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CRA Exploration Pty. Ltd.

EL 1991 SNAKE CREEK, N.T.

FINAL REPORT
PERIOD TO 10 JUNE 1988

Submitted by : I. C. Colliver . . . . . .

Accepted by : W. H. Johnston . . . . . .

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Map Reference

SE 53-8 Calvert Hills

Report number

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1 SUMMARY

In the first year of tenure of Snake Creek EL 1990, a detailed airborne magnetic and radiometric survey was flown over the EL area.
No uranium-channel anomalies were observed in the survey data; seven magnetic anomalies were selected for investigation as possible kimberlitic diatreme responses.

In tenure year two, reconnaissance drainage gravel sampling, for detection of kimberlitic indicator minerals, was undertaken in those parts of the EL area with a developed drainage system.
Single microdiamonds were reported in four samples.
A picroilmenite grain and a microdiamond were detected in one sample from upper Snake Creek.

An airborne "DAEDALUS" multispectral scanner survey was flown over the EL area in September 1984.

In a reduced tenement area in tenure year three, follow-up drainage sampling resulted in detection of:
one chromite grain and a microdiamond in a check resample of the site, on a Calvert River headwaters tributary, of a previously reported microdiamond;
two microdiamonds in an upstream follow-up sample from this tributary;
one microdiamond in an infill sample from a Calvert River headwaters tributary; and
three chromite grains and two microdiamonds in a check sample from upper Snake Creek.

Five aeromagnetic anomalies were ground recovered for investigation as possible diatreme responses.
Ground survey profiles over anomalies SNC 1, SNC 2 and SNC 5 showed complex dipolar responses, with interpreted shallow magnetic sources concealed by soil cover.
The source of anomalies SNC 3 and SNC 4 was interpreted to be aliasing effects over concentrations of magnetic pisolites.

In loam samples taken over response centres, single microdiamonds were reported in each of two samples from SNC 1 and one from SNC 2. Two microdiamonds were reported in a loam from SNC 5.

15 airphoto features, with anomalous DAEDALUS spectral signatures, were ground recovered for investigation as possible diatreme suboutcrop expressions.
Features were found to correspond most commonly with localised areas of pisolitic/ferruginous and/or clay-rich soils, typically developed on lateritised Cretaceous sediments or in drainage swales or soaks.
Five features were loam sampled with negative result.

Anomalous responses were observed in ground magnetic survey data from features 4/3/14 and 5/4/19.
Ground magnetic profiles showed no discrete responses corresponding with five other surveyed features.

In a further reduced tenement area in tenure year four, three drainage samples were collected from minor tributaries of upper Snake Creek and four loam samples were collected from subtle photofeatures in the Snake Creek headwaters area.
One microdiamond was reported in one of the drainage samples; results were otherwise negative.

Additional ground magnetic data, infilling field season 1986 surveys, were acquired on four DAEDALUS/airphoto features.
A magnetic dipole, with interpreted source depth ~50m, was confirmed to coincide with feature 4/3/14.
Discrete magnetic source bodies were not confirmed to correspond with features 2/4/7, 3/2/8 or 5/4/19.

A program of bedrock auger sampling was undertaken to investigate suboutcrop geology of aeromagnetic anomalies SNC 1, SNC 2 and SNC 5 and DAEDALUS/airphoto features 2/4/7, 3/2/8, 4/3/14 and 5/4/20.
SNC 1, SNC 2 and features 2/4/7, 3/2/8, 4/3/14 and 5/4/20 were shown to be underlain by lateritized sandstones.
SNC 5 auger cuttings logs showed weathered "doleritic" volcanics beneath 10-15m of red sand.

Two microdiamonds were reported in one cuttings sample and single microdiamonds in two others from SNC 1; single microdiamonds were reported also in one cuttings sample from each of SNC 2 and 2/4/7.
Analyses of bottom-hole cuttings samples did not show any geochemical signature suggestive of kimberlitic lithology.

2 ASSESSMENT

Drainage gravel, loam and bedrock auger sampling programs have confirmed significantly anomalous concentrations of kimberlitic indicator minerals (notably microdiamonds) in the Snake Creek drainage catchment area. No primary source kimberlitic diatreme has been identified or vectored by locally detailed follow-up investigations.

From review of results overall, it is considered probable that microdiamonds are being shed locally from a secondary detrital source. In the light of this interpretation, it is considered that the prospect of locating a diamondiferous diatreme in the reduced EL 1991 area has been downgraded to the extent that no further exploration can be recommended.

3 INTRODUCTION

Snake Creek EL Application 1991 was lodged on 17 November 1978, for an area of 380 blocks (about 1224 square km; location shown on plan NTd 4552) and was granted on 7 July 1983.
Tenement was taken up for exploration primarily for Westmoreland-style uranium mineralization, hosted in Lower Proterozoic Tawallah Group Westmoreland Conglomerate and Seisal Volcanics.

The EL 1991 area is on an easterly-projecting 'headland' of the Barkly Tableland plateau surface, developed on lateritized Mesozoic sedimentary rocks, flanked by drainage basins of the Calvert River system to the north and the Nicholson River to the south.

Pre-Mesozoic bedrock geology of most of the EL area is concealed by lateritic residual soils and drift sand. Some outcrops of Westmoreland conglomerate are mapped in central and southern sectors (Yates et al, 1963); published regional aeromagnetic data (BMR, 1978) was interpreted to suggest continuation of a belt of the 'Peters Creek Volcanics' (= Seisal Volcanics of Mitchell et al, 1980) at shallow depth through the EL 1991 area.

Statutory reduction of tenement area at the end of tenure year two resulted in retention of an area of 189 blocks (about 617 square km) into tenure year three.
Statutory reduction of tenement area at the end of tenure year three resulted in retention of an area of 94 blocks (about 307 square km) into tenure year four.
Statutory reduction of tenement area at the end of tenure year four resulted in retention of an area of 47 blocks (about 153 square km) into tenure year five (plan NTd 4552).

Surrender of EL 1991 was accepted with effect on 11 June 1988

4 AIRBORNE GEOPHYSICAL SURVEY

A detailed low-level airborne magnetic and radiometric survey was flown over the EL 1991 area by Geoterrex Pty. Ltd. in May-June 1984.

4.1 Control Photography

Navigation and flight path recovery of the airborne geophysical survey were carried out on 1:25 000 black-and-white enlargements of 1:80 000 colour photography flown in May 1983 by Aerial Surveys Australia Pty.Ltd.
To establish control, nine photogrammatic control points were plotted on alternate frames by Peter Livings and Associates, Perth, using data supplied by the Department of National Mapping, Canberra.

4.2 Survey Parameters

In summary, parameters of the airborne geophysical survey were:

Contractor	: Geoterrex Pty.Ltd. (acquisition and processing)
Survey name	: Snake Creek
Survey area	: 1224 square kilometres
Flight line direction	: North-south
Flight line spacing	: 300 metres
Tie line direction	: East-west
Tie line spacing	: 4 kilometres
Nominal terrain clearance	: 80 metres
Nominal flying speed	: 65 metres/second
Magnetometer	: Varian cesium vapour (0.04nT)
Cycling interval	: 0.2 seconds
Spectrometer	: Nuclear Data ADC/ND-560
Crystal volume	: 33.5 litres
Cycling interval	: 1 second

The Geoterrex logistics report was reproduced in full as an appendix to CRAE report 130522 (Bubner, 1985).

4.3 Survey Data Processing

Geoterrex data processing included the production of flight path plans and stacked magnetic profiles plans at 1:25 000 scale (plans NTd 3469-3490, accompanying CRAE report 130522: Bubner, 1985).

From located data tapes delivered by Geoterrex, the CRAE Research Group in Canberra undertook COMTAL system computer processing to produce images of raw and derivative-enhanced magnetic and radiometric data.
Selected data images were copied to 35mm slide sets for review and interpretation.

4.4 Review Of Radiometric Data

Data were reviewed as analogue records and COMTAL images.
Some relief was noted in K- and Th-channel responses, commonly relating to drainage and outcrop/subcrop patterns.
No elevated U-channel responses were detected, either as spot highs on analogue records or as subtle features on COMTAL images.

4.5 Interpretation Of Magnetic Data

The new magnetic data were observed to support in detail the interpretation from published regional aeromagnetic data (BMR, 1978) of continuation of a belt of Seigal Volcanics at shallow depth through the EL area. An aeromagnetic interpretation of the subsurface geology of the EL area is shown in plan NTd 4019.

Stacked profiles and COMTAL images were reviewed for selection of discrete magnetic features, for investigation as possible kimberlitic diatreme responses. High magnetic relief precludes recognition of such features over much of the survey area: seven anomalies were identified in areas of relatively subdued magnetic background.
Anomalies are tabulated in Appendix 1;
locations are shown on plans NTd 3874 and 4019.

Aeromagnetic anomaly investigations are discussed in section 7 of this report.

5 DRAINAGE GRAVEL SAMPLING

Sampling programs were helicopter supported, with -2mm sieved drainage gravel samples collected from heavy mineral accumulation (trap) sites where available.

In the absence of well developed drainage, 'loam' samples of about 50-100kg of surficial soil, shallowly scraped over an area of several square metres to take advantage of any concentration of heavy mineral grains by soil deflation, were collected from sheet wash drainage swales, magnetic anomaly centres and photofeatures.

Samples were forwarded to the CRAE Belmont laboratory for processing for kimberlitic indicator mineral observation and detection of microdiamonds (<0.4mm).
Sample locations are shown on plan NTd 4020.
Sampling data and results are tabulated in Appendix 3 and discussed below.

5.1 Reconnaissance Sampling

Some 30 samples (1081-series numbers) were collected in reconnaissance drainage gravel sampling of the EL area; in a very uneven coverage, due to absence of a developed drainage system over large parts of the area.

One picroilmenite grain and one microdiamond were reported in sample 1081126, from the upper course of Snake Creek.
Single microdiamonds were reported in each of samples 1081125, from a Snake Creek tributary, downstream from the sample 1081126 site; and
1081470, 1081473 & 1081475, from Calvert River headwaters tributaries in the northeastern sector of the EL area.

5.2 Field Season 1985 Check Sampling

Two x100kg check samples (1084822 & 1084823) were collected at the recovered sites, on Calvert River headwaters tributaries, of reconnaissance drainage gravel samples 1081481 (negative) and 1081473 (one microdiamond reported).

Sample 1084822 gave negative results.
One chromite grain and one microdiamond were reported in sample 1084823.

5.3 Field Season 1986 Follow-up Sampling

A program of drainage sampling was undertaken in field season 1986, to follow up positive results reported from reconnaissance and check sampling and to infill sampling coverage of areas of developed drainage.
30 -2mm sieved drainage gravel samples (numbered in the series 1312088-1312138) were collected, including resamples bulking ~100kg, taken at recovered sites of reconnaissance samples with positive results.

One microdiamond was reported in infill sample 1312091, from a Calvert River headwaters tributary;
two microdiamonds were reported in follow-up sample 1312098, from a Calvert River headwaters tributary ~1km upstream from the site of samples 1081473 (one microdiamond) and 1084823 (one chromite and one microdiamond); and
three chromite grains and two microdiamonds were reported in check drainage sample 1312116, from upper Snake Creek ~400m downstream from the site of sample 1081126 (one picro-ilmenite and one microdiamond).

5.4 Field Season 1987 Follow-up Sampling

In field season 1987, drainage gravel samples 1312036-038 were collected from minor tributaries of Snake Creek, close upstream from sample site 1081126.

One microdiamond was detected in sample 1312036: reports were otherwise negative.

6 AIRBORNE MULTISPECTRAL SCANNER SURVEY

In September 1984, an airborne multispectral scanner survey was flown over the EL area with a 'DAEDALUS' DS-1268 system operated by the National Safety Council of Australia (Victorian Branch).

A flight line diagram is shown on plan NTd 4013.

In summary, the survey parameters were:

Aircraft	:	Beech King Air
Survey altitude	:	8000 metres
Ground speed	:	240 knots (approx.)
Flight line direction	:	north-south
Pixel size	:	20 metres
Swath	:	13.5 km (approx.)
Overscan	:	x 2
Overlap	:	40%
Channels	:	0.42 - 0.45um (ch.1)
		0.45 - 0.52 2
		0.52 - 0.605 3
		0.605 - 0.625 4
		0.63 - 0.69 5
		0.695 - 0.75 6
		0.76 - 0.9 7
		0.91 - 1.05 8
		1.55 - 1.75 9
		2.08 - 2.35 10
		8.5 - 15um 11

Data processing was undertaken by the CRAE Research Group in Canberra.
Data images, generated by assigning primary color components to selected spectral data channels or channel ratios were hard-copied to 35mm slides.

For the 'Snake Creek area' survey data, two sets of slide images were produced with the following selections:

Set 1:	red	= channel 7
	green	= channel 5
	blue	= channel 3
Set 2:	red	= channel 9 / channel 10
	green	= (-)channel 11
	blue	= channel 9 / channel 7

From these slide sets, numerous areas of anomalous response were identified; commonly observed to correspond with topographic / soil tone features identifiable on aerial photographs.
A tabulation of DAEDALUS features is included in Appendix 2; locations are shown on plan NTd 3874.
Ground investigations are discussed in section 7 of this report.

7 AEROMAGNETIC & DAEDALUS/PHOTO-ANOMALY INVESTIGATIONS

In field seasons 1985-86, five aeromagnetic anomalies and 15 DAEDALUS/photo-anomalies, within the third tenure year EL 1991 boundaries, were ground recovered for investigation as possible diatreme expressions. These investigations (reported by Colliver & Bubner, 1986) included ground magnetic surveys, outcrop and loam sampling.

Follow-up investigations in field season 1987 (Colliver & Bubner, 1987) included also a program of bedrock auger sampling.

7.1 Ground Magnetic Surveys & Surface Sampling

Ground recovery of aeromagnetic anomalies and DAEDALUS/photofeatures was helicopter supported, using for navigation 1:25 000 black and white airphoto enlargements marked with estimated anomaly centres.

For each ground magnetic survey, a permatagged steel star picket, assigned local grid origin co-ordinates 1000mE 1000mN, was placed at or near the recovered anomaly centre. Temporary survey lines were established by topofil and compass on magnetic N-S/E-W bearings and marked by flagging tape at 50 metre intervals.

Readings of the total magnetic field were acquired at 10m intervals using Scintrex MP3 magnetometers, with the sensor on a two metre staff.
Magnetic data were corrected for diurnal variation, monitored by a base station MP3 located at Calvert River base camp (field seasons 1985-1986) or Horse Creek base camp (field season 1987). Data were stored on cassette using a HP-85B microcomputer and transcribed subsequently to a Microvax at CRAE Adelaide office.

In field seasons 1985-1986, 42.6 line-km of ground magnetics data were acquired over aeromagnetic anomalies SNC 1-SNC 5 and 9.2 line-km over Daedalus/photofeatures 2/4/7, 4/3/14, 4/4/15, 4/4/16, 4/5/17, 5/4/19 and 5/4/20.
Additional ground magnetics data were acquired in field season 1987 over features 2/4/7, 3/2/8, 4/3/14 and 5/4/19, for final screening of target selection for a planned program of Gemcodrill auger sampling.
Ground magnetic survey profiles are shown on plans NTd 4173 -4177, NTd 4472 and NTd 4560-4566.

Over shallow anomaly centres, 'loam' samples of about 100kg of surface soil were shallowly scraped to take advantage of any winnowing concentration of resistate heavy mineral grains. Loam samples were processed by the CRAE Belmont laboratory for detection of kimberlitic indicator minerals and microdiamonds.
Sample locations are shown on plan NTd 4020;
results are tabulated in Appendix 3.

Anomaly SNC 1

This anomaly is defined on the airborne stacked profiles as a dipolar feature of up to 18nT amplitude over three flight lines, and appears to represent a component of the total magnetic response of a source extending to the north-east. The anomaly is located in a magnetically 'quiet' area, and the amplitude is much less than typically associated with volcanic-sourced anomalies.

11.1 line-km of ground traverses were completed to define the anomaly and associated responses to the north-east.
The airborne responses are confirmed by dipoles on lines 800mE to 1300mE between 600mN and 900mN, 'reversed' dipoles on lines 1000mE and 1100mE at about 1400mN, and highs on lines 1200mE and 1300mE between 1500mN and 2000mN (plan NTd 4173).
Data to the south of 1000mN and east of 1200mE are generally smooth; elsewhere single-reading noise spikes of amplitude typically 100nT are superimposed on the magnetic anomalies.

The geometry of the dipoles and 'reverse' dipoles suggests responses of the southern and northern edges respectively of a relatively shallowly concealed flat-lying sheet. In the absence of any control it is difficult to quantify the source of the magnetic high between 1500mN and 2000mN, although analysis of the airborne data in a regional context suggests it to be the western end of a deep, broad magnetic feature plunging shallowly to the east.

No outcrop was observed within the grid area. Cover is of khaki sandy soil, with variably abundant pisolites and scattered pebbles and cobbles of laterite and ferruginous sandstone.
Loam sample 1084824 was taken in field season 1985 at 900mE 1200mN. One microdiamond was reported.
Check loam sample 1312138 was taken in field season 1986 at 1200mE 800-850mN. One microdiamond was reported.

Anomaly SNC 2

This anomaly comprises well-defined dipoles of amplitudes 110nT and 165nT on two flight lines. In a regional context, the anomaly occurs within a magnetically disturbed zone, interpreted to represent a belt of volcanics (plan NTd 4019).

Ground investigations included 6.2 line-km of magnetometer traverses.
All profiles display well-defined dipoles of up to 360nT amplitude and wavelength of 300-400m (plan NTd 4174). Irregularities within the profiles suggest a complex source or multiple sources: that is, although profiled responses are broadly dipolar, the shapes of peaks and troughs are inconsistent with a discrete, "infinite" depth-extent source. The anomaly was rather interpreted to represent responses to the northern and southern edges of a relatively shallowly concealed flat-lying source body.

The recovered aeromagnetic anomaly coincides with a local low rise of grey hard sandy soil cover, with patches of non-magnetic laterite, pisolite accumulations and some ferruginous (Cretaceous?) sandstone scree.
Loam sample 1084825 was taken in field season 1985 at 1000mE 780mN. One microdiamond was reported.

Anomaly SNC 3

Five line-km of ground magnetics data were acquired to investigate a 4nT dipolar anomaly on one flight line.
Profiles on all traverses display single-reading noise spikes with amplitudes typically in excess of 100 nT (plan NTd 4175).

No outcrop was observed in the grid area. Ferruginous-cemented sandy detritus and sandstone scree are scattered about and pisolites are abundant in the sandy soil. Magnetic susceptibility readings on the pisolites gave values of 0.01-0.02 SI units.
The source of the airborne anomaly is interpreted to be aliasing effects over the magnetic pisolites.
Loam sample 1084827 was taken in field season 1985 at 1000mE 1000mN. No indicator minerals or microdiamonds were detected.

Anomaly SNC 4

This anomaly is a 4nT dipole on one flight line in a magnetically quiet area. 4.2 line-km of ground magnetics data were acquired on one east-west and four north-south traverses.
The profiles on all traverses are dominated by single-reading noise spikes, with amplitudes typically in excess of 100 nT (plan NTd 4176).

Grey sandy soil covers the grid area, with some ferruginous-cemented sandstone detritus and magnetic pisolites.
The source of the aeromagnetic anomaly is ascribed to aliasing effects over the pisolites.

Anomaly SNC 5

This anomaly is a 5nT inflexion on one (possibly continuing through to a second) flight line. It is located on the southern margin of a zone of complex magnetic relief, interpreted to be caused by a suboutcrop belt of Tawallah Group Seisal Volcanics (plan NTd 4019).

16.1 line-km of ground magnetometer traverses were completed on three east-west and nine north-south lines. The profiles are mostly devoid of noise spikes, and display several distorted dipoles up to 100 nT in amplitude (plan NTd 4177). The airborne response is confimed by a multiple-source(?) dipole extending from 800mE to 1600mE, between 1100mN and 1300mN. The irregular magnetic relief in the profiles is suggestive of a volcanic sheet source: however, in a regional context, the feature is discrete - located outside the boundary of an interpreted belt of Seisal Volcanics.

The central part of the grid area corresponds with a belt of eucalypt forest on red-brown sandy-silty soil, flanked to the north by beige silty sand with casuarina scrub and to the south by a sandstone subcrop area with light scrub and grass cover.
Loam sample 1084834 was taken in field season 1985 at 1300mE 1150mN. Two microdiamonds were reported.
Loam samples 1312136, 1312137 were taken in field season 1986, respectively at 1100mE 1150mN and 1100mE 1450-1500mN. No kimberlitic indicator minerals or microdiamonds were detected.

DAEDALUS feature 2/3/5

The DAEDALUS anomaly corresponds with a subtle photofeature, ground recovered as a small cluster of spindly gums on a patch of pisolitic and quartz-gritty, tan silty soil with scattered outcrops of ferruginous quartz sandstone/grit.

DAEDALUS feature 2/3/6

This feature was ground recovered as a bouldery outcrop knoll of densely silcreted saccharoidal quartz sandstone.

DAEDALUS feature 2/4/7

The DAEDALUS anomaly corresponds with a subtle photofeature, ground recovered as a relatively dense stand of timber on a low rise of pisolitic sandy soil with float clasts of ferruginous sandstone.
Loam sample 1084826 from the feature was reported negative for kimberlitic indicator minerals and microdiamonds.

A ground magnetometer traverse across the feature in field season 1986 (Colliver & Bubner, 1986; plan 'Figure 1') shows a very broad (wavelength 600m) dipolar response of ~10nT amplitude, consistent with subtle long-wavelength background responses observed in the airborne data.

In field season 1987, three north-south traverses were completed to enable a more definitive assessment of a short-wavelength 20nT response at 1000mN, recognised in the 1986 traverse 1000mE profile.
In addition to typical 'background clutter' variations of <5nT superimposed on part of a long-wavelength low-amplitude regional dipolar feature, profiles of these traverses (plan NTd 4560) show a 30nT vaguely-dipolar anomaly at 1000mN on line 1000mE, and short-wavelength responses of amplitude 10-20nT between 900mN and 1000mN on line 1100mE. These responses, and the 20nT response profiled by 1986 data, are considered due to a surficial or near-surface source - most likely magnetic pisolites and/or weakly magnetic ferruginous sandstone.

DAEDALUS feature 3/2/8

The DAEDALUS anomaly corresponds with a subtle phototone feature, ground recovered as a low rise of pisolitic soil with scattered rubbly subcrop of lateritised (Cretaceous?) sandstone.

In field season 1987, 7.5 kilometres of ground magnetic traversing was completed on two east-west and five north-south lines. The profiles (plan NTd 4472) are dominated by relatively smooth dipolar responses of amplitude 100-200nT. Wavelengths are consistently of the order of 150 metres, suggesting source depths of approximately 50 metres.

Location of the DAEDALUS feature is in a zone of disturbed aeromagnetics interpreted to be caused by Seisal Volcanics (plan Ntd 4019) and ground survey profiles are entirely consistent with this interpretation: in this context, there is no discrete magnetic response correlative with the DAEDALUS feature.

DAEDALUS feature 4/3/14

This feature was ground recovered as a well defined vegetation anomaly of relatively sparse scrub on red sandy soil. The feature is located on the southern margin of a magnetically complex zone, caused by a belt of interpreted volcanics.

A ground magnetometer traverse across the feature in field season 1986 (Colliver & Bubner, 1986; plan "Figure 2") displays a steeply descending gradient south of 1100mN, interpreted to correspond with the edge of the volcanics sheet. A 25nT dipole observed also on the profile is near-coincident with line section 1050-1350mN, corresponding with the DAEDALUS/photofeature confines.

Loam sample 1084833 from the feature was reported negative for kimberlitic indicator minerals and microdiamonds.

To check the possibility that the 25nT anomaly could be caused by a discrete source, and masked in the airborne data by responses of a sub-surface sheet of Tawallah Group volcanics, additional ground magnetometer traverses were undertaken in field season 1987.
The ground magnetic anomaly was confirmed as a 70nT dipole, centred at 880mE 1250mN (plan NTd 4561), with an indicated source depth of ~50 metres.

The interpreted source depth and regional aeromagnetic setting suggest Tawallah Group volcanics as the probable source of the magnetic anomaly. However, the coincidence of DAEDALUS and magnetic anomalies was considered to warrant subsurface investigation (see section 7.2 of this report).

DAEDALUS feature 4/4/15

The DAEDALUS anomaly corresponds with a dark phototone feature, ground recovered as a low rise of abundantly pisolitic red-brown sandy soil with scattered float rubble of laterite and ferruginous sandstone. Silcreted white quartz sandstone crops out on the creek bank, south of the feature. To the north, pisolites become much less abundant, in khaki sandy soil.

The profile of a single ground magnetometer traverse across the feature (plan NTd 4562) shows a broad 30nT high, representing a section of one of numerous broad, low-amplitude, deep-source "background" aeromagnetic features of a major zone of disturbed aeromagnetics due to Tawallah Group volcanics at depth.
There is no discrete magnetic anomaly corresponding with line section 1050-1700mN, across the DAEDALUS/photo-feature.

DAEDALUS feature 4/4/16

The corresponding dark phototone feature was recovered as an area of grey-tan sandy soil, relatively darker than its surrounds and with more abundant pisolites.

The ground magnetic data profile of a traverse across the feature (plan NTd 4563) shows a gradient rising to the north, representing a section of a long-wavelength 'background' aeromagnetic feature.
There is no discrete magnetic anomaly corresponding with line section 1100-1700mN, over the DAEDALUS/photo-feature.

Loam sample 1084831 from the feature was reported negative for kimberlitic indicator minerals and microdiamonds.

DAEDALUS feature 4/5/17

This feature was ground recovered as a well defined vegetation anomaly of dense scrubby timber on ferruginous sandy soil.

A ground magnetic profile across the feature (plan NTd 4564) is essentially devoid of any relief.

DAEDALUS feature 5/4/19

This feature was ground recovered as a densely timbered knoll of rubbly subcrop of heavily ferruginised 'doleritic' volcanic rock, flanked to the northeast by subcrop of lateritised (Cretaceous?) sandy mudstone.

One E-W and two N-S ground magnetometer traverses, totalling 2.4 line-km were surveyed over this feature in field season 1986 (Colliver & Bubner, 1986; plan 'fisure 6').
Profile sections 800-1000mE on line 1000mN and 950-1300mN on line 900mE, across the knoll, show a slight increase in noise levels (~10nT, compared with a background of <5nT). Other than this, there is no discrete magnetic response coincident with the DAEDALUS feature.
[A 50nT dipole on line 1000mE, centred at ~1330mN (northeast of the knoll) was confirmed subsequently from the aero-magnetic data as a 7nT dipole in relative isolation on flight line 1451.]

Loam sample 1312088 was taken at about 1000mE 920mN, from a drainage 'pan' collecting runoff from the knoll area.
Kimberlitic indicator mineral and microdiamond reports were negative.

Rock sample 1312089 of the 'doleritic' rock was collected at about 900mE 1050mN.
Geochemical analysis gave a signature suggestive of identification as a heavily ferruginised basic igneous rock of syenitic association (Appendix 4).
From thin-section examination, the rock was identified as a weathered ferruginised quartz microgabbro (Appendix 4).

In field season 1987, five additional traverses totalling 2.2 line-km were undertaken to investigate the dipolar response centred at 1000mE 1330mN.
The profiles from the northern part of the grid (plan NTd 4565) are dominated by single-reading noise spikes of hundreds nT's amplitude, with no 'real' response discernable. The source of the ground magnetic and aeromagnetic anomaly is considered to be highly magnetic ferruginous gravels observed in this part of the grid area.

DAEDALUS feature 5/4/20

The DAEDALUS anomaly corresponds with a subtle photo-tone feature, ground recovered as a patch of relatively dense low scrub on loose ashy-grey-tan silty soil. A more prominent photofeature close to the southwest is a sparsely timbered, pisolitic 'hardpan' area with scattered rubbly subcrop of lateritised (Cretaceous?) sandstone/sandy mudstone.

Ground investigation in field season 1986 included three magnetometer traverses totalling 2.2 line-km.
Profiles are shown in plan NTd 4566.
The DAEDALUS feature was traversed by line section 1650mE 1300-1500mN. The magnetic profile shows relatively smooth variations of a few nT, with no discrete magnetic anomaly.
The profile of line 1000mE, centred on the 'hardpan', is dominated by single reading noise spikes up to 160nT amplitude from 600mN to 1350mN. This is consistent with observed pisolite accumulations and lateritised sandstone rubble which gave magnetic susceptibility readings up to 0.008 SI units.

Loam sample 1312090, taken on the pisolitic pan at about 1000mE 970-1020mN, was reported negative for kimberlitic indicator minerals and microdiamonds.

DAEDALUS feature 5/5/21

The DAEDALUS anomaly corresponds with a vegetation photo-anomaly, ground recovered as a patch of dense scrubby timber on a hill capping of (Cretaceous?) ferruginous sandstone.

DAEDALUS feature 5/5/22

This feature corresponds with a subtle photoanomaly, identified from the helicopter to correspond with a patch of locally darker soil and a ring of trees.

DAEDALUS feature 5/5/23

This feature corresponds with a vegetation and soil tone photoanomaly, ground recovered as an area of large paperbarks, pandanus clumps and heavy grass cover on a swampy "soak". Scintillometer readings up to ~70cps (BGS 2) were observed.

Other photofeatures

Loam samples 1312217-220 were collected in field season 1987 from subtle photofeatures (not previously selected for investigation) in the Snake Creek headwaters area.

Sample locations are shown on plan NTd 4020;
No kimberlitic indicator minerals or microdiamonds were reported in these samples.

7.2 Bedrock Auger Sampling

A program of bedrock auger sampling was undertaken in field season 1987, to investigate suboutcrop geology of aeromagnetic anomalies SNC 1, SNC 2 and SNC 5 and of DAEDALUS/photofeatures 2/4/7, 3/2/8, 4/3/14 and 5/4/20.

A Gemcodrill HT-7 mounted on a Chamberlain Champion Industrial Mark 4 tractor was utilised, with a 10cm diameter flighted auger rod string and tungsten carbide tipped hard formation bit.
Fences of holes were drilled at 50m to 100m centres on selected line sections of the ground survey local grids, traversing the positions of indicated shallow magnetic sources.
Holes were sunk to identifiable weathered bedrock, or until effective penetration limit was reached.
Bottom-hole cuttings samples bulking about 10kg were taken for kimberlitic indicator mineral observation by the CRAE Belmont laboratory, with a representative split taken off for geochemical analysis. A Kraft packet of representative larger chips was also collected for logging of bedrock lithology.

Gemcodrill auger cuttings logs are included in Appendix 5.
Indicator mineral sample data are tabulated in Appendix 3, for samples keyed on the Gemcodrill logs.
Geochemical analysis reports are included in Appendix 4.

Aeromagnetic anomaly SNC 1

To investigate suboutcrop geology of the area of the indicated magnetic source, local grid line 1100mE was auger drilled at 50m centres 650-850mN and 1000-1800mN.

Cuttings logs record 1-5m of ferruginous sand, nodular laterite and ferruginous sandstone, with felspathic sandstone chips recovered at the bottoms of holes. Depths >5m were reached only south of 750mN and at 1300mN.
Magnetic susceptibilities of 0.001-0.008 SI units were measured for bottom-hole cuttings samples from line sections 1100-1350mN and 1500-1750mN.

Single microdiamonds were reported in each of cuttings samples 1312340 (local grid 1100mE 1100mN; surface to 2.4m) and 1312346 (1100mE 1500mN; surface to 0.9m); and two microdiamonds in sample 1312347 (1100mE 1550mN; surface to 1.0m).
No other kimberlitic indicator minerals were detected.
No signature suggestive of kimberlitic lithology was recognised in geochemical analysis reports for cuttings split samples 1312337, 1312339, 1312343, 1312345 and 1312349.

Aeromagnetic anomaly SNC 2

To investigate suboutcrop geology of the area of the anomaly centre, local grid line 1000mE was auger drilled at 50-75m centres 550-1050mN.

Cuttings logs record superficial ferruginous sandy soil and lateritic gravel, underlain by fine-grained felspathic sandstone to the limit of penetration by the auger at ~5m.
Magnetic susceptibilities of ~0.0005 SI units were measured for bottom-hole cuttings samples.

One microdiamond was reported in cuttings sample 1312333 (local grid 1000mE 550mN; 2-2.4m); kimberlitic indicator and microdiamond reports were otherwise negative.
No signature suggestive of kimberlitic lithology was recognised in geochemical analysis reports for cuttings split samples 1312327-331.

Aeromagnetic anomaly SNC 5

To investigate suboutcrop geology of the magnetic anomaly source area, local grid line 1100mE was auger drilled at 50-100m centres 800-1450mN.

Cuttings logs record generally 10-15m of red sand, with lateritic rubble and ferruginous sandstone in places. Weathered "doleritic" volcanic lithologies were logged in bottom-hole cuttings from all holes deeper than ~15m and as shallow as 8m at 900mN.
Magnetic susceptibilities of 0.00025-0.007 SI units were measured for bottom-hole cuttings samples.

No kimberlitic indicator minerals or microdiamonds were reported in cuttings samples.
No signature suggestive of kimberlitic lithology was recognised in geochemical analysis reports for cuttings split samples 1312301-303 and 1312307-308.

DAEDALUS feature 2/4/7

To investigate suboutcrop geology of this subtle photo-feature, located only about 2km east of aeromagnetic anomaly SNC 1, local grid line 1000mE was auger drilled at 50m centres 900-1100mN.

Cuttings logs record superficial sand and lateritic gravel, underlain by lateritized quartz-gritty felspathic sandstone to the limit of penetration by the auger at depths 2.4-7.4m.
Magnetic susceptibilities of 0.0003-0.0005 SI units were measured for the relatively deeper bottom-hole cuttings samples; laterite/lateritized sandstone cuttings sample 1312360, from 1000mN (surface-2.4m) gave a reading of 0.002 SI.

One microdiamond was reported in cuttings sample 1312362 (local grid 1000mE 1100mN; 4-6.1m); kimberlitic indicator and microdiamond reports were otherwise negative.
No signature suggestive of kimberlitic lithology was recognised in geochemical analysis reports for cuttings split samples 1312359-361.

DAEDALUS feature 3/2/8

To investigate suboutcrop geology of this subtle photofeature, local grid line 1170mE was auger drilled at 50m centres 1300-1500mN and at 1600mN.

Cuttings logs record superficial ferruginous sandy soil, underlain by lateritized felspathic sandstone to the limit of penetration by the auger at depths of 4.9-7.3m.
Magnetic susceptibilities of 0.0002-0.0008 SI units were measured for bottom-hole cuttings samples.

No kimberlitic indicator minerals or microdiamonds were reported in cuttings samples.
No signature suggestive of kimberlitic lithology was recognised in geochemical analysis reports for cuttings split samples 1312321-322.

DAEDALUS feature 4/3/14

To investigate suboutcrop geology of this photofeature with coincident dipolar magnetic anomaly, local grid line 880mE was auger drilled at 50m centres 1000-1400mN.

Cuttings logs record generally ~5m (>12m at 1400mN) of red sand, underlain by ferruginous sandstone and fine grained to gritty and quartzite-pebbly felspathic sandstone (probably of the Westmoreland Conglomerate). Penetration limit was reached at depths of 2.4-15.3m.
Magnetic susceptibilities of 0.0001-0.0006 SI units were measured for bottom-hole cuttings samples.

No kimberlitic indicator minerals or microdiamonds were reported in cuttings samples.
No signature suggestive of kimberlitic lithology was recognised in geochemical analysis reports for cuttings split samples 1312312-316.

DAEDALUS feature 5/4/20

To investigate suboutcrop geology of the pisolitic hardpan photofeature, local grid line 1000mE was auger drilled at 50-100m centres 800-1200mN.

The auger achieved penetrations of 1-5m only, into lateritized conglomeratic(?) sandstone.
Magnetic susceptibilities of 0.0004-.0065 SI units were measured for bottom-hole cuttings samples.

No kimberlitic indicator minerals or microdiamonds were reported in cuttings samples.
No signature suggestive of kimberlitic lithology was recognised in geochemical analysis reports for cuttings split samples 1312365 and 1312367-368.

8 REFERENCES

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Total magnetic intensity plans

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Mitchell,J.E.
et al 1980: Seisal sheet 6462
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Yates,K.R.
et al 1963: Calvert Hills sheet SE 53-8
BMR 1:250 000 geological series map

9 KEYWORDS

Diamonds, laterite, volcanics, diamond indicators, airborne geophys-mag, sampling-drainage, sampling-soil, sampling-rock drill-auger, geochem-rock, petrology

10 LOCATION

SE 53-8 Calvert Hills (6362 Nicholson River)

11 LIST OF PLANS

Plan No	Title	Scale
NTd 4552	Location plan (July 1987 reduction) Snake Creek EL 1991	1:250 000
NTd 3491	Snake Creek EL 1991 Airborne geophysical survey sheet index & plan numbers	1:250 000
NTd 4019	Snake Creek EL 1991 Aeromagnetic interpretation	1:250 000
NTd 4013	Snake Creek EL 1991 DAEDALUS survey flight lines	1:250 000
NTd 3874	Snake Creek EL 1991 Aeromagnetic & DAEDALUS anomaly location plan	1:100 000
NTd 4020	Snake Creek EL 1991 Sample location plan	1:100 000
NTd 4173	Ground magnetic survey profiles Anomaly SNC 1	1: 5 000
NTd 4174	" Anomaly SNC 2	1: 5 000
NTd 4175	" Anomaly SNC 3	1: 5 000
NTd 4176	" Anomaly SNC 4	1: 5 000
NTd 4177	" Anomaly SNC 5	1: 10 000
NTd 4560	" DAEDALUS feature 2/4/7	1: 5 000
NTd 4472	" DAEDALUS feature 3/2/8	1: 5 000
NTd 4561	" DAEDALUS feature 4/3/14	1: 5 000
NTd 4562	" DAEDALUS feature 4/4/15	1: 5 000
NTd 4563	" DAEDALUS feature 4/4/16	1: 5 000
NTd 4564	" DAEDALUS feature 4/5/17	1: 5 000
NTd 4565	" DAEDALUS feature 5/4/19	1: 5 000
NTd 4566	" DAEDALUS feature 5/4/20	1: 5 000

1

Appendix 1

TABULATION OF AEROMAGNETIC ANOMALIES
SELECTED FROM SNAKE CREEK STACKED PROFILES

FLOWN BY GEOTERREX 28th MAY - 7th JUNE 1984

SELECTED FEBRUARY 1985 COMPILED 22-FEB-85

2

Appendix 2

TABULATION OF DAEDALUS ANOMALIES

2

TABULATION OF FEATURES SELECTED FROM DAEDALUS IMAGES

SURVEY AREA : Snake Creek

DAEDALUS ANOMALY : Flisht no./Slide no./Anomaly no.

PHOTO RUN & FRAME : S = Snake Creek ASA C773
Run no./Frame no.

DAEDALUS ANOMALY	AMG EAST	AMG NORTH	PHOTO RUN & FRAME	1:100 000 SHEET	TENEMENT
2/ 3/ 5	728400	8043100	S 3/4377	Nicholson R.	Snake Ck 1991
2/ 3/ 6	728800	8044000	S 3/4377	Nicholson R.	Snake Ck 1991
2/ 4/ 7	727000	8053600	S 2/4251	Nicholson R.	Snake Ck 1991
3/ 2/ 8	735600	8040300	S 3/4375	Nicholson R.	Snake Ck 1991
3/ 3/ 9	735000	8045200	S 3/4375	Nicholson R.	Snake Ck 1991
3/ 3/10	735800	8045900	S 3/4375	Nicholson R.	Snake Ck 1991
3/6B/11	733300	8064900	S 1/4245	CalvertHills	Snake Ck 1991
4/ 3/14	742900	8035900	S 4/4382	Nicholson R.	Snake Ck 1991
4/ 4/15	738700	8043200	S 3/4375	Nicholson R.	Snake Ck 1991
4/ 4/16	738700	8045200	S 3/4375	Nicholson R.	Snake Ck 1991
4/ 5/17	740000	8051600	S 2/4253	Nicholson R.	Snake Ck 1991
4/ 7/18	738900	8066000	S 1/4245	Nicholson R.	Snake Ck 1991
5/ 4/19	746900	8052600	S 2/4253	Nicholson R.	Snake Ck 1991
5/ 4/20	744900	8048100	S 3/4375	Nicholson R.	Snake Ck 1991
5/ 5/21	745200	8057600	S 2/4253	Nicholson R.	Snake Ck 1991
5/ 5/22	750600	8057000	S 2/4255	Nicholson R.	Snake Ck 1991
5/ 5/23	749000	8061100	S 2/4255	Nicholson R.	Snake Ck 1991
6/ 2/25	751500	8033900	S 4/4384	Nicholson R.	Snake Ck 1991
6/ 6/27	751100	8063900	S 1/4243	CalvertHills	Snake Ck 1991
6/ 6/28	754900	8064200	S 1/4243	CalvertHills	Snake Ck 1991
7/ 2/29	761700	8034000	S 4/4385	Nicholson R.	Snake Ck 1991

3

Appendix 3

INDICATOR MINERAL SAMPLING DATA

07-JUN-88

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A PROGRAM IN THE GASP SYSTEM TO
PRINT A LISTING OF A DATA SET

VERSION 4.0 AUG 1983.

DATA TITLE: McARTHUR BASIN SAMPLING/I.M. RESULTS 1983-85

LISTING OF ARCHIVAL INFORMATION FOR THE INPUT DATA

SOUTH NICHOLSON BASIN RECONNAISSANCE SAMPLING

SAMPLE NOs. 1080679, 680
1080683 - 1081300
1081306 - 326
DPO NOs. 21395, 21396
PERSONNEL: I.C.Colliver, D.A.Sims, B.E.Harvey
Reconnaissance drainage gravel sampling program,
aimed at a sampling density of about 1 : 20km2
Trap site selection and sample collection helicopter supported
Drainage samples sieved -2mm (generally 1 x 20kg bag per site)
Kraft packet -80mesh geochemical sample sieved on site from
active drainage sediment

CALVERT AREA INFILL/FOLLOW-UP AND RECONNAISSANCE EXTENSION

SAMPLE NOs. 1081327 - 1081341 (Karns infill/follow-up)
1081342 - 1081600 |
1081617 - 638 | (Reconnaissance infill
1081640 | and extension)
1081642 - 687 |
1081691 - 696 |
DPO NOs. 21397, 21398
PERSONNEL: I.C.Colliver, D.A.Sims, K.R.Alexander
Follow-up of positive results of reconnaissance sampling,
infill drainage sampling (aimed at increasing sample density
to about 1 : 12km2) and extension of coverage area
of reconnaissance drainage samplings
Trap site selection and sample collection helicopter supported
Drainage samples sieved -2mm (generally 1 x 20kg bag per site)
Kraft packet -80mesh geochemical sample sieved on site from
active drainage sediment

CALVERT RIVER CAMP 3/1985 FOLLOW-UP SAMPLING (September)

SAMPLE NOs. (1084785, 1084786 DPO 22026 geochem)
1084787 - 1084834 DPO,s 22023, 22024
PERSONNEL: I.C.Colliver, G.J.Bubner, J.H.Lew
Follow-up of positive results of previous drainage sampling in areas of EL's 1991, 4166 and ELA's 4496, 4504, and 4648
Selective 'loam' and rock chip sampling of ground recovered magnetic and radiometric airborne survey anomalies, DAEDALUS and airphoto features
Airborne geophysical survey anomaly, DAEDALUS feature and photofeature recovery, drainage trap site selection and sample collection helicopter supported
Loam samples composited of 5 bags of (-2mm) surficial soil, shallowly scraped over an area of several m2
Drainage samples sieved -2mm (1-5 x 20 kg bags per site)
Kraft packet -80mesh geochemical sample sieved on site from active drainage sediment

LABELS LEGEND

EAST, NORTH — A.M.G. coordinates (km) including zone

SAMTYPE — SAMPLE TYPE
coded 1 = drainage (1.2 = pan con.)
2 = loam
3 = rock
3.1 = outcrop
3.2 = float
3.3 = auger cuttings
3.4 = RD/PD "
3.5 = DD core

SAMKG — SAMPLE WEIGHT (kg)

IND1 — KIMBERLITIC INDICATOR MINERAL GRAINS OBSERVED
(1.CR = 1 chromite)
(1.PIC = 1 picroilmenite)

IND2 — INDICATOR MINERAL #2 OR OTHER MINERAL OF INTEREST

MICRO — NUMBER OF MICRODIAMONDS RECOVERED

********** INFORMATION ADDED BY CRUNCH **********

** COORDINATE TRANSFORMATION
THE LOCAL GRID VARIABLES EAST AND NORTH WERE TRANSFORMED TO AMG COORDINATE VARIABLES EASTAMG AND NORTHAMG IN ZONE 53

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THE FOLLOWING SELECTION CRITERIA WILL BE SATISFIED IN THIS RUN.

SAMPLES WITH
EASTAMG BETWEEN 739000.000 AND 765000.000
AND
NORTHAMG BETWEEN 8026000.000 AND 8036000.000
WILL BE SELECTED.

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	SAMKG	IND1	IND2	MICRO
1081070	742300	8026400	1	23.9	0	0	
1081077	743699	8027900	1	22.2	0	0	
1081078	742898	8031200	1	22.5	0	0	
1081081	743398	8031500	1	23.2	0	0	

NUMBERS THAT ARE CODED REPRESENT 'SPECIAL VALUES'.
THESE VALUES WILL BE EXCLUDED FROM ALL CALCUALTIONS IN THE
GASP SYSTEM.

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WE WILL NOW MAKE ANOTHER PASS THROUGH THE DATA.

THE FOLLOWING SELECTION CRITERIA WILL BE SATISFIED IN THIS RUN.

SAMPLES WITH
EASTAMG BETWEEN 724000.000 AND 760000.000
AND
NORTHAMG BETWEEN 8036000.000 AND 8068000.000
WILL BE SELECTED.

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	SAMKG	IND1	IND2	MICRO
1081107	725199	8042200	1	21.9	0	0	0
1081108	731898	8044300	1	23.8	0	0	0
1081109	730500	8044700	1	27	0	0	0
1081110	733898	8044600	1	25.1	0	0	
1081111	737699	8042200	1	22.2	0	0	
1081122	724199	8041500	1	19.4	0	0	0
1081123	729898	8044900	1	21.4	0	0	0
1081124	733398	8045500	1	19.5	0	0	0
1081125	736300	8041900	1	24.5	0	0	1
1081126	737500	8041700	1	20.2	1.PIC	0	1
1081460	757398	8067800	1	17.8	0	0	0
1081467	750101	8067200	1	23.2	0	0	0
1081468	749800	8064200	1	22.4	0	0	0
1081469	750300	8061300	1	20.5	0	0	
1081470	750300	8061300	1	24	0	0	1
1081471	750500	8062400	1	21.6	0	0	
1081472	749898	8061700	1	20.6	0	0	0
1081473	747800	8055100	1	21.8	0	0	1
1081474	751699	8053200	1	23.1	0	0	0
1081475	757898	8060300	1	21.2	0	0	1
1081481	748398	8055000	1	21	0	0	
1081482	752199	8053300	1	19.8	0	0	
1081483	758398	8061300	1	19.9	0	0	
1084822	748398	8055000	1	107.9	0	0	0
1084823	747898	8055000	1	131	1.CR	0	0
1084824	725000	8054000	2	113	0	0	1
1084825	759500	8049000	2	107.7	0	0	1
1084826	727000	8053700	2	107	0	0	0
1084827	759500	8049000	2	131.5	0	0	0
1084828	752699	8040300	2	118.6	1.CR	0	0
1084831	738800	8044300	2	106	0	0	0
1084833	742900	8036000	2	112.7	0	0	0
1084834	739199	8036200	2	112.2	0	0	2

END

NUMBERS THAT ARE CODED REPRESENT 'SPECIAL VALUES'. THESE VALUES WILL BE EXCLUDED FROM ALL CALCUALTIONS IN THE GASP SYSTEM.

07-JUN-88

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A PROGRAM IN THE GASP SYSTEM TO
PRINT A LISTING OF A DATA SET

VERSION 4.0 AUG 1983.

DATA TITLE: McARTHUR BASIN SAMPLING/I.M.RESULTS 1986-87

LISTING OF ARCHIVAL INFORMATION FOR THE INPUT DATA

CALVERT RIVER CAMP 2/1986 FOLLOW-UP SAMPLING (June)

SAMPLE NOs. 1312051 - 1312141
DPO NOs. 37606, 37608, 37609 (Belmont)
37610 (geochem), 37611 (petrology)
PERSONNEL: I.C.Colliver, B.J.Mayers
Follow-up of positive results of previous drainage sampling
Selective "loam" and rock chip sampling of ground recovered
aeromagnetic anomalies, DAEDALUS and airphoto features
Airborne geophysical survey anomaly, DAEDALUS feature and
photofeature recovery, drainage trap site selection and
sample collection helicopter supported
Loam samples composited of 2-5 bags (-2mm) surficial soil,
shallowly scraped over an area of several m2
Drainage samples sieved -2mm (2-5 x 20 kg bags per site)
Kraft packet -80mesh geochemical sample sieved on site
from active drainage sediment

HORSE CREEK CAMP 1/1987 SAMPLING PROGRAM (April-May)
incl. SNAKE CREEK GEMCO AUGER SAMPLING

SAMPLE NOs. 1312031 - 1312050
1312174 - 300
DPO NOs. 37624-37626

SAMPLE NOs. 1312301 - 1312311 [Gemco] SNC 5
1312312 - 320 3/4/14
1312321 - 326 3/2/8
1312327 - 335 SNC 2
1312336 - 357 SNC 1
1312358 - 362 2/4/7
1312363 - 369 5/4/20
DPO NOs. 37624, (37627 geochem)

PERSONNEL: I.C.Colliver, E.R.Manning, A.J.Hawthorne

Follow-up of positive results of previous exploration in the EL 1991 and EL 4989 areas, plus extension of reconnaissance drainage gravel sampling over the EL 4990 area
Airborne geophysical survey anomaly, DAEDALUS feature and photofeature recovery, drainage trap site selection and sample collection helicopter supported
Drainage samples sieved -2mm (1-5 x 20kg bags per site)
Kraft packet -80mesh geochemical sample sieved on site from active drainage sediment
Loam samples composited of 2-5 bags (-2mm) surficial soil, shallowly scraped over an area of several m2

Follow-up investigation of selected aeromagnetic anomalies and photofeatures by bedrock auger sampling on local grid lines of the ground magnetic surveys
Gemcodrill HT-7 operation, field logging and sampling supervision by G.R.Collins & M.Tudehope
Samples collected each comprise 1 bag (~20 kg) bottom-hole cuttings plus a Kraft packet of representative larger chips for identification of bedrock lithology
(Geochemical samples selectively split off cuttings samples)

LABELS LEGEND

EAST	A.M.G. coordinates (km) including zone
NORTH	
SAMTYPE	SAMPLE TYPE coded 1 = drainage (1.2 = pan con.) 2 = loam 3 = rock 3.1 = outcrop 3.2 = float 3.3 = auger cuttings 3.4 = RD/PD 3.5 = DD core
SAMKG	SAMPLE WEIGHT (kg)
IND1	KIMBERLITIC INDICATOR MINERAL GRAINS OBSERVED (1.CR = 1 chromite)
IND2	INDICATOR MINERAL #2 OR OTHER MINERAL OF INTEREST
MICROD	NUMBER OF MICRODIAMONDS RECOVERED

********** INFORMATION ADDED BY CRUNCH **********

** COORDINATE TRANSFORMATION
THE LOCAL GRID VARIABLES EAST AND NORTH WERE TRANSFORMED TO AMG COORDINATE VARIABLES EASTAMG AND NORTHAMG IN ZONE 53

****

THE FOLLOWING SELECTION CRITERIA WILL BE SATISFIED IN THIS RUN.

SAMPLES WITH
EASTAMG BETWEEN 724000.000 AND 755000.000
AND
NORTHAMG BETWEEN 8036000.000 AND 8064000.000
WILL BE SELECTED.

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	SAMKG	IND1	IND2	MICRO
1312088	746898	8052400	2	79.5	0	0	0
1312089	746800	8052500	3.2				
1312090	744800	8048100	2	72.8	0	0	0
1312091	749700	8061500	1	31.8	0	0	1
1312092	747000	8061300	1	27.4	0	0	0
1312093	745700	8061500	1	24.8	0	0	0
1312094	745500	8060800	1	25	0	0	0
1312095	746200	8057800	1	15.9	0	0	0
1312096	751100	8057100	1	20.3	0	0	0
1312097	751000	8057700	1	28.1	0	0	0
1312098	747000	8054700	1	20.3	0	0	2
1312099	747398	8054300	1	27.4	0	0	0
1312100	745898	8053400	1	24.7	0	0	0
1312101	746000	8054700	1	27.5	0	0	0
1312102	745101	8053100	1	25.3	0	0	0
1312103	748000	8052400	1	26.2	0	0	0
1312104	744898	8053500	1	25.8	0	0	0
1312105	747699	8052600	1	32.2	0	0	0
1312106	750398	8052100	1	21	0	0	0
1312107	751500	8052000	1	25.6	0	0	0
1312108	733800	8053800	2	39	0	0	0
1312112	725699	8042200	1	24	0	0	0
1312113	726199	8043200	1	24.8	0	0	0
1312114	735000	8042700	1	25.6	0	0	0
1312115	736199	8041600	1	69.2	0	0	0
1312116	737500	8042000	1	65.7	3.CR	0	2
1312117	735898	8040100	1	22.2	0	0	0
1312119	736101	8039400	1	20.6	0	0	0
1312121	736601	8039600	1	19.2	0	0	0
1312122	739699	8041000	1	23.2	0	0	0
1312123	737800	8042200	1	24.7	0	0	0
1312134	743000	8042700	2	27.2	0	0	0
1312135	742601	8040000	1	22	0	0	0
1312136	739699	8036700	2	73.6	0	0	0
1312137	739699	8037000	2	72.8	0	0	0
1312138	725199	8054300	2	77.8	0	0	1
1312036	737500	8041200	1	36	0	0	1
1312037	739000	8040600	1	27.4	0	0	0
1312038	740700	8040400	1	34.1	0	0	0
1312217	750500	8053900	2	39.9	0	0	0
1312218	746300	8044400	2	118.8	0	0	0
1312219	741800	8048000	2	112.7	0	0	0
1312220	738000	8050200	2	98.6	0	0	0
1312301	739500	8036500	3.3	19.8	0	0	0
1312302	739500	8036500	3.3	16.3	0	0	0
1312303	739500	8036500	3.3	19.6	0	0	0
1312304	739500	8036500	3.3	18	0	0	0
1312305	739500	8036500	3.3	15.3	0	0	0
1312306	739500	8036500	3.3	14.8	0	0	0
1312307	739500	8036500	3.3	17	0	0	0

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	SAMKG	IND1	IND2	MICRO
1312308	739500	8036500	3.3	18.1	0	0	0
1312309	739500	8036500	3.3	15.8	0	0	0
1312310	739500	8036500	3.3	18	0	0	0
1312311	739500	8036500	3.3	19.6	0	0	0
1312312	742900	8035900	3.3	13	0	0	0
1312313	742900	8035900	3.3	18	0	0	0
1312314	742900	8035900	3.3	16.3	0	0	0
1312315	742900	8035900	3.3	13.6	0	0	0
1312316	742900	8035900	3.3	15.2	0	0	0
1312317	742900	8035900	3.3	15.2	0	0	0
1312318	742900	8035900	3.3	16.7	0	0	0
1312319	742900	8035900	3.3	19.2	0	0	0
1312320	742900	8035900	3.3	16.8	0	0	0
1312321	735600	8040200	3.3	20	0	0	0
1312322	735600	8040200	3.3	19	0	0	0
1312323	735600	8040200	3.3	19.3	0	0	0
1312324	735600	8040200	3.3	17.3	0	0	0
1312325	735600	8040200	3.3	19.3	0	0	0
1312326	735600	8040200	3.3	14.5	0	0	0
1312327	752500	8051000	3.3	15.3	0	0	0
1312328	752500	8051000	3.3	12.5	0	0	0
1312329	752500	8051000	3.3	18.8	0	0	0
1312330	752500	8051000	3.3	16.7	0	0	0
1312331	752500	8051000	3.3	16.7	0	0	0
1312332	752500	8051000	3.3	15.8	0	0	0
1312333	752500	8051000	3.3	14.5	0	0	1
1312334	752500	8051000	3.3	17	0	0	0
1312335	752500	8051000	3.3	17.3	0	0	0
1312336	725200	8054300	3.3	16.8	0	0	0
1312337	725200	8054300	3.3	16.4	0	0	0
1312338	725200	8054300	3.3	9.6	0	0	0
1312339	725200	8054300	3.3	15	0	0	0
1312340	725200	8054300	3.3	17	0	0	1
1312341	725200	8054300	3.3	17.3	0	0	0
1312342	725200	8054300	3.3	17.1	0	0	0
1312343	725200	8054300	3.3	17.6	0	0	0
1312344	725200	8054300	3.3	19.4	0	0	0
1312345	725200	8054300	3.3	17.7	0	0	0
1312346	725200	8054300	3.3	18.2	0	0	1
1312347	725200	8054300	3.3	17.8	0	0	2
1312348	725200	8054300	3.3	17.7	0	0	0
1312349	725200	8054300	3.3	17.8	0	0	0
1312350	725200	8054300	3.3	18.2	0	0	0
1312351	725200	8054300	3.3	14	0	0	0
1312352	725200	8054300	3.3	16.5	0	0	0
1312353	725200	8054300	3.3	15.6	0	0	0
1312354	725200	8054300	3.3	14.8	0	0	0
1312355	725200	8054300	3.3	16.8	0	0	0
1312356	725200	8054300	3.3	19.1	0	0	0
1312357	725200	8054300	3.3	15.1	0	0	0

SAMPLE NO.	EASTAMG	NORTHAMG	SAMTYPE	SAMKG	IND1	IND2	MICRO
1312358	727000	8053700	3.3	19.3	0	0	0
1312359	727000	8053700	3.3	18.8	0	0	0
1312360	727000	8053700	3.3	20.2	0	0	0
1312361	727000	8053700	3.3	18.1	0	0	0
1312362	727000	8053700	3.3	18.2	0	0	1
1312363	744900	8048100	3.3	19.8	0	0	0
1312364	744900	8048100	3.3	16.2	0	0	0
1312365	744900	8048100	3.3	17	0	0	0
1312366	744900	8048100	3.3	14.8	0	0	0
1312367	744900	8048100	3.3	14.6	0	0	0
1312368	744900	8048100	3.3	16	0	0	0
1312369	744900	8048100	3.3	16.2	0	0	0

END

NUMBERS THAT ARE CODED REPRESENT 'SPECIAL VALUES'. THESE VALUES WILL BE EXCLUDED FROM ALL CALCUALTIONS IN THE GASP SYSTEM.

Appendix 4

GEOCHEMICAL ANALYSIS & PETROLOGY REPORTS

File DPO: Copy Ice

Central Mineralogical Services

39 Beulah Road
Norwood, S.A. 5067
Telephone 42 5659

Mr. I. C. Colliver
C.R.A. Exploration Pty. Ltd.
P.O. Box 39598
WINNELLIE / N.T. 5789

4th July, 1986

REPORT CMS 86/7/3

YOUR REFERENCE:	D.P.O. No. 37611
DATE RECEIVED:	3rd July, 1986
SAMPLE NOS.:	1312089
SUBMITTED BY:	I.C. Colliver
WORK REQUESTED:	Petrology

Copy to:
Chief Geologist
Information Services
C.R.A. Exploration Pty. Ltd.
P.O. Box 656
FYSHWICK / A.C.T. 2609

H.W. Fander, M. Sc.

CENTRAL MINERALOGICAL SERVICES

Date 4th July, 1986

SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

IDENTIFICATION
1312089
Weathered, Ferruginised Quartz Microgabbro

Job No. CMS 86/7/3 Date Received: 3.7.1986

Reference D.P.O. No. 37611

Sample No. 1312089

Nature of Sample: Hand Specimen

DESCRIPTION **SECTION No.** 56189

a. **Hand Specimen:**

Dark brown ferruginised, medium-grained ?igneous rock.

b. **Microscopic:**

This rock reflects marked weathering and secondary ferruginisation, but may be classified as a quartz microgabbro on the basis of relict textural and compositional features.

The rock consists essentially of limonite and optically ill-defined limonite-stained clays. Quartz is disseminated throughout and represents a primary phase defining a siliceous mesostasis, locally subgraphic with included (degraded, ferruginised) feldspar microlaths. Limonite and limonitic clays are extensively pseudomorphous after medium-grained feldspar laths and subordinate lath-like to subophitic pyroxene. Disseminated ovoid to irregular limonite clots represent degraded ?chloritic amygdales. Primary accessory magnetite is represented by hematitic ("martite") pseudomorphs.

Feldspar was clearly extensively phyllosilicate-altered prior to the secondary (weathering-induced) ferruginisation, and there is some microtextural evidence of pyroxene-replacive amphibole development ("uralitisation").

On the basis of relict textural features, this rock appears to represent a sub- to marginal (amygdaloidal) felsic-differentiated (siliceous-mesostasised) intrusive phase.

D. Cowan, B. Sc.

Copy CBS

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ANALABS
A division of Macdonald Hamilton Pty. Ltd.
Perth Head Office.
52 Murray Road Welshpool, Western Australia 6106.
Tel: (09) 458 7999, ~~458 7154~~ Telex: Analab AA92560.
P.O. Box 210 Bentley, W.A. 6102.

GDM:sc

15 July 1986

CRA Exploration Pty Ltd
P.O. Box 39598
WINNELLIE NT 5789

OUR REF : 15.8.01.44924
YOUR REF : DPO 37610
ATTENTION: Mr I. Colliver

Dear Sir

Herewith the results of the whole rock analysis of samples covered by the above DPO.

Because of the large amount of work passing through our ICP at this time we have changed the methods used to that of XRF so that we can maintain a smooth output of results for you. We realise that on a cost basis the XRF analysis for trace elements is more expensive than ICP and as a consequence have discounted the XRF trace work at 50%.

SAMPLE	1312001	1312002	1312003	1312004	1312005	1312006	1312007	1312089
Al_2O_3	1.45	5.00	3.50	4.15	5.55	4.80	3.10	16.2
SiO_2	10.0	44.5	29.6	89.9	88.0	90.1	93.7	40.4
TiO_2	0.08	0.55	0.37	0.26	0.24	0.23	0.19	1.60
T Fe_2O_3	0.80	7.50	4.80	2.05	2.00	1.40	1.10	34.1
MnO	0.04	0.15	0.10	0.02	0.01	0.01	0.01	0.03
CaO	26.5	4.30	15.3	0.03	0.02	0.02	0.02	0.10
K_2O	0.45	1.75	1.35	0.46	0.41	0.46	0.35	0.14
MgO	18.0	19.5	16.3	0.11	0.11	0.09	0.05	0.05
Na_2O	0.045	0.245	0.120	0.015	0.010	0.015	0.025	0.010
P_2O_5	0.253	0.487	0.267	0.023	0.030	0.039	0.018	0.078

If you have any queries, feel free to contact the undersigned at Perth on (09)458 7999.

Yours faithfully
ANALABS - A Division of
Macdonald Hamilton and Co Pty Ltd

G.D. MOORE
Operations Manager

RECEIVED
10 JUL 1986

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ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.
52 Murray Road, Welshpool, W.A. 6106
Phone (09) 458 7999
Telex AA92560

ANALYTICAL REPORT No. ~~15.8.01.44924~~

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

CRA Exploration Pty Ltd
PO Box 39598

WINNELLIE
NT 5789

ORDER No.: 37610
PROJECT:
DATE RECEIVED: ~~07/07/86~~
RESULTS REQUIRED: ASAP

No. OF PAGES OF RESULTS: 2
DATE REPORTED: 15/07/86
No. OF COPIES: 1
TOTAL No. OF SAMPLES: 8

STATE OF SAMPLES:

REF BELOW	SAMPLE NUMBERS	PRE-TREATMENT: DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	ANALYSIS: REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	1312001/7				1				SiO2,TiO2,Al2O		408
RD	1312089		1	3	2/4				Fe2O3,CaO,MgO		408
									K2O,MnO		408
									Na2O		104
									P2O5		402
									Cr,Sr,Ba,Y,La		401
									Ce,Zr,Nb,Th,V		401
									Cu,Zn,Ni,Co		101

RESULTS TO: as above
I C Colliver

RESULTS TO:

REMARKS

RECEIVED
18 JUL 1986

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemicals means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscelloneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.44924	15/07/86	37610	1 OF 2

TUBE No.	SAMPLE No.	V	Cr	Co	Ni	Cu	Zn	Sr	Y	Zr
1	1312001	15	60	10	100	15	25	75	x	25
2	1312002	45	930	60	740	60	190	460	15	130
3	1312003	45	450	40	315	50	45	460	9	65
4	1312004	35	110	5	10	10	10	30	20	210
5	1312005	45	140	5	15	10	10	35	20	180
6	1312006	30	20	x	10	5	5	35	15	230
7	1312007	20	15	x	15	5	5	25	10	190
8	1312089	550	340	5	35	25	20	25	20	80
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	5	5	5	5	5	5	5	5
24	DIGESTION									
25	METHOD	401	401	101	101	101	101	401	401	401

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.44924	15/07/86	37610	2 OF 2

TUBE No.	SAMPLE No.	Nb	Ba	La	Ce	Th				
1	1312001	3	75	10	20	4				
2	1312002	240	1850	210	280	80				
3	1312003	95	1450	130	170	30				
4	1312004	9	110	25	40	5				
5	1312005	5	90	25	55	6				
6	1312006	5	100	25	60	x				
7	1312007	3	80	25	45	x				
8	1312089	10	95	100	70	15				
9										
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
23	DETECTION	3	10	10	10	4				
24	DIGESTION									
25	METHOD	401	401	401	401	401				

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.44924	15/07/86	37610	OF

TUBE No.	SAMPLE No.		Total	StdDev	Min	Mean	Max-->	(Page	Line	Lab£)
1	V/401		8	182	15	98	550	1	8	35669
2	Cr/401		8	313	15	258	930	1	2	35663
3	Co/101		8	22	0	15	60	1	2	35663
4	Ni/101		8	258	10	155	740	1	2	35663
5	Cu/101		8	21	5	22	60	1	2	35663
6	Zn/101		8	62	5	38	190	1	2	35663
7	Sr/401		8	196	25	143	460	1	2	35663
8	Y/401		8	7	0	13	20	1	4	35665
9	Zr/401		8	75	25	138	230	1	6	35667
10	Nb/401		8	84	3	46	240	2	2	35663
11	Ba/401		8	729	75	481	1850	2	2	35663
12	La/401		8	71	10	68	210	2	2	35663
13	Ce/401		8	88	20	92	280	2	2	35663
14	Th/401		8	26	0	17	80	2	2	35663
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER _____

I.C.C.

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Pilbara Laboratories

A division of Macdonald Hamilton & Co. Pty. Ltd.
(Incorporated in New South Wales)

4 MacAdam Place
Balcatta
Western Australia 6021
All Correspondence
To:— P.O. Box 261
Tuart Hill, W.A. 6060

Telephone: (09) 344 2411
Telex: AA 93837
Cables: Pilbaralab — Perth

Analytical Report

Cover Sheet

RECEIVED - 6 NOV 1985

CRA EXPLORATION PTY LTD

Submission Date: October 14, 1985
Client's Order: DPO 22026
Project:
Locality:
Sample Type: Rock

Report Code: PE 15141
Report Date: November 4, 1985
Report Comprises: 3 data sheets

Distribution:
Winnellie Office.
Fyshwick Office.

DETERMINATION	ANALYTICAL TECHNIQUE	PRECISION— ACCURACY	DETECTION LIMIT
Na2O MgO P2O5	ICP	prec. ± 10%	70,20,200
Al2O3 SiO2	ICP	prec. ± 10%	0.04%,0.2%
K2O CaO TiO2	ICP	prec. ± 10%	600,70,30
V Cr MnO Fe2O3	ICP	prec. ± 10%	5,50,30,300
Co Ni Cu Zn	ICP	prec. ± 10%	5,10,5,5
Ga Y Zr Nb	ICP	prec. ± 10%	1,1,5,20
Ag Ba La Ce	ICP	prec. ± 10%	5,5,5,15
Th(1)	ICP	prec. ± 10%	10
Th(2) U	XRF	prec. ± 10%	4,3

KEY

ICP: INDUCTIVELY COUPLED PLASMA EMISSION SPECTROSCOPY
AAS: ATOMIC ABSORBTION SPECTROPHOTOMETRY
UVV: UV-VISIBLE SPECTROPHOTOMETRY
COL: COLORIMETRY
F: FLUORIMETRY
L: LECO FURNACE ANALYSIS
SIE: SPECIFIC ION ELECTRODE ANALYSIS
PT: PRECISE TITRATION INSTRUMENTATION
CCA: CLASSICAL CHEMICAL ANALYSIS
FA: FIRE ASSAY
SNR: SAMPLE NOT RECEIVED
—: ANALYSIS NOT REQUESTED
IS: INSUFFICIENT SAMPLE
DTF: DATA TO FOLLOW
DSP: DATA SENT PREVIOUS

COMMENT: Data in ppm unless otherwise stated.

THIS LABORATORY IS REGISTERED BY THE NATIONAL ASSOCIATION OF TESTING AUTHORITIES AUSTRALIA. THE TESTS REPORTED HEREIN HAVE BEEN PERFORMED IN ACCORDANCE WITH ITS TERMS OF REGISTRATION.

REGISTERED LABORATORY NUMBER 1076

Pilbara Laboratories
A division of Macdonald Hamilton & Co. Pty. Ltd.
(Incorporated in New South Wales)

Analytical Report

Data Sheet

Report Code: PE 15141

Sample Prefix:

REGISTERED LABORATORY
NUMBER 1076
4 MacAdam Place, Balcatta,
Western Australia, 6021

SAMPLE	Na2O%	MgO%	Al2O3%	SiO2%	P2O5	K2O%	CaO	TiO2%	V
	695	1580	13.2	73.0	916	9.62%	555	3420	44
	199	682	1.85	93.5	1.43%	1320	1.05%	638	10
	199	3930	13.4	35.5	2410	8110	1180	1.37%	457
	685	2.06%	8.19	68.8	352	3.13%	4.41%	4960	80
	1930	1.89%	11.2	73.2	1000	1.37%	7050	5450	102
	1910	1.70%	17.0	66.4	586	4.17%	1110	6850	67
	2050	12.1%	10.8	52.6	722	2.59%	9580	4720	57
	1430	1.83%	21.0	59.4	614	5.05%	811	8270	122

THE DATA REPORTED HERE COMPRISE AN AUTHENTIC NATA DOCUMENT ONLY WHEN ACCOMPANIED BY THE FORMAL COVER SHEET

Data in ppm unless otherwise stated.

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Pilbara Laboratories

A division of Macdonald Hamilton & Co. Pty. Ltd.
(Incorporated in New South Wales)

NATA

Analytical Report

Data Sheet

Report Code: PE 15141

Sample Prefix:

REGISTERED LABORATORY
NUMBER 1076
4 MacAdam Place, Balcatta,
Western Australia, 6021

SAMPLE	Cr	MnO	Fe2O3	Co	Ni	Cu	Zn	Sn	Y
[illegible]	<50	183	2.08%	18	10	30	34	71	18
[illegible]	<50	122	4280	52	<10	114	<5	486	78
[illegible]	193	1050	39.6%	57	195	181	275	44	31
[illegible]	<50	418	4.51%	20	17	29	28	84	24
[illegible]	<50	141	4.92%	30	22	18	54	194	8
[illegible]	<50	167	4.64%	23	32	30	31	101	27
[illegible]	<50	390	4.34%	22	39	17	33	127	23
[illegible]	<50	231	5.16%	18	33	40	47	166	34

THE DATA REPORTED HERE COMPRISE AN AUTHENTIC NATA DOCUMENT ONLY WHEN ACCOMPANIED BY THE FORMAL [illegible]

Data in ppm unless otherwise stated.

Pilbara Laboratories
A division of Macdonald Hamilton & Co. Pty. Ltd.
(Incorporated in New South Wales)

Analytical Report

Data Sheet

Report Code: PE 15141

Sample Prefix:

REGISTERED LABORATORY
NUMBER 1076
4 MacAdam Place, Balcatta,
Western Australia, 6021

SAMPLE	Zr	Nb	Ag	Ba	La	Ce	Th(1)	Th(2)	U
1084785	271	<20	<5	646	37	64	19	35	<3
1084786	20	<20	<5	442	27	54	19	25	60
1084830	181	<20	<5	419	22	38	20	--	--
968281	124	<20	<5	1140	34	50	12	--	--
968282	104	<20	<5	1140	36	64	24	--	--
970263	259	<20	<5	424	49	98	29	--	--
970271	194	<20	<5	430	40	76	25	--	--
970161	180	<20	<5	614	54	93	18	--	--

THE DATA REPORTED HERE COMPRISE AN AUTHENTIC NATA DOCUMENT ONLY WHEN ACCOMPANIED BY THE FORMAL COVER SHEET

Data in ppm unless otherwise stated.

TN

17°28'

17°30'

17°35'

17°37'

17°40'

17°45'

17°50'

137°14'

137°24'

137°27'

137°20'

137°15'

137°30'

137°07'

SNC 1

SNC 2

SNC 3

SNC 4

SNC 5

SNC 6

SNC 7

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

LEGEND

Boundary of EL 1991 (1985-1986)

Boundary of EL 1991 (1983-1985)
(This is also boundary of Airborne Survey)

SNC 7 — Centre of Aeromagnetic Anomaly from Individual Flight Lines

23 — Daedalus Anomaly

2 1 0 2 4 6 8 10 12 KM

UPDATED AUGUST 1985 / 1986

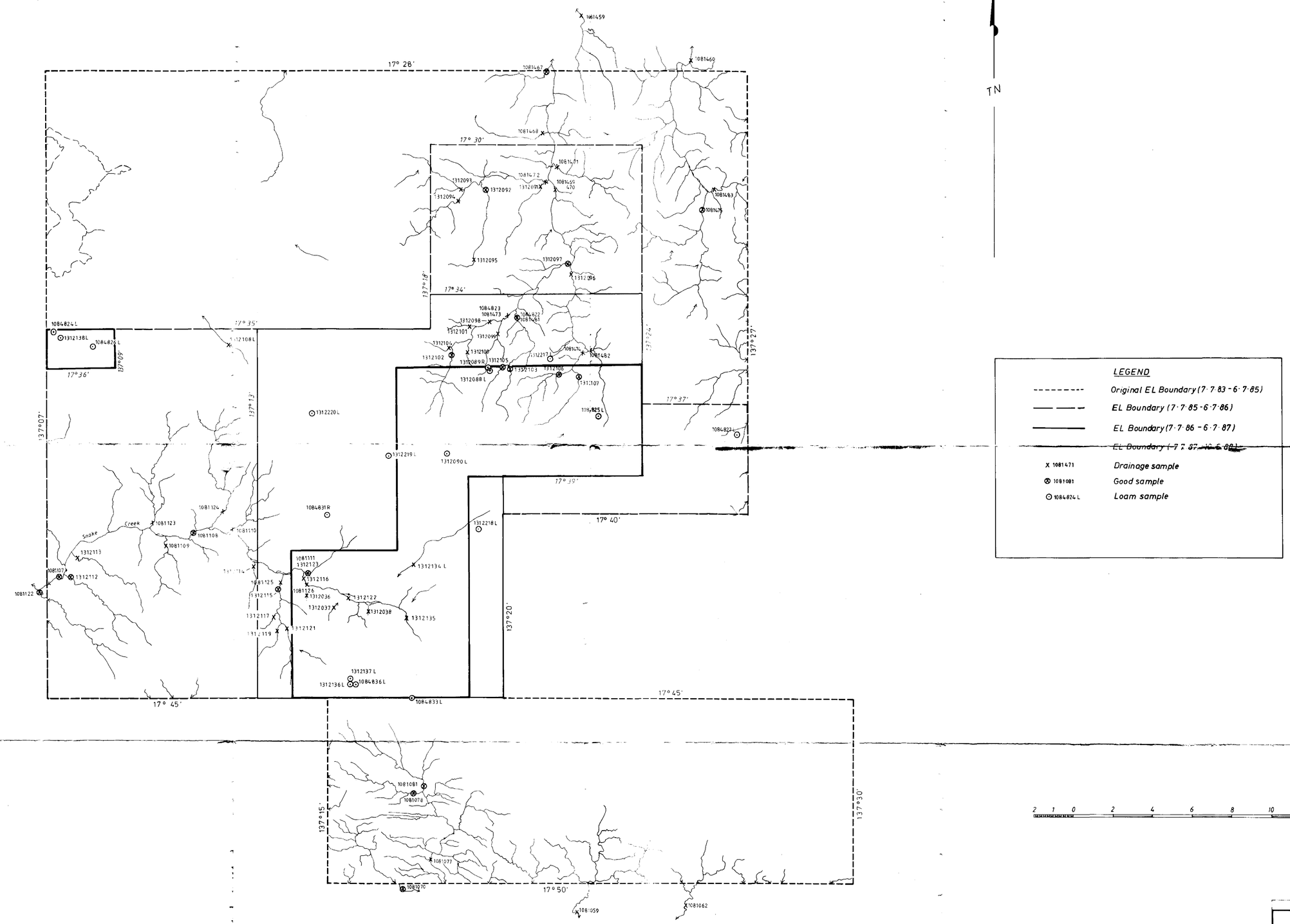
CRA EXPLORATION PTY LIMITED

SNAKE CREEK EL 1991

AEROMAGNETIC & DAEDALUS ANOMALY LOCATION PLAN

REFERENCE SE 53-8 CALVERT HILLS	
SCALE 1: 100,000	DATE MARCH 1985
AUTHOR G J B	REPORT 15229
DRAWN SRJ	PLAN No NTd 3874

88/249A



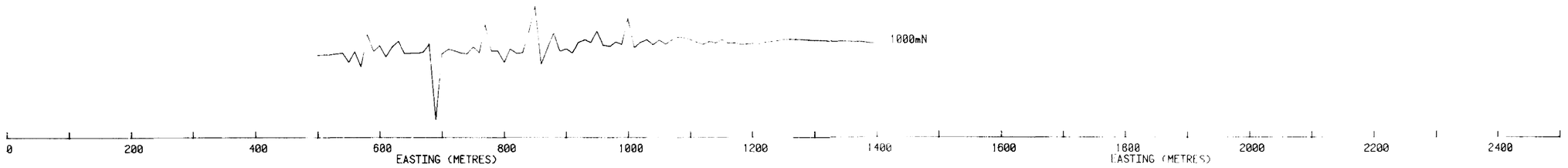
CRA EXPLORATION PTY LIMITED

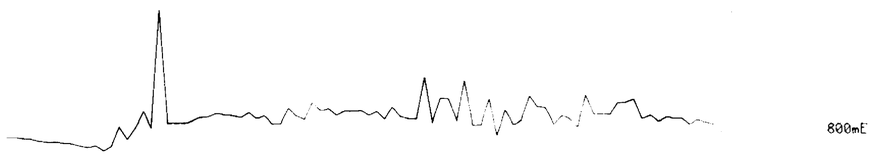
SNAKE CREEK EL 1991

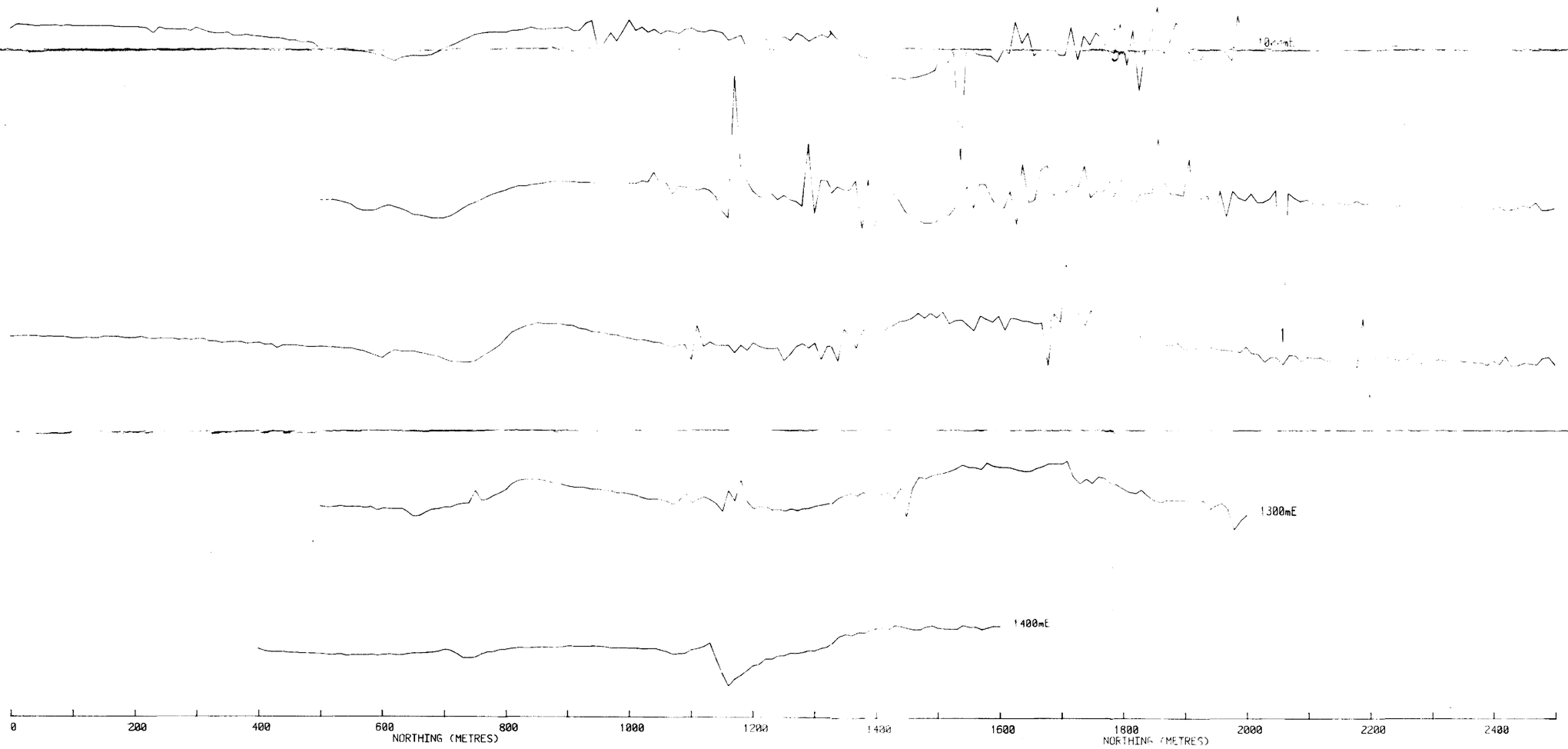
SAMPLE LOCATION PLAN

REFERENCE SE53-8 CALVERT HILLS	
SCALE 1:100,000	DATE JULY 1985/86/87/88
AUTHOR ICC	REPORT 15229
DRAWN SRJ	PLAN No NTd 4020

CR88/249A







Airborne survey : SNAKE CREEK
Date flown : JUNE 1984
Sheet reference : SNC4

1:100 000 Sheet : NICHOLSON RIVER 636

Magnetometer : MP3 #403229;507263
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station map : MP3 #403208,403229

Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : SEP85;10,13-06-86
Operator : J.LEW;B.J.MAYERS

Scale-horizontal : 1:5000
-vertical : 40 nT/CM

CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L. 1991

GROUND MAGNETIC PROFILES

ANOMALY SNC1

REF	CALVERT HILLS SE53-8		
SCALE	1:5000		
AUTHOR	BJM	REPORT	15229
DATE	JULY 1986	PLAN No	NTd 4173

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.52004	10/07/87	37627	2 OF 6

TUBE No.	SAMPLE No.	Na2O	MgO	Al2O3%	SiO2%	P2O5	K2O	CaO	TiO2	V
1	1312365	71	428	7.4	74.9	286	1380	165	3500	237
2	1312367	80	458	11.4	69.4	1300	1230	141	5770	205
3	1312368	213	672	13.9	68.1	351	1460	224	7660	201
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	70	15	0.1	0.1	200	600	50	10	2
24	DIGESTION									
25	METHOD	204	204	204	204	204	204	204	204	201

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.52004	10/07/87	37627	3 OF 6

TUBE No.	SAMPLE No.	Cr	Mn	Fe2O3%	Co	Ni	Cu	Zn	Sr	Y
1	1312301	280	33	16.10	x	16	61	19	16	17
2	1312302	236	28	4.69	x	26	41	18	14	18
3	1312303	410	52	17.80	5	27	133	23	4	5
4	1312307	274	148	22.20	47	93	182	66	18	13
5	1312308	342	749	16.40	47	133	269	109	50	15
6	1312312	104	59	3.11	x	13	12	11	14	10
7	1312313	140	62	4.30	x	18	13	11	14	10
8	1312314	105	53	3.20	x	13	14	14	12	13
9	1312315	75	40	2.70	x	x	8	7	11	9
10	1312316	81	56	4.22	x	16	9	8	21	8
11	1312321	150	36	5.15	x	13	11	8	49	7
12	1312322	119	28	2.44	x	16	8	9	43	5
13	1312327	69	28	1.77	x	x	12	16	28	11
14	1312328	72	27	1.76	x	16	13	27	29	11
15	1312329	65	33	1.49	x	17	12	16	29	13
16	1312330	66	28	1.67	x	14	12	20	26	11
17	1312331	66	26	1.83	x	x	12	17	26	10
18	1312337	203	101	21.00	7	24	16	14	86	23
19	1312339	220	32	33.40	5	15	8	13	37	12
20	1312343	204	47	18.70	x	20	18	9	42	19
21	1312345	156	33	10.20	x	19	11	12	54	17
22	1312349	230	42	16.70	x	15	12	8	23	15
23	1312359	239	27	30.70	5	16	5	x	11	9
24	1312360	214	100	28.70	6	19	5	x	8	9
25	1312361	205	31	7.22	x	23	5	9	10	6

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.52004	10/07/87	37627	3 OF 6

TUBE No.	SAMPLE No.	Cr	Mn	Fe2O3%	Co	Ni	Cu	Zn	Sr	Y
1	1312301	280	33	16.10	x	16	61	19	16	17
2	1312302	236	28	4.69	x	26	41	18	14	18
3	1312303	410	52	17.80	5	27	133	23	4	5
4	1312307	274	148	22.20	47	93	182	66	18	13
5	1312308	342	749	16.40	47	133	269	109	50	15
6	1312312	104	59	3.11	x	13	12	11	14	10
7	1312313	140	62	4.30	x	18	13	11	14	10
8	1312314	105	53	3.20	x	13	14	14	12	13
9	1312315	75	40	2.70	x	x	8	7	11	9
10	1312316	81	56	4.22	x	16	9	8	21	8
11	1312321	150	36	5.15	x	13	11	8	49	7
12	1312322	119	28	2.44	x	16	8	9	43	5
13	1312327	69	28	1.77	x	x	12	16	28	11
14	1312328	72	27	1.76	x	16	13	27	29	11
15	1312329	65	33	1.49	x	17	12	16	29	13
16	1312330	66	28	1.67	x	14	12	20	26	11
17	1312331	66	26	1.83	x	x	12	17	26	10
18	1312337	203	101	21.00	7	24	16	14	86	23
19	1312339	220	32	33.40	5	15	8	13	37	12
20	1312343	204	47	18.70	x	20	18	9	42	19
21	1312345	156	33	10.20	x	19	11	12	54	17
22	1312349	230	42	16.70	x	15	12	8	23	15
23	1312359	239	27	30.70	5	16	5	x	11	9
24	1312360	214	100	28.70	6	19	5	x	8	9
25	1312361	205	31	7.22	x	23	5	9	10	6

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.52004	10/07/87	37627	4 OF 6

TUBE No.	SAMPLE No.	Cr	Mn	Fe2O3%	Co	Ni	Cu	Zn	Sr	Y
1	1312365	188	94	13.00	x	18	10	8	14	7
2	1312367	167	267	12.20	x	23	21	32	22	11
3	1312368	170	81	10.90	x	15	21	21	23	13
4										
5										
6										
7										
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11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	10	15	0.01	5	10	5	5	1	1
24	DIGESTION									
25	METHOD	201	201	204	201	201	201	201	201	201

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.52004	10/07/87	37627	5 OF 6

TUBE No.	SAMPLE No.	Zr	Nb	Ba	La	Ce	Th	LOI%		
1	1312301	206	10	142	27	40	12	8.57		
2	1312302	244	14	191	20	28	11	8.79		
3	1312303	203	13	111	x	x	12	8.84		
4	1312307	160	13	151	6	15	10	8.76		
5	1312308	185	13	478	21	197	x	8.65		
6	1312312	84	x	54	7	20	x	3.11		
7	1312313	91	x	47	8	21	x	3.76		
8	1312314	113	x	52	10	21	x	4.57		
9	1312315	96	x	38	5	x	x	2.92		
10	1312316	85	x	44	13	23	x	2.60		
11	1312321	87	x	79	37	61	x	3.72		
12	1312322	72	x	76	34	52	x	3.22		
13	1312327	111	x	102	24	36	x	5.30		
14	1312328	120	x	121	24	40	x	5.47		
15	1312329	113	x	134	27	44	x	5.24		
16	1312330	109	x	155	24	45	x	5.26		
17	1312331	107	x	104	22	33	x	5.06		
18	1312337	184	14	82	26	54	20	6.85		
19	1312339	168	13	37	16	33	27	7.99		
20	1312343	126	x	90	20	39	11	5.58		
21	1312345	169	x	61	20	35	16	5.74		
22	1312349	152	x	52	13	23	16	7.59		
23	1312359	143	x	21	10	20	30	6.56		
24	1312360	126	x	22	7	17	33	6.39		
25	1312361	88	x	24	12	22	12	3.51		

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	15.8.01.52004	10/07/87	37627	6 OF 6

TUBE No.	SAMPLE No.	Zr	Nb	Ba	La	Ce	Th	LOI%		
1	1312365	96	x	32	15	28	11	3.68		
2	1312367	99	x	67	19	39	10	5.63		
3	1312368	119	x	58	16	24	10	5.96		
4										
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7										
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9										
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11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION	5	10	5	5	15	10	0.01		
24	DIGESTION									
25	METHOD	201	201	201	201	201	201	204		

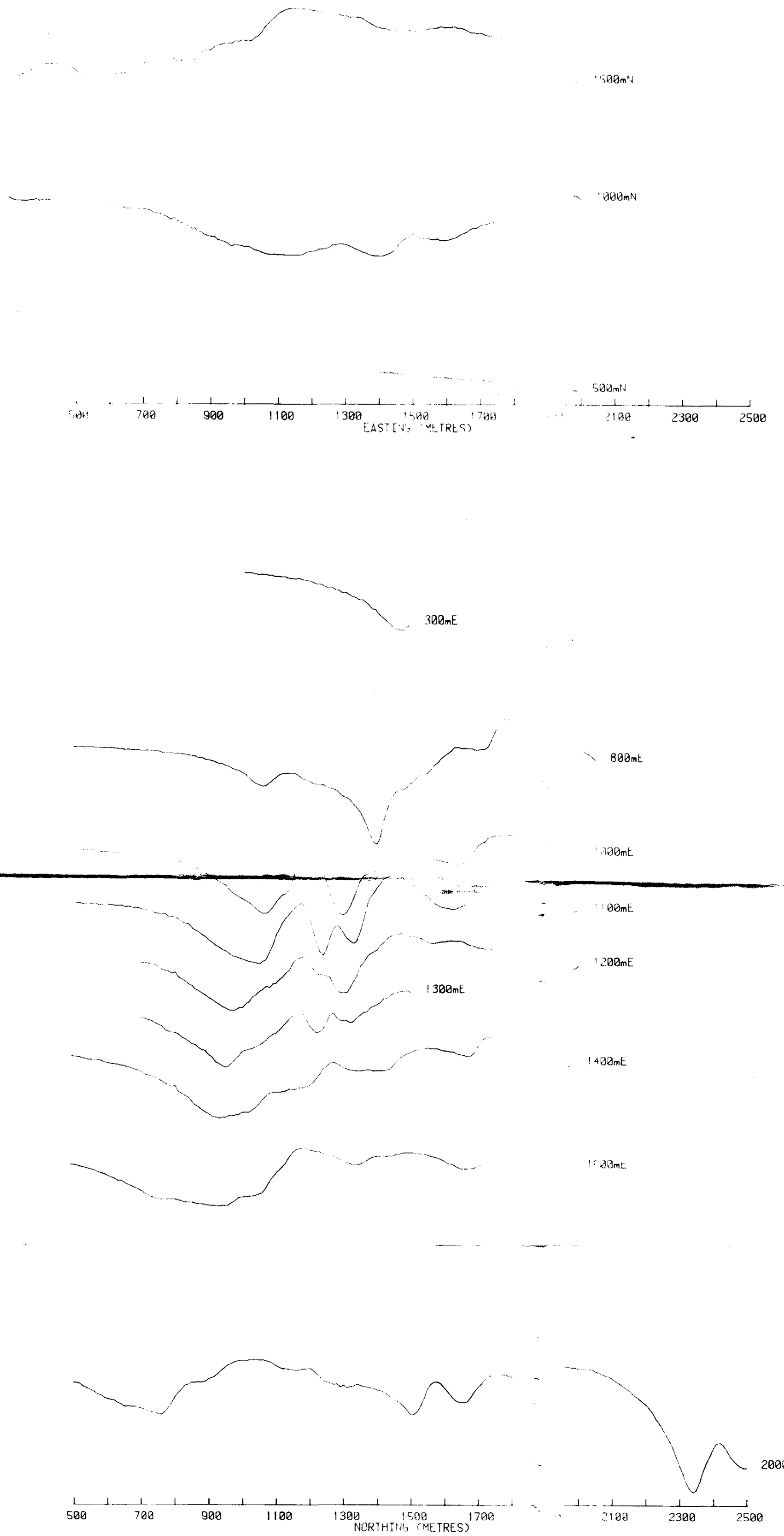
Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

Appendix 5

GEMCODRILL AUGER LOGS

A'mas anomalies SNC 1, SNC 2 & SNC 5,
Features 2/4/7, 3/2/8, 4/3/14 & 5/4/20



Airborne survey : SNAKE CREEK
Date flown : JUNE 1984
Sheet reference : SNC8

1:100 000 Sheet : NICHOLSON RIVER 636

Magnetometer : MP3 #403208,507263
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station mag: MP3 #403208;403229

Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : SEP85;09,13-06-86
Operator : JL;ICC,BJM

Scale-horizontal: 1:10000
-vertical : 50 nT/CM

CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L. 1991

GROUND MAGNETIC PROFILES

ANOMALY SNC5

REF	CALVERT HILLS SE53-8	
SCALE	1:10000	
AUTHOR	BJM	REPORT 15229
DATE	JULY 1986	PLAN No NTd 4177

C.R.A. EXPLORATION PTY. LIMITED

PROJECT SNAKE CREEK : EL 1991.

SNC 1. DRILL CUTTINGS LOG

CO-ORDINATES (AMG) GRID ORIGIN 725·2E 8054·3N — DRILLERS M. TUDEHOPE — COMMENCED 18/5/87 — DEPTH — HOLE No.

LINE (S) 1100E — BEARING 000 (MAG) — DRILL TYPE GEMCO AUGER — COMPLETED 20/5/87 — CASING LEFT — DPO No(s)

COLLAR LINE	COLLAR ORDINATE		DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	ASSAY VALUES SCINT
1100E	650N		0	2 m	Yellow-brown sand, weathered sandstone nodules, ferruginous sandstone.						
			2	4	Red-brown sand & ferruginous sandstone nodules.						
			4	5·1	Light orange-brown sand, weathered sandstone, basal bottom.	Feldspathic sandstone, ferruginous in parts.	1312357	4	5·1	30	40
		X									
1100E	700N		0	2	Yellow sand, ferruginous SST gravel & laterite.						
			2	4	Weathered sandstone gravel (orange-brown clay & sand.						
			4	6	As above.	Feldspathic, ferruginous, fine grained sandstone.	1312356	4	6	30	40
		X									
1100E	750N		0	2	Yellow sand, orange-brown sand, ferruginous SST. & laterite nodules.						
			2	4	Yellow-brown weathered sandstone.						
			4	5·1	As above.	Feldspathic & ferruginous fine grained sandstone.	1312355	4	5·1	70	35
		X									
1100E	800N		0	2	Yellow sand with pisolites, becoming red-brown sand with ferruginous sandstone nodules.						
			2	4	Red-brown weathered sandstone with ferruginous nodules.						
			4	4·5	Yellow-brown weathered SST.	Feldspathic SST. as above.	1312354	2	4·5	75	35
		X									
1100E	850N		0	2	Yellow sand with pisolites, becoming red-brown with weathered sandstone						
			2	2·4	Red-brown sand with weathered sandstone.	Feldspathic SST. as above.	1312353	0	2·4	35	30
		X									
1100E	1000N		0	2	Yellow sand with pisolites.						
			2	4	Red-brown sand, ferruginous SST. and laterite nodules.						
			4	4·2	As above.	Fine grained feldspathic SST.	1312342	2	4·2	25	30
		X									
1100E	1050N		0	2	Yellow sand with laterite, becoming red-brown with weathered SST. & laterite.						
			2	3	Red brown sand, becoming light yellow-brown, with weathered SST. & laterite.	Fine grained feldspathic SST.	1312341	2	3	25	40
		X									
1100E	1100N		0	2	Red-brown sand, ferruginous SST. & laterite nodules.						
			2	2·4	As above, into weathered sandstone.	Ferruginous, feldspathic SST.	1312340	0	2·4	200	40
		X									
1100E	1150N		0	2·2	Red sand, ferruginous sandstone & laterite nodules.	Very fine grained, ferruginous feldspathic sandstone.	1312339	0	2·2	800	95
		X									
1100E	1200N		0	1·1	Red-brown sandstone & laterite nodules	Surface laterite, ? lateritised sandstone?	1312338	0	1·1	100	80
		X									
1100E	1250N		0	2	Red-brown sand, ferruginous sandstone & lateritic nodules.						
			2	3·3	Red-brown sand, weathered SST., silicified SST & lateritic gravel.	Ferruginous feldspathic SST and lateritic gravel.	1312337	2	3·3	150	80
		X									

SUMMARY AND All holes into lateritic material and feldspathic sandstone. Some elevated magnetic

LOGGED BY ERM — DATE MAY 1987

SHEET 1 OF 9

C.R.A. EXPLORATION PTY. LTD.

PROJECT SNAKE CREEK : EL 1991

SNC 1 DRILL CUTTINGS LOG

CO-ORDINATES (AMG) GRID ORIGIN 725·2E 8054·2N DRILLERS M. TUDEHOPE COMMENCED 18/5/87 DEPTH HOLE No.

LINE (S) 1100E BEARING 000 MAG DRILL TYPE GEMCO AUGER COMPLETED 20/5/87 CASING LEFT DPO No(s)

COLLAR LINE	COLLAR ORDINATE		DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	ASSAY VALUES SCINT
1100E	1300N		0	2	Red ferruginous sand, sandstone & pisolite gravel.						
			2	4	Red sand, silicified & ferruginous SST. nodules.						
			4	5	As above, to hard feldspathic sandstone bottom.	Feldspathic / ferruginous sandstone.	1312336	4	5	180	80
		X									
1100E	1350N		0	2	Red-brown sand, ferruginous SST & laterite nodules.						
			2	4	As above.	Fine grained feldspathic SST & lateritic material.	1312343	2	4	175	40
		X									
1100E	1400N		0	1·6	Red sand, ferruginous sandstone & lateritic gravel.	Lateritised sandstone (feldspathic?)	1312344	0	1·6	50	50
		X									
1100E	1450N		0	2	Red sand, ferruginous SST. gravel & laterite nodules.						
			2	2·9	As above, to sandstone bottom.	Angular quartz sandstone, and laterite.	1312345	0	2·9	30	50
		X									
1100E	1500N		0	0·9	Ferruginous sandstone gravel and laterite: white sand.	Laterite with enclosed quartz grains.	1312346	0	0·9	200	60
		X									
1100E	1550N		0	1	Red sand, ferruginous SST. & lateritic gravel.	Laterite / Lateritised SST.	1312347	0	1	200	60
		X									
1100E	1600N		0	1·2	Red sand + laterite, to hard sandstone bottom.	Laterite / Lateritised SST; quartz pebble (may be in conglomerate).	1312348	0	1·2	200	45
		X									
1100E	1650N		0	2	Red sand, ferruginous sandstone & laterite.		1312349	2	3·7	250	70
			2	3·7	As above, to hard sandstone bottom.	Ferruginous, feldspathic sandstone (fine grained)					
		X									
1100E	1700N		0	2	Orange-brown sand, weathered ferruginous SST. & laterite.	Laterite / lateritised sandstone?	1312350	0	2	175	50
		X									
1100E	1750N		0	2	Red sand with ferruginous SST. / laterite.	Lateritised feldspathic SST.	1312351	0	2	125	35
		X									
1100E	1800N		0	1·8	Orange-brown sand, ferruginous sandstone / laterite.	Lateritised feldspathic SST.	1312352	0	1·8	55	45

SUMMARY AND SPECIAL COMMENTS All holes into feldspathic sandstone / lateritised sandstone / laterite at shallow depths

LOGGED BY E.R.M. DATE MAY 1987

SHEET 2 OF 9

SNC 2 DRILL CUTTINGS LOG

CO-ORDINATES (AMG) GRID ORIGIN 752.5E 8051.0N DRILLERS M. TUDEHOPE / G. COLLINS COMMENCED 16/5/87 DEPTH HOLE No.

LINE (S) 1000E BEARING 000 MAG DRILL TYPE GEMCO AUGER COMPLETED 18/5/87 CASING LEFT DPO No(s)

COLLAR LINE	COLLAR ORDINATE		DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	SCINT	ASSAY VALUES
1000E	550N		0	2	Red-brown ferruginous SST. & laterite gravel							
			2	4	White weathered SST.	Fine grained feldspathic SST, rounded grains, mod well sorted, pale yellow-brown.	1312333	2	4	30	43	
1000E	625N		0	2	Red & white clay, ferruginous SST. & laterite nodules.							
			2	4	Yellow-white weathered sandstone.							
			4	6	As above.							
			6	7.5	Weathered yellow-brown sandstone.	As above.	1312332	6	7.5	35	35	
1000E	700N		0	2	Ferruginous sandstone and laterite gravel, to light brown clay & sand.							
			2	4	Beige cuttings & clay, to weathered sandstone chips.							
			4	4.6	Weathered to fresh fine grained SST.	As above.	1312327	2	4.6	35	50	
1000E	750N		0	2	Light brown sand, ferruginous SST. & laterite gravel.							
			2	4	Brown/orange clay & weathered SST.							
			4	5	Brown & beige clays — fine grained sandstone	As above.	1312328	4	5	15	50	
1000E	800N		0	2	Light brown/orange sand, ferruginous SST. & laterite gravels.							
			2	4	Light brown clay & weathered SST.							
			4	5.6	Weathered to fresh fine grained SST.	As above	1312329	4	5.6	35	50	
1000E	850N		0	2	Light brown sand, ferruginous sandstone & laterite gravel							
			2	4	Brown sandy clay & weathered SST.							
			4	5.3	Weathered to fresh fine grained SST.	As above	1312330	4	5.3	15	50	
1000E	900N		0	2	Brown sand, ferruginous SST & laterite gravel.							
			2	4	Brown sand, clay & weathered SST.							
			4	4.7	Weathered to fresh fine grained SST.	As above.	1312331	2	4.7	10	55	
1000E	975N		0	2	Red-brown sand, ferruginous SST & laterite gravel.							
			2	4	Orange sand & clay, weathered SST. nodules.							
			4	5.2	Sandy brown clay, to hard sandstone bottom.	As above.	1312334	4	5.2.	35	45	
1000E	1050N		0	2	Orange-brown sand, laterite & weathered SST.							
			2	4	Orange-brown sand & clay; weathered SST nodules.							
			4	5	As above, to hard sandstone bottom.	As above.	1312335	4	5	25	60	

SUMMARY AND SPECIAL COMMENTS All holes terminated in fine grained feldspathic sandstone. Mag. anomaly remains unexplained.

LOGGED BY ERM DATE MAY 1987

SHEET 3 OF 9

C.R.A. EXPLORATION PTY. LIMITED

PROJECT SNAKE CREEK : EL 1991

SNC 5 — DRILL CUTTINGS LOG

CO-ORDINATES (AMG) GRID ORIGIN 739.5E 8036.5N — DRILLERS G. COLLINS — COMMENCED 7/5/87 — DEPTH — HOLE No.

LINE (S) 1100E — BEARING 000 (MAG.) — DRILL TYPE GEMCO AUGER — COMPLETED 9/5/87 — CASING LEFT — DPO No(s)

COLLAR LINE	COLLAR ORDINATE	DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	ASSAY VALUES SCINT
1100E	800N	0	12	Red sand.						
		12	14	Red sand to lighter orange - brown cuttings.						
		14	16	Lighter orange brown cuttings with white flecs — becoming moist.						
		16	18	Light orange brown material with 40% white flecs — possibly weathered calcrete.						
		18	20	Powdery beige coloured cuttings.						
		20	24	As above with some laterite pebbles.						
		24	28	As above : pebbles may be weathered dolerite or ? sandstone ?						
		28	31	Beige cuttings to fresh maroon dolerite.	18-30 m white feldspathic sandstone bit fragments of highly weathered volcanic (?) material within & from bottom hole : VOLCANICS.	1312301	30	31	40	40
1100E	850N.	0	12	Red sand						
		12	14	Red sand with ferruginous sandstone gravel.						
		14	16	Light brown/orange cuttings with calcrete chips.						
		16	18	Buff white / beige cuttings with " " .						
		18	22	As above with laterite pebbles.						
		22	24	Beige cuttings with siliceous laterite pebbles.						
		24	26	As above with weathered dolerite / SST. chips.	As for 800N : VOLCANICS.	1312302	26	27.3	25	40
		26	27.3	As above, to fresh dolerite.						
1100E	900N	0	6	Red sand.	Dark red, ferruginous clayey sand. ? minor weathered volcanics ?	1312305	6	7.9	60	40
		6	7.9	As above, to impenetrable hard bottom.						
1100E	1000N	0	4	Red sand.	Ferruginous silty sand, red brown.	1312304	4	5.3	150	40
		4	5.3	Red sand to red sandstone / laterite gravel / damp sand. Could not drill : suspect ferruginous sandstone / laterite at ~5 m.						
1100E	1100N	0	12	Red sand	Ferruginous silty sand, red-brown.	1312306	10	12.5	40	45
		12	12.5	Red sand — hole caved in : unable to drill.						
1100E	1150N	0	12	Red sand.	0-12 Ferruginous sand					
		12	14	Lighter orange - brown sand	12-16 Transitional.					
		14	16	Light orange - brown to mustard yellow cuttings.	16-28 Yellow brown clayey sand — weathered volcanic clasts.					
		16	18	Mustard yellow cuttings with laterite pebbles.		1312307	26	28	150	35
		18	24	Mustard yellow cuttings with pebbles of similar colour.						
		24	28	As above with ferruginous sandstone pebbles.						

SUMMARY AND SPECIAL COMMENTS

LOGGED BY ERM — DATE MAY 1987

C.R.A. EXPLORATION PTY. LIMITED

SNC 5 DRILL CUTTINGS LOG

PROJECT SNAKE CREEK : EL 1991

CO-ORDINATES (AMG) GRID ORIGIN 739.5E 8036.5N. DRILLERS G. COLLINS COMMENCED 7/5/87 DEPTH

LINE (S) 1100E BEARING 000 (MAG) DRILL TYPE GEMCO AUGER. COMPLETED 9/5/87 CASING LEFT

HOLE No.

DPO No(s)

COLLAR LINE	COLLAR ORDINATE	DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	ASSAY VALUES SCINT
1100E	1200N	0	2	Red sand						
		2	8	Red sand & laterite gravel.						
		8	10	As above but limited sample return: hard bands or lunge rocks of weathered ferruginous SST.						
		10	18	As above - ferruginous sandstone becoming harder.	Similar section to 1150N. Volcanics below 16m.					
		18	20	As above, & more mustard yellow cuttings.						
		20	29.3	Mustard yellow cuttings - siltstone pebbles of similar colour.		1312303	28	29.3	25	45
1100E	1250N	0	6	Red sand.						
		6	14	Red sand with siliceous laterite pebbles.						
		14	16	Colour transition to mustard - yellow.						
		16	20	Mustard yellow cuttings with similar coloured pebbles.						
		20	22	As above with maroon pebbles.						
		22	2	As above with maroon & blue-grey clayey rocks.						
		28	29.3	As above with fresher dolerite / SST.	Weathered volcanics.	1312308	28	29.3	700	45
1100E	1300N	0	4	Red sand.						
		4	18	Red sand with chips of sandstone.						
		18	20	As above with some mustard yellow pebbles: hole stopped: large rock jammed rods.	Weathered volcanics.	1312309	18	20	35	35
1100E	1400N	0	2	Light orange / brown sand.						
		2	4	As above with ferruginous sandstone & laterite pebble.						
		4	6	Chocolate - brown & grey - brown cuttings & white clay.						
		6	7.3	Beige cuttings with white clay. Weathered to fresh sandstone at bottom.	Medium grained feldspathic sandstone.	1312311	6	7.3	35	40
1100E	1450N	0	2	Light brown / orange sand.						
		2	4	Light brown to chocolate brown cuttings, ferruginous sandstone & laterite gravel.						
		4	5.3	Chocolate brown sand & blue white clay and weathered sandstone, becoming hard at bottom.	Medium grained feldspathic sandstone (trace ferruginous material, possibly weathered volcanics?)	1312310	4	5.3	40	35

SUMMARY AND SPECIAL COMMENTS Deeply weathered volcanics to south of 1100E, 1400N.

LOGGED BY ERM DATE MAY 1987

SHEET 5 OF 9.

C.R.A. EXPLORATION PTY. LIMITED — PROJECT SNAKE CREEK EAST

DAEDALUS 2/4/7 — DRILL CUTTINGS LOG

CO-ORDINATES (AMG) GRID ORIGIN 727.0E 8053.7N — DRILLERS M. TUDEHOPE. — COMMENCED 20/5/87 — DEPTH — HOLE No.

LINE (S) 1000E — BEARING 000 MAG. — DRILL TYPE GEMCO AUGER. — COMPLETED 20/5/87 — CASING LEFT — DPO No(s)

COLLAR LINE	COLLAR ORDINATE	DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	SCINT	ASSAY VALUES
1000E	900N	0	2	Orange sand.							
		2	4	Orange sand, becoming red-brown with weathered ferruginous sandstone nodules.							
		4	6	Red-brown sand & ferruginous SST. gravel.							
		6	7.4	Red-brown ferruginous sandstone / laterite gravel. White sandstone bottom.	Feldspathic SST. & grit, almost entirely lateritised.	1312358	6	7.4	55	45	
1000E	950N	0	2	Dark brown conglomeratic laterite.							
		2	4	Dark brown ferruginous weathered SST. & laterite.							
		4	4.5	As above.	As above, with some coarse quartz grains.	1312359	2	4.5	40	70	
1000E	1000N	0	2	Brown lateritic conglomerate.							
		2	2.4	As above	Lateritised sandstone.	1312360	0	2.4	200	90	
1000E	1050N	0	2	Orange-brown sand & laterite gravel.							
		2	4	Orange-brown sand, weathered ferruginous sandstone with large quartz grains, & laterite.							
		4	5.2	As above.	Lateritised felolspathic SST. & fine conglomerate.	1312361	4	5.2	35	30	
1000E	1100N	0	2	Yellow sand.							
		2	4	Yellow sand, becoming brown, with ferruginous sandstone / laterite.							
		4	6.1	Red-brown sand, weathered ferruginous SST & laterite.	Ferruginous felolspathic SST., occasionally gritty.	1312362	4	6.1	30	30	

SUMMARY AND SPECIAL COMMENTS: Mag. anomaly almost certainly due to laterite development.

LOGGED BY ERM — DATE MAY 1987

SHEET 6 OF 9.

PROJECT SNAKE CREEK : EL 1991

DAEDALUS 3/2/8 DRILL CUTTINGS LOG

CO-ORDINATES (AMG) GRID ORIGIN 735·6 E 8040·2 N | DRILLERS G. COLLINS. | COMMENCED 14/5/87 | DEPTH | HOLE No.

LINE (S) 1170E | BEARING 000(MAG) | DRILL TYPE GEMCO AUGER. | COMPLETED 14/5/87 | CASING LEFT | DPO No(s)

COLLAR LINE	COLLAR ORDINATE	DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	SCINT	ASSAY VALUES
1170E	1300N	0	2	Red sand, ferruginous SST. & latentic gravel.							
		2	4	As above + weathered SST.							
		4	4·9	Weathered to fresh SST.	Lateritised sandstone?	1312321	2	4·9	35	70	
1170E	1350N	0	2	Red sand, ferruginous SST., laterite gravel & weathered feldspathic SST.							
		2	4	Beige cuttings: weathered sandstone.							
		4	5·3	As above, to fresh SST.	Lateritised sandstone?	1312322	4	5·3	24	70	
1170E	1400N	0	2	Ferruginous SST. & latentic gravel.							
		2	4	Light brown weathered SST.							
		4	5·3	Weathered SST. — hard bottom.	Latentic material + loose qz. sand & feldspar grains	1312323	4	5·3	80	70	
1170E	1450N	0	2.	Ferruginous SST, latentic gravel & weathered SST.							
		2	4.	Brick red cuttings: weathered SST.							
		4	6	Light brown weathered SST.							
		6	7·3	As above to buff-white chips of feldspathic sandstone.	Poorly sorted coarse-grained feldspathic sandstone.	1312324	6	7·3	20	60	
1170E	1500N	0	2	Ferruginous sandstone, laterite gravel & weathered SST.							
		2	4	Light brown cuttings: chips of weathered SST.							
		4	5·3	Weathered to fresh feldspathic SST.	Feldspathic SST., F–M, slightly ferruginous.	1312325	4	5·3	20	65	
1170E	1600N	0	2	Mustard yellow to light brown sand.							
		2	4	Light brown cuttings: weathered SST chips.							
		4	6	As above + yellow clay.							
		6	6·4	Beige cuttings & clay — SST.	SST. as above.	1312326	4	6·4	–	–	

SUMMARY AND SPECIAL COMMENTS: All holes appear to terminate in feldspathic sandstone or laterite / lateritised sandstone. Drilling discontinued.

LOGGED BY ERM | DATE MAY 1987

SHEET 7 OF 9.

DAEDALUS 4/3/14 DRILL CUTTINGS LOG

PROJECT [illegible] . EL 1491

CO-ORDINATES (AMG) GRID ORIGIN 742.9E 8035.9N — DRILLERS G. COLLINS. — COMMENCED 12/5/87 — DEPTH — HOLE No.

LINE (S) 880 E. — BEARING 000 (MAG) — DRILL TYPE GEMCO AUGER. — COMPLETED 13/5/87 — CASING LEFT — DPO No(s)

COLLAR LINE	COLLAR ORDINATE		DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	SCINT	ASSAY VALUES
880E	1000N		0	4	RED SAND.							
			4	6	Red sand, to beige cuttings.							
			6	8	Chips of weathered feldspathic sandstone							
			8	9.3	As above	Fine grained feldspathic SST., slightly ferruginous & occasionally gritty.	1312318	8	9.3	15	35	
880E	1050N		0	6	Red sand							
			6	8	Red sand, to light brown cuttings							
			8	10	Weathered sandstone in beige clay with quartz grains.							
			10	12	Weathered feldspathic sandstone?	Fine, Med & coarse feldspathic SST with quartz & quartzite pebbles.						
			12	13	As above, to hard clear quartzite at bottom.		1312317	12	13	15	30	
880E	1100N		0	2	Red sand & ferruginous sandstone gravel.							
			2	2.4	As above, to fresh sandstone bottom	Fine grained, friable red-brown ferruginous sandstone.	1312316	0	2.4	20	30	
880E	1150N		0	2	Red sand.							
			2	3.1	Red sand to hard fresh sandstone.	Red-brown to yellow-brown fine grained friable sandstone.	1312315	2	3.1	20	35	
880E	1200N		0	2	Red sand.							
			2	4	Red sand & clay.							
			4	4.7	Red clay, weathered ferruginous SST to hard SST bottom	Fine grained ferruginous quartz sand / friable SST.	1312312	2	4.7	20	35	
880E	1250N		0	2	Red sand.							
			2	4	Red sand & clay							
			4	5.1	Red sand & clay through to weathered & then fresh sandstone.	Fine to coarse feldspathic sandstone.	1312313	4	5.1	15	35	
880E	1300N		0	2	Red sand.							
			2	4	Red sand and clay.							
			4	6	Red sand, clay & weathered SST.							
			6	8	As above - broke through hard SST.							
			8	10	Fine red sand - some coarser pebbles purple quartzite.							
			10	10.5	Fine red sand, to hard fresh sandstone at bottom.	Ferruginous feldspathic SST / pebbly SST.	1312314	8	10.5	60	35	
880E	1350N		0	4	Red sand							
			4	6	Red sand, clay.							
			6	6.4	Red sand & clay, some weathered ferruginous SST. chips. Hole caving in badly: abandoned.	Red brown fine grained ferruginous SST. - friable.	1312320	4	6.4	50	40	
880E	1400N		0	12	Red sand							
			12	14	Red sand, some lighter brown cuttings, & weathered Fe SST.							
			14	15.3	Beige cuttings & weathered feldspathic sandstone.	White fine grained feldspathic sandstone.	1312319	14	15.3	10	35	

SUMMARY AND SPECIAL COMMENTS: All holes terminating in feldspathic / ferruginous sandstone / grit.

LOGGED BY ERM — DATE MAY 1987

SHEET 8 OF 9.

C.R.A. EXPLORATION PTY. LIMITED

DAEDALUS 5/4/20 DRILL CUTTINGS LOG

PROJECT SNAKE CREEK : EL 1991

CO-ORDINATES (AMG) GRID ORIGIN 744·9E 8048·1 N. DRILLERS M. TUDEHOPE COMMENCED 21/5/87 DEPTH HOLE No.

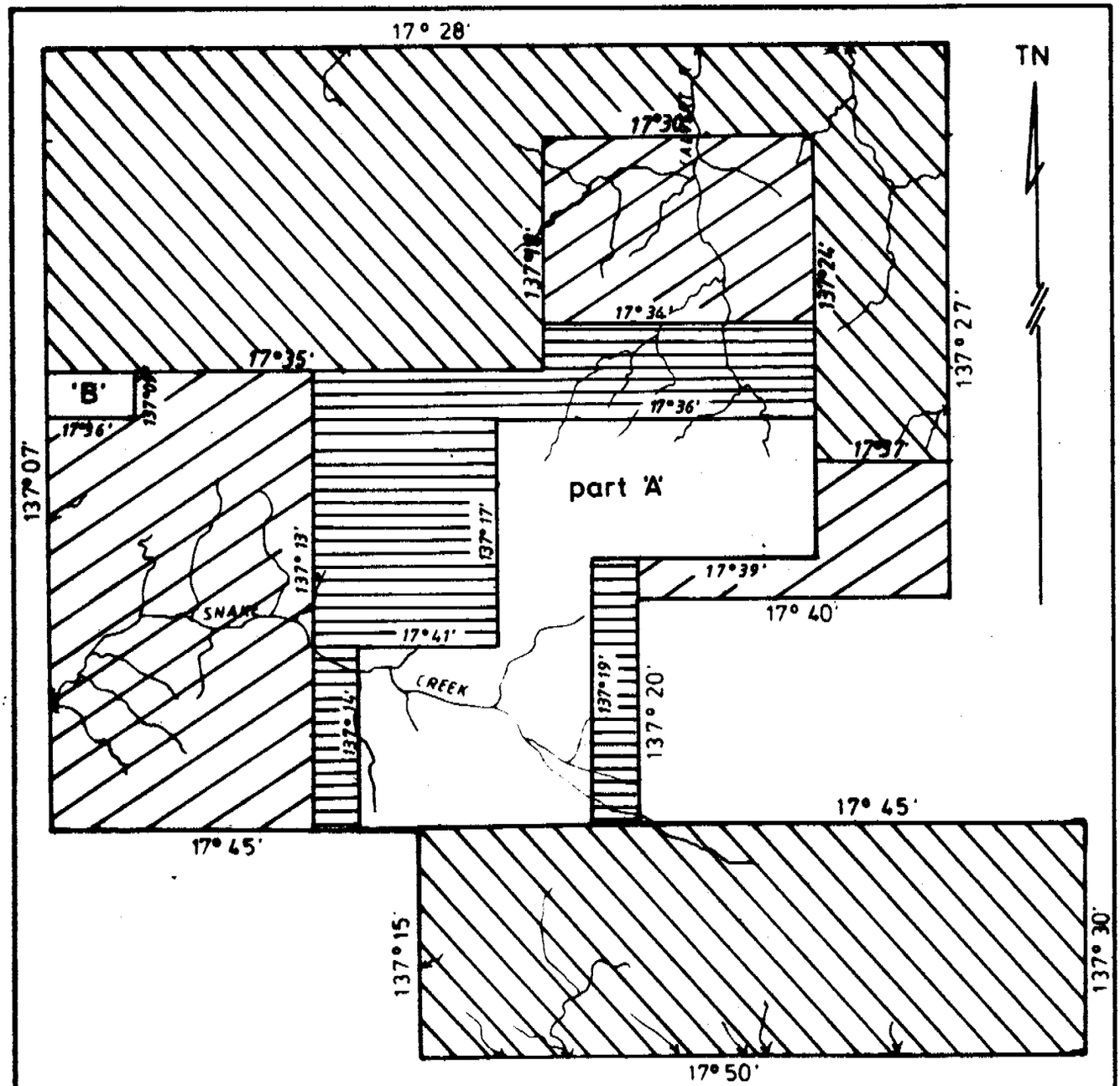
LINE (S) 1000E BEARING 000 (MAG) DRILL TYPE GEMCO AUGER. COMPLETED 21/5/87 CASING LEFT DPO No(s)

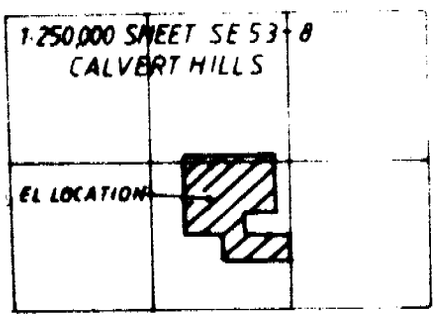
COLLAR LINE	COLLAR ORDINATE	DEPTH FROM	DEPTH TO	DRILL RUNNERS LOG	SPECIAL FEATURES (GEO. IDENT. BOTTOM CHIPS)	SAMPLE No.	FROM (M)	TO (M)	MAG. SUSC. x10⁻⁵ SI	SCINT	ASSAY VALUES
1000E	800N	0	2	Brown broken laterite conglomerate material.							
		2	4	Orange-brown, as above.							
		4	5	As above, to weathered sandstone.	Highly ferruginous feldspathic SST + ironstone / laterite.	1312363	4	5	60	75	
1000E	900N	0	1	Orange brown laterite / conglomerate: hard bottom.	Lateritised sandstone?	1312364	0	1	650	60	
1000E	950N	0	2	Orange brown laterite conglomerate, weathered ferruginous SST.	Deep purple-brown, lateritic SST & grit (poorly sorted).	1312365	0	2·1	650	60	
		2	2·1	As above, hard bottom.							
1000E	1000N	0	1	Orange-brown laterite conglomerate material to weathered ferruginous sandstone.	Laterite sandstone - ferruginous banding.	1312366	0	1	550	60	
1000E	1050N	0	2	Yellow-brown sand, broken laterite / conglomerate, weathered ferruginous sandstone.							
		2	3·5	Yellow-brown sand, laterite & weathered ferruginous sandstone.	Fine grained feldspathic SST., yellow brown iron staining & red-brown ferruginous cement. Some larger quartz fragments simply? conglomerate?	1312367	2	3·5	40	60	
1000E	1100N	0	2	Red brown sand with pisolite.							
		2	4	Red brown sand & ferruginous sandstone gravel.							
		4	4·5	As above — hard bottom.	Fine grained feldspathic SST — variable iron content but generally high.	1312368	2	4·5	65	60	
1000E	1200N	0	1·4	Straight into pink-white sandstone & laterite gravel.	Ferruginous SST / laterite.	1312369.	0	1·4	225	60	

SUMMARY AND SPECIAL COMMENTS

LOGGED BY EPM DATE May '87

SHEET 9 OF 9



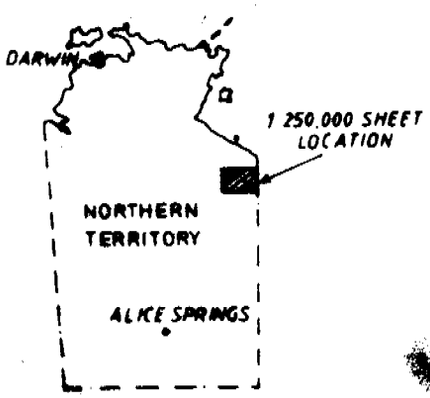


Relinquished Area: 6·7·85

Relinquished Area: 6·7·86

Relinquished Area: 6·7·87

AREA RETAINED 'A' & 'B' - 47 BLOCKS
153·361 sq.k.



0 5 10 15 20 KM.

CRA EXPLORATION PTY LIMITED

LOCATION PLAN

SNAKE CREEK EL 1991

REDUCTION of AREA

REFERENCE SE53-8 CALVERT HILLS	
SCALE 1 250,000	DATE MAY 1987
AUTHOR ICC	REPORT 15229
DRAWN SRJ	PLAN No NTd 4552

TN

17°22' 30" S

SHEET 1 F 3469 P 3480	SHEET 2 F 3470 P 3481	SHEET 3 F 3471 P 3482
	17° 28' S	
	17°30' 00" S	
SHEET 4 F 3472 P 3483	SHEET 5 F 3473 P 3484	SHEET 6 F 3474 P 3485
	17°37' 30" S	
SHEET 7 F 3475 P 3486	SHEET 8 F 3476 P 3487	SHEET 9 F 3477 P 3488
		17°40' S
17°45' S		17°45' S
	SHEET 10 F 3478 P 3489	SHEET 11 F 3479 P 3490
	17° 50' S	
	17°52' 30" S	

137° 07' E | 137°22' 30"E | 137° 27' E | 137° 20' E | 137° 15' E | 137° 30' E

INDEX

F FLIGHT PATH MAP PLAN No. NTd.....

P STACKED MAGNETIC PROFILES PLAN No. NTd.....

LINE DIRECTION 000° - 180°
LINE SPACING 300 m.

LOCATION: CALVERT HILLS SE53-8

5 0 5 10 15 20 KM.

SCALE 1:250,000

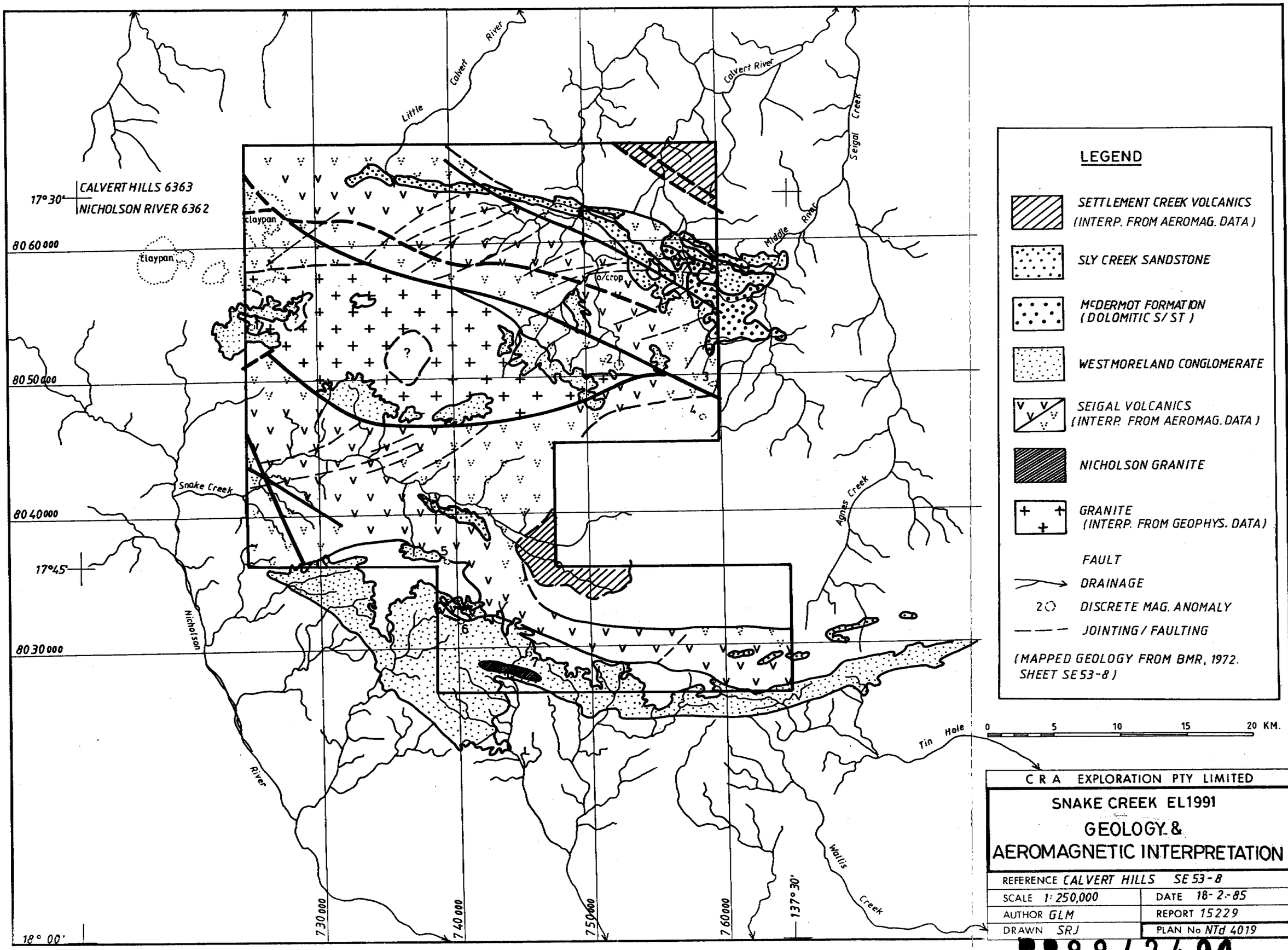
C R A EXPLORATION PTY LIMITED

Airborne Geophysical Survey
SNAKE CREEK EL 1991

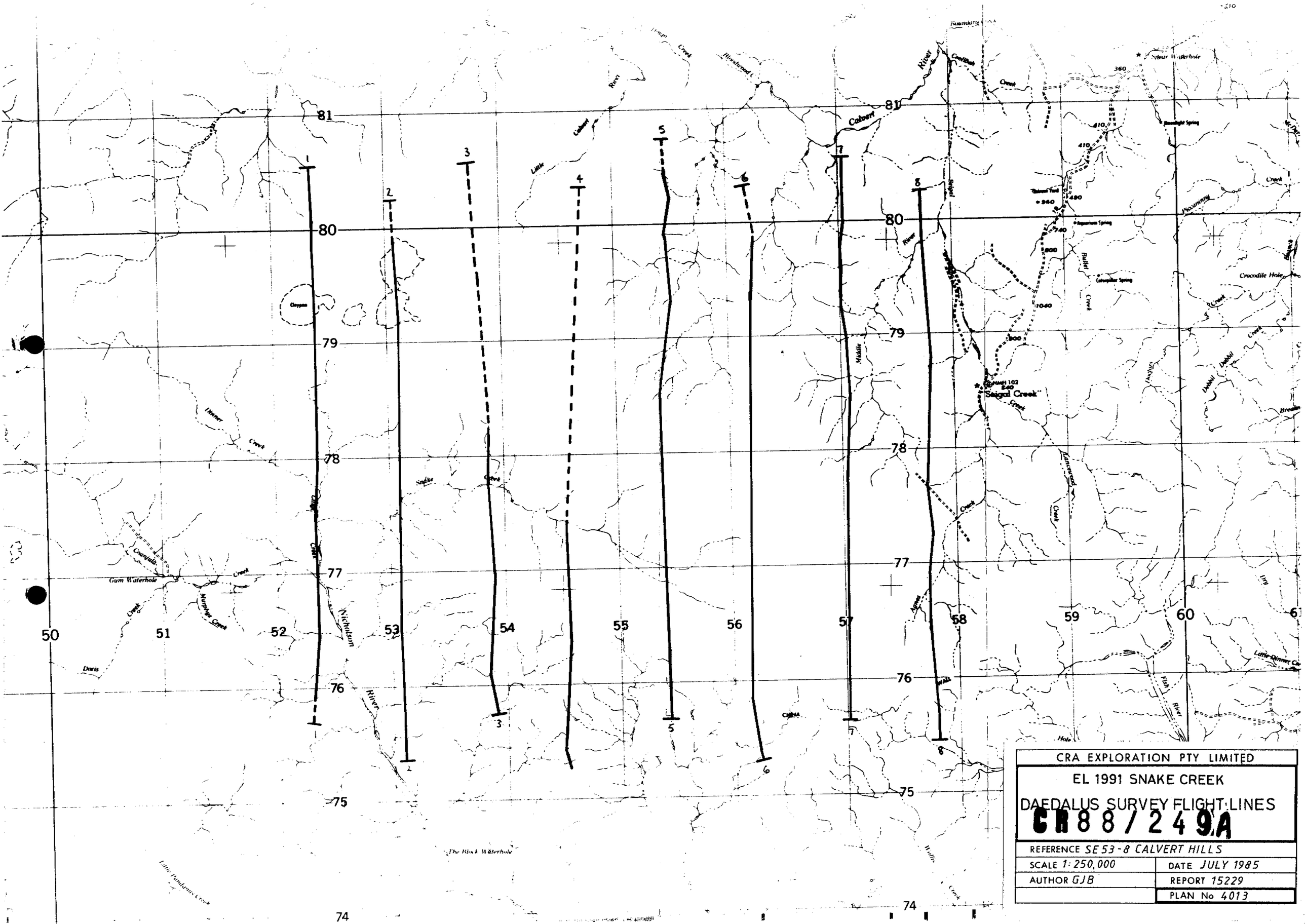
Survey Boundary, Sheet Index & Plan No's

REFERENCE CALVERT HILLS SE 53-8	
SCALE 1:250,000	DATE MAY 1984
AUTHOR GJB	REPORT 15229
DRAWN SRJ	PLAN No NTd 3491

CR88/249A


CALVERT HILLS 6363
NICHOLSON RIVER 6362
17° 30'
17°45'
18° 00'
80 60 000
80 50 000
80 40 000
80 30 000
73 0000
74 0000
75 0000
76 0000
137° 30'
Little Calvert River
Calvert River
Seigal Creek
Middle River
Agnes Creek
Snake Creek
Nicholson River
Wallis Creek
Tin Hole
Claypan
Claypan
o/crop
LEGEND
SETTLEMENT CREEK VOLCANICS (INTERP. FROM AEROMAG. DATA)
SLY CREEK SANDSTONE
McDERMOT FORMATION (DOLOMITIC S/ST)
WESTMORELAND CONGLOMERATE
SEIGAL VOLCANICS (INTERP. FROM AEROMAG. DATA)
NICHOLSON GRANITE
GRANITE (INTERP. FROM GEOPHYS. DATA)
FAULT
DRAINAGE
DISCRETE MAG. ANOMALY
JOINTING / FAULTING
(MAPPED GEOLOGY FROM BMR, 1972. SHEET SE53-8)
0 5 10 15 20 KM.
CRA EXPLORATION PTY LIMITED
SNAKE CREEK EL1991
GEOLOGY & AEROMAGNETIC INTERPRETATION
REFERENCE CALVERT HILLS SE 53-8
SCALE 1: 250,000
DATE 18-2-85
AUTHOR GLM
REPORT 15229
DRAWN SRJ
PLAN No NTd 4019

CR 88/249A



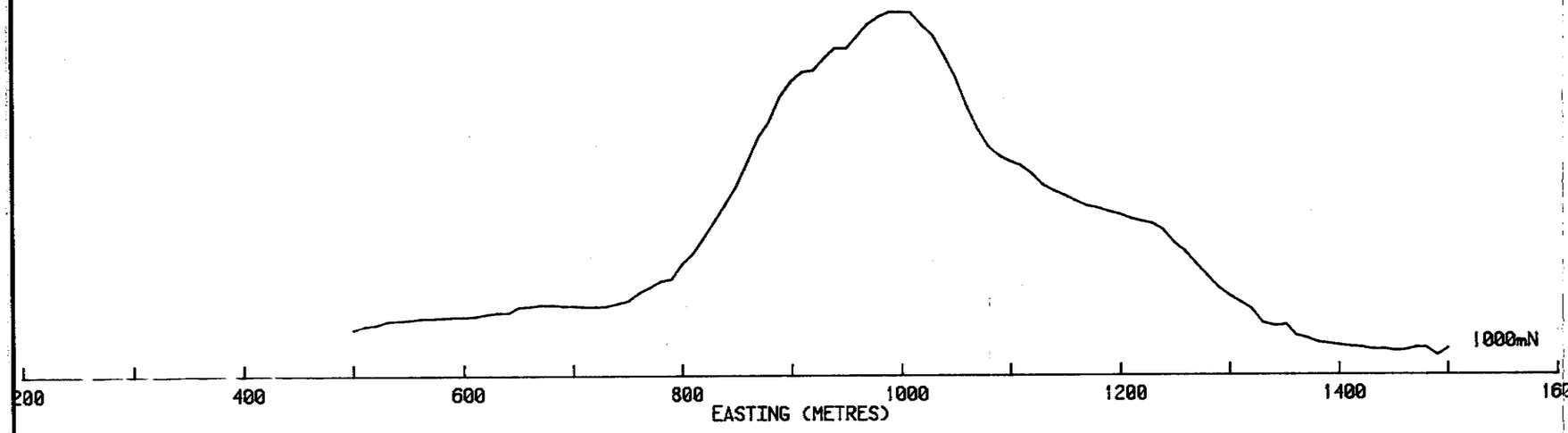
CRA EXPLORATION PTY LIMITED

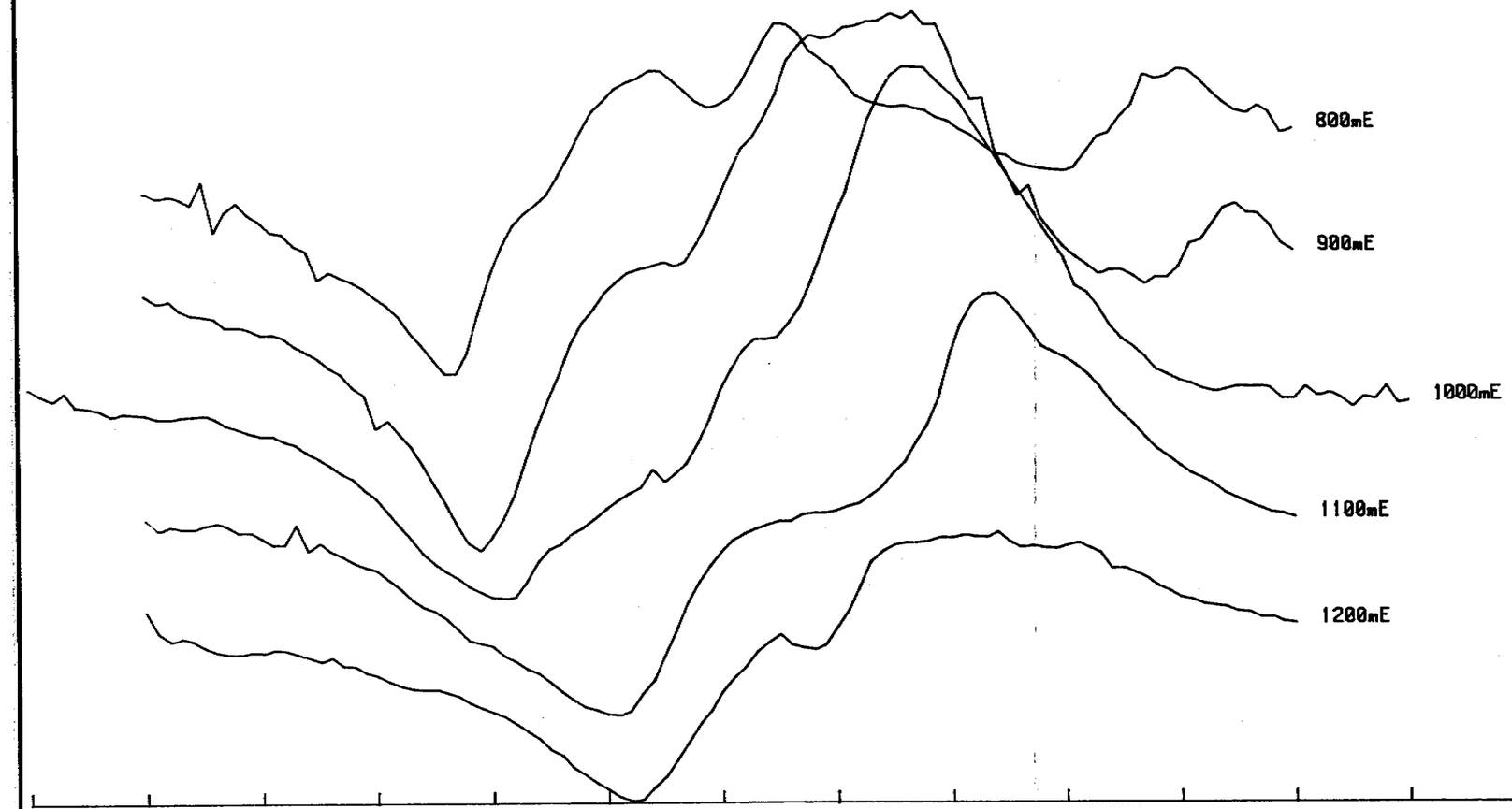
EL 1991 SNAKE CREEK

DAEDALUS SURVEY FLIGHT LINES

CR88/249A

REFERENCE *SE 53-8 CALVERT HILLS*	
SCALE *1:250,000*	DATE *JULY 1985*
AUTHOR *GJB*	REPORT *15229*
	PLAN No *4013*





Airborne survey : SNAKE CREEK
Date flown : MAY-JUNE 1984
Sheet reference : SNC6

1:100 000 Sheet : NICHOLSON RIVER6362

Magnetometer : MP3 #403229
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station mag: MP3 #403208

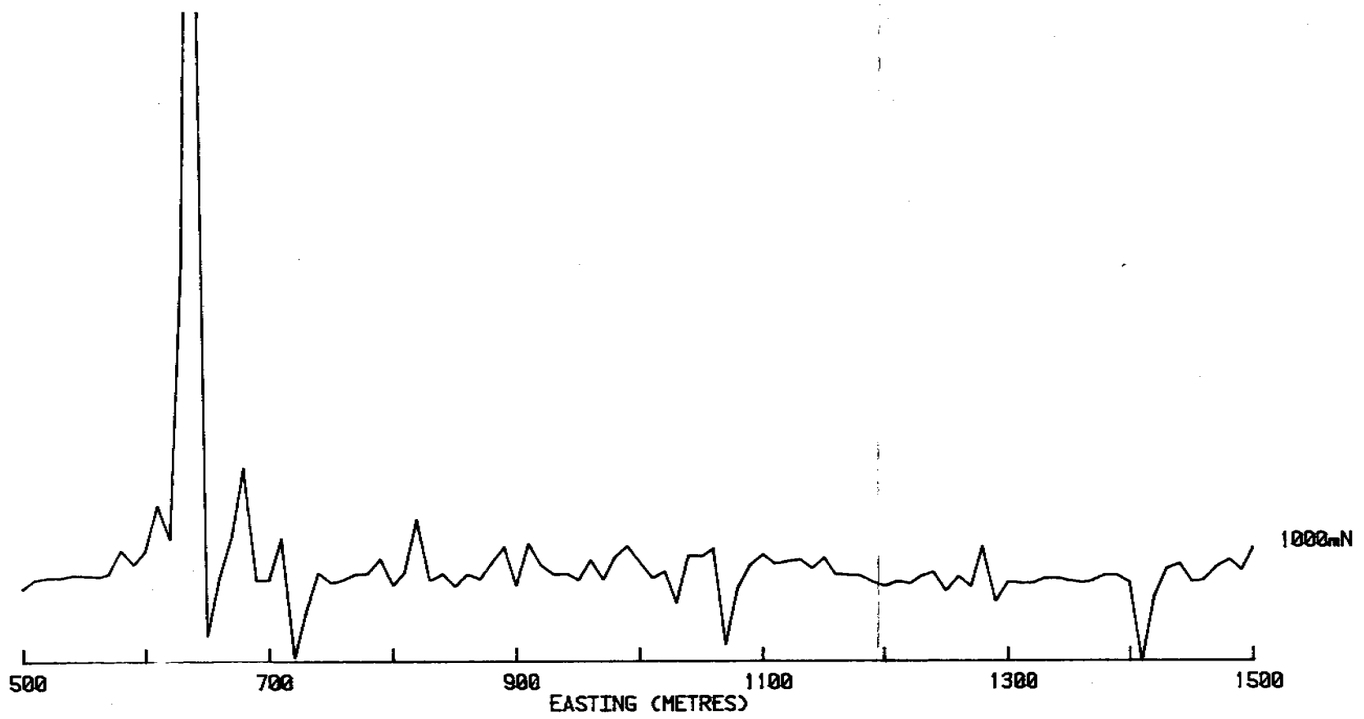
Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : 19-SEP-85
Operator : G.J.BUBNER

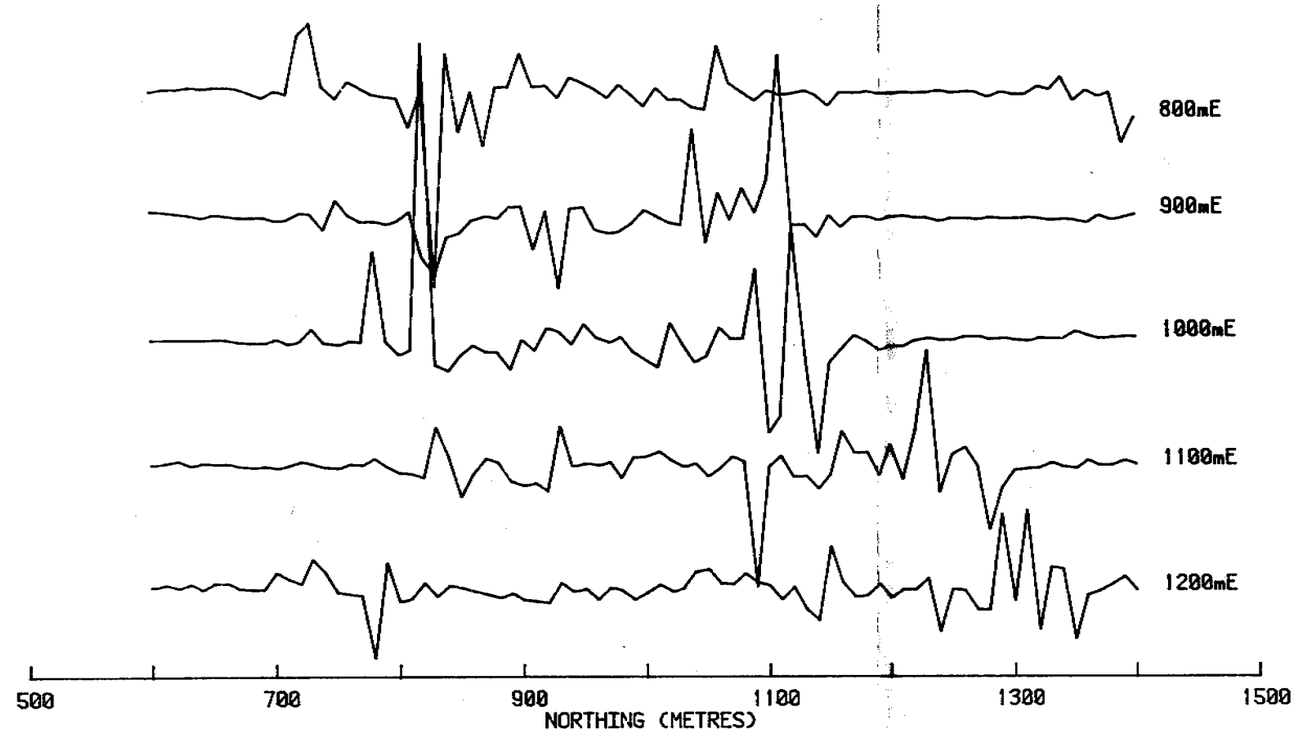
Scale-horizontal: 1:5000
-vertical : 40 nT/CM

CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L.1991
GROUND MAGNETIC PROFILES
ANOMALY SNC2

REF.	CALVERT HILLS SE 53-8		
SCALE	1:5000		
AUTHOR	G.J.B.	REPORT *15229*	
DATE	MAY-86	PLAN No NTd4174	





Airborne survey : SNAKE CREEK
Date flown : MAY-JUNE 1984
Sheet reference : SNC9

1:100 000 Sheet : NICHOLSON RIVER6362

Magnetometer : MP3 #403209
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station mag: MP3 #403208

Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : 20-SEP-85
Operator : G.J.BUBNER

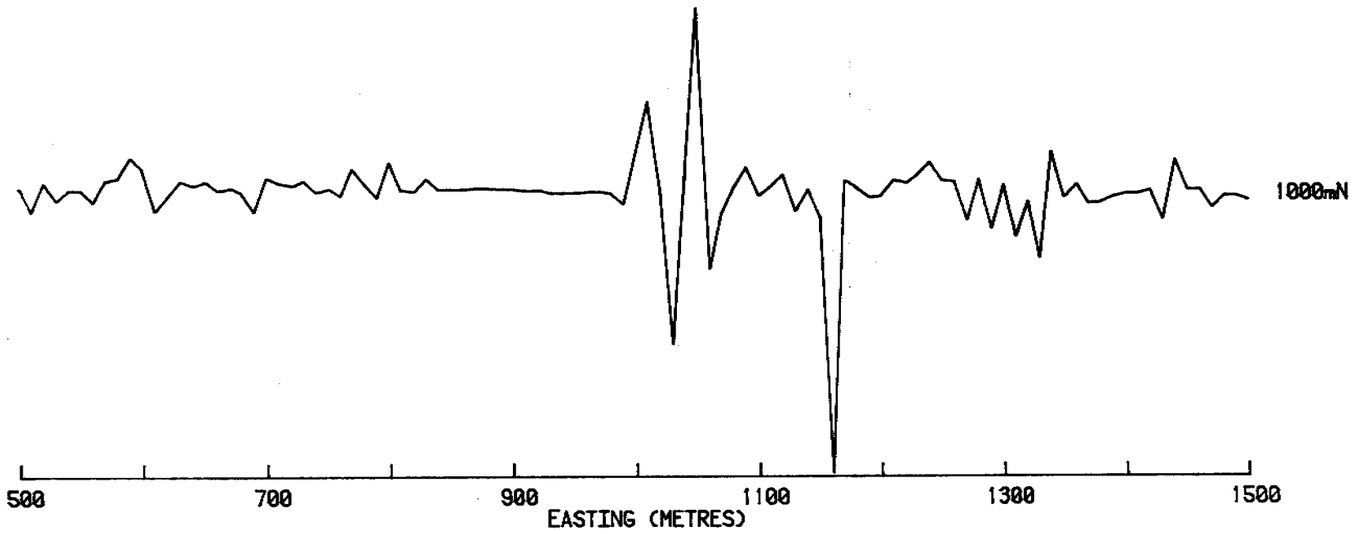
Scale-horizontal: 1:5000
-vertical : 100 nT/CM

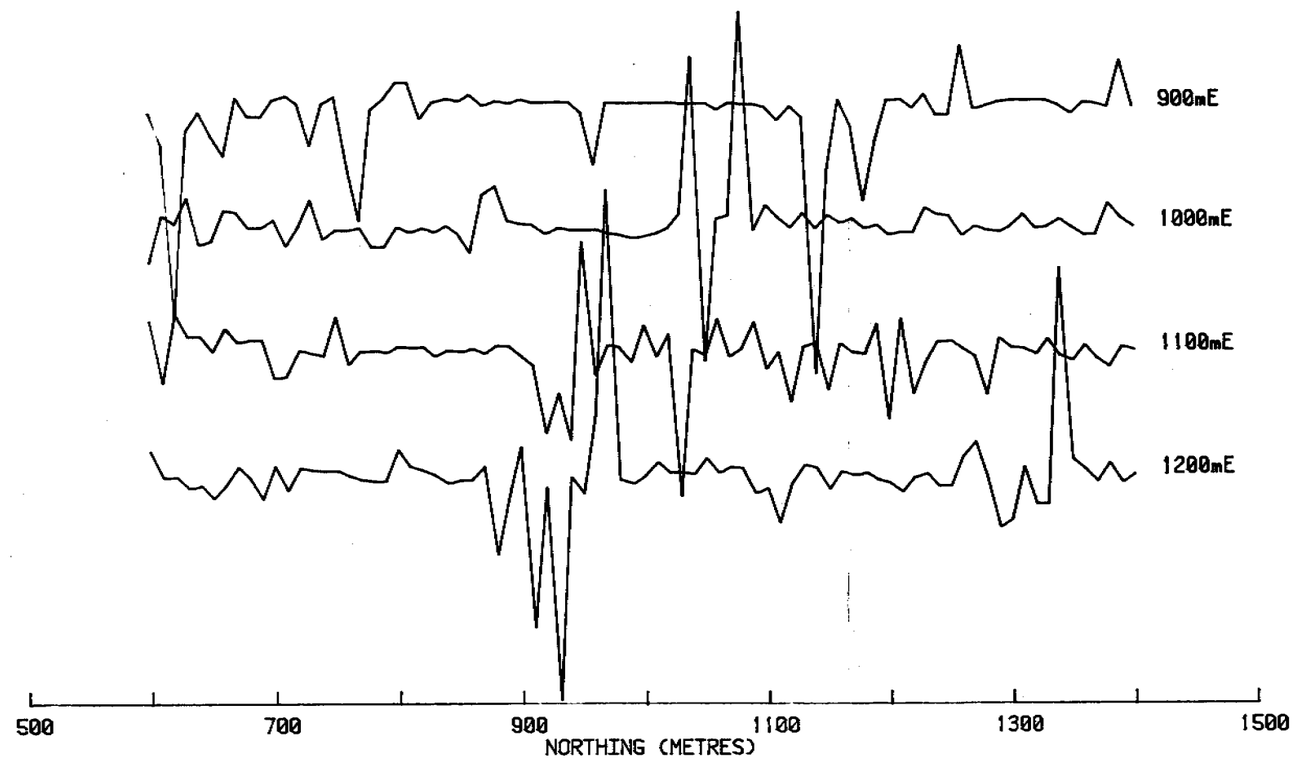
CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L.1991
GROUND MAGNETIC PROFILES
ANOMALY SNC3

REF.	CALVERT HILLS SE 53-8	
SCALE	1:5000	
AUTHOR	G.J.B.	REPORT 15229
DATE	MAY-86	PLAN No NTd4175

CR88/249A





Airborne survey : SNAKE CREEK
Date flown : MAY-JUNE 1984
Sheet reference : SNC9

1:100 000 Sheet : NICHOLSON RIVER6362

Magnetometer : MP3 #403209
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station mag: MP3 #403208

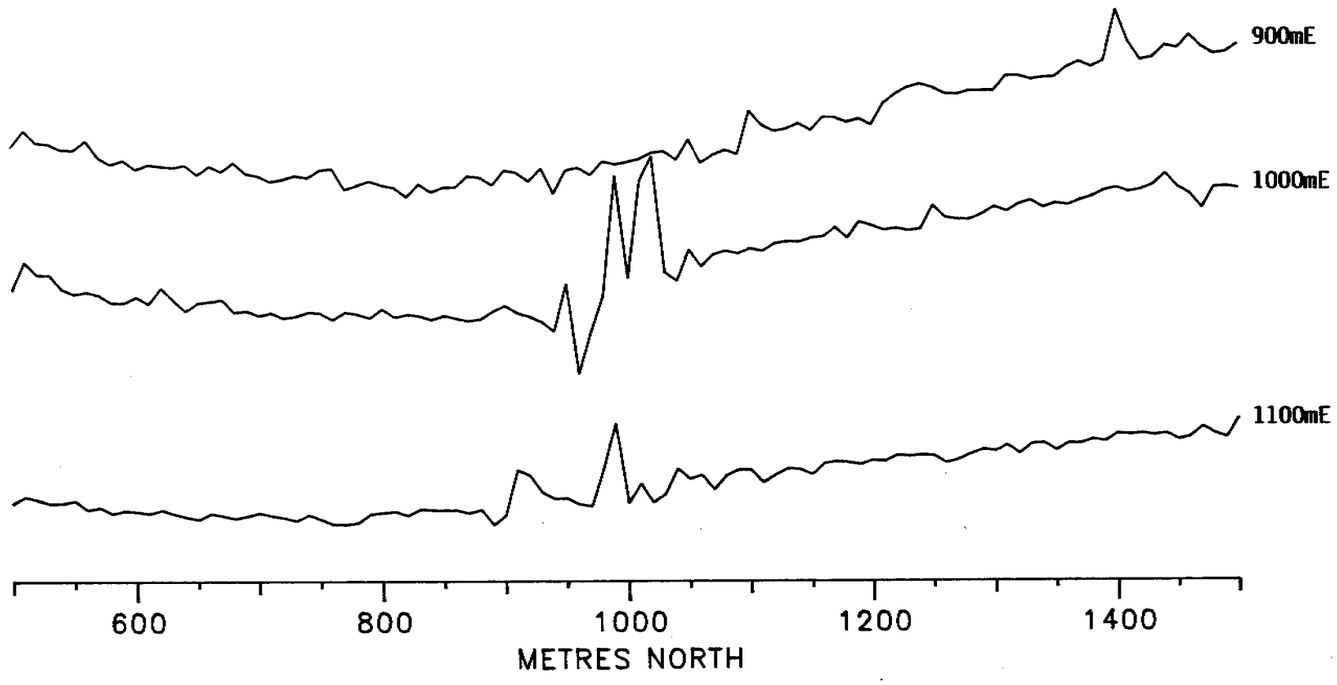
Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : 19-SEP-85
Operator : G.J.BUBNER

Scale-horizontal: 1:5000
-vertical : 100 nT/CM

CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L.1991
GROUND MAGNETIC PROFILES
ANOMALY SNC4

REF.	CALVERT HILLS SE 53-8	
SCALE	1:5000	
AUTHOR	G.J.B.	REPORT *15229*
DATE	MAY-86	PLAN No NId4176



AIRBORNE SURVEY : DAEDALUS
DATE FLOWN : SEPT. 1984
SLIDE REFERENCE : RUN 2 FRAME 4

1:100 000 SHEET : NICHOLSON RIVER 6362

MAGNETOMETER : MP3 #507263
SENSITIVITY : +/- 0.2 nT
SENSOR HEIGHT : 2 Metres
NO DIURNAL CORRECTION

GRID NORTH : 000° MAGNETIC
STATION SPACING : 10 Metres
SURVEY DATE : 19-MAY-87
OPERATOR : E.R.M.

FILENAME : SCD7.MAG

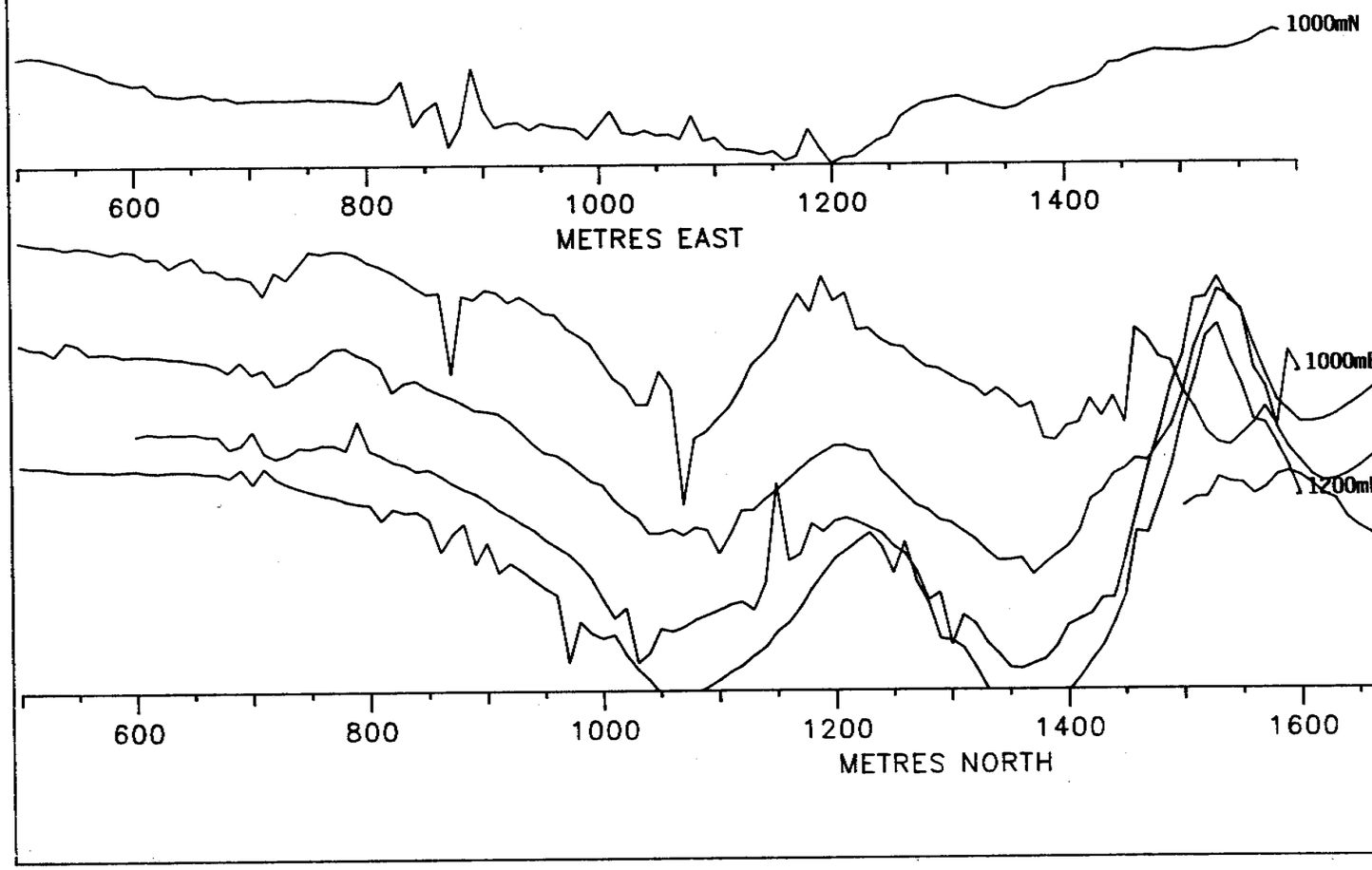
SCALE-HORIZONTAL: 1:5000
-VERTICAL : 10 nT/cm

CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L.1991
GROUND MAGNETIC PROFILES
DAEDALUS ANOMALY 2/4/7

REFERENCE SE 53-8 NICHOLSON RIVER	
SCALE 1:5000	DRAWN
AUTHOR G.J.B.	REPORT *15229*
DATE 8 AUG 87	PLAN No NTd 4560

CR88/249A



AIRBORNE SURVEY : DAEDALUS
DATE FLOWN : SEPT. 1984
SLIDE REFERENCE : RUN 3 FRAME 2

1:100 000 SHEET : NICHOLSON RIVER 6362

MAGNETOMETER : MP3 #507263
SENSITIVITY : +/- 0.2 nT
SENSOR HEIGHT : 2 Metres
DIURNAL CORRECTION APPLIED
BASE STATION MAG: MP3 #403208

GRID NORTH : 000° MAGNETIC
STATION SPACING : 10 Metres
SURVEY DATE : 06;09;13-MAY-87
OPERATOR : E.R.M.

FILENAME : SCD8.MAG

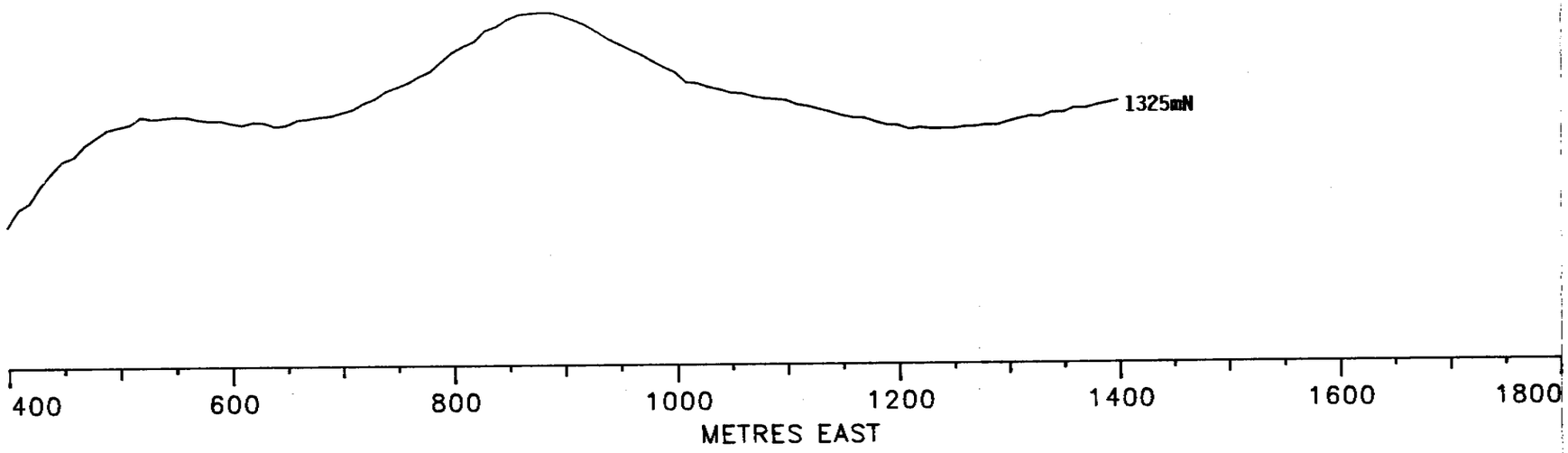
SCALE-HORIZONTAL: 1:5000
-VERTICAL : 50 nT/cm

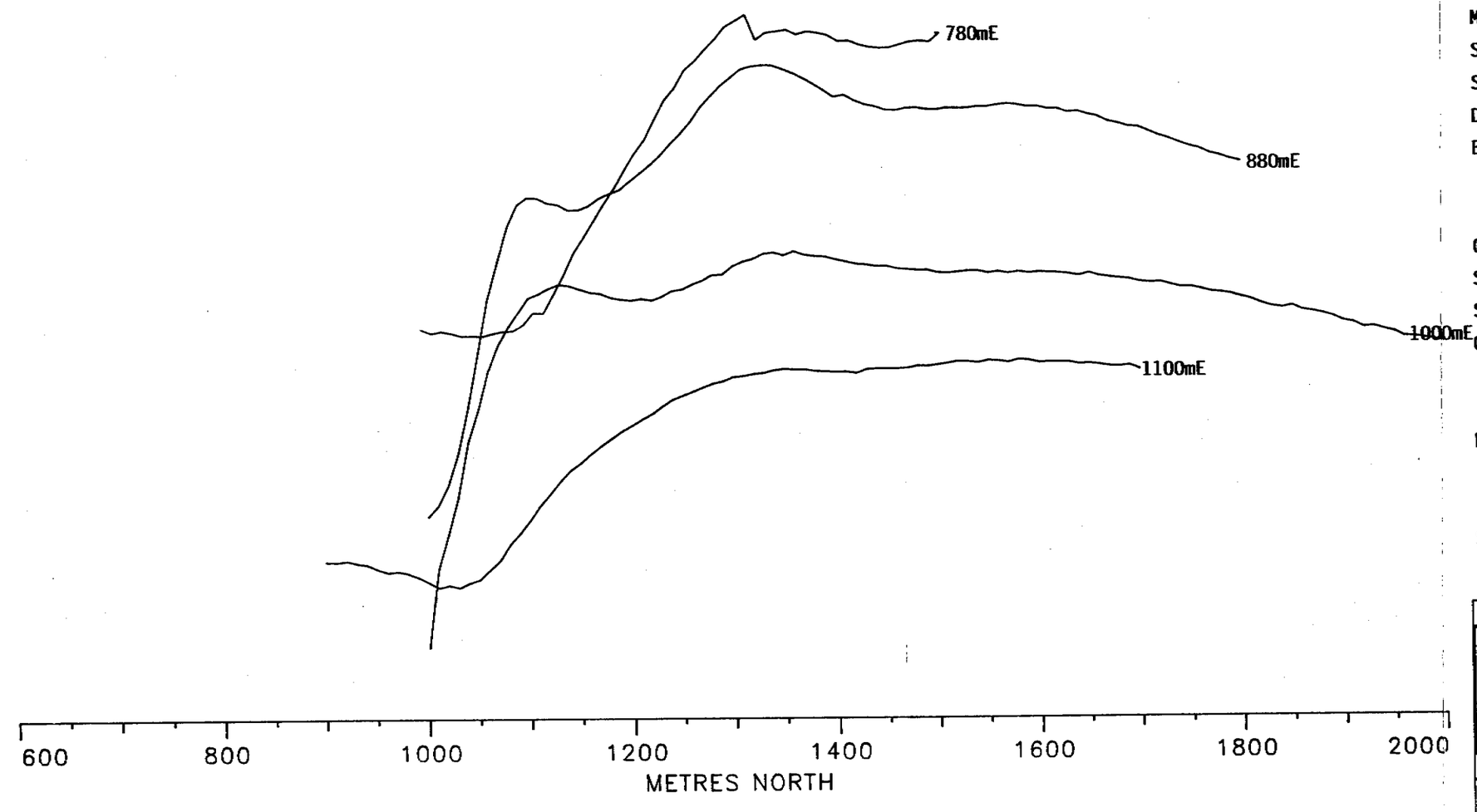
CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L.1991
GROUND MAGNETIC PROFILES
DAEDALUS ANOMALY 3/2/8

REFERENCE SE 53-8 NICHOLSON RIVER	
SCALE 1:5000	DRAWN
AUTHOR G.J.B.	REPORT 15229
DATE 8 AUG 87	PLAN No NTd 4472

88/249A





AIRBORNE SURVEY : DAEDALUS
DATE FLOWN : SEPT. 1984
SLIDE REFERENCE : RUN 4 FRAME 3

1:100 000 SHEET : NICHOLSON RIVER 6362

MAGNETOMETER : MP3 #403229; #507263
SENSITIVITY : +/- 0.2 nT
SENSOR HEIGHT : 2 Metres
DIURNAL CORRECTION APPLIED
BASE STATION MAG: MP3 #403208

GRID NORTH : 000° MAGNETIC
STATION SPACING : 10 Metres
SURVEY DATE : 1986;27-APR;09;15-MAY-87
OPERATOR : I.C.C./E.R.M.

FILENAME : SCD14.MAG

SCALE-HORIZONTAL: 1:5000
-VERTICAL : 25 nT/cm

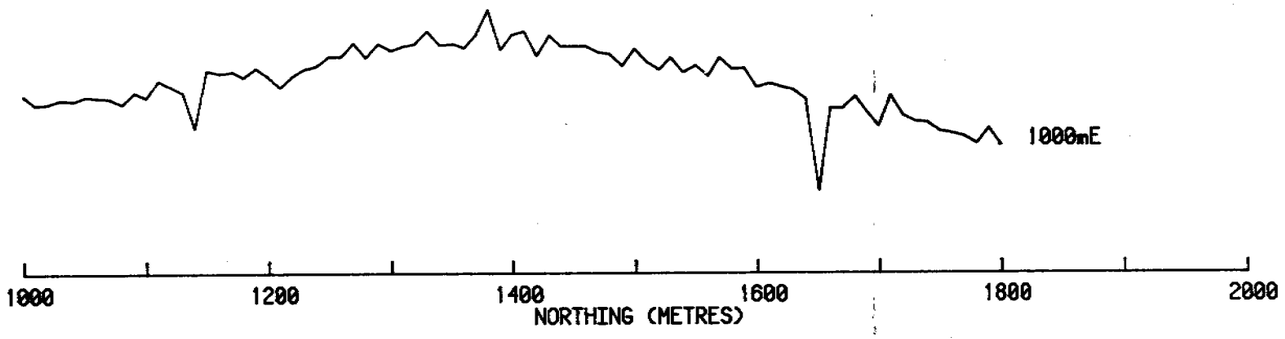
CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L.1991
GROUND MAGNETIC PROFILES
DAEDALUS ANOMALY 4/3/14

REFERENCE SE 53-8 NICHOLSON RIVER	
SCALE 1:5000	DRAWN
AUTHOR G.J.B.	REPORT 15229
DATE 8 AUG 87	PLAN No NTd 4561

CR83/249A

FIGURE 3



1:100 000 Sheet : NICHOLSON RIVER 636

Magnetometer : MP3 #507263
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station mag: MP3 #403229

Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : 13-06-86
Operator : B.J.MAYERS

Scale-horizontal: 1:5000
-vertical : 20 nT/CM

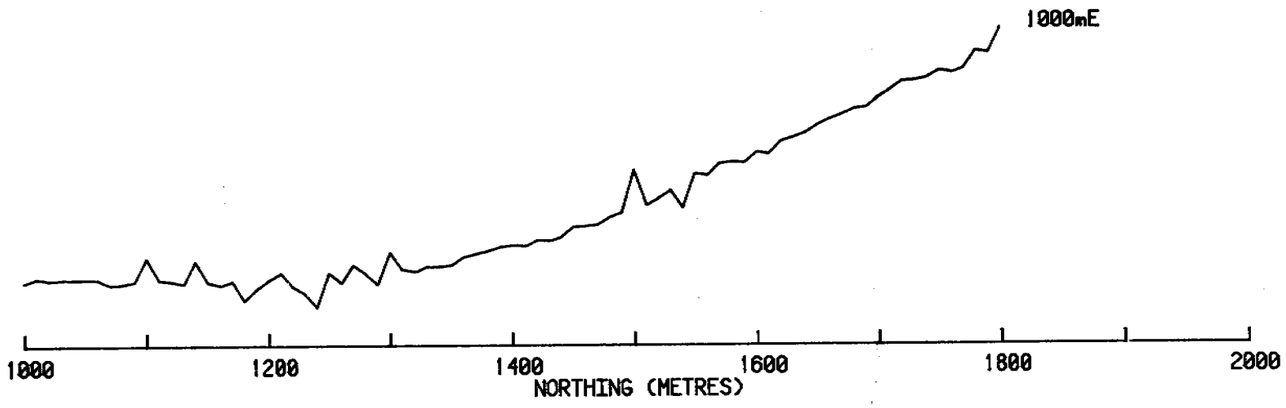
CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L. 1991
GROUND MAGNETIC PROFILES
DAEDALUS ANOMALY 4/4/15

REF.	CALVERT HILLS SE 53-8	
SCALE	1:5000	
AUTHOR	BJM	REPORT 15229
DATE	JULY 1986	PLAN No NTd 4562

CR88/240A

FIGURE 4



1:100 000 Sheet : NICHOLSON RIVER 636

Magnetometer : MP3 #403208
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station mag: MP3 #403229

Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : 13-06-86
Operator : I.C.COLLIVER

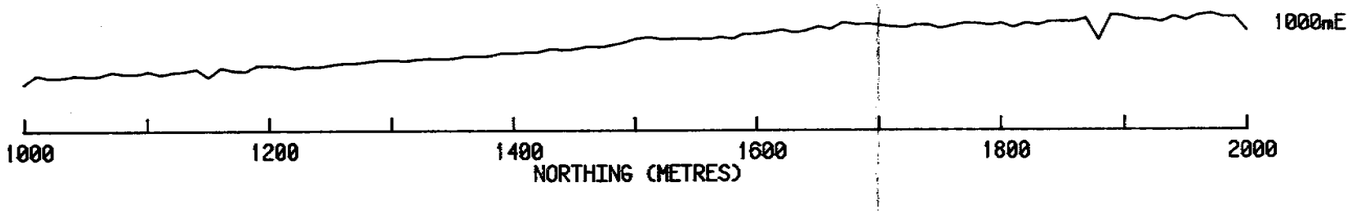
Scale-horizontal: 1:5000
-vertical : 20 nT/CM

CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L. 1991
GROUND MAGNETIC PROFILES
DAEDALUS ANOMALY 4/4/16

REF.	CALVERT HILLS SE 53-8	
SCALE	1:5000	
AUTHOR	BJM	REPORT *15229*
DATE	JULY 1986	PLAN No *NTd 4563*

FIGURE 5



1:100 000 Sheet : NICHOLSON RIVER 636

Magnetometer : MP3 #507263
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction applied
Base station mag: MP3 #403229

Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : 10-06-86
Operator : B.J.MAYERS

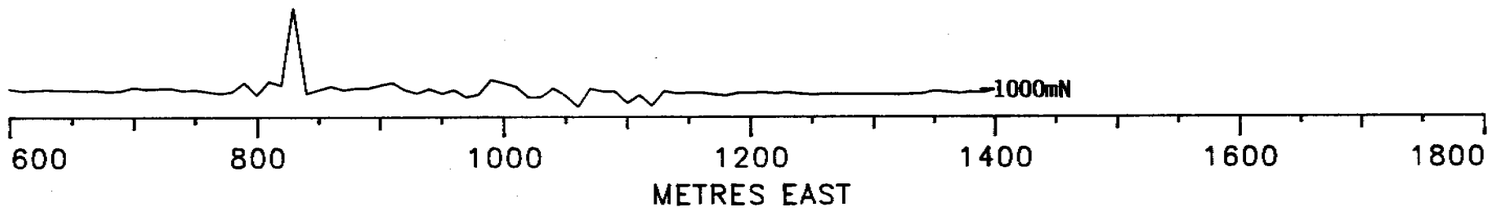
Scale-horizontal: 1:5000
-vertical : 20 nT/CM

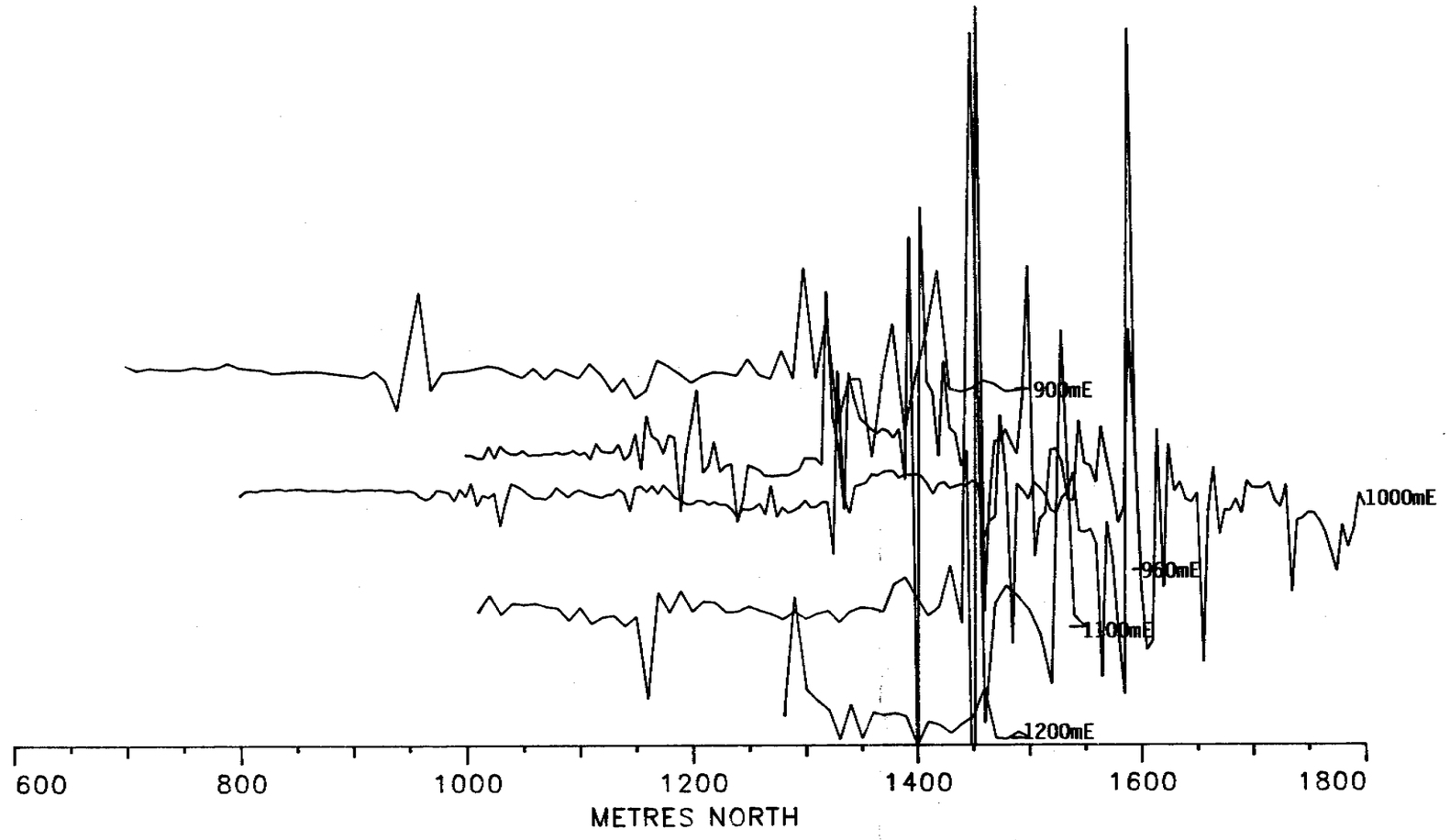
CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L. 1991
GROUND MAGNETIC PROFILES
DAEDALUS ANOMALY 4/5/17

REF.	CALVERT HILLS SE 53-8	
SCALE	1:5000	
AUTHOR	BJM	REPORT 15229
DATE	JULY 1986	PLAN No NTd 4564

CR86/249A





AIRBORNE SURVEY : DAEDALUS
DATE FLOWN : SEPT. 1984
SLIDE REFERENCE : RUN 5 FRAME 4

1:100 000 SHEET : NICHOLSON RIVER 6362

MAGNETOMETER : MP3 #403229;#507263
SENSITIVITY : +/- 0.2 nT
SENSOR HEIGHT : 2 Metres
DIURNAL CORRECTION APPLIED
BASE STATION MAG: MP3 #403208

GRID NORTH : 000^{O} MAGNETIC
STATION SPACING : 10 Metres
SURVEY DATE : 1986;27-APR;06;15-MAY-87
OPERATOR : I.C.C./E.R.M./A.J.H.

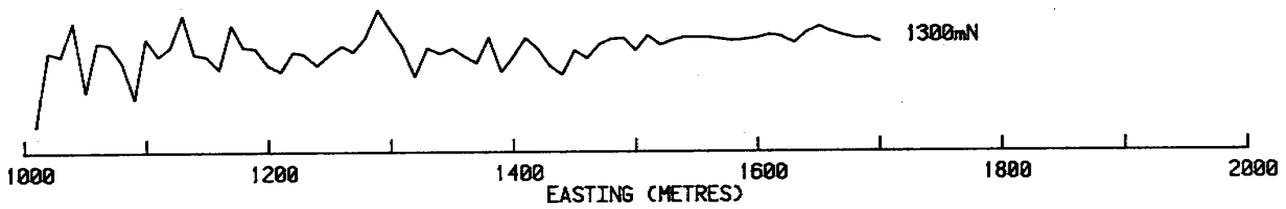
FILENAME : SCD19.MAG

SCALE-HORIZONTAL: 1:5000
-VERTICAL : 50 nT/cm

CRA EXPLORATION PTY LIMITED

SNAKE CREEK E.L.1991
GROUND MAGNETIC PROFILES
DAEDALUS ANOMALY 5/4/19

REFERENCE SE 53-8 NICHOLSON RIVER	
SCALE 1:5000	DRAWN
AUTHOR G.J.B.	REPORT *15229*
DATE 8 AUG 87	PLAN No NTd 4565



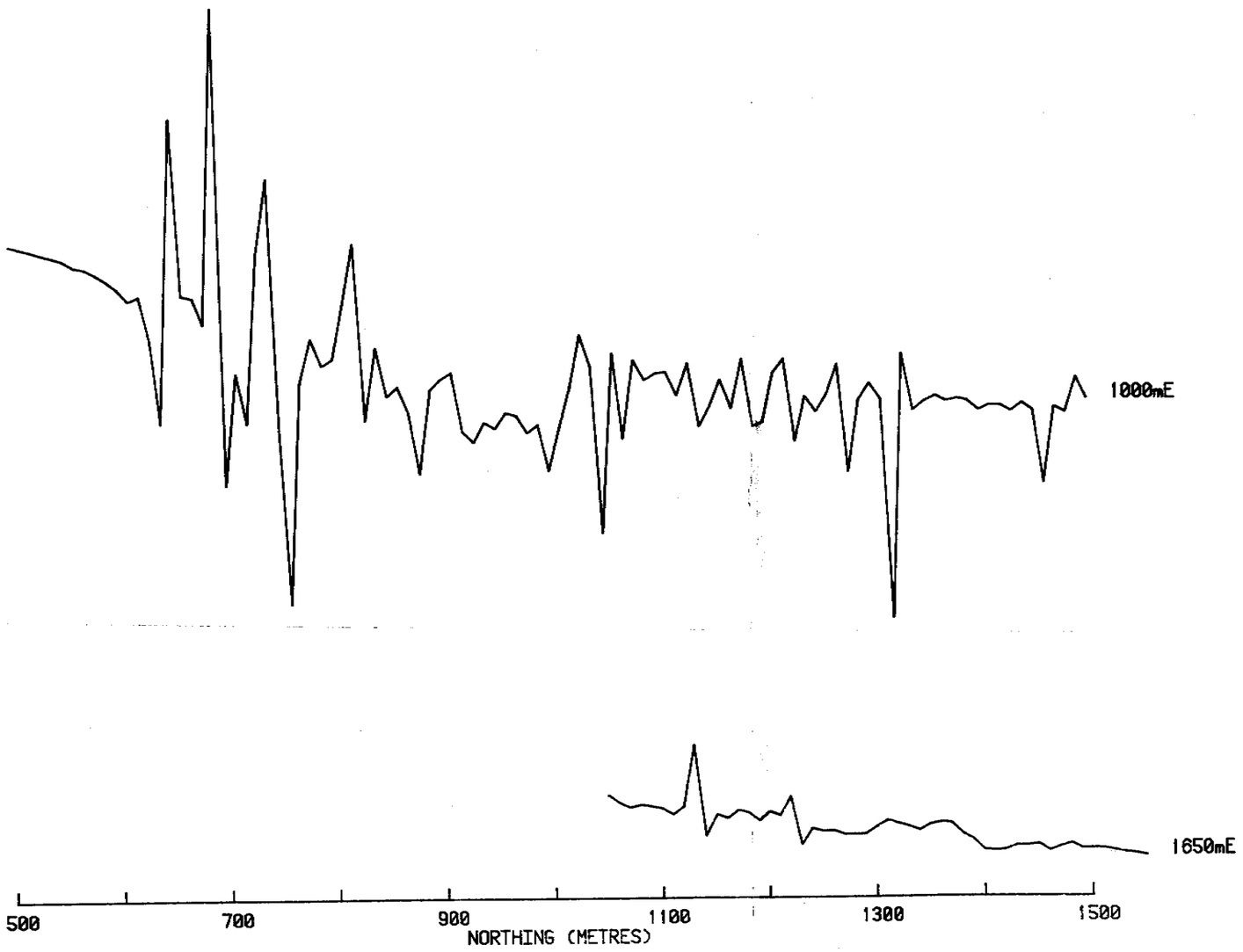


FIGURE 7

1:100 000 Sheet : NICHOLSON RIVER 636

Magnetometer : MP3 #403208
Sensitivity : +/-0.2 nT
Sensor height : 2 metres
Diurnal correction not applied

Grid north : 000 MAGNETIC
Station spacing : 10 metres
Survey date : 10-06-86
Operator : I.C.COLLIVER

Scale-horizontal: 1:5000
-vertical : 20 nT/CM

CRA EXPLORATION PTY LIMITED		
SNAKE CREEK E.L. 1991 GROUND MAGNETIC PROFILES DAEDALUS ANOMALY 5/4/20		
REF.	CALVERT HILLS SE 53-8	
SCALE	1:5000	
AUTHOR	BJM	REPORT *15229*
DATE	JULY 1986	PLAN No *NTd 4566*