QC assessment of Kroda 1 and Kroda 3 mulga and spinifex biogeochemical analyses at Genalysis

Prepared for ABM Resources NL

by

Helen Waldron

XENOCRYST PTY LTD
GEOSCIENCE CONSULTING

June, 2013

1. Sampling Procedures

Seven species of vegetation were collected at both Kroda 1 and Kroda 3 on an offset 50m spaced grid pattern in March 2013. Ninety four samples were collected from Kroda 1 (of which 65 mulga (*Acacia aneura)* and one spinifex (*Triodia pungens*) were analysed initially) and 87 samples were collected from Kroda 3 (of which 60 mulga and 7 spinifex were analysed initially). Between approximately 55g and 250g were collected at each site, with the average sample weight collected about 140g. Most samples were cut from the various plants using secateurs, while most of the spinifex was cut with battery operated shears. The individual samples were placed in numbered calico bags. Field duplicates of mulga were collected at approximately every 20^{th} sample station and provision was made in the numbering sequence for the later inclusion of nine vegetation controls. Sample lists and various observations are given in the file attached (tab labels: Kroda 1 samples & Kroda 3 samples).

The individual calico bags were packed in polyweave sacks and a bulka bag for drying at Genalysis Laboratory Services (GLS).

2. Sample Preparation

2.1 Drying

The samples were unpacked and sorted to check individual samples against sample listing supplied. The samples, in the original calico bags, were placed on racks in clean, low level ovens and dried in accordance with quarantine regulations at $85^{o}C$. Samples were dried for an extended period of more than 24 hours.

2.2 Preparation

On completion of drying, all the samples were collected by Helen Waldron for the separation of foliage from twigs, the selection of material for milling and analysis, along with the insertion of controls. The material for analysis was placed in individual pre-numbered, bar-coded Kraft sample bags. Some of the spinifex was cut to fit, using hand shears. The amount of material submitted for processing was such that all was to be used for milling (or ashing) without further subsampling. (Approximate sample weights given in file attached, tab labels Kroda 1 samples & Kroda 3 samples).

2.3 Processing batches

The analyses of the samples was done in two stages, with all the mulga and spinifex samples analysed using dried, milled tissue at GLS Perth, while the other species were despatched to Colin Dunn for ashing of the dried, raw material. Splits of the dried raw material for eight mulga samples and all the spinifex samples (8 samples) were also included for cross checking purposes. Only the foliage for all species has been analysed by either method (some corkwood bark was ashed also). The twigs are archived at present, but unless ABM requests additional work to be conducted, they will be discarded at the end of August.

The samples from Kroda 1 and Kroda 3 were analysed as two separate jobs by GLS labelled 235.0/1304966 and 235.0/1304968 respectively.

The samples from both Kroda 1 and Kroda 3 processed by Colin Dunn were treated as a single batch. Those analyses are not assessed in detail here.

GLS job 235.0/1304966
Samples submitted were 65 mulga (including 5 field duplicate samples), one spinifex and four "blind" controls (matrix-matched multi-element vegetation controls and Au/multi-element vegetation controls). These controls were submitted as pulps so, despite being disguised as part of the sequential numbering system, they are likely to have been flagged as "possible controls" by the lab. Additional controls included by GLS to monitor various processes are discussed in sections 3.3.2 – 3.3.4.

GLS job 235.0/1304968
Samples submitted were 60 mulga (including 5 field duplicates, plus one species variation check), seven spinifex and five "blind" controls (matrix-matched multi-element vegetation controls and Au/multi-element vegetation controls). These controls were submitted as pulps so, despite being disguised as part of the sequential numbering system, they are likely to have been flagged as "possible controls" by the lab. Additional controls included by GLS to monitor various processes are discussed in sections 3.3.2 – 3.3.4.

2.4 Milling

The mulga samples were milled directly in a Retsch GM200 cutting/blending mill with stainless steel blades, designed for biological applications. Each sample was milled in a single pass and produced a reasonably fine product from which subsamples were taken for digestion and analysis.

The spinifex was cut with scissors prior to processing in the Retsch GM200 mill. Each sample was milled in a single pass and typical of hard grasses, did not produce a fine product, but a coarser fibrous material from which subsamples were taken for digestion and analysis.

Each pulp sample was placed in bar-coded Kraft sample packets.

Mill washes consisting of a mixture of rice and pasta were run, one at the start of milling and the other at the end of milling each job batch of samples. These washes were digested and analysed at the end of the digestion/analysis run, despite being milled before and after the samples, and despite being reported in various positions in different reporting file formats.

The mill was brushed clean between samples and preconditioned with a small amount of the next sample (discarded) prior to milling proper.

After consideration of the mill wash results reported, there appears to be no or minimal contamination from processing in the GM200 mill. The last few mulga samples in job 235.0/1304966 are enriched in elements such as Fe, K and P which

probably accounts for the very minor elevated levels of these elements in the mill wash following these samples. All other elevated values in either wash from both jobs are considered analytical issues, not milling contamination, and these problems are discussed further in the relevant sections below.

2.5 Spinifex

The elevated levels of several elements in sample KRBG1000124 and the lithogeochemcial signature, suggests adhering inorganic dust. This contamination appears to be heterogeneous in both the pulp (no elevation in Nb and Ta analysed using a separate pulp subsample) and the raw material (no elevation in the split of the raw material used for ashing and analysis).

3. Analysis

3.1 Digestion

Samples were digested using a modified aqua regia method in dedicated low level glassware and fume hoods. Approximately 2.5g of pulp was weighed into tall glass tubes and allowed to stand in nitric acid overnight. (The bar-coded sample numbers and the weights for each sample were imported directly into the laboratory computer data management system.) The following day more nitric acid was added and the tubes placed on a hotplate for an extended nitric acid reflux, before the addition of hydrochloric acid and further heating to complete the digestion phase. The digestion solution was made up to volume with doubly deionized water and filtered, then two aliquots taken for ICP analysis. Note that while this digestion is the widely used method for the decomposition of vegetation, and it gives a high degree of decomposition, particularly using the extended nitric acid reflux, it is still only a partial digest method and the more refractory elements such as Zr, Nb and Y will not be completely digested.

The sample sequence for each job included various controls, blanks and lab duplicates. Lab duplicates are a separate portion weighed from the same pulp packet as the initial sample, but then treated as a separate sample throughout the digestion and ICP analysis stages. Lab duplicates were done at the rate of 1 in 20 and were run at the end of the sample sequence in each job, so any variations may reflect differences in conditions during the run. Both the start and end mill washes were included at the end of the sequence. Lab blanks were included at the start and end of the sequence. Three in-house biogeochemistry pulp standards were run at irregular intervals in the sample sequence, along with two agricultural pulp standards at the end.

In line with routine modified (dominantly nitric acid reflux) aqua regia, the partial digest recovered element levels as expected.

3.2 ICP-OES & ICP-MS analysis

One aliquot of each digest solution was processed in the ICP-OES lab, where the solutions were diluted if required and analysed for Al, B, Ca, Cr, Cu, Fe, K, Mg, Mn,

Na, Ni, P, S, Sc, Ti, V and Zn. The second aliquot was processed in the ICP-MS lab and diluted as required, then analysed for Ag, As, Au, Ba, Be, Bi, Cd, Ce, Co, Cs, Dy, Er, Eu, Ga, Gd, Hf, Hg, Ho, In, La, Li, Lu, Mo, Nb, Nd, Pb, Pd, Pr, Pt, Rb, Re, Sb, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Tl, Tm, U, W, Y, Yb and Zr. Rinses were done between each sample before aspirating the next sample digest solution into the plasma. An additional vegetation solution control was included at the end of the sample sequence to monitor the ICP-MS analyses.

Gold checks analysed by graphite furnace AAS proved unsuccessful and no results were reported.

3.3 Results

3.3.1 Overview

The results for the controls are generally as expected, with mostly good element calibrations, good precision, low or no blanks and good reproducibility of lab pulp duplicates, for levels well above detection limits (DL). The results and nominal values are compiled in the file attached (tab label: Controls).

For the overall dataset, results above 10 x DL are quite reliable for most elements and those above 3-5 x DL give useful information, particularly when supported by geochemically associated elements. There are only minor batch effects between the two jobs (235.0/1304966 & 235.0/1304968) which affect a few elements.

The results for both GLS jobs, shown in analysis run order, are given in the file attached (tab labels: K1_HW_R1304966 and K3_HW_R1304968). Plots of all samples from Kroda 1 and Kroda 3 such as for Al (Fig. 1) and Cd (Fig. 2) are given in the file attached (tab label: K1 & K3 plotted; by clicking on the various charts the element column is selected and each element plot can be scrolled in turn). Similarly, the results for the mulga only, are plotted in the file attached (tab label: Mulga only K1 & K3) such as for Sr (Fig. 3).

A summary of each element is given in section 3.3.5 below, but in general, the results are useable for the purpose of delineating areas for exploration focus.

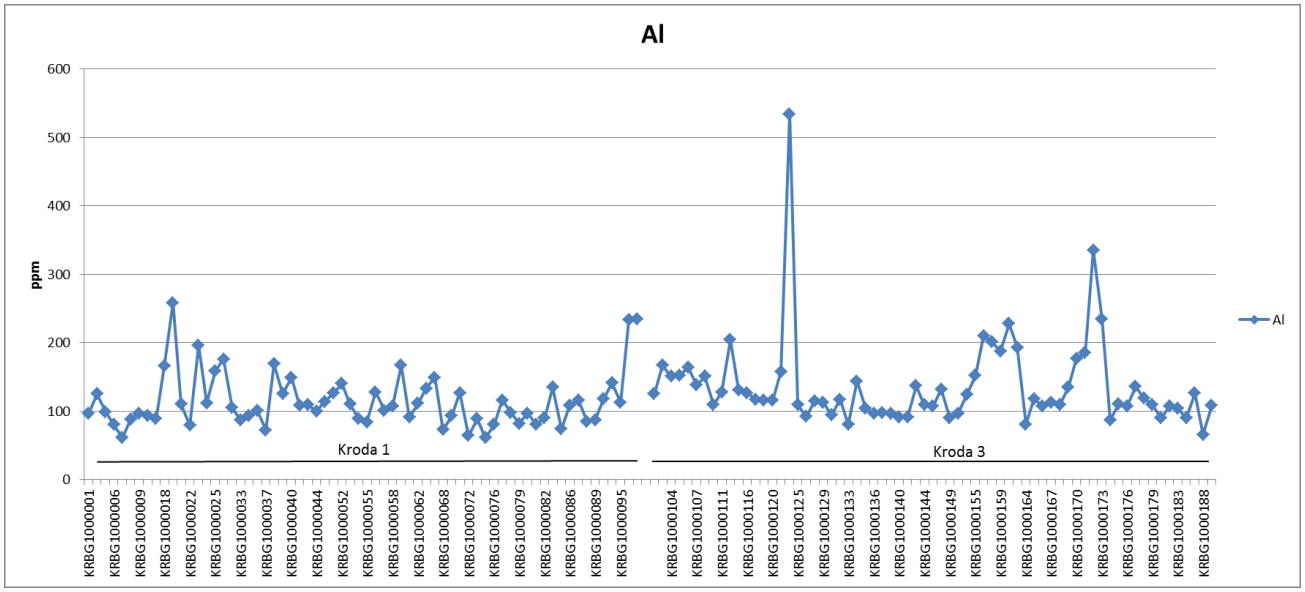

Figure 1 Al for all samples from Kroda 1 and Kroda 3

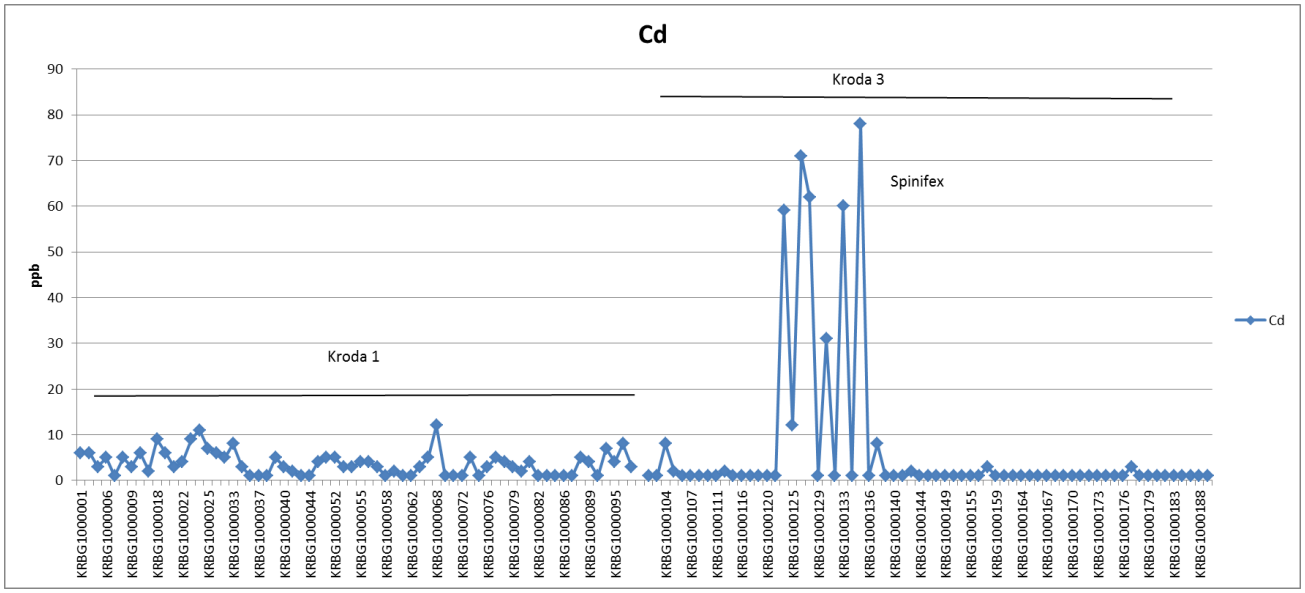

Figure 2 Cd for all samples from Kroda 1 and Kroda 3

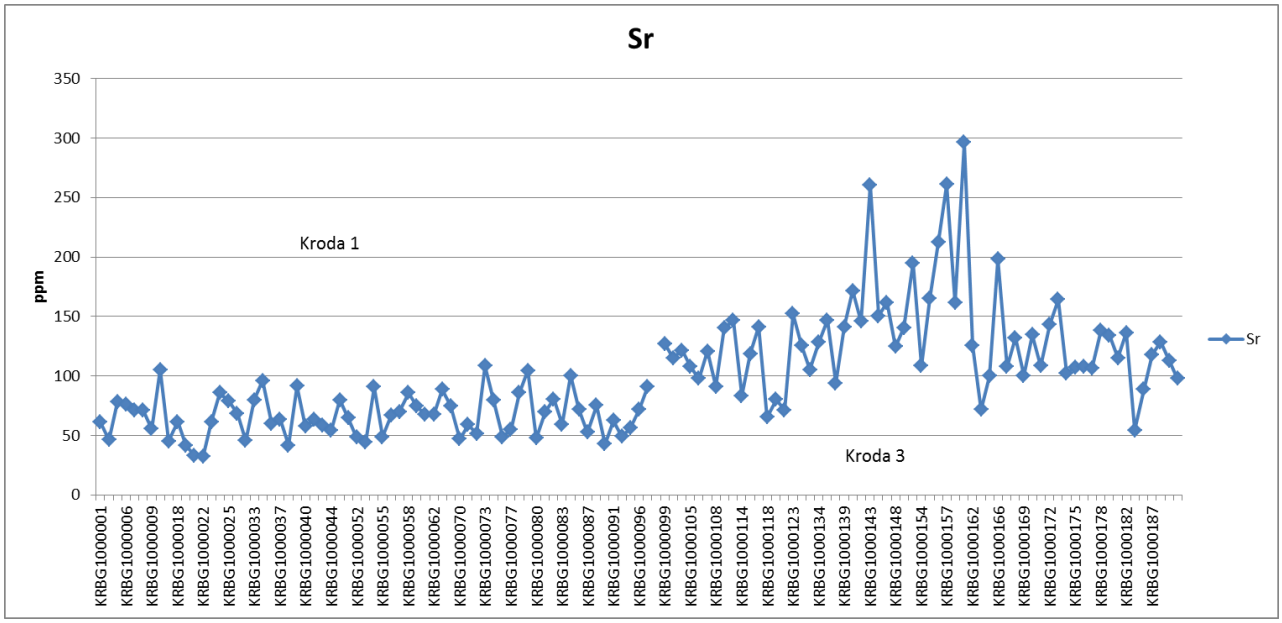

Figure 3 Sr for mulga only, from Kroda 1 and Kroda 3

3.3.2 Biogeochemistry pulp standards

Job 235.0/1304966 included the "blind" matrix-matched mulga (*Acacia aneura*) foliage standard TVMEAaF and two foliage Au standards: marri *(Eucalyptus calophylla*) BVAuMrF and banksia (*Banksia sp*) BVAuBsF. GLS included the same marri standard along with Au standards: river red gum (*Eucalyptus camaldulensis)* foliage KVAuEcF and saltbush (*Atriplex* sp) twigs KVAuStT.

Job 235.0/1304968 included the same "blind" mulga and marri foliage standards as job 235.0/13014966, along with salmon gum (*Eucalyptus salmonophloia)* foliage Au standard KVAuSgF. GLS included the same marri, river red gum and saltbush Au standards as in job 235.0/1304966.

Both the standards submitted "blind" and those inserted by GLS generally performed well. A summary for each element is listed below.

3.3.3 Agricultural standards

GLS included two Chinese agricultural standards: soybean standard NCS ZC 3011and spinach standard NCS ZC73013. The nominal values listed by GLS for both these standards are mostly the Chinese certified values. However, the certification has been done using more aggressive digestion methods, than the modified aqua regia used for jobs 235.0/1304966 and 235.0/1304968, hence, as expected for the partial (modified) aqua regia digest, there was incomplete digestion of some elements and results are less than "total" for refractory elements such as Al, Cr, Hf, REE, Nb, Th and Hf.

3.3.4 Solution controls

GLS included an artificial solution control YVAu_SOLN in both jobs, to check the ICP-MS analyses independent of the digestion component included in the results for the pulp standards. No similar ICP-OES solution standard was included in either job. A composited biogeochemistry solution control was included in job 235.0/1304968, but as this is a new control, no nominal values are yet available, so it is of limited use for QC purposes here.

3.3.5 Elements

Au (DL 0.5ppb)
Controls: Solution standards good; pulp standards mostly good, with some variability, typical of Au.
Samples: All <DL.

Ag (DL 5ppb)
Controls: Solution standards good; some pulp standards slightly low, but close to DL.
Samples: Any values < 5 x DL (i.e. 25ppb) should be used with caution as these results may be spuriously elevated.

Al (DL 5ppm)
Controls: Minor blank job 235.0/1304968; pulp biogeochemistry standards reading high by approximately 5% on aqua regia nominal values, but incomplete digestion by this method.
Samples: Use results as reported for both jobs.

As (DL 0.1ppm)
Controls: All good, but close to DL of 0.1ppm.
Samples: Results good, but most < 5 x DL (i.e. 0.5ppm).

B (DL 2ppm)
Controls: Good.
Samples: Possibly slightly lower baseline for sample KRBG1000136 to end of job 235.0/1304968, but negligible effect on results.

Ba (DL 0.05ppm)
Controls: Minor blank (~0.4ppm); standards overall low by approximately 7%.
Samples: Since same blank and calibration correction for both jobs, no corrections needed for plotting relative levels in these jobs. However, keep corrections in mind when comparing converted (to dry) ash results for mulga and spinifex, in particular.

Be (DL 5ppb)
Controls: Good, but mostly values fairly close to DL.
Samples: Results good, but most < 5 x DL (i.e. 25ppb).

Bi (DL 2ppb)
Controls: Solution standards good; biogeochemistry pulp standards variable and slightly low, but minimal effect on samples.

Samples: Most results < 2 x DL (i.e.4ppb), use with caution.

Ca (DL 20ppm)
Controls: Minor blank, but negligible effect; standards good.
Samples: Possible slight baseline drop from sample KRGB000118 to end of job, not apparent in standards or lab pulp duplicates, so probably real in samples.

Cd (DL 2ppb)
Controls: Variable, but overall useable, although some indications of lower baseline for job 235.0/1304968.
Samples: Slightly lower baseline (~2ppb) for job 235.0/1304968 will have a negligible effect on the higher levels in the spinifex and a minor effect on the lower levels in mulga, but if corrected, most values would still be < 5 x DL (i.e. 10ppb), so use with caution.

Ce (DL 5ppb)
Controls: Calibration for job 235.0/1304968 is low by approximately 10%.
Samples: Minimal effect on samples in job 235.0/1304968 from calibration as level sufficiently high. Unlikely to be significant when comparing ash converted data either.

Co (DL 0.02ppm)
Controls: Good.
Samples: All mulga results < 4 x DL (i.e. 0.08ppm); slightly higher overall levels in mulga in job 235.0/1304968 compared with 235.0/1304966 is probably real.

Cr (DL 0.2ppm)
Controls: Standards low in job 235.0/1304968 by approximately 20%, so corrections required.
Samples: Slightly elevated baseline for most of job 235.0/1304966 (samples KRBG000001-KRBG000077), but minimal effect. Results in job 235.0/1304968 under- reported by approximately 20%, as above.

Cs (DL 1ppb)
Controls: Low overall by approximately 5%.
Samples: As above, under-reported by approximately 5%, but minimal effect.

Cu (DL 0.1ppm)
Controls: Good.
Samples: Good.

Dy (DL 0.5ppb)
Controls: Variable, but overall good.
Samples: Good.

Er (DL 0.5ppb)
Controls: Variable, but overall good.
Samples: Good.

Eu (DL 0.2ppb)
Controls: Variable, but overall good.
Samples: Good.

Fe (DL 5ppm)
Controls: Calibration for both jobs low by approximately 5%.
Samples: As above, results under-reported by ~5%, but negligible effect.

Ga (DL 0.01ppm)
Controls: Good.
Samples: Values mostly < 5 x DL (i.e. 0.05ppm).

Gd (DL 0.5ppb)
Controls: Good.
Samples: Good.

Hf (DL 2ppb)
Controls: Solution standards good; most pulp standards close to DL.
Samples: All results < 5 x DL (i.e. 10ppb) and no correlation with Zr, so relatively elevated values likely to be spurious.

Hg (DL 2ppb)
Controls: Solution standards reading low and other standards variable, mostly low.
Samples: Results likely to be under-reported by up to approximately 15%.

Ho (DL 0.1ppb)
Controls: Calibration for both jobs low by approximately 5%, but minimal effect.
Samples: Results slightly low, as above, but minimal effect.

In (DL 1ppb)
Controls: Solution standards good; all pulp standards have levels <DL.
Samples: All results <DL.

K (DL 10ppm)
Controls: Good.
Samples: Good.

La (DL 2ppb)
Controls: Solution standards good; pulp standards low by approximately 5% in both jobs.
Samples: Results under-reported by approximately 5% as above, but negligible effect.

Li (DL 0.02ppm)
Controls: Calibration high by approximately 5% both jobs.
Samples: Results slightly over-reported, as above, but minimal effect.

Lu (DL 0.1ppb)
Controls: Variable, but overall good.
Samples: Generally good; some variations in the lab pulp duplicates.

Mg (DL 10ppm)
Controls: Good.
Samples: Good.

Mn (DL 0.5ppm)
Controls: Good.
Samples: Good.

Mo (DL 0.02ppm)
Controls: Good.
Samples: Results good; most mulga results < x 5 DL (i.e. 0.1ppm).

Na (DL 20ppm)
Controls: Good.
Samples: Good.

Nb (DL 5ppb)
Due to problems with the initial results, Nb results reported were determined using a separate digestion/analysis aliquot.
Controls: Solutions standards good; pulp standards variable, but close to DL. Job 235.0/1304968 probably high, which is reflected in the spuriously high (although still close to DL) Nb in the mill wash for this job.
Samples: Job 235.0/1304968 results slightly high, but all results still < 2 x DL (i.e. 10ppb), so use with caution.

Nd (DL 2ppb)
Controls: Calibration low by approximately 5%.
Samples: Results slightly low both jobs, as above, but minimal effect.

Ni (DL 0.1ppm)
Controls: Good.
Samples: Good.

P (DL 5ppm)
Controls: Good.
Samples: Good; very slight baseline difference between jobs, but negligible effect.

Pb (DL 0.02ppm)
Controls: Results reasonable, despite batch differences between the two jobs and blanks for both jobs.
Samples: Batch differences between the two jobs with 235.0/1304966 reading higher than 235.0/1304968. Values to be used with caution. (Unfortunately low level Pb results at GLS are often problematic and unreliable, with variable contamination probably due to the proximity of the ICP-MS lab to the Pb collection fire assay

facilities.) The spuriously high (wrong) value for spinifex pulp duplicate emphasizes the poor Pb results in general.

Pd (DL 2ppb)
All values < DL for both controls and samples.

Pr (DL 1ppb)
Controls: Good.
Samples: Good.

Pt (DL 1ppb)
Values essentially < DL for both controls and samples.

Rb (DL 0.01ppm)
Controls: Good.
Samples: Good.

Re (DL 0.5ppb)
Controls: Good for higher level standard, with the rest too close to DL to be of use. Spurious high value in mill wash at the end of job 235.0/1304968 is likely to be wrong.
Samples: Good, but DL of 0.5ppb possibly unrealistically low, although there is good reproducibility for the mulga lab pulp duplicates at levels around 5ppb (10 x DL). Similarly, there is very good agreement between the ashed (not included here) and dry results for the mulga, so the results are probably reliable.

S (DL 5ppm)
Controls: Good.
Samples: Good.

Sb (DL 5ppb)
Controls: Solution standard good, but pulp standards generally have levels too low to be assessed. (DL of 5ppb probably unrealistically low.)
Samples: All values < 3 x DL (i.e. 15ppb). Non-reproducible results for the spinifex original and lab pulp duplicate emphasizes the variability of Sb results close to DL.

Sc (DL 0.01ppm)
Controls: Variable and close to DL of 0.01ppm; blank of approximately 0.03ppm in job 235.0/1304966.
Samples: Values for job 235.0/1304966 over-reported due to blank.

Se (DL 0.02ppm)
Controls: Higher level standards good, but lower ones variable, including solution standard with a nominal value of 7 x DL (i.e. 0.14ppm).
Samples: Reasonable, however, the non-reproducible results for the spinifex original and lab pulp duplicate emphasizes that results < 10 x DL (i.e. 0.2ppm) should be used with caution.

Sm (DL 1ppb)
Controls: Good.
Samples: Good.

Sn (DL 0.02ppm)
Controls: Solution standard good; most pulp standards low levels, but possibly under-reported slightly, due to incomplete digestion.
Samples: Small baseline problem causing elevated results for samples KRBG000030-KRBG000053, however all results still < 2 x DL (i.e. 0.04ppm); use with caution.

Sr (DL 0.05ppm)
Controls: All standards good; minor blanks both jobs, but negligible effect.
Samples: Good, blank negligible effect; apparent differences between jobs likely to be real differences in levels between Kroda 1and Kroda 3, with Kroda 3 higher.

Ta (DL 2ppb)
Due to problems with the initial results, Ta results reported were determined using a separate digestion/analysis aliquot.
Controls: All standards have low levels, so of limited use to assess quality of results; some indication that job 235.0/1304968 spuriously high, including the elevated results for the mill washes.
Samples: Job 235.0/1304968 results slightly high, but all results < 5 x DL (i.e. 10ppb).

Tb (DL 0.5ppb)
Controls: Calibration slightly low but minimal effect.
Samples: Slightly under-reported, but minimal effect.

Te (DL 5ppb)
Controls: Low levels in all standards, so of limited use to assess quality. (DL of 5ppb probably unrealistically low.)
Samples: All samples < 2 x DL (i.e. 10ppb); use with caution.

Th (DL 5ppb)
Controls: Variable but overall good; banksia “blind” standard (also done as lab pulp duplicate) low in original but good in duplicate.
Samples: Good, but the non-reproducible results for the spinifex original and lab pulp duplicate emphasizes the variability of Th results < 2 x DL (i.e. 10ppb).

Ti (DL 0.5ppm)
Controls: Standards low in job 235.0/1304968 by approximately 20% and should be corrected.
Samples: Results for job 235.0/1304968 under-reported by approximately 20%, as above.

Tl (DL 2ppb)
Controls: Good.

Samples: Good.

Tm (DL 0.5ppb)
Controls: Good.
Samples: Good.

U (DL 0.5ppb)
Controls: Solution standards good; pulps standards low by approximately 10%, but unlikely to be digestion related.
Samples: Values under-reported in both jobs, as above, but minimal effect.

V (DL 0.2ppm)
Controls: Good, even at low levels.
Samples: Most < 2 x DL (i.e. 0.4ppm).

W (DL 0.02ppm)
Controls: Solution standards high by approximately 15%; pulp standards similarly high, with some spuriously (wrong) even higher values.
Samples: Values over-reported by approximately 15%; minor baseline elevation for job 235.0/1304968; non-reproducible values for lab pulp duplicates in job 235.0/1304968 suggest all values should be used with caution.

Y (DL 5ppb)
Controls: Good.
Samples: Good.

Yb (DL 0.5ppb)
Controls: Mostly good.
Samples: Good.

Zn (DL 0.2ppm)
Controls: Good.
Samples: Good.

Zr (DL 0.05ppm)
Controls: Generally good, although low levels.
Samples: Good; most < x 3 DL (i.e. 0.15ppm), so use with caution.

3.3.6 Spinifex

Spinifex and grasses generally have subdued levels of various elements compared with other genera, so the elevated levels of Cd, Co and Cr in the spinifex from Kroda 3 and to a lesser degree the single sample from Kroda 1, are of interest and it is necessary to establish if these values are real or a result of fairly systematic contamination. As above, sample KRBG1000124 has some dust contamination, so is excluded from this comparison. After careful consideration of two sample collection methods, two sample preparation methods and possible batch differences between jobs (since most of the spinifex was analysed in job 235.0/1304968), as well as comparisons with the check analyses performed on the ashed samples, it is

considered that these elevated levels are real. Work by Reid and Hill (2013) has shown that spinifex can have high Cr levels in the foliage tips, further suggesting the validity of the elevated Cr in the Kroda spinifex.

3.3.7 Lab pulp duplicates

The results for the lab pulp duplicates are shown plotted against the original results in the file attached (tab label: Lab dups plotted; by clicking on the chart, the element column is selected and each element plot can be scrolled in turn). Unfortunately, GLS choose the banksia “blind” pulp control as one of the lab pulp duplicates, so only three Kroda samples have been duplicated in job 235.0/1304966, whereas four Kroda samples have been duplicated in job 235.0/1304968.

For most elements well above DL, there is good agreement between the original results and those for the duplicates, as for Mn shown below (Fig. 4) and Y (Fig. 5). Even when there is not such god agreement between the absolute values, the trends are still the same as for S (Fig. 6) and Hg (Fig. 7). For exploration purposes the confirmation of valid trends is of critical importance and sometimes more so than absolute values.

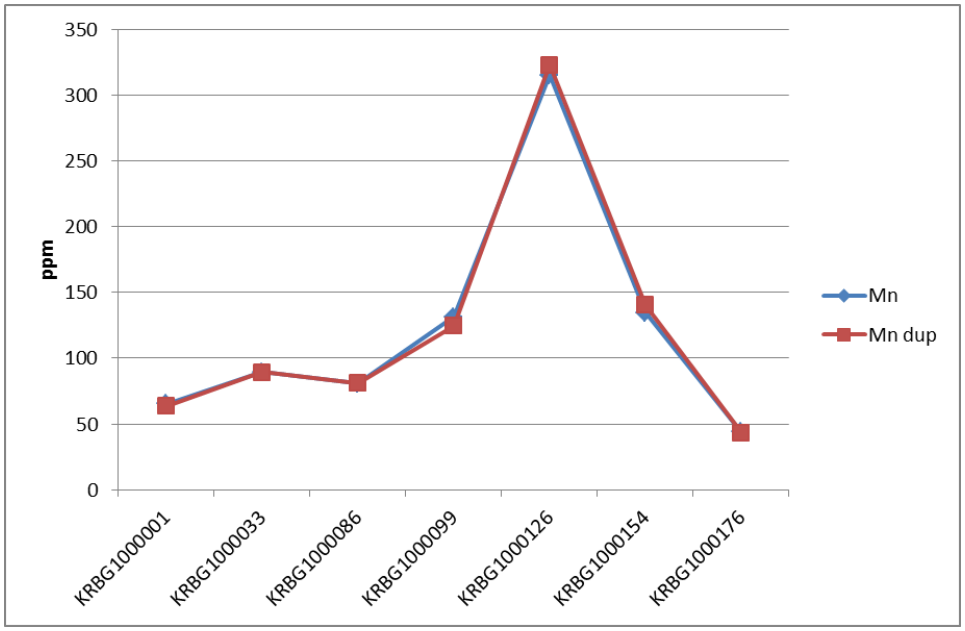

Figure 4 Comparison of results for Mn in the original sample and the lab pulp duplicate pairs

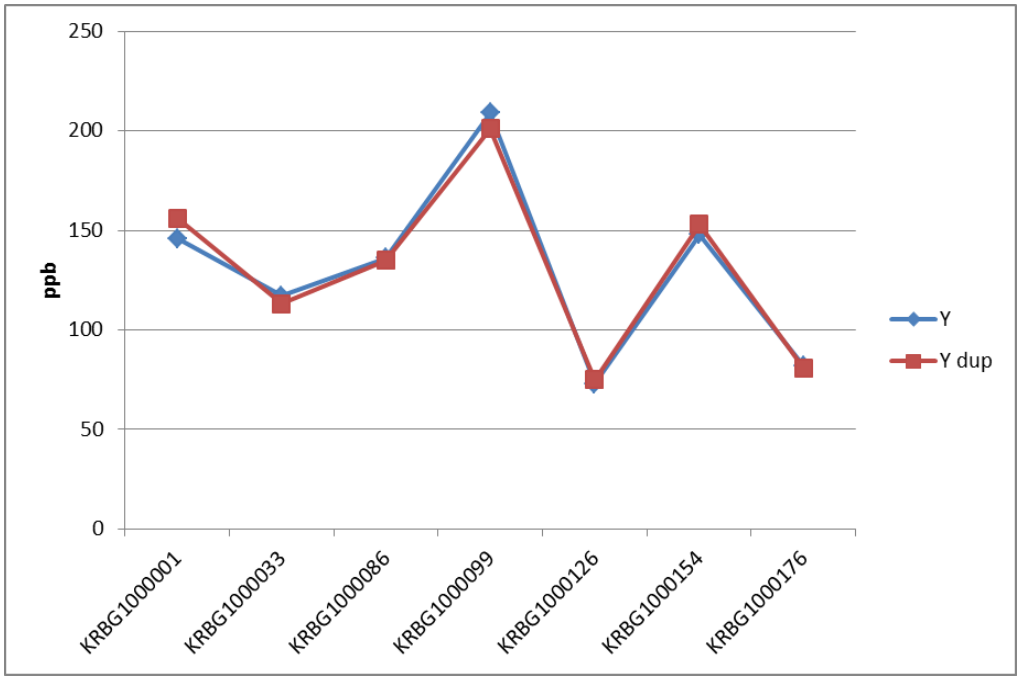

Figure 5 Comparison of results for Y in the original sample and the lab pulp duplicate pairs

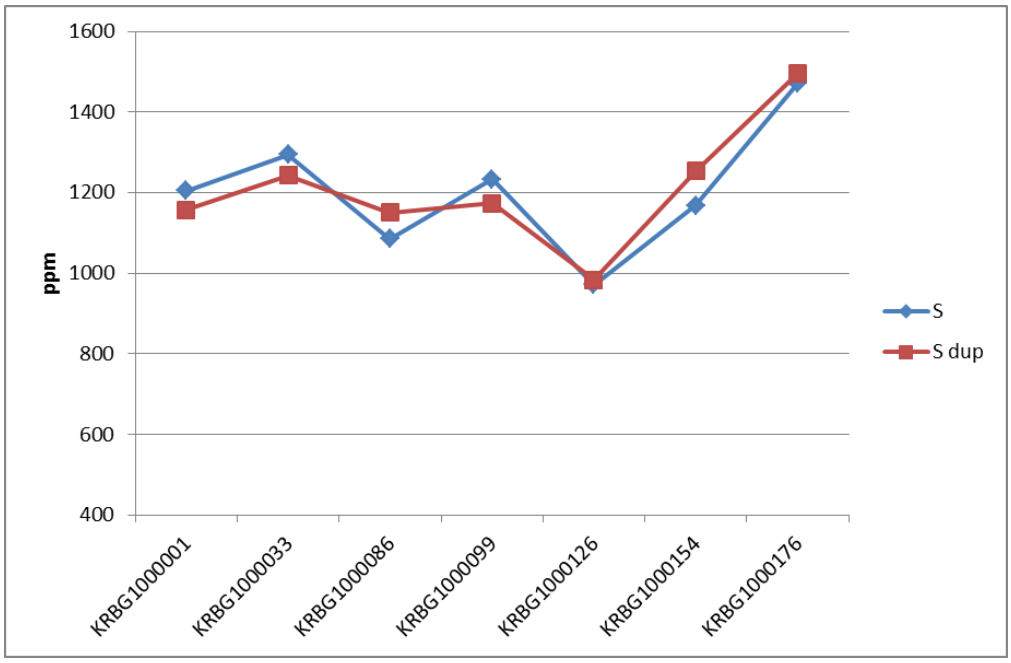

Figure 6 Comparison of results for S in the original sample and the lab pulp duplicate pairs

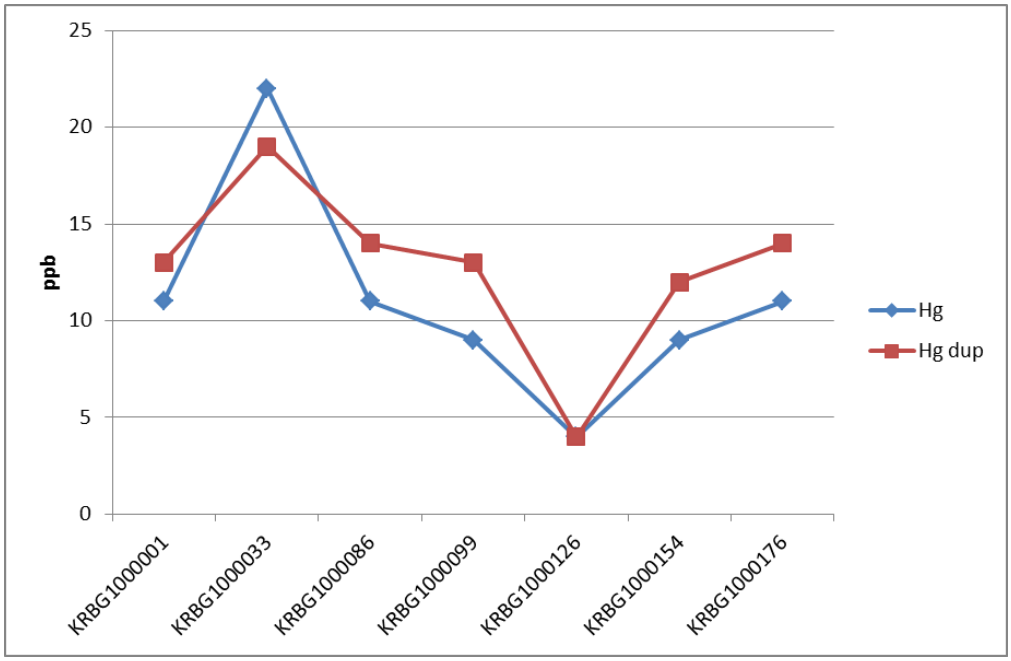

Figure 7 Comparison of results for Hg in the original sample and the lab pulp duplicate pairs

3.3.8 Field duplicates

The results for the field duplicates are shown plotted against the original results in the file attached (tab label: Field dups plotted; by clicking on the chart, the element column is selected and each element plot can be scrolled in turn). For most elements well above DL, there is quite good agreement between the original results and those for the duplicates, giving confidence in the sampling methodology. Not only are vegetation nutrient elements such as Mn reproducible (Fig. 8), but also elements of economic significance, such as Ni (Fig. 9), and even possible pathfinder elements present in ppb concentrations, such as Tl and Re (Fig. 10).

The duplicate pair samples KRBG1000159 and KRBG1000160 are mulgas with “regular” straight phyllodes and “curly” phyllodes, respectively. There are differences for several elements between these two samples, which are considered real, not analytical artifacts. The significance of possible chemical variations in mulga sub-types is beyond the scope of this report.

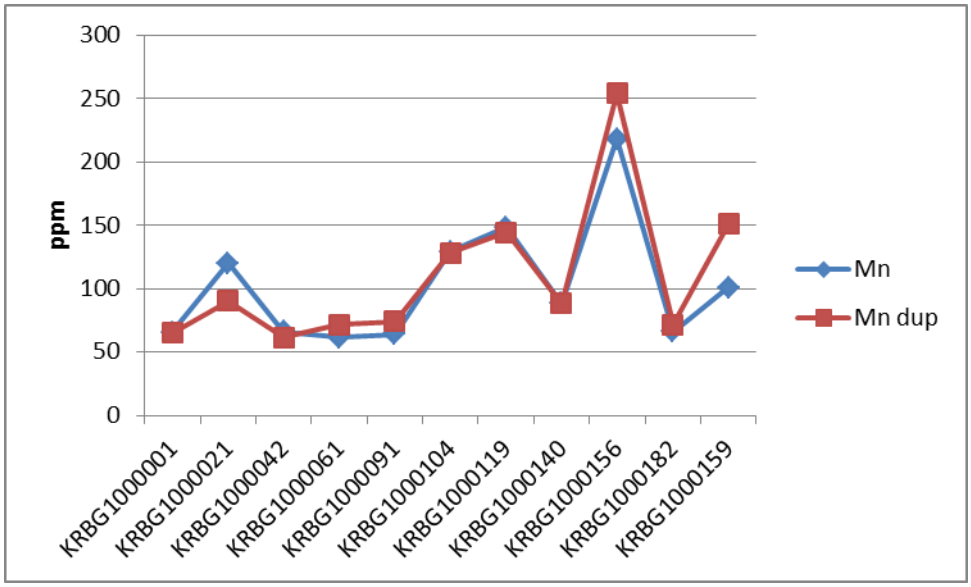

Figure 8 Comparison of results for Mn in the original sample and the field duplicate pairs

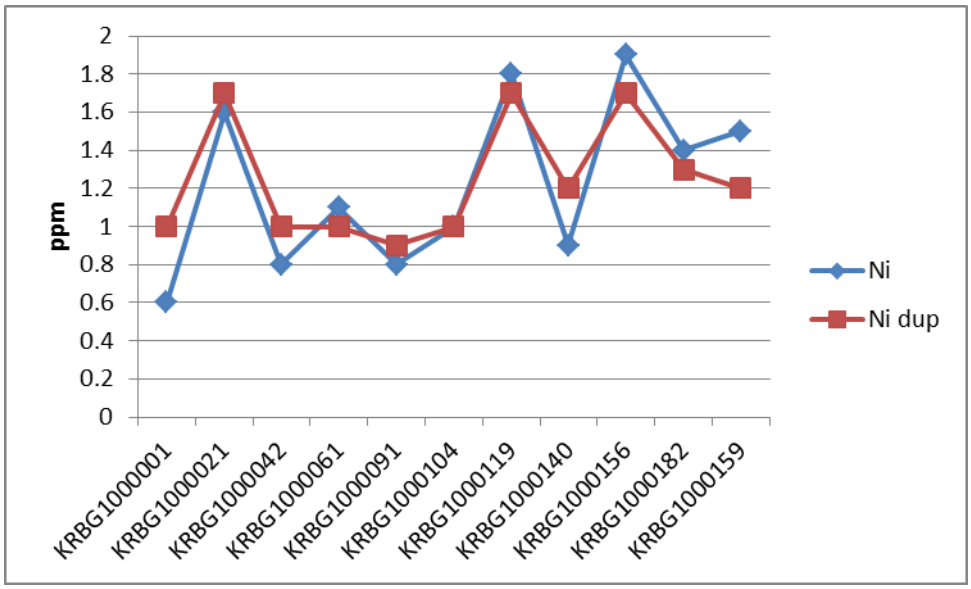

Figure 9 Comparison of results for Ni in the original sample and the field duplicate pairs

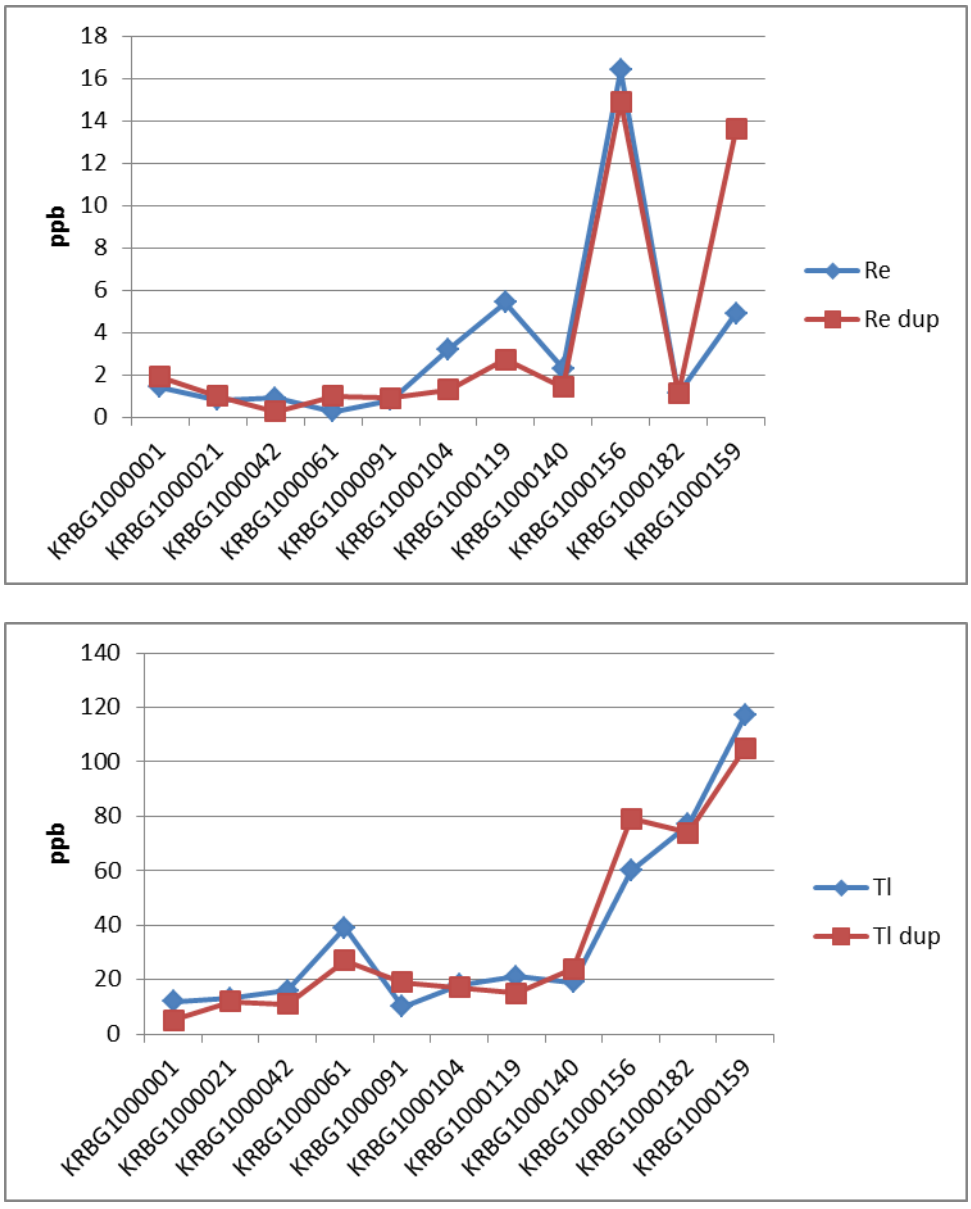

Figure 10 Comparison of results for Re and Tl in the original sample and the field duplicate pairs

4. Summary

While there are some minor analytical issues with some elements in the Kroda 1 and Kroda 3 biogeochemical datasets, overall, the results and the field methods are robust and applicable for the purpose of delineating areas for exploration focus.

5. References

Reid, N. and Hill, S.M., 2013 Spinifex biogeochemistry across arid Australia: Mineral exploration potential and chromium accumulation. Applied Geochemistry, **29**, 92-101

Helen Waldron
Consulting Geologist/Geochemist
Xenocryst Pty Ltd
PO Box 158
Thornlie
WA, 6988
Australia
Tel. +61 412 076 852
Email helenwaldron@xenocryst.com.au