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PROGRESS STATEMENT FOR THE KALGOORLIE STUDY AREA - KURNALPI PROSPECT, WESTERN AUSTRALIA

M.J. Lintern and D.J. Gray

CRC LEME OPEN FILE REPORT 89

January 2001

(CSIRO Division of Exploration and Mining Report 97R, 2nd Impression.)

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

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

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

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

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

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

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

P241A: Gold and associated elements in the regolith - dispersion processes and implications for exploration (1991-1993). Leader: Dr. C.R.M. Butt.
The significance of gold mobilisation under present-day conditions, particularly the important relationship with pedogenic carbonate, was investigated further. In addition, attention was focussed on the recognition of primary lithologies from their weathered equivalents. This project was supported by 14 companies.

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

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

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

Although the confidentiality periods of Projects P252 and P409 expired in 1994 and 1998, respectively, the reports have not been released previously. CRC LEME acknowledges the Australian Mineral Industries Research Association and CSIRO Division of Exploration and Mining for authority to publish these reports. It is intended that publication of the reports will be a substantial additional factor in transferring technology to aid the Australian mineral industry.

This report (CRC LEME Open File Report 89) is a second impression (second printing) of CSIRO, Division of Exploration and Mining Restricted Report 97R, first issued in 1995, which formed part of the CSIRO/AMIRA Project P409.

Copies of this publication can be obtained from:
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PREFACE

The CSIRO-AMIRA Project "Exploration in Areas of Transported Overburden, Yilgarn Craton and Environs" (Project 409) has, as its principal objective, development of geochemical methods for mineral exploration in areas with substantial transported overburden, through investigations of the processes of geochemical dispersion from concealed mineralization. The Project has two main themes. One of these, 'Surface and subsurface expression of concealed mineral deposits' is addressed by this report, which focuses on the soil and regolith geochemistry of the Kurnalpi district.

This progress statement summarizes the recent investigations undertaken at the Kurnalpi deposit. There were several reasons for selecting Argo for further study including the moderate grades of Au mineralization and the remoteness of the deposit from potential contributing upstream sources.

This is one of a number of similar studies in the Kalgoorlie-Kambalda region investigating whether there is a surface geochemical expression to gold mineralization concealed within or beneath sediments in palaeodrainages. Other sites that are, or have been, studied are Zuleika Sands (Ora Banda), Mulgarrie, Panglo (southern extension), Baseline, Lady Bountiful Extension, Kanowna QED, Enigma (Wollubar), Argo and Steinway.

C.R.M. Butt
R.E. Smith

Project Leaders

January 1995

PROGRESS STATEMENT FOR THE KALGOORLIE STUDY AREA - KURNALPI PROSPECT, WESTERN AUSTRALIA.

M.J. Lintern and D.J. Gray

SUMMARY

Investigations from previous AMIRA Projects have indicated that Au deposits may have geochemical expression throughout the regolith. In Project 409, knowledge gained from these earlier projects, dominantly in areas of erosional and relict landforms, is being extended to determine whether previously developed methods can be applied or adapted to depositional regimes. In the Kalgoorlie area, the work programme has been to investigate potential sample media in the transported regolith above mineralization at a number of dominantly palaeochannel environments. Specifically, the study has investigated the presence of:

(i) Gold in surficial horizons;
(ii) Sub-surface gold in transported overburden;
(iii) Pathfinder elements in transported and relict regolith and bedrock.

This progress statement summarizes the recent investigations undertaken at the Kurnalpi Au deposit (Mt Kersey Mining N.L.) located 70 km NE of Kalgoorlie. The Kurnalpi site was chosen for further study for several reasons including the moderate grades of Au mineralization and the remoteness of the deposit from potential contributing upstream sources.

The results indicate:
1. Total, water soluble and iodide soluble Au exhibit no anomalies over mineralization.
2. Gold is associated with Ca in the top metre of the soil profile.
3. Arsenic may be a useful pathfinder element in lateritic material at the palaeosurface.

More information needs to be gathered from the Kurnalpi area. Specifically, there is a need:

1. to analyse buried lateritic material for As as well as Au. Arsenic appears to be associated with mineralization and has also been found in high concentrations in the lateritic samples analysed thus far.

2. to obtain Mn and other element data for the two remaining auger traverses to examine whether anomalous values occur over the palaeochannel as with Traverse 2. If Mn and other associated element anomalies are located over the palaeochannel for all 3 traverses then there is a further need to test whether the anomalies can be enhanced or decreased using selective extraction techniques that dissolve Mn oxides.

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PROGRESS STATEMENT FOR THE KALGOORLIE STUDY AREA - KURNALPI PROSPECT, WESTERN AUSTRALIA.

M.J. Lintern and D.J. Gray

1 Introduction

Previous AMIRA Projects (P240, P240A, P241, P241A) investigated the geochemical expression of primary and supergene Au mineralization in the regolith. These studies demonstrated that in relict and erosional landform regimes, carefully directed shallow sampling is usually more cost and technically effective than routine drilling to deep saprolite in regional- and prospect-scale exploration. In some locations, it was found that there was a surface expression and mineralization concealed by up to 20m of barren sediments and/or leached saprolite. In this project (P409), outcome of the previous projects are being further tested to determine whether similar procedures can be routinely applied in depositional regimes. This particular study is one of a series from the Kalgoorlie area, selected because of its high resource potential and the ubiquitous nature of near-surface carbonate and ferruginous material, that specifically examines sample media from the transported regolith to assess their potential for exploration. A multi-site approach has been adopted in order to examine (i) the effects of regolith types, and (ii) the potential to use similar sample media at different sites.

Two groups of sample media have particular value for Au exploration in the Yilgarn Craton:

(i) calcareous soil horizons, which are widespread in the semi-arid parts of the southern Yilgarn. Gold concentrations are often much greater in pedogenic carbonate, compared with immediately adjacent horizons. Failure to sample this horizon in an exploration programme will result in ineffective soil surveys;
(ii) ferruginous materials, particularly lateritic residuum.

In the Kalgoorlie area, the work programme has been to investigate potential sample media in the transported regolith above mineralization. Specifically the study analysed for:

(i) gold in surface horizons;
(ii) gold below surface in transported overburden;
(iii) pathfinder elements in transported and residual regolith and bedrock.

Several sites were offered by P409 sponsor companies for pilot studies (Table 1). All sites were visited and a preliminary set of samples was taken at most locations. Sites were assessed using various criteria (see Table 1) and the four most suitable sites, namely Argo, Steinway, Kurnalpi and Wollubar, were selected for more detailed investigations of the geochemistry of regolith materials, vegetation and groundwater (Figure 1). Some investigations of transported environments that were undertaken in previous studies (*e.g.*, at the Panglo and Zuleika Au deposits) will be also be discussed.

One of the major reasons for including the Kurnalpi site for further study is that, on the basis of air photo examination, regolith plans, Au results from the top metres by RC drilling, as well as site visits, there is little possibility of significant Au being introduced from upslope. This is important as external sources of Au will increase noise and tend to mask or dilute potential signals at the surface.

Table 1: Advantages and disadvantages of study sites examined during the P409 pilot study and previous AMIRA projects.

Site	Type of mineralization	Advantages	Disadvantages
Sites chosen			
Argo	At interface and saprolite, beneath 20 m or more of lacustrine sediments.	Extensive drilling available. Strong mineralization. Exposed pit. Distant from upslope Au deposit.	Surficial sampling not completed, due to pit excavation. Poor condition of drill material in top 10 m.
Steinway	In saprolite, 5 m beneath 30 m of transported sediments.	Known surficial anomaly. Extensive drilling available. Distant from known Au min.	Not scheduled to be mined. Weak mineralization.
Kurnalpi	At interface and saprolite, beneath 60 m of transported sediments.	Moderate drilling available. Distant from known Au min.	Not scheduled to be mined. Weak mineralization.
Wollubar (Enigma)	At interface and saprolite, beneath 55 m of transported sediments.	Moderate drilling available. Distant from upslope Au deposit.	Not scheduled to be mined. Weak mineralization.
Sites not chosen			
Kurrawang	Little information available.	Known surficial anomaly. Exposed pit (at a later stage).	Surface regolith mostly residual. Little drill spoil.
Lake Cowan	Various deposits associated with palaeochannel and underlying saprolite.	Known surficial anomaly. Extensive drilling available.	Known upslope mineralization.
Kat Gap (Forrestania)	Little information available.	Moderate drilling available. Distant from upslope Au min.	Depth of transported material not determined - may be thin.
Gindalbie	With sulphides at interface, beneath 60 m of transported sediments.	Moderate drilling available. Distant from upslope Au deposit.	Poorly mineralized. Not scheduled to be mined.
Mt Celia	Beneath 5 to 15 m of transported deposits.	Extensive drilling available. Distant from upslope Au min.	Not scheduled to be mined. Not typical of regolith in Kal. area.
Lady Bountiful Extended	At interface beneath 25 m of transported deposits, and also in underlying quartz veins.	Moderate drilling available. Distant from upslope Au deposit. Exposed pit (at a later stage). Strong mineralization.	Severe surficial disturbance.
Samphire	Little information available.	Exposed pit.	Surface regolith mostly residual.
Previous studies			
Zuleika	At interface and saprolite, beneath 20 m of transported sediments.	Exposed pit. Extensively investigated in earlier project.	Known upslope mineralization. No further surface samples available.
Matt Dam	At interface and saprolite, 15m beneath 10m of transported sediments.	Extensively studied in earlier project. Known surficial anomaly.	This part of deposit not scheduled to be mined.
Baseline	Beneath 20 m of transported sediments.	Exposed pit. Known surficial anomaly.	Samples not available.
Panglo	Located in saprolite 20 m beneath base of 15 m of transported sediments.	Extensively studied in earlier project. Known surficial anomaly.	This part of deposit not scheduled to be mined.

2. Site Description

The landscape is typical of the floodplains to the east of the Kalgoorlie area. Vegetation is dominated by scattered shrubs of acacia with some casuarina, and stunted eucalypts on higher ground. Smaller shrubs are sparsely represented due to grazing by sheep. Although the site has been termed "Kurnalpi" both for this study and by Mt Kersey Mining N.L., this site is distinct from the major Au discoveries with the same name found near the townsite some 5 km to the NNE.

The study area is flat-lying and is located on the edge of a broad floodplain, with a range of hills to the east and north-east (Figure 2). Mt Parkin is located 2.5 km to the south east and rises approximately 100m above the floodplain. The area drains to a side branch of Lake Yindarlgooda about 4 km to the south. Present day shallow ephemeral drainage channels, some choked with ferruginous lag, are found in the study area and generally flow in a south-westerly direction.

Over the palaeochannel, the regolith consists of

1. 0-5m clay-rich red soil containing abundant ferruginous granules, with carbonate, principally as calcite;
2. 5-20m abundant ferruginous granules, and mottles with pale and pink coloured clays;
3. 20-30 m puggy clays of various colours (including yellow, red, green and grey) with occasional pisolith; pisoliths are more abundant in the grey or more reduced zones of the clays;
4. 30-60m beneath the puggy clays, a thick zone of clayey sand, with some coarser gravels, continues to the base of the transported material.

A variable thickness of saprolite occurs beneath the transported material, with fresh rock appearing at about 80m; the depth to fresher rock is shallower towards the flanks of the palaeochannel. Some buried lateritic material occurs on the flanks of the palaeochannel at the interface with the transported material. Bedrock consists, predominantly, of siliceous and epidote-rich metabasalts and ultramafic rocks (Figure 3). There appears to be a relationship between the position of the palaeochannel and the two main shears that cross the study area.

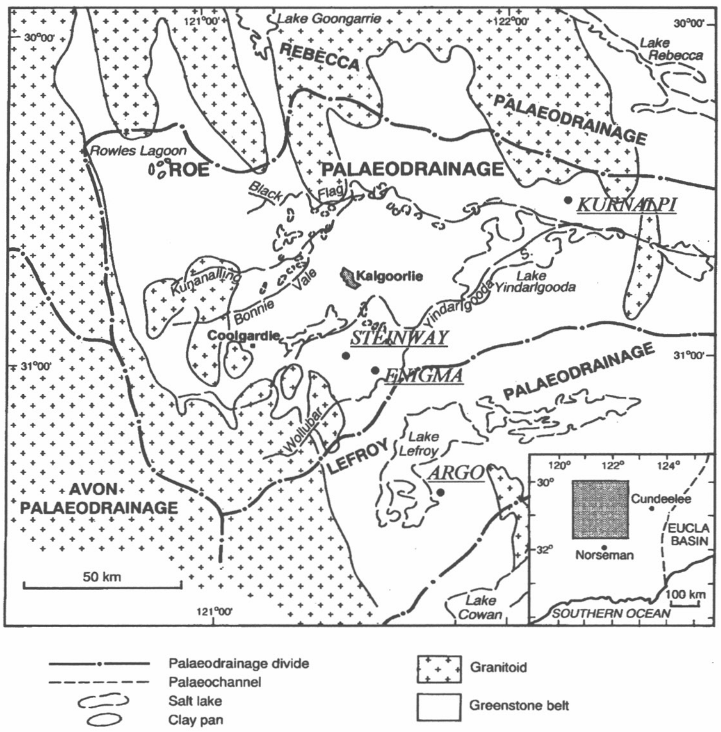

Figure 1: Location map (after Kern and Commander, 1993).

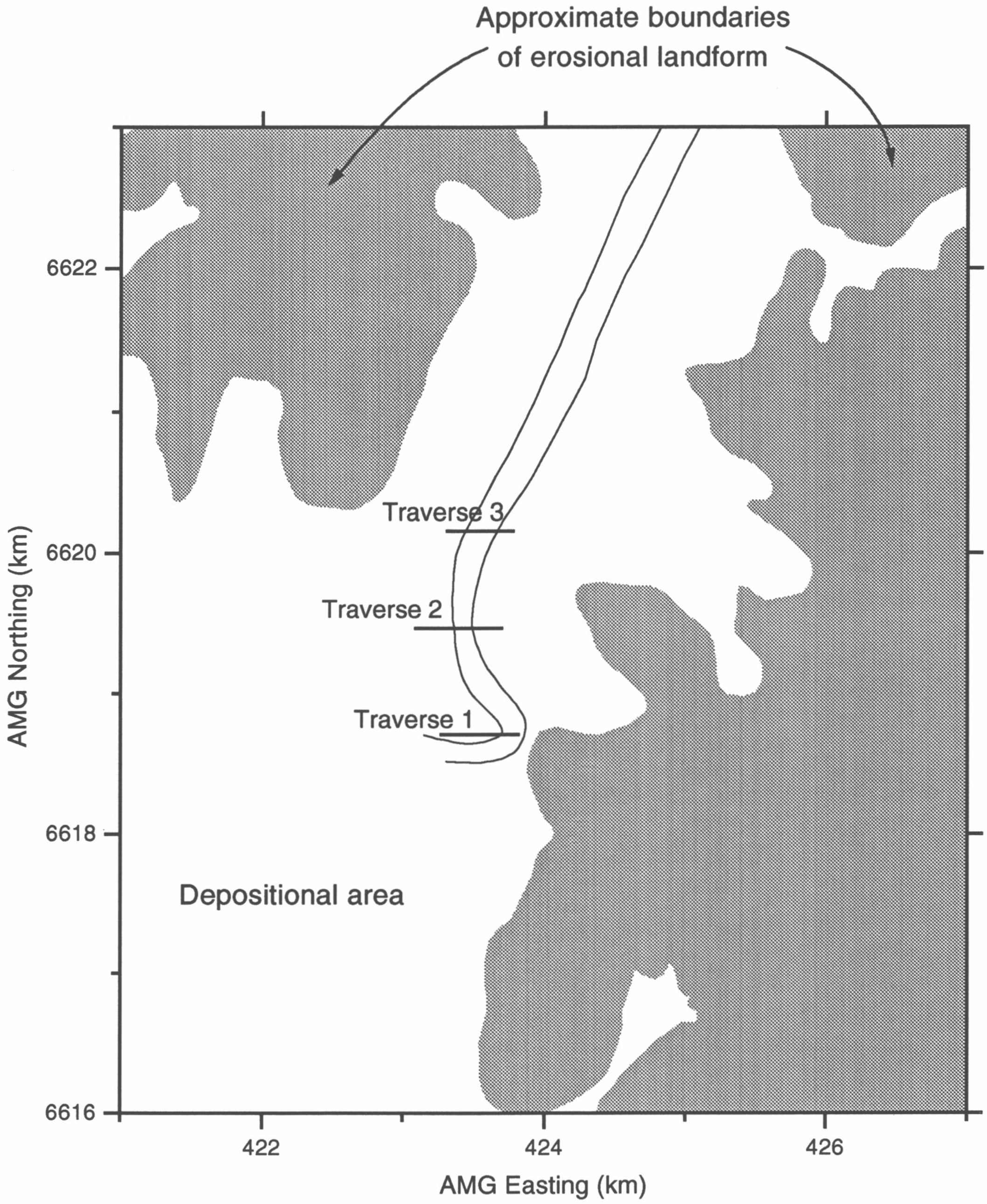

Figure 2: Auger traverse locations and major regolith landforms for the Kurnalpi study area (after maps supplied by Mt. Kersey Mining N.L.).

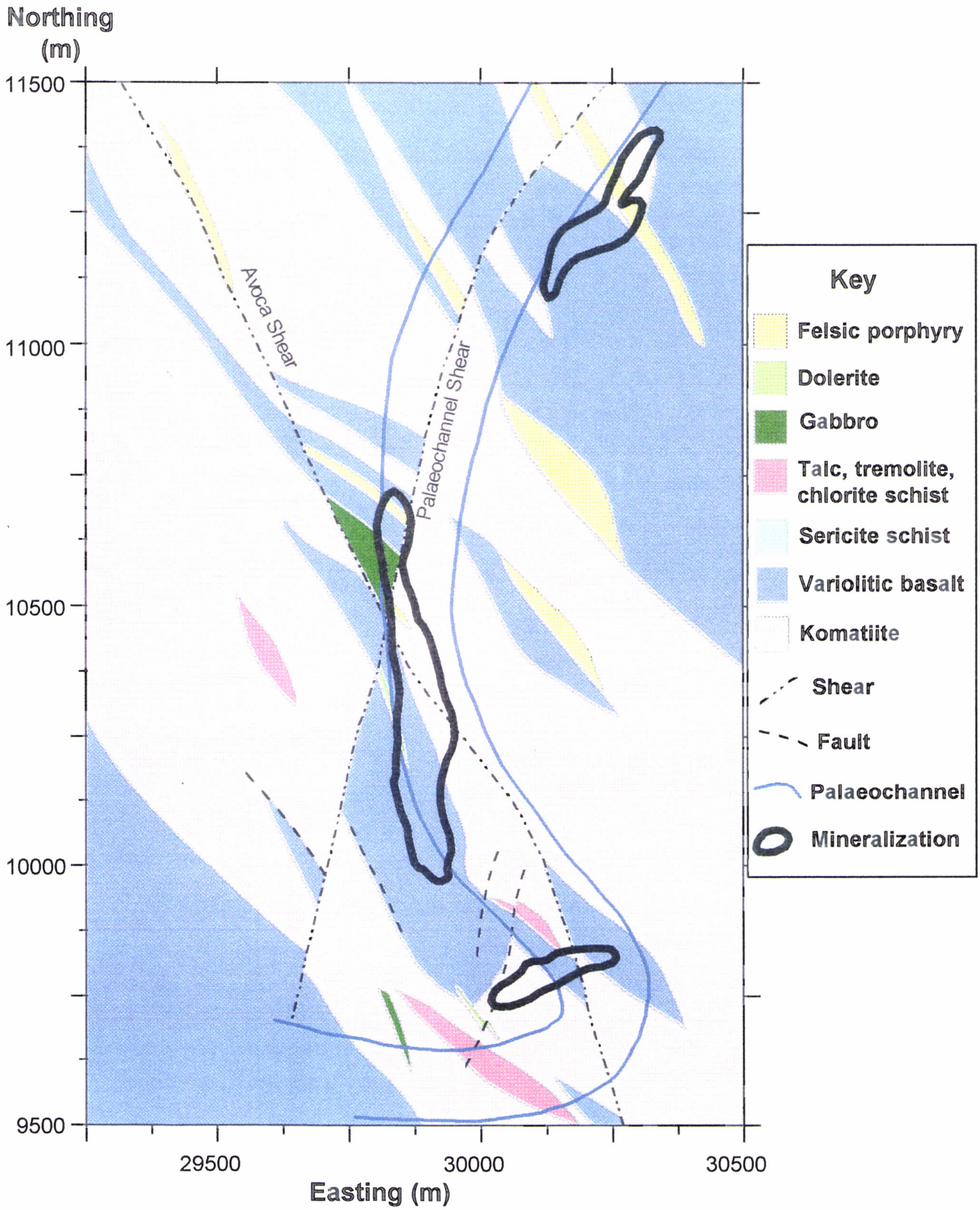

Figure 3: Geology of the Kurnalpi study area (after maps supplied by Mt. Kersey Mining N.L.).

The nearest known sources of mineralization to the study area are located upslope about 2 km to the east (Brobys Consuls), 4 km to the north-east (Minters Gully and others), and 2 km to the south-east (Old Harriet). Although the potential for more undiscovered mineralization in residual and erosional areas to the north and east is high, the distance to these areas was considered to be sufficiently great as to not interfere with the study site. At Kurnalpi, mineralization is associated with quartz veining hosted by weathered and altered basalts beneath the palaeochannel sediments.

3. Methods

A selection of samples was collected from the Kurnalpi prospect. These included soil, ferruginous material (lag, segregations, laterite and pisoliths), sediments, saprolite and bedrock. These samples have been analysed for a variety of elements and a synthesis of the results is presented below. In addition, 14 RC holes were sampled to 5m and analysed for Au, Ca and Mg as part of the pilot study. These samples have slightly higher concentrations of surficial Au (compared to the results from the auger survey) and are now considered to be contaminated with down hole material from the previous drill hole. All samples were analysed by CSIRO unless otherwise stated. The rationale for collecting specific samples are as follows:

(i) soils: soil is a complex body of mineral and organic constituents, commonly differentiated into horizons of variable thickness. It can be examined by several methods, including:
  (a) examination and analysis of different soil horizons collected from a costean or soil pit can provide detailed information on the preferential siting (if any) of elements and minerals. Characteristics of soil horizons allows better definition of anomalies that may be otherwise smothered or diluted by soil components of lower element concentration; this will enable the targeting of specific soil horizons;
  (b) topsoils (approximately 0 - 0.1 m), containing organic matter, can be readily sampled from the surface;
  (c) deeper soil composites (*i.e.*, 0 - 1 m) can be readily collected by augering; this relatively simple technique is being extensively used for Au exploration in erosional and relict landforms. Augering usually targets the carbonate horizon which is an important sample medium for Au and is nearly always present in the top 1 or 2 metres. Soil samples were used for partial extraction studies to determine whether various reagents extract Au at levels and proportions depending on the geomorphology or proximity to mineralization. The partial extraction concentrations, rather than total content, may provide a better target anomaly;

(ii) ferruginous (and other) separations: Fe oxides are important scavengers of many elements, including Au. They occur as segregations, granules, mottles, pisoliths, buried laterite, lag and coatings throughout the transported regolith;

(iii) saprolite, saprock and bedrock: weathered and fresh material from beneath the transported overburden material was sampled and analysed for a suite of elements. Other elements associated with mineralization may present a better target for exploration than Au itself.

3.1 Sample collection, preparation and analysis

One to two kilos of sample were collected using a vehicle-mounted power auger. These were dried at 70°C, split, jaw-crushed (as required), and disc pulverized (nominal <150µm) before a 100-200 g sub-sample was pulverized in a K1045-steel ring mill to a nominal <75µm. The varying analyses used for the different sample types were:

(i) Gold only by INAA;

(ii) Antimony, As, Ba, Br, Ce, Cs, Cr, Co, Eu, Hf, Ir, Fe, Au, La, Lu, Mo, K, Rb, Sm, Sc, Se, Ag, Na, Ta, Th, W, U, Yb and Zn by Instrumental Neutron Activation Analysis (INAA) at Becquerel Laboratories, Lucas Heights;
(iii) Bismuth, Cu, Fe, Mn, Ni, Pb, Sr, Ti, Zn and Zr by X-ray fluorescence (XRF; pressed powders);
(iv) Calcium and Mg by atomic adsorption spectrophotometry (AAS) after digesting in 5M HCl for 15 minutes and then diluting to 1M HCl;
(v) Salinity of soil slurry (1 part soil to 2 parts deionised water) using a conductivity meter.

3.2 Soil sampling (0 - 1 m)

Samples were collected from three traverses (Figure 4) using a vehicle-mounted, power auger and analysed for the INAA and XRF element suites, Ca, Mg, carbonate and salinity.

3.3 Ferruginous components of the transported overburden

Samples were collected from selected depths from 6 RC drill hole cuttings (Appendix 5), wet sieved through a (approximately) 0.8 mm screen, hand sorted, and the ferruginous fraction collected and analysed for the INAA and XRF element suites. Some samples were analysed for additional elements by XRF (fusion and pressed powders) and details of these are found in Appendix 6.

3.3 Material from saprolite and bedrock

A selection of samples was collected from 3 RC drill hole cuttings (Appendix 5), jaw-crushed as required (Denver jaw crusher) before pulverizing in a K1045-steel ring mill and analysed for the INAA and XRF element suites. Some samples were analysed for additional elements by XRF (fusion and pressed powders) and details of these are found in Appendix 6.

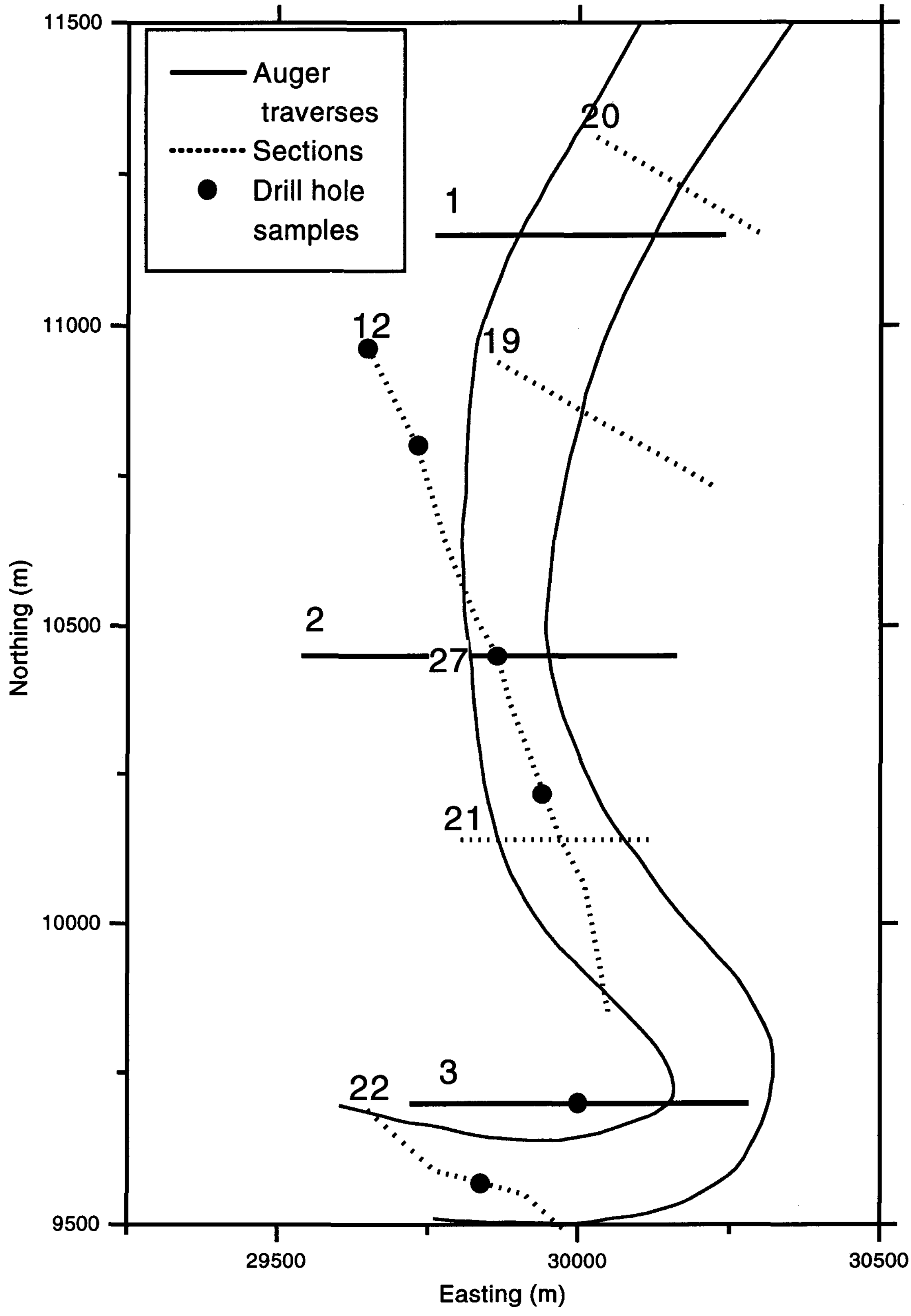

Figure 4: Traverse locations at Kurnalpi, with palaeochannel shown (after maps supplied by Mt. Kersey Mining N.L.).

3.4 Partial extractions

Three in-house partial extraction solutions (Gray and Lintern, 1993), were used to test the solubility of Au. In all cases, a 25 g portion of unpulverized sample material was mixed with 50 mL of extractant in a screw-cap polyethylene plastic bottle, and then gently agitated for one week, after which the total Au extracted is measured. The three solutions are:

(i) deionised water: dissolves the most soluble Au.
(ii) iodide: a 0.1M KI solution is adjusted to pH 7.4 with HCl whilst CO_2 is bubbled through. This extraction dissolves more Au than water alone. Another form of this test did not involve pH adjustment; there is little difference in Au recovery between the two extraction variants when carbonate-rich soils are being analysed.
(iii) cyanide: 0.2% KCN solution saturated with CaO dissolves all but the most refractory Au - this can include larger pieces of Au and Au encapsulated within resistant material such as quartz.

The partial extraction tests were performed either on separate portions of the same sample or as a sequential extraction starting with water and finishing with cyanide. Batch effects have previously been noted with deionised water extraction and so all partial extraction tests were performed under identical conditions and at the same time; the reason for the batch effects has not been determined but does NOT occur with iodide or cyanide soluble Au.

4 Results

4.1 Soil sampling (0 - 1, 1 - 2 m)

In summary, the distribution of Au was relatively constant across the three traverses and does not appear to be related to the underlying mineralization. Individual traverses are considered in detail below. Gold data for the three traverses is summarized in Table 2. Partial extraction tests were performed on Traverse 2 (10450N).

Table 2: Summary statistics for Au for 0 - 1 m, and 1 - 2 m samples at Kurnalpi. Au values in ppb.

Traverse	Northing (m)	Easting from (m)	Easting to (m)	Depth (m)	Au maximum	Au mean	Au standard deviation
1	9700	29720	30280	0-1	14.2	9.9	3.2
	9700	29720	30200	1-2	18.7	13.7	3.3
2	10450	29540	30160	0-1	22.5	15.1	4.8
	10450	29540	30160	1-2	27.2	18.7	4.8
3	11150	29760	30240	0-1	26.2	16.2	4.8

4.1.1 Traverse 1, 9700N

This traverse is located downstream of the strongest mineralization, though some mineralization was detected here during a subsequent drilling programme. Gold concentrations in the auger samples were low, with values generally close to detection (Figure 5). There is no observed correlation between Au distribution and the position of the palaeochannel or mineralization. There is no beneficial effect gained by combining the Au data from 0 - 1 m with that from 1 - 2 m. However, normalizing Au values with respect to Ca values for 0 - 1 m samples produces two distinct one-sample maxima over the palaeochannel (Figure 5). Calcium concentrations are relatively constant.

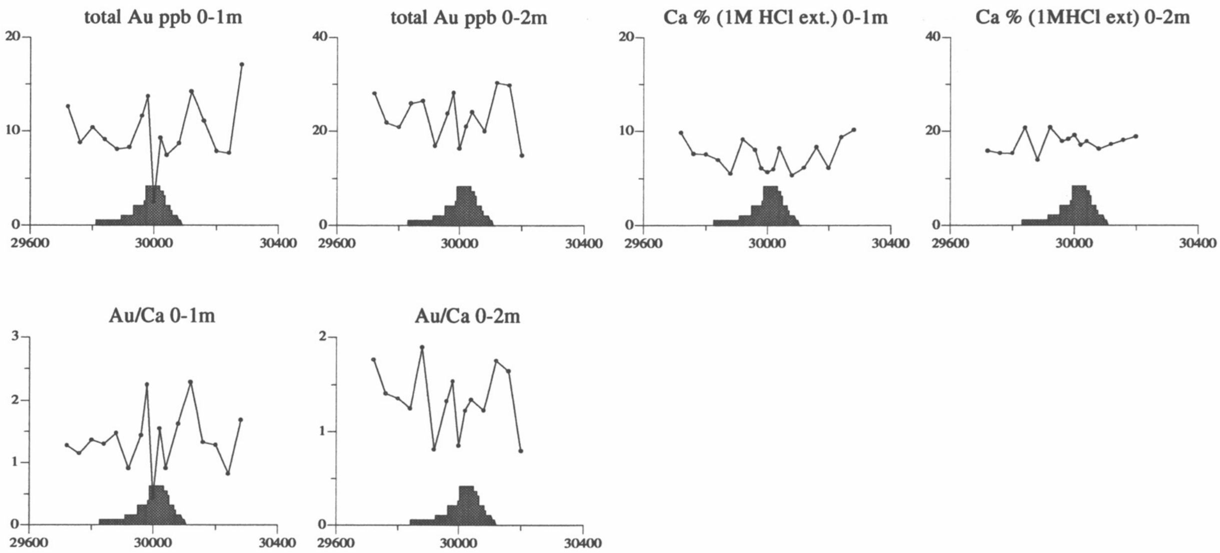

Figure 5: Total Au and Ca for 0 - 1 m and 0 - 2 m samples at Kurnalpi Traverse 1 (9700N). The hatched area locates mineralization. X axis is the Easting (m).

4.1.2 Traverse 2, 10450N

This traverse is located directly over the main mineralization. Gold concentrations were marginally greater than for traverse 1, although they were below detection in the two most eastern samples (Figure 6). A one sample Au maximum (0 - 1 m) appeared to be associated with mineralization which can be broadened to 500m anomaly if normalized with respect to Ca.

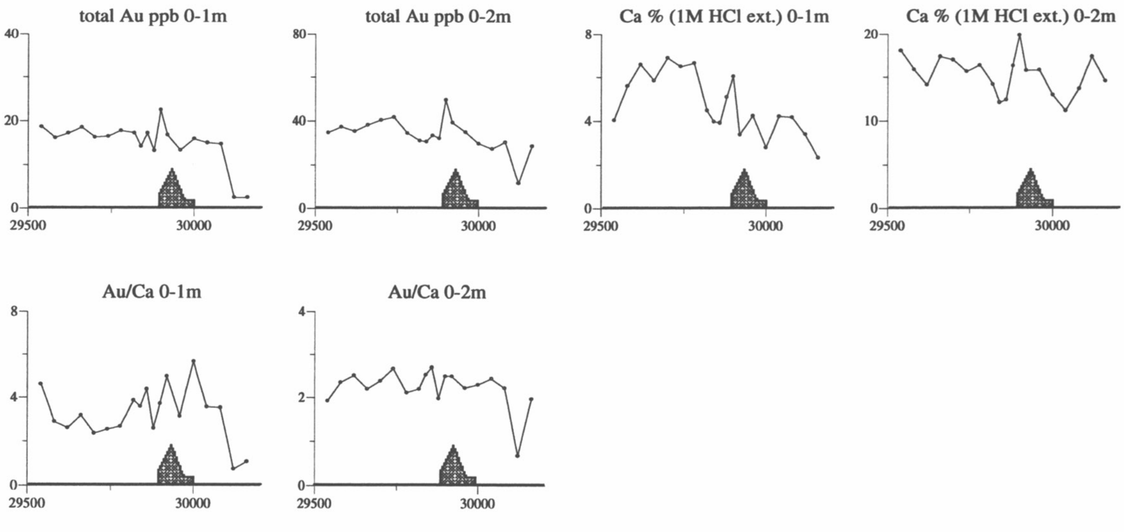

Figure 6: Total Au and Ca for 0 - 1 m and 0 - 2 m samples at Kurnalpi Traverse 2 (10450N). The hatched area locates mineralization. X axis is the Easting (m).

Samples from this traverse were analysed for elements other than Au (Appendices 1 and 6). Cerium, K, La, Sm, Sr and Zn (and possibly Eu and Yb) appear to be more concentrated over the palaeochannel and adjacent to mineralization. These elements may be associated with Mn oxides.

4.1.3 Traverse 3, 11150N

This traverse is located to the north of the strongest mineralization and hence can be considered as an upslope background. Gold values from this traverse were comparable to those from over strong mineralization (traverse 2, Figure 7). Only two samples were collected from 1 - 2 m. Some samples had the lowest Ca values for all traverse samples. This may be related to the presence of an ephemeral drainage line.

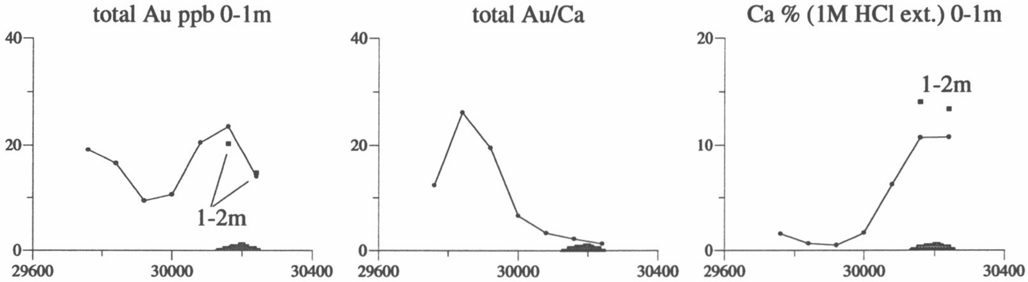

Figure 7: Total Au and Ca for 0 - 1 m and 1 - 2 m samples at Kurnalpi Traverse 3 (11150N). The hatched area locates mineralization. X axis is the Easting (m).

4.1.4 Partial extraction of Traverse 2 samples

The partial extraction of Au from 0 - 1 m samples (10450N) by water, iodide and cyanide similarly did not produce any significant results (Figure 8). It appears that the concentrations of water- and iodide-soluble Au are related, suggesting that the two types of Au are in the same proportions throughout the study area. The mean concentration of water-soluble and iodide-soluble Au for all samples (expressed as proportion of total) is 27% and 64%, respectively, which is similar to levels observed in other carbonate-rich soils of the southern Yilgarn (Gray and Lintern, 1993).

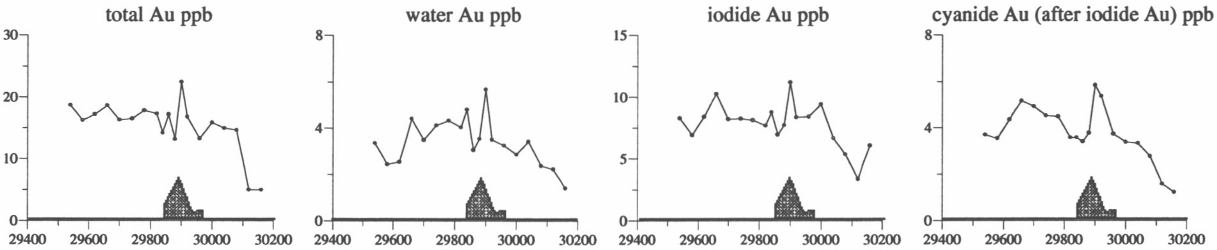

Figure 8: Total, water-, iodide- and cyanide- soluble Au for Traverse 2 at Kurnalpi. The cyanide results are for the remaining Au left after the iodide extraction. The hatched area locates mineralization. X axis is the Easting (m).

4.2 Ferruginous material separated from transported overburden

Eighteen ferruginous samples from 4 drill holes of the transported overburden were ranked according to their proximity to mineralization, and samples sorted by depth (Appendix 2). Results indicated that:

(i) all samples were below detection for Au (Appendix 2),
(ii) a trend towards higher concentrations of Ce, Co, Cu, La, Lu, Ni, Pb, Sm and Yb towards the base of the transported overburden,
(iii) Cu, Lu, Ni, Sm and Yb contents tend to increase closer to the richer mineralization, although the drill hole closest to the most Au-rich area of mineralization was not significantly concentrated in these elements, and

(iv) Au is present in significant concentrations at the interface between the transported overburden and the palaeosurface in the base of the channel (from data supplied by Mt Kersey Mining N.L.).

Additionally, two lateritic samples from 25m below surface from the interface of the palaeosurface adjacent to the channel and transported material (Appendix 5) were collected from two drill holes. One of these samples (*t*, located about 250m from mineralization) had the highest concentration of Au (50 ppb) for all separations; however, sample *s* from the same horizon located a further 50m away from the channel was below detection. The two lateritic samples were relatively concentrated in K, Mn, As, Co, Ni, Rb and Zn (Appendix 2) with respect to other ferruginous material from the transported overburden.

4.3 Material from saprolite and bedrock

Ten saprolite and bedrock samples (Appendix 5) were ranked according to Au content and classified into the following sub-groups (Appendix 3):

(i) 4 samples with low Au contents (< 0.1 ppm),
(ii) 1 sample with moderate Au contents (0.1 to 1 ppm), and
(iii) 4 samples with high Au contents (> 1 ppm) (Appendix 4).

The results showed:

(i) some saprolite samples with high Au concentrations also had high concentrations of Cr,
(ii) one saprolite sample with high concentrations of Au had detectable Mo (2 ppm),
(iii) most saprolite samples high in Au contents were also high in As, and
(iv) the sample containing fresh rock with moderate Au content had a very high W content (18 ppm).

5 Discussion

The Kurnalpi deposit has no surface geochemical expression in total or partially extractable Au or in other elements. Water would be expected to dissolve the most active Au and thus include the most recently mobilized or introduced component. The absence of a response suggests that any introduced component is minimal in comparison with Au mobilized by normal soil processes. It is possible that the latter has led to a widespread homogenization of Au, a possible consequence being a broad lower order soil anomaly. Such an anomaly would only be apparent on a district scale and not with the short traverses examined here.

Gold in soil at Kurnalpi is largely confined to the calcareous horizon, which is generally restricted to the top 5m. Augering thus remains an effective sampling procedure. Although the results suggested here do not indicate mineralization, the procedure should not necessarily be abandoned for a first pass evaluation of depositional regimes because in other areas, *e.g.*, Steinway, significant surficial anomalies have been found. The reasons for this have not been determined but presumably relate to some specific conditions. Conversely, a negative result should not be taken as conclusive.

6 Recommendations

Future studies at Kurnalpi are required. Specifically, there is a need to:

1. analyse buried lateritic material for As as well as Au. Arsenic appears to be associated with mineralization and has also been found in high concentrations in the lateritic samples analysed thus far.

2. obtain Mn and other element data for the remaining two auger traverses to examine whether anomalous values occur over the palaeochannel as with Traverse 2. If Mn and other associated element anomalies are located over the palaeochannel for all 3 traverses then test whether they can be enhanced or decreased using selective extraction techniques that dissolve Mn oxides. Then, consider performing other augering on additional traverses.

Acknowledgments

The following people and companies are thanked for their support and expertise in preparation of this report: Mt Kersey Mining N.L. for (i) providing resources required for the auger survey and (ii) allowing access to the database for details on mineralization, soil anomaly plans and geology; J.F. Crabb for sample preparation; G.D. Longman for preparation of section figures, data base management, sample preparation and selected analyses; M.K. Hart for XRF analyses. Finally, C.R.M. Butt and A.P.J. Bristow gave extensive advice in the preparation of this report.

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Kern, A.M. and Commander, D.P., 1993. Cainozoic stratigraphy in the Roe Palaeodrainage of the Kalgoolie region, Western Australia. *In* Report 34, Professional Papers. Geological Survey of Western Australia. pp 85 - 95.

Appendices contents

Appendix 1: 0 - 1 m results - graphed.

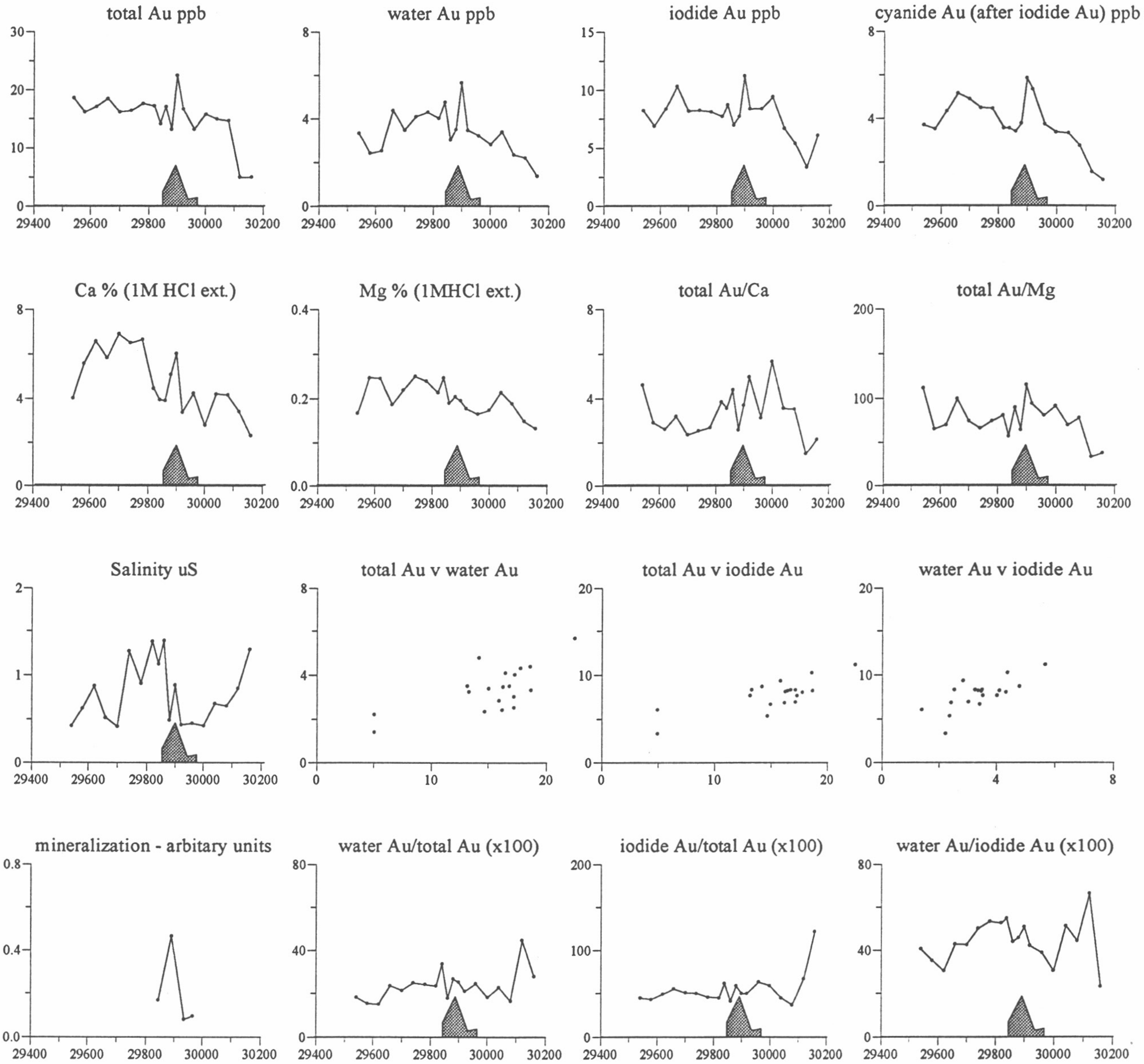
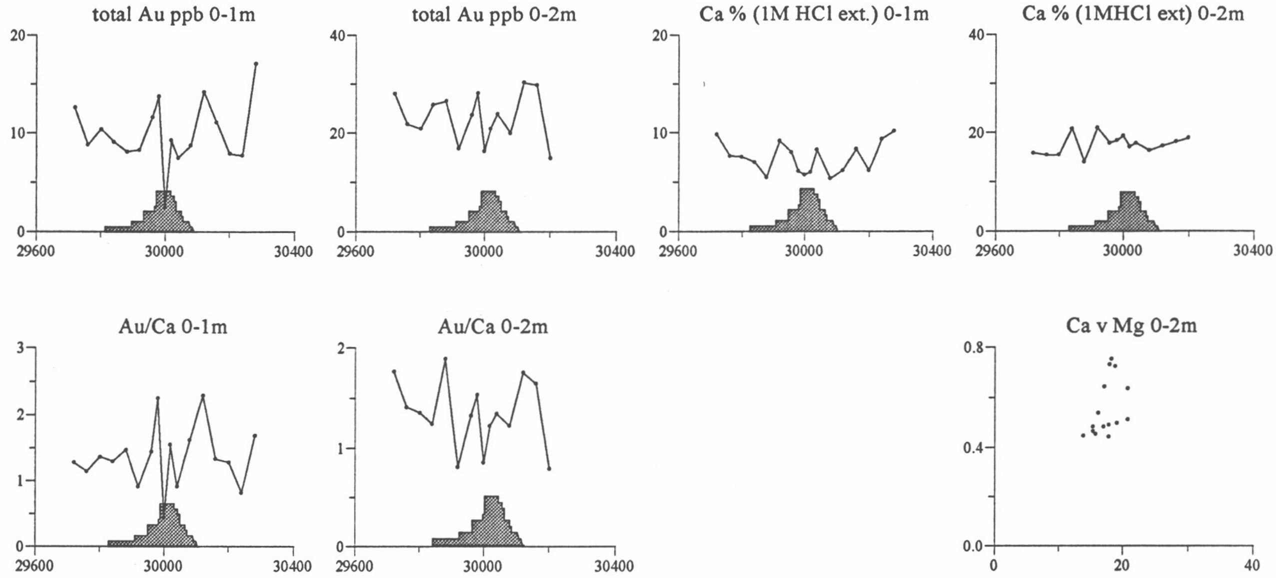
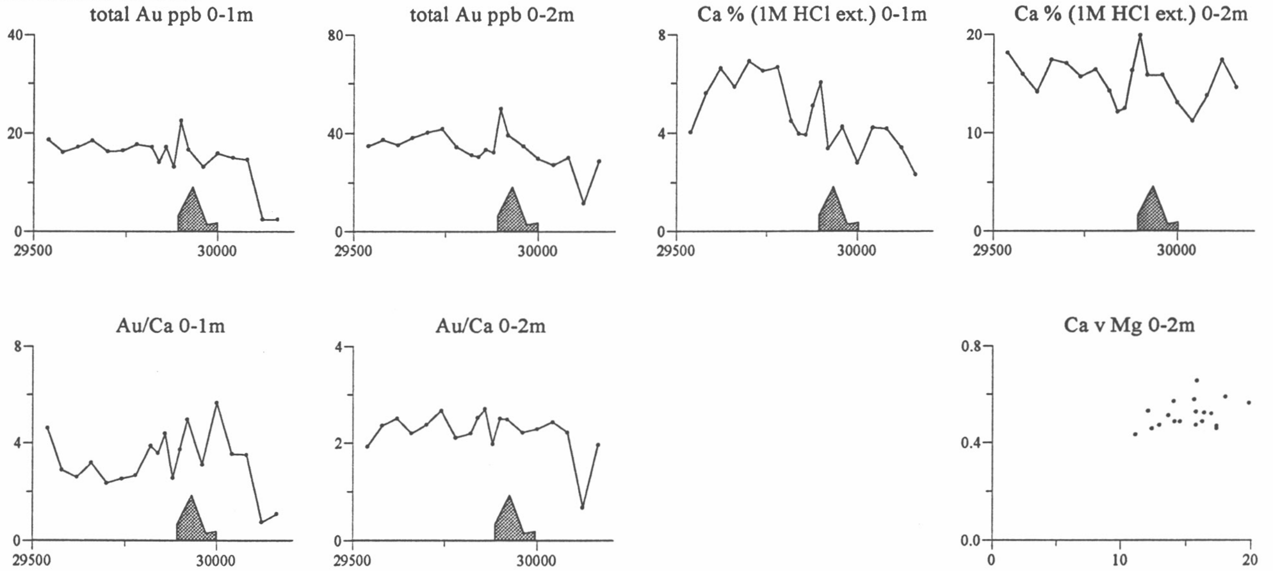


Figure A1.1: Elemental abundances and scatter plots for 0 - 1 m samples from 10450N at Kurnalpi.
All values in ppb unless otherwise stated.
For scatter plots, first element in header is the X axis, otherwise X axis is Easting (m).
Hatched area indicates mineralization.

Traverse 1 9700N



Traverse 2 10450N



Traverse 3 11150N

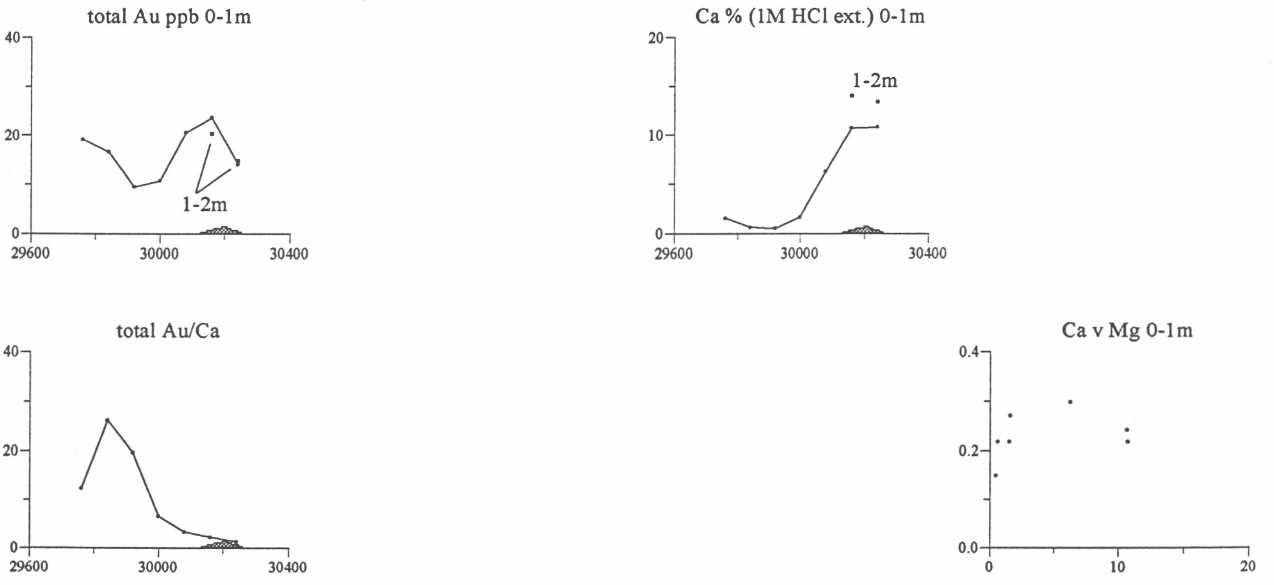


Figure A1.2: Gold, Ca and Mg abundances for 0 - 1 m and 0 - 2 m samples from 3 traverses at Kurnalpi.
For scatter plots, first element in header is the X axis, otherwise X axis is Easting (m).
Hatched area indicates mineralization.

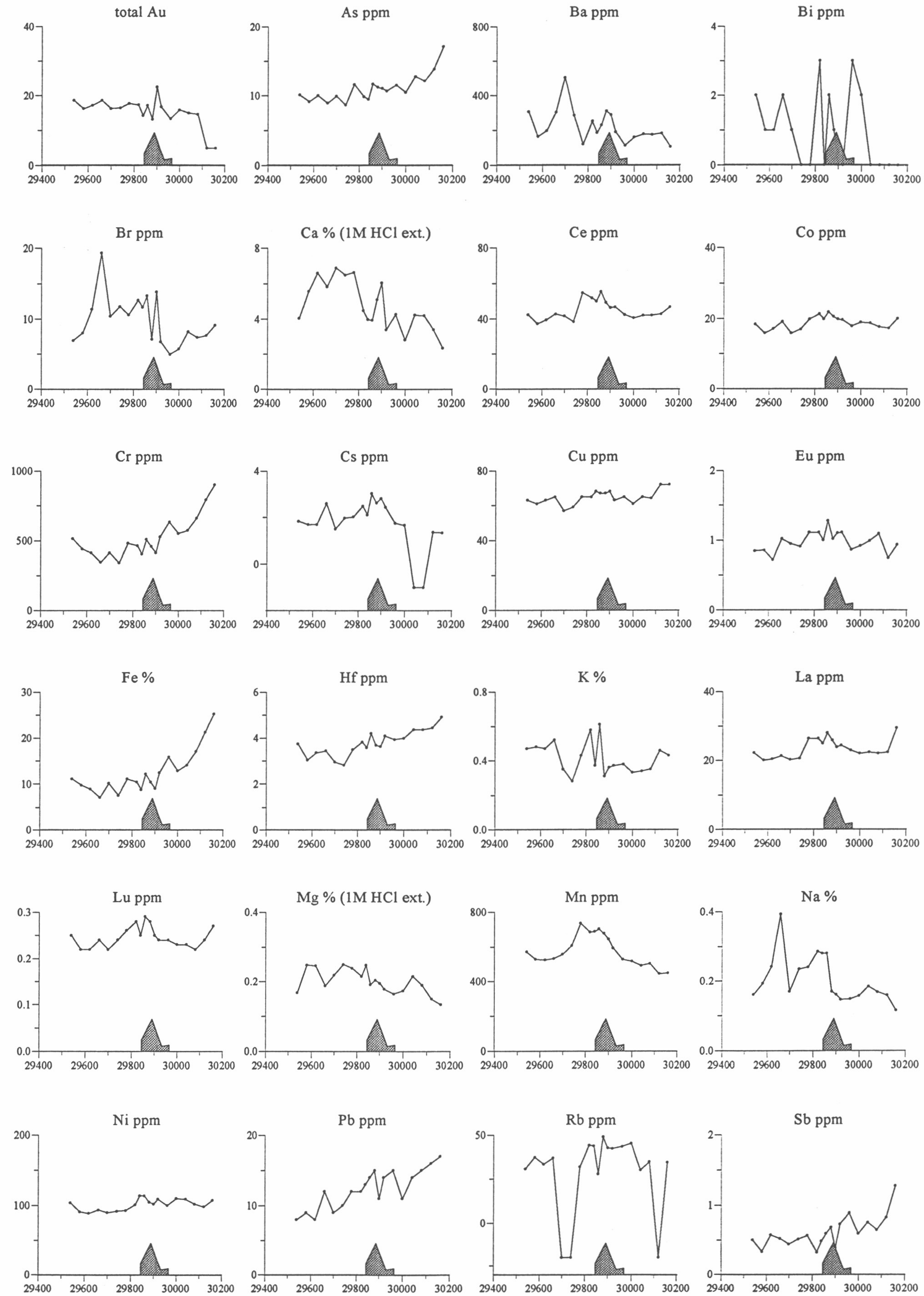


Figure A1.3: Elemental abundances for 0 - 1 m samples from 10450N at Kurnalpi.
Hatched area indicates mineralization. Negative data below detection.
X axis is Easting (m).
For all samples, Ag (5 ppm), Ir (20 ppb), Mo (5ppm), Se (5 ppm) and U (2 ppm) were below detection (in brackets).

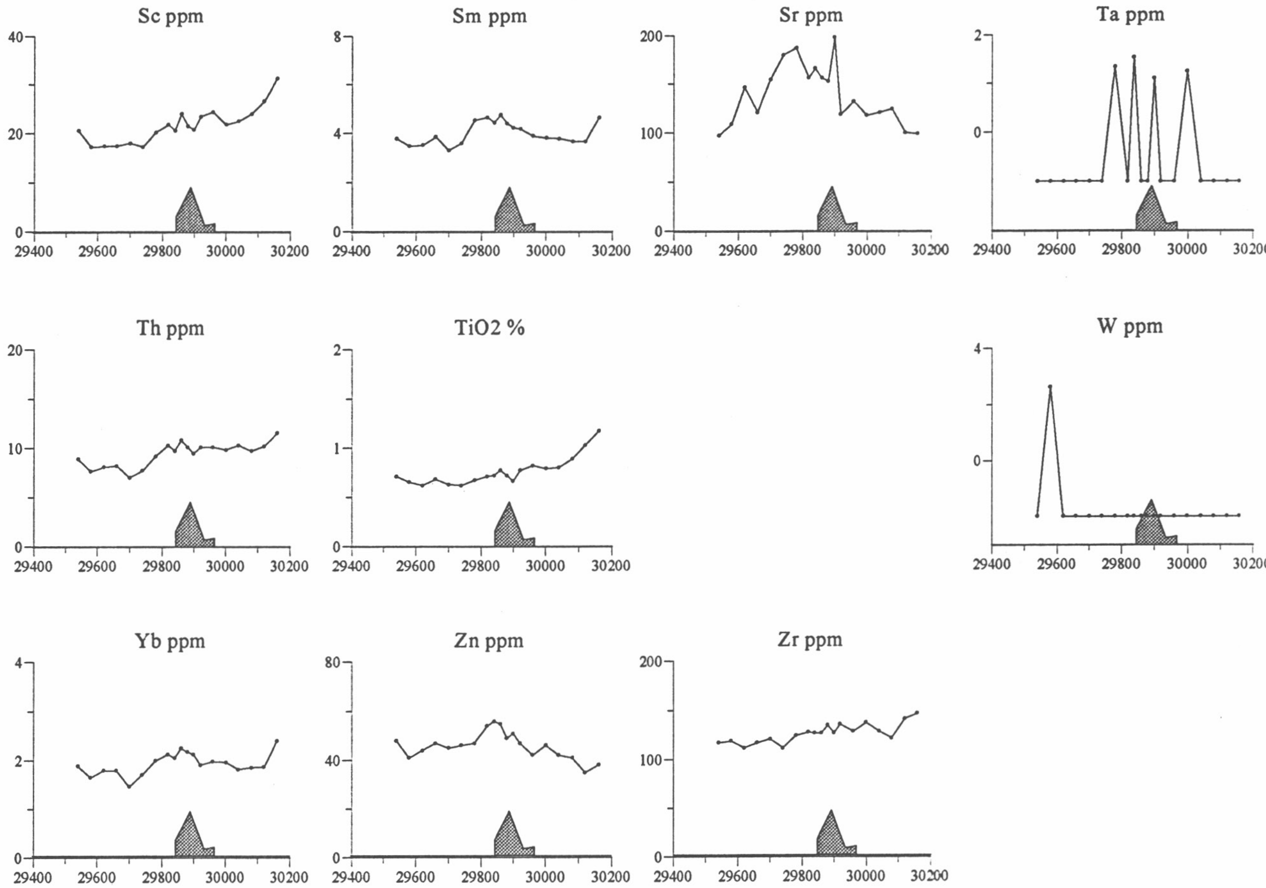


Figure A1.3 (continued).

Appendix 2: Ferruginous material separated from transported overburden - graphed.

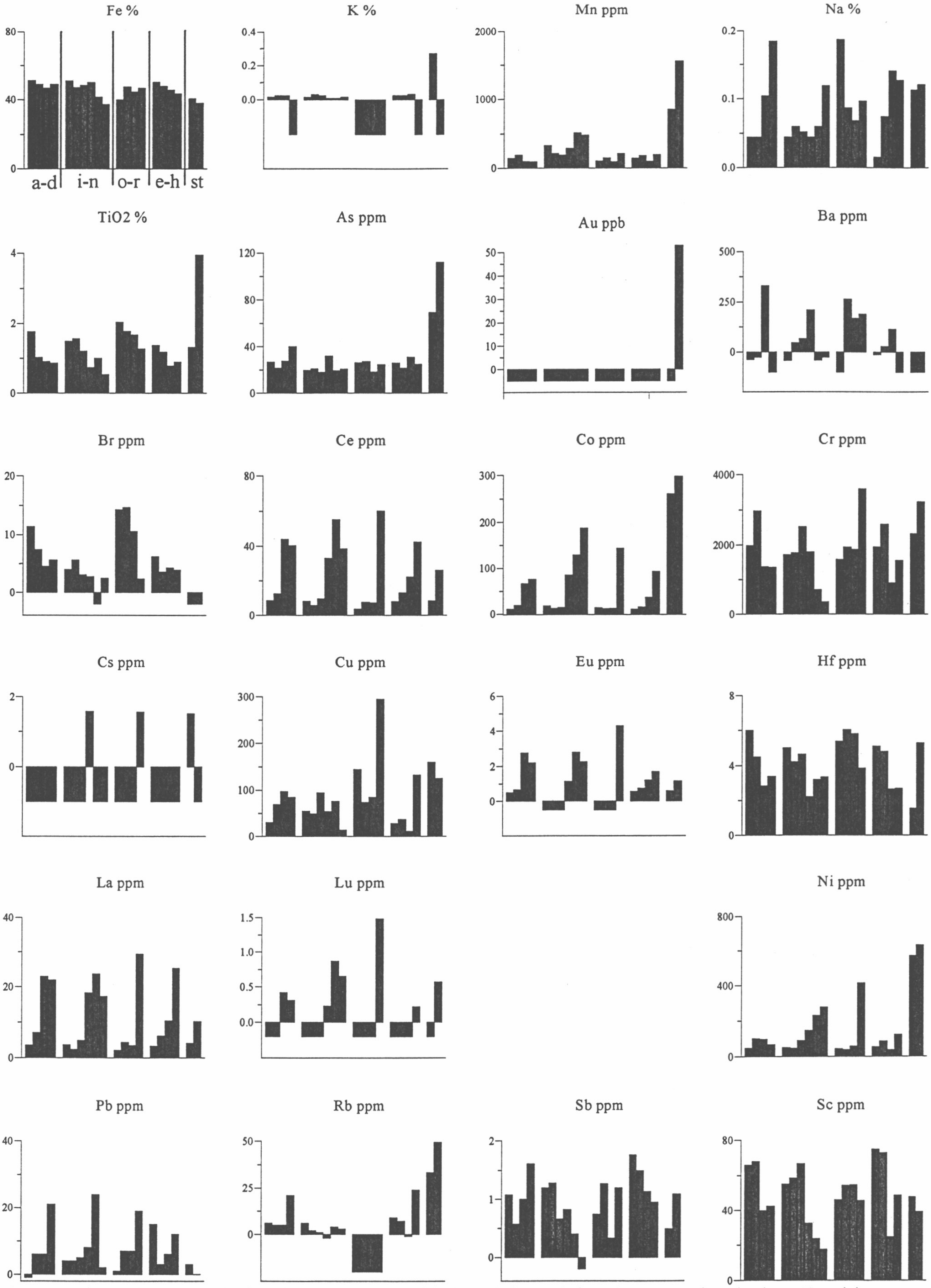


Figure A2: Elemental abundances for ferruginous material hand-picked from bulk sample from the transported overburden at Kurnalpi.
Samples a-d: <5 ppb Au and close to weak mineralization, sorted by depth (a=shallow, d=deep)
Samples i-n : <5 ppb Au and close to medium mineralization, sorted by depth (i=shallow, n=deep)
Samples o-r: <5 ppb Au and close to rich mineralization, sorted by depth (p=shallow, o=deep)
Samples e-h: <5 ppb Au and close to very rich mineralization, sorted by depth (e=shallow, h=deep)
Samples s,t: buried lateritic material, t richest in Au.
Negative data below detection. See Appendix 5 for locations.
For most samples, Ag (5 ppm), Bi (1 ppm), Ir (20 ppb), Mo (5 ppm), Se (5 ppm) and U (2 ppm) were below detection (in brackets).

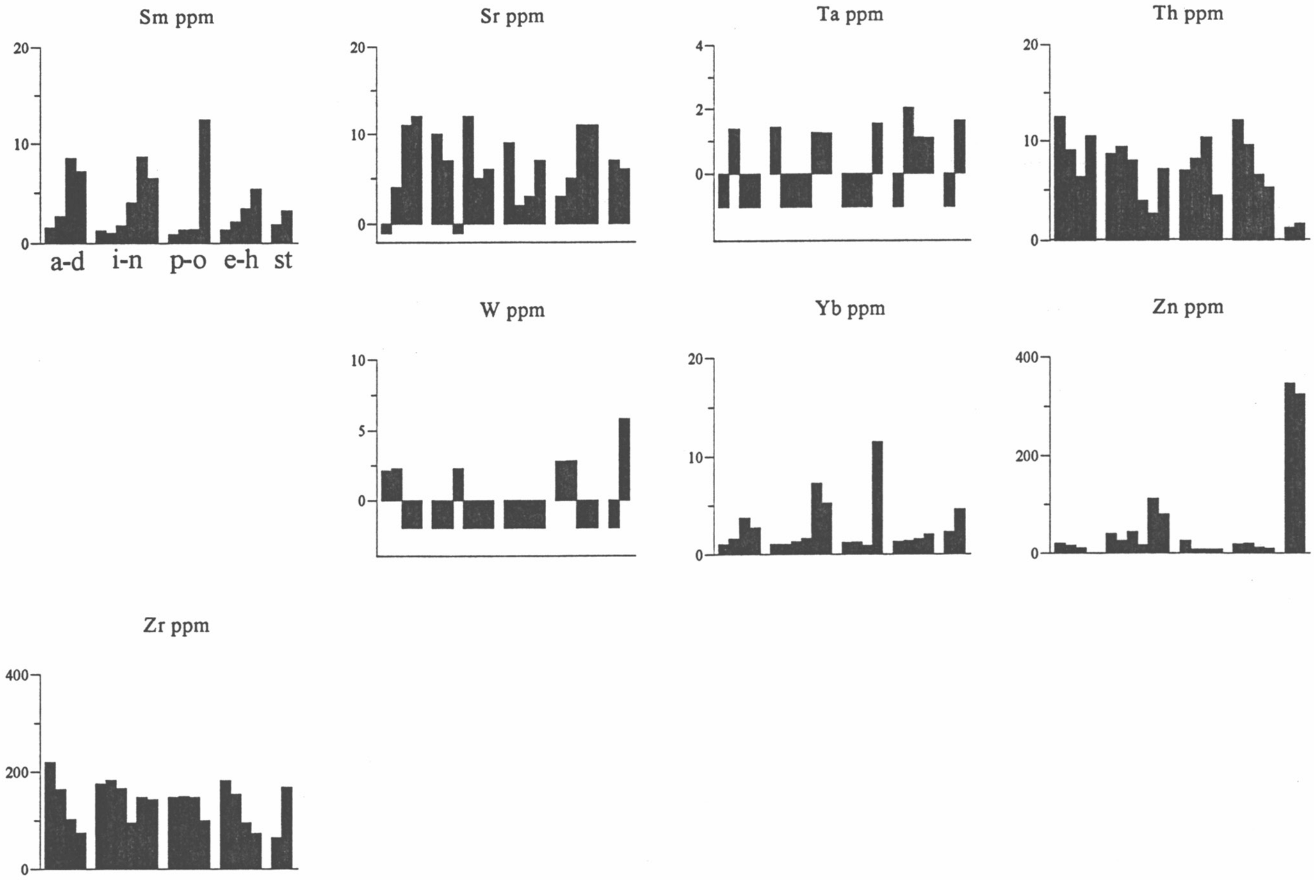


Figure A2 (continued).

Appendix 3: Saprolite and bedrock - graphed.

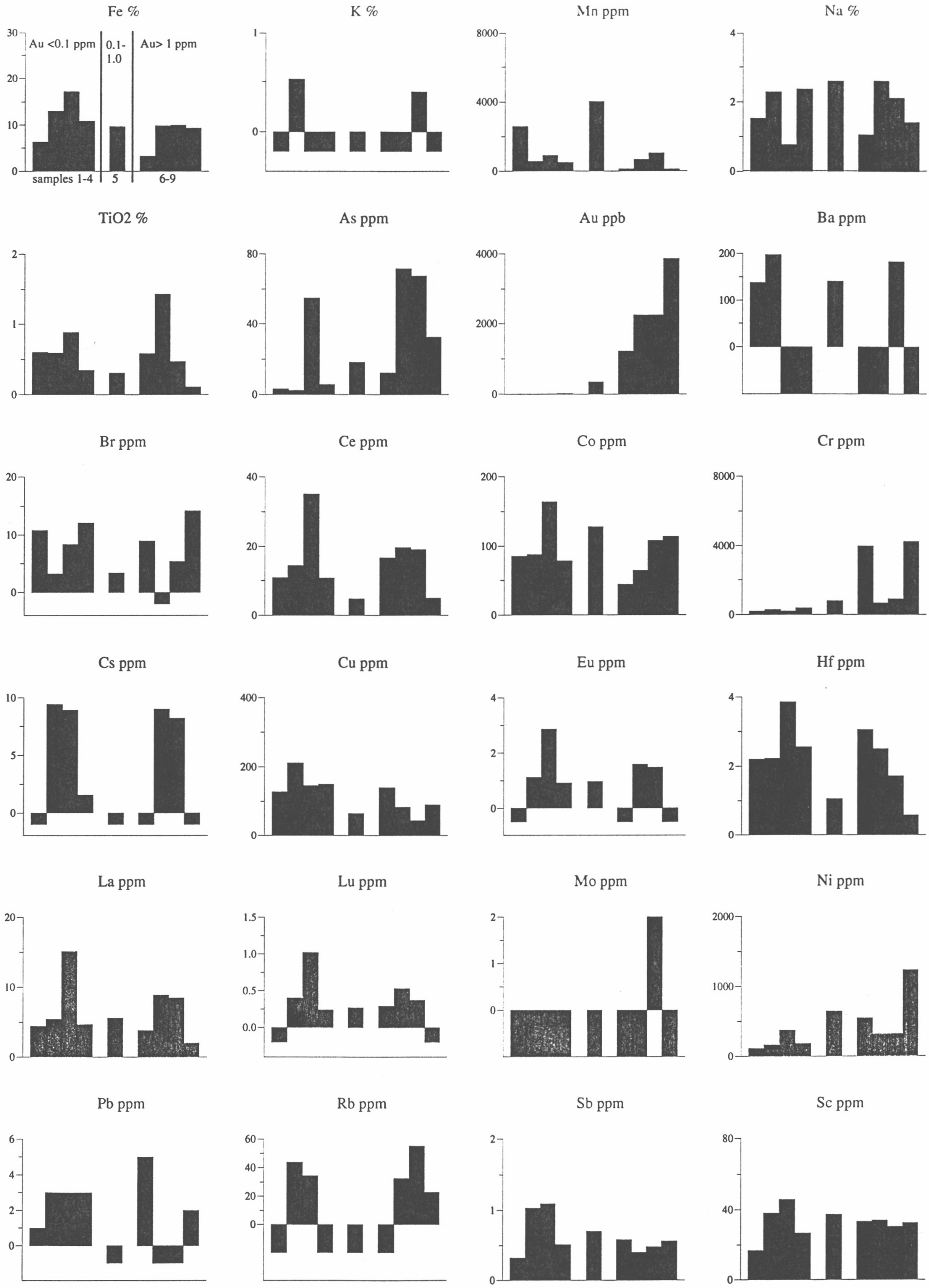


Figure A3: Elemental abundances for selected saprolite and bedrock samples from Kurnalpi.
See Appendix 5 for sample locations.
Samples grouped into 3 according to Au content (<0.1 ppm, 0.1-1 ppm and >1 ppm).
Negative data below detection.
For all samples, Ag (5 ppm), Bi (1 ppm), Ir (20 ppb), Se (5 ppm) and U (2 ppm) were below detection (in brackets).

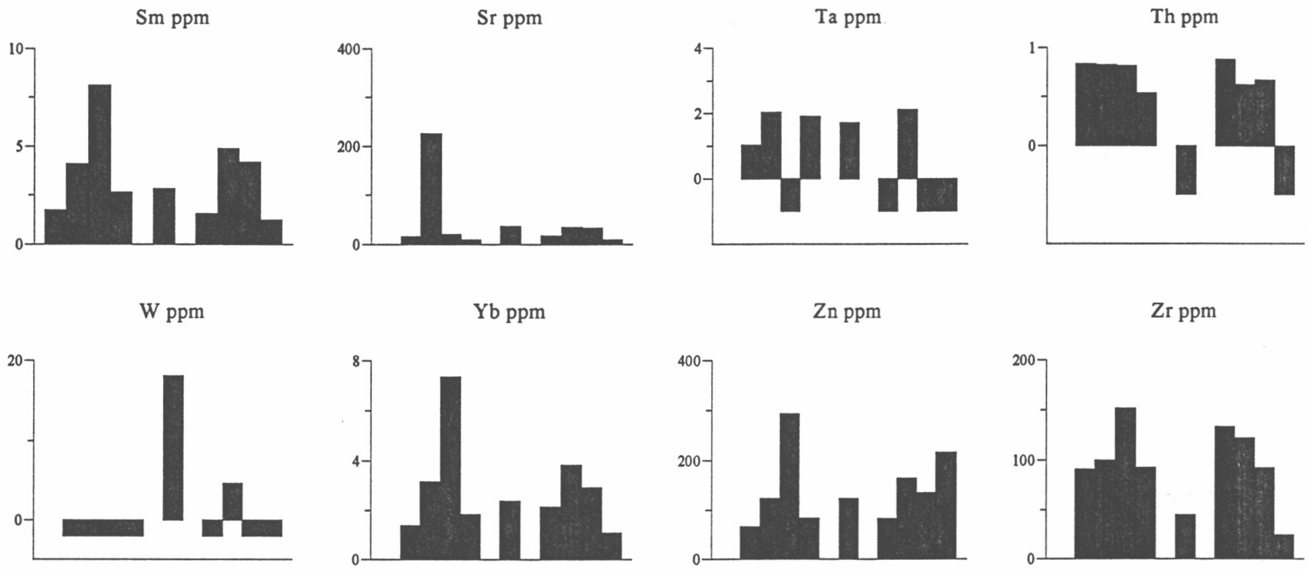


Figure A3 (continued).

Appendix 4: Selected scatter plots.

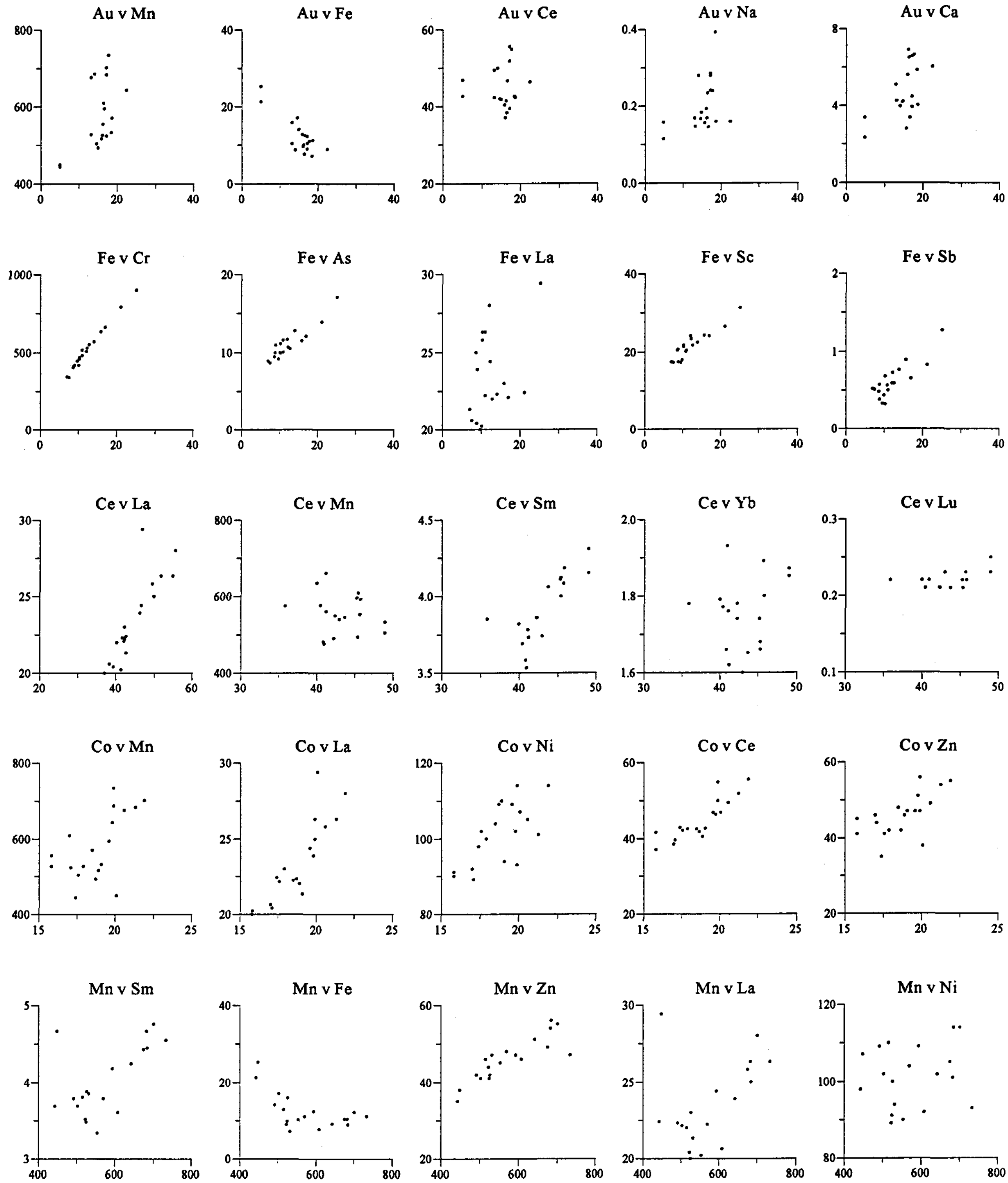


Figure A4.1: Selected scatter plots for 0 - 1 m bulk samples from 10450N at Kurnalpi.
Majors in %, traces in ppm and Au in ppb.
First element in header is the x axis

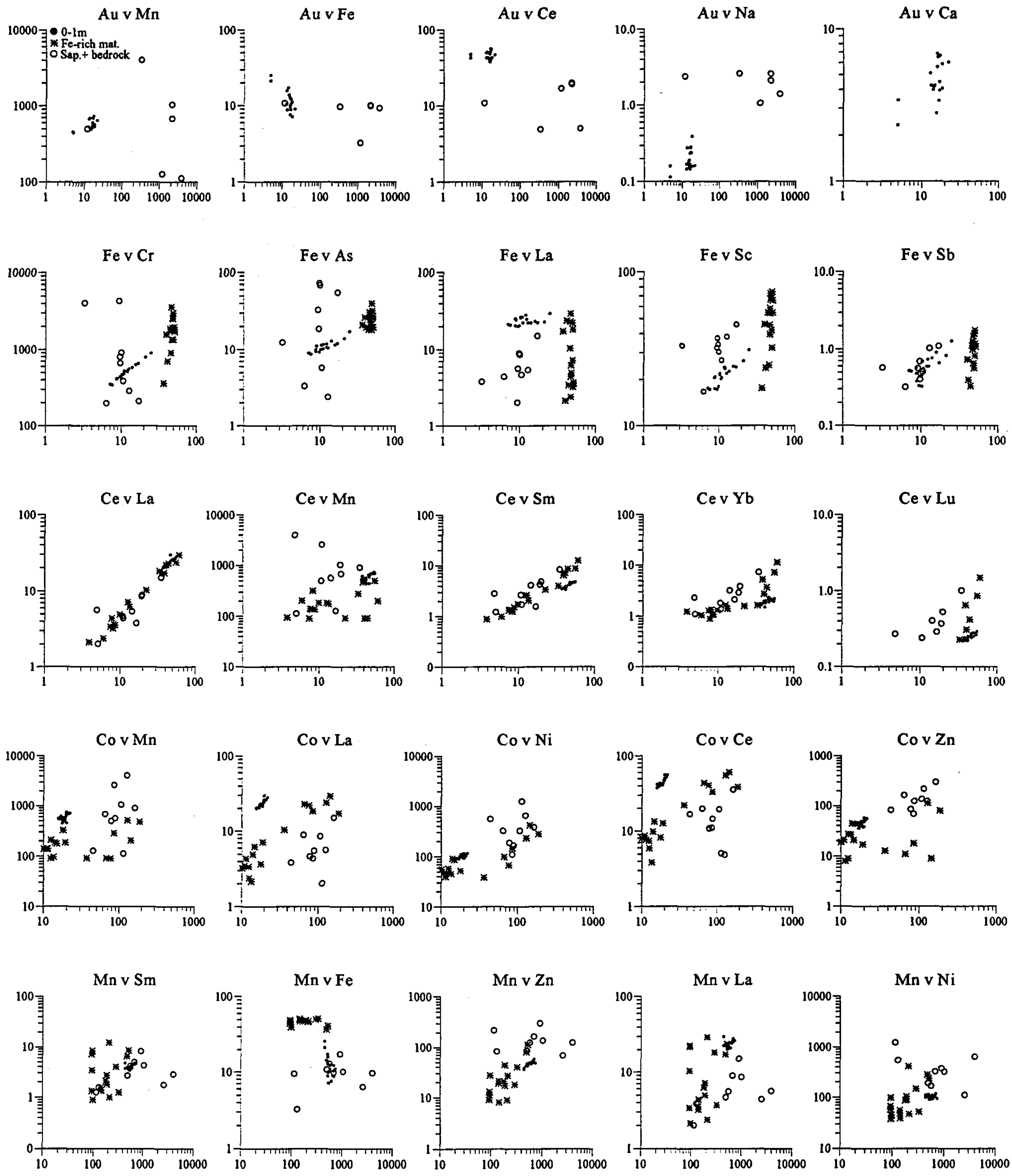


Figure A4.2: Selected scatter plots for 0 - 1 m bulk samples, Fe-rich material hand-picked from the overburden, and saprolite and bedrock material for Kurnalpi
Major elements in %, trace elements in ppm, Au in ppb.
First element in header is the x axis

Appendix 5: Sections.

Key

- Calcareous red clay.
- Non-calcareous mottled clay.
- Purply, red and white clays.
- Puggy lacustrine clays.
- Nodular lateritic material.
- Pale silty sand.
- Oxidized clays with some partially weathered rock.
- Siliceous and epidotic metabasalt / ultramafic.
- Moderately mineralized (Au 0.1-1 ppm).
- Strongly mineralized (Au >1 ppm).
- ⑤ Sample points (see Appendices 2 and 3 for graphed elemental abundances).

(i) Traverse 12

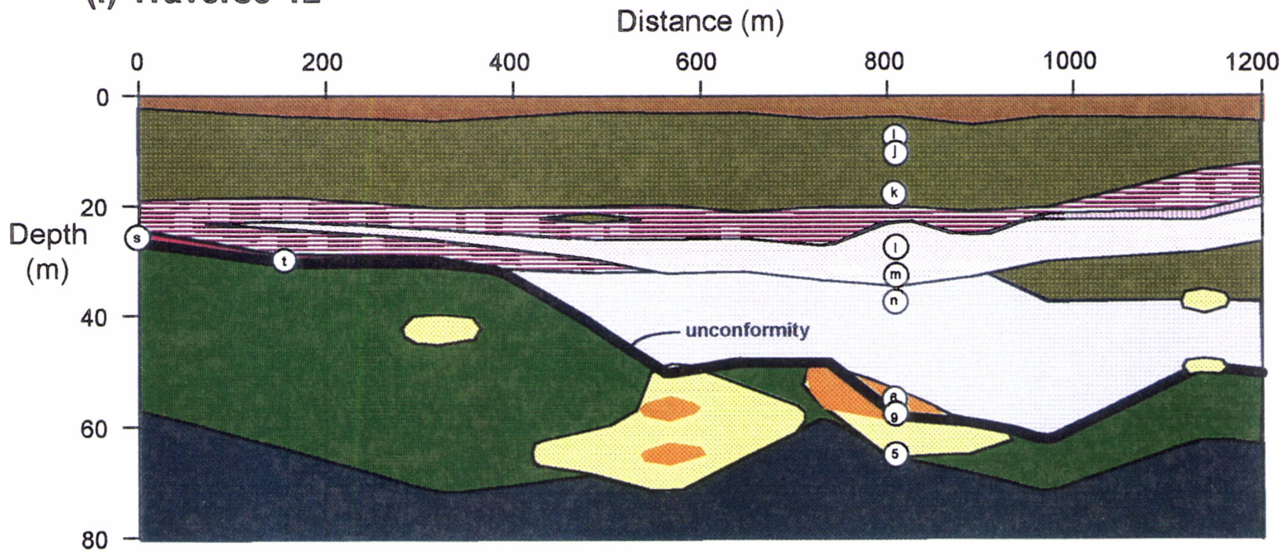
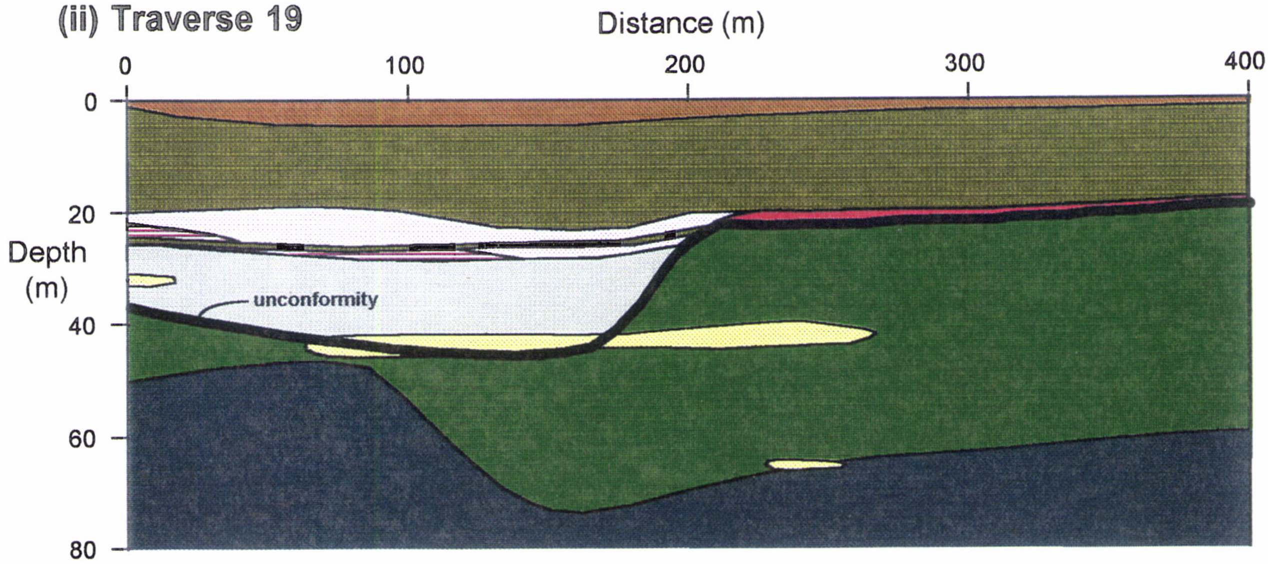


Figure A5: Regolith stratigraphy and Au abundance for (i) Traverse 12, (ii) Traverse 19, (iii) Traverse 20, (iv) Traverse 21, (v) Traverse 22, (vi) Traverse 27. After data supplied by Mt Kersey Mining NL.

(ii) Traverse 19



(iii) Traverse 20

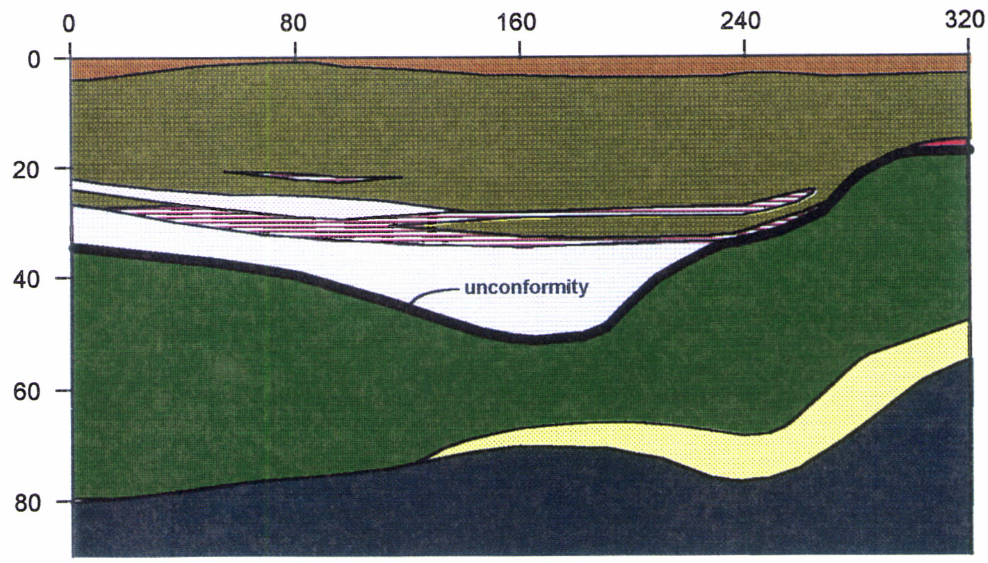


Figure A5 (continued).

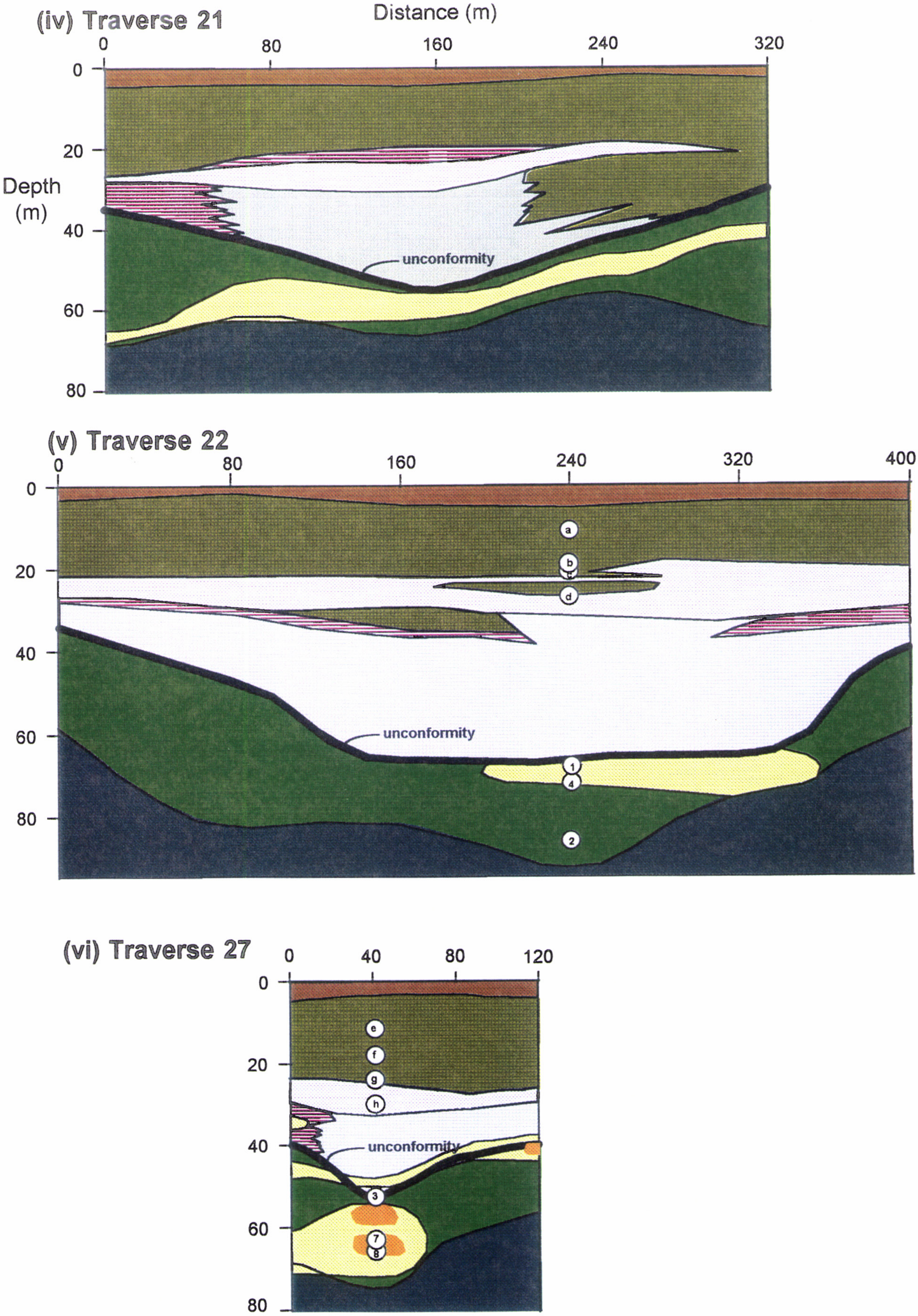


Figure A5 (continued).

Appendix 6: Tabulated results.

Sample	Sample id	Hole ID	Easting	Northing	Depth	Type	Al2O3.f
09-0628	a	KSC 3220	29838	9568	11.5	mottles	9.01
09-0630	b	KSC 3220	29838	9568	19.5	mottles	9.5
09-0631	c	KSC 3220	29838	9568	21.5	mottles	9.72
09-632	d	KSC 3220	29838	9568	25.5	pisoliths from red/brown clay	nd
09-0644	i	KSC 3175	29940	10215	7.5	mottles	9.63
09-0645	j	KSC 3175	29940	10215	10.5	mottles	10.94
09-0646	k	KSC 3175	29940	10215	18.5	mottles	10.45
09-0648	l	KSC 3175	29940	10215	27.5	pisoliths	8.44
09-0650	m	KSC 3175	29940	10215	33.5	Fe nodules	10.26
09-0651	n	KSC 3175	29940	10215	37.5	Fe nodules	11.12
09-2066/7/8	o	KSC 3561	30000	9700	7-10	hardened mottles, Fe nodules, light red brown	nd
09-2070	p	KSC 3561	30000	9700	11-12	Fe granules assocaited with mottles. Dark red	nd
09-2074/5/6	q	KSC 3561	30000	9700	15-18	mottles; hardened red clays and Fe granules	nd
09-2082/3/4	r	KSC 3561	30000	9700	30-36	khaki pisoliths	nd
09-0661	e	KSC 3183	29865	10449	11.5	mottles	10.14
09-0662	f	KSC 3183	29865	10449	17.5	mottles	9.81
09-0664	g	KSC 3183	29865	10449	23.5	mottles	10.21
09-665/6	h	KSC 3183	29865	10449	28-30	pisoliths from red/gray clay	nd
09-515	s	KSC 3170	29650	10963	26.5	lateritic Fe nodules	nd
09-521	t	KSC 3171	29733	10800	29.5	Fe nodules - khaki	nd
09-640	1	KSC 3220	29838	9568	66.5	reduced clays with some sand	nd
09-642	2	KSC 3220	29838	9568	86.5	khaki clay	nd
09-670	3	KSC 3183	29865	10449	52.5	khaki clay	nd
09-641	4	KSC 3220	29838	9568	72.5	khaki clay	nd
09-659	5	KSC 3175	29940	10215	64.5	khaki clay - with partially weathered rock	nd
09-656	6	KSC 3175	29940	10215	55.5	khcki clay - mottles	nd
09-673	7	KSC 3183	29865	10449	62.5	khaki clay no quartz + Fe segregations	nd
09-674	8	KSC 3183	29865	10449	63.5	khaki clay no quartz + Fe segregations	nd
09-657	9	KSC 3175	29940	10215	56.5	khaki clay	nd
Gindalbie	09-0928	KSC 2170	10400	10000	2.5	red clay with Fe nodules	6.67
Gindalbie	09-0930/31	KSC 2170	10400	10000	5	pinky-red clay with Fe nodules	9.26
Gindalbie	09-0932	KSC 2170	10400	10000	6.5	mottles + Fe nodules	12.71
Gindalbie	09-0935	KSC 2170	10400	10000	19.5	pisoliths from red-grey clay	10
Gindalbie	09-0937	KSC 2170	10400	10000	29.5	mottles	15.29
Gindalbie	09-0959	KSC 2180	9560	10000	2.5	Fe nodules	5.56
Gindalbie	09-0960/61	KSC 2180	9560	10000	4	Fe nodules	7.26
Gindalbie	09-0962	KSC 2180	9560	10000	5.5	Fe nodules	7.44
Gindalbie	09-0964	KSC 2180	9560	10000	12.5	mottles	9.77
Gindalbie	09-0980	KSC 2181	9600	10000	3.5	Fe nodules	5.72
Gindalbie	09-0981/82	KSC 2181	9600	10000	5	Fe nodules	8.22
Lady Bountiful Ext.	09-0146(2)	NLR 1728	9740	5120	3.5	mottles	18.82
Lady Bountiful Ext.	09-0201(1)	NLR 1562	9640	5360	2.5	mottles	15.7
Lady Bountiful Ext.	09-0202	NLR 1562	9640	5360	3.5	mottles	23.61
Lady Bountiful Ext.	09-0228/29	NLR 1657	9720	5340	2	mottles	19.62
Lady Bountiful Ext.	09-0230	NLR 1657	9720	5340	3.5	mottles	23.29
Lady Bountiful Ext.	09-0231	NLR 1657	9720	5340	4.5	mottles	21.31
Lady Bountiful Ext.	09-0227	NLR 1657	9720	5340	0.5	Fe granules	11.88

Table A6.1: Elemental abundances at Kurnalpi, Gindalbie and Lady Bountiful Extended for Regolith and Bedrock samples.

Analyses by INAA(n), XRF pressed powders (p) and XRF fusion (f).

Major elements in %, trace elements in ppm, Au in ppb.

Sample id	CaO.f	Fe.n.f	K.n.f	MgO.f	Mn.p.f	Na.n.f	P2O5.p	S.p.f	SiO2.f	TiO2.p.f	Ag.n	As.n	Au.n	Ba.n
a	0.01	51.3	0.02	0.07	139	0.04	0.025	910	11.5	1.76	nd	27	<5	<37
b	0.01	49.1	0.02	0.11	186	0.04	0.026	370	12.7	1.03	nd	21.6	<5	<26
c	0.01	46.9	0.02	0.24	93	0.10	0.023	490	13.3	0.91	nd	27.8	<5	331
d	nd	49.1	<0.2	nd	92	0.18	nd	nd	nd	0.87	<5	40.1	<5	<100
i	0.02	51.0	0.02	0.12	325	0.04	0.03	290	10.8	1.49	nd	19.7	<5	<41
j	0.01	47.3	0.03	0.08	209	0.06	0.029	400	13.7	1.56	nd	21.1	<5	46
k	0.01	48.6	0.02	0.09	186	0.05	0.024	410	13.2	1.2	nd	18.3	<5	67
l	0.03	50.0	0.01	0.37	287	0.04	0.006	540	9.2	0.74	nd	32.1	<5	210
m	0.03	41.6	0.01	0.19	511	0.06	0.011	220	19.9	1.01	nd	19.6	<5	<39
n	0.03	37.2	0.02	0.27	480	0.12	0.022	200	22.9	0.54	nd	21	<5	<26
o	nd	39.9	<0.2	nd	97	0.19	nd	nd	nd	2.04	<5	26.2	<5	<100
p	nd	47.5	<0.2	nd	142	0.09	nd	nd	nd	1.77	<5	27.5	<5	265
q	nd	44.7	<0.2	nd	92	0.07	nd	nd	nd	1.67	<5	18.5	<5	169
r	nd	46.8	<0.2	nd	206	0.10	nd	nd	nd	1.27	<5	24.6	<5	190
e	0.01	50.3	0.02	0.06	139	0.01	0.021	730	10.9	1.37	nd	26.1	<5	<13
f	0.05	48.0	0.02	0.14	178	0.07	0.022	370	14.7	1.18	nd	21.6	<5	29
g	0.03	45.8	0.03	0.23	93	0.14	0.015	420	14.8	0.79	nd	30.9	<5	114
h	nd	43.5	<0.2	nd	192	0.13	nd	nd	nd	0.9	<5	24.9	<5	<100
s	nd	40.6	0.27	nd	849	0.11	nd	nd	nd	1.31	<5	69.3	<5	<100
t	nd	37.9	<0.2	nd	1552	0.12	nd	nd	nd	3.94	<5	112	53	<100
1	nd	6.3	<0.2	nd	2587	1.52	nd	nd	nd	0.6	<5	3.31	<5	138
2	nd	13.0	0.53	nd	560	2.28	nd	nd	nd	0.59	<5	2.4	<5	197
3	nd	17.2	<0.2	nd	894	0.76	nd	nd	nd	0.88	<5	55	<5	<100
4	nd	10.8	<0.2	nd	495	2.36	nd	nd	nd	0.35	<5	5.78	12	<100
5	nd	9.7	<0.2	nd	4020	2.59	nd	nd	nd	0.31	<5	18.4	339	141
6	nd	3.3	<0.2	nd	128	1.06	nd	nd	nd	0.58	<5	12.4	1210	<100
7	nd	9.9	<0.2	nd	673	2.60	nd	nd	nd	1.43	<5	71.6	2240	<100
8	nd	10.0	0.40	nd	1039	2.12	nd	nd	nd	0.47	<5	67.5	2240	183
9	nd	9.4	<0.2	nd	113	1.42	nd	nd	nd	0.11	<5	32.4	3860	<100
09-0928	0.1	28.5	0.24	0.23	93	0.10	0.027	1010	45.0	0.52	nd	54.5	<5	1481
09-0930/31	0.03	24.0	0.77	0.2	39	0.20	0.029	9220	43.7	0.57	nd	63.2	<5	334
09-0932	0.02	32.2	0.34	0.46	54	0.16	0.029	1180	29.4	0.61	nd	68.3	<5	5
09-0935	0.01	46.4	0.09	0.28	93	0.07	0.008	2360	10.7	0.4	nd	136	<5	402
09-0937	0.01	41.0	0.06	0.11	1379	0.10	0.016	2970	10.3	0.14	nd	70.5	<5	28
09-0959	0.08	24.5	0.26	0.2	70	0.10	0.025	1150	52.8	0.44	nd	29	<5	835
09-0960/61	0.06	26.5	0.32	0.2	62	0.12	0.023	1710	46.5	0.48	nd	46.5	<5	436
09-0962	0.04	39.5	0.17	0.18	108	0.08	0.039	2030	27.5	0.52	nd	59.9	<5	992
09-0964	0.03	31.9	0.18	0.18	108	0.10	0.016	1370	35.4	0.71	nd	83.4	<5	193
09-0980	0.07	27.1	0.26	0.19	46	0.09	0.026	1500	48.2	0.43	nd	60.6	<5	534
09-0981/82	0.06	33.1	0.27	0.23	54	0.07	0.033	1920	35.8	0.45	nd	58.8	<5	324
09-0146(2)	0.02	12.8	0.02	0.31	8	0.11	0.009	280	51.3	0.73	nd	15.2	7.8	84
09-0201(1)	0.04	5.9	0.04	0.37	15	0.13	0.003	110	66.9	0.61	nd	5.42	<5	<13
09-0202	<0.01	17.7	0.02	0.18	<8	0.07	0.014	420	37.5	0.6	nd	28	19.5	69
09-0228/29	1.97	15.3	0.05	1.01	54	0.16	0.006	270	42.0	0.74	nd	25.6	10.4	183
09-0230	0.02	19.0	0.02	0.16	<1	0.07	0.016	650	37.3	0.64	nd	30	9.9	<1
09-0231	<0.01	20.8	0.02	0.13	<1	0.07	0.016	780	35.4	0.65	nd	31.1	15.6	126
09-0227	0.44	47.7	0.02	0.24	318	0.04	0.015	380	11.5	0.83	nd	24.6	<5	334

Table A6.1 (continued).

Sample id	Bi.p	Br.n	Ce.n	Cl.p	Co.n.p	Cr.n	Cs.n	Cu.p	Eu.n	Ga.p	Hf.n	Ir.n	La.n	Lu.n	Mo.n.p	Ni.p	Pb.p
a	nd	11.4	8.65	150	10.9	1990	<1	30	0.5	38	6	<20	4	<0.2	nd	48	<1
b	nd	7.43	12.6	480	19	2980	<1	69	0.66	34	4.49	<20	7	<0.2	nd	103	6
c	nd	4.53	44	660	66.4	1380	<1	97	2.75	34	2.85	<20	23	0.42	nd	99	6
d	<1	5.65	40.5	nd	76.1	1360	<1	85	2.21	nd	3.38	<20	22	0.31	<5	68	21
i	nd	3.99	8.24	100	17.8	1720	<1	55	<0.5	42	5.01	<20	4	<0.2	nd	52	4
j	nd	5.63	5.93	390	12.5	1780	<1	49	<0.5	46	4.22	<20	2	<0.2	nd	47	4
k	nd	3.08	9.79	340	14	2530	<1	94	<0.5	34	4.64	<20	5	<0.2	nd	91	5
l	nd	2.73	33.3	300	84.7	1800	1.58	54	1.14	38	2.23	<20	18	0.23	nd	147	8
m	nd	<2	55.3	220	129	710	<1	76	2.79	23	3.2	<20	24	0.87	nd	232	24
n	nd	2.44	38.7	810	187	362	<1	14	2.25	22	3.35	<20	17	0.65	nd	278	2
o	1	14.3	3.84	nd	13.5	1590	<1	145	<0.5	nd	5.37	<20	2	<0.2	<5	45	1
p	4	14.7	7.64	nd	11.4	1940	<1	74	<0.5	nd	6.04	<20	4	<0.2	<5	39	7
q	3	10.6	7.41	nd	12.4	1880	<1	85	<0.5	nd	5.8	<20	3	<0.2	<5	58	7
r	1	2.35	60.3	nd	143	3610	1.56	295	4.3	nd	3.85	<20	29	1.48	<5	414	19
e	nd	6.22	8.04	90	10.1	1950	<1	28	0.54	44	5.1	<20	3	<0.2	nd	56	15
f	nd	3.59	13.3	360	14.7	2610	<1	37	0.72	36	4.81	<20	6	<0.2	nd	87	3
g	nd	4.27	22.2	640	36.4	912	<1	11	1.21	30	2.65	<20	10	<0.2	nd	38	6
h	<1	3.9	42.4	nd	92.4	1560	<1	132	1.69	nd	2.7	<20	25	0.22	<5	125	12
s	2	<2	8.5	nd	261	2330	1.51	160	0.59	nd	1.55	<20	4	<0.2	<5	571	3
t	2	<2	26.1	nd	298	3240	<1	125	1.15	nd	5.28	<20	10	0.57	<5	633	<1
1	1	10.8	10.9	nd	85.3	196	<1	128	<0.5	nd	2.2	<20	4	<0.2	<1	111	1
2	<1	3.2	14.4	nd	87.9	285	9.4	211	1.1	nd	2.2	<20	5	0.4	<1	164	3
3	<1	8.36	35.1	nd	164	210	8.9	146	2.9	nd	3.9	<20	15	1.0	<1	376	3
4	1	12.1	10.8	nd	78.5	386	1.6	150	0.9	nd	2.6	<20	5	0.2	<1	186	3
5	1	3.35	4.81	nd	128	799	<1	65	1.0	nd	1.1	<20	6	0.3	<1	646	<1
6	1	8.97	16.7	nd	44.2	3990	<1	140	<0.5	nd	3.1	<20	4	0.3	<1	547	5
7	<1	<2	19.7	nd	64.4	671	9.1	83	1.6	nd	2.5	<20	9	0.5	<1	317	<1
8	1	5.36	19.1	nd	108	908	8.2	44	1.5	nd	1.7	<20	8	0.4	2	320	<1
9	2	14.2	5	nd	114	4250	<1	90	<0.5	nd	0.6	<20	2	<0.2	<1	1231	2
09-0928	nd	20.1	6.5	90	5.45	1310	2.01	<8	<0.5	16	2.52	<20	4	<0.2	nd	26	17
09-0930/31	nd	14	5.88	270	3.13	1000	1.1	<16	<0.5	14	2.39	<20	5	<0.2	nd	17	28
09-0932	nd	8.45	4.53	90	5.81	1690	1.93	<3	<0.5	15	2.93	<20	3	<0.2	nd	41	<1
09-0935	nd	3.72	81.1	440	50.3	308	1.3	18	2.4	53	2	<20	38	0.24	nd	81	42
09-0937	nd	<2	73.5	360	258	238	2.39	86	0.72	25	2.83	<20	9	<0.2	nd	379	<1
09-0959	nd	22.7	7.45	170	4.45	868	1.17	<13	<0.5	9	2.1	<20	5	<0.2	nd	26	22
09-0960/61	nd	12.2	7.56	230	3.02	1170	1.52	<11	<0.5	15	2.15	<20	6	<0.2	nd	20	19
09-0962	nd	6.12	4.62	390	4.8	1680	1.1	16	<0.5	13	2.15	<20	4	<0.2	nd	14	6
09-0964	nd	3.53	7.57	230	6.4	1110	<1	12	<0.5	15	3.47	<20	3	<0.2	nd	9	27
09-0980	nd	31.4	8.08	150	2.53	1050	1.27	<13	<0.5	15	1.77	<20	5	<0.2	nd	21	23
09-0981/82	nd	8.95	4.41	240	3.12	1410	1.81	<13	<0.5	13	2.2	<20	4	<0.2	nd	5	<4
09-0146(2)	nd	4.74	4.64	630	10	353	<1	<21	<0.5	27	4.31	<20	1	<0.2	nd	53	25
09-0201(1)	nd	2.36	3.85	320	10.3	392	<1	<18	<0.5	23	3.61	<20	3	<0.2	nd	69	22
09-0202	nd	3.87	13.4	530	20.1	460	<1	<23	0.53	50	4.98	<20	3	<0.2	nd	59	41
09-0228/29	nd	5.39	11.2	310	16.7	944	<1	<18	0.5	47	5.45	<20	4	<0.2	nd	99	29
09-0230	nd	7.51	15.1	600	18.7	432	1.17	<23	<0.5	50	5.55	<20	3	<0.2	nd	68	27
09-0231	nd	10.1	8.52	560	17.3	408	<1	<22	<0.5	44	4.76	<20	2	<0.2	nd	47	21
09-0227	nd	5.78	22.7	430	27	7040	1.75	41	<0.5	39	4.12	<20	11	<0.2	nd	330	12

Table A6.1 (continued).

Sample id	Rb.n	Sb.n	Sc.n	Se.n	Sm.n	Sr.p	Ta.n	Th.n	U.n	V.p	W.n	Y.p	Yb.n	Zn.p	Zr.p
a	6	1.08	66	<5	1.6	<1	<1	13	<2	1005	2.11	3	1.1	21	220
b	5	0.57	68	<5	2.7	4	1.4	9	<2	1038	2.27	11	1.7	17	165
c	5	1	40	<5	8.5	11	<1	6	<2	1172	<2	41	3.8	11	103
d	21	1.61	42	<5	7.2	12	<1	11	<2	nd	<2	nd	2.8	0	75
i	6	1.2	55	<5	1.3	10	1.5	9	<2	1160	<2	<1	1.1	40	176
j	2	1.28	59	<5	1.0	7	<1	9	<2	1189	<2	4	1.1	27	183
k	1	0.66	67	<5	1.8	<1	<1	8	<2	1054	2.28	5	1.3	44	167
l	<2	0.82	33	<5	4.0	12	<1	4	<2	1150	<2	17	1.7	18	96
m	4	0.4	24	<5	8.6	5	1.3	3	<2	909	<2	37	7.3	112	148
n	3	<0.2	18	<5	6.5	6	1.3	7	<2	883	<2	42	5.3	80	144
o	<20	0.74	46	<5	0.9	9	<1	7	<2	nd	<2	nd	1.3	27	149
p	<20	1.27	54	<5	1.4	3	<1	10	<2	nd	<2	nd	0.9	8	148
q	<20	0.33	55	<5	1.3	2	<1	8	<2	nd	<2	nd	1.3	9	150
r	<20	1.2	46	<5	12.5	7	1.6	4	<2	nd	<2	nd	11.5	9	100
e	9	1.76	75	<5	1.4	3	<1	12	<2	1139	2.79	3	1.4	19	182
f	7	1.49	73	<5	2.1	5	2.0	10	<2	1105	2.82	6	1.4	21	155
g	<1	1.13	25	<5	3.4	11	1.1	7	<2	1051	<2	14	1.6	13	96
h	23.9	0.95	49	<5	5.4	11	1.1	5	<2	nd	<2	nd	2.1	10	74
s	33.3	0.49	48	<5	1.9	7	<1	1	<2	nd	<2	nd	2.3	346	65
t	49.3	1.09	39	<5	3.2	6	1.6	2	<2	nd	5.8	nd	4.6	324	169
1	<20	0.3	17	<5	1.7	16	1.0	1	<2	nd	<2	nd	1.4	67	91
2	44	1.0	38	<5	4.1	226	2.0	1	<2	nd	<2	nd	3.2	124	100
3	35	1.1	46	<5	8.1	21	<1	1	<2	nd	<2	nd	7.4	293	152
4	<20	0.5	27	<5	2.7	10	1.9	1	<2	nd	<2	nd	1.9	84	93
5	<20	0.7	37	<5	2.8	37	1.7	<0.5	<2	nd	18	nd	2.4	124	45
6	<20	0.6	33	<5	1.6	18	<1	1	<2	nd	<2	nd	2.2	83	134
7	33	0.4	34	<5	4.9	35	2.1	1	<2	nd	5	nd	3.8	165	123
8	55	0.5	30	<5	4.2	33	<1	1	<2	nd	<2	nd	2.9	136	93
9	23	0.6	32	<5	1.2	10	<1	<0.5	<2	nd	<2	nd	1.1	217	25
09-0928	12	2.66	12	<5	0.6	52	<1	11	<2	661	2.03	<1	<0.5	25	91
09-0930/31	6	1.42	27	<5	0.4	117	<1	10	<2	889	<2	3	<0.5	12	99
09-0932	20	1.2	20	<5	0.4	16	<1	17	<2	817	2.19	<1	0.7	18	120
09-0935	6	5.71	37	<5	9.1	21	<1	8	<2	977	<2	14	1.9	41	116
09-0937	7	1.04	24	<5	2.3	12	<1	6	6.57	414	<2	7	1.2	688	129
09-0959	10	1.49	9	<5	0.5	33	<1	10	<2	418	<2	<1	0.6	17	77
09-0960/61	10	1.64	11	<5	0.5	31	<1	13	<2	666	<2	<1	<0.5	18	84
09-0962	8	2.96	18	<5	0.5	45	<1	14	<2	968	<2	2	0.6	24	87
09-0964	10	2.79	16	<5	0.7	22	<1	14	<2	890	3.8	2	0.7	17	140
09-0980	6	1.84	9	9.3	0.5	29	<1	13	<2	699	<2	3	<0.5	17	78
09-0981/82	15	1.67	13	<5	0.4	22	<1	14	<2	836	<2	<3	0.5	15	80
09-0146(2)	<4	0.76	11	<5	0.5	8	<1	16	<2	348	5.24	<1	0.7	5	157
09-0201(1)	<2	0.32	10	<5	0.6	7	<1	8	<2	160	<2	2	0.5	6	127
09-0202	<5	1.22	14	<5	1.9	2	<1	33	5.59	779	4.22	2	1.0	10	186
09-0228/29	<1	1.01	22	<5	1.4	77	1.0	32	8.66	490	5.22	<1	0.9	7	205
09-0230	<1	1.11	16	<5	1.8	2	<1	40	7.61	633	6.75	<1	0.8	2	218
09-0231	2	1.25	11	<5	1.1	9	<1	29	4.07	694	7.45	2	0.7	<1	180
09-0227	<2	1.19	61	<5	2.1	82	<1	19	<2	1057	<2	4	1.4	29	151

Table A6.1 (continued).

Sample	East.	North.	Depth (m)	Sb.n	As.n	Ba.p	Bi.p	Br.n	Ca.a	Cs.n	Ce.n	Co.n	Cr.n	Cu.p
2095	29540	10450	0.50	0.5	10.1	307	2	6.98	4.05	1.83	42.4	18.5	517	63
2097	29580	10450	0.50	0.33	9.14	164	1	8.05	5.60	1.68	37.1	15.8	443	61
2099	29620	10450	0.50	0.57	10	199	1	11.4	6.60	1.7	39.5	17.1	414	63
2101	29660	10450	0.50	0.52	8.91	302	2	19.3	5.85	2.6	42.7	19.1	347	65
2103	29700	10450	0.50	0.44	9.95	505	1	10.4	6.90	1.51	41.5	15.8	416	57
2105	29740	10450	0.50	0.51	8.66	286	<1	11.8	6.50	1.97	38.4	17	340	59
2107	29780	10450	0.50	0.56	11.6	121	<1	10.6	6.65	2.01	54.9	19.9	483	65
2109	29820	10450	0.50	0.32	9.89	251	3	12.7	4.48	2.49	51.8	21.3	466	65
2111	29840	10450	0.50	0.48	9.47	186	<1	11.7	3.98	2.11	50	19.9	404	68
2113	29860	10450	0.50	0.59	11.7	231	2	13.3	3.93	3.02	55.6	21.9	510	67
2115	29880	10450	0.50	0.68	11.2	311	1	7.11	5.10	2.62	49.4	20.6	460	67
2117	29900	10450	0.50	0.38	11	290	<1	13.9	6.05	2.82	46.3	19.8	416	68
2119	29920	10450	0.50	0.73	10.7	192	<1	6.78	3.38	2.42	46.8	19.6	530	63
2121	29960	10450	0.50	0.89	11.5	116	3	4.95	4.25	1.75	42.4	17.9	635	65
2123	30000	10450	0.50	0.59	10.5	161	2	5.71	2.80	1.66	40.4	18.9	553	61
2125	30040	10450	0.50	0.76	12.8	179	<1	8.19	4.23	<1	41.8	18.7	574	65
2127	30080	10450	0.50	0.65	12.1	176	<1	7.37	4.18	<1	42.1	17.6	662	64
2129	30120	10450	0.50	0.83	13.9	184	<1	7.63	3.40	1.35	42.8	17.4	791	72
2131	30160	10450	0.50	1.27	17.1	106	<1	9.14	2.33	1.34	46.9	20.1	900	72

Sample	Eu.n	Au.n	Fe.n	Hf.n	La.n	Pb.p	Lu.n	Mg.a	Mn.p	Na.n	Ni.p	K.n	Rb.n	Sm.n
2095	0.85	18.7	11.1	3.75	22.2	8	0.25	0.17	571	0.16	104	0.47	30.9	3.79
2097	0.86	16.2	9.71	3.04	20	9	0.22	0.25	526	0.193	91	0.48	37.4	3.48
2099	0.72	17.2	8.84	3.35	20.4	8	0.22	0.25	523	0.242	89	0.47	33.4	3.52
2101	1.02	18.6	7.11	3.43	21.3	12	0.24	0.19	532	0.393	94	0.52	36.8	3.85
2103	0.95	16.3	10.1	2.94	20.2	9	0.22	0.22	555	0.17	90	0.35	<20	3.33
2105	0.91	16.5	7.57	2.82	20.6	10	0.24	0.25	609	0.234	92	0.28	<20	3.61
2107	1.11	17.8	11	3.49	26.3	12	0.26	0.24	734	0.241	93	0.43	31.8	4.54
2109	1.11	17.3	10.4	3.83	26.3	12	0.28	0.22	683	0.286	101	0.58	44.3	4.66
2111	1	14.2	8.78	3.58	25	13	0.25	0.25	686	0.28	114	0.37	44	4.44
2113	1.28	17.2	12.2	4.2	28	14	0.29	0.19	702	0.281	114	0.61	27.9	4.75
2115	1.02	13.2	10.4	3.69	25.8	15	0.28	0.20	676	0.17	105	0.31	48.8	4.42
2117	1.1	22.5	9.01	3.63	23.9	11	0.25	0.20	644	0.161	102	0.36	42.6	4.24
2119	1.11	16.8	12.4	4.09	24.4	14	0.24	0.18	594	0.146	109	0.37	42.4	4.18
2121	0.87	13.3	15.9	3.94	23	15	0.24	0.16	527	0.147	100	0.38	43.6	3.88
2123	0.92	15.9	12.8	3.99	22	11	0.23	0.17	516	0.157	110	0.33	45.3	3.81
2125	0.99	15.0	14.1	4.37	22.3	14	0.23	0.22	492	0.184	109	0.34	29.9	3.79
2127	1.09	14.7	17.1	4.37	22.1	15	0.22	0.19	503	0.168	102	0.35	34.7	3.69
2129	0.75	5.0	21.3	4.44	22.4	16	0.24	0.15	443	0.158	98	0.46	<20	3.69
2131	0.94	5.0	25.3	4.91	29.4	17	0.27	0.13	449	0.114	107	0.43	34.4	4.66

Sample	Sc.n	Sr.p	Ta.n	Th.n	TiO2.p	U.n	W.n	Yb.n	Zn.p	Zr.p	Salinity	water Au	iodide Au	cyanide Au
2095	20.5	97	<1	8.89	0.71	<2	<2	1.89	48	117	0.43	3.36	8.28	3.704
2097	17.2	109	<1	7.61	0.65	<2	2.64	1.65	41	119	0.63	2.436	6.92	3.544
2099	17.4	146	<1	8.09	0.62	<2	<2	1.79	44	112	0.88	2.544	8.4	4.36
2101	17.5	121	<1	8.21	0.68	<2	<2	1.8	47	117	0.52	4.4	10.28	5.16
2103	18	155	<1	7.02	0.63	<2	<2	1.47	45	121	0.42	3.492	8.2	4.92
2105	17.3	180	<1	7.69	0.62	<2	<2	1.71	46	112	1.27	4.12	8.24	4.52
2107	20.2	187	1.35	9.21	0.67	<2	<2	1.99	47	124	0.91	4.32	8.12	4.48
2109	21.8	156	<1	10.3	0.71	<2	<2	2.13	54	128	1.38	4.04	7.68	3.58
2111	20.6	166	1.54	9.75	0.72	<2	<2	2.05	56	127	1.13	4.8	8.76	3.58
2113	24.1	156	<1	10.8	0.77	<2	<2	2.25	55	127	1.39	3.048	6.96	3.404
2115	21.5	153	<1	10.1	0.72	<2	<2	2.18	49	135	0.49	3.54	7.72	3.776
2117	20.8	198	1.11	9.46	0.66	<2	<2	2.13	51	127	0.89	5.68	11.2	5.84
2119	23.5	119	<1	10.1	0.77	<2	<2	1.91	47	136	0.44	3.512	8.36	5.36
2121	24.4	132	<1	10.1	0.82	<2	<2	1.98	42	129	0.45	3.252	8.4	3.736
2123	21.8	118	1.26	9.83	0.79	<2	<2	1.97	46	138	0.43	2.856	9.4	3.388
2125	22.5	121	<1	10.3	0.8	<2	<2	1.82	42	129	0.68	3.424	6.68	3.332
2127	24.1	125	<1	9.69	0.89	<2	<2	1.86	41	122	0.65	2.372	5.36	2.768
2129	26.5	100	<1	10.2	1.03	<2	<2	1.87	35	142	0.85	2.232	3.368	1.584
2131	31.3	99	<1	11.5	1.17	<2	<2	2.4	38	147	1.29	1.4	6.08	1.22

Table A6.2: Elemental abundances at Kurnalpi for 0 - 1 m material from 10450N.

Analyses by INAA(n), XRF(p) and AAS(a).

Major elements in %, trace elements in ppm and Au in ppb.

For all samples Mo (5 ppm), Se (5 ppm), Ir (20 ppb) and Ag (5 ppm) were below detection indicated in brackets.

Sample	Easting	Northing	Depth (m)	Au ppb	Ca %	Mg %	Sample	Easting	Northing	Depth (m)	Au ppb	Ca %	Mg %
09-2095	29540	10450	0.5	18.7	4.05	0.17	09-2140	29720	9700	0.5	12.6	9.85	0.22
09-2096	29540	10450	1.5	16.0	14.05	0.42	09-2141	29720	9700	1.5	15.4	6.05	0.23
09-2097	29580	10450	0.5	16.2	5.60	0.25	09-2142	29760	9700	0.5	8.8	7.65	0.20
09-2098	29580	10450	1.5	21.2	10.30	0.41	09-2143	29760	9700	1.5	13.0	7.80	0.26
09-2099	29620	10450	0.5	17.2	6.60	0.25	09-2144	29800	9700	0.5	10.4	7.60	0.20
09-2100	29620	10450	1.5	18.2	7.50	0.32	09-2145	29800	9700	1.5	10.5	7.80	0.28
09-2101	29660	10450	0.5	18.6	5.85	0.19	09-2146	29840	9700	0.5	9.1	7.00	0.20
09-2102	29660	10450	1.5	19.6	11.55	0.27	09-2147	29840	9700	1.5	16.8	13.80	0.44
09-2103	29700	10450	0.5	16.3	6.90	0.22	09-2148	29880	9700	0.5	8.1	5.50	0.19
09-2104	29700	10450	1.5	24.2	10.10	0.30	09-2149	29880	9700	1.5	18.4	8.50	0.26
09-2105	29740	10450	0.5	16.5	6.50	0.25	09-2150	29920	9700	0.5	8.3	9.15	0.23
09-2106	29740	10450	1.5	25.3	9.15	0.33	09-2151	29920	9700	1.25	8.6	11.70	0.29
09-2107	29780	10450	0.5	17.8	6.65	0.24	09-2152	29960	9700	0.5	11.6	8.05	0.20
09-2108	29780	10450	1.5	16.8	9.75	0.28	09-2153	29960	9700	1.5	12.2	9.85	0.29
09-2109	29820	10450	0.5	17.3	4.48	0.22	09-2154	29980	9700	0.5	13.7	6.10	0.19
09-2110	29820	10450	1.5	13.8	9.70	0.27	09-2155	29980	9700	1.5	14.5	12.25	0.56
09-2111	29840	10450	0.5	14.2	3.98	0.25	09-2156	30000	9700	0.5	2.5	5.70	0.18
09-2112	29840	10450	1.5	16.4	8.15	0.28	09-2157	30000	9700	1.5	13.9	13.50	0.32
09-2113	29860	10450	0.5	17.2	3.93	0.19	09-2158	30020	9700	0.5	9.3	6.00	0.18
09-2114	29860	10450	1.5	16.3	8.50	0.27	09-2159	30020	9700	1.5	11.7	11.15	0.31
09-2115	29880	10450	0.5	13.2	5.10	0.20	09-2160	30040	9700	0.5	7.5	8.25	0.19
09-2116	29880	10450	1.5	19.0	11.20	0.28	09-2161	30040	9700	1.5	16.6	9.65	0.26
09-2117	29900	10450	0.5	22.5	6.05	0.20	09-2162	30080	9700	0.5	8.7	5.35	0.19
09-2118	29900	10450	1.5	27.2	13.85	0.37	09-2163	30080	9700	1.5	11.3	10.95	0.35
09-2119	29920	10450	0.5	16.8	3.38	0.18	09-2164	30120	9700	0.5	14.2	6.20	0.18
09-2120	29920	10450	1.5	22.5	12.40	0.35	09-2165	30120	9700	1.5	16.1	11.10	0.46
09-2121	29960	10450	0.5	13.3	4.25	0.16	09-2166	30160	9700	0.5	11.1	8.35	0.30
09-2122	29960	10450	1.5	21.7	11.55	0.31	09-2167	30160	9700	1.5	18.7	9.80	0.44
09-2123	30000	10450	0.5	15.9	2.80	0.17	09-2168	30200	9700	0.5	7.9	6.15	0.20
09-2124	30000	10450	1.5	13.8	10.15	0.30	09-2169	30200	9700	1.5	7.1	12.75	0.53
09-2125	30040	10450	0.5	15.0	4.23	0.22	09-2170	30240	9700	0.5	7.7	9.40	0.28
09-2126	30040	10450	1.5	12.2	6.95	0.22	09-2171	30280	9700	0.25	17.1	10.15	0.31
09-2127	30080	10450	0.5	14.7	4.18	0.19							
09-2128	30080	10450	1.5	15.6	9.50	0.32							
09-2129	30120	10450	0.5	2.5	3.40	0.15							
09-2130	30120	10450	1.5	9.1	14.00	0.32							
09-2131	30160	10450	0.5	2.5	2.33	0.13							
09-2132	30160	10450	1.5	26.1	12.25	0.35							
09-2172	30240	11150	0.5	14.0	10.75	0.22							
09-2173	30240	11150	1.5	14.7	13.40	0.31							
09-2174	30160	11150	0.5	23.5	10.70	0.24							
09-2175	30160	11150	1.5	20.3	14.05	0.35							
09-2176	30080	11150	0.5	20.5	6.25	0.30							
09-2178	30000	11150	0.5	10.6	1.62	0.27							
09-2179	29920	11150	0.5	9.4	0.48	0.15							
09-2180	29840	11150	0.5	16.5	0.63	0.22							
09-2181	29760	11150	0.5	19.1	1.55	0.22							

Table A6.3: Gold, Ca and Mg abundance at Kurnalpi for samples collected by auger.

Sample	Site	Hole	Easting	Northing	Depth (m)	Au ppb	Ca %
09-509	Kurnalpi	KSC 3170	423210	6619975	0.5	<5	2.07
09-516	Kurnalpi	KSC 3171	423270	6619820	0.5	18.1	6.15
09-522	Kurnalpi	KSC 3172	423320	6619670	0.5	16.1	8.15
09-527	Kurnalpi	KSC 3173	423375	6619520	0.5	16.3	8.75
09-532	Kurnalpi	KSC 3183	423400	6619445	0.5	49.8	9.85
09-533	Kurnalpi	KSC 3183	423400	6619445	1.5	36.8	9.80
09-534	Kurnalpi	KSC 3183	423400	6619445	2.5	41.9	3.98
09-535	Kurnalpi	KSC 3183	423400	6619445	3.5	16.9	0.36
09-536	Kurnalpi	KSC 3183	423400	6619445	4.5	<5	0.36
09-537	Kurnalpi	KSC 3174	423430	6619370	0.5	19.0	9.45
09-542	Kurnalpi	KSC 3182	423460	6619295	0.5	20.9	11.05
09-547	Kurnalpi	KSC 3175	423485	6619220	0.5	15.3	7.85
09-548	Kurnalpi	KSC 3175	423485	6619220	1.5	25.0	9.35
09-549	Kurnalpi	KSC 3175	423485	6619220	2.5	15.1	8.45
09-550	Kurnalpi	KSC 3175	423485	6619220	3.5	13.7	8.15
09-551	Kurnalpi	KSC 3175	423485	6619220	4.5	<5	2.03
09-552	Kurnalpi	KSC 3175	423485	6619220	5.5	<5	0.15
09-553	Kurnalpi	KSC 3176	423510	6619150	0.5	33.3	9.80
09-558	Kurnalpi	KSC 3177	423535	6619065	0.5	20.3	12.40
09-563	Kurnalpi	KSC 3179	423625	6618980	0.5	12.7	11.10
09-568	Kurnalpi	KSC 3181	423765	6618905	0.5	30.0	11.55
09-573	Kurnalpi	KSC 3180	423905	6618835	0.5	13.5	13.10
09-578	Kurnalpi	KSC 3178	423590	6618915	0.5	11.7	8.70
09-583	Kurnalpi	KSC 3266	423360	6619445	0.5	16.5	6.40
09-588	Kurnalpi	KSC 3264	423450	6619445	0.5	27.0	11.80
09-593	Kurnalpi	KSC 3265	423480	6619445	0.5	26.1	12.40
09-598	Kurnalpi	KSC 3225	423540	6618520	0.5	10.8	11.65
09-603	Kurnalpi	KSC 3224	423470	6618550	0.5	16.8	9.85
09-608	Kurnalpi	KSC 3220	423395	6618590	0.5	89.1	10.25
09-609	Kurnalpi	KSC 3220	423395	6618590	1.5	67.4	9.60
09-610	Kurnalpi	KSC 3220	423395	6618590	2.5	29.3	5.00
09-611	Kurnalpi	KSC 3220	423395	6618590	3.5	21.0	0.66
09-612	Kurnalpi	KSC 3220	423395	6618590	4.5	<5	0.06
09-613	Kurnalpi	KSC 3221	423325	6618625	0.5	<5	0.69
09-617	Kurnalpi	KSC 3222	423250	6618660	0.5	13.0	9.90
09-622	Kurnalpi	KSC 3223	423180	6618695	0.5	16.1	9.90
09-103	Ldy B Ext	LER 511	9980	5120	0.5	12.0	1.21
09-108	Ldy B Ext	LER 501	9960	5120	0.5	8.8	0.47
09-113	Ldy B Ext	LER 502	9940	5120	0.5	12.6	1.18
09-118	Ldy B Ext	LER 458	9910	5120	0.5	13.7	2.93
09-123	Ldy B Ext	LER 457	9890	5120	0.5	12.4	1.94
09-128	Ldy B Ext	LER 456	9870	5120	0.5	<5	2.63
09-133	Ldy B Ext	LER 454	9830	5120	0.5	14.1	3.25
09-134	Ldy B Ext	LER 454	9830	5120	1.5	<5	0.80
09-135	Ldy B Ext	LER 454	9830	5120	2.5	12.4	1.29
09-136	Ldy B Ext	LER 454	9830	5120	3.5	8.8	0.08
09-137	Ldy B Ext	LER 454	9830	5120	4.5	5.9	0.02
09-138	Ldy B Ext	LER 452	9790	5120	0.5	22.8	1.66
09-143	Ldy B Ext	NLR 1728	9740	5120	0.5	13.6	2.48
09-148	Ldy B Ext	NLR 1458	9730	5120	0.5	<5	0.47
09-153	Ldy B Ext	NLR 1729	9720	5120	0.5	12.0	2.05
09-159	Ldy B Ext	NLR 1730	9700	5120	0.5	9.1	0.24
09-164	Ldy B Ext	NLR 1456	9690	5120	0.5	9.6	2.95
09-170	Ldy B Ext	NLR 1455	9670	5120	0.5	11.0	2.21
09-175	Ldy B Ext	NLR 1454	9650	5120	0.5	<5	1.33
09-194	Ldy B Ext	NLR 1564	9600	5360	0.5	<5	1.58
09-199	Ldy B Ext	NLR 1562	9640	5360	0.5	<5	2.63
09-217	Ldy B Ext	NLR 1659	9680	5340	0.5	13.9	6.05
09-222	Ldy B Ext	NLR 1658	9700	5340	0.5	29.9	0.48
09-227	Ldy B Ext	NLR 1657	9720	5340	0.5	20.5	3.88
09-228	Ldy B Ext	NLR 1657	9720	5340	1.5	11.6	1.49
09-229	Ldy B Ext	NLR 1657	9720	5340	2.5	10.3	1.58
09-230	Ldy B Ext	NLR 1657	9720	5340	3.5	14.8	0.03
09-231	Ldy B Ext	NLR 1657	9720	5340	4.5	17.0	0.01
09-247	Ldy B Ext	NLR 1778	9730	5340	0.5	13.6	2.06
09-252	Ldy B Ext	NLR 1777	9750	5340	0.5	11.6	2.63
09-257	Ldy B Ext	NLR 1655	9760	5340	0.5	15.8	3.83
09-262	Ldy B Ext	NLR 1776	9770	5340	0.5	9.3	4.25

Table A6.4: Gold and Ca abundance at Kurnalpi, Lady Bountiful Extended and Gindalbie for drill hole samples.

Sample	Site	Hole	Easting	Northing	Depth (m)	Au ppb	Ca %
09-910	Gindalbie	KSC 2161	10920	10000	0.5	11.6	14.15
09-915	Gindalbie	KSC 2157	10600	10000	0.5	12.0	6.25
09-920	Gindalbie	KSC 2171	10480	10000	0.5	12.2	5.20
09-926	Gindalbie	KSC 2170	10400	10000	0.5	<5	0.35
09-927	Gindalbie	KSC 2170	10400	10000	1.5	6.7	2.43
09-928	Gindalbie	KSC 2170	10400	10000	2.5	<5	0.18
09-929	Gindalbie	KSC 2170	10400	10000	3.5	<5	0.08
09-930	Gindalbie	KSC 2170	10400	10000	4.5	<5	0.01
09-942	Gindalbie	KSC 2169	10320	10000	0.5	11.2	6.70
09-947	Gindalbie	KSC 2168	10240	10000	0.5	20.0	8.80
09-952	Gindalbie	KSC 2177	9400	10000	0.5	<5	9.70
09-957	Gindalbie	KSC 2180	9560	10000	0.5	11.4	8.80
09-977	Gindalbie	KSC 2181	9600	10000	0.5	7.7	6.15
09-978	Gindalbie	KSC 2181	9600	10000	1.5	11.3	5.40
09-979	Gindalbie	KSC 2181	9600	10000	2.5	<5	2.43
09-980	Gindalbie	KSC 2181	9600	10000	3.5	<5	0.13
09-981	Gindalbie	KSC 2181	9600	10000	4.5	<5	0.07
09-994	Gindalbie	KSC 2175	9640	10000	0.5	16.2	10.40
09-999	Gindalbie	KSC 2173	9960	10000	0.5	17.4	14.50

Table A6.4 (continued)