BRITISH COLUMBIA

PROSPECTORS ASSISTANCE PROGRAM

MINISTRY OF ENERGY AND MINES

GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR:	1994/95
REPORT #:	PAP 94-52
NAME:	RAGNAR BRUASET

BRITISH COLUMBIA
PROSPECTORS ASSISTANCE PROGRAM
PROSPECTING REPORT FORM (continued)

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B. TECHNICAL REPORT

* One technical report to be completed for each project area
* Refer to Program Requirements/Regulations, section 15, 16 and 17
* If work was performed on claims a copy of the applicable assessment report may be submitted in lieu of the supporting data (see section 16) required with this TECHNICAL REPORT

Name Ragnar U. Bruaset Reference Number

LOCATION/COMMODITIES

Project Area (as listed in Part A.) GNOME Minfile No. if applicable

Location of Project Area NTS 92P/2 Lat 51°10'N Long 120°53'W

Description of Location and Access In south central Interior about 45 Km N. along Deadman River road from Trans-Canada Highway near Savona.

Main Commodities Searched For Au, Cu, Ag, Mo

Known Mineral Occurrences in Project Area epithermal breccias containing drill intersections of about 1 m or less with up to 4.65 ppm Au, also quartz vein with 0.14 oz/ton Au + 0.26 oz/ton Ag + 0.35% Cu

WORK PERFORMED

1. Conventional Prospecting (area) –
2. Geological Mapping (hectares/scale) –
3. Geochemical (type and no. of samples) ENZYME LEACH SOILS: 106, bark samples: 82
4. Geophysical (type and line km) –
5. Physical Work (type and amount) –
6. Drilling (no. holes, size, depth in m, total m) –
7. Other (specify) –

SIGNIFICANT RESULTS (if any)

Commodities Au, Cu Claim Name GNOME

Location (show on map) Lat (see attached report conclusions) Long Elevation 940 m ±

Best assay/sample type N/A

Description of mineralization, host rocks, anomalies

These are fully described in the attached report on p.5

Supporting data must be submitted with this TECHNICAL REPORT.

REPORT ON THE COMBINED
ENZYME LEACH AND BIOGEOCHEMICAL SURVEYS
OF 1994 ON THE
GNOME PROPERTY

GNOME, AND PAM 1-3 MINERAL CLAIMS

AT

VIDETTE LAKE

IN THE

DEADMAN RIVER AREA,

CLINTON MINING DIVISION

BRITISH COLUMBIA

51 10'N., 120 53'W

N. T. S. 92P/2W

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OWNER AND OPERATOR:

RAGNAR U. BRUASET

REPORT BY:

RAGNAR U. BRUASET B.Sc.

GEOLOGIST

28 FEBRUARY 1995

FIELD WORK WAS PERFORMED BETWEEN JULY 15 AND OCTOBER 31, 1994

CLAIM ON WHICH WORK WAS DONE: GNOME (TITLE NO. 208110)

TABLE OF CONTENTS

SUMMARY	1
INTRODUCTION	2
THE 1994 GROUND CONTROL	3
LOCATION, ACCESS AND PHYSIOGRAPHY	3
THE REGIONAL GEOCHEMICAL SIGNATURE OF THE GNOME SYSTEM	4
PROPERTY AND OWNERSHIP	4
REGIONAL GEOLOGY	5
PROPERTY GEOLOGY	5
GENERAL INFORMATION ON ENZYME LEACH	7
ENZYME LEACH ON THE GNOME AND ITS INTERPRETATION	9
GEN. INFORMATION ON BIOGEOCHEMICAL SURVEYING WITH OUTER BARK	11
BARK SAMPLING ON THE GNOME	13
BARK ANOMALIES	15
CONCLUSIONS	18
REFERENCES	20

GENERAL ILLUSTRATIONS

PLATE NO.	CONTENT	SCALE
PLATE 1	LOCATION MAP	
PLATE 2	TOPOGRAPHIC MAP	1:15,000
PLATE 3	GEOCHEMISTRY-OUTER BARK AND ENZYME LEACH SAMPLES	1:5,000
PLATE 4	COMPILATION MAP	1:5,000
PLATE E.L. 2	ENZYME LEACH INTERPRETATION PLOT	1:15,000
PLATE 6	LOCATION MAP FOR BARK SAMPLES	1:15,000
PLATE 7	BARK COMPILATION MAP: Au, Br, As, Sb ANOMALIES	1:15,000
PLATE 8	" " " : Fe, Mo, Na "	1:15,000
PLATE 9	" " " : Zn, La, Sc, Ce "	1:15,000
PLATE 10	" " " : Yb, Cr, Co, Ba "	1:15,000
PLATE 11	1979 REGIONAL GEOCHEMICAL EXPRESSION OF Mo	1:250,000
PLATE 12	" " " " " F	1:250,000

APPENDIX 1

ENZYME LEACH (57 pages)

A. ENZYME LEACH DATA: Report No. 1217RPT.XLS 9 pages

INCLUDING:

ANALYTICAL PROCEDURES AND LIST OF DETECTION LIMITS 1 page

B. LETTER REPORT BY J. R. CLARK ON GNOME ENZYME LEACH SURVEY DATED DEC. 28, 1994

2 pages

C. MISCELLANEOUS REFERENCES ON ENZYME LEACH BY CLARK, J. R.

1. EXAMPLES OF ASYMMETRICAL ENZYME LEACH ANOMALY PATTERNS

41 pages

(SPECIAL NOTE: PLEASE REFER TO THE 5 CONTOUR PLOTS)

2. INNOVATIVE ENZYME LEACH PROVIDES COST-EFFECTIVE OVERBURDEN PENETRATION (C., J. R., AND COHEN, DAVID)

4 pages

APPENDIX 2

BIOGEOCHEMISTRY (11 pages)

DETECTION LIMITS

LISTING OF DATA FOR INDIVIDUAL SPECIES. ACT. LAB. RPT No. 7229 (8 pages)

ANALYTICAL PROCEDURES (1 page)

ANOMALOUS LEVELS AND MISCELLANEOUS NOTES (1 page)

APPENDIX 3

ENZYME LEACH DATA (51 pages)

HAND CONTOURED PLOTS OF SELECT ELEMENTS

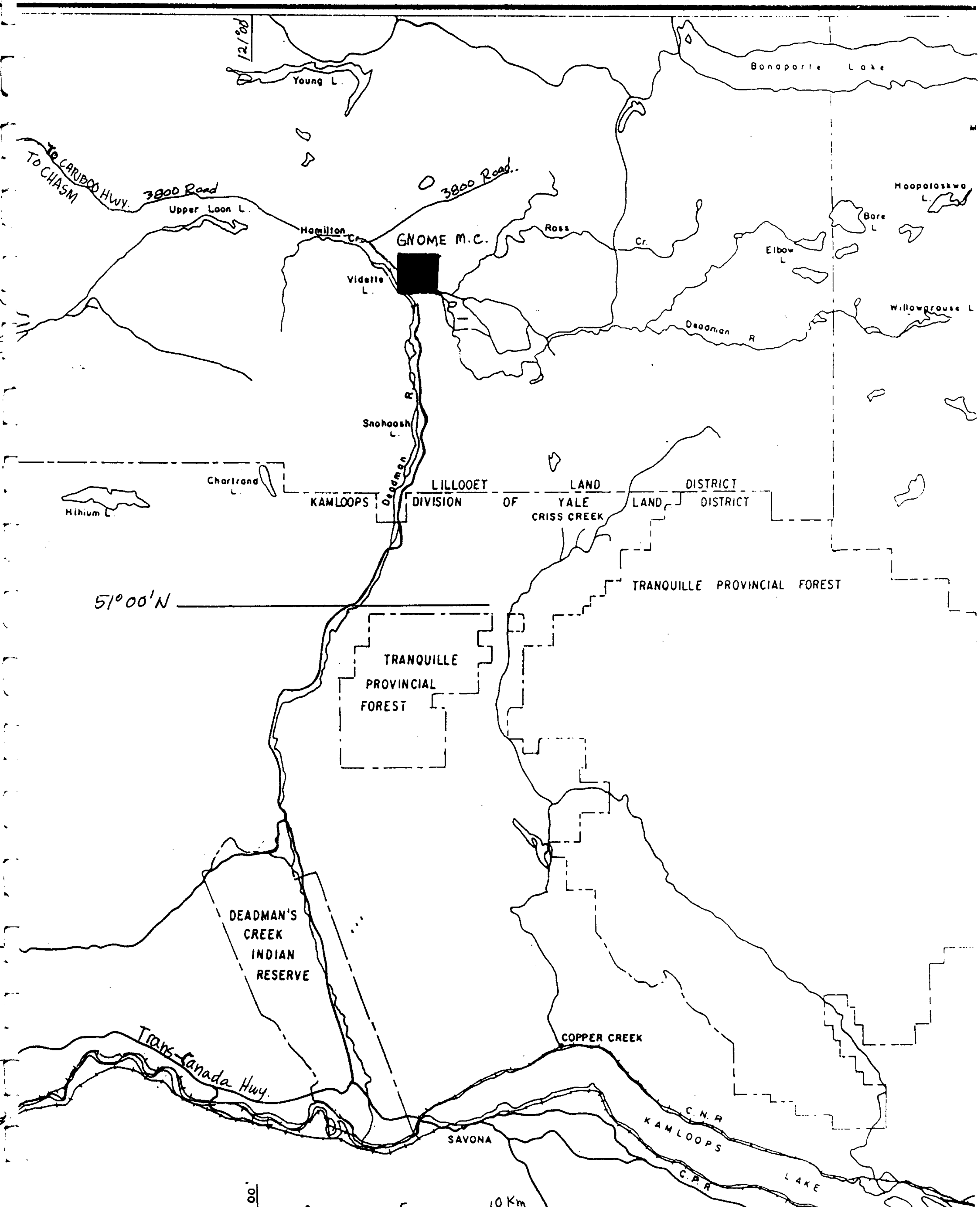
LIST OF DETECTION LIMITS. (note values <D.L. plotted as 0.5 D.L.)

PLATE		SCALE
1	SAMPLE LOCATIONS, CLAIMS, GEN. TOPOGRAPHY, ROAD	ALL
EL 2	ENZYME LEACH INTERPRETATION METHOD	AT
EL 3c	ANTIMONY	1:15,000
EL 4c	ARSENIC	
EL 5c	BARIUM	
EL 6c	BROMINE	
EL 7c	CADMIUM	
EL 8c	CERIUM	
EL 9c	CESIUM	
EL 10c	CHLORINE	
EL 11c	COBALT	
EL 12c	COPPER	
EL 13c	DYSPROSIUM	
EL 14c	ERBIUM	
EL 15c	EUROPIUM	
EL 16c	GADOLINIUM	
EL 17c	GALLIUM	
EL 18c	GERMANIUM	
EL 19c	GOLD	
EL 20c	HAFNIUM	
EL 21c	HOLMIUM	
EL 22c	IODINE	
EL 23c	LANTHANUM	
EL 24c	LEAD	
EL 25c	LITHIUM	
EL 26c	MANGANESE	
EL 27c	MOLYBDENUM	
EL 28c	NEODYMIUM	
EL 29c	NICKEL	
EL 30c	NIOBIUM	
EL 31c	PALLADIUM	
EL 32c	PRASEODYMIUM	
EL 33c	RHENIUM	
EL 34c	RUBIDIUM	
EL 35c	SAMARIUM	
EL 36c	SILVER	
EL 37c	STRONTIUM	
EL 38c	TELLURIUM	
EL 39c	TERBIUM	
EL 40c	THORIUM	
EL 41c	THULIUM	
EL 42c	TIN	
EL 43c	TITANIUM	
EL 44c	TUNGSTEN	
EL 45c	URANIUM	
EL 46c	VANADIUM	
EL 47c	YTTERBIUM	
EL 48C	YTTRIUM	
EL 49c	ZINC	
EL 50c	ZIRCONIUM	

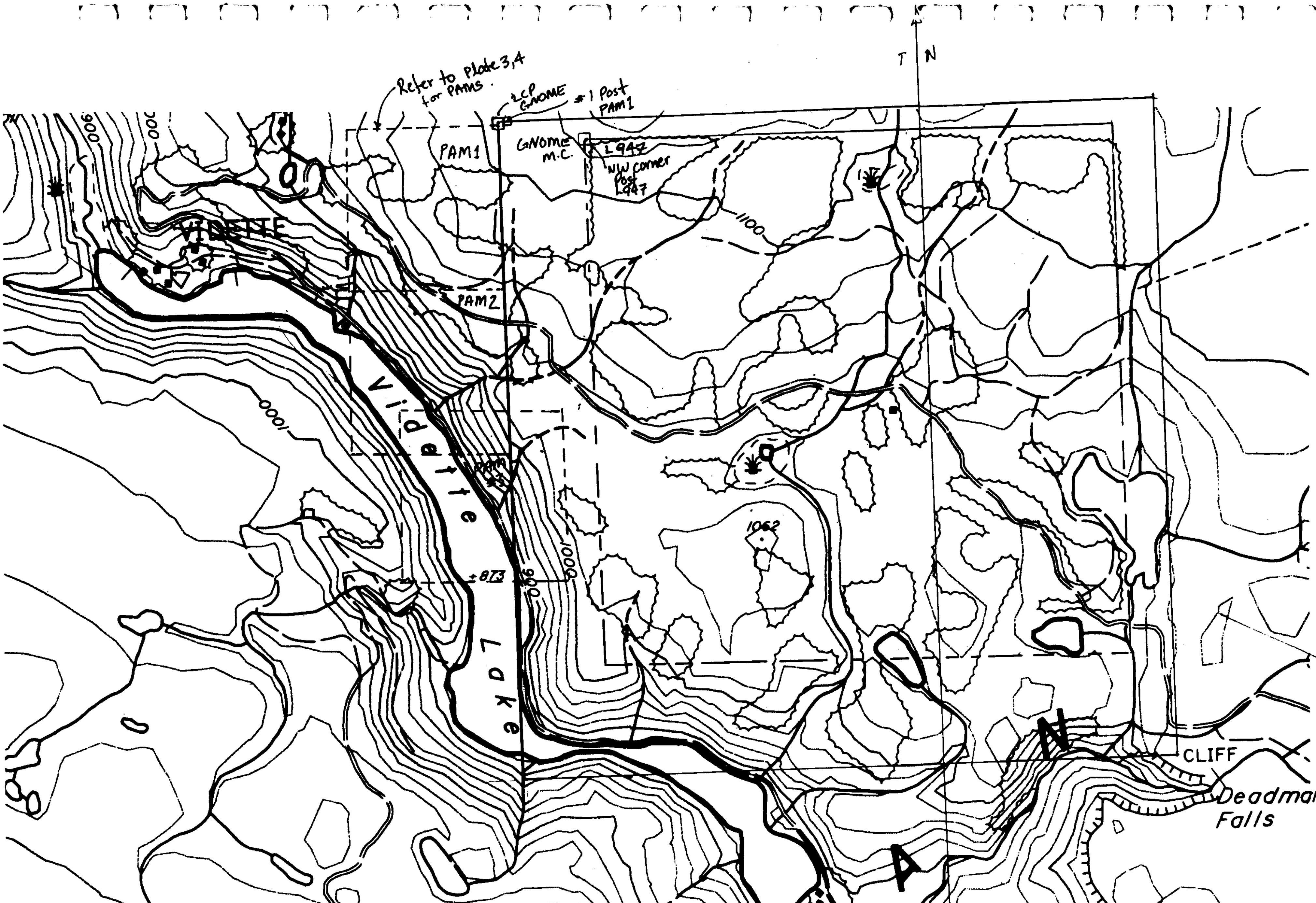
APPENDIX 4 (37 pages)
HAND CONTOURED PLOTS OF SELECT ELEMENTS (36 pages)
LIST OF DETECTION LIMITS (1 page)

NOTE: values < detection limit plotted as 0.5 detection limit

PLATE	(POSTSCRIPT c INDICATES CONTOURED PLAN)	SCALE
B 1	SAMPLE LOCATION, COMPILATION MAP	ALL
B 2c	ANTIMONY	AT
B 3c	ARSENIC	1:15,000
B 4c	BARIUM	
B 5c	BROMINE	
B 6c	CALCIUM	
B 7c	CERIUM	
B 8c	CESIUM	
B 9c	CHROMIUM	
B 10c	COBALT	
B 11	EUROPIUM	
B 12c	GOLD	
B 13	HAFNIUM	
B 14	IRIDIUM	
B 15c	IRON	
B 16c	LANTHANUM	
B 17c	LUTETIUM	
B 18c	MERCURY	
B 19c	MOLYBDENUM	
B 20	NEODYMIUM	
B 21	NICKEL	
B 22	POTASSIUM	
B 23	RUBIDIUM	
B 24c	SAMARIUM	
B 25c	SCANDIUM	
B 26	SELENIUM	
B 27	SILVER	
B 28c	SODIUM	
B 29c	STRONTIUM	
B 30	TANTALUM	
B 31	TERBIUM	
B 32	THORIUM	
B 33	TUNGSTEN	
B 34	URANIUM	
B 35c	YTTERBIUM	
B 36c	ZINC	



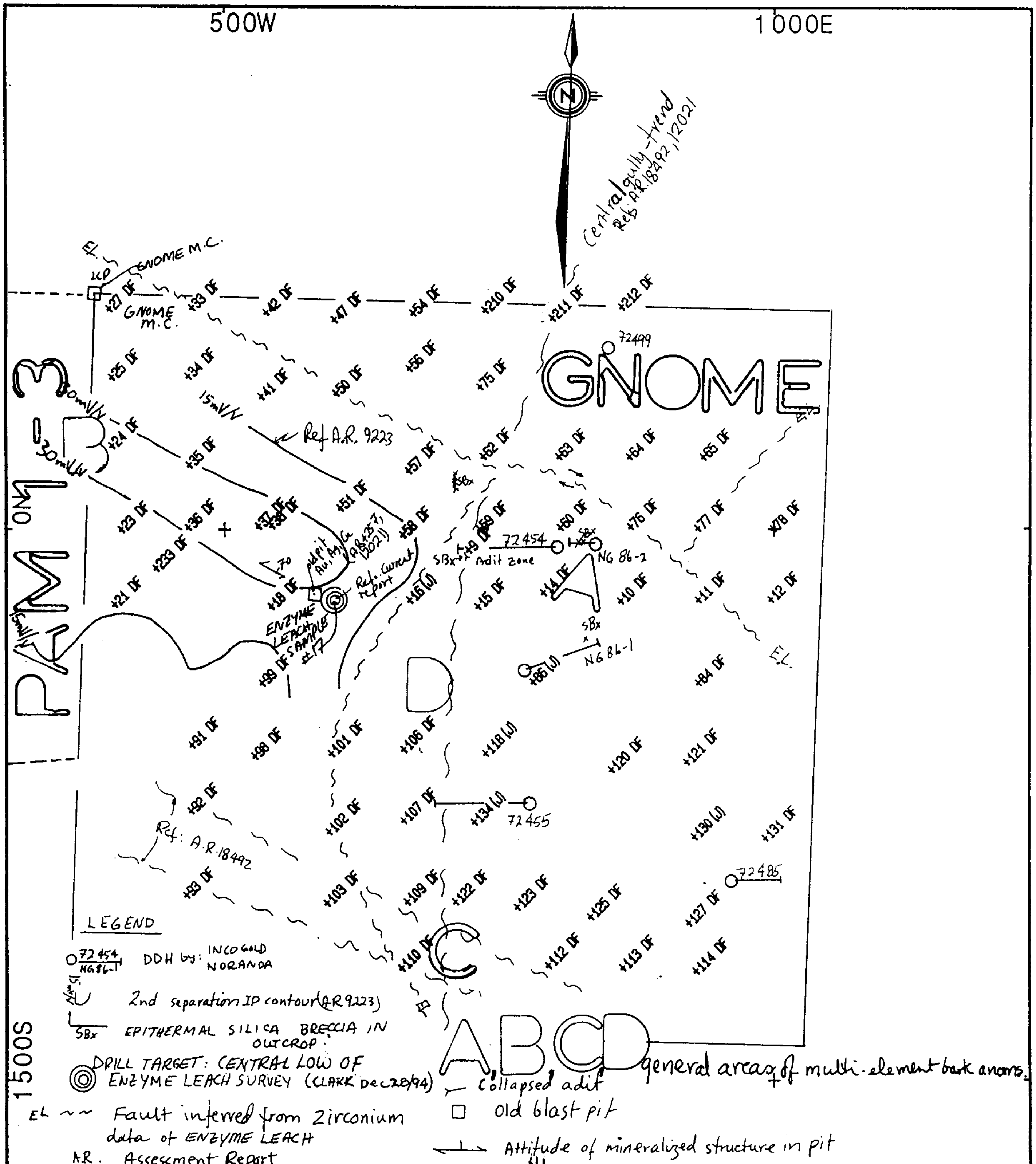
Location map. Plate 1



0 — 500m

TOPOGRAPHY		
GNOME AREA		
TRIM 1:15,000		2

1994 declination 20°50'E. Ann. change 7.7'W
Ref G.S.C. Geomagnetic Lab. June 7/94



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc) B = Bark

Meters

150 75 0 150 300

Sample Locations + COMPILATION

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. 6

Ragnar U. Bruaset & Associates Ltd.

SUMMARY

The author controls a contiguous 19-unit mining property-the Gnome-which consists of Gnome, Pam 1, 2 and Pam # 3 mineral claims. The Gnome property is located about 65 km northwest of Kamloops at Vidette Lake in the Deadman River area.

The Gnome property has potential for Cu-Au porphyry deposits, quartz stockwork gold deposits and epithermal gold deposits. Four drill targets exist on the property at this time. The exploration history of the Vidette area dates back to at least 1928 (Legal Survey Plan of Crown Grants). The Gnome is located less than a km east of the Vidette Mine, which produced 29,869 oz. of Au, 46,573 oz. of Ag and undetermined copper and lead from 53,900 tons of ore mined from a southeasterly trending vein system during the period 1933 to 1940 (Prelim. Map 64 in GOLD IN B. C.).

The geochemical program described in this report was conducted under the Prospectors Assistance Program 1994-1997. The author is grateful to Dr. V. Preto and his staff for awarding him a grant.

The principal target in the Gnome property is an untested IP anomaly, including a generally coincident resistivity high, located in the NW quadrant of Gnome M. C. This anomaly, as outlined by the 15 millivolt/volt chargeability contour, has bulk mineable potential for porphyry Cu-Au and quartz stockwork Au deposits. The IP anomaly is 500 m by 800 m and has the same general elongation as the vein system in the old mine. Elsewhere on the property, potential for epithermal gold occurs.

Most of the property is drift covered and the glacial direction is from north to south. The most prominent lithology in the northern half of the Gnome M. C. is calc-silicate skarn after Upper Triassic Nicola volcanics. Scant outcrops of porphyritic granite occurring in the IP anomaly contain quartz stringers with minor chalcopyrite. The intrusive has undergone K-spar alteration and is intensely fractured. The highest analysis of gold mineralization from the property is on a grab sample from an 8-inch wide quartz vein within the IP anomaly. This sample ran 0.14 oz./ton Au, 0.26 oz./ton Ag and 0.35 % Cu (A.R. 4257). Elsewhere in this IP anomaly, g old (to 50 ppb), silver (to 2.6 ppm), copper (to 370 ppm), antimony (to 26.0 ppm), arsenic (to 760 ppm) and molybdenum (to >250 ppm occur in rock (A.R. 12021).

A porphyry exploration model for the area postulates a central Cu-Au zone associated with a high-level granitic stock located under the IP anomaly. In the peripheries of the system we expect to find quartz stockwork Au as well as Vidette type Cu-Pb-Au-Ag vein mineralization. The postulated granitic stock occurring at shallow depth would be the "engine" of the system supplying heat, acting as a partial metal source, and causing metal transfer by convective flow.

The property is located on a broad structural zone trending WNW to

NW as suggested by faults and alignment of a number of small granitic intrusions over a strike length in access of 6 km (A.R. 4257). Such a structural setting can be favorable to the occurrence of gold deposit if the structures are deep seated.

An epithermal gold system, probably of Miocene age, located on the eastern margin of the IP anomaly constitutes a second period of gold mineralization in the Gnome.

The Gnome system has a regional geochemical signature involving molybdenum (by A.A.) and fluorine (in water). These elements were anomalous in the 1979 Regional Geochemical Survey of the Bonaparte Lake sheet (Plates 11, 12).

The epithermal system has undergone limited testing by Noranda and Inco Gold. Several short intersections of anomalous gold, typically 1 meter in length, or less, with the highest ranging from a few hundred ppb Au to 4600 ppb, have been encountered (Plate 4). These holes are widely spaced long an assumed N-S mineralizing trend. Ample scope for further testing exists in the epithermal system (Plate 4). The geochemical program carried out in 1994 provides new directions for testing in the epithermal system.

The author wishes to acknowledge the contributions of the following to the understanding of the Gnome mineralizing system: Mike Dickens, self-taught epithermal gold expert, of Savona, Jim Morin, with Inco Gold, and Rob Wilson, formerly with Noranda.

INTRODUCTION

The 1994 survey of the Gnome property utilized Enzyme Leach and bark sampling techniques. Enzyme Leach, a partial leach method, has shown considerable promise in detecting mineralization in adverse geochemical environments, including deposits capped by a few tens to a few hundred meters of cover-rocks (J. R. Clark, pers. comm., refer also to Clay Pit deposit in APPENDIX 1).

Soon after arriving on the Gnome in July 1994, the author learned that logging of the remaining stands of Douglas fir on L 947 was imminent (Plate 2). The author had conducted a bark orientation survey of the Gnome in 1991, with Chevron's permission. This had consisted of collecting barks and soils at key locations (See Plate 4 for barks). This survey found conifer outer bark to be an effective sample medium for gold in this area. The com pletion of a bark survey over the entire property had been in the planning stage ever since then but such a survey could no longer be deferred. This final opportunity of collecting the samples was taken and Dr. Preto allowed the analytical work to be carried out under this grant.

106 B horizon soil samples were collected from depths generally ranging from 10-30 cm. 82 outer bark samples, mainly Douglas fir, were collected. In the absence of the latter, lodgepole pine or

poplar were sampled. The soil samples were shipped to Activation Laboratories, Ancaster, Ontario for Enzyme Leach processing which involves determination of 75 elements in ppb ranges by means of ICP-MS (APPENDIX 1). The barks were analyzed for 35 elements, including gold by Activation Laboratories INAA (Appendix 2). This combined geochemical survey was carried out in an area about 2 km by 2 km and was based on 200 m sample spacing on a square grid. The Enzyme Leach survey indicated a multi-element central low in the vicinity of sample site # 17 (Plates 4, 6). This anomaly is regarded as a drill target by Dr. J. R. Clark who is the leading worker in this field. In addition, two new structures in the form of faults can be inferred from the Enzyme Leach zirconium data (Clark's letter in APPENDIX 1, Plates 6, E.L. 50). A strong spatial relationship exists between the intersecting zirconium trends and multi-element biogeochemical anomaly number A (Plates 6-10). This spatial relationship will no doubt re-kindle interest in this epithermal system.

THE 1994 GROUND CONTROL

For ground control, a picket line designated 2S was run E-W across the Gnome M.C. A cross line designated 0+00 became the principal N-S control. Sample lines controlled by hip chain and compass, and spaced at 200 m were run variously N-S and E-W across the Gnome M. C., including numerous tie-lines to adjacent lines, tie-ins to miscellaneous old survey lines as well as legal survey points such as three of the corners of L. 947. For added control, a road-centre survey of the main road using compass and hip-chain was conducted across the entire property. The current geochemical grid was tied to the road survey in several locations. The survey included tie-ins to a number of stations established by the 1994 Legal Survey of L 947 (Plate 3). The base map was plotted at the scale of 1:2500 and reduced to 1:5000.

LOCATION, ACCESS AND PHYSIOGRAPHY

The Gnome property is situated at Vidette Lake in the northern part of the Deadman River valley about 65 km NW of Kamloops. Access is by the Deadman River road, a distance of about 45 km from the Trans-Canada Highway (Plate 1). An old trail extending across Lots 4746 and 4762 near the Vidette mine links the Gnome property with the 3800 Road situated north of the old mine (Plate 1). Upgrading of this trail in 1994 improved access. This route connects with the Cariboo Highway near Clinton. This is the principal potential product-route for the Gnome.

Most of the Gnome property is very gently rolling hills similar to that of Iron Mask batholith near Kamloops. This terrain is interrupted by very steep hills leading into the valley of Vidette Lake where the relief is about 150 m (Plate 2).

THE REGIONAL GEOCHEMICAL SIGNATURE OF THE GNOME SYSTEM

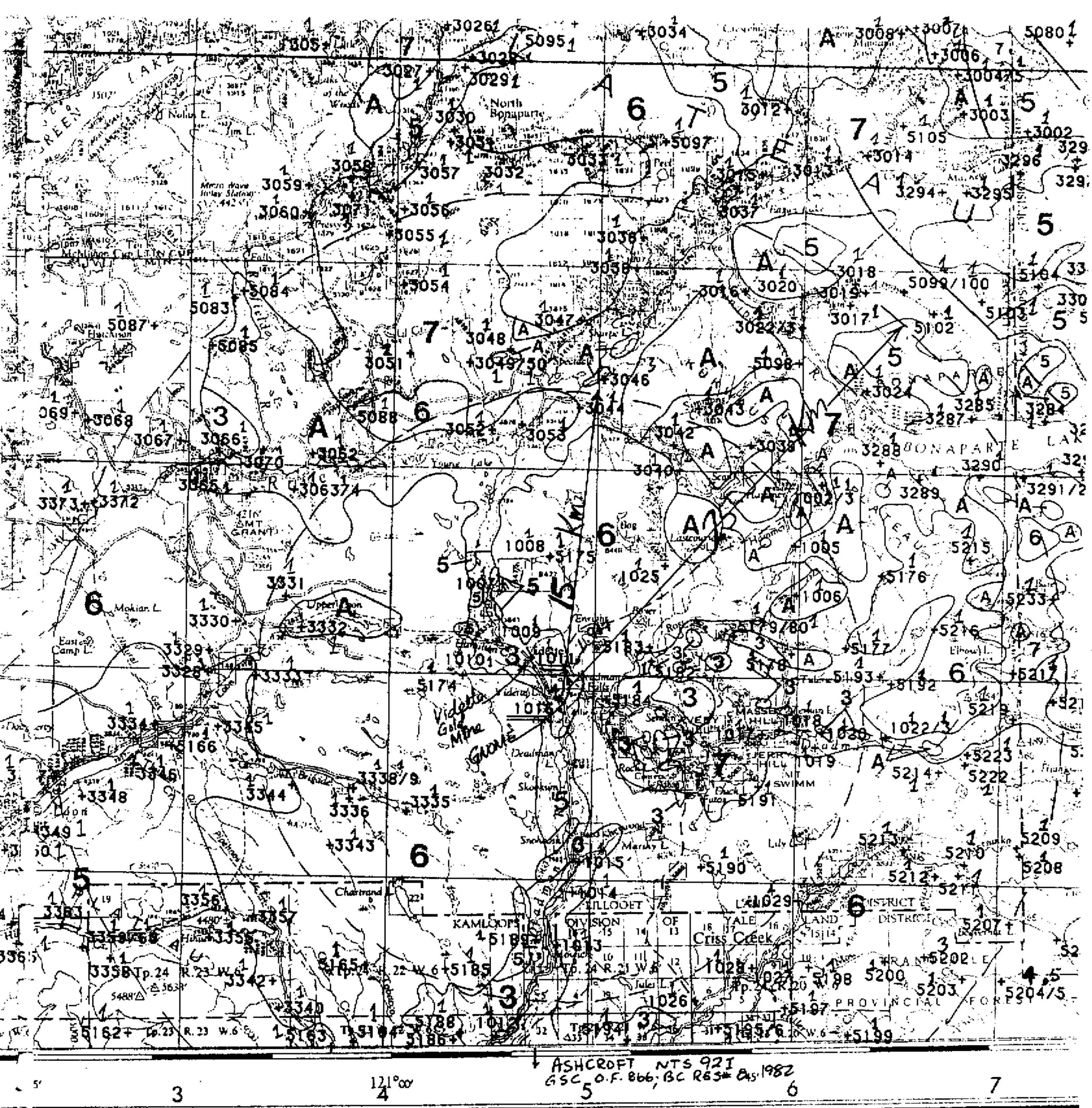
The small pond situated near the centre of the Gnome M. C. is fed by a stream following the so-called Central gully trend, a N-S topographic lineament indicated to be an east dipping normal fault (Plates 2, 4, 6). The catchment area of this pond includes an untested IP anomaly and at least four outcrop areas of epithermal silica breccia. The rocks of the catchment area contains variously anomalous molybdenum and locally fluorite. The pond drains into the south end of Vidette Lake. In Regional Geochemical Survey 4-1979, sample no. 1016 was collected from this stream a short distance east of Vidette Lake. It yielded 4 ppm Mo by atomic absorption spectroscopy (Plate 11). It is notable that this sample gave the highest molybdenum reading among 42 silt samples located within a 15 km radius. The remaining samples within the same area returned 1 ppm Mo. Within a 25 km radius of sample no. 1016, about 130 regional silt samples were collected. The highest Mo in this group was also 4 ppm, and the next highest values, including another of 4 ppm, were 3, 3 and 2 ppm. The remaining samples were 1 ppm. The molybdenum signature of the Gnome, as indicated by drilling, is strong. Frequently, Mo in rock samples is a few tens ppm, and occasionally, in the hundreds. This is quite anomalous because Mo has a very low crustal abundances in igneous rocks, typically in the range 1 to 2 ppm (Levinson, 1980). The Vidette ore contained the known gold associate molybdenite, according to C.W. Dansey, prospector, of Fish Lake fame. Silt s ample no. 1011 obtained from Yard Creek, about 0.5 km northeasterly of the Vidette mine contains background Mo at 1 ppm (Plate 11). This sample suggests a limit to the system in that direction. Fluorine in water at sample site 1016 is also the highest within a 15 km radius (Plate 12). The author is aware of a fluorite occurrence in silica breccia in the Central gully trend near the north boundary of Gnome M.C. (A.R. 12021, Plate 8303). The foregoing suggests the Regional Geochem. survey was capable of detected the mineralizing system of the Gnome through Mo and F.

PROPERTY AND OWNERSHIP

The Gnome property consists of the following claims:*

Name	Units	Title Number	A nniversary date
GNOME	16	208110	25 May 1999
PAM 1	1	323589	5 February 1996
PAM 2	1	323590	5 February 1996
PAM #3	1	328209	18 July 1995

* CAUTION: THIS LIST DOES NOT CONSTITUTE AN OFFICIAL RECORD OF THESE CLAIMS.



DATA: MOLYBDENUM IN SILT BY ATOMIC ABSORPTION SPECTROSCOPY (ppm)

BONAPARTE RIVER

Ref Regional Geochem. Survey B.C. 1979 (RGS-4-1979)

BRITISH COLUMBIA

Note: The number of samples within a circle of radius 15Km relative to sample #1016 = 42. The highest is 4ppm, followed by 1 ppm.
The number of samples within a circle of radius 25Km relative to sample #1016 = 134. The highest is 4 ppm, followed by values 4, 3, 3, 2 and 1.

Scale 1:250,000 or approximately 1 Inch to 4 Miles

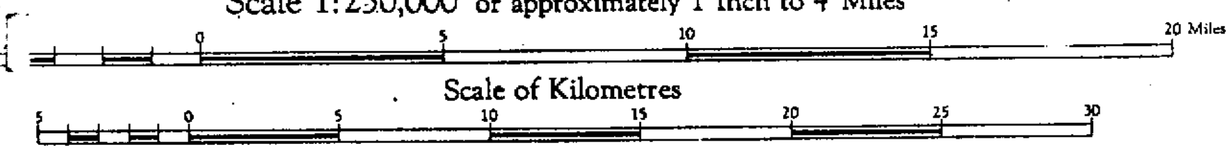
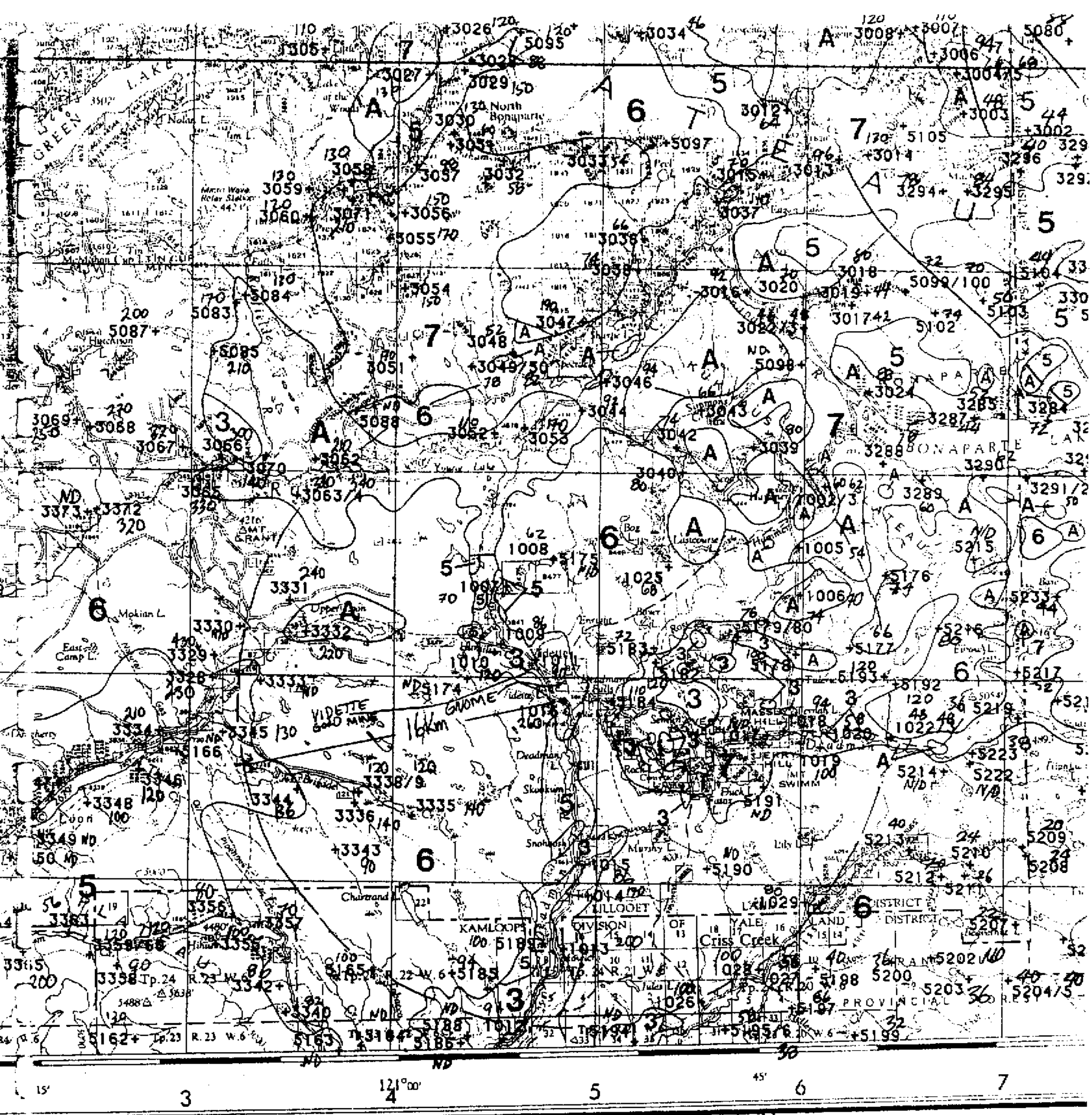


PLATE II



DATA: FLUORINE IN WATERS BY SPECIFIC ION ELECTRODE (ppb)

BONAPARTE RIVER

DATA FROM
REGIONAL GEOCHEM. SURVEY
B.C. 1979
RGS-4-1979

BRITISH COLUMBIA

Note: The number of samples within a circle whose radius is 16Km, and centred on sample #1016 = 42. Sample #1016 is the highest in F among these.

Scale 1:250,000 or approximately 1 Inch to 4 Miles

0 5 10 15 20 Miles

Scale of Kilometres

5 0 5 10 15 20 25 30

PLATE 12

REGIONAL GEOLOGY

The basic regional geological reference on the Gnome is the 1:250,000 Bonaparte Lake sheet (GSC Map 1278A).

The property occurs in a window of Upper Triassic Nicola volcanics about 10 km long and 1 to 3 km wide centered on the north end of Vidette Lake.

The Nicola Group is a diverse assemblage of Late Triassic to Early Jurassic submarine and subaerial volcanic, volcaniclastic and sedimentary rocks underlying much of the Intermontane belt in south-central B. C. The Takla Group is the correlative of the Nicola in central and north-central B. C. The Nicola and Takla Groups are the major components of Quesnellia, a tectono-stratigraphic unit extending uninterrupted most of the length of B. C. Igneous rocks of Early Mesozoic age genetically related to those of Quesnellia extend as far south as the Mojave Desert in the U.S. Southwest (Mortimer, 1987).

Three principal divisions of the Nicola are recognized based on petrographic and geochemical considerations (Mortimer, 1987). A western belt consisting mainly of flows, pyroclastics, and volcaniclastics ranging in composition from basalt to rhyolite are interbedded with argillite and limestone. A central belt, in which the Gnome is located, consists of subaerial and submarine augite, porphyritic basalt and andesite flows, breccias and lahar deposits with lesser interbedded crystal-lithic tuff and limestone. The eastern belt is similar to the central belt but contains a greater proportion of sedimentary facies. The central and eastern belts are intruded by subvolcanic syenitic and monzonitic stocks. The mineral deposit of the Iron Mask are located in the eastern belt and the porphyry copper-moly deposits of the Guichon Batholith occurs in the western belt. Further to the north, the copper, and, or, gold deposits of Mt. Polley, QR and Mt. Milligan occur in the eastern belt. To the south, the mineral deposits of the Copper Mountain camp occur in the eastern Nicola belt.

PROPERTY GEOLOGY
LITHOLOGY, STRUCTURE, ALTERATION AND MINERALIZATION

Geological information on the Gnome area comes from various sources including Dawson 1973, (A.R. 4257), Bruaset (A.R. 12021), Bruaset (April 1984 in Chevron's internal report), J.F. Harris, (petrographic report, Nov. 1983), R. Wilson, (an assessment report dated 1986), and Jim Morin (A.R. 18,492). Because outcrops are scarce on the property, much of the geological information comes from diamond drilling. The locations of the existing holes are shown on Plates 3 and 6. The northern half of the Gnome M. C. is extensively underlain by calc-silicate skarn. A few outcrops of granitic rock, and feldspar porphyry occur within the skarn area.

The granite is occasionally quartz veined, K-feldspathized and mineralized with chalcopyrite within the IP anomaly in the NW quadrant of the Gnome M.C. A key outcrop of intrusive is located near the NW corner of L. 947. In this area, skarn is developed around the western contact of porphyritic granite (Bruaset, A. R. 12021). A few scattered outcrops of skarn occur between this location and the general east-west road traversing the property. A few outcrops of granite occur along the north boundary of L 947.

Granite was encountered in DDH 72454 from 46 to 63 m. (Plate 6). About half of this hole is calc-silicate skarn. Skarn was also present in DDH72499 and to some extent in GN 86-1 and 2. No skarnification is indicated in DDHs 72455 and 72485. Dawson (A.R. 4257) indicates lines of small granitic intrusion extending northwesterly from the vicinity of the LCP of Gnome M. C. It would appear that this trend may also extend eastward across the northern half of the Gnome.

DDH 72499 was collared in Miocene plateau lavas in the NE portion of Gnome M. C. Following 12 m of plateau basalt, the hole encountered about 43 m of clastic sediments of the Miocene Deadman River Formation, including minor trachytic tuff and basal conglomerate. Underlying the sediments is about 8 m of Nicola volcanics followed by about 10 m of skarnified Nicola. Altered diorite to granodiorite was intersected at 84.5 m and was present at the foot of the hole at 93.88m. The lower 33 m of the hole was anomalous in Au, Mo, Cu and As (Plate 4, ICP analyses).

Normal faulting is thought to have occurred along an east dipping structure following the so-called Central gully trend. The western block has been eroded down to the skarn and intrusive is assumed occur at shallow depth.

DDH 72455 by Inco Gold encountered pyroclastics, predominantly lapilli tuff and tuff, with lesser sericite schist, apparently developed from tuffaceous Nicola. Most of this hole is described as intensely altered to clay, chlorite and sericite. About 10 m of aplite occurs near the middle of the hole. There is persistent veining, consisting of calcite, quartz and chlorite, throughout the hole.

Plate 4 highlights the five highest gold analyses in each drill hole. Attention is drawn to the last 68 m of DDH 72455 which averages 1057 ppm Cu based on 75 analyses. This section is also occasionally anomalous in gold and silver. J. Morin of Inco considered this mineralization by far the most interesting in their entire drilling in the Gnome (pers. comm.). Remarkably, the preoccupation of Inco (Gold) at the time with gold did not allow them to follow up on this intersection! The rock has undergone very intense quartz-sericite-pyrite alteration (Morin, pers. comm.)

A logical follow-up in this target would be to survey the SW quadrant of the Gnome M. C. with IP prior to further testing of this target. One should consider that mineralization in this area could be zoned and that a gold bearing zone of interest could exist in the vicinity, as well as an economic copper zone. This intersection is nearly 300 m below the surface allowing considerable potential above it.

Au-Ag-Cu mineralization grading 0.14 oz./ton Au, 0.26 oz. ton Ag and 0.35 % Cu was cut from an 8" quartz-carbonate vein (A.R. 4257). This vein is interesting because of its metal association, the level of gold and its orientation. The shear zone in which the vein occurs is roughly parallel to the general elongation of the IP anomaly. This trend is also sub-parallel to the main vein trend in the Vidette mine (Plate 4). The possibility of the occurrence of one or more broad mineralized structure en echelon to the main Vidette trend has been considered within this IP anomaly.

Dr. J. R. Clark (Clark. Dec. 28, 1994, APPENDIX 1), suggests on the basis of the zirconium data that a broad W NW zone of shearing or faulting occurs immediately to the north of the IP anomaly in the NW quadrant of Gnome M. C. (Plates 4, 6). Dr. Clark indicates that Enzyme Leach-zirconium anomalies often reveal structures that are either mineralized or intersect mineralization. Plates 7-10 show a number of patterns based on bark sampling that are elongate along this trend. Some of these elements are distinctly epithermal.

GENERAL INFORMATION ON ENZYME LEACH

This section is based largely on the available literature. Dr. J. R. Clark was involved in Enzyme Leach work prior to joining the U. S. G. S. where he continued to develop the technique partly through field application. The author acknowledges several written communications and telephone conversations with Dr. Clark about Enzyme Leach. Dr. Clark has examined the Enzyme Leach data from the Gnome and provided the interpretation found in APPENDIX 1.

Enzyme Leach is a partial leach technique involving the determination of trace elements released by oxidation of mineral deposits and the re-deposition of these elements on amorphous manganese oxide, usually in B horizon soils. These elements move upward through the bedrock and overlying soil by ground water flow, capillary action and diffusion of volatile compounds. The proportion of the various elements coming from bedrock sources is small compared to the overall content of the soil. Enzyme Leach attempts to determine how much of certain elements have been ADDED to the overburden compared to the total concentration in the overburden. Selective determinations of trace elements in oxide coatings can be an effective geochemical exploration technique. Amorphous manganese oxide, commonly a small proportion of the total manganese oxide in the soil, is effective as a trap for trace elements traveling in the near-surface environment.

The background concentrations of many of the elements are very low but the anomaly/background contrast may be large. Because amorphous manganese oxide tends to concentrate in the B horizon, samples are usually collected from that horizon.

The large surface area per unit/mass of amorphous manganese oxide, and the random surficial distribution of positive and negative charges makes this material an ideal absorber for a variety of cations, anions, and polar molecules. Anomalous concentrations of trace elements absorbed by amorphous manganese dioxide are often indicative of the chemistry of the oxidizing minerals rather than the composition of the overburden.

Enzyme Leach anomalies are of three types: 1. Mechanical-hydro morphic dispersion anomalies; 2. Oxidation halo anomalies; and 3. Apical anomalies.

In glaciated terrains, where the bedrock is often covered by till, type 1. anomalies are most common, but all three types can occur in soil developed on till. Mineralized material occurring in the basal till of the dispersion train from a buried deposit will upon oxidation release trace elements which can be picked up by the groundwater. Roots of trees growing in the mineralized till, or roots that come in contact with anomalous ground water, will take up various elements and store them in different plant organs such as the outer bark, needles and twigs. Eventually, these shed organic debris which becomes part of the A horizon soil. By leaching, metals of the A horizon may become part of the oxide coatings in the B horizon. Enzyme Leach has detected very subtle mechanical/hydromorphic anomalies related to mineralized bedrock in a number of till covered situations, including instances where the till is covered by glacio-lacustrine sediments.

The second type of Enzyme Leach anomaly is the Oxidation halo anomaly. This is the product of oxidation of buried reduced bodies. These anomalies can be caused by any reduced body such as an ore deposit, barren disseminated pyrite, a buried geothermal system, or petroleum reservoir, etc. Once an oxidation halo anomaly has been indicated, geological information is called upon to determine its probable cause. Oxidation halo anomalies are characterized by very high background/anomaly contrast for "oxidation suite" elements which can include Cl, Br, I, As, Sb, Mo, W, Re, Se, Te, V, U and Th. Rare-earth elements and base metals are often anomalous in the same samples, but with reduced contrast. Evidence indicates that the oxidation suite is transported to the surface by halogen gases and volatile halide compounds. These elemental gases form under the acid/oxidizing conditions of the anode of an electrochemical cell. Base metal anomalies coinciding with oxidation-suite anomalies are thought to form as a result of the gradual migration of cations away from these anodes along electrochemical gradients.

Rarely, enzyme-soluble Au and Hg will occur in the oxidation halo anomalies because metallic gold and mercury are insoluble in Enzyme Leach. Oxidation halo anomalies tend to form asymmetric halos, or partial halos, around the buried reduced bodies, and the reduced body underlies part of the central low.

APPENDIX 1 contains a paper entitled Examples of Asymmetrical Enzyme Leach Anomaly Patterns. Five plans of oxidation anomalies are show as well as the location of two geothermal targets inferred from the data. Similar patterns were identified in the data from the Gnome.

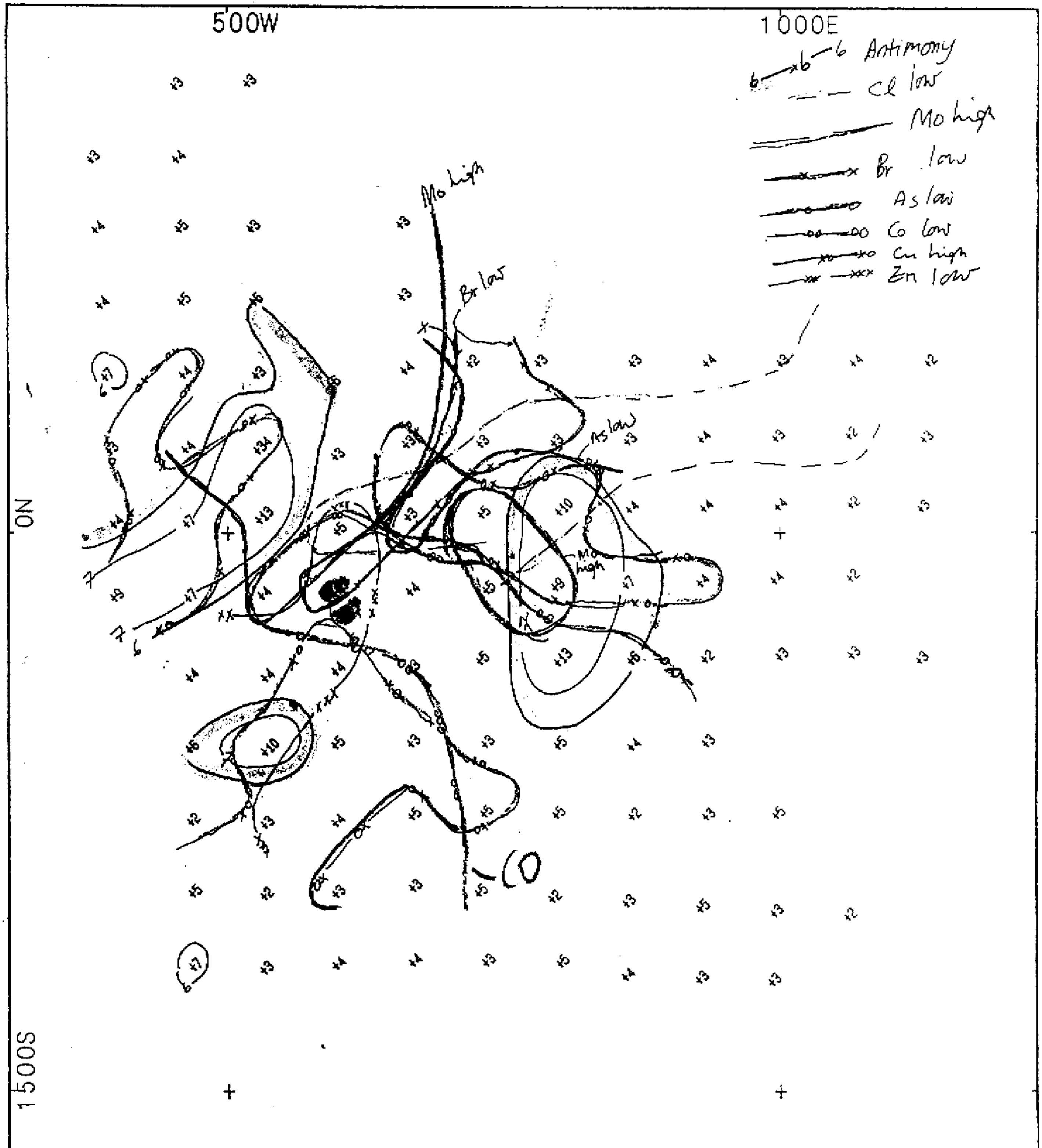
The last Enzyme Leach anomaly type is the Apical anomaly. This type of anomaly can occur right over the source, rather than as a halo around it. These anomalies are thought to form as a result of diffusion of trace elements away from a highly concentrated source. The source can be the actual source of the anomalous trace elements, or it can be a fault cutting the source. Apical anomalies do not show the dramatic halogen contrast, characterizing oxidation halo anomalies. Fault-related anomalies commonly contain very high contrast zirconium anomalies.

Also found in APPENDIX 1 is a copy of a recent, paper on Enzyme Leach interpretation entitled Innovative Enzyme Leach provides Cost-Effective Overburden Penetration (Clark and Cohen).

Enzyme Leach is not a panacea, but anyone serious about geochemical exploration methods ought to try it. The most successful applications are based on grid data with lines extending well into background. Single line data across a showing may be difficult to interpret.

ENZYME LEACH ON THE GNOME AND ITS INTERPRETATION

The sampling was conducted on a square grid with a 200 m sample spacing. Dr. Clark was consulted on sample spacing. Sample lines were run onto the adjacent claims to the north and east, with the owner's permission, in order to establish background. At several sample sites to the north of Gnome M. C., the author was unable to obtain B horizon soils, ever thought he dug as many as four sample pits at some of the sites and sought suitable soil near the half-way point of the prescribed sample interval. Several sample sites located to the east of the Gnome were cancelled due to indications of fairly thick plateau lava. Based on information subsequently obtained, this survey could probably have benefitted from longer lines into background and the thickness of the plateau lavas may not necessarily have been a limiting factor on the effectiveness of the survey.



This plan shows outlines of highs and central lows used by Dr. Clark to derive #17

Antimony (ppb)

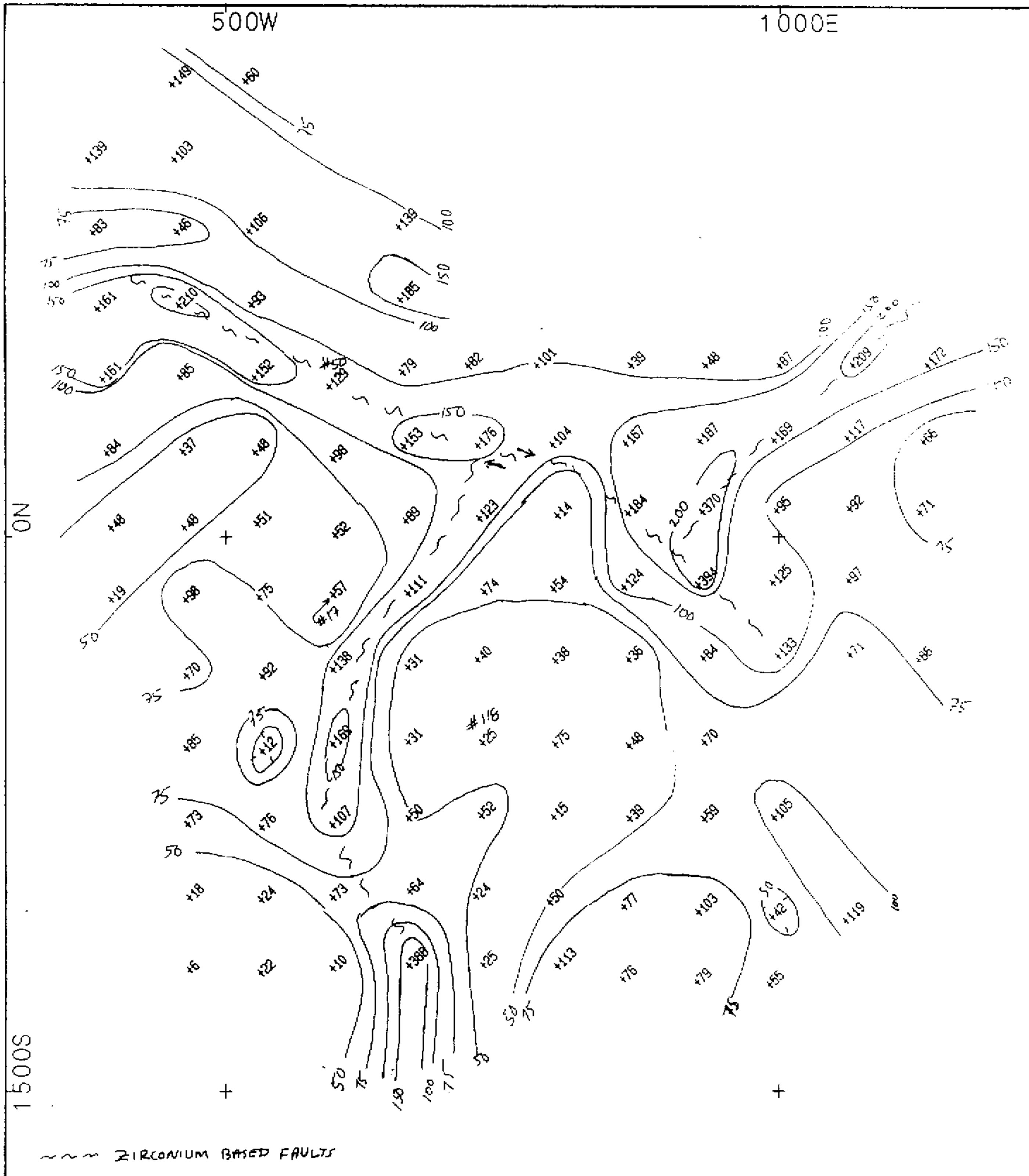
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

Project No.	NTS	Scale
	92P/2	1 : 15000
Date	**Report No.**	**Fig. No.**
October 1994	1217RPT. XLS	E-L.2

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

Zirconium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. C

Ragnar U. Bruaset & Associates Ltd.

Samples were air dried in the field out of direct sunlight. All preparation and analysis were carried out by Activation Laboratories Ltd., Ancaster, Ontario.

The data was machine plotting with contouring performed manually by the author. The input of Dr. Clark was sought once the data had been contoured. Initially, based on a few contoured plots transmitted by Fax, it appeared that sample site # 50 was a point of interest. This site was picked because of its low Mo value occurring within a broad Mo high. Also favouring this site as a possible point of interest were two nearby samples of elevated rhenium. Dr. Clark indicates that high Re in association with Mo suggests that a Mo anomaly is not spurious, and that so type of mineralization is present in the area, although one cannot tell the type.

In due course, about 40 out of a total of 50 contoured E.L. plots were sent to Dr. Clark for the final interpretation. The attached report by Dr. Clark dated Dec. 28, 1994 in Appendix 1 describes his findings. A couple of telephone conversations about the interpretation, which were recorded with his permission, provided further insight into the Enzyme Leach method. Sample site no. 17 was selected as the principal area of interest.

In his interpretation, Dr. Clark looked for a site where the central lows of several elements in the oxidation suite coincided. On a copy of the Enzyme Leach data for Sb, one of the oxidation suite elements, he sketched in the outline of the highs and boundaries of central lows for a series of important elements. The attached Plate EL 2 indicates which elements he outlined. He indicates that this is an oxidation halo anomaly over a buried reduced body that is located approximately under sample site # 17.

A second feature to note are two structural trends indicated by zirconium highs on Plate E.L. 50c. The two trends are: WNW and northerly. Dr. Clark indicates that the first trend is a broad feature whereas the second is very narrow, very distinct. Dr. Clark indicates that zirconium reveals the structural fabric of the bedrock. The zirconium anomalies occur directly over the structure along which it is leaking. He indicates that zirconium is only mobile when it occurs over fault zones. Zr is probably mobile with chlorine. The only way the Zr can combine with chloride is if zircon is pulverized during faulting (Clark pers. comm.).

A third feature of interest is the prominent low centered on sample # 119 (Plate 48c). This is principally a REE anomaly with a few low values of miscellaneous elements, specifically for sample # 118. Please refer to Plates EL 8c, 23c, 28c and 48c. Dr. Clark indicates that this is a notable " feature" but he does not know its cause. He suspects a "rock factor", possibly an intrusion.

Dr. Clark recommends four additional soil samples be taken about 100 m from sample # 118 in order to confirm, and expand the apparent central low.

In regards to the coincident Mo and Br low at station # 50, Dr. Clark recommends further sampling to the north in order to close off the indicated low. He suggests two samples would be sufficient. Difficulty in obtaining B horizon soil in this area has been experienced but a new attempt will be made. Dr. Clark indicates he would ignore this anomaly if it cannot be closed on the north.

In reply to the question: what should we do next with the target at sample site # 17, Dr. Clark replied that we should look at the geology, but quickly added the following: "my inclination at this point whenever I find a central low is to test it with a vertical hole."

GENERAL INFORMATION ON BIOGEOCHEMICAL SURVEYING WITH OUTER BARK

Bark sampling was carried out utilizing Douglas fir as the principal sample medium.

Except where otherwise indicated, data in this report is dry weight data i. e. the actual elemental composition of the bark as opposed to ash weight data which is the concentrations in the ash.

The author has several years of experience with bark sampling. Originally, he would conduct bark sampling in conjunction with conventional B horizon soil sampling. By comparing the results from the two method it soon became apparent that bark samples were far more revealing than soils. One would think of the many targets from the past that seemed to be good geological bets at the time, but " failed to pass the soil test". Would it be worth while to go back using barks? For several years, all of the author's reconnaissance geochemical sampling has been performed using outer bark only. The author has re-sampled several old targets using outer bark and the results have been most interesting on several occasions.

Dr. Colin E. Dunn, of the GSC in Ottawa is one of the main resources available to the Canadian explorer using biogeochemical techniques. He is one of the leading authorities on exploration biogeochemistry. Dr. Dunn has been active in biogeochemical research since at least 1980. A considerable portion of his work has been with bark in greatly varied mineralizing environments. A lot of his work has been published. He has sampled several mineralizing localities in B.C. including QR (twigs from Douglas fir tops, and lodgepole pine outer bark), Mt. Milligan and Hedley Camp, just to mention a few. A readily available reference on biogeochemical sampling is C. E. Dunn: BIOGEOCHEMISTRY IN MINERAL EXPLORATION in Exploration Geochemistry Workshop, G. S. C. O. F. 2390, 1991.

It is noted at this point that most of Dr. Dunn's bark work involves pre-concentration ashing with determinations by Instrumental Neutron Activation Analysis (INAA). Accordingly, Dunn usually reports concentrations in the ash. For example, if reported by Dr. Dunn, a sample of Douglas fir from the Gnome containing about 0.40 ppb Au (dry weight), would yield about 40 ppb in the ash. Analysis of bark briquettes yields actual concentrations in the bark i.e. the so-called dry weight. The conversion factor for Douglas fir is about 100 because the ash yield of Douglas fir is about 1%. For lodgepole pine, the ash yield is about 2% and a sample of 0.40 ppb dry weight Au in lodgepole pine outer bark would contain about 20 ppb in the ash, the conversion factor being about 50. These approximate conversion factors apply to elements that remain in the ash after the pre-concentration process. Volatile elements such as Br and Hg are substantially lost in ashing and perhaps some of the gold.

The G. S. C. operates its own ashing facility in Ottawa and submits ash for analysis, generally to Activation Laboratories Ltd. This ensures high quality data for Dunn's surveys. The author always uses the briquetting technique because the sample preparation is simpler and less expensive. Ashing of vegetation samples is a fairly tricky process and sometimes a laboratory will use non-dedicated ashing equipment which could result in major contamination problems.

Dunn, (March 1991) describes trees and shrubs as the above surface extension of the geological substratae with the chemical elements present in the plant organs drawn from soil, sediments, rocks, and groundwater. Gold is highly mobile in plants, and most plants have the capacity to extract gold from rocks, soils, tills and ground water accessible by roots (Dunn, 1986 b). It is noted that roots are exceedingly corrosive, locally producing micro-environments less than pH 1. Individual plants may have tens of km of roots and rootlets. These in turns have millions of apertures through which essential and non-essential elements enter the tree. Trees and other plants selectively extract from soils, groundwater and bedrock those elements essential for growth. They also absorb non-essential elements and deposit them, as much as possible in parts of the tree, such as outer bark, twigs, and tree tops, where they will not interfere with the metabolic processes (Dunn, 1986, b). Accordingly, a mature plant is a powerful geochemical sampling system capable of integrating the geochemical signature of several cubic meters of substratae (Dunn, 1986 b). A soil sample, on the other hand is just a handful of material from particular soil horizon.

The current survey utilized outer bark of conifers mainly as sample medium. In a few instances, poplar were sampled if neither Douglas fir nor lodgepole pine were present. The outer bark of poplar seems to work very well in some locations previously sampled by the author. In this case, poplar appears ineffective.

Bark is considered as dead tissue, and as such, does not vary significantly with the seasons (Dunn, March, 1991). This is an important factor because it may allows data from several surveys in the same general area to be integrated.

Seasonal variations in LIVE tissue may render it difficult, if not impossible to integrate data from surveys run at different times of the year. High levels of consistency are often seen in multi-stage bark surveys involving dry weight data.

Elements that tend to be enriched in the outer bark of red spruce of eastern Nova Scotia are Au, As, Br, Cr, Fe, Hf, Na, Sb, Sc, Se, Th, U, and the REE and possibly Mo, Ta and Cs. Those that are enriched in the inner bark includes Ag, Ba, Ca, Co, K, Rb, and possibly Zn (Dunn, 1988 b). It is expected that these patterns of relative enrichment generally apply to other common conifers as well (Dunn, pers. comm.).

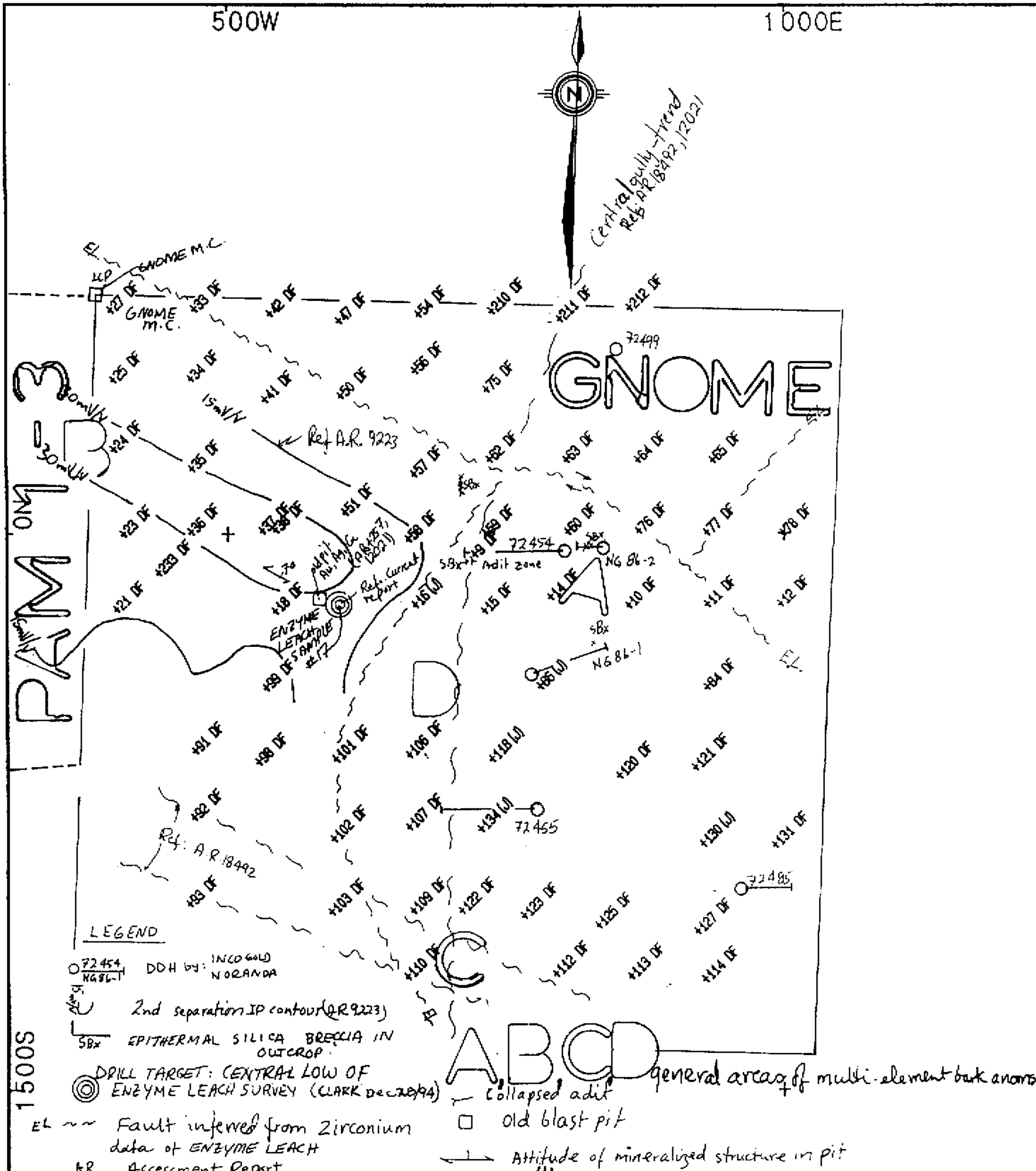
Bark surveys directed at gold from which the author has seen data include a survey by C. E. Dunn at the QR deposit. This survey was clearly capable of detecting the QR deposit. The author has conducted three orientation surveys to his own account, with the owner's permission, over the Mt. Milligan deposit included sampling more than 1 km from the deposit. These surveys obtained gold anomalies over this deposit and detected background X km from the deposit. The author has also sampled bark of trees growing on known gold mineralization in alkaline volcanic terrains in B. C. This work has shown that values at least as low as 0.33 ppb in the outer bark of lodgepole pine are definitely anomalous for gold.

BARK SAMPLING ON THE GNOME

This section includes information on sampling, sample handling, sample shipping, and notes precautions taken against contamination. Contamination is the bark sampler's worst enemy.

In this survey, outer bark samples were generally collected from Douglas fir at approximately 200 m intervals. If this species were unavailable, lodgepole pine was the second choice and poplar the third.

The failure of poplar to register anomalous gold at the usual levels in this survey could be caused by a number of factor such as the species sampled and soil conditions. The author is not able to distinguish the various species in the poplar group. In the general northcentral B. C. area, the author has collected well over a thousand bark samples, including poplar. He has also carried out extensive calibration sampling, with poplar included.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc) B = Bark

Meters

150 75 0 150 300

Sample Locations + COMPILATION

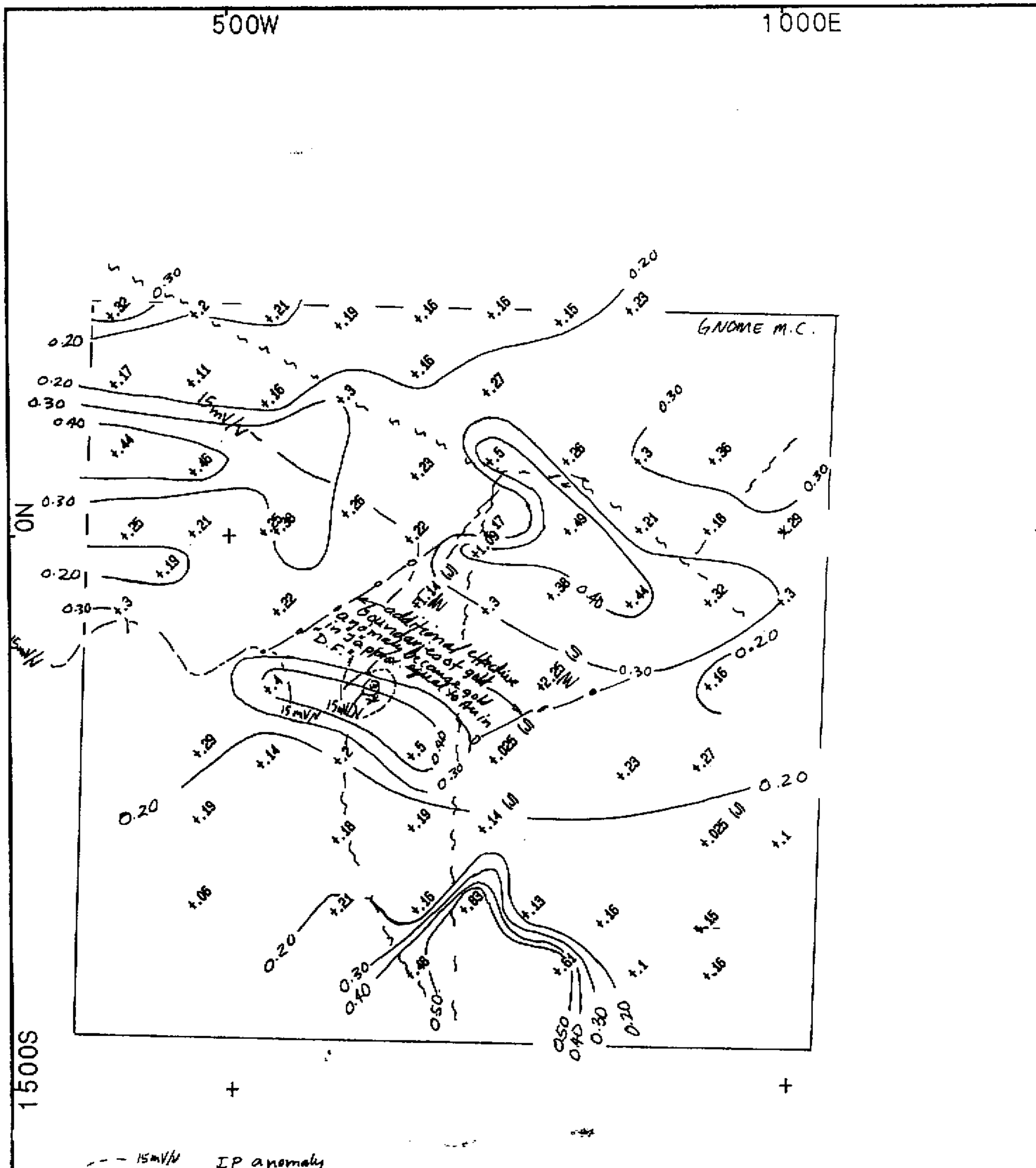
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS	Scale
	92P/2	1:15000
Date December 1994	**Report No.**	**Fig. No.** 6

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir   J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

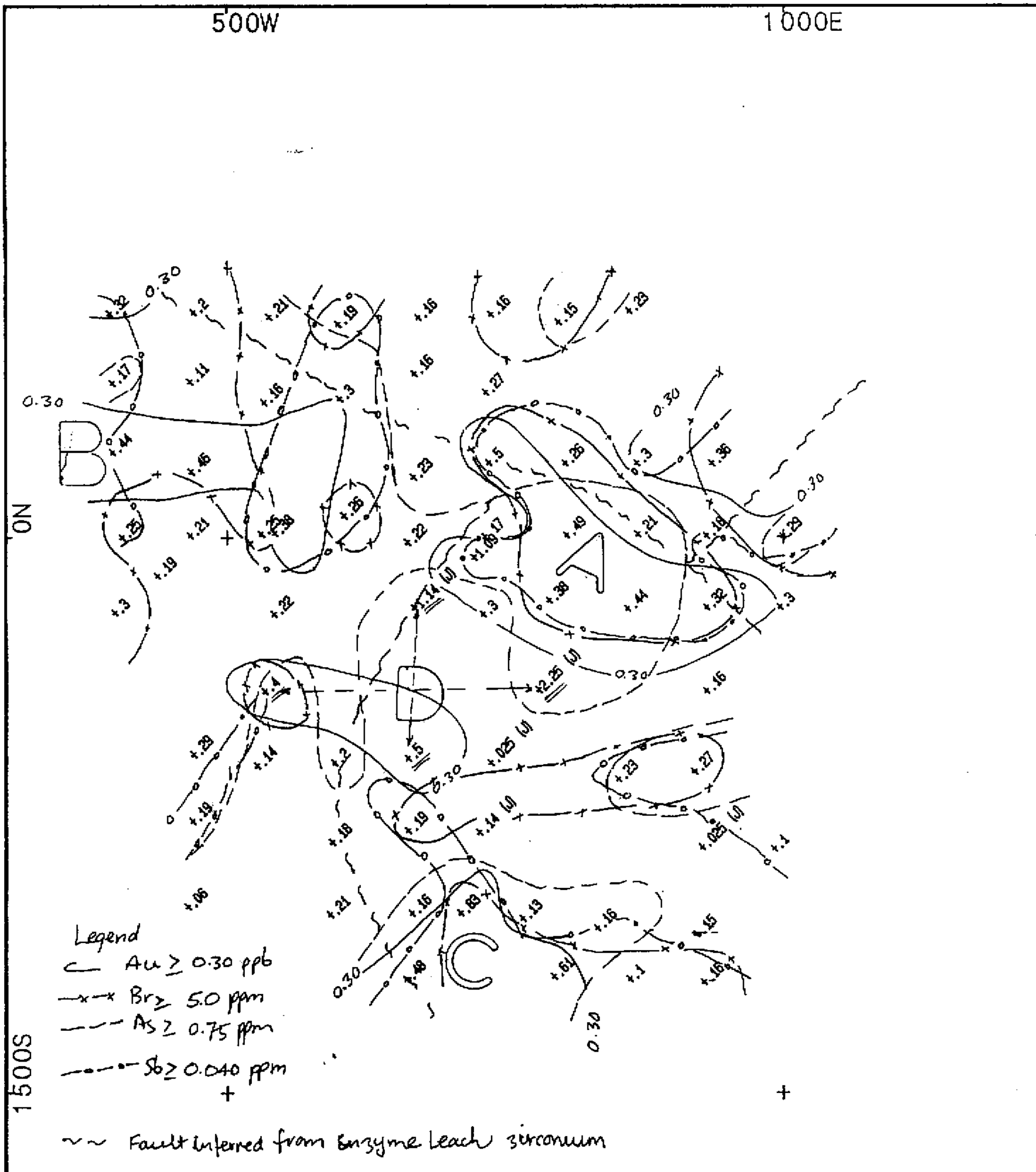
Gold (ppb)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B /2



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (G94-144B etc.) B = Bark

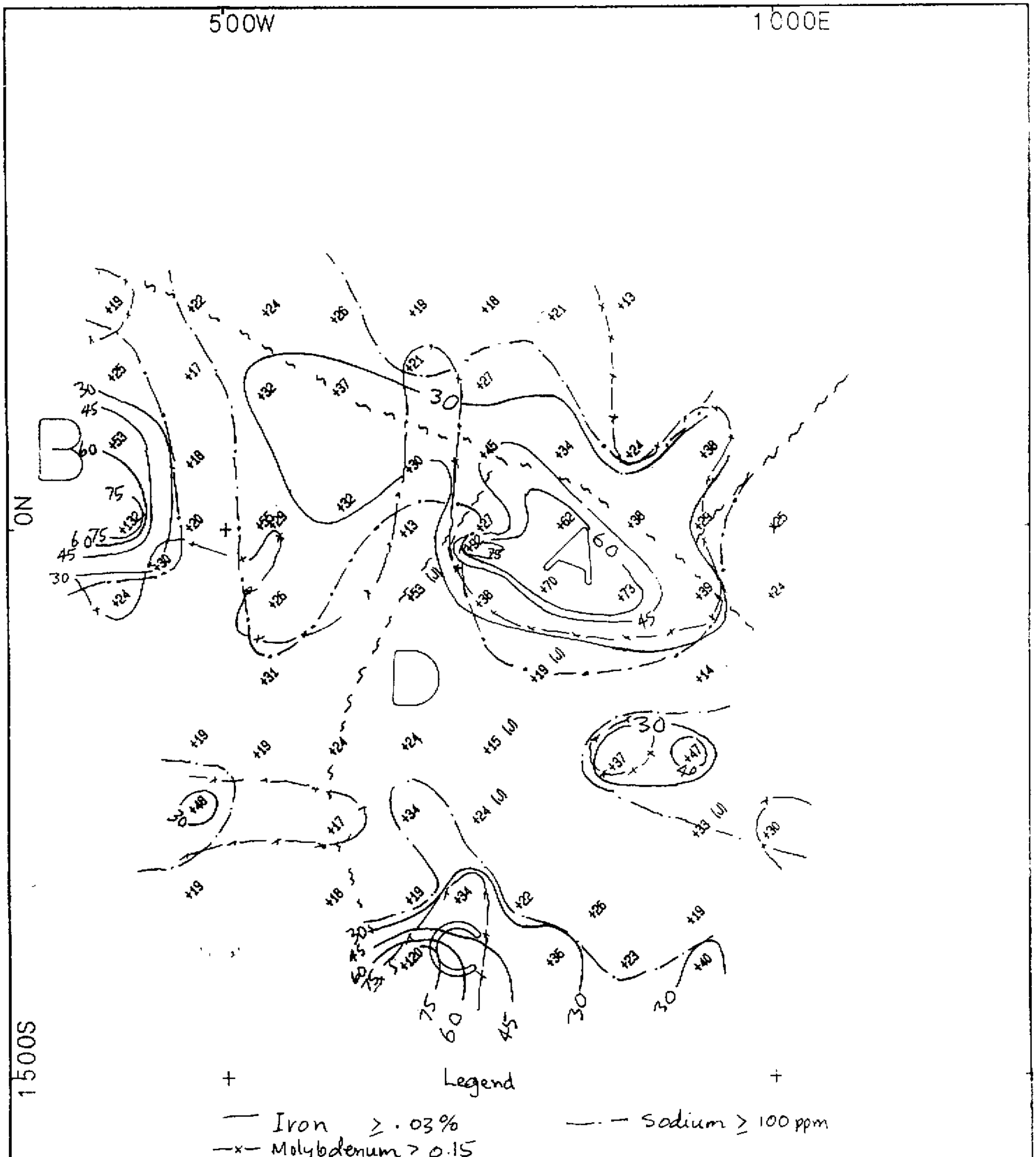
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

compilation map Gold + Br, As, Sb (ppb)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. 7



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-1448 etc.) B = Bark

Meters

150 75 0 150 300

compilation map: Iron + Mo + Na (%/1000)

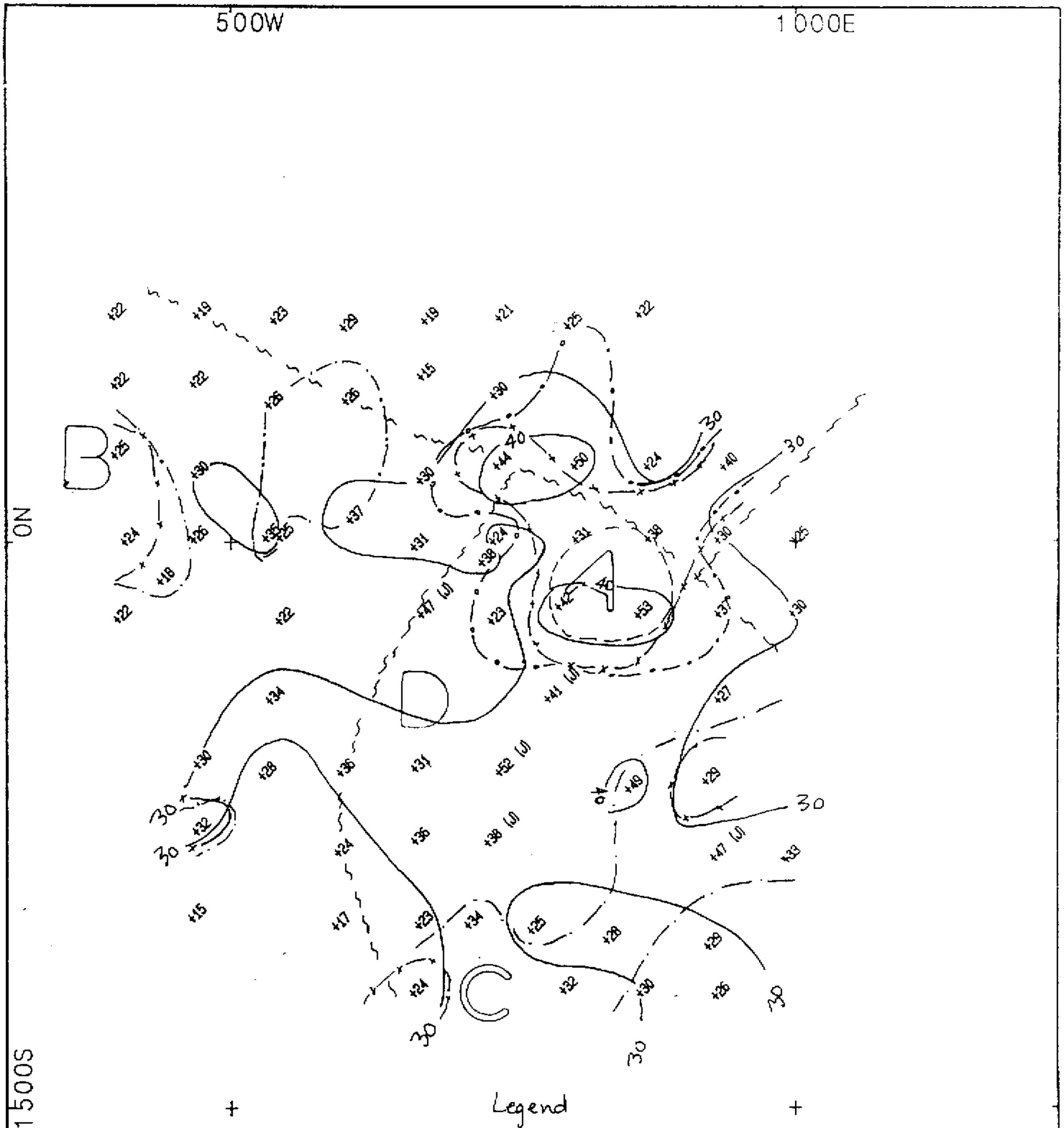
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. 8

Ragnar U. Bruaset & Associates Ltd.



Legend

— Zinc —·— Scandium ≥ 0.1 ppm

—x— Lanthanum ≥ 0.25 ppm -- Cerium > .4 ppm

Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Compilation: Zinc + La + Sc + Ce (ppm)

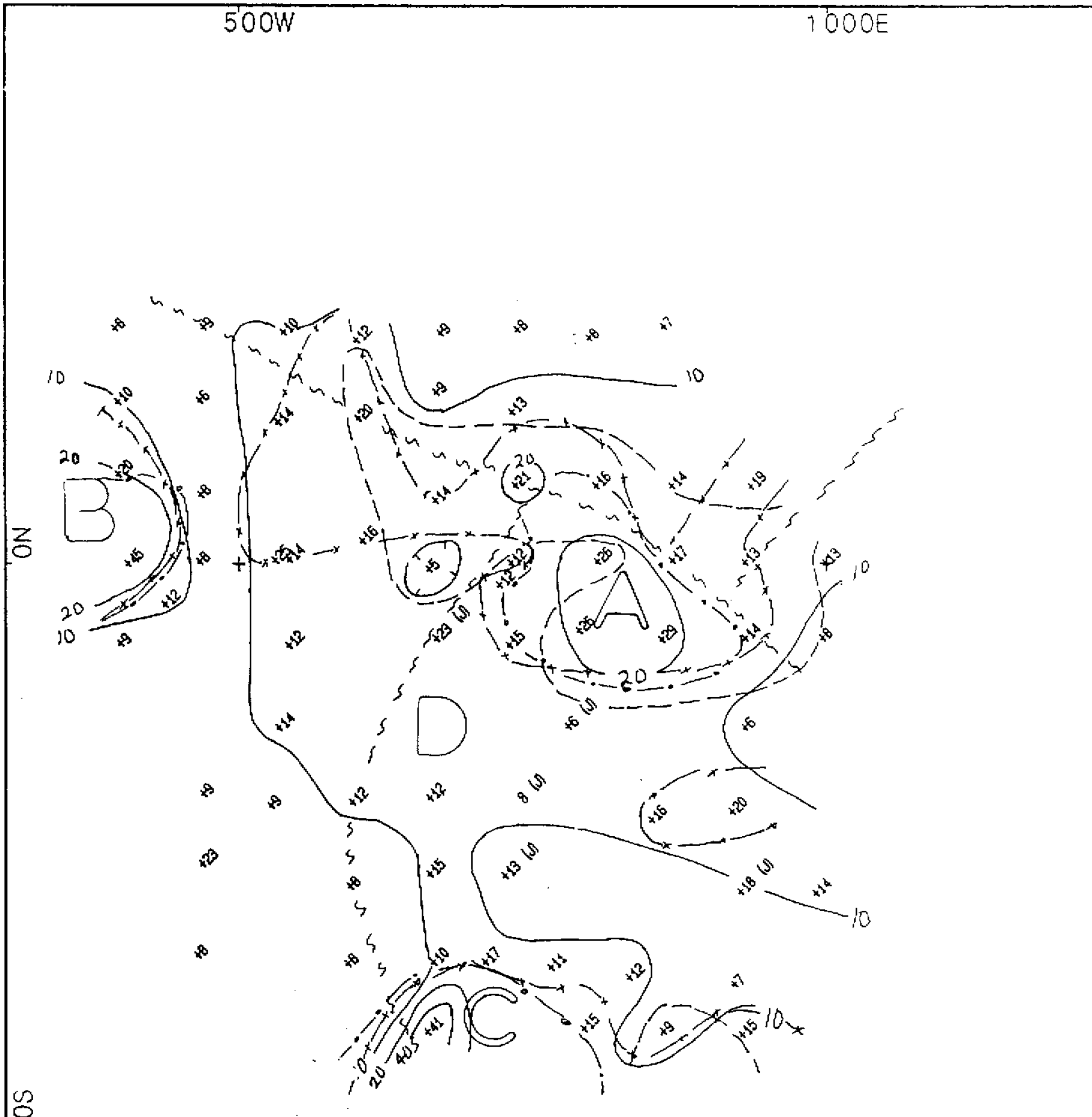
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No.: 9

Ragnar U. Bruaset & Associates Ltd.



Legend

— Ytterbium
-·-·- Cobalt ≥ .3 ppm
-x-x Chromium ≥ 1.0 ppm
- - - - Barium ≥ 120 ppm

Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

compilation: Cr, Co, Ba Ytterbium (ppm/1000)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. 10

Ragnar U. Bruaset & Associates Ltd.

Poplar do indeed accumulate gold to levels similar to the common conifer species sampled in the northern area, which are white spruce, black spruce, lodgepole pine and balsam fir.

It is possible that the presence of caliche in the soil of the Gnome M. C. is the reason for the apparent failure of poplar to register gold. All of the roots of poplars would be located above the caliche layer and the problem could be caused by a low gold content in the soil above that layer. In the case of Douglas fir, its long tap roots can easily extend below the caliche.

Conventional soil sampling in caliche areas of southern B. C. is discussed in Horsenail and Elliott, 1971. It appears that the caliche reduces the upward migration of elements into the upper soil by trapping them in the caliche. Where the terrain is relatively steep, exposure of the caliche by erosion tends to release trapped elements making them more easily detected in shallow soil samples along the slopes.

The bark sampling was carried out using simple but effective tools. These consist of a dedicated paint scraper whose handle has been taped with electrician's tape. A bark sample is usually taken around the entire tree from the maximum reach to chest height, for convenience. With very light strokes on the scraper, only the loose outer bark flakes are dislodged. The bark is caught in a modified plastic dust pan, one with a crescent shaped cut-out which fits the general curvature of typical trees being sampled. With careful sampling, the required amount of bark is quickly obtained and no damage to the tree results. The weathering of the bark over a period of a year or less obscures the sampling. It is understood that the crews working for C. E. Dunn also utilize these sampling tools. The bark scraper that the author uses has been filed dull and the edges are rounded. This is done for safety and to prevent gouging of the bark. Undesirable nicking of the dust pan can results from using too sharp a scraper. In the course of bark sampling, and sample handling, no gold jewelry of any kind is worn. Studies have shown that contamination of bark samples can easily occur if one wears gold jewelry while handling the samples (Dunn, pers. comm.). In the course of the sampling, there is no hand contact with the bark. A bark sample is poured into a conventional Kraft soil envelope, which is then stored, along with the other bark samples, in a strong plastic bag (10 mill) inside the pack sack. The dust pan is also placed in such a bag in the pack sack. This reduce the chance of contact with any contaminants that may be found in the bottom of a pack sack. The bark scraper is carried in a conventional rock hammer holster. Simply leaving the bark samples loose in a pack sack, and the dust pan too, is inviting contamination.

Before samples are shipped to the laboratory, each bag is sealed with tape and packed tightly in its upright position. The preferred shipping container is a conventional apple box. Sealing of the bag and shipping in upright position tends to prevents escape of fine dust from the bags, ensuring the samples arrive at the laboratory in a clean condition.

BARK ANOMALIES (Plates 7-10)

The data for individual elements were machine plotted on letter-size maps (APPENDIX 4). The data for Douglas fir and lodgepole pine were plotted on the same maps because the outer bark of these species tend to accumulate approximately the same amounts of gold, based on calibration sampling elsewhere. Calibration sampling involves collecting bark from forked trees of different species in order to establish relative concentration patterns.

Species such as Douglas fir and lodgepole pine tend to have similar gold concentrations at the same site. In the case of As, for instance, major differences exist between the two species. Accordingly, one strives to have species uniformity. However, a forest is never species uniform, necessitating a species mix in most cases if adequate sample coverage is to be achieved. Accordingly, some knowledge of the relative abundances of the various elements in the species sampled is necessary for interpretation.

There is not a lot of data published on elemental abundances in outer bark. This makes it necessary for the sampler to develop his own reference levels. Dunn, 1991 has published a very useful table of common concentration in jackpine and spruce outer bark. Dunn's ash based jackpine and spruce outer bark data can be converted to approximate dry weight equivalents by dividing the ash values by 50 for all elements (Dunn, pers. comm.).

Grouping of the current data was accomplished by colour coding arbitrary levels starting with the highest values. All grouping and contouring on the attached maps are based on Douglas fir data , with one exception. In the case of bark anomaly D, the author combined Au data from Douglas fir and lodgepole pine to indicate a probable SSW extension to anomaly A, mainly a gold anomaly. This anomaly is too large, and too strong to ignore. The overall gold anomaly is indicated on Plate 4 variously by the 0.40 and 0.3 ppb contours.

Compilations at 1:15,000 consisting of 3 to 4 elements each, intended to show overlapping patterns and various relationships to the ENZYME LEACH inferred faults, are presented (Plates 7-10).

ANOMALIES A. and D.

A multi-element anomaly involving Au, Br, As, Sb, Fe, Mo, Zn, La, Sc, Ce, Yb, Cr, Co, Ba and Hg is located in the vicinity of several outcrops of epithermal silica breccia in the NE quadrant of the Gnome M. C. (Plate 6-10). The breccias are inferred to be epithermal silica caps because they are composed extensively of coarse comb-structured quartz and micro-crystalline silica (chert). The biogeochemical signature of the breccia area is decidedly epithermal with Au, As, Sb, Br and Hg variously anomalous. Several of the other elements, such as Mo, Ba, Co, Zn and Fe are frequent associates of gold in a variety of deposits. For further information, refer to Boyle, 1979.

The mercury content of the local Douglas fir bark appears to be generally normal based on the data in my possession, and referred to here with the consent of the various owners of data. Data on the relative abundance of Hg in Douglas fir and lodgepole pine which the author owns includes about 1 doz. samples of Douglas fir in an area of predominant lodgepole pine forest. Comparative levels of mercury in the two species include lodgepole pine outer bark values: 0.22, 0.23 and 0.18 ppm Hg and a single Douglas fir sample in the same area, with 0.21 ppm.

In the case of a calibration sample, lodgepole pine contains 0.14 ppm Hg and the Douglas fir contains 0.17 ppm. In a second calibration sample, lodgepole pine contains 0.22 ppm Hg and the Douglas fir 0.11 ppm. In a set of data from a project in north central B. C., 49 lodgepole pine samples range from .08 to .24 ppm Hg and average .142 at a standard deviation of 0.043. Most of the samples range from 0.08 to 0.16. In spruce from the same property, based on 110 samples, the average Hg content is .126 ppm and the standard deviation is 0.04. Values ranged from 0.05 to 0.23 ppm Hg. Most of the data range from .06 to .18 ppm. Even though the Gnome mercury data appears to be normal, a subtle pattern is apparent because of the existence a number of values close to the detection limit in the area south of the WNW Enzyme Leach trend as compared to the existence of higher values more proximal to the proposed structure.

The overall patterns of several gold indicator elements here are similar to those of another property owned by the author. In that example, a very striking multi-element pattern involving most of the above elements was revealed by systematic bark sampling of lodgepole pine over a weak IP anomaly and coincident resistivity high. There were indications of anomalous gold in the bedrock up to a few hundred ppb, similar to known maximum amounts in surface samples from the epithermal breccias of the Gnome. There were also geological indications of the existence of an environment permissive to gold mineralization within the coincident geophysical anomalies. Dr. Dunn examined the multi-element plots and submitted a two page letter commenting on the biogeochemical results. This prospect is geologically and probably geochemically similar to the Gnome. Dr. Dunn's comments follows. With regards to Br, Hg and gold, Dunn states: " mercury is commonly associated with epithermal Au mineralization (cf. the Interior Plateau of B. C.).

Similarly, the Br pattern fits the picture well-I have found an association of elevated Br and Au values in vegetation over numerous zones of Au mineralization across Canada". In regard to the multi-element signature, he states: " The factor of particular interest with respect to your data are the COINCIDENT PATTERNS of relatively high elemental concentrations. I can see only two possible explanation-either there are unusual physicochemical conditions to give rise to the metal enrichments in the centre of your survey area, or there is gold mineralization. If the latter is the case, I would caution that the anomalies are subtle, and therefore they may only be reflecting near-surface weak (sub-economic) mineralization. However, given the information that is available, the anomalies could equally well be indicating more deeply seated higher grade mineralization which is 'leaking' to the surface. The extent to which this may occur is dependent upon the groundwater regime, and the fracture patterns/structural setting of the rocks".

Anomaly A on the Gnome is located at the intersection of two faults inferred from zirconium in the Enzyme Leach survey. Several of the geochemical patterns show elongation along the WNW trend well beyond the postulated fault intersection. DDH 72454, GN 86-1 and 2 by Inco and Noranda tested this target in the vicinity of known silica breccias with the best intersections in the general range 100 ppm to 1600 ppb Au. With this new data, it appears possible that the original hole were not drilled with the optimum orientation. This target is quite interesting because of its size, and its apparent association with these newly inferred structures. Its general WNW trend is interesting, too, because it is consistent with that of the IP anomaly in the NW quadrant of Gnome M. C. as well as the apparent structural grain of rock within it.

An interesting aspect to the local geology is the fact that the control, and orientation, of the local silica breccias cannot be determined from existing exposures. The basic assumption has been that these breccias are controlled by the N-S structures of the Central gully trend. If one were to link up the two main silica breccia exposures on the Gnome that would tend to suggest a WNW trend (Plate 4).

ANOMALY D

This anomaly is described at this point because it is viewed as an extension of Anomaly A. The highly anomalous gold concentrations of lodgepole pine outer bark of samples no. 16 and 86 provide a bridge to samples no. 99 and 106, also clearly anomalous. The overall anomaly is shown on Plate 4. Unfortunately, most of the samples in this area are from poplar and that species tells us nothing about the distribution of gold in this survey. The As content of conifer outer bark in this area is interesting. The entire As data from conifers in this survey could be regarded as anomalous based on the author's experience elsewhere. It appears generally that Douglas fir outer bark contains from 3 to 5 times as much As as lodgepole pine outer bark. If a conversion factor of 3X were applied to lodgepole samples no. 16, 86, 118 and 134, this would make the general area of the D anomaly a great deal more interesting for As.

ANOMALY B

This gold anomaly occurs generally within the strongest part of the IP anomaly in the NW quadrant of Gnome M. C. In addition, several other elements are anomalous: Br, As, Sb, Fe, Mo, Na, La, Yb, Cr, Co and Ba. The sampling should be expanded to the west subject to availability of suitable sample sites. There is a large natural clearing in that direction reducing the possible sample coverage but sufficient samples could probably be obtained to permit the exploration of this western extension by the same method. The western boundary of the Gnome property lies about 500 m to the west. The most easterly working of the old mine, on the so-called Ridge vein, is believed located 300-400 m to the west of the Gnome property boundary.

ANOMALY C

This multi-element anomaly occurs at the south end of the Central gully trend. Elements that are anomalous in this area include Au, Br, As, Sb, Fe, Mo, Na, La, Sc, Yb, Cr and Co. Very intense shearing in chlorite schist is apparent here. The structure is part of a broad zone of faulting inferred by Inco which is also subparallel to the trend of quartz veins in the Vidette mine. This anomaly lies on the intersection with the north trending Enzyme Leach fault.

CONCLUSIONS

1. The Enzyme Leach survey has indicated a central low that is partially surrounded by anomalous values for a long list of important elements. The common low is taken to be in the vicinity of sample site # 17. This anomaly is an electrochemical anomaly resulting from oxidation of a buried reduced body located approximately under sample site # 17. It is impossible to determine the actual size of the body causing this central low, or its depth, based on the available data. Dr. Clark has indicated that the target should be tested with a vertical hole collared approximately at sample site # 17.

2. The zirconium data suggests the possibly existence of two unreported faults, one trending WNW and the other northerly.

3. A large circular low for REE situated generally in the SE quadrant of GNOME M. C. requires further sampling to define its central low which appears to lie in the vicinity of sample # 118.

4. A total of three clusters of multi-element bark anomalies, including gold were indicated. These are interesting based on geological, geophysical and geochemical information. They also fit the pattern of Enzyme Leach inferred faults very closely.

Report by
RUBruaset
Ragnar U. Bruaset B.Sc.
Geologist

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APPENDIX 1

ENZYME LEACH (57 pages)

A. ENZYME LEACH DATA: Report No. 1217RPT.XLS 9 pages

INCLUDING:

ANALYTICAL PROCEDURES AND LIST OF DETECTION LIMITS 1 page

B. LETTER REPORT BY J. R. CLARK ON GNOME ENZYME LEACH SURVEY DATED DEC. 28, 1994
2 pages

C. MISCELLANEOUS REFERENCES ON ENZYME LEACH BY CLARK, J. R.

1. EXAMPLES OF ASYMMETRICAL ENZYME LEACH ANOMALY PATTERNS
41 pages

(SPECIAL NOTE: PLEASE REFER TO THE 5 CONTOUR PLOTS)

2. INNOVATIVE ENZYME LEACH PROVIDES COST-EFFECTIVE OVERBURDEN PENETRATION (C., J. R., AND COHEN, DAVID)
4 pages

7. ENZYME LEACH

This revolutionary highly selective enzyme leach (patents pending) was developed by the current manager of Enzyme-**ACTLABS, LLC.**, DR. J. R. CLARK (formerly with U.S.G.S.) and has the ability of detecting deeply buried mineralization in arid as well as glaciated terrains. Published test results indicate that depth of penetration is up to 1000 feet for gold base metal and porphyry copper deposits in the numerous case histories studied. Limited testing has also been done for oil exploration with exceptional results on an oil pool 9000 feet below the surface.

B soil horizon materials are collected and dried at temperatures not exceeding 40C and sieved at -60 mesh. We require a minimum of 2 grams of sieved material and preferably 10-20 grams. After leaching, the leach solution is run by ICP-MS. Consulting on sample collection and interpretation of data as well as reference papers are available from **ACTLABS** or **Enzyme-ACTLABS, LLC.**

ENZYME LEACH

(DETECTION LIMITS ALL IN PPB)

Li	~~30~~ 10	Mo	1	Dy	1
Cl	~~8000~~ 3000	Ru	1	Ho	1
Sc	10	Pd	1	Er	1
Ti	20	Ag	0.2	Tm	1
V	5	Cd	0.2	Yb	1
Mn	10	In	0.2	Hf	1
Co	1	Sn	1	Ta	1
Ni	5	Sb	1	W	1
Cu	5	Te	1	Re	0.1
Zn	10	I	~~60~~ 15	Os	1
Ga	1	Cs	1	Ir	1
Ge	1	Ba	1	Pt	1
As	5	La	1	Au	0.1
Se	~~50~~ 30	Ce	1	Hg	1
Br	~~30~~ 50	Pr	1	Tl	1
Rb	1	Nd	1	Pb	1
Sr	1	Sm	1	Bi	1
Y	1	Eu	1	Th	1
Zr	1	Gd	1	U	1
Nb	1	Tb	1		

PRICE:	CDN	US
PER SAMPLE	$25.00	$20.00
PREP COST/SAMPLE	$ 2.50	$ 2.00

FOR PROGRAM VOLUMES OVER 1000 SAMPLES DISCOUNTS MAY BE APPLICABLE.

Enzyme Leach Job #: 1217 Company: Ragnar U. Bruaset & Associates Geologist: Ragnar U. Bruaset
Trace Element Values Are in Parts Per Billion. Negative Values Equal Not Detected at That Lower Limit.
Values = 999999 are greater than working range of instrument.

Sample ID:			Li	Be	Cl	Sc	Ti	V	Mn	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Rb	Sr	Y	Zr	Nb	Mo	Ru	Rh	Pd
G-94-	10	S	92	-10	4,518	-10	8,774	228	8,066	27	102	62	77	26	-1	23	-30	136	26	927	20	124	3	50	-1	-1	2
G-94-	11	S	38	-10	13,553	-10	1,173	171	2,074	49	84	68	47	6	-1	8	-30	365	7	1,116	90	394	3	13	-1	-1	6
G-94-	12	S	25	-10	-3,000	-10	1,402	242	3,473	28	110	79	75	11	1	12	-30	163	10	1,114	21	125	3	20	-1	-1	2
G-94-	13	S	26	-10	3,412	-10	264	143	851	15	86	30	25	2	-1	-5	-30	193	4	1,370	44	97	-1	13	-1	-1	1
G-94-	14	S	16	-10	6,037	-10	764	190	8,228	32	66	59	149	10	-1	36	-30	130	20	924	6	54	3	179	-1	-1	-1
G-94-	15	S	44	-10	3,219	-10	751	128	4,226	14	54	41	44	3	-1	12	-30	155	70	784	5	74	1	132	-1	-1	1
G-94-	16	S	28	-10	7,692	-10	737	105	2,233	14	55	43	53	6	-1	11	-30	127	12	544	5	111	1	41	-1	-1	1
G-94-	17	S	11	-10	5,962	-10	625	184	1,517	11	36	38	40	6	-1	18	-30	83	6	595	6	57	-1	36	-1	-1	-1
G-94-	18	S	-10	-10	6,387	-10	553	149	1,654	11	17	18	58	2	-1	17	-30	108	5	662	4	75	-1	108	-1	-1	1
G-94-	19	S	24	-10	-3,000	-10	476	111	4,388	37	61	90	84	7	-1	34	-30	142	8	841	5	98	1	55	-1	-1	1
G-94-	21	S	168	-10	8,605	-10	915	85	2,805	30	38	69	87	5	-1	41	-30	305	28	1,372	5	19	1	3,971	-1	-1	-1
G-94-	23	S	-10	-10	5,303	-10	612	100	1,741	12	48	43	71	6	-1	18	-30	141	6	764	2	48	1	54	-1	-1	1
G-94-	24	S	11	-10	-3,000	-10	792	231	3,766	20	54	50	36	7	-1	12	-30	189	11	765	9	84	2	80	-1	-1	1
G-94-	25	S	19	-10	-3,000	-10	789	142	3,289	12	53	38	56	5	-1	14	-30	160	18	820	19	161	2	81	-1	-1	2
G-94-	27	S	-10	-10	7,788	-10	1,021	133	18,924	77	47	31	47	11	1	11	-30	188	86	850	12	161	1	67	-1	-1	2
G-94-	28	S	22	-10	3,341	-10	1,145	175	13,359	26	62	49	237	10	-1	8	-30	118	17	1,084	6	83	3	120	-1	-1	1
G-94-	29	S	-10	-10	5,762	-10	1,298	66	3,326	20	34	12	64	7	-1	7	33	128	57	619	4	139	3	715	-1	-1	1
G-94-	30	S	12	-10	9,123	-10	1,861	84	1,822	20	55	16	102	10	-1	6	-30	-50	24	996	4	149	5	37	1	-1	1
G-94-	31	S	27	-10	3,879	-10	1,073	166	13,279	40	58	13	36	8	-1	-5	31	83	19	1,224	8	103	3	67	-1	-1	1
G-94-	32	S	-10	-10	5,657	-10	1,102	111	13,998	17	28	18	89	12	1	14	-30	86	37	1,392	5	46	2	120	-1	-1	-1
G-94-	33	S	55	-10	-3,000	-10	1,489	150	10,607	43	72	44	214	15	-1	9	-30	151	30	1,228	12	210	5	273	-1	-1	2
G-94-	34	S	14	-10	5,816	-10	1,403	281	1,838	22	57	60	78	8	-1	37	-30	153	13	1,299	15	85	3	95	-1	-1	1
G-94-	35	S	-10	-10	3,326	-10	607	91	5,397	9	17	16	39	7	-1	13	-30	132	22	770	2	37	1	109	-1	-1	-1
G-94-	36	S	48	-10	-3,000	-10	526	91	5,226	60	56	79	61	4	-1	43	-30	76	22	583	9	48	-1	45	-1	-1	-1
G-94-	37	S	14	-10	5,739	-10	729	256	10,909	42	52	39	50	9	-1	151	-30	327	28	913	6	51	3	111	-1	-1	1
G-94-	39	S	59	-10	7,981	-10	1,180	482	380	8	65	574	44	2	1	62	-30	147	36	1,156	6	48	2	2,261	-1	-1	2
G-94-	41	S	23	-10	4,947	-10	1,017	237	6,135	18	54	35	104	15	-1	24	-30	184	16	1,092	14	152	3	270	-1	-1	3
G-94-	42	S	11	-10	-3,000	-10	1,472	184	5,477	14	32	25	80	9	-1	47	-30	93	22	1,108	7	93	3	118	-1	-1	1
G-94-	44	S	21	-10	5,764	-10	1,809	49	999999	37	48	16	193	10	-1	6	-30	81	37	812	5	106	4	905	-1	-1	1
G-94-	45	S	22	-10	-3,000	-10	1,960	63	799	10	43	17	274	7	-1	5	-30	91	22	911	2	60	4	42	-1	-1	-1
G-94-	50	S	59	-10	3,241	-10	2,027	139	4,846	40	55	32	143	10	-1	18	-30	-50	52	680	4	129	5	76	-1	-1	1
G-94-	51	S	21	-10	6,034	-10	1,226	136	13,299	24	63	41	236	18	-1	20	-30	152	21	913	4	98	3	318	-1	-1	1
G-94-	52	S	22	-10	-3,000	-10	678	164	2,205	11	54	37	26	4	-1	19	33	233	9	796	5	52	1	145	-1	-1	-1
G-94-	53	S	23	-10	3,197	-10	1,553	90	3,049	30	48	21	132	38	-1	8	-30	80	31	1,181	8	139	5	118	-1	-1	2
G-94-	54	S	44	-10	3,641	-10	1,518	143	7,410	90	63	22	61	6	-1	9	-30	68	40	652	10	185	5	359	-1	-1	1
G-94-	56	S	18	-10	11,244	-10	1,347	218	999999	40	65	34	193	17	-1	19	-30	128	10	1,332	5	79	3	441	1	-1	2
G-94-	57	S	-10	-10	23,377	-10	1,479	204	2,719	38	67	54	46	13	-1	21	-30	283	8	459	10	153	6	155	-1	-1	1
G-94-	58	S	27	-10	-3,000	-10	1,102	121	5,312	53	62	59	82	8	-1	9	-30	77	15	467	10	89	3	57	-1	-1	1
G-94-	59	S	40	-10	-3,000	-10	1,095	195	7,004	32	64	61	108	8	-1	37	-30	158	33	883	7	123	2	112	-1	-1	2
G-94-	60	S	79	-10	3,128	-10	1,101	329	1,660	17	47	263	21	5	-1	124	-30	305	12	1,522	22	14	-1	40	1	-1	-1
G-94-	62	S	39	-10	-3,000	-10	1,336	111	2,313	31	44	25	63	6	-1	9	-30	-50	22	844	8	176	4	16	-1	-1	2
G-94-	63	S	23	-10	3,192	-10	1,234	126	3,435	20	52	15	31	7	-1	8	-30	-50	15	749	6	104	4	17	-1	-1	2

Enzyme Leach Job #: 1217 Company: Ragnar U. Bruaset & Associates Geologist: Ragnar U. Bruaset
Trace Element Values Are in Parts Per Billion. Negative Values Equal Not Detected at That Lower Limit.
Values = 999999 are greater than working range of instrument.

Sample ID:			Li	Be	Cl	Sc	Ti	V	Mn	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Rb	Sr	Y	Zr	Nb	Mo	Ru	Rh	Pd
G-94-	64	S	16	-10	-3,000	-10	1,351	99	1,506	18	60	34	56	8	-1	6	-30	135	14	1,089	8	167	4	11	-1	-1	1
G-94-	65	S	18	-10	-3,000	-10	875	79	4,462	28	57	20	115	6	-1	6	-30	104	12	1,156	26	187	2	23	-1	-1	3
G-94-	66	S	24	-10	-3,000	-10	904	81	4,072	34	64	21	97	8	-1	-5	-30	113	19	1,099	16	169	3	11	1	-1	3
G-94-	67	S	14	-10	-3,000	-10	1,421	88	5,058	29	57	17	198	35	-1	-5	-30	67	19	1,102	13	117	5	17	-1	-1	2
G-94-	68	S	13	-10	6,387	-10	1,200	46	1,702	18	35	13	124	4	-1	-5	-30	-50	24	677	2	66	3	17	-1	-1	1
G-94-	69	S	20	-10	5,300	-10	1,196	73	1,278	16	39	20	136	6	-1	5	-30	57	42	923	9	172	3	11	1	-1	1
G-94-	70	S	39	-10	-3,000	-10	1,381	81	1,280	33	48	18	468	12	-1	-5	-30	-50	38	768	9	209	4	12	-1	-1	2
G-94-	71	S	17	-10	3,643	-10	1,317	70	3,757	32	36	9	48	8	-1	-5	-30	-50	26	910	3	87	3	8	-1	-1	2
G-94-	72	S	22	-10	9,163	-10	604	185	2,315	8	35	31	36	6	-1	-5	-30	185	22	496	6	48	2	75	-1	-1	-1
G-94-	73	S	32	-10	14,439	-10	450	174	1,238	16	71	37	31	3	-1	15	-30	305	8	594	12	39	1	57	-1	-1	-1
G-94-	74	S	-10	-10	14,352	-10	1,189	93	2,819	16	49	29	117	9	-1	14	-30	140	21	792	4	101	3	22	-1	-1	1
G-94-	75	S	16	-10	5,338	-10	1,168	61	6,842	21	38	13	73	6	-1	7	-30	-50	11	797	4	82	4	71	-1	-1	1
G-94-	76	S	37	-10	4,279	-10	1,420	178	13,735	48	75	25	256	14	-1	19	-30	81	24	857	13	184	4	45	-1	-1	2
G-94-	77	S	44	-10	5,734	-10	1,915	139	16,939	76	88	30	381	14	-1	7	-30	165	29	620	15	370	7	19	-1	-1	2
G-94-	78	S	53	-10	12,237	-10	664	70	5,429	44	67	14	63	5	-1	8	-30	-50	39	558	5	95	2	13	-1	-1	1
G-94-	79	S	30	-10	13,542	-10	1,206	30	999999	51	80	5	465	15	-1	-5	-30	-50	60	1,152	6	92	2	16	-1	-1	1
G-94-	80	S	14	-10	5,600	-10	1,008	46	775	23	46	13	61	6	-1	-5	-30	67	12	982	3	71	2	11	-1	-1	1
G-94-	81	S	15	-10	3,425	-10	704	38	2,162	28	36	13	156	5	-1	-5	-30	52	24	718	7	86	1	14	-1	-1	1
G-94-	82	S	18	-10	5,977	-10	425	154	2,550	13	59	44	34	6	-1	11	-30	175	11	1,224	11	71	2	28	-1	-1	1
G-94-	83	S	58	-10	4,778	-10	799	68	5,177	32	56	26	31	6	-1	-5	-30	84	23	760	7	133	2	22	-1	-1	2
G-94-	84	S	25	-10	3,301	-10	896	70	5,977	30	74	37	151	9	-1	-5	-30	80	9	780	7	84	2	34	-1	-1	1
G-94-	85	S	91	-10	-3,000	-10	453	142	1,631	12	45	38	11	3	-1	50	-30	165	16	969	4	36	-1	89	-1	-1	-1
G-94-	86	S	21	-10	-3,000	-10	221	167	2,019	13	43	73	39	5	-1	28	-30	131	13	605	5	38	-1	66	-1	-1	-1
G-94-	87	S	14	-10	5,055	-10	362	76	2,579	13	22	22	25	10	-1	13	-30	333	25	470	4	40	-1	40	-1	-1	-1
G-94-	90	S	19	-10	-3,000	-10	808	87	3,761	13	59	23	46	6	-1	8	-30	103	19	911	3	70	1	18	-1	-1	1
G-94-	91	S	20	-10	-3,000	-10	601	86	4,615	19	33	32	38	8	-1	18	-30	128	13	620	4	85	1	20	-1	-1	1
G-94-	92	S	-10	-10	3,222	-10	378	106	3,057	13	45	45	21	9	-1	9	-30	73	12	628	9	73	1	37	-1	-1	-1
G-94-	93	S	12	-10	-3,000	-10	831	293	6,019	31	72	102	45	7	-1	6	-30	97	17	432	5	18	-1	57	-1	-1	-1
G-94-	94	S	41	-10	7,922	-10	1,167	1,022	1,787	18	36	91	10	3	-1	20	-30	121	2	1,964	17	6	-1	36	-1	-1	-1
G-94-	95	S	18	-10	7,842	-10	911	90	7,744	73	47	53	65	8	-1	-5	-30	122	16	933	5	76	1	75	-1	-1	1
G-94-	96	S	10	-10	7,073	-10	402	140	995	13	65	101	18	7	-1	8	-30	87	10	331	4	24	-1	21	-1	-1	-1
G-94-	97	S	10	-10	6,550	-10	409	147	1,112	15	62	97	12	6	-1	8	33	85	11	353	4	22	-1	17	-1	-1	-1
G-94-	98	S	24	-10	10,012	-10	741	221	1,274	16	46	199	29	4	-1	41	31	106	-1	963	11	12	-1	19	1	-1	-1
G-94-	99	S	52	-10	5,243	-10	785	75	5,406	46	45	30	28	9	-1	10	-30	122	16	684	7	92	2	13	-1	-1	1
G-94-	100	S	12	-10	6,647	-10	511	86	2,788	18	55	79	32	9	-1	14	-30	140	8	512	7	138	-1	19	-1	-1	1
G-94-	101	S	-10	-10	7,427	-10	901	123	4,936	33	79	98	131	6	-1	11	-30	103	15	565	15	169	2	41	-1	-1	2
G-94-	102	S	23	-10	12,849	-10	503	75	6,751	43	73	83	102	7	-1	10	36	200	27	660	10	107	1	104	-1	-1	2
G-94-	103	S	14	-10	-3,000	-10	776	100	11,058	28	33	37	95	9	-1	8	-30	-50	24	754	7	73	1	21	-1	-1	1
G-94-	104	S	18	-10	10,454	-10	711	185	3,738	37	53	127	45	8	-1	56	-30	295	49	1,166	18	10	-1	38	1	-1	-1
G-94-	105	S	14	-10	11,846	-10	574	77	645	15	29	32	109	7	-1	11	-30	166	6	576	3	31	1	67	-1	-1	-1
G-94-	106	S	-10	-10	4,061	-10	648	115	4,210	23	37	183	103	7	-1	27	-30	111	11	820	3	31	-1	73	-1	-1	-1
G-94-	107	S	12	-10	7,949	-10	532	85	9,209	25	26	37	57	11	-1	6	-30	118	23	646	4	50	-1	31	-1	-1	-1

Enzyme Leach Job #: 1217 Company: Ragnar U. Bruaset & Associates Geologist: Ragnar U. Bruaset
Trace Element Values Are in Parts Per Billion. Negative Values Equal Not Detected at That Lower Limit.
Values = 999999 are greater than working range of instrument.

Sample ID:			Li	Be	Cl	Sc	Ti	V	Mn	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Rb	Sr	Y	Zr	Nb	Mo	Ru	Rh	Pd
G-94-	109	S	24	-10	9,357	-10	454	57	5,691	22	28	42	26	16	-1	7	-30	70	27	645	6	64	-1	25	-1	-1	1
G-94-	110	S	18	-10	9,208	-10	238	248	5,171	35	97	149	45	10	1	16	-30	191	12	733	31	388	-1	50	-1	-1	4
G-94-	111	S	-10	-10	14,381	-10	431	115	1,239	6	26	53	53	7	-1	6	-30	-50	13	387	4	25	-1	17	-1	-1	-1
G-94-	112	S	46	-10	5,262	-10	1,127	165	2,219	64	47	62	72	11	-1	14	-30	138	27	498	9	113	2	28	-1	-1	1
G-94-	113	S	24	-10	4,729	-10	559	116	1,917	17	32	29	68	6	-1	16	-30	81	29	385	7	76	1	17	-1	-1	1
G-94-	114	S	27	-10	9,210	-10	529	185	2,247	14	49	51	28	12	-1	12	-30	156	19	385	11	79	-1	22	-1	-1	1
G-94-	115	S	31	-10	10,589	-10	721	79	2,041	27	23	18	59	5	-1	6	-30	78	17	528	4	55	2	11	-1	-1	-1
G-94-	118	S	-10	-10	8,951	-10	132	43	1,828	11	16	13	32	4	-1	6	-30	86	21	629	1	25	-1	23	-1	-1	-1
G-94-	119	S	11	-10	8,401	-10	461	80	2,172	12	35	43	42	8	-1	8	-30	113	14	389	3	75	-1	39	-1	-1	1
G-94-	120	S	-10	-10	4,257	-10	281	49	614	5	19	17	27	4	-1	6	-30	-50	17	427	1	48	-1	19	-1	-1	-1
G-94-	121	S	27	-10	8,081	-10	934	74	5,633	14	38	22	70	12	1	13	-30	106	28	513	6	70	2	42	-1	-1	-1
G-94-	122	S	15	-10	10,228	-10	250	74	1,856	14	29	28	50	6	-1	7	-30	246	21	466	2	24	-1	72	-1	-1	-1
G-94-	124	S	14	-10	8,513	-10	341	63	1,753	9	28	37	25	2	-1	8	-30	115	23	414	3	50	-1	42	-1	-1	-1
G-94-	126	S	63	-10	7,600	-10	523	56	4,758	18	59	30	50	3	-1	-5	-30	106	33	483	4	77	1	13	-1	-1	-1
G-94-	127	S	33	-10	11,700	-10	701	203	2,565	24	45	35	57	3	-1	15	-30	181	30	645	8	103	2	21	-1	-1	1
G-94-	128	S	103	-10	8,986	-10	802	82	837	18	27	21	104	6	-1	5	-30	114	30	971	3	42	2	7	-1	-1	-1
G-94-	129	S	24	-10	6,547	-10	956	95	5,518	25	54	14	81	6	-1	-5	-30	128	11	886	10	119	2	37	-1	-1	2
G-94-	130	S	31	-10	6,817	-10	213	74	2,973	14	47	54	29	5	-1	9	-30	106	25	721	4	59	-1	42	-1	-1	-1
G-94-	131	S	119	-10	8,544	-10	548	95	5,276	27	44	37	58	5	-1	8	-30	82	28	715	12	105	2	47	-1	-1	1
G-94-	132	S	-10	-10	-3,000	-10	234	55	1,184	6	15	40	15	-1	-1	-5	-30	-50	11	349	4	39	-1	11	-1	-1	-1
G-94-	133	S	-10	-10	15,420	-10	111	67	3,670	17	23	25	70	9	-1	8	-30	139	14	665	2	15	-1	130	-1	-1	-1
G-94-	134	S	12	-10	9,114	-10	373	59	4,155	14	46	78	31	6	-1	7	-30	161	23	410	4	52	-1	39	-1	-1	-1

Enzyme Leach Job #: 1217
Trace Element Values Are in
Values = 999999 are great

Sample ID:			Ag	Cd	In	Sn	Sb	Te	I	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Os	Ir	Pt
G-94-	10	S	0.4	0.5	-0.2	-1	7	2	45	1	1,231	7	16	3	14	4	2	4	-1	4	-1	1	-1	3	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	11	S	-0.2	-0.2	-0.2	1	4	1	85	-1	767	38	77	17	70	18	5	21	3	20	4	8	1	10	2	6	-1	-1	-0.1	-1	-1	-1
G-94-	12	S	0.4	0.3	-0.2	1	4	2	48	1	452	10	21	4	17	3	1	5	-1	5	1	2	-1	2	-1	2	-1	1	-0.1	-1	-1	-1
G-94-	13	S	-0.2	0.3	-0.2	-1	2	1	45	-1	90	19	22	8	36	9	3	12	1	9	2	4	-1	5	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	14	S	0.9	1.0	-0.2	1	9	3	48	2	877	4	7	2	5	1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	15	S	0.6	0.6	-0.2	-1	5	1	50	4	468	3	6	1	5	-1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	16	S	0.8	0.5	-0.2	-1	4	2	39	1	703	4	8	2	5	1	-1	2	-1	1	-1	-1	-1	-1	-1	2	-1	1	-0.1	-1	-1	-1
G-94-	17	S	0.4	0.3	-0.2	-1	4	3	25	-1	411	4	5	1	5	1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	18	S	0.8	0.7	-0.2	-1	4	2	24	-1	466	3	7	1	4	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	19	S	0.6	0.5	-0.2	1	7	-1	49	1	659	4	11	1	5	-1	-1	1	-1	1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	21	S	0.6	5.9	-0.2	-1	9	1	99	1	210	4	10	2	6	1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	0.2	-1	-1	-1
G-94-	23	S	0.6	0.3	-0.2	-1	4	-1	35	-1	614	2	4	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	0.1	-1	-1	-1
G-94-	24	S	0.9	0.6	-0.2	-1	3	1	44	-1	480	5	7	2	7	1	-1	2	-1	2	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	25	S	0.4	0.5	-0.2	-1	7	-1	53	1	465	8	11	3	12	3	1	4	-1	4	-1	2	-1	3	-1	2	-1	-1	0.1	-1	-1	-1
G-94-	27	S	0.4	1.0	-0.2	1	4	-1	47	1	2,016	8	19	3	11	2	2	3	-1	3	-1	1	-1	1	-1	3	-1	-1	-0.1	-1	-1	-1
G-94-	28	S	0.4	1.6	-0.2	-1	4	1	50	1	1,350	4	12	2	6	1	1	2	-1	2	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	29	S	-0.2	1.4	-0.2	-1	3	2	33	1	706	3	12	1	4	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	-0.1	-1	-1	-1
G-94-	30	S	0.8	0.3	-0.2	2	3	2	35	1	1,359	5	16	2	4	1	1	-1	-1	1	-1	-1	-1	-1	-1	3	-1	-1	-0.1	-1	-1	-1
G-94-	31	S	-0.2	1.0	-0.2	1	4	2	40	1	1,319	6	14	2	8	2	1	2	-1	2	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	32	S	0.4	0.8	-0.2	-1	5	2	41	3	2,032	4	10	1	5	1	2	1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	33	S	0.4	2.7	-0.2	-1	5	2	48	1	1,304	9	23	3	14	3	2	3	-1	3	-1	-1	-1	2	-1	3	-1	1	-0.1	-1	-1	-1
G-94-	34	S	0.4	0.5	-0.2	-1	4	2	75	2	739	8	15	3	13	4	2	4	-1	3	-1	1	-1	1	-1	1	-1	1	0.1	-1	-1	-1
G-94-	35	S	0.6	0.8	-0.2	-1	4	2	17	-1	842	2	4	-1	2	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	36	S	0.4	0.8	-0.2	-1	7	-1	31	1	441	4	6	2	7	2	-1	2	-1	2	-1	-1	-1	1	-1	-1	-1	-1	0.1	-1	-1	-1
G-94-	37	S	0.6	1.0	-0.2	-1	13	2	72	-1	636	4	11	1	5	-1	-1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	2	-0.1	-1	-1	-1
G-94-	39	S	0.6	4.4	-0.2	-1	34	3	35	4	240	3	6	1	4	-1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	1	0.6	-1	-1	-1
G-94-	41	S	0.4	0.6	-0.2	1	3	-1	39	1	1,106	7	14	3	10	2	1	3	-1	3	-1	1	-1	2	-1	2	-1	1	-0.1	-1	-1	-1
G-94-	42	S	0.6	0.6	-0.2	-1	6	2	30	1	725	7	18	2	8	2	1	2	-1	2	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	44	S	0.4	1.8	-0.2	-1	3	2	26	1	2,157	5	20	2	6	1	2	2	-1	1	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	45	S	0.4	0.5	-0.2	1	3	1	20	-1	1,257	2	6	-1	3	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	50	S	0.4	0.6	-0.2	2	6	3	21	3	737	5	12	1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	51	S	0.6	1.2	-0.2	1	3	-1	28	1	1,269	3	11	-1	4	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	3	-1	-1	-0.1	-1	-1	-1
G-94-	52	S	0.8	-0.2	-0.2	-1	5	1	32	-1	611	3	5	1	4	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	1	-1	2	-0.1	-1	-1	-1
G-94-	53	S	-0.2	0.5	-0.2	-1	3	3	33	1	1,789	8	24	3	10	2	2	3	-1	2	-1	-1	-1	-1	-1	-1	-1	1	0.1	-1	-1	-1
G-94-	54	S	0.6	0.8	-0.2	1	3	2	32	1	1,062	7	37	3	10	2	1	3	-1	3	-1	-1	-1	-1	-1	3	-1	-1	-0.1	-1	-1	-1
G-94-	56	S	0.4	3.4	-0.2	-1	4	5	35	-1	2,499	4	15	1	5	-1	2	1	-1	1	-1	-1	-1	1	-1	4	-1	-1	-0.1	-1	-1	-1
G-94-	57	S	0.6	0.8	-0.2	-1	3	1	47	-1	561	9	32	4	12	3	-1	3	-1	3	-1	-1	-1	-1	-1	1	-1	3	-0.1	-1	-1	-1
G-94-	58	S	0.6	0.8	-0.2	-1	3	1	38	1	556	6	16	3	8	2	1	3	-1	3	-1	-1	-1	1	-1	2	-1	2	0.1	-1	-1	-1
G-94-	59	S	0.4	0.6	-0.2	-1	5	2	31	1	724	6	20	2	7	2	1	2	-1	2	-1	-1	-1	1	-1	2	-1	1	-0.1	-1	-1	-1
G-94-	60	S	0.4	0.3	-0.2	-1	10	4	49	1	278	6	8	3	12	4	1	5	-1	5	1	2	-1	2	-1	2	-1	2	-0.1	-1	-1	-1
G-94-	62	S	0.4	0.5	-0.2	1	3	2	30	-1	1,567	6	19	3	9	2	2	3	-1	2	-1	-1	-1	2	-1	-1	-1	2	0.1	-1	-1	-1
G-94-	63	S	0.4	0.3	-0.2	-1	3	2	18	-1	591	4	13	2	5	-1	-1	2	-1	1	-1	-1	-1	1	-1	3	-1	-1	-0.1	-1	-1	-1

Enzyme Leach Job #: 1217
Trace Element Values Are in
Values = 999999 are great

Sample ID:			Ag	Cd	In	Sn	Sb	Te	I	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Os	Ir	Pt
G-94-	64	S	0.4	-0.2	-0.2	1	3	1	39	-1	748	5	11	2	8	1	1	2	-1	2	-1	-1	-1	1	-1	3	-1	-1	-0.1	-1	-1	-1
G-94-	65	S	0.4	-0.2	-0.2	-1	4	1	33	-1	358	9	19	4	15	3	1	5	2	5	1	2	-1	4	1	3	-1	-1	-0.1	-1	-1	-1
G-94-	66	S	-0.2	0.5	-0.2	1	3	1	26	-1	569	10	27	4	16	4	2	5	-1	4	-1	1	-1	2	-1	3	-1	-1	-0.1	-1	-1	-1
G-94-	67	S	0.4	0.5	-0.2	-1	2	1	36	-1	1,587	8	19	3	12	2	2	4	-1	3	-1	1	-1	2	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	68	S	0.4	-0.2	-0.2	1	3	-1	16	-1	461	1	4	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	69	S	-0.2	-0.2	-0.2	1	2	1	23	-1	959	6	17	2	9	2	1	2	-1	2	-1	-1	-1	1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	70	S	0.4	-0.2	-0.2	-1	4	-1	22	-1	949	8	39	3	10	3	1	3	-1	2	-1	-1	-1	-1	-1	4	-1	-1	-0.1	-1	-1	-1
G-94-	71	S	0.4	0.5	-0.2	-1	3	1	-15	-1	1,319	3	9	1	3	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	72	S	0.8	-0.2	-0.2	1	4	-1	62	-1	86	3	6	1	4	-1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	73	S	-0.2	0.3	-0.2	-1	3	2	224	-1	53	4	14	2	7	2	-1	3	-1	2	-1	-1	-1	1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	74	S	0.4	0.5	-0.2	-1	3	-1	45	-1	532	3	10	1	5	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	75	S	0.4	0.5	-0.2	-1	2	3	20	-1	957	3	10	1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	76	S	0.6	0.6	-0.2	1	4	-1	20	2	1,159	6	24	3	11	1	2	3	-1	3	-1	1	-1	2	-1	3	-1	1	-0.1	-1	-1	-1
G-94-	77	S	0.6	1.0	-0.2	1	4	3	41	1	1,488	12	46	4	16	3	2	5	-1	5	-1	2	-1	2	-1	6	-1	-1	-0.1	-1	-1	-1
G-94-	78	S	-0.2	0.7	-0.2	-1	4	-1	-15	-1	1,056	3	14	1	5	-1	-1	1	-1	1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	79	S	0.4	0.7	-0.2	-1	2	1	25	-1	2,059	4	31	2	6	1	2	2	-1	1	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	80	S	-0.2	0.3	-0.2	-1	3	1	16	-1	516	2	7	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	81	S	0.4	0.3	-0.2	-1	3	1	17	-1	184	4	13	2	6	1	-1	2	-1	1	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	82	S	0.6	0.5	-0.2	-1	3	3	56	-1	259	5	14	2	9	2	-1	3	-1	2	-1	-1	-1	1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	83	S	0.4	0.3	-0.2	-1	3	3	25	-1	1,164	5	16	2	7	2	1	2	-1	2	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	84	S	0.4	0.5	-0.2	-1	2	-1	38	-1	1,388	4	11	2	5	1	1	2	-1	1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	85	S	0.4	-0.2	-0.2	-1	6	1	38	-1	316	2	5	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	86	S	0.9	0.6	-0.2	-1	13	1	25	1	355	3	5	1	5	1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	87	S	0.4	0.3	-0.2	-1	5	2	21	-1	432	2	4	-1	3	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	90	S	0.6	-0.2	-0.2	-1	4	-1	21	-1	503	2	6	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	91	S	0.4	0.8	-0.2	-1	6	-1	22	-1	734	3	6	1	3	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	92	S	0.6	0.3	-0.2	-1	2	2	18	-1	631	5	7	2	6	1	-1	2	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	93	S	0.6	0.5	-0.2	-1	5	2	21	-1	386	2	6	-1	3	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	94	S	0.4	0.5	-0.2	-1	7	2	61	-1	225	9	17	4	14	3	1	4	-1	4	-1	1	-1	2	-1	-1	-1	2	-0.1	-1	-1	-1
G-94-	95	S	0.6	-0.2	-0.2	1	3	1	19	1	556	4	18	1	5	1	-1	1	-1	1	-1	-1	-1	-1	-1	2	-1	-1	0.1	-1	-1	-1
G-94-	96	S	1.1	0.5	-0.2	-1	2	1	28	-1	244	2	3	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	97	S	1.1	-0.2	-0.2	-1	3	1	30	-1	267	2	2	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	98	S	0.6	0.5	-0.2	-1	10	3	45	-1	82	5	11	2	8	2	-1	3	-1	2	-1	-1	-1	1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	99	S	-0.2	-0.2	-0.2	-1	4	3	27	-1	732	4	10	2	7	2	-1	2	-1	2	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	100	S	0.4	-0.2	-0.2	-1	4	2	47	-1	519	5	7	2	6	1	-1	2	-1	1	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	101	S	0.6	1.4	-0.2	-1	5	3	72	1	480	8	18	3	12	2	1	4	-1	3	-1	1	-1	2	-1	2	-1	1	-0.1	-1	-1	-1
G-94-	102	S	0.4	1.4	-0.2	-1	4	1	37	-1	690	6	19	2	9	2	-1	2	-1	2	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	103	S	0.4	0.8	-0.2	-1	3	-1	23	-1	912	4	9	1	4	-1	1	1	-1	1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	104	S	-0.2	0.3	-0.2	-1	4	2	33	-1	330	7	19	3	11	3	1	4	-1	4	-1	1	-1	1	-1	-1	-1	1	0.1	-1	-1	-1
G-94-	105	S	-0.2	0.8	-0.2	-1	3	-1	-15	-1	344	3	6	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	106	S	0.6	0.5	-0.2	-1	3	2	35	-1	488	2	7	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	107	S	0.6	0.6	-0.2	-1	5	3	18	-1	980	3	6	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1

Enzyme Leach Job #: 1217
Trace Element Values Are in
Values = 999999 are great

Sample ID:			Ag	Cd	In	Sn	Sb	Te	I	Cs	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Os	Ir	Pt
G-94-	109	S	-0.2	0.5	-0.2	-1	3	1	19	-1	743	3	8	1	4	-1	-1	1	-1	1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	110	S	0.8	0.6	-0.2	-1	4	3	32	1	273	9	22	4	17	4	2	6	-1	6	1	2	-1	3	-1	5	-1	-1	-0.1	-1	-1	-1
G-94-	111	S	0.6	-0.2	-0.2	-1	3	1	18	-1	375	2	3	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	112	S	0.4	-0.2	-0.2	-1	5	-1	26	3	292	7	19	2	8	2	-1	2	-1	1	-1	-1	-1	1	-1	2	-1	1	-0.1	-1	-1	-1
G-94-	113	S	0.4	0.5	-0.2	-1	4	1	-15	2	640	4	8	1	5	-1	-1	1	-1	2	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	114	S	0.6	0.8	-0.2	-1	3	2	20	1	585	4	9	2	8	2	1	2	-1	2	-1	-1	-1	1	-1	1	-1	1	-0.1	-1	-1	-1
G-94-	115	S	0.4	0.5	-0.2	-1	3	2	-15	1	616	3	9	1	5	-1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	118	S	0.6	0.3	-0.2	-1	3	2	-15	-1	202	1	4	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	119	S	0.8	0.3	-0.2	-1	5	2	20	-1	410	2	6	1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	1	-0.1	-1	-1	-1
G-94-	120	S	0.8	0.3	-0.2	-1	4	-1	-15	-1	407	1	2	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	121	S	0.4	0.5	-0.2	-1	3	1	17	1	832	4	10	2	5	-1	1	1	-1	1	-1	-1	-1	-1	-1	1	-1	1	-0.1	-1	-1	-1
G-94-	122	S	0.4	0.5	-0.2	-1	5	1	16	-1	538	2	3	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	124	S	0.4	0.5	-0.2	-1	2	-1	-15	-1	579	2	4	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	126	S	-0.2	0.5	-0.2	-1	3	-1	31	-1	619	2	7	1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-0.1	-1	-1	-1
G-94-	127	S	0.4	-0.2	-0.2	-1	5	-1	28	1	667	8	28	3	10	2	-1	2	-1	2	-1	-1	-1	-1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	128	S	-0.2	0.3	-0.2	-1	3	2	-15	-1	260	3	7	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	129	S	-0.2	-0.2	-0.2	-1	2	1	19	-1	856	9	23	3	11	2	1	3	-1	3	-1	-1	-1	1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	130	S	0.4	0.5	-0.2	-1	3	2	35	-1	637	3	5	1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	131	S	-0.2	0.5	-0.2	-1	5	3	26	1	820	6	15	2	9	1	1	3	-1	2	-1	-1	-1	1	-1	2	-1	-1	-0.1	-1	-1	-1
G-94-	132	S	0.6	-0.2	-0.2	-1	2	2	-15	-1	634	3	3	1	4	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1
G-94-	133	S	0.4	1.2	-0.2	-1	5	3	-15	-1	795	2	4	-1	2	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-0.1	-1	-1	-1
G-94-	134	S	0.6	0.5	-0.2	-1	5	1	22	-1	810	3	6	-1	3	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-0.1	-1	-1	-1

Enzyme Leach Job #: 1217
Trace Element Values Are in
Values = 999999 are great

Sample ID:			Au	Hg	Tl	Pb	Bi	Th	U
G-94-	10	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	11	S	0.1	-1.0	-1	-1	-1	6	3
G-94-	12	S	0.1	-1.0	-1	-1	-1	3	-1
G-94-	13	S	-0.1	-1.0	-1	-1	-1	2	1
G-94-	14	S	0.1	-1.0	-1	2	-1	2	1
G-94-	15	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	16	S	0.2	-1.0	-1	-1	-1	2	1
G-94-	17	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	18	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	19	S	0.1	-1.0	-1	1	-1	1	1
G-94-	21	S	0.1	-1.0	-1	-1	-1	2	2
G-94-	23	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	24	S	-0.1	-1.0	-1	-1	-1	1	1
G-94-	25	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	27	S	0.1	-1.0	-1	1	-1	3	2
G-94-	28	S	0.1	-1.0	-1	1	-1	2	-1
G-94-	29	S	0.1	-1.0	-1	1	-1	5	2
G-94-	30	S	0.1	-1.0	-1	1	-1	4	1
G-94-	31	S	-0.1	-1.0	-1	-1	-1	1	1
G-94-	32	S	0.1	-1.0	-1	1	-1	2	1
G-94-	33	S	0.2	-1.0	-1	1	-1	4	2
G-94-	34	S	-0.1	-1.0	-1	1	-1	2	1
G-94-	35	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	36	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	37	S	0.1	-1.0	-1	1	-1	1	1
G-94-	39	S	0.1	-1.0	-1	-1	-1	1	3
G-94-	41	S	0.1	-1.0	-1	1	-1	2	1
G-94-	42	S	0.1	-1.0	-1	2	-1	3	1
G-94-	44	S	0.1	-1.0	-1	2	-1	3	1
G-94-	45	S	0.1	-1.0	-1	1	-1	2	1
G-94-	50	S	0.1	-1.0	-1	3	-1	4	1
G-94-	51	S	0.1	-1.0	-1	2	-1	2	-1
G-94-	52	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	53	S	0.1	-1.0	-1	-1	-1	4	2
G-94-	54	S	0.1	-1.0	-1	1	-1	7	3
G-94-	56	S	-0.1	-1.0	-1	1	-1	1	1
G-94-	57	S	0.1	-1.0	-1	1	-1	2	1
G-94-	58	S	0.1	-1.0	-1	1	-1	2	1
G-94-	59	S	0.1	-1.0	-1	2	-1	3	1
G-94-	60	S	0.2	-1.0	-1	-1	-1	2	-1
G-94-	62	S	-0.1	-1.0	-1	-1	-1	3	1
G-94-	63	S	0.1	-1.0	-1	-1	-1	2	1

Enzyme Leach Job #: 1217
Trace Element Values Are in
Values = 999999 are great

Sample ID:			Au	Hg	Tl	Pb	Bi	Th	U
G-94-	64	S	0.1	-1.0	-1	2	-1	3	1
G-94-	65	S	0.1	-1.0	-1	-1	-1	3	1
G-94-	66	S	-0.1	-1.0	-1	-1	-1	3	1
G-94-	67	S	0.2	-1.0	-1	-1	-1	2	1
G-94-	68	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	69	S	0.1	-1.0	-1	-1	-1	3	2
G-94-	70	S	0.1	-1.0	-1	-1	-1	4	2
G-94-	71	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	72	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	73	S	-0.1	-1.0	-1	-1	-1	1	-1
G-94-	74	S	0.1	-1.0	-1	2	-1	2	1
G-94-	75	S	0.1	-1.0	-1	1	-1	3	1
G-94-	76	S	-0.1	-1.0	-1	1	-1	4	1
G-94-	77	S	0.1	-1.0	-1	1	-1	7	2
G-94-	78	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	79	S	0.2	-1.0	-1	-1	-1	3	1
G-94-	80	S	0.1	-1.0	-1	1	-1	2	1
G-94-	81	S	-0.1	-1.0	-1	-1	-1	2	1
G-94-	82	S	-0.1	-1.0	-1	-1	-1	2	-1
G-94-	83	S	-0.1	-1.0	-1	-1	-1	2	1
G-94-	84	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	85	S	-0.1	-1.0	-1	-1	-1	1	-1
G-94-	86	S	0.3	-1.0	-1	1	-1	-1	-1
G-94-	87	S	0.1	-1.0	-1	-1	-1	-1	1
G-94-	90	S	0.2	-1.0	-1	-1	-1	1	1
G-94-	91	S	0.1	-1.0	-1	-1	-1	1	-1
G-94-	92	S	0.2	-1.0	-1	-1	-1	1	1
G-94-	93	S	0.1	-1.0	-1	2	-1	-1	-1
G-94-	94	S	0.2	-1.0	-1	-1	-1	1	-1
G-94-	95	S	0.1	-1.0	-1	1	-1	2	1
G-94-	96	S	0.1	-1.0	-1	-1	-1	-1	-1
G-94-	97	S	0.1	-1.0	-1	-1	-1	-1	1
G-94-	98	S	0.4	-1.0	-1	4	-1	1	-1
G-94-	99	S	-0.1	-1.0	-1	-1	-1	1	1
G-94-	100	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	101	S	0.2	-1.0	-1	2	-1	2	2
G-94-	102	S	-0.1	-1.0	-1	-1	-1	2	-1
G-94-	103	S	0.1	-1.0	-1	-1	-1	1	-1
G-94-	104	S	-0.1	-1.0	-1	1	-1	2	-1
G-94-	105	S	-0.1	-1.0	-1	-1	-1	1	-1
G-94-	106	S	0.1	-1.0	-1	-1	-1	1	-1
G-94-	107	S	0.1	-1.0	-1	-1	-1	1	-1

Enzyme Leach Job #: 1217
Trace Element Values Are in
Values = 999999 are great

Sample ID:			Au	Hg	Tl	Pb	Bi	Th	U
G-94-	109	S	0.1	-1.0	-1	-1	-1	1	-1
G-94-	110	S	0.2	-1.0	-1	12	-1	2	-1
G-94-	111	S	0.2	-1.0	-1	-1	-1	1	1
G-94-	112	S	0.1	-1.0	-1	3	-1	4	1
G-94-	113	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	114	S	0.2	-1.0	-1	-1	-1	1	-1
G-94-	115	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	118	S	-0.1	-1.0	-1	-1	-1	1	1
G-94-	119	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	120	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	121	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	122	S	-0.1	-1.0	-1	-1	-1	1	-1
G-94-	124	S	-0.1	-1.0	-1	-1	-1	1	1
G-94-	126	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	127	S	0.1	-1.0	-1	2	-1	5	1
G-94-	128	S	-0.1	-1.0	-1	-1	-1	2	-1
G-94-	129	S	0.1	-1.0	-1	-1	-1	3	1
G-94-	130	S	0.1	-1.0	-1	-1	-1	1	1
G-94-	131	S	0.1	-1.0	-1	-1	-1	2	1
G-94-	132	S	0.2	-1.0	-1	-1	-1	1	1
G-94-	133	S	0.1	-1.0	-1	-1	-1	1	-1
G-94-	134	S	0.1	-1.0	-1	-1	-1	1	1

APPENDIX 1

ENZYME LEACH (57 pages)

A. ENZYME LEACH DATA: Report No. 1217RPT.XLS 9 pages

INCLUDING:

ANALYTICAL PROCEDURES AND LIST OF DETECTION LIMITS 1 page

B. LETTER REPORT BY J. R. CLARK ON GNOME ENZYME LEACH SURVEY DATED DEC. 28, 1994
2 pages

C. MISCELLANEOUS REFERENCES ON ENZYME LEACH BY CLARK, J. R.

1. EXAMPLES OF ASYMMETRICAL ENZYME LEACH ANOMALY PATTERNS
41 pages

(SPECIAL NOTE: PLEASE REFER TO THE 5 CONTOUR PLOTS)

2. INNOVATIVE ENZYME LEACH PROVIDES COST-EFFECTIVE OVERBURDEN PENETRATION (C., J. R., AND COHEN, DAVID)
4 pages

Enzyme-ACTLABS, LLC
11485 W. I-70 Frontage Road N.
Wheat Ridge, CO 80033

28 December 1994

To: Ragnar U. Bruaset
Bruaset & Associates
5851 Halifax Street
Burnaby, B.C. V5B 2P4
CANADA
FAX: 604-294-3568

From: Bob Clark, FAX: 303-420-6646
phone: 303-424-4069

Subject: Review of Enzyme Leach data on the Gnome project

Thank you for sending me the complete set of data plots from the Gnome project. After reviewing the maps, a number observations can be discussed. First, the potential point of interest at sample-site #50 is no longer significant after looking at the entire set of data plots. I am enclosing the latest version of the Enzyme Leach application summary, which is in the form of an abstract that Dave Cohen and I submitted for the 17th IGES in Australia. Some of the terminology that I am using here is defined in that summary. Also, I hope that discussion clears up some of your interpretative questions.

By looking at areas which repeatedly show up as central lows that are at least partially surrounded by anomalous values for a long list of important elements, one area can be selected that is in a central low for most of the plots that you sent to me. That area is centered on sample-site #17. The elements that are anomalous around this central low at site 17 are most of the oxidation suite elements and several base metals, including copper, zinc, cadmium, and silver. This anomaly results from oxidation of a buried reduced body that lies approximately under that site. Furthermore, in several of these haloing elements, you can see a north~~west~~east trend to the central low, which may be related to the geometry of the reduced body.

Enzyme Leach-zirconium anomalies often reveal structures that are either mineralized or that intersect mineralization down dip. Two structures can be seen in the Zr plot that you sent. A broad NW-striking trend runs across the area sampled, which probably represents a broad fault or shear zone. Second, a narrow NE-striking feature underlies an area to the south east of the central low at site #17. Where this possible fault intersects the NW-striking feature, it appears to be right-laterally offset about 500 meters to the south east.

At this time, I do not have enough information to interpret the circular rare-earth feature in the southern part of the area sampled.

J. R. Clark, Ph.D.
General Manager

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4 pages

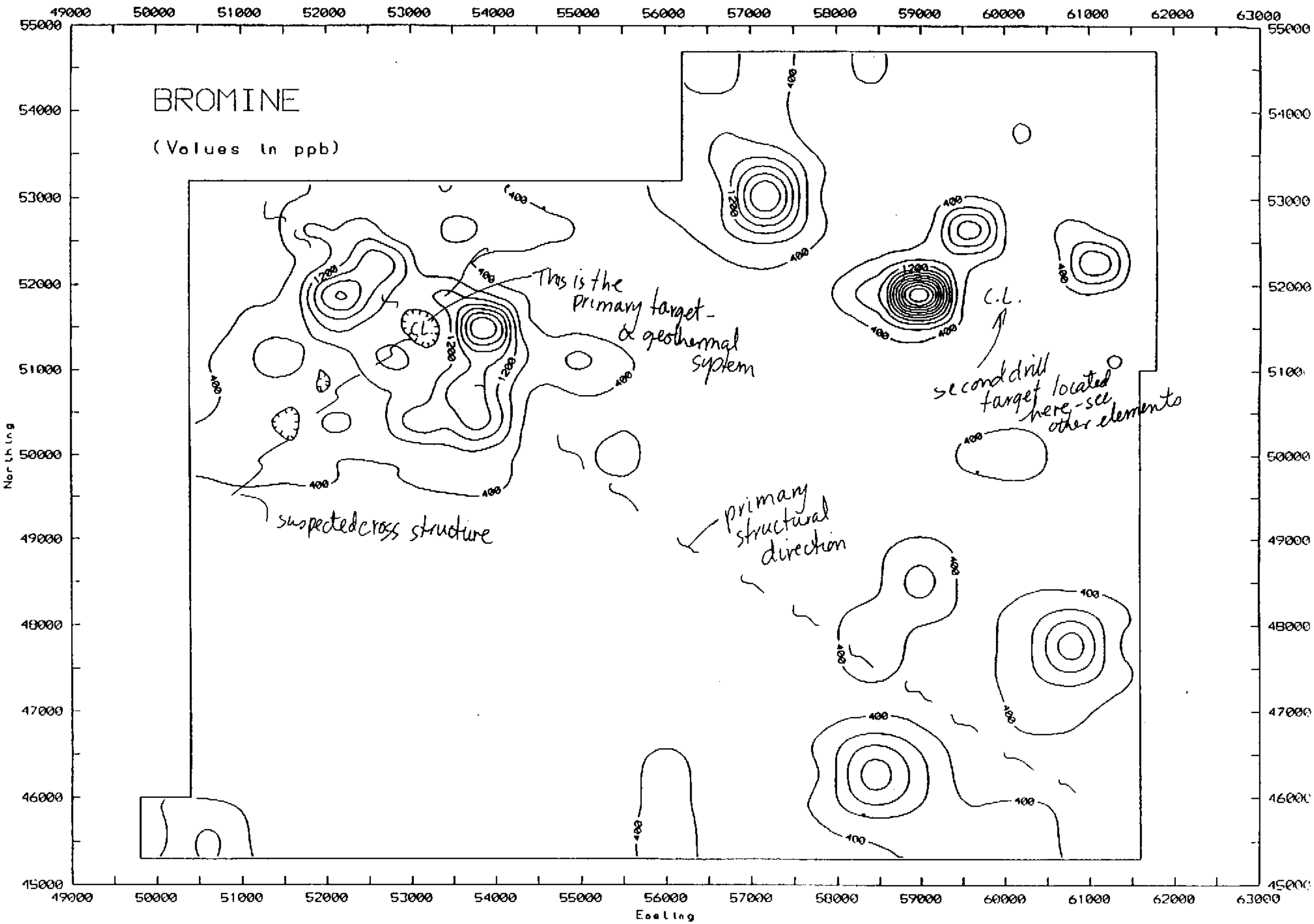
Examples of Asymmetrical Enzyme Leach Anomaly Patterns

The profiles and contour plots attached depict asymmetrical anomaly patterns that are commonly found associated with buried ore deposits. As observed at the Mag and Clay Pit deposits in the Getchell Trend, the shape of the anomaly is not a function of the dip of the deposit within the bedrock. Instead, there appears to be a central low within the anomalous area that generally sits over the deposit. According to the electrochemical model for the formation of these Enzyme Leach anomalies, this central low represents the "cathode" of an electrochemical cell. Various trace-element anomalies occurring around this central low represent "anodes" of the buried electrochemical system. These anodes are often irregularly distributed around the deposit, according to the model on the following page.

The Enzyme Leach has been found to be effective for detecting deposits concealed by a variety of covering materials, including barren bedrock. Note, on the section of the Clay Pit deposit, the Tv unit is a 70-meter thick post-ore sequence of Tertiary volcanic rocks that has been completely argillized by a later hydrothermal event. This was predicted to be an impossible situation for any geochemical exploration technique. Yet, there has been sufficient migration of trace elements to the surface to produce a very strong Enzyme Leach anomaly.

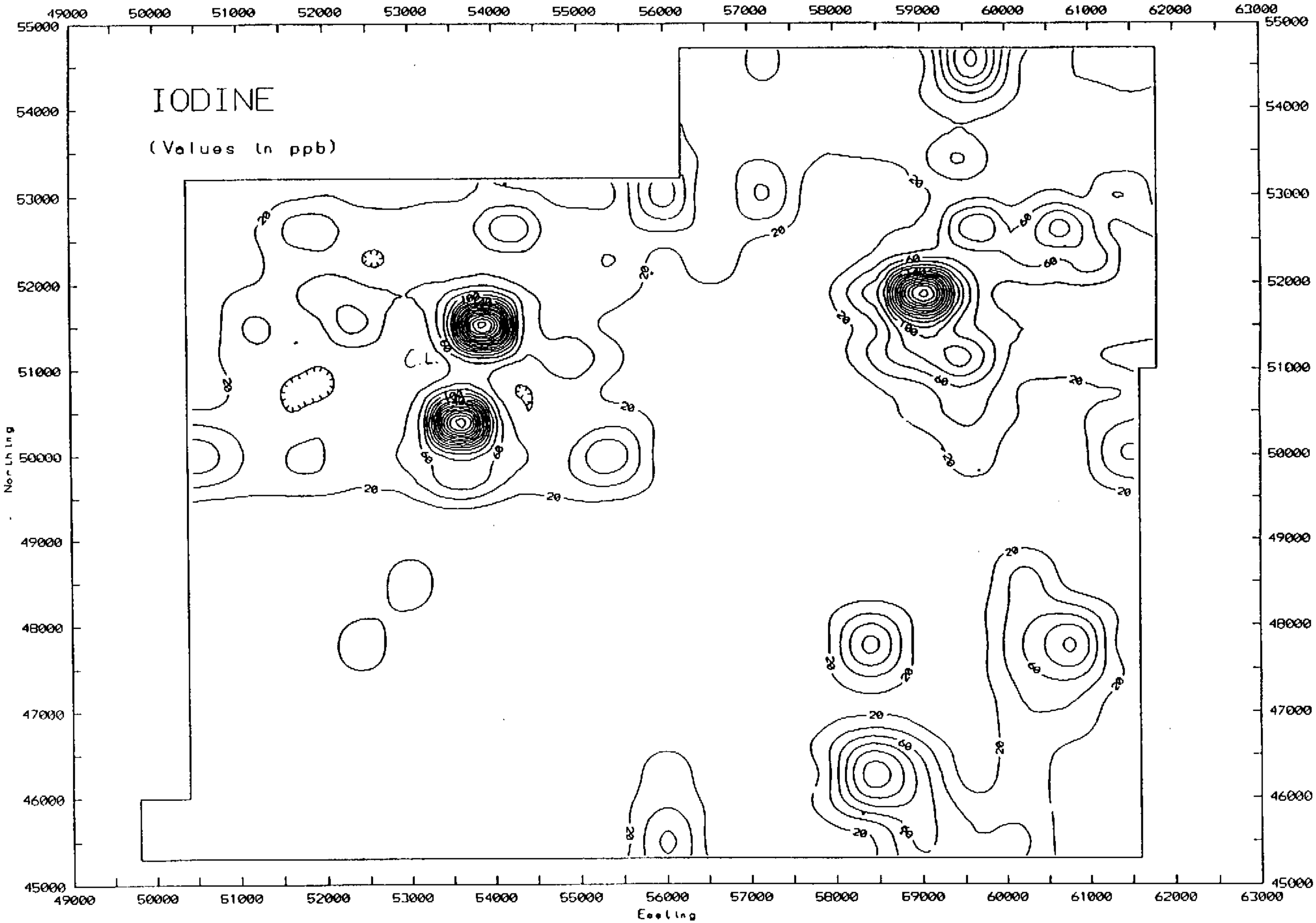
The final set of plots is a set of contour maps of Re, Mo, Cl, Br, and iodine from an exploration project in the western United States. The central low area within the cluster of anomalous sites in the northwest corner is a drill target. Although the anomaly pattern in the northeastern corner is much less symmetrical, another central low area can be defined that represents another possible drill target.

An example of the necessity of proper sample preparation is provided by this exploration project. The initial set of samples collected on these claims had been processed in a commercial laboratory, where they had been subject to a <u>routine</u> drying. That laboratory said that the temperature in the drying room had probably not been high enough to alter the samples. When they were analyzed with the Enzyme Leach, we could sort the samples by how many had been in each tray and which end of the tray was closest to the heat source. The geologist recollected his soil samples over the entire project area, used the new Enzyme Leach data to outline specific areas of interest, and tightened up his sample spacing in those areas. Using the more detailed data, he was able to pick his drill targets.



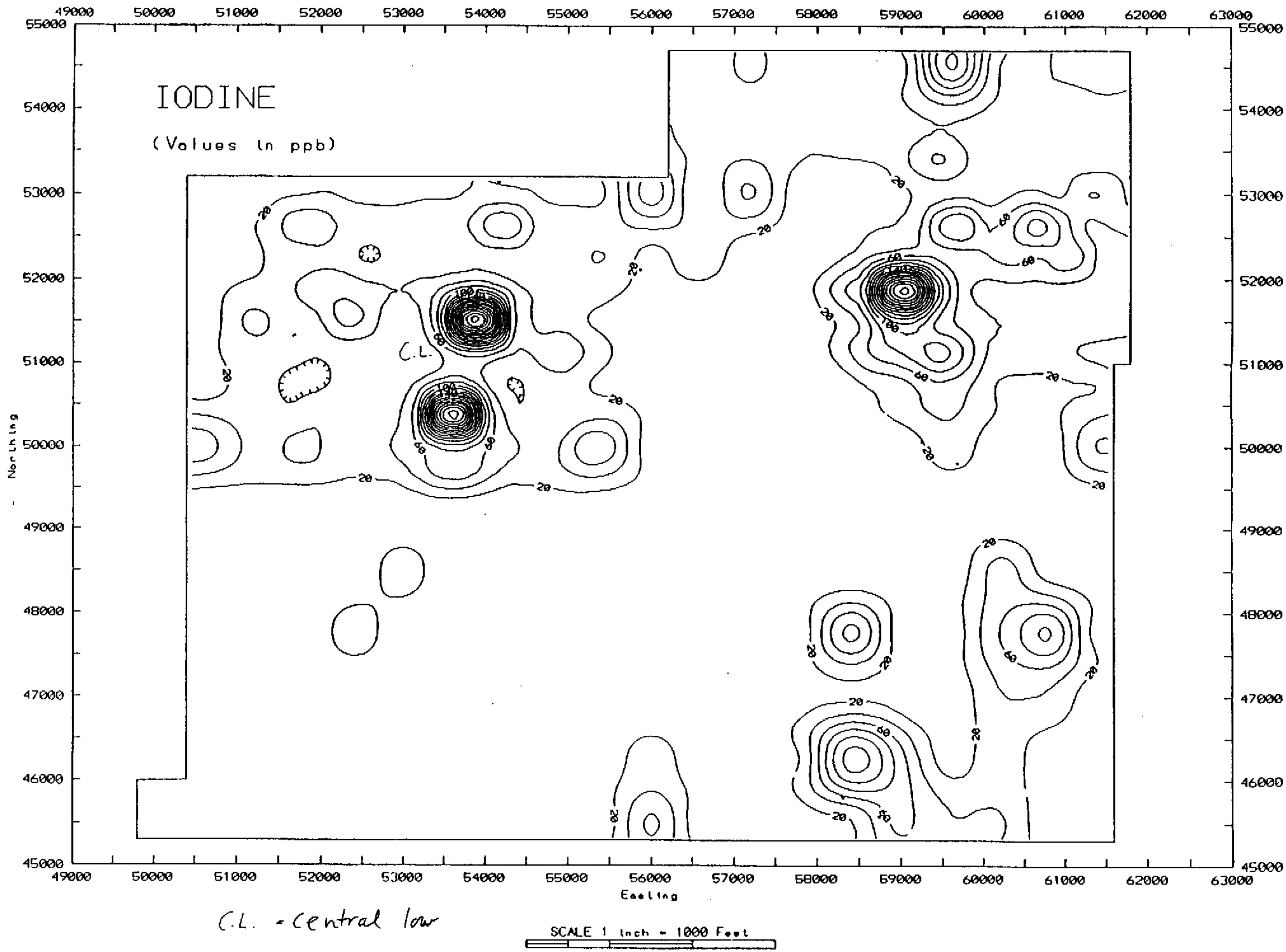
C.L = central low for Br.
(notes from J.R. Clark)

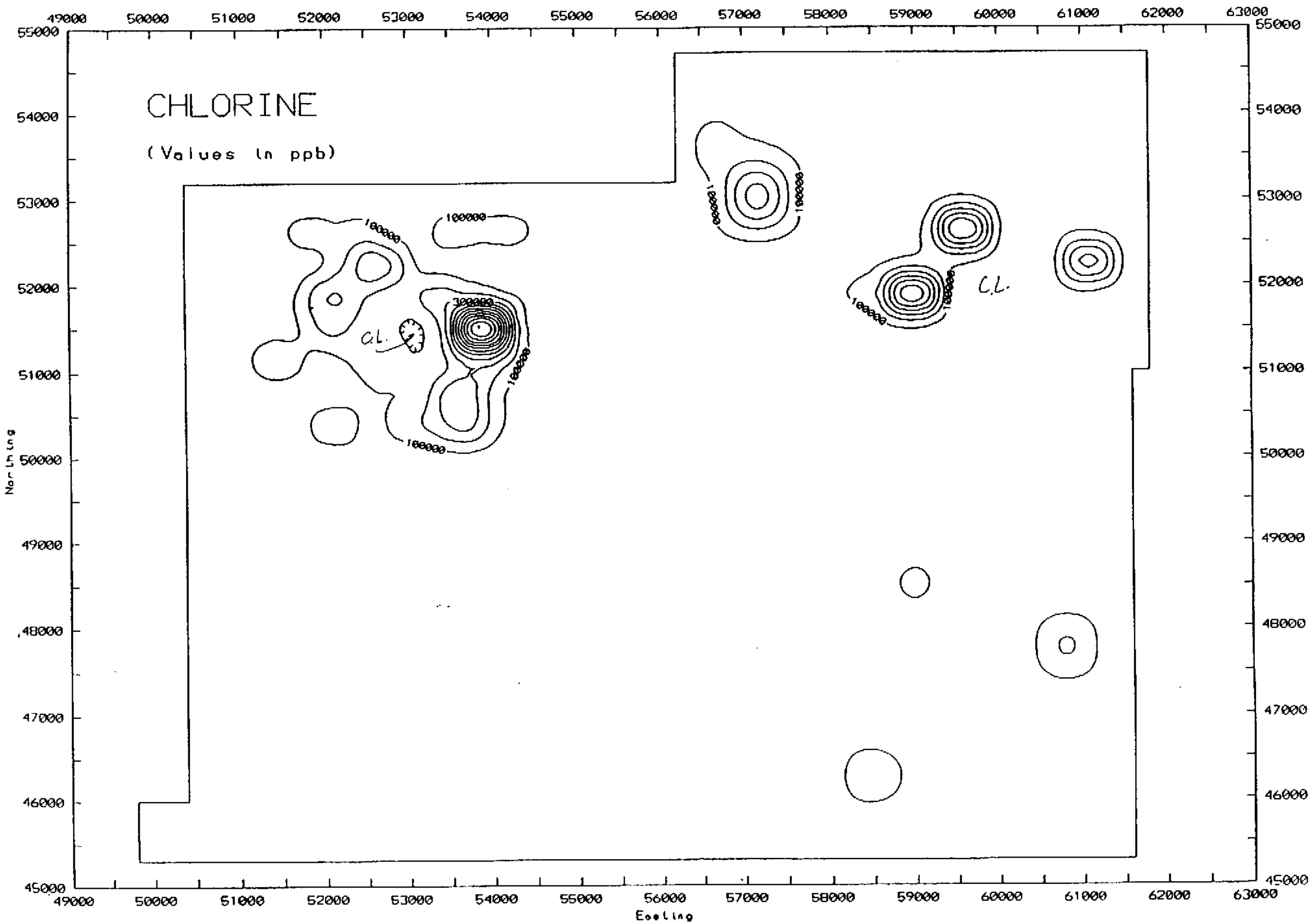
SCALE 1 inch = 1000 Feet



C.L. - Central low

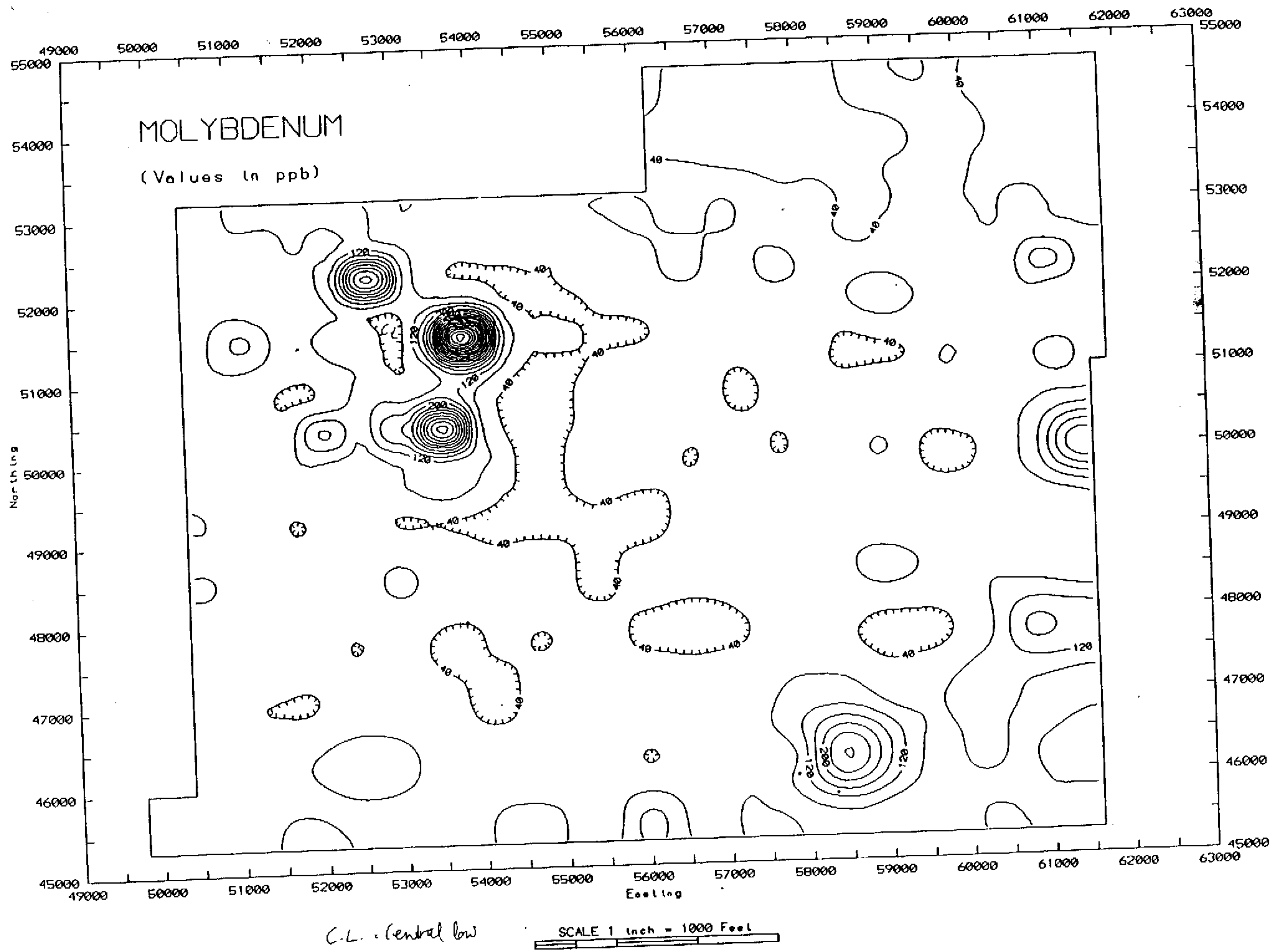
SCALE 1 inch = 1000 Feet

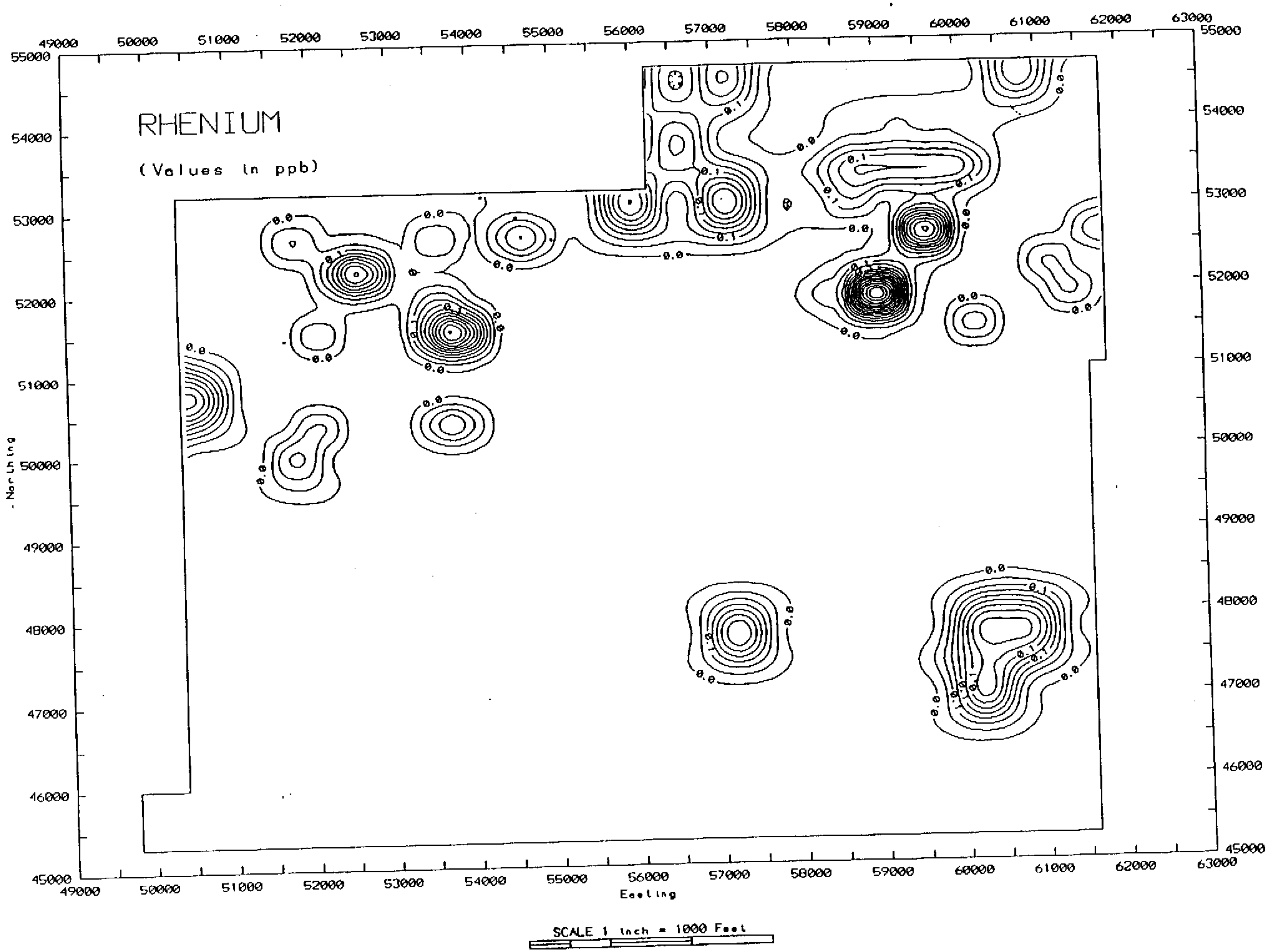

IODINE
(Values in ppb)
C.L.
Northing
Easting
C.L. = Central low
SCALE 1 inch = 1000 Feet

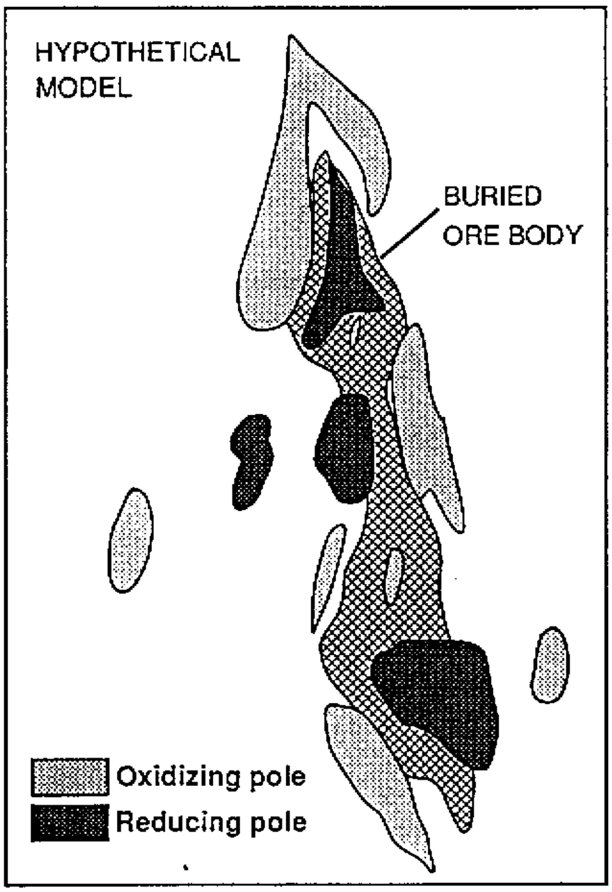


C.L. Central low

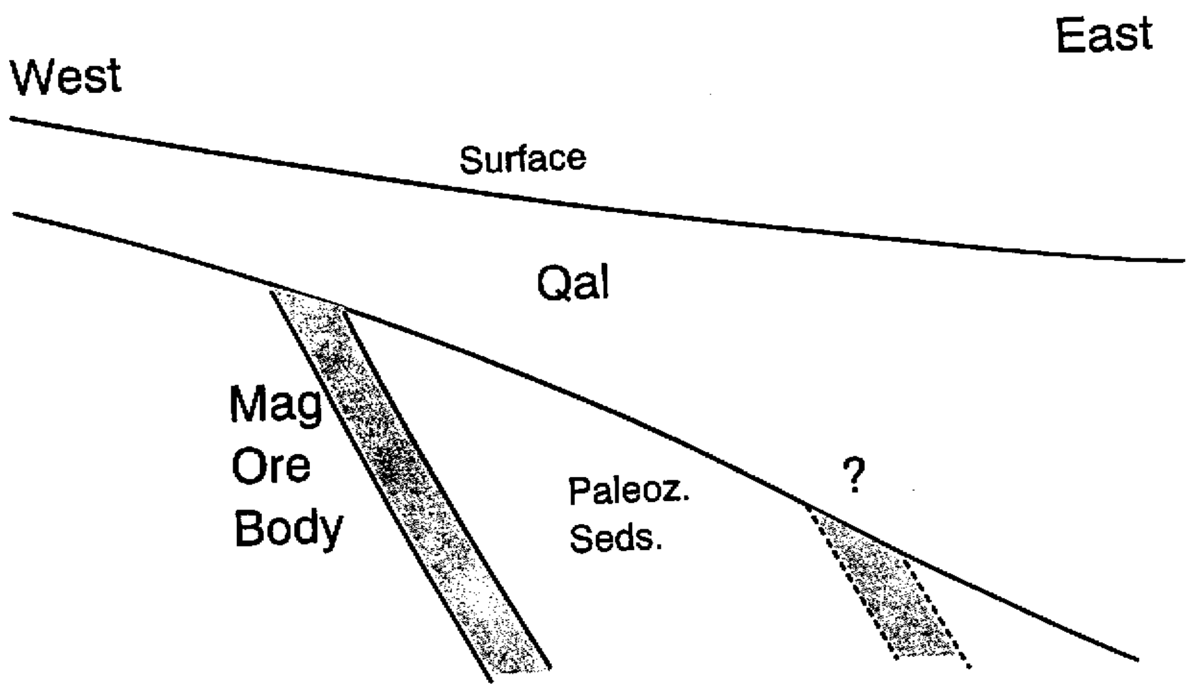
SCALE 1 inch = 1000 Feet

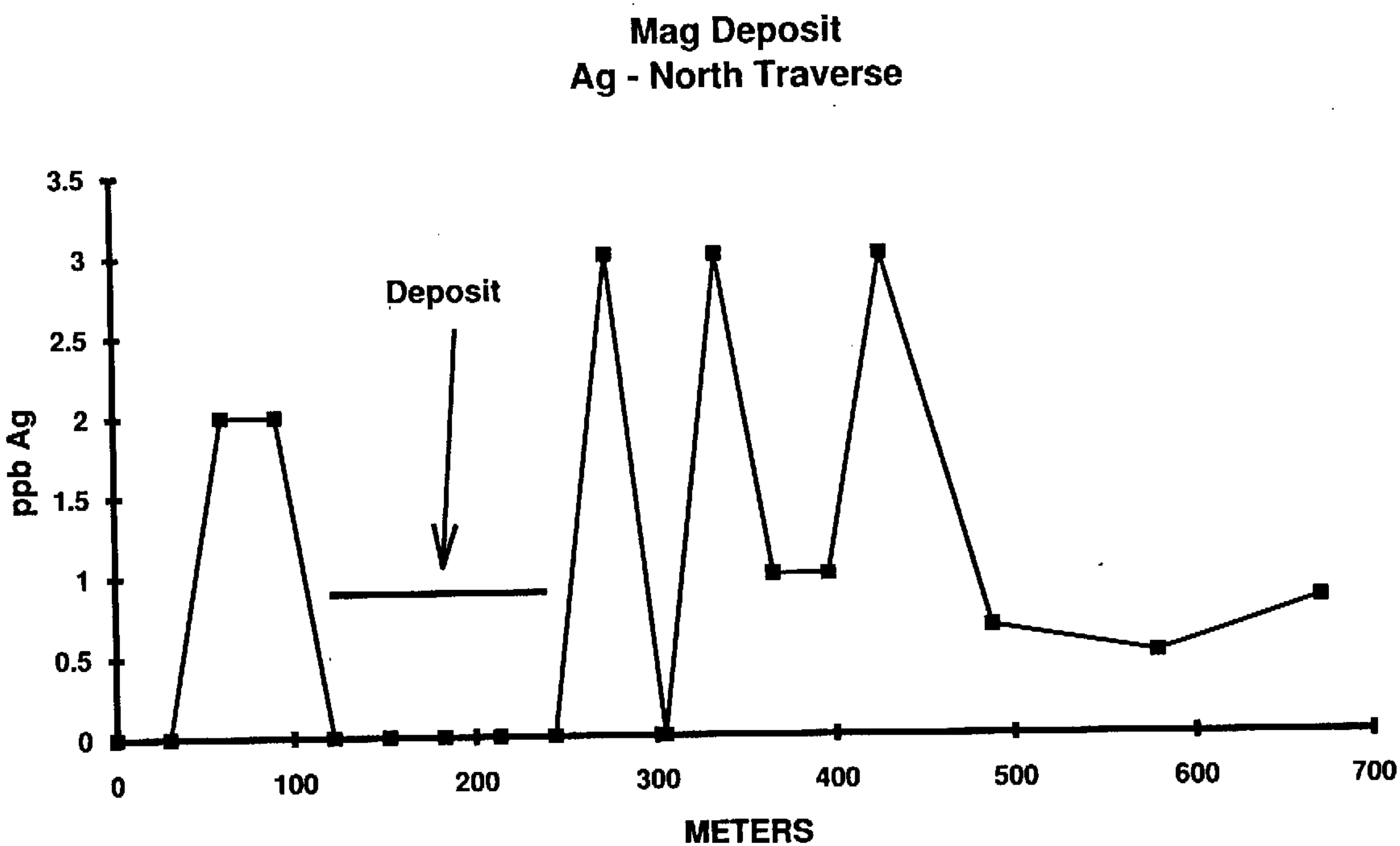

MOLYBDENUM
(Values in ppb)
Northing
Easting
SCALE 1 inch = 1000 Feet
C.L. : Central low

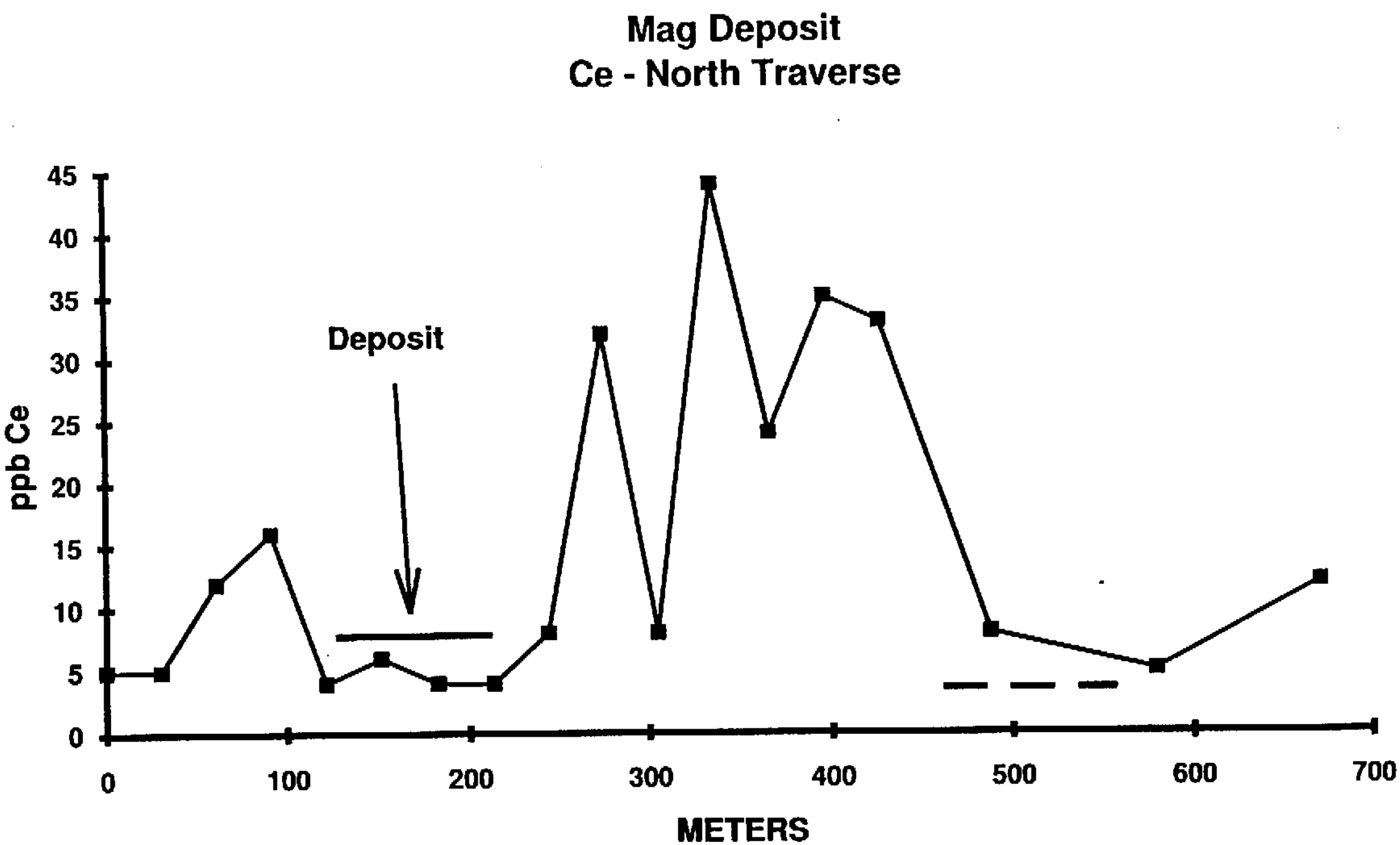

RHENIUM
(Values in ppb)
Easting
Northing
SCALE 1 inch = 1000 Feet


HYPOTHETICAL
MODEL
BURIED
ORE BODY
Oxidizing pole
Reducing pole

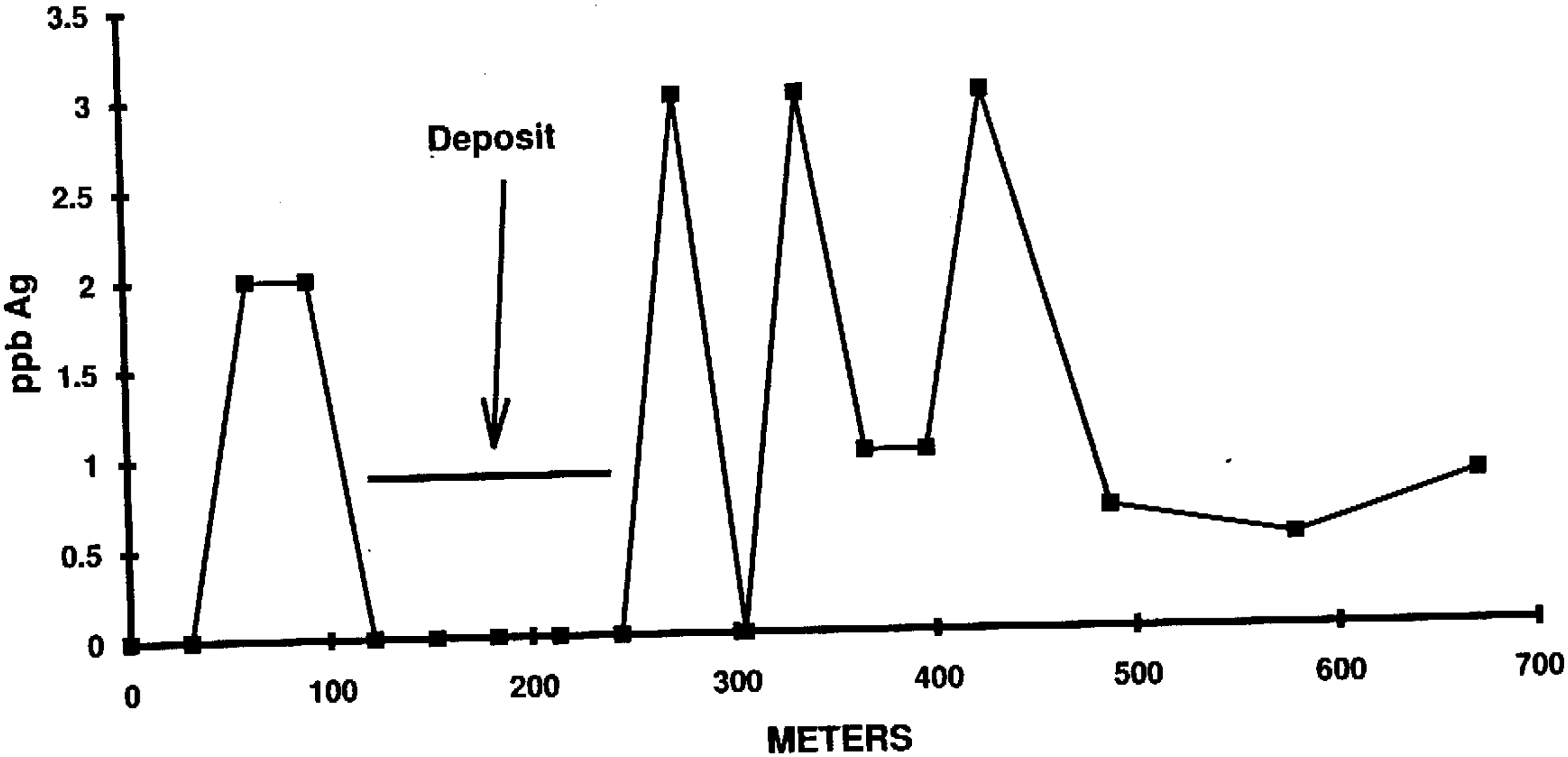
Mag Deposit Cross Section

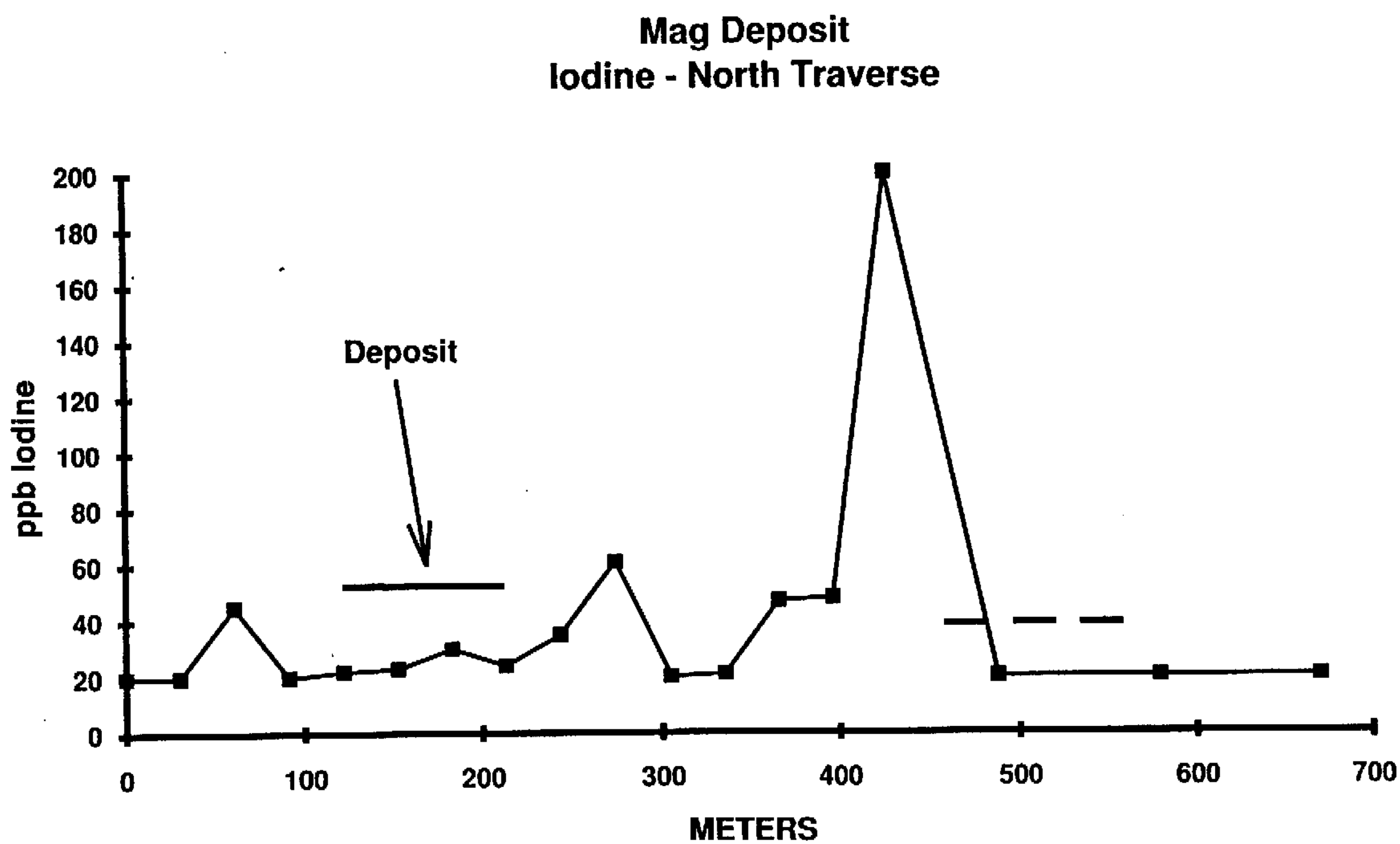


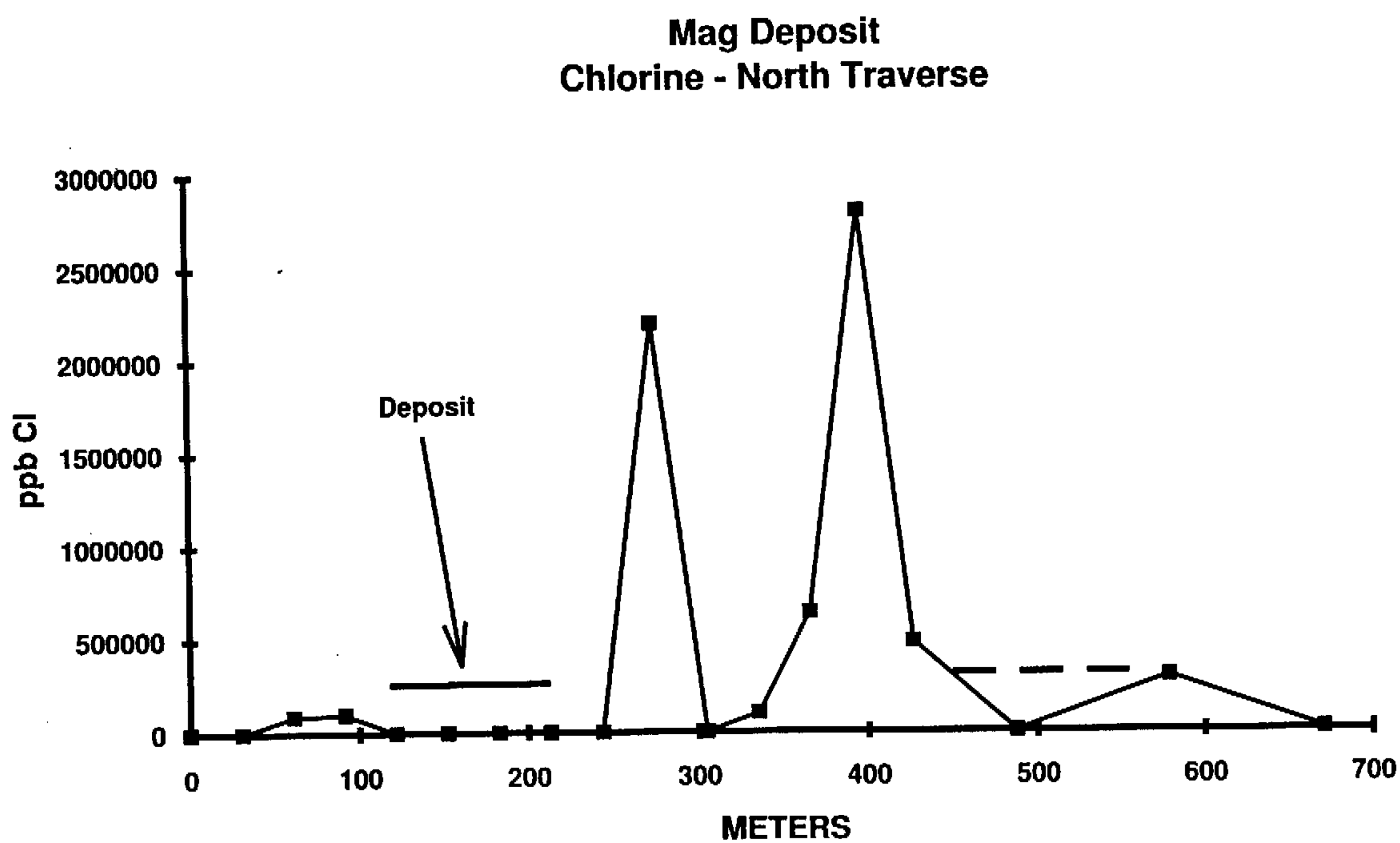

Mag Deposit
Ag - North Traverse
ppb Ag
3.5
3
2.5
2
1.5
1
0.5
0
Deposit
0
100
200
300
400
500
600
700
METERS


Mag Deposit
Ce - North Traverse
ppb Ce
45
40
35
30
25
20
15
10
5
0
Deposit
0
100
200
300
400
500
600
700
METERS

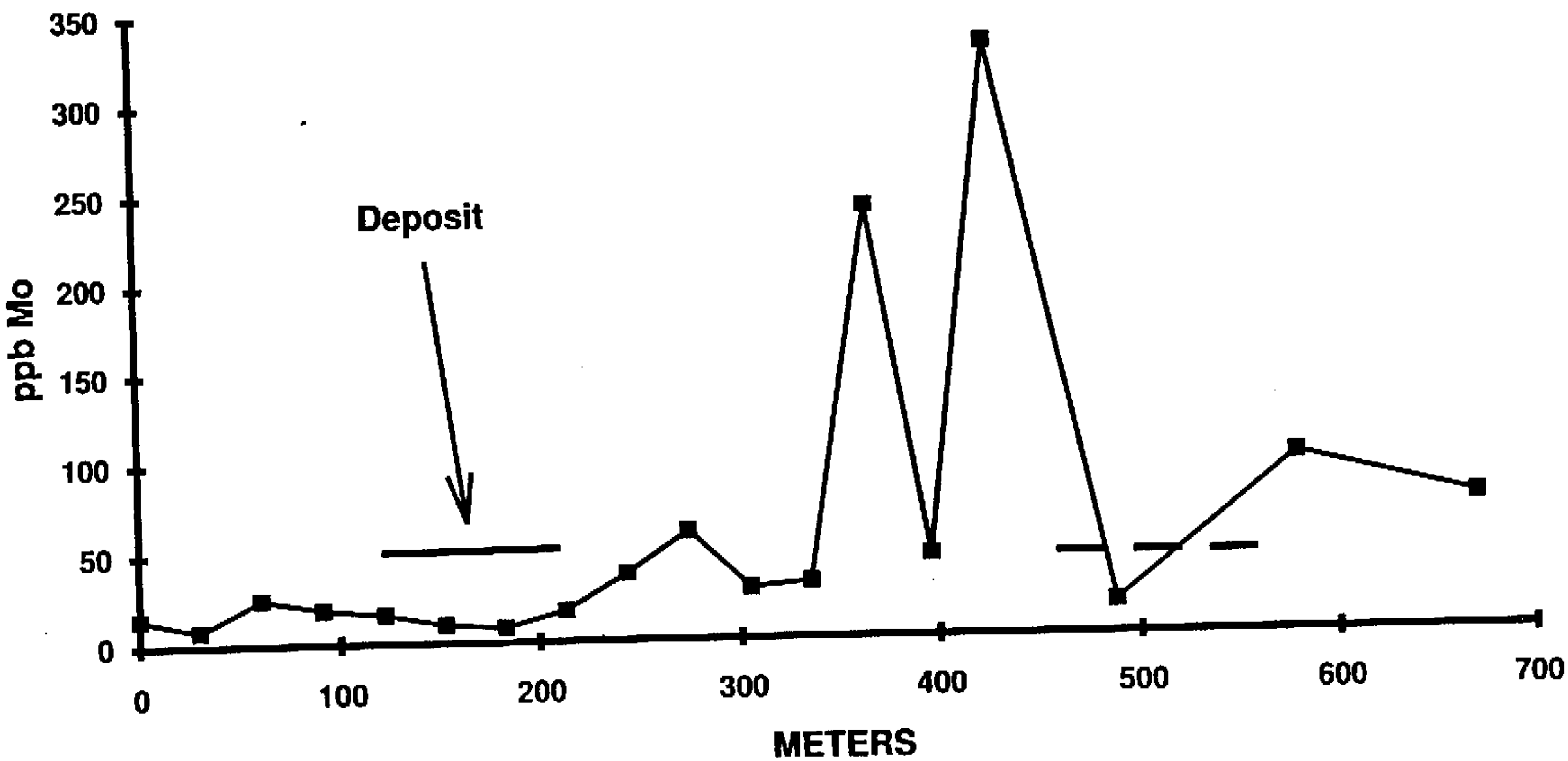
Mag Deposit
Ag - North Traverse

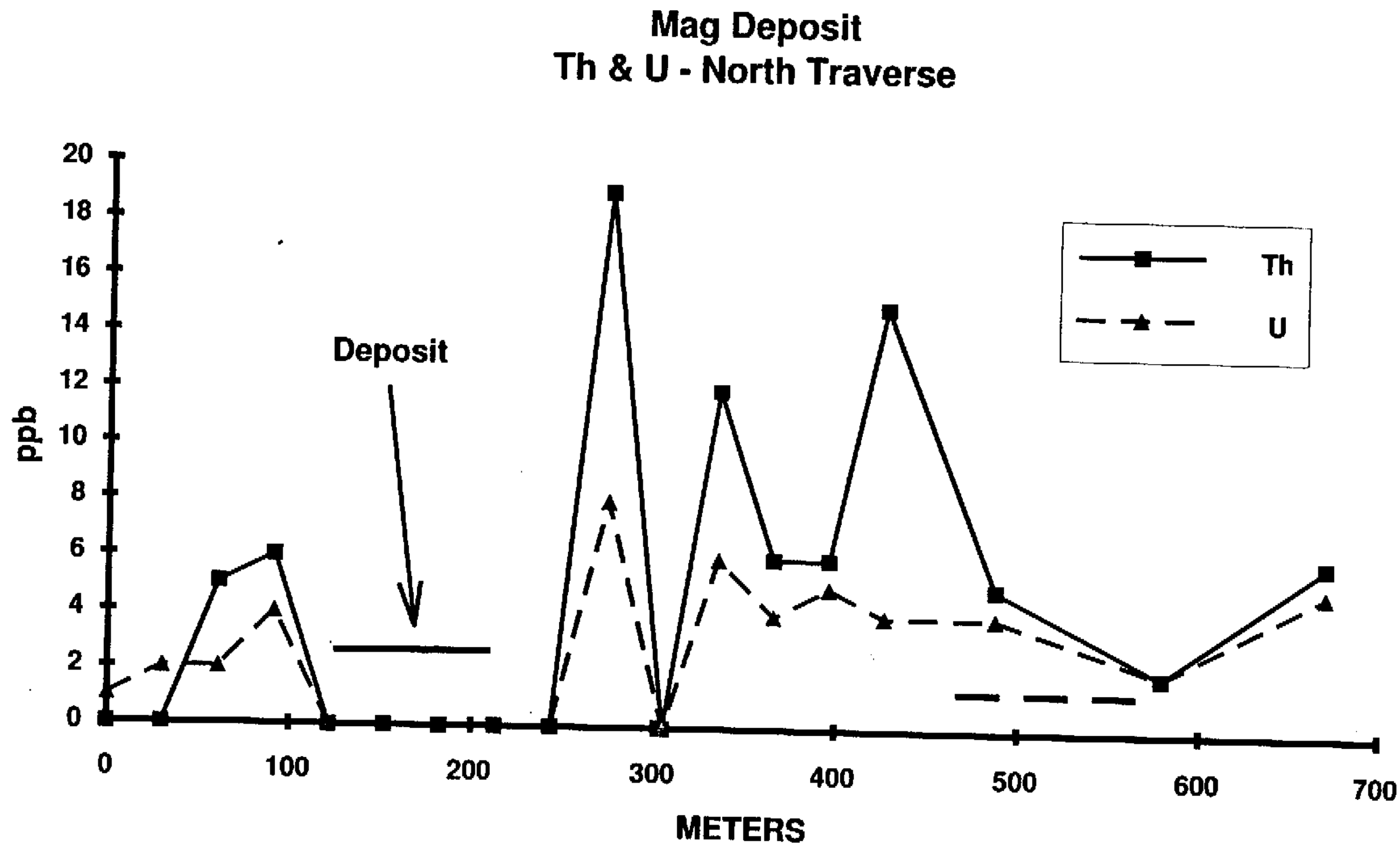



Mag Deposit
Iodine - North Traverse
ppb Iodine
0
20
40
60
80
100
120
140
160
180
200
Deposit
0
100
200
300
400
500
600
700
METERS


Mag Deposit
Chlorine - North Traverse
3000000
2500000
2000000
1500000
1000000
500000
0
ppb Cl
Deposit
0
100
200
300
400
500
600
700
METERS

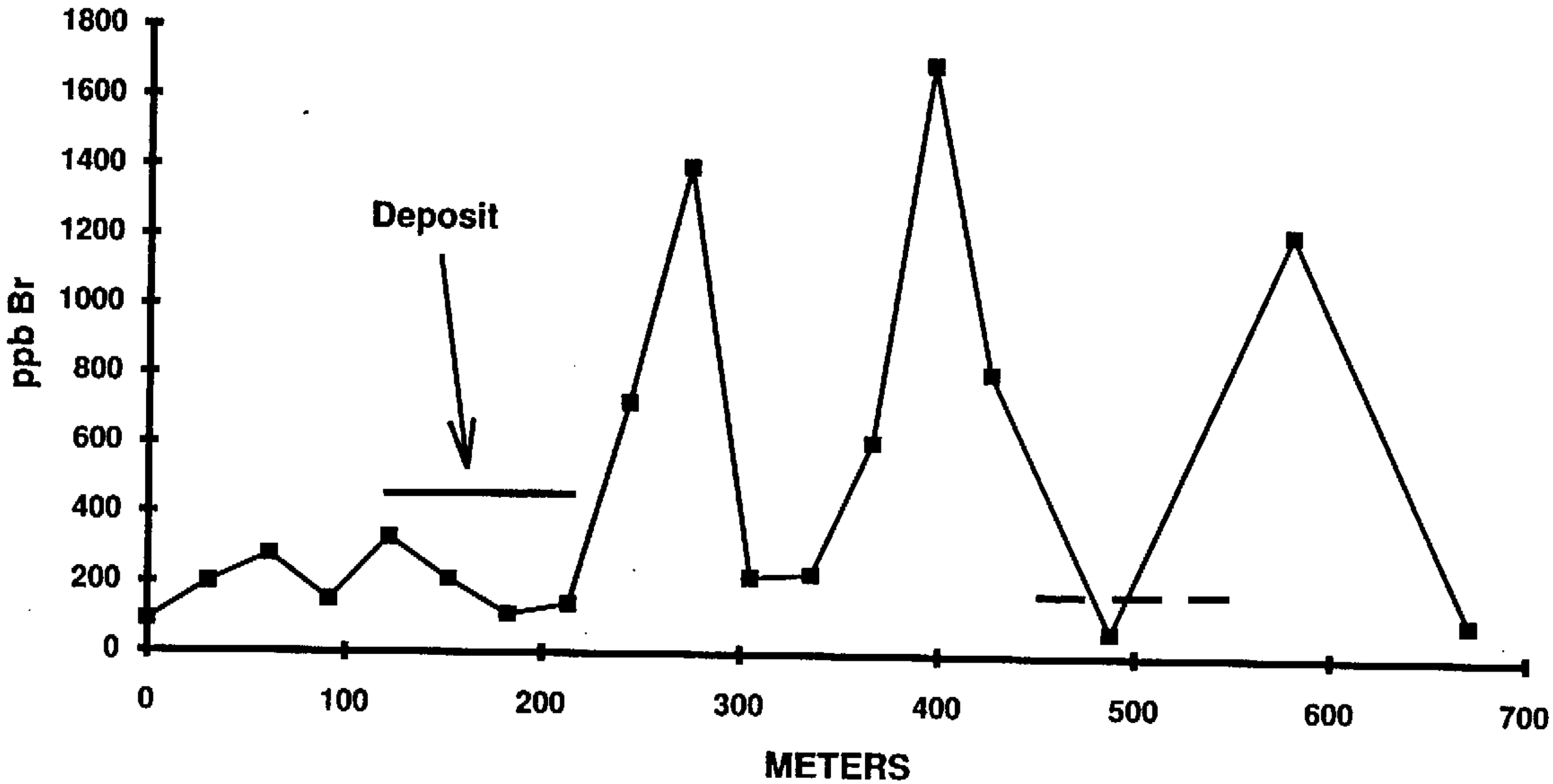
Mag Deposit
Mo - North Traverse

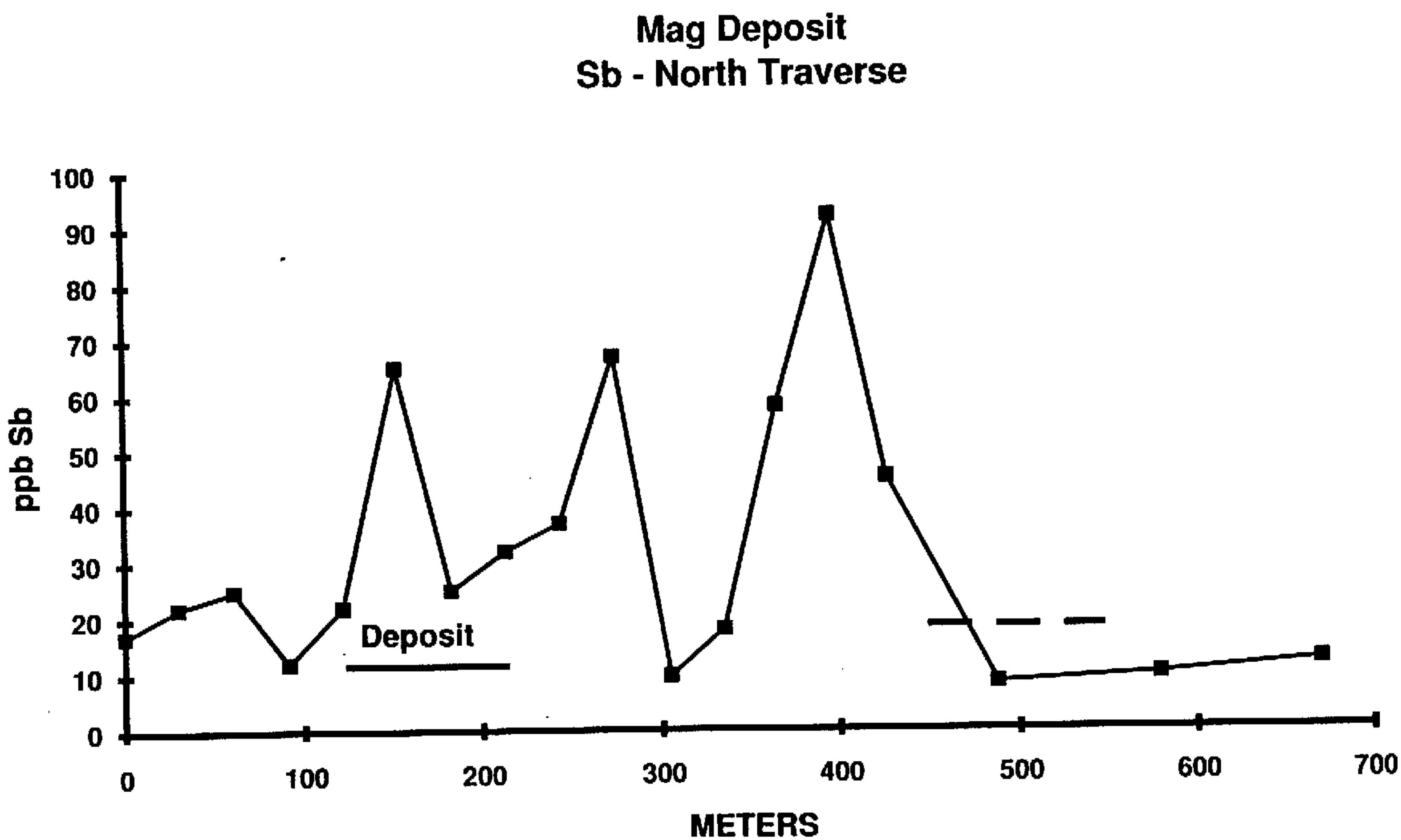




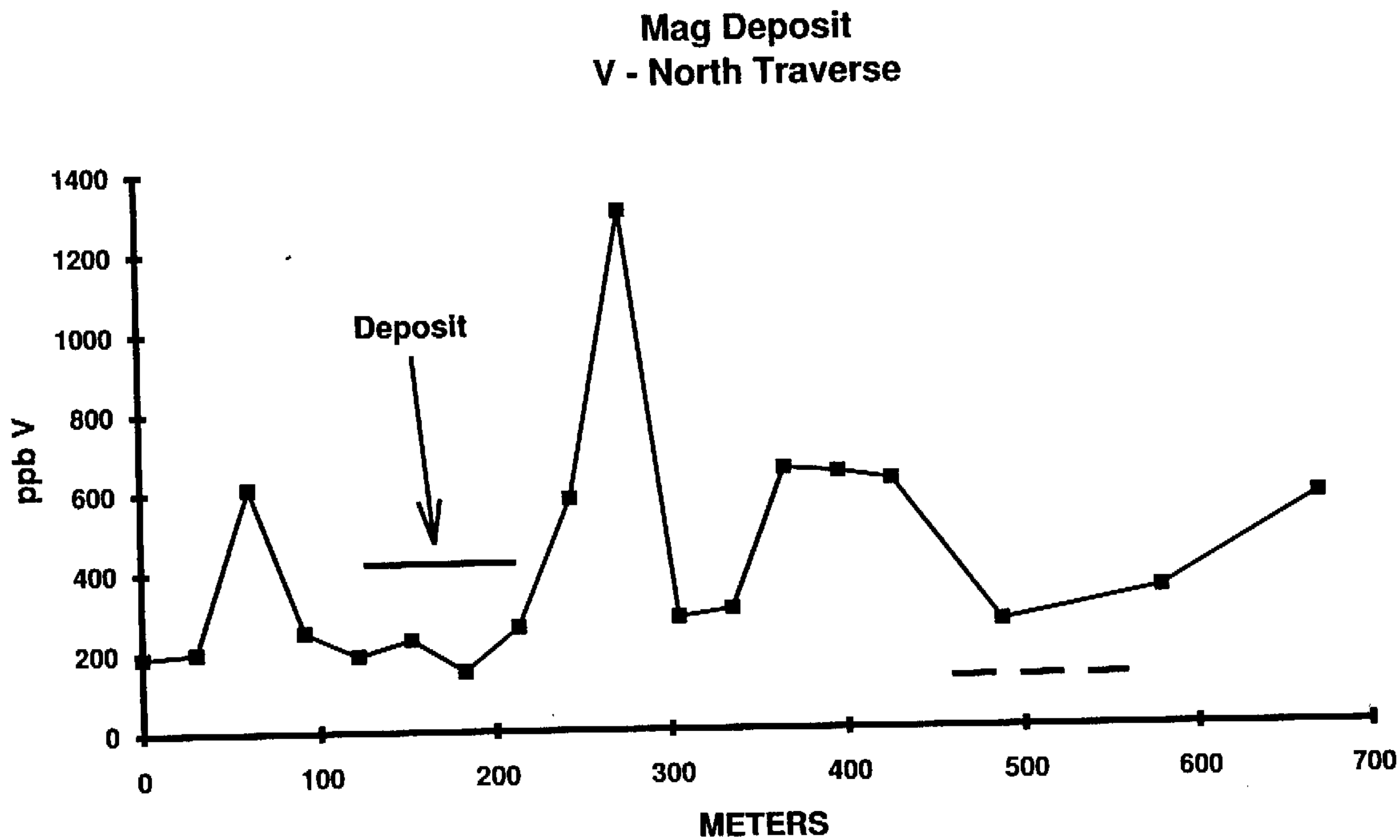
Mag Deposit
Th & U - North Traverse
20
18
16
14
12
10
8
6
4
2
0
ppb
Deposit
Th
U
0
100
200
300
400
500
600
700
METERS

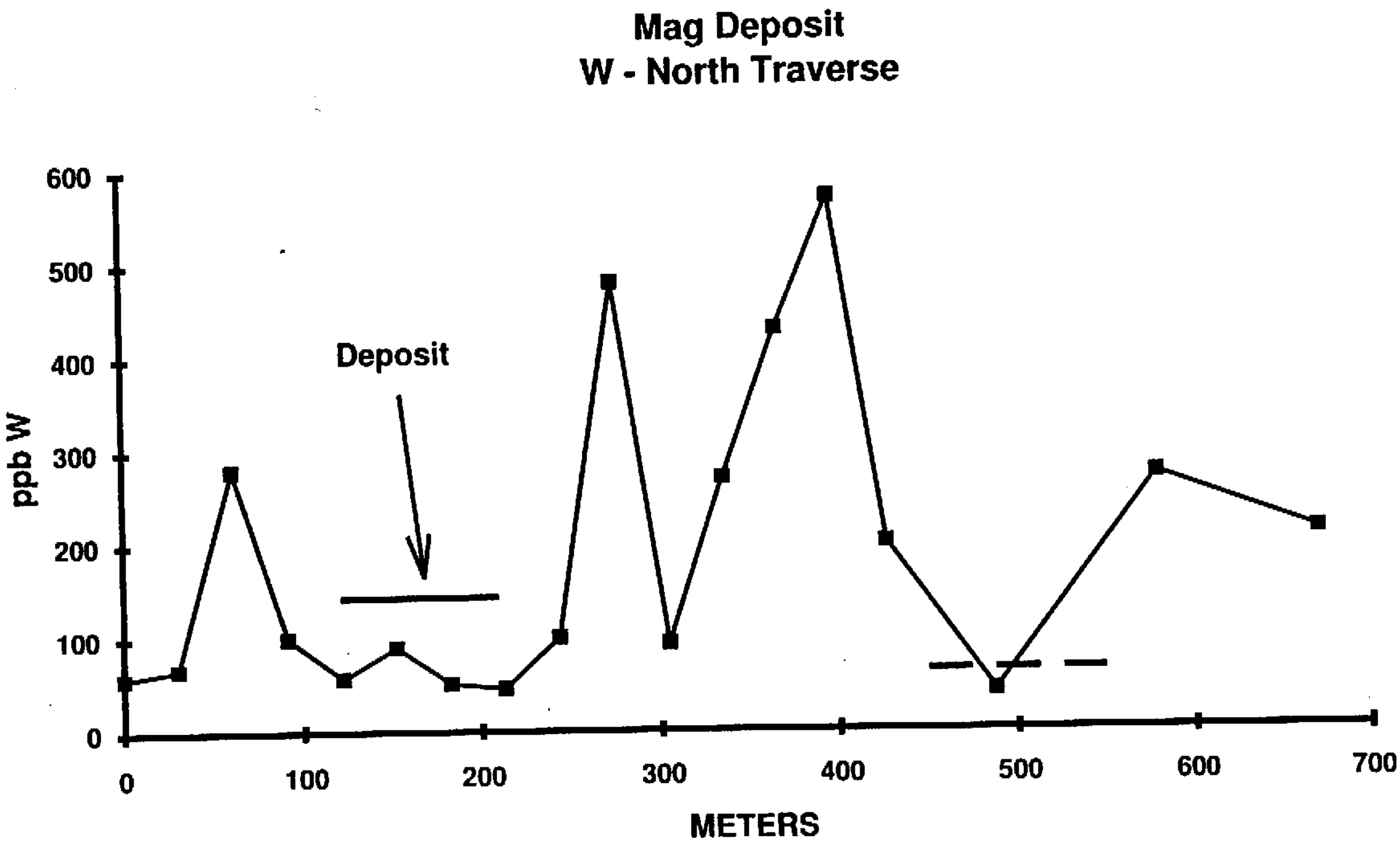
Mag Deposit
Br - North Traverse

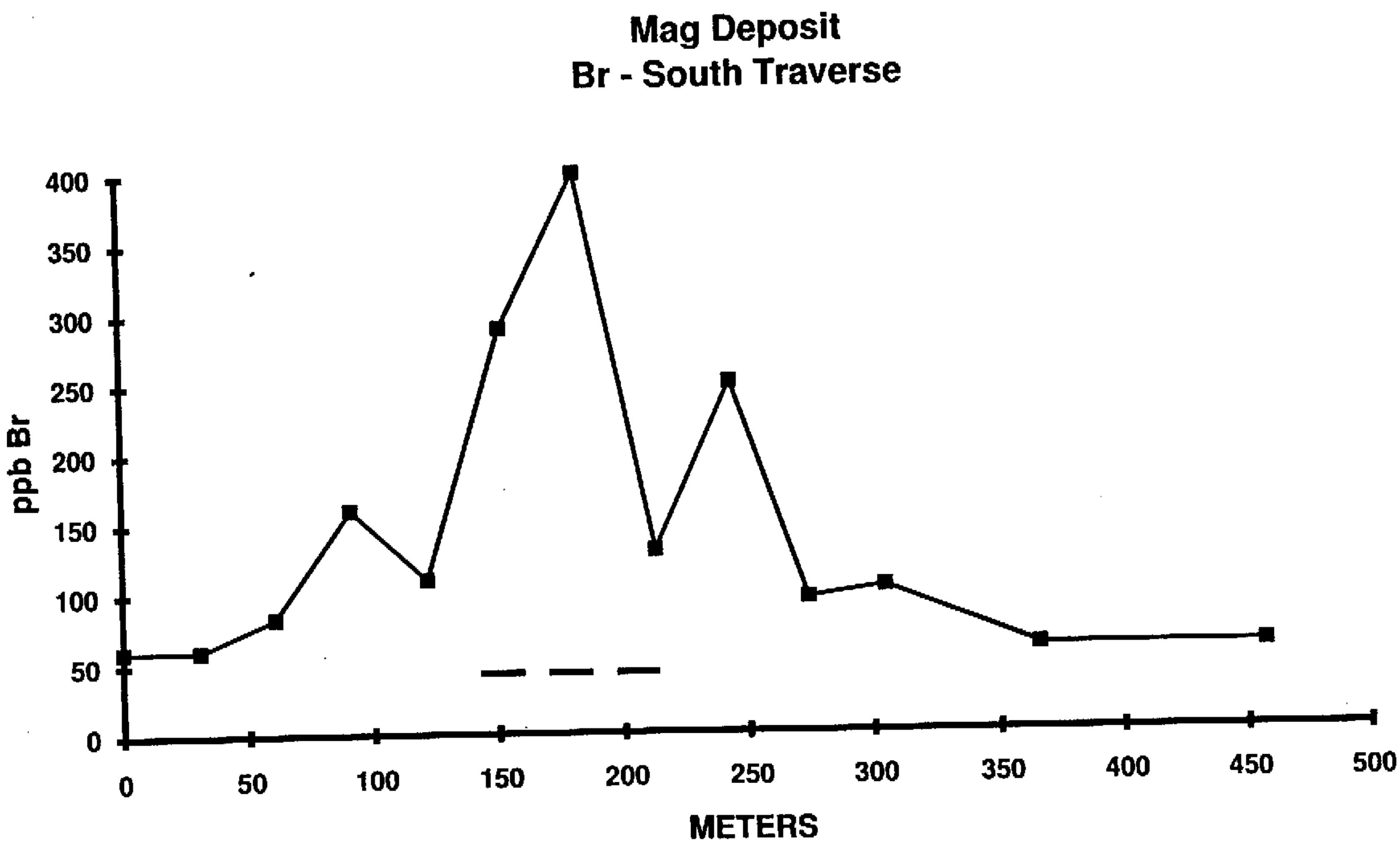




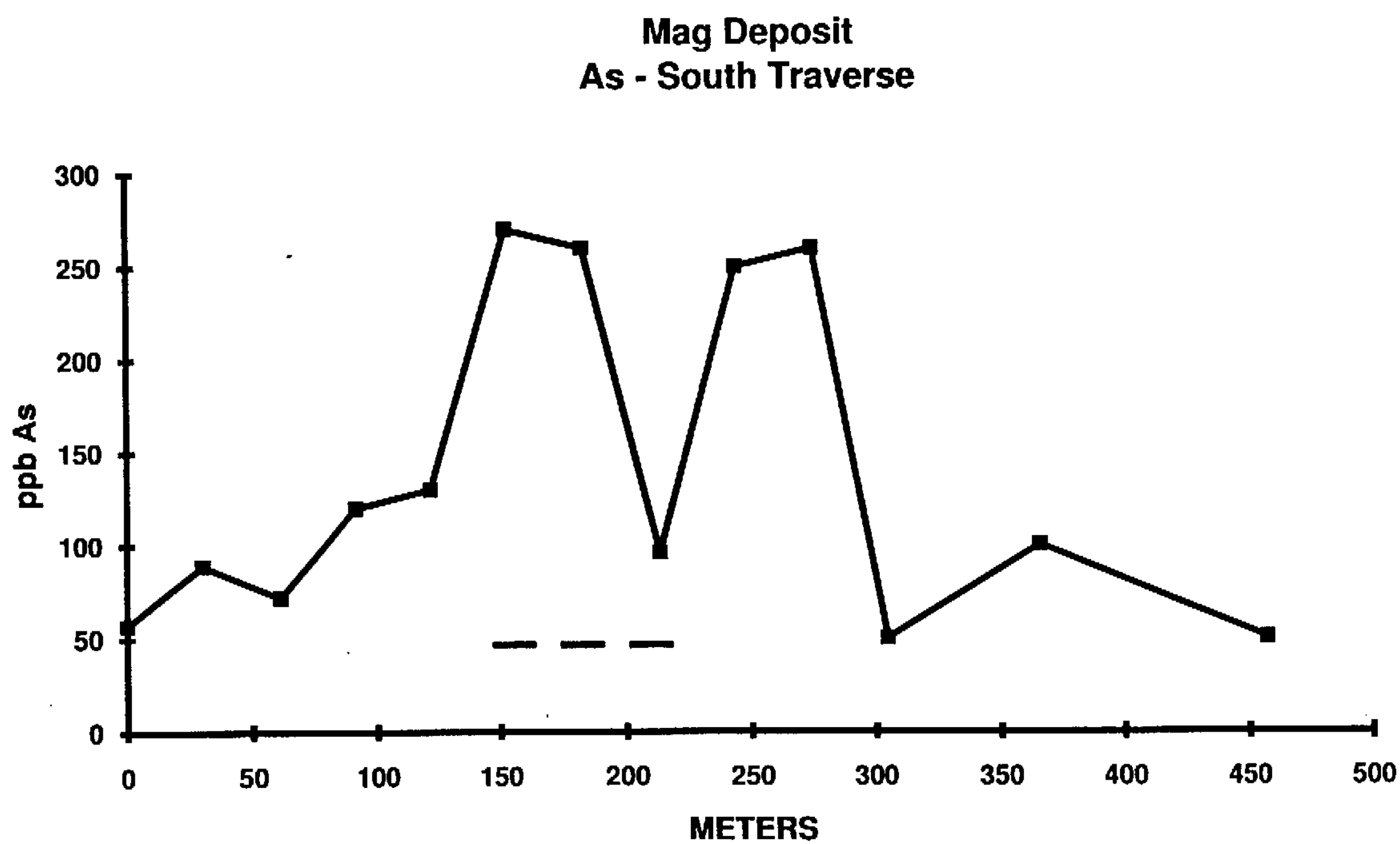
Mag Deposit
Sb - North Traverse
ppb Sb
100
90
80
70
60
50
40
30
20
10
0
Deposit
0
100
200
300
400
500
600
700
METERS


Mag Deposit
V - North Traverse
1400
1200
1000
800
600
400
200
0
ppb V
Deposit
0
100
200
300
400
500
600
700
METERS


Mag Deposit
W - North Traverse
ppb W
600
500
400
300
200
100
0
Deposit
0
100
200
300
400
500
600
700
METERS

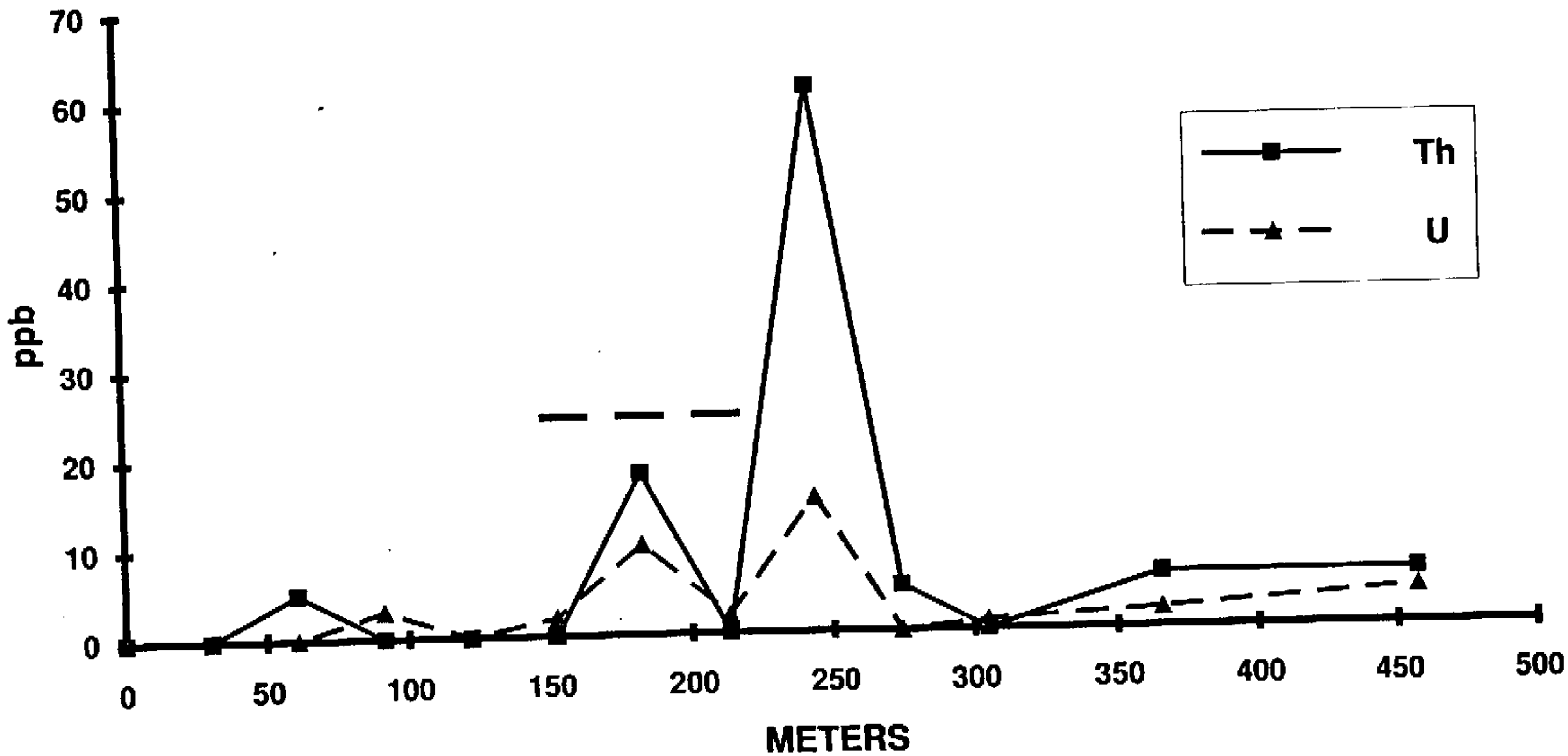


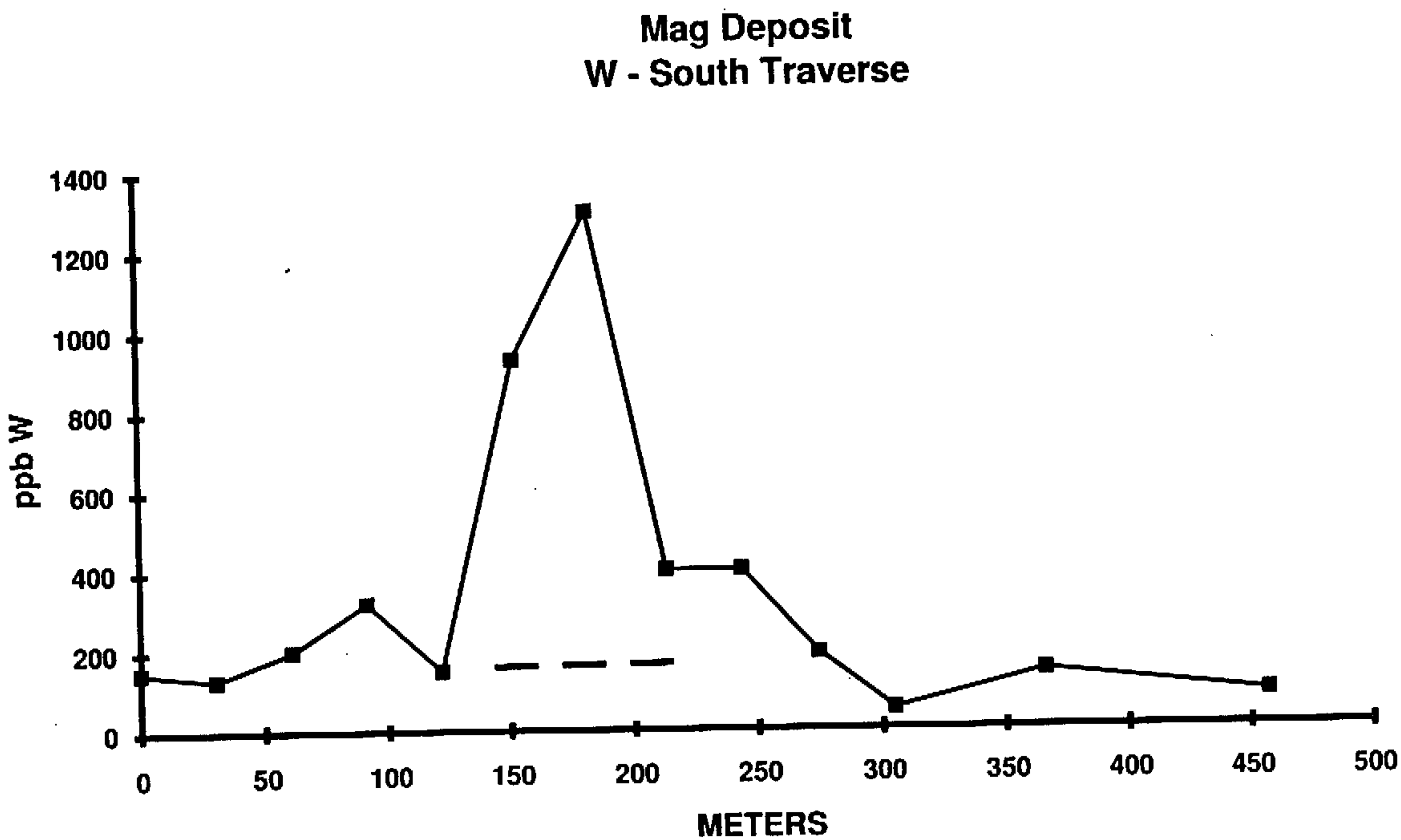
Mag Deposit
Br - South Traverse
400
350
300
250
200
150
100
50
0
ppb Br
0
50
100
150
200
250
300
350
400
450
500
METERS

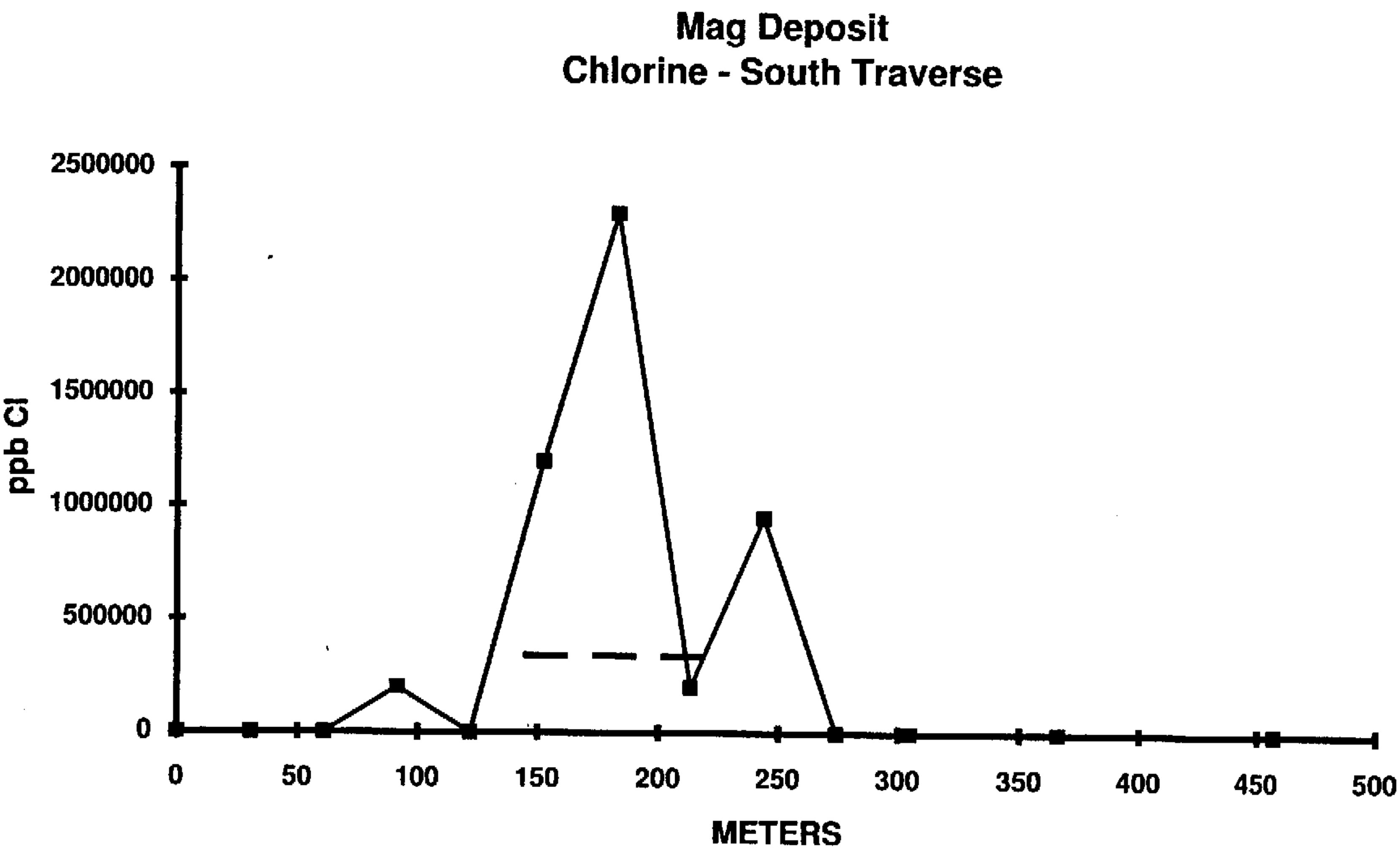


Mag Deposit
As - South Traverse
300
250
200
150
100
50
0
ppb As
0
50
100
150
200
250
300
350
400
450
500
METERS

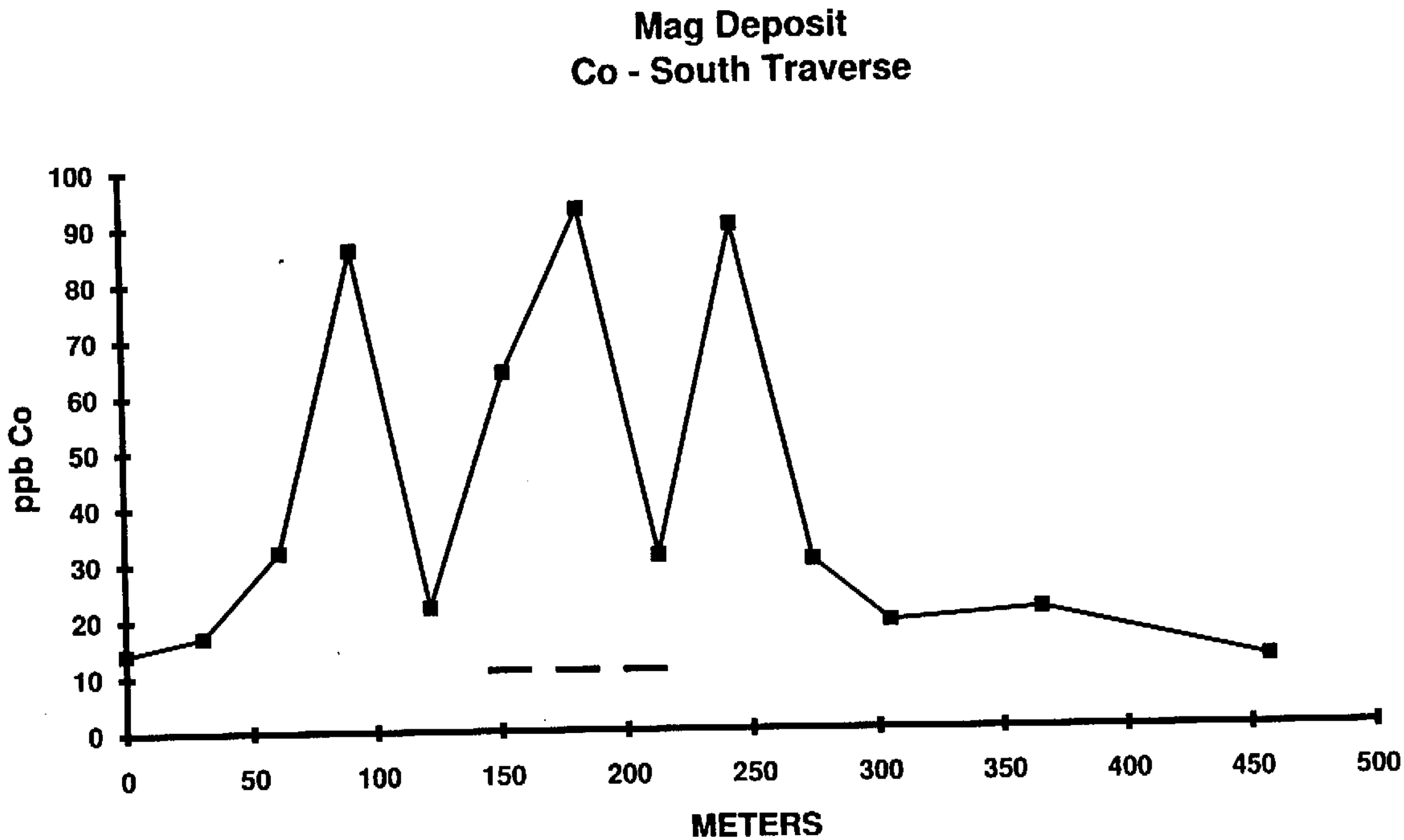
Mag Deposit
Th & U - South Traverse



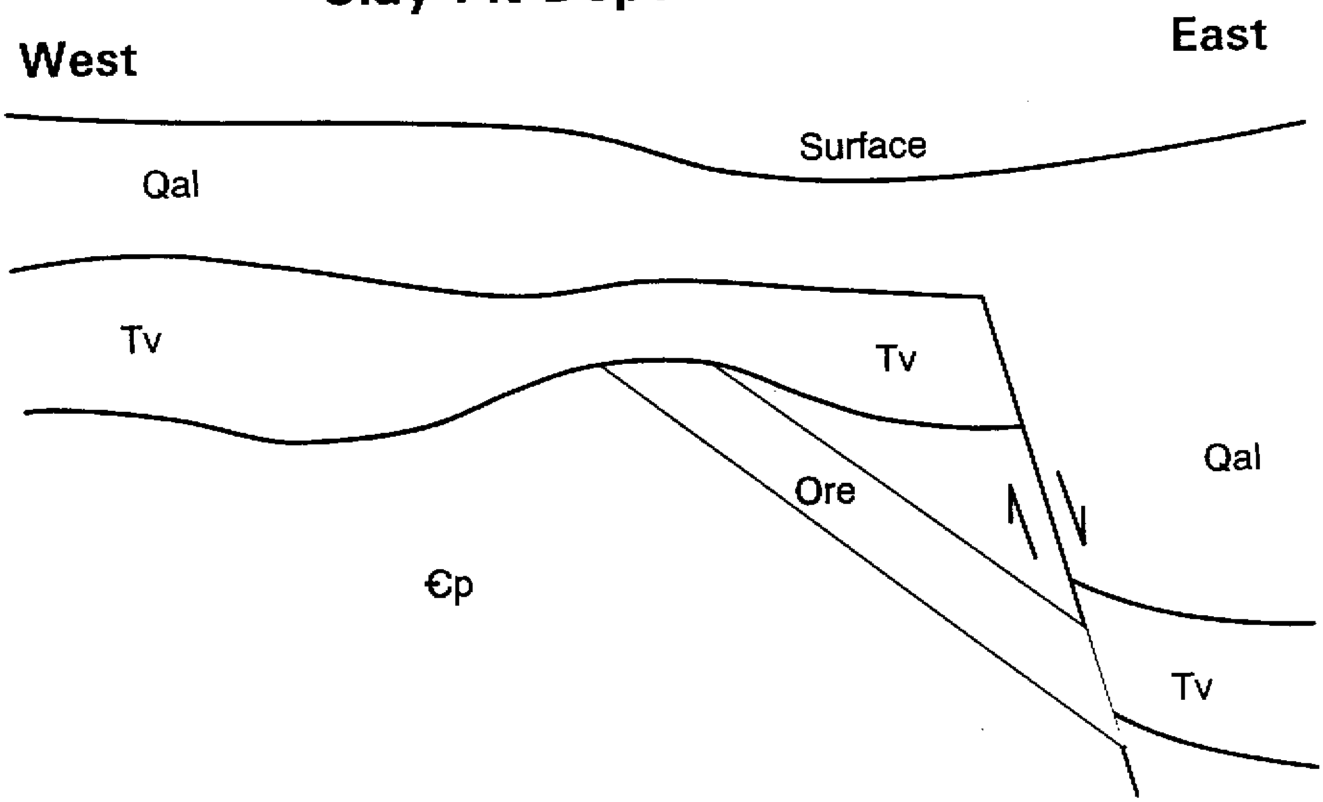

Mag Deposit
W - South Traverse
1400
1200
1000
800
600
400
200
0
ppb W
0
50
100
150
200
250
300
350
400
450
500
METERS



Mag Deposit
Chlorine - South Traverse
2500000
2000000
1500000
1000000
500000
0
ppb Cl
0
50
100
150
200
250
300
350
400
450
500
METERS

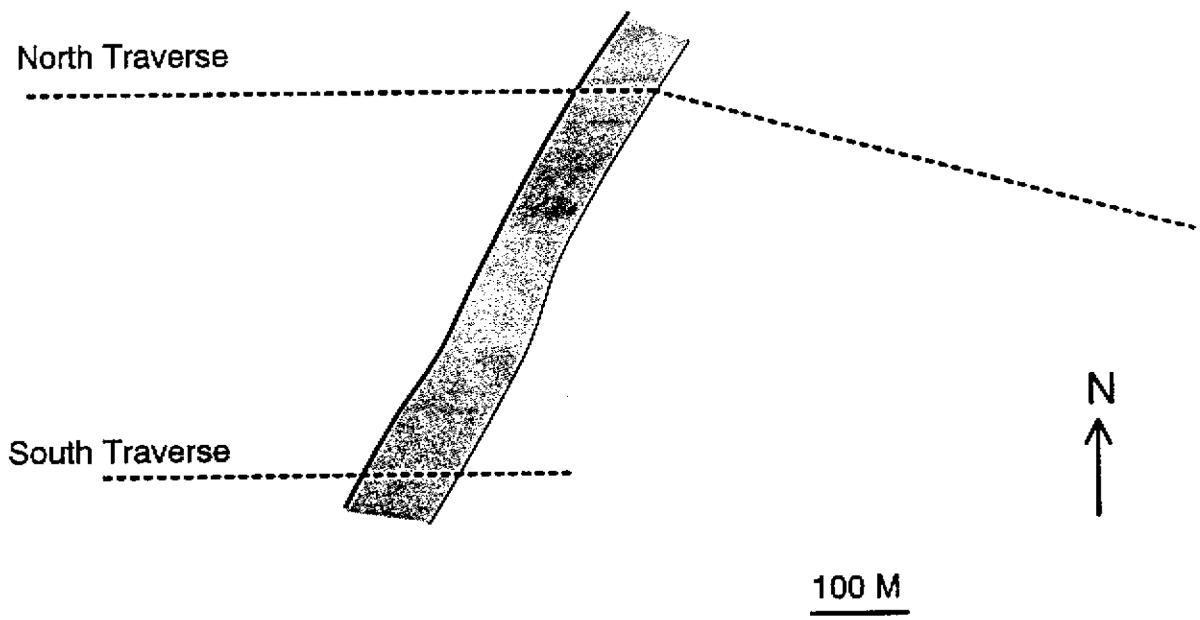

Mag Deposit
Co - South Traverse
ppb Co
100
90
80
70
60
50
40
30
20
10
0
0
50
100
150
200
250
300
350
400
450
500
METERS

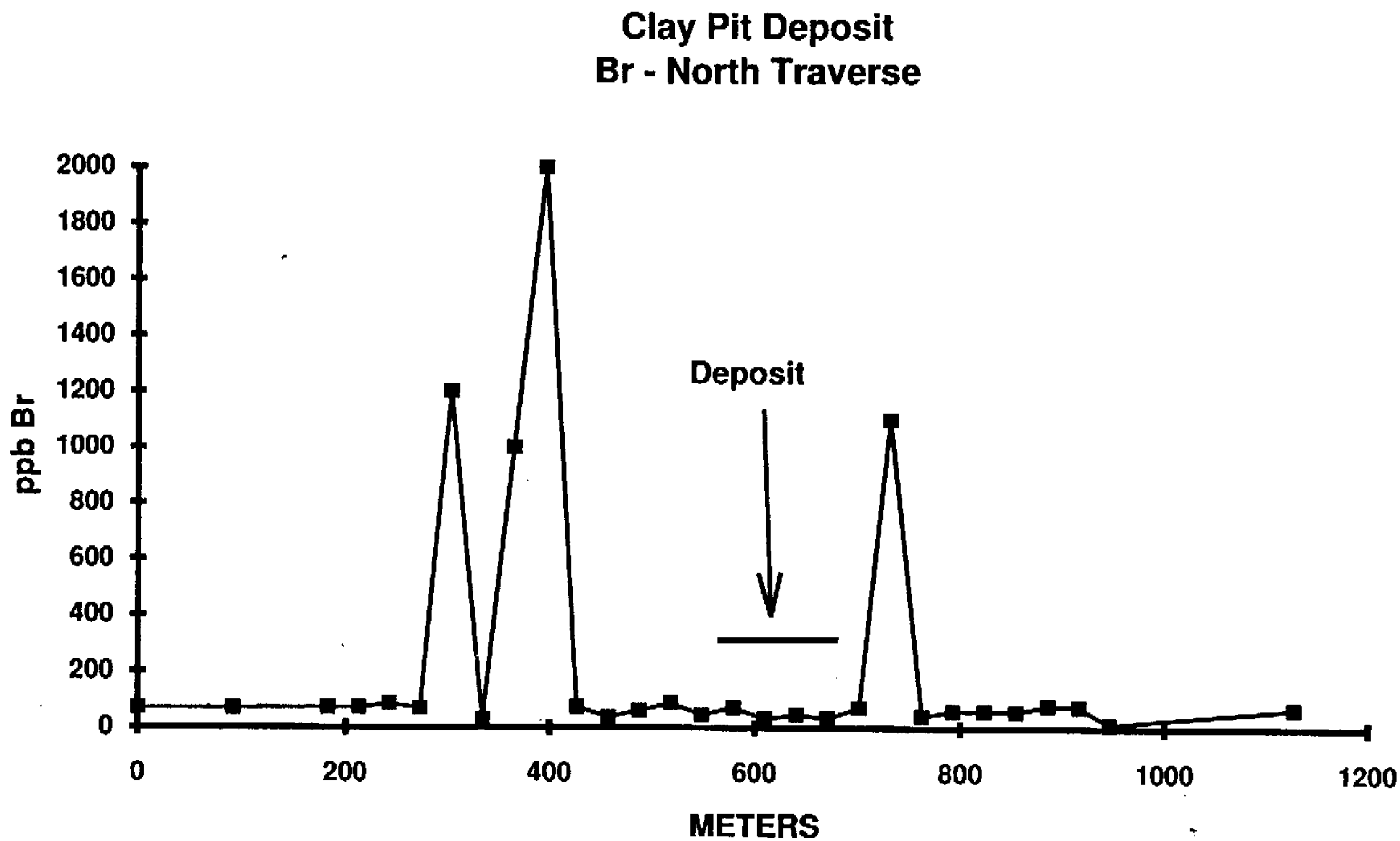
Clay Pit Deposit Section

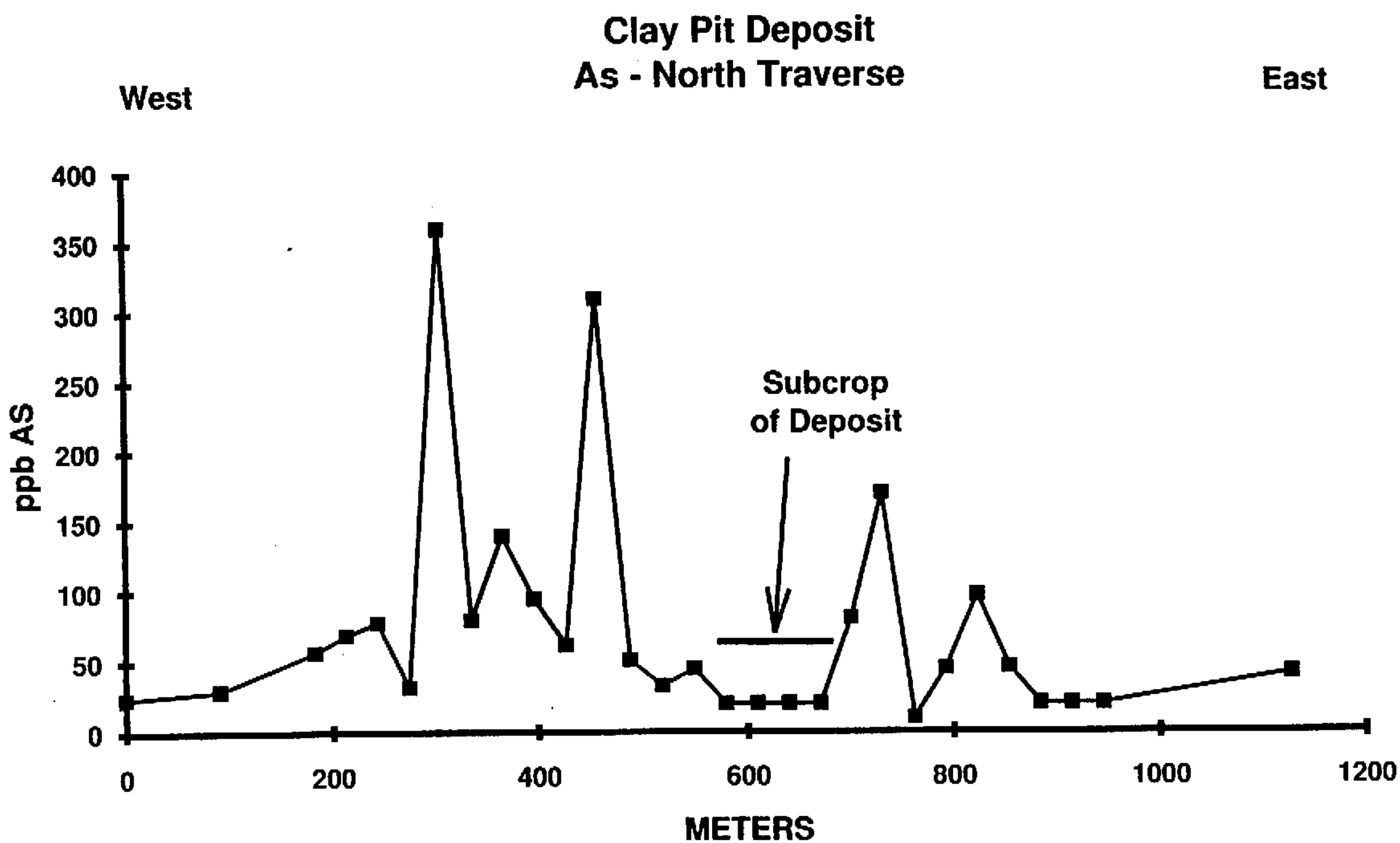


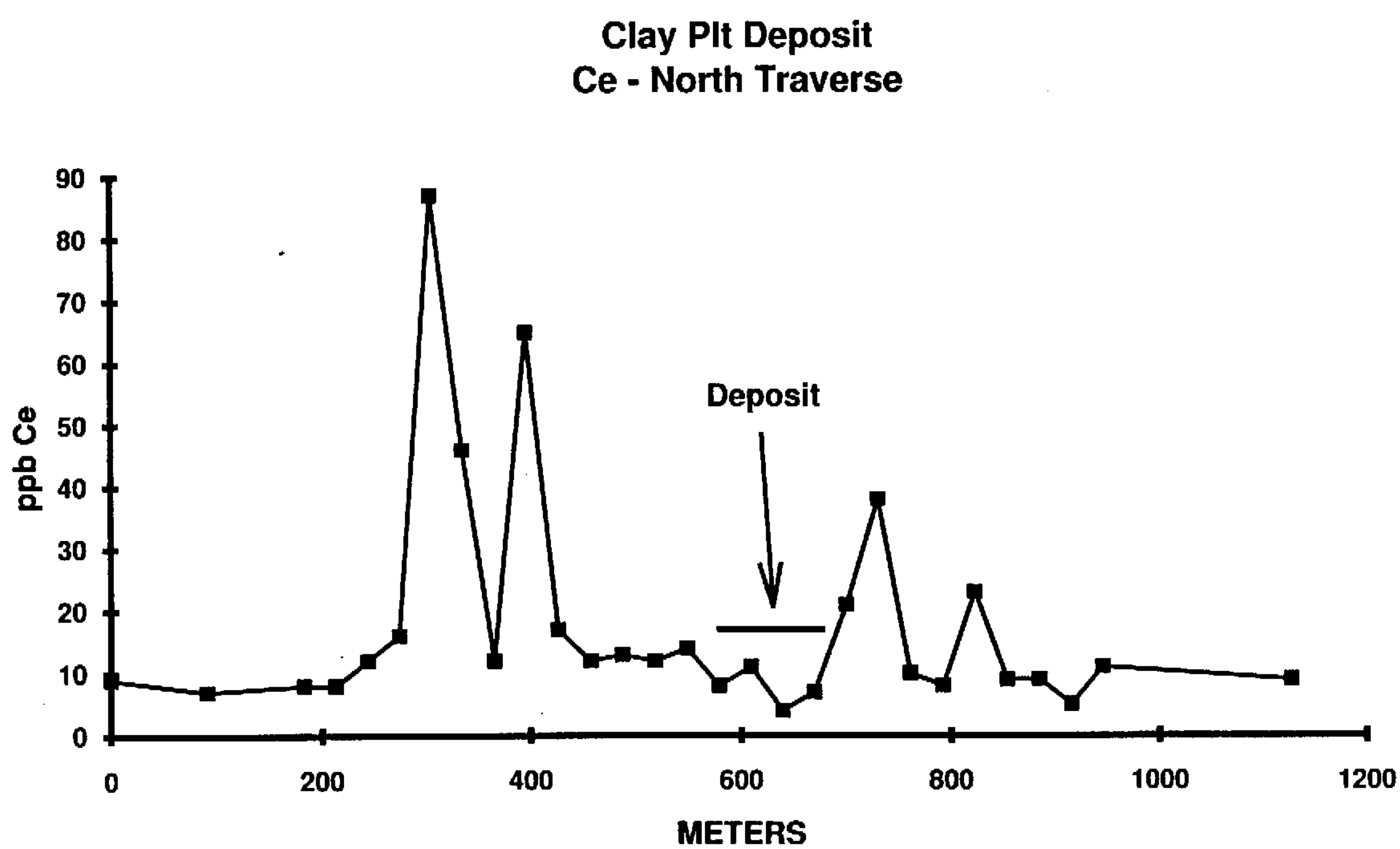
Clay Pit Deposit

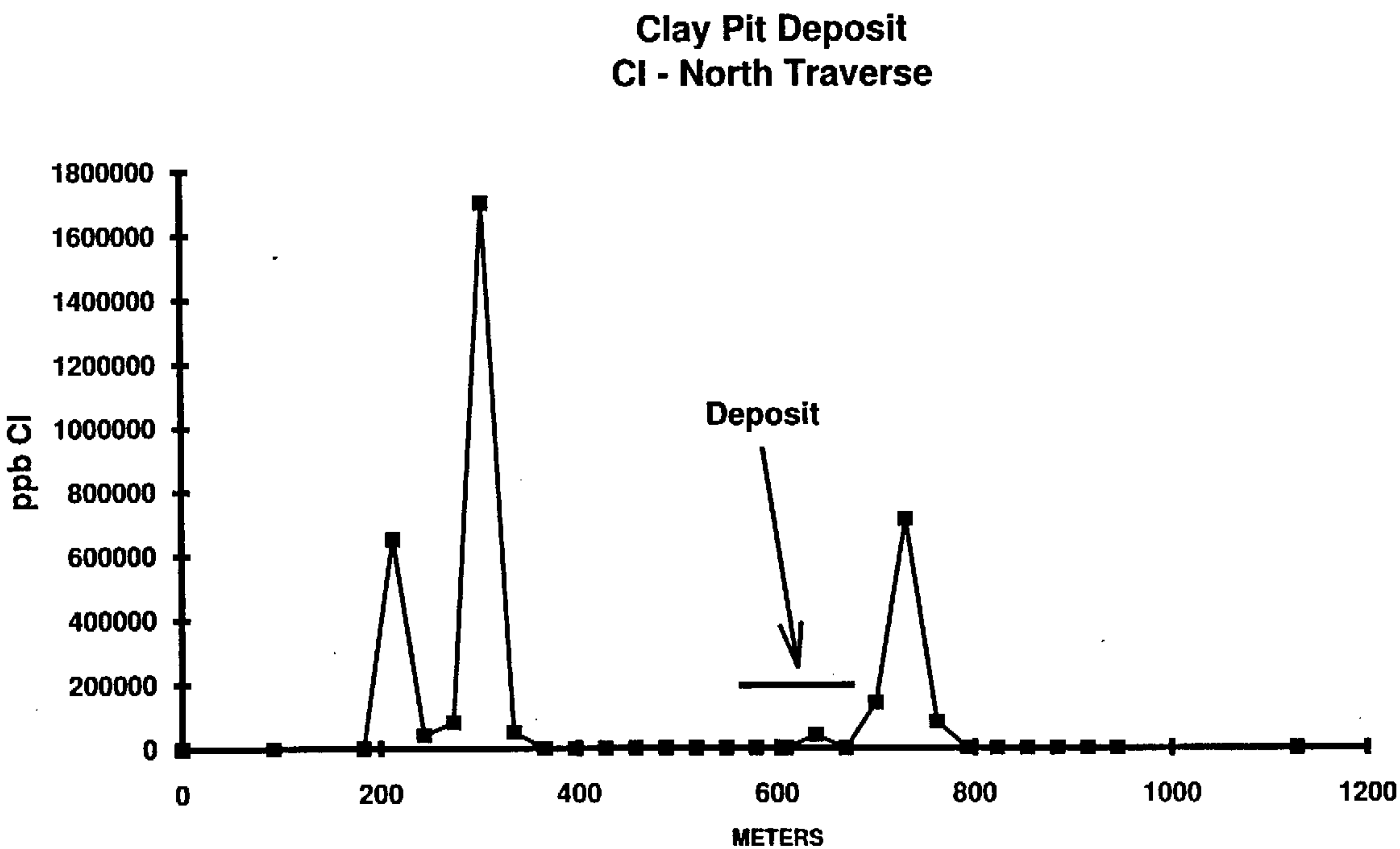
Plan View and Sampling Traverses

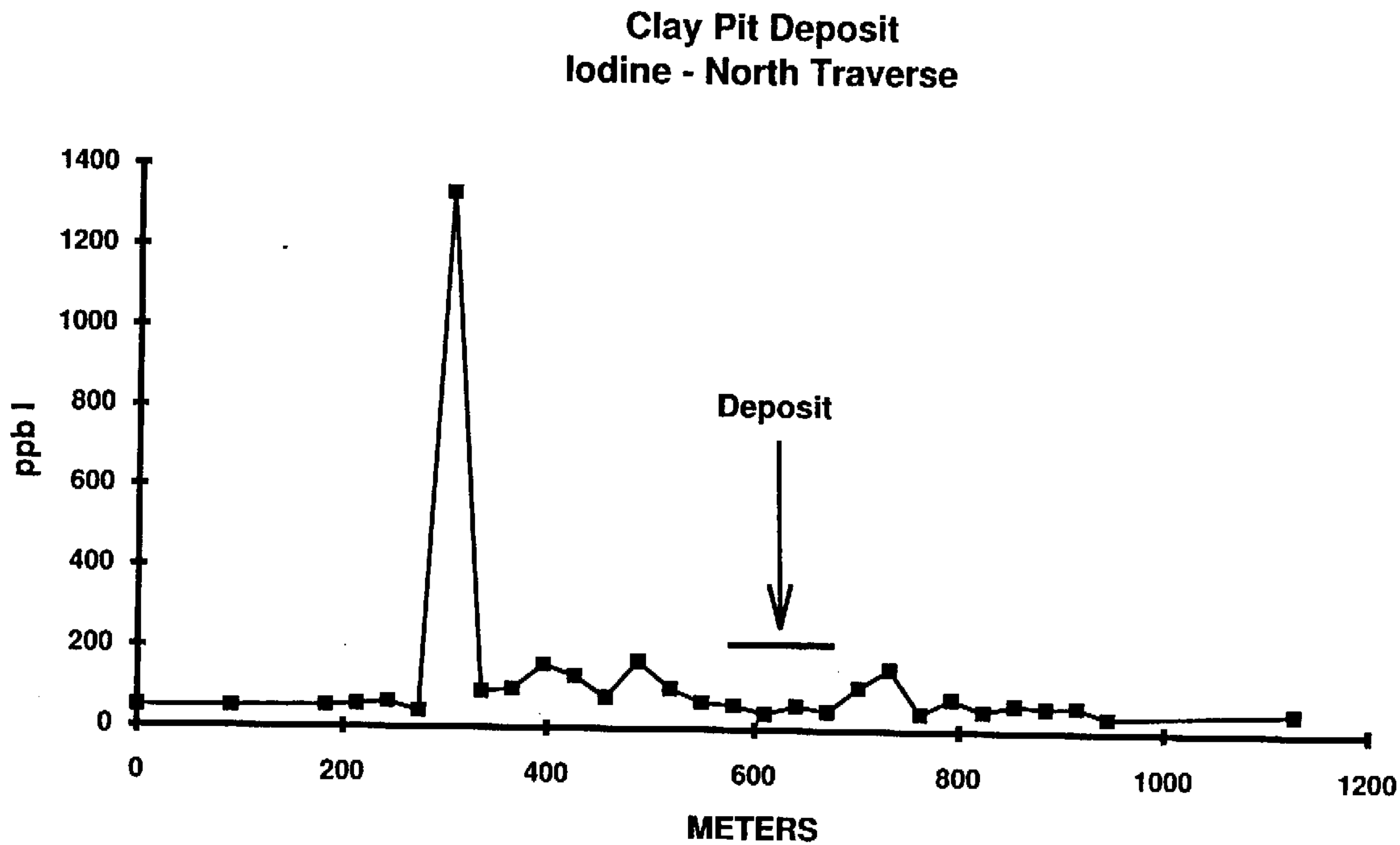



Clay Pit Deposit
Br - North Traverse
ppb Br
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Deposit
0
200
400
600
800
1000
1200
METERS

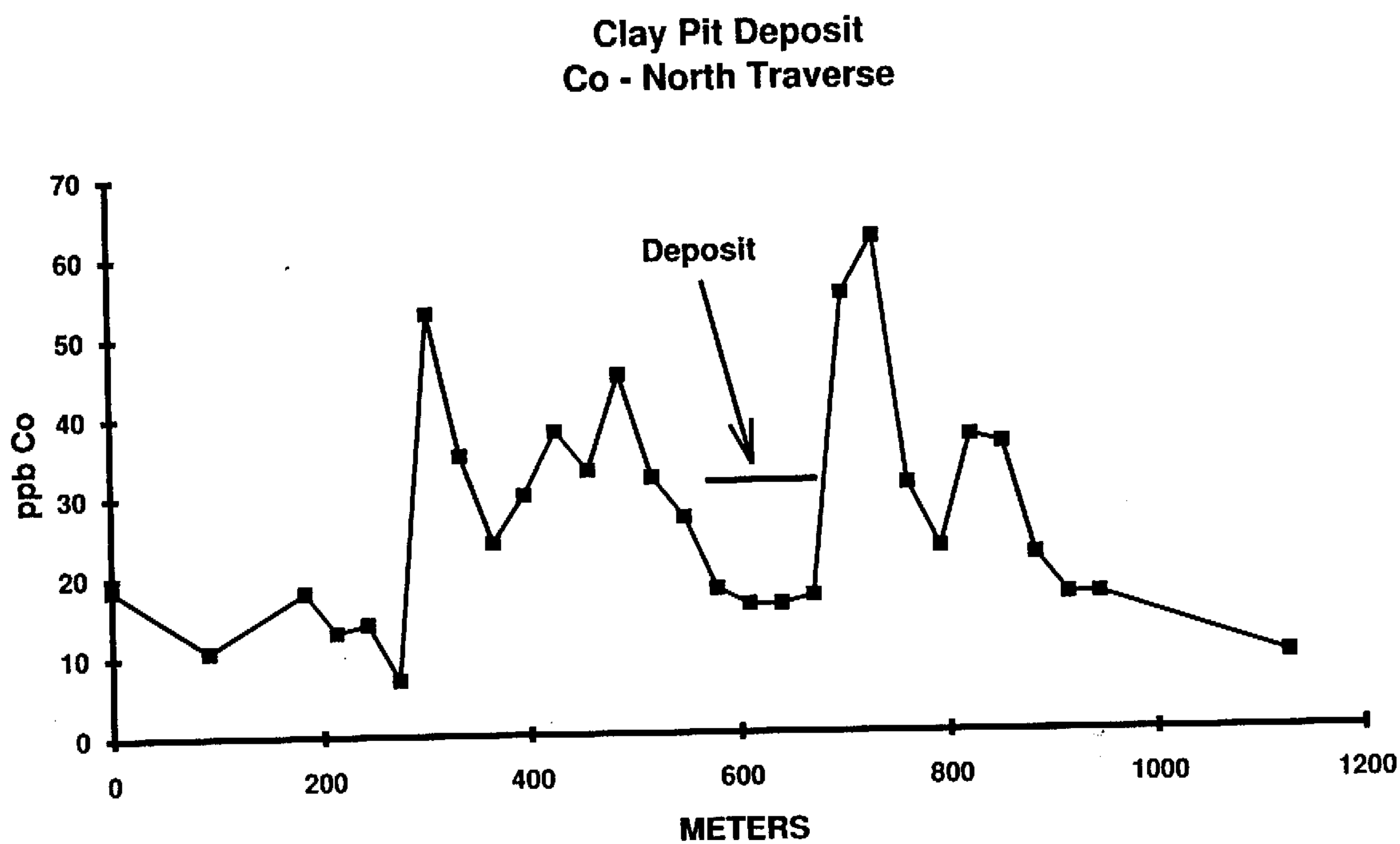

Clay Pit Deposit
As - North Traverse
West
East
400
350
300
250
200
150
100
50
0
ppb AS
Subcrop
of Deposit
0
200
400
600
800
1000
1200
METERS

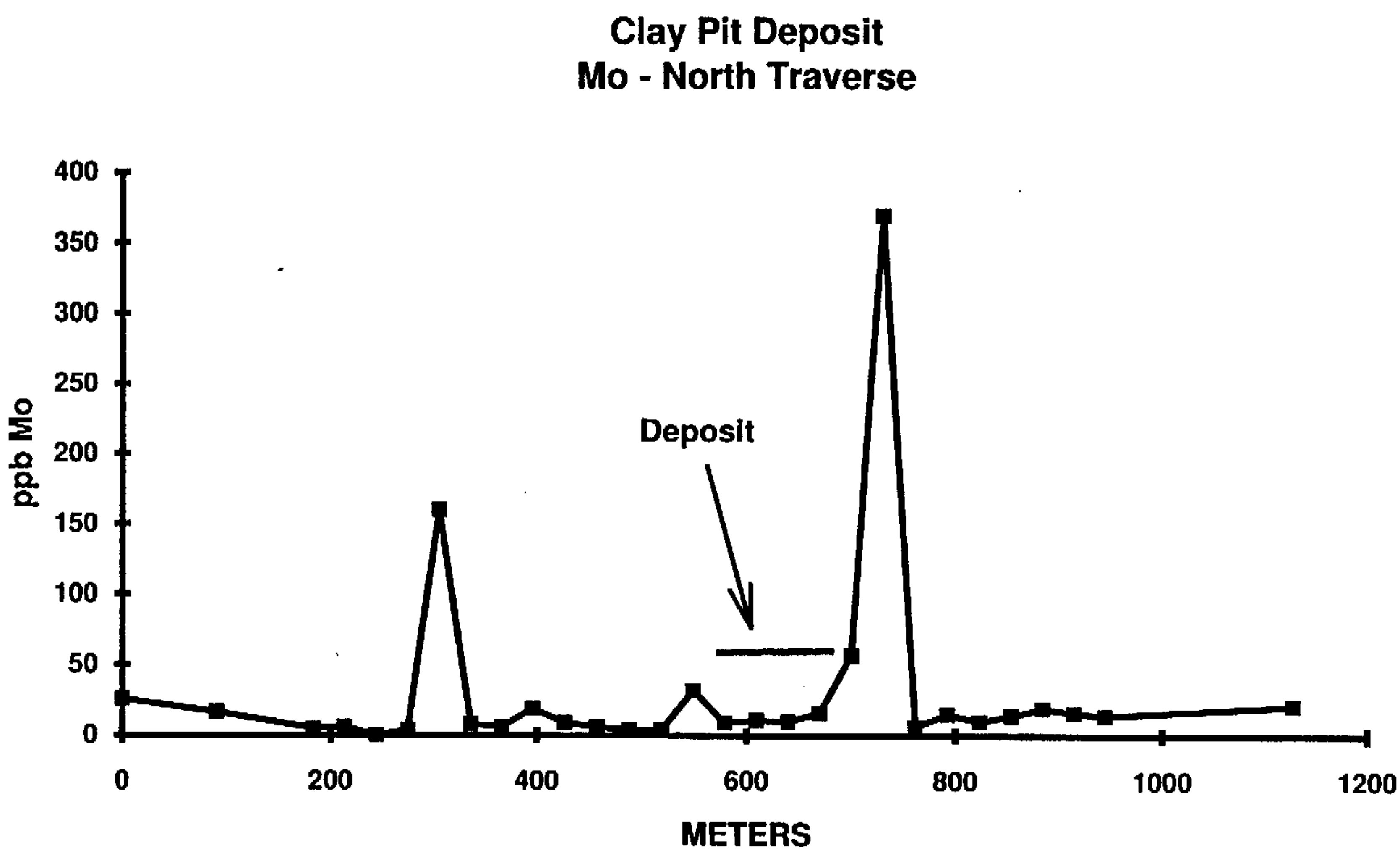

Clay Plt Deposit
Ce - North Traverse
ppb Ce
90
80
70
60
50
40
30
20
10
0
Deposit
0
200
400
600
800
1000
1200
METERS


Clay Pit Deposit
Cl - North Traverse
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
ppb Cl
Deposit
0
200
400
600
800
1000
1200
METERS

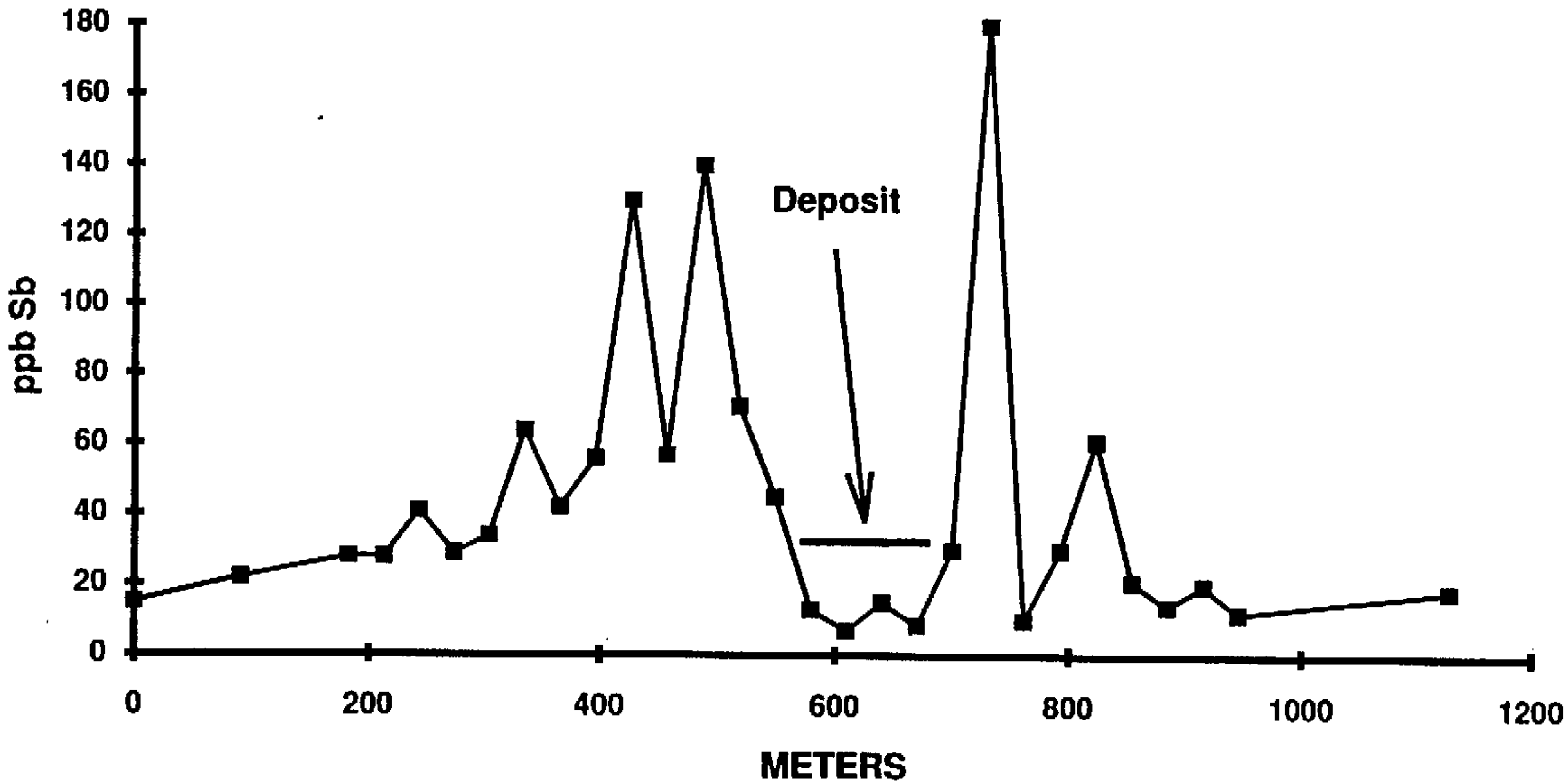


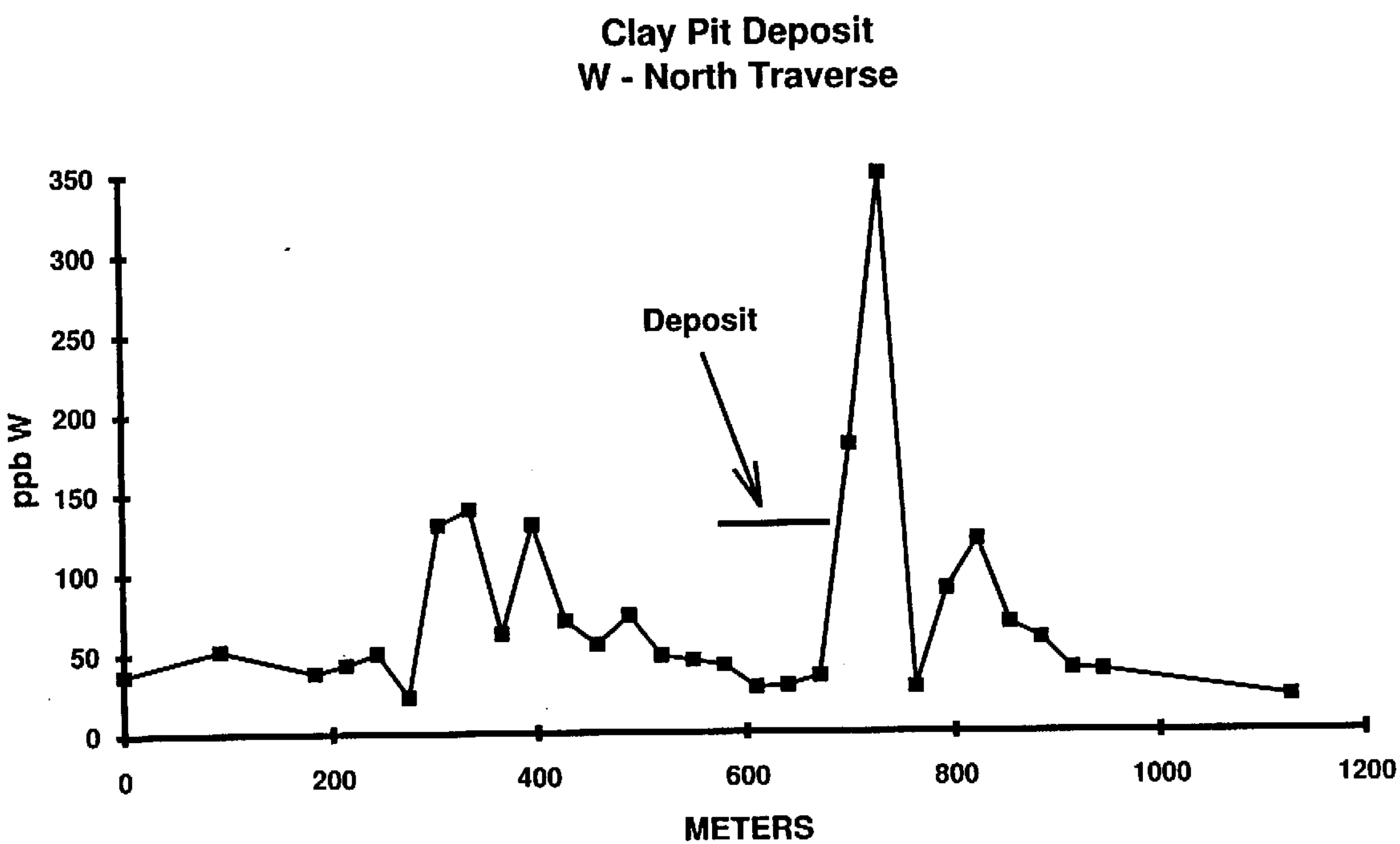
Clay Pit Deposit
Iodine - North Traverse
ppb I
1400
1200
1000
800
600
400
200
0
Deposit
0
200
400
600
800
1000
1200
METERS


Clay Pit Deposit
Co - North Traverse
Deposit
ppb Co
70
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
METERS

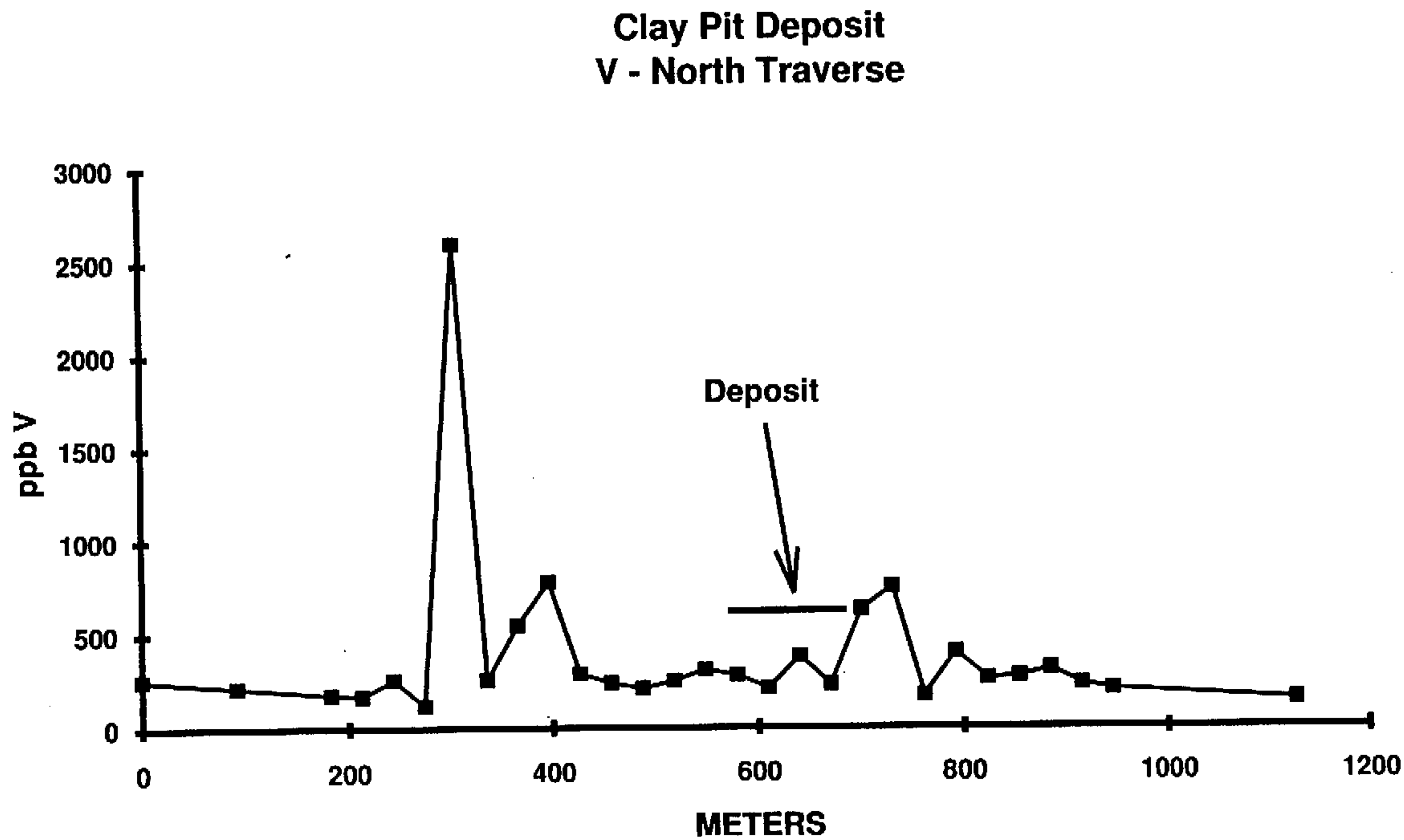

Clay Pit Deposit
Mo - North Traverse
400
350
300
250
200
150
100
50
0
ppb Mo
Deposit
0
200
400
600
800
1000
1200
METERS

Clay Pit Deposit
Sb - North Traverse



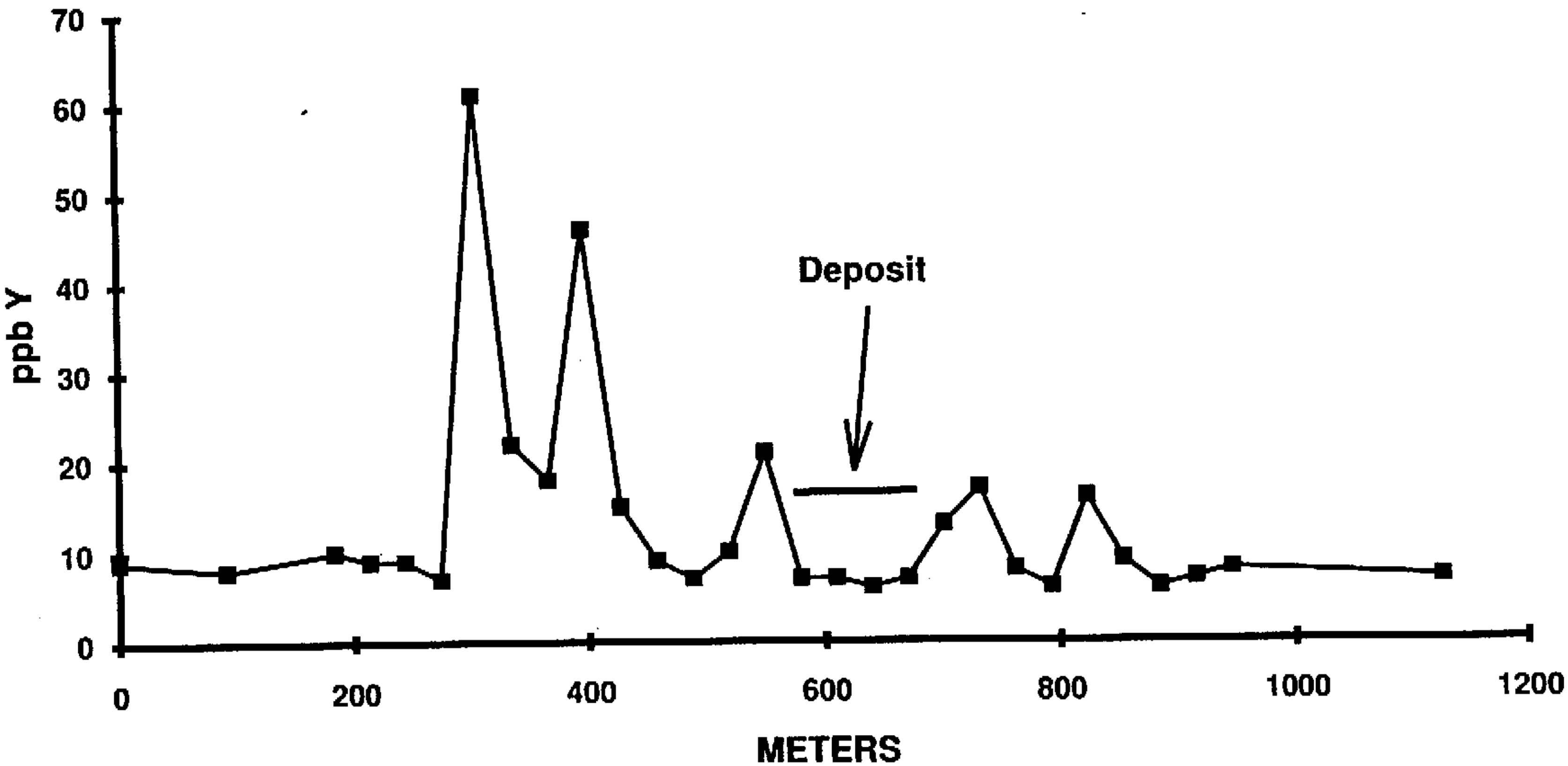


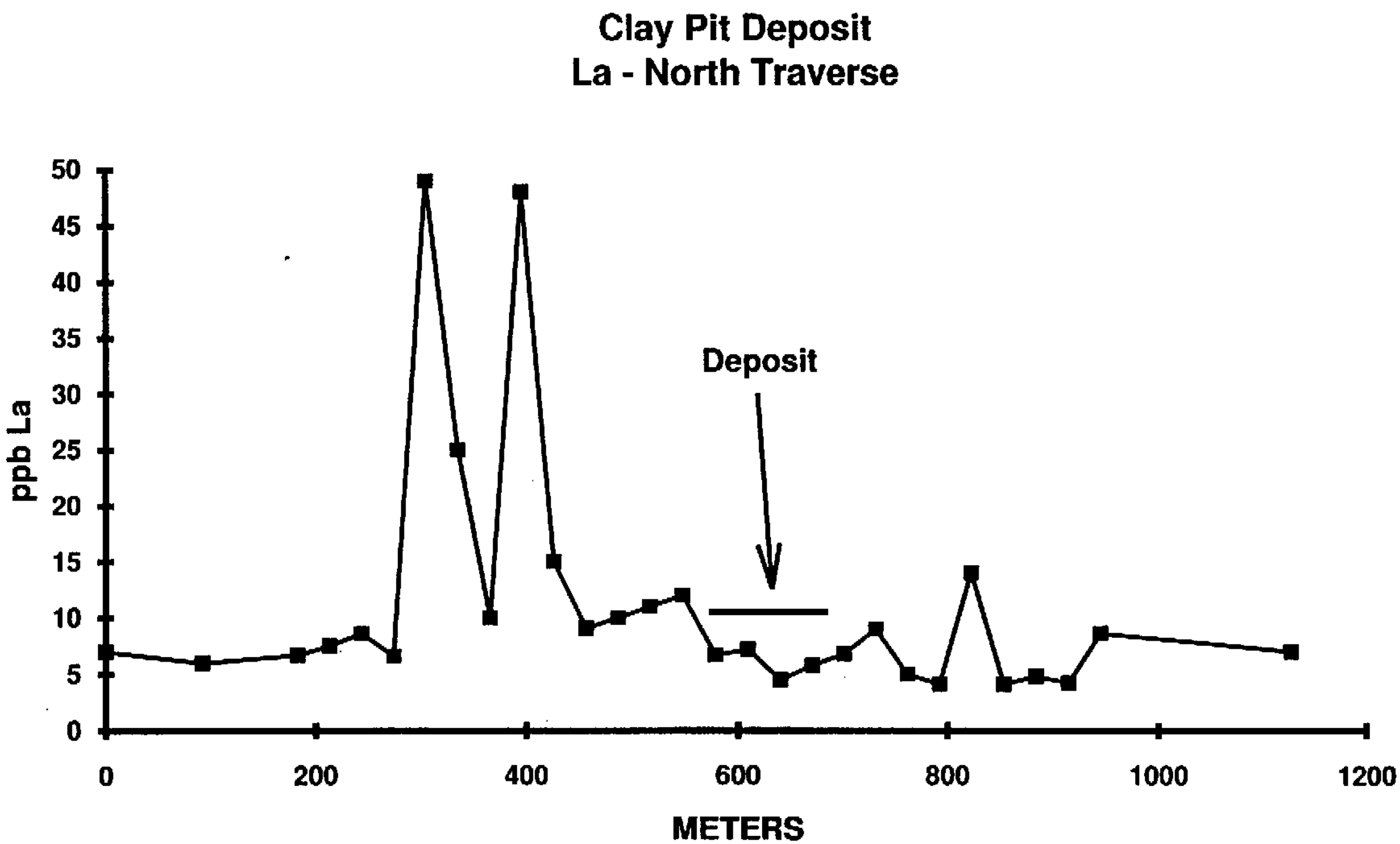
Clay Pit Deposit
W - North Traverse
Deposit
ppb W
350
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
METERS

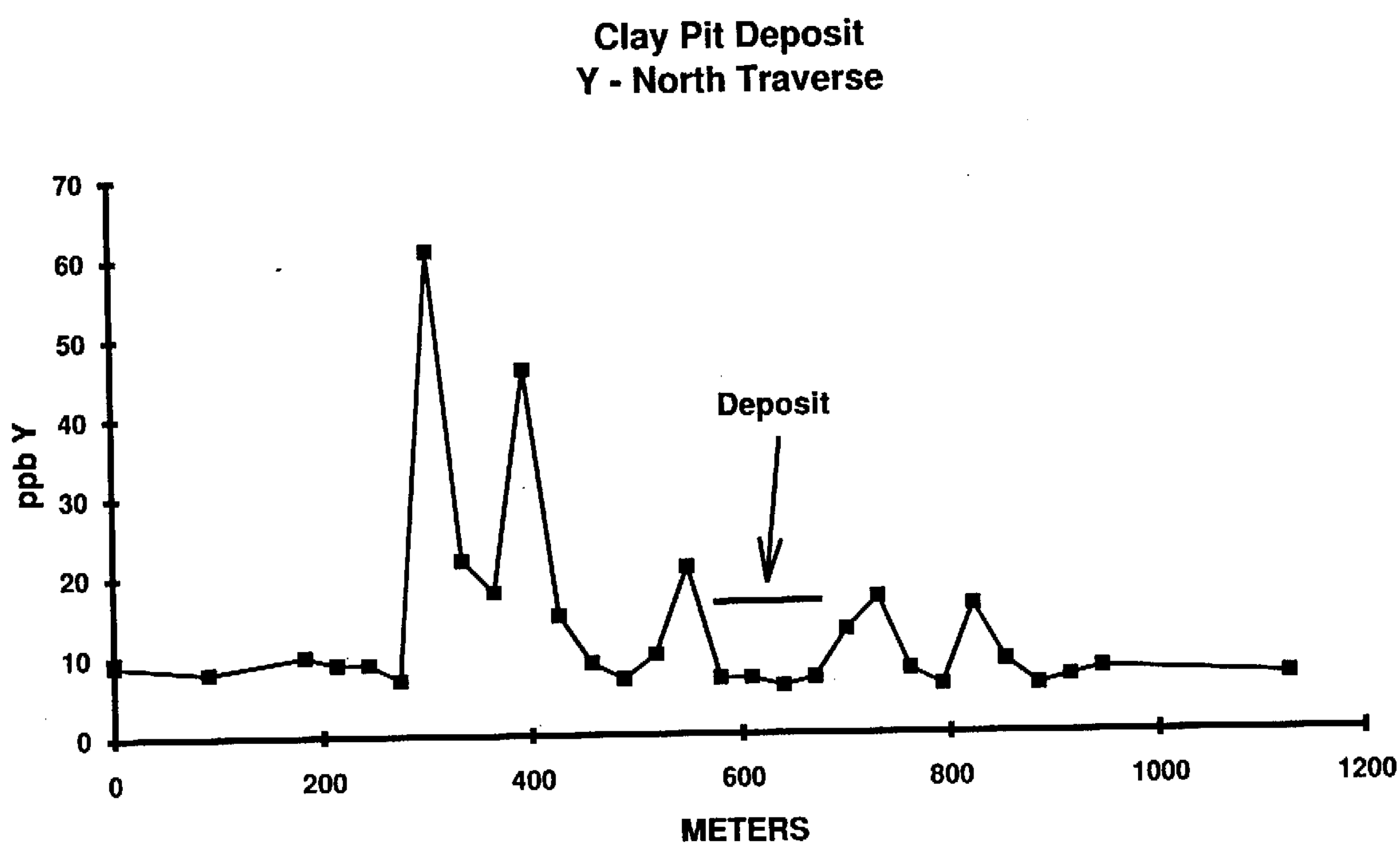


Clay Pit Deposit
V - North Traverse
Deposit
ppb V
3000
2500
2000
1500
1000
500
0
0
200
400
600
800
1000
1200
METERS

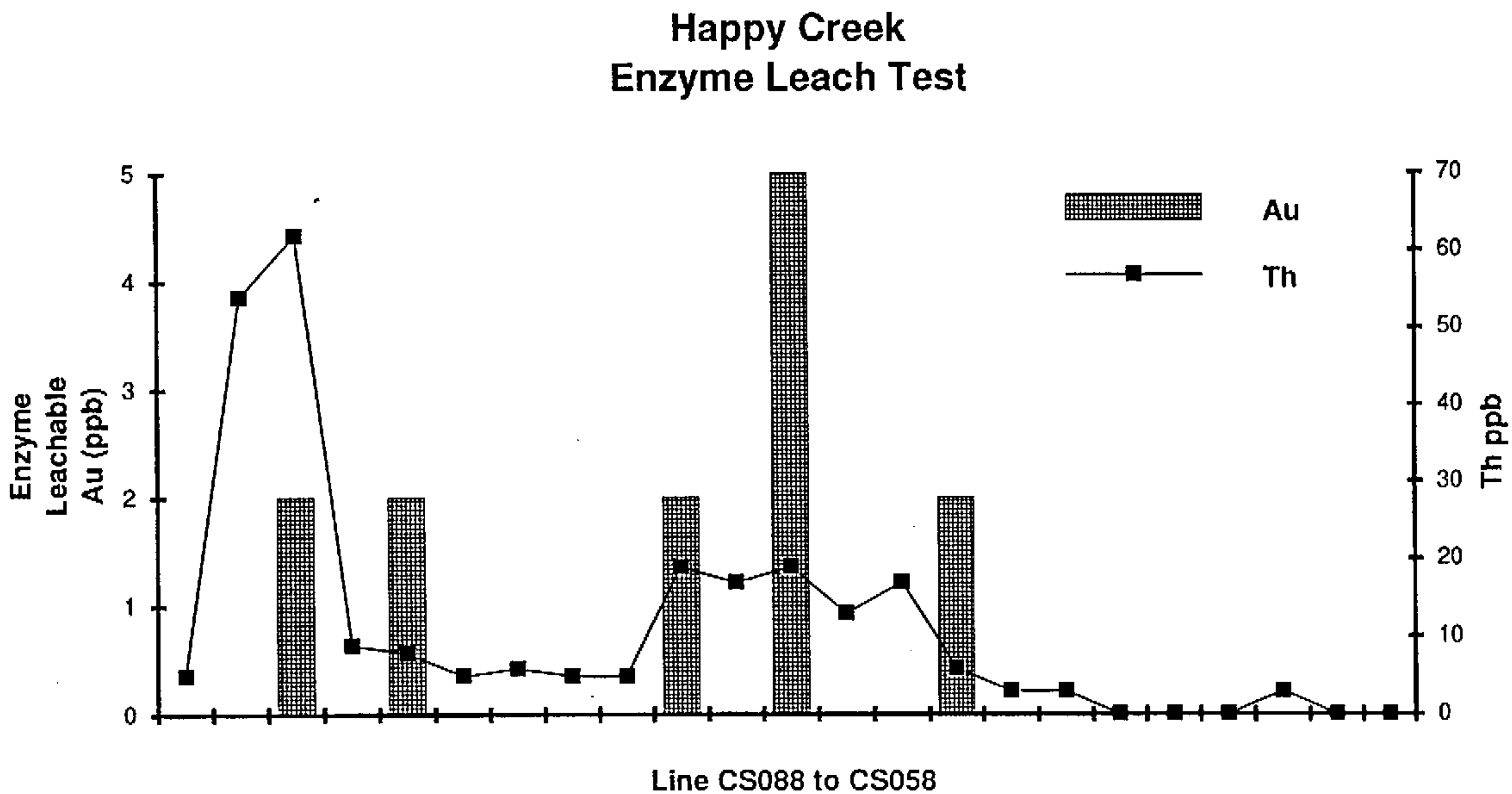
Clay Pit Deposit
Y - North Traverse



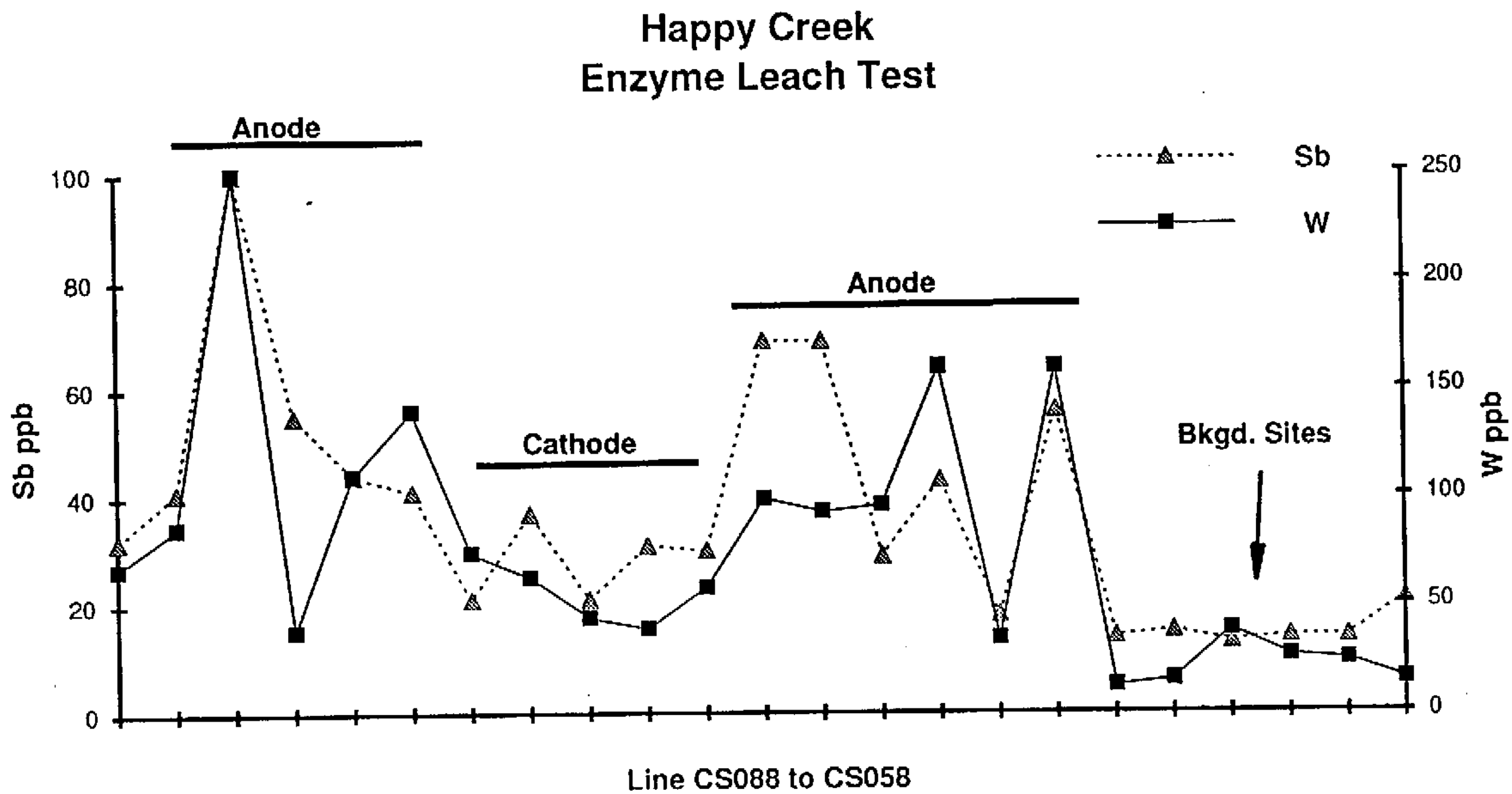

Clay Pit Deposit
La - North Traverse
Deposit
ppb La
50
45
40
35
30
25
20
15
10
5
0
0
200
400
600
800
1000
1200
METERS



Clay Pit Deposit
Y - North Traverse
ppb Y
70
60
50
40
30
20
10
0
Deposit
0
200
400
600
800
1000
1200
METERS



Happy Creek
Enzyme Leach Test
Enzyme Leachable Au (ppb)
Th ppb
Au
Th
5
4
3
2
1
0
70
60
50
40
30
20
10
0
Line CS088 to CS058



Happy Creek
Enzyme Leach Test
Anode
Cathode
Anode
Sb
W
Bkgd. Sites
Sb ppb
W ppb
100
80
60
40
20
0
250
200
150
100
50
0
Line CS088 to CS058

INNOVATIVE ENZYME LEACH PROVIDES COST-EFFECTIVE OVERBURDEN PENETRATION

J.Robert CLARK[1] and David COHEN[2]

[1]ACTLABS, Inc., 11485 W. I-70 Frontage Road N., Denver, Colorado 80033 USA
[2]Department of Applied Geology, University of New South Wales, Sydney, NSW 2052

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Introduction

Layers of glacial till and glaciolacustrine sediments cover large areas of the Canadian Shield, and much of the bedrock in the Basin and Range Province of United States and Mexico and much of the Atacama Desert of Chile and Peru have been buried by basin fill and volcanic rocks. The problem, when trying to perform geochemical exploration in terrains that are covered by transported overburden, is that the overburden is usually exotic to the bedrock that it covers. In some regions, intense weathering has stripped the surficial material of the original chemical signature of the parent rock. Conventional chemical analysis would reveal only the composition of the overburden and would not give any indication of the underlying bedrock. Total methods of analysis and stronger-leaching techniques produce results that are dominated by the overburden signature, and random variations in this signature suppress any anomalous chemistry emanating from underlying mineralization. In the past, drilling has been the only means of collecting useful geochemical samples in areas of extensive overburden. An inexpensive means is needed for detecting subtle geochemical dispersion through transported or deeply weathered overburden and providing some indication of the chemistry of the bedrock.

Trace elements released by weathering of mineral deposits in the bedrock will migrate up through overburden by such means as ground water flow, capillary action, or diffusion of volatile compounds. However the amount of these bedrock-related trace elements is typically a very small component of the total concentration of these elements in the overburden. The goal is to determine the amount of a trace element that has been added to the overburden rather than the total amount in the overburden sample. Upon reaching the near surface environment, many of the trace elements migrating through overburden will be trapped in manganese oxide and iron oxide coatings, which form on mineral grains in the soils. One of the most effective traps for trace elements migrating toward the surface is amorphous manganese dioxide, which is usually a very small component of the total manganese oxide phases in the soil sample. Not only does amorphous manganese dioxide have a relatively large surface area, but the irregular surface and the random distribution of both positive and negative charges on that surface make it an ideal adsorber for a variety of cations, anions, and polar molecules.

A selective leach has been developed that employs an enzyme reaction to selectively dissolve amorphous manganese oxides. When all the amorphous manganese dioxide in the sample has been reacted, the enzyme reaction slows, and the leaching action ceases. Because the enzyme leach is self limiting, there is minimal leaching of the mineral substrates in the sample. Thus, the background concentrations for many elements determined are extremely low and the anomaly/background contrast is dramatically enhanced. Typically, three types of geochemical anomalies are found with the Enzyme Leach: 1. Mechanical/hydromorphic dispersion anomalies; 2. Oxidation halo anomalies; 3. Apical anomalies. In terrains where the bedrock is buried by glacial overburden, mechanical/hydromorphic anomalies are the most common type found (although all three types of anomalies are observed in soils developed on tills). Mechanical dispersion trains were formed in the basal till as mineralized bedrock material was smeared down ice during glaciation. Gradual weathering of this mineralized material releases trace elements into the ground water flowing through the till. Vegetation with roots tapping into either the mineralized till or anomalous ground water picks up trace elements which are eventually shed to the forest floor in plant litter. Anomalous trace elements are often relatively quickly leached from the *A*-soil horizon and trapped in oxide coatings in the *B* horizon. In essence the *B*-soil horizon often acts as a long-term integrator of vegetation anomalies (J.R. Clark, 1993). The Enzyme

Leach has been used to detect very subtle mechanical/hydromorphic anomalies related to mineralized bedrock in a number of glacial overburden situations, including areas where the glacial till is blanketed with glaciolacustrine sediments. Subtle hydromorphic dispersion anomalies in stream sediments have also been detected with the Enzyme Leach. Trace element suites comprising mechanical/ hydromorphic-related soil anomalies commonly reflect at least part of the chemical signature of the bedrock source. Anomaly contrast in soils developed on glacial till often range from 2-times to 10-times the background concentrations for the elements forming the anomaly.

Oxidation halo anomalies are produced by the gradual oxidation of buried reduced bodies. Any reduced body (an ore deposit, a barren body of disseminated pyrite, a buried geothermal system, a petroleum reservoir, etc.) can produce one of these anomalies. Once these anomalies are found it is up to the geologist to make a geological interpretation based on all the information at hand, including Enzyme Leach data, as to what the source of the anomaly might be. These anomalies are characterized by very high contrast values for a suite of elements, the "oxidation suite," which can include Cl, Br, I, As, Sb, Mo, W, Re, Se, Te, V, U, and Th. Often, rare-earth elements and base metals will be anomalous in the same soil samples, but with reduced contrast. Evidence indicates that the oxidation suite migrates to the surface as halogen gases and volatile halide compounds. These elemental gases and compounds would tend to form under the acid/oxidizing conditions of the anode of an electrochemical cell. The low contrast base-metal anomalies coinciding with oxidation-suite anomalies may result from the gradual migration of cations away from these anodes along electrochemical gradients. Less commonly, enzyme-soluble Au and enzyme-soluble Hg will be found in the area of these anomalies. Metallic Au and Hg are not soluble in the enzyme leach. These low-level Au and Hg anomalies often appear to form as a result of the oxidation of these elements in the soil by the subtle flux of oxidizing gases passing through the soil. Oxidation anomalies often form an asymmetrical halo or partial halo around the buried reduced body, and that body underlies part of the central low within that halo. The trace element suite in oxidation anomalies, although often enriched in many types of metal deposits, is not typically representative of the composition of the buried reduced body. For example, essentially the same suite of elements forms halos around petroleum reservoirs as is found around porphyry copper deposits, epithermal gold deposits, buried geothermal systems, and barren pyritic bodies. Sometimes, the low contrast base metal association in the halo can be somewhat indicative of the composition of the source. Oxidation anomalies can form above reduced bodies that are covered by either overburden or barren rock. The depth of detection for oxidation anomalies is often too great for the mineralized body to be of economic interest. In arid climates, anomaly-to-background ratios for the oxidation suite commonly range between 5:1 to 50:1, and sometimes anomaly contrast exceeds 100-times background. Oxidation anomalies tend to have more subdued contrasts in humid climates.

Apical anomalies detected with the Enzyme Leach occur directly over the source of the anomaly rather than forming a halo around the source. Often these anomalies appear to form as the result of diffusion of trace elements away from a highly concentrated source. That source can be the actual source of the anomalous trace elements, or it can be a structure such as a fault that facilitates the movement of trace elements to the surface. Simple apical anomalies that lie directly over a buried mineral deposit will not show dramatic halogen contrast, as is typically found with oxidation anomalies. A fault-related anomaly will occur almost directly over the subcrop of the fault. The suite of trace elements represented in the anomaly will often be indicative of the chemical composition of the ultimate source of those trace elements. However, where a deeply buried reduced body is intersected by a fault, an oxidation suite of elements, including one or more halogens, can form an extremely-high-contrast anomaly directly over the trace of the buried fault. Otherwise, apical anomalies usually exhibit a diminished contrast above background, compared to oxidation anomalies. Fault-related anomalies commonly contain very-high-contrast concentrations of zirconium and other supposedly "immobile" elements.

Sample Collection

Although the Enzyme Leach can be used as a partial-analysis method for virtually any surficial geological material, the sample media most commonly analyzed with this method is *B*-horizon soils. Research to date indicates that amorphous MnO_2 in soils is most abundant in the *B* horizon.

This horizon is the most chemically active part of the soil, with regard to the formation of oxide coatings on mineral grains. Studies in both arid and humid climates indicate that the sampler should be careful to collect soil samples from the *B* horizon.

The following information is based on observations from studies in glacially-buried terrain in northern Minnesota and Canada, desert pediments in Nevada, areas of extensive overburden in South America, test sites in the Colorado Front Range, and over oil fields in western Wyoming and southeastern Texas. Soil horizons vary in appearance and depth, even within relatively small areas. It should be emphasized that the samplers should be collecting material from a consistent soil horizon, rather than a consistent depth. Samplers should be encouraged to expose the soil profile whenever they encounter soil zoning that varies from previous observations. Before beginning, it is a good idea to observe soils profiles in ditches and trenches in and near the area to be sampled. The best potential sample sites are those that appear to be undisturbed and that have mature vegetation growing on and around the site. Samples collected from trenches and pit cuts are also good, as long as a fresh surface is scraped on the face of the soil profile to be sure that you are collecting freshly exposed material. Ditch banks, on the side away from infrequently used roads, under most circumstances can also be good sample sites, after scraping the bank to expose fresh material. The sampler should observe the conditions at such sites and make a judgement about the potential for contamination or of excessive disturbance. Road fill (new or old) is not usable sample material. Also, roads are often contaminated with a variety of pollutants that can linger for centuries. Plowed fields can provide usable samples, if an undisturbed site is not available. It is better to move a sample site a relatively short distance rather than to use a bad site just because it is at the specified spot.

Desert-Pediment Soils. There is an adage to the effect that desert soils are not zoned (azonal). In many cases this is not true. The appearance of the horizons is different from soils in humid climates, but they are still frequently zoned. The current surface on many desert pediments is more than one million years old, which is more than sufficient time for soil horizons to develop. Relatively little organic matter is found in *A*-horizon soils in desert climates. The *A* horizon is typically a light-gray to light-grayish-tan, loose, fine sand to silt. Descending through the soil profile, the *B* horizon begins where the soil is more cemented and slightly darker in color, often becoming slightly more brown than the overlying loose material. The brown color often becomes darker farther down into the *B* horizon, but in other cases, the color difference between the *A* and *B* horizons is almost imperceptible. Where the color changes are minimal, a key criteria is that the cementing of the grains in the *B* horizon often produces a weak blocky fracture that is absent in the *A* horizon. In areas that have a history of previous mining activity, the upper centimeter of the *A* horizon can be highly contaminated with many trace elements. Rarer elements, such as gold, can be enriched by as much as 10- to 100-times background. The *A* horizon should be scraped from the area around the spot to be sampled for a radius large enough to prevent this contaminated material from trickling into the sample material. In areas of extreme aridity, such as the Atacama desert of South America, the sampler often will not find soil horizons. At most locations in that region the best level to sample is 25 cm to 40 cm beneath the surface. All the Enzyme Leach studies performed to date have used *B*-horizon soils collected above the caliche layer. Do not sample from the caliche layer or immediately beneath it. Caliche will produce extremely erratic Enzyme Leach data. Where caliche comes too close to the surface to collect a sample, move the sample site a short distance or abandon it. In the Atacama desert a reddish layer will often be encountered just above the caliche layer. This reddish color results from selenite that has formed in the soil. The presence of granular selenite in the soil does not detract from the results.

Humid Climate Soils. Sample sites with the best developed soil horizons are usually found in groves of trees. In northern climates, aspen groves are the best. The *A* horizon consists of an upper humus layer, a dark layer of mixed organic and mineral matter, and there may be a bleached mineral layer at the bottom. The bleached layer results from the reducing action of the overlying organic-rich layers, which dissolves oxide coatings on mineral grains. The top of the *B* horizon is the point below which there is no organic matter and where oxide coatings are found on mineral grains. Iron oxide coatings typically give *B*-horizon soils colors that are some shade of brown or red (dark brown, medium brown, light brown, brick red, tan, orange, etc.). Where the *A* horizon is quite thick, such as around bogs, there is often a faintly gray layer beneath the bleached layer of the *A* horizon. The faint gray color is due to manganese oxides, and this material is usable *B* horizon, if a darker colored *B*-horizon layer is not available. In a humid, forested area all the material comprising the *A* horizon of the soil (decaying leaf litter, humus, and organic-rich mineral layers) should be scraped away to reveal the *B* horizon. The sample is collected from 10 to 30 centimeters into the top of the *B* horizon. *A*-horizon contamination of *B*-horizon samples should be avoided as much as possible.

Mountain Soils and Glacially Scoured Terrain. Due to the rapid rate of mechanical weathering in mountainous areas, there are localities where the soil is truly azonal. Also, during Pleistocene glaciation, the regolith was completely removed in many areas and a chemically mature soil profile has not had sufficient time to redevelop. In such cases the sampler should dig deep enough to obtain soil material that is as free of organic matter as possible.

Sample Handling

Samples should consist of about 100 to 200 grams of material depending on the fineness of the soil. Coarser soils require more material to assure adequate sieved sample material for analysis. If at all possible, the sample should be air dried. If circumstances require the use of a drying oven, the temperature should not exceed 40°C, and the drying time should not be longer than is necessary to dry the sample. Too high a drying temperature alters the chemistry of the amorphous manganese dioxide coatings and drives out the volatile halogens and halide compounds. If in doubt, let the laboratory perform the sample preparation. They know which sieve sizes to use, and what steps must be followed to maintain the geochemical integrity of the sample material. Pulverized samples and samples that have been "cooked" are not suitable for analysis with the Enzyme Leach.

References

Clark, J.R., 1993. Enzyme-induced leaching of *B*-horizon soils for mineral exploration in areas of glacial overburden. Trans. Instn. Min. Metall. (Sect. B: Appl. earth sci.), 102: B19-B29.

APPENDIX 2

BIOGEOCHEMISTRY (11 pages)

DETECTION LIMITS

LISTING OF DATA FOR INDIVIDUAL SPECIES. ACT. LAB. RPT No. 7229 (8 pages)

ANALYTICAL PROCEDURES (1 page)

ANOMALOUS LEVELS AND MISCELLANEOUS NOTES (1 page)

ANALYTICAL PROCEDURES FOR VEGETATION SAMPLES AT ACTIVATION LABORATORIES LTD.

1336 SANDHILLS DRIVE, ANCASTER, ONTARIO, CANADA
L9G4V5 TEL. 416 648-9611, FAX 416-648-9613

The following procedures in quotes were provided by Eric Hoffman in a FAX dated August 3, 1990 and are believed to apply to samples up to and including REPORT 2694 in the APPENDIX. Subsequently, a Retsch mill, with 1 mm sieve, replaced the Wylie mill and the briquetting press was changed to Hertzog (Ref. FAX Dec. 20, 1991).

"Samples were dried at 90 degrees C. for 24 hours. Samples were macerated in a Wylie mill (specifically designed for vegetation). 30 grams of sample were weighed on a laboratory kimwipe and then placed in a Detiert Detroit briquetting press complete with kimwipe enclosing the sample. The sample was pressed using 15 tons of pressure to form a briquette approximately 2 1/8 inches in diameter and 0.5 inch thick. The samples were placed in stacks approximately 12 inches high with flux monitors at the top, middle and bottom of the stack. The stacks of samples were irradiated for 3 hours at a flux of about $5X10^{11}$ neutrons per centimeter square per second. After a decay of 6 to 7 days to allow the Na to decay the samples were counted on high resolution germanium detectors under computer automation for 500 seconds. Results were corrected for decay and compared to calibrations developed from multiple international and synthetic standards. All anomalous samples for Au and random other samples to make up about 40 % of the total number of samples were then recounted as part of our QA/QC program".

ACTLABS

ACTIVATION LABORATORIES LTD

Invoice No.: 7229
Work Order: 7313
Invoice Date: 25-NOV-94
Date Submitted: 11-NOV-94
Your Reference: LETTER
Account Number: 242

RAGNAR U. BRUASET & ASSOCIATES LTD
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BURNABY, BC
CANADA V5B 2P5

ATTN: RAGNAR BRUASET

CERTIFICATE OF ANALYSIS

INAA package, elements and detection limits:

AU	0.05	PPB	AG	0.3	PPM	AS	0.01	PPM	BA	5.	PPM
BR	0.01	PPM	CA	0.01	%	CO	0.1	PPM	CR	0.3	PPM
CS	0.05	PPM	FE	0.005	%	HF	0.05	PPM	HG	0.05	PPM
IR	0.1	PPB	K	0.001	%	MO	0.05	PPM	NA	0.5	PPM
NI	5.	PPM	RB	1.	PPM	SB	0.005	PPM	SC	0.01	PPM
SE	0.1	PPM	SR	10.	PPM	TA	0.05	PPM	TH	0.1	PPM
U	0.01	PPM	W	0.05	PPM	ZN	2.	PPM	LA	0.01	PPM
CE	0.1	PPM	ND	0.3	PPM	SM	0.001	PPM	EU	0.05	PPM
TB	0.1	PPM	YB	0.005	PPM	LU	0.001	PPM			

CERTIFIED BY :

per Ingrid Vergamuller
DR. ERIC L. HOFFMAN

Activation Laboratories Ltd. Work Order: 7313 Report: 7229

Douglas fir

Sample description	AU PPB	AG PPM	AS PPM	BA PPM	BR PPM	CA %	CO PPM	CR PPM	CS PPM	FE %	HF PPM	HG PPM	IR PPB	K %	MO PPM	NA PPM	NI PPM	RB PPM	SB PPM	SC PPM	SE PPM	SR PPM	TA PPM	TH PPM
G94-9B (DF)	1.09	<0.3	1.4	56	3.7	0.79	0.3	9.3	<0.05	0.092	<0.05	0.12	<0.1	0.204	0.51	90.2	<5	<1	0.051	0.10	<0.1	36	<0.05	<0.1
G94-10B (DF)	0.44	<0.3	1.0	170	7.5	1.11	0.4	3.0	0.07	0.073	0.07	0.20	<0.1	0.164	0.28	215	<5	<1	0.073	0.21	<0.1	60	<0.05	<0.1
G94-11B (DF)	0.32	<0.3	0.53	150	5.8	1.06	0.3	1.4	<0.05	0.039	0.05	0.15	<0.1	0.121	0.16	107	<5	<1	0.051	0.10	<0.1	50	<0.05	<0.1
G94-12B (DF)	0.30	<0.3	0.47	120	4.2	1.30	0.2	0.9	<0.05	0.024	<0.05	0.10	<0.1	0.132	0.13	83.9	<5	<1	0.032	0.07	<0.1	56	<0.05	<0.1
G94-14B (DF)	0.38	<0.3	1.1	150	6.7	1.08	0.5	1.8	0.11	0.070	0.06	0.16	<0.1	0.163	0.22	194	<5	1	0.064	0.25	0.1	46	<0.05	<0.1
G94-15B (DF)	0.30	<0.3	0.54	52	2.8	0.73	0.3	1.2	0.08	0.038	<0.05	0.07	<0.1	0.135	0.15	103	<5	<1	0.028	0.12	<0.1	40	<0.05	<0.1
G94-18B (DF)	0.22	<0.3	1.5	42	2.7	0.82	0.3	0.8	<0.05	0.026	<0.05	0.07	<0.1	0.151	0.20	101	<5	<1	0.038	0.08	<0.1	28	<0.05	<0.1
G94-21B (DF)	0.30	<0.3	1.6	39	6.3	0.56	0.2	0.7	0.12	0.024	<0.05	0.16	<0.1	0.203	0.19	94.0	<5	<1	0.038	0.08	<0.1	22	<0.05	<0.1
G94-23B (DF)	0.25	<0.3	1.2	55	2.9	0.70	0.7	3.1	0.13	0.132	0.09	0.08	<0.1	0.193	0.16	482	<5	2	0.045	0.44	<0.1	47	<0.05	<0.1
G94-24B (DF)	0.44	<0.3	1.3	63	6.3	0.87	0.3	1.5	<0.05	0.053	0.05	0.10	<0.1	0.186	0.23	240	<5	<1	0.040	0.17	<0.1	45	<0.05	<0.1
G94-25B (DF)	0.17	<0.3	0.73	46	5.7	0.69	0.2	0.9	<0.05	0.025	<0.05	0.14	<0.1	0.137	0.18	104	<5	<1	0.044	0.08	<0.1	29	<0.05	<0.1
G94-27B (DF)	0.32	<0.3	0.87	60	5.9	0.75	0.2	0.7	<0.05	0.019	<0.05	0.15	<0.1	0.120	0.14	82.5	<5	1	0.041	0.06	<0.1	24	<0.05	<0.1
G94-33B (DF)	0.20	<0.3	0.79	65	5.9	0.72	0.2	0.7	<0.05	0.022	<0.05	0.15	<0.1	0.133	0.29	107	<5	<1	0.032	0.07	<0.1	41	<0.05	<0.1
G94-34B (DF)	0.11	<0.3	1.3	96	6.0	1.10	0.2	0.6	<0.05	0.017	<0.05	0.16	<0.1	0.125	0.28	76.0	<5	<1	0.034	0.05	<0.1	42	<0.05	<0.1
G94-35B (DF)	0.46	<0.3	1.2	51	5.4	0.63	0.2	0.7	<0.05	0.018	<0.05	0.13	<0.1	0.176	0.32	83.1	<5	<1	0.035	0.05	<0.1	36	<0.05	<0.1
G94-36B (DF)	0.21	<0.3	1.9	82	3.2	0.80	0.2	0.7	<0.05	0.020	<0.05	0.10	<0.1	0.125	0.16	79.3	<5	<1	0.033	0.06	<0.1	37	<0.05	<0.1
G94-37B (DF)	0.25	<0.3	2.2	76	6.2	0.97	0.3	1.4	0.07	0.055	<0.05	0.16	<0.1	0.131	0.25	195	<5	<1	0.095	0.18	<0.1	53	<0.05	0.1
G94-38B (DF)	0.38	<0.3	1.4	48	4.1	0.76	0.2	0.9	<0.05	0.029	<0.05	0.10	<0.1	0.150	0.15	109	<5	<1	0.053	0.08	<0.1	35	<0.05	<0.1
G94-41B (DF)	0.16	<0.3	0.93	79	3.8	0.62	0.2	1.0	<0.05	0.032	<0.05	0.13	<0.1	0.142	0.33	134	<5	<1	0.039	0.10	<0.1	27	<0.05	<0.1
G94-42B (DF)	0.21	<0.3	0.87	75	4.8	0.79	0.2	0.8	<0.05	0.024	<0.05	0.07	<0.1	0.191	0.25	108	<5	<1	0.030	0.07	<0.1	23	<0.05	<0.1
G94-47B (DF)	0.19	<0.3	0.73	120	6.9	0.78	0.2	1.0	<0.05	0.026	<0.05	0.20	<0.1	0.131	0.46	121	<5	<1	0.046	0.08	<0.1	36	<0.05	<0.1
G94-50B (DF)	0.30	<0.3	1.0	130	4.6	0.85	0.2	1.1	<0.05	0.037	0.05	0.13	<0.1	0.148	0.38	152	<5	<1	0.051	0.12	<0.1	31	<0.05	<0.1
G94-51B (DF)	0.26	<0.3	1.4	89	5.1	0.77	0.3	1.0	<0.05	0.032	<0.05	0.12	<0.1	0.163	0.20	135	<5	<1	0.049	0.10	<0.1	42	<0.05	<0.1
G94-54B (DF)	0.16	<0.3	0.65	64	3.9	0.57	0.1	0.6	<0.05	0.019	<0.05	0.12	<0.1	0.136	0.45	96.7	<5	<1	0.022	0.06	<0.1	23	<0.05	<0.1
G94-56B (DF)	0.16	<0.3	0.21	71	0.95	0.46	0.1	0.6	<0.05	0.021	<0.05	0.05	<0.1	0.071	0.18	93.5	<5	<1	0.015	0.06	<0.1	17	<0.05	<0.1
G94-57B (DF)	0.23	<0.3	0.53	150	4.6	0.90	0.2	1.0	<0.05	0.030	0.05	0.15	<0.1	0.120	0.13	120	<5	<1	0.039	0.10	<0.1	34	<0.05	<0.1
G94-58B (DF)	0.22	<0.3	0.80	140	3.7	0.90	0.2	0.5	<0.05	0.013	<0.05	0.09	<0.1	0.155	0.14	53.0	<5	<1	0.020	0.04	<0.1	47	<0.05	<0.1
G94-59B (DF)	0.17	<0.3	0.46	100	3.3	0.74	0.2	0.8	<0.05	0.027	<0.05	0.14	<0.1	0.108	0.16	102	<5	<1	0.032	0.09	<0.1	34	<0.05	<0.1
G94-60B (DF)	0.49	<0.3	1.3	57	8.2	0.86	0.4	1.7	0.15	0.062	<0.05	0.24	<0.1	0.126	0.20	172	<5	1	0.064	0.27	0.1	63	<0.05	<0.1
G94-62B (DF)	0.50	<0.3	0.60	160	5.3	1.04	0.3	1.4	<0.05	0.045	0.06	0.18	<0.1	0.153	0.24	166	<5	<1	0.049	0.16	<0.1	46	<0.05	<0.1
G94-63B (DF)	0.26	<0.3	0.54	130	5.6	0.93	0.3	1.1	<0.05	0.034	0.05	0.16	<0.1	0.128	0.22	132	<5	<1	0.046	0.11	<0.1	47	<0.05	<0.1
G94-64B (DF)	0.30	<0.3	0.34	120	3.7	0.92	0.2	0.8	<0.05	0.024	<0.05	0.12	<0.1	0.118	0.14	93.2	<5	<1	0.032	0.08	<0.1	55	<0.05	<0.1
G94-65B (DF)	0.36	<0.3	0.49	96	6.1	0.98	0.3	1.1	<0.05	0.038	0.05	0.21	<0.1	0.134	0.20	134	<5	<1	0.059	0.12	<0.1	58	<0.05	<0.1
G94-75B (DF)	0.27	<0.3	0.53	97	4.5	0.88	0.2	0.9	<0.05	0.027	<0.05	0.12	<0.1	0.132	0.20	107	<5	<1	0.037	0.08	<0.1	35	<0.05	<0.1
G94-76B (DF)	0.21	<0.3	0.81	130	5.6	0.91	0.2	1.1	<0.05	0.038	0.05	0.16	<0.1	0.122	0.22	141	<5	<1	0.054	0.13	<0.1	39	<0.05	<0.1
G94-77B (DF)	0.18	<0.3	0.41	140	4.0	0.77	0.2	1.0	<0.05	0.029	0.05	0.15	<0.1	0.120	0.15	103	<5	<1	0.040	0.09	<0.1	31	<0.05	<0.1
G94-78B (DF)	0.29	<0.3	0.94	90	6.4	0.92	0.2	0.8	<0.05	0.025	<0.05	0.19	<0.1	0.144	0.10	90.3	<5	<1	0.045	0.08	<0.1	29	<0.05	<0.1
G94-84B (DF)	0.16	<0.3	0.46	74	1.8	0.86	0.1	0.4	<0.05	0.014	<0.05	0.08	<0.1	0.131	0.09	53.8	<5	<1	0.016	0.04	<0.1	30	<0.05	<0.1
G94-91B (DF)	0.29	<0.3	1.2	71	4.4	0.69	0.2	0.6	<0.05	0.019	<0.05	0.09	<0.1	0.194	0.10	71.8	<5	<1	0.031	0.06	<0.1	31	<0.05	<0.1
G94-92B (DF)	0.19	<0.3	0.90	73	4.2	0.97	0.3	1.2	<0.05	0.048	0.05	0.12	<0.1	0.170	0.28	167	<5	<1	0.053	0.15	<0.1	24	<0.05	<0.1
G94-93B (DF)	0.06	<0.3	0.32	31	1.6	0.71	0.1	0.6	<0.05	0.019	<0.05	0.06	<0.1	0.056	<0.05	56.3	<5	<1	0.024	0.07	<0.1	34	<0.05	<0.1
G94-98B (DF)	0.14	<0.3	0.34	93	3.0	0.83	0.1	0.6	<0.05	0.019	<0.05	0.10	<0.1	0.135	0.12	71.1	<5	<1	0.024	0.06	<0.1	34	<0.05	<0.1
G94-99B (DF)	0.40	<0.3	0.68	120	6.3	1.29	0.3	0.8	<0.05	0.031	<0.05	0.15	<0.1	0.155	0.11	99.7	<5	<1	0.040	0.10	<0.1	58	<0.05	<0.1
G94-101B (DF)	0.20	<0.3	0.77	120	4.9	0.96	0.2	0.6	<0.05	0.024	<0.05	0.15	<0.1	0.126	0.13	85.9	<5	<1	0.036	0.08	<0.1	40	<0.05	<0.1
G94-102B (DF)	0.18	<0.3	0.39	89	3.2	0.75	0.1	0.6	<0.05	0.017	<0.05	0.09	<0.1	0.123	0.16	61.6	<5	<1	0.023	0.05	<0.1	36	<0.05	<0.1

Activation Laboratories Ltd. Work Order: 7313 Report: 7229

Sample description	U PPM	W PPM	ZN PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	Mass g
G94-9B (DF)	<0.01	0.10	38	0.21	0.3	<0.3	0.026	<0.05	<0.1	0.012	0.002	30.55
G94-10B (DF)	<0.01	<0.05	53	0.37	0.5	<0.3	0.052	<0.05	<0.1	0.029	0.005	30.63
G94-11B (DF)	<0.01	<0.05	37	0.22	0.3	<0.3	0.030	<0.05	<0.1	0.014	0.003	30.27
G94-12B (DF)	<0.01	<0.05	30	0.16	0.2	<0.3	0.021	<0.05	<0.1	0.008	0.002	30.75
G94-14B (DF)	<0.01	<0.05	42	0.38	0.5	<0.3	0.056	<0.05	<0.1	0.026	0.005	30.13
G94-15B (DF)	<0.01	<0.05	23	0.19	0.3	<0.3	0.031	<0.05	<0.1	0.015	0.003	30.61
G94-18B (DF)	<0.01	<0.05	22	0.15	0.2	<0.3	0.021	<0.05	<0.1	0.012	0.002	30.58
G94-21B (DF)	<0.01	<0.05	22	0.13	0.2	<0.3	0.018	<0.05	<0.1	0.009	0.002	30.55
G94-23B (DF)	<0.01	<0.05	24	0.51	0.6	0.3	0.078	<0.05	<0.1	0.045	0.008	30.11
G94-24B (DF)	<0.01	<0.05	25	0.27	0.4	<0.3	0.040	<0.05	<0.1	0.020	0.003	30.42
G94-25B (DF)	<0.01	<0.05	22	0.15	0.2	<0.3	0.021	<0.05	<0.1	0.010	0.002	30.55
G94-27B (DF)	<0.01	<0.05	22	0.13	0.2	<0.3	0.017	<0.05	<0.1	0.008	0.002	30.53
G94-33B (DF)	<0.01	<0.05	19	0.15	0.2	<0.3	0.020	<0.05	<0.1	0.009	0.002	30.89
G94-34B (DF)	<0.01	<0.05	22	0.12	0.2	<0.3	0.017	<0.05	<0.1	0.006	0.001	30.39
G94-35B (DF)	<0.01	<0.05	30	0.12	0.2	<0.3	0.018	<0.05	<0.1	0.008	0.001	30.45
G94-36B (DF)	<0.01	<0.05	26	0.14	0.2	<0.3	0.019	<0.05	<0.1	0.008	0.002	30.55
G94-37B (DF)	<0.01	<0.05	35	0.36	0.5	<0.3	0.051	<0.05	<0.1	0.025	0.004	30.78
G94-38B (DF)	<0.01	<0.05	25	0.19	0.3	<0.3	0.028	<0.05	<0.1	0.014	0.002	30.17
G94-41B (DF)	<0.01	<0.05	26	0.20	0.3	<0.3	0.030	<0.05	<0.1	0.014	0.003	30.13
G94-42B (DF)	<0.01	<0.05	23	0.17	0.2	<0.3	0.023	<0.05	<0.1	0.010	0.002	30.28
G94-47B (DF)	<0.01	<0.05	29	0.19	0.2	<0.3	0.026	<0.05	<0.1	0.012	0.003	30.42
G94-50B (DF)	<0.01	<0.05	26	0.27	0.4	<0.3	0.038	<0.05	<0.1	0.020	0.003	30.53
G94-51B (DF)	<0.01	<0.05	37	0.22	0.3	<0.3	0.031	<0.05	<0.1	0.016	0.003	30.22
G94-54B (DF)	<0.01	<0.05	19	0.12	0.2	<0.3	0.017	<0.05	<0.1	0.009	0.001	30.83
G94-56B (DF)	<0.01	<0.05	15	0.12	0.2	<0.3	0.016	<0.05	<0.1	0.009	0.002	30.92
G94-57B (DF)	<0.01	<0.05	30	0.22	0.3	<0.3	0.030	<0.05	<0.1	0.014	0.003	30.28
G94-58B (DF)	<0.01	<0.05	31	0.09	0.1	<0.3	0.012	<0.05	<0.1	0.005	0.001	30.23
G94-59B (DF)	<0.01	<0.05	24	0.17	0.3	<0.3	0.025	<0.05	<0.1	0.012	0.002	30.16
G94-60B (DF)	<0.01	<0.05	31	0.29	0.4	<0.3	0.048	<0.05	<0.1	0.026	0.005	30.69
G94-62B (DF)	<0.01	<0.05	44	0.31	0.4	<0.3	0.043	<0.05	<0.1	0.021	0.004	30.52
G94-63B (DF)	<0.01	<0.05	50	0.24	0.3	<0.3	0.033	<0.05	<0.1	0.016	0.003	30.43
G94-64B (DF)	<0.01	<0.05	24	0.18	0.2	<0.3	0.025	<0.05	<0.1	0.014	0.002	30.53
G94-65B (DF)	<0.01	<0.05	40	0.28	0.4	0.5	0.039	<0.05	<0.1	0.019	0.003	30.16
G94-75B (DF)	<0.01	<0.05	30	0.19	0.3	<0.3	0.026	<0.05	<0.1	0.013	0.002	30.61
G94-76B (DF)	<0.01	<0.05	38	0.27	0.4	<0.3	0.037	<0.05	<0.1	0.017	0.004	30.58
G94-77B (DF)	<0.01	<0.05	30	0.20	0.3	<0.3	0.027	<0.05	<0.1	0.013	0.002	30.27
G94-78B (DF)	<0.01	<0.05	25	0.17	0.2	<0.3	0.024	<0.05	<0.1	0.013	0.002	30.40
G94-84B (DF)	<0.01	<0.05	27	0.09	<0.1	<0.3	0.012	<0.05	<0.1	0.006	0.001	30.90
G94-91B (DF)	<0.01	<0.05	30	0.13	0.2	<0.3	0.018	<0.05	<0.1	0.009	0.002	30.84
G94-92B (DF)	<0.01	<0.05	32	0.30	0.4	<0.3	0.043	<0.05	<0.1	0.023	0.003	30.26
G94-93B (DF)	<0.01	<0.05	15	0.11	0.1	<0.3	0.015	<0.05	<0.1	0.008	0.001	30.54
G94-98B (DF)	<0.01	<0.05	28	0.12	0.2	<0.3	0.017	<0.05	<0.1	0.009	0.002	30.47
G94-99B (DF)	<0.01	<0.05	34	0.19	0.3	<0.3	0.029	<0.05	<0.1	0.014	0.002	30.39
G94-101B (DF)	<0.01	<0.05	36	0.16	0.2	<0.3	0.023	<0.05	<0.1	0.012	0.002	30.34
G94-102B (DF)	<0.01	<0.05	24	0.11	0.2	<0.3	0.015	<0.05	<0.1	0.008	0.001	30.44

Activation Laboratories Ltd. Work Order: 7313 Report: 7229

Sample description	AU PPB	AG PPM	AS PPM	BA PPM	BR PPM	CA %	CO PPM	CR PPM	CS PPM	FE %	HF PPM	HG PPM	IR PPB	K %	MO PPM	NA PPM	NI PPM	RB PPM	SB PPM	SC PPM	SE PPM	SR PPM	TA PPM	TH PPM
G94-103B (DF)	0.21	<0.3	0.37	64	2.2	0.55	0.1	0.5	<0.05	0.018	<0.05	0.08	<0.1	0.061	0.13	67.3	<5	<1	0.019	0.06	<0.1	36	<0.05	<0.1
G94-106B (DF)	0.50	<0.3	0.46	100	4.6	0.87	0.2	0.6	<0.05	0.024	<0.05	0.15	<0.1	<0.002	0.14	86.3	<5	<1	0.038	0.08	<0.1	41	<0.05	<0.1
G94-107B (DF)	0.19	<0.3	0.68	98	5.2	0.96	0.3	0.9	<0.05	0.034	<0.05	0.12	<0.1	0.151	0.12	112	<5	<1	0.055	0.10	<0.1	36	<0.05	<0.1
G94-109B (DF)	0.16	<0.3	0.98	120	4.1	1.10	0.2	0.7	<0.05	0.019	<0.05	0.09	<0.1	0.189	0.10	72.3	<5	<1	0.028	0.06	<0.1	30	<0.05	<0.1
G94-110B (DF)	0.48	<0.3	1.3	52	4.5	0.69	0.6	5.7	0.12	0.120	0.06	0.19	<0.1	0.175	0.17	235	<5	2	0.059	0.74	<0.1	60	<0.05	<0.1
G94-112B (DF)	0.61	<0.3	0.78	59	6.4	0.93	0.3	1.2	0.05	0.036	<0.05	0.21	<0.1	0.174	0.13	119	<5	<1	0.053	0.14	<0.1	36	<0.05	<0.1
G94-113B (DF)	0.10	<0.3	0.66	140	6.6	0.94	0.2	0.8	<0.05	0.023	<0.05	0.22	<0.1	0.093	0.13	74.6	<5	<1	0.050	0.09	<0.1	30	<0.05	<0.1
G94-114B (DF)	0.16	<0.3	1.0	120	6.1	0.86	0.3	1.2	0.08	0.040	<0.05	0.25	<0.1	0.147	0.08	103	<5	<1	0.051	0.20	<0.1	22	<0.05	<0.1
G94-120B (DF)	0.23	<0.3	0.78	140	5.5	0.93	0.3	1.1	0.07	0.037	<0.05	0.15	<0.1	0.283	0.18	140	<5	<1	0.046	0.13	<0.1	50	<0.05	<0.1
G94-121B (DF)	0.27	<0.3	1.1	100	7.4	0.87	0.3	1.3	0.07	0.047	<0.05	0.21	<0.1	0.158	0.13	149	<5	<1	0.061	0.18	<0.1	32	<0.05	<0.1
G94-122B (DF)	0.83	<0.3	1.1	100	6.2	1.14	0.3	1.0	0.05	0.034	<0.05	0.20	<0.1	0.150	0.16	115	<5	<1	0.051	0.11	<0.1	30	<0.05	<0.1
G94-123B (DF)	0.13	<0.3	0.79	110	4.1	1.03	0.2	0.7	<0.05	0.022	<0.05	0.18	<0.1	0.105	0.09	86.2	<5	<1	0.032	0.08	<0.1	31	<0.05	<0.1
G94-125B (DF)	0.16	<0.3	1.4	100	3.9	1.11	0.2	0.8	0.07	0.026	<0.05	0.12	<0.1	0.158	0.12	92.8	<5	2	0.040	0.11	<0.1	36	<0.05	<0.1
G94-127B (DF)	0.15	<0.3	0.73	110	4.5	0.85	0.2	0.6	<0.05	0.019	<0.05	0.12	<0.1	0.157	0.05	83.0	<5	<1	0.023	0.08	<0.1	24	<0.05	<0.1
G94-131B (DF)	0.10	<0.3	0.39	150	4.7	0.86	0.2	0.9	0.05	0.030	<0.05	0.14	<0.1	0.130	0.17	110	<5	<1	0.042	0.13	<0.1	29	<0.05	<0.1
G94-210B (DF)	0.16	<0.3	0.55	70	5.1	0.67	0.2	0.8	<0.05	0.018	<0.05	0.11	<0.1	0.265	0.20	82.9	<5	2	0.024	0.07	<0.1	35	<0.05	<0.1
G94-211B (DF)	0.15	<0.3	1.2	82	8.0	0.63	0.3	0.8	<0.05	0.021	<0.05	0.18	<0.1	0.235	0.20	95.1	<5	1	0.035	0.10	<0.1	30	<0.05	<0.1
G94-212B (DF)	0.23	<0.3	0.45	39	3.3	0.68	0.1	0.5	<0.05	0.013	<0.05	0.08	<0.1	0.127	0.10	83.4	<5	<1	0.022	0.05	<0.1	20	<0.05	<0.1
G94-233B (DF)	0.19	<0.3	2.7	54	4.1	0.63	0.2	0.8	0.09	0.030	<0.05	0.08	<0.1	0.313	0.14	121	<5	1	0.028	0.11	<0.1	61	<0.05	<0.1

Activation Laboratories Ltd.   Work Order: 7313   Report: 7229

Sample description	U PPM	W PPM	ZN PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	Mass g
G94-103B (DF)	<0.01	<0.05	17	0.11	0.2	<0.3	0.015	<0.05	<0.1	0.008	0.001	30.53
G94-106B (DF)	<0.01	<0.05	31	0.16	0.2	<0.3	0.023	<0.05	<0.1	0.012	0.002	30.36
G94-107B (DF)	<0.01	<0.05	36	0.24	0.3	<0.3	0.034	<0.05	<0.1	0.015	0.003	30.29
G94-109B (DF)	<0.01	<0.05	23	0.13	0.2	<0.3	0.018	<0.05	<0.1	0.010	0.002	30.35
G94-110B (DF)	<0.01	<0.05	24	0.43	0.6	0.4	0.070	<0.05	<0.1	0.041	0.007	30.29
G94-112B (DF)	<0.01	<0.05	32	0.20	0.3	<0.3	0.029	<0.05	<0.1	0.015	0.003	30.20
G94-113B (DF)	<0.01	<0.05	30	0.15	0.2	<0.3	0.021	<0.05	<0.1	0.009	0.002	30.23
G94-114B (DF)	<0.01	<0.05	26	0.19	0.3	<0.3	0.029	<0.05	<0.1	0.015	0.003	30.72
G94-120B (DF)	<0.01	<0.05	49	0.21	0.3	<0.3	0.031	<0.05	<0.1	0.016	0.003	30.22
G94-121B (DF)	<0.01	<0.05	29	0.27	0.4	<0.3	0.041	<0.05	<0.1	0.020	0.004	30.90
G94-122B (DF)	<0.01	<0.05	34	0.22	0.3	<0.3	0.031	<0.05	<0.1	0.017	0.003	30.29
G94-123B (DF)	<0.01	<0.05	25	0.15	0.2	<0.3	0.021	<0.05	<0.1	0.011	0.002	30.25
G94-125B (DF)	0.01	<0.05	28	0.17	0.2	<0.3	0.030	<0.05	<0.1	0.012	<0.001	30.36
G94-127B (DF)	<0.01	<0.05	29	0.11	0.1	<0.3	0.020	<0.05	<0.1	0.007	<0.001	30.09
G94-131B (DF)	<0.01	<0.05	33	0.20	0.2	<0.3	0.033	<0.05	<0.1	0.014	<0.001	30.77
G94-210B (DF)	<0.01	<0.05	21	0.11	0.2	0.4	0.019	<0.05	<0.1	0.008	<0.001	30.18
G94-211B (DF)	<0.01	<0.05	25	0.12	0.2	<0.3	0.022	<0.05	<0.1	0.008	<0.001	30.65
G94-212B (DF)	<0.01	<0.05	22	0.10	0.1	<0.3	0.017	<0.05	<0.1	0.007	<0.001	30.37
G94-233B (DF)	<0.01	<0.05	18	0.13	0.2	<0.3	0.025	<0.05	<0.1	0.012	<0.001	30.66

Activation Laboratories Ltd.   Work Order: 7313   Report: 7229B

Poplar

Sample description	AU PPB	AG PPM	AS PPM	BA PPM	BR PPM	CA %	CO PPM	CR PPM	CS PPM	FE %	HF PPM	HG PPM	IR PPB	K %	MO PPM	NA PPM	NI PPM	RB PPM	SB PPM	SC PPM	SE PPM	SR PPM	TA PPM	TH PPM
G94-17B (P)	0.15	<0.3	0.18	54	1.7	1.63	0.3	0.7	0.35	0.016	<0.05	<0.05	<0.1	0.317	0.10	69.4	<5	2	0.020	0.06	<0.1	73	<0.05	<0.1
G94-19B (P)	0.14	<0.3	0.09	85	1.5	1.98	0.3	0.7	<0.05	0.015	<0.05	<0.05	<0.1	0.268	0.09	60.5	<5	<1	0.011	0.06	<0.1	120	<0.05	<0.1
G94-39B (P)	0.09	<0.3	0.07	42	1.4	1.60	0.3	0.5	0.10	0.009	<0.05	<0.05	<0.1	0.259	0.29	40.3	<5	2	0.008	0.03	<0.1	68	<0.05	<0.1
G94-74B (P)	0.13	<0.3	0.07	120	1.1	1.41	0.2	0.6	<0.05	0.011	<0.05	<0.05	<0.1	0.371	0.10	55.5	<5	1	0.010	0.04	<0.1	92	<0.05	<0.1
G94-83B (P)	0.09	<0.3	0.11	240	2.9	2.38	0.3	0.4	0.05	0.010	<0.05	<0.05	<0.1	0.317	0.07	43.5	<5	2	0.010	0.04	<0.1	250	<0.05	<0.1
G94-85B (P)	0.08	<0.3	0.08	78	1.8	2.27	0.2	0.5	<0.05	0.010	<0.05	<0.05	<0.1	0.274	0.09	43.7	<5	1	0.021	0.04	<0.1	140	<0.05	<0.1
G94-87B (P)	0.17	<0.3	0.07	94	2.0	2.04	0.2	0.5	0.25	0.011	<0.05	<0.05	<0.1	0.262	0.07	46.5	<5	1	0.011	0.04	<0.1	84	<0.05	<0.1
G94-90B (P)	0.13	<0.3	0.07	120	1.8	2.28	0.3	0.5	<0.05	0.012	<0.05	<0.05	<0.1	0.267	0.11	55.2	<5	<1	0.007	0.04	<0.1	100	<0.05	<0.1
G94-95B (P)	0.10	<0.3	0.07	76	2.4	2.11	0.5	0.5	<0.05	0.009	<0.05	<0.05	<0.1	0.140	0.08	38.9	<5	<1	0.009	0.03	<0.1	190	<0.05	<0.1
G94-100B (P)	0.14	<0.3	0.19	90	3.6	2.24	0.5	1.4	<0.05	0.043	<0.05	0.05	<0.1	0.244	0.18	152	<5	1	0.028	0.16	<0.1	110	<0.05	<0.1
G94-105B (P)	0.10	<0.3	0.09	56	1.5	1.39	0.2	0.4	<0.05	0.011	<0.05	<0.05	<0.1	0.419	0.10	46.1	<5	2	0.009	0.04	<0.1	74	<0.05	<0.1
G94-119B (P)	0.09	<0.3	0.04	100	1.5	1.52	0.2	0.4	<0.05	0.009	<0.05	<0.05	<0.1	0.330	0.06	38.3	<5	1	0.007	0.03	<0.1	68	<0.05	<0.1
G94-133B (P)	0.06	<0.3	0.10	140	1.9	2.14	0.2	0.5	0.10	0.011	<0.05	<0.05	<0.1	0.323	0.06	38.1	<5	<1	0.011	0.03	<0.1	120	<0.05	<0.1

Activation Laboratories Ltd. Work Order: 7313 Report: 7229B

Sample description	U PPM	W PPM	ZN PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	Mass g
G94-17B (P)	<0.01	<0.05	120	0.11	0.1	<0.3	0.018	<0.05	<0.1	0.008	<0.001	30.29
G94-19B (P)	<0.01	<0.05	140	0.09	<0.1	<0.3	0.016	<0.05	<0.1	0.007	<0.001	30.26
G94-39B (P)	<0.01	<0.05	120	0.06	<0.1	<0.3	0.009	<0.05	<0.1	<0.005	<0.001	30.44
G94-74B (P)	<0.01	<0.05	94	0.08	0.1	<0.3	0.013	<0.05	<0.1	0.006	<0.001	30.82
G94-83B (P)	<0.01	<0.05	110	0.08	<0.1	<0.3	0.012	<0.05	<0.1	0.006	<0.001	30.79
G94-85B (P)	<0.01	<0.05	82	0.07	<0.1	<0.3	0.012	<0.05	<0.1	<0.005	<0.001	30.57
G94-87B (P)	<0.01	<0.05	110	0.07	<0.1	<0.3	0.011	<0.05	<0.1	<0.005	<0.001	30.37
G94-90B (P)	<0.01	<0.05	180	0.07	<0.1	<0.3	0.012	<0.05	<0.1	0.007	<0.001	30.24
G94-95B (P)	<0.01	<0.05	130	0.06	<0.1	<0.3	0.009	<0.05	<0.1	0.006	<0.001	30.70
G94-100B (P)	<0.01	<0.05	170	0.25	0.3	<0.3	0.043	<0.05	<0.1	0.019	<0.001	30.28
G94-105B (P)	<0.01	<0.05	81	0.07	<0.1	<0.3	0.011	<0.05	<0.1	0.005	<0.001	30.85
G94-119B (P)	<0.01	<0.05	140	0.06	<0.1	<0.3	0.008	<0.05	<0.1	<0.005	<0.001	30.44
G94-133B (P)	<0.01	<0.05	140	0.07	0.1	<0.3	0.009	<0.05	<0.1	0.006	0.001	30.38

Activation Laboratories Ltd. Work Order: 7313 Report: 7229C

Lodgepole pine

Sample description	AU PPB	AG PPM	AS PPM	BA PPM	BR PPM	CA %	CO PPM	CR PPM	CS PPM	FE %	HF PPM	HG PPM	IR PPB	K %	MO PPM	NA PPM	NI PPM	RB PPM	SB PPM	SC PPM	SE PPM	SR PPM	TA PPM	TH PPM
G94-16 (J)	1.14	<0.3	0.52	17	4.9	0.89	0.4	1.5	0.08	0.053	<0.05	0.07	<0.1	0.169	0.12	174	<5	<1	0.036	0.18	<0.1	17	<0.05	<0.1
G94-86 (J)	2.25	<0.3	0.35	10	4.1	0.60	0.2	0.5	<0.05	0.019	<0.05	0.10	<0.1	0.168	0.09	81.0	<5	1	0.030	0.06	<0.1	13	<0.05	<0.1
G94-118 (J)	<0.05	<0.3	0.18	15	5.1	0.69	0.2	0.4	0.06	0.015	<0.05	0.13	<0.1	0.174	0.08	57.8	<5	1	0.029	0.04	<0.1	28	<0.05	<0.1
G94-130 (J)	<0.05	<0.3	0.23	36	4.4	1.12	0.3	0.9	<0.05	0.033	<0.05	0.13	<0.1	0.103	0.09	92.6	<5	<1	0.031	0.11	<0.1	28	<0.05	<0.1
G94-134 (J)	0.14	<0.3	0.23	15	4.0	0.59	0.2	0.8	<0.05	0.024	<0.05	0.10	<0.1	0.124	0.15	93.6	<5	<1	0.031	0.08	<0.1	19	<0.05	<0.1

Activation Laboratories Ltd.   Work Order: 7313   Report: 7229C

Sample description	U PPM	W PPM	ZN PPM	LA PPM	CE PPM	ND PPM	SM PPM	EU PPM	TB PPM	YB PPM	LU PPM	Mass g
G94-16 (J)	<0.01	<0.05	47	0.27	0.4	<0.3	0.046	<0.05	<0.1	0.023	0.004	30.45
G94-86 (J)	<0.01	<0.05	41	0.10	0.2	<0.3	0.017	<0.05	<0.1	0.006	0.002	30.20
G94-118 (J)	<0.01	<0.05	52	0.09	0.1	<0.3	0.014	<0.05	<0.1	0.008	<0.001	30.40
G94-130 (J)	<0.01	<0.05	47	0.17	0.3	<0.3	0.029	<0.05	<0.1	0.018	0.002	30.27
G94-134 (J)	<0.01	<0.05	38	0.16	0.3	<0.3	0.024	<0.05	<0.1	0.013	0.002	30.39

ANOMALOUS LEVELS AND MISCELLANEOUS NOTES (1 pages)

Anomalous levels in Douglas fir outer bark data were established by examining the patterns for each of the contoured elements. The resultant levels are listed below. It is readily apparent that the highest values for many of the elements cluster astride and along certain inferred structures. This multi-element clustering enhances the mineral potential of the targets because some of the elements involved are known gold associates.

There is a notable lack of comparative data on elemental concentrations in Douglas fir outer bark, unlike that for lodgepole pine (Dunn, 1991 Table 8). The author has a suite of about a dozen Douglas fir outer bark samples collected within a broad area of lodgepole pine growth. This data provides indications of anomalous levels, because a substantial portion of the data comes from sampling outer barks of Douglas fir and lodgepole pine growing on an overlapping resistivity high and chargeability anomaly coinciding with a geological anomaly having gold potential. This data also provides some indication, through calibration sampling, of the relative metal uptakes of Douglas fir and lodgepole pine. This data suggests that the gold concentration of Douglas fir and lodgepole pine outer bark should be approximately equal. Accordingly, one should be able to interpret mixed GOLD data for these two species PROVIDED the data is expressed as DRY WEIGHT i.e. actual elemental concentrations. All of the data presented in this report is in the form of dry weight values. Ash weight data can be converted to DRY WEIGHT EQUIVALENTS by dividing the ash weight values by the respective concentration factors of the species involved which are 100 for Douglas fir outer bark and 50 for lodgepole pine.

ELEMENT		ANOMALOUS LEVEL
ANTIMONY		>/0.040 PPM
ARSENIC		0.75 "
BARIUM		120 "
BROMINE		5.0 "
CALCIUM		0.90 %
CERIUM		0.4 PPM
CESIUM		0.1 "
CHROMIUM		1.0 "
COBALT		0.3 "
GOLD	.3 to .39 ppb: PROBABLE ANOMALOUS	0.4 PPB
IRON		0.045 %
MERCURY		0.1 PPM
MOLYBDENUM		0.15 "
SAMARIUM		0.040 "
SCANDIUM		0.1 "
SODIUM		100 "
STRONTIUM		40 "
ZINC		>/ 40 "

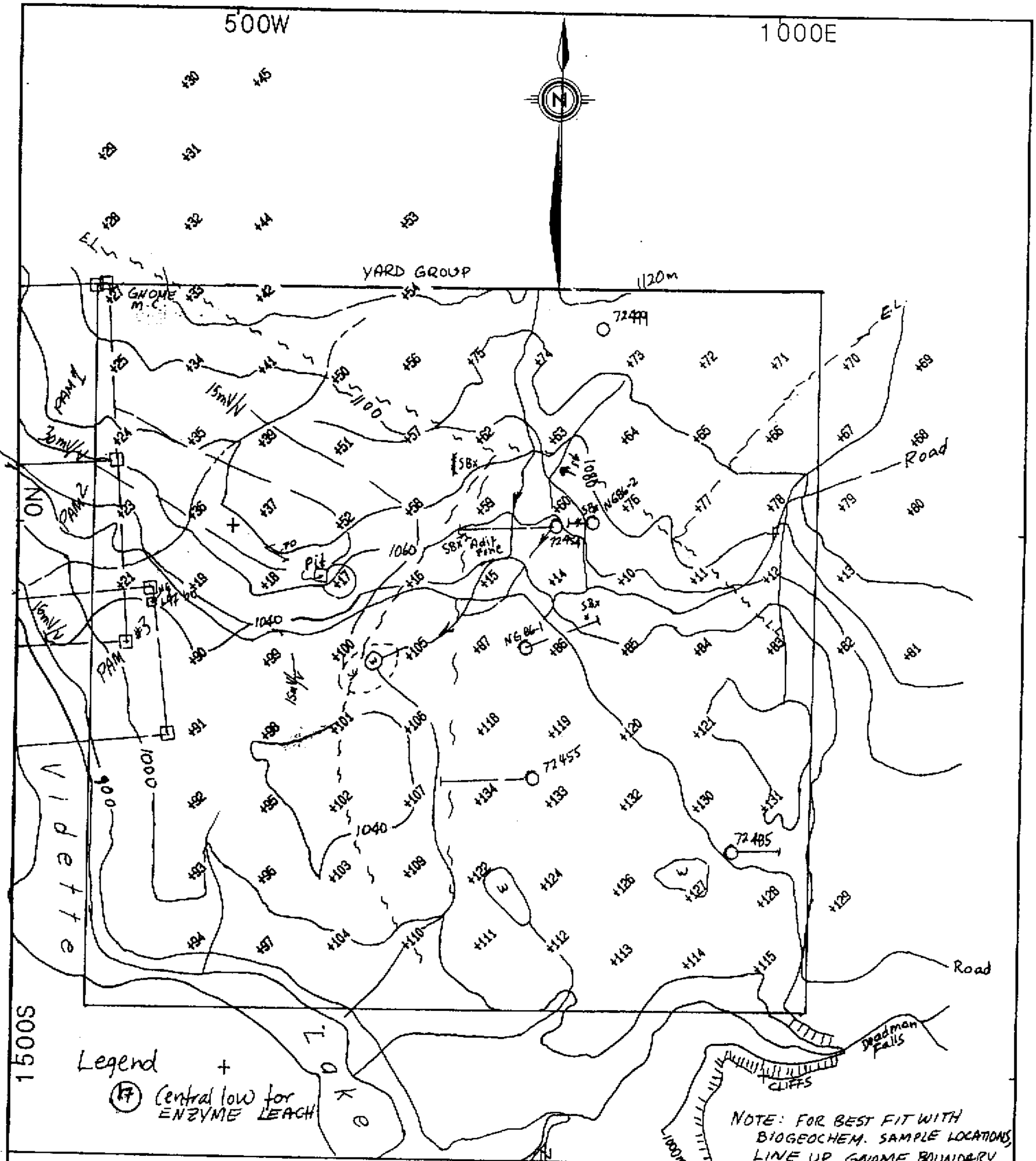
APPENDIX 3

ENZYME LEACH DATA (51 pages)

HAND CONTOURED PLOTS OF SELECT ELEMENTS

LIST OF DETECTION LIMITS. (note values <D.L. plotted as 0.5 D.L.)

PLATE		SCALE
1	SAMPLE LOCATIONS, CLAIMS, GEN. TOPOGRAPHY, ROAD	ALL
EL 2	ENZYME LEACH INTERPRETATION METHOD	AT
EL 3c	ANTIMONY	1:15,000
EL 4c	ARSENIC	
EL 5c	BARIUM	
EL 6c	BROMINE	
EL 7c	CADMIUM	
EL 8c	CERIUM	
EL 9c	CESIUM	
EL 10c	CHLORINE	
EL 11c	COBALT	
EL 12c	COPPER	
EL 13c	DYSPROSIUM	
EL 14c	ERBIUM	
EL 15c	EUROPIUM	
EL 16c	GADOLINIUM	
EL 17c	GALLIUM	
EL 18c	GERMANIUM	
EL 19c	GOLD	
EL 20c	HAFNIUM	
EL 21c	HOLMIUM	
EL 22c	IODINE	
EL 23c	LANTHANUM	
EL 24c	LEAD	
EL 25c	LITHIUM	
EL 26c	MANGANESE	
EL 27c	MOLYBDENUM	
EL 28c	NEODYMIUM	
EL 29c	NICKEL	
EL 30c	NIOBIUM	
EL 31c	PALLADIUM	
EL 32c	PRASEODYMIUM	
EL 33c	RHENIUM	
EL 34c	RUBIDIUM	
EL 35c	SAMARIUM	
EL 36c	SILVER	
EL 37c	STRONTIUM	
EL 38c	TELLURIUM	
EL 39c	TERBIUM	
EL 40c	THORIUM	
EL 41c	THULIUM	
EL 42c	TIN	
EL 43c	TITANIUM	
EL 44c	TUNGSTEN	
EL 45c	URANIUM	
EL 46c	VANADIUM	
EL 47c	YTTERBIUM	
EL 48C	YTTRIUM	
EL 49c	ZINC	
EL 50c	ZIRCONIUM	



Meters
150 75 0 150 300

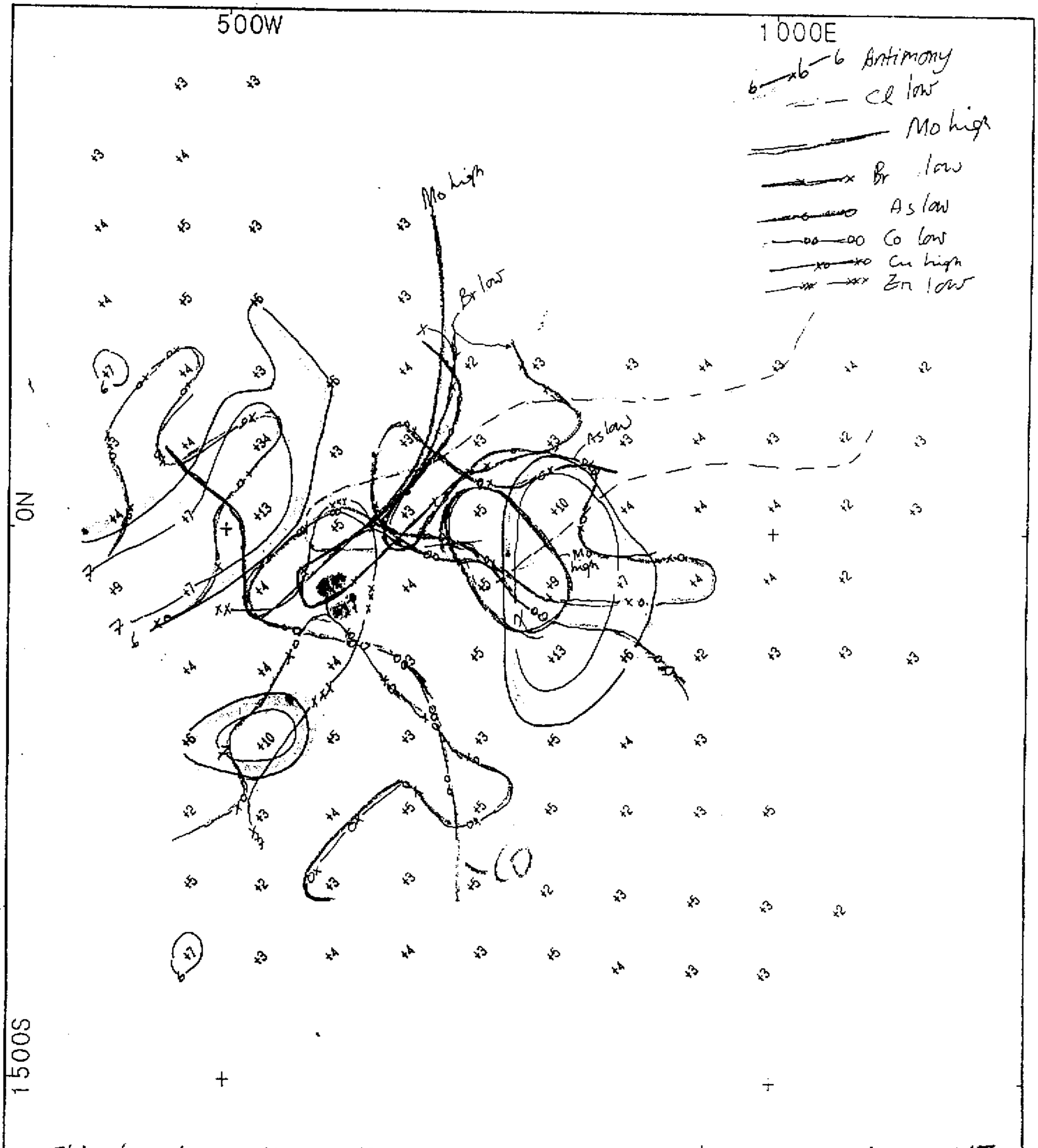
Sample Locations

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. E.L.1

Ragnar U. Bruaset & Associates Ltd.



This plan shows outlines of highs and central lows used by Dr. Clark to derive #17

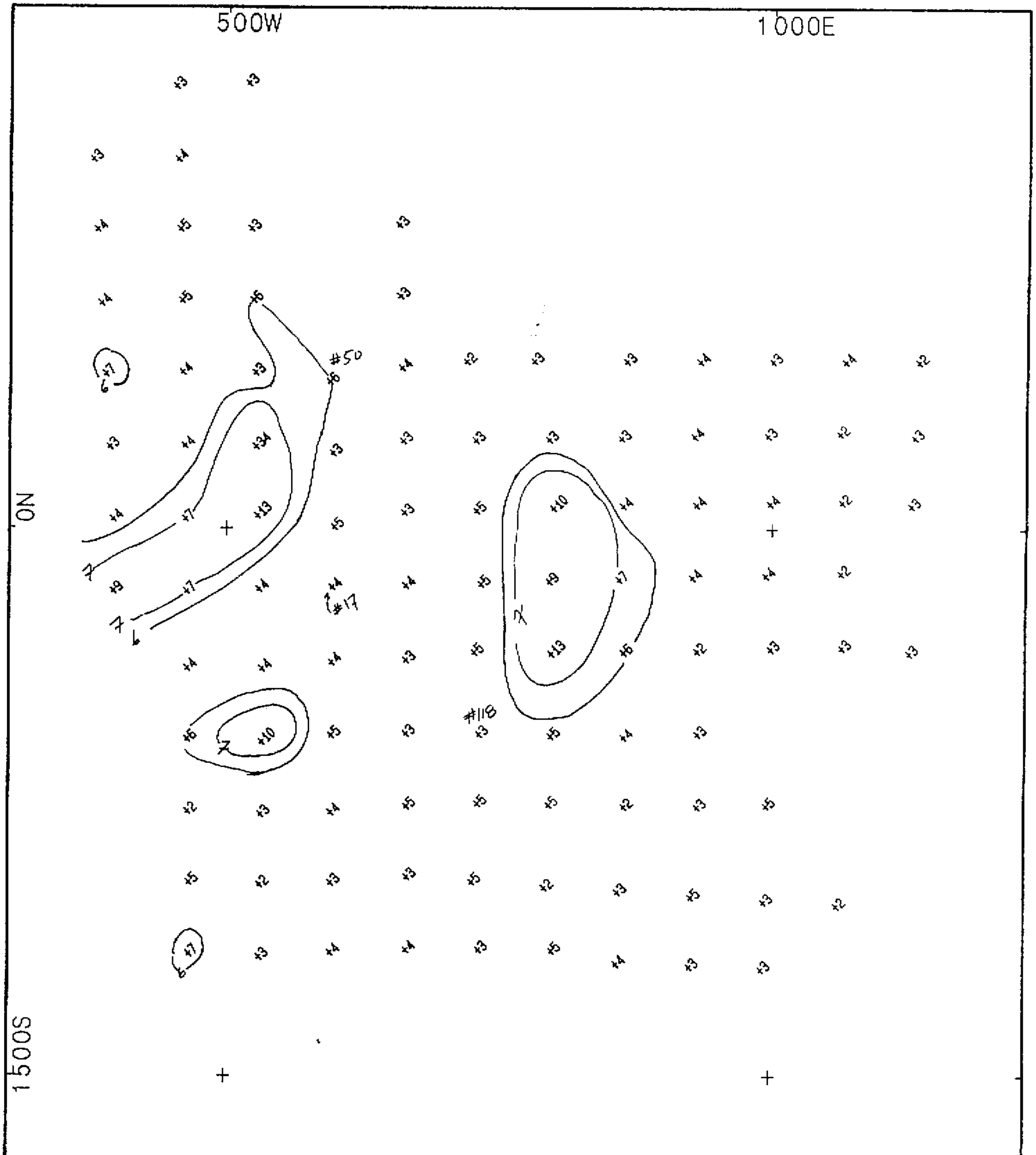
Antimony (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT.XLS	Fig. No. E.L.2

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

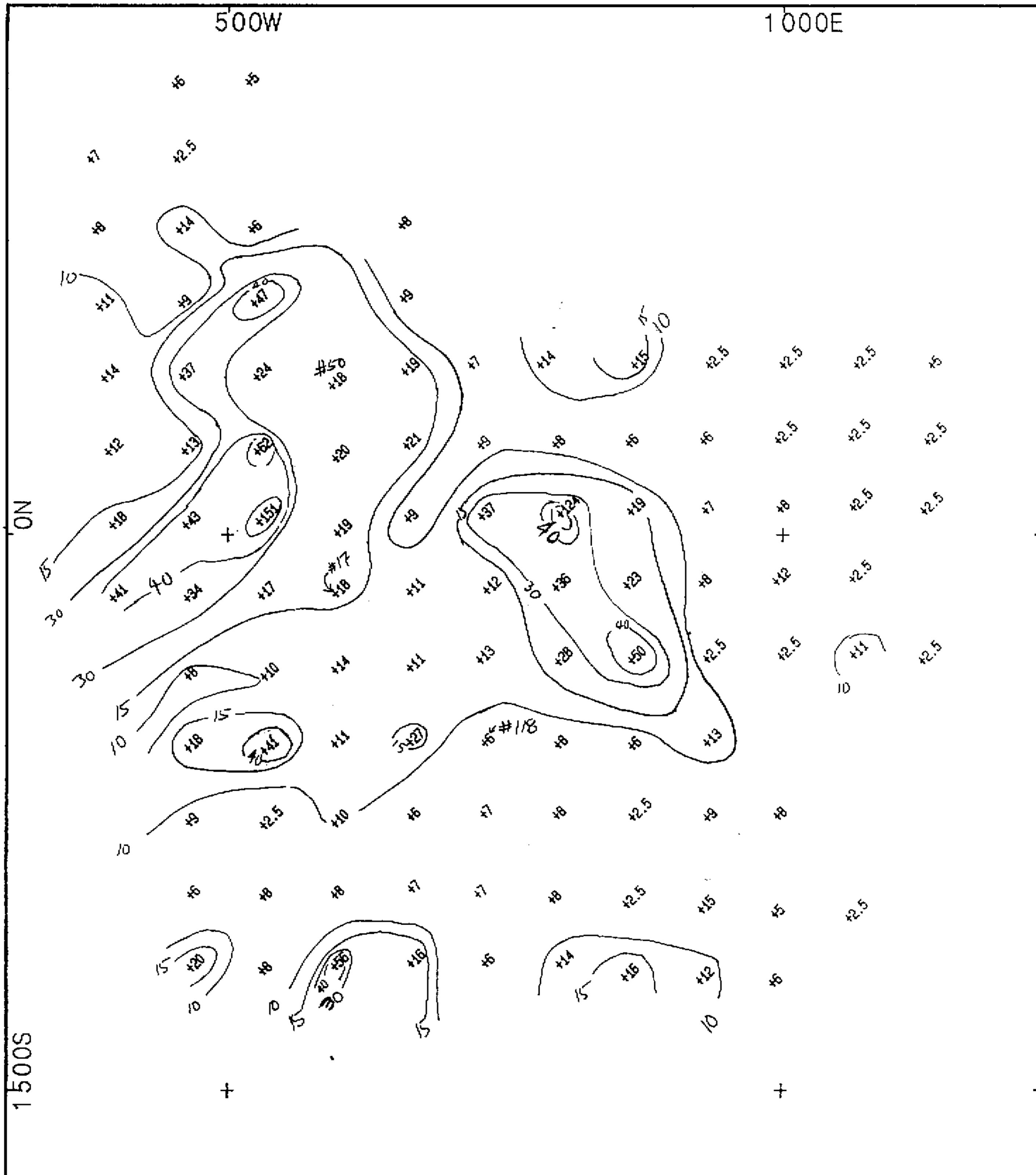
Antimony	(ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 3c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

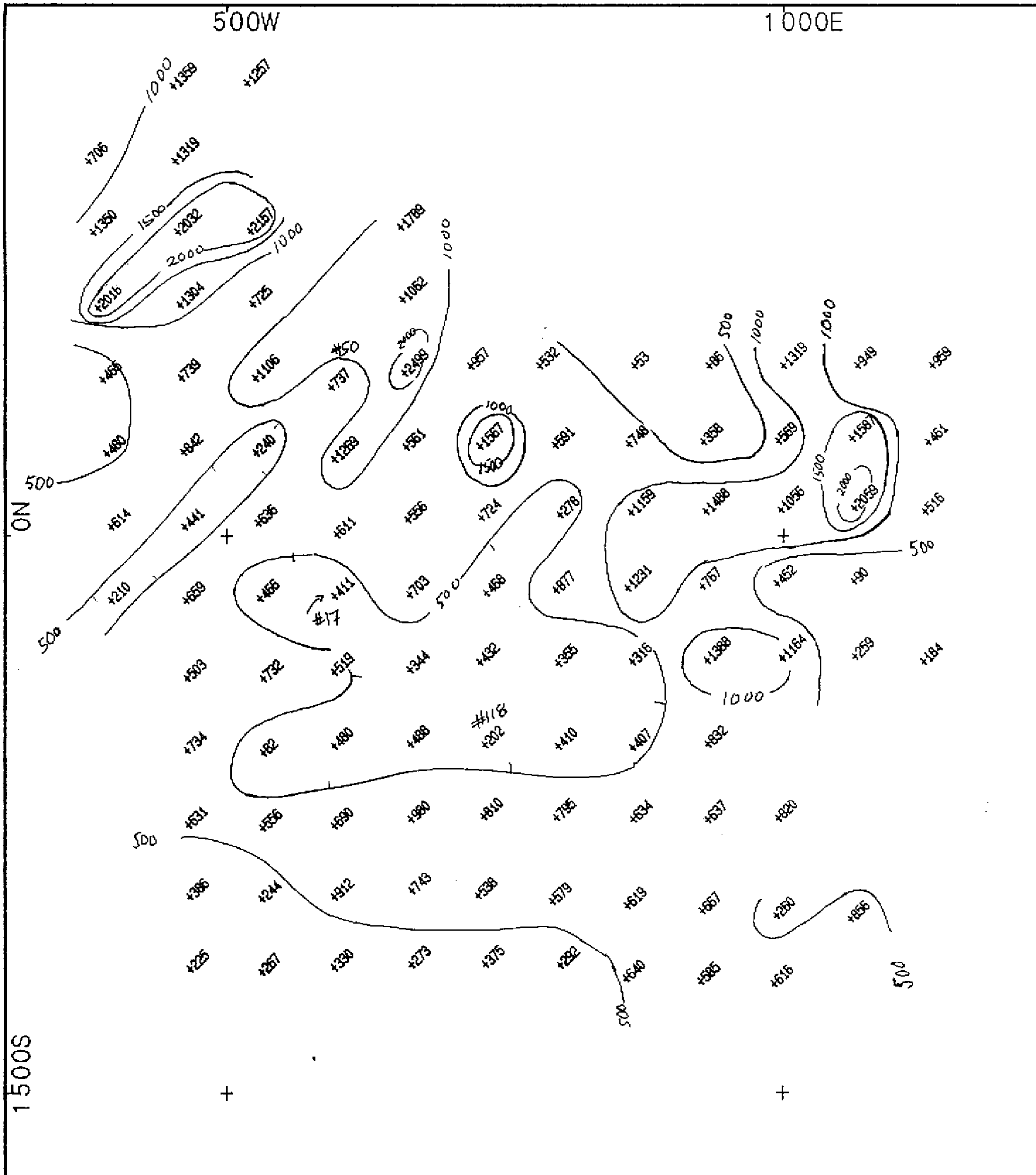
Arsenic (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 4c

Ragnar U. Bruaset & Associates Ltd.

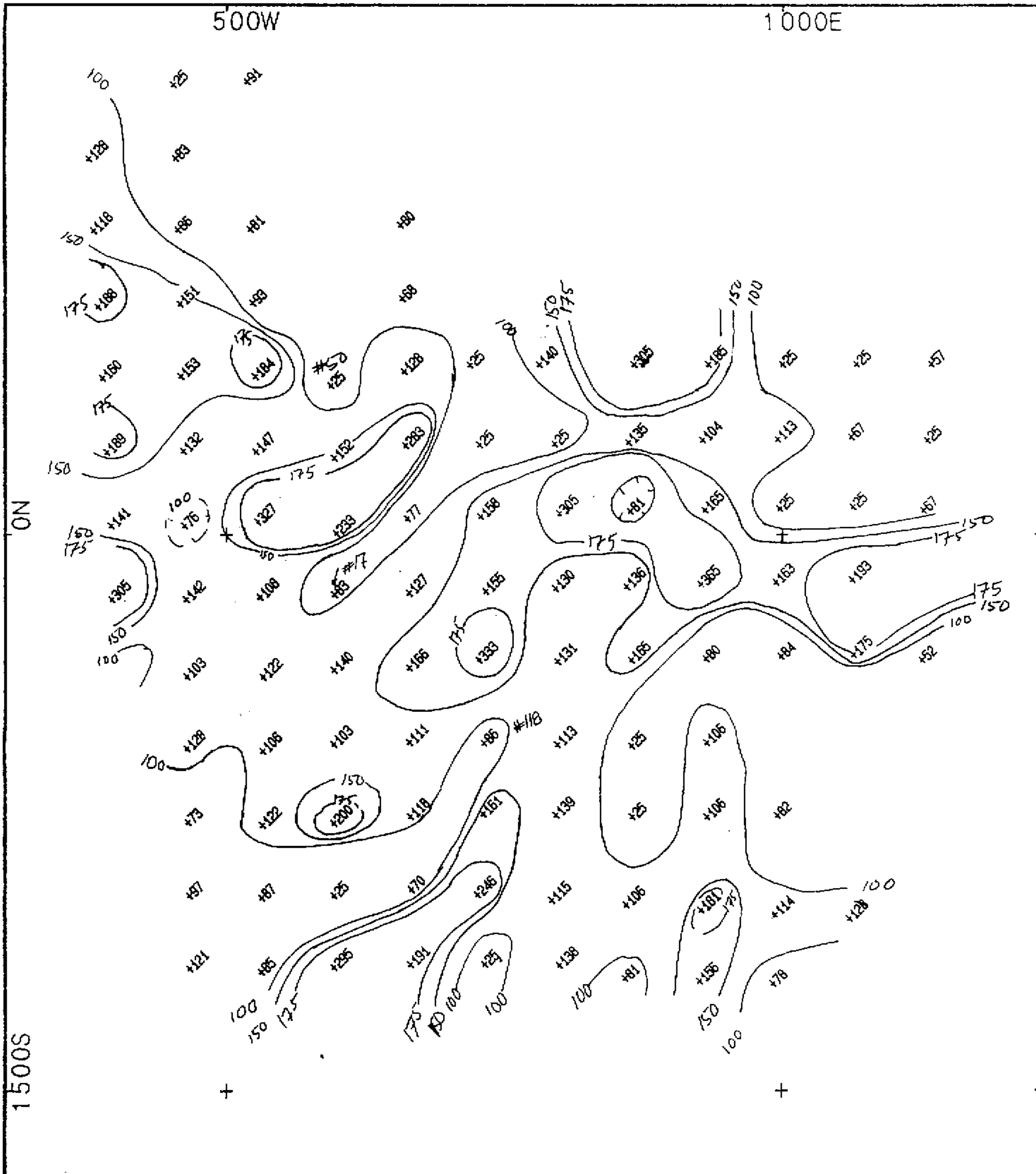


Meters

150 75 0 150 300

Barium (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL5c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

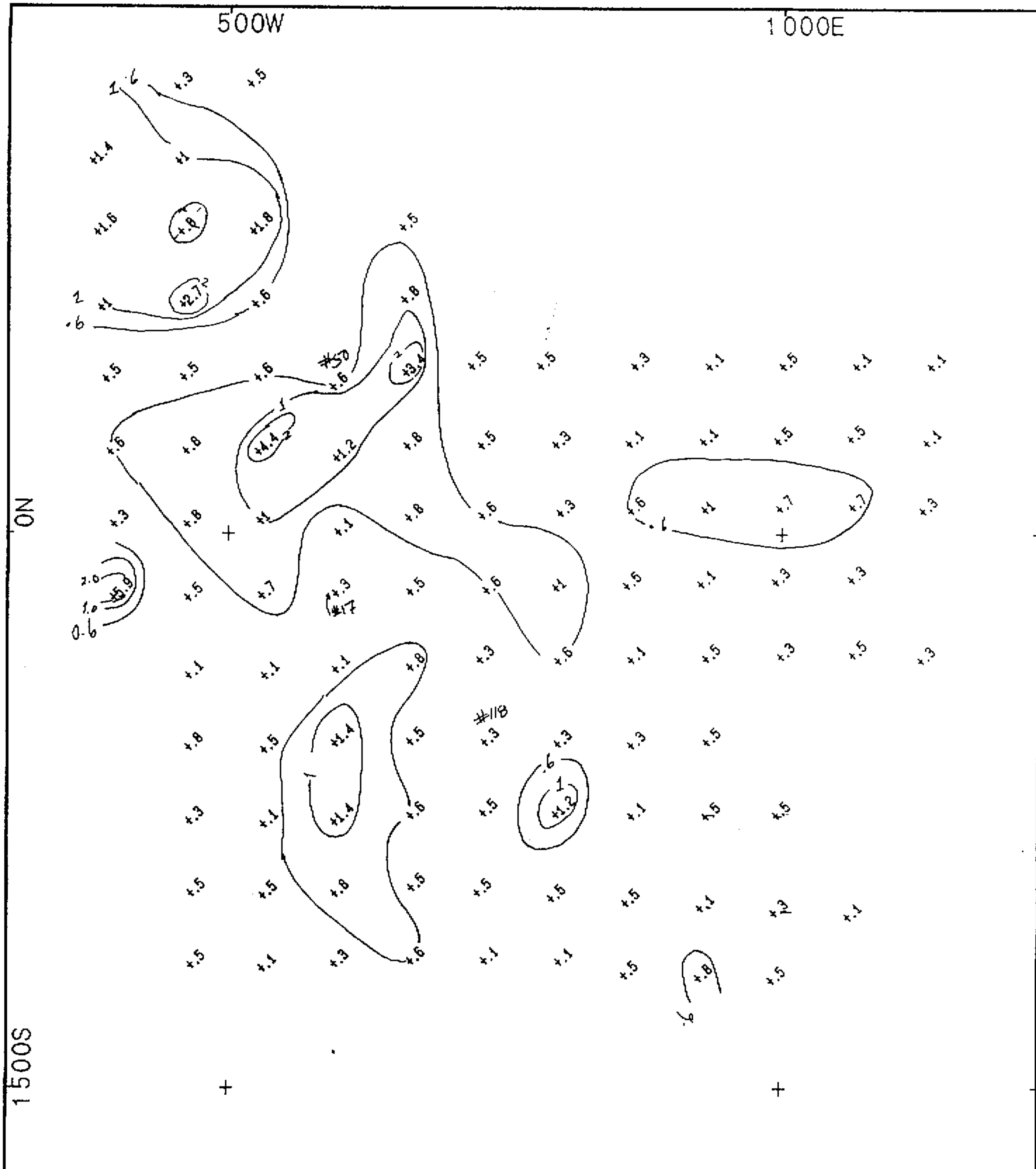
Bromine (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS	Scale
	92P/2	1:15000
Date	Report No.	Fig. No.
October 1994	1217RPT. XLS	EL 6c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

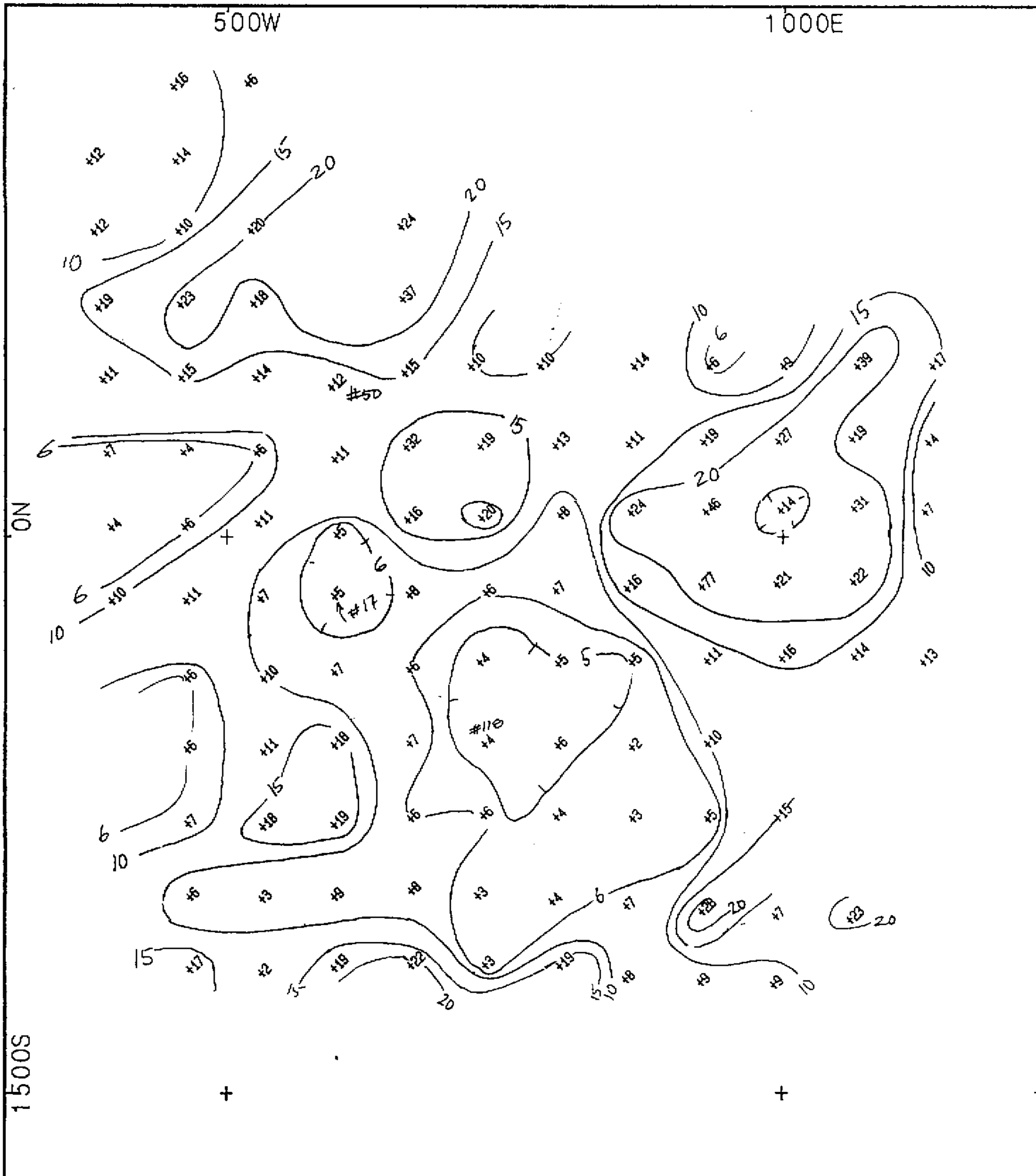
Cadmium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 7c

Ragnar U. Bruaset & Associates Ltd.



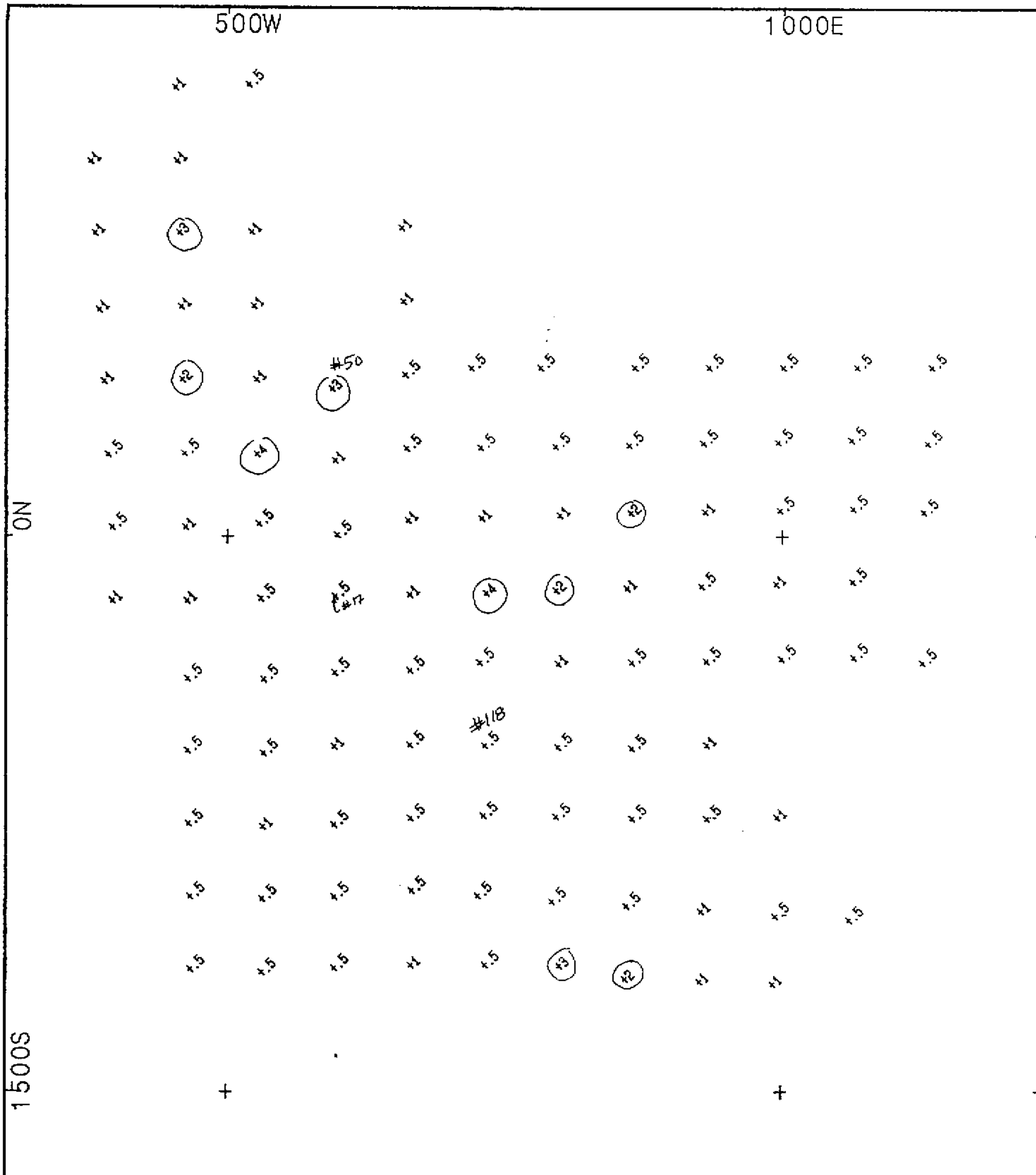
REE Cerium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL8c

Ragnar U. Bruaset & Associates Ltd.



Meters: 150 75 0 150 300

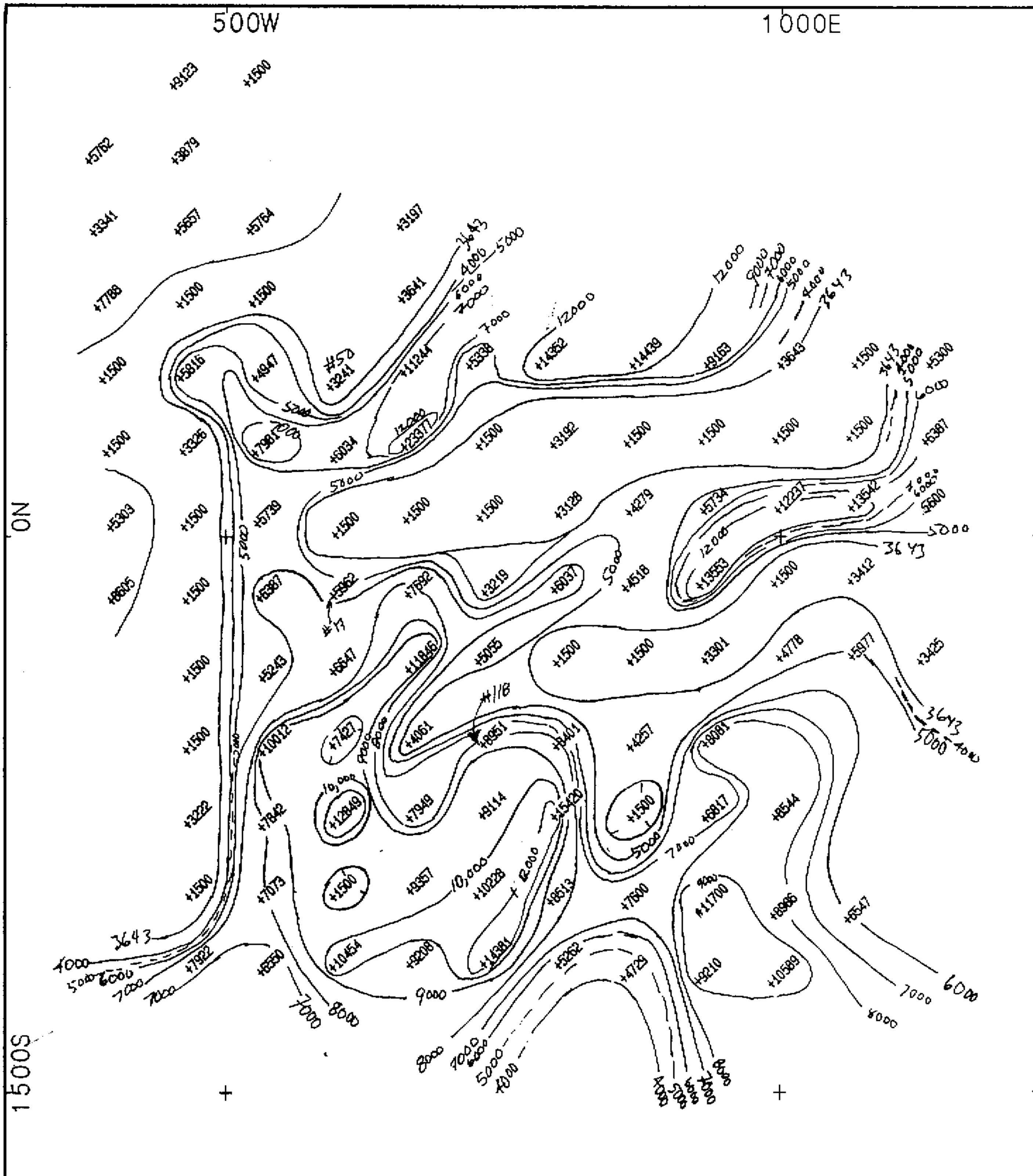
Ragnar U. Bruaset & Associates Ltd.

Cesium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 9c



Meters
150 75 0 150 300

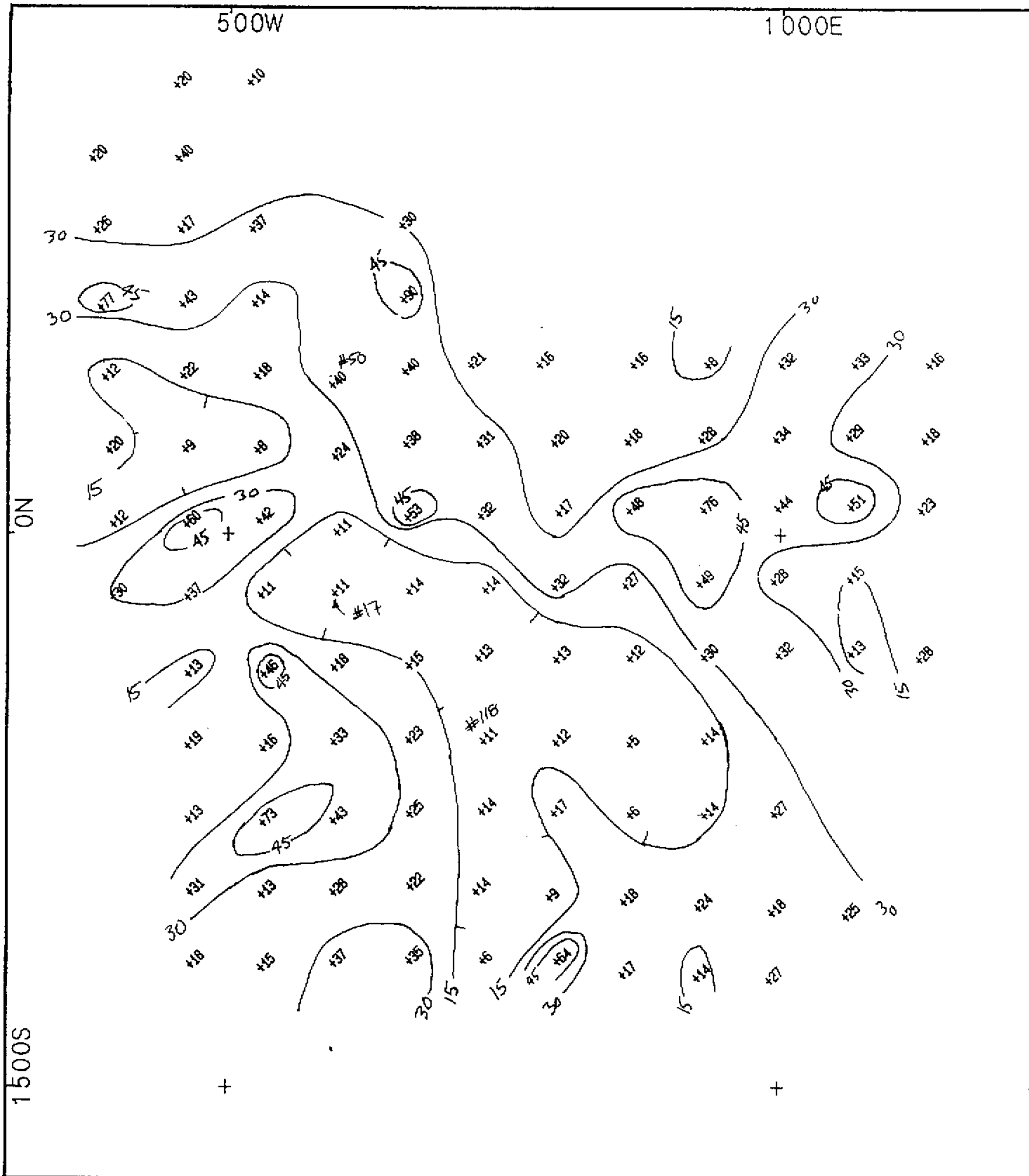
Ragnar U. Bruaset & Associates Ltd.

Chlorine (ppb)

Gnome Project

Enzyme Leach

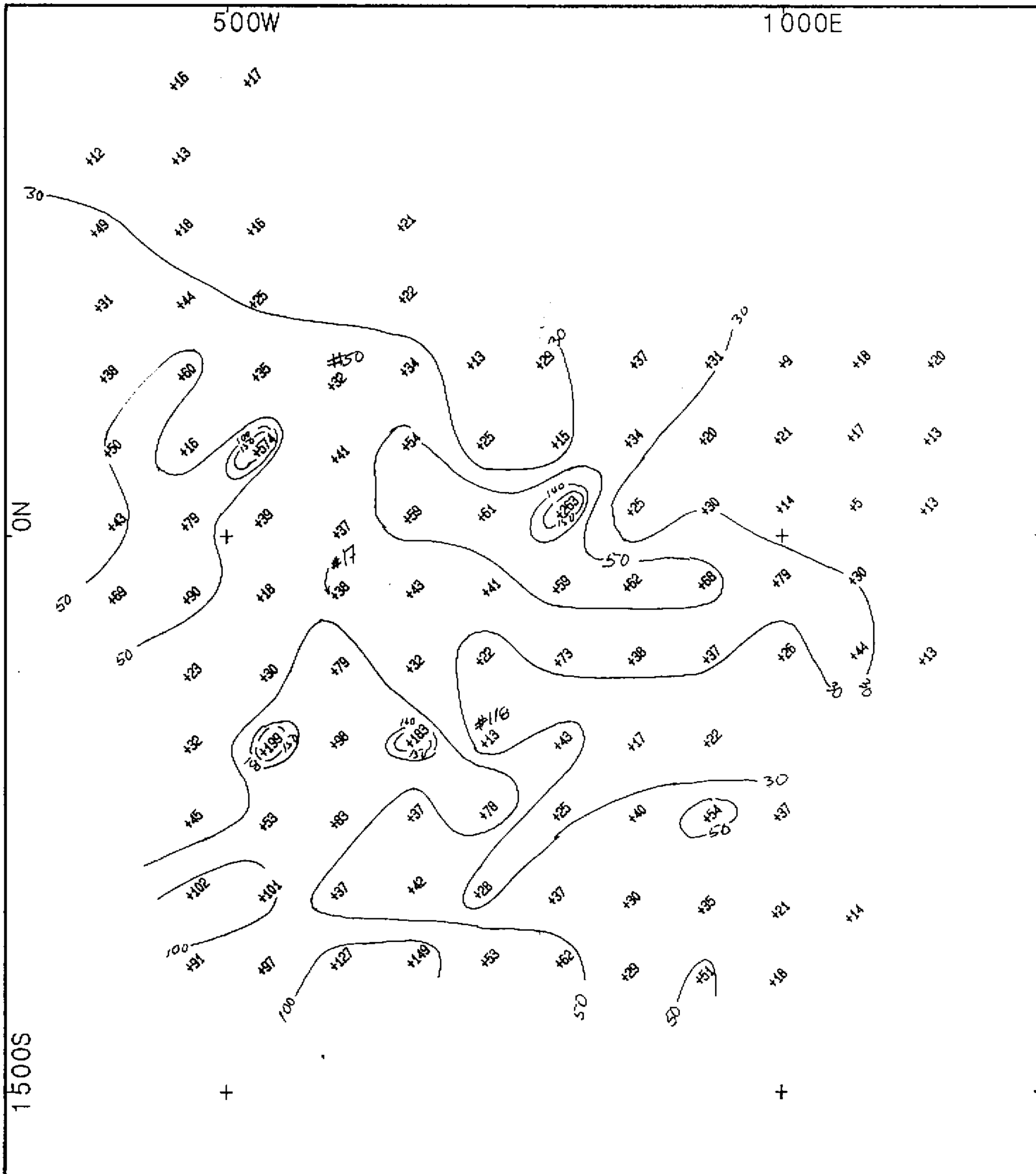
Project No.	NTS	Scale
	92P/2	1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL10₁₀



Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Cobalt (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL11c



Meters
150 75 0 150 300

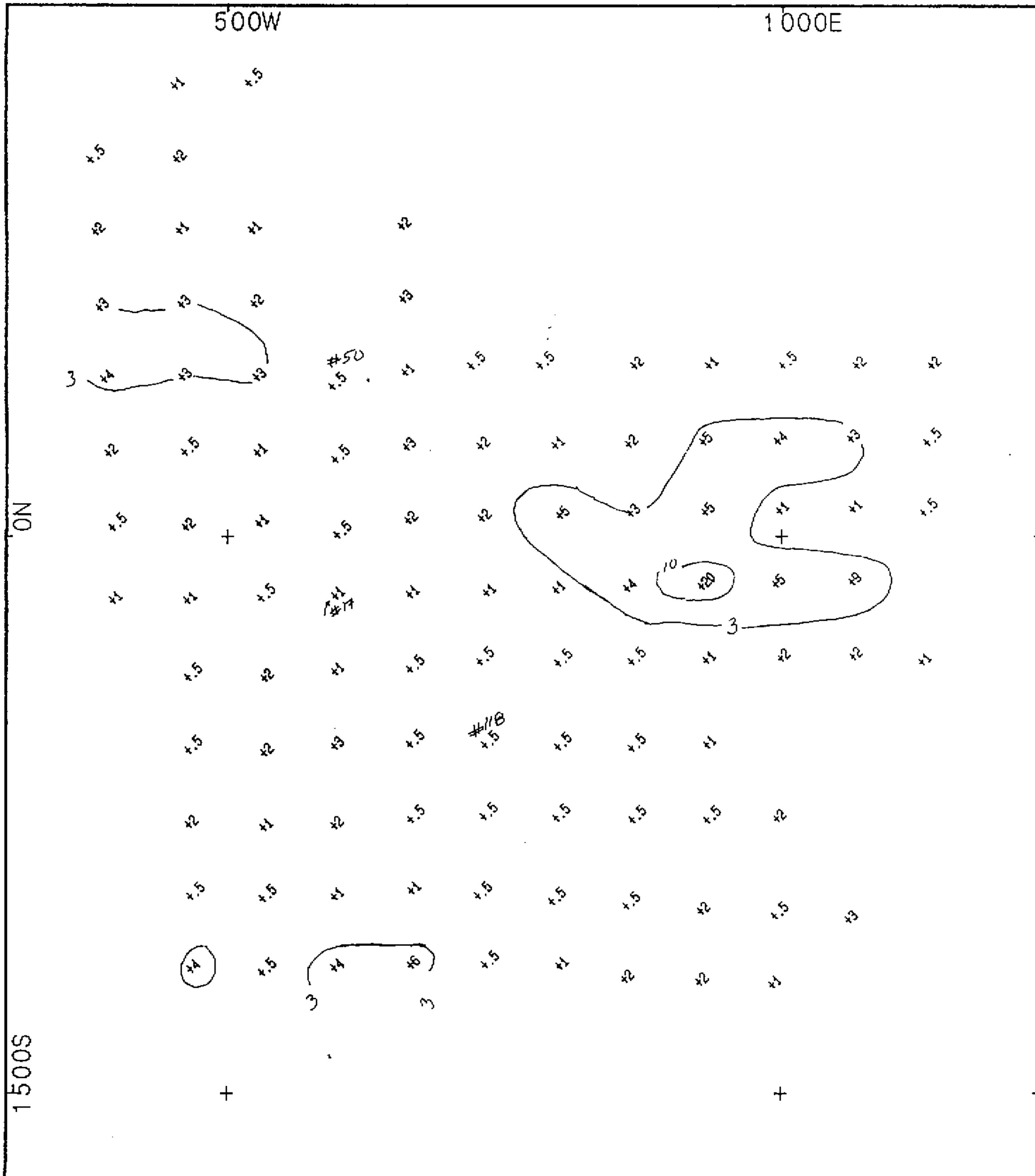
Ragnar U. Bruaset & Associates Ltd.

Copper (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 12c



REE Dysprosium (ppb)

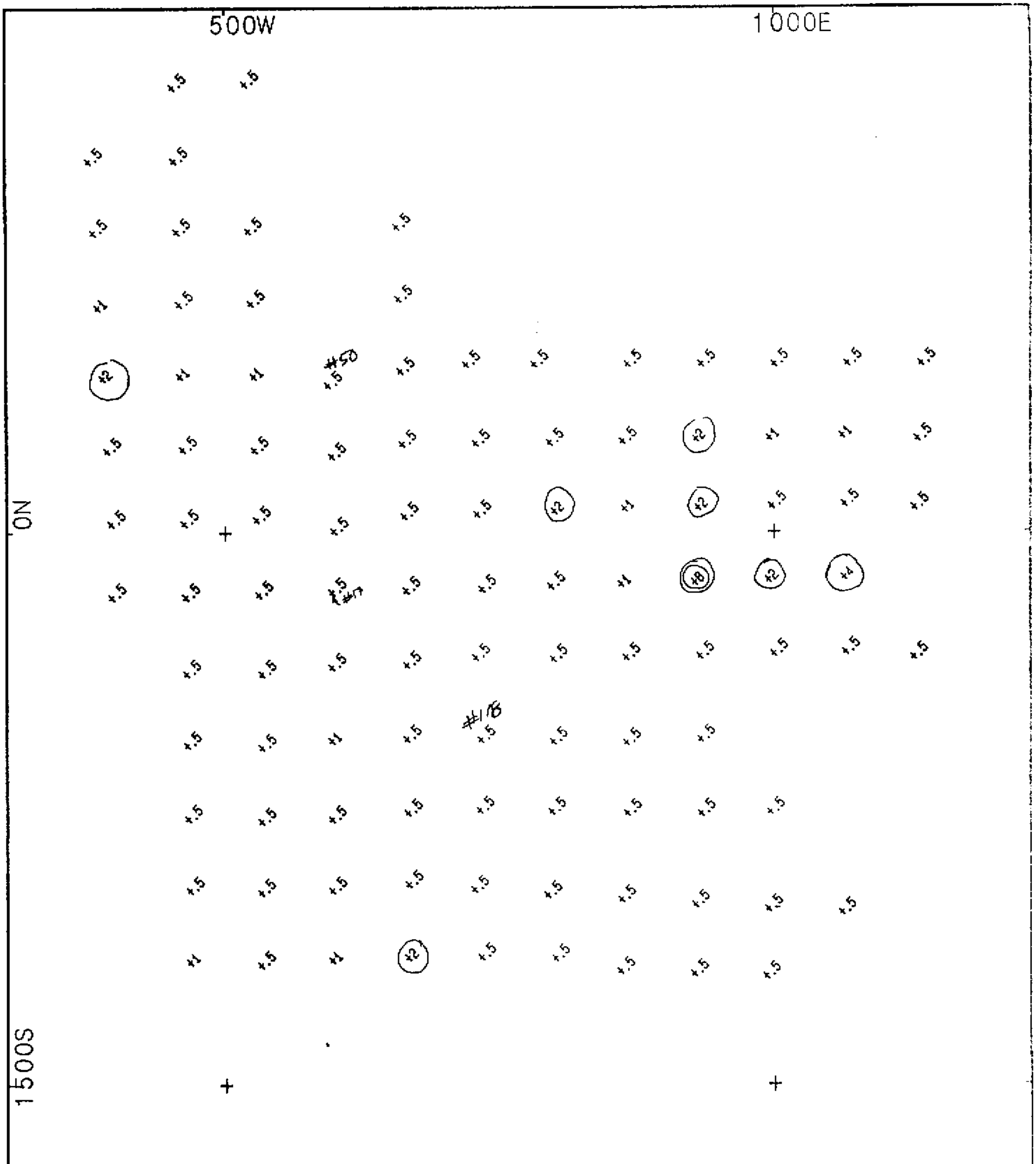
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL13c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

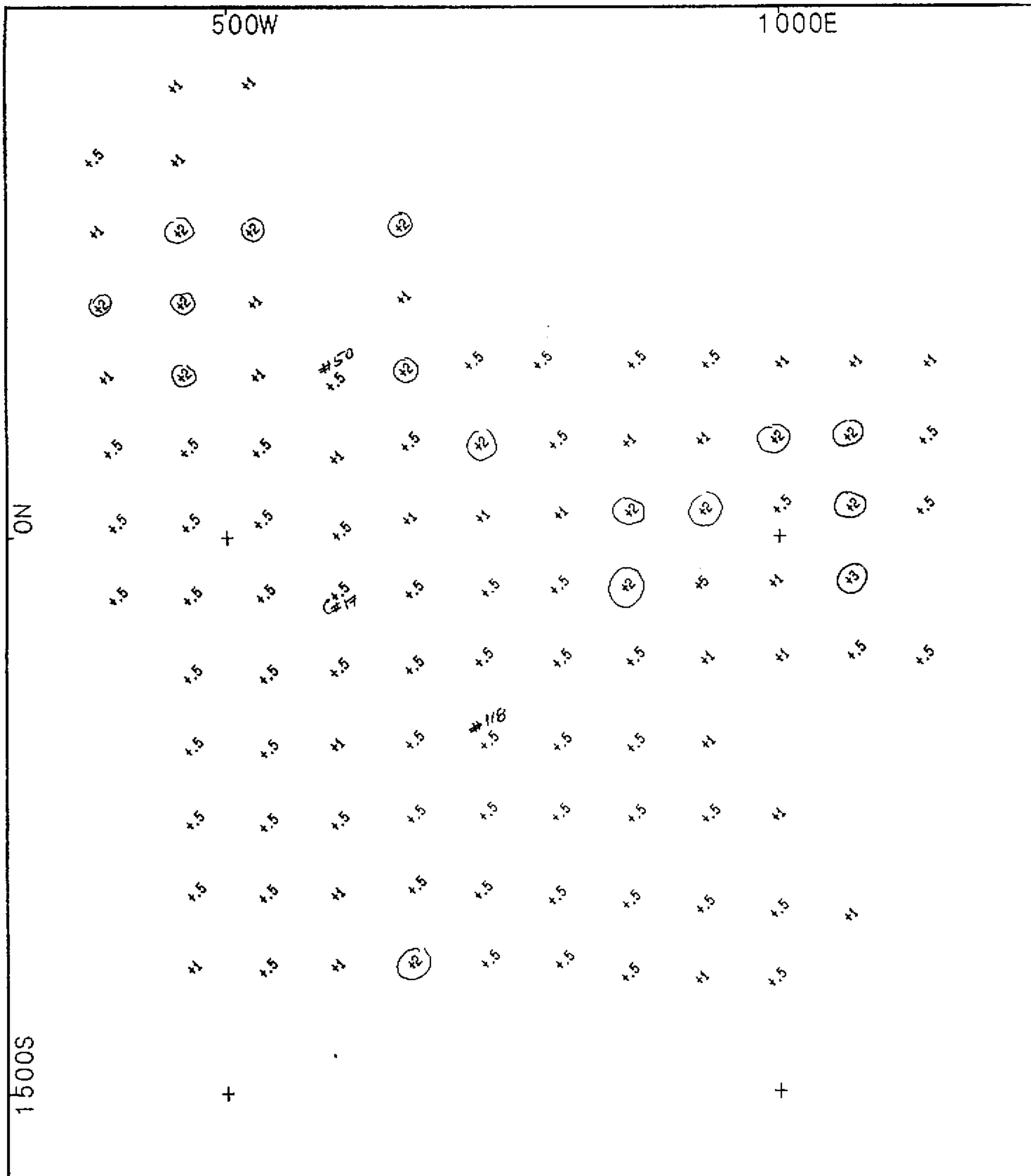
Ragnar U. Bruaset & Associates Ltd.

Erbium (ppb)

Gnome Project

Enzyme Leach

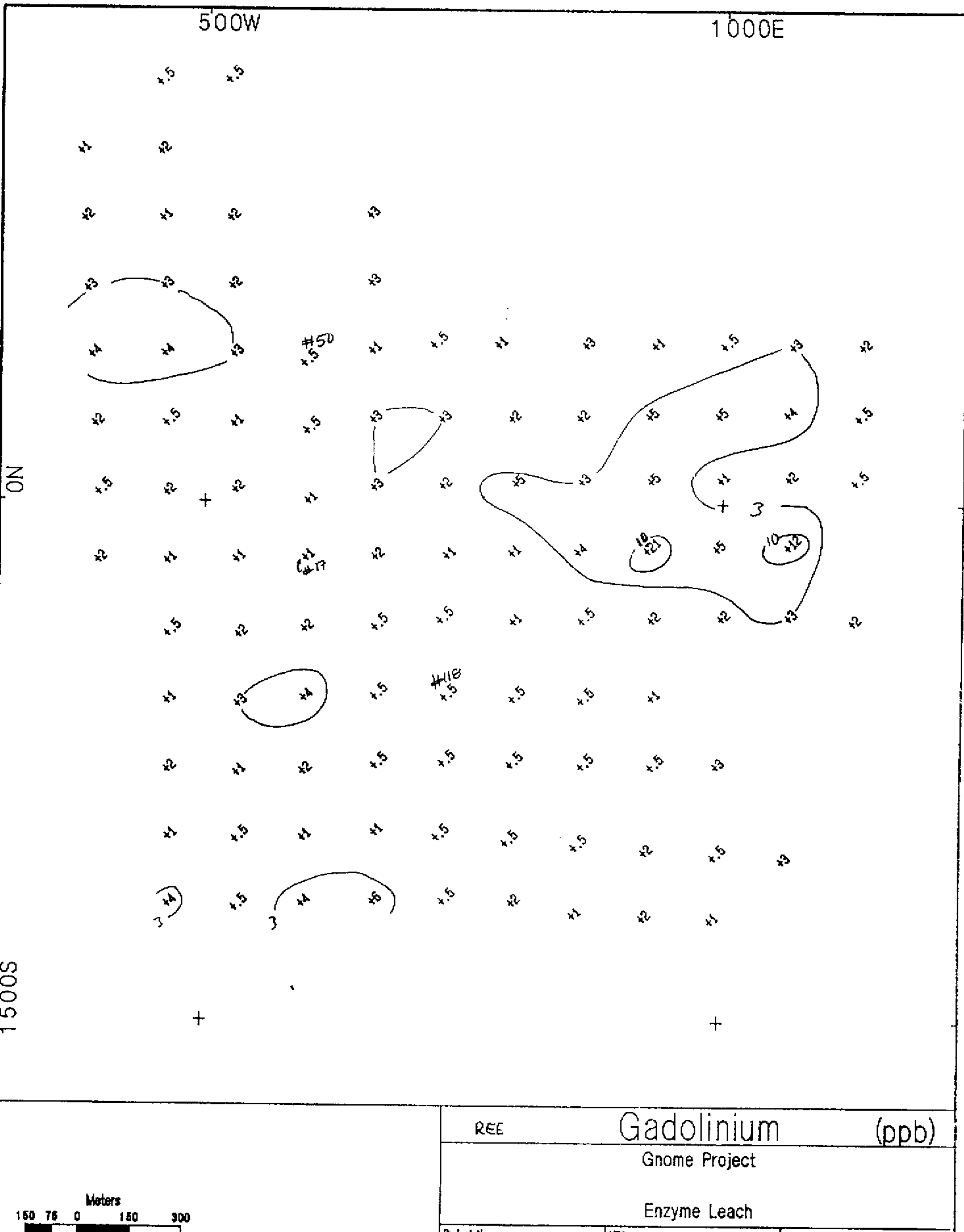
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT.XLS	Fig. No. EL14c



Meters
150 75 0 150 300

Europium (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL15c

Ragnar U. Bruaset & Associates Ltd.



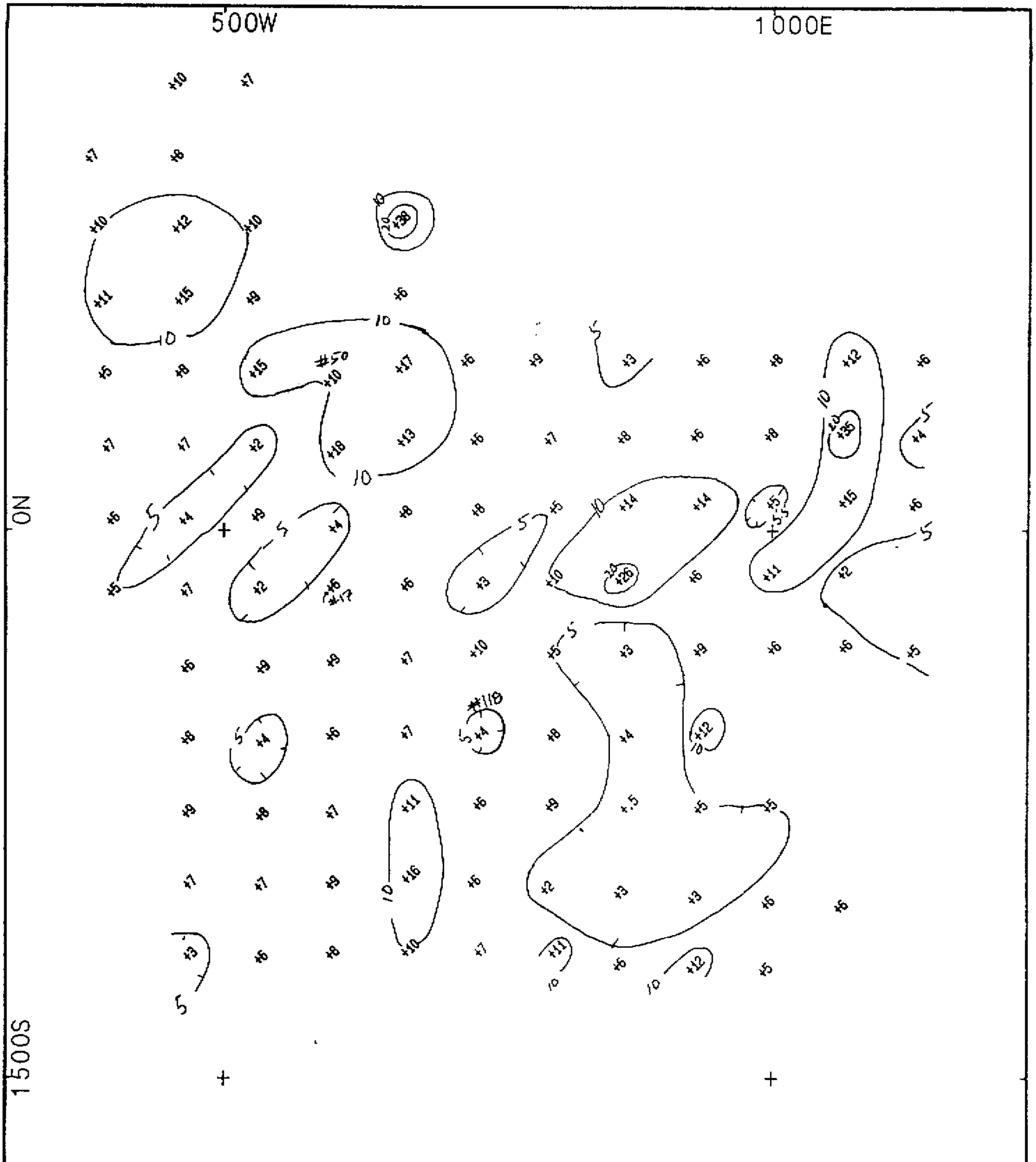
REE Gadolinium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS	Scale
	92P/2	1:15000
Date	Report No.	Fig. No.
October 1994	1217RPT. XLS	EL/6c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

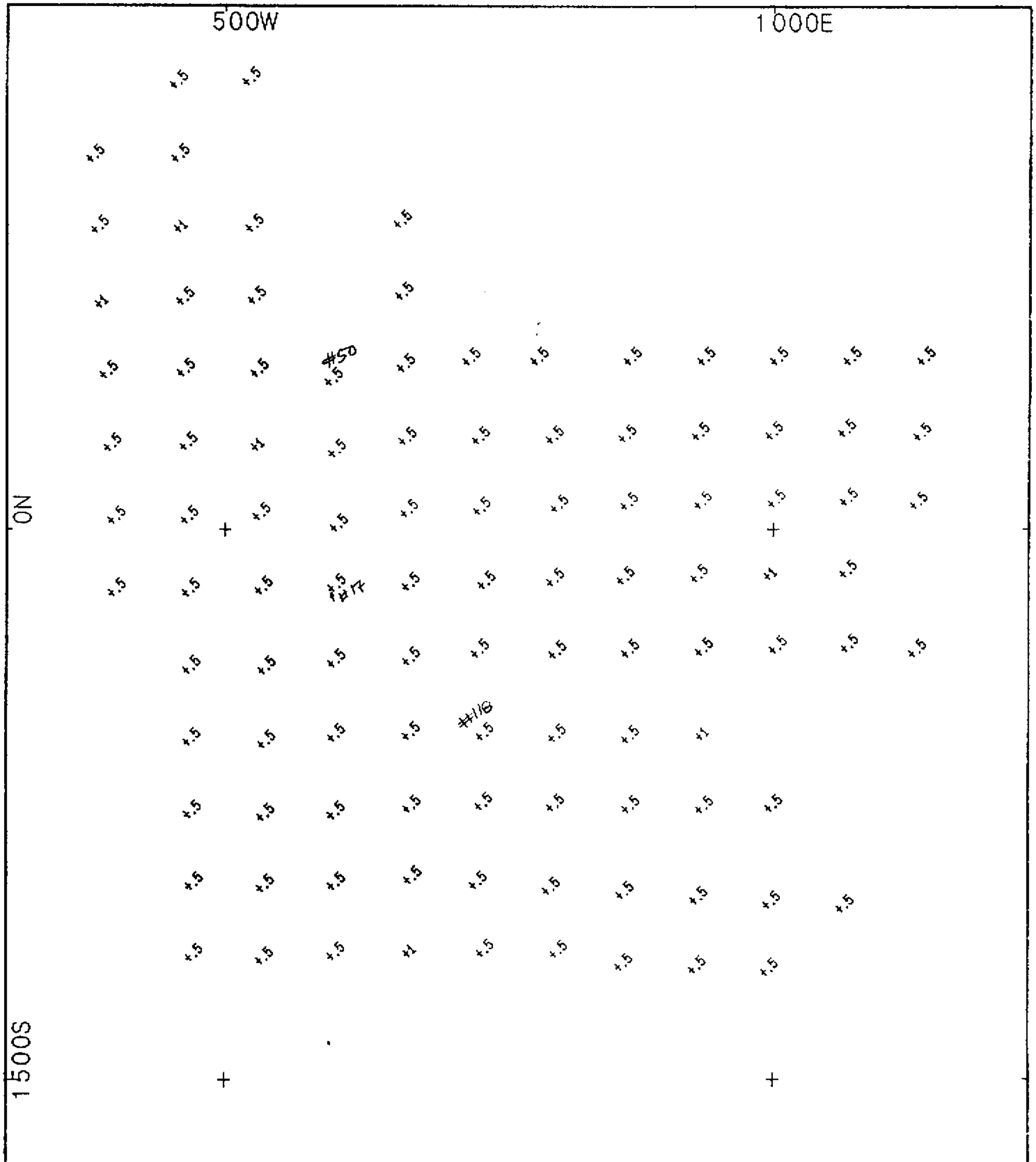
Ragnar U. Bruaset & Associates Ltd.

Gallium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 17c



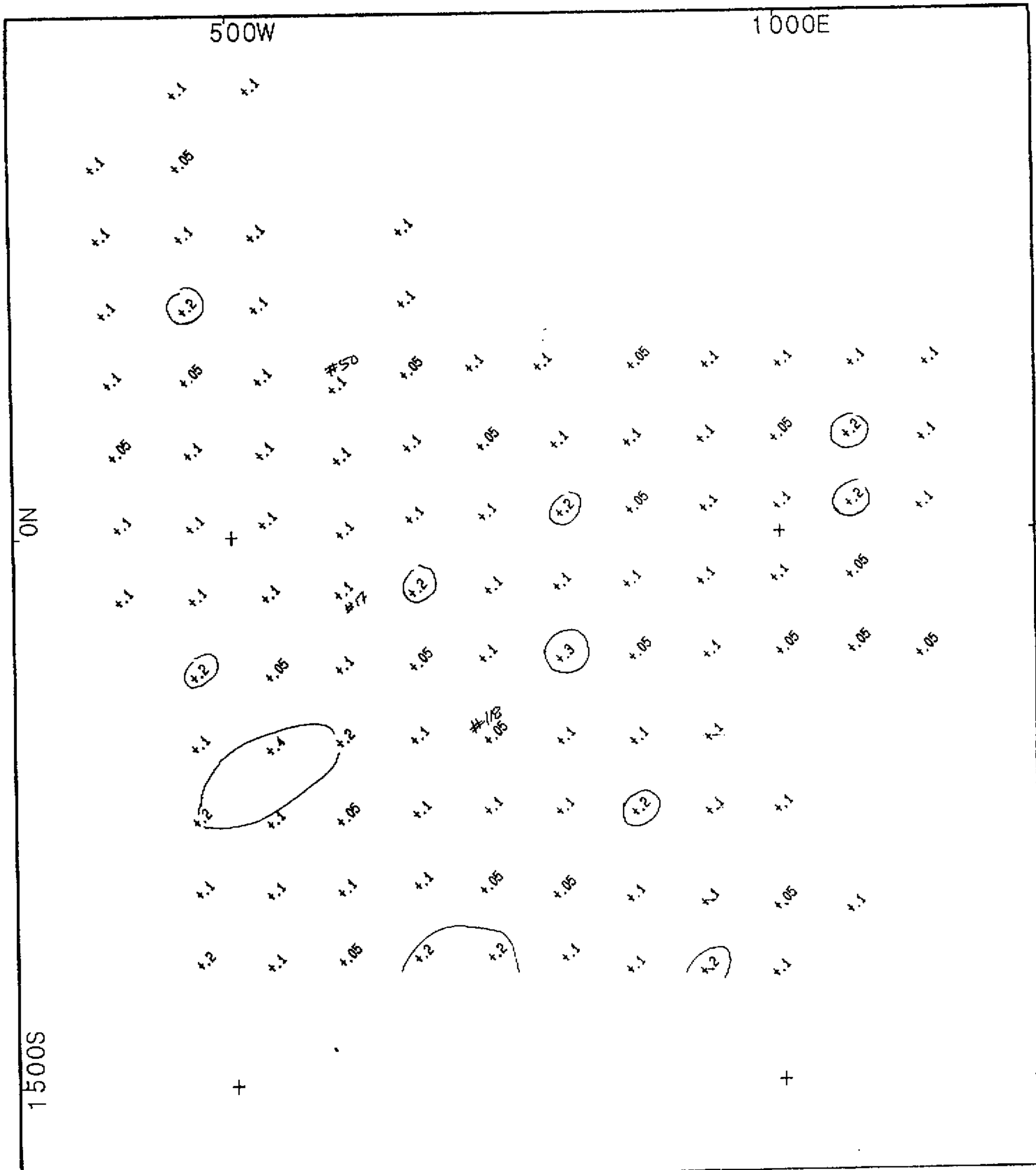
Germanium (ppb)

Gnome Project

Enzyme Leach

Meters 150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.	Project No.	NTS 92P/2	Scale 1:15000
	Date October 1994	Report No. 1217RPT.XLS	Fig. No. EL 18c



Gold (ppb)

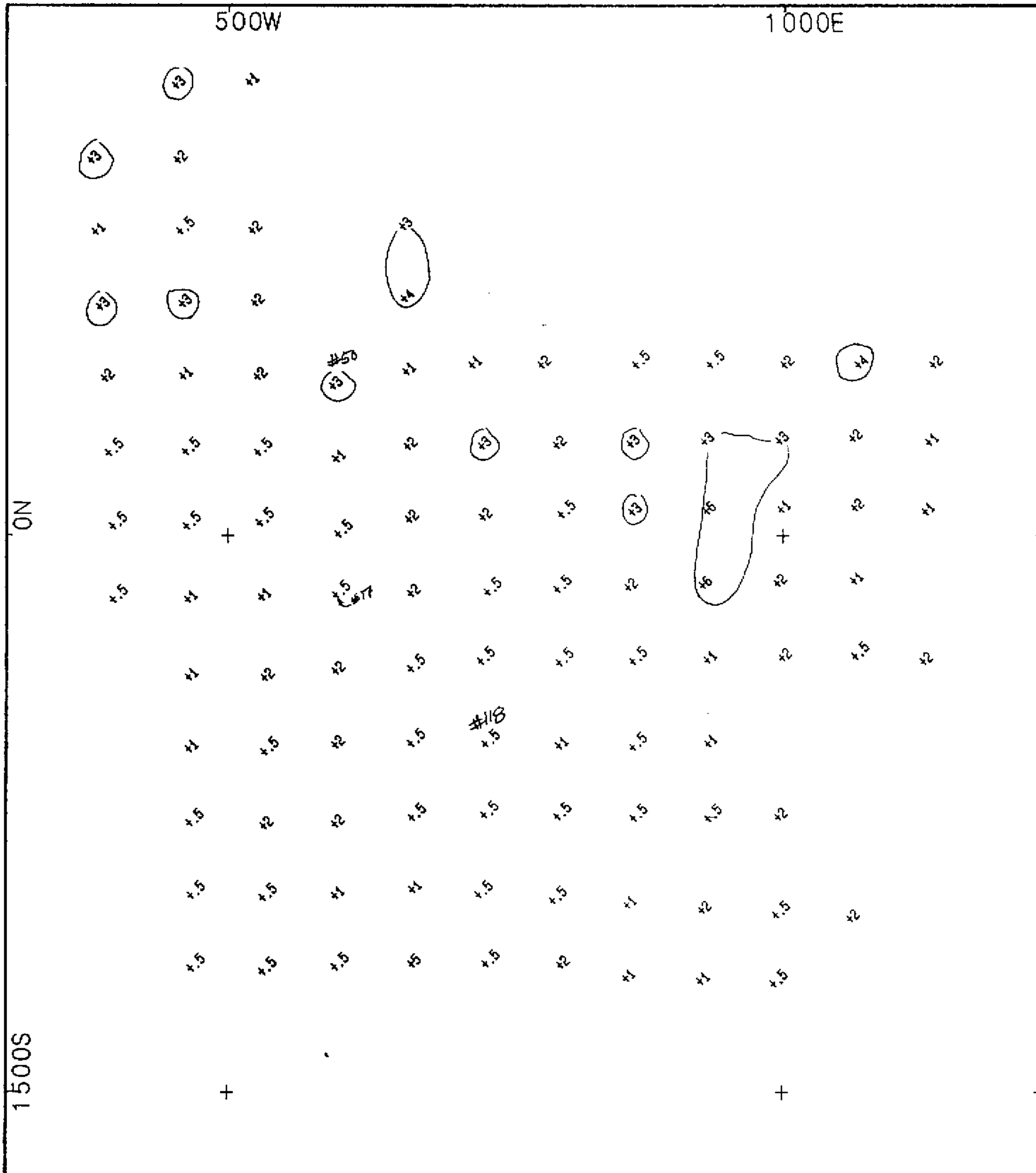
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT.XLS	Fig. No. EL 19c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

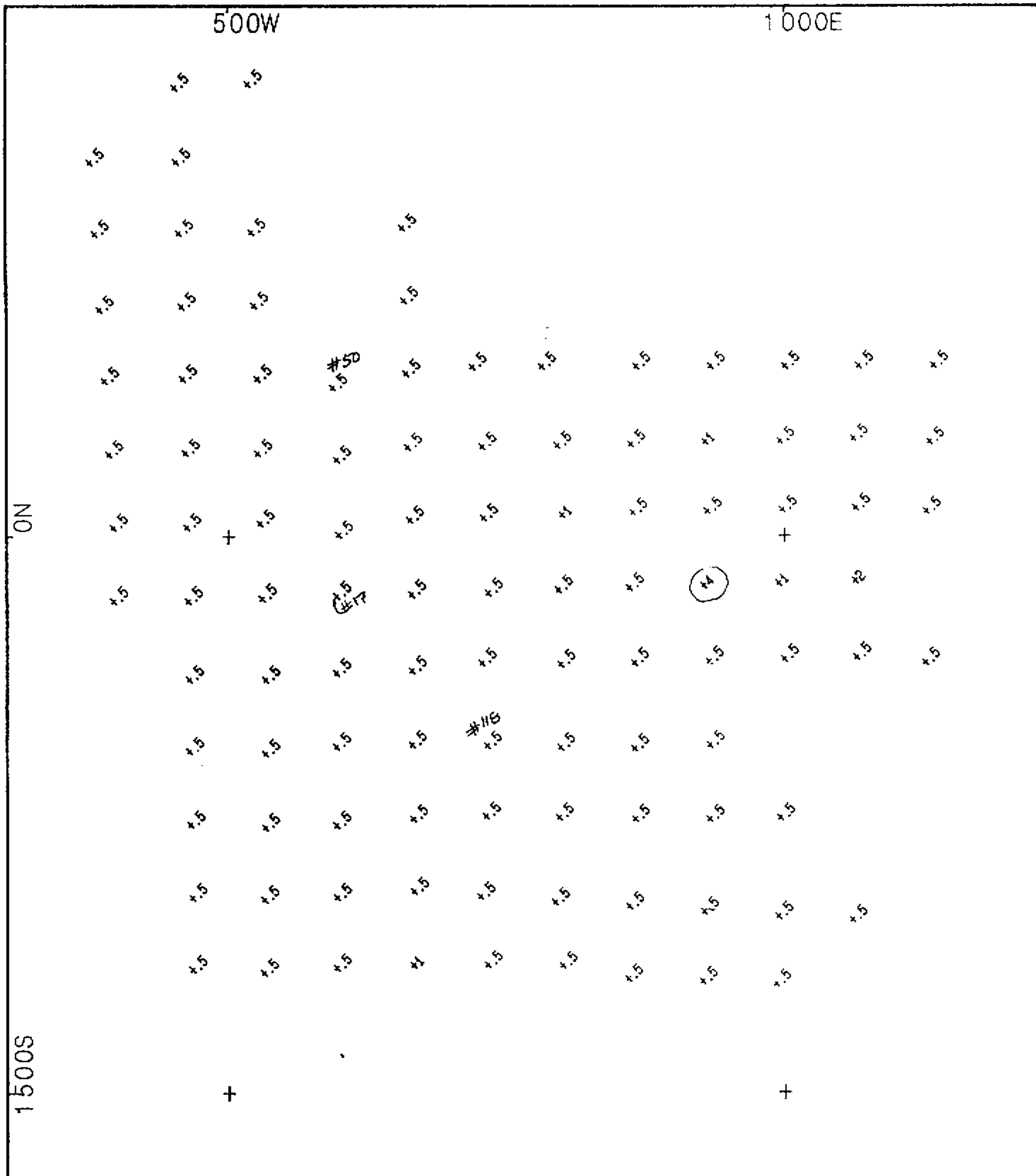
Ragnar U. Bruaset & Associates Ltd.

Hafnium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL20c



REE Holmium (ppb)

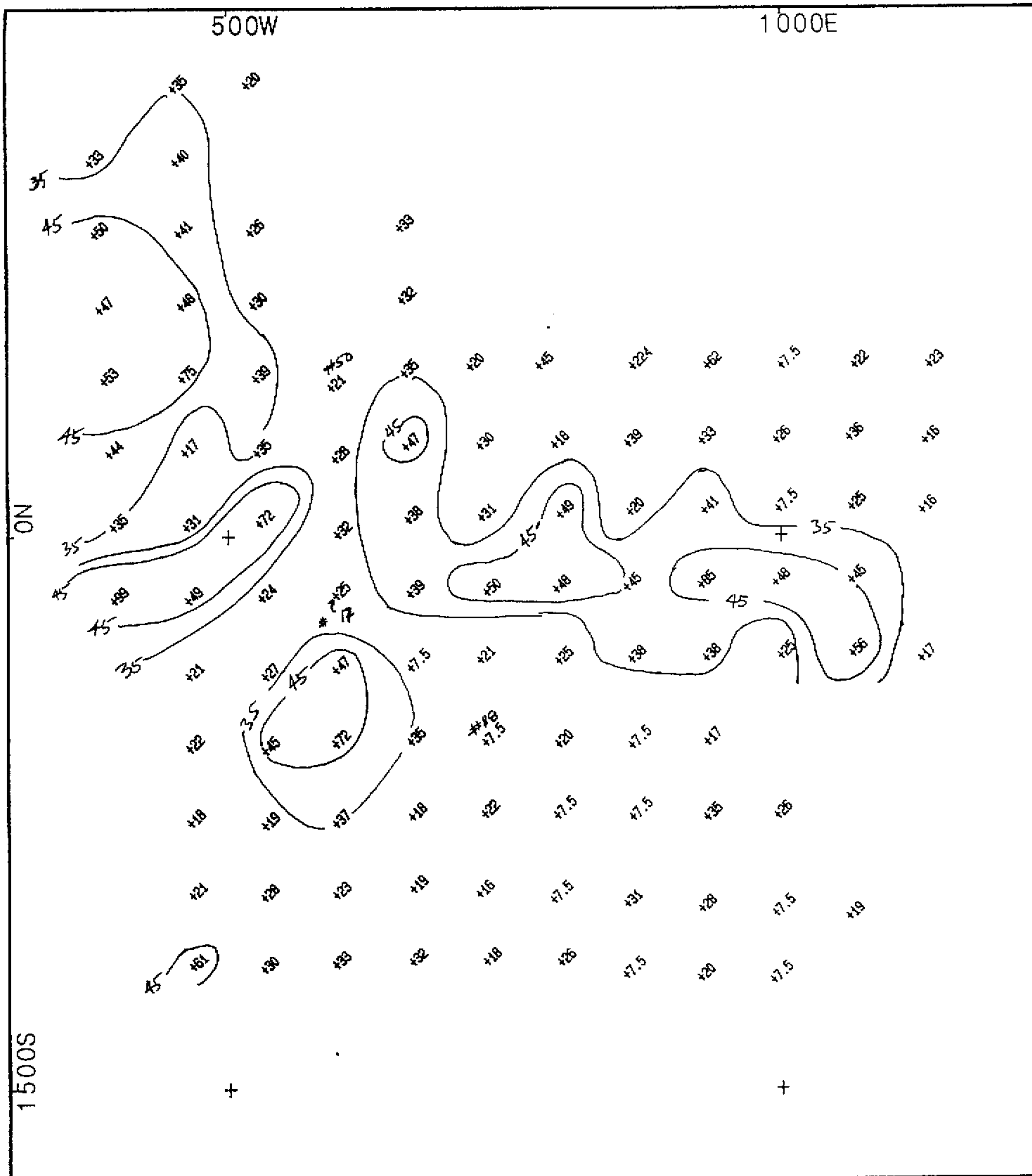
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

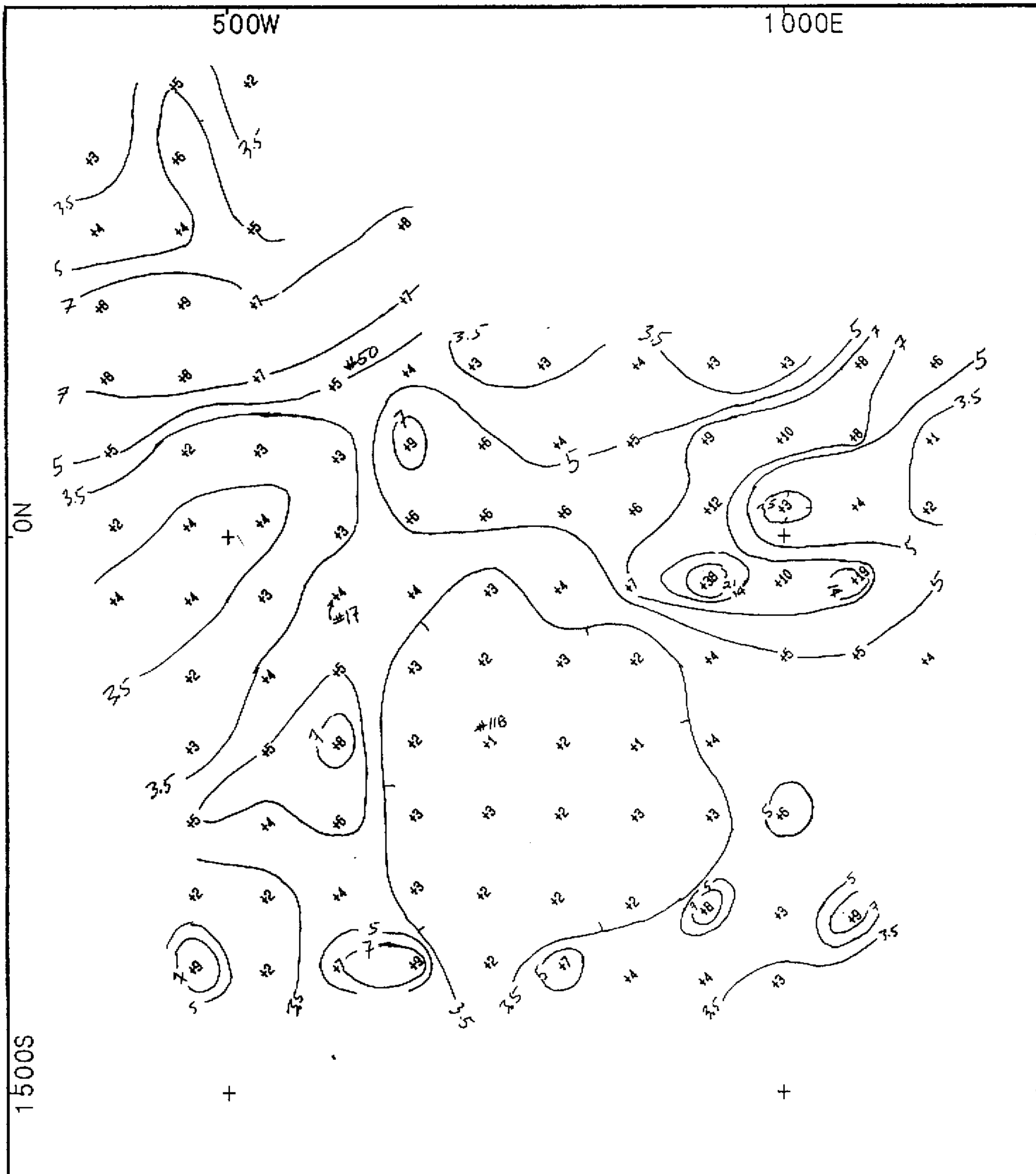
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 21c

Ragnar U. Bruaset & Associates Ltd.

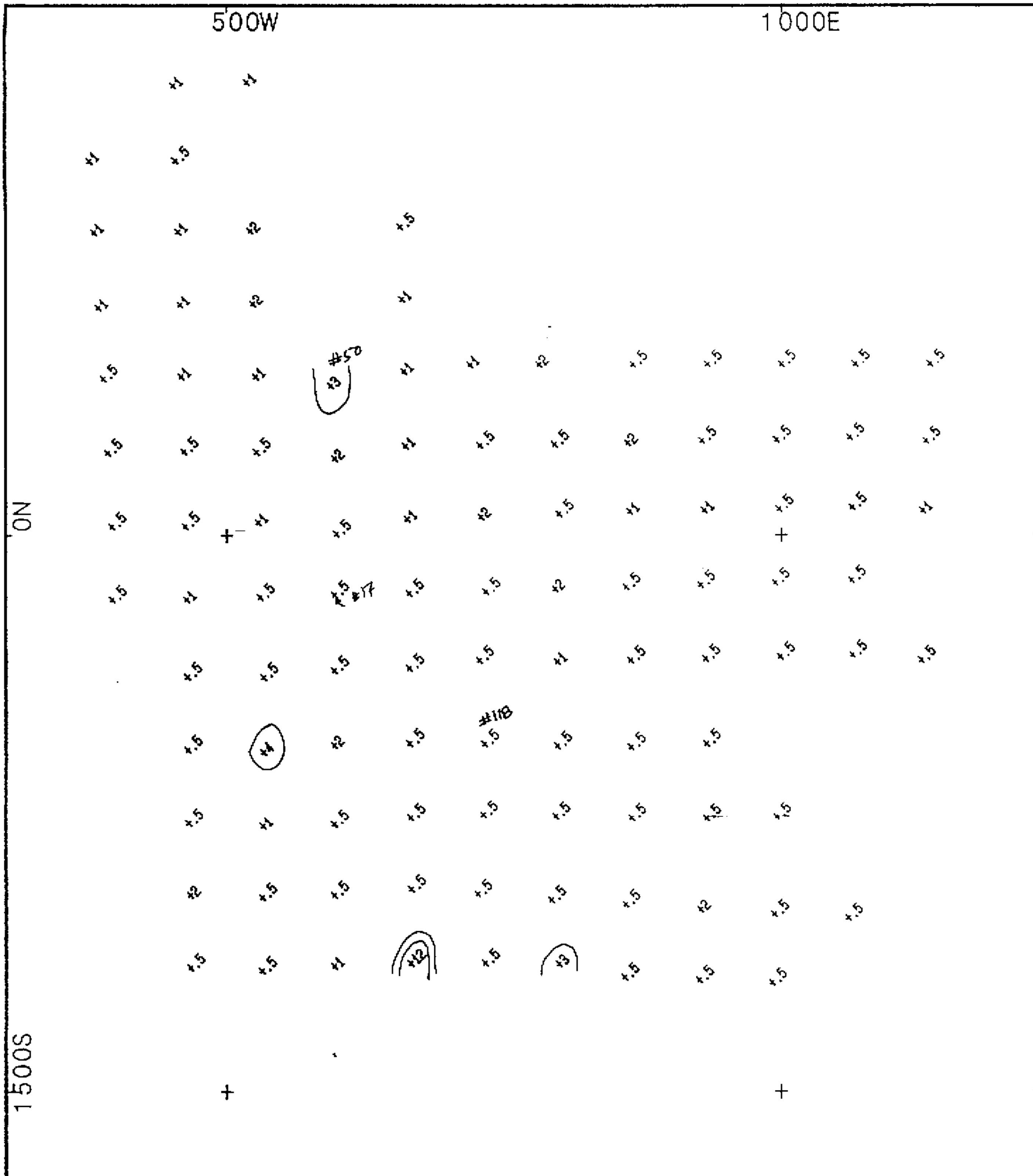


Iodine (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL22c

Ragnar U. Bruaset & Associates Ltd.



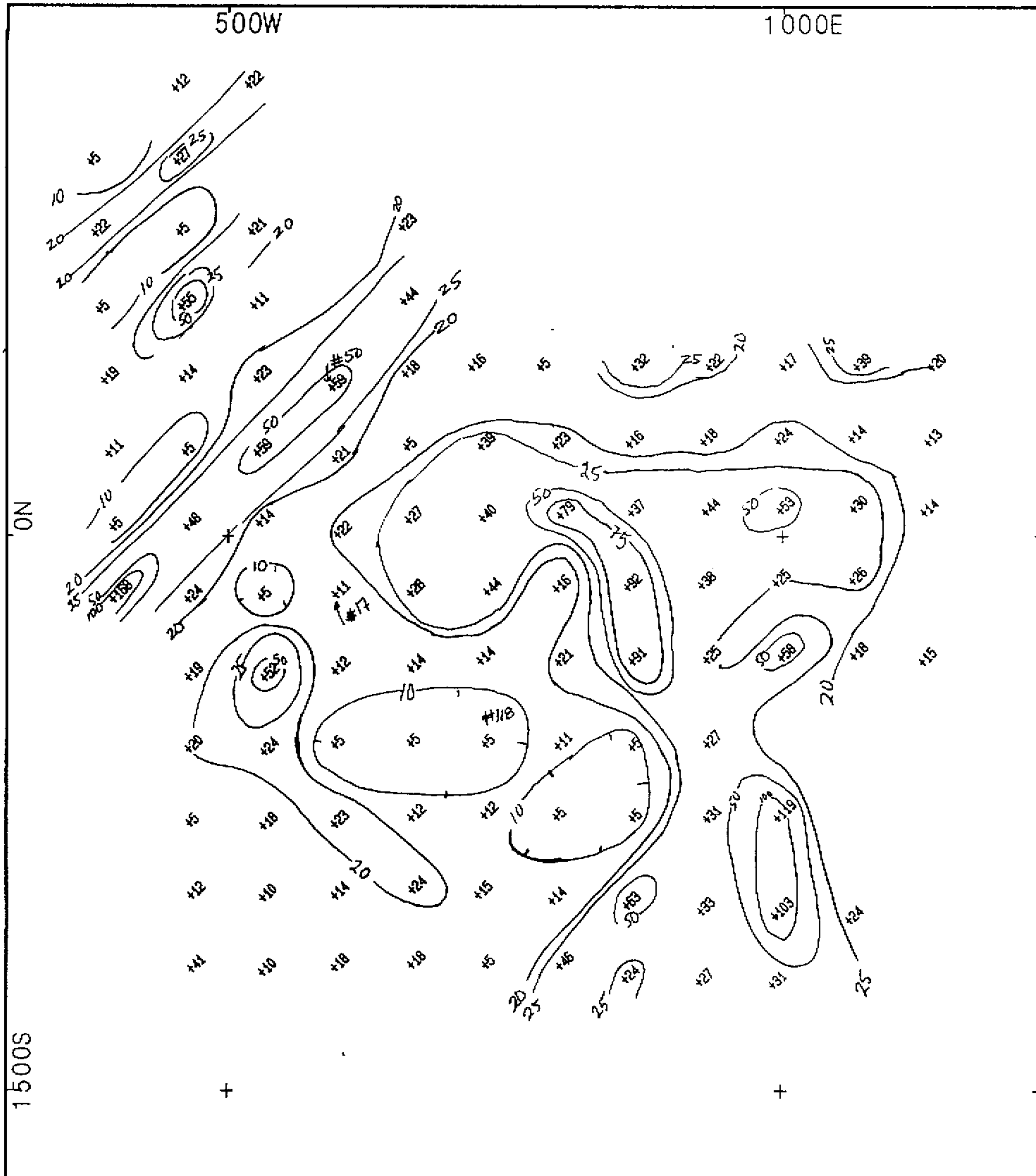
Meters 150 75 0 150 300	REE Lanthanum (ppb)		
	Gnome Project Enzyme Leach		
	Project No.	NTS 92P/2	Scale 1:15000
Ragnar U. Bruaset & Associates Ltd.	Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 23c



Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

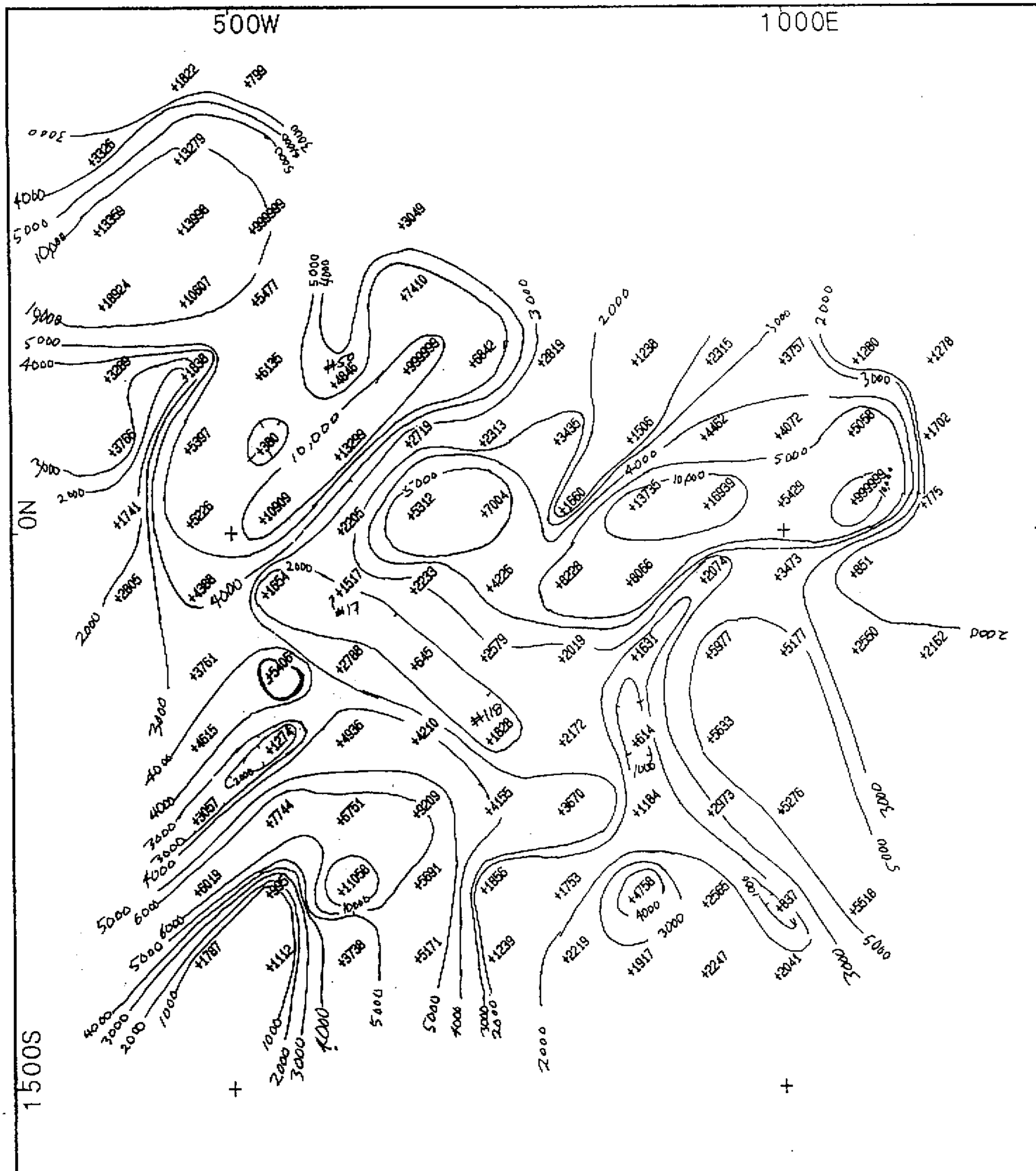
Lead (ppb)		
Gnome Project Enzyme Leach		
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 24c



Meters
150 75 0 150 300

Lithium (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT.XLS	Fig. No. EL 25c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

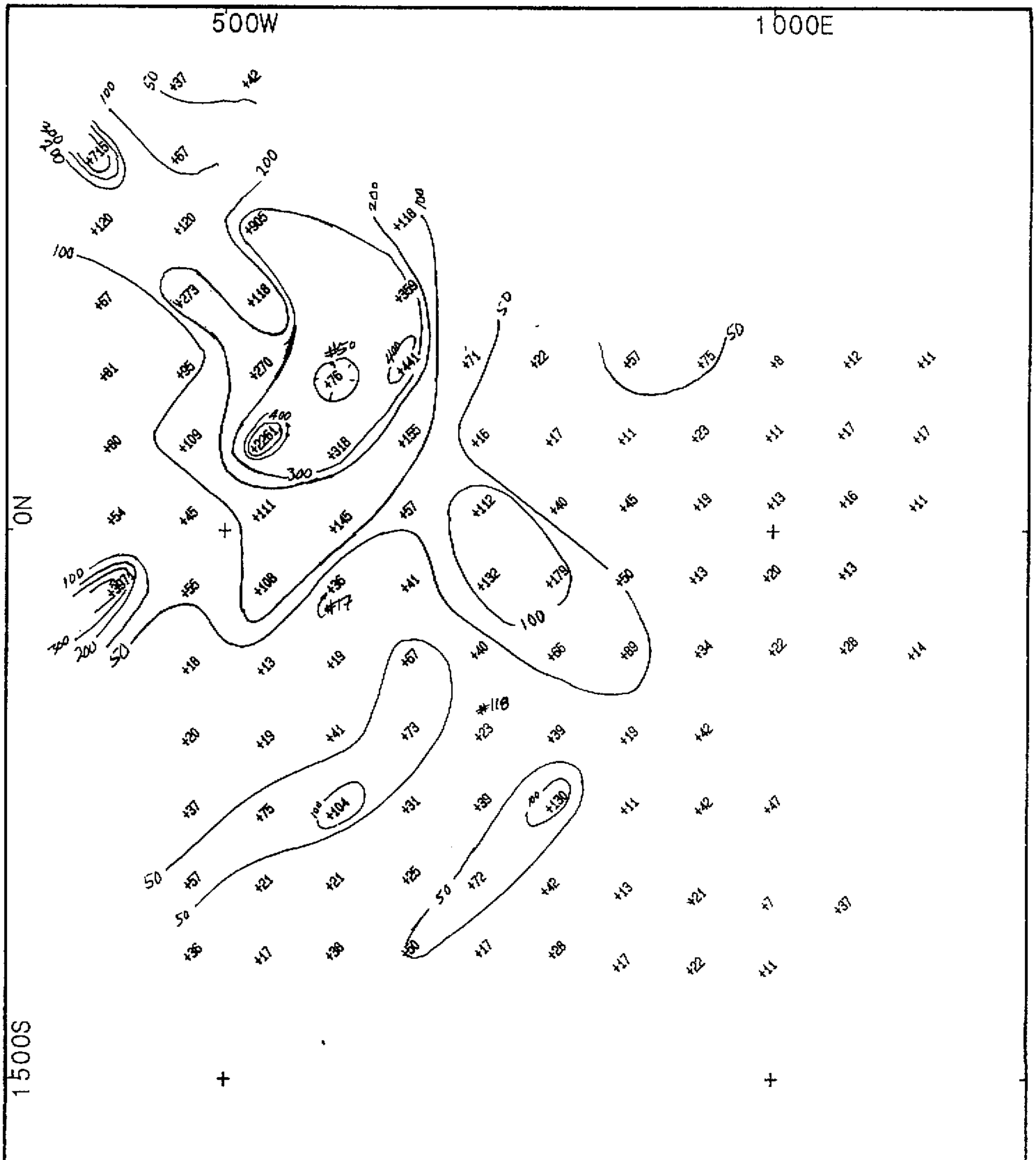
Manganese (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS	Scale
	92P/2	1 : 15000
Date	**Report No.**	**Fig. No.**
October 1994	1217RPT. XLS	EL 26c

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

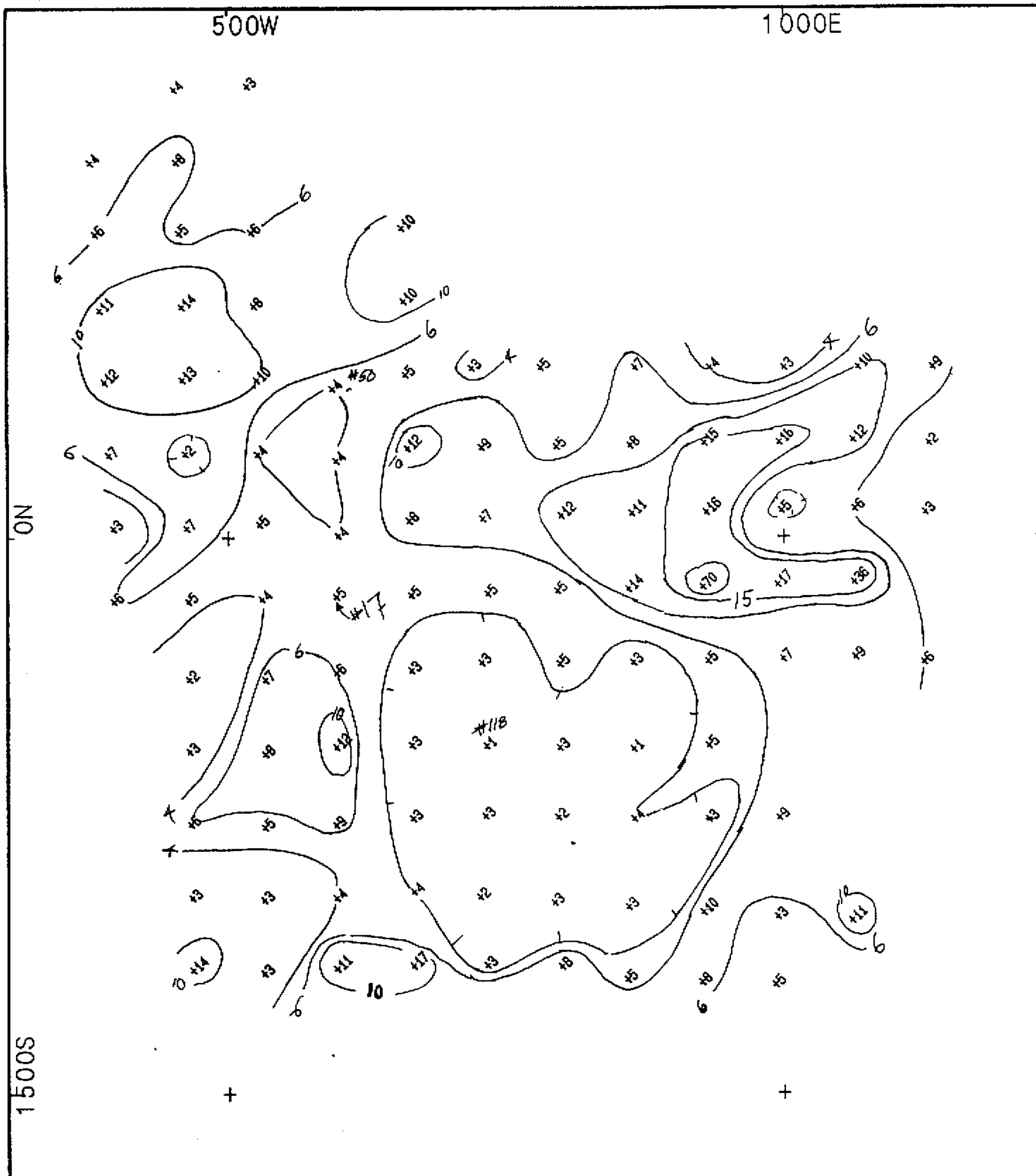
Ragnar U. Bruaset & Associates Ltd.

Molybdenum (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS	Scale
	92P/2	1 : 15000
Date October 1994	**Report No.** 1217RPT. XLS	**Fig. No.** EL 27c



Meters
150 75 0 150 300

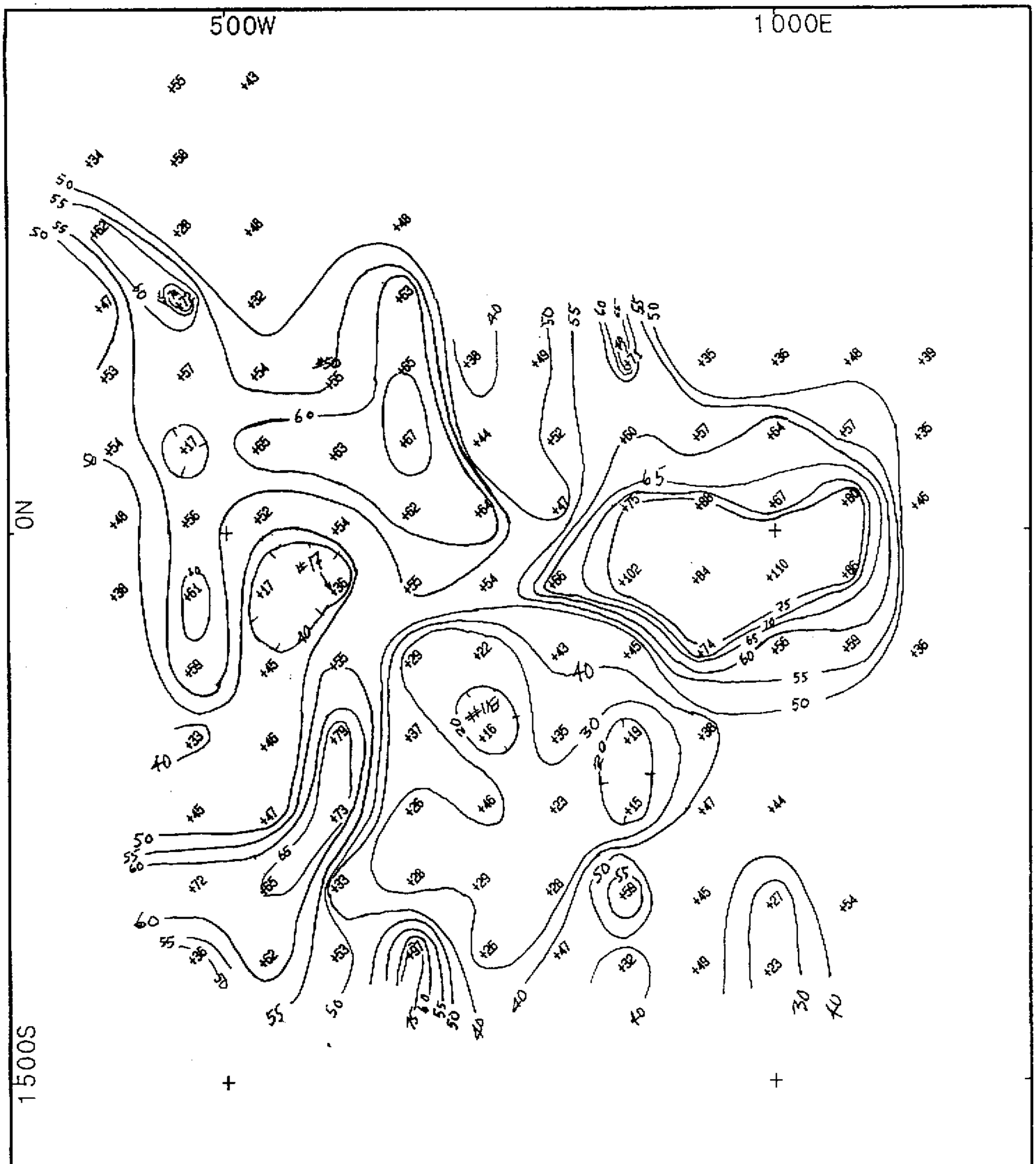
Ragnar U. Bruaset & Associates Ltd.

REE Neodymium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 28c



Nickel (ppb)

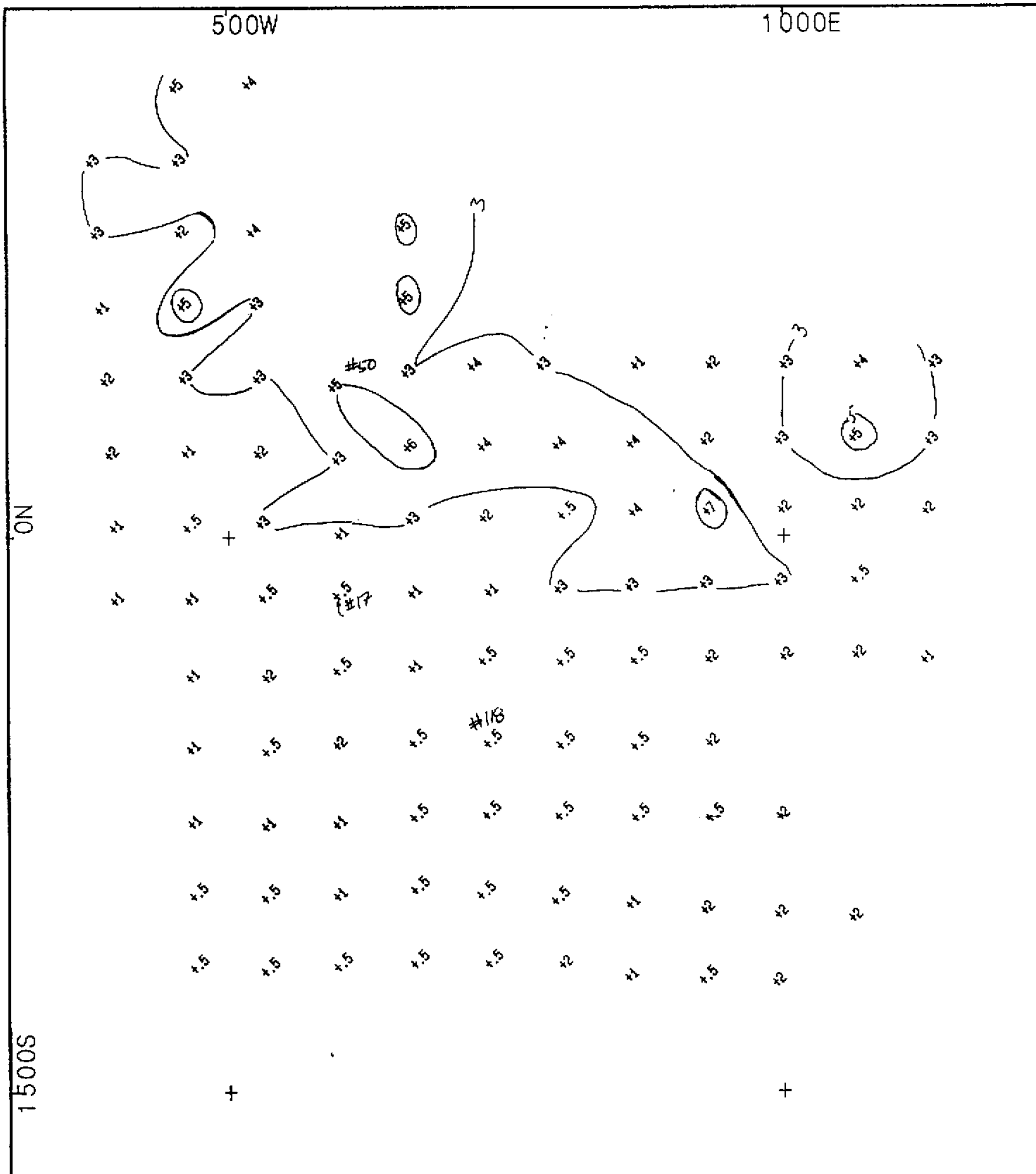
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL29c

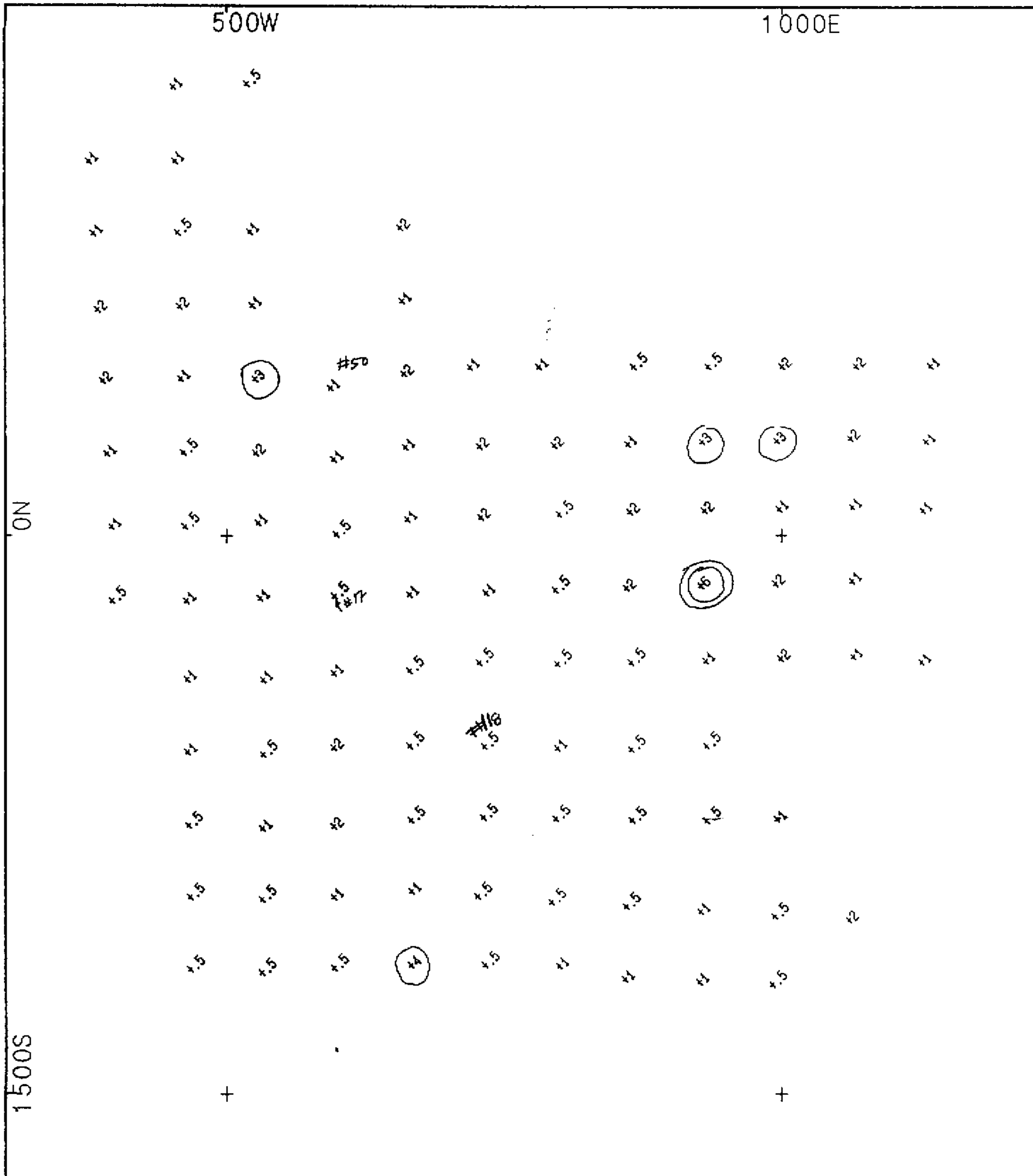
Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

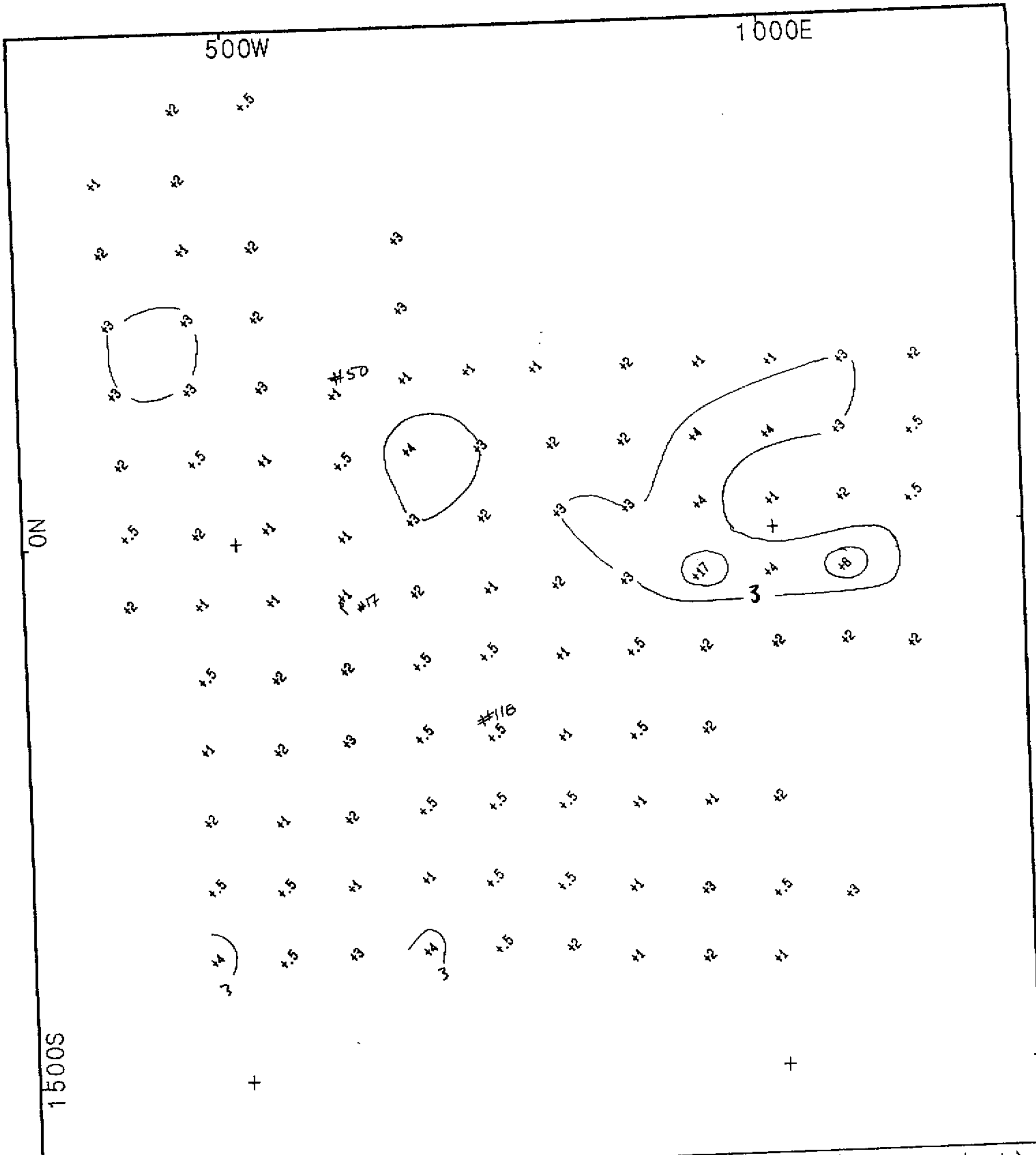
Ragnar U. Bruaset & Associates Ltd.

Niobium (ppb)		
Gnome Project Enzyme Leach		
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL30c



	Palladium (ppb)	
	Gnome Project	
	Enzyme Leach	
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT.XLS	Fig. No. EL31c

Ragnar U. Bruaset & Associates Ltd.



REE **Praseodymium** (ppb)

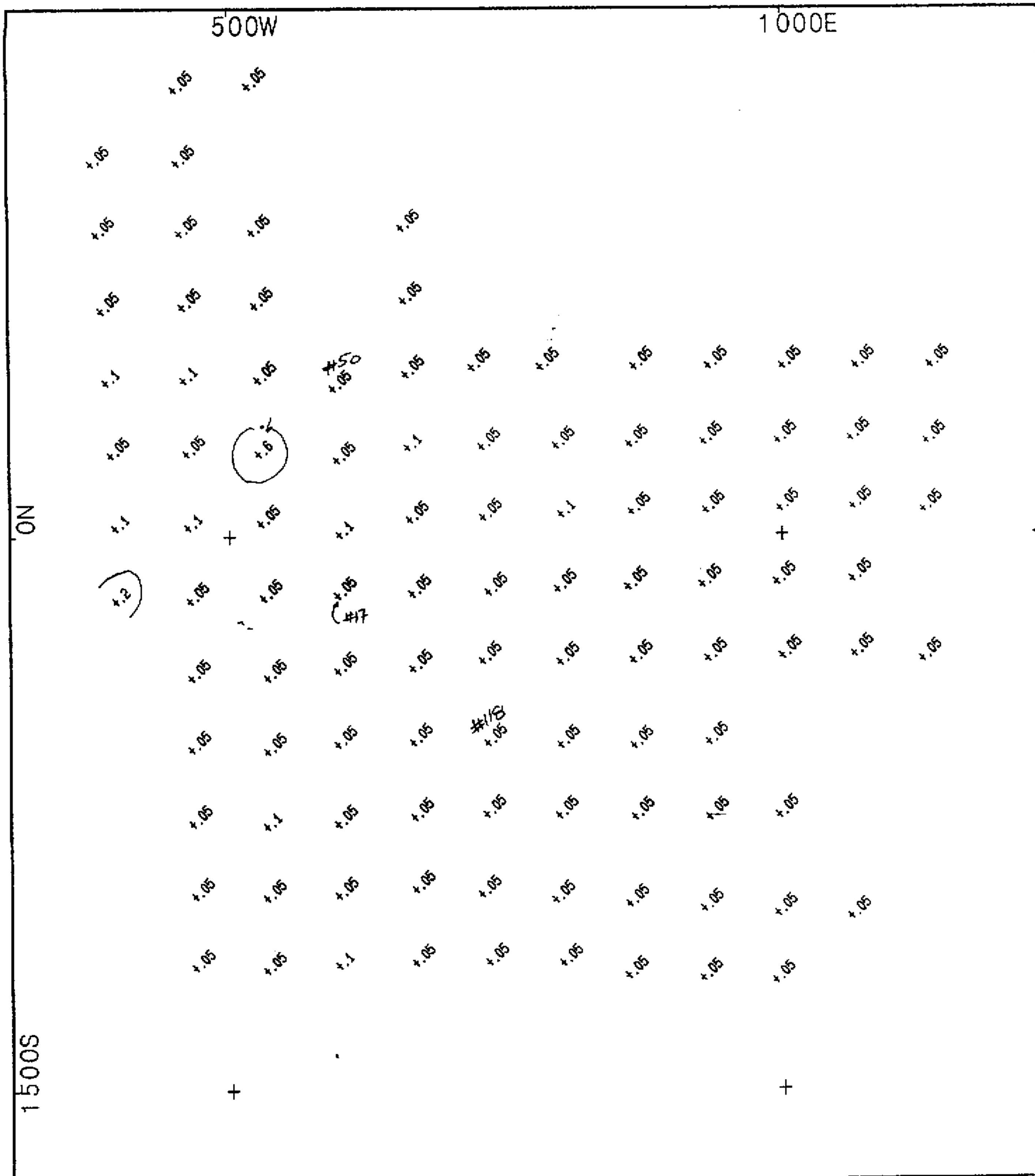
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

Project No.	NTS 92P/2	Scale 1 : 15000	
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL32c	

Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

Rhenium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 33c

Ragnar U. Bruaset & Associates Ltd.

Rubidium (ppb)

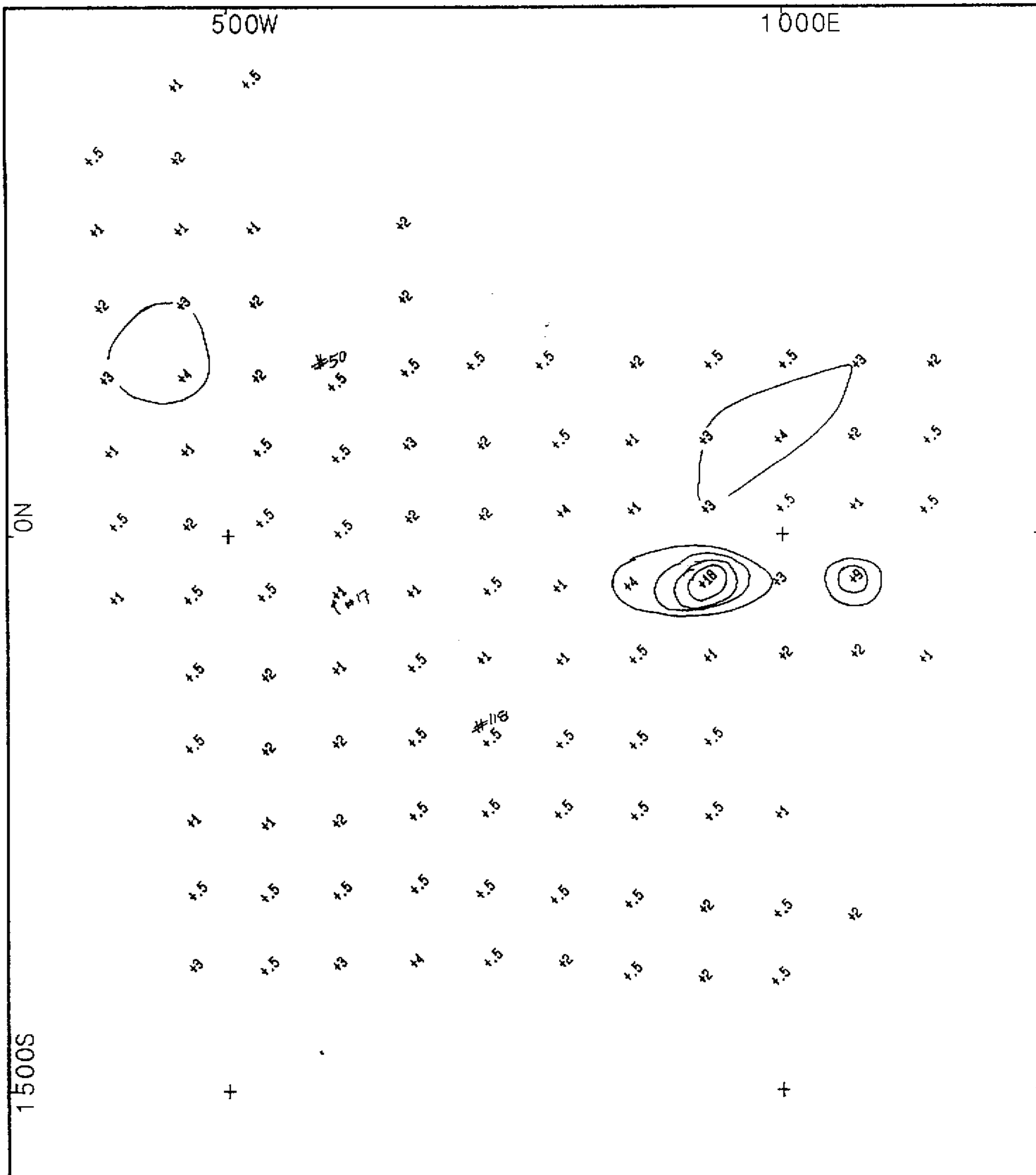
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 34c

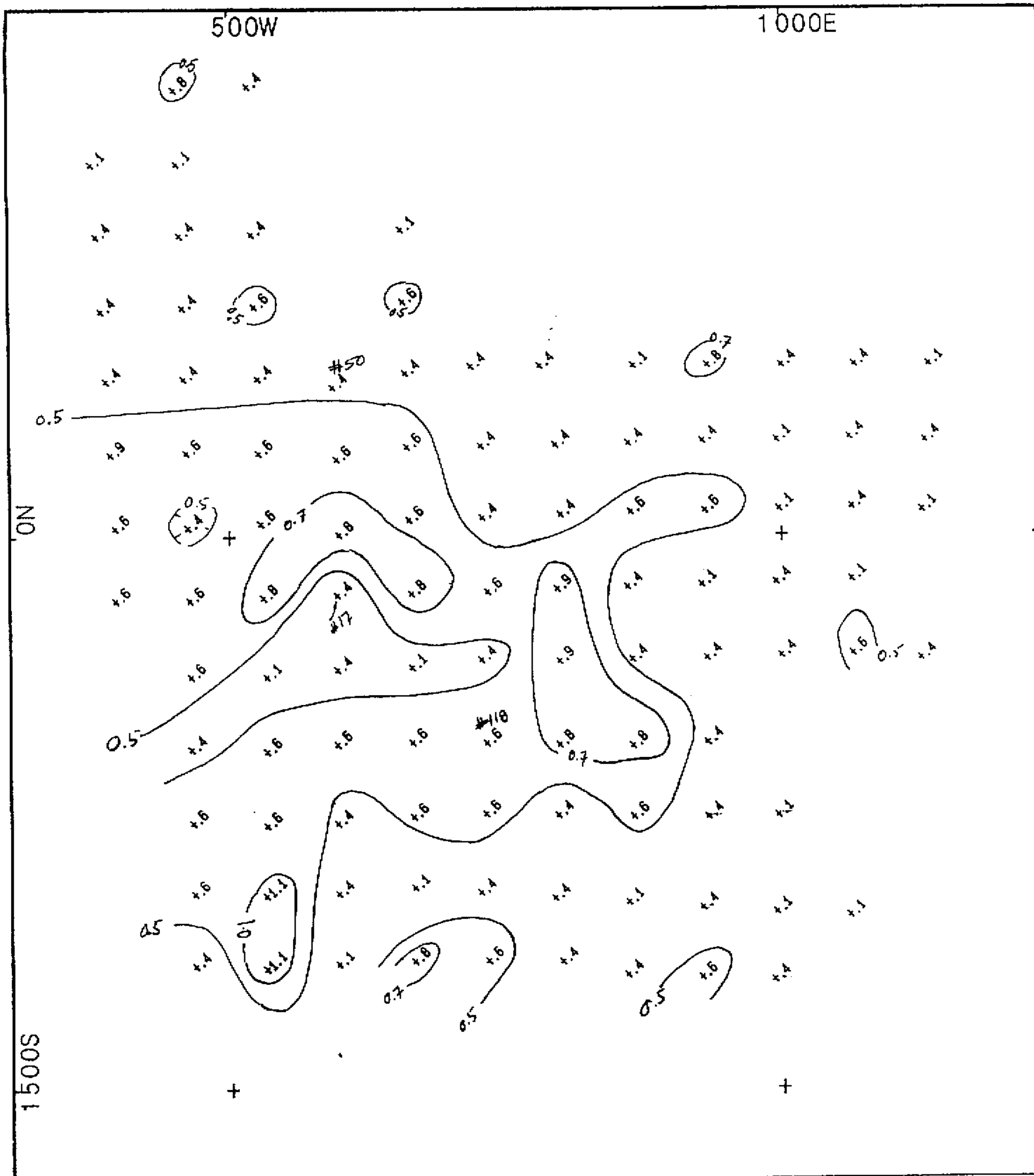
Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

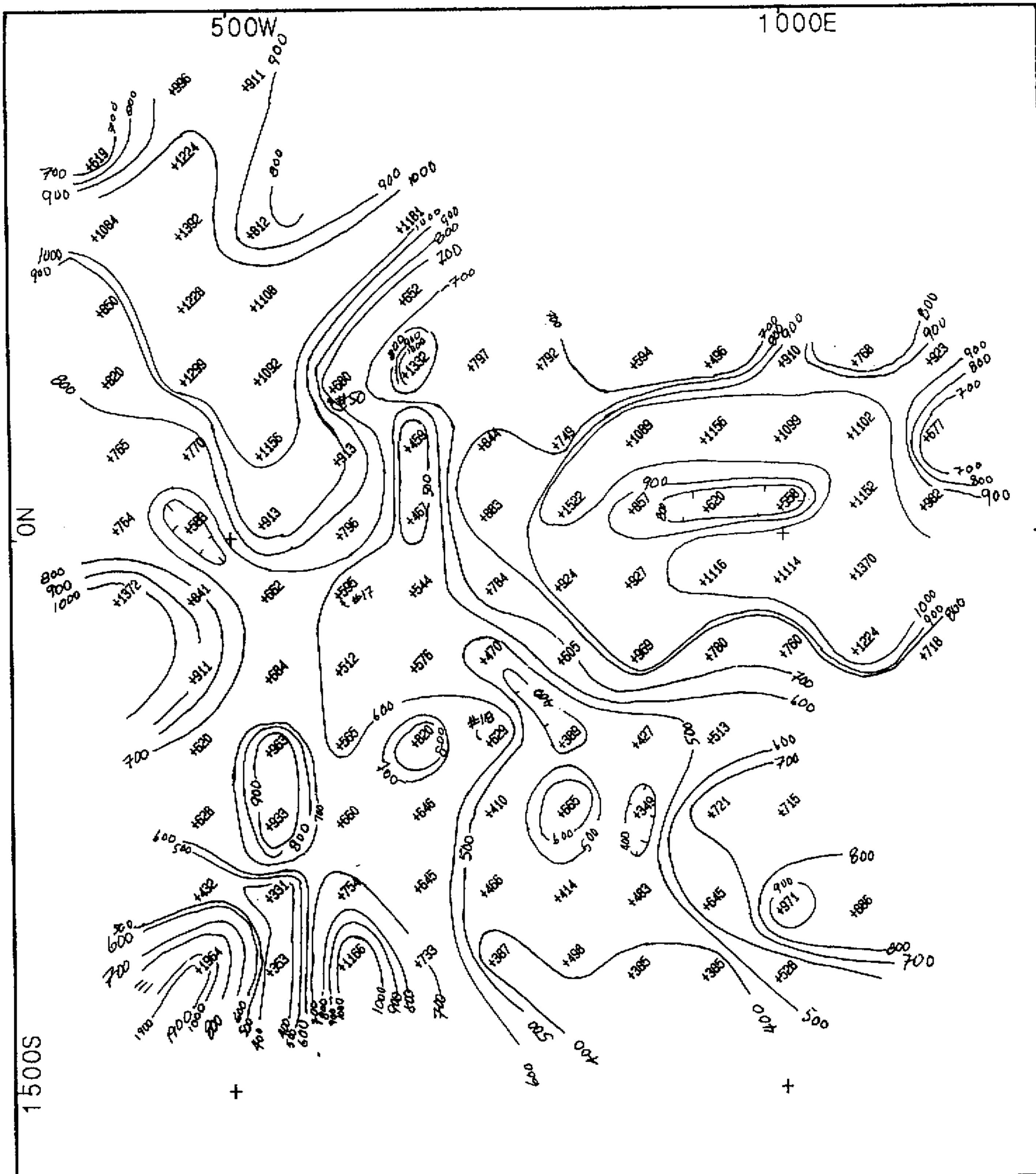
Ragnar U. Bruaset & Associates Ltd.

REE	Samarium (ppb)	
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL35c

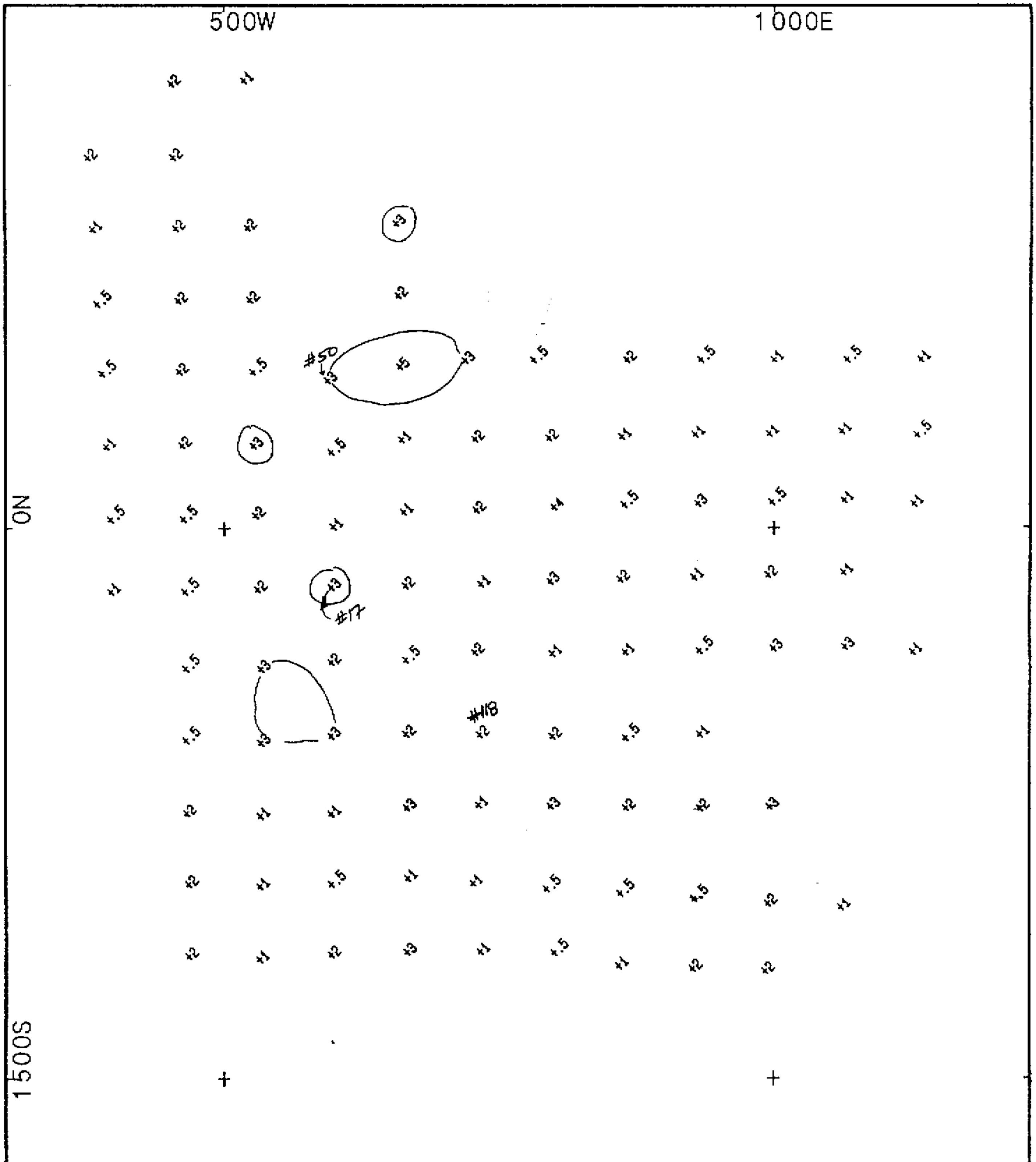


Silver (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL36c

Ragnar U. Bruaset & Associates Ltd.



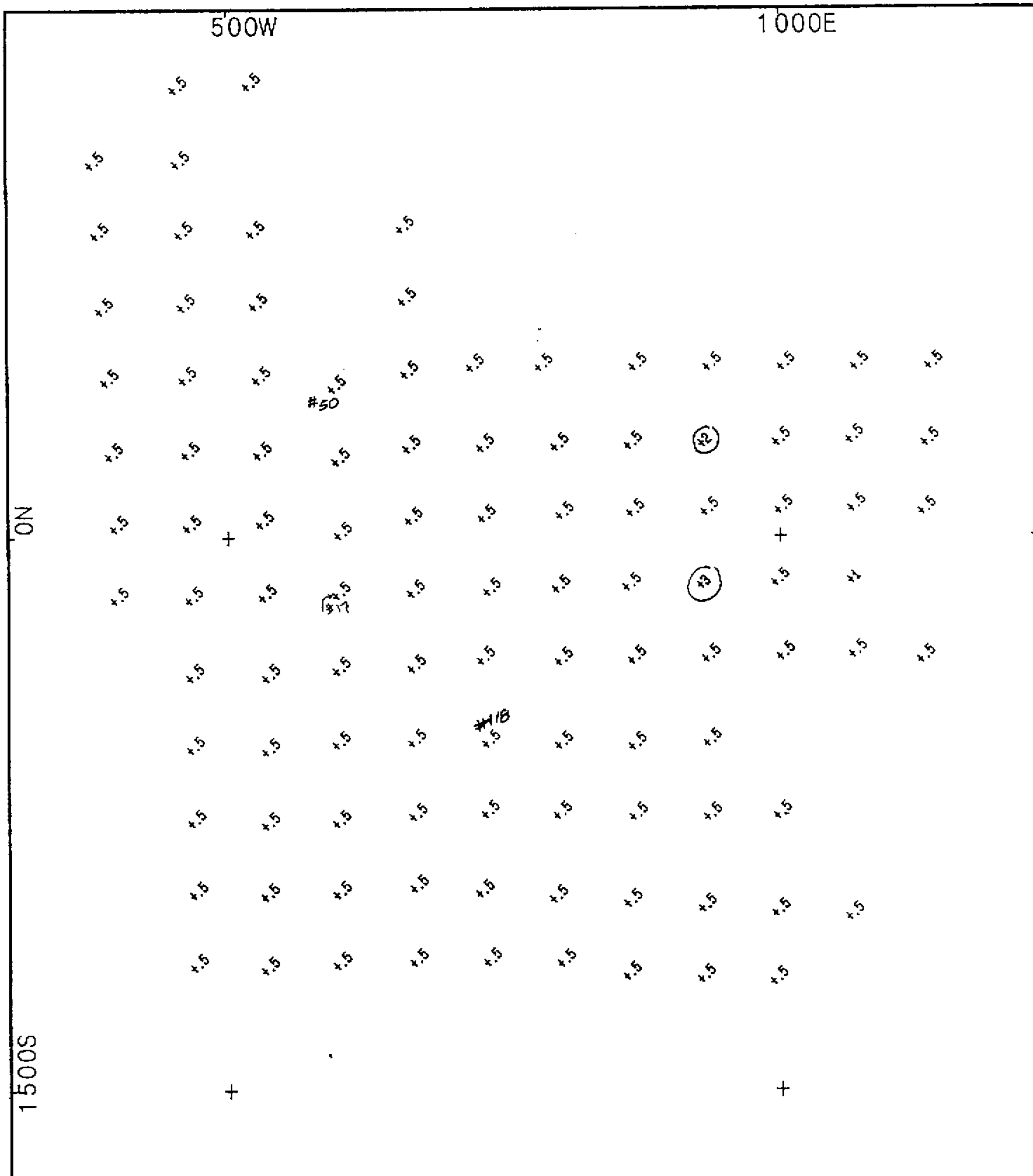
	Strontium (ppb)		
	Gnome Project		
Meters 150 75 0 150 300	Enzyme Leach		
	Project No.	NTS 92P/2	Scale 1:15000
Ragnar U. Bruaset & Associates Ltd.	Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL37c



Meters
150 75 0 150 300

Tellurium (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 38c

Ragnar U. Bruaset & Associates Ltd.



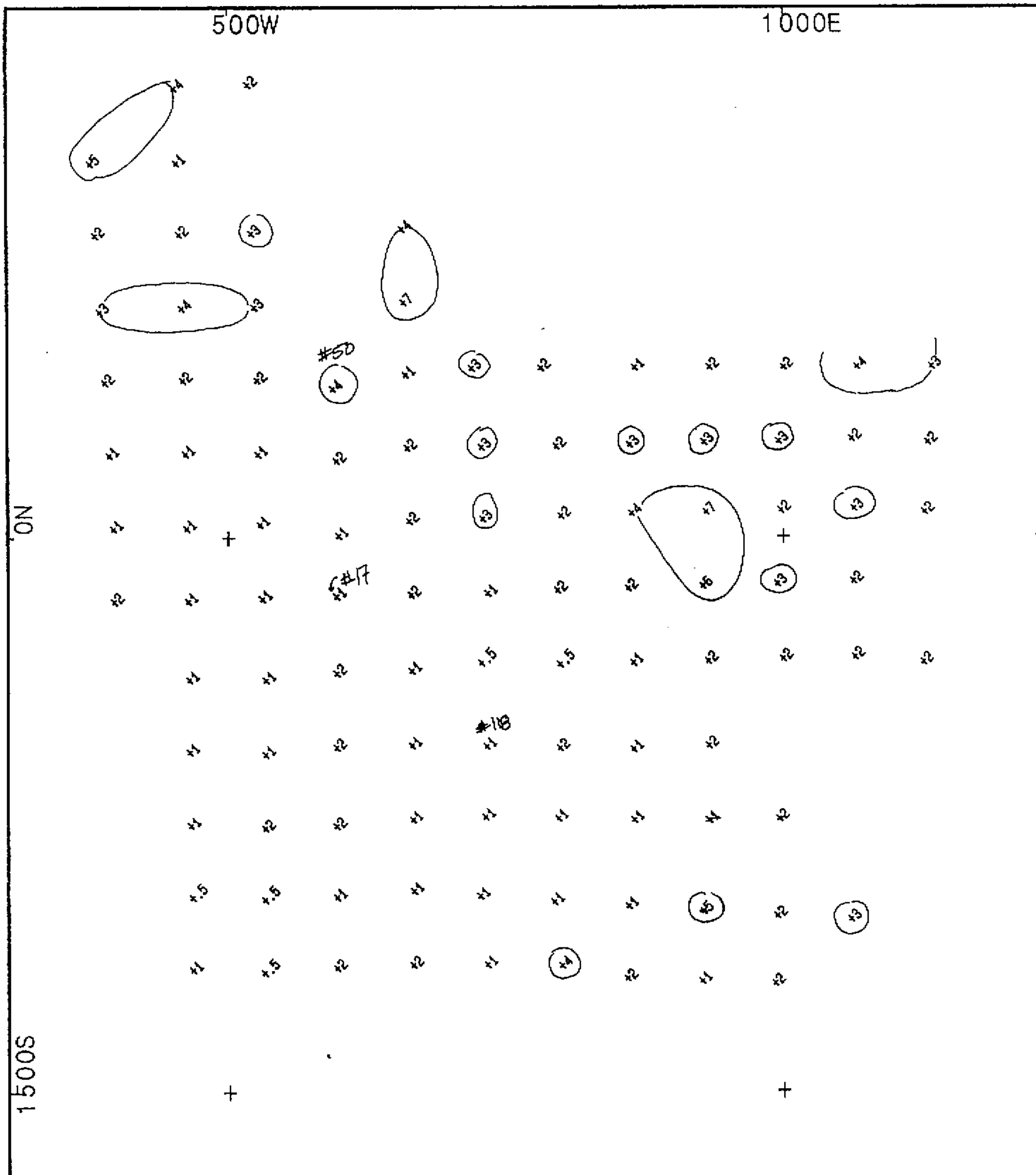
Terbium (ppb)

Gnome Project

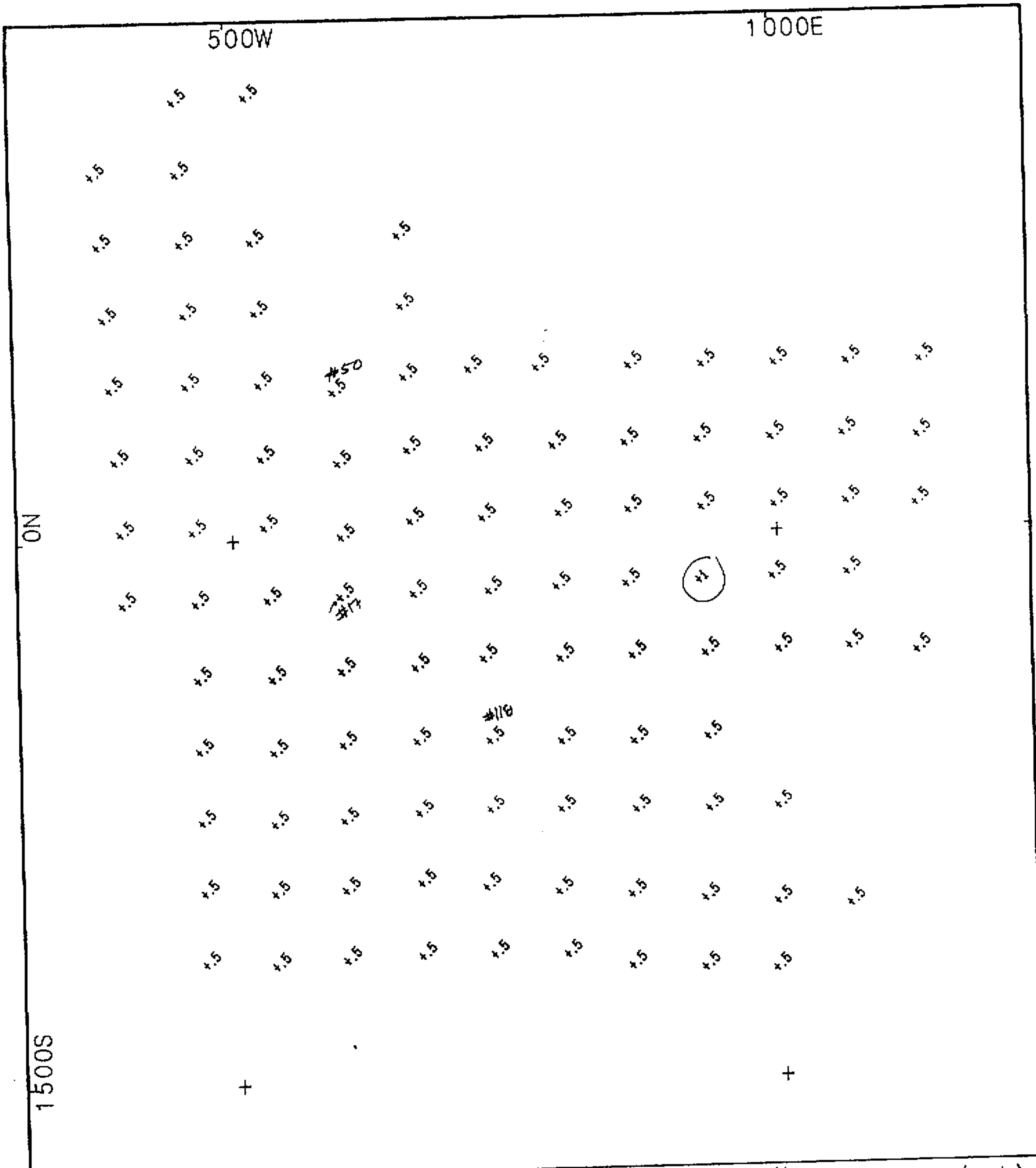
Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 39c

Ragnar U. Bruaset & Associates Ltd.



Meters 150 75 0 150 300	**Thorium** (ppb)	
	Gnome Project	
	Enzyme Leach	
	Project No.	NTS 92P/2	Scale 1 : 15000
Ragnar U. Bruaset & Associates Ltd.	Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL40c



Meters
150 75 0 150 300

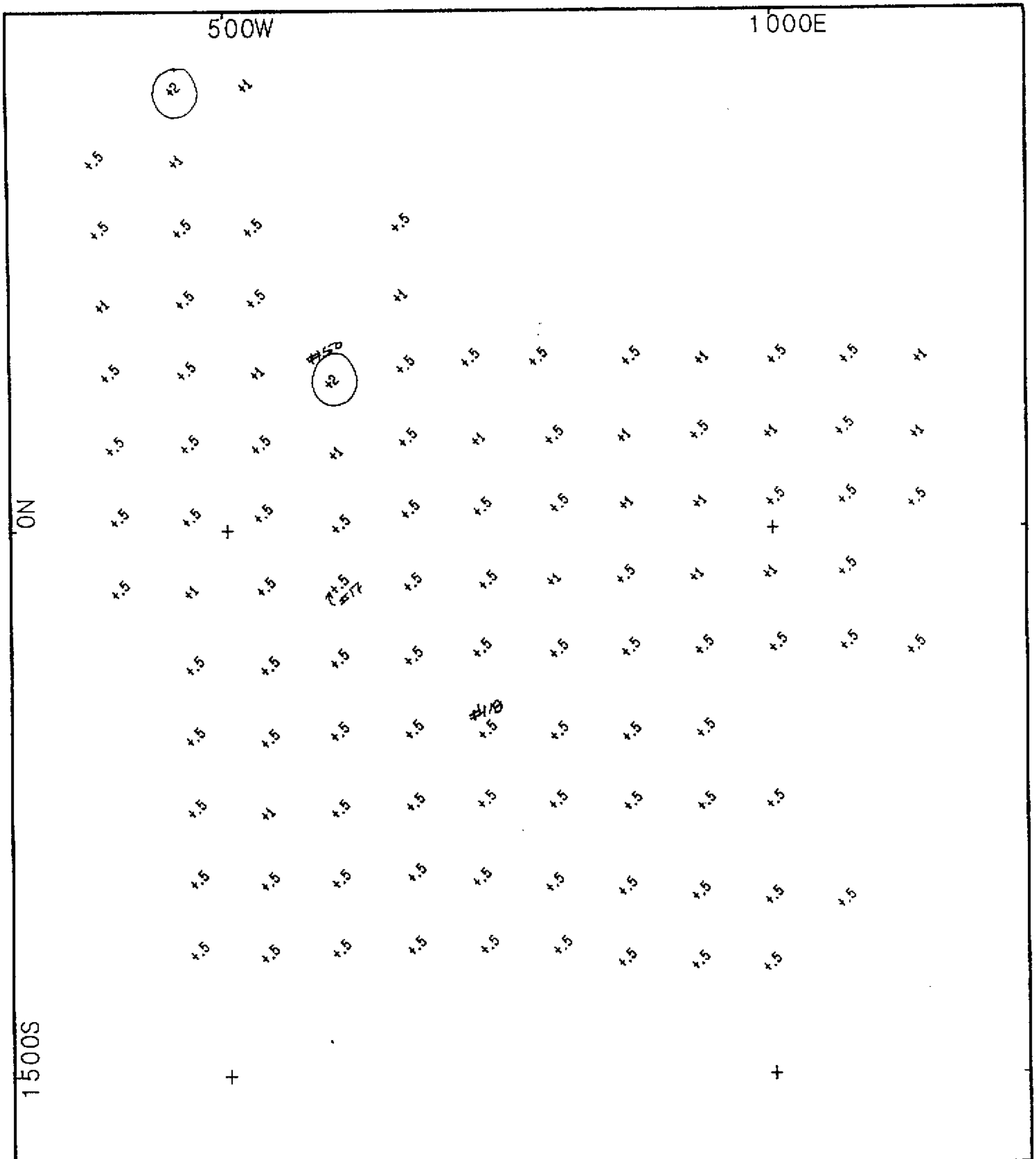
Ragnar U. Bruaset & Associates Ltd.

REE Thulium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL41c



Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Tin (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL42c

Titanium (ppb)

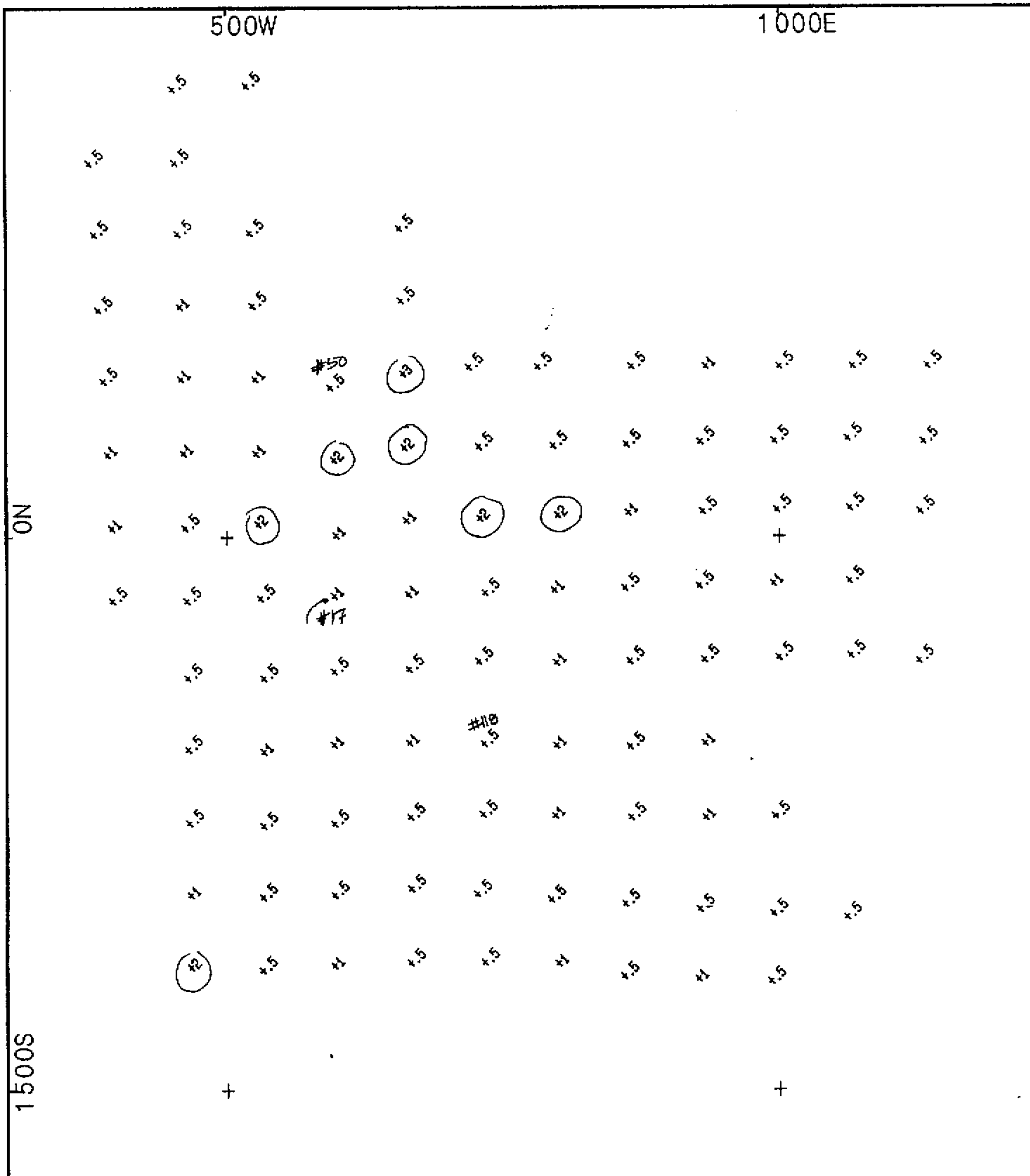
Gnome Project

Enzyme Leach

Meters
150 75 0 150 300

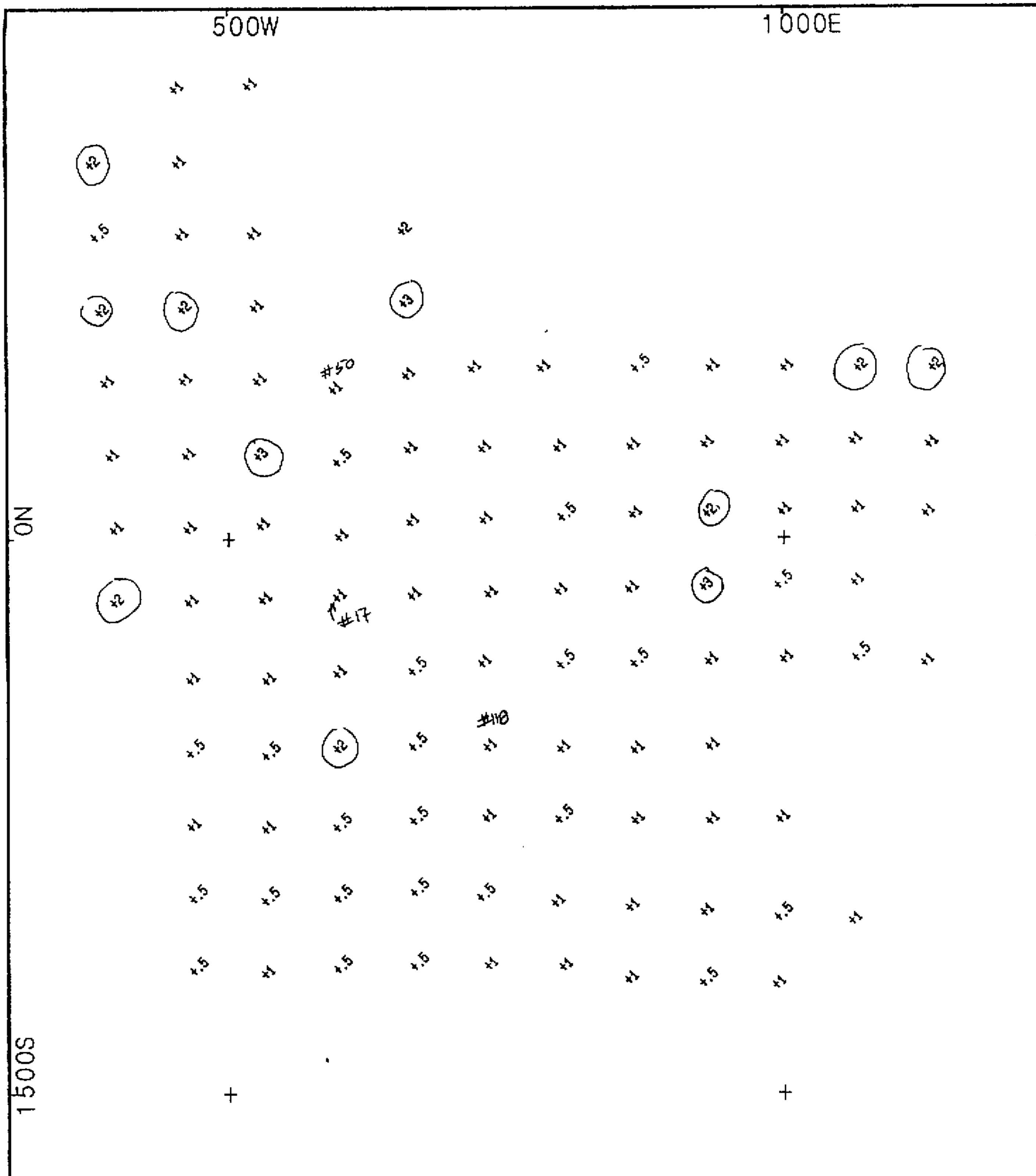
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL43c

Ragnar U. Bruaset & Associates Ltd.



Tungsten (ppb)		
Gnome Project		
Enzyme Leach		
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 44c

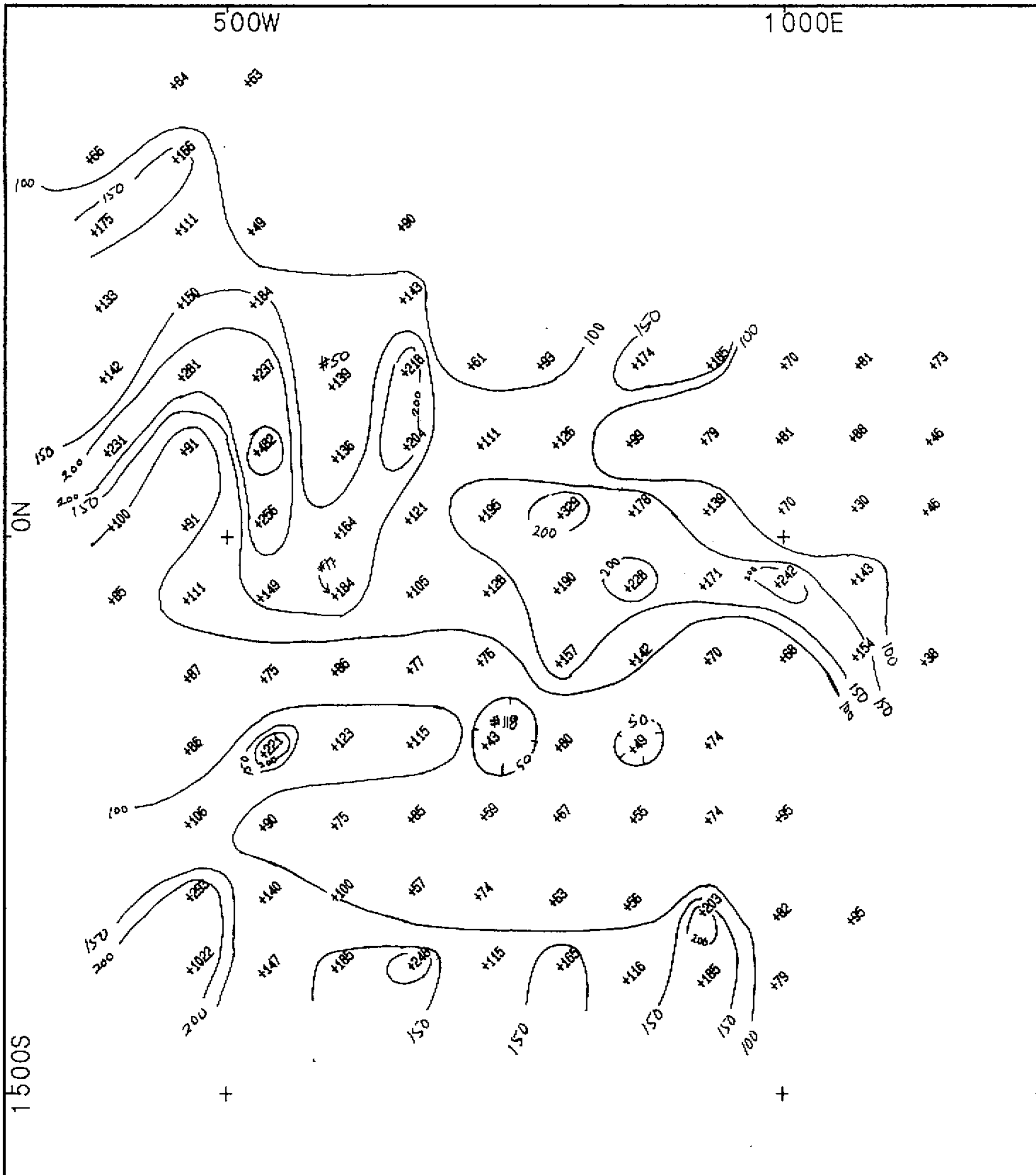
Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Uranium (ppb)		
Gnome Project Enzyme Leach		
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 45c



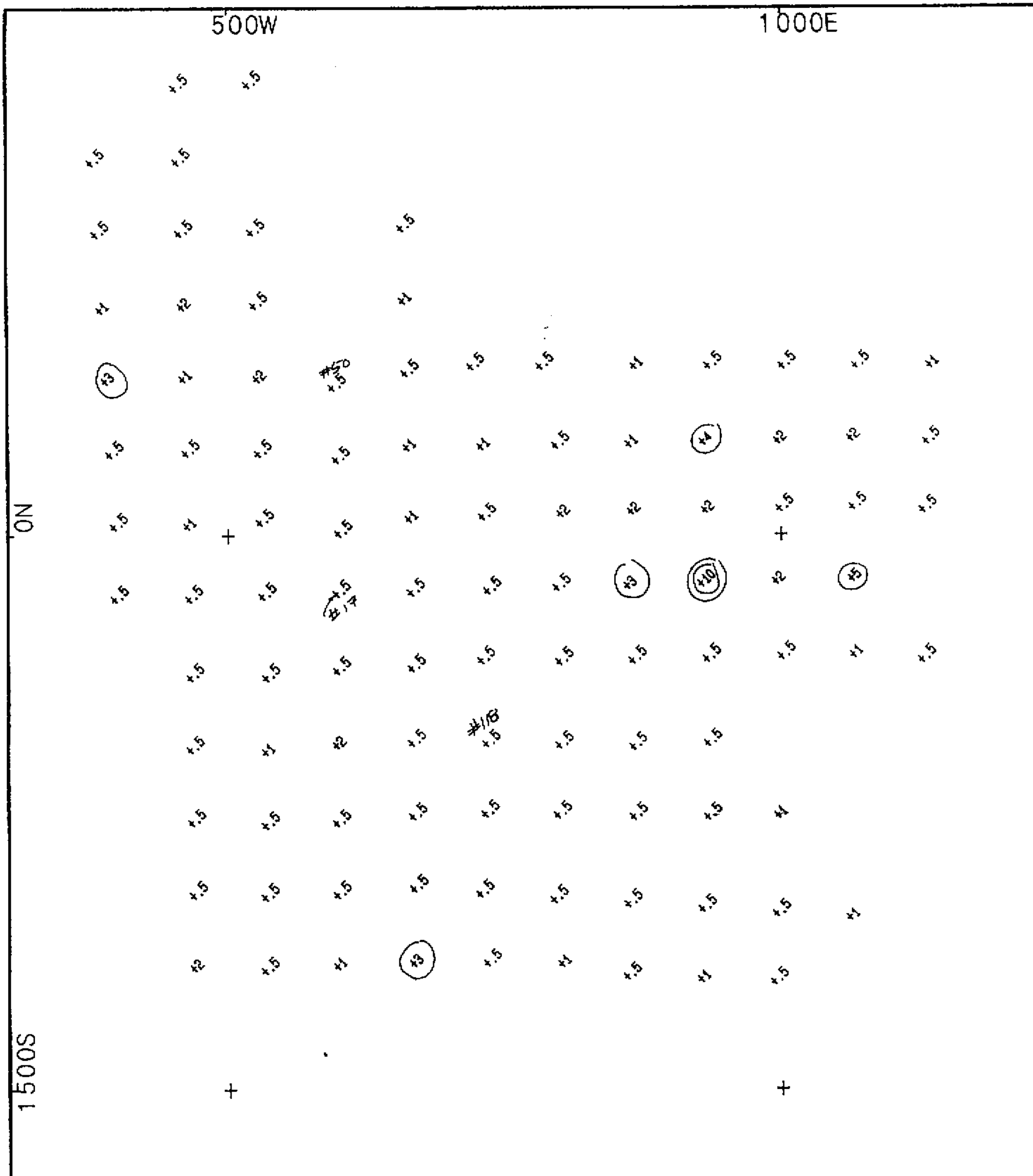
Vanadium (ppb)

Gnome Project

Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL46c

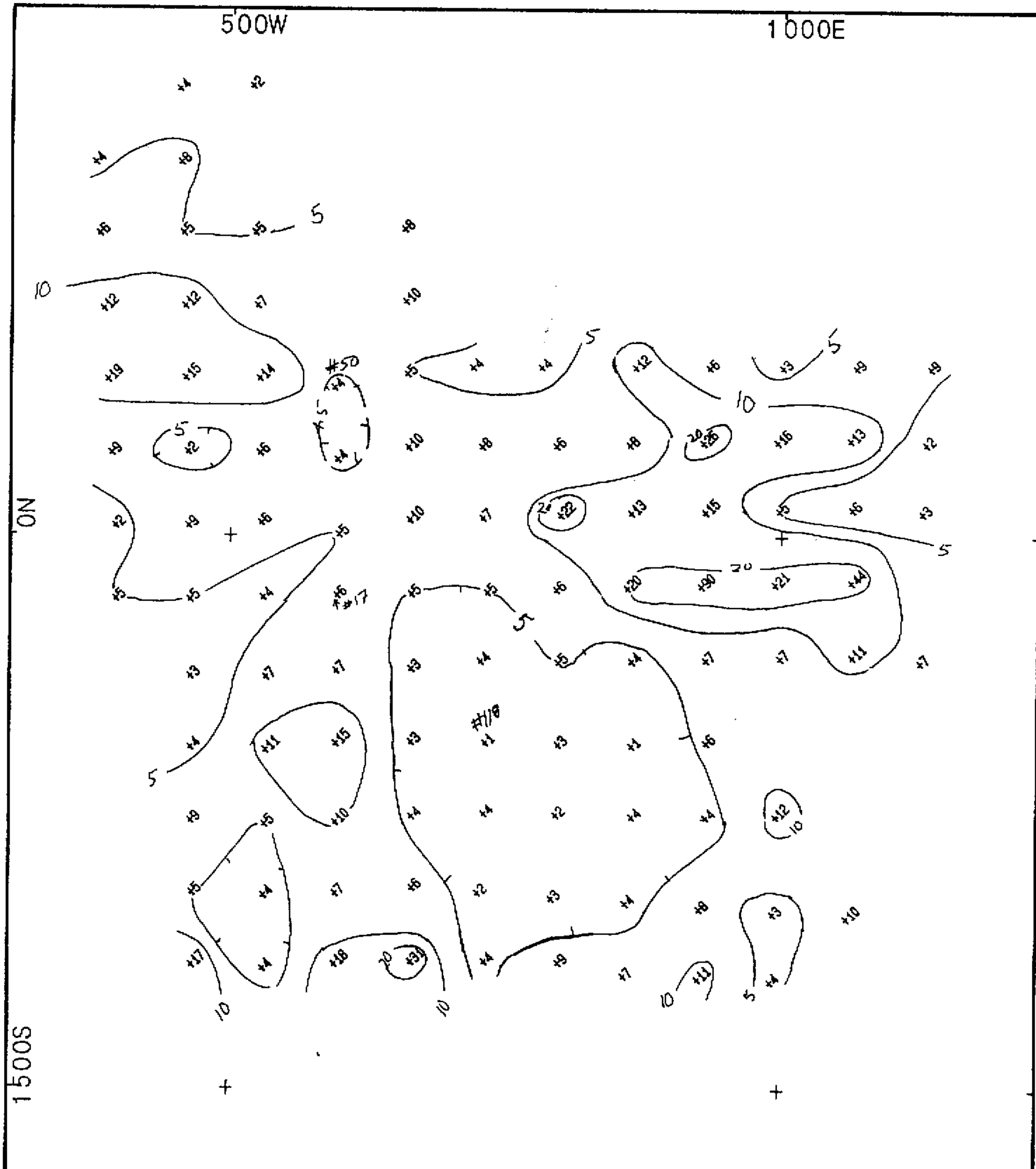
Ragnar U. Bruaset & Associates Ltd.



Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

REE Ytterbium (ppb)		
Gnome Project Enzyme Leach		
Project No.	NTS 92P/2	Scale 1:15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL47c



REE Yttrium (ppb)

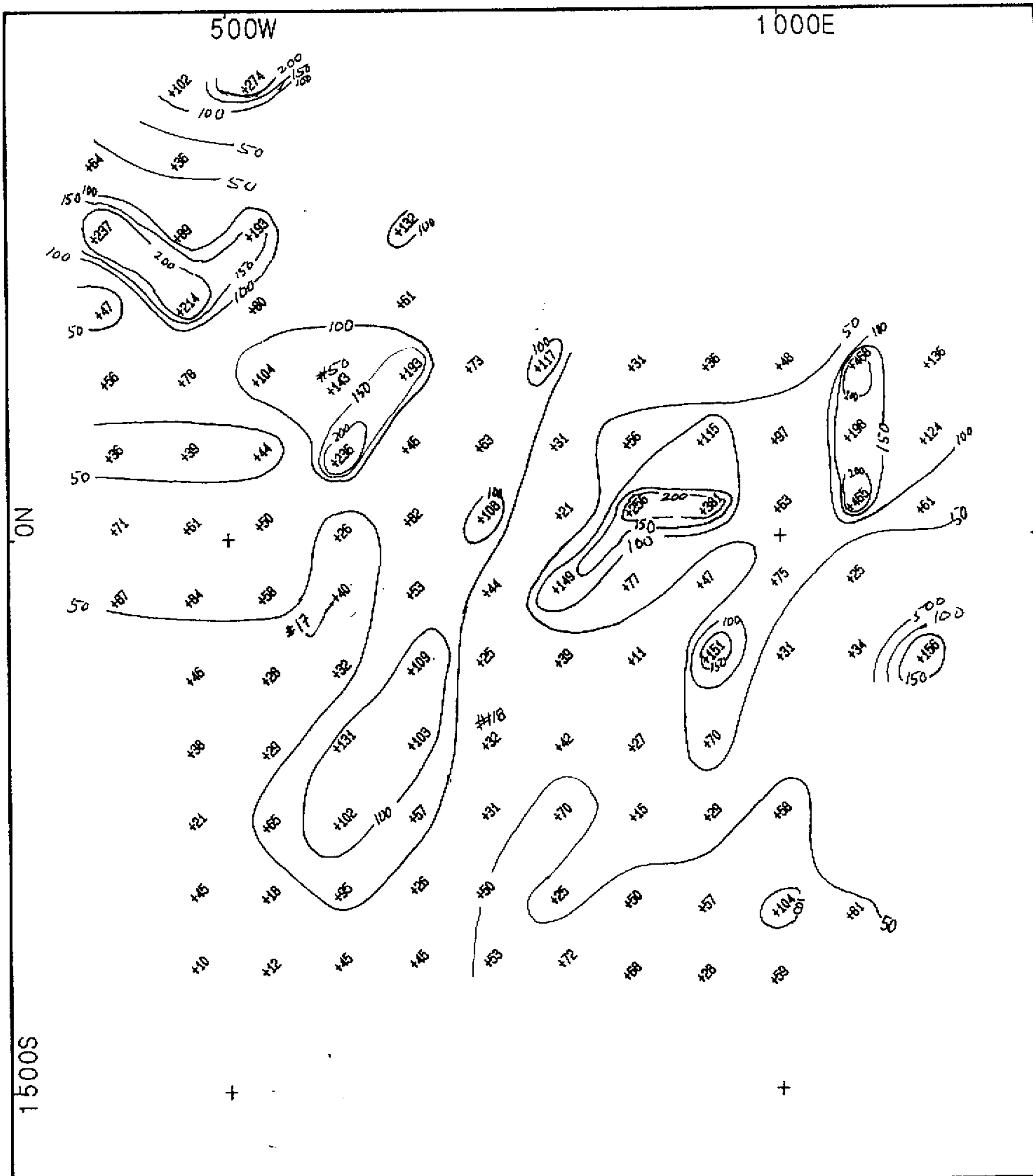
Gnome Project

Enzyme Leach

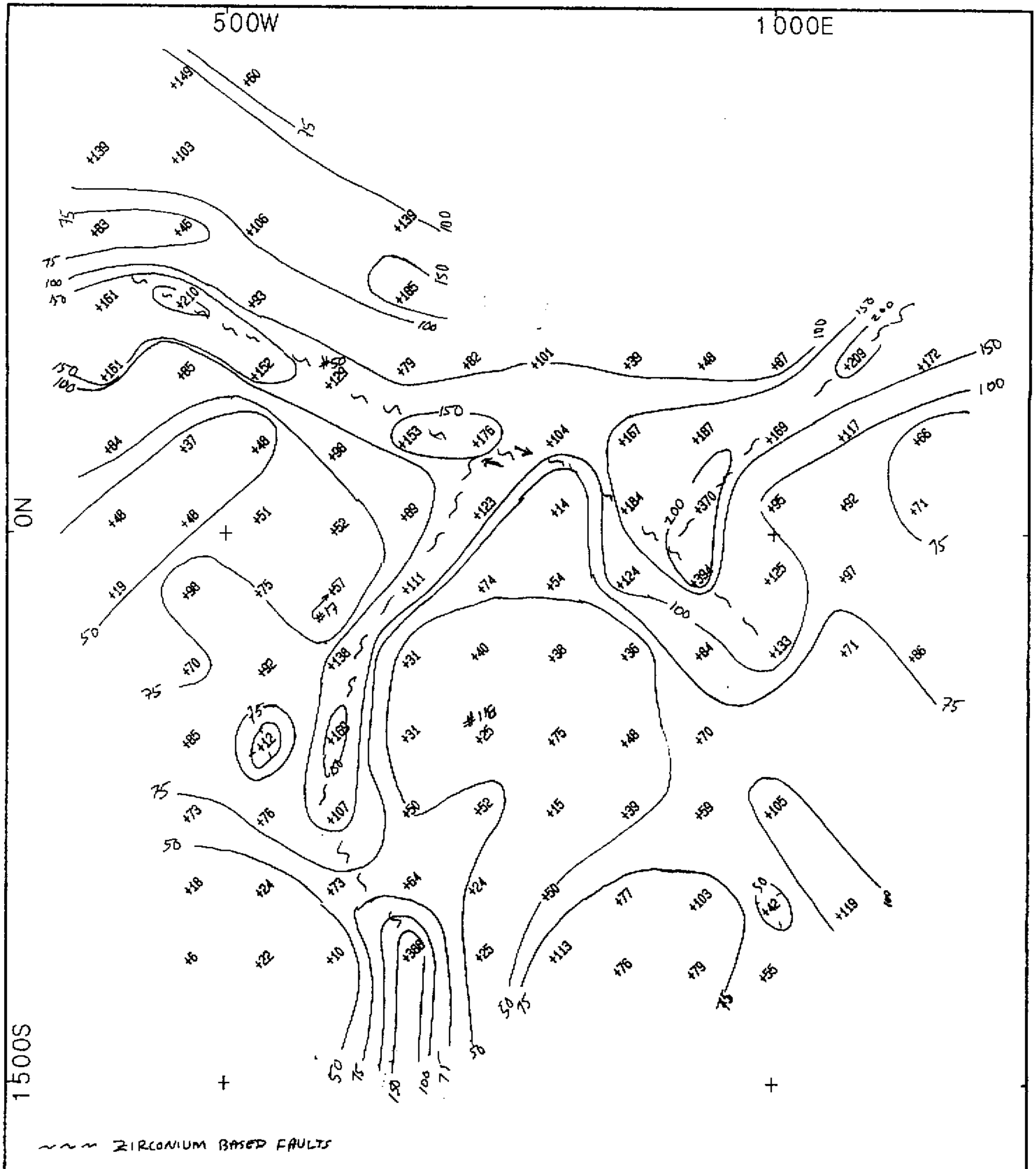
Meters
150 75 0 150 300

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL48c

Ragnar U. Bruaset & Associates Ltd.



Meters 150 75 0 150 300	Zinc (ppb)		
	Gnome Project		
	Enzyme Leach		
	Project No.	NTS 92P/2	Scale 1:15000
Ragnar U. Bruaset & Associates Ltd.	Date October 1994	Report No. 1217RPT. XLS	Fig. No. EL 49c



Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Zirconium (ppb)

Gnome Project

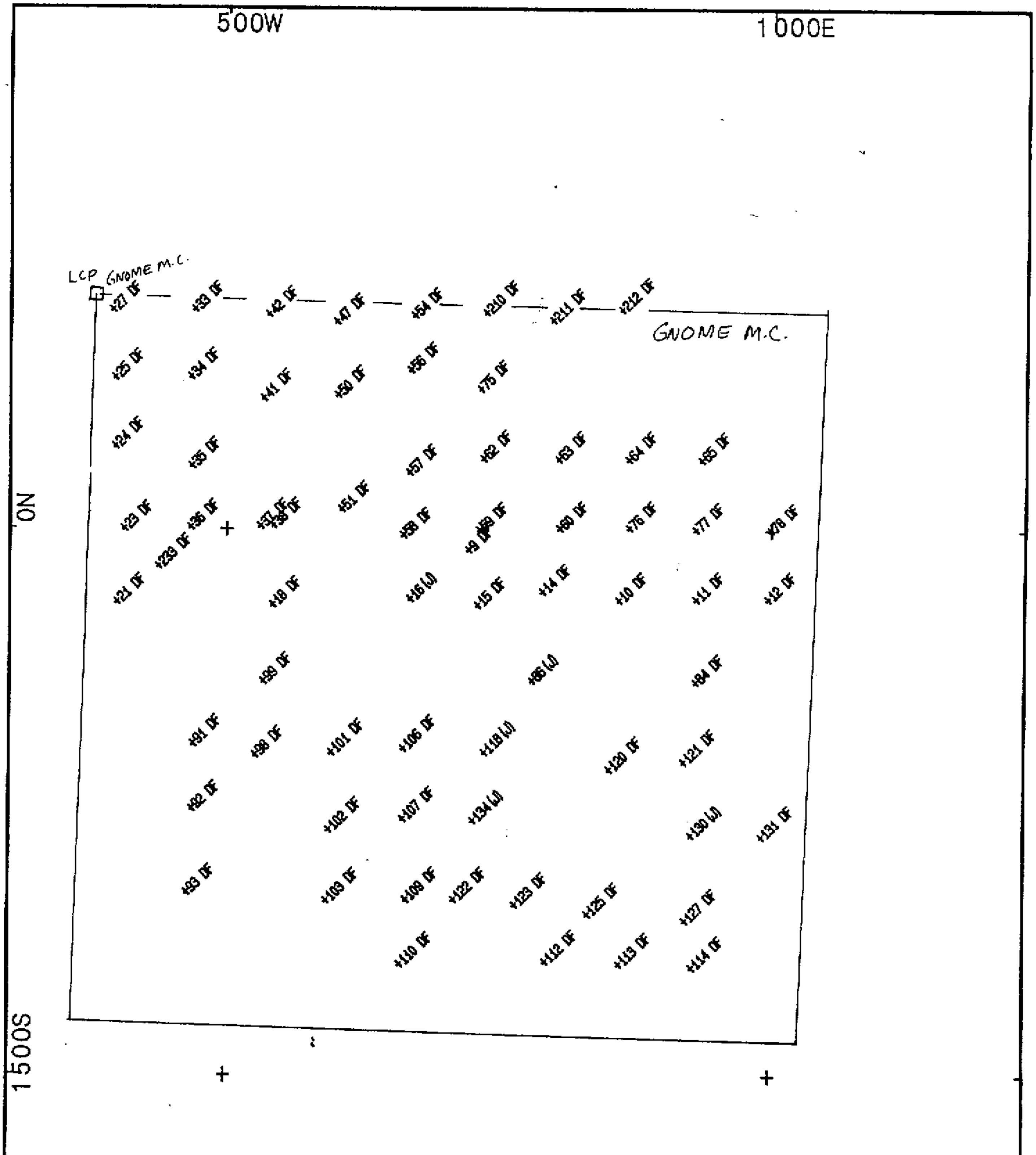
Enzyme Leach

Project No.	NTS 92P/2	Scale 1 : 15000
Date October 1994	Report No. 1217RPT.XLS	Fig. No. EL50c

APPENDIX 4 (37 pages)
HAND CONTOURED PLOTS OF SELECT ELEMENTS (36 pages)
LIST OF DETECTION LIMITS (1 page)

NOTE: values < detection limit plotted as 0.5 detection limit

PLATE	(POSTSCRIPT c INDICATES CONTOURED PLAN)	SCALE
B 1	SAMPLE LOCATION, COMPILATION MAP	ALL
B 2c	ANTIMONY	AT
B 3c	ARSENIC	1:15,000
B 4c	BARIUM	
B 5c	BROMINE	
B 6c	CALCIUM	
B 7c	CERIUM	
B 8c	CESIUM	
B 9c	CHROMIUM	
B 10c	COBALT	
B 11	EUROPIUM	
B 12c	GOLD	
B 13	HAFNIUM	
B 14	IRIDIUM	
B 15c	IRON	
B 16c	LANTHANUM	
B 17c	LUTETIUM	
B 18c	MERCURY	
B 19c	MOLYBDENUM	
B 20	NEODYMIUM	
B 21	NICKEL	
B 22	POTASSIUM	
B 23	RUBIDIUM	
B 24c	SAMARIUM	
B 25c	SCANDIUM	
B 26	SELENIUM	
B 27	SILVER	
B 28c	SODIUM	
B 29c	STRONTIUM	
B 30	TANTALUM	
B 31	TERBIUM	
B 32	THORIUM	
B 33	TUNGSTEN	
B 34	URANIUM	
B 35c	YTTERBIUM	
B 36c	ZINC	



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (G94-144B etc) B = Bark

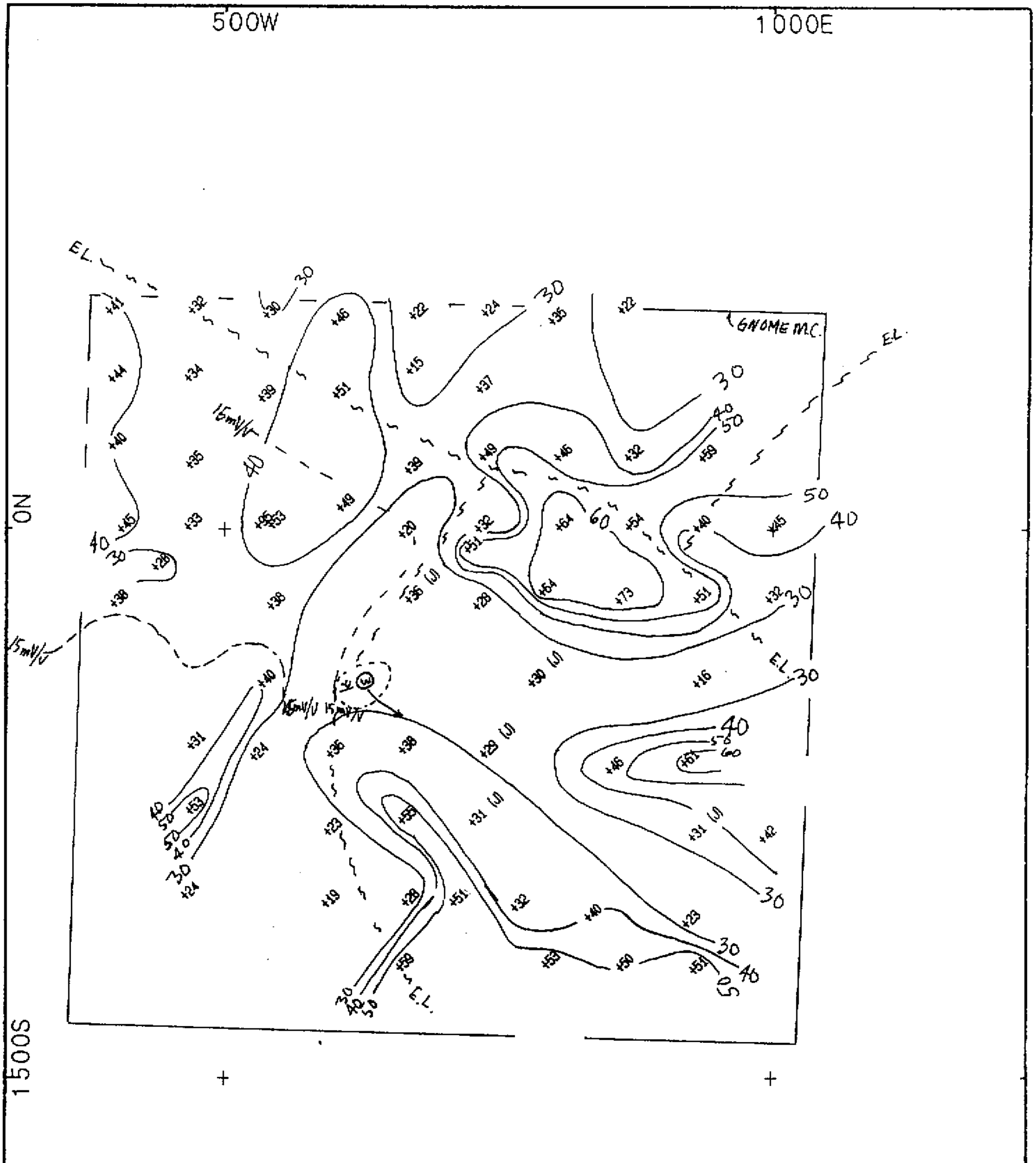
Meters
150 75 0 150 300

Sample Locations

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B 1

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-1448 etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

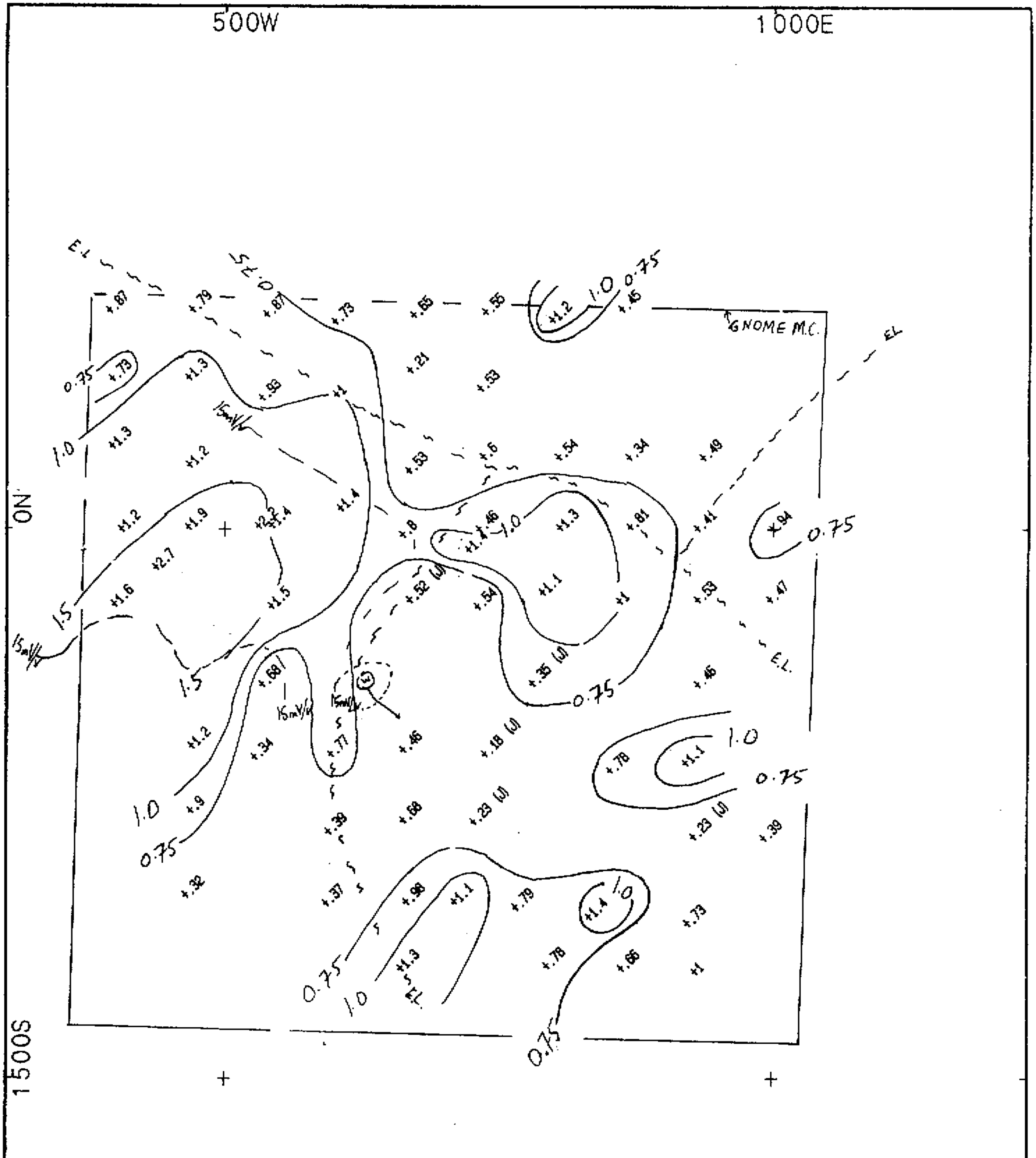
Antimony (ppm/1000)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B2c



Legend for Bark Sample Locations:

DF = Douglas Fir   J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Arsenic (ppm)

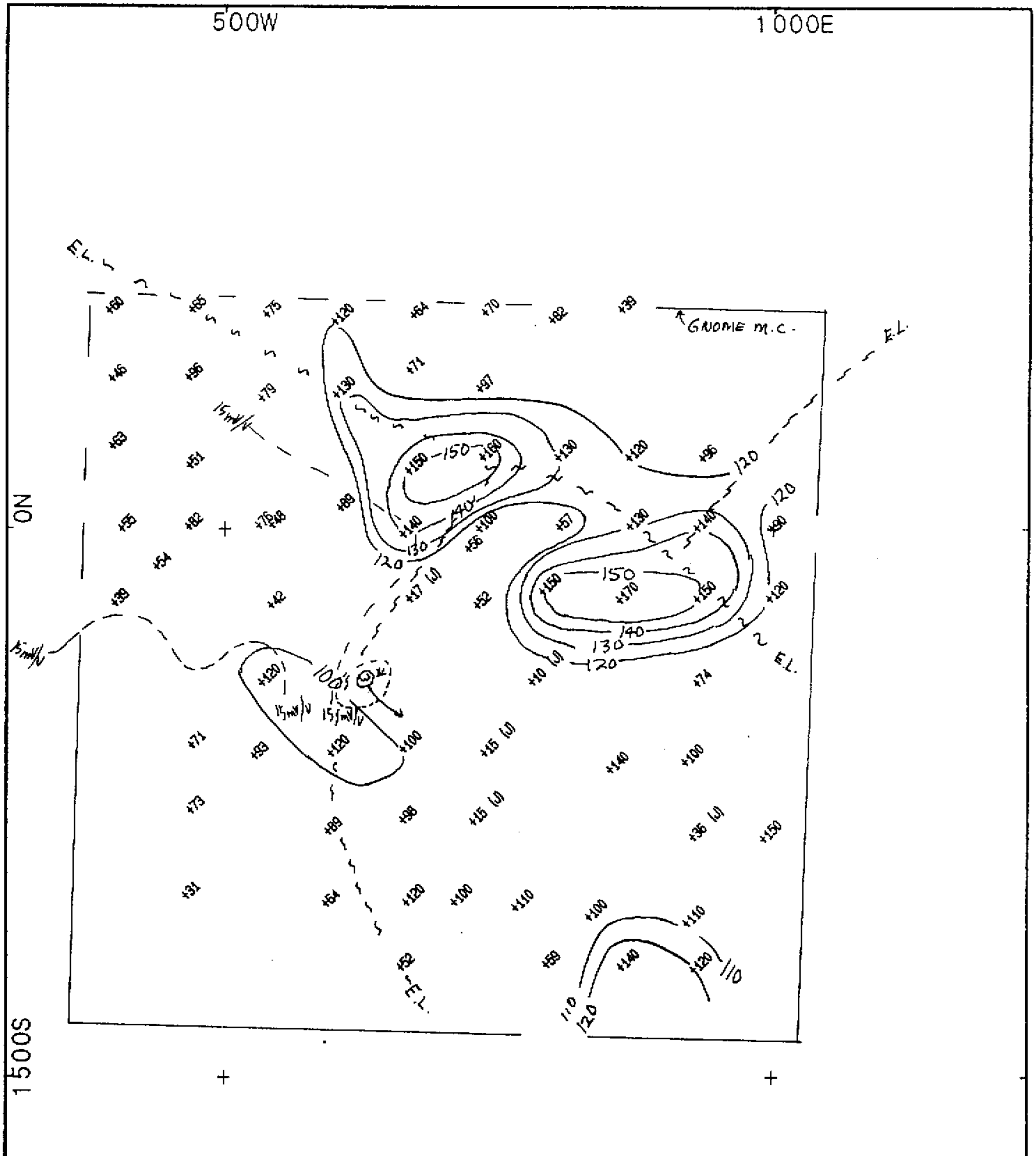
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B3c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Barium (ppm)

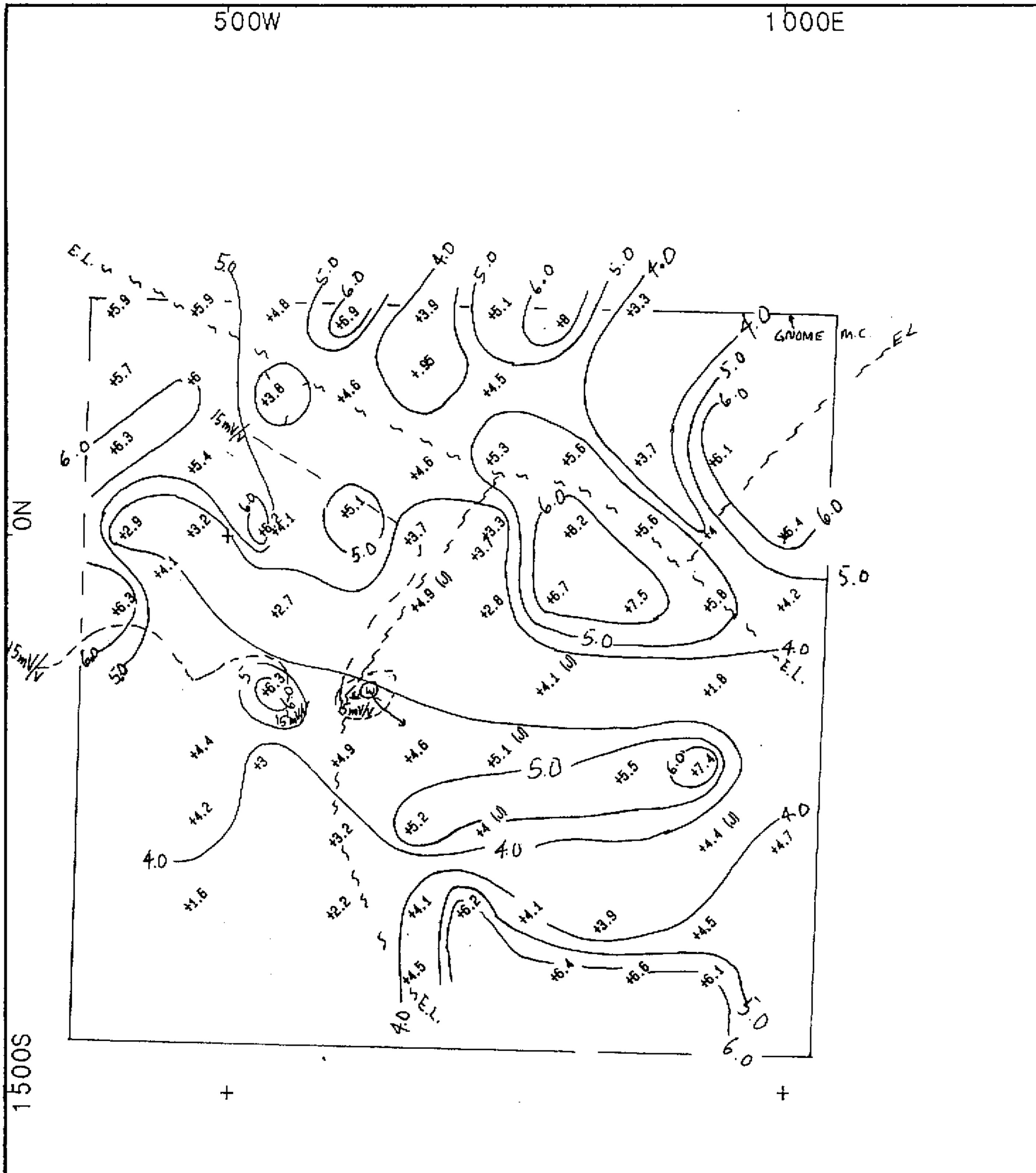
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS	Scale
	92P/2	1:15000
Date: December 1994	Report No.	Fig. No. B 4c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

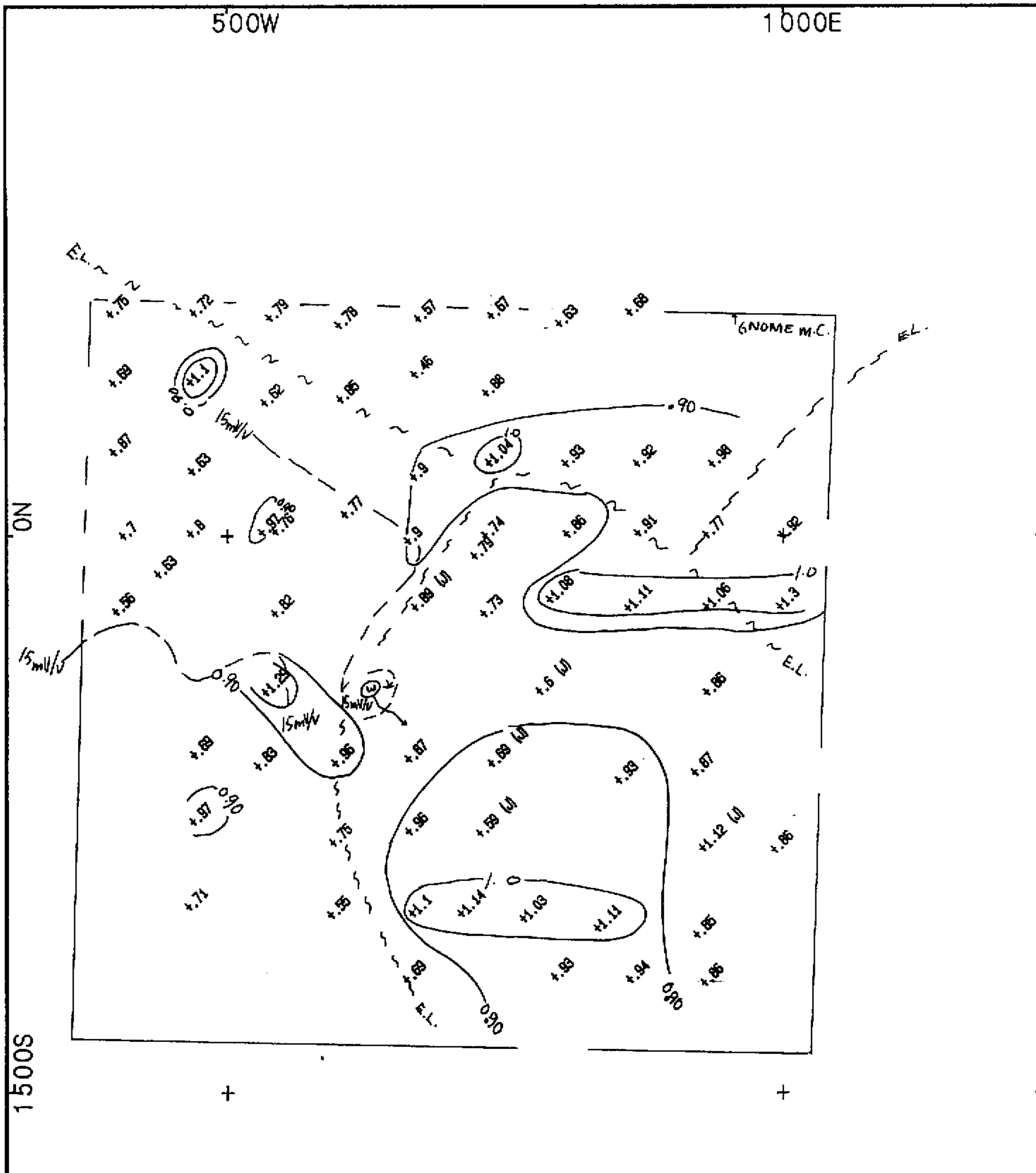
Bromine (ppm)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B5c



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

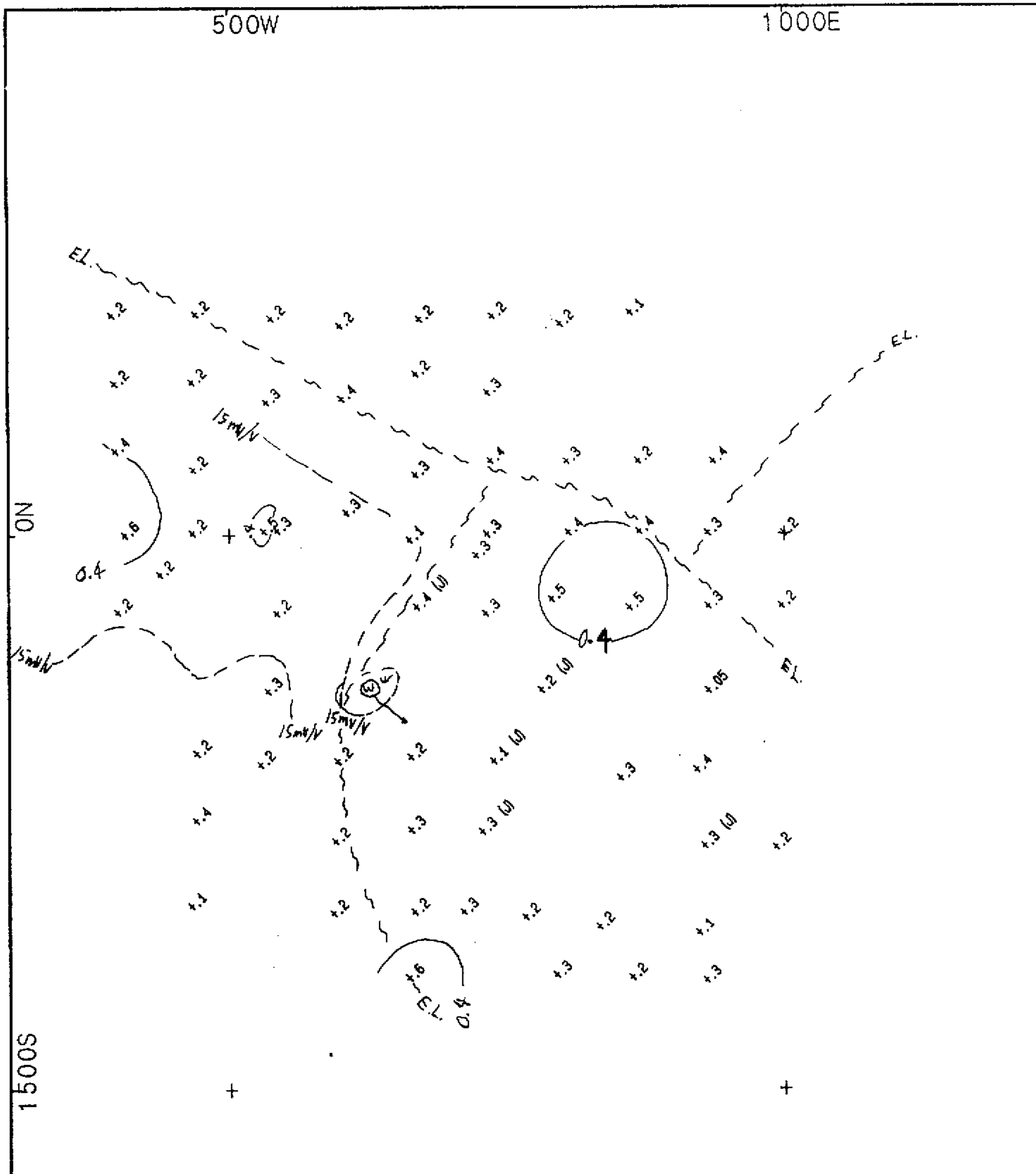
In field no.'s (394-144B etc.) B = Bark

Meters

150 75 0 150 300

Calcium (%)		
Gnome Project Douglas Fir and Lodgepole Pine Outer Bark (any grouping of data is based on DF only)		
Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No B6c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

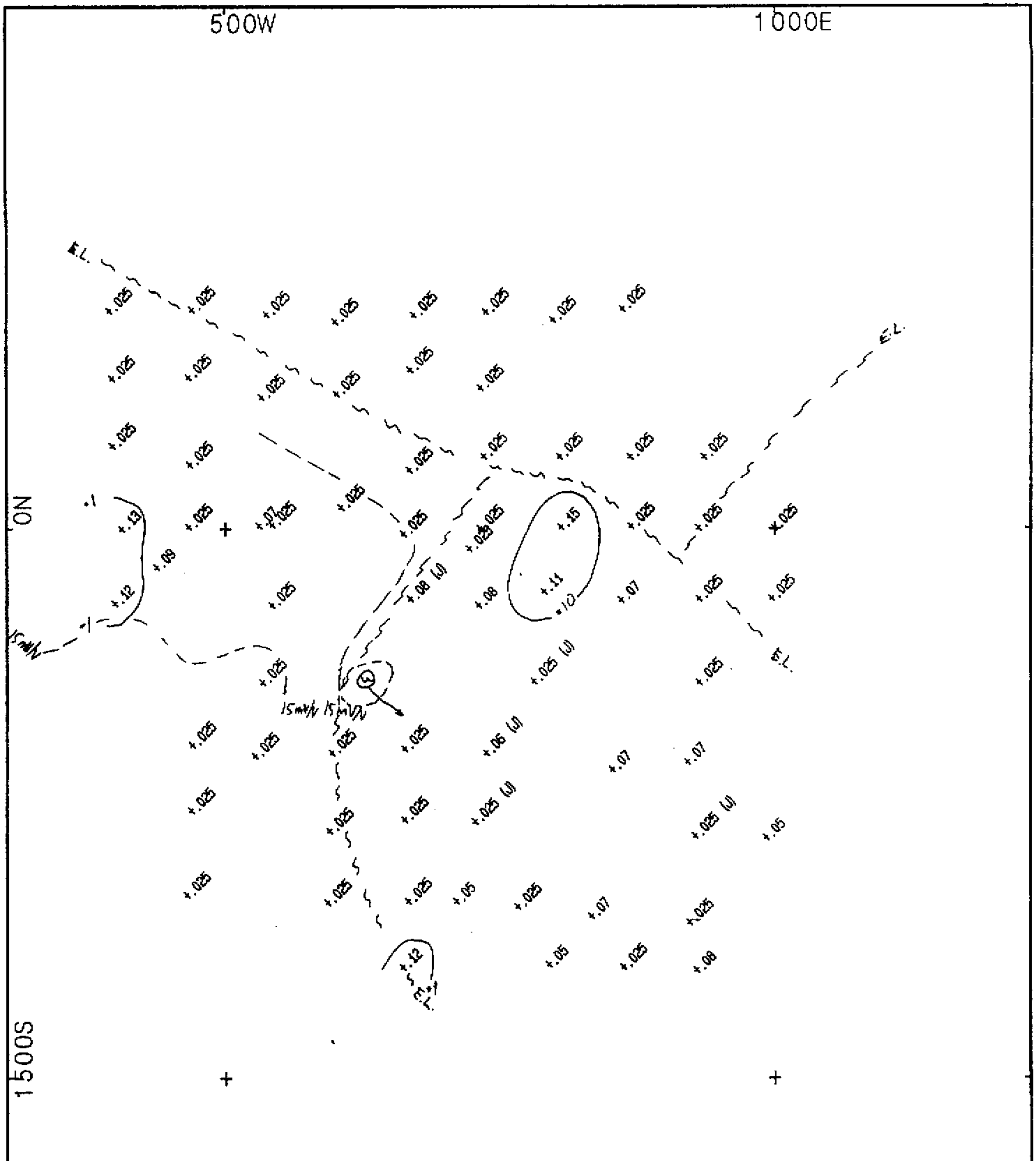
Cerium (ppm)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B7c



Legend for Bark Sample Locations:

DF = Douglas Fir   J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Cesium (ppm)

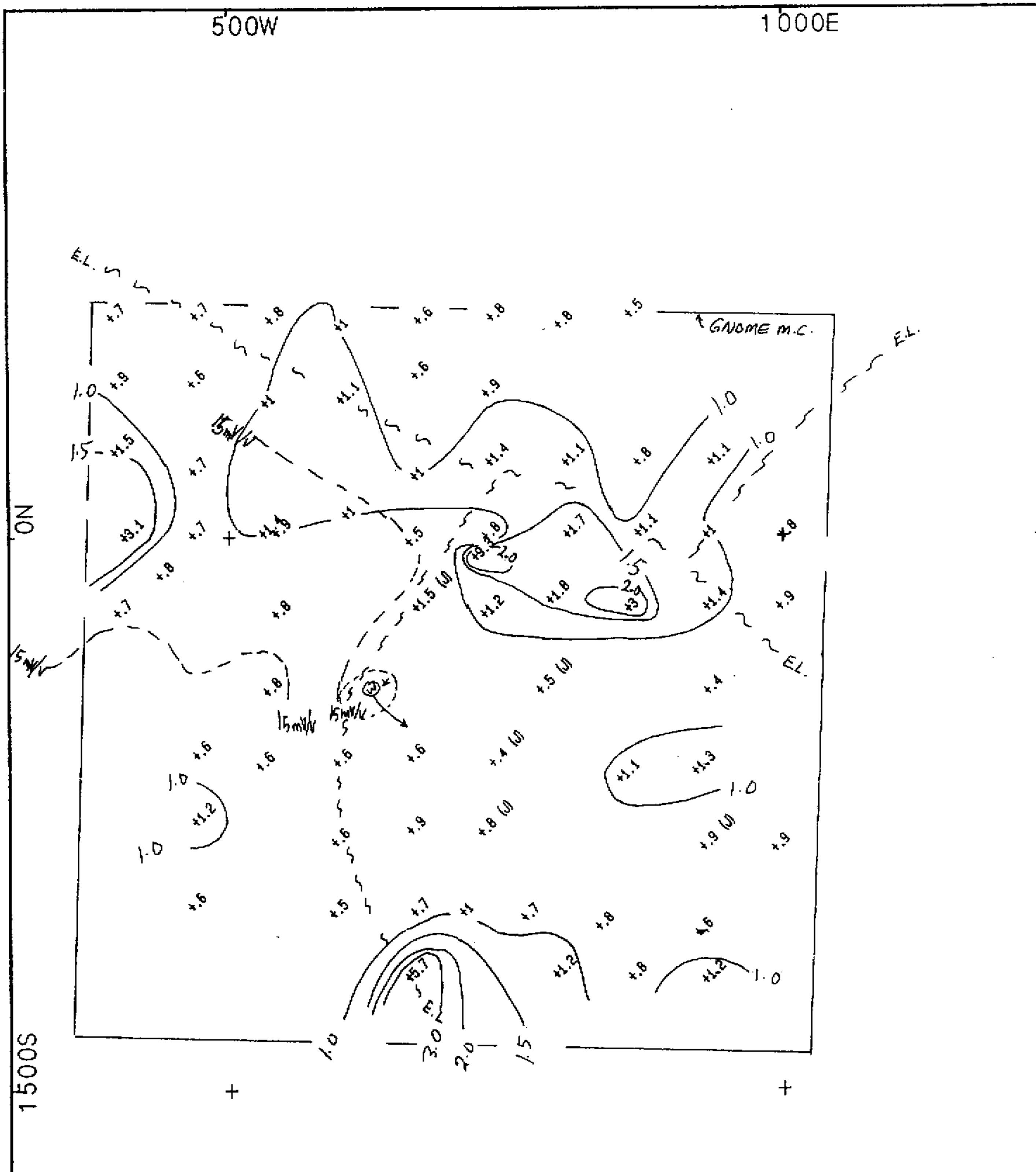
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B8c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (G94-144B etc.) B = Bark

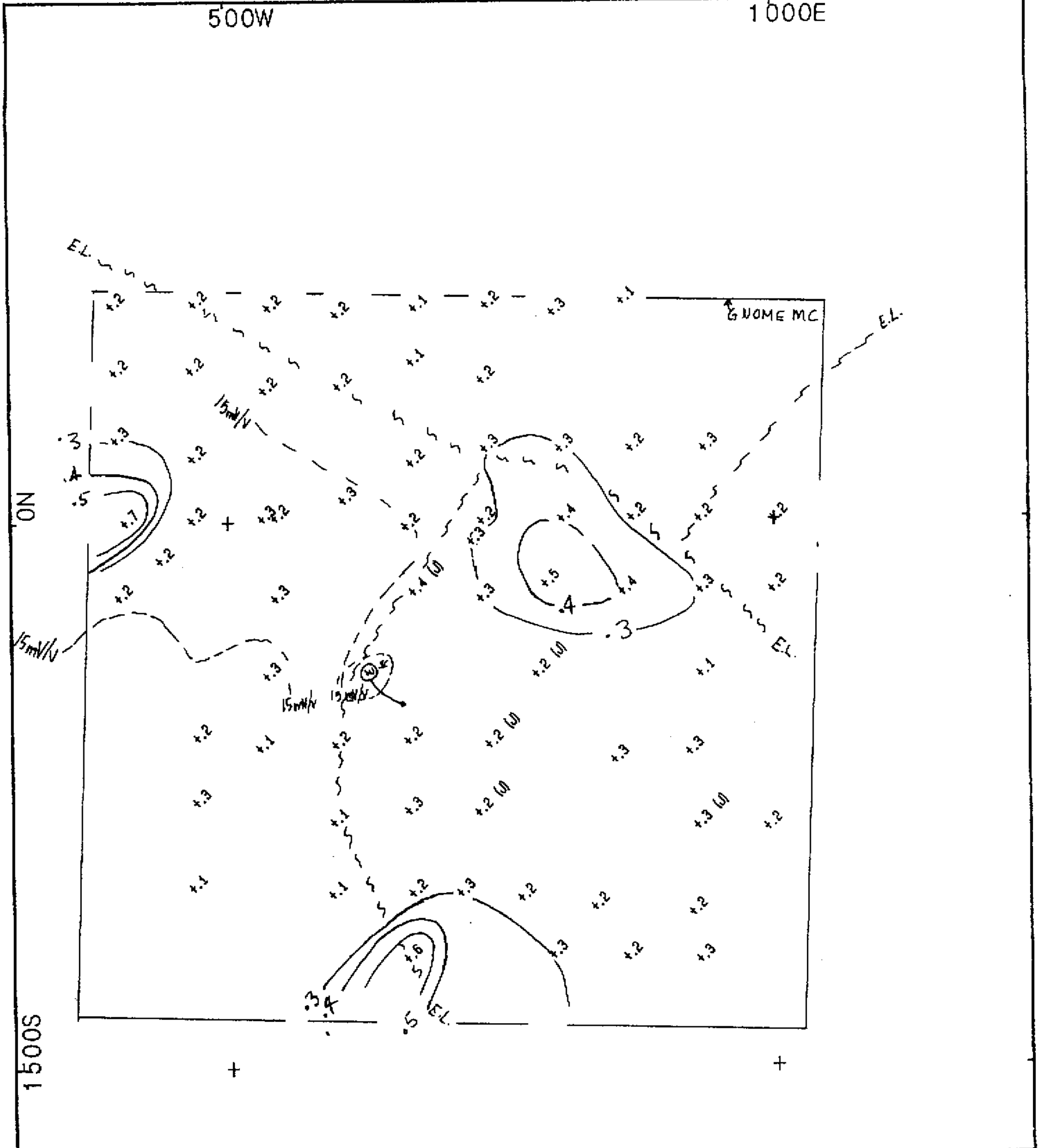
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Chromium (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B 9c



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Cobalt (ppm)

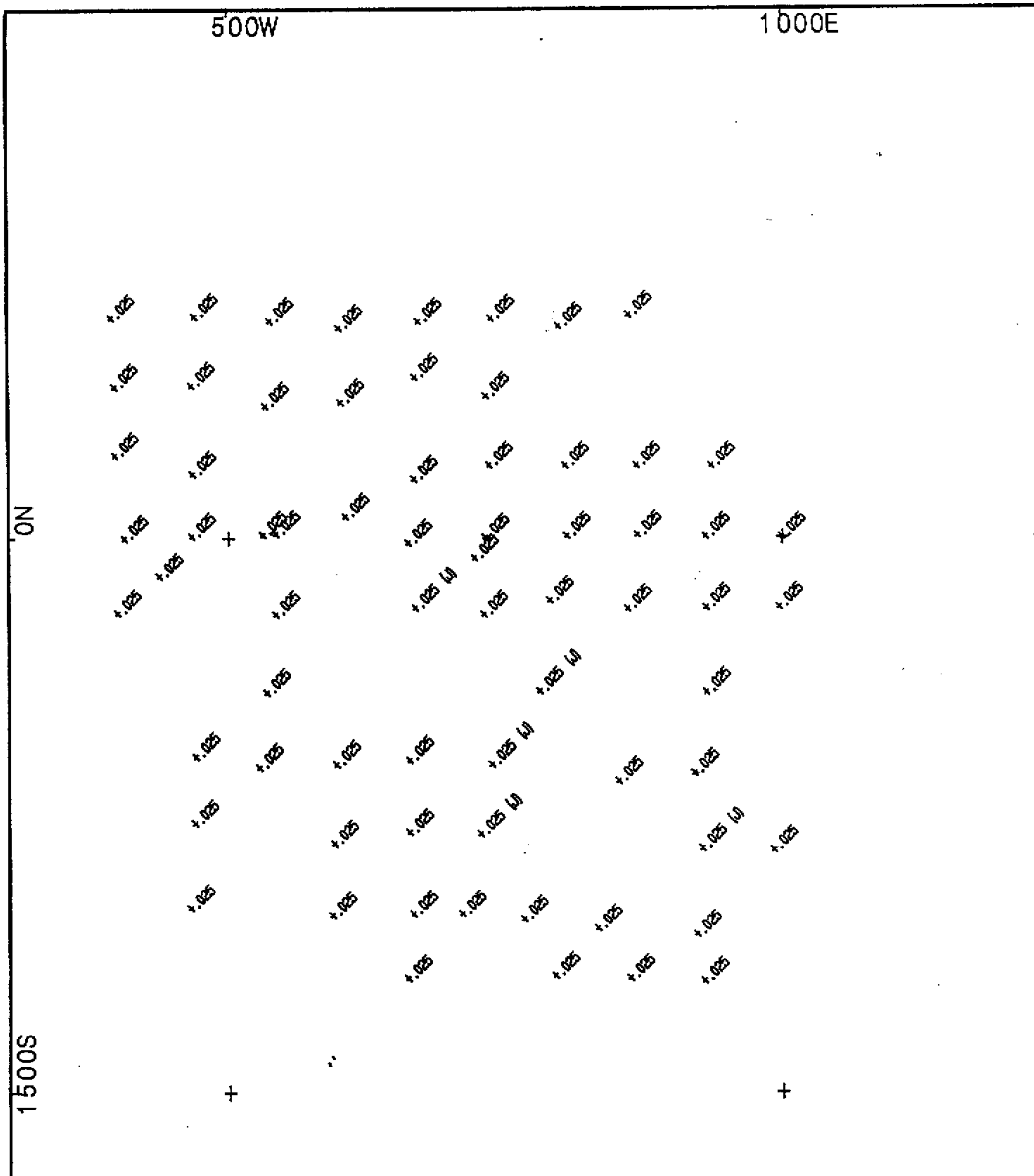
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B10c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
in field no.'s (G94-144B etc.) B = Bark

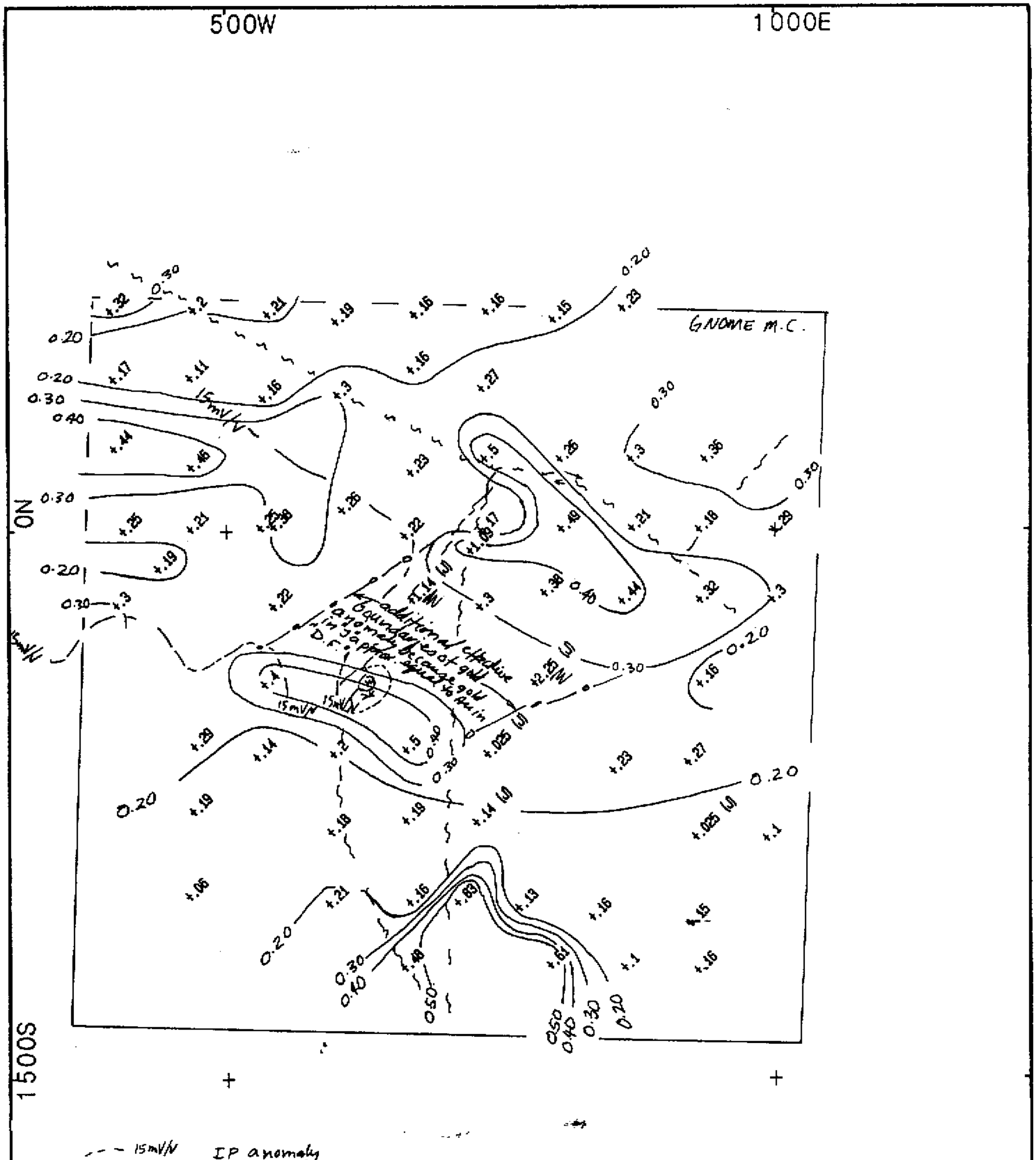
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Europium (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B 11



Legend for Bark Sample Locations:

DF = Douglas Fir   J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

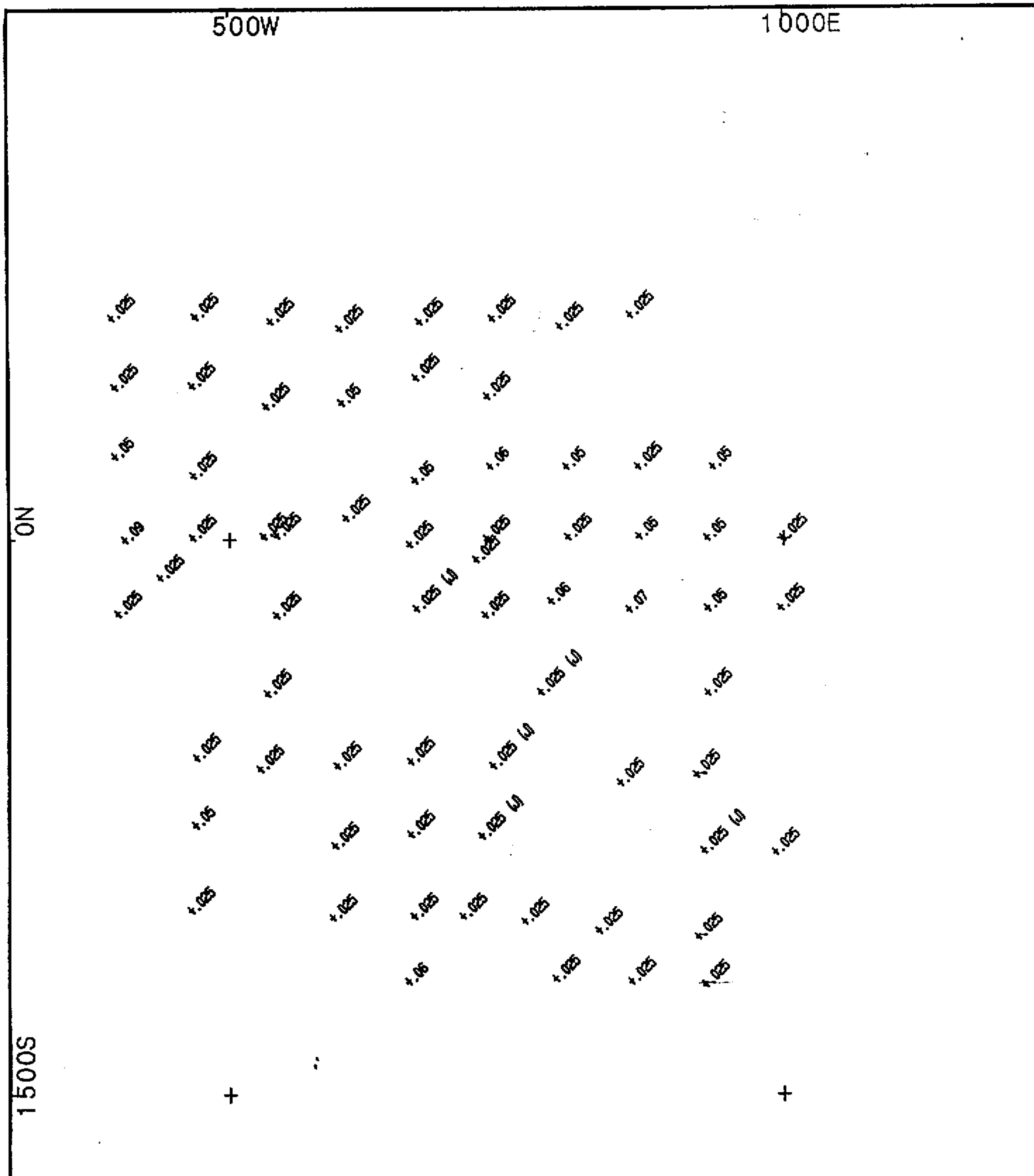
Gold (ppb)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B/12



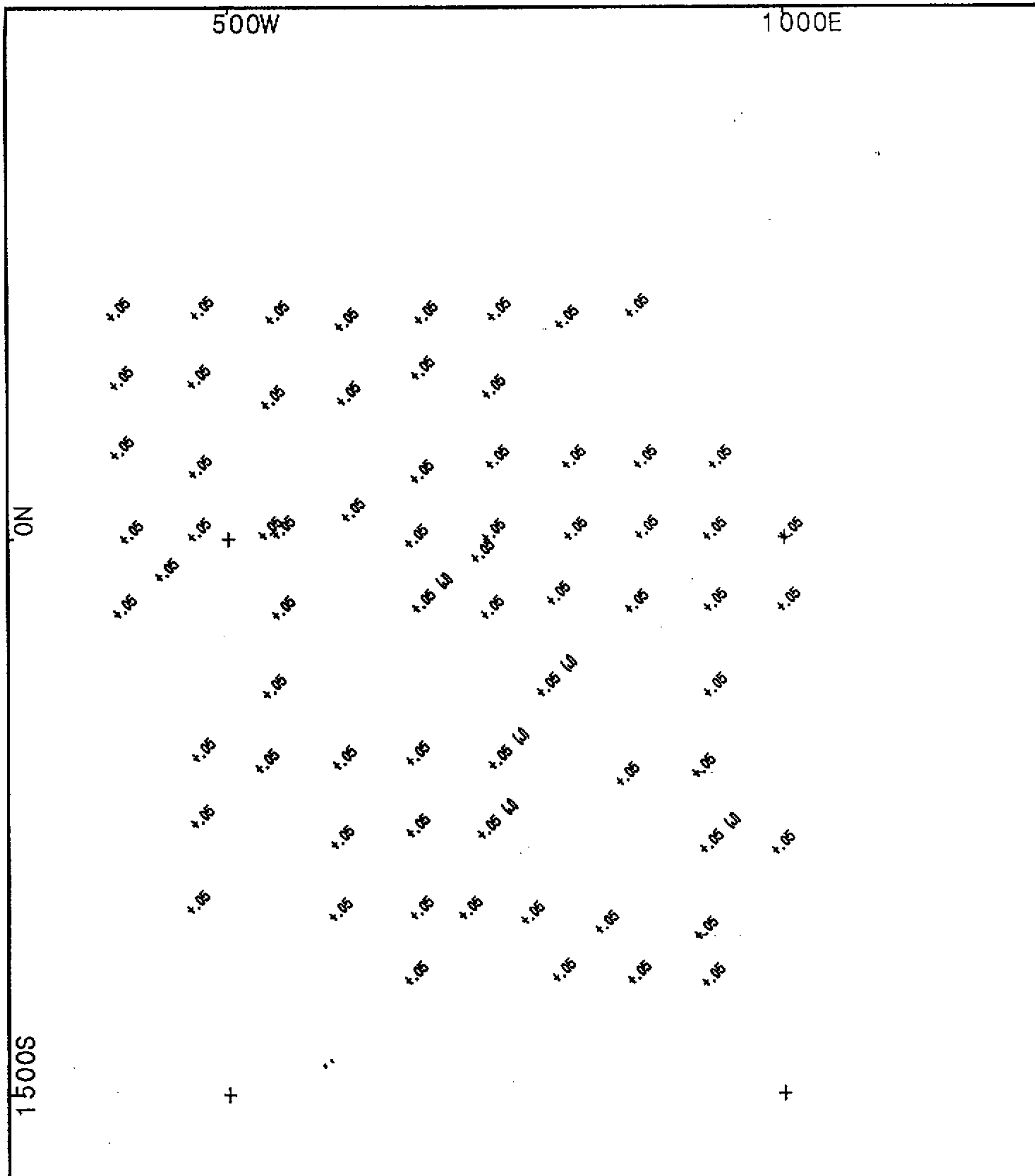
Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (394-1448 etc.) B = Bark
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Hafnium (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B13



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (G94-144B etc.) B = Bark

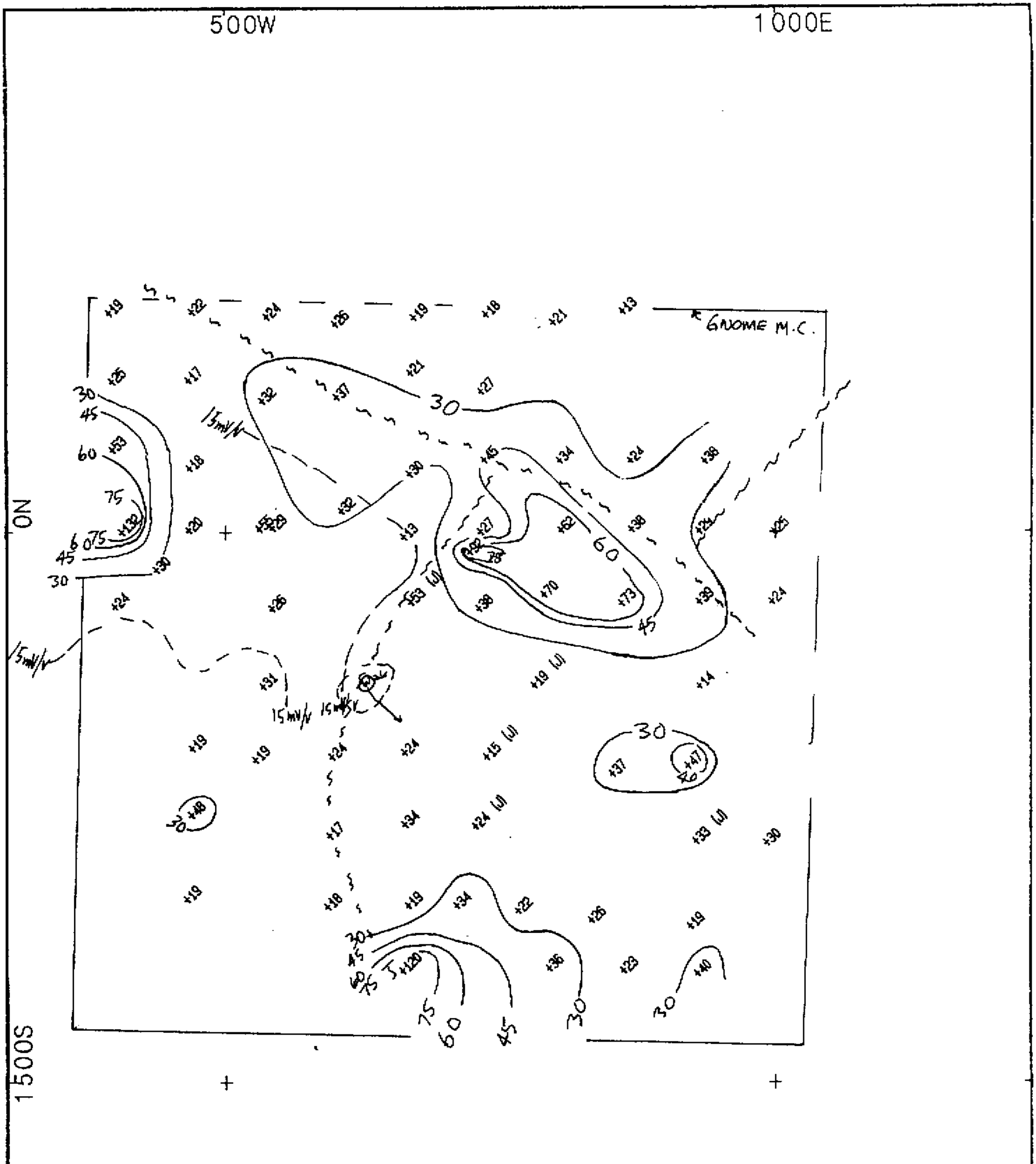
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Iridium (ppb)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B 14

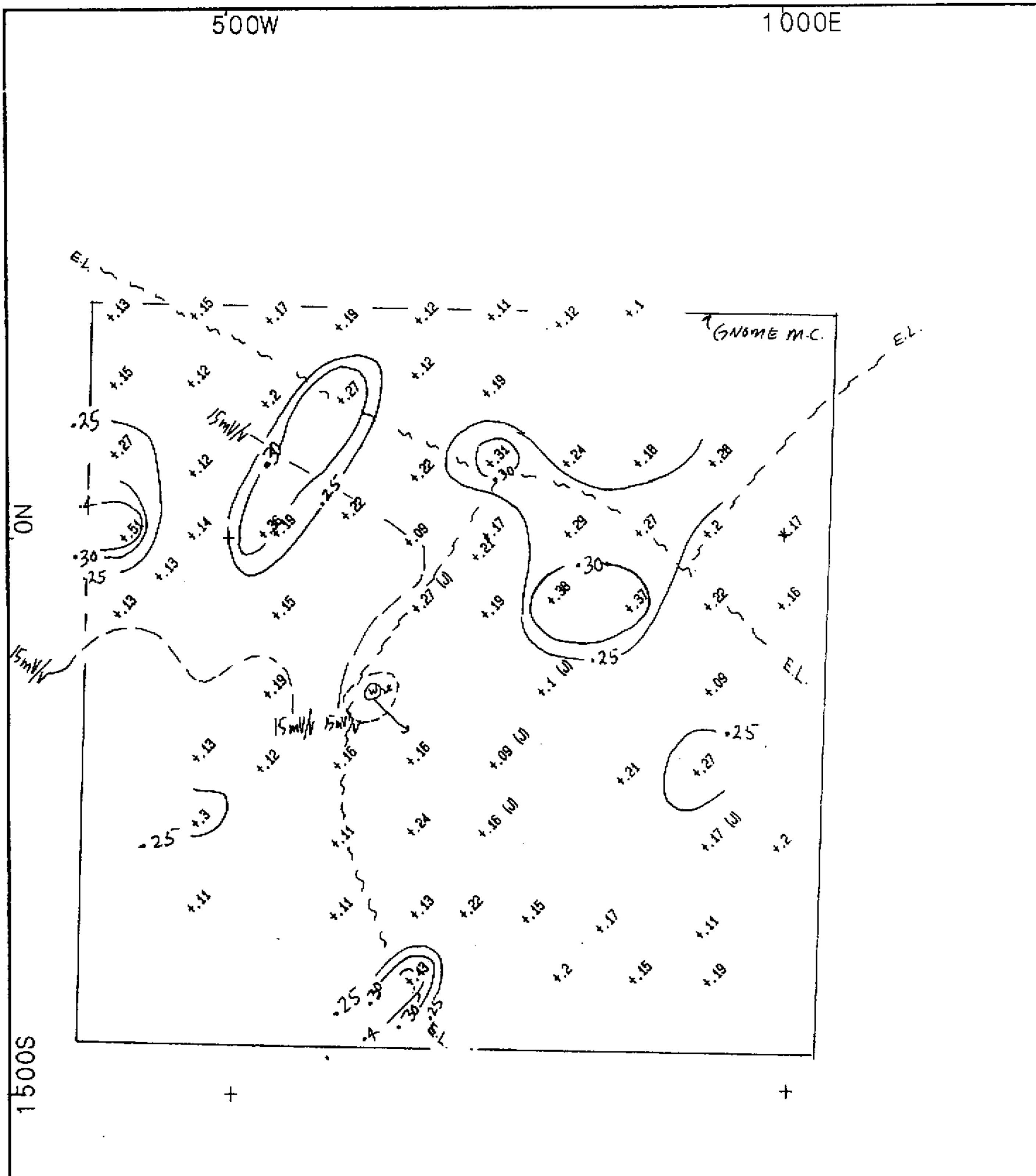


Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (G94-144B etc.) B = Bark

Meters
150 75 0 150 300

Iron (%/1000)		
Gnome Project Douglas Fir and Lodgepole Pine Outer Bark (any grouping of data is based on DF only)		
Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B 15c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Lanthanum (ppm)

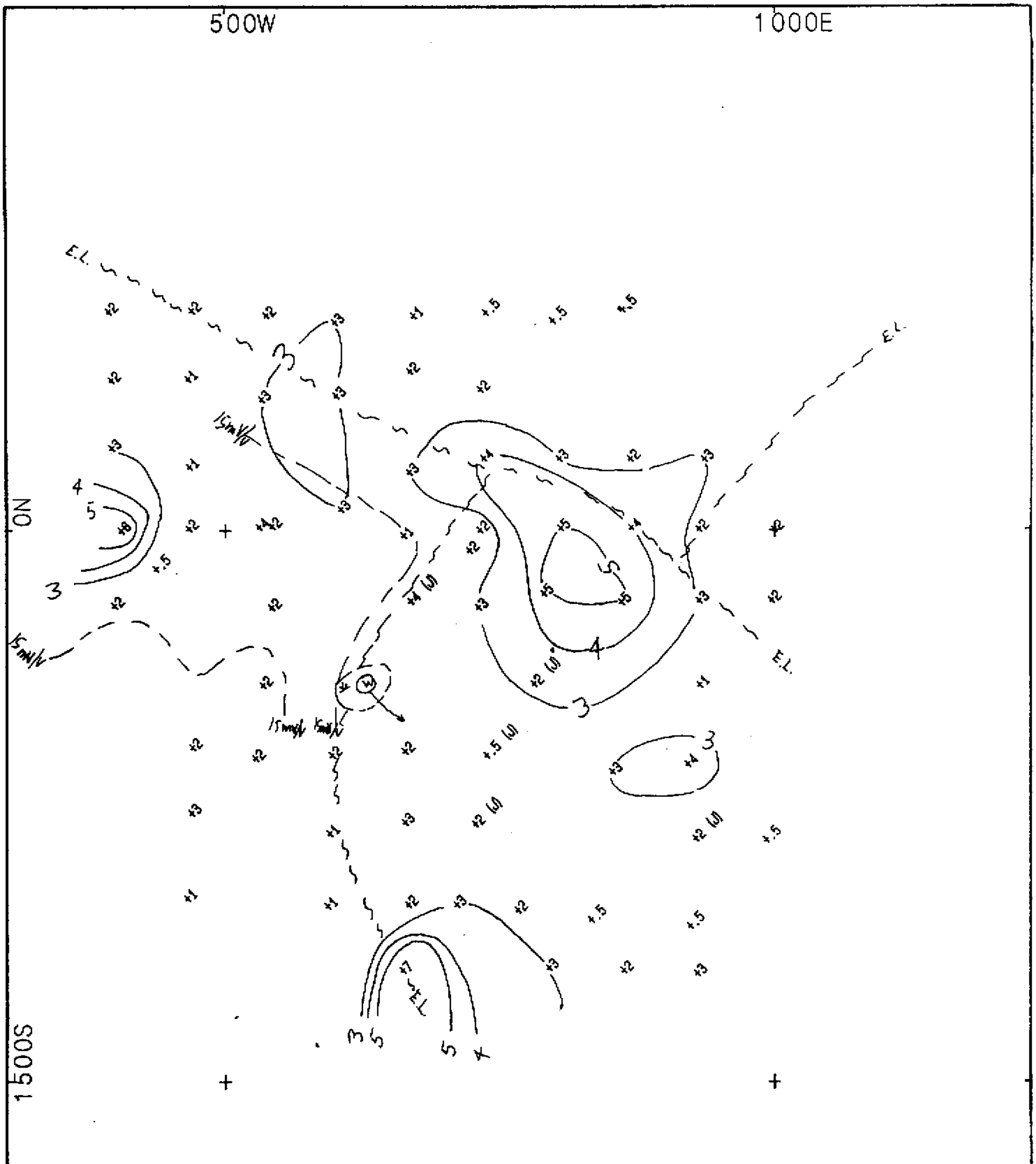
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B16c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
in field no.'s (G94-144B etc.) B = Bark

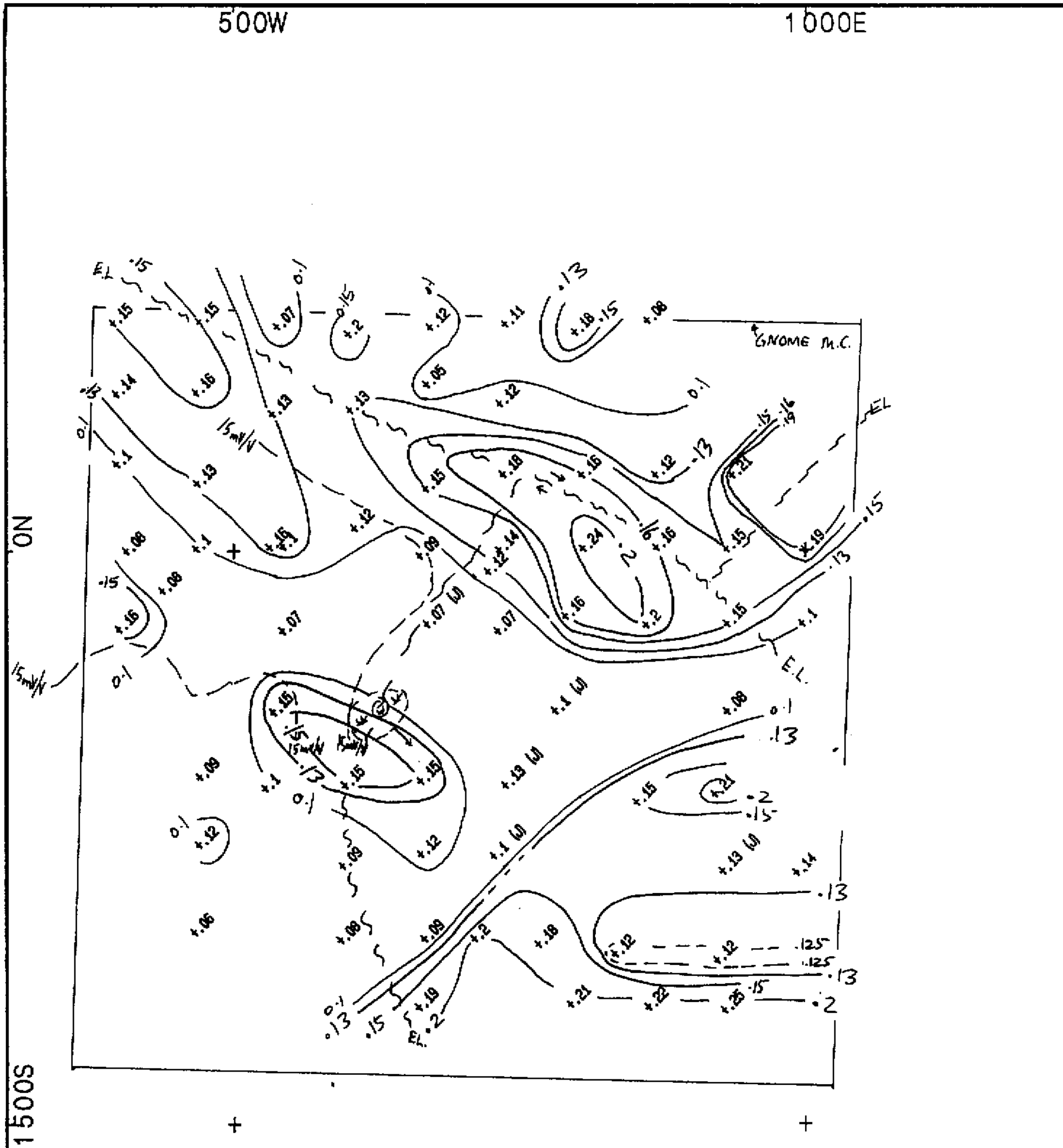
Meters
150 75 0 150 300

Lutetium (ppm/1000)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B17

Ragnar U. Bruaset & Associates Ltd.



E.L.~~ fault inferred from Zirconium by ENZYME LEACH

Legend for Bark Sample Locations:

DF = Douglas Fir   J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Mercury (ppm)

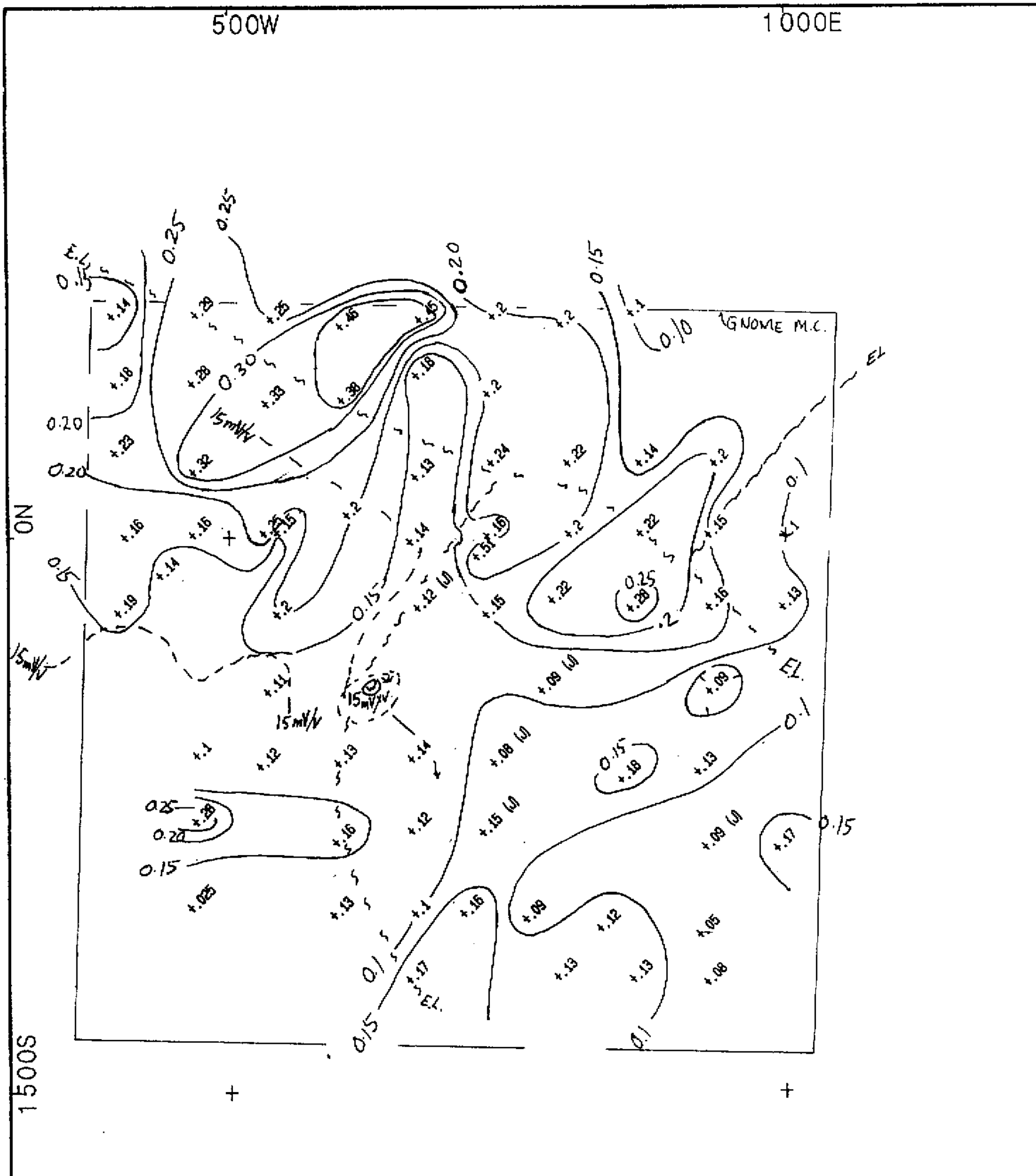
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS	Scale
	92P/2	1:15000
Date December 1994	Report No.	Fig. No. B18c

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Metres

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

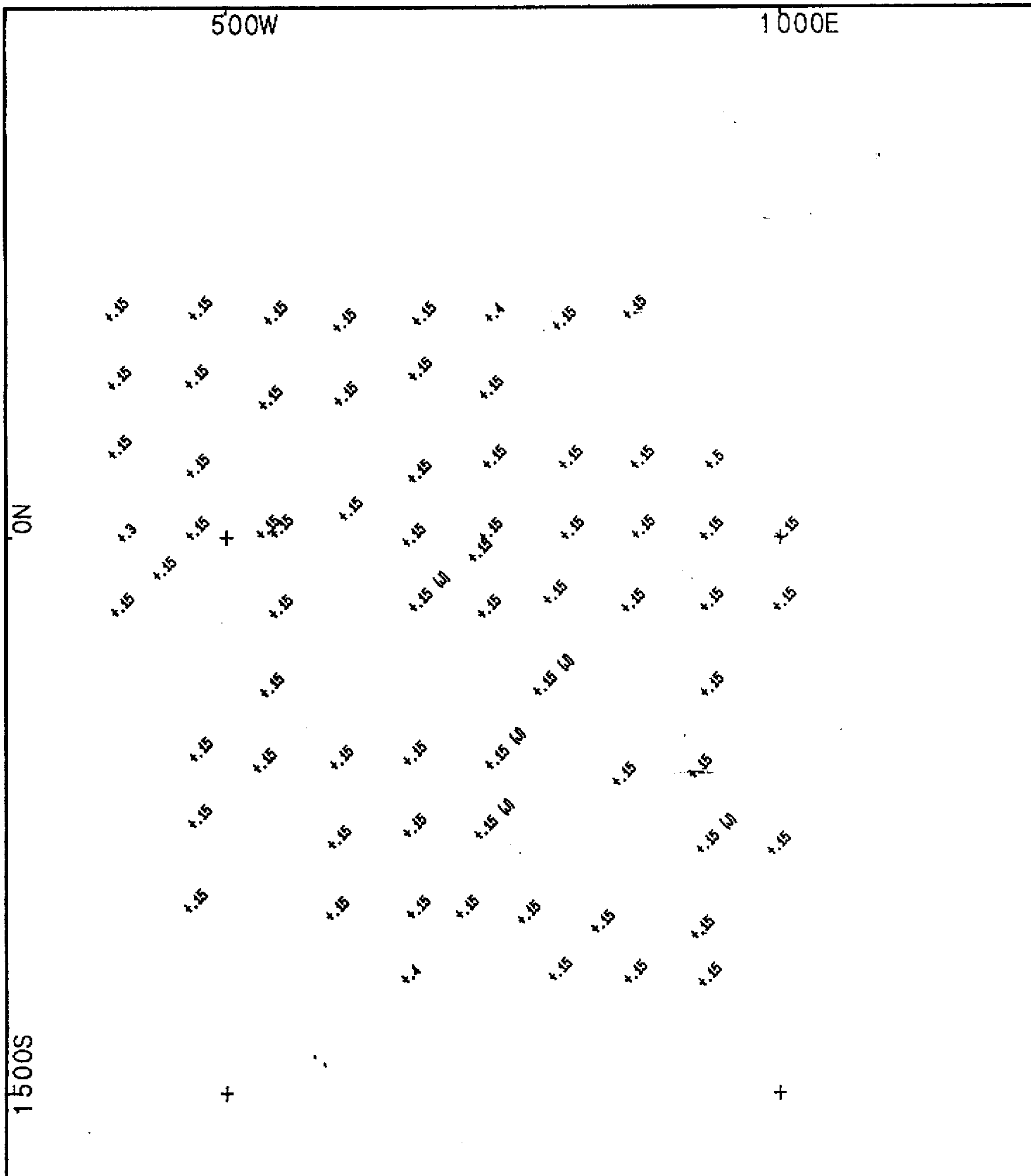
Molybdenum (ppm)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B19C



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (394-144B etc.) B = Bark

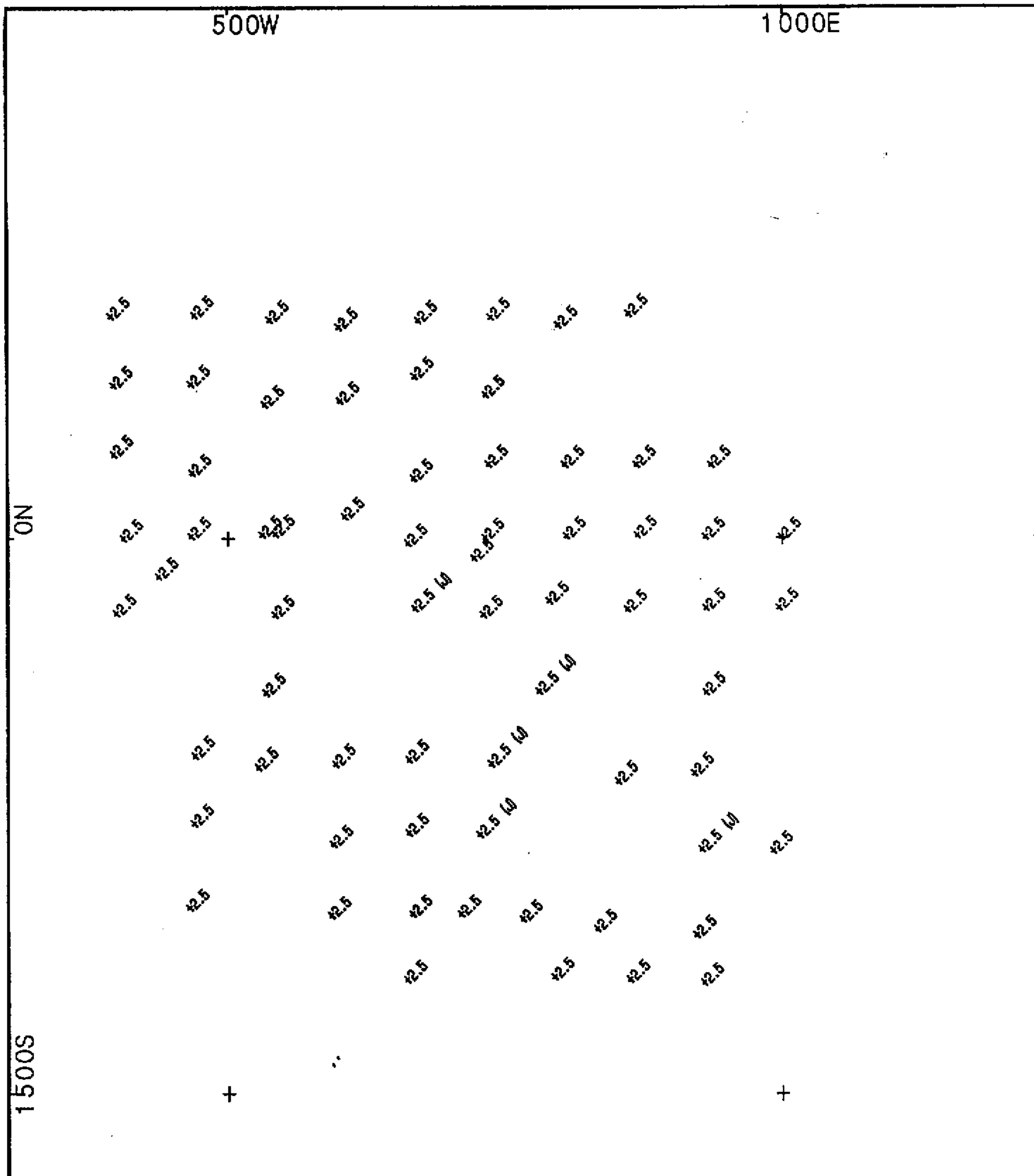
Meters
150 75 0 150 300

Neodymium (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B20

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (394-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

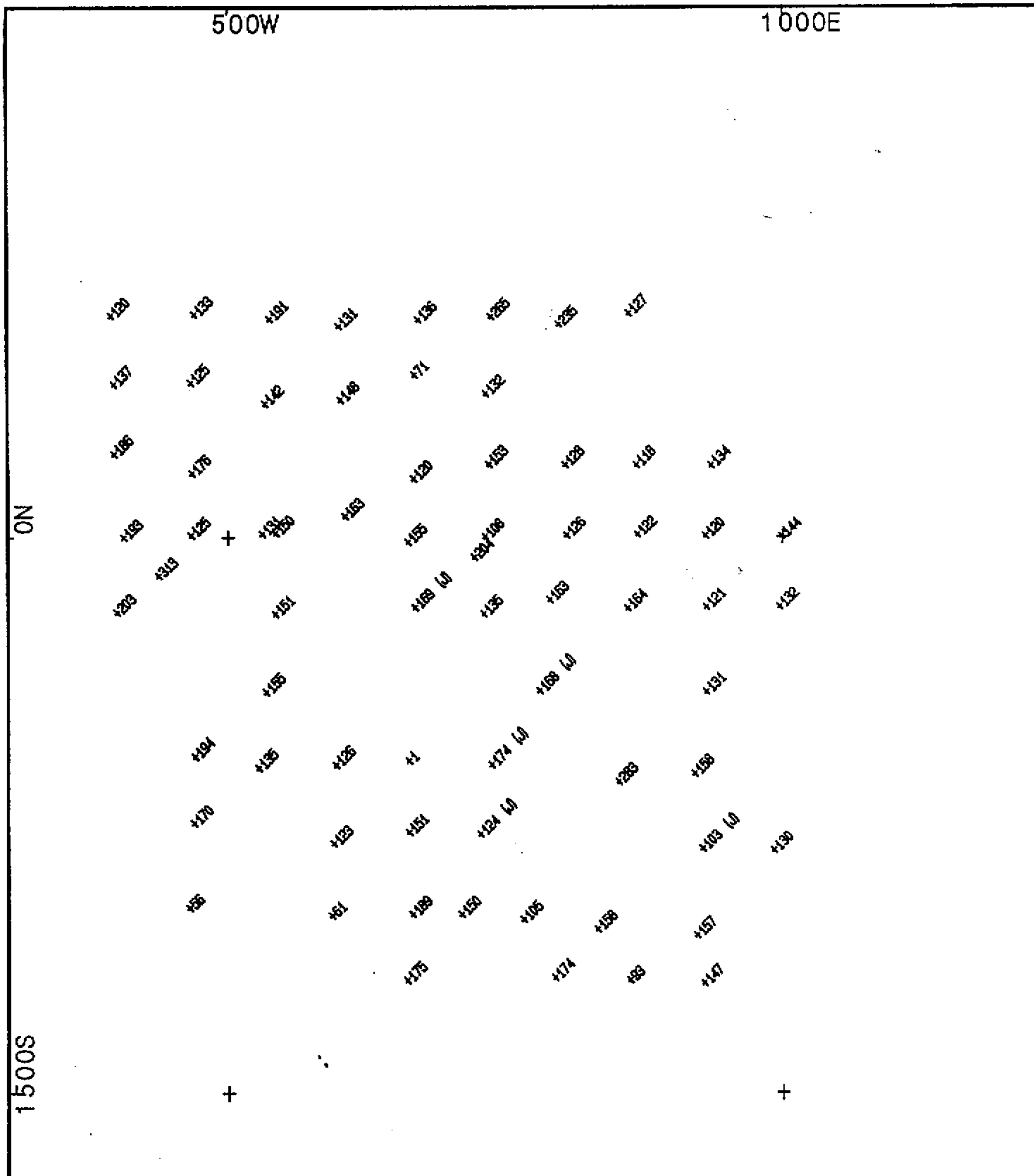
Nickel (ppm)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B21



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (394-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

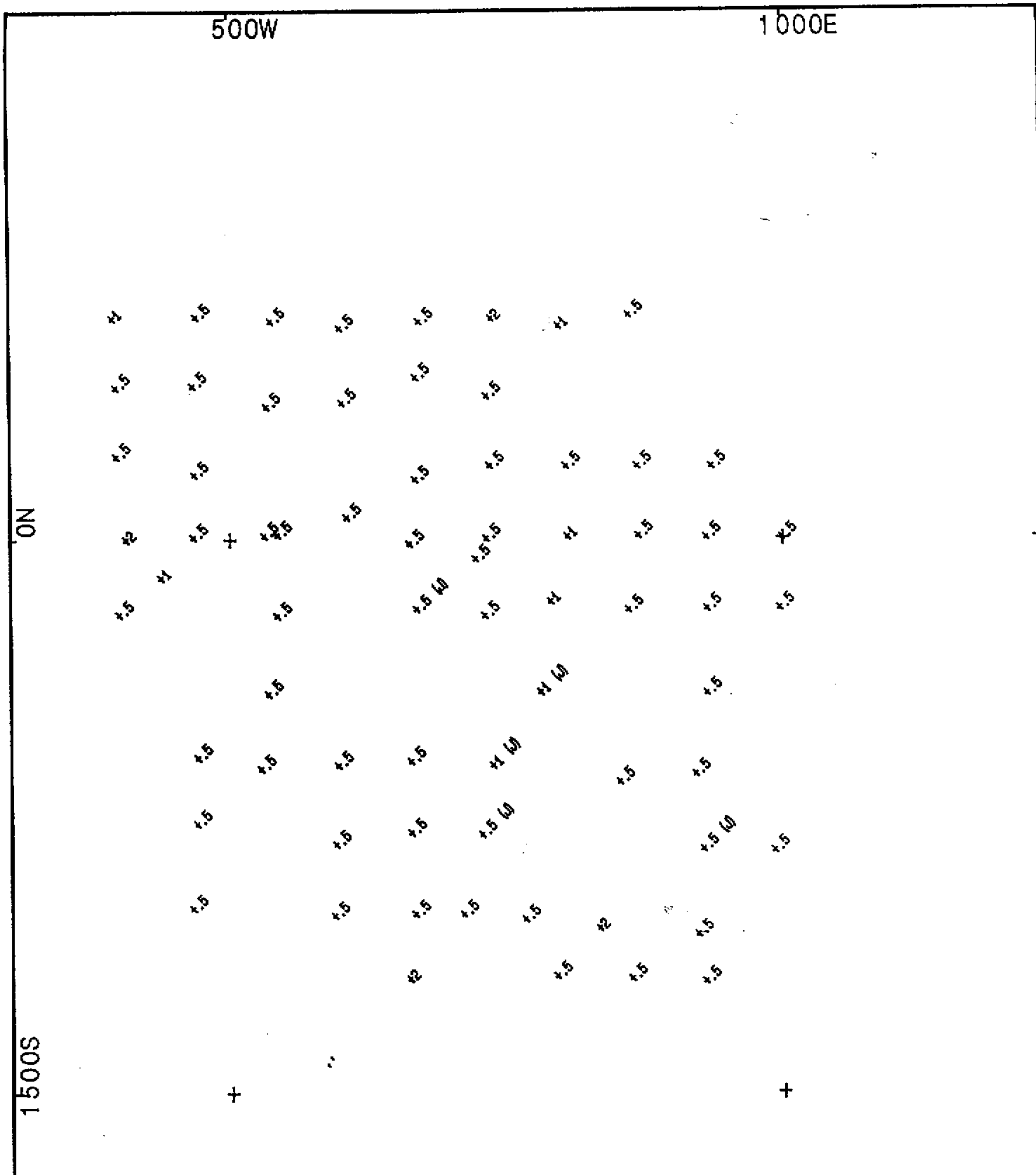
Potassium (%/1000)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B22



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (394-1448 etc.) B = Bark

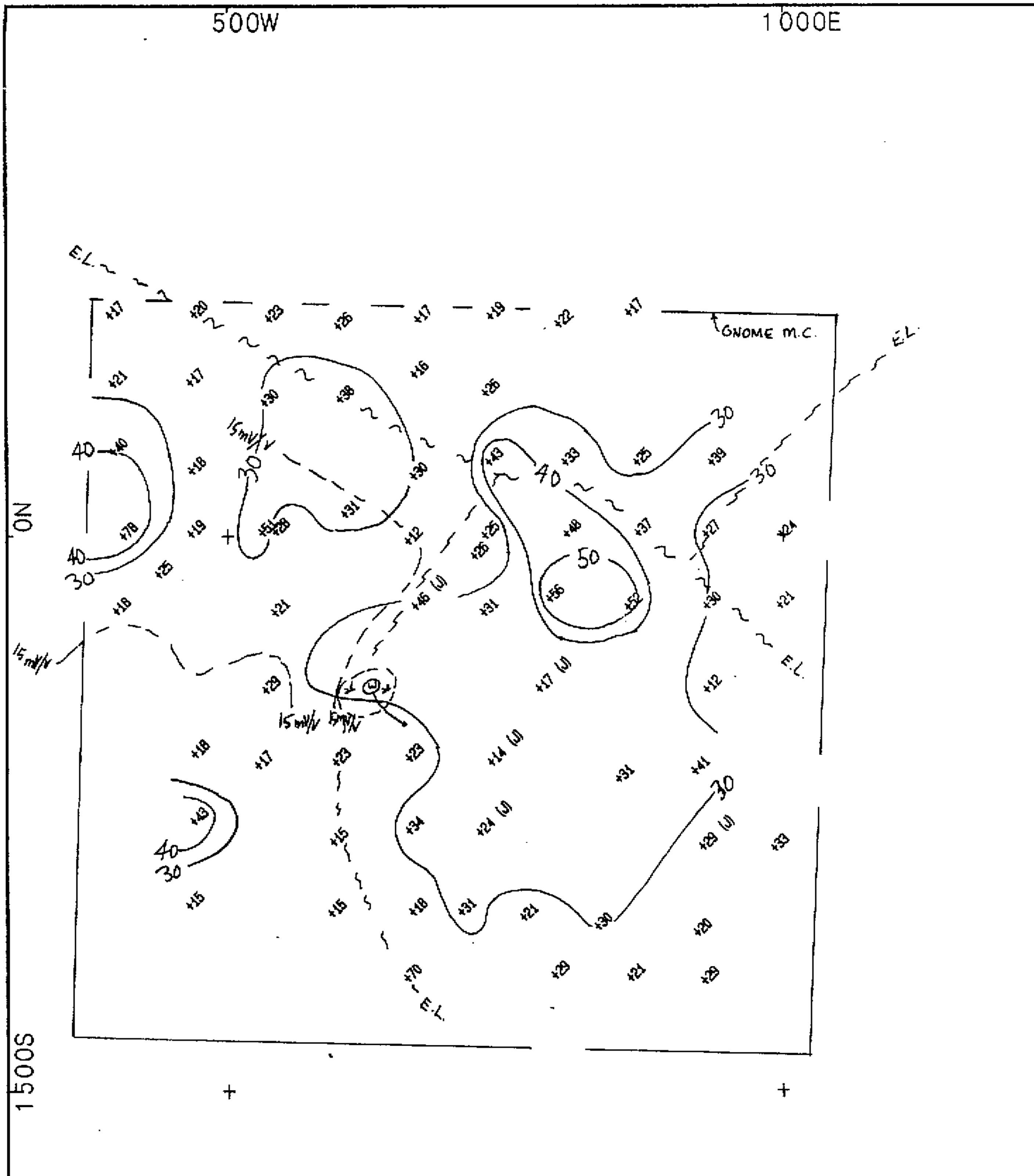
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Rubidium (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B23



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

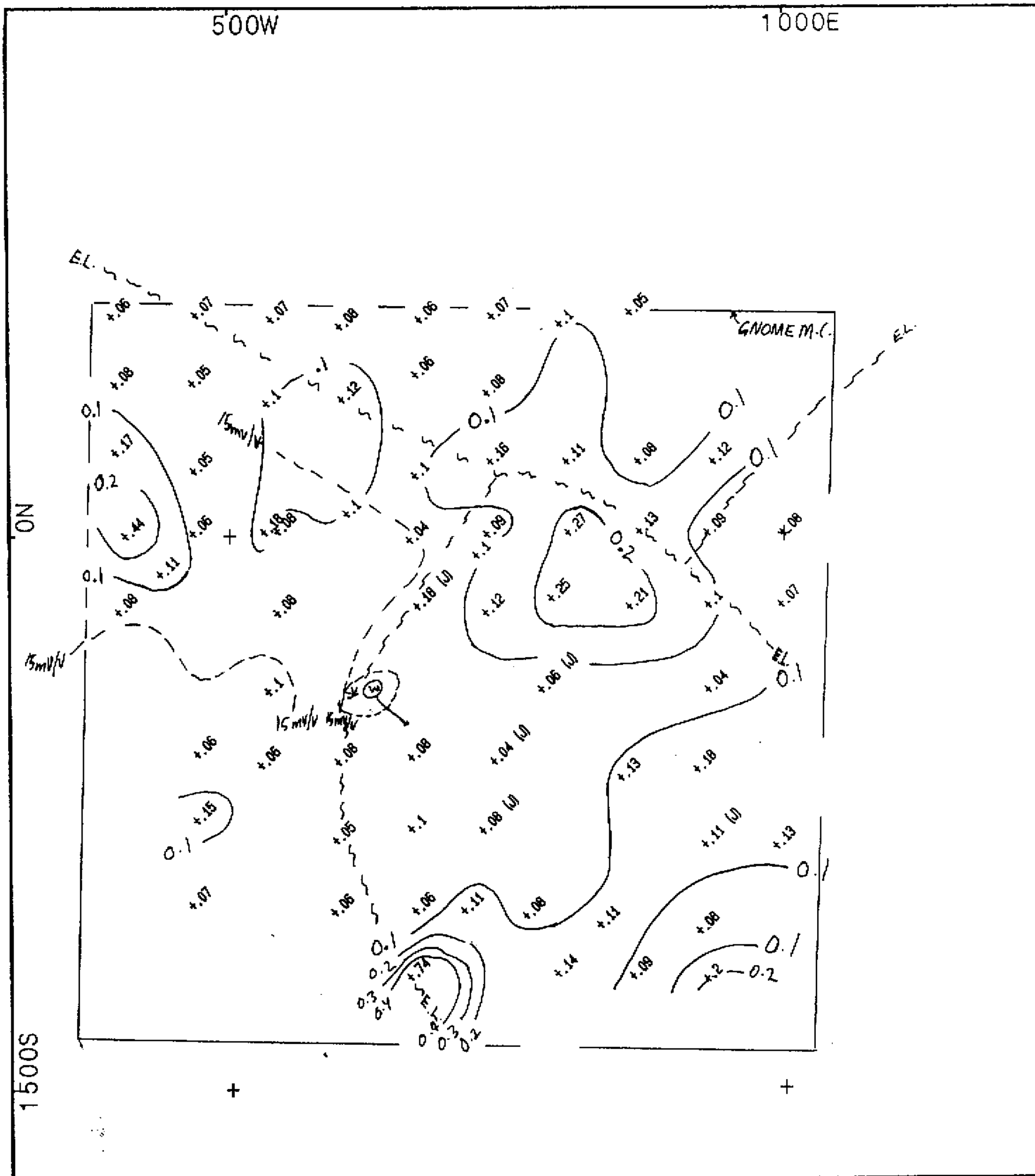
Samarium (ppm/1000)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B24C



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

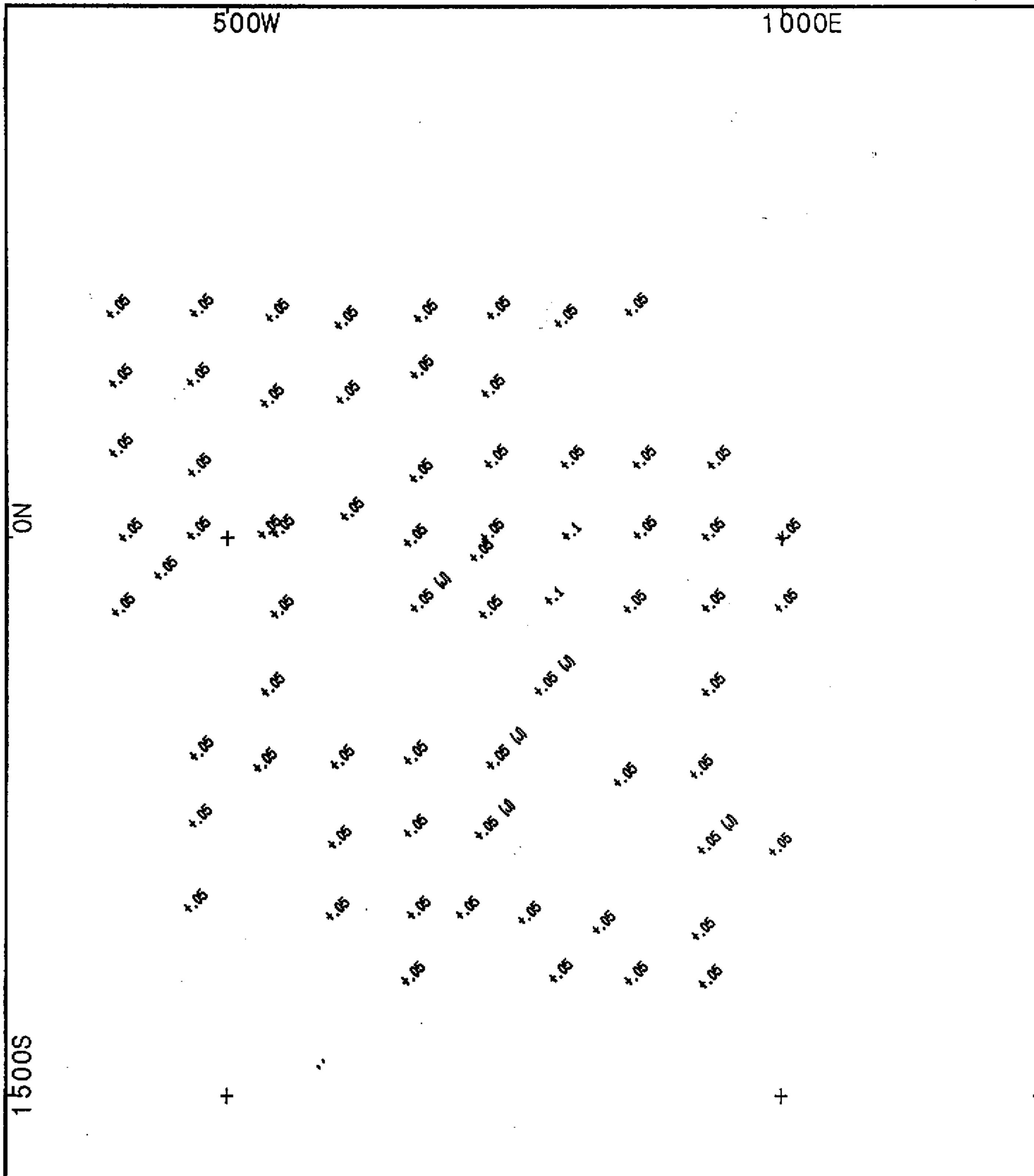
Scandium (ppm)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B25c



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (G94-144B etc.) B = Bark

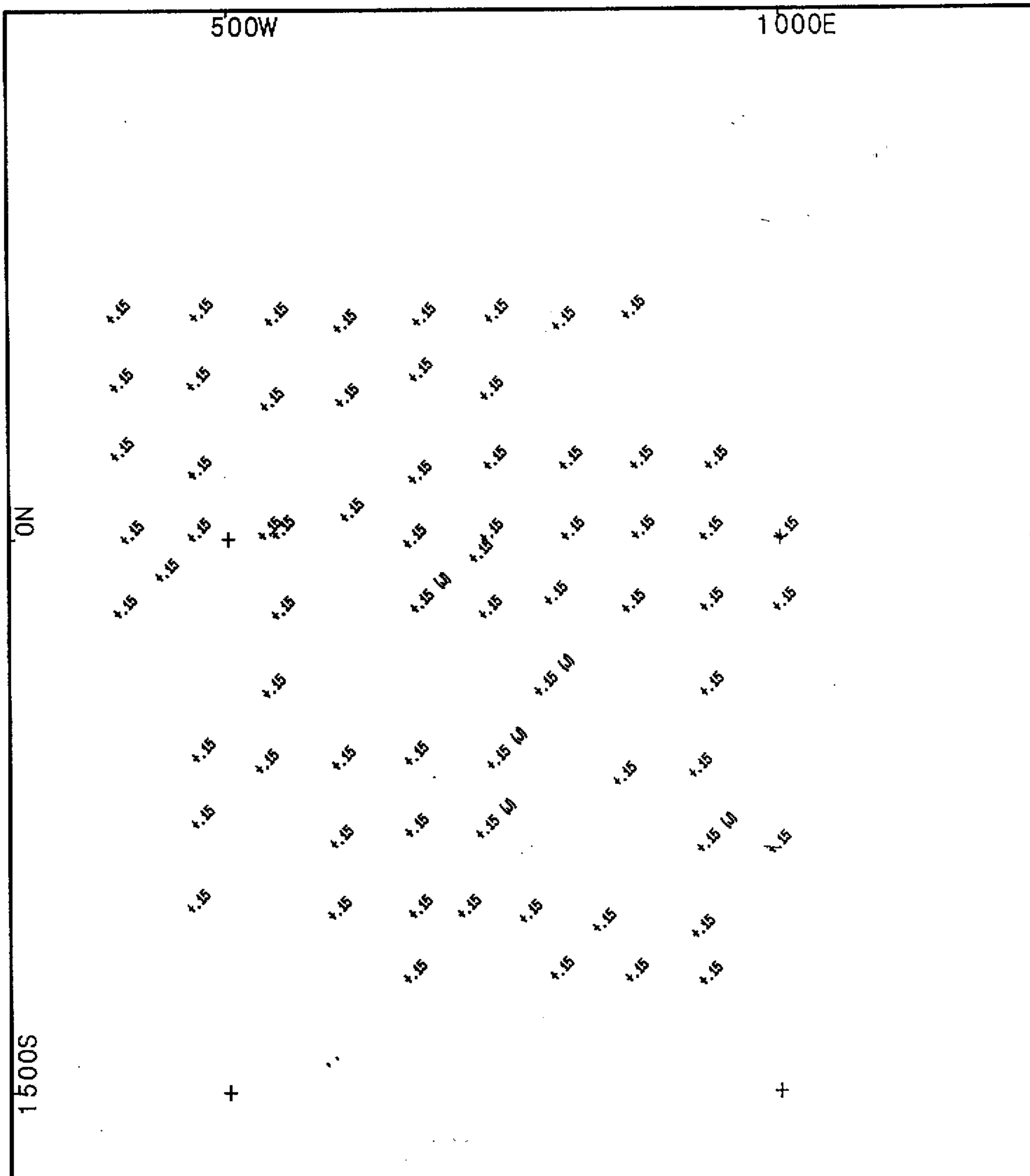
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Selenium (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No. 7229	Fig. No. B26



Legend for Bark Sample Locations:
DF = Douglas Fir   J = Lodgepole Pine
In field no.'s (394-144B etc.) B = Bark

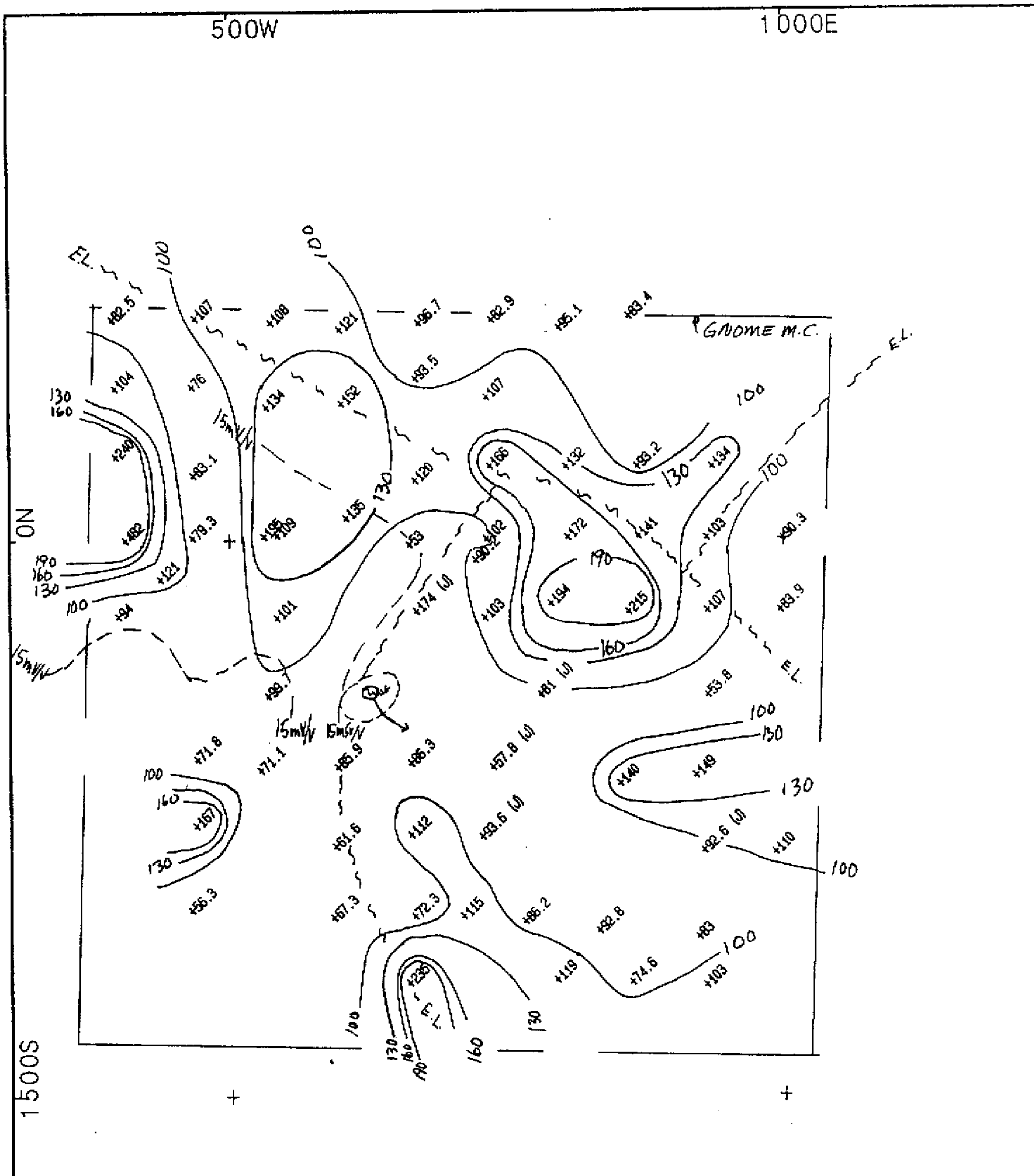
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Silver (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B27



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

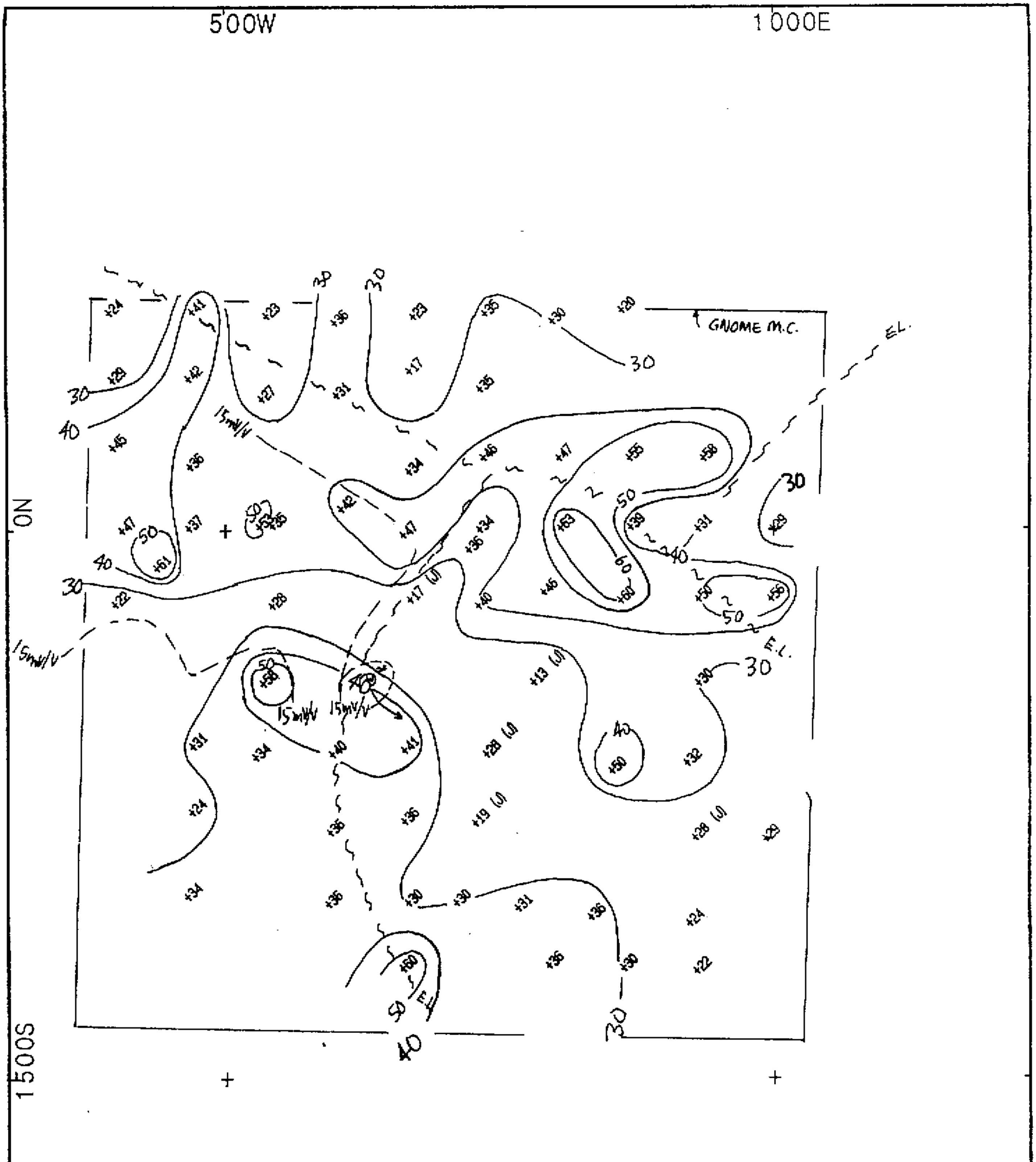
Sodium (ppm)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B28c



Legend for Bark Sample Locations:

DF = Douglas Fir   J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

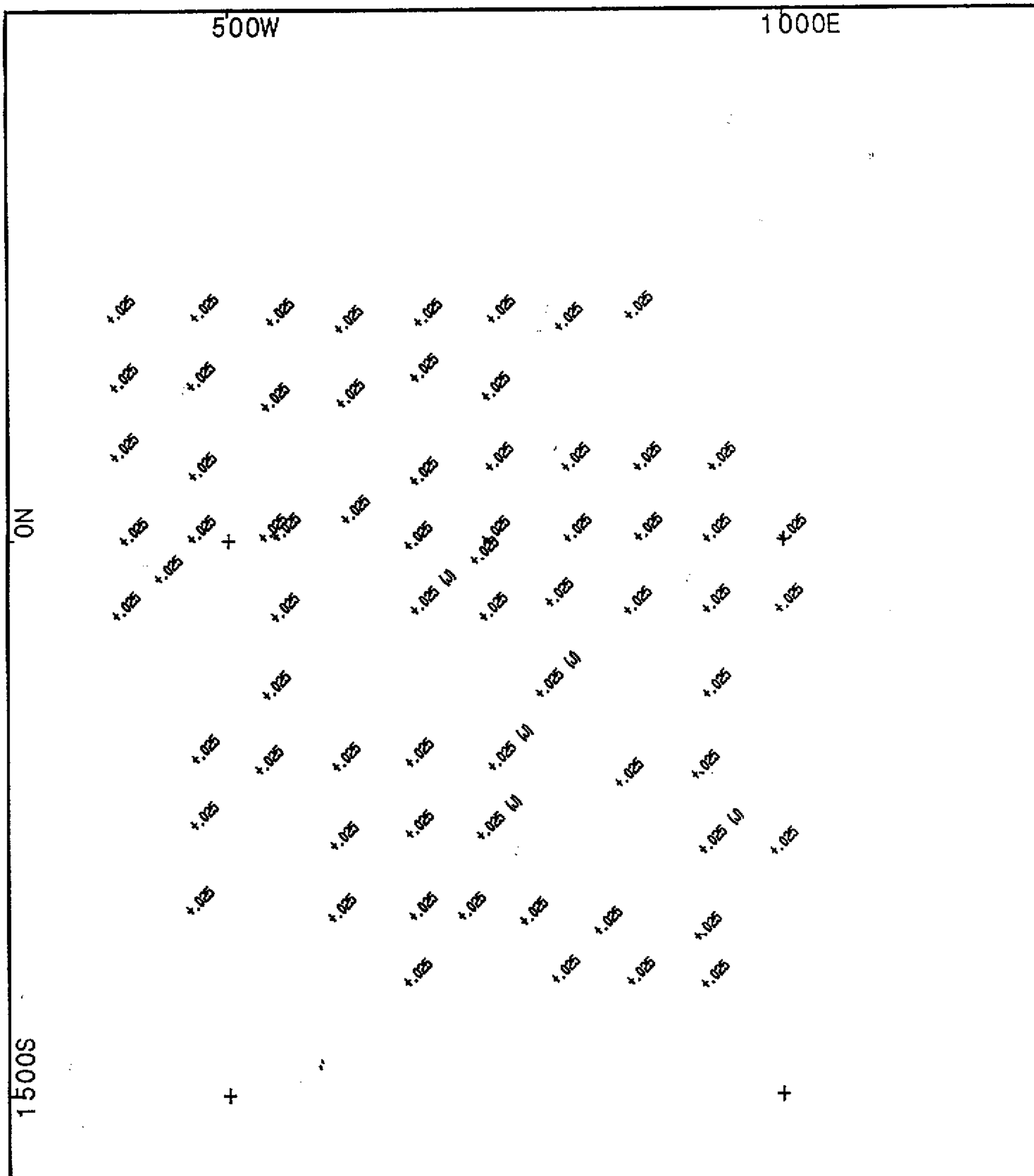
Strontium (ppm)

Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B29C



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Tantalum (ppm)

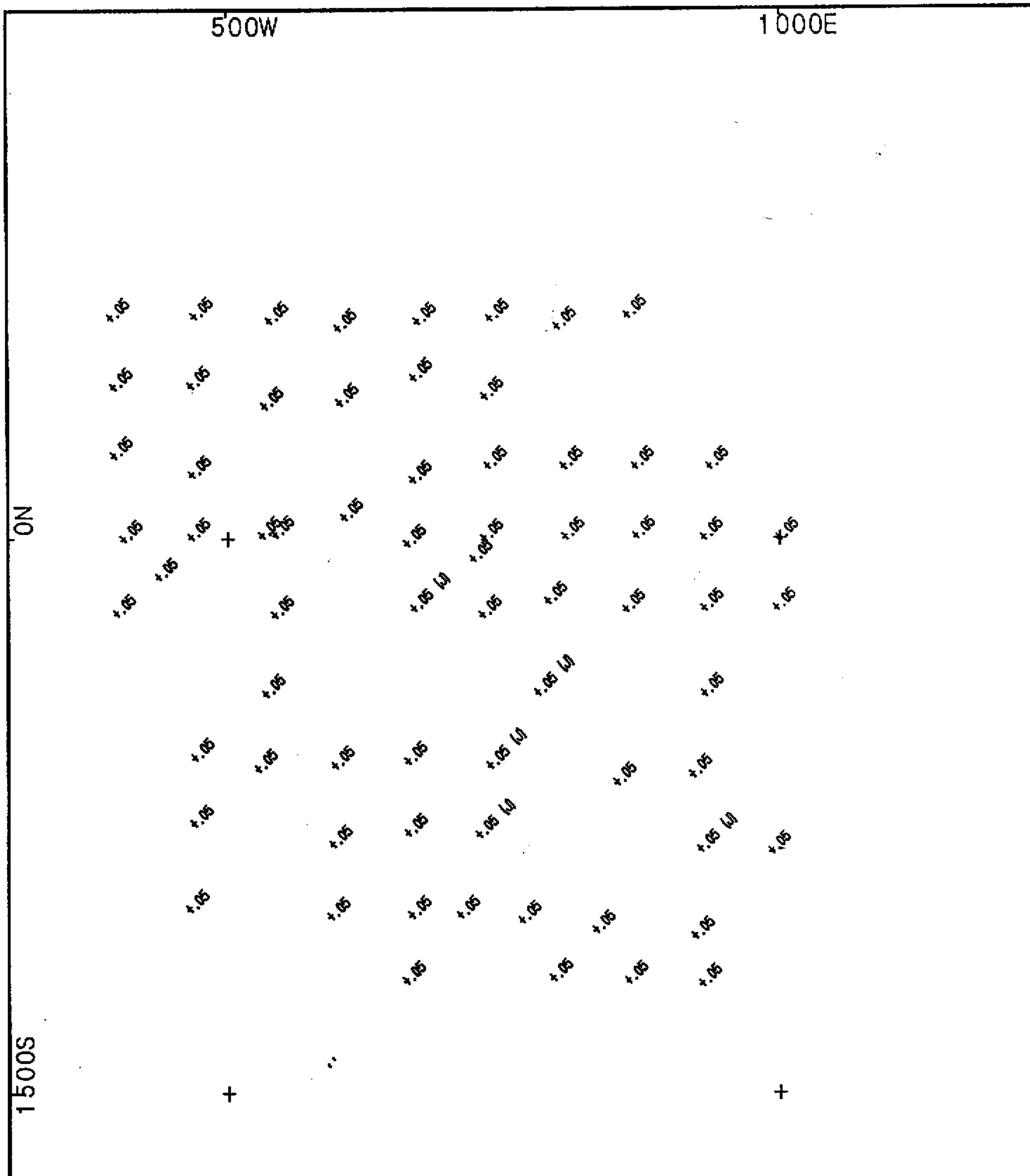
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B30

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (B94-144B etc.) B = Bark

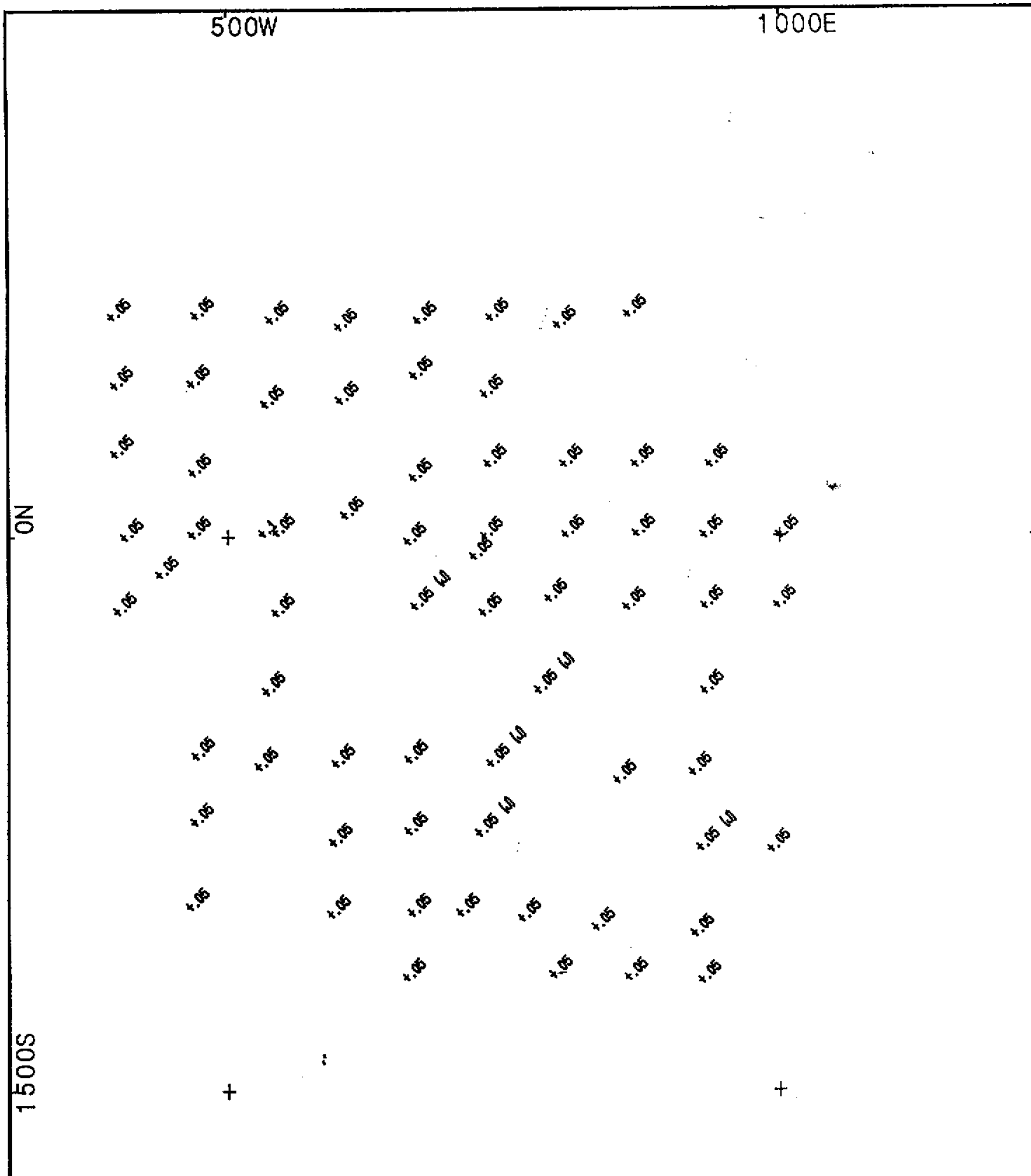
Meters
150 75 0 150 300

Terbium (ppm)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B31

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

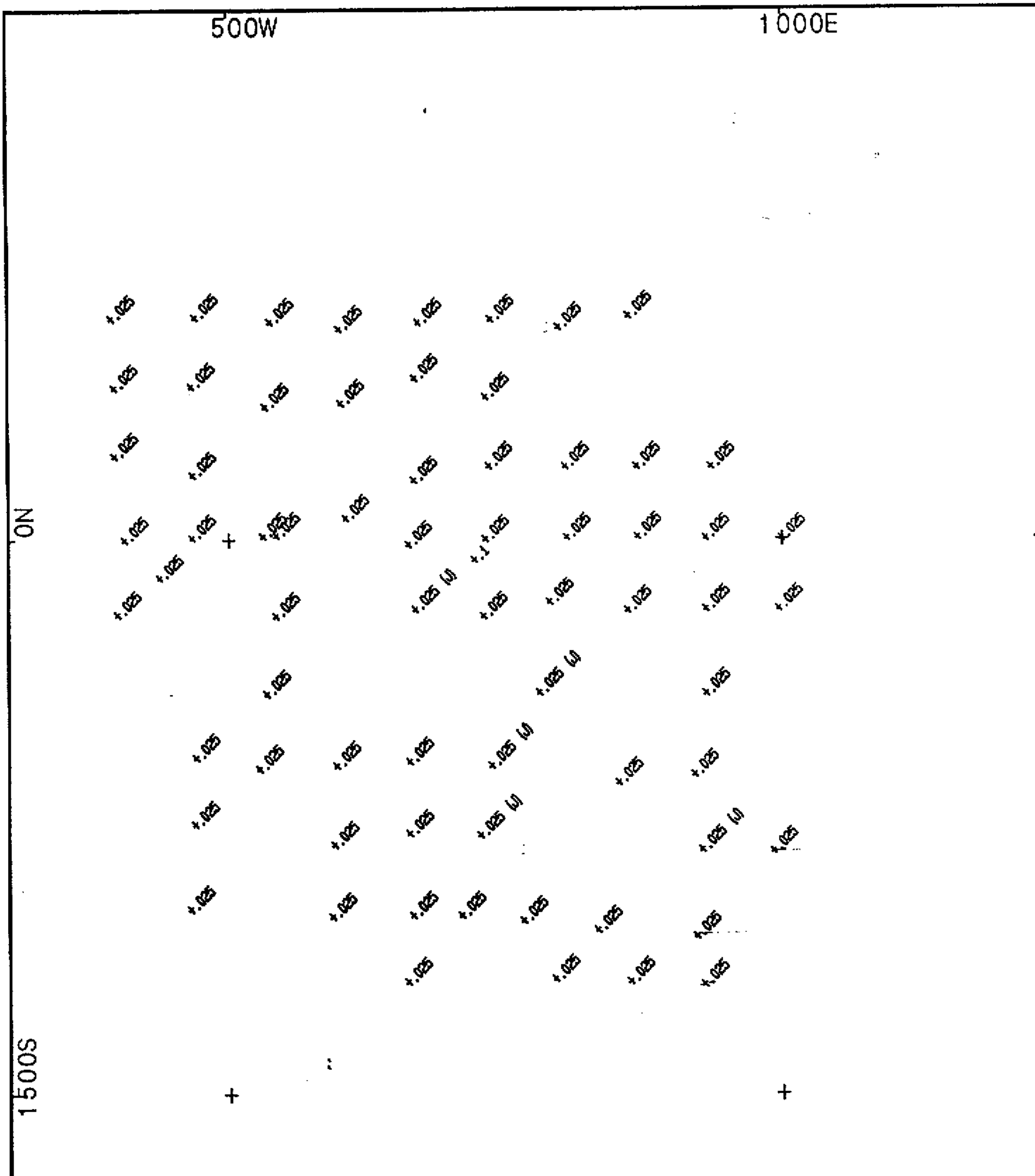
In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Thorium (ppm)		
Gnome Project Douglas Fir and Lodgepole Pine Outer Bark (any grouping of data is based on DF only)		
Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B32

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (394-144B etc.) B = Bark

Meters

150 75 0 150 300

Tungsten (ppm)

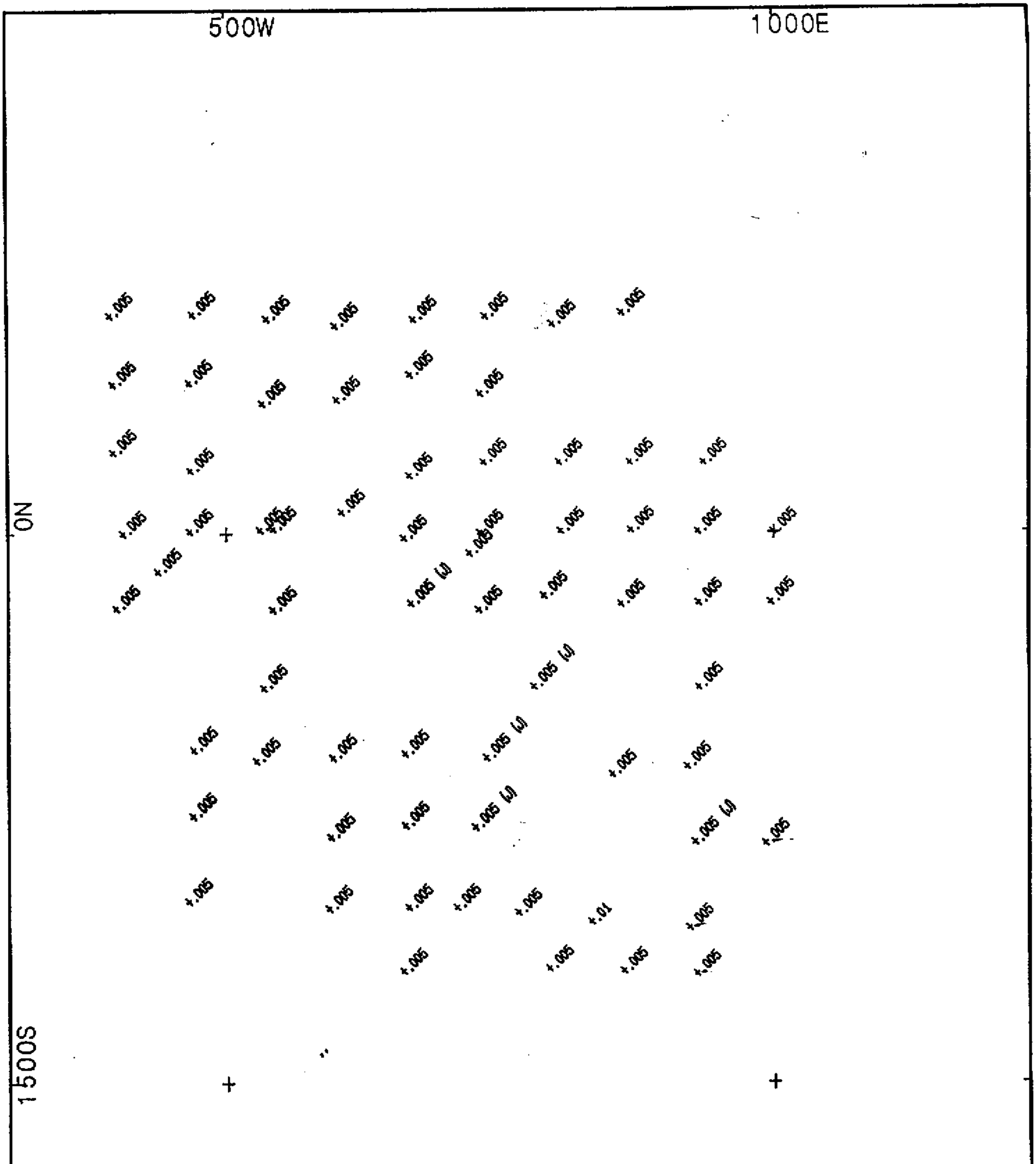
Gnome Project

Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No 7229	Fig. No. B33

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

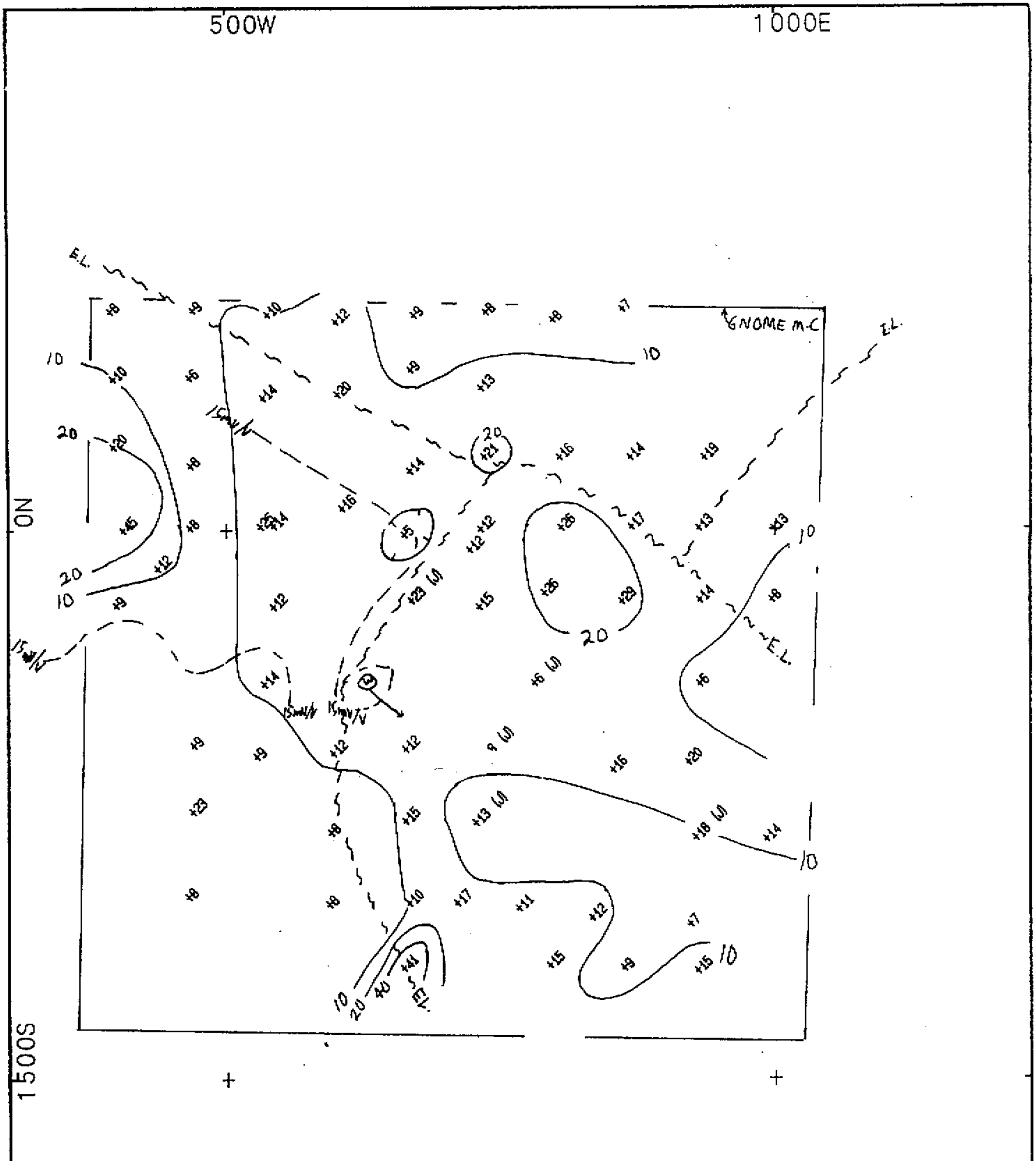
In field no.'s (G94-144B etc.) B = Bark

Meters

150 75 0 150 300

Uranium (ppm)		
Gnome Project Douglas Fir and Lodgepole Pine Outer Bark (any grouping of data is based on DF only)		
Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No. 7229	Fig. No. B34

Ragnar U. Bruaset & Associates Ltd.



Legend for Bark Sample Locations:
DF = Douglas Fir J = Lodgepole Pine
In field no.'s (G94-144B etc.) B = Bark

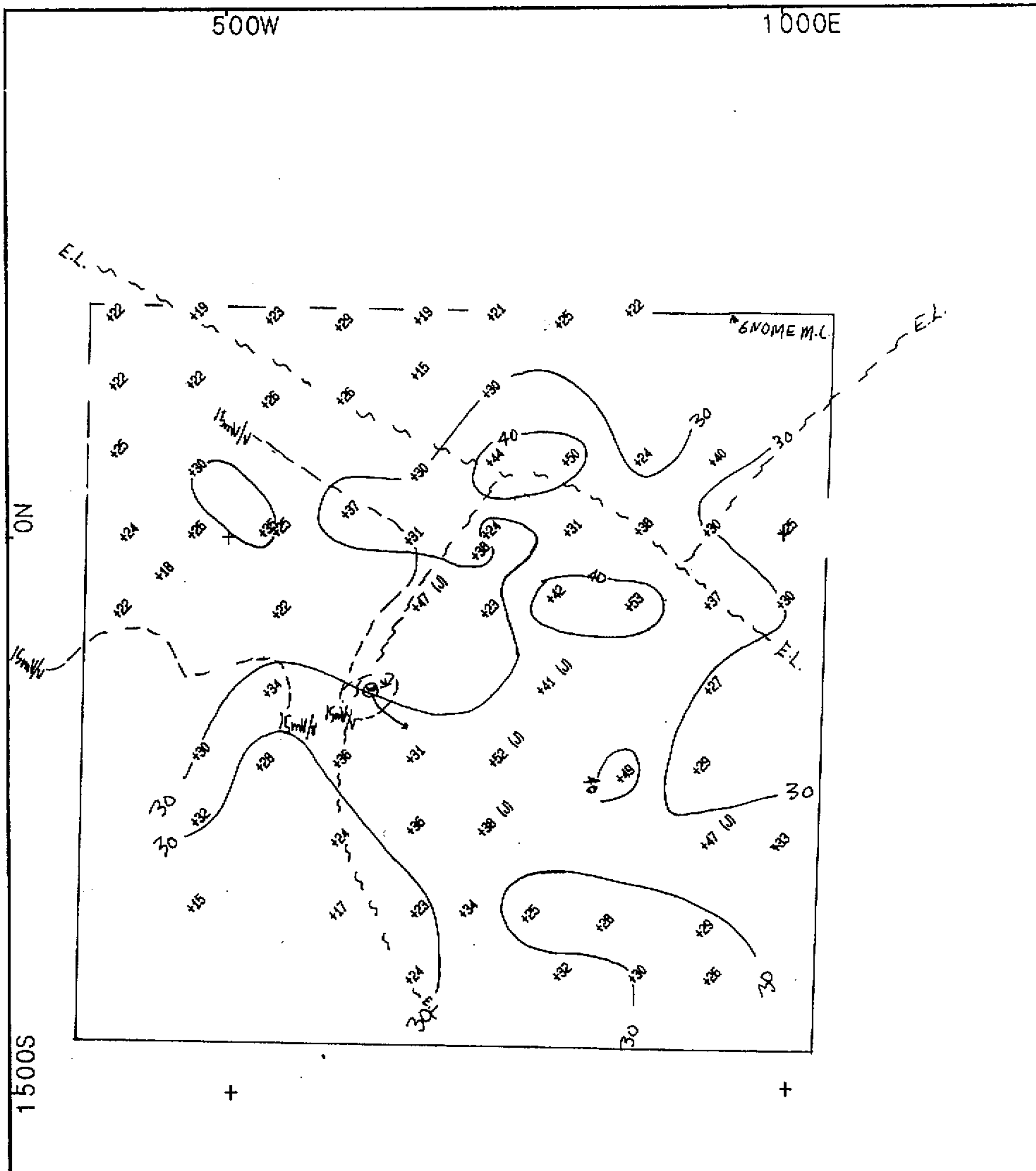
Meters
150 75 0 150 300

Ragnar U. Bruaset & Associates Ltd.

Ytterbium (ppm/1000)

Gnome Project
Douglas Fir and Lodgepole Pine Outer Bark
(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1:15000
Date December 1994	Report No.	Fig. No. B35c



Legend for Bark Sample Locations:

DF = Douglas Fir J = Lodgepole Pine

In field no.'s (G94-144B etc.) B = Bark

Meters

160 75 0 150 300

Zinc (ppm)

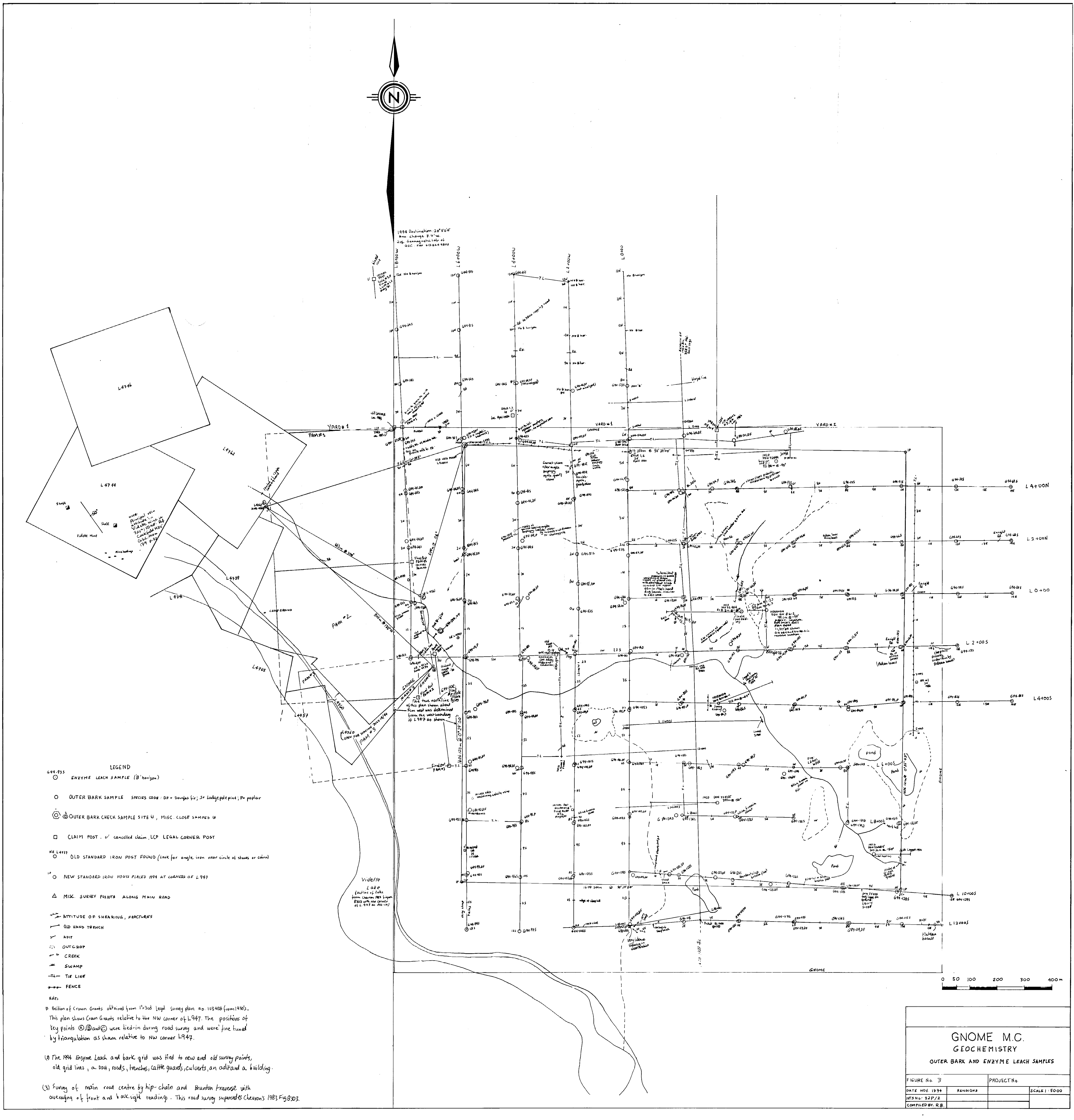
Gnome Project

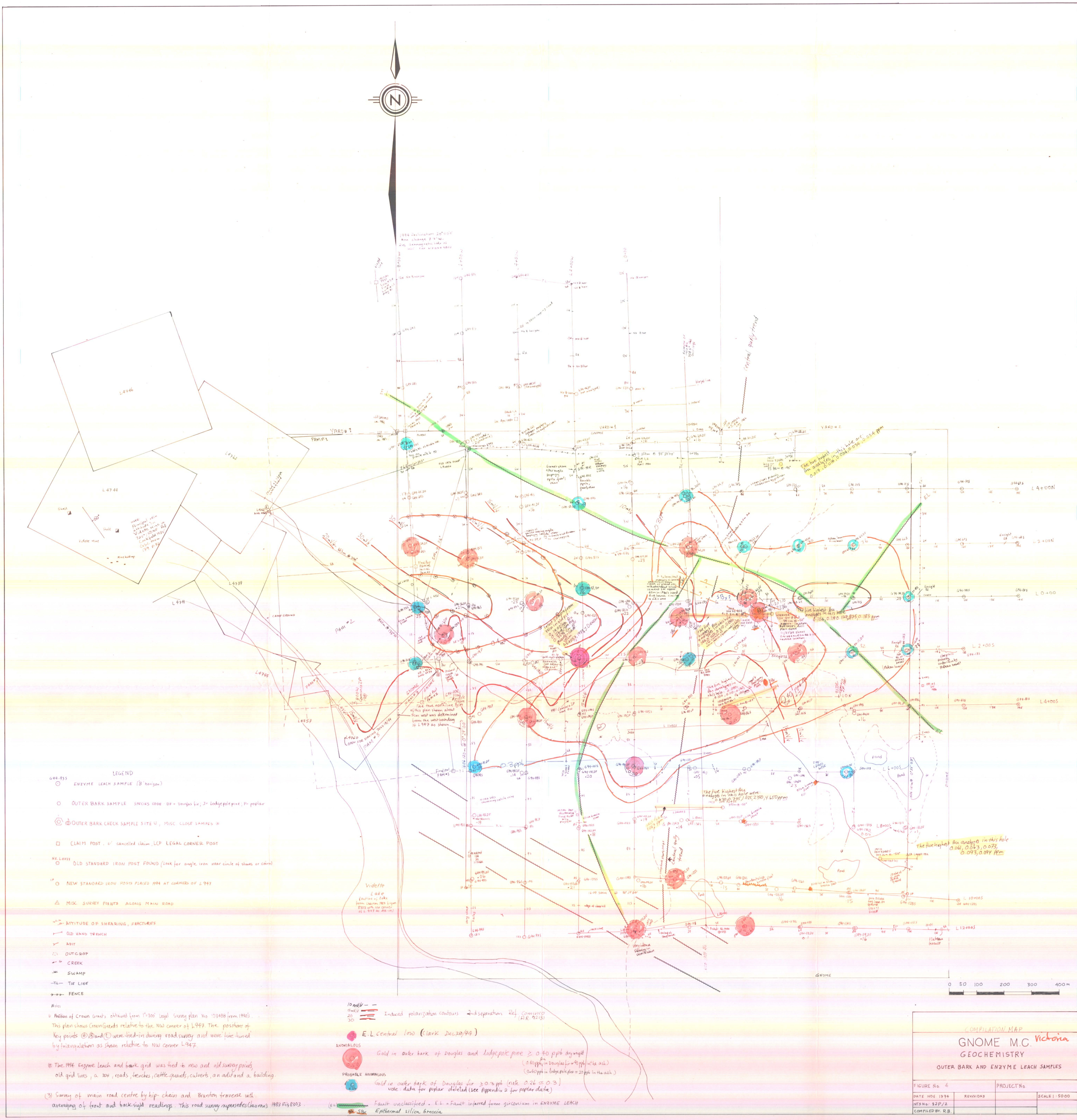
Douglas Fir and Lodgepole Pine Outer Bark

(any grouping of data is based on DF only)

Project No.	NTS 92P/2	Scale 1 : 15000
Date December 1994	Report No.	Fig. No. B36c

Ragnar U. Bruaset & Associates Ltd.


N
L4746
L4762
L4744
L4739
L4765
L4757
PAM #2
YARD #1
YARD #2
GNOME
L4+00N
L2+00N
L0+00
L2+00S
L4+00S
L10+00S
L12+00S
Vidette Lake
LEGEND
G94-935 ENZYME LEACH SAMPLE ('B' horizon)
OUTER BARK SAMPLE SPECIES CODE: DF = Douglas fir; J = Lodgepole pine; P = poplar
OUTER BARK CHECK SAMPLE SITE (1), MISC. CLOSE SAMPES (2)
CLAIM POST. ✓ cancelled claim, LCP LEGAL CORNER POST
NE. L4737 OLD STANDARD IRON POST FOUND (Look for angle iron near circle of stones or cairn)
IP NEW STANDARD IRON POSTS PLACED 1994 AT CORNERS OF L947
MISC. SURVEY POINTS ALONG MAIN ROAD
ATTITUDE OF SHEARING, FRACTURES
OLD HAND TRENCH
ADIT
OUTCROP
CREEK
SWAMP
T.L. TIE LINE
FENCE
Notes
(1) Position of Crown Grants obtained from 1"=300' Legal Survey plan no. 103488 (from 1930's. This plan shows Crown Grants relative to the NW corner of L947. The positions of key points Ⓐ, Ⓑ and Ⓒ were tied-in during road survey and were 'fine tuned' by triangulation as shown relative to NW corner L947.
(2) The 1994 Enzyme Leach and bark grid was tied to new and old survey points, old grid lines, a DDH, roads, trenches, cattle guards, culverts, an adit and a building.
(3) Survey of main road centre by hip-chain and Brunton traverse with averaging of front and back sight readings. This road survey supersedes Chevron's 1983 Fig 8303.
0 50 100 200 300 400 m
GNOME M.C.
GEOCHEMISTRY
OUTER BARK AND ENZYME LEACH SAMPLES
FIGURE No. 3
PROJECT No.
DATE NOV. 1994
REVISIONS
SCALE 1:5000
NTS No.: 92P/2
COMPILED BY. R.B.



LEGEND
G94-935
ENZYME LEACH SAMPLE ('B' horizon)
OUTER BARK SAMPLE SPECIES CODE: DF = Douglas fir; J = Lodgepole pine; P = poplar
OUTER BARK CHECK SAMPLE SITE (1), MISC CLOSE SAMPES (2)
CLAIM POST. ✓ cancelled claim, LCP LEGAL CORNER POST
NE. L4737
OLD STANDARD IRON POST FOUND (Look for angle iron near circle of stones or cairn)
IP
NEW STANDARD IRON POSTS PLACED 1994 AT CORNERS OF L947
MISC. SURVEY POINTS ALONG MAIN ROAD
ATTITUDE OF SHEARING, FRACTURES
OLD HAND TRENCH
ADIT
OUTCROP
CREEK
SWAMP
T.L. TIE LINE
FENCE
Notes
(1) Position of Crown Grants obtained from 1"=300' Legal Survey plan No 03488 from 1930's. This plan shows Crown Grants relative to the NW corner of L947. The positions of Key points (A) (B) and (C) were tied-in during road survey and were 'fine-tuned' by triangulation as shown relative to NW corner L947.
(2) The 1994 Enzyme Leach and bark grid was tied to new and old survey points, old grid lines, a DDH, roads, trenches, cattle guards, culverts, an adit and a building.
(3) Survey of main road centre by hip-chain and Brunton traverse with averaging of front and back sight readings. This road survey supersedes Chevron's 1983 Fig 8303.
10 mV/V
15 mV/V
20
30
Induced polarization contours 2nd separation Ref. Cominco (A.R. 9223)
E.L. Central low (Clark Dec 28/94)
ANOMALOUS
Gold in outer bark of Douglas and lodgepole pine ≥ 0.40 ppb dry weight
(0.40 ppb Au in Douglas fir ≃ 40 ppb in the ash)
(0.40 ppb in lodge pole pine ≃ 20 ppb in the ash)
PROBABLE ANOMALOUS
Gold in outer bark of Douglas fir ≥ 0.3 ppb (note 0.26 ≃ 0.3)
Note: data for poplar deleted (see Appendix 2 for poplar data)
(E.L.) Fault unclassified. E.L. = Fault inferred from zirconium in ENZYME LEACH
SBx Epithermal silica Breccia
GNOME
0 50 100 200 300 400 m
COMPILATION MAP
GNOME M.C. Victoria
GEOCHEMISTRY
OUTER BARK AND ENZYME LEACH SAMPLES
FIGURE No. 4
PROJECT No.
DATE NOV. 1994
REVISIONS
SCALE 1:5000
NTS No. 92P/2
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