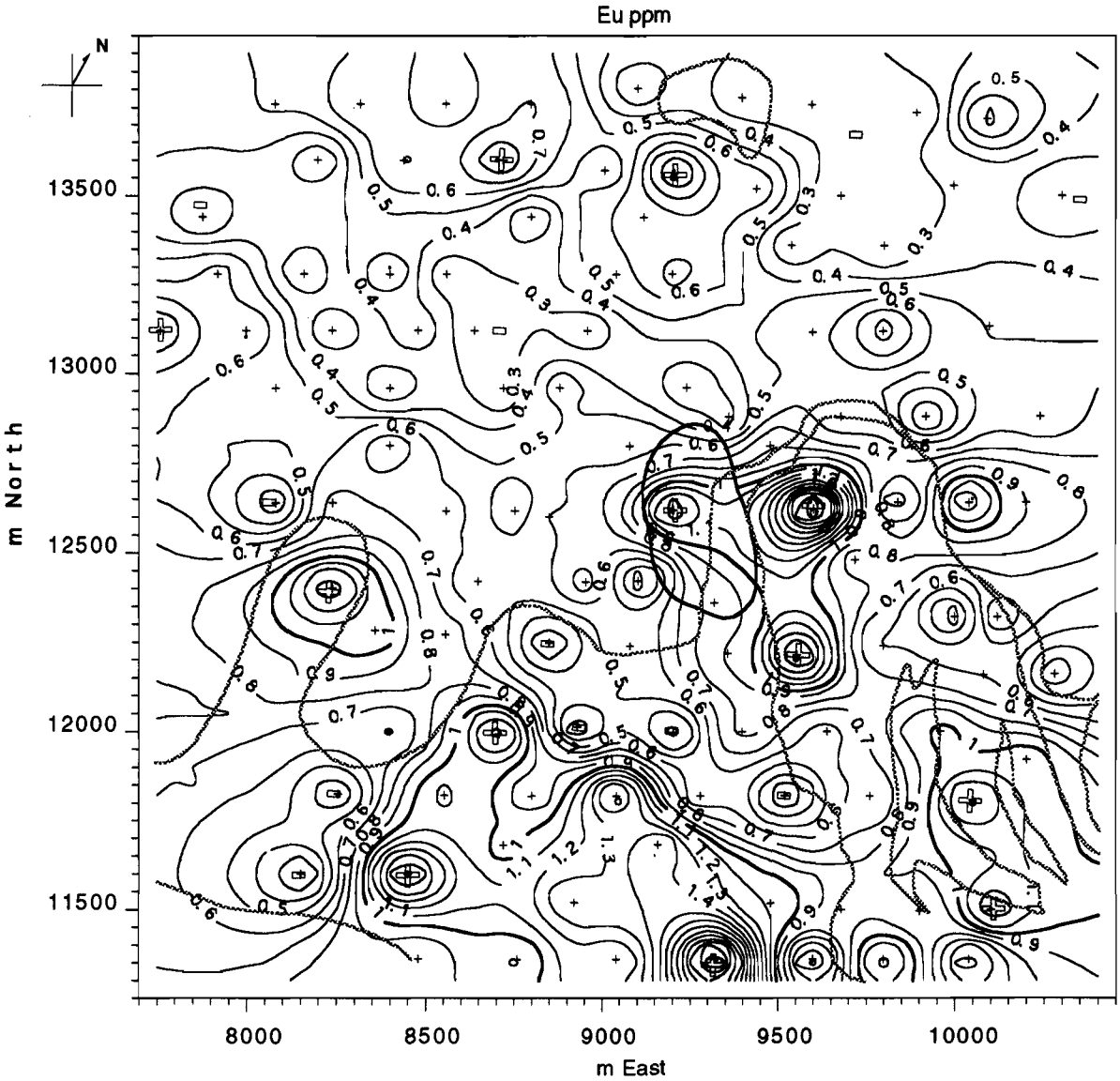
1.5
nscores


Eu ppm
N
13500
13000
12500
12000
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m North
8000
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9000
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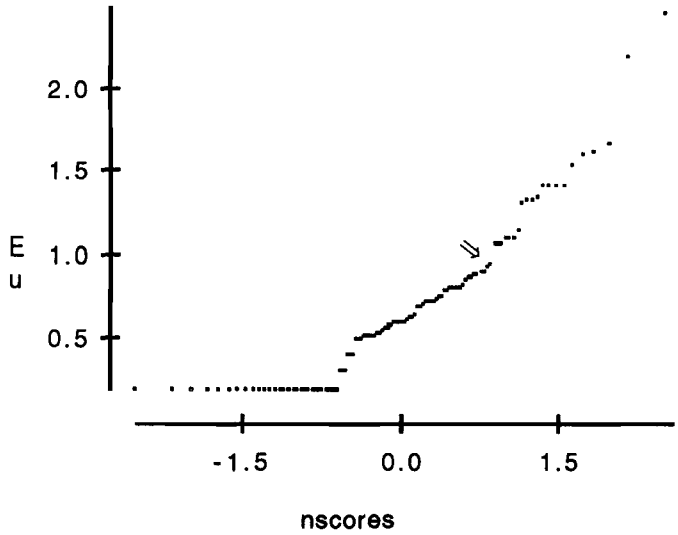
m East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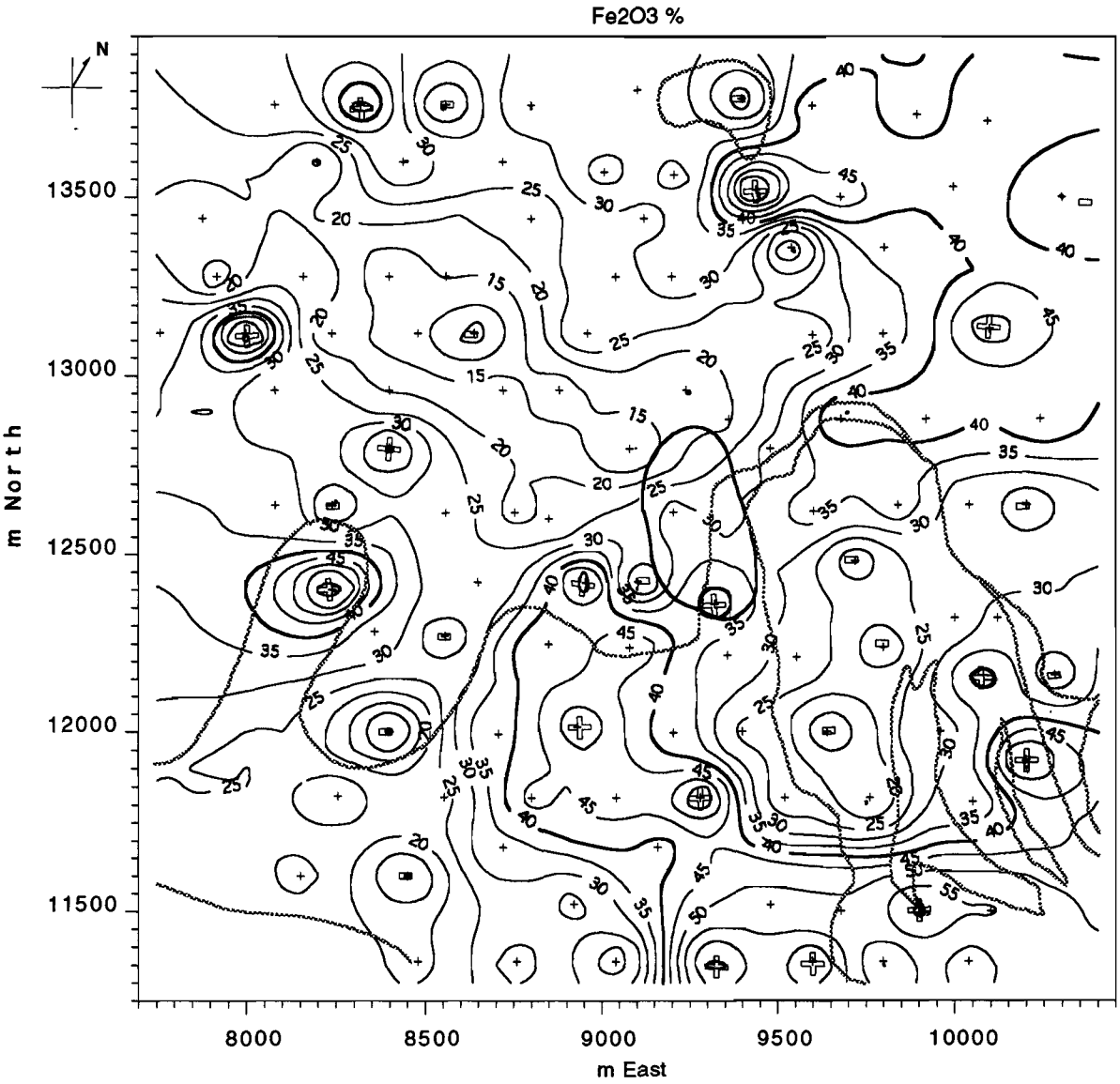
1.5
1.0
0.5
Eu
-1.5
0.0
1.5
nscores


Fe2O3 %
N
13500
13000
12500
12000
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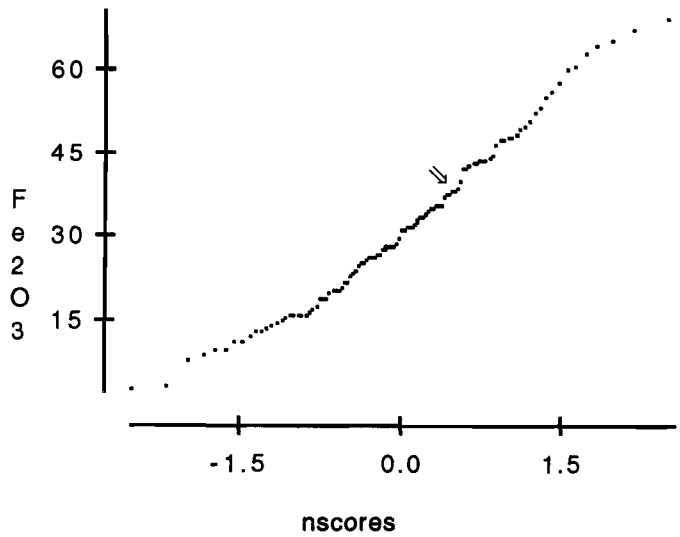
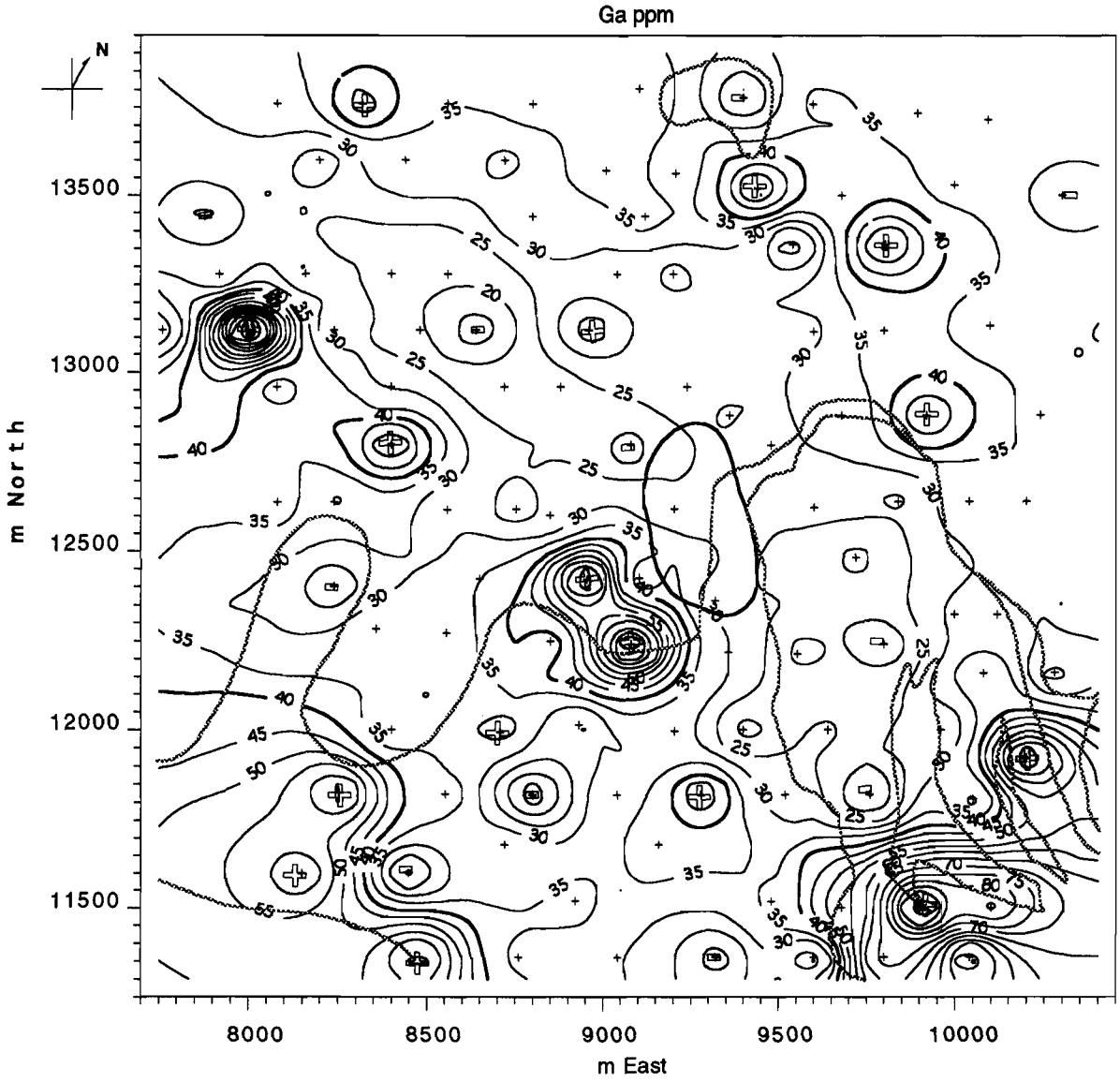
m North
8000
8500
9000
9500
10000
m East


60
45
30
15
Fe2O3
-1.5
0.0
1.5
nscores


Ga ppm
N
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12000
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m North
8000
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9000
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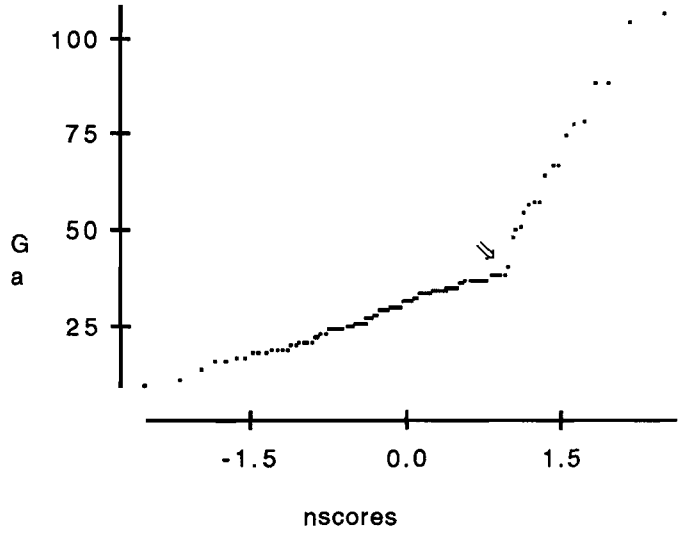
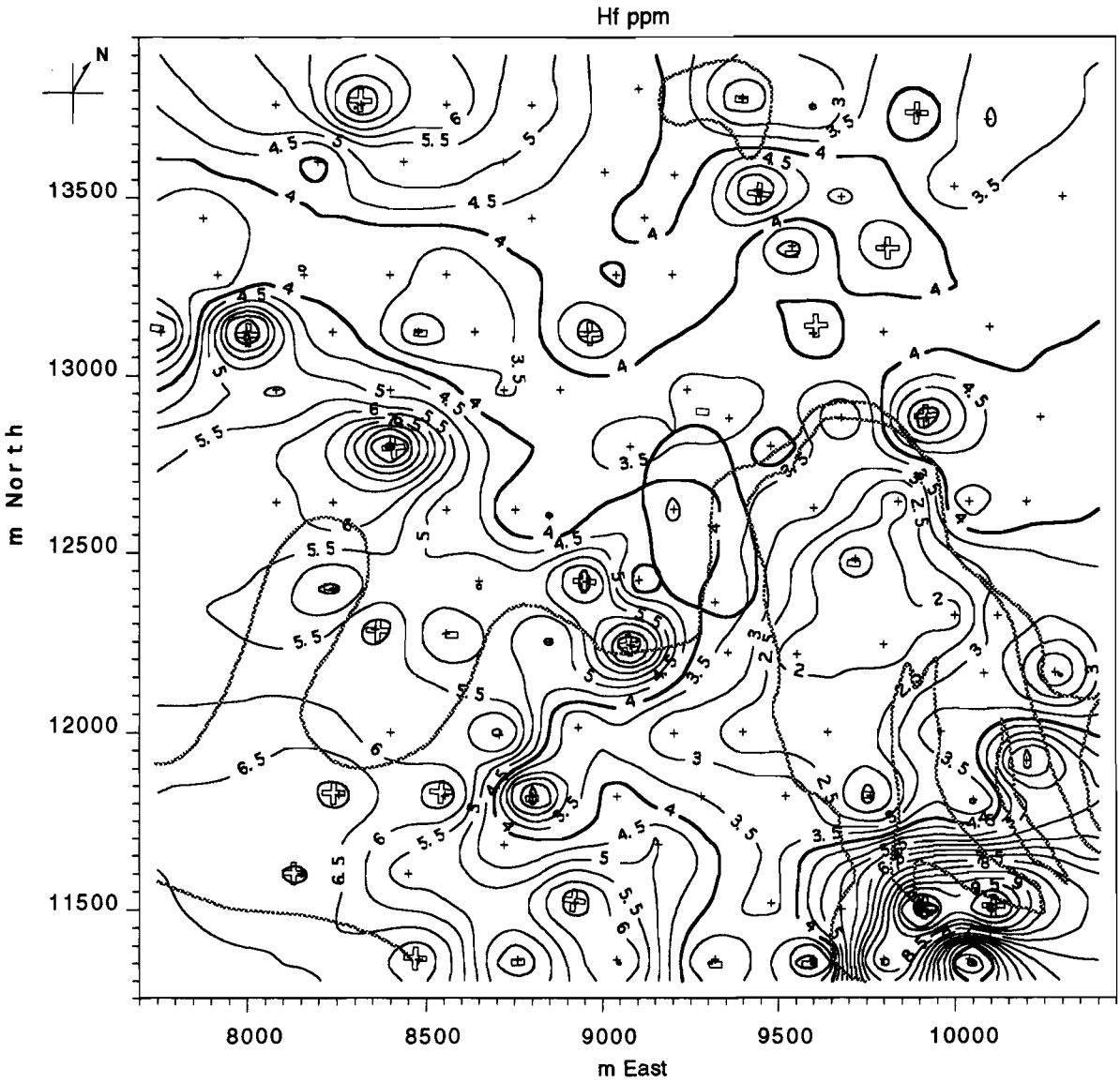
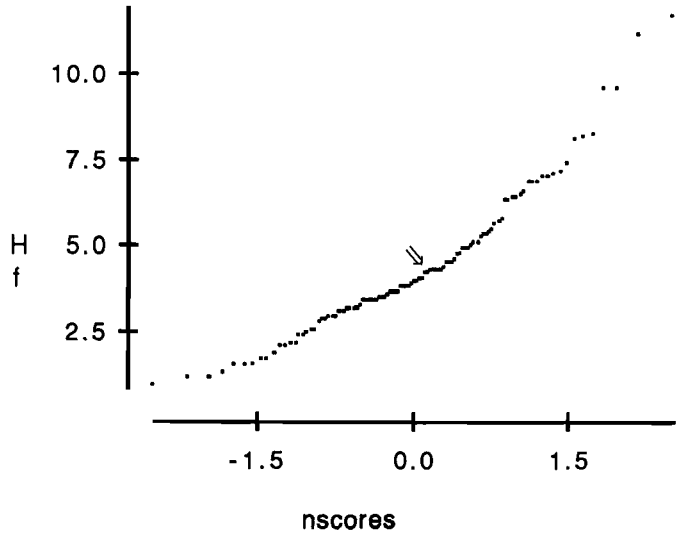
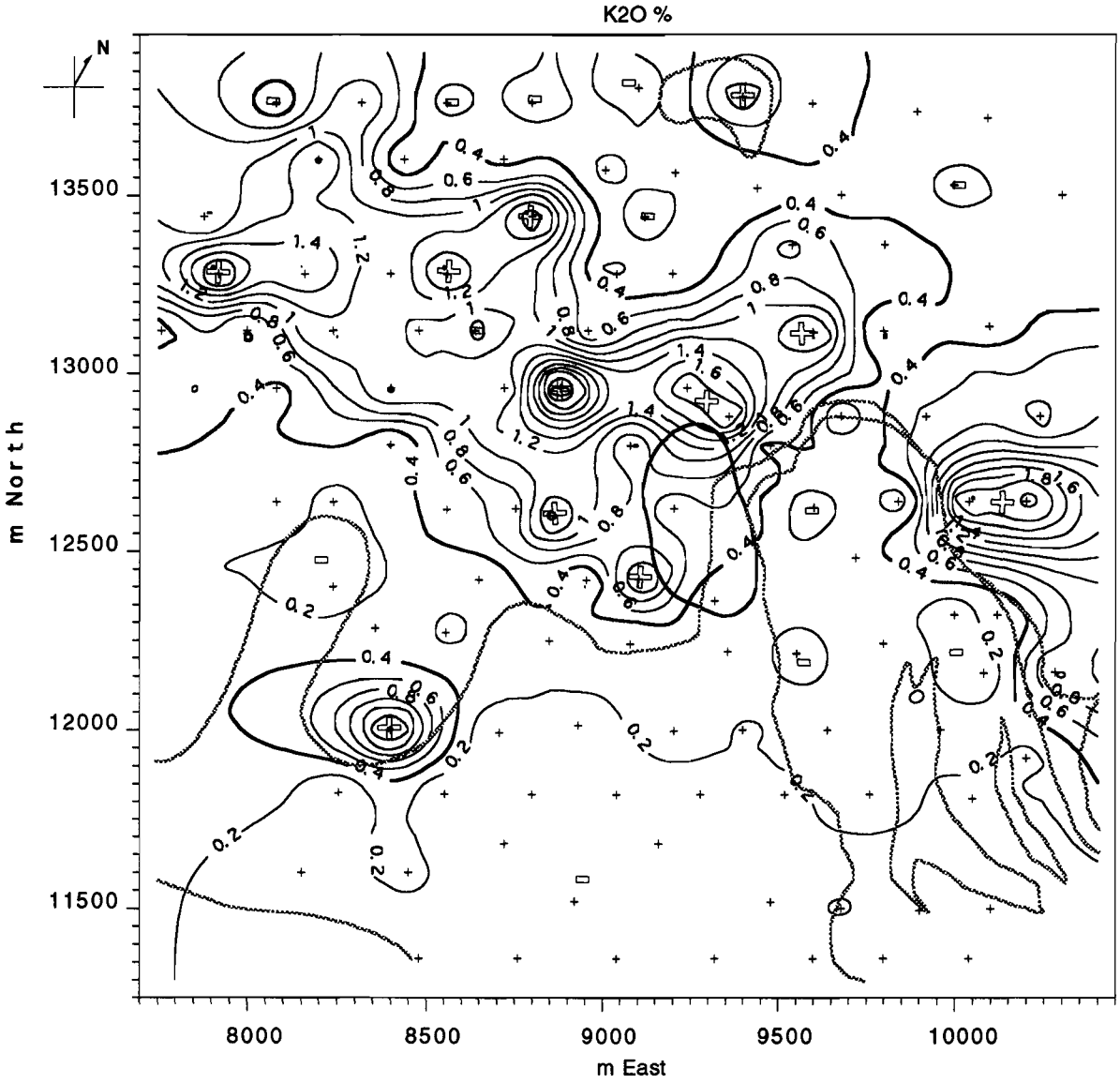
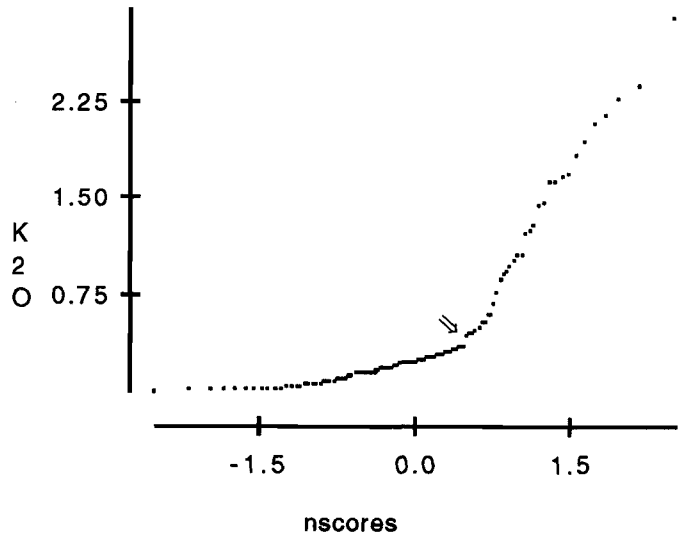
10000
m East


100
75
50
25
G
a
-1.5
0.0
1.5
nscores


Hf ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


10.0
7.5
5.0
2.5
H
f
-1.5
0.0
1.5
nscores


K2O %
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East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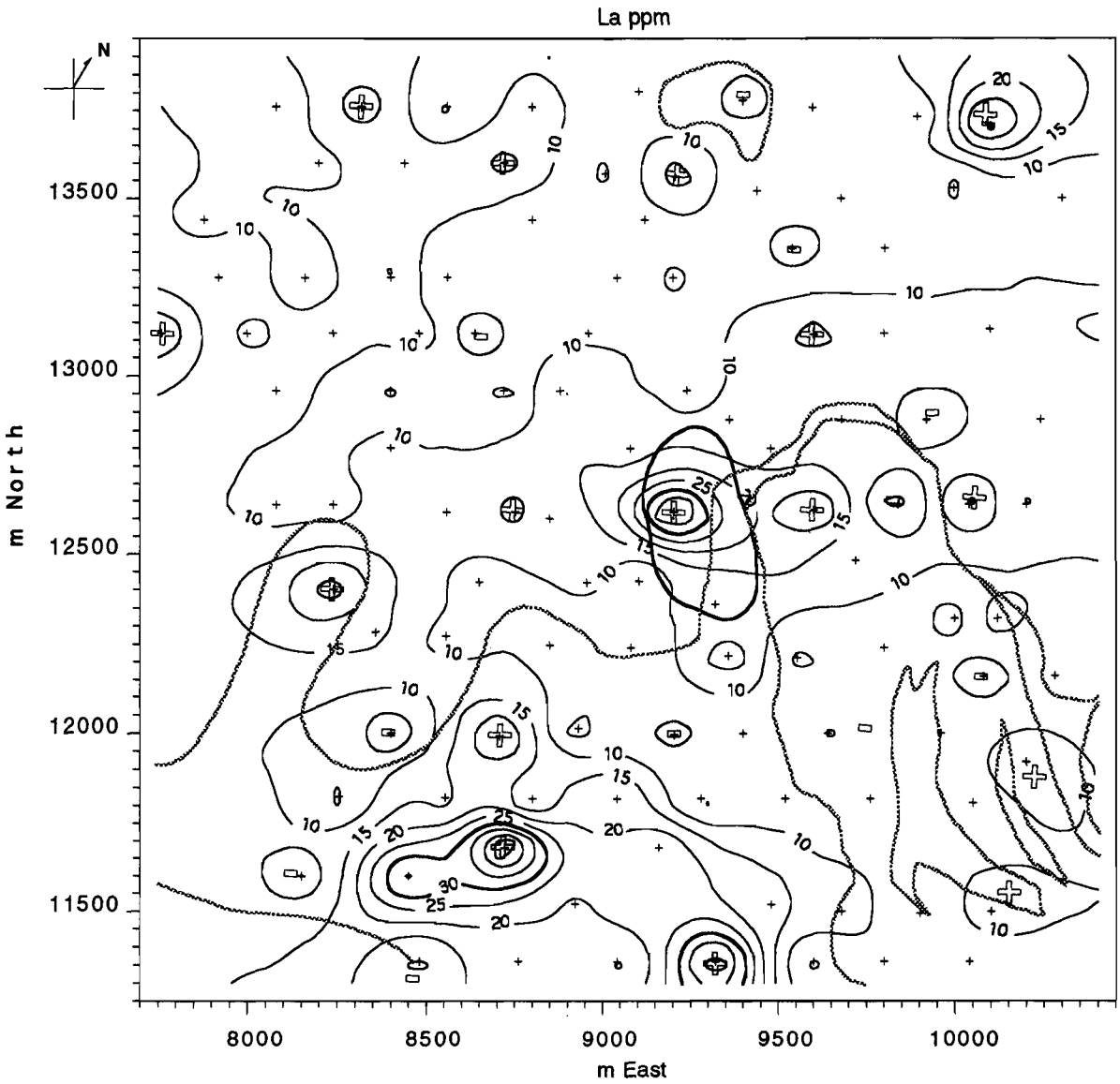
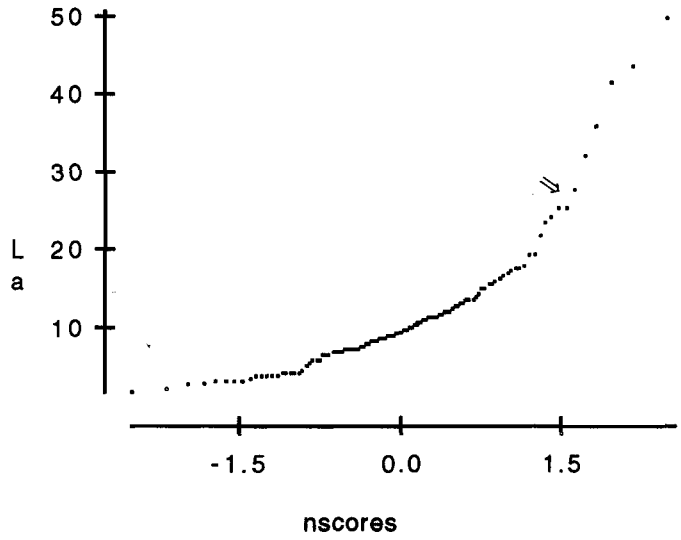
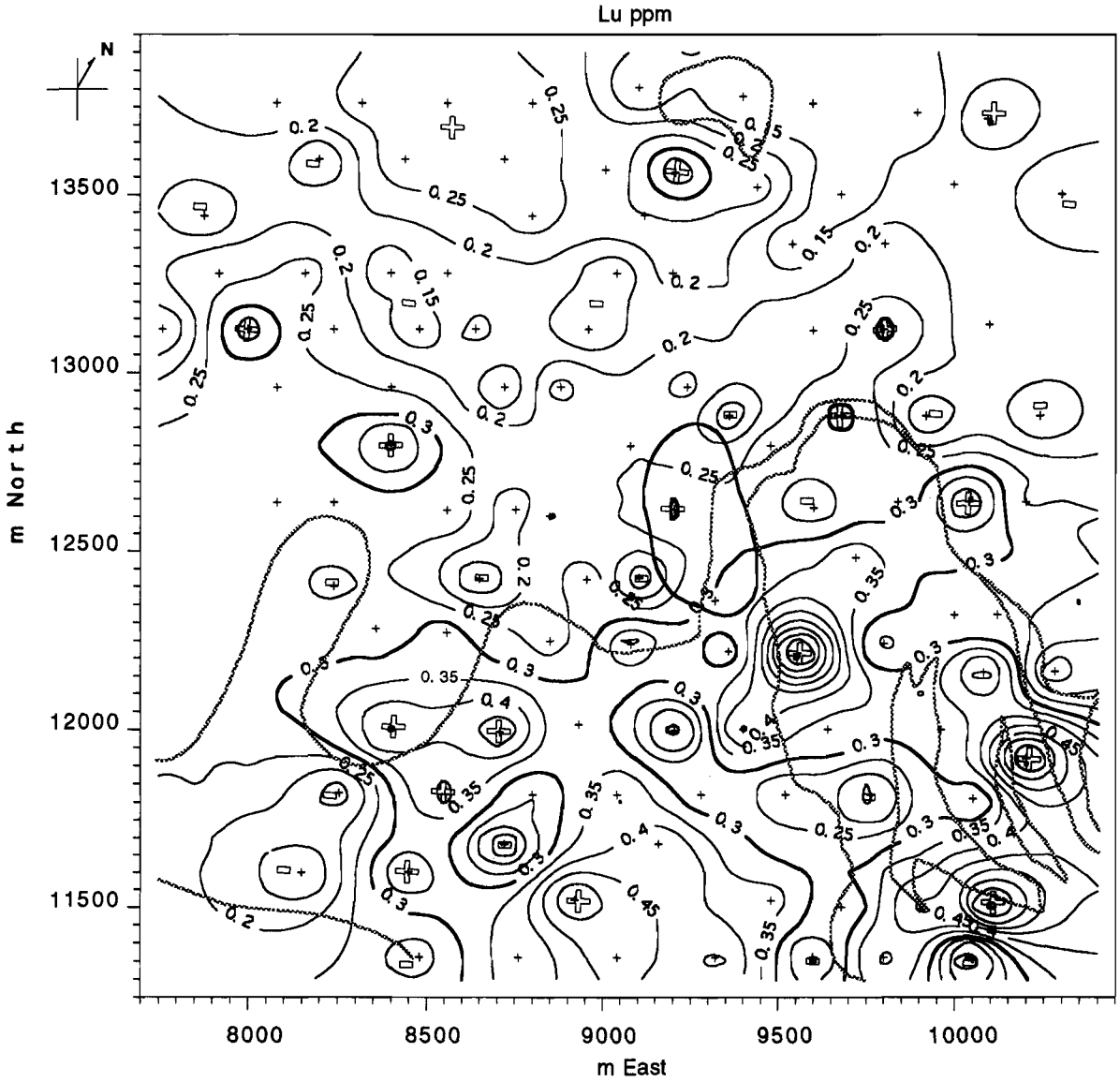
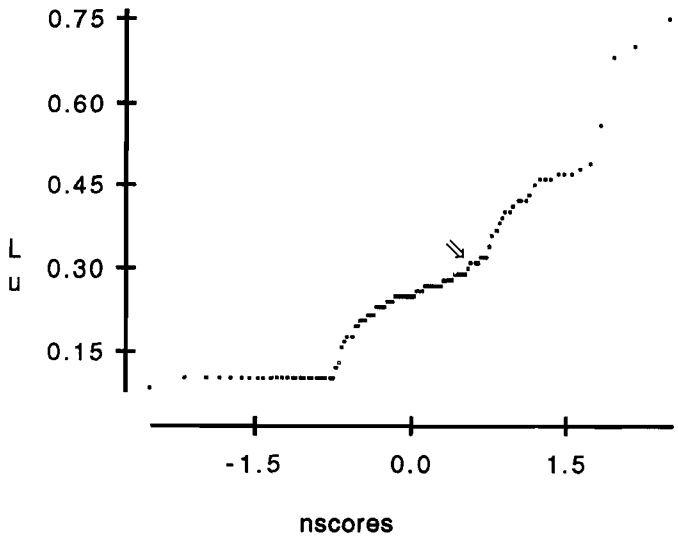
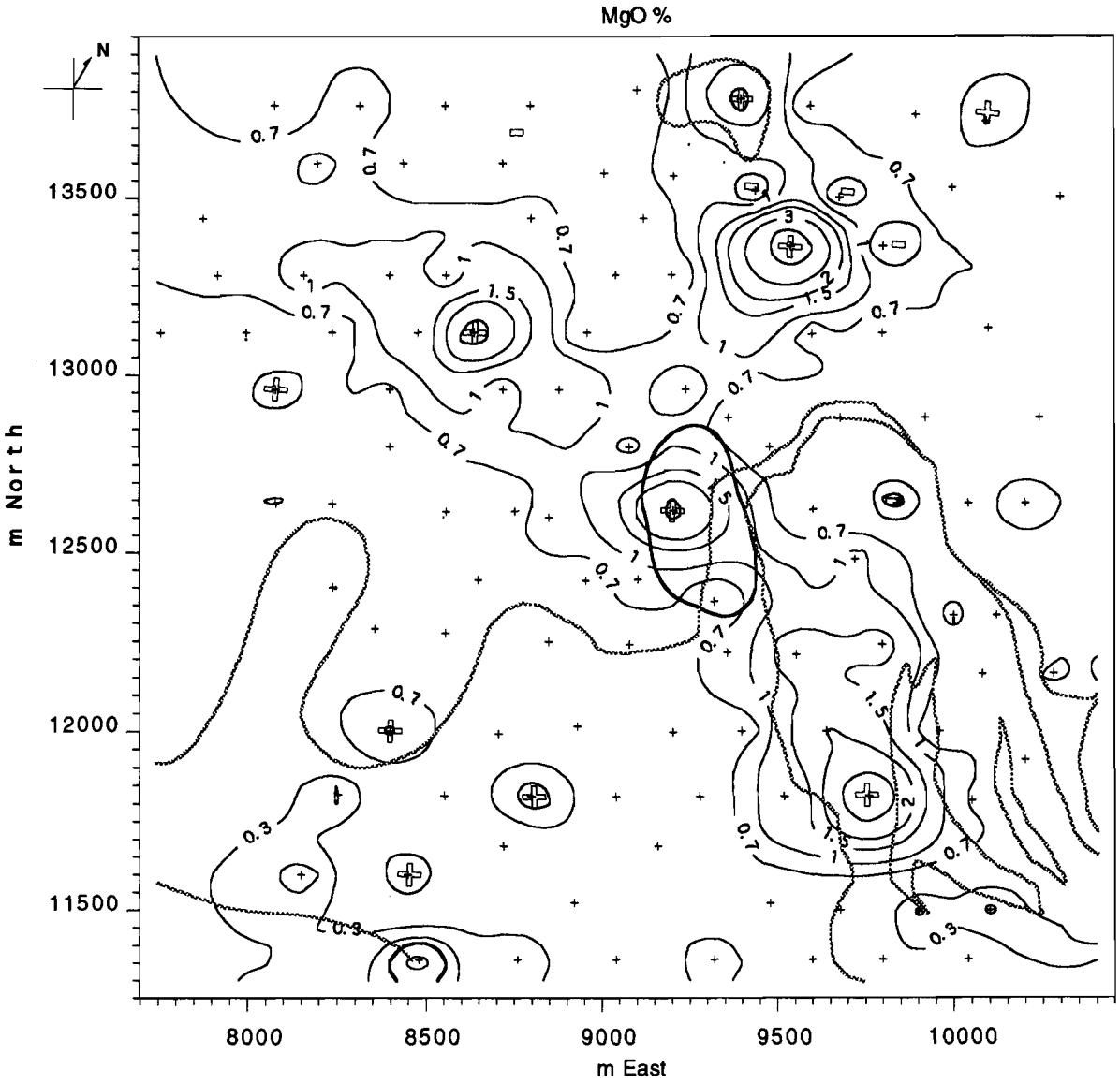
1.50
0.75
K2O
-1.5
0.0
1.5
nscores

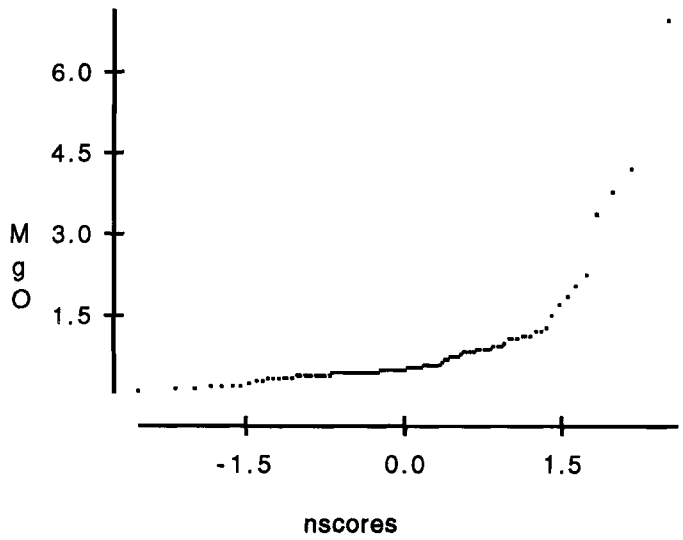

La ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East

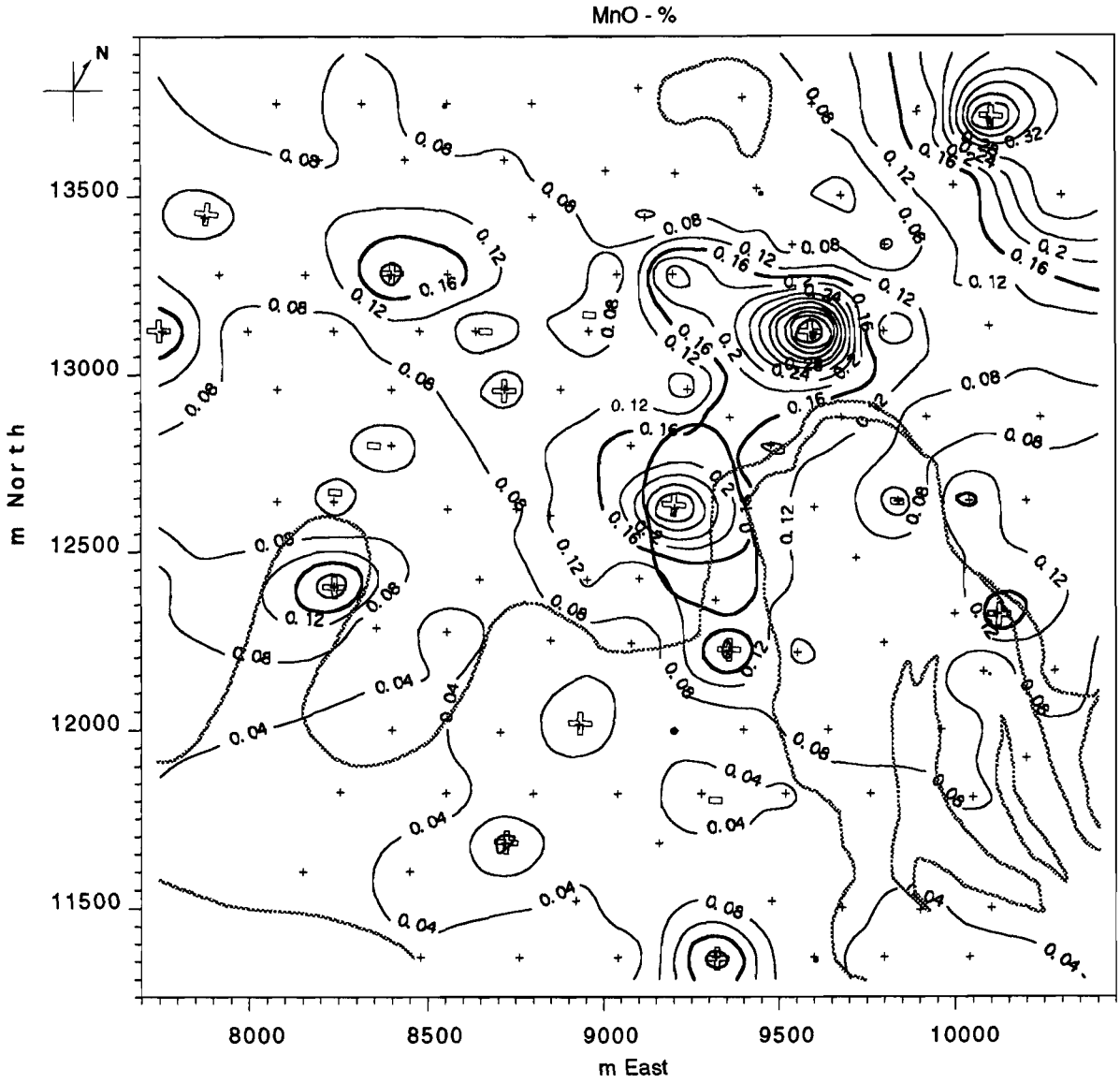

50
40
30
20
10
L
a
-1.5
0.0
1.5
nscores

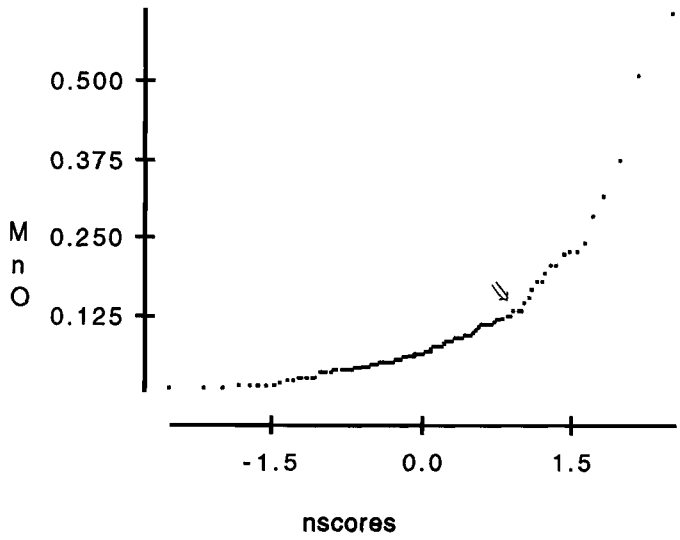

Lu ppm
N
m North
13500
13000
12500
12000
11500
8000
8500
9000
9500
10000
m East

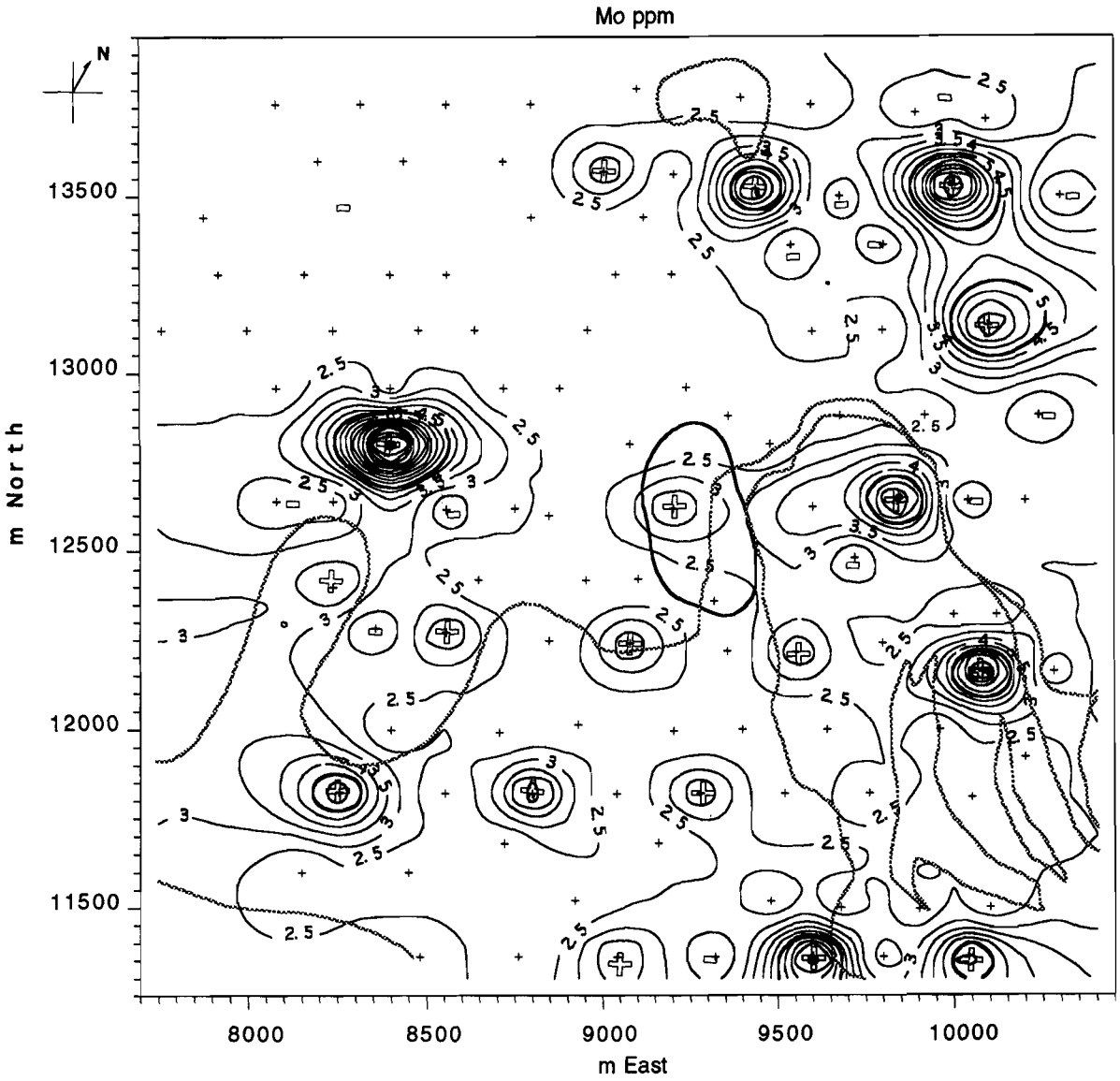

0.75
0.60
0.45
0.30
0.15
Lu
-1.5
0.0
1.5
nscores


MgO %
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


6.0
4.5
3.0
1.5
MgO
-1.5
0.0
1.5
nscores


MnO - %
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


0.500
0.375
0.250
0.125
MnO
-1.5
0.0
1.5
nscores


Mo ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
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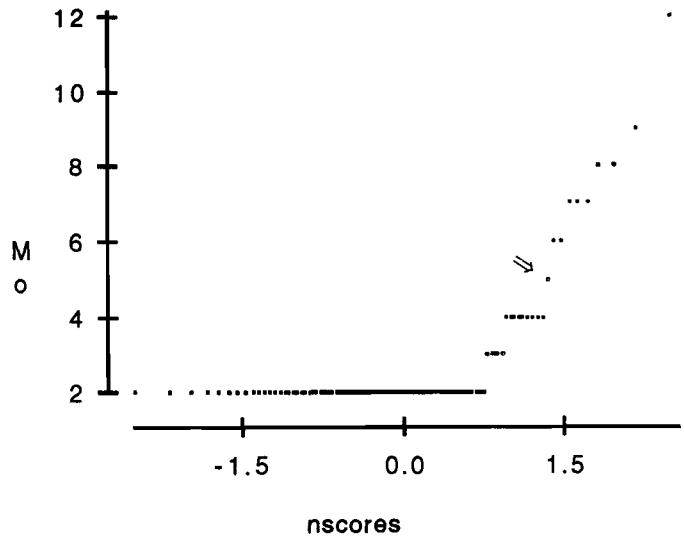
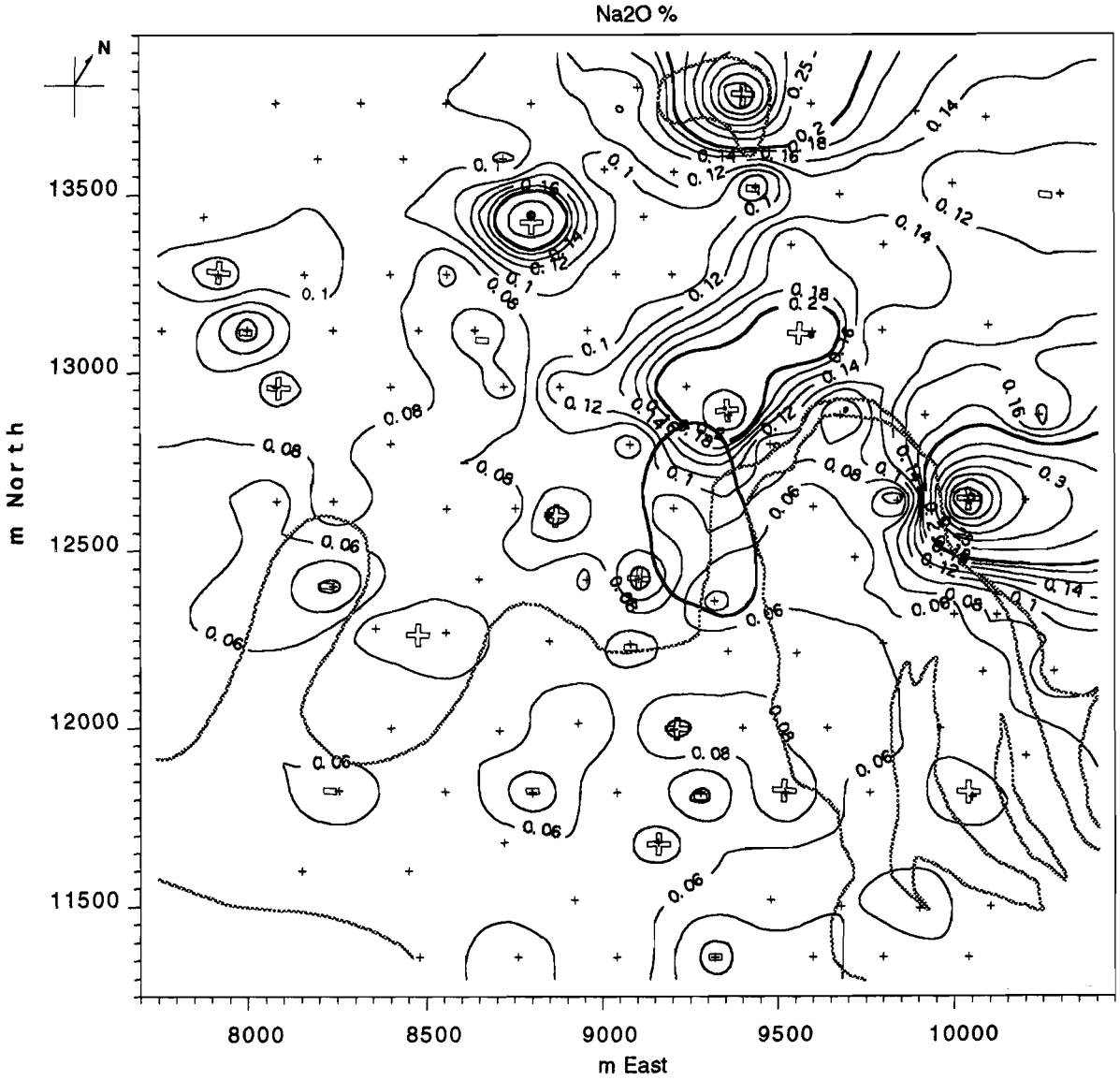
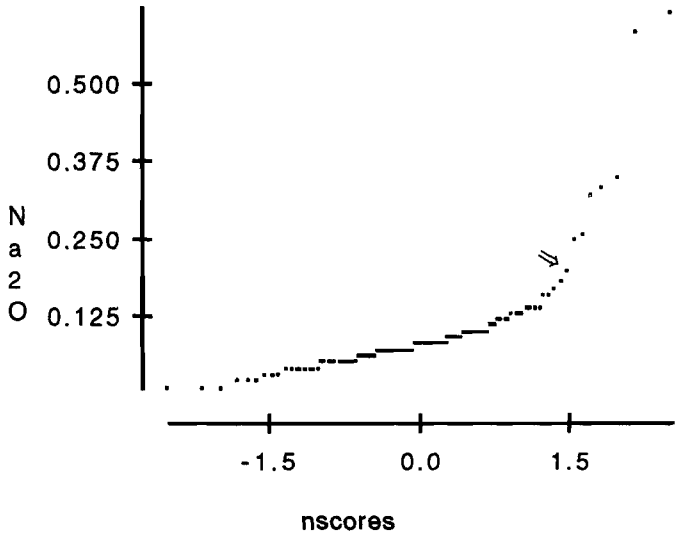
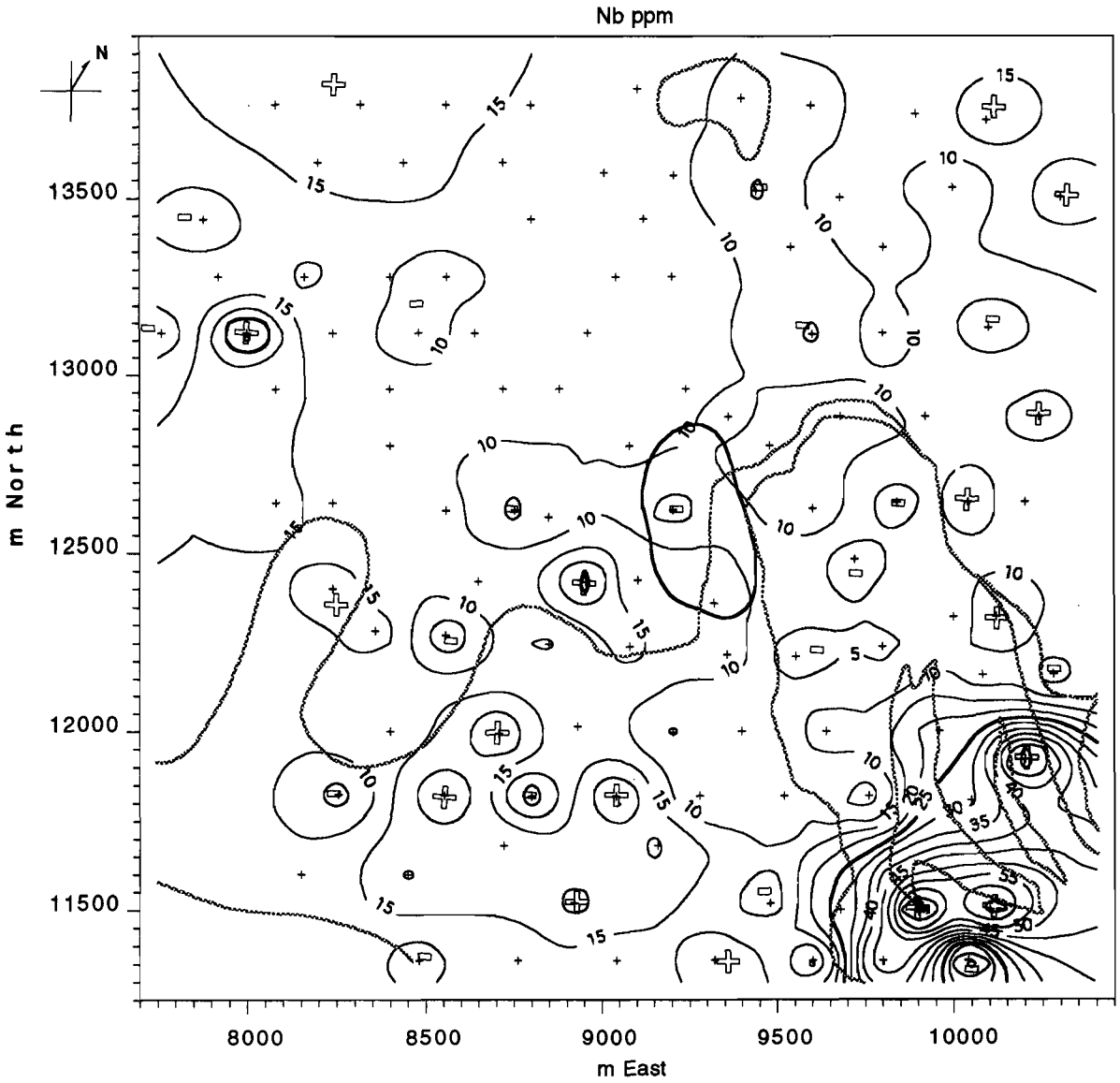
10000
m East


12
10
8
6
4
2
Mo
-1.5
0.0
1.5
nscores


Na2O %
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


0.500
0.375
0.250
0.125
Na2O
-1.5
0.0
1.5
nscores


Nb ppm
N
13500
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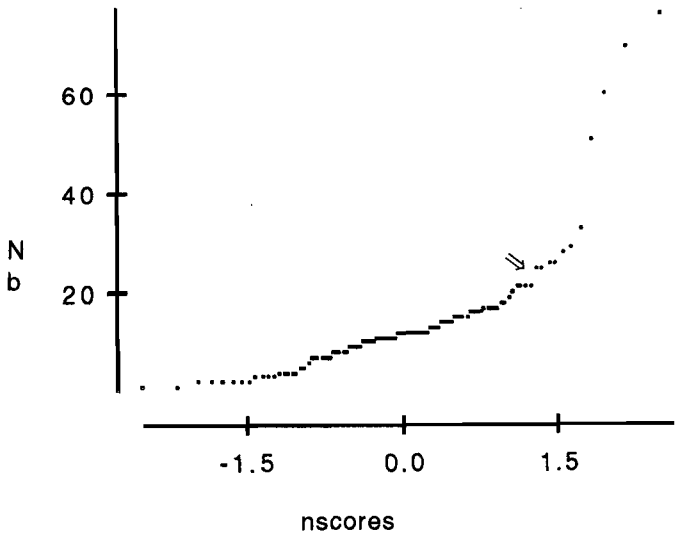
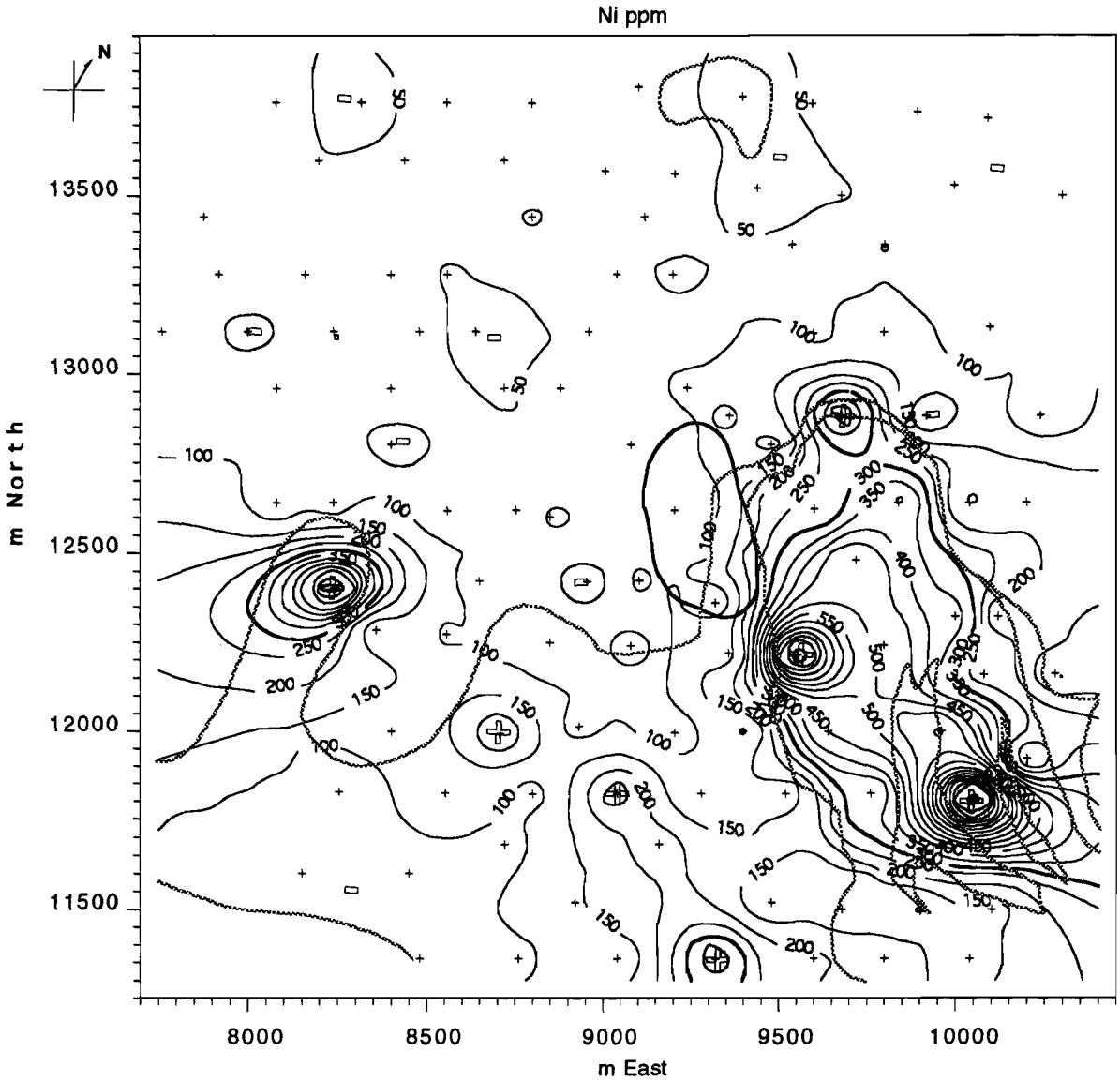
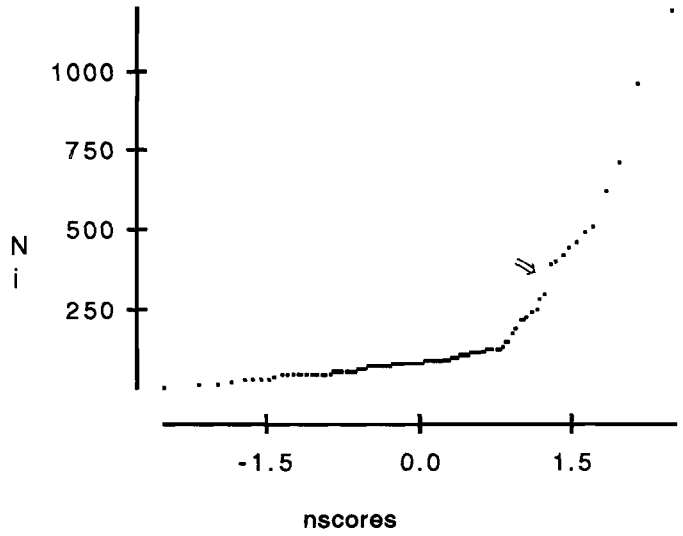
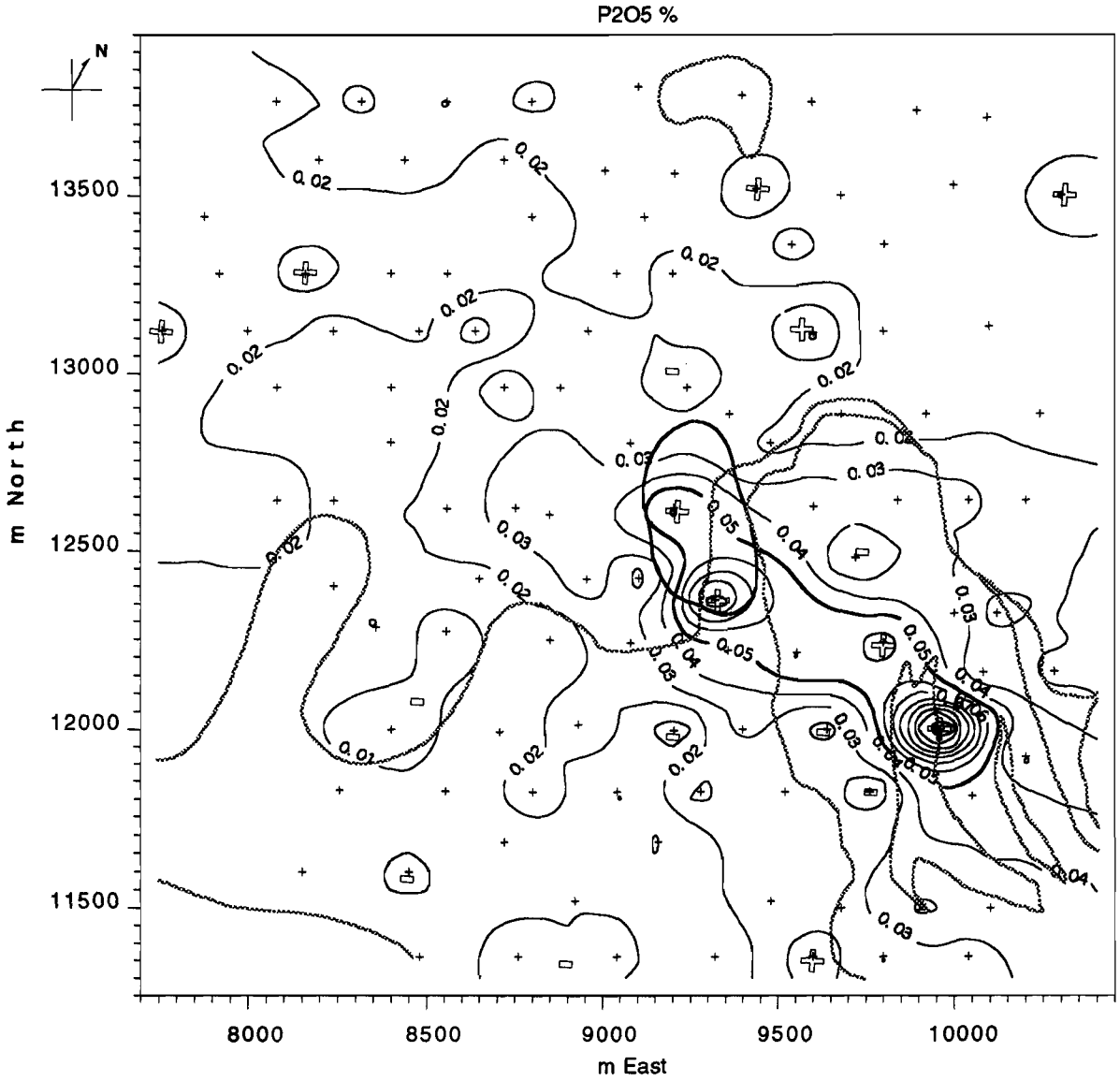
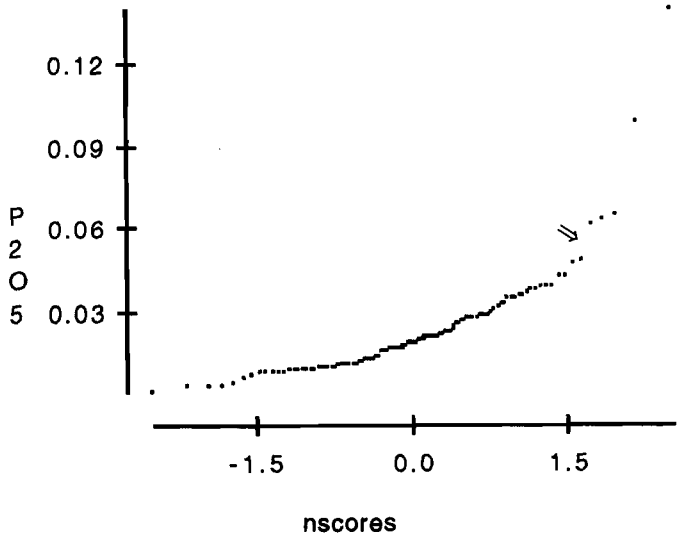
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


60
40
20
N
b
-1.5
0.0
1.5
nscores


Ni ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


1000
750
500
250
N
i
-1.5
0.0
1.5
nscores


P2O5 %
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East
0.02
0.03
0.04
0.05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0.09
0.06
0.03
P2O5
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0.0
1.5
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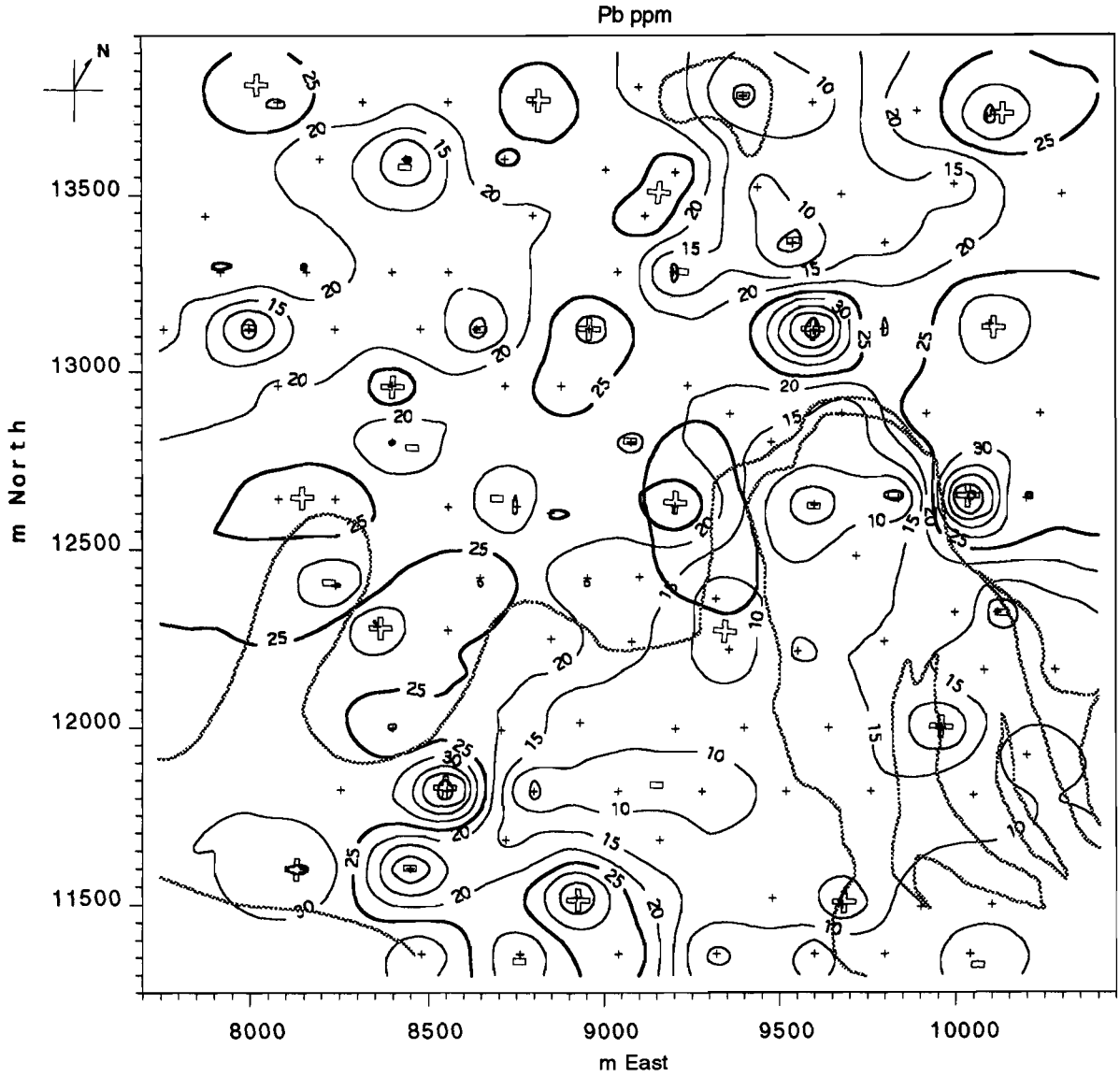
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11500
m North
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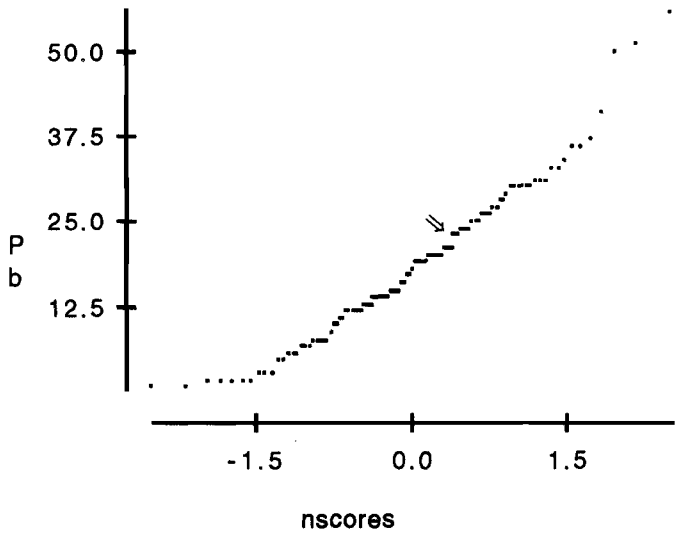
9000
9500
10000
m East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37.5
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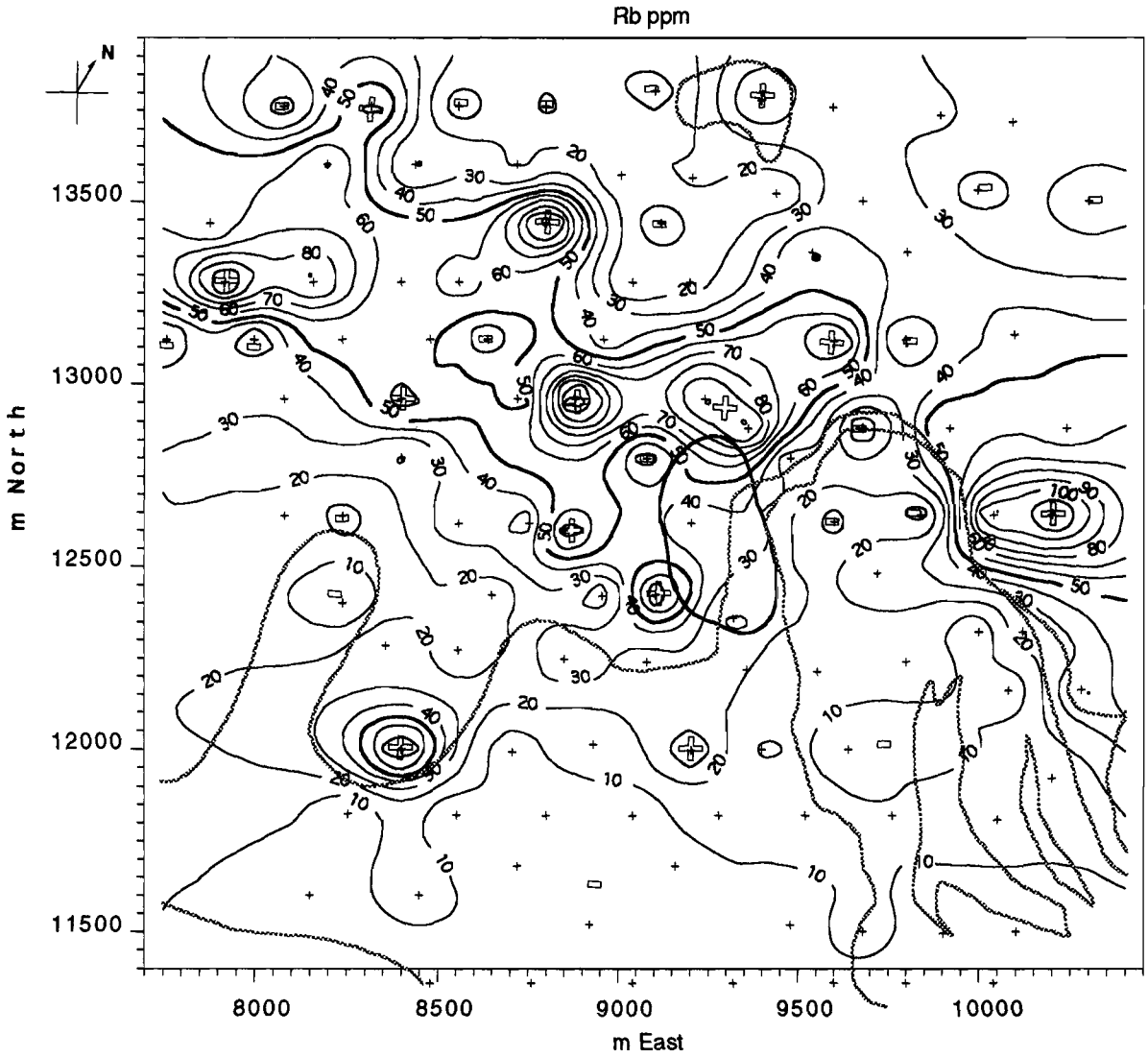
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12500
12000
11500
m North
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9000
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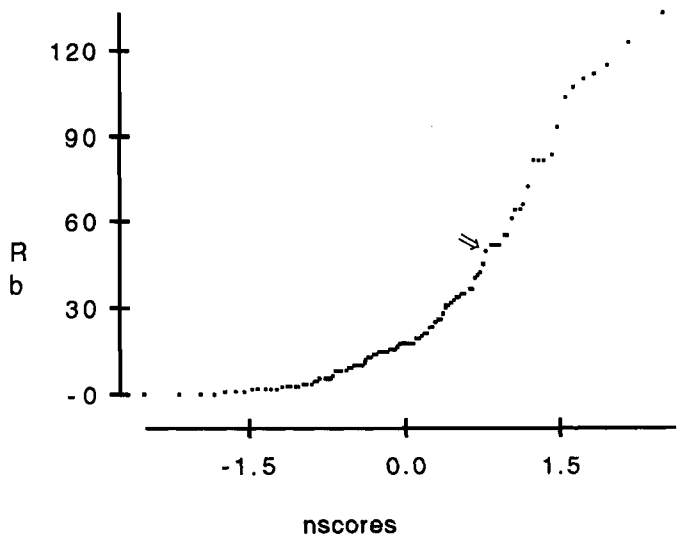
10000
m East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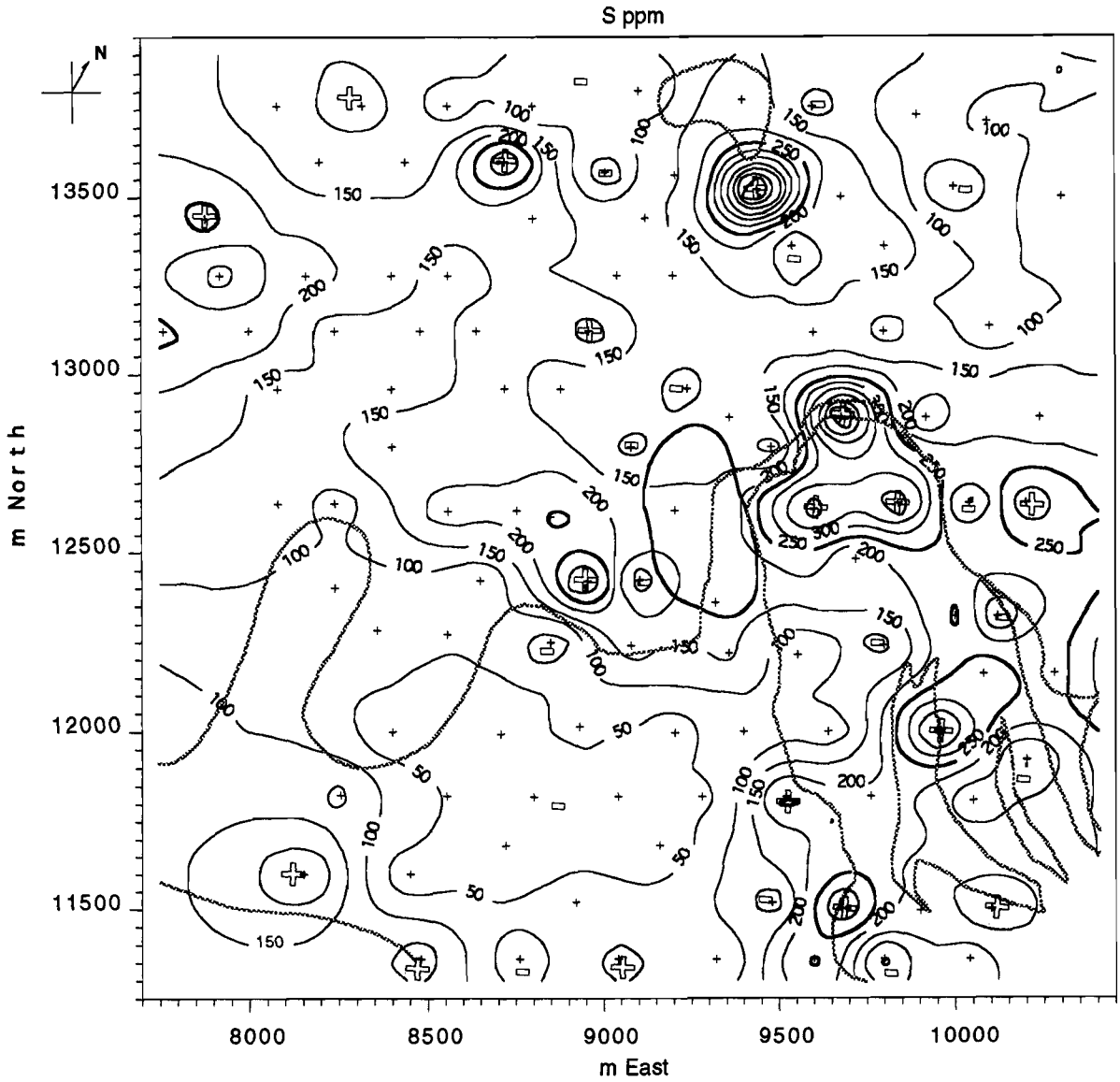
90
60
30
-0
R
b
-1.5
0.0
1.5
nscores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N
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13000
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12000
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m North
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9000
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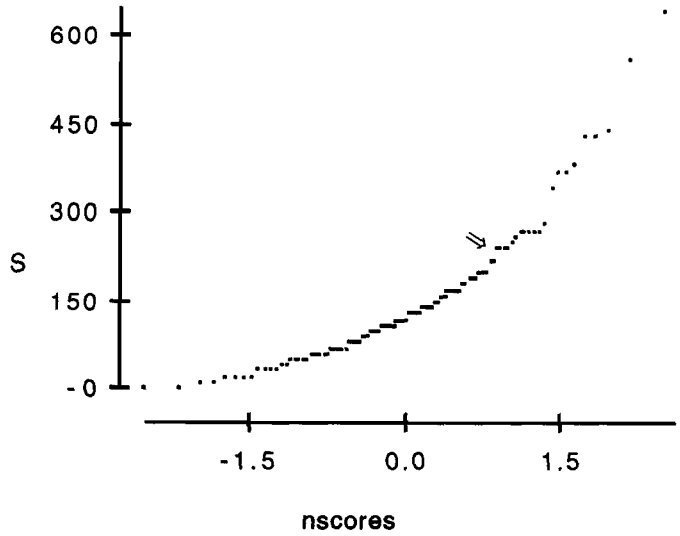
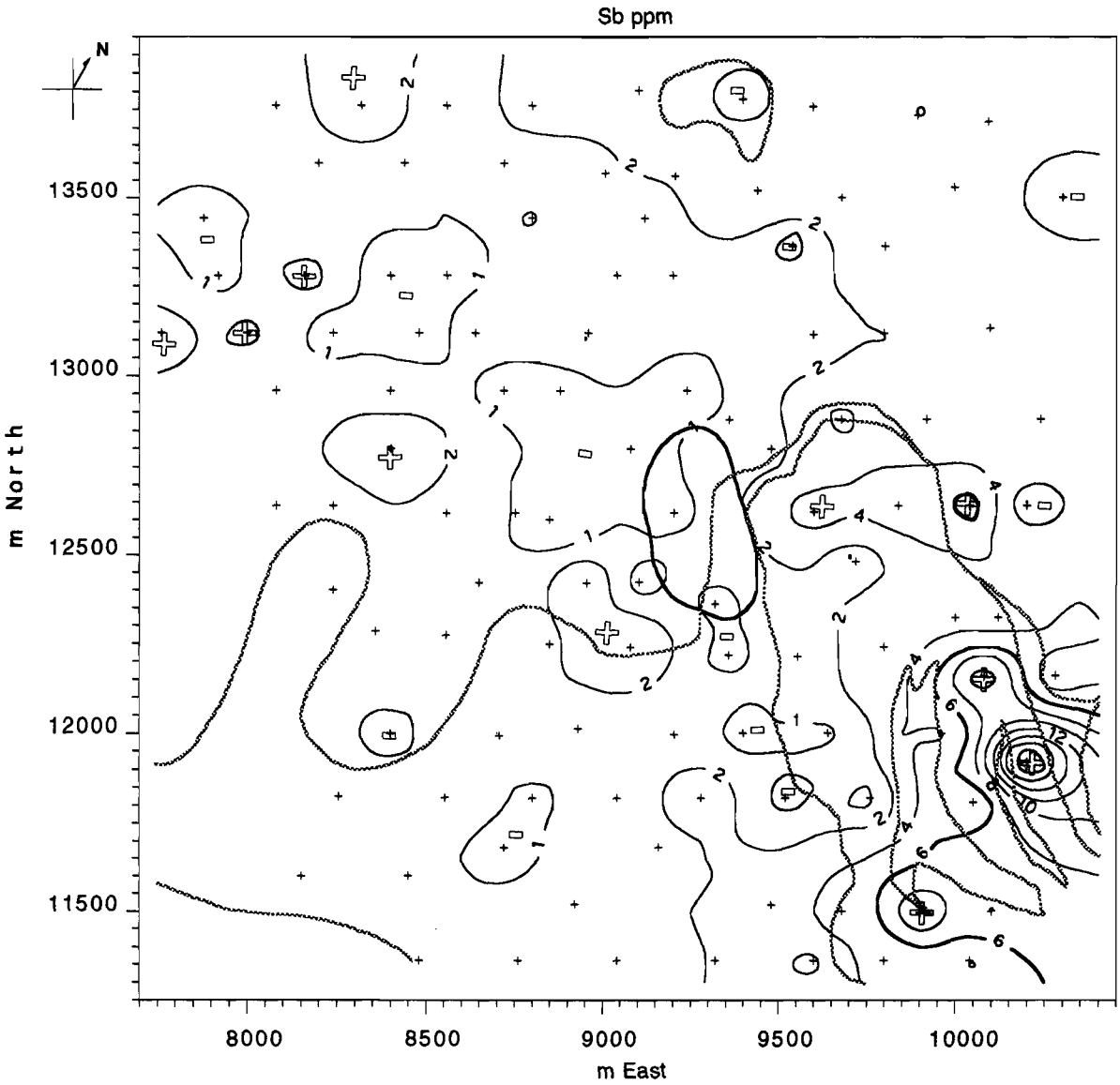
10000
m East


600
450
300
150
-0
S
-1.5
0.0
1.5
nscores


Sb ppm
N
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13000
12500
12000
11500
m North
8000
8500
9000
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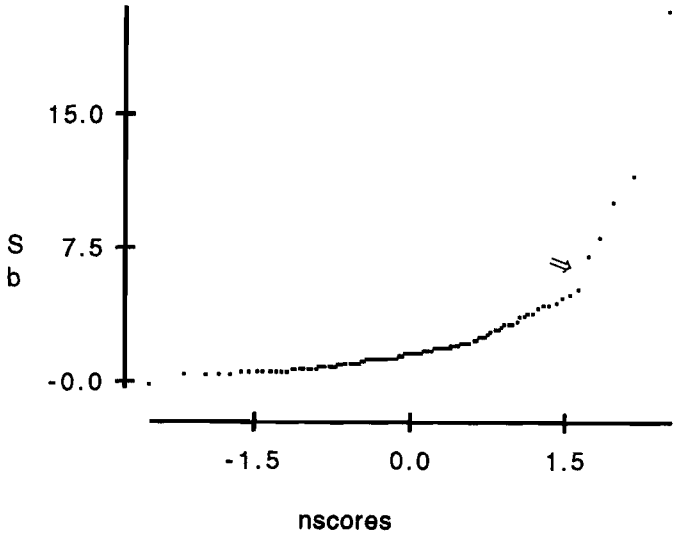
10000
m East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7.5
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S
b
-1.5
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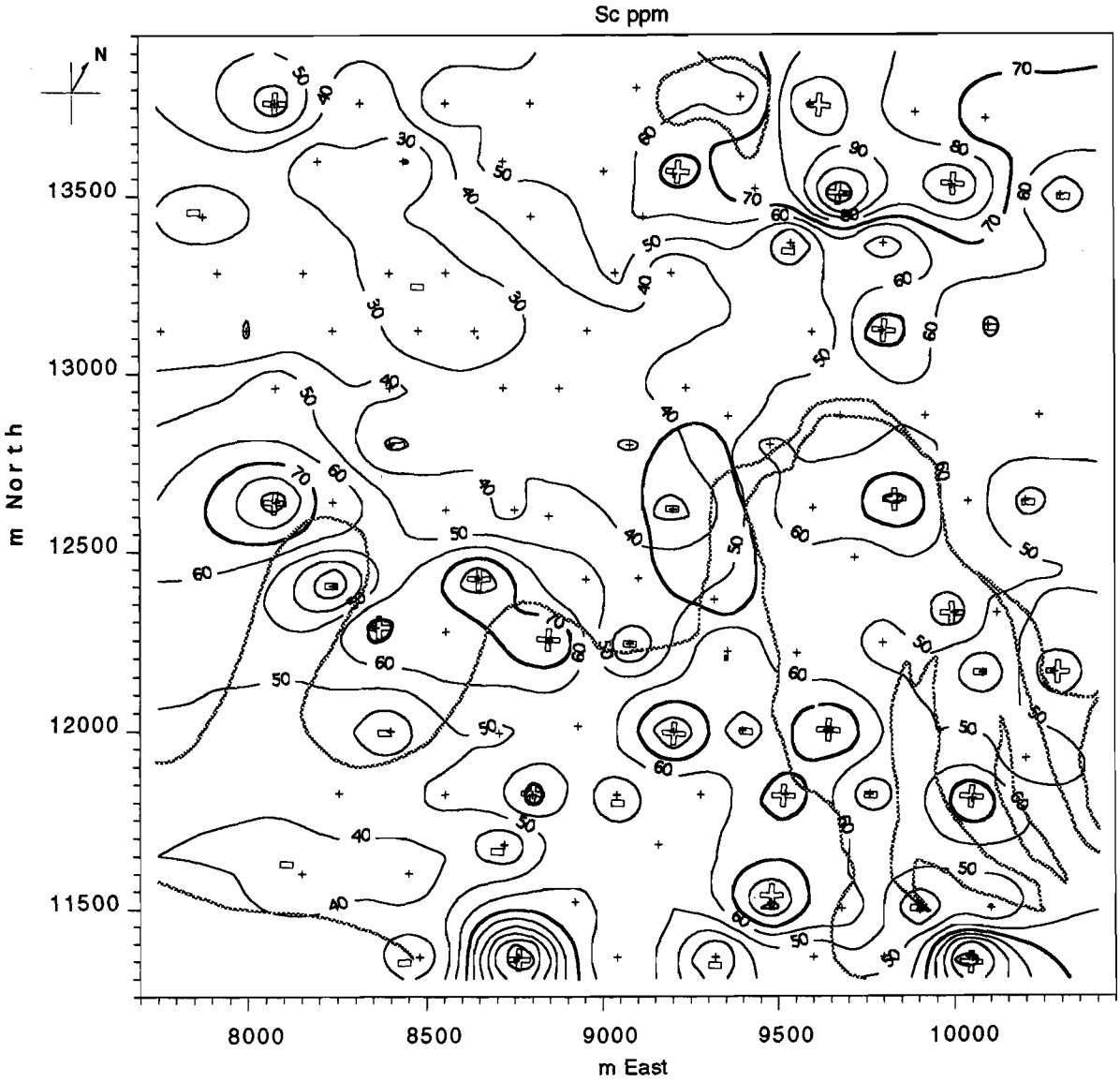
nscores


Sc ppm
N
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m North
8000
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9000
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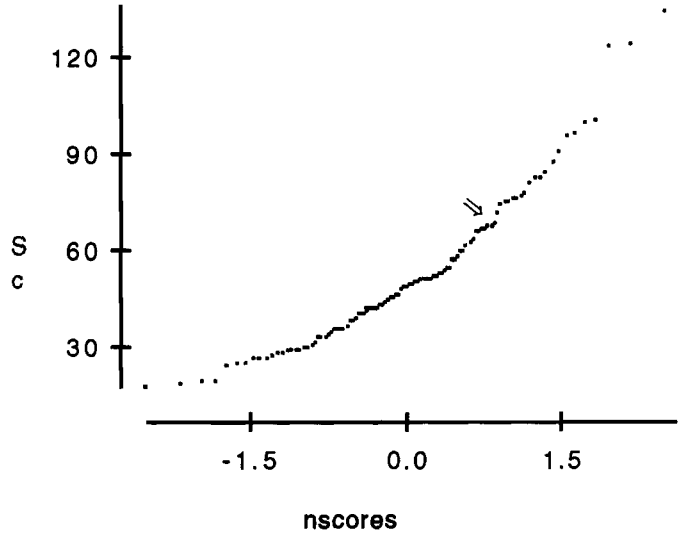
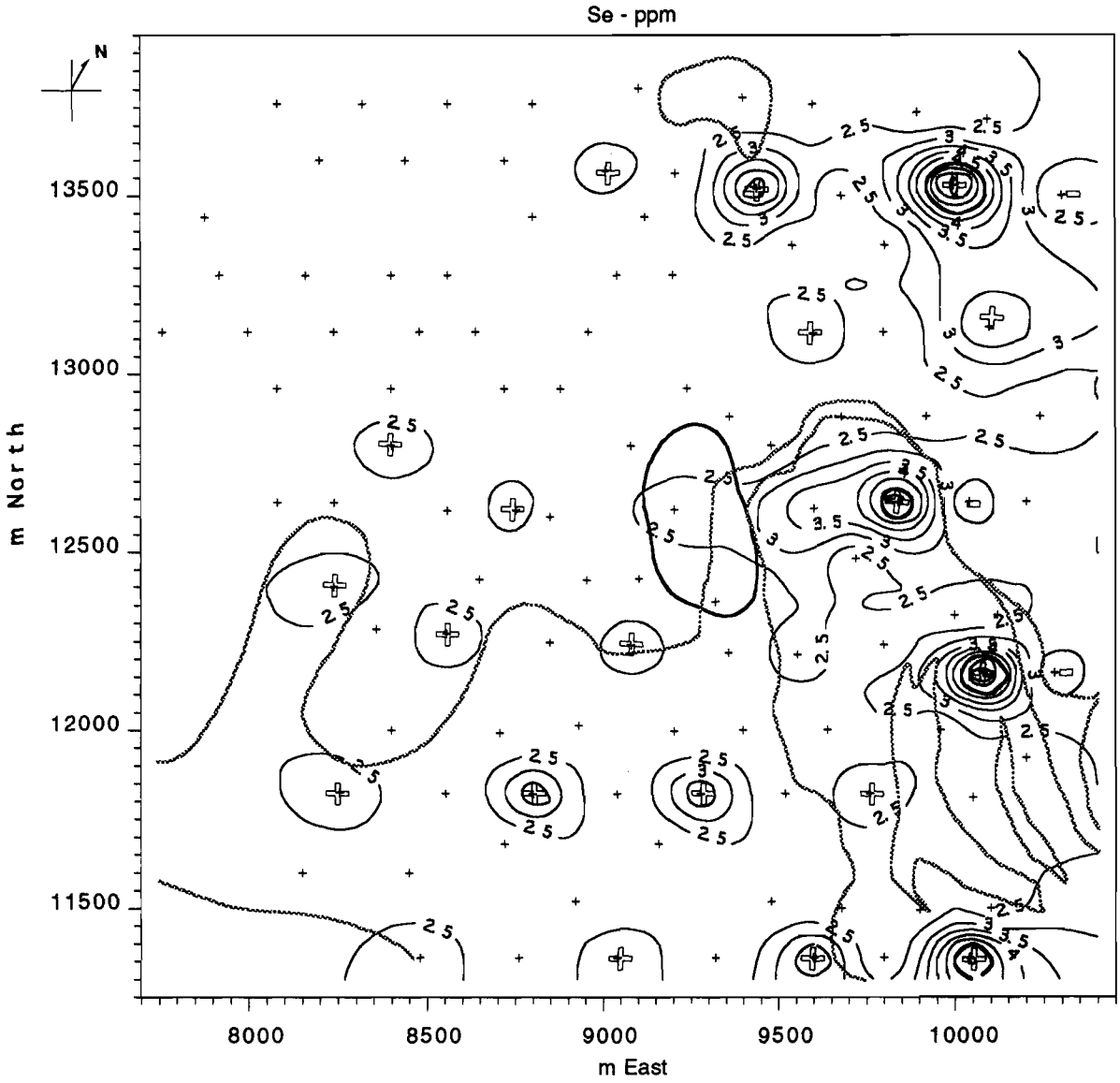
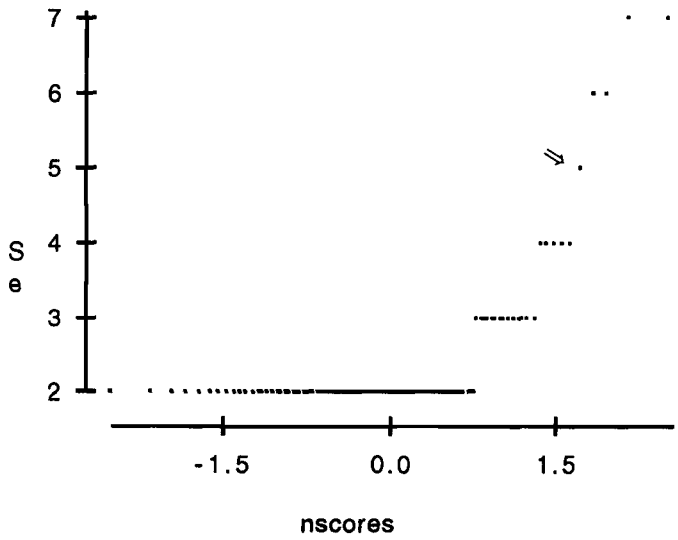
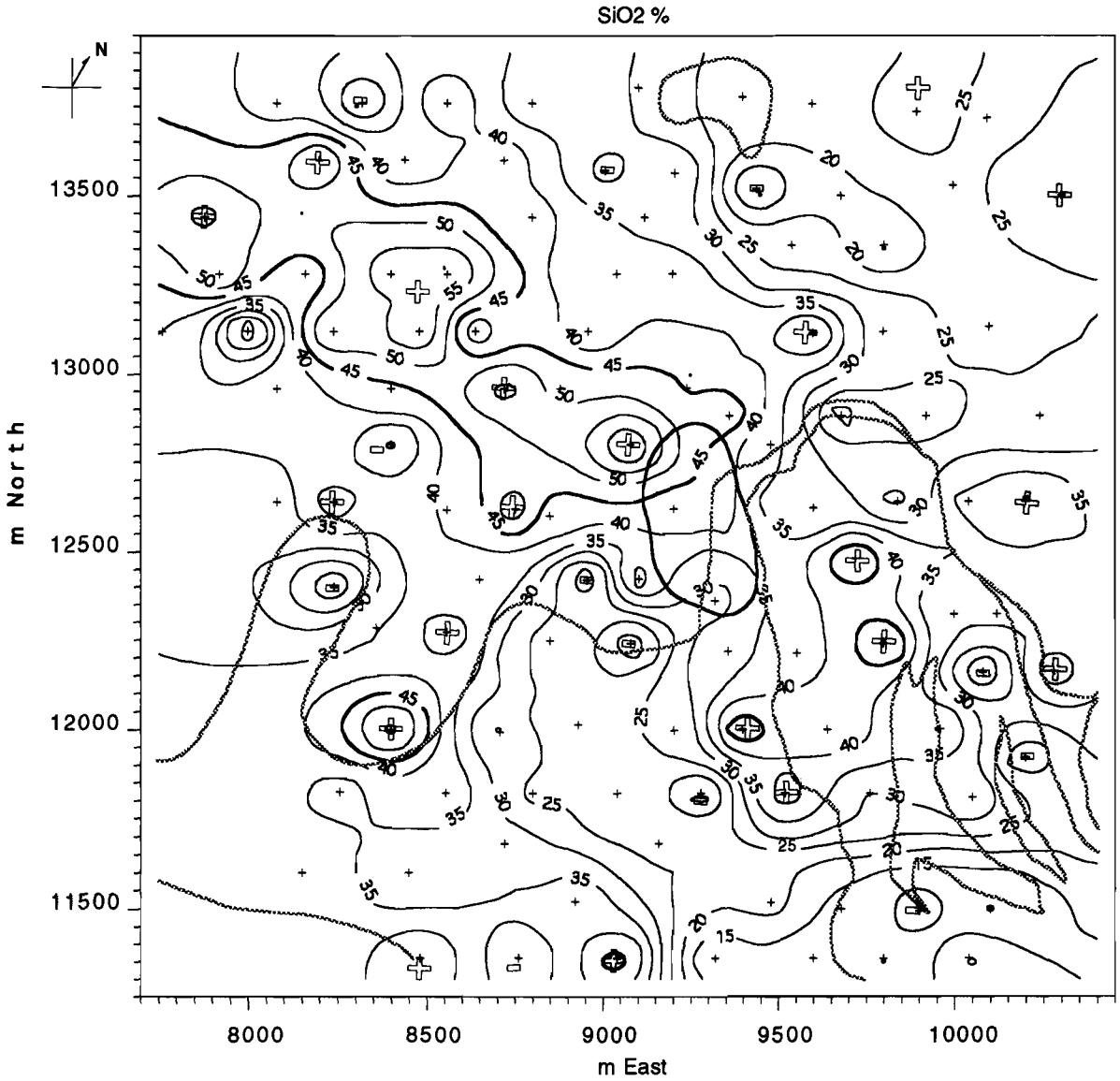
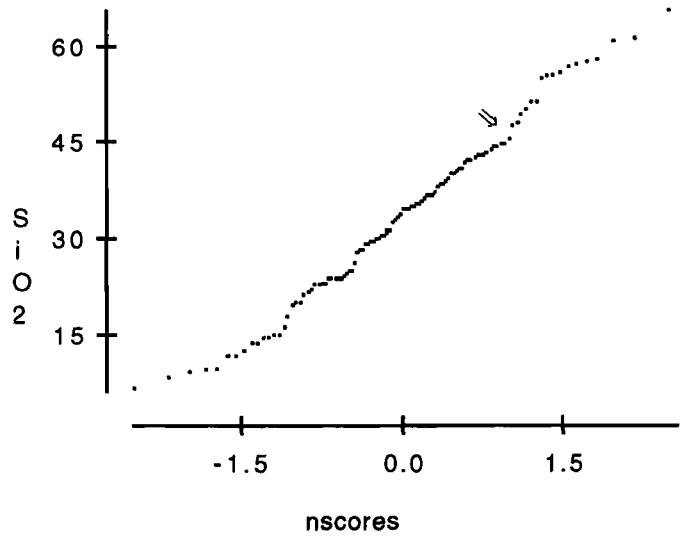
10000
m East


120
90
60
30
S
c
-1.5
0.0
1.5
nscores


Se - ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


7
6
5
4
3
2
S
e
-1.5
0.0
1.5
nscores


SiO2 %
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


60
45
30
15
SiO2
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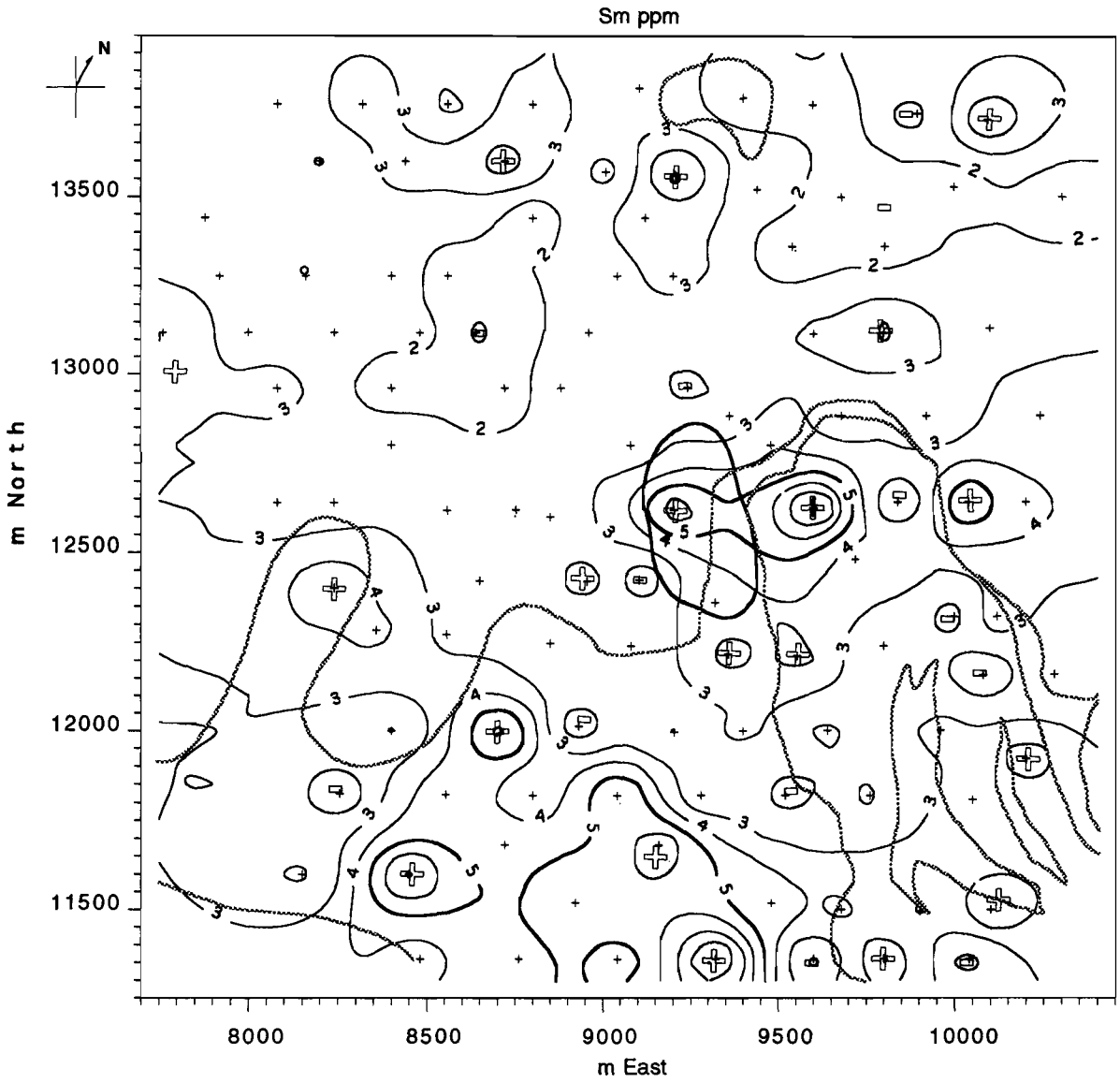
0.0
1.5
nscores


Sm ppm
N
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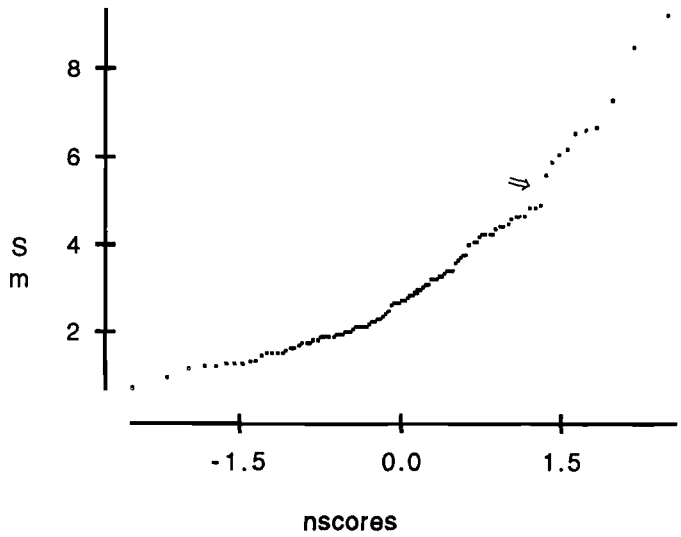
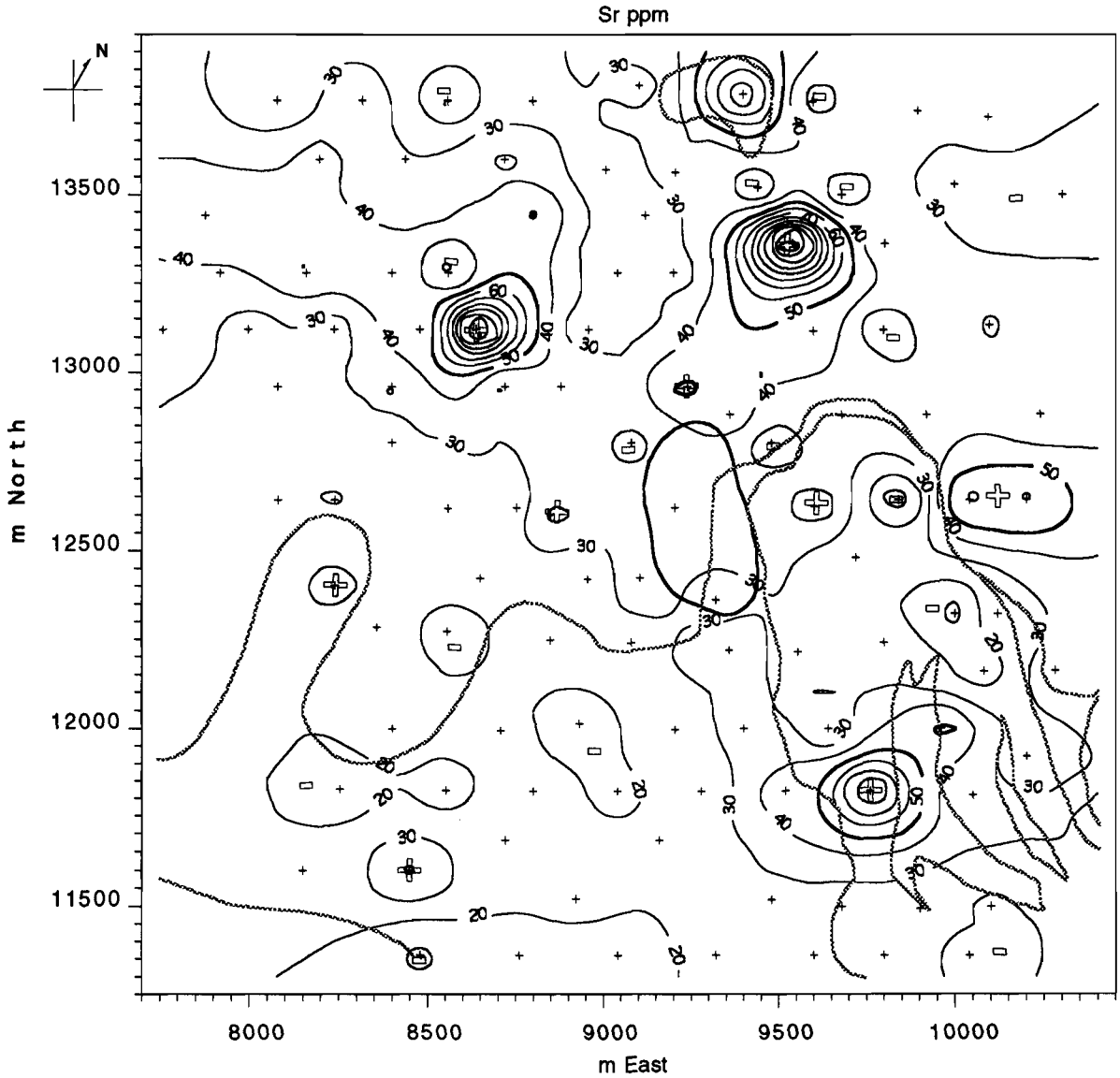
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


8
6
4
2
S
m
-1.5
0.0
1.5
nscores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m North
8000
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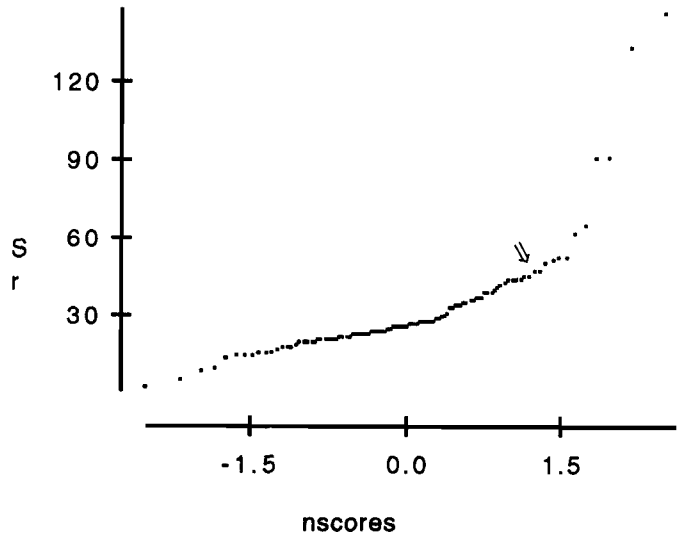
9000
9500
10000
m East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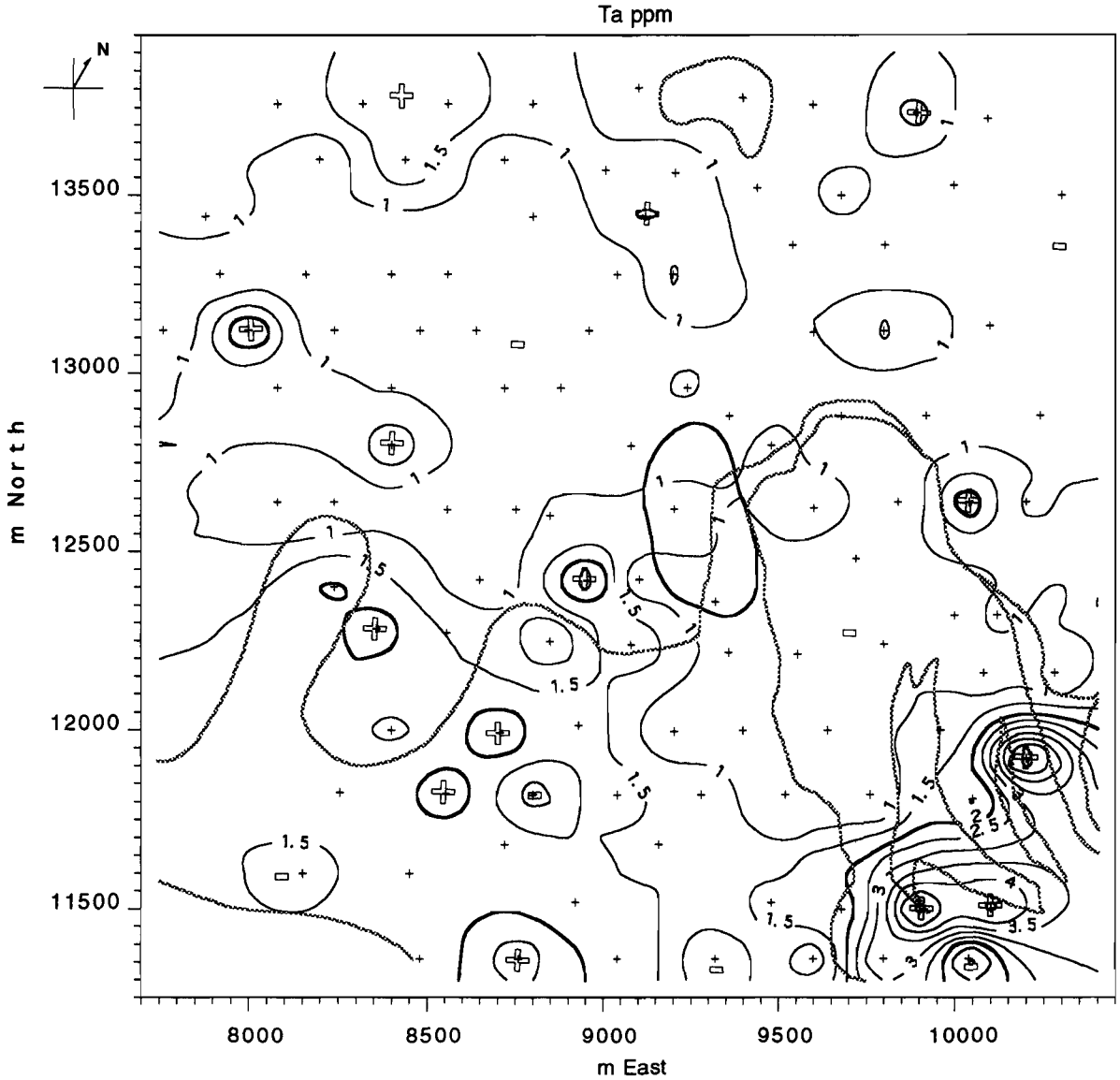
90
60
30
S
r
-1.5
0.0
1.5
nscores


Ta ppm
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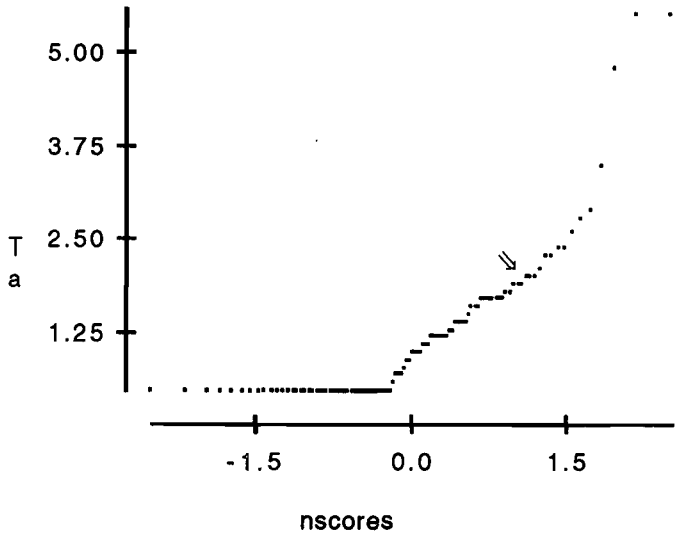
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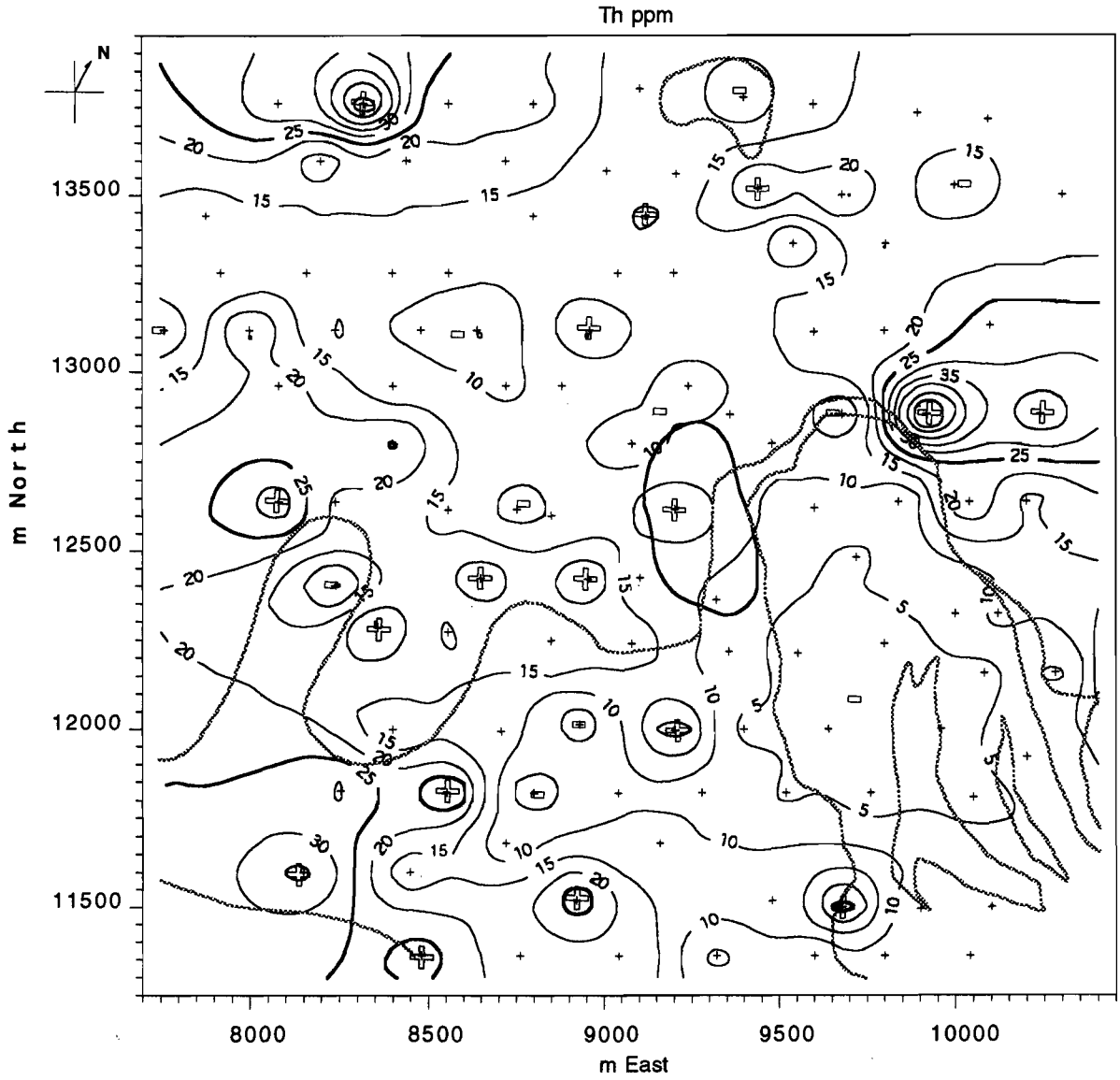
3.75
2.50
1.25
T
a
-1.5
0.0
1.5
nscores


Th ppm
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13000
12500
12000
11500
m North
8000
8500
9000
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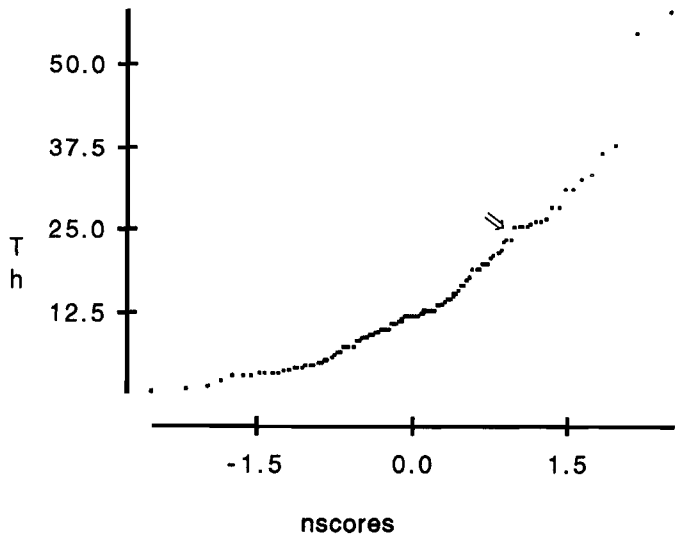
10000
m East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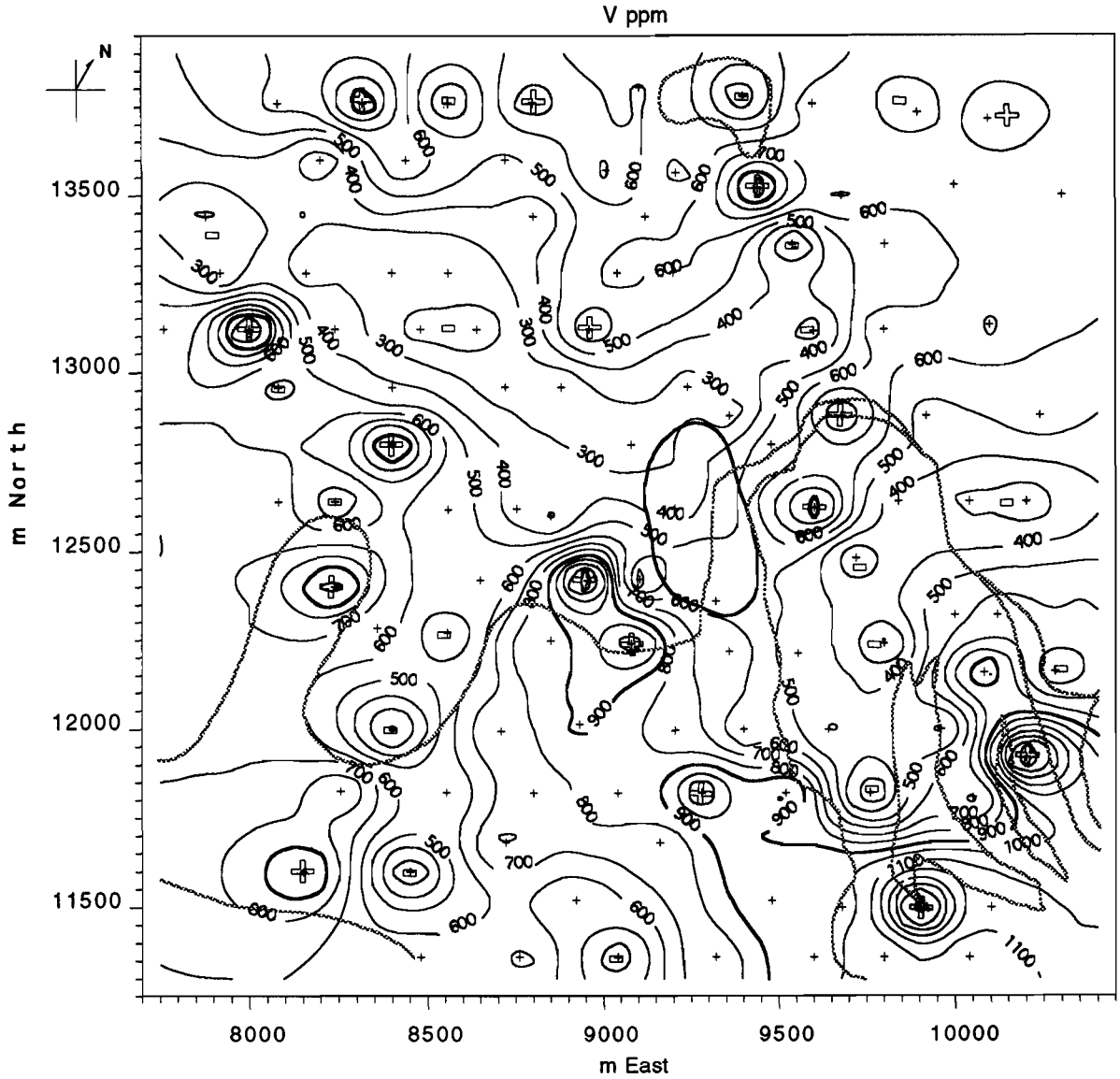
25.0
12.5
T
h
-1.5
0.0
1.5
nscores


V ppm
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12500
12000
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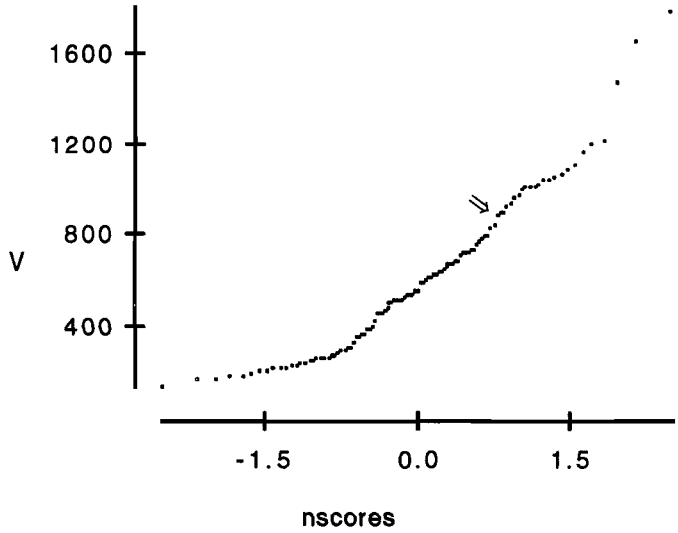
10000
m East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400
V
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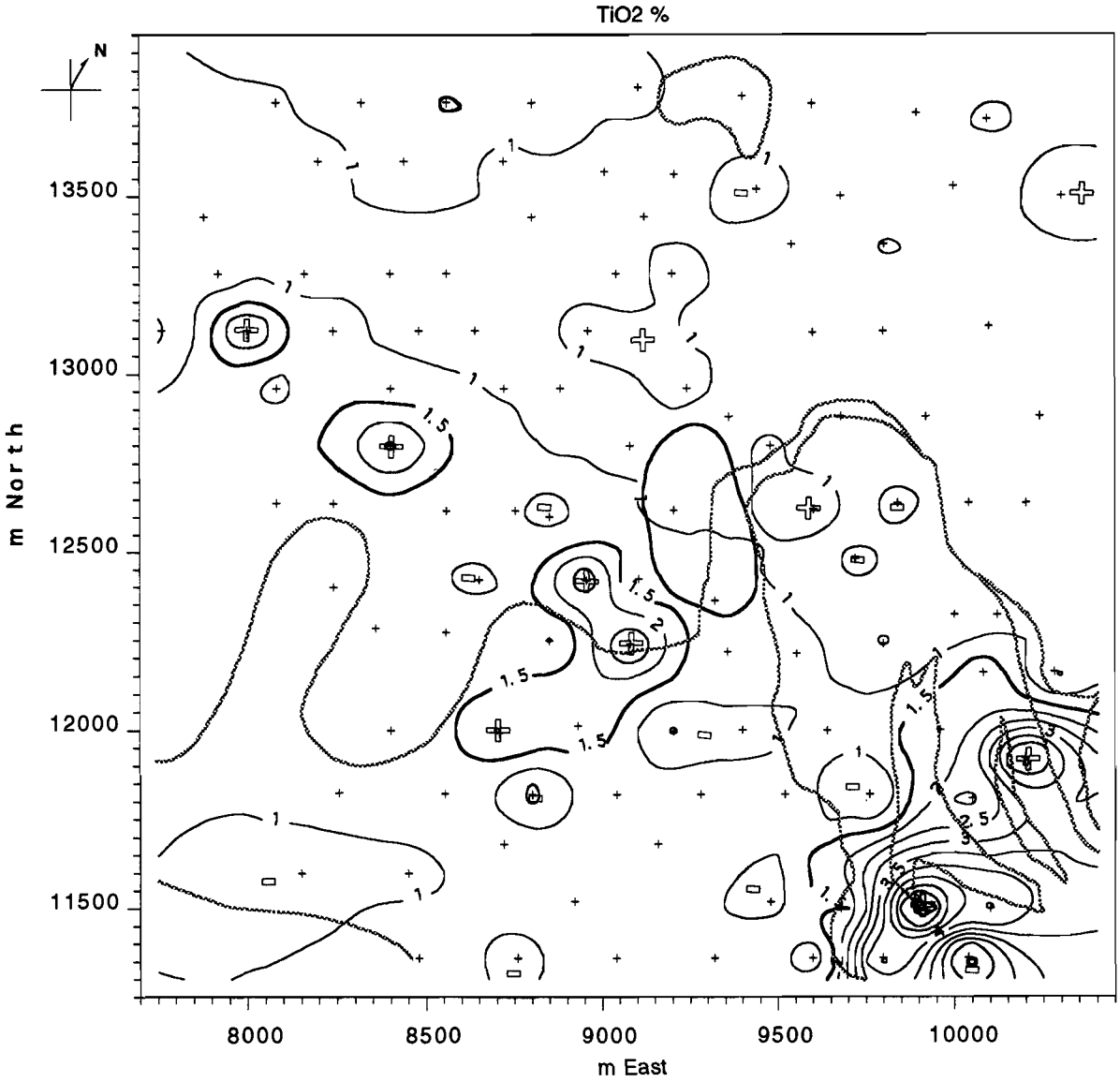
nscores


TiO2 %
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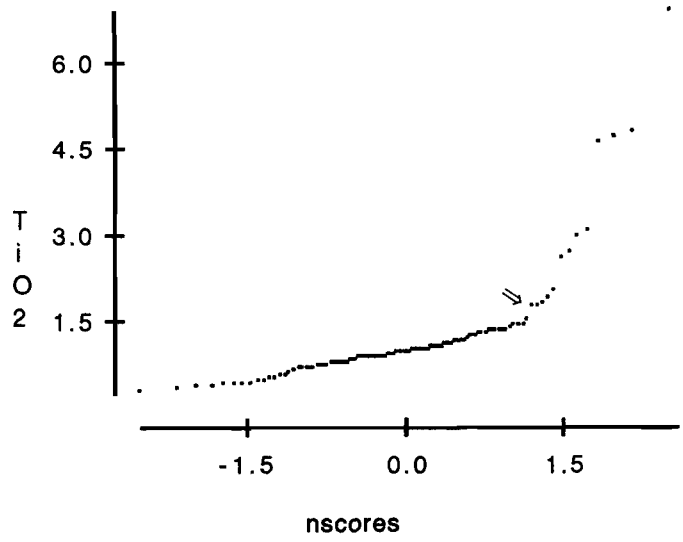
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East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3.0
1.5
TiO2
-1.5
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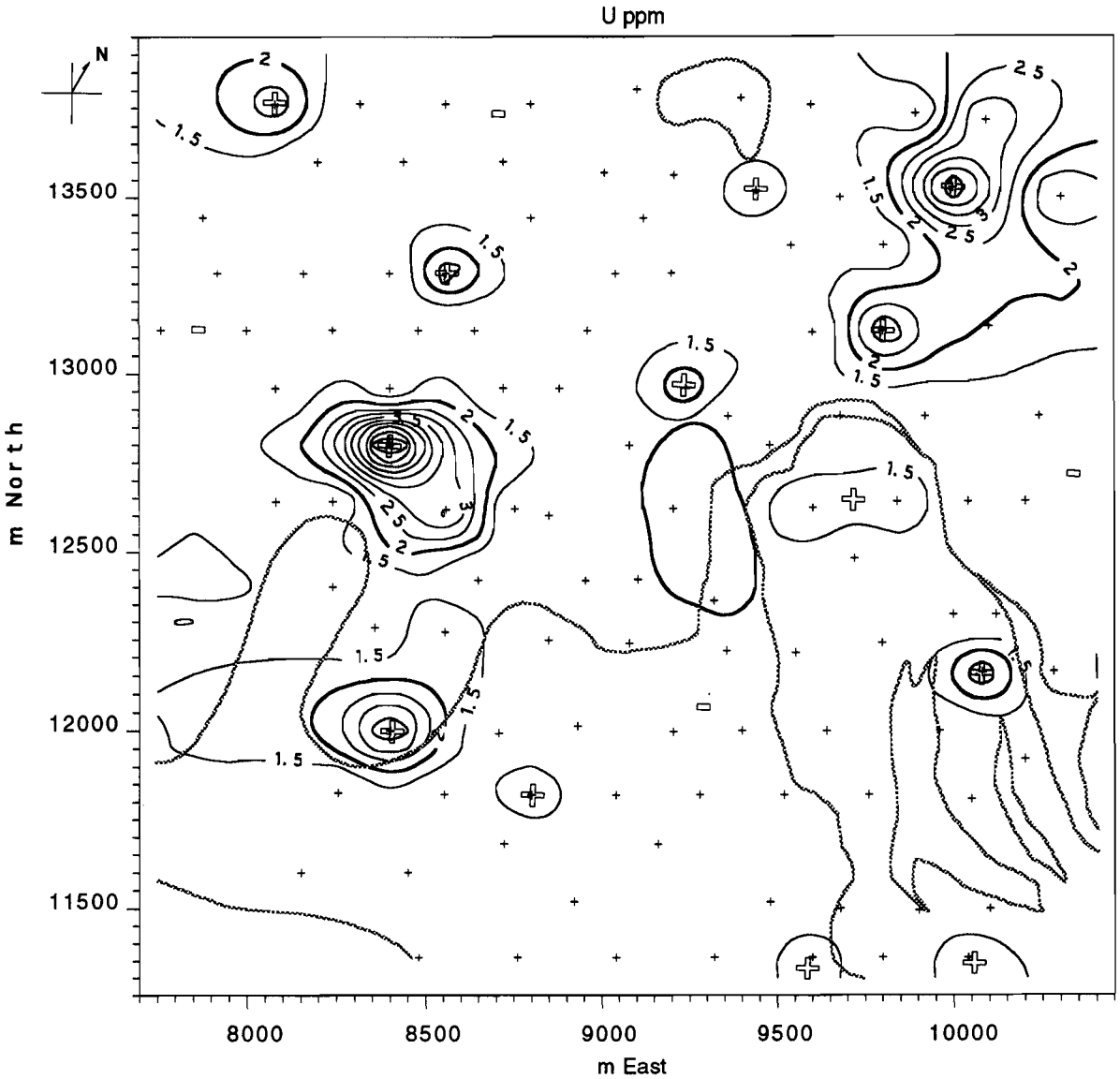
1.5
nscores


U ppm
N
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13000
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8500
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10000
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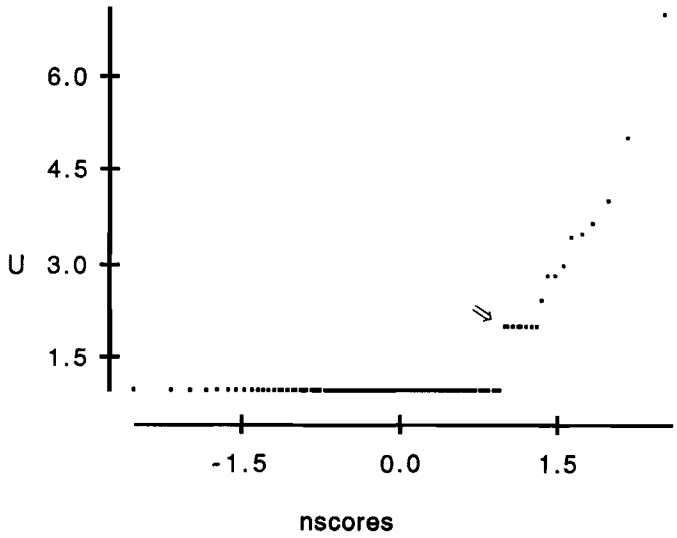
2
2.5
3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4.5
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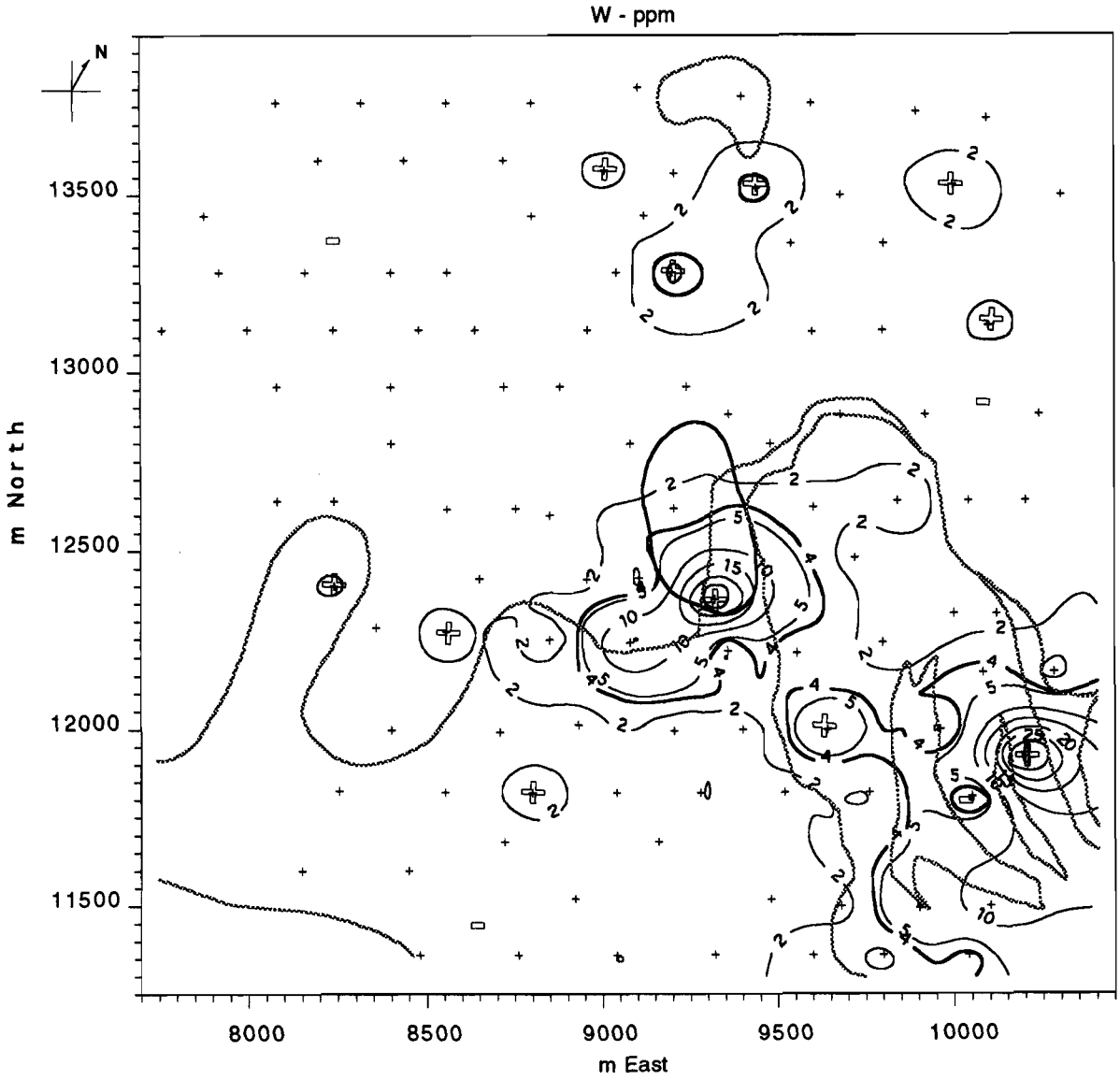
nscores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12000
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8500
9000
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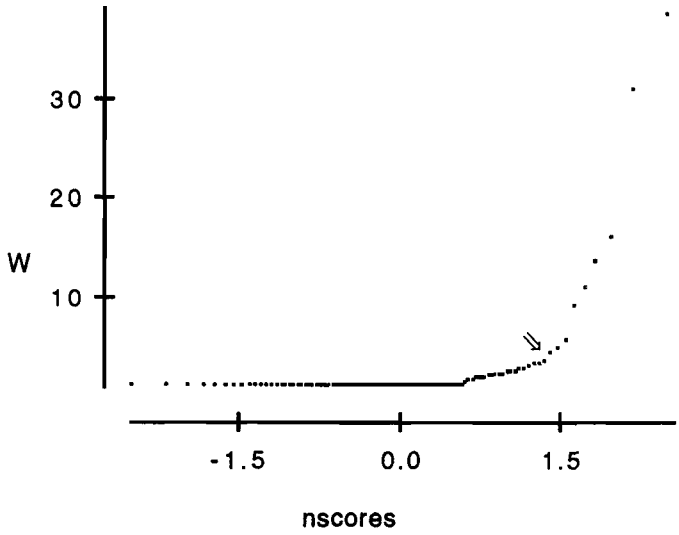
10000
m East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10
W
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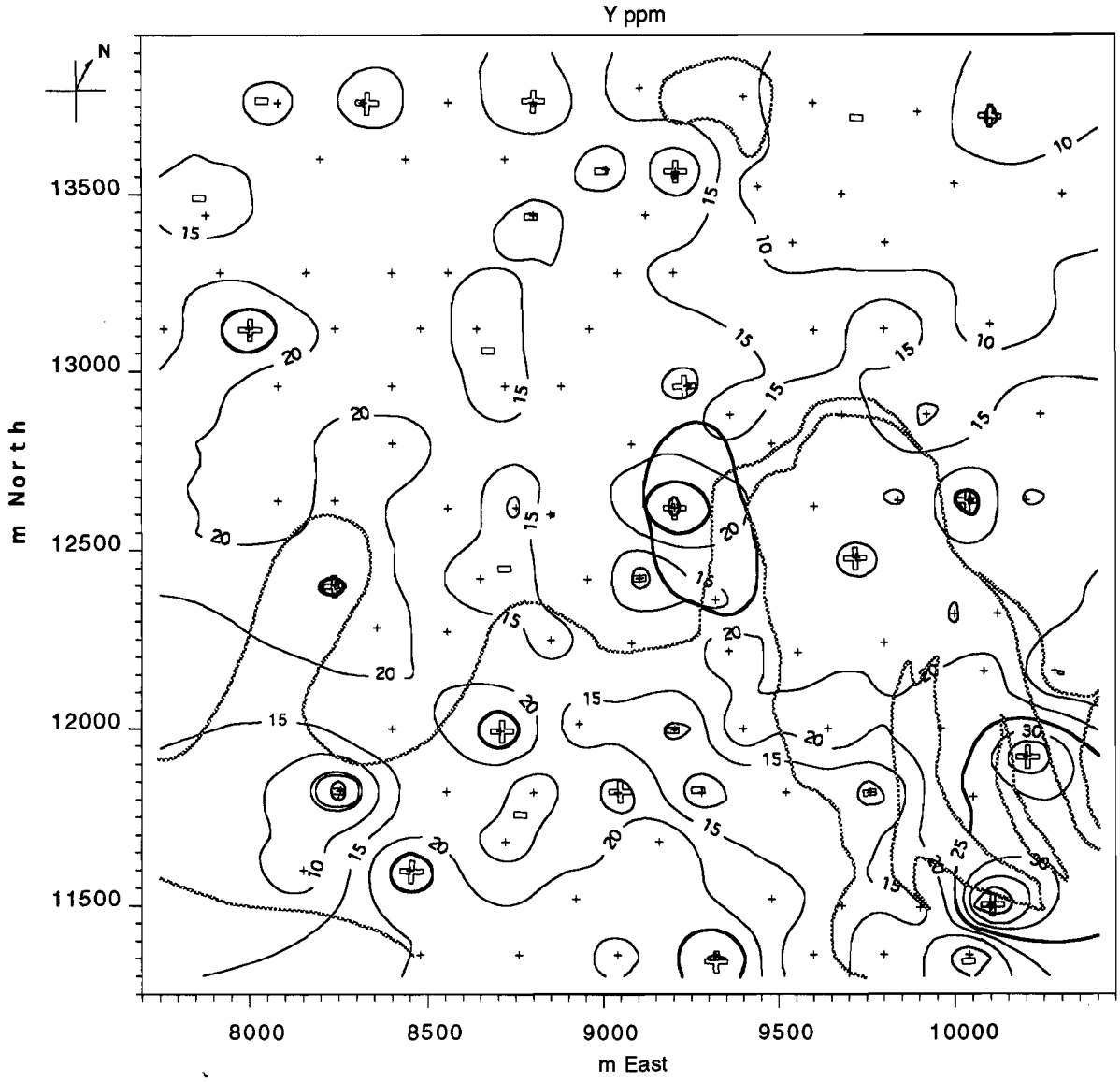
0.0
1.5
nscores


Y ppm
N
13500
13000
12500
12000
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m North
8000
8500
9000
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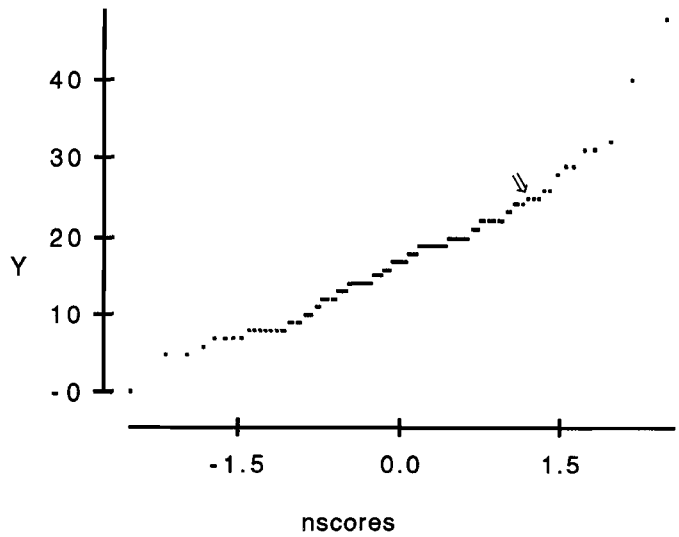
10000
m East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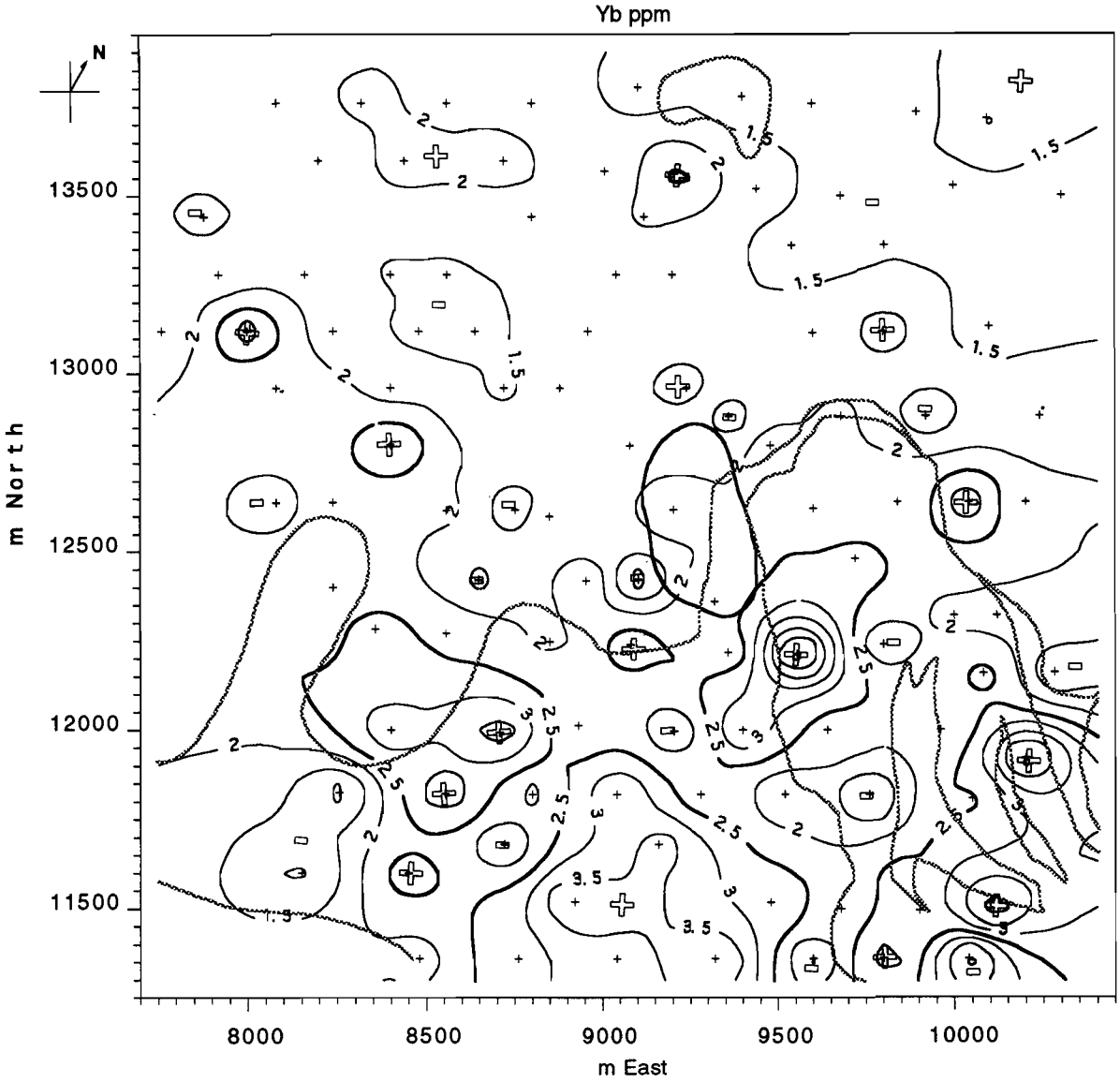
30
20
10
-0
Y
-1.5
0.0
1.5
nscores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8000
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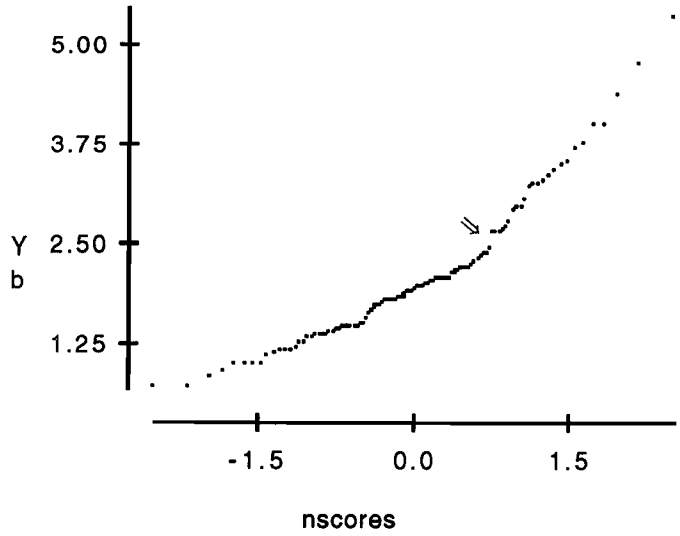
10000
m East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1.25
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b
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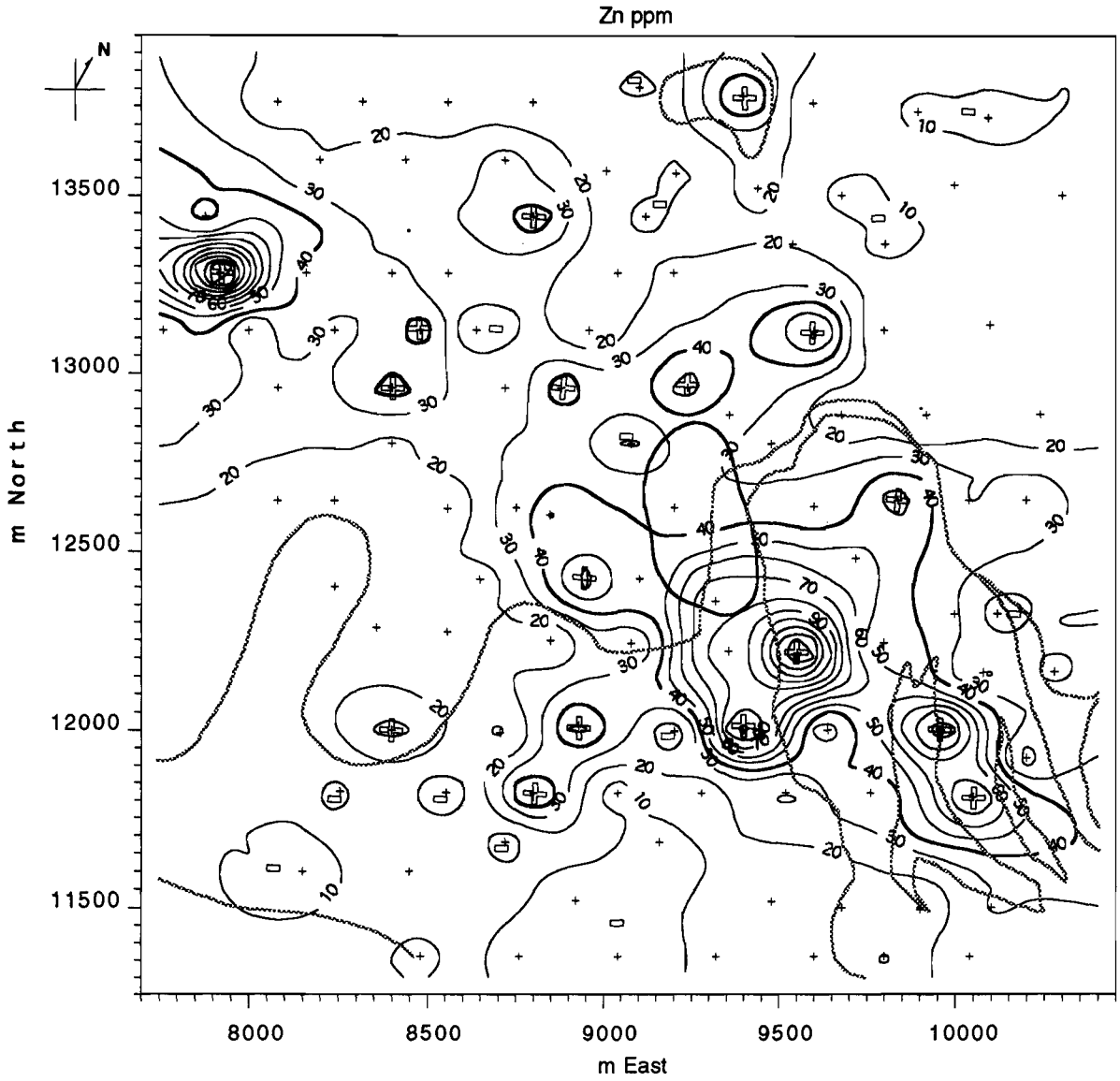
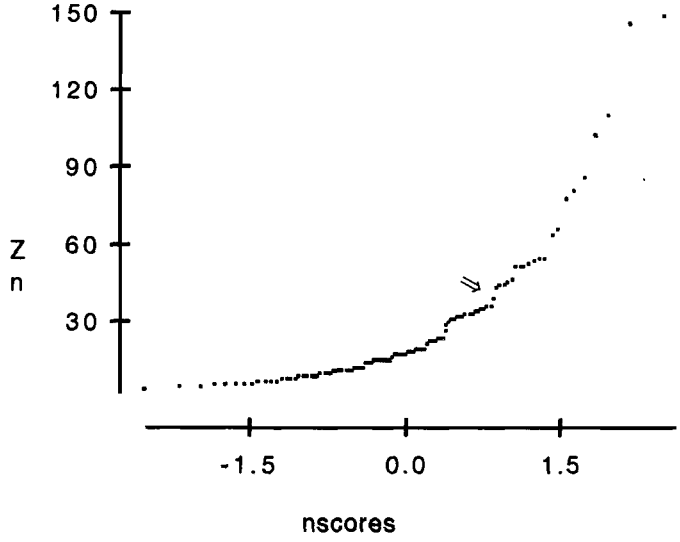
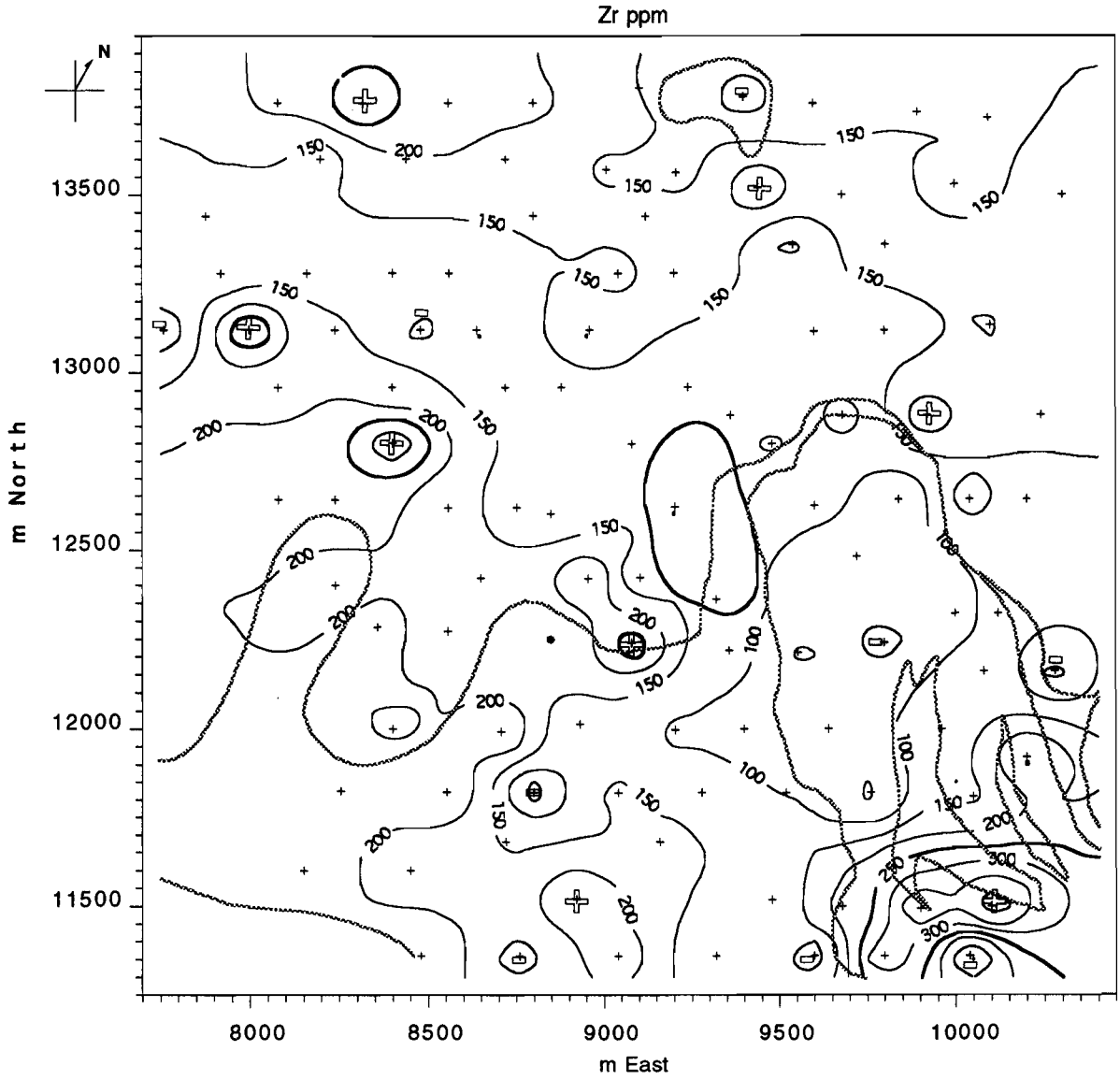
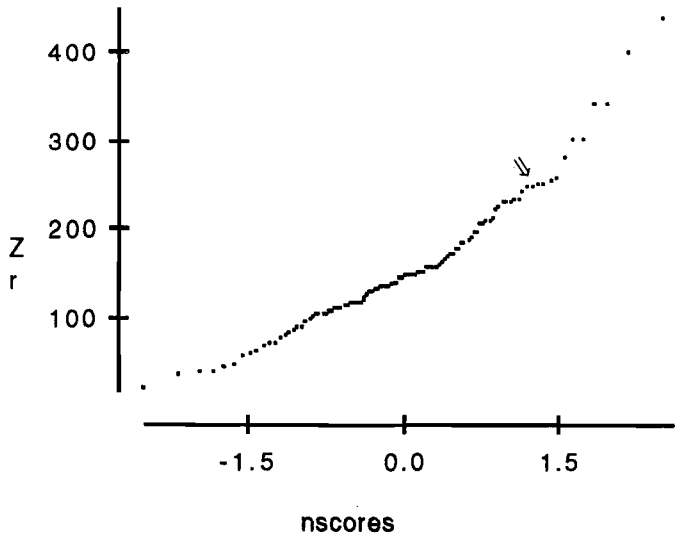
0.0
1.5
nscores


Zn ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East


150
120
90
60
30
Zn
-1.5
0.0
1.5
nscores


Zr ppm
N
13500
13000
12500
12000
11500
m North
8000
8500
9000
9500
10000
m East
150
200
100
300


400
300
200
100
Zr
-1.5
0.0
1.5
nscores

APPENDIX 3

SYSTEMATIC SAMPLING OF DIAMOND DRILLHOLE PHD-006 TABULATED GEOCHEMISTRY

Sample	LabSeqNo	LibNo	From	To	Detn Interval	XRF SiO2 0.01 %	XRF Al2O3 0.01 %	XRF Fe2O3 0.01 %	XRF MnO 0.002 %	XRF MgO 0.01 %	XRF CaO 0.001 %	XRF Na2O 0.01 %	XRF K2O 0.01 %	XRF TiO2 0.003 %	XRF P2O5 0.002 %	XRF LOD - %	XRF LOI - %	XRF Total - %	INAA As 2.0 ppm	INAA Au 5 ppb	XRF Ba 30 ppm	INAA Ce 10 ppm	XRF Cl 20 ppm	Unit
RBX-2301	L08-1835	08-1823	0	1.95	1.95	51.11	16.32	20.53	0.322	0.47	0.15	0.08	0.63	1.15	0.061	1.69	7.45	99.9	21.7	11	506	59	120	Colluvium
RBX-2302	L08-1828	08-1824	1.95	4.5	2.55	44.26	22.68	18.88	0.358	0.62	0.19	0.08	0.64	1.30	0.055	2.12	9.42	100.5	28.5	75	333	64	60	Colluvium
RBX-2303	L08-1839	08-1825	4.5	6.57	2.07	44.35	23.18	19.38	0.175	0.54	0.18	0.08	0.48	1.19	0.046	1.92	9.33	100.8	25.0	90	173	66	70	Colluvium
RBX-2304	L08-1838	08-1826	6.57	8.1	1.53	47.03	22.44	16.79	0.070	0.53	0.22	0.09	0.33	1.28	0.032	2.30	9.11	100.2	16.9	125	133	37	30	Colluvium
RBX-2305	L08-1830	08-1827	8.1	10	1.9	40.59	24.64	19.68	0.048	0.58	0.30	0.09	0.24	0.99	0.009	3.22	10.08	100.5	13.9	224	104	120	20	Mott Clay
RBX-2306	L08-1840	08-1828	10	11.6	1.6	37.22	22.20	26.48	0.036	0.70	0.32	0.11	0.30	1.05	0.011	3.22	9.06	100.7	16.8	101	141	42	10	Mott Clay
RBX-2307	L08-1843	08-1829	11.6	13.5	1.9	39.71	25.80	19.49	0.024	0.58	0.30	0.13	0.21	1.08	0.007	3.05	10.58	100.9	14.4	30	36	10	20	Mott Clay
RBX-2308	L08-1826	08-1830	13.5	15.8	2.3	43.53	26.88	12.61	0.020	0.73	0.34	0.12	0.18	1.34	0.005	3.29	11.74	100.8	8.1	54	33	6	40	Mott Clay
RBX-2309	L08-1831	08-1831	15.8	18	2.2	47.31	28.80	5.13	0.008	0.93	0.43	0.12	0.09	1.30	0.005	4.38	12.11	100.6	2.4	52	34	4	30	Mott Clay
RBX-2310	L08-1837	08-1832	18	21.45	3.45	43.51	24.51	12.08	0.065	1.26	0.59	0.10	0.07	1.24	0.004	5.44	11.77	100.6	4.4	10	90	14	10	Mott Clay
RBX-2311	L08-1827	08-1833	21.45	25.8	4.35	11.59	4.60	2.98	0.076	16.81	23.61	0.02	0.02	0.21	0.000	2.28	38.70	100.9	<1	<5	96	6	0	Mott Clay
RBX-2312	L08-1829	08-1834	25.8	30.7	4.9	24.08	14.87	38.56	0.150	2.28	2.78	0.03	0.08	1.51	0.031	2.63	14.16	101.2	11.7	8	209	5	20	Mott Clay
RBX-2313	L08-1832	08-1835	30.7	31.6	0.9	26.20	9.86	6.72	0.030	10.63	14.21	0.04	0.14	0.48	0.001	4.81	27.68	100.8	<1	<5	<2	5	20	Mott Clay
RBX-2314	L08-1836	08-1836	31.6	33.2	1.6	35.79	22.86	15.51	2.517	2.12	1.99	0.09	0.36	0.77	0.010	4.55	14.23	100.8	5.9	<5	2869	109	20	Mott Clay
RBX-2315	L08-1833	08-1837	33.2	34.75	1.55	33.25	19.59	29.41	0.792	0.68	0.37	0.07	0.26	0.91	0.062	3.08	11.96	100.4	10.5	74	944	50	30	Mott Clay
RBX-2316	L08-1825	08-1838	34.75	35	0.25	78.50	10.15	3.86	0.019	0.30	0.10	0.05	0.68	1.87	0.014	0.70	3.85	100.2	1.3	<5	113	7	0	Sand
RBX-2317	L08-1823	08-1839	35	36	1	73.85	10.85	2.79	0.030	1.31	1.60	0.06	0.72	2.00	0.010	0.77	6.18	100.2	<1	<5	114	8	<10	Sand
RBX-2318	L08-1842	08-1840	36	39	3	69.80	18.65	1.45	0.006	0.48	0.06	0.08	2.40	1.26	0.005	0.31	5.35	99.9	<1	<5	151	4	10	Saprolite
RBX-2319	L08-1841	08-1841	39	42	3	65.04	12.05	15.52	0.019	0.36	0.07	0.05	1.84	0.87	0.081	0.28	4.13	100.3	<1	33	82	6	10	Saprolite

STD 003	L08-1824	08-1842	-	-	Standard	65.62	11.48	14.95	0.056	0.29	0.03	0.34	1.51	0.40	0.051	0.41	4.63	99.7	1480.0	2270	221	19	2200	
STD 003	L08-1834	08-1843	-	-	Standard	65.05	11.42	14.79	0.056	0.29	0.03	0.33	1.49	0.39	0.048	0.50	4.65	99.1	1500.0	2270	221	21	2090	
STD 003	L08-1844	08-1844	-	-	Standard	65.23	11.53	14.92	0.056	0.28	0.03	0.34	1.51	0.39	0.050	0.54	4.55	99.4	1470.0	2140	223	20	2170	
					Mean	65.30	11.48	14.89	0.056	0.29	0.03	0.34	1.50	0.39	0.050	0.48	4.61	99.4	1483.3	2227	222	20	2153	
					AccVal	65.06	11.39	14.06	0.052	0.31	0.05	0.51	1.41	0.45	0.030		5.26	-	1505.0	2182	352	18	-	

Sample	INAA Co 1 ppm	INAA Cr 5 ppm	INAA Cs 1.00 ppm	XRF Cu 10 ppm	INAA Eu 1.00 ppm	XRF Ga 3 ppm	INAA Hf 1.00 ppm	INAA La 0.50 ppm	INAA Lu 0.20 ppm	XRF Nb 4 ppm	XRF Ni 10 ppm	XRF Pb 5 ppm	XRF Rb 5 ppm	XRF S 10 ppm	INAA Sb 0.50 ppm	INAA Sc 0.1 ppm	INAA Sm 0.20 ppm	XRF Sr 5 ppm	INAA Ta 1.0 ppm	INAA Th 0.5 ppm	XRF V 5 ppm	INAA W 2.0 ppm	XRF Y 5 ppm	INAA Yb 0.50 ppm	XRF Zn 5 ppm	XRF Zr 5 ppm	Unit
RBX-2301	21	941	2.78	48	1.55	26	6.07	32.40	0.36	20	112	29	41	200	0.97	28.6	6.21	37	2.2	19.4	318	9.4	23	2.76	44	212	Colluvium
RBX-2302	24	849	2.56	57	0.99	33	6.11	29.20	0.33	17	163	31	41	120	1.12	42.4	5.03	43	1.5	18.1	338	2.6	22	2.59	45	218	Colluvium
RBX-2303	20	707	3.26	53	0.83	33	6.02	20.70	0.29	20	125	24	33	110	1.20	47.2	3.73	29	1.4	19.3	323	3.8	15	2.39	35	213	Colluvium
RBX-2304	12	648	2.87	39	0.51	31	6.37	14.60	0.33	19	109	30	24	100	1.30	51.0	2.67	27	1.6	19.6	285	2.7	18	2.34	27	228	Colluvium
RBX-2305	15	530	<1	49	0.98	29	4.81	13.70	0.35	14	122	28	22	80	1.29	66.0	4.02	27	1.6	16.9	334	<2	17	2.83	11	163	Mott Clay
RBX-2306	9	566	2.67	48	0.53	35	4.28	10.20	0.25	13	108	24	25	100	1.74	58.2	2.62	27	1.2	16.9	434	2.7	14	2.14	13	161	Mott Clay
RBX-2307	9	432	2.32	39	<0.5	31	4.81	8.11	0.22	9	101	31	19	90	1.30	63.2	1.47	25	<1	14.9	352	<2	13	1.92	7	152	Mott Clay
RBX-2308	11	263	2.58	32	<0.5	29	4.18	2.92	0.22	15	99	12	15	70	0.88	45.5	0.73	23	1.3	8.7	238	2.4	15	1.83	7	168	Mott Clay
RBX-2309	7	362	<1	7	<0.5	29	4.68	1.27	0.20	11	93	12	9	90	0.63	44.3	0.42	27	1.6	8.2	113	<2	10	1.63	2	156	Mott Clay
RBX-2310	19	300	1.29	22	<0.5	27	4.24	5.95	0.22	15	96	14	6	80	0.90	42.2	0.99	31	<1	7.3	237	6.1	14	1.91	4	132	Mott Clay
RBX-2311	31	62	<1	0	<0.5	5	0.66	5.09	<0.2	6	45	<2	1	40	<0.2	8.6	0.69	91	<1	0.7	74	<2	5	0.55	1	25	Mott Clay
RBX-2312	132	348	2.88	26	<0.5	22	3.51	3.60	0.22	15	219	<2	10	110	0.80	29.2	0.97	35	1.2	2.3	939	<2	14	1.85	5	123	Mott Clay
RBX-2313	63	119	2.06	1	0.72	12	1.55	15.00	0.24	10	71	<5	9	60	0.29	18.3	2.67	59	<1	0.9	155	<2	23	1.69	35	54	Mott Clay
RBX-2314	432	350	5.08	43	0.93	22	2.38	16.20	0.23	10	308	3	19	80	<0.2	31.1	3.23	159	1.5	3.5	236	<2	10	1.84	217	77	Mott Clay
RBX-2315	268	301	3.82	104	0.75	22	2.82	6.69	0.34	15	344	3	15	60	0.43	39.8	2.77	62	1.2	4.3	415	<2	15	2.95	323	103	Mott Clay
RBX-2316	27	166	3.26	32	<0.5	15	4.24	3.45	0.31	23	81	7	18	80	1.16	36.5	0.98	9	1.4	1.6	180	13.3	17	2.15	50	144	Sand
RBX-2317	24	151	2.92	20	<0.5	14	4.32	5.68	0.36	23	74	10	19	60	1.26	33.6	1.26	12	2.0	1.6	162	7.1	17	2.27	40	154	Sand
RBX-2318	5	151	2.87	13	<0.5	20	2.40	0.90	0.40	5	55	8	56	60	0.77	69.9	0.66	6	<1	<0.5	276	<2	24	2.97	24	71	Saprolite
RBX-2319	16	79	2.09	231	0.81	16	1.61	1.32	0.61	5	92	16	39	80	0.89	75.7	1.91	8	<1	<0.5	467	2.9	32	4.10	56	49	Saprolite

STD 003	38	2300	<1	137	1.17	12	<0.5	5.81	0.20	5	593	90	38	200	10.80	40.4	2.14	29	<1	0.9	209	19.2	14	1.39	205	24	
STD 003	40	2340	<1	135	0.95	12	<0.5	5.87	0.20	1	589	93	40	200	10.50	40.7	2.15	28	<1	<0.5	209	19.2	14	1.35	203	26	
STD 003	38	2300	<1	138	1.04	13	<0.5	5.94	0.23	2	596	92	38	200	10.20	40.3	2.13	27	<1	0.8	210	17.7	13	1.57	205	26	
Mean	38	2313	<1	137	1.05	12	<0.5	5.87	0.21	3	593	92	39	200	10.50	40.5	2.14	28	<1	0.8	209	18.7	14	1.44	204	25	
AccVal	42	2268	0.80	172	1.10	14	0.50	6.40	0.30	1	516	81	45	430	10.00	42.7	2.30	29	0.3	0.6	267	17.0	14	1.30	183	31	

APPENDIX 4

HARMONY PALAEOCHANNEL TABULATED GEOCHEMISTRY

FieldNo	LabSeqNo	LibNo	DrillHole	From m	To m	XRF SiO2 0.01 %	XRF Al2O3 0.01 %	XRF Fe2O3 0.01 %	XRF MnO 0.002 %	XRF MgO 0.01 %	XRF CaO 0.001 %	XRF Na2O 0.01 %	XRF K2O 0.01 %	XRF TiO2 0.003 %	XRF P2O5 0.002 %	XRF LOD - %	XRF LOI - %	XRF Total - %	INAA As 2 ppm	INAA Au 5 ppb	XRF Ba 30 ppm	INAA Br 2 ppm	INAA Ce 10 ppm	Unit
RBX 1001	L08-1856	08-1845	577	6.1	6.9	39.68	25.55	17.87	0.020	0.70	0.35	0.13	0.16	1.13	0.013	4.47	10.69	100.80	8	15	23	<2	5	Mott Clay
RBX 1002	L08-1852	08-1846	577	6.9	7.8	40.37	27.61	14.27	0.023	0.73	0.38	0.12	0.16	1.07	0.019	4.40	11.44	100.60	13	12	21	<2	5	Mott Clay
RBX 1003	L08-1849	08-1847	577	7.8	8.7	37.73	27.29	16.97	0.019	0.56	0.79	0.13	0.13	1.38	0.023	4.48	11.33	100.80	9	9	73	<2	5	Mott Clay
RBX 1004	L08-1848	08-1848	577	8.7	9.5	38.40	29.69	8.22	0.015	0.51	3.07	0.14	0.10	1.15	0.011	4.09	13.68	99.10	5	7	7318	<2	5	Mott Clay
RBX 1005	L08-1854	08-1849	577	9.5	10.4	34.62	27.14	12.66	0.018	0.44	5.79	0.12	0.12	1.68	0.014	2.95	14.75	100.30	9	7	332	<2	4	Mott Clay
RBX 1006	L08-1845	08-1850	577	10.4	11.3	40.21	31.10	7.42	0.015	0.40	1.61	0.13	0.19	2.76	0.012	3.26	12.71	99.80	7	22	111	<2	6	Mott Clay
RBX 1007	L08-1850	08-1851	577	11.3	12.1	36.16	28.40	18.07	0.017	0.30	0.57	0.13	0.15	2.95	0.016	2.70	11.07	100.60	20	<5	184	<2	5	Mott Clay
RBX 1008	L08-1847	08-1852	577	12.1	13.0	35.51	21.31	30.04	0.024	0.20	0.57	0.11	0.09	3.57	0.015	1.57	8.61	101.60	77	8	29	<2	5	Mott Clay
RBX 2232	L08-1855	08-1855	Harmony Pit	Upper Crust		14.07	18.55	54.13	0.022	0.19	0.08	0.04	0.22	3.16	0.024	1.62	7.82	99.90	44	823	123	<2	4	Duricrust
RBX 2230	L08-1853	08-1853	Harmony Pit	Dark Band		3.12	7.86	73.64	0.017	0.14	0.04	<0.01	0.02	4.53	0.029	2.09	6.69	98.20	464	41	105	<2	<2	Duricrust
RBX 2231	L08-1851	08-1854	Harmony Pit	Lower Crust		6.75	19.64	57.65	0.020	0.17	0.09	0.02	0.03	2.96	0.017	1.63	11.08	100.00	958	51	<19	4	4	Duricrust

STD 003	L08-1846	08-1856	-	-	-	65.67	11.23	14.81	0.057	0.29	0.03	0.32	1.48	0.39	0.051	0.55	4.53	99.40	1,500	2290	210	11	21	
STD 003	L08-1857	08-1857	-	-	-	65.20	11.41	14.83	0.056	0.29	0.03	0.33	1.50	0.39	0.049	0.82	4.23	99.20	1,510	2100	212	12	24	
					Mean	65.44	11.32	14.82	0.057	0.29	0.03	0.33	1.49	0.39	0.050	0.69	4.38	99.30	1,505	2195	211	11	22	
					AccVal	65.06	11.39	14.06	0.052	0.31	0.05	0.51	1.41	0.45	0.030	-	5.26	-	1,505	2182	352	10	18	

FieldNo	XRF Cl 20 ppm	INAA Co 1 ppm	INAA Cr 5 ppm	INAA Cs 1.0 ppm	XRF Cu 10 ppm	INAA Eu 1.0 ppm	XRF Ga 3 ppm	INAA Hf 1.0 ppm	INAA La 0.50 ppm	INAA Lu 0.20 ppm	XRF Nb 4 ppm	XRF Ni 10 ppm	XRF Pb 5 ppm	XRF Rb 5 ppm	XRF S 10 ppm	INAA Sb 0.50 ppm	INAA Sc 0.1 ppm	INAA Sm 0.20 ppm	XRF Sr 5 ppm	INAA Ta 1.0 ppm	INAA Th 0.50 ppm	XRF V 5 ppm	INAA W 2.0 ppm	XRF Y 5 ppm	INAA Yb 0.50 ppm	XRF Zn 5 ppm	XRF Zr 5 ppm	Unit
RBX 1001	<10	8	532	4.6	12	<0.5	25	3.9	2.22	<0.2	10	79	10	13	90	1.38	22.6	0.63	23	<1	7.14	324	15.1	11	1.48	3	130	Mott Clay
RBX 1002	0	11	690	6.2	12	<0.5	28	3.7	2.51	<0.2	9	92	14	19	80	1.19	20.3	0.65	22	<1	6.46	273	18.5	11	1.41	4	126	Mott Clay
RBX 1003	10	14	370	5.1	8	<0.5	29	4.1	2.31	<0.2	13	100	15	21	90	1.57	19.7	0.62	22	1.1	6.36	348	21.3	13	1.46	0	142	Mott Clay
RBX 1004	<20	23	601	1.4	7	<0.5	31	4.0	3.05	<0.2	13	132	10	10	1550	1.21	21.3	0.47	48	1.0	5.86	214	11.2	10	1.19	<1	117	Mott Clay
RBX 1005	<10	28	414	1.4	12	<0.5	32	4.7	5.40	0.22	17	147	14	14	160	2.00	21.7	0.75	30	1.2	5.16	301	14.5	15	1.71	1	157	Mott Clay
RBX 1006	20	34	800	1.9	11	<0.5	33	6.8	3.71	0.36	23	190	10	20	110	2.79	20.3	0.69	23	2.5	5.99	204	17.0	19	2.35	0	217	Mott Clay
RBX 1007	40	39	422	1.6	27	<0.5	35	6.6	2.19	0.35	27	208	12	18	130	3.34	20.9	0.64	18	2.4	5.61	356	22.4	18	2.60	2	241	Mott Clay
RBX 1008	10	24	1180	<1	36	<0.5	40	6.8	2.26	0.45	37	237	12	10	80	4.75	20.6	0.87	21	2.9	6.13	608	45.5	25	3.20	6	251	Mott Clay
RBX 2232	<10	15	1320	<1	13	<0.5	97	7.3	1.39	0.53	24	24	3	16	130	5.10	18.0	0.84	9	1.9	8.57	1576	77.7	29	3.95	12	255	Duricrust
RBX 2230	20	21	5460	1.2	15	<0.5	78	7.0	1.22	0.65	32	39	<17	<1	200	9.48	10.2	0.69	9	1.7	2.05	1913	24.9	23	4.10	15	243	Duricrust
RBX 2231	<10	16	3250	<1	11	0.5	57	4.7	1.54	0.48	20	62	3	2	170	6.31	10.6	0.84	16	<1	2.26	1344	12.6	17	2.97	16	159	Duricrust

STD 003	2250	40	2350	<1	135	1.2	12	<0.5	5.76	0.21	3	587	88	39	190	10.60	40.8	2.13	26	<1	0.90	196	16.1	14	1.43	205	27	
STD 003	2010	40	2370	1.4	136	1.1	14	<0.5	6.09	0.29	1	589	92	40	210	10.60	41.3	2.19	30	<1	<0.5	202	16.8	16	1.54	209	28	
Mean	2130	40	2360	1.4	136	1.2	13	<0.5	5.93	0.25	2	588	90	40	200	10.60	41.1	2.16	28	<1	0.90	199	16.5	15	1.49	207	28	
AccVal	-	42	2268	0.8	172	1.1	14	0.5	6.40	0.30	1	516	81	45	430	10.00	42.7	2.30	29	0.3	0.60	267	17.0	14	1.30	183	31	

APPENDIX 5

PHD-006 DRILLCORE SYSTEMATIC PETROGRAPHY, SPECIMEN LOCATIONS AND CORE RECOVERY

PETROGRAPHY OF DIAMOND DRILLCORE PHD006

Location 8790 E 12090N

RBX-2200 Sandy Colluvium (1.35 m)

Matrix-supported polymictic subangular to subrounded clasts of lateritic residuum in a vesicular brown clay matrix with finer quartz. The clasts include large (1-3 mm), round, black to dark brown goethite fragments, angular lithic fragments and smaller (0.5-1.0 mm), subangular, clear to milky quartz. The ferruginous fragments vary widely in composition, shape and internal fabric. In composition, they vary from bright, massive hematitic goethite with dehydration cracks to dark spongy goethite and there are also some pellets of ferruginous clay. Some clasts are round with hematitic goethite cores thinly rimmed by dark goethite; others are angular and shard-like. Internal primary fabrics indicate remnant mica, some fibrous silicates; secondary fabrics include acordion fabrics and other coarse clay fabrics, solution. The matrix is pale pinkish yellow-brown clay-rich silt, consisting of quartz and kaolinite; some vesices are lined with brown goethitic clay.

RBX-2201 Sandy Colluvium (1.8 m)

The clasts are polymictic lateritic residuum varying from black, through dark red-brown to yellow-brown. Most of the larger clasts (3 mm) are subrounded but the smaller clasts (0.5 mm) are subangular to angular and shard-like. The matrix consists of a porous, pinkish brown clay with a slight sheen (possibly due to sericite). Voids in this have been infilled with light-brown laminated kaolinite showing cuspte structures. The most significant primary fabric preserved in the goethite-rich grains is remnant fine-grained muscovite; the most common saprolitic fabric is that of kaolinite as wavy flakes and as accordio structures. Secondary goethite fabrics include dehydration cracking, massive to spongey types and parts of botryoidal material.

RBX-2202 Silty Colluvium (2.4 m)

The larger clasts are polymictic, black to dark brown fragments of lateritic residuum; the smaller clasts are much less abundant than in the sandy colluvium and consist of angular to subangular lateritic residuum and clear quartz. These are set in a dull-brown clay matrix of kaolinite, quartz and anatase.

RBX-2203 Silty Colluvium (5.3 m)

Very similar to 2202.

RBX-2204 Silty Colluvium (7.15 m)

Very similar to the above but the dull-brown clay matrix appears to have been removed in places, o be replaced by a slightly sandy matrix, leaving some voids which are lined by laminated clays.

RBX-2205 Lateritic gravel in colluvium matrix (8.18 m)

Consists of matrix supported red-brown ferruginous clay pisoliths set in a matrix of porous sandy clay with some black goethitic fragments and clay ooliths. The pisoliths have thin partly worn cutans of a light brown clay. A number of vesicles in the matrix have been lined with a laminated brown clay. Internally, the clays of the pisoliths, which contain a few subrounded to shardy quartz grains and numerous goethitic ghosts of ooliths, are generally more ferruginous (goethitic) than their cutans. Although the matrix contains clearly-defined ooliths of ferrginous clay, it is similar to the matrix of the colluvium above.

RBX-2206 Lateritic duricrust on valley-fill sediment (9.35 m)

It consists of a closely-packed but matrix supported mass of subrounded goethite and hematitic goethite clasts set in a matrix of greenish-white clay ooliths with a very few subrouned quartz grains. At first glance, the ferruginous clasts appear to be polymictic, consisting of a few black to very dark brown pieces of hematitic goethite and numerous red-brown mixtures of goethite and phyllosilicates (mainly mica and some clay). On close inspection, even the reflective hematitic goethite fragments contain numerous, very small flakes of mica. The mineralogy of the clasts is simple and consistent, only the proportions vary, leaving an impression of a polymictic nature. The matrix has been extensively dissolved and the voids infilled with brown, laminated kaolinite with a slight sheen.

RBX-2207 Lateritic duricrust on valley-fill sediment (12.75 m)

Very similar to the above 2206.

RBX-2208 Mottled clay sediment (14.35 m)

This consists of white to yellowish-green, waxy mixture of smectite and kaolinite, set with small subrounded to subangular quartz grains. A separation of these quartz grains shows that a minor proportion (generally grains of about 1 mm size) are rounded and water-worn, although most of the smaller grains are subrounded to angular and appear to have resulted from the breakdown of larger grains but they have high sphericity. The clay is mottled with hematitic nodules (1-20 mm) which have replaced the clays but within which the quartz grains are preserved. Also small granules of yellowish goethite occur within the waxy clays.

XRD Mineralogy:- Quartz, kaolinite=smectite, goethite with minor rutile.

RBX-2209 Clay sediment (16.0 m)

This consists of a white to yellowish-green, waxy mixture of smectite and kaolinite, set with a few mm-sized subangular grains of quartz with a high spericity. A few parts are dotted and mottled with a stain of Fe oxides.

XRD Mineralogy:- Kaolinite and smectite with minor quartz.

RBX-2210 Goethite-indurated clay sediment (20.05 m)

This consists of a friable yellowish mass of goehite-stained clay, containing a few streak-like remnants of waxy smectite and kaolinite. Set in it are a few hard, goethite-rich granules (1.2 mm) and grains of glassy quartz (<0.5 mm) and very rare tourmaline.

XRD Mineralogy:- Smectite>kaolinite, minor goethite and quartz.

RBX-2211 Dolomite mottle (22.8 m)

This consists of a mass of fused nodules of very fine-grained dolomite, cemented with similar but slightly coarser-grained dolomite. A few voids between the nodules contain small amounts of dendritic Mn minerals.

RBX-2212 Mottled clay sediment (27.05 m)

This consists of a white, waxy clay, set with very small angular quartz grains (0.3 mm) and partly indurated with goethite and hematite. This material lacks the goethite nodules common higher in the sediment.

XRD Mineralogy:- Smectite>kaolinite with minor quartz and goethite and trace anatase and rutile.

RBX-2213 Clay sediment (27.2 m)

This consists of a white to very slightly greenish, waxy clay, set with very small angular quartz grains (0.3 mm).

XRD Mineralogy:- Smectite>>kaolinite, quartz, trace anatase and rutile.

RBX-2214 Fine-grained sandstone (34.75 m)

Consists of very fine quartz grains, similar to the quartz grains included in the clays above, in a closely-packed mesh.

RBX-2215 Sandstone (35.9 m)

This is a relatively clean, closely packed sandstone, consisting of a wide range of quartz grains (0.1-3.0 mm) and minor quartzite grains. The larger grains are well rounded but have low sphericity; the smaller grains are angular and vary from equant to shard-like. A very small amount of intergranular space is occupied by very fine-grained kaolinite. The only other detrital mineral is a trace of rounded tourmaline grains.

XRD Mineralogy:- Quartz with minor kaolinite.

RBX-2216 Bleached Saprolite (36.67 m)

Very similar to the material below (2217) but bleached and not mottled. It seems richer in quartz.

XRD Mineralogy:- Quartz, kaolinite, muscovite with trace rutile.

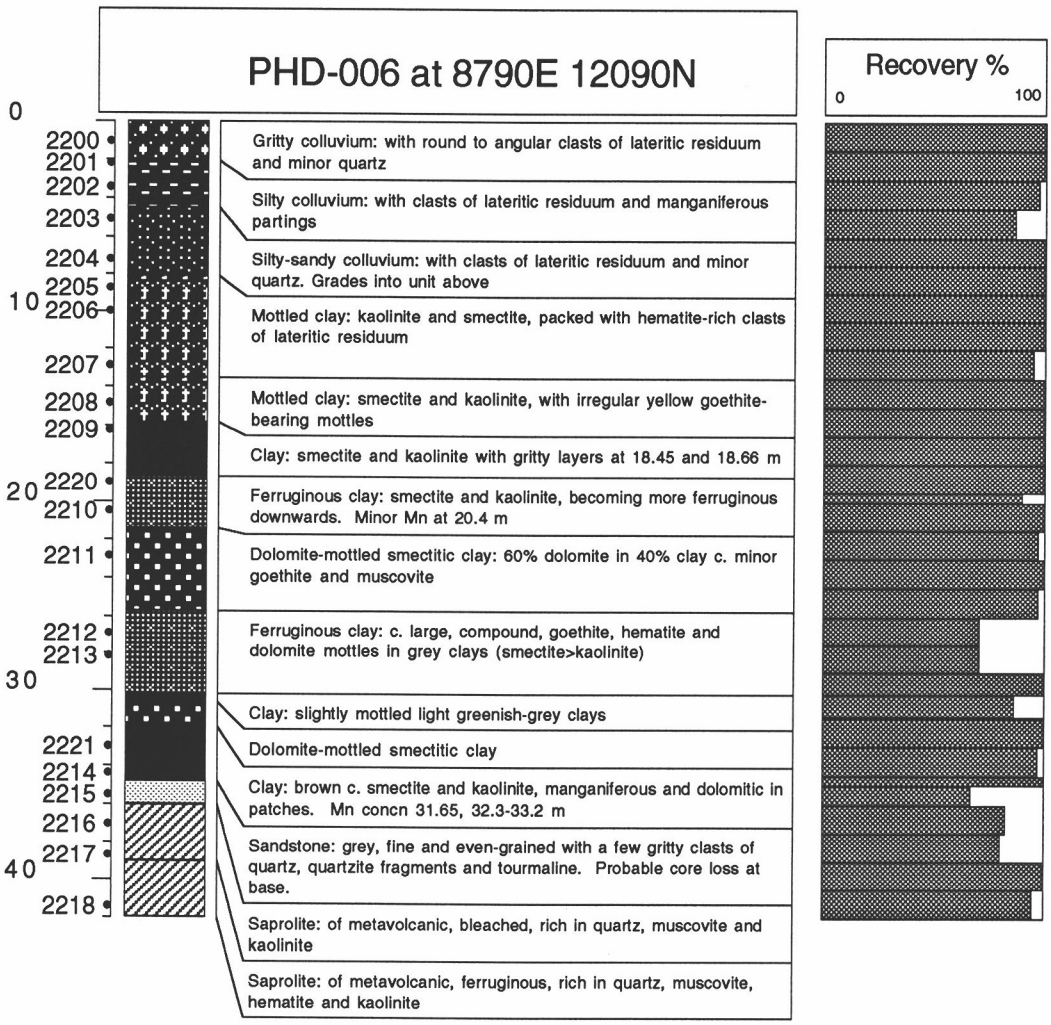
RBX-2217 Mottled Saprolite (39.25 m)

This is too soft to section and is mottled pale grey and yellow-brown. It is very clay rich but some of the clay is stained by goethite. A few equant compound quartz grains are scattered in the clay matrix along with smaller cubic and octahedral deep-red grains of hematite after pyrite.

XRD Mineralogy:- Kaolinite, quartz and muscovite with trace goethite and rutile.

RBX-2218 Ferruginous Saprolite (41.8 m)

XRD Mineralogy:- Quartz, muscovite, kaolinite and goethite.

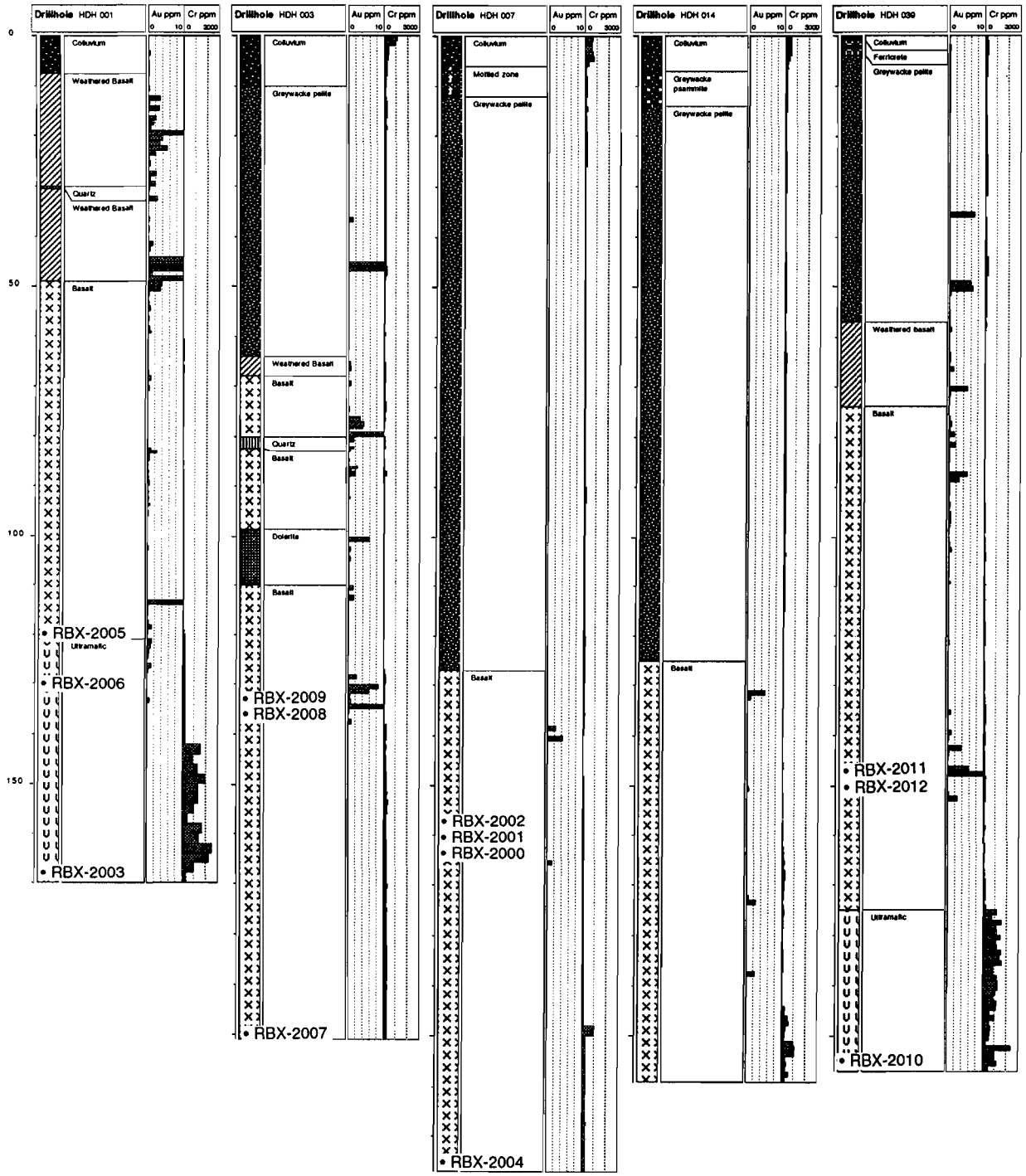

PHD-006 at 8790E 12090N
Recovery %
0
100
0
10
20
30
40
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2220
2210
2211
2212
2213
2221
2214
2215
2216
2217
2218
Gritty colluvium: with round to angular clasts of lateritic residuum and minor quartz
Silty colluvium: with clasts of lateritic residuum and manganiferous partings
Silty-sandy colluvium: with clasts of lateritic residuum and minor quartz. Grades into unit above
Mottled clay: kaolinite and smectite, packed with hematite-rich clasts of lateritic residuum
Mottled clay: smectite and kaolinite, with irregular yellow goethite-bearing mottles
Clay: smectite and kaolinite with gritty layers at 18.45 and 18.66 m
Ferruginous clay: smectite and kaolinite, becoming more ferruginous downwards. Minor Mn at 20.4 m
Dolomite-mottled smectitic clay: 60% dolomite in 40% clay c. minor goethite and muscovite
Ferruginous clay: c. large, compound, goethite, hematite and dolomite mottles in grey clays (smectite>kaolinite)
Clay: slightly mottled light greenish-grey clays
Dolomite-mottled smectitic clay
Clay: brown c. smectite and kaolinite, manganiferous and dolomitic in patches. Mn concn 31.65, 32.3-33.2 m
Sandstone: grey, fine and even-grained with a few gritty clasts of quartz, quartzite fragments and tourmaline. Probable core loss at base.
Saprolite: of metavolcanic, bleached, rich in quartz, muscovite and kaolinite
Saprolite: of metavolcanic, ferruginous, rich in quartz, muscovite, hematite and kaolinite

APPENDIX 6

FRESH ROCK
TABULATED GEOCHEMISTRY
AND SPECIMEN LOCATIONS
HDH 1, 3, 7, 39

FieldNo	LabSeqNo	LibNo	Drillhole	DepthDH	Type	Rock	XRF 0.01 SiO2 %	XRF 0.01 Al2O3 %	XRF 0.01 Fe2O3 %	XRF 0.002 MnO %	XRF 0.01 MgO %	XRF 0.001 CaO %	XRF 0.01 Na2O %	XRF 0.005 K2O %	XRF 0.003 TiO2 %	XRF 0.002 P2O5 %	INAA 2 As ppm	INAA 5 Au ppb	XRF 30 Ba ppm	INAA 10 Ce ppm	XRF 20 Cl ppm
						DetnLim															
RBX-2005	L08-1786	08-1787	HDH-1	121.0	Mineralised	Basalt	37.83	19.02	27.52	0.156	4.49	0.14	0.11	1.59	0.24	0.011	34.8	519	200	4.85	320
RBX-2006	L08-1791	08-1788	HDH-1	130.0	Mineralised	Basalt	42.62	20.24	17.93	0.091	8.77	0.14	0.72	0.03	0.27	0.004	1	5	0	2.78	160
RBX-2003	L08-1792	08-1785	HDH-1	168.3	Background	Basalt	46.85	10.32	8.36	0.197	7.33	11.57	2.01	0.01	0.35	0.045	2.46	8.6	12	3.89	50
RBX-2009	L08-1783	08-1791	HDH-3	133.3	Mineralised	Vein	32.14	14.3	10.73	0.489	6.1	11.85	1.12	2.91	0.2	0.016	19.6	818	897	2.52	0
RBX-2008	L08-1787	08-1790	HDH-3	135.0	Mineralised	Vein	44.18	14.61	6.6	0.197	3.5	9.31	5.49	1.52	0.2	0.067	18.6	1720	322	4.61	10
RBX-2007	L08-1793	08-1789	HDH-3	200.5	Background	Basalt	46.35	12.28	8.61	0.165	8.18	9.77	2.92	0.2	0.44	0.04	1	9.3	35	3.99	40
RBX-2011	L08-1794	08-1793	HDH-39	146.6	Mineralised	Basalt	48.14	14.6	6.36	0.16	5.83	7.29	4.67	0.94	0.18	0.032	4.15	1290	200	3.84	50
RBX-2012	L08-1795	08-1794	HDH-39	149.3	Mineralised	Basalt	41.92	12.97	8.18	0.159	9.74	8.94	2.54	0.54	0.17	0.02	1	5	106	2	50
RBX-2010	L08-1790	08-1792	HDH-39	205.3	Background	U.Mafic	42.01	8.85	9.69	0.163	20.09	6.85	0	0.01	0.16	0.022	1.12	5	4	2	60
RBX-2002	L08-1784	08-1784	HDH-7	159.7	Mineralised	Vein	40.97	10.54	10.77	0.194	5.18	14.27	2.05	0.09	0.49	0.048	1.54	5	3	8.93	50
RBX-2000	L08-1788	08-1782	HDH-7	164.5	Mineralised	Basalt	48.18	13.32	12.09	0.186	6.27	5.39	4.03	0.01	0.69	0.068	2.82	5	15	6.11	50
RBX-2001	L08-1785	08-1783	HDH-7	165.5	Mineralised	Basalt	45.81	12.16	12.72	0.194	4.79	9.98	2.7	0.01	0.72	0.095	1	5	18	7.41	30
RBX-2004	L08-1789	08-1786	HDH-7	226.5	Background	Basalt	43.66	12.17	9.24	0.156	9.97	10.27	1.66	0.02	0.48	0.038	2.07	5	19	4.23	60

	INAA	INAA	INAA	XRF	INAA	XRF	INAA	INAA	INAA	XRF	XRF	XRF	XRF	XRF	INAA	INAA	INAA	XRF	INAA	INAA	XRF	INAA	XRF	INAA	XRF	XRF		
DetnLim	1	5	1	10	1	3	1	0.5	0.2	4	10	5	5	10	0.5	0.1	0.2	5	1	0.5	5	2	5	0.5	5	5		
	Co	Cr	Cs	Cu	Eu	Ga	Hf	La	Lu	Nb	Ni	Pb	Rb	S	Sb	Sc	Sm	Sr	Ta	Th	V	W	Y	Yb	Zn	Zr		
FieldNo	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	Type	Rock
RBX-2005	89.4	336	2.2	9	0.5	12	0.5	2.27	0.64	3	160	11	38	70	0.2	62.9	1.17	22	1.22	0.5	160	14	30	3.77	150	16	Mineralised	Basalt
RBX-2006	70.1	281	1	0	0.5	11	0.5	1.5	0.31	6	132	10	1	60	0.52	56.2	0.78	13	1	0.5	192	11	16	2.16	112	17	Mineralised	Basalt
RBX-2003	36.2	86.4	1	234	0.51	9	0.5	1.57	0.26	4	56	5	0	3760	0.2	41	1.09	79	1	0.64	221	2	16	1.69	32	23	Background	Basalt
RBX-2009	32.6	211	1	32	0.5	13	0.5	1.3	0.25	5	68	13	61	3070	0.71	55.2	0.64	131	1	0.5	221	10.5	14	2.06	62	14	Mineralised	Vein
RBX-2008	13.5	206	1	44	0.5	7	0.5	1.44	0.22	3	67	15	30	3640	0.39	40.6	0.86	131	1.89	0.5	183	66.9	12	1.49	16	10	Mineralised	Vein
RBX-2007	43.3	462	2.3	96	0.5	12	1.17	2.14	0.2	6	210	7	6	140	0.2	36.9	1.32	93	1	0.5	194	2	12	1.44	54	26	Background	Basalt
RBX-2011	20.4	231	1	30	0.5	9	0.5	1.36	0.2	2	48	10	25	1390	0.48	49.9	0.57	77	1	0.5	174	7.21	13	1.58	38	15	Mineralised	Basalt
RBX-2012	37.7	257	1	29	0.5	9	0.5	0.73	0.22	7	81	4	14	1040	0.39	44	0.47	55	1	0.5	159	25.6	12	1.5	47	9	Mineralised	Basalt
RBX-2010	97.2	3180	1	67	0.5	7	0.5	0.63	0.2	0	1311	9	3	70	0.37	28.3	0.47	48	1	0.5	126	2	9	1.09	61	8	Background	U.Mafic
RBX-2002	38.2	72	1	26	0.96	9	0.71	3.03	0.55	5	63	4	4	390	0.67	36.3	2.36	135	1	0.5	232	5.91	30	3.71	63	40	Mineralised	Vein
RBX-2000	46.3	139	1	92	0.71	11	1.02	2.56	0.3	3	98	9	2	620	0.68	45.3	1.77	74	1.36	0.83	257	2	20	2.26	81	44	Mineralised	Basalt
RBX-2001	42.6	83.7	1	121	0.71	14	1.26	3.32	0.32	4	79	2	5	840	0.35	45.1	2.12	97	1	0.5	257	2	21	2.6	81	44	Mineralised	Basalt
RBX-2004	49.5	589	1	78	0.67	10	0.83	1.76	0.21	4	278	11	1	270	0.32	40.7	1.38	95	1	0.5	179	2	12	1.62	58	27	Background	Basalt


Drillhole HDH 001
Au ppm
Cr ppm
Colluvium
Weathered Basalt
Quartz
Weathered Basalt
Basalt
RBX-2005
Ultramafic
RBX-2006
RBX-2003
Drillhole HDH 003
Colluvium
Greywacke pelite
Weathered Basalt
Basalt
Quartz
Basalt
Dolerite
Basalt
RBX-2009
RBX-2008
RBX-2007
Drillhole HDH 007
Colluvium
Mottled zone
Greywacke pelite
Basalt
RBX-2002
RBX-2001
RBX-2000
RBX-2004
Drillhole HDH 014
Colluvium
Greywacke psammite
Greywacke pelite
Basalt
Drillhole HDH 039
Colluvium
Ferricrete
Greywacke pelite
Weathered basalt
Basalt
RBX-2011
RBX-2012
Ultramafic
RBX-2010

APPENDIX 7

SOIL (<75 μm FRACTION)
- TABULATED GEOCHEMISTRY

SampleNo	East	North	Near DrillHole	SiO2 % 0.01 XRF	Al2O3 % 0.01 XRF	Fe2O3 % 0.01 XRF	MgO % 0.01 XRF	CaO % 0.00 XRF	Na2O % 0.01 XRF	K2O % 0.00 XRF	TiO2 % 0.00 XRF	P2O5 % 0.002 XRF	MnO % 0.002 XRF	LOI % XRF
RBX-394	9920.0	12000.0	821	53.18	22.95	10.00	0.32	0.04	0.05	0.93	0.98	0.075	0.164	9.78
RBX-395	9640.0	12000.0	824	58.18	19.62	9.66	0.28	0.04	0.09	1.02	1.25	0.088	0.054	8.66
RBX-396	9520.0	12080.0	832	61.19	17.84	9.33	0.30	0.07	0.10	1.03	1.29	0.098	0.065	8.01
RBX-397	9280.0	12080.0	667	52.02	19.81	15.20	0.27	0.05	0.09	0.89	1.11	0.091	0.084	9.84
RBX-398	9160.0	11920.0	979	57.05	20.03	9.66	0.33	0.07	0.11	1.02	1.19	0.098	0.046	9.28
RBX-399	9040.0	12080.0	673	53.29	22.49	10.00	0.35	0.06	0.09	1.03	1.05	0.075	0.224	10.06
RBX-400	8854.9	12112.9	523	53.05	22.50	11.30	0.30	0.04	0.08	1.05	1.31	0.074	0.140	9.43
RBX-401	8606.2	12111.5	528	58.70	19.51	9.96	0.27	0.04	0.09	1.00	1.29	0.094	0.063	8.32
RBX-402	8760.0	12240.0	934	54.32	21.85	9.82	0.35	0.09	0.13	1.14	1.18	0.112	0.127	9.87
RBX-403	8950.0	12200.0	421	54.72	21.84	10.23	0.33	0.06	0.09	1.08	1.16	0.085	0.120	9.39
RBX-404	9120.0	12200.0	776	51.21	23.52	11.02	0.40	0.06	0.08	1.14	1.16	0.052	0.130	9.90
RBX-405	9350.0	12200.0	500	55.16	21.82	9.60	0.35	0.10	0.12	1.12	1.15	0.113	0.060	9.56
RBX-406	9680.0	12160.0	901	59.52	18.90	9.45	0.30	0.06	0.09	1.05	1.25	0.094	0.064	8.34
RBX-407	9880.0	12320.0	851	59.41	18.98	9.67	0.27	0.05	0.08	1.03	1.31	0.098	0.068	8.35
RBX-408	9720.0	12480.0	795	54.47	21.83	10.28	0.31	0.05	0.08	1.07	1.20	0.159	0.060	9.28
RBX-409	9560.0	12320.0	780	53.11	22.06	9.64	0.31	0.08	0.07	1.07	1.19	0.138	0.091	11.17
RBX-410	9460.0	12420.0	428	61.53	17.47	9.22	0.23	0.04	0.07	0.95	1.34	0.092	0.050	7.65
RBX-411	9260.0	12420.0	432	56.97	20.46	9.76	0.31	0.05	0.08	1.05	1.27	0.122	0.054	8.55
RBX-412	9050.0	12400.0	435	62.26	17.03	9.38	0.26	0.05	0.08	0.97	1.51	0.112	0.062	7.42
RBX-413	8850.0	12400.0	440	58.53	19.50	9.78	0.30	0.05	0.09	1.04	1.31	0.106	0.062	8.56
RBX-414	8656.3	12421.0	444	60.09	18.55	9.58	0.28	0.05	0.07	1.03	1.35	0.100	0.054	7.98
RBX-415	8550.0	12600.0	319	56.81	20.58	9.94	0.30	0.05	0.08	1.01	1.20	0.094	0.057	8.91
RBX-416	8750.0	12600.0	321	59.94	18.63	9.75	0.30	0.06	0.08	1.05	1.35	0.095	0.128	7.94
RBX-417	8850.0	12600.0	322	57.62	19.56	9.89	0.28	0.06	0.11	1.07	1.29	0.099	0.072	8.51
RBX-418	9600.0	12600.0	487	56.72	20.61	9.97	0.30	0.04	0.13	1.06	1.29	0.145	0.054	9.06
RBX-419	9800.0	12640.0	883	59.77	18.39	9.54	0.30	0.10	0.15	1.08	1.35	0.117	0.278	7.92
RBX-420	9920.0	12800.0	727	58.52	18.76	10.39	0.28	0.05	0.13	1.08	1.37	0.098	0.206	7.68
RBX-421	9680.0	12800.0	749	61.70	17.55	9.63	0.26	0.05	0.14	1.04	1.41	0.091	0.080	7.57
RBX-422	9440.0	12840.0	768	57.97	19.43	9.87	0.32	0.08	0.13	1.11	1.30	0.102	0.154	8.46
RBX-423	9080.0	12800.0	587	58.56	19.08	9.55	0.31	0.06	0.08	1.08	1.34	0.140	0.063	8.85
RBX-424	8850.0	12800.0	317	57.90	19.65	10.00	0.30	0.05	0.08	1.07	1.31	0.120	0.057	8.42
RBX-425	8650.0	12800.0	-	58.63	19.17	9.91	0.30	0.05	0.10	1.05	1.33	0.100	0.086	8.18
RBX-426	8760.0	12960.0	-	56.83	20.11	10.21	0.30	0.05	0.08	1.03	1.27	0.114	0.061	8.95
RBX-427	9000.0	12960.0	-	58.88	19.19	9.92	0.30	0.05	0.09	1.05	1.32	0.108	0.097	8.25
RBX-428	9160.0	12960.0	694	61.15	17.75	9.54	0.27	0.06	0.10	1.04	1.38	0.094	0.176	7.55
RBX-429	9360.0	12960.0	689	60.35	18.56	9.10	0.28	0.06	0.09	1.06	1.34	0.103	0.091	8.20
RBX-430	9560.0	12960.0	592	56.61	19.93	10.13	0.29	0.07	0.10	1.08	1.26	0.157	0.213	8.91
RBX-431	9760.0	12960.0	890	56.58	20.46	10.18	0.32	0.05	0.09	1.13	1.28	0.110	0.088	8.75
RBX-432	9920.0	13120.0	-	64.52	16.16	8.96	0.27	0.06	0.11	1.05	1.36	0.124	0.146	7.16
RBX-433	9720.0	13120.0	607	55.57	20.78	9.99	0.29	0.04	0.06	1.06	1.24	0.147	0.115	9.51
RBX-434	9500.0	13100.0	169	62.60	17.29	9.38	0.26	0.05	0.09	1.02	1.37	0.116	0.136	7.15
RBX-435	9240.0	12800.0	-	60.78	18.25	9.63	0.28	0.06	0.13	1.07	1.38	0.106	0.079	7.51
RBX-436	9200.0	12720.0	-	61.51	18.09	9.59	0.27	0.05	0.08	1.04	1.36	0.101	0.096	7.27
RBX-437	9100.0	12720.0	-	61.02	18.06	9.69	0.28	0.09	0.09	1.02	1.41	0.098	0.072	7.52
RBX-438	9300.0	12720.0	-	61.15	18.24	9.37	0.26	0.05	0.09	1.06	1.34	0.101	0.101	7.38
RBX-439	9400.0	12720.0	-	57.56	20.26	9.62	0.28	0.05	0.07	1.06	1.27	0.135	0.061	8.85
RBX-440	9440.0	12620.0	-	57.66	19.80	9.68	0.28	0.07	0.09	1.08	1.29	0.133	0.058	8.98
RBX-441	9360.0	12620.0	-	58.66	19.38	9.59	0.27	0.06	0.07	1.05	1.34	0.151	0.071	8.65
RBX-442	9260.0	12620.0	-	58.71	18.87	9.59	0.27	0.06	0.09	1.04	1.36	0.110	0.069	8.83
RBX-443	9160.0	12620.0	-	60.91	18.00	9.16	0.27	0.06	0.06	0.99	1.30	0.100	0.059	8.09
RBX-444	9051.8	12619.8	324	58.37	19.29	9.96	0.32	0.07	0.07	1.07	1.33	0.126	0.061	8.43
RBX-445	8952.3	12619.5	323	58.01	19.72	10.02	0.30	0.05	0.06	1.05	1.32	0.107	0.081	8.25
RBX-446	9080.0	12540.0	-	59.94	18.88	9.80	0.29	0.04	0.10	1.03	1.36	0.116	0.058	7.81
RBX-447	9220.0	12520.0	-	60.84	18.29	9.55	0.28	0.05	0.08	0.99	1.33	0.100	0.102	7.72
RBX-448	9330.0	12540.0	-	56.88	20.28	10.14	0.28	0.06	0.09	1.08	1.32	0.138	0.101	8.56
RBX-449	9430.0	12540.0	-	56.34	21.38	10.00	0.30	0.05	0.08	1.04	1.32	0.132	0.069	8.88
RBX-450	9350.0	12430.0	-	58.45	19.60	9.85	0.27	0.04	0.08	1.01	1.34	0.125	0.061	8.38
RBX-451	9160.0	12420.0	-	60.90	18.08	9.70	0.25	0.04	0.08	0.98	1.37	0.099	0.059	7.58

SampleNo	As ppm 1.0 NAA	Au ppb 5.0 NAA	Ba ppm 30 XRF	Br ppm 2.0 NAA	Ce ppm 2.0 NAA	Cl ppm 20 XRF	Co ppm 1.0 NAA	Cr ppm 5 NAA	Cs ppm 1.0 NAA	Cu ppm 10 XRF	Eu ppm 0.50 NAA	Ga ppm 3 XRF	Hf ppm 0.5 NAA	La ppm 0.5 NAA	Lu ppm 0.20 NAA	Mo ppm 5 NAA	Nb ppm 4 XRF	Ni ppm 10 XRF	Pb ppm 5 XRF
RBX-394	8.5	<5	526	2.3	186.0	110	12.5	201	5.3	31	2.28	28	8.8	66.3	0.69	<5	18	50	28
RBX-395	8.2	<5	295	3.9	73.9	220	8.8	206	5.3	32	0.83	24	15.2	37.4	0.53	<5	19	42	30
RBX-396	7.1	<5	249	<2	80.8	20	10.1	193	4.9	25	1.14	23	15.7	36.4	0.52	<5	20	37	28
RBX-397	14.5	<5	287	3.6	63.4	210	10.9	196	4.3	33	0.81	27	12.7	34	0.40	<5	18	40	33
RBX-398	<10	<10	364	<5	73.0	120	9.2	206	5.6	29	1.11	27	13.2	35.8	0.51	<5	19	39	31
RBX-399	9.6	<5	436	4.6	132.0	20	25.5	238	4.4	39	1.89	29	10.9	53.1	0.58	<5	14	57	27
RBX-400	9.1	<5	293	<2	63.2	80	12.3	271	5.3	31	1.01	32	11.1	32.4	0.41	<5	21	62	24
RBX-401	6.7	<5	206	2.9	74.3	30	9.6	200	4.4	30	0.97	23	14.0	33.8	0.47	<5	20	47	24
RBX-402	11.9	<10	237	4.5	81.0	580	16.2	186	5.3	36	1.65	25	10.6	42.5	0.49	<5	19	52	30
RBX-403	7.2	14.9	233	<2	70.9	40	17.0	208	5.6	34	1.08	27	10.2	35.6	0.45	<5	16	56	28
RBX-404	<4	<5	372	4.4	74.5	140	11.0	269	5.4	30	0.91	28	8.6	35.2	0.37	<5	15	62	23
RBX-405	11.6	<5	229	<2	72.7	150	11.3	160	4.6	36	1.12	28	10.0	37.6	0.50	<5	18	48	29
RBX-406	9.6	<5	200	2.7	79.1	110	10.8	184	4.3	29	0.96	22	14.8	37.7	0.52	<5	18	39	25
RBX-407	9.3	<5	212	2.3	75.9	30	10.0	170	5.4	30	1.13	24	15.1	37	0.53	<5	19	36	25
RBX-408	11.7	<5	207	3.4	75.8	50	10.1	178	5.7	37	0.91	29	9.3	37.3	0.46	<5	20	48	30
RBX-409	12.5	<5	204	9.9	98.5	110	14.3	165	5.9	28	1.65	28	10.8	47	0.53	<5	19	45	27
RBX-410	6.0	13.3	197	2.7	57.8	150	7.0	176	4.1	30	0.81	22	15.8	31	0.48	<5	21	35	23
RBX-411	9.2	13.2	180	2.4	72.6	10	8.7	170	5.2	35	0.99	27	11.9	36.3	0.50	<5	18	43	29
RBX-412	9.1	<5	193	2.8	72.6	50	9.1	180	3.6	24	0.85	24	22.1	35.5	0.64	<5	24	34	24
RBX-413	12.8	<5	203	5.2	80.0	80	9.6	187	5.5	32	1.15	26	15.3	38.6	0.51	<5	19	39	28
RBX-414	10.5	<5	195	2.4	72.5	70	9.4	179	4.5	28	1.06	24	15.6	36.7	0.50	<5	22	35	30
RBX-415	10.5	<5	304	3.9	79.7	70	8.8	205	3.9	32	1.16	24	14.2	40.5	0.50	<5	18	41	32
RBX-416	6.4	<5	277	<2	95.8	70	14.0	163	5.1	26	1.13	26	16.8	39.8	0.60	<5	19	39	30
RBX-417	11.8	<5	259	<2	80.7	620	10.7	178	5.1	33	0.93	26	14.6	38.6	0.53	<5	22	37	33
RBX-418	12.5	<5	203	4.9	71.5	810	9.0	173	5.5	36	0.94	26	12.9	36.6	0.45	<5	20	39	31
RBX-419	8.8	<5	345	<2	102.0	800	22.1	186	4.2	40	1.53	23	16.0	44.4	0.58	<5	21	48	35
RBX-420	10.6	<5	385	2.6	98.8	610	15.1	180	4.8	32	1.13	25	16.8	40.9	0.62	<5	20	52	32
RBX-421	10.7	<5	257	<2	78.5	940	11.0	173	4.7	31	1.04	22	18.8	38.7	0.59	<5	20	37	28
RBX-422	8.7	<5	251	2.9	104.0	490	16.7	157	5.9	35	1.42	24	14.6	42	0.56	<5	20	41	32
RBX-423	7.3	<5	191	4.4	77.7	40	9.6	170	5.3	29	0.79	23	15.6	36	0.52	<5	21	39	28
RBX-424	9.4	<5	248	3.6	73.3	30	9.4	178	4.6	35	0.90	26	13.4	36.4	0.48	<5	23	52	32
RBX-425	10.3	<5	257	5.3	86.6	70	11.7	170	4.9	32	1.11	26	15.2	37.4	0.54	<5	22	39	30
RBX-426	11.6	16.4	418	<2	80.6	190	8.2	167	5.9	33	0.88	26	12.8	37.8	0.49	<5	19	34	30
RBX-427	8.1	<10	249	<2	107.0	50	11.3	165	5.2	32	1.12	23	15.7	43.8	0.59	<5	21	35	30
RBX-428	8.9	<5	271	<2	86.4	60	18.4	158	4.3	24	1.16	22	17.6	39	0.60	<5	21	41	26
RBX-429	10.9	<5	206	3.8	79.0	40	13.1	152	3.9	30	1.11	25	16.5	38.2	0.51	<5	20	36	26
RBX-430	14.8	<10	260	<2	97.5	90	23.3	162	4.5	37	1.45	25	14.1	42	0.53	<5	19	45	26
RBX-431	7.7	<5	235	<2	88.5	50	14.0	177	5.7	37	1.27	26	13.1	40.9	0.51	<5	21	38	28
RBX-432	8.2	<5	259	3.2	83.1	50	14.8	173	4.3	27	1.07	22	18.4	38.2	0.59	<5	19	37	28
RBX-433	11.6	<5	229	4.6	96.5	60	13.2	164	5.1	33	1.49	28	12.9	43.6	0.56	<5	19	42	29
RBX-434	9.5	<5	251	<2	91.5	20	14.0	165	4.4	27	1.01	21	18.5	41.6	0.62	<5	19	36	26
RBX-435	7.9	<5	254	<2	88.5	500	12.1	167	3.5	31	1.14	22	17.7	41.9	0.65	<5	21	42	27
RBX-436	7.3	<5	227	<2	91.3	70	12.3	169	3.7	28	1.26	22	17.4	42.1	0.58	<5	20	34	33
RBX-437	6.8	13.8	228	<2	84.6	30	10.2	175	4.9	30	1.06	22	18.8	39.4	0.59	<5	20	38	28
RBX-438	8.3	<5	214	<2	77.5	80	14.7	158	4.5	29	1.14	26	16.4	38.3	0.59	<10	21	37	30
RBX-439	11.8	16.0	200	3.2	82.1	30	9.7	169	5.7	32	1.17	25	13.7	38.9	0.50	<5	19	37	31
RBX-440	12.5	15.3	192	7.3	86.2	90	9.4	180	5.5	33	1.20	24	15.0	42	0.53	<5	23	40	32
RBX-441	8.4	12.9	192	2.5	73.5	60	9.7	175	5.4	28	1.27	25	16.1	39.1	0.54	<5	18	38	32
RBX-442	9.0	10.4	198	5.0	80.7	60	10.1	160	4.3	29	1.36	24	16.9	40.5	0.65	<5	22	40	26
RBX-443	7.1	<5	215	3.0	78.5	80	9.6	165	4.6	35	1.32	23	16.4	38.9	0.57	<5	21	36	34
RBX-444	9.6	<5	229	3.0	78.2	80	9.8	176	5.1	34	0.96	25	14.7	38.7	0.51	<5	18	41	25
RBX-445	9.4	<5	269	3.4	94.7	70	10.6	179	5.4	32	1.21	25	14.6	40.3	0.57	<5	19	40	34
RBX-446	7.0	<5	234	<2	81.0	120	10.1	184	4.2	29	0.94	22	16.5	37.6	0.51	<5	23	34	29
RBX-447	13.1	<5	229	<2	80.2	130	12.4	178	4.7	28	1.02	22	17.0	37.2	0.58	<5	22	37	24
RBX-448	10.7	<5	193	3.6	75.5	70	13.0	175	4.1	34	1.16	26	13.5	38.6	0.49	<5	24	43	30
RBX-449	10.1	<5	191	3.6	78.2	80	10.5	177	5.7	35	1.00	26	14.5	40.9	0.56	<5	18	42	31
RBX-450	12.2	<5	188	5.2	69.1	60	9.4	177	5.3	32	0.92	26	15.9	36.2	0.51	<5	22	39	31
RBX-451	<4	<10	210	<2	74.6	110	9.6	187	4.1	27	0.94	23	17.4	34.8	0.51	<5	21	35	28

SampleNo	Rb ppm 5 XRF	S ppm 10 XRF	Sb ppm 0.20 NAA	Sc ppm 0.1 NAA	Se ppm 5 NAA	Sm ppm 0.20 NAA	Sr ppm 5 XRF	Ta ppm 1.0 NAA	Th ppm 0.5 NAA	U ppm 2.0 NAA	V ppm 5 XRF	W ppm 2.0 NAA	Y ppm 5 XRF	Yb ppm 0.50 NAA	Zn ppm 5 XRF	Zr ppm 5 XRF
RBX-394	82	170	0.58	27.8	<5	10.20	35	1.2	20.3	<2	158	<2	42	4.44	63	314
RBX-395	75	190	0.53	23.6	<5	5.15	32	1.5	22.1	2.6	152	<2	28	3.66	206	537
RBX-396	75	150	0.80	22.0	<5	5.56	34	2.1	21.7	3.1	146	3.2	27	3.72	56	572
RBX-397	66	410	0.90	22.0	<5	4.05	36	1.9	19.8	2.7	183	<2	26	2.88	58	452
RBX-398	79	170	0.90	23.4	<5	5.37	33	1.6	20.7	<2	154	<2	27	3.51	58	472
RBX-399	81	120	1.12	26.9	<5	8.91	33	1.5	19.6	2.4	157	<2	35	4.16	69	363
RBX-400	70	140	0.62	29.5	<5	4.15	32	2.0	21.2	<2	188	<2	23	3.18	50	385
RBX-401	73	150	0.89	23.7	<5	5.23	34	1.9	21.3	3.4	158	<2	26	3.80	55	529
RBX-402	91	120	0.65	28.2	<5	7.63	42	1.5	21.6	2.8	155	<2	30	3.77	70	390
RBX-403	80	110	1.05	27.5	<5	6.02	35	1.5	20.9	<2	160	<2	27	3.37	57	372
RBX-404	77	120	0.59	28.7	<5	4.17	31	1.8	18.1	2.9	184	<2	25	2.70	64	316
RBX-405	94	140	0.92	27.4	<5	6.63	42	1.4	21.3	2.3	154	<2	27	3.51	67	352
RBX-406	77	140	0.66	23.5	<5	5.77	33	1.6	22.2	2.4	145	<2	25	3.69	57	541
RBX-407	76	130	0.72	23.5	<5	5.73	34	1.8	23.3	3.6	148	<2	26	3.82	57	534
RBX-408	91	190	1.14	26.7	<5	5.52	41	1.9	22.1	2.4	161	<2	20	3.05	63	337
RBX-409	82	180	0.64	27.3	<5	8.11	41	1.4	21.8	3.3	154	<2	30	3.87	89	380
RBX-410	67	170	0.93	19.4	<5	4.11	34	1.4	20.7	3.1	156	<2	27	3.20	53	604
RBX-411	88	180	1.02	25.1	<5	5.38	39	2.1	22.0	3.7	163	<2	23	3.35	57	439
RBX-412	66	130	0.83	20.7	<5	5.24	34	2.2	23.7	4.4	152	<2	28	4.40	54	791
RBX-413	80	150	1.18	24.8	<5	5.90	40	1.8	23.3	3.1	157	3.8	28	4.05	58	562
RBX-414	78	130	0.91	22.3	<5	5.45	37	2.0	22.7	2.4	148	<2	27	3.75	59	567
RBX-415	75	120	0.94	24.7	<5	5.60	36	1.7	21.4	2.1	156	<2	29	3.71	59	501
RBX-416	78	130	0.68	22.4	<5	5.91	37	2.2	23.4	3.6	155	<2	30	3.88	63	601
RBX-417	82	230	0.81	24.2	<5	5.56	37	2.0	23.0	2.6	155	<2	24	3.50	58	492
RBX-418	85	140	0.94	23.6	<5	4.95	39	2.0	22.2	2.9	163	3.7	24	3.15	62	472
RBX-419	78	90	0.84	23.6	<5	7.68	41	2.4	22.6	2.3	152	<2	36	4.42	81	590
RBX-420	84	220	0.79	24.5	<5	6.17	36	2.0	24.3	2.4	156	<2	27	4.21	59	585
RBX-421	72	180	1.30	22.1	<5	5.97	36	1.7	24.1	2.8	145	<2	30	4.12	56	678
RBX-422	84	150	0.80	24.1	<5	7.16	43	1.5	22.9	2.6	163	<2	31	4.43	68	525
RBX-423	83	120	0.58	22.7	<5	5.33	40	2.3	23.2	2.2	158	<2	27	3.50	60	567
RBX-424	87	190	0.74	24.7	<5	5.20	41	1.9	23.3	3.2	159	<2	25	3.43	60	497
RBX-425	81	160	0.94	23.1	<5	5.51	39	1.9	24.0	2.6	161	<2	26	3.76	60	559
RBX-426	83	170	0.71	23.3	<5	5.47	40	1.7	22.1	<2	172	<2	24	3.31	59	440
RBX-427	79	180	0.74	24.0	<5	6.90	38	2.2	23.1	3.6	170	<2	30	4.05	57	547
RBX-428	72	120	0.73	21.8	<5	6.11	37	2.1	23.5	3.8	144	<2	33	4.38	60	646
RBX-429	79	110	1.01	23.3	<5	5.93	38	1.9	22.5	4.1	148	<2	29	3.87	60	594
RBX-430	79	120	0.79	25.5	<5	7.54	39	2.0	22.2	<2	167	<2	32	4.06	73	501
RBX-431	93	160	0.93	26.8	<5	5.78	42	1.8	24.4	4.1	174	<2	27	3.88	62	455
RBX-432	70	110	0.69	20.7	<5	6.19	35	2.0	22.4	3.4	140	<2	30	4.22	59	654
RBX-433	80	160	0.86	28.3	<5	7.49	38	1.6	23.0	3.4	152	<2	30	3.96	60	446
RBX-434	68	140	1.08	21.8	<5	6.42	36	1.8	22.9	2.9	157	<2	30	4.28	58	643
RBX-435	79	130	0.76	24.4	<5	6.69	35	1.7	24.5	4.6	160	<2	32	4.28	60	618
RBX-436	76	150	0.75	22.8	<5	6.72	36	2.3	23.2	2.4	152	<2	33	4.29	57	604
RBX-437	71	190	0.70	22.7	<5	5.97	36	1.6	23.8	2.6	152	<2	31	4.17	57	662
RBX-438	76	140	0.77	23.8	<5	5.93	37	2.5	23.4	5.2	159	<2	28	4.13	59	587
RBX-439	80	140	1.08	25.4	<5	6.38	39	2.1	22.5	2.7	157	4.2	29	3.82	61	487
RBX-440	82	190	0.75	24.7	<5	6.79	36	1.7	22.8	3.0	153	<2	28	3.78	57	513
RBX-441	73	140	0.89	23.2	<5	5.80	38	1.7	22.3	2.7	156	3.6	27	3.67	66	532
RBX-442	78	180	0.86	23.4	<5	6.54	35	2.1	22.7	3.6	153	<2	30	4.20	58	598
RBX-443	74	120	0.87	22.1	<5	6.63	36	1.4	21.9	2.8	144	<2	31	4.25	58	570
RBX-444	84	180	0.91	24.3	<5	5.82	39	2.2	22.7	3.4	157	<2	29	4.13	60	532
RBX-445	86	170	0.96	25.1	<5	5.99	35	2.2	24.1	3.5	166	<2	28	3.77	58	503
RBX-446	79	120	0.63	23.0	<5	5.64	37	1.7	23.0	3.3	148	<2	28	3.83	54	583
RBX-447	70	170	1.06	22.5	<5	5.69	37	1.9	22.3	<2	150	<2	28	3.92	56	619
RBX-448	80	180	0.96	24.6	<5	5.49	41	2.7	22.3	2.9	148	<2	25	3.60	62	505
RBX-449	84	100	0.70	26.8	<5	6.43	42	2.8	23.3	<2	159	<2	27	3.70	68	502
RBX-450	74	160	0.88	23.7	<5	5.00	36	1.7	22.9	3.2	155	2.5	27	3.46	57	544
RBX-451	69	170	0.68	21.8	<5	5.03	33	1.9	23.1	3.6	154	<2	28	3.70	52	643

APPENDIX 8

INTERFACE SAMPLES
- TABULATED GEOCHEMISTRY

Field No	Easting	Northing	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	LOI %
		DetnLim	0.01	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.002	0.002	
			XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF
RBX-4	9500.0	13100.0	42.67	21.41	15.35	0.96	0.40	0.22	1.23	0.81	0.032	0.174	9.77
RBX-9	9720.0	13120.0	23.33	18.08	47.00	0.23	0.11	0.07	0.33	0.90	0.021	0.087	10.42
RBX-13	9760.0	12960.0	44.34	21.53	12.74	0.78	0.27	0.10	0.37	1.15	0.033	0.134	10.28
RBX-16	9560.0	12960.0	28.29	23.29	31.28	0.49	0.20	0.10	0.40	0.69	0.021	0.144	10.53
RBX-20	9360.0	12960.0	45.57	13.01	28.54	0.45	0.18	0.10	0.69	0.90	0.071	0.728	6.77
RBX-24	9160.0	12960.0	47.50	18.62	15.09	0.78	0.26	0.14	1.76	0.77	0.028	1.160	8.07
RBX-28	8850.0	12800.0	48.97	17.11	20.81	1.20	0.21	0.08	0.88	0.92	0.078	0.145	8.26
RBX-32	9080.0	12800.0	53.31	15.02	17.61	0.54	0.15	0.07	0.85	0.89	0.049	0.195	7.06
RBX-36	9440.0	12840.0	30.83	18.61	35.49	0.41	0.28	0.13	0.34	0.77	0.010	0.064	8.58
RBX-40	9680.0	12800.0	44.15	19.05	18.49	0.78	0.28	0.14	0.26	0.85	0.049	0.152	9.13
RBX-44	9920.0	12800.0	33.02	19.59	36.89	0.37	0.17	0.09	0.54	1.12	0.053	0.308	7.73
RBX-49	9800.0	12640.0	36.60	21.69	28.36	0.24	0.14	0.08	0.27	1.79	0.033	0.283	10.01
RBX-52	9600.0	12600.0	39.70	19.50	27.30	0.48	0.17	0.04	0.30	1.29	0.053	0.192	10.75
RBX-56	9100.0	12620.0	48.58	21.22	14.56	1.03	0.32	0.10	1.13	0.78	0.037	0.234	9.26
RBX-60	8850.0	12600.0	43.17	14.76	31.69	0.51	0.19	0.07	0.74	1.16	0.065	0.626	6.82
RBX-64	8750.0	12600.0	49.75	18.25	18.72	0.74	0.31	0.06	0.63	0.89	0.043	0.142	9.92
RBX-68	8550.0	12600.0	43.86	19.21	24.42	0.52	0.20	0.06	0.75	1.05	0.058	0.665	8.60
RBX-72	8656.3	12421.0	37.35	18.11	29.58	0.45	0.18	0.06	0.50	1.08	0.049	0.133	8.12
RBX-75	8850.0	12400.0	30.95	17.70	38.24	0.44	0.17	0.07	0.44	1.06	0.043	0.253	7.77
RBX-79	9050.0	12400.0	42.84	22.14	17.38	0.52	0.38	0.13	1.01	0.97	0.028	0.063	9.25
RBX-82	9460.0	12420.0	37.76	13.80	34.50	1.90	0.14	0.05	0.47	1.23	0.074	0.547	7.69
RBX-85	9260.0	12420.0	37.29	17.48	32.66	0.54	0.19	0.07	0.77	1.07	0.063	0.595	8.10
RBX-89	9720.0	12480.0	34.73	18.90	31.99	1.19	0.17	0.06	0.35	1.21	0.028	0.194	9.44
RBX-93	9880.0	12320.0	42.21	14.76	30.79	0.36	0.17	0.07	0.41	1.09	0.054	0.382	7.35
RBX-100	9350.0	12200.0	36.35	22.11	28.13	0.67	0.21	0.07	0.43	1.14	0.049	0.157	10.60
RBX-104	9120.0	12200.0	39.38	15.67	35.87	0.32	0.13	0.07	0.39	1.52	0.058	0.129	6.44
RBX-108	8950.0	12200.0	32.44	19.38	37.25	0.62	0.31	0.09	0.27	1.10	0.018	0.049	7.74
RBX-112	8760.0	12240.0	40.86	24.45	20.50	0.54	0.23	0.11	0.29	0.92	0.024	0.120	10.46
RBX-116	9040.0	12080.0	40.56	21.13	11.99	2.21	5.91	0.07	0.41	1.10	0.028	0.103	15.04
RBX-120	9160.0	11920.0	46.20	24.77	13.09	0.89	0.31	0.07	0.32	1.16	0.028	0.140	10.44
RBX-123	9280.0	12080.0	38.57	18.16	29.96	0.45	0.18	0.07	0.42	1.53	0.038	0.142	7.91
RBX-128	9520.0	12080.0	43.01	17.25	23.25	1.08	0.25	0.08	0.48	0.93	0.045	0.150	8.75
RBX-136	9920.0	12000.0	34.24	15.84	35.86	0.51	0.17	0.08	0.76	1.60	0.106	0.417	7.46
RBX-140	9680.0	12160.0	36.27	18.64	27.31	1.20	0.29	0.11	0.40	0.97	0.052	0.140	9.90
RBX-143	9240.5	12800.1	49.94	8.81	11.82	5.30	0.12	0.04	0.41	0.43	0.032	0.367	9.40
RBX-152	9161.1	12640.1	47.19	19.65	21.32	0.90	0.30	0.11	0.95	0.87	0.054	0.283	8.60
RBX-157	9320.5	12639.9	36.65	13.68	38.26	0.24	0.10	0.06	0.52	2.77	0.066	0.361	6.30
RBX-175	9161.1	12640.1	52.52	17.54	13.12	0.71	1.67	0.18	1.50	0.80	0.022	0.037	8.16
RBX-223	9261.4	12638.9	39.24	24.35	20.16	1.23	0.20	0.18	1.75	1.04	0.012	0.080	10.65
RBX-267	9240.4	12540.1	57.33	11.71	15.78	2.55	0.17	0.04	0.56	0.66	0.047	0.372	8.14
RBX-360	9240.4	12540.1	74.53	6.51	13.38	0.39	0.10	0.13	1.16	0.29	0.118	0.085	3.30
RBX-367	9378.9	12640.3	36.76	20.04	32.01	0.33	0.20	0.06	0.50	1.09	0.041	0.131	8.62
RBX-379	9398.3	12640.2	59.25	10.31	23.76	0.13	0.04	0.02	0.47	0.98	0.130	0.108	5.09

Field No	As ppm 1.0 NAA	Au ppb 5 NAA	Ba ppm 30 XRF	Br ppm 2.0 NAA	Ce ppm 2.0 NAA	Cl ppm 20 XRF	Co ppm 1.0 NAA	Cr ppm 5 NAA	Cs ppm 1.0 NAA	Cu ppm 10 XRF	Eu ppm 0.50 NAA	Ga ppm 3 XRF	Hf ppm 0.50 NAA	La ppm 0.5 NAA	Lu ppm 0.20 NAA	Mo ppm 5 NAA	Nb ppm 4 XRF
RBX-4	9.1	94	292	3.7	25.8	<40	6.4	436	2.8	45	<0.5	26	3.80	14.3	0.21	<5	10
RBX-9	17.4	349	134	<2	34.0	<10	6.4	1440	4.3	24	0.50	45	5.88	10.2	<0.2	<5	17
RBX-13	25.3	24	130	4.6	56.0	<40	14.9	668	2.6	35	1.04	27	5.83	20.7	0.37	<5	17
RBX-16	9.7	185	290	<2	23.5	10	12.9	562	2.0	21	0.92	33	4.52	14.0	0.25	<5	8
RBX-20	25.6	<10	703	<2	64.2	0	23.1	691	1.7	42	0.87	26	5.84	27.1	0.27	<5	17
RBX-24	5.7	<10	920	<2	82.1	<70	31.0	346	4.3	37	1.36	23	3.65	22.9	0.41	<5	8
RBX-28	12.2	90	479	<2	36.7	<10	11.5	454	2.5	37	0.69	26	4.45	21.9	0.28	<5	12
RBX-32	12.3	56	299	2.6	52.1	<60	12.8	498	3.4	44	1.20	24	4.77	26.6	0.32	<5	12
RBX-36	11.5	104	193	<2	18.0	10	7.6	630	3.7	18	<0.5	33	4.55	9.3	<0.2	<5	12
RBX-40	29.2	102	83	<2	47.8	<40	17.2	1120	2.2	47	0.93	20	4.63	17.7	0.28	<5	13
RBX-44	28.3	<5	412	4.6	66.9	<10	11.6	1750	2.2	56	0.56	42	6.85	18.2	0.29	<5	17
RBX-49	30.7	<5	781	<2	34.2	70	15.3	3160	1.5	30	0.64	44	4.57	12.9	0.41	<5	18
RBX-52	34.3	<10	619	4.9	64.8	0	24.2	675	2.0	98	1.95	27	4.15	27.4	0.27	<5	22
RBX-56	15.6	152	906	<2	48.6	<40	17.5	437	2.9	68	1.07	26	3.85	19.7	0.28	<5	11
RBX-60	30.3	131	996	<2	88.5	<10	22.2	926	1.0	58	1.34	30	6.24	31.6	0.41	<5	19
RBX-64	14.4	91	1554	2.6	36.5	<40	9.9	440	<1	52	0.77	25	4.23	17.3	0.22	<5	17
RBX-68	20.8	53	892	<2	94.6	<50	30.4	724	4.2	60	1.57	30	6.74	32.5	0.41	<5	15
RBX-72	32.3	140	251	<2	54.0	<70	10.2	1160	2.5	44	0.67	35	6.81	17.3	0.23	<5	14
RBX-75	23.5	282	469	4.4	69.1	<10	11.5	978	3.0	38	1.11	41	7.23	24.7	0.31	<5	12
RBX-79	10.2	572	325	<2	10.9	<60	7.3	466	1.6	54	<0.5	25	3.87	7.3	<0.2	<5	11
RBX-82	34.8	636	669	<2	74.6	0	23.9	1340	2.2	51	1.83	34	5.03	48.7	0.48	<5	16
RBX-85	30.1	3720	962	2.2	88.8	10	34.5	1010	2.3	76	1.47	32	4.66	31.4	0.42	<5	16
RBX-89	91.1	16	355	<2	60.3	0	27.3	3000	2.0	66	1.26	30	4.10	20.3	0.42	<5	11
RBX-93	86.1	<5	598	<2	56.1	<10	18.1	1650	1.5	69	0.87	28	4.34	16.8	0.28	<5	14
RBX-100	23.2	<10	171	<2	45.5	<20	12.7	432	1.8	161	0.94	27	4.01	17.0	0.30	<5	9
RBX-104	31.0	369	189	<2	54.5	<10	12.8	1350	2.9	47	0.84	35	6.92	19.2	0.31	<5	18
RBX-108	31.4	393	141	<2	29.7	<20	9.8	926	2.4	48	<0.5	41	5.26	10.7	0.30	<5	21
RBX-112	21.1	246	132	6.6	85.6	<60	13.0	621	2.5	46	0.63	32	5.41	12.2	<0.2	<5	16
RBX-116	20.1	<10	108	<2	46.0	<60	13.9	647	2.7	36	0.88	26	5.20	19.0	0.31	<5	16
RBX-120	14.1	<10	170	<2	45.8	<60	20.0	1150	2.5	63	0.65	27	4.58	14.6	0.31	<5	16
RBX-123	25.3	41	238	<2	50.5	<30	12.7	1260	2.4	55	0.65	32	5.62	16.8	0.28	<5	15
RBX-128	41.8	<10	398	<2	28.1	<20	27.0	1670	<1	92	0.88	25	3.52	15.0	0.35	<5	12
RBX-136	230.0	<10	826	<2	65.5	0	29.2	1760	3.4	95	1.61	34	5.36	28.0	0.32	<5	23
RBX-140	206.0	<10	370	<2	20.3	<20	19.7	2900	3.2	97	0.58	25	3.45	13.3	0.27	<5	11
RBX-143	15.3	28	319	<2	45.5	<40	16.4	355	2.0	11	1.38	15	2.82	35.7	0.35	<5	5
RBX-152	22.5	155	436	3.2	54.3	<40	17.4	645	3.0	51	1.06	30	5.21	26.6	0.27	<5	15
RBX-157	23.9	116	445	<2	47.4	<10	18.0	856	2.6	31	0.70	49	8.78	24.1	0.36	<5	28
RBX-175	<4	332	303	<2	10.6	<70	5.6	264	3.8	72	<0.5	18	2.82	5.7	<0.2	<5	10
RBX-223	12.0	114	498	<2	17.8	40	8.6	388	3.6	93	0.63	28	2.59	7.0	0.27	<5	11
RBX-267	13.7	57	483	<2	89.0	<40	25.2	456	2.6	27	2.07	22	4.35	49.2	0.52	<5	12
RBX-360	14.5	4110	225	<2	34.9	<80	65.1	130	<1	121	2.90	8	1.16	49.6	0.72	<5	6
RBX-367	29.9	242	314	<2	26.9	10	10.4	1080	1.8	36	0.64	40	5.71	12.6	0.31	<5	15
RBX-379	24.9	<5	101	<2	33.8	<30	8.8	818	2.0	29	<0.5	21	7.31	18.2	0.23	<5	12

Field No	Ni ppm 10 XRF	Pb ppm 5 XRF	Rb ppm 5 XRF	S ppm 10 XRF	Sb ppm 0.20 NAA	Sc ppm 0.1 NAA	Sm ppm 0.20 NAA	Sr ppm 5 XRF	Ta ppm 1.0 NAA	Th ppm 0.50 NAA	U ppm 2.0 NAA	V ppm 5 XRF	W ppm 2.0 NAA	Y ppm 5 XRF	Yb ppm 0.5 NAA	Zn ppm 5 XRF	Zr ppm 5 XRF
RBX-4	81	21	73	70	0.88	43.9	2.61	41	<1	10.40	<2	220	<2	14	1.5	24	125
RBX-9	63	15	31	50	1.91	89.1	3.22	23	1.1	27.00	<2	648	<2	12	1.7	23	206
RBX-13	130	26	23	60	1.21	42.9	3.82	24	1.1	14.30	<2	211	3.8	23	2.5	24	186
RBX-16	84	6	35	190	1.34	42.6	3.85	26	<1	14.70	<2	440	2.6	19	2.3	39	153
RBX-20	42	20	40	140	1.26	28.4	4.80	45	<1	21.90	2.1	334	<2	19	2.1	40	224
RBX-24	97	19	100	70	0.51	33.3	5.81	44	1.3	13.00	<2	238	<2	29	3.4	53	125
RBX-28	78	24	54	170	1.15	27.2	4.54	33	1.1	13.70	<2	287	<2	24	2.1	48	164
RBX-32	88	27	48	80	<0.2	29.9	5.42	32	<1	15.90	2.4	272	<2	27	2.6	39	174
RBX-36	44	5	26	110	1.43	39.9	2.27	34	<1	18.00	<2	585	14.9	14	1.6	16	159
RBX-40	178	22	17	100	1.46	42.3	4.06	36	1.1	13.30	<2	229	2.7	18	2.1	29	161
RBX-44	97	24	37	100	2.51	48.3	3.54	41	1.3	35.80	<2	493	3.7	16	2.1	34	247
RBX-49	170	8	19	270	8.01	24.1	2.37	20	1.0	9.64	<2	634	4.8	21	3.0	44	184
RBX-52	90	8	20	310	3.69	54.9	7.40	43	1.6	9.88	<2	672	<2	20	2.4	42	158
RBX-56	97	19	73	190	1.14	36.2	4.09	44	1.2	12.20	<2	247	<2	18	2.3	41	131
RBX-60	78	26	46	170	1.45	34.6	6.59	41	<1	23.70	<2	513	13.0	27	3.0	41	242
RBX-64	72	16	37	370	0.91	35.5	3.41	43	<1	11.80	<2	312	2.5	19	1.8	32	138
RBX-68	109	28	51	70	1.37	37.4	7.09	37	1.6	21.00	<2	364	<2	30	3.3	54	212
RBX-72	79	31	32	90	2.12	49.2	3.22	26	2.0	26.80	<2	482	<2	17	2.2	38	233
RBX-75	72	25	30	90	1.73	69.7	5.30	32	1.5	28.60	2.1	675	<2	27	2.7	34	226
RBX-79	82	26	65	70	0.69	41.7	1.36	36	<1	12.40	<2	299	<2	10	1.0	42	142
RBX-82	143	24	32	190	2.03	31.8	9.09	37	1.4	18.80	<2	511	8.4	34	3.4	46	172
RBX-85	105	16	47	210	1.52	38.8	6.99	39	1.4	16.00	<2	529	8.5	27	3.0	64	164
RBX-89	266	6	25	190	3.35	47.9	5.56	24	<1	9.54	<2	613	<2	27	3.3	56	123
RBX-93	126	12	25	170	1.44	42.5	3.44	29	1.1	16.10	<2	511	3.2	20	2.3	34	178
RBX-100	138	17	27	90	1.02	81.0	4.09	38	<1	10.20	2.1	538	<2	17	2.8	88	131
RBX-104	64	21	29	80	2.21	45.0	4.13	30	1.9	22.20	<2	666	10.6	18	3.1	36	272
RBX-108	72	22	25	50	2.32	69.9	2.94	20	1.3	25.20	<2	610	<2	15	2.2	18	212
RBX-112	102	34	20	50	1.41	74.5	2.89	28	1.3	22.20	<2	381	<2	17	1.8	23	176
RBX-116	108	19	26	50	1.13	43.1	3.84	77	1.2	13.90	<2	259	<2	17	2.4	30	178
RBX-120	217	19	15	40	0.87	55.8	3.16	36	<1	11.60	<2	268	<2	16	2.4	32	165
RBX-123	95	8	30	40	1.91	44.3	2.87	27	1.3	15.70	<2	650	<2	14	2.0	37	244
RBX-128	262	18	19	170	1.64	47.9	3.46	33	<1	10.60	<2	409	3.2	18	2.3	54	132
RBX-136	186	12	29	180	1.51	42.8	6.51	45	1.5	18.40	<2	582	5.2	22	2.6	65	219
RBX-140	315	19	16	180	3.68	53.6	2.84	28	<1	9.29	<2	476	4.8	15	2.1	38	102
RBX-143	96	21	26	80	0.56	15.7	6.49	20	<1	10.30	<2	147	<2	31	2.5	56	94
RBX-152	90	29	59	120	1.48	35.6	4.98	48	<1	17.30	<2	289	4.1	23	2.5	45	161
RBX-157	41	19	34	130	2.80	26.8	3.33	34	2.7	20.20	2.7	670	23.3	18	2.7	49	306
RBX-175	93	17	90	50	1.02	43.7	1.25	30	<1	6.40	<2	212	<2	5	1.2	70	81
RBX-223	56	21	90	130	1.61	67.1	1.86	34	<1	9.85	<2	329	5.8	12	1.8	42	124
RBX-267	108	22	40	80	0.73	19.7	10.10	30	<1	13.90	<2	195	<2	44	3.5	62	154
RBX-360	178	28	40	280	2.46	14.7	11.00	21	<1	3.34	<2	85	69.0	60	5.1	356	37
RBX-367	78	11	33	120	2.20	35.1	2.81	24	1.0	18.20	<2	548	14.6	16	2.3	38	212
RBX-379	37	26	28	130	1.00	20.5	2.93	19	1.2	20.10	2.4	289	2.2	16	1.7	42	260

APPENDIX 9

STUDY METHODS

STUDY METHODS

Co-ordinates

AMG Grid co-ordinates were used for the regional regolith study. However, the local exploration grid has been used throughout for the detailed study. This grid is rotated 28.893807912° west (counter-clockwise) in relation to the AMG Grid. Common points are as follows:-

	Local Grid	AMG Grid
N1	11000	7160130.41
E1	9000	664065.94
N2	13000	7161881.16
E2	9000	663099.72
N3	6800	7155874.11
E3	7800	665044.55
N4	12160	7161628.96
E4	10000	664380.91

Both grids are shown on Figure 4.

RAB drill spoil logging

Spoil from over 700 RAB drill holes were logged for their main regolith units during this study. Fortunately, most of the drill spoil had received just sufficient rain to collapse the powdery material and leave any chips on the surfaces of the spoil heaps without washing the piles of drill spoil one into another. This made logging much easier. Appearances of these drill spoil heaps are shown in Figure 10A-F, where the major regolith types may be distinguished readily.

Three staff (the authors) and one vehicle were used for the logging; one person logged, one recorded data and one drove and established peg co-ordinates and drill hole numbers. In this way it was possible to log comparatively rapidly and obtain an overview which would have been impossible by detailed logging. No attempt was made to produce a detailed lithological log; this had already been achieved by AFMECO Pty Ltd exploration staff. Inevitably some drill holes were inadvertently logged twice but the results were very closely comparable, indicating that the logging was consistent.

The logging data were compiled into a spreadsheet and merged with collar co-ordinates hole inclination and collar elevation. Several sub-files were produced from this for further processing, each with co-ordinates, computed vertical thicknesses and contact elevations of the regolith units.

Drill spoil sampling

One hundred and eleven samples of the *top of the basement* (lateritic duricrust, mottled zone and ferruginous saprolite) were collected on an approximately triangular grid, using a sample spacing of about 250 m. Where the interface between residual and transported materials could be identified, the 'top of basement' was collected ~1 m below this unconformity to ensure no

transported component. Where gravelly lateritic duricrust overlaid nodular lateritic duricrust, the top of the nodular lateritic duricrust was selected, again to avoid transported material.

Interface samples were taken where residual material (lateritic duricrust or ferruginous saprolite) was identified as mixed with colluvium. At the few places where adjacent drill spoil heaps contained only discrete residual and cover materials, an approximately equal mixture of the samples immediately above and below the unconformity were collected to represent the interface.

Samples of selected spoil heaps were taken by carefully breaking the crusted surface of the spoil heaps and collecting about 500 g of spoil which was bagged in polythene. Any spoil with soil attached was rejected. It is probable that minor sampling bias would have occurred but this was considered less undesirable than sample contamination.

Preparation of basement samples

All samples of buried lateritic duricrust, mottled zone and ferruginous saprolite were soaked in water overnight and then washed in tap water on a 2000 µm sieve to remove clays. The clays were discarded. Each sample was rinsed in deionised water before drying at 50°C.

Clays make up a small proportion of the lateritic duricrust, where it is either inherent to the duricrust or where clay has been washed down from the covering colluvium or valley-fill sediments. Removal of these clays ensured that the geochemistry of the sample reflected the geochemistry of the lateritic duricrust only. Clays formed a large proportion of the mottled zone, resulting in a significant concentration of Fe oxides on washing. Washing the ferruginous saprolite made little difference to its composition but may have removed any fine contaminants from the drill spoil.

Soil sampling

Soil samples were collected on an approximately triangular grid, using a sample spacing of about 200 m but this interval was reduced to 100 m in the vicinity of the pit. Although all sampling was completed prior to mining, there had been some ground disturbance in places. At each point on the grid, a suitable sample site was selected, as free as possible from contamination by drilling or from vehicle tracks. Co-ordinates were determined from the local grid peg system. The top 50 mm of soil was scraped away over about 0.25 m^2 to remove any possible contamination. About one kg of complete soil was collected from a depth of 50-200 mm. Fifty eight soil samples were collected over a grid covering 1200 x 1400 m (1.68 km^2).

Pilot fractionation of soil

Five soil sub-samples were selected for pilot treatment. They were wet sieved in deionised water into their principal components (>2000, 710-2000, 500-710, 250-500, 75-250, <75 µm), using nylon sieves in PVC supports and the sieved components were oven dried at 70°C. Each size fraction was weighed to determine its relative abundance and, hence, the practicality of later batch treatment. Specimens of each size fraction were prepared for microscopic examination by ultrasonic treatment to remove clays and clean the grains. These were washed in ethanol, air dried and samples of the clean material were stuck on paper with strips of adhesive transfer tape[1].

Preparation of soil samples

All the soil samples were wet sieved in deionised water into >710, 75-710 and <74 µm fractions. The coarser fractions were air dried and bagged. The <75 µm fraction was oven-dried at 80°C, briefly ring-milled in K1045 steel to break up the caked material and submitted for analysis.

[1]3M Scotch Brand 464

Clay sediment disaggregation

Specimens of valley-fill clays were removed from the drilled material to investigate their contained suite of nodules and detrital grains. Chips of the clay sediments were broken manually and disaggregated in water by ultrasonic agitation for 90 minutes. Suspended clays were poured off at 30 minute intervals. Where the sediment was poor in granules, four 1.5 mm steel ball-bearings were added to assist the autogenous milling of the clay fragments. The separated nodules and granules were washed in ethanol, dried and examined by binocular microscope.

Petrography

Polished sections of coherent, ferruginous samples from diamond drilled material are easily prepared. A few of the relatively non-ferruginous materials were sufficiently coherent for the preparation of open thin sections (dolomite nodules in particular) and polished blocks. The majority of the non-ferruginous, clay-rich materials were extremely friable, rich in smectitic clays and required several attempts at face impregnation under vacuum before polished mounts could be prepared. Many of these clays would crack and crumble on drying.

Splitting and Milling

Each sample for geochemical analysis was split on a PVC riffle. Aliquots of 100 g were pulped to a nominal <75 μm in a case-hardened K1045 steel mill (Robertson *et al.*, 1995) using a double sand clean and ethanol wipe of the mill components between samples.

XRD mineralogy

Pulped samples were examined by CuKα radiation, using a Philips PW1050 diffractometer, fitted with a graphite crystal diffracted beam monochromator. Each sample was scanned over a range 3-65° 2θ at a speed of 1° 2θ/min and data were collected at 0.02° 2θ intervals. Charts, plotted at 0.5° 2θ/cm were used for interpretation. Estimates of the abundance of specific minerals in different samples were made by measuring XRD peak heights in cm; this method does not take into account mass absorption, crystallinity etc., is very approximate and must not be used to compare the relative abundances of *different* minerals.

Chemical analysis

All samples were analysed by XRF (CSIRO) and by INAA (Becquerel Laboratories).

INAA

Aliquots of 10 or 30 g (depending on availability) were encapsulated at CSIRO and sent to Becquerel Laboratories for INAA analysis. Detection limits were as follows (in ppm):- K (2000); Fe (500); Zn, Ba, Na (100); Rb (20); Ag, Se, Cr, Mo (5); W, Ce, Br, U (2); As, Co, Cs, Ta (1); La, Eu, Yb, Hf, Th (0.5); Sb, Sm, Lu (0.2); Sc (0.1); Ir (0.02); Au (0.005).

XRF

X-ray fluorescence analysis was performed at CSIRO on fused discs (0.7 g sample and 6.4 g Li borate) using a Philips PW1480 instrument by the method of Norrish and Hutton (1969). Detection limits were as follows (in ppm):- Si, Al (100); Mg, Na (100); Fe (50); Ti (30); Mn, P (20); Ca, K (10); Ba (30); Ce, Cl (20); Cr, Co, Cu, La, Ni, S (10); Pb, Rb, Sr, V, Y, Zn, Zr (5); Nb (4); Ga (3).

The data are presented in Appendices 1, 3, 4, 6, 7 and 8. A data disc is appended as Appendix 10. Analyses of standards included with each batch are also presented.

Data presentation

The distribution of data in plan was designed for contouring by using an approximately equant sample interval (triangular grid). The data were gridded at a 50 x 50 m mesh for the basement samples and at a 20 x 20 m mesh for the interface and soil samples, using a moving, weighted, least squares method (weighting exponent 2.0), utilising the nearest 8 points. The weighted values were used to compute a first order polynomial for each grid node. This method was chosen as it closely honours the control points. Minor difficulty was encountered with highly skewed data (e.g., Au, As, Sb and W). In the untransformed state, such data can produce contoured anomalies larger than that implied by point data and useful information at low concentrations tends to be lost due to the skew distribution. Log_{10} transforms were applied and the data translated after contouring, to produce a more accurate and useful result. Contours were smoothed using four filtering passes. Contour intervals were chosen to display the data with maximum sensitivity but minimum clutter.

APPENDIX 10

DATA DISC

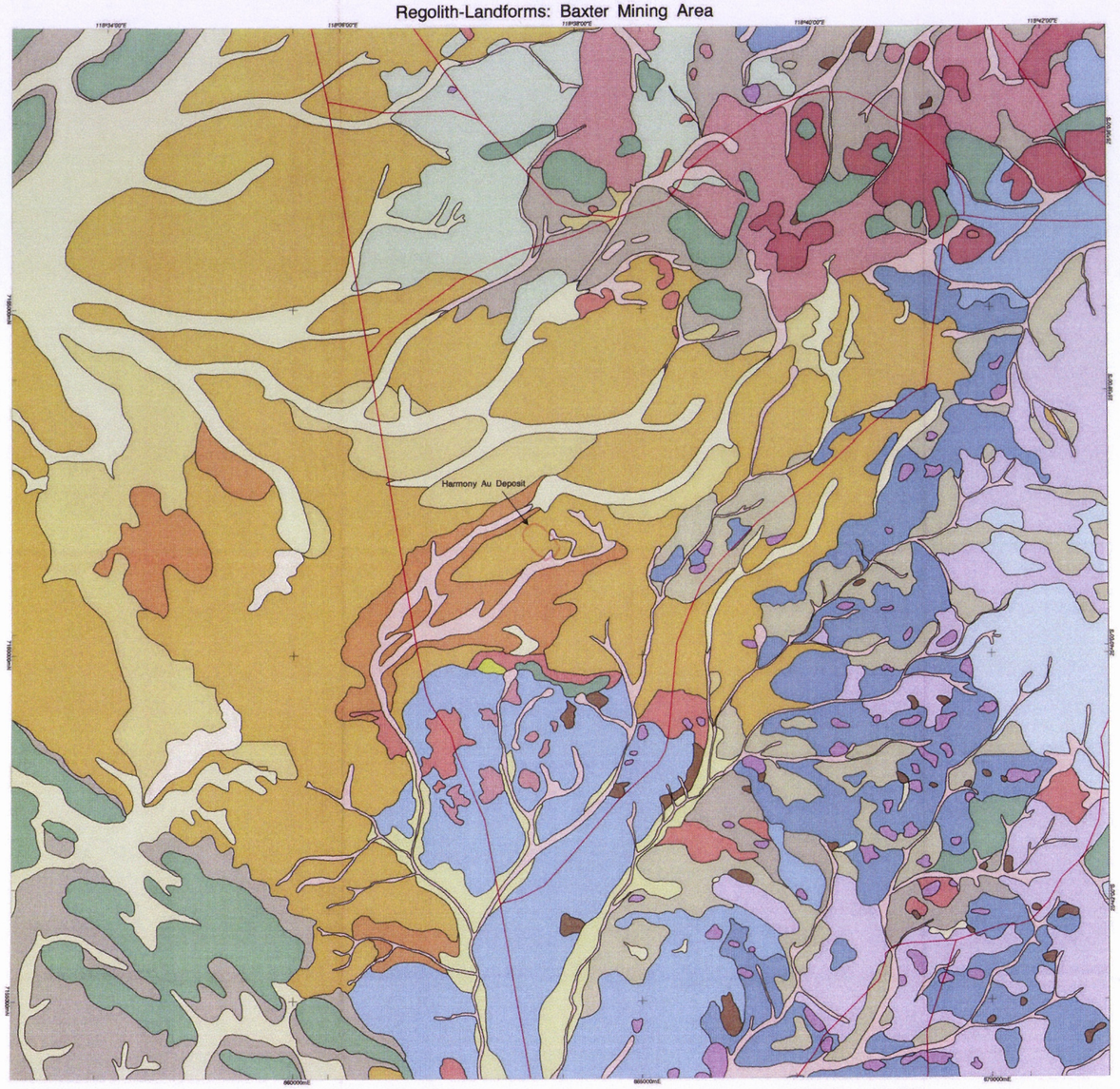
Type README.TXT for formats and contents

APPENDIX 11

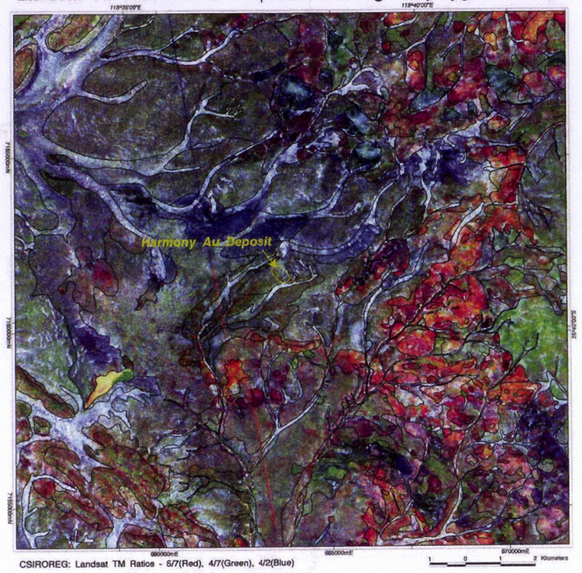
1:25 000 REGOLITH LANDFORM MAP OF THE BAXTER MINING CENTRE

Regolith-Landforms Map: Baxter Mining Area, Peak Hill, W.A.

Regolith-Landforms: Baxter Mining Area



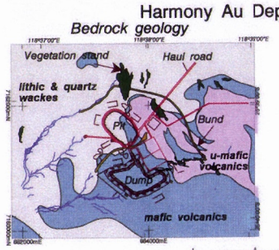
Landsat TM ratio colour composite with regolith polygon overlay



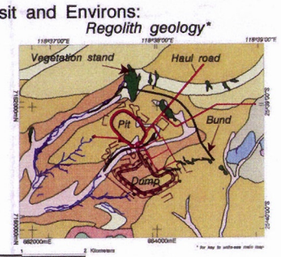
CSIROREG: Landsat TM Ratios - 5/7(Red), 4/7(Green), 4/2(Blue)

Harmony Au Deposit and Environs:

Bedrock geology

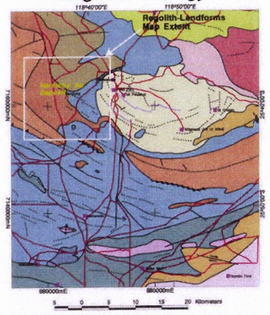


Regolith geology*



* See map for unlithe-ness mafic dump

Regional Geology



Key:

Text Locality
Locality
Regolith Map outline
Faults
Shears
Quartz Mylonites
Fold axes
Lineaments
Roads

Geology
Conglomerates, arenites, shales, BIFs
Arenite
Arkosic arenite
Conglomerates, quartz-arenites, siltstones, shales and cherts
Conglomerates, sandstones, shales and iron formation
Gneiss
Gneiss, amphibolite and calc silicates
Lithic and quartz wacke
Metabasaltic hyaloclastites
Metabasaltic lavas; locally with pillow structures and dolerite sills
Metabasaltic vent breccia
Quartz arenite
Schists and mylonites

Source: Piraino and Occhipinti (1996), Geological Survey of Western Australia

In-Situ Materials

Unit	Regolith Materials	Landform	Regime
R1	Patchy, clay-rich plastic duricrust, plastite and nodules overlying ferruginous saprolite and saprolite of metasediments.	Crest	Relict
R2	Patchy, Fe-rich plastic-cuirasse duricrust, plastite and nodules overlying ferruginous saprolite and saprolite of metasediments.	Low hills	Relict
R3	Patchy black, massive Fe-rich duricrust, fragments of duricrust overlying ferruginous saprolite and saprolite of schists/volcanics.	Plains	Relict
R4	Patchy red-brown duricrust, ferruginous nemrtiform duricrust, fragments of duricrust, plastite, and nodules overlying ferruginous saprolite and saprolite of metasediments.	Low hills	Relict
E1	Medium to coarse blocky lag, mainly ferruginous lithic and quartz clasts overlying ferruginous saprolite over undifferentiated bedrock.	Erosional plain	Erosional
E2	Coarse quartz-rich blocky lag over bedrock/saprock developed over schists/volcanics.	Plains	Erosional
E3	Coarse blocky lag of ferruginous saprolite, fragments of Fe-rich, laterite duricrust and laterite gravels, overlying schists/volcanics	Low dunes	Erosional
E4	Medium to coarse blocky lag, mainly manganiferous ferruginous lithic fragments with some quartz, over saprolite in metasediments	Pediment	Erosional
E5	Bedrock, saprock, lithosols developed in schists/volcanics	Low dunes	Erosional
E6	Ferruginous saprolite/bedrock developed in metasediments.	Low hills, ridges	Erosional

Transported Materials

Unit	Regolith Materials	Landform	Regime
C1	Medium to coarse, polymictic lag of ferruginous and manganiferous lithic fragments, nodules, plastite and quartz in red sandy loam matrix.	Sheet-flood Fan	Depositional
C2	Red-brown sandy-clay loam sheet wash deposit with thin, patchy polymictic lag of manganiferous-ferruginous lithic fragments and quartz.	Sheet-flood Fan	Depositional
C3	Hardpanned colluvium.	Depositional plain	Depositional
C4	Medium to coarse colluvium, lag of ferruginous, lithic fragments, lithic clasts and quartz, locally derived from schists/volcanics.	Colluvial fans/ footslopes	Depositional
C5	Medium to coarse colluvium, lag of ferruginous, lithic fragments, lithic clasts and quartz, locally derived from metasediments.	Pediment	Depositional
C6	Medium to coarse clastics of quartz associated with quartz blows mainly colluvial.	Pediment	Depositional
A1	Sands and gravels in confined channels.	Alluvial channel	Depositional
A2	Overbank deposits.	Flood plain	Depositional
A3	Alluvium of gravelly sands and sandy clays with mixtures of ferruginous and sparsely altered lithic fragments in shallow, poorly confined channels on sheet-flood fans.	Alluvial channel on sheet-flood fan	Depositional
A4	Clayey of light brown clay soils	Depositional plain	Depositional

WARNING: The ink on this map is water soluble and will fade with prolonged exposure to light

Scale 1:25,000

1 0 1 2 3 4 5 Kilometers

Universal Transverse Mercator Projection

Tic marks within the map indicate 5km intervals of the Australian Map Grid Zone 50

Compiled and produced by T.J. Munday (CRC AMET) and C. Phang (CRC LEME), 1996.

Australia - Map Locality

N

Published by CRC LEME, Perth, Australia, as part of CRC LEME Restricted Report 99/E & M Report 194R, prepared as part of CRC LEME-AMIRA Project P420 - Geochemical Exploration in Areas of Transported Overburden, Yilgarn Craton and Environs, W.A.

It is recommended that this map be referred to as:

T.J. Munday and C. Phang - 1996 - Regolith-Landforms: Baxter Mining Area, Peak Hill, W.A. (1:25,000 map series). Co-operative Research Centre for Landscape Evolution and Mineral Exploration, (CRC LEME) Perth, W.A.

The regolith map is based on air-photo and Landsat TM image interpretation, combined with detailed field observation and logging of RAB and RC drill cuttings.

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CRC LEME acknowledges the support provided for the production of this map by the Co-operative Research Centre for Australian Mineral Exploration Technologies and AMIRA.

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 Centre's Programme.