DEPARTMENT OF MINES AND ENERGY

GEOLOGICAL SURVEY

SOUTH AUSTRALIA

REPORT BOOK 92/39

KINGOONYA BEDROCK DRILLING 1991

by

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DEPARTMENT OF MINES AND ENERGY
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Kingoonya Bedrock Drilling 1991

B J MORRIS

Thirty six reverse circulation drill holes, totalling 1448 (Av 40.2 m), were drilled on Kingoonya 1:100 000 sheet to determine bedrock geology and geochemistry below sedimentary cover. The areas of drilling were recommended by consultants I P Youles (Geologist) and P Woyzbun (Geophysicist) following their compilation and appraisal of all available geological and geophysical data on KINGOONYA 1:250 000 sheet.

Drilling was not extensive, and in one area failed to reach bedrock, but some anomalous bedrock geochemistry was encountered including:

Molybdenum associated with hydrothermally altered Hiltaba Suite micro-granite and Tarcoola Formation quartzite.

Base metals and gold associated with Gawler Range Volcanics, dolerite and andesite within Tarcoola Formation black shale.

Gold, zinc and rare earths associated with basalt and acid volcanic layers within Labyrinth Formation.

The aeromagnetic anomalies tested appear to be due to basaltic layers with potential for associated volcanogenic massive sulphide mineralisation.

INTRODUCTION

From 20 to 30 November 1991 a rotary/reverse circulation (RC) drilling program was completed on Kingoonya 1:100 000 map sheet by Strata Exploration for the South Australian Department of Mines and Energy (SADME), Mineral Resources Branch. The drilling program followed on from the extensive regional bedrock drilling on Moonbi, Mobella, Mulgathing, Carnding and Bulgunnia 1:100 000 map sheets.

Drill hole traverses were sited on recommendations from studies of KINGOONYA 1:250 000 sheet by consultants I P Youles who reviewed all SADME open file data and P Woyzbun who reviewed all available reprocessed aeromagnetic and gravity data. The reviews were commissioned to assist future mineral exploration by summarising previous exploration data, generating target areas and formulating concepts.

Prior to drilling ground magnetic surveys were carried out by Mineral Resources Branch personnel along all drill hole traverses. Magnetic susceptibility and radiometric measurements were taken on all drill logging samples. Surface soil samples, selected down hole samples and bottom hole basement samples were collected separately for geochemical analysis by ANALABS Laboratories. Selected samples were sent to Pontifex and Associates Pty Ltd for petrographic descriptions.

GEOLOGICAL SETTING

The geology of KINGOONYA, including Kingoonya 1:100 000 sheet (Fig. 2), has been mapped and described in detail by Cowley and Martin (1991). A compilation of mineral occurrences on KINGOONYA has been prepared by Crooks (1991).

Archaean to Early Palaeoproterozoic

Mulgathing Complex rocks are poorly exposed on the southern part of Kingoonya and comprise Kenella Gneiss, Christie Gneiss and Glenloth Granite. Granulite facies metamorphism and multi-phase deformation have affected Kenella and Christie Gneiss during the Sleafordian Orogeny (2500-2400 Ma) while Glenloth Granite is largely undeformed and post dates the major part of the orogeny.

Palaeoproterozoic

Wilgena Hill Jaspilite (banded iron formation, chert and quartzite), tentatively assigned to Hutchison Group, occurs as outcrop and float near Mt Eba and Big Tank in the central part of Kingoonya. These rocks have been deformed and meta- morphosed to greenschist-amphibolite grade during the Kimban Orogeny (c.1740 Ma).

Lincoln Complex gneissic granitoids are known near Lake Labyrinth and are probably syn-Kimban intrusives. Undeformed ultramafic rocks (peridotite and pyroxenite), intersected in a CRA Exploration Pty Ltd drill hole (DD88ME2, Fig. 3) at the northwestern end of Lake Labyrinth, are tentatively assigned to Lincoln Complex.

Tarcoola Formation comprising quartzite, sandstone and shale with possible basalt interbed is exposed in the central and northern part of Kingoonya. The northern exposures are greisenised at the contact with Mesoproterozoic Hiltaba Suite microgranite.

Mesoproterozoic

Gawler Range Volcanics (GRV, 1592 ± 2 Ma) represented by Konkaby Basalt (amygdaloidal metabasalt, lapilli tuff and agglomerate) and Ealbara Rhyolite (dacite, rhyodacite and rhyolite) are exposed south of Lake Labyrinth. Two probable eruptive vents have been recognised within Ealbara Rhyolite.

Labyrinth Formation (about 1589 Ma) comprising lithic sandstone, carbonaceous siltstone, chert and interlayered volcanics is exposed south of Lake Labyrinth and unconformably overlies Tarcoola Formation.

Unfoliated Hiltaba Suite granitoids are exposed near Lake Labyrinth and intrude Tarcoola Formation as brick-red porphyritic microgranite on northern Kingoonya where both units are extensively greisenised. Blissett and Radke (1979) consider Hiltaba Suite to be comagmatic with Gawler Range Volcanics.

Phanerozoic

Younger sediments cover basement rocks over most of the area. Jurassic Algebuckina Sandstone, a kaolinitic sandstone, is present throughout most of the sheet. The Tertiary Kingoonya Palaeochannel, containing up to 76 m of sand and clay with gypsiferous and lignitic layers, has a surface expression of playas, of which Lake Labyrinth is the largest. Shallow Quaternary sand and clay covers most of the area.

SADME INVESTIGATIONS

Ground Magnetic Survey

Ground magnetic readings were taken with an Overhauser GSM 19 Memory Magnetometer at 25 m intervals along the five drill hole traverses located on existing tracks (Fig. 2). Traverses, from 4 to 12.6 km long and totalling 41.9 line km, were pegged at 500 m intervals with GPS readings taken to provide location control. Diurnal drift was checked by repeat readings every hour. Ground magnetic profiles are shown in Appendix A.

Rotary/RC Drilling

Following the recommendations of Youles (1992) and Woyzbun (1992) four of the five drill traverses were sited over aeromagnetic features and the other over an area of greisenisation (Figs. 2 and 3). Thirty six rotary/RC drill holes totalling 1448 m (Av. 40.2 m) were drilled over the five traverses at intervals varying between 300 m and 1.5 km. Depth of holes varied from 4 m to 98 m. Maximum depth was limited by the number of operational drill rods

available. Final positioning of drill holes was dependent on features of interest on ground magnetic profiles, accessibility and amount of basement outcrop.

Representative logging samples were collected at 2 m intervals in plastic jars for storage at SADME Core Library, while bulk samples for geochemical analyses were collected where drill holes intersected basement. Sample interval was dependent on depth of basement penetrated, lithology and sample recovery. Where moderately fresh basement was encountered small `cores' were recovered in cuttings suitable for petrography (Appendix C).

Drill logs with lithological descriptions, magnetic susceptibility readings and selected analytical results are presented in Appendix B. No anomalous radiometrics were recorded during spectrometer scanning of all samples.

Geochemistry

A surface soil sample was collected at each drill site for comparison with basement geochemistry. Surface soil samples and bulk down hole samples were analysed for Cu, Pb, Zn, Co, Ni, Fe, Cr and Mn by atomic absorption spectrometry and Au by aqua-regia digestion with carbon rod finish. Bulk bottom hole samples of generally moderately fresh basement were analysed for Cu, Pb, Zn, Co, Ni, Fe, Cr, Mn, Bi, Cd, Mo, As and Ag by atomic absorption spectrometry, U, Sb, Sn, Rb, Se, W and Sr by x-ray Fluorescence, Au, Pt and Pd by fire assay with Inductively Coupled Plasma (ICP) finish, and Ba, Ce, La, Nb, Sr, Th and V plus whole rock analysis by ICP. Full geochemical results are presented in Appendix D.

Remaining bulk sample and laboratory `pulps' are stored at SADME Core Library.

Local Geology and Drill Hole Results

Traverses 5270E and 6205N (Figs. 2 and 3)

These two traverses (drill holes KIN1 to KIN14) cross an area of Quaternary and Tertiary cover with sub-outcrop of Hiltaba Suite micro-granite and Tarcoola Formation quartzite, both of which are greisenised in part and contain topaz and/or fluorite (Cowley and Martin, 1991).

Best drill intersections include:

Hole No (depth)	Interval (m)	Analyses (ppm except Au ppb)	Rock Type
KIN2 (98 m)	52-58	Pb 263, Zn 300, Ni 65	Andesite
	58-82	Zn 302	Black Shale
KIN3 (47 m)	46-47 Sandstone	Au 4	
KIN5 (26 m)	24-26 Greisenised	Mo 20, W 20?	Quartzite
KIN6 (9 m)	8-9 Greisenised	Mo 30	Quartzite
KIN7 (35 m)	26-30	Pb 260, Zn 263	dolerite (GRV?)
	30-35	Cu 140, Pb 302, Zn 2173, Ni 153	dolerite (GRV?)
KIN8 (30 m)	28-30	Mo 20	Micro-granite
KIN9 (13 m)	12-13	Mo 100	Micro-granite
KIN10 (33 m)	32-33	Mo 60	Micro-granite
KIN12 (9 m)	6-8	Pb 120	Micro-granite
KIN14 (4 m)	2-4	W 40?	Quartzite

Elevated Mo values are associated with greisenised quartzite of Tarcoola Formation and Hiltaba Suite microgranite. Anomalous base metal values are associated with Tarcoola Formation black shales containing probable GRV andesite and dolerite.

The significance of anomalous W values is uncertain and may be contamination from drill bit wear.

Traverse 5235E (Figs. 2 and 3)

This traverse (drill holes KIN15 to KIN22) crosses the eastern end of Lake Labyrinth and part of the underlying Tertiary Kingoonya Palaeochannel. An aeromagnetic high is present (Fig. 2) and Youles (1992) suggests that it may indicate a volcanic complex or diatreme with potential for Au, diamond, base metals and rare earths. Three RAB holes drilled nearby by BHP Minerals Ltd (PK19-PK21) showed geochemical values similar to their control kimberlite signature, while two percussion holes (KRP7 and KRP8) drilled by AMOCO Minerals Australia showed deuterically altered basalt with pale brown epidote and was considered to have potential for rare earths.

Best SADME drill intersections include:

Hole No (depth)	Interval (m)	Analyses (ppm except Au ppb)	Rock Type
KIN18 (43 m)	42-43	Ag 3.5, W 30	silcrete
KIN21 (41 m)	40-41	Au 4, Ba 1610, Ce 84, La 43, V 141	basalt
KIN22 quartz (65 m)	64-65	W 110	vein

All drill holes passed through up to 82 m of Tertiary Kingoonya Palaeochannel sediments. Several holes passed into sandstone and conglomerate of Mesoproterozoic Labyrinth Formation. The aeromagnetic high is reflected on the ground magnetic profile (Appendix A) and KIN21 centred on the high intersected Labyrinth Formation basalt at 38 m depth with anomalous gold content. Anomalous W assays are probably due to bit wear contamination.

Traverse 5210E (Figs. 2 and 3)

The area consists largely of Quaternary cover with sub-outcrop of Mesoproterozoic Labyrinth Formation and GRV. The traverse (drill holes KIN23 to KIN30) crosses a distinctive belt of east-north easterly trending aeromagnetic anomalies, underlain by probable Archaean and Palaeoproterozoic Mulgathing Complex rocks. This belt is similar to aeromagnetic signature over the Lake Harris ultramafic suite to the south on GAIRDNER and the Western Australian greenstone belts (Woyzbun, 1992). Youles (1992) suggests the aeromagnetic belt has potential for gold and base metal mineralisation with the high centred on the traverse possibly representing part of a volcanic complex or diatreme with potential for diamond, gold and rare earth mineralisation. Three RAB holes (PK3 to PK5) drilled by BHP Minerals Ltd., in the area, intersected altered trachytic lavas while an AMOCO Minerals Aust. percussion hole (KRP6) intersected basalt containing 40 ppb Au. Ultramafic, containing 800-900 ppm Cr and 10 ppb Pt, was intersected in SADME rotary drill hole, ERD 3 (Cowley and Martin, 1988).

Best SADME drill intersections include:

Hole No (depth)	Interval (m)	Analyses (ppm except Au ppb)	Rock Type
KIN27 (15 m)	10-12	Au 70	acid volcanic?
KIN28 (38 m)	12-36	Zn 199	basalt
KIN29 (39 m)	38-39	Ba 2170, Ce 249, La 103, Sr 429	cherty claystone
KIN30 (50 m)	48-50	Ba 1960, Ce 76, La 40, Zn 115	basalt

All drill holes passed through up to 20m of Quaternary and Jurassic (Algebuckina Sandstone) cover and then Labyrinth Formation comprising phyllite, micaceous siltstone and sandstone with acid volcanic and basalt layers.

The ground magnetic profile (Appendix A) reflects the aeromagnetic pattern. Geochemical response is subdued with anomalous gold and rare earth associated with acid volcanic and basalt layers.

Traverse 5105E (Figs. 2 and 3)

Quaternary cover blankets the area and the traverse (drill holes KIN31 to KIN36) crosses a belt of east-northeasterly trending aeromagnetic anomalies similar to that encountered on Traverse 5210E. Youles (1992) suggests potential for gold and base metal mineralisation in the basement. Two nearby AMOCO Minerals Aust. percussion holes (KRP4 and 5) intersected Mulgathing Complex quartz-feldspar gneiss with up to 60 ppb Au.

None of the SADME drill holes reached basement but passed through up to 98 m of Jurassic Algebuckina Sandstone. The mineral potential of this area remains untested.

CONCLUSIONS

The results of limited bedrock drilling on Kingoonya show anomalous bedrock geochemistry over a wide area with potential mineralisation in a number of rock units:

- Hydrothermally altered Hiltaba Suite micro-granite and Tarcoola Formation quartzite contain anomalous Mo (up to 100 ppm) and may be prospective for Sn, W and Au.

- Probable GRV dolerite and andesite within Tarcoola Formation black shale contain anomalous base metals (up to 2690 ppm Zn, 350 ppm Pb, 155 pm Cu and 190 ppm Ni) and may be prospective for gold. The black shale may also be prospective for gold and base metals.

- Basalt and acid volcanic layers of Lake Labyrinth Formation contain anomalous Au (up to 70 ppb), Zn (up to 199 ppm), Ba (up to 2170 ppm), Ce (up to 249 ppm), La (up to 103 ppm) and V (up to 141 ppm) with potential for volcanogenic massive sulphide mineralisation.

- An area of probable Mulgathing Complex with associated aeromagnetic anomalies remains untested.

The aeromagnetic anomalies tested by drilling appear to be due to basaltic layers.

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APPENDIX A

GROUND MAGNETIC PROFILES

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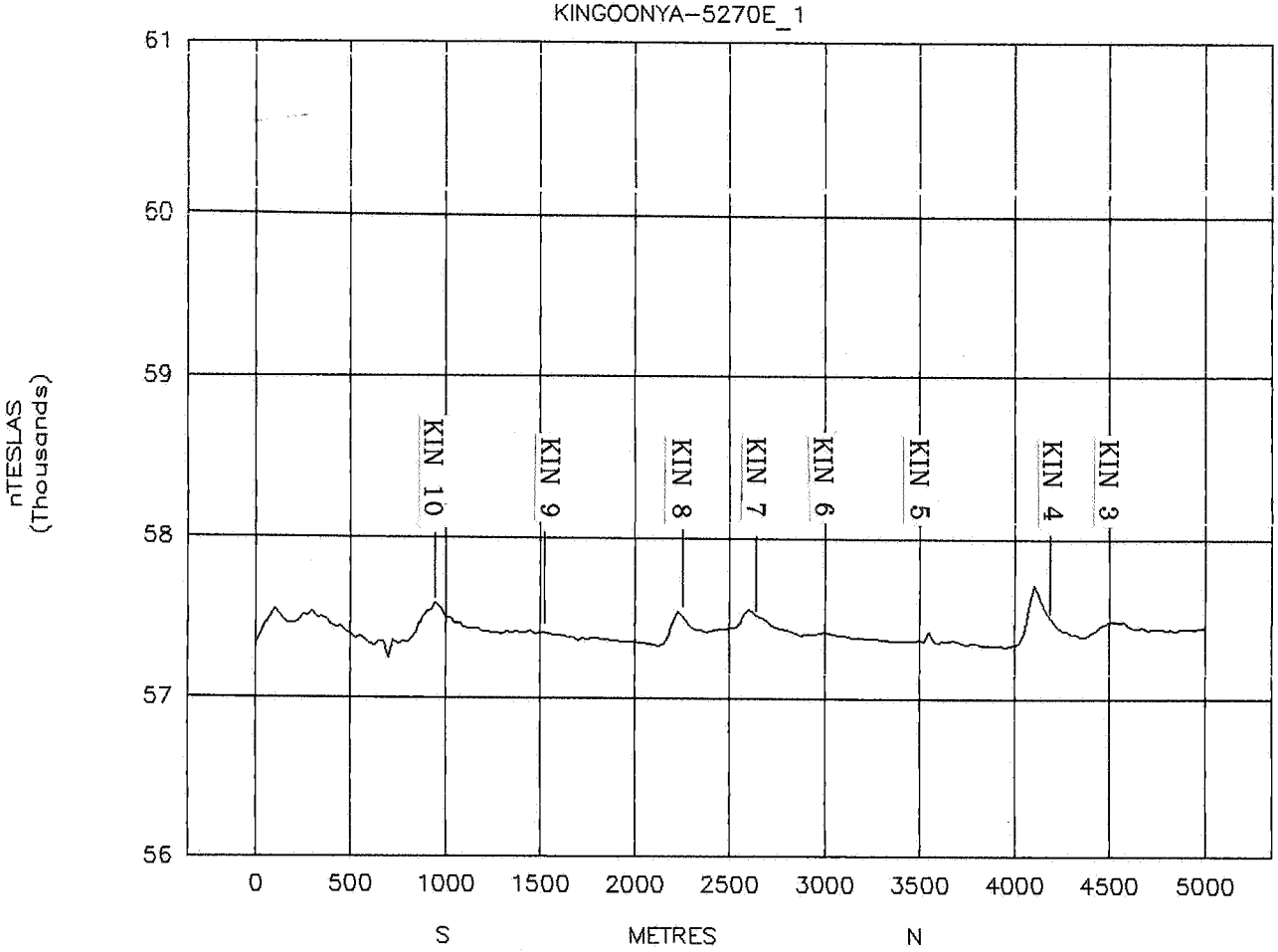
KINGOONYA–5270E_1



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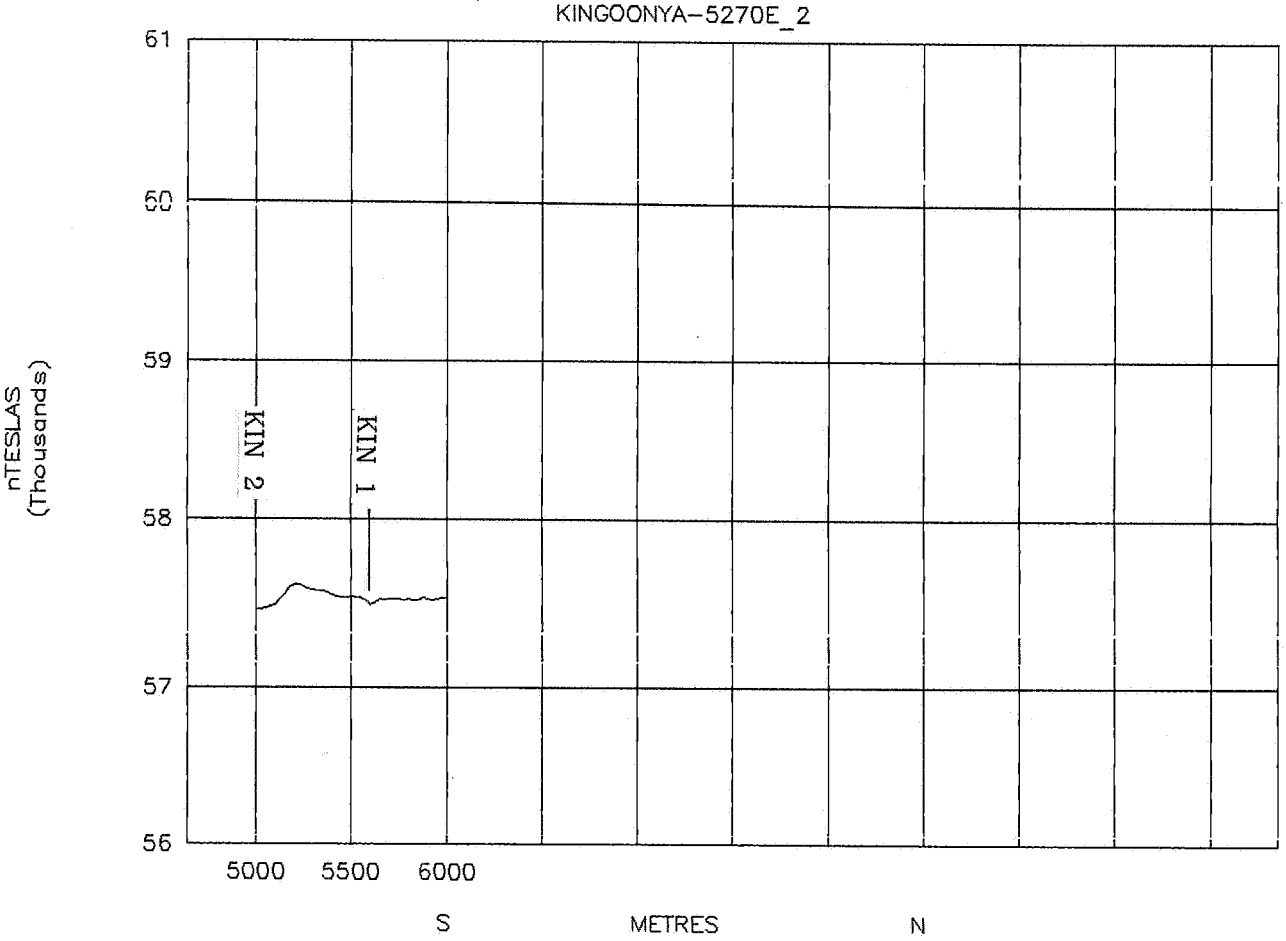

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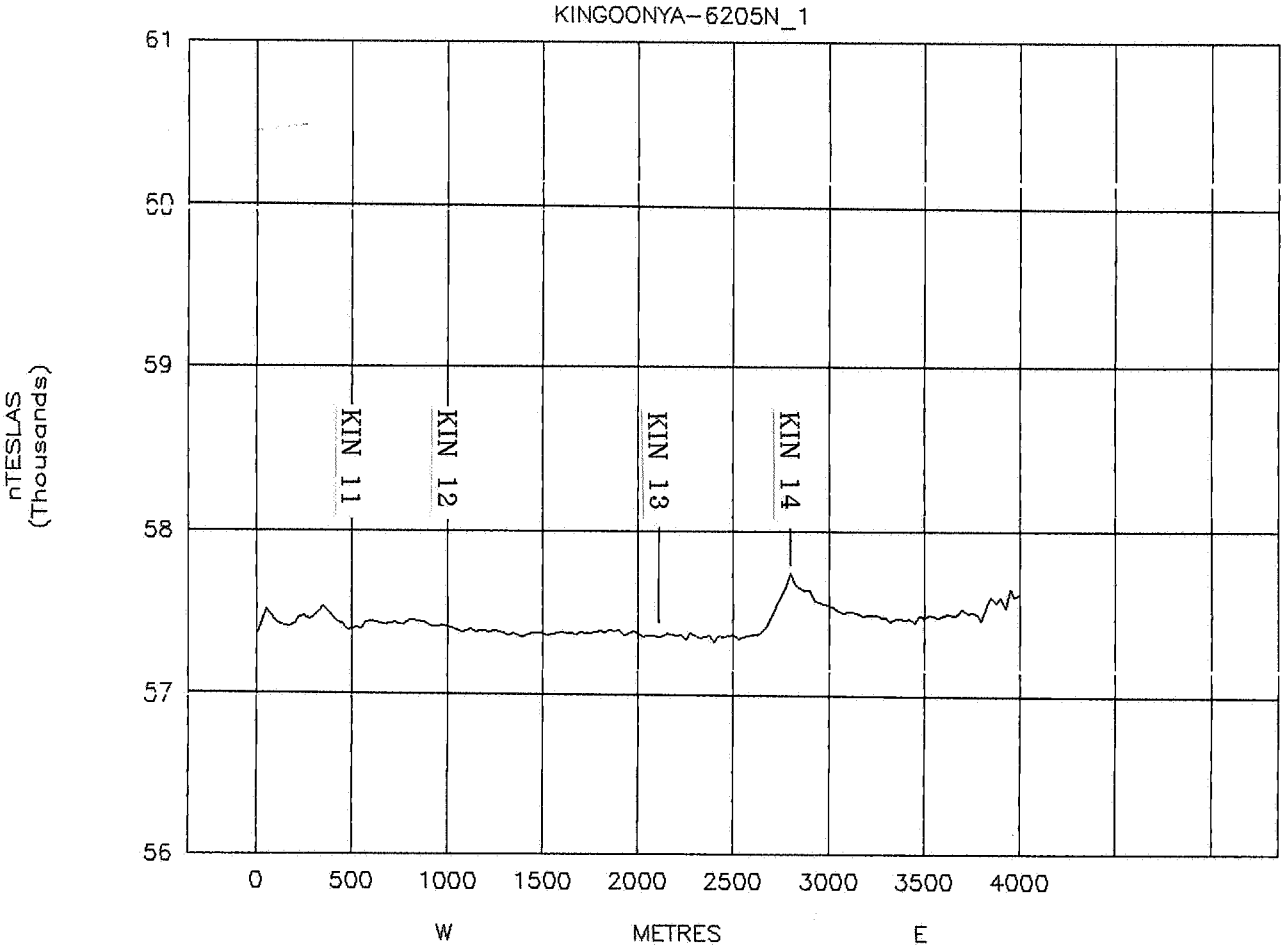

LAKE LABYRINTH

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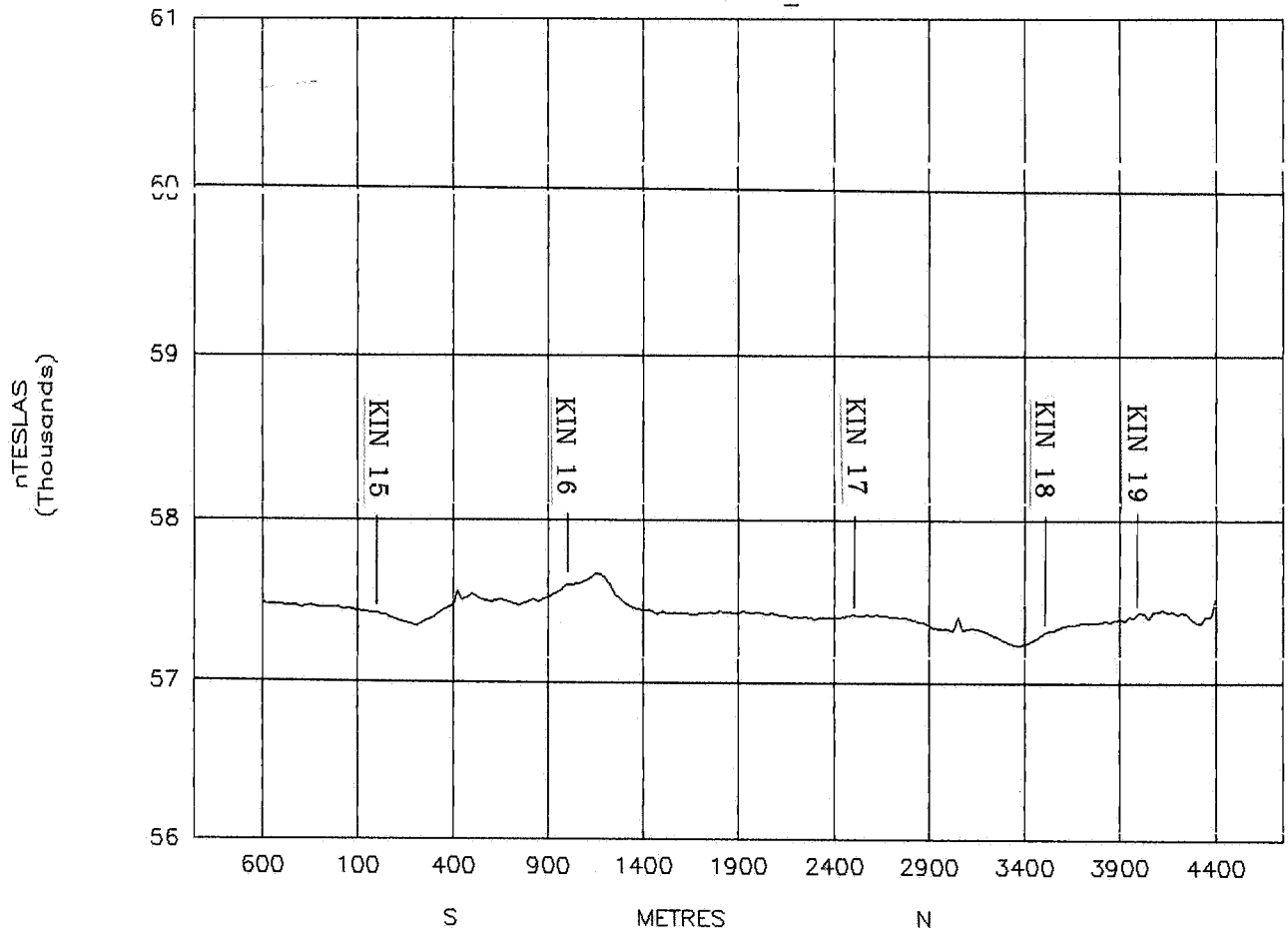

LAKE LABYRINTH

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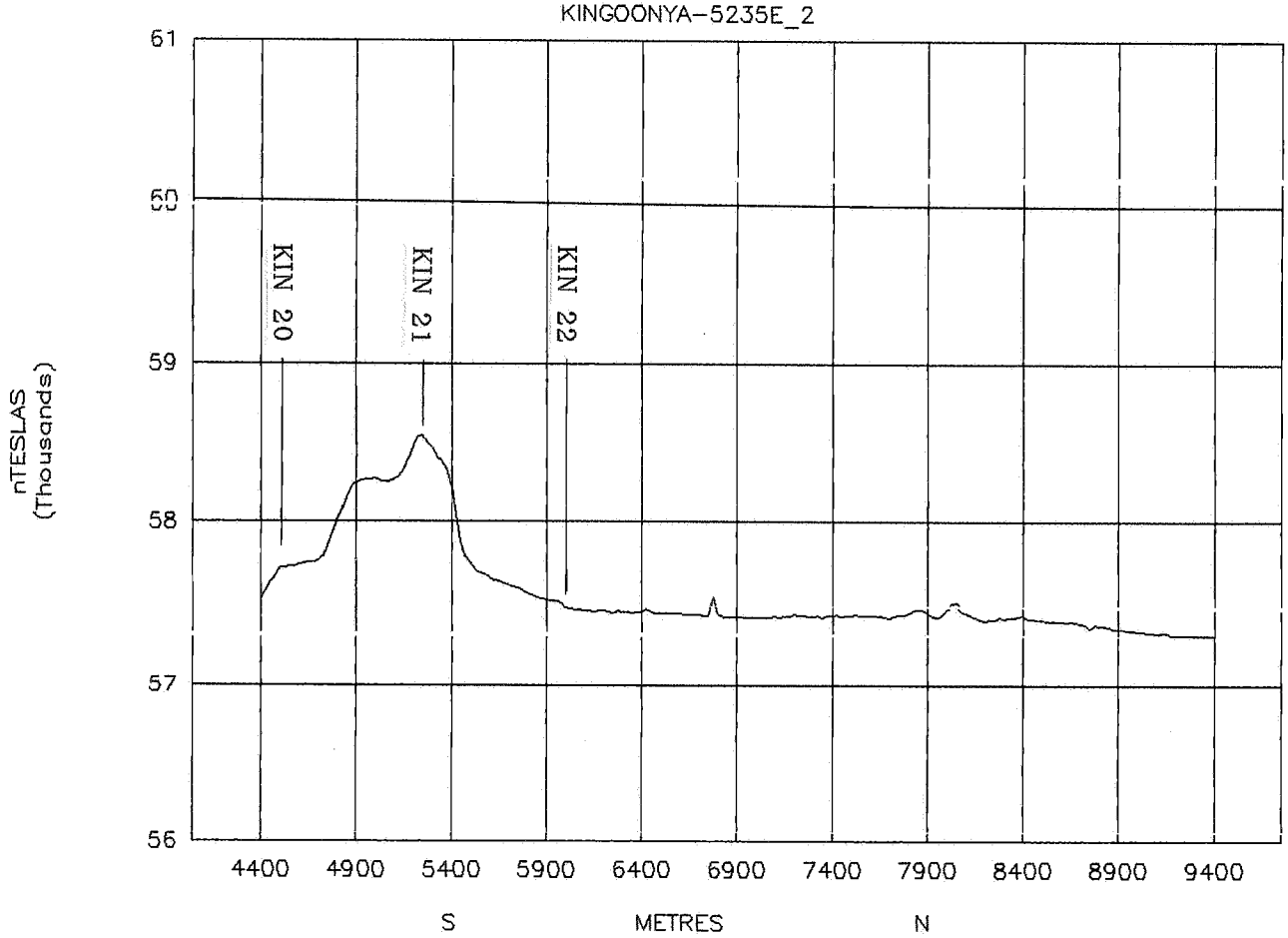

LAKE LABYRINTH

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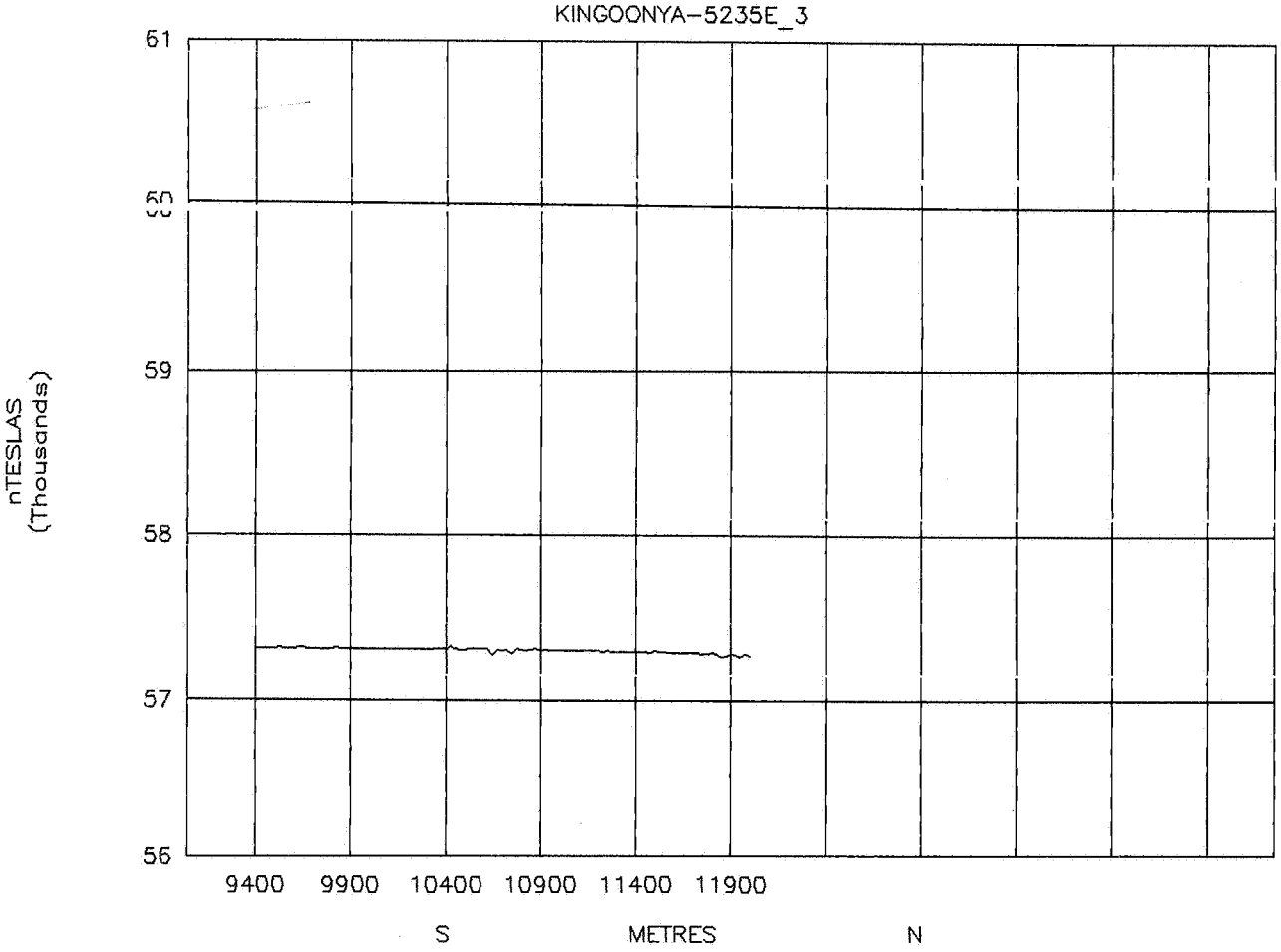

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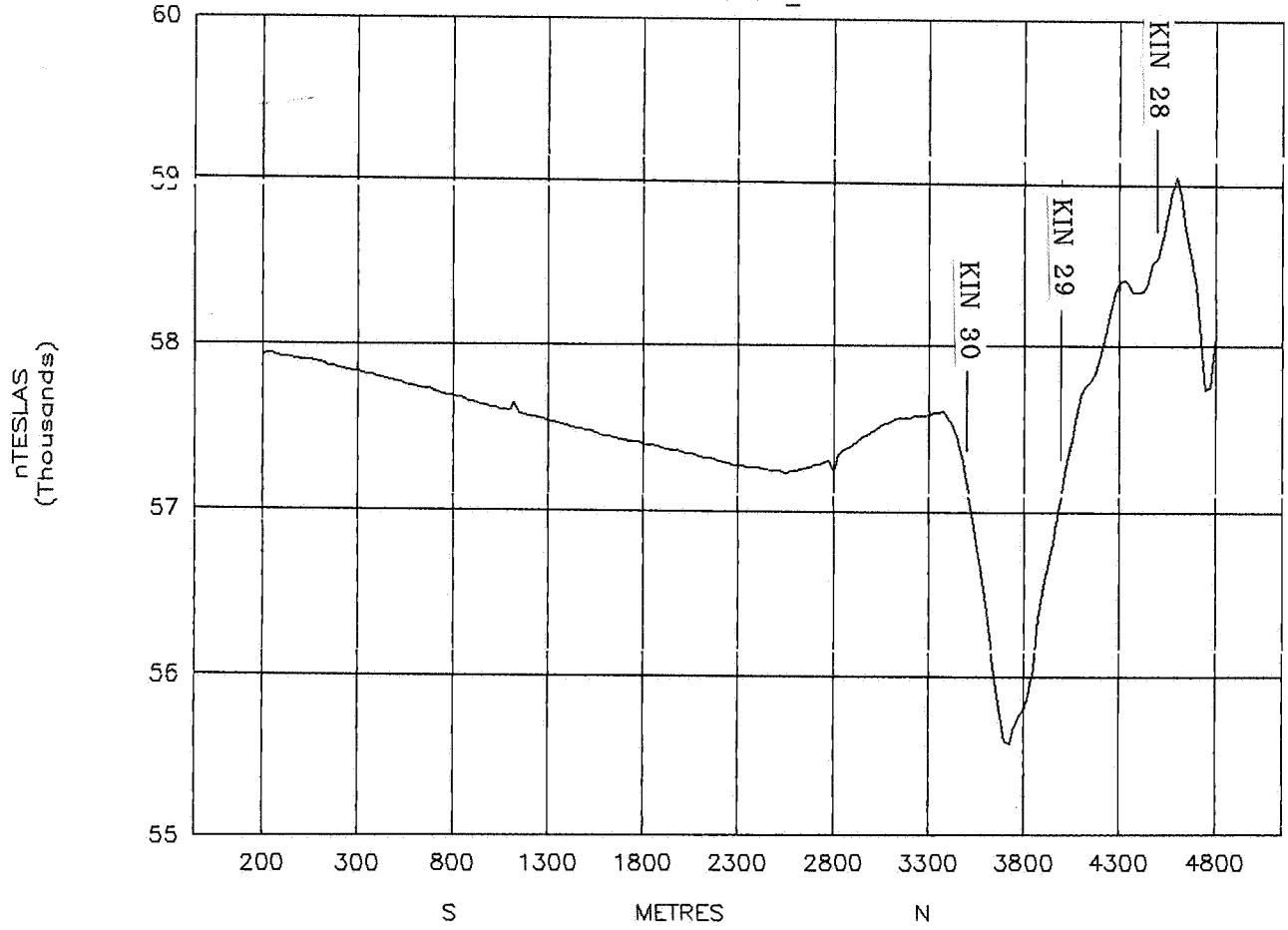

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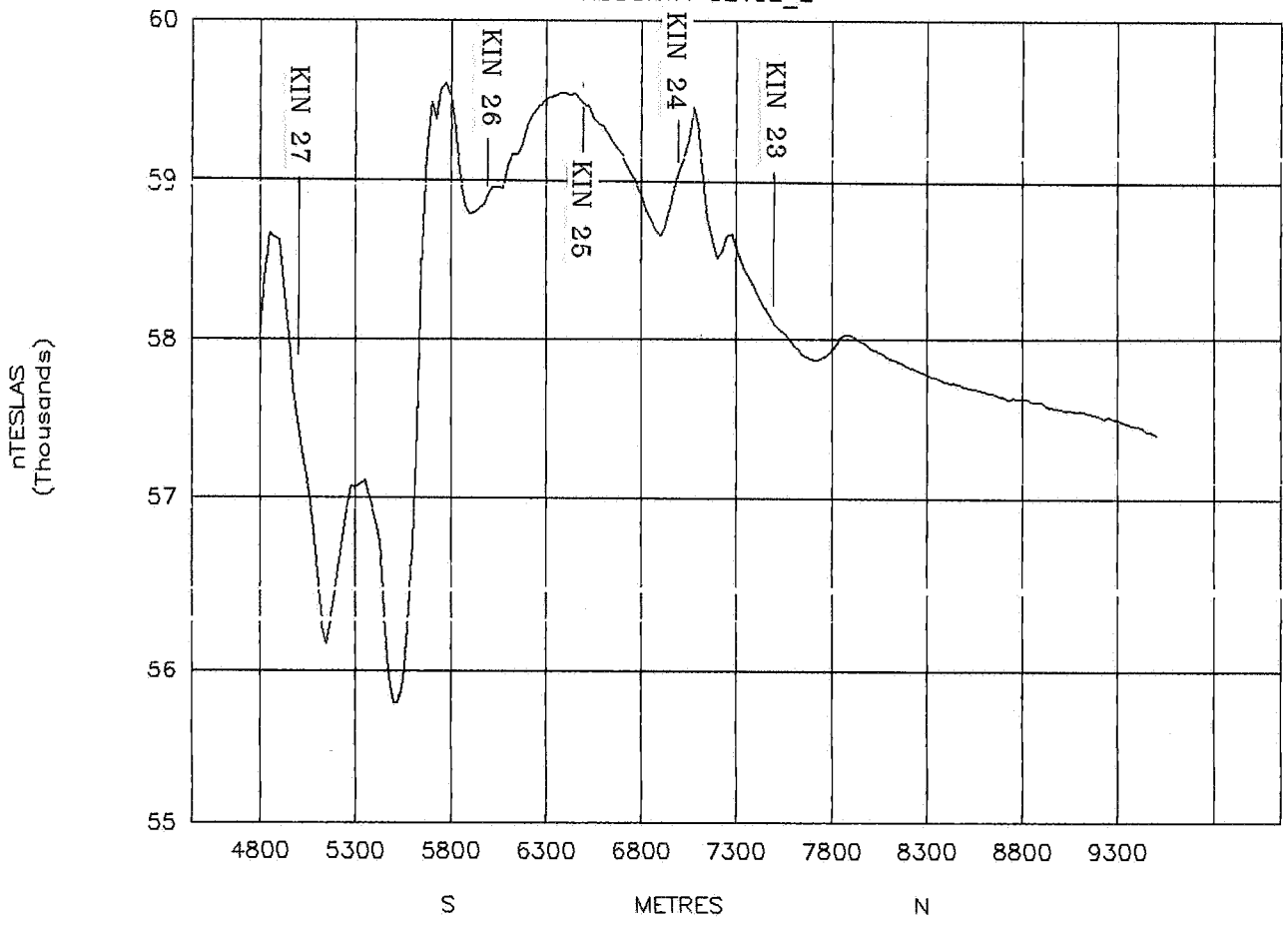
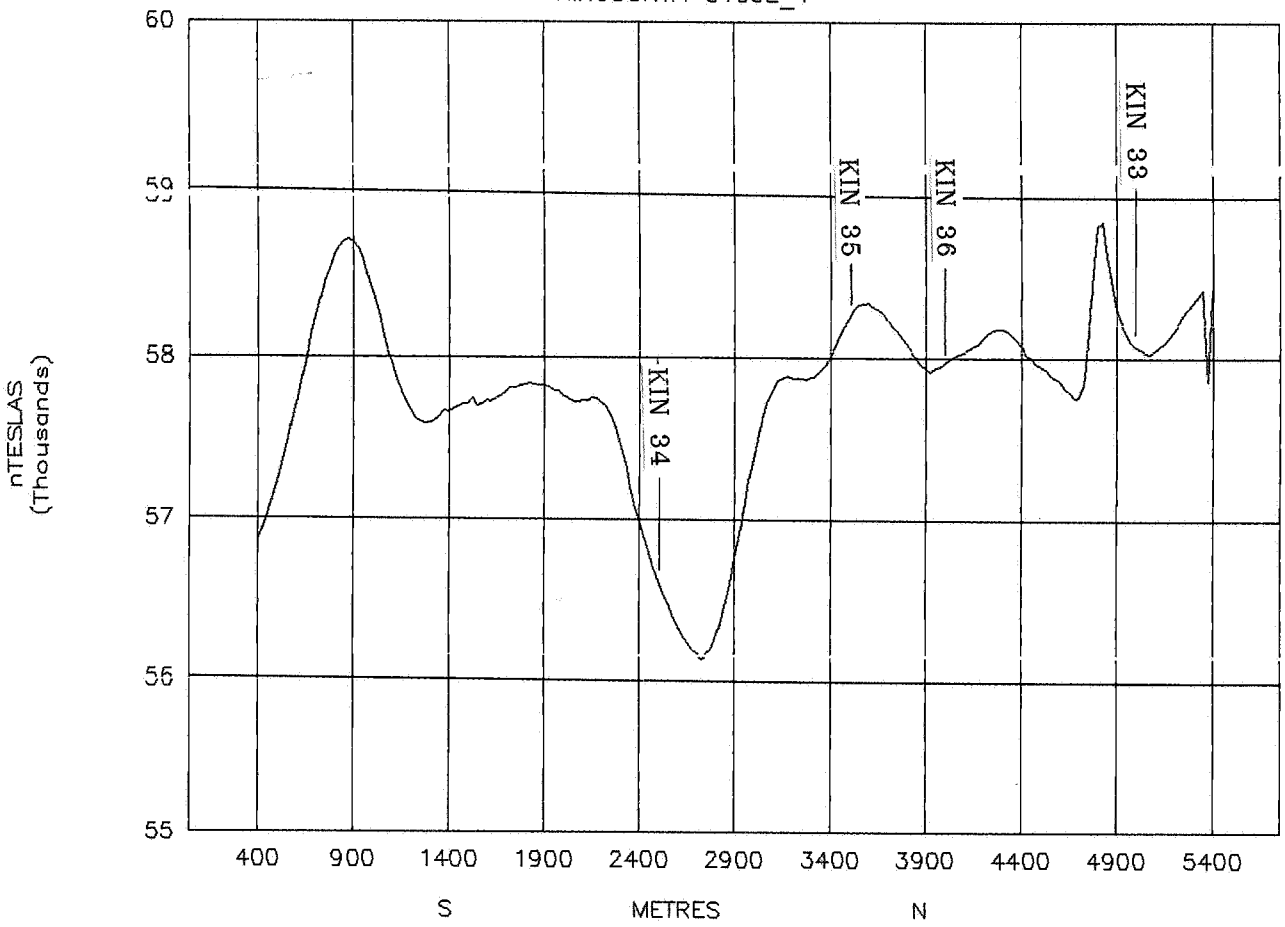


GILBERT BORE

KINGOONYA–5105E_1



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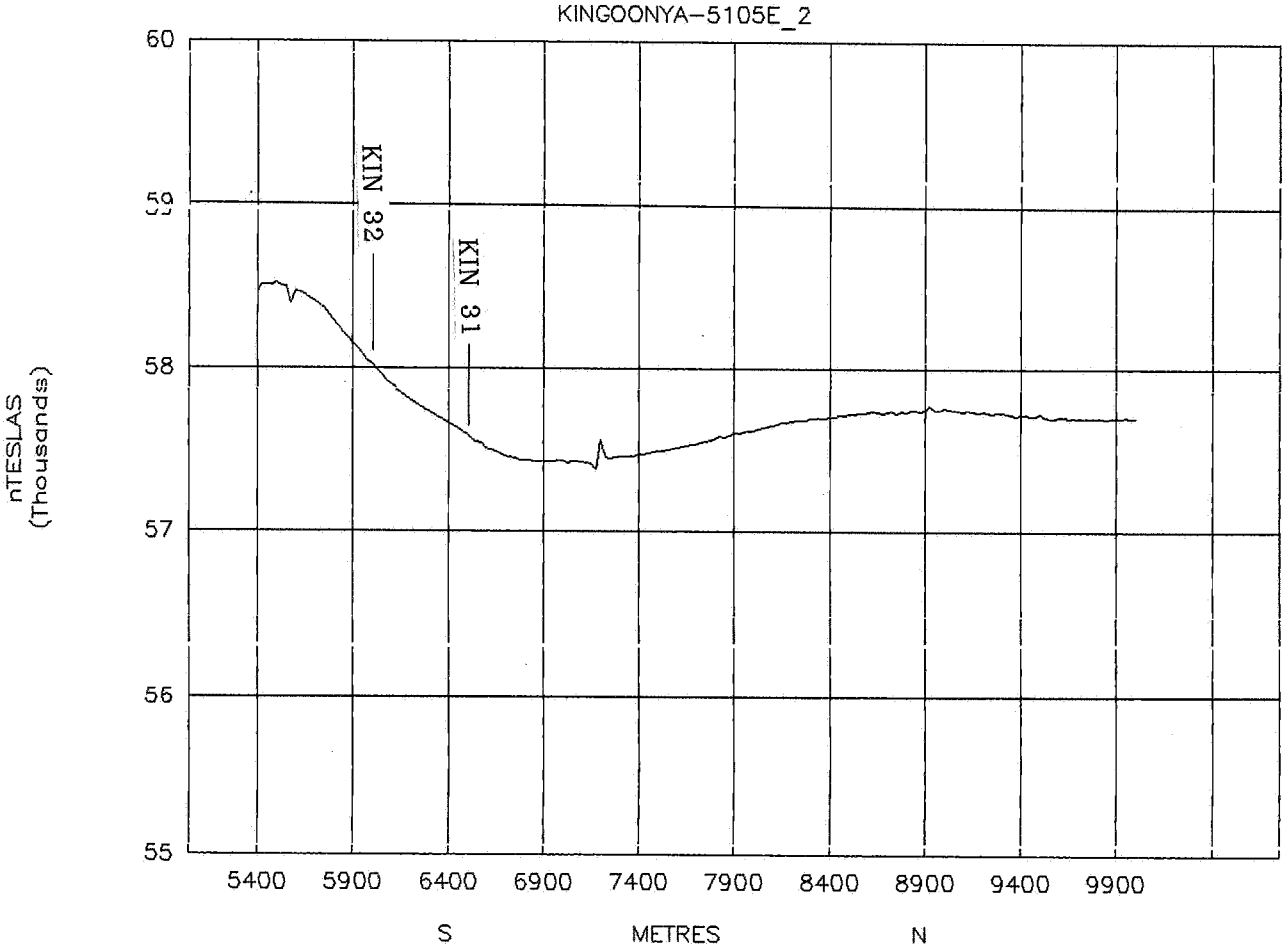

APPENDIX B

GEOLOGICAL DRILL LOGS

HOLE NO: KIN 1

100 000 SHEET NO: 5936

TRAVERSE: 5270 E

STATION: 5 590 N

LOCATION: 529 235 mE
6 622 424 mN

DATE DRILLED: 20/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 67 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. weakly calc. sandy soil with silcrete and ferricrete gibber	.10	0-0.2,R	218	5 / 35	5 / -	15 / -	10 / -	<1 / -
2-4	Pale grey f.g.-m.g. silty sandst, silicified	.02							
4-6	As above m.g.	.02							
6-8	Pale grey clay silt and f.g. sandst.	.02							
8-10	As above	.03							
10-12	As above	.02							
12-14	As above	.02							
14-16	As above some yellow Fe staining	.04							
16-18	As above with pale brown ~ qtzite pebbles	.03							
18-20	Pale yellow m.g. sandy clay silt	.04							
20-22	As above with qtzite pebbles	.07							
22-24	ferrug. yellow clay silt plus c.g. qtz-FeO sand with rock frag grains	.15							
24-26	As above	.07							
26-28	As above with black FeO on fractures	.17							
28-30	Yellow sandy clay silt	.05							
30-32	Grey-brown clay silt	.05							
32-34	As above with chips of phyllite	.03							
34-36	As above	.10							
36-38	Dark grey siltst with carbonaceous layers	.07							
38-40	As above with granitic pebbles	.04							
40-42	Dark grey shale, micaceous partings	.04							
42-44	As above with granitic pebbles	.04							
44-46	Dark grey graphitic shale, thinly laminated with micaceous partings.	.06							
46-48	As above	.06							
48-50	As above	.05							
50-52	As above	.03							
52-54	As above	.08							
54-56	As above with pyrite	.08	46-56,R	219	30 / 5	30 / -	125 / -	35 / -	<1 / -

KIN 1 (cont.)

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
56-58	As above	.08							
58-60	As above	.09							
60-62	As above	.07							
62-64	As above	.09							
64-66	As above	.09	56-66,R,P	220	15	25	55	15	<1
					10	-	-	-	-
66-67	As above at 66.8 pale-grey-pink acid volcanic with veinlets of pyrite.	.74	66-67,W,P	221	20	40	100	20	1
					10	813	20	29	.06
	EOH 67 m								

HOLE NO: KIN 2 100 000 SHEET NO: 5936

TRAVERSE: 5 270 E STATION: 5 000 N LOCATION: 529 098 mE
6 621 833 mN

DATE DRILLED: 20-21/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 98 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. sandy silt soil minor calcrete, plus silcrete gibber on off-white f.g.-m.g. sandst.-silicified	.10	0-0.2,R	222	5 / 25	5 / -	10 / -	10 / -	<1 / -
2-4	Pale grey siltst	.03							
4-6	Red and grey clay silt with m.g. sand	.03							
6-8	M.g.-c.g. sandst with clay silt matrix	.01							
8-10	As above	.03							
10-12	Yellow-grey silt with c.g. qtz and FeO grains	.05							
12-14	Red-brown and yellow clay fine mica	.08							
14-16	As above	.09							
16-18	As above	.09							
18-20	As above	.06							
20-22	As above plus some c.g. qtz grains	.05							
22-24	As above	.04							
24-26	As above	.03							
28-30	Yellow clay silt with frags of ferruginised feld rich rock	.05							
30-32	White clay silt with grains of white feld	.03							
32-34	Pale yellow clay silt with chips of grey siltst, f.g. sandst.	.06							
34-36	As above	.04							
36-38	Pale grey-yellow thinly laminated shale	.05							
38-40	Grey-mauve weathered shale	.05							
40-42	Chips black shale, py stringers common	.05							
42-44	Black graphitic shale-py stringer common	.18	40-44,R	223	25 / 5	25 / -	130 / -	20 / -	<1 / -
44-46	As above	.04							
46-48	Thinly laminated black shale minor pyr.	.04	44-48,R	224	15 / 10	15 / -	275 / -	20 / -	<1 / -
48-50	As above	.04							
50-52	As above	.04	48-52,R	225	40 / 10	15 / -	115 / -	10 / -	<1 / -
52-54	Pale grey chips of apatite rich andesite with qtz-chlorite-albite alteration.	.18	52-54,R,P	226	55 / 35	390 / -	430 / -	95 / -	<1 / -

KIN 2 (cont.)

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
54-56	Dark grey shale, py stringers common	.09							
56-58	As above	.05	54-58,R	227	15	135	170	35	<1
					15	-	-	-	-
58-60	Pale grey f.g. silty sandst with some bi	.12							
60-62	Grey graphitic shale, minor py	.08	58-62,R	228	25	50	320	35	<1
					5	-	-	-	-
62-64	As above but py common	.07							
64-66	As above	.08							
66-68	As above , minor py	.07							
68-70	As above	.10	62-70,R	229	10	50	365	20	<1
					10	-	-	-	-
70-72	As above , py common is veinlets, also disseminated	.23							
72-74	As above	.07							
74-76	As above	.06	70-76,R	230	15	35	145	25	<1
					10	-	-	-	-
76-78	As above	.07							
78-80	As above	.18							
80-82	Dark grey graphitic shale minor py	.23	76-82,R	231	25	25	220	20	<1
					10	-	-	-	-
82-84	As above	.11							
84-86	As above	.09							
86-88	As above	.07	82-88,R	232	20	10	90	25	<1
					10	-	-	-	-
88-90	As above	.11							
90-92	As above	.06							
92-94	As above	.10	88-94,R	233	20	15	75	20	<1
					5	-	-	-	-
94-96	Dark grey graphitic, pyritic shale with thin pyritic sandst f.g. bed at 95 m	.12							
96-98	Dark grey graphitic, pyritic shale	.06	94-98,W,P	234	20	15	5	25	1
					5	741	20	29	0.7
	EOH 98 m								

HOLE NO: KIN 3

100 000 SHEET NO: 5936

TRAVERSE: 5 270 E

STATION: 4 500 N

LOCATION: 528 956 mE
6 621 373 mN

DATE DRILLED: 21/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 47 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. silt sand soil with silcrete pebbles some calcrete on red ferrug. clay	.16	0-0.2,R	235	10 / 35	10 / -	25 / -	15 / -	<1 / -
2-4	Yellow-white silcrete	.04							
4-6	Pale grey clay silt and m.g. silty sandst	.07							
6-8	As above	.06							
8-10	As above	.05							
10-12	As above	.05							
12-14	White siltst	.04							
14-16	As above	.07							
16-18	As above plus m.g. - silty sandst	.12							
18-20	As above, minor pale brown qtzite pebbles	.05							
20-22	As above	.07							
22-24	Off-white clay silt plus chips of silicified siltst - pale grey-green	.07							
24-26	As above	.08							
26-28	Pale grey-green f.g. silicified sandst	.05							
28-30	As above with siltst layers	.10							
30-32	As above	.04	26-32,R	236	5 / 10	40 / -	5 / -	5 / -	<1 / -
32-34	Grey green clay silt, siltst and f.g. sandst	.05							
34-36	As above	.03							
36-38	As above	.04	32-38,R	237	5 / 5	70 / -	10 / -	<5 / -	<1 / -
38-40	Pale grey siltst with veinlets of black FeO (prob. after py)	.03							
40-42	As above	.03							
42-44	Pale grey-green silt, grey-green f.g. sandst and siltst with FeO after py along fractures	.12	38-44,R,P	238	5 / 5	15 / -	55 / -	<5 / -	<1 / -
44-46	Pale grey-yellow silty sandst and sandy siltst, FeO after py along fractures	.10	44-46,R	239	15 / 10	20 / -	95 / -	15 / -	1 / -
46-47	As above	.17	46-47,W	240	20 / 5	20 / 786	65 / 17	5 / 14	4 / .06
	EOH 47 m								

HOLE NO: KIN 4

100 000 SHEET NO: 5936

TRAVERSE: 5270 E

STATION: 4 200 N

LOCATION: 528 792 mE
6 621 045 mN

DATE DRILLED: 21/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 7 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	R.b. fine sand silt soil with r.b. qtzite cobbles. Soil weakly calcareous	.25	0-0.2,R	241	10	5	30	10	<1
					25	-	-	-	-
2-4	White-pale grey f.g.-m.g. silty sandst	.05							
4-6	Cherty quartz	.07							
6-7	Silicified, sericitised granophyre.	.02	4-7,W,P	242	<5	25	5	<5	<1
					<5	402	11	2	<05
	sericite?								
	EOH 7 m								

HOLE NO: KIN 5

100 000 SHEET NO: 5936

TRAVERSE: 5270 E

STATION: 3 500 N

LOCATION: 528 458 mE
6 620 531 mN

DATE DRILLED: 21/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 26 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	R.b. sandy soil with vuggy cherty quartz rubble on yellow white f.g. - m.g. silty sandst	.08	0-0.2,R	243	5	10	30	5	<1
					20	-	-	-	-
2-4	Yellow silt with chips of silty sandst	.05							
4-6	As above	.04							
6-8	Yellow-white clay silt with minor sandst	.05							
8-10	As above	.04							
10-12	As above	.04							
12-14	As above	.14							
14-16	As above	.02							
16-18	As above with m.g.-c.g. qtz grains	.05							
18-20	As above to 19m then grey glassy recryst quartzite? hard	.07	18-20,R	244	5	30	30	5	<1
					15	-	-	-	-
20-22	Roller bit grinds above to fine sample	.35							
22-24	As above	.63	22-24,R	245	<5	15	15	5	<1
					10	-	-	-	-
24-26	As above	1.68	24-26,W	246	5	20	15	10	<1
					10	159	<10	2	<05
	EOH 26 m								

HOLE NO: KIN 6

100 000 SHEET NO: 5936

TRAVERSE: 5270 E

STATION: 3 000 N

LOCATION: 528 340 mE
6 620 049 mN

DATE DRILLED: 22/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 9 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	R.b. silt sand soil with frags silcrete, ferricrete, weakly calcareous	.28	0-0.2,R	247	<5	10	10	5	<1
					30	-	-	-	-
2-4	White-grey m.g. silty sandst.	.03							
4-6	Pale yellow clay silt with chips of f.g. sandst	.02							
6-8	Yellow clay silt with m.g. silty sandst	.04							
8-9	Chips pale grey quartzite with sericite, rutile and zircon.	.31	8-9,W,P	248	10	5	20	10	<1
					20	74	<10	2	<05
	EOH 9 m								

HOLE NO: KIN 7

100 000 SHEET NO: 5936

TRAVERSE: 5270 E

STATION: 2 650 N

LOCATION: 528 050 mE
6 619 701 mN

DATE DRILLED: 22/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 35 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. sandy soil silcrete rubble, rounded quartzite pebbles, minor calcrete	.12	0-0.2,R	249	<5 / 20	<5 / -	20 / -	10 / -	<1 / -
2-4	Pale yellow silt clay with chips of coarse gypsum	.01							
4-6	Pale yellow clay silt, chips f.g. silty sandst.	.06							
6-8	As above	.03							
8-10	White-yellow clay silt	.00							
10-12	White kaolin clay, minor Fe staining	.04							
12-14	As above	.02							
14-16	As above	.04							
16-18	As above	.06							
18-20	Pale yellow-white silt-clay with spots of yellow FeO (after py?)	.02							
20-22	As above	.06							
22-24	As above	.03							
24-26	Off-white kaolin clay	.15							
26-28	Tan silt-clay with chips of mottled white-brown-yellow clay-silt with specks of FeO after py.	.08	26-28,R	250	20 / 15	280 / -	225 / -	55 / -	<1 / -
28-30	As above	.14	28-30,R	251	25 / 15	240 / -	300 / -	50 / -	<1 / -
30-32	As above with common clumps and specks of black-brown FeO	.15	30-32,R	252	155 / 25	280 / -	1815 / -	165 / -	<1 / -
32-34	As above	.17	32-34,R	253	145 / 20	275 / -	2690 / -	190 / -	<1 / -
34-35	MF frags of brown ferrug rock of feld-mafic and apple green clay (dolerite).	.92	34-35,W,P	254	120 / 10	350 / 431	2015 / <10	105 / 3	<1 / <05
	EOH 35 m								

HOLE NO: KIN 8

100 000 SHEET NO: 5936

TRAVERSE: 5270 E

STATION: 2 250 N

LOCATION: 527 918 mE
6 619 354 mN

DATE DRILLED: 22/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 30 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. sandy soil, minor calcrete and silcrete pebbles on calcareted sand	.00	0-0.2,R	255	10 / 30	5 / -	40 / -	10 / -	<1 / -
2-4	Calcreted sand on pale grey sandy siltst	.15							
4-6	Pale grey f.g. - c.g. friable sandst	.11							
6-8	As above with some silt layers	.05							
8-10	As above	.03							
10-12	As above	.05							
12-14	As above	.09							
14-16	Off-white clay-siltst and f.g. silty sandst	.04							
16-18	White silt-clay with minor f.g. silty sandst	.13							
18-20	As above	.06							
20-22	As above	.24							
22-24	As above some mauve FeO stringers	.02							
24-26	As above	.03							
26-28	As above	.16							
28-30	F.g. silty sandst, ferruginous with some c.g. rock grains. At 28.9 stopped on hard pink porphyritic microgranite.	.03	28-30,W,P	256	5 / <5	35 / 54	30 / 23	5 / 1	<1 / <05
	EOH 30 m								

HOLE NO: KIN 9 100 000 SHEET NO: 5936

TRAVERSE: 5270 E STATION: 1 510 N LOCATION: 527 598 mE
6 618 756 mN

DATE DRILLED: 22/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 13 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	R.b. sandy soil with silcrete and ferricrete pebbles on weakly calcreted r.b. silt sand	.25	0-0.20,R	257	10	5	35	5	<1
					40	-	-	-	-
2-4	Off-white weakly silicified f.g. - m.g. silty sandst	.05							
4-6	As above	.04							
6-8	As above, not silicified	.01							
8-10	Off-white silt-clay, chips of f.g. silty sandst	.02							
10-12	Off-white f.g. sandy clay silt	.04							
12-13	Pink porphyritic microgranite.	.01	12-13,W,P	258	<5	5	20	5	<1
					5	256	<10	1	<05
	EOH 13 m								

HOLE NO: KIN 10

100 000 SHEET NO: 5936

TRAVERSE: 5270 E

STATION: 950 N

LOCATION: 527 289 mE
6 618 531 mN

DATE DRILLED: 22/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 33 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. sandy soil with FeO grains with calcreted sandy soil below	.36	0-0.20,R	259	10 / 100	5 / -	15 / -	10 / -	<1 / -
2-4	As above with chips of ferrug silcrete	.44							
4-6	As above	.88							
6-8	Off-white weakly silicified m.g. silty sandst	.03							
8-10	As above	.04							
10-12	Off-white f.g. silty sandst	.02							
12-14	Yellow Fe stained f.g. - m.g. sandst	.05							
14-16	Off-white as above	.03							
16-18	C.g. sandst, weakly silicified with grains of pink volcanic	.02							
18-20	As above with some clay-silt bands	.03							
20-22	Off-white silt-clay with f.g.-m.g. sandst	.06							
22-24	As above with some rock grains in sandst	.05							
24-26	Pale yellow silt-clay, minor sandst.	.08							
26-28	As above	.06							
28-30	Yellow silt with chips of grey red M.W. sandst or volcanic? ferruginous	.07	28-30,R	260	10 / 5	20 / -	40 / -	<5 / -	<1 / -
30-32	As above	.06	30-32,R	261	30 / 10	15 / -	45 / -	5 / -	1 / -
32-33	Pale grey-brown porphyritic microgranite.	.05	32-33,W,P	262	35 / 10	5 / 420	35 / 14	5 / 3	1 / <05
	EOH 33 m								

HOLE NO: KIN 11

100 000 SHEET NO: 5936

TRAVERSE: 6205 N

STATION: 500 E

LOCATION: 527 214 mE
6 620 534 mN

DATE DRILLED: 22/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 17 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	R.b. sandy soil with frags of calcrete, quartzite and vein qtz on calcreted sand	.16	0-0.20,R	263	10	5	30	10	<1
					75	-	-	-	-
2-4	Pale brown silt-clay with m.g.- c.g. sand	.07							
4-6	As above with FeO grains	.05							
6-8	Pale brown silt with chips of red-grey w volcanic? f.g. with m.g. round qtz grains	.07							
8-10	As above	.04	6-10,R	264	15	10	55	15	<1
					50	-	-	-	-
10-12	As above	.05							
12-14	Pale pink-yellow w microgranite.	.05	10-14,R	265	5	10	45	5	<1
					15	-	-	-	-
14-16	As above M.F. - some FeO along fractures	.03	14-16,R	266	5	5	60	5	<1
					5	-	-	-	-
16-17	As above MF-F, aphyric granite.	.00	16-17,W,P	267	<5	15	45	5	<1
					<5	208	21	3	<05
	EOH 17 m								

HOLE NO: KIN 12

100 000 SHEET NO: 5936

TRAVERSE: 6205 N

STATION: 1 000 E

LOCATION: 527 828 mE
6 620 530 mN

DATE DRILLED: 23/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 9 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. silt sand soil on off white weakly silicified f.g.-m.g. silty sandst	.12	0-0.20,R	268	15 30	15 -	55 -	10 -	<1 -
2-4	Off white silicified silty m.g. sandst	.03							
4-6	As above	.03							
6-8	As above with chips of pale pink microgranite.	.03	6-8,R	269	10 10	120 -	10 -	<1 -	<1 -
8-9	Pink porphyritic microgranite.	.02	8-9,W,P	270	<5 <5	65 100	5 16	5 2	<1 <05
	EOH 9 m								

HOLE NO: KIN 13 100 000 SHEET NO: 5936

TRAVERSE: 6205 N STATION: 2 100 E LOCATION: 528 895 mE
6 620 530 mN

DATE DRILLED: 23/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 24 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. silt sand soil with ferricrete pebbles on grey m.g. sandst	.08	0-0.20,R	271	10 / 45	5 / -	35 / -	10 / -	1 / -
2-4	Grey siltstone material with some mauve fluorite?	.03							
4-6	Chips of qtz feld-muscovite, with minor fluorite?, w. greisen	.02							
6-8	As above	.03							
8-10	MF chips of m.g. qtz-feld (kaolinitic), granoblastic texture minor fluorite and FeO grains	.03							
10-12	As above	.02	2-12,R	272	5 / 10	35 / -	20 / -	<5 / -	<1 / -
12-14	As above	.01							
14-16	As above MF	.02							
16-18	As above	.03	12-18,R	273	5 / 10	45 / -	10 / -	<5 / -	<1 / -
18-20	As above	.02							
20-22	As above	.01	18-22,R	274	5 / 10	30 / -	10 / -	5 / -	<1 / -
22-24	Some yellow claysilt on hard pale grey qtz-greisen (silicified, sericitised granophyre)	.04	22-24,W,P	275	5 / 5	45 / 472	5 / 13	5 / 5	<1 / <05
	EOH 24 m								

HOLE NO: KIN 14

100 000 SHEET NO: 5936

TRAVERSE: 6205 N

STATION: 2 800 E

LOCATION: 529 587 mE
6 620 537 mN

DATE DRILLED: 23/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 4 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	R.b. sandy silt soil with pebbles of ferricrete, silcrete, some qtzite, on silcrete	.00	0-0.20,R	276	10	10	35	15	2
					85	-	-	-	-
2-4	Quartzite	.23	2-4,W	277	5	20	<5	10	<1
					35	1000	<10	5	0.7
	EOH 4 m								

HOLE NO: KIN 15

100 000 SHEET NO: 5936

TRAVERSE: 5235 E

STATION: 00 N

LOCATION: 524 106 mE
6 602 258 mN

DATE DRILLED: 23/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 68 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	Pale brown silt soil with salt crystals on off-white f.g. - m.g. silty sandst	.12	0-0.20,R	278	10 35	10 -	<5 -	10 -	<1 -
2-4	Sandy silt with gypsum crystals	.07							
4-6	Pale brown silt clay	.13							
6-8	As above	.18							
8-10	As above with pale green clay with some m.g. - c.g. sand	.10							
10-12	Pale grey-green clay with dark grey bands and some sand	.04							
12-14	Grey-green m.g. - sandy silt clay	.04							
14-16	As above	.22							
16-18	Grey-green silt clay and m.g. sand	.03							
18-20	As above	.04							
20-22	Mottled red-grey clay sand	.04							
22-24	As above	.28							
24-26	Pale grey clayey m.g. - c.g. sand	.02							
26-28	As above	.05							
28-30	Yellow-brown mottled sandy clay	.03							
30-32	As above	.05							
32-34	As above to 33 m then pale grey silicified f.g. to m.g. sandst	.06							
34-36	As above plus pale green-yellow silcrete	.08							
36-38	Grey-yellow clay silt with chips silcrete	.03							
38-40	Pale grey-green silty f.g. to c.g. sand	.03							
40-42	As above	.03							
42-44	As above	.02							
44-46	Mauve sandy clay-silt	.04							
46-48	Pale grey sandy clay-silt	.03							
48-50	As above minor grains of brick red volcanic in sand	.03							
50-52	As above with minor quartzite cobbles	.05							
52-54	Dark grey-green silt-clay, some mica	.02							

KIN 15 (cont.)

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
54-56	Grey-green silt-clay with chips f.g. black chert? silicified siltst?	.02							
56-58	Grey f.g. chert? traces of py.	.03	52-58,R	279	10	15	140	30	1
					5	-	-	-	-
58-60	Pale grey silst and f.g. sandst with f.g. siliceous interbeds	.03							
60-62	As above with minor frags of brick red acid volcanic	.06	58-62,R	280	25	15	25	65	1
					25	-	-	-	-
62-64	As above	.19	62-64,R	281	5	10	90	45	<1
					55	-	-	-	-
64-66	Pale pink and grey f.g. acid volcanic	.10	64-66,R	282	5	5	70	30	<1
					40	-	-	-	-
66-68	As above with frags of shale and sandst probably a conglomerate bed	.10	66-68,W	283	5	10	70	25	<1
					55	229	12	6	1.6
	EOH 68 m								

HOLE NO: KIN 16 100 000 SHEET NO: 5936

TRAVERSE: 5235 E STATION: 1 000 N LOCATION: 524 675 mE
6 603 001 mN

DATE DRILLED: 24/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 56 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. sandy soil	.35	0-0.20,R	284	5 / 55	5 / -	<5 / -	5 / -	<1 / -
2-4	As above weakly calcareous some gypsum cement	.11							
4-6	Grey-red mottled sandy silt-clay	.07							
6-8	As above	.19							
8-10	Pale brown silt-clay	.10							
10-12	As above	.20							
12-14	As above	.06							
14-16	Pale grey-green silt-clay	.08							
16-18	As above	.08							
18-20	As above	.04							
20-22	Pale grey sandy clay	.05							
22-24	As above	.04							
24-26	As above	.04							
26-28	Pale grey silt-clay	.04							
28-30	Grey clay	.04							
30-32	As above	.04							
32-34	As above	.04							
34-36	As above	.03							
36-38	Grey and mauve mottled clay	.03							
38-40	Pale grey sandy clay	.04							
40-42	As above	.03							
42-44	As above	.03							
44-46	As above	.02							
46-48	As above	.04							
48-50	Pale grey-yellow sandy clay	.07							
50-52	As above	.05							
52-54	As above	.04							
54-56	As above , stopped on brick red acid volcanic probably a cobble.	.09	54-56,W,P	285	55 / 35	20 / 326	50 / 17	35 / 2	<1 / 1.3
	EOH 56 m								

HOLE NO: KIN 17

100 000 SHEET NO: 5936

TRAVERSE: 5235 E

STATION: 2 500 N

LOCATION: 524 976 mE
6 604 465 mN

DATE DRILLED: 24/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 92 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	Brown sandy silt soil with gypsum crystals below surface	.14	0-0.20,R	286	5 / 45	5 / -	<5 / -	5 / -	<1 / -
2-4	Pale tan clay	.16							
4-6	Pale brown clay	.13							
6-8	Pale tan clay	.27							
8-10	Pale grey-green clay	.06							
10-12	As above	.04							
12-14	Pale grey-green sandy clay	.02							
14-16	Grey-green sandy clay with gypsum crystals	.02							
16-18	Pale grey sandy clays	.04							
18-20	Grey clay	.04							
20-22	Grey-green clay	.04							
22-24	As above	.08							
24-26	As above to 26 m then gypsum band	.05							
26-28	Pale grey clay	.05							
28-30	As above	.03							
30-32	As above	.03							
32-34	As above	.04							
34-36	Grey and mauve clay	.02							
36-38	As above	.11							
38-40	As above	.04							
40-42	As above	.05							
42-44	As above with minor sand	.02							
44-46	Dark grey sandy clay	.03							
46-48	M.g. - c.g. sand	.05							
48-50	Grey clay and m.g. - c.g. sand	.02							
50-52	Dark brown lignite clay	.01							
52-54	Lignitic clay plus c.g. sand	.02							
54-56	M.g. - c.g. sand with minor lignitic silt	.05							
56-58	As above	.05							
58-60	As above	.04							
60-62	Pale grey clay, minor lignitic clay layers	.03							
62-64	Pale grey-green clay with m.g. sand	.03							
64-66	As above with minor lignitic layers	.02							
66-68	As above	.05							
68-70	Pale grey m.g. sand with some py cement, minor lignitic bands	.05							

KIN 17 (cont.)

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
70-72	Lignitic clay	.01							
72-74	Pale grey clay	.02							
74-76	Pale grey clay, minor sand and lignite	.02							
76-78	Grey clay and m.g. - c.g. sand	.02							
78-80	As above	.02							
80-82	As above	.02							
82-84	Grey m.g. - c.g. sand minor clay. Some py cement, some grains of acid volcanic	.03							
84-86	As above	.02							
86-88	As above	.02							
88-90	M.g. - c.g. sand with qtz and rock grains	.05							
90-92	M.g. - c.g. conglomeratic sand with acid volcanic pebbles?	.13	90-92,W,P	287	5	5	45	5	<1
					15	300	43	1	0.5
	EOH 92 m								

HOLE NO: KIN 18

100 000 SHEET NO: 5936

TRAVERSE: 5235 E

STATION: 3 500 N

LOCATION: 525 265 mE
6 605 367 mN

DATE DRILLED: 24/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 43 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	Brown sandy silt soil with gypsum cement	.12	0-0.20,R	288	15	5	5	10	<1
					20	-	-	-	-
2-4	Pale brown sand silt-clay	.25							
4-6	Pale brown silt clay	.17							
6-8	As above	.11							
8-10	Tan clay	.22							
10-12	Pale brown-grey clay	.06							
12-14	Grey green sandy clay	.08							
14-16	As above	.02							
16-18	As above	.02							
18-20	Blue-grey sandy clay	.03							
20-22	As above	.04							
22-24	As above	.12							
24-26	Pale grey-green clay	.13							
26-28	As above some gypsum bands	.08							
28-30	Pale grey-green clay	.08							
30-32	As above	.04							
32-34	Grey mauve clay	.07							
34-36	As above with minor sand	.05							
36-38	As above	.05							
38-40	Pale yellow-off white clay	.03							
40-42	Pale yellow sandy clay	.04							
42-43	As above to 43 then pale grey silicified f.g. sandst and silcrete	.26	42-43,W	289	<5	<5	5	5	<1
					10	124	28	<1	0.5
	EOH 43 m								

HOLE NO: KIN 19

100 000 SHEET NO: 5936

TRAVERSE: 5235 E

STATION: 4 000 N

LOCATION: 525 504 mE
6 605 865 mN

DATE DRILLED: 25/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 49 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
0-2	Brown sandy silt soil, weakly gypsiferous	1.05	0-0.20,R	290	5	<5	<5	10	<1
					120	-	-	-	-
2-4	As above but sandier	.19							
4-6	As above	.14							
6-8	As above, minor gypsum crystals	.05							
8-10	Pale brown clay, minor gypsum	.09							
10-12	Pale brown clay	.16							
12-14	As above	.17							
14-16	As above	.08							
16-18	As above	.09							
18-20	As above with bands of gypsum	.03							
20-22	As above	.03							
22-24	As above	.02							
24-26	Grey clay, minor sand	.03							
26-28	As above	.05							
28-30	Pale grey-green clay	.04							
30-32	As above	.03							
32-34	As above	.07							
34-36	As above	.03							
36-38	As above	.06							
38-40	Grey-mauve clay, minor sand	.04							
40-42	Pale grey-white clay	.04							
42-44	Pale khaki sandy clay	.04							
44-46	Pale grey-yellow clay sand	.04							
46-48	Pale grey-yellow f.g. - m.g. sandst	.04							
48-49	Grey-maroon f.g. - m.g. ferruginous sandst	.03	48-49,W	291	<5	<5	<5	<5	<1
					10	96	<10	<1	<05
	EOH 49 m								

HOLE NO: KIN 20

100 000 SHEET NO: 5936

TRAVERSE: 5235 E

STATION: 4 500 N

LOCATION: 525 679 mE
6 606 351 mN

DATE DRILLED: 25/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 77 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Pb / Zn / Ni / Au / Cr / Ba / Nb / As / Pt
0-2	Brown sandy dune soil	.52	0-0.20,R	292	10 / 5 / <5 / 10 / <1 / 120 / - / - / - / -
2-4	As above, some gypsum cement	.16			
4-6	As above	.14			
6-8	M.g. - c.g. sand and brown clay	.08			
8-10	Pale brown clay	.16			
10-12	As above	.11			
12-14	As above	.25			
14-16	As above	.11			
16-18	Grey clay	.07			
18-20	As above	.06			
20-22	Grey green sandy clay	.05			
22-24	As above	.06			
24-26	As above	.05			
26-28	As above	.06			
28-30	Pale grey-green clay	.06			
30-32	As above	.04			
32-34	Pale grey clay with gypsum bands	.07			
34-36	Pale grey-green clay	.06			
36-38	As above	.07			
38-40	Grey-green sandy clay	.09			
40-42	Pale grey-brown sandy clay	.06			
42-44	As above	.06			
44-46	As above with 30 cm band of silcrete	.11			
46-48	Pale yellow-green sandy silt -clay	.08			
48-50	Pale yellow clay and f.g. grey sandst	.10			
50-52	Pale green-yellow silt-clay	.10			
52-54	Pale grey sandy silt-clay	.05			
54-56	As above	.07			
56-58	Pale grey f.g. - m.g. silty sand	.06			
58-60	As above	.05			
60-62	As above	.07			
62-64	As above, minor grey clay layers	.06			
64-66	Dark brown lignitic clay with c.g. sand layers	.06			
66-68	Dark brown lignitic clay	.04			

KIN 20 (cont.)

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu Pb Zn Ni Au Cr Ba Nb As Pt
68-70	As above	.05			
70-72	As above with some pale grey	.10			
72-74	Pale grey clay	.06			
74-76	Pale grey-green clay	.07			
76-77	As above	.09			
	EOH 77 m				

HOLE NO: KIN 21

100 000 SHEET NO: 5936

TRAVERSE: 5235 E

STATION: 5 250 N

LOCATION: 525 892 mE
6 606 989 mN

DATE DRILLED: 25/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 41 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. dune sandy soil some gypsum silt on gypsum cemented sand	.22	0-0.20,R	293	10 / 75	<5 / -	<5 / -	5 / -	<1 / -
2-4	As above	.12							
4-6	As above	.13							
6-8	Pale brown clay	.08							
8-10	As above	.15							
10-12	As above	.13							
12-14	As above	.14							
14-16	As above	.10							
16-18	Pale grey clay	.06							
18-20	Grey-green sandy clay, minor gypsum	.04							
20-22	As above	.04							
22-24	Dark grey clay with gypsum	.04							
24-26	As above	.10							
26-28	As above	.06							
28-30	Pale grey-green clay	.05							
30-32	As above with gypsum bands	.04							
32-34	Pale grey clay	.07							
34-36	As above	.06							
36-38	As above with f.g. ferrug sandst layers	1.17							
38-40	Pale brown f.g. basalt. weakly ferruginised	1.93	38-40,R	294	10 / 5	<5 / -	40 / -	10 / -	<1 / -
40-41	As above	4.61	40-41,W,P	295	10 / <5	5 / 1610	60 / <10	10 / 1	4 / 0.7
	EOH 41 m								

HOLE NO: KIN 22

100 000 SHEET NO: 5936

TRAVERSE: 5235 E

STATION: 6 000 N

LOCATION: 525 995 mE
6 607 685 mN

DATE DRILLED: 26/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 65 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	Pale r.b. m.g. dune sand	.22	0-0.20,R	296	5 / 85	5 / -	<5 / -	5 / -	<1 / -
2-4	As above some gypsum	.27							
4-6	As above	.26							
6-8	Pale brown sandy clay	.12							
8-10	As above	.12							
10-12	Pale brown silt-clay	.10							
12-14	Pale brown sandy clay	.22							
14-16	Pale brown clay	.11							
16-18	Pale grey clay	.04							
18-20	As above	.02							
20-22	Pale grey sandy clay, minor gypsum	.01							
22-24	As above	.03							
24-26	Pale grey-green clay	.03							
26-28	Pale grey clay	.04							
28-30	As above	.03							
30-32	Pale grey-green-mauve clay	.01							
32-34	As above	.03							
34-36	As above	.05							
36-38	Pale grey sandy clay	.03							
38-40	As above to 39 m then off-white f.g. silty sandst., weakly silicified	.03							
40-42	Off-white f.g. silty sandst.	.03							
42-44	As above	.03							
44-46	Pale grey f.g. sandy clay-silt	.03							
46-48	As above	.04							
48-50	As above	.03							
50-52	As above	.02							
52-54	Pale grey-mauve sandy clay	.04							
54-56	As above	.02							
56-58	Pale mauve-grey sandy clay	.02							
58-60	As above	.03							
60-62	As above	.06							
62-64	Pale yellow clay	.04							
64-65	Brecciated vein qtz in cherty epithermal? qtz. greisen?	.02	64-65,W,P	297	<5 / 15	10 / 361	5 / 18	5 / 2	1 / 0.5
	EOH 65 m								

HOLE NO: KIN 23 100 000 SHEET NO: 5936

TRAVERSE: 5210 E STATION: 7 500 N LOCATION: 521 450 mE
6 596 615 mN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 28 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr	Pb / Ba	Zn / Nb	Ni / As	Au / Pt
0-2	R.b. sandy silt soil with c.g. qtz and FeO on pale brown sandy clay	.40	0-0.20,R	298	10 / 35	5 / -	<5 / -	10 / -	<1 / -
2-4	Pale grey sandy clay	.11							
4-6	Off-white kaolin clay, micaceous	.08							
6-8	As above	.07							
8-10	As above with chips of buff siltst	.07							
10-12	Pale cream-brown micaceous silt-clay with chips of phyllite	.00	6-12,R	299	<5 / 10	15 / -	<5 / -	10 / -	<1 / -
12-14	Buff micaceous silt-clay	.05							
14-16	As above with chips of H.W. phyllite	.05							
16-18	As above	.07	12-18,R	300	<5 / 10	30 / -	25 / -	15 / -	<1 / -
18-20	As above	.08							
20-22	As above	.07							
22-24	As above	.08	18-24,R	301	5 / 10	15 / -	25 / -	15 / -	<1 / -
24-26	As above	.09	24-26,R	302	5 / 10	15 / -	40 / -	20 / -	<1 / -
26-28	MF pale grey-brown phyllite with FeO along fractures and cleavage, also minor chips of pink limestone.	.18	26-28,W	303	15 / 10	15 / 654	100 / 16	20 / 5	<1 / 0.8
	EOH 28 m								

HOLE NO: KIN 24

100 000 SHEET NO: 5936

TRAVERSE: 5210E

DISTANCE: 7000N

LOCATION: 521 487 ME
6 596 175 MN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 16 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy soil	0.28	0-0.20	304,R	10	60	5		<5		10		<1	
2-4	Pale grey-green sandy clay-silt	0.10												
4-6	As above	0.65												
6-8	As above with chips of f.g. sandst	0.47	6-8	305,R	5	15	20		5		5		1	
8-10	Grey clay	1.66	8-10	306,R	5	15	15		<5		5		1	
10-12	Pale brown micaceous siltst	1.18	10-12	307,R	5	10	10		<5		<5		<1	
12-14	Grey-brown micaceous siltst with f.g. sandst layers	1.77	12-14	308,R	5	<5	5		30		<5		<1	
14-16	As above	1.96	14-16	309,W	<5	<5	5	1580	60	14	<5	<2	<1	<05
	EOH 16 m													

HOLE NO: KIN 25 100 000 SHEET NO: 5936

TRAVERSE: 5210E STATION: 6500N LOCATION: 521 410 ME
6 595 742 MN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 12 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy silt soil on c.g. silty qtz sand	0.49	0-0.20	310,R	15	55	10		20		20		<1	
2-4	R.b.-pale grey m.g. silty sandst	0.18												
4-6	c.g. qtz sand, minor silcrete chips	0.83												
6-8	Pale brown sandy silt-clay	1.78												
8-10	As above	0.31												
10-12	As above to 11.9 m then hard pink-red acid volcanic (andesite)	0.18	10-12	311,WP	<5	20	5	2710	10	<10	5	6	<1	0.6
	EOH 12m													

HOLE NO: KIN 26 100 000 SHEET NO: 5936

TRAVERSE: 5210E STATION: 6000N LOCATION: 521 438 ME
6 595 224 MN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 10 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy silt soil with c.g. qtz and ferricrete grains, on calcreted sand and silcrete	0.37	0-0.20	312,R	15	20	10		10		15		<1	
2-4	Pale yellow silicified sandst	0.15												
4-6	As above	0.11												
6-8	As above on c.g. sand	0.30												
8-10	F, m.g. pale green rhyolitic tuff.	0.04	8-10	313,WP	5	10	5	1120	30	11	5	4	<1	0.5
	EOH 10m													

HOLE NO: KIN 27

100 000 SHEET NO: 5936

TRAVERSE: 5210E

STATION: 5000N

LOCATION: 521 364 ME
6 594 238 MN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 15 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy silt soil on f.g.-m.g. sand	0.29	0-0.20	314,R	10	20	15		<5		10		<1	
2-4	f.g.-m.g. red weakly ferrugi-nised sand	0.14												
4-6	Pale grey silicified m.g. sand	0.11												
6-8	Minor silcrete on c.g. silty sand	0.28												
8-10	Pale green yellow clay-silt, chips of pale green chert	0.14	6-10	315,R	5	25	5		10		25		2	
10-12	As above with minor chips of f.g. pink-orange acid volcanic	0.11	10-12	316,R	10	20	15		40		60		70	
12-14	As above	0.09	12-14	317,R	10	55	15		85		100		1	
14-15	As above some mica to 14.9 m then dark brown f.g. sandst with pebbles of shale, volcanic etc	0.10	14-15	318,WP	5	45	15	626	75	11	70	7	2	1
	EOH 15m													

HOLE NO: KIN 28

100 000 SHEET NO: 5936

TRAVERSE: 5210E

STATION: 4500N

LOCATION: 521 393 ME
6 593 800 MN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 38 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy silt soil, weak ferrug cement below	0.55	0-0.20	319,R	10	15	5		5		15		<1	
2-4	As above, some gypsum cement	0.29												
4-6	As above to 5 m then pale green silicified m.g. sand	0.14												
6-8	Silicrete on silicified f.g. silty sandst, partly brecciated and cemented with chert	0.08												
8-10	Pale green silicified f.g. sandst then mauve m.g. sandst	0.02												
10-12	Pale green f.g. silty sandst with patchy silicification	0.07	6-12	320,R	10	15	10		20		10		2	
12-14	Pale green clay-silt chips of apple green siltst and mauve f.g. sandst	0.19												
14-16	Pale green-brown f.g. silty sandst	0.34												
16-18	As above, some FeO on fractures	0.77	12-18	321,R	30	5	15		165		20		1	
18-20	As above	0.71												
20-22	Brown-yellow f.g. basalt, FeO on fractures	2.30												
22-24	As above	1.37	18-24	322,R	40	5	20		205		20		<1	
24-26	As above	0.52												
26-28	MF grey-green siltst and brown f.g. sandst	0.58												
28-30	As above	0.56	24-30	323,R	35	5	20		215		35		<1	
30-32	As above	1.01												
32-34	Pale green-brown f.g. sandst and siltst	0.70												
34-36	Ferrug grey-brown f.g. basalt	1.92	30-36	324,R	30	5	15		210		30		<1	
36-38	As above	3.18	36-38	325,WP	20	<5	10	1320	185	10	15	2	<1	<05
	EOH 38m													

HOLE NO: KIN 29 100 000 SHEET NO: 5936

TRAVERSE: 5210E STATION: 4000N LOCATION: 521 537 ME
6 593 285 MN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 39 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy silt soil on weakly ferrug cemented sand	0.66	0-0.20	326,R	10	45	10		10		15		<1	
2-4	Pale brown clay silt with silcrete	0.19												
4-6	Pale grey-green weakly silicified siltst	0.03												
6-8	As above	0.03												
8-10	As above	0.02												
10-12	Pale white-green silt-clay	0.02												
12-14	As above	0.02												
14-16	As above	0.02												
16-18	As above	0.03												
18-20	As above	0.02												
20-22	As above	0.02												
22-24	As above	0.03												
24-26	As above	0.03												
26-28	As above	0.04												
28-30	As above	0.05												
30-32	Pale yellow micaceous silt-clay	0.10												
32-34	As above	0.03												
34-36	Pale grey-brown micaceous silt-clay	0.07												
36-38	As above to 37 m then W acid volcanic then brown silicified silst	0.08	36-38	327,R	30	10	15		10		5		<1	
38-39	Pale brown chert, silicified siltst?	0.07	38-39	328,WP	5	5	5	2170	20	<10	<5	3	<1	<05
	EOH 39m													

HOLE NO: KIN 30 100 000 SHEET NO: 5936

TRAVERSE: 5210E STATION: 3500N LOCATION: 521 299 ME
6 592 703 MN

DATE DRILLED: 28/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 50 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy silt soil	0.40	0-0.20	329,R	10	40	10		<5		15		<1	
2-4	Gypsum cemented sand on pale green partly silicified silty sandst	0.12												
4-6	Pale grey partly silicified f.g. - c.g. sandst	0.04												
6-8	f.g.-c.g. sandst with white clay silt matrix	0.02												
8-10	As above	0.03												
10-12	As above	0.02												
12-14	As above	0.02												
14-16	As above	0.02												
16-18	As above	0.02												
18-20	Pale grey silt-clay with v.c.g. rounded qtz pebbles	0.04												
20-22	Dark grey-brown micaceous clay H.W.	0.04												
22-24	Dark grey-green micaceous clay	0.02												
24-26	As above with patches of dark mica and graphite?	0.02												
26-28	Grey micaceous clay	0.03	20-28	330,R	5	10	30		140		60		<1	
28-30	As above	0.02												
30-32	Pale grey micaceous clay H.W. remnant f.g. texture basalt?, dolerite?	0.03												
32-34	As above	0.02												
34-36	As above	0.08	28-36	331,R	5	5	10		85		90		1	
36-38	As above	0.05												
38-40	As above with minor pyrite grains (3 mm)	0.08												
40-42	As above with minor py as stringers	0.10	36-42	332,R	5	5	5		120		30		<1	
42-44	Pale buff silt clay with patches of black-green silt	0.03												
44-46	Grey micaceous silt-clay	0.02	42-46	333,R	5	<5	5		60		25		<1	
46-48	As above, some chips of pale pink acid volcanic	0.08	46-48	334,R	10	<5	5		50		20		<1	
48-50	Pale grey-green f.g. basic with feldspar phenocrysts, minor disseminated py (basalt)	0.48	48-50	335,WP	15	<5	5	1960	115	<10	15	4	<1	<05
	EOH 50m													

HOLE NO: KIN 31 100 000 SHEET NO: 5936

TRAVERSE: 5105E STATION: 6500N LOCATION: 511 167 ME
6 585 380 MN

DATE DRILLED: 29/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 98 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy soil on carbonate cemented sand	0.24	0-0.20	336,R	5	55	<5		<5		10		<1	
2-4	As above c.g. silicified poorly sorted sandst	0.03												
4-6	As above	0.03												
6-8	As above	0.04												
8-10	As above, weakly silicified	0.05												
10-12	As above	0.05												
12-14	As above	0.03												
14-16	As above	0.03												
16-18	As above	0.05												
18-20	m.g.-c.g. grey sandst white silt matrix	0.05												
20-22	As above	0.07												
22-24	As above	0.05												
24-26	As above	0.06												
26-28	As above	0.05												
28-30	As above	0.06												
30-32	As above	0.06												
32-34	As above	0.05												
34-36	As above	0.06												
36-38	Grey m.g.-c.g. silty sandst	0.03												
38-40	As above	0.04												
40-42	As above	0.08												
42-44	As above	0.03												
44-46	As above	0.08												
46-48	As above, trace opaques	0.02												
48-50	As above	0.03												
50-52	As above	0.04												
52-54	As above	0.03												
54-56	As above	0.03												
56-58	Grey pink m.g.-c.g. silty sandst	0.06												
58-60	As above	0.04												
60-62	As above	0.04												
62-64	As above	0.04												
64-66	As above	0.04												
66-68	Grey m.g.-c.g. silty sandst	0.06												
68-70	As above	0.04												
70-72	Pink, grey m.g.-c.g. silty sandst	0.04												
72-74	As above	0.04												
74-76	As above	0.05												
76-78	As above	0.07												
78-80	As above	0.06	70-80	337,R	5	55	<5		<5		5		<1	
80-82	As above	0.05												

HOLE NO: KIN 31 (CONT'D)

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
82-84	As above	0.05												
84-86	As above	0.05												
86-88	As above with some grains of various rock types	0.05												
88-90	As above	0.04	80-90	338,R	5	70	5		<5		<5		1	
90-92	As above	0.05												
92-94	As above	0.09												
94-96	As above	0.10	90-96	339,R	5	60	<5		<5		10		<1	
96-98	As above	0.05	96-98	340,WP	<5	30	5	670	<5	<10	<5	1	<1	<05
	EOH 98m													

HOLE NO: KIN 32

100 000 SHEET NO: 5936

TRAVERSE: 5105E

STATION: 6000N

LOCATION: 511 002 ME
6 584 923 MN

DATE DRILLED: 29/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 50 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Pb / Zn / Ni / Au / Cr / Ba / Nb / As / Pt
0-2	R.b. silt sand soil on sand weakly calcerous	0.15	0-0.20	341,R	10 40 5 <5 10 <1
2-4	Off-white m.g.-c.g. silty sandst	0.05			
4-6	As above	0.07			
6-8	As above	0.08			
8-10	As above	0.05			
10-12	As above	0.04			
12-14	As above	0.07			
14-16	As above	0.05			
16-18	As above	0.06			
18-20	As above	0.06			
20-22	As above	0.08			
22-24	As above	0.08			
24-26	As above	0.07			
26-28	As above	0.07			
28-30	As above	0.09			
30-32	As above	0.06			
32-34	As above	0.10			
34-36	As above	0.09			
36-38	Pale pink-brown m.g.-c.g. silty sandst	0.08			
38-40	As above	0.08			
40-42	As above	0.09			
42-44	As above	0.04			
44-46	As above, weakly ferruginised	0.09			
46-48	As above	0.06			
48-50	As above	0.05			
	EOH 50m				

HOLE NO: KIN 33 100 000 SHEET NO: 5936

TRAVERSE: 5105E STATION: 5000N LOCATION: 510 642 ME
6 583 972 MN

DATE DRILLED: 29/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 98 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu Pb Zn Ni Au Cr Ba Nb As Pt
0-2	R.b. silt sand-soil on weakly calcreted sand	0.26	0-0.20	342,R	10 30 5 <5 15 <1
2-4	Silcreted m.g.-c.g. sandst	0.09			
4-6	As above to 5 m then off-white m.g.-c.g. friable sandst	0.04			
6-8	Off-white m.g.-c.g. friable silty sandst	0.06			
8-10	As above	0.05			
10-12	As above	0.05			
12-14	As above	0.06			
14-16	As above	0.04			
16-18	As above	0.06			
18-20	As above	0.05			
20-22	As above	0.05			
22-24	As above	0.05			
24-26	As above	0.04			
26-28	As above	0.06			
28-30	As above	0.07			
30-32	As above	0.05			
32-34	As above	0.06			
34-36	As above	0.04			
36-38	As above	0.03			
38-40	As above	0.15			
40-42	As above	0.07			
42-44	As above	0.04			
44-46	As above	0.06			
46-48	As above	0.07			
48-50	As above	0.04			
50-52	As above	0.04			
52-54	As above	0.05			
54-56	As above	0.04			
56-58	As above	0.01			
58-60	As above	0.05			
60-62	As above	0.04			
62-64	As above	0.10			
64-66	As above	0.08			
66-68	As above	0.03			
68-70	As above	0.21			
70-72	As above	0.08			
72-74	As above	0.06			
74-76	As above	0.06			
76-78	As above	0.04			
78-80	As above	0.03			
80-82	As above	0.07			
82-84	As above	0.14			
84-86	As above	0.01			
86-88	As above	0.04			

HOLE NO: KIN 33 (CONT'D)

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Pb	Zn	Ni	Au
					Cr	Ba	Nb	As	Pt
88-90	As above	0.12							
90-92	As above	0.11							
92-94	As above	0.02							
94-96	As above	0.12							
96-98	As above, ferruginous, minor mica along fractures	0.09	96-98	343,W	5 50	<5 782	<5 <10	5 1	2 0.6
	EOH 98m								

HOLE NO: KIN 34 100 000 SHEET NO: 5936

TRAVERSE: 5105E STATION: 2500N LOCATION: 510 499 ME
6 581 353 MN

DATE DRILLED: 30/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 32 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu Pb Zn Ni Au Cr Ba Nb As Pt
0-2	R.b. sandy silt soil on calcrete cemented sand	0.23	0-0.20	344,R	5 30 5 <5 5 <1
2-4	As above	0.23			
4-6	R.b. silt sand, minor ferrug cement	0.10			
6-8	As above	0.14			
8-10	R.b. ferrug cemented sand	0.27			
10-12	As above	0.30			
12-14	As above	0.10			
14-16	As above	0.06			
16-18	As above	0.12			
18-20	As above	0.08			
20-22	Yellow-brown m.g.-c.g. sandst	0.04			
22-24	As above	0.09			
24-26	Pale yellow-green c.g.-v.c.g. qtz sand	0.08			
26-28	As above	0.07			
28-30	As above	0.18			
30-32	As above with minor opaques stopped on hard boulder - no sample	0.11			
	EOH 32m				

HOLE NO: KIN 35

100 000 SHEET NO: 5936

TRAVERSE: 5105E

STATION: 3500N

LOCATION: 510 574 ME
6 582 306 MN

DATE DRILLED: 30/11/91

DRILLING METHOD: RC

LOGGED BY: BJM

TOTAL DEPTH: 32 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu / Cr / Pb / Ba / Zn / Nb / Ni / As / Au / Pt
0-2	R.b. sandy silt soil with silcrete pebbles on carbonate cemented sand	0.34	0-0.20	345,R	15 / 15 / 15 / 20 / 20 / <1
2-4	R.b. m.g. sand	0.30			
4-6	R.b. ferrug cemented sand	0.34			
6-8	As above	0.37			
8-10	As above	0.37			
10-12	As above	0.24			
12-14	Pale yellow-brown m.g.-c.g. silty sand	0.08			
14-16	As above	0.07			
16-18	As above, weakly silicified	0.08			
18-20	Pale yellow m.g.-v.c.g. qtz sand with qtz pebbles	0.06			
20-22	As above plus silcrete chips	0.06			
22-24	As above	0.24			
24-26	As above	0.06			
26-28	Silcrete probably boulder in v.c.g. sand	0.44			
28-30	Silcrete and v.c.g. sand some opaques	1.23	28-30	349,R	10 / 155 / <5 / <5 / 30 / 2
30-32	Pale grey m.g.-v.c.g. silty runny sand	0.06			
	EOH 32m				

HOLE NO: KIN 36 100 000 SHEET NO: 5936

TRAVERSE: 5105 STATION: 4000N LOCATION: 510 676 ME
6 582 789 MN

DATE DRILLED: 30/11/91

DRILLING METHOD: RC

LOGGED BY: BJM TOTAL DEPTH: 20 m

Depth Interval (m)	Description	MS	Sample Interval (m)	Sample No-RS	Selected Analyses (ppm except Au, Pt ppb) Cu	Cr	Pb	Ba	Zn	Nb	Ni	As	Au	Pt
0-2	R.b. sandy silt soil, minor carbonate cement	0.48	0-0.20	346,R	10	15	10		15		15		<1	
2-4	As above, some weak ferrug	0.19												
4-6	As above, minor silicification	0.27												
6-8	As above	0.30												
8-10	As above	0.14												
10-12	Weakly silicified f.g.-c.g. sand and red ferruginous silt	0.09												
12-14	As above	0.05	4-14	347,R	10	15	10		<5		15		<1	
14-16	Pale yellow m.g.-v.c.g. silty sand	0.05												
16-18	As above	0.31												
18-20	Silcrete	2.95	14-20	348,R	10	165	5		<5		40		<1	
	EOH 20m													

APPENDIX C

PETROLOGICAL REPORT

Pontifex & Associates Pty. Ltd.

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SOUTH AUSTRALIA

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MINERALOGICAL REPORT NO. 6085

by A.C. Purvis, PhD.

April 22nd 1992

TO:

The Director
SA Dept of Mines and Energy
191 Greenhill Rd
EASTWOOD SA 5063

Attention: Brian Morris

YOUR REFERENCE:

EX 1194
12/03/499

MATERIAL:

Drill Core and Chips, North West Gawler Craton drilling programme, KINGOONYA 1:100000

IDENTIFICATION:

KINI, RS220 to KIN31, RS340.

WORK REQUESTED:

Thin section preparation, description and report, with comments as specified.

SAMPLES & SECTIONS:

Returned to you with this report.

PONTIFEX & ASSOCIATES PTY LTD

SUMMARY COMMENTS

This report discusses 25 samples from the Kingoonya 1:100,000 sheet area, Gawler Craton, South Australia. They were made into 26 thin sections including two thin sections of 5936RS234, which was microscopically seen to contain slightly different lithologies.

These rocks appear to be mostly of Middle Proterozoic (post-Kimban), age with only one sample (in KIN6) possibly representing the Warrow Quartzite of the Hutchison Group. The remainder include granitoids (Hiltaba Suite), volcanics (?GRV), and fine grained to rarely gritty sediments basemetally unmetamorphosed. A single dolerite occurs in KIN7, and a brecciated quartz vein is KIN22.

Representation of the main lithological groups are:

(1) Granitoids: mostly porphyritic highly potassic (plagioclase - free) microgranite, with some aphyric phases, in drill holes KIN8-12 (inclusive), with a silicified - sericitised granophyre in KIN4 and KIN13.

(2) Volcanic rocks (?GRV).

* Basalts: KIN 21, 28, 30.
* Andesites: KIN 2 (52-54m), 25.
* Acid volcanics. KIN 1 (66-67m) (spherulitic), 16(rhyolite), 27(?dacite).
* Tuffs. KIN17 (crystal tuff), 26 (crystal-lithic-pumiceous tuff).

(3) Sediments.

* Shales, claystones & siltstones: KIN 1(64-66m), KIN 2 (96m), 3, 29.
* Grit (arkosic). KIN 31.

(4) Dolerite: KIN 7.
(5) Brecciated vein quartz: KIN22
(6) Quartzite: KIN 6.

A list of samples showing their original lithology with comments follows below.

KIN		5636RSNo.	Lithology	Comments
1,	64.66m	220	carbonaceous shale	locally disrupted.
1,	66.67m	221	acid volcanic	spherulitic, albite - quartz altered ? GRV
2,	52-54m	226	andesite	Apatite-rich, with chlorite ± leucoxene altered phenocrysts.
2,	96m	234(A)	silty claystone to claystone	Bedding about 10mm thick
		234(B)	partly carbonaceous siltstones and claystones	Bedding on a scale of a few mm to 10mm
3,	42-44m	238	siltstone	Weakly bedded
4,	6.7m	242	granophyre	Quartz-sericite altered. ? Hiltaba Suite
6,	8-9m	248	quartzite	Minor rutile & zircon, sericite, ? similar to Warrow Quartzite.
7,	34-35m	254	dolerite	? Gairdner dyke swarm.
8,	30m	256	porphyritic microgranite	plagioclase-free, quartz and orthoclase >> rutile, zircon. (Hiltaba Suite?)
9,	13m	258	porphyritic microgranite	Similar to 5936RS256 only orthoclase as large phenocrysts.
10,	33m	262	porphyritic microgranite	Similar to 5936RS256 coarser with some granophyre
11,	17m	267	aphyric microgranite	Similar to groundmass of 5936RS256

12, 9m	270	porphyritic microgranite	Similar to 5936RS256. Some quartz flooding. larger orthoclase phenocrysts.
13, 24m	275	granophyre	quartz-sericite altered similr to 5936RS242
16, 56m	285	rhyolite	Altered with quartz ± felspar veins (fumarolic?)
17, 92m	287	plagioclase rich crystal tuff	Sericite-chlorite-albite-quartz - adularia alteration.
21, 41m		basalt	Sparsely porphyritic with clay-limonite alteration.
22, 65m	297	brecciated vein quartz	Healed by quartz with some some epithermal character.
25, 12m	311	andesite or ? dacite	plagioclase phenocrysts. perthic fractures in groundmass.
26, 8-10m	313	crystal-lithic-pumiceous tuff	? rhyolitic with fragment to 3mm in size.
27, 18m	318	dacite (?)	Altered, with small igneous xenoliths.
28, 38m	325	basalts	Weakly vesicular, clay- chalcedony-limonite altered.
29, 39m	328	? claystone	Massive and very fine grained to irresolvable.
30, 50m	335	basalt	felspar porphyritic, altered.
31, 95m	340	very coarse sandstone or grit	Quartz > microcline > > muscovite. Matrix of sericite > > siderite, trace rutile.

INDIVIDUAL DESCRIPTIONS

5936RS220, KIN1, 64-66m. Banded carbonaceous shale, locally disrupted.

Fine scale parallel to lenticular to disrupted laminations in this sample include microbands 0.5 to 3mm in apparent thickness, and thinner microbands. Carbonaceous claystone lamellae alternate with non-carbonaceous shale bounds with 5 to 35 of silt sized quartz grains. Microbands are alternately rich and poor (or lacking) in carbonaceous microbands.

5936RS221, KIN1, 66-67m. Albite-quartz altered spherulitic acid volcanic rock.

Albitised spherulites about 1mm in diameter are abundant in this rock and are commonly clouded by fine oxides. They locally enclose small albitised plagioclase crystals, to 0.4mm in length. Interstitial quartz is abundant and there are quartz-chalcedony veins. This rock was of acid volcanic origin.

Thin quartz and chalcedony veins are present.

5936RS226, KIN2, 52-54m.

Altered apatite rich porphyritic ? andesite with quartz-chlorite-albite alteration. Minor leucoxene and pyrite. Quart veins with chlorite and pyrite.

Altered phenocrysts in this rock include plagioclase (chlorite only), biotite (chlorite + lamellar leucoxene), hornblende (chlorite + granular to disseminated dirty leucoxene, with some amphibole cross sections), and probable sphene (leucoxene > chlorite).

Chlorite and/or sericite ± quartz-altered mineral aggregates are scattered and may have been xenoliths. The groundmass has abundant poorly oriented albitised felspar laths enclosed in granular secondary quartz, with chlorite and fine leucoxene.

Apatite crystals to 2mm x 1mm are scattered and are usually abundant. The origin of these crystals is not entirely clear. Rare elongate zircons are present.

Pyrite occurs in altered ferromagnesian phenocrysts, in the groundmass and in veins to 2mm wide with granular to prismatic quartz and patches of chlorite.

5936RS234, KIN2, 96m(A).

Bedded silty claystone and claystone. Limonite rimmed fractures.

This sample is bedded on a scale of about 10mm, with silty and nonsilty sericite claystones alterating as mesobands or as microbands within relatively uniformly microbanded mesobands. The sericite is unoriented and appear to be intergrown with microcrystalline quartz. Detrital leucoxene is common. There are diffuse clouds of limonite and more clearly defined fractures containing more dense limonite.

5936RS234, KIN2, 96m(B). Layered partly slumped (?) carbonaceous and non carbonaceous siltstones and claystone.

This sample has similarities with 5936RS220 but has a more lenticular layering, possibly modified by slumping. Mesobands, alternately rich and poor/lacking in carbonaceous material occur as in 5936RS220 with silt-sized quartz grains and some detrital muscovite, particularly in the non carbonaceous layers and lenses.

The carbonaceous layers contain irregular lenses of non - carbonaceous silty sediment, and rare lenses of carbonaceous sediment occur in the non carbonaceous layers.

5936RS238, KIN3, 42-44m. Weakly bedded siltstone with limonite patches and limonite - lined fractures.

This sample has scattered siltsized quartz grains to 0.05mm in size together with less abundant limonite and leucoxene altered grains, in a matrix of fine sericite with no clear preferred orientation. The amount of quartz veins across the rock defining an irregular bedding pattern. Patches of limonite occur in the most quartz-rich layer and a rectangular arrangement of limonite-lined fractures is present.

5936RS242, KIN4, 6-7m. Silicified sericitised granophyre with altered biotite and sphene. (?Hiltaba Suite)

Silicified, sericitised granophyre bodies about 2mm in size dominate this sample, with some scattered totally sericitised felspar crystals, lamellar sericite - leucoxene pseudomorphs of biotite flakes and granular quartz. Pale brown ? smectites occur, locally around leached out cavities. There is minor leucoxene after sphene.

This may be part of the Hiltaba Suite.

5936RS248, KIN6, 8-9m. Quartzite with sericite, rutile and zircon. (similar to ? Warrow Quartzite).

An unequigranular quartz aggregate, with grains 0.2 to 4mm in size, dominates this rock. Minor components include patches of sericite, possibly after felspar, aggregates and single grains of rutile, and single crystals of locally zoned zircons.

This samples resembles samples of Warrow Quartzite known to the author, which show exaggerated grain growth due to high grade metamorphism.

5936RS254, KIN7, 34-35m. Weathered dolerite (? Gairdner Dyke Swarm).

plagioclase (An20-50)	50-55%
clays	35-40%
pyroxene	7%
oxides	3%

Zoned igneous plagioclase laths 0.5 to 3mm long are abundant in this rock but are unoriented. There is some residual clinopyroxene but most of the interstitial material (pyroxene) has been altered to an Fe-Mg smectite (Saponite-nontronite). Small oxide crystals are scattering.

This rock is a weathered dolerite and would be part of the Gairdner Dyke Swarm.

5936RS256, KIN8, 30m. Porphyritic microgranite with rutile and zircon.

Phenocrysts of orthoclase and quartz, to 4mm long are characteristic of this specimen (and other similar samples). The quartz has abundant shallow resorption channels. The orthoclase is reddened by hematite and locally altered to sericite. The groundmass consists of euhedral crystals of orthoclase with granular quartz and crudely granophyric quartz-rothoclase intergrowths. Accessories include strongly zoned zircons and patches of rutile, with minor sericite.

5936RS258, KIN9, 13m. Porphyritic microgranite cf 5936RS256.

This is a variant of the granite in KIN 8 with predominantly orthoclase phenocrysts to 5mm long, reddened by hematite and weakly sericitised. Quartz phenocrysts are smaller and less abundant, and the groundmass is more inequigranular. Diffuse almost pegmatoidal zones with orthoclase crystals about 1mm long occur as well as more normal aross as described alone (5936RS256) with orthoclase crystals about 0.5mm long. Leucoxenised and oxidised oxides occur but zircon is not apparent in this section.

5936RS262, KIN10, 33m. Porphyritic microgranite cf 5936RS256.

This is a coarser version of the granite in drill holes KIN 8-9, with orthoclase phenocrysts to 6mm long and groundmass orthoclase crystals 0.5 to 2mm long. Some well-formed granophyric patches occur, mostly adjacent to the orthoclase phenocrysts, but also separately, most of the quartz is granular, however.

Leucoxenised sphene crystals to 1mm long are the main accessory. Minor zircon is present. Hematite and traces of sericite occur in the felspar.

5936RS267, KIN11, 17m. Aphyric granite cf. 5936RS256.

This is an aphysic version of the microgranite in KIN8-10, with no visible phenocrysts. It is composed of orthoclase laths 0.2 - 0.8mm long with abundant textures are evident but no true granophyre. Thin quartz veins have cut this rock.

5936RS270, KIN12, 9m. Porphyritic microgranite cf 5936RS256.

Orthoclase phenocrysts to 8mm long, and resorbed quartz phenocrysts to 3mm diameter indicate that this is a porphyritic phase of the granite in KIN8-11. The groundmass has small euhedral orthoclase laths and granular to graphic quartz. Some areas appear to have been flooded by quartz. Accessories include leucoxene possibly after spherulites and clusters of small zircon crystals.

5936RS275, KIN13, 24m. Silicified - sericitised granophyre cf. 5936RS242, with leucoxenised sphene and traces of zircon.

This is a silicified, sericitised granophyre similar to 5936RS242 in drill hole KIN 4, but with more abundant sericitised plagioclase and more lamellar sericite-leucoxene pseudomorphs after biotite. The silicified - sericitised granophyre bodies are 0.5 - 1.5mm in size. Leucoxenised sphene is the main accessory but there are rare grains of zircon.

5936RS285, KIN16, 56m. Altered rhyolite, with quartz veins; fumarolic style of alteration.

A fine grained heterogeneous quartz felsparthic groundmass is present in this rock and may represent a devitrified glass. Felspar phenocryst, altered to adularia and/or fine quartz, are partly porous but the quartz phenocrysts are bipyramidal and partly resorbed. The phenocrysts are 1-3mm in size. Patches and rims of quartz with euhedral alkali felspar crystals, and veins of alkali felspar with quartz, some of which may be after tridymite, are present.

A fumarolic style of alteration is suggested for this rock. It was probably a rhyolite.

5936RS287, KIN17, 92m. Altered lithic crystal tuff dominated by plagioclase crystals.

Fragments 0.5 to 3mm long in this rock are dominantly plagioclase with variously quartz, sericite, chlorite, adularia, albite altered rock fragments and alkali felspar crystals in order of decreasing abundance.

Some leucoxene (anatase) - clay altered oxides, and apatite crystals are present and there are some quartz crystal fragments. Some phengite may be present as well as normal sericite, with zoned massive to spherulitic chlorite. The sericite is ubiquitous.

This was a lithic crystal tuff.

5936RS295, KIN21, 41m. Altered sparsely porphyritic basalt.

Sparse largely sericitised plagioclase phenocrysts to 1mm in length occur in this rock with a groundmass dominated by a complex flow texture defined by plagioclase microlites about 0.05mm long. Clays may have replaced interstitial glass. Oxidised probable titanomagnetite is the dominant accessory, with diffuse limonite and some leucoxene.

This rock is an altered basalt.

5936RS297, KIN22, 65m. Brecciated vein quartz, in cherty to prismatic "epithermal"(?) quartz.

This sample is a breccia of coarse unsorted vein quartz fragments cemented by locally layered or zoned cherty to granular to primatic quartz with some epithermal aspects. Irregular fractures containing limonite are common.

5936RS311, KIN25, 12m. Altered glassy-perlitic, andesitic (or dacite).

Minor variously euhedral to strongly resorbed plagioclase phenocrysts 0.5 to 5mm in size, are scattered through in this sample.

The groundmass shows heterogeneous detrification to alkali felspar >> quartz and limonite -lined perthitic fractures. Chlorite-limonite altered small ferromagnesian phenocrysts (? pyroxene) suggest an andesite, or possibly a dacite as the original lithology.

5936RS313, KIN26, 8-10m. Crystal-lithic-pumiceous (rhyolitic) tuff altered with clay, quartz and limonite.

Fragments and whole crystals of plagioclase, quartz and alkali felspar occur singly or in clusters, form 0.2 to 3mm in size. Varied lithic fragments include volcanic groundmass and earlier fragmental rock. The fragmental rocks have quartz fragments and illite $\pm$ smectite altered possible felspar fragments in a fine quartz $\pm$ felspar matrix.

The volcanic groundmass have granular to perlitic devitrification with quartz or clays + limonite, and rare phenocrysts. Fibrous limonite and clays indicate former pumice fragments to 3mm long with a matrix of cloudy or smaller pumice fragments.

5936RS318, KIN27, 15m. Altered probable dacite with small igneous xenoliths.

In this sample sericitised felspar phenocrysts to 3mm long are more anhedral than compact bipyramidal quartz phenocrysts to 1mm diameter. Laminar sericite - leucoxene - limonite replicas after biotite phenocrysts are rare. Quartz - limonite altered possible hornblende or pyroxene phenocrysts to 2mm long are more common.

The groundmass is rich in quartz and limonite with scattered possible xenoliths to 4mm long. The xenoliths have silicified and limonitised phenocrysts in a groundmass finer than that of the host rocks.

5936RS375, KIN28, 38m. Altered vesicular basalt.

Unoriented plagioclase crystals about 0.1mm long dominate this rock, with clay-altered small pyroxene grains, oxidised opaque grains and a clay altered interstitial glass. Small chalcedony - filled vesicles are common, locally with zones of orange yellow clays, and there are limonite - filled fractures.

This rock is an altered basalt.

5936RS328, KIN29, 39m. Massive fine claystone (?)

Extremely fine material, almost optically irresolvable, but apparently mixed fine clays ± cherty silica dominate this rock. Slightly coarser sericite and quartz patches, 5 to 40 microns in size, are scattered through this 'matrix' to form about 10% of the sample.

A fine claystone appears to be the most likely lithology.

5936RS335, KIN30, 50m. Altered felspar rich basalt.

Minor relatively sparse partly sericitised plagioclase phenocrysts, 1-1.5mm long are scattered in this rock together with chloritised ferromagnesian phenocrysts. Plagioclase microphenocrysts about 0.5mm long are present throughout and have a stronger flow orientation than the larger phenocrysts. The groundmass is rich in very small partly sericitised felspar microlites permeated by abundant hematite.

The origin rock was a felspar-rich basalt.

5936RS340, KIN31, 95m.

Very coarse arkosic sandstone, with a sericite matrix.

quartz	55%
microcline	15-20%
sericite	25%
? siderite	2-3%
rutile	tr.

The poorly sorted sandstone has detrital grains from 0.2 to 2mm in diameter. The grains are rounded to quite ragged with possibly some resorption and replacement by the sericite matrix. Some quite large muscovite flakes (to 1mm long) occur in the sericite, and there are patches of probable siderite. Grains of rutile are rare.

Thus this rock is classified as an arkosic very coarse sandstone.

APPENDIX D

ASSAY RESULTS

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.

BRIAN MORRIS
MINERAL RESOURCES

Phone (08)3365099

16 Sunbeam Road, Glynde, S.A. 5070

Fax (08) 3365564

ANALYTICAL REPORT No. 105000.35.07246

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

INVOICE TO: ~~Seals Tyrtees~~ B Morris
The Director General
PO Box 151

Eastwood SA 5063

ORDER No.	PROJECT
12/03/492	EX-1177

DATE RECEIVED	RESULTS REQUIRED
12/12/91	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES
10	23/12/91	1

TOTAL No. OF SAMPLES: 106

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
<5936 RS & others	ro Prep : OP021,59900	Au/GG334,!Au/CHK
<5936 RS & others	ro Prep :	Cu,Pb,Zn,Co,Ni,Fe,Cr,Mn/GA101

REMARKS

RESULTS TO: ~~Seals Tyrtees~~ B Morris
The Director General
PO Box 151

Eastwood SA 5063

RESULTS TO:

RESULTS TO:

AUTHORISED OFFICER

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Cu Pb Zn Ni Cr

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	1 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Co	Ni	Fe	Cr	Mn
1	5936 RS 218	5	5	15	5	10	2.80	35	240
2	5936 RS 219	30	30	125	10	35	3.10	5	810
3	5936 RS 220	15	25	55	10	15	3.19	10	825
4	5936 RS 222	5	5	10	5	10	2.62	25	200
5	5936 RS 223	25	25	130	10	20	2.85	5	270
6	5936 RS 224	15	15	275	10	20	2.29	10	250
7	5936 RS 225	40	15	115	5	10	1.68	10	180
8	5936 RS 226	55	390	430	20	95	3.85	35	1305
9	5936 RS 227	15	135	170	10	35	2.93	15	735
10	5936 RS 228	25	50	320	20	35	5.80	5	2040
11	5936 RS 229	10	50	365	10	20	3.39	10	1345
12	5936 RS 230	15	35	145	10	25	4.23	10	1760
13	5936 RS 231	25	25	220	10	20	3.60	10	930
14	5936 RS 232	20	10	90	10	25	3.87	10	1585
15	5936 RS 233	20	15	75	10	20	4.03	5	1315
16	5936 RS 235	10	10	25	5	15	2.60	35	230
17	5936 RS 236	5	40	5	<5	5	0.45	10	160
18	5936 RS 237	5	70	10	<5	<5	0.56	5	115
19	5936 RS 238	5	15	55	<5	<5	1.24	5	845
20	5936 RS 239	15	20	95	<5	15	4.59	10	95
21	5936 RS 241	10	5	30	5	10	2.46	25	280
22	5936 RS 243	5	10	30	5	5	2.05	20	195
23	5936 RS 244	5	30	30	5	5	0.99	15	430
24	5936 RS 245	<5	15	15	<5	5	0.67	10	350
25	5936 RS 247	<5	10	10	<5	5	1.91	30	115

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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	2 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Co	Ni	Fe	Cr	Mn
1	5936 RS 249	<5	<5	20	<5	10	1.75	20	105
2	5936 RS 250	20	280	225	10	55	9.90	15	370
3	5936 RS 251	25	240	300	5	50	9.40	15	250
4	5936 RS 252	155	280	1815	50	165	14.72	25	230
5	5936 RS 253	145	275	2690	80	190	14.70	20	1500
6	5936 RS 255	10	5	40	5	10	2.48	30	190
7	5936 RS 257	10	5	35	<5	5	2.44	40	180
8	5936 RS 259	10	5	15	<5	10	2.46	100	170
9	5936 RS 260	10	20	40	<5	<5	2.37	5	460
10	5936 RS 261	30	15	45	<5	5	2.39	10	265
11	5936 RS 263	10	5	30	<5	10	2.39	75	185
12	5936 RS 264	15	10	55	5	15	5.13	50	355
13	5936 RS 265	5	10	45	<5	5	1.92	15	265
14	5936 RS 266	5	5	60	<5	5	1.05	5	265
15	5936 RS 268	15	15	55	5	10	2.72	30	275
16	5936 RS 269	10	120	10	<5	<5	0.46	10	65
17	5936 RS 271	10	5	35	5	10	2.68	45	240
18	5936 RS 272	5	35	20	<5	<5	1.29	10	355
19	5936 RS 273	5	45	10	<5	<5	1.22	10	205
20	5936 RS 274	5	30	10	<5	5	1.16	10	85
21	5936 RS 276	10	10	35	5	15	2.62	85	180
22	5936 RS 278	10	10	<5	<5	10	1.91	35	225
23	5936 RS 279	10	15	140	15	30	0.99	5	30
24	5936 RS 280	25	15	25	15	65	2.10	25	115
25	5936 RS 281	5	10	90	15	45	3.62	55	800

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	3 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Co	Ni	Fe	Cr	Mn
1	5936 RS 282	5	5	70	10	30	2.60	40	430
2	5936 RS 284	5	5	<5	<5	5	1.59	55	150
3	5936 RS 286	5	5	<5	<5	5	0.50	45	80
4	5936 RS 288	15	5	5	5	10	0.63	20	145
5	5936 RS 290	5	<5	<5	<5	10	1.49	120	150
6	5936 RS 292	10	5	<5	<5	10	1.69	120	175
7	5936 RS 293	10	<5	<5	<5	5	1.36	75	120
8	5936 RS 294	10	<5	40	15	10	4.86	5	300
9	5936 RS 296	5	5	<5	<5	5	1.23	85	105
10	5936 RS 298	10	5	<5	5	10	3.42	35	205
11	5936 RS 299	<5	15	<5	5	10	1.23	10	15
12	5936 RS 300	<5	30	25	5	15	0.85	10	45
13	5936 RS 301	<5	15	25	5	15	1.10	10	65
14	5936 RS 302	5	15	40	5	20	2.43	10	60
15	5936 RS 304	10	5	<5	5	10	1.93	60	175
16	5936 RS 305	5	20	5	5	5	6.81	15	190
17	5936 RS 306	5	15	<5	<5	5	8.15	15	75
18	5936 RS 307	5	10	<5	<5	<5	8.23	10	80
19	5936 RS 308	5	5	30	5	<5	5.25	<5	170
20	5936 RS 310	15	10	20	5	20	2.78	55	300
21	5936 RS 312	15	10	10	5	15	2.52	20	240
22	5936 RS 314	10	5	<5	5	10	1.88	20	200
23	5936 RS 315	5	5	10	10	25	4.54	25	300
24	5936 RS 316	10	15	40	10	60	3.69	20	70
25	5936 RS 317	10	15	85	15	100	6.39	55	100

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	4 OF 10

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Co	Ni	Fe	Cr	Mn
1	5936 RS 319	10	5	5	5	15	2.26	15	200
2	5936 RS 320	10	10	20	5	10	1.05	10	45
3	5936 RS 321	30	15	165	25	20	8.30	5	150
4	5936 RS 322	40	20	205	40	20	9.40	5	345
5	5936 RS 323	35	20	215	40	35	9.28	5	515
6	5936 RS 324	30	15	210	50	30	7.60	5	175
7	5936 RS 326	10	10	10	5	15	1.86	45	225
8	5936 RS 327	30	15	10	<5	5	4.00	10	45
9	5936 RS 329	10	10	<5	5	15	1.82	40	180
10	5936 RS 330	5	30	140	45	60	1.81	10	220
11	5936 RS 331	5	10	85	45	90	1.63	5	60
12	5936 RS 332	5	5	120	15	30	1.74	5	30
13	5936 RS 333	5	5	60	25	25	1.53	<5	70
14	5936 RS 334	10	5	50	30	20	2.99	<5	245
15	5936 RS 336	5	<5	<5	<5	10	1.67	55	125
16	5936 RS 337	5	<5	<5	<5	5	1.11	55	425
17	5936 RS 338	5	5	<5	<5	<5	0.89	70	415
18	5936 RS 339	5	<5	<5	5	10	1.05	60	400
19	5936 RS 341	10	5	<5	5	10	1.89	40	170
20	5936 RS 342	10	5	<5	5	15	2.00	30	210
21	5936 RS 344	5	5	<5	5	10	>100.00	30	160
22	5936 RS 345	15	15	20	5	20	2.79	15	295
23	5936 RS 346	10	10	15	5	15	2.58	15	255
24	5936 RS 347 X	10	10	<5	<5	15	2.58	15	75
25	5936 RS 348 X	20	5	<5	15	40	1.03	165	60

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	5 OF 10

TUBE No.	SAMPLE No.		Cu	Pb	Zn	Co	Ni	Fe	Cr	Mn
1	5936 RS 349		10	<5	<5	90	30	1.32	155	165
2	QC5936 RS	220	20 ✓	20 (40)	45 100	10	20 ✓	3.17	5 10	850
3	QC5936 RS	260	10 ✓	20 ✓	35 (40)	<5	5 (15)	2.25	5 ✓	430
4	QC5936 RS	280	25 ✓	20 (15)	20 (25)	15	65 ✓	2.18	20 (25)	115
5	QC5936 RS	300	<5 ✓	35 (30)	20 (25)	5	15 ✓	0.82	10 ✓	40
6	QC5936 RS	320	10 ✓	10 ✓	20 ✓	5	15 (10)	1.09	5 (15)	40
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		5	5	5	5	5	0.01	5	5
24	UNITS		PPM	PPM	PPM	PPM	PPM	%	PPM	PPM
25	METHOD		GA101	GA101	GA101	GA101	GA101	GA101	GA101	GA101

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

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Au

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	6 OF 10

TUBE No.	SAMPLE No.	Au							
1	5936 RS 218	<0.001							
2	5936 RS 219	<0.001							
3	5936 RS 220	<0.001							
4	5936 RS 222	<0.001							
5	5936 RS 223	<0.001							
6	5936 RS 224	<0.001							
7	5936 RS 225	<0.001							
8	5936 RS 226	<0.001							
9	5936 RS 227	<0.001							
10	5936 RS 228	<0.001							
11	5936 RS 229	<0.001							
12	5936 RS 230	<0.001							
13	5936 RS 231	<0.001							
14	5936 RS 232	<0.001							
15	5936 RS 233	<0.001							
16	5936 RS 235	<0.001							
17	5936 RS 236	<0.001							
18	5936 RS 237	<0.001							
19	5936 RS 238	<0.001							
20	5936 RS 239	0.001							
21	5936 RS 241	<0.001							
22	5936 RS 243	<0.001							
23	5936 RS 244	<0.001							
24	5936 RS 245	<0.001							
25	5936 RS 247	<0.001							

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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	7 OF 10

TUBE No.	SAMPLE No.	Au							
1	5936 RS 249	<0.001							
2	5936 RS 250	<0.001							
3	5936 RS 251	<0.001							
4	5936 RS 252	<0.001							
5	5936 RS 253	<0.001							
6	5936 RS 255	<0.001							
7	5936 RS 257	<0.001							
8	5936 RS 259	<0.001							
9	5936 RS 260	<0.001							
10	5936 RS 261	0.001							
11	5936 RS 263	<0.001							
12	5936 RS 264	<0.001							
13	5936 RS 265	<0.001							
14	5936 RS 266	<0.001							
15	5936 RS 268	<0.001							
16	5936 RS 269	<0.001							
17	5936 RS 271	<0.001							
18	5936 RS 272	<0.001							
19	5936 RS 273	<0.001							
20	5936 RS 274	<0.001							
21	5936 RS 276	0.002							
22	5936 RS 278	<0.001							
23	5936 RS 279	0.001							
24	5936 RS 280	0.001							
25	5936 RS 281	<0.001							

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

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	8 OF 10

TUBE No.	SAMPLE No.	Au							
1	5936 RS 282	<0.001							
2	5936 RS 284	<0.001							
3	5936 RS 286	<0.001							
4	5936 RS 288	<0.001							
5	5936 RS 290	<0.001							
6	5936 RS 292	<0.001							
7	5936 RS 293	<0.001							
8	5936 RS 294	<0.001							
9	5936 RS 296	<0.001							
10	5936 RS 298	<0.001							
11	5936 RS 299	<0.001							
12	5936 RS 300	<0.001							
13	5936 RS 301	<0.001							
14	5936 RS 302	<0.001							
15	5936 RS 304	<0.001							
16	5936 RS 305	0.001							
17	5936 RS 306	0.001							
18	5936 RS 307	<0.001							
19	5936 RS 308	<0.001							
20	5936 RS 310	<0.001							
21	5936 RS 312	<0.001							
22	5936 RS 314	<0.001							
23	5936 RS 315	0.002							
24	5936 RS 316	0.070							
25	5936 RS 317	0.001							

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	9 OF 10

TUBE No.	SAMPLE No.	Au							
1	5936 RS 319	<0.001							
2	5936 RS 320	0.002							
3	5936 RS 321	0.001							
4	5936 RS 322	<0.001							
5	5936 RS 323	<0.001							
6	5936 RS 324	<0.001							
7	5936 RS 326	<0.001							
8	5936 RS 327	<0.001							
9	5936 RS 329	<0.001							
10	5936 RS 330	<0.001							
11	5936 RS 331	0.001							
12	5936 RS 332	<0.001							
13	5936 RS 333	<0.001							
14	5936 RS 334	<0.001							
15	5936 RS 336	<0.001							
16	5936 RS 337	<0.001							
17	5936 RS 338	0.001							
18	5936 RS 339	<0.001							
19	5936 RS 341	<0.001							
20	5936 RS 342	<0.001							
21	5936 RS 344	<0.001							
22	5936 RS 345	<0.001							
23	5936 RS 346	<0.001							
24	5936 RS 347	<0.001							
25	5936 RS 348	<0.001							

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 A.J. Branson

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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07246	23/12/91	12/03/492.Ex1	10 OF 10

TUBE No.	SAMPLE No.		Au							
1	5936 RS 349		0.002							
2	QC5936 RS 220		<0.001							
3	QC5936 RS 260		<0.001							
4	QC5936 RS 280		0.001							
5	QC5936 RS 300		<0.001							
6	QC5936 RS 320		0.002							
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		0.001							
24	UNITS		PPM							
25	METHOD		GG334							

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 A.J.Branson

BRIAN MORRIS
MINERAL RESOURCES
Bottom Holes

ANALABS

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A.C.N. 004 591 664

Phone (08)3365099 | 16 Sunbeam Road, Glynde, S.A. 5070 | Fax (08) 3365564

ANALYTICAL REPORT No. 105000.35.07247

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

INVOICE TO: ~~Boulia Tyrebas~~ B Morris
The Director General
PO Box 151

Eastwood SA 5063

ORDER No.	PROJECT
12/03/492	Ex-1177

DATE RECEIVED	RESULTS REQUIRED
12/12/91	ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
12	13/01/92	1	33

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
<5936 RS & others	ro Prep : OP021	Bi,Cd,Co,Ni,Pb,Zn,Cr,Fe,Mn,Mo,Ag,Cu/GA101
<5936 RS & others	ro Prep :	Au,Pt,Pd/GG333,As/GA114,U,Sb,Sn,Rb,Se,W,Sr/GX401,
<5936 RS & others Fe2O3,	ro Prep :	LOI/OM615,Na2O,Al2O3,SiO2,TiO2,MnO,CaO,K2O,MgO,P2O5,

REMARKS

RESULTS TO: ~~Boulia Tyrebas~~ B Morris
The Director General
PO Box 151

Eastwood SA 5063

RESULTS TO:

RESULTS TO:

AUTHORISED OFFICER

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Ba Nb As

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	1 OF 12

TUBE No.	SAMPLE No.	As (3)	Ba (1)	Ce	La	Nb (2)	Sr	Th	V
1	5936 RS 221	29	813	98	52	20	50	13	42
2	5936 RS 234	7	741	118	62	20	39	15	71
3	5936 RS 240	14	786	106	55	17	96	21	48
4	5936 RS 242	2	402	200	129	11	22	<10	14
5	5936 RS 246	2	159	48	30	<10	28	<10	9
6	5936 RS 248	2	74	37	28	<10	26	<10	10
7	5936 RS 254	3	431	749	349	<10	362	<10	192
8	5936 RS 256	1	54	195	57	23	15	19	7
9	5936 RS 258	1	256	63	33	<10	14	18	15
10	5936 RS 262	3	420	124	59	14	15	14	16
11	5936 RS 267	3	208	88	46	21	59	20	8
12	5936 RS 270	2	100	30	19	16	64	13	12
13	5936 RS 275	5	472	459	224	13	105	38	15
14	5936 RS 277	5	1000	28	20	<10	59	<10	128
15	5936 RS 283	6	229	85	46	12	66	13	64
16	5936 RS 285	2	326	164	80	17	226	20	123
17	5936 RS 287	1	300	37	22	43	129	<10	51
18	5936 RS 289	<1	124	<15	6	28	15	11	32
19	5936 RS 291	<1	96	<15	<5	<10	16	<10	15
20	5936 RS 295	1	1610	84	43	<10	1080	<10	141
21	5936 RS 297	2	361	94	53	18	55	12	27
22	5936 RS 303	5	654	98	52	16	27	23	105
23	5936 RS 309	2	1580	80	40	14	742	11	73
24	5936 RS 311	6	2710	25	19	<10	115	<10	116
25	5936 RS 313	4	1120	51	38	11	92	12	78

Results in ppm unless otherwise specified
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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	2 OF 12

TUBE No.	SAMPLE No.	As	Ba	Ce	La	Nb	Sr	Th	V
1	5936 RS 318	7	626	139	79	11	209	<10	184
2	5936 RS 325	2	1320	92	49	10	540	<10	217
3	5936 RS 328	3	2170	249	103	<10	429	<10	60
4	5936 RS 335	4	1960	76	40	<10	152	<10	205
5	5936 RS 340	1	670	33	19	<10	64	<10	6
6	5936 RS 343	1	782	47	25	<10	68	<10	12
7	QC5936 RS 240	20 (14)	798 786	107	54	18 17	96	23	50
8	QC5936 RS 340	2 (1	657 (670)	30	18	<10 <10	63	<10	5
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	1	5	15	5	10	1	10	2
24	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
25	METHOD	GA114	GI201	GI201	GI201	GI201	GI201	GI201	GI201

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	3 OF 12

TUBE No.	SAMPLE No.	LOI	Na2O	Al2O3	SiO2	TiO2	MnO	CaO	K2O
1	5936 RS 221	3.85	0.821	13.75	68.47	0.430	0.205	0.270	3.78
2	5936 RS 234	5.22	0.636	17.10	63.79	0.594	0.145	0.207	4.41
3	5936 RS 240	3.76	0.243	16.08	67.55	0.490	0.013	0.049	4.53
4	5936 RS 242	2.89	0.167	13.83	76.01	0.325	0.032	0.507	3.94
5	5936 RS 246	1.65	0.137	10.13	83.19	0.199	0.057	0.129	2.36
6	5936 RS 248	2.33	0.101	8.07	84.91	0.183	0.062	0.645	1.77
7	5936 RS 254	5.67	2.399	17.57	47.59	0.851	0.748	6.017	0.64
8	5936 RS 256	3.72	0.244	15.04	74.44	0.232	0.015	0.055	4.53
9	5936 RS 258	1.82	0.855	11.99	77.41	0.217	0.012	0.060	5.25
10	5936 RS 262	1.98	0.159	10.54	76.75	0.230	0.017	0.032	5.68
11	5936 RS 267	2.23	0.150	12.58	76.06	0.183	0.039	0.062	5.53
12	5936 RS 270	5.01	0.218	12.19	77.21	0.227	0.006	0.245	3.24
13	5936 RS 275	2.27	0.163	13.32	77.33	0.332	0.012	0.050	3.60
14	5936 RS 277	3.61	0.167	5.50	82.49	0.567	0.014	0.115	0.25
15	5936 RS 283	6.01	2.521	8.84	69.15	0.627	0.230	0.507	2.08
16	5936 RS 285	7.31	2.359	15.61	64.38	0.624	0.012	0.064	3.35
17	5936 RS 287	4.21	3.208	9.64	72.74	0.412	0.173	0.186	1.86
18	5936 RS 289	7.10	1.361	11.09	75.38	1.126	0.005	0.269	0.07
19	5936 RS 291	1.58	0.617	1.61	93.00	0.300	0.006	0.133	<0.06
20	5936 RS 295	3.53	4.947	15.93	58.39	1.178	0.046	1.497	2.99
21	5936 RS 297	3.77	1.004	7.37	82.80	0.957	0.004	0.048	0.96
22	5936 RS 303	5.09	0.177	14.80	61.13	0.744	0.067	2.589	5.91
23	5936 RS 309	3.79	3.896	14.09	61.98	1.785	0.074	0.581	4.43
24	5936 RS 311	2.90	0.816	6.53	83.00	0.224	0.014	0.158	1.92
25	5936 RS 313	4.16	0.961	9.39	76.65	0.425	0.018	0.204	2.60

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	4 OF 12

TUBE No.	SAMPLE No.	LOI	Na2O	Al2O3	SiO2	TiO2	MnO	CaO	K2O
1	5936 RS 318	4.94	0.758	14.19	65.25	0.767	0.013	0.201	3.97
2	5936 RS 325	5.18	2.561	14.27	58.53	2.068	0.123	2.393	2.24
3	5936 RS 328	2.73	0.253	11.11	75.47	0.244	0.006	0.105	5.91
4	5936 RS 335	5.46	1.318	16.38	57.18	0.839	0.075	0.491	4.54
5	5936 RS 340	0.57	0.119	5.42	88.70	0.062	0.041	0.036	2.99
6	5936 RS 343	0.81	0.155	7.22	84.80	0.097	0.081	0.042	3.66
7	QC5936 RS 240	3.77	0.244	14.95	68.86	0.485	0.014	0.050	4.60
8	QC5936 RS 340	0.52	0.115	5.20	87.80	0.052	0.040	0.035	2.96
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	0.01	0.006	0.02	0.20	0.005	0.002	0.006	0.06
24	UNITS	%	%	%	%	%	%	%	%
25	METHOD	OM615	OI204	OI204	OI204	OI204	OI204	OI204	OI204

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	5 OF 12

TUBE No.	SAMPLE No.	MgO	P2O5	Fe2O3	Total	Bi	Cd	Co	Ni
1	5936 RS 221	1.204	0.08	5.50	98.98	<10	<1	10	20
2	5936 RS 234	1.381	0.07	4.99	99.46	<10	<1	5	25
3	5936 RS 240	0.456	0.08	5.75	99.13	<10	<1	<5	5
4	5936 RS 242	0.454	0.03	1.00	99.23	<10	<1	<5	<5
5	5936 RS 246	0.219	<0.02	1.14	99.25	<10	<1	<5	10
6	5936 RS 248	0.169	<0.02	1.22	99.47	<10	<1	<5	10
7	5936 RS 254	4.162	0.16	13.34	99.15	<10	1	85	105
8	5936 RS 256	0.093	0.02	0.99	99.40	10	<1	<5	5
9	5936 RS 258	0.217	<0.02	1.54	99.39	<10	<1	<5	5
10	5936 RS 262	0.164	<0.02	3.45	99.23	<10	<1	<5	5
11	5936 RS 267	0.453	0.03	1.86	99.18	<10	<1	<5	5
12	5936 RS 270	0.090	<0.02	0.85	99.79	<10	<1	<5	5
13	5936 RS 275	0.119	0.08	1.73	99.06	<10	<1	<5	5
14	5936 RS 277	0.272	<0.02	5.60	98.62	<10	<1	15	10
15	5936 RS 283	0.632	0.26	8.59	99.76	<10	<1	15	25
16	5936 RS 285	1.239	0.13	4.53	99.76	<10	<1	5	35
17	5936 RS 287	0.857	0.10	5.62	99.24	<10	<1	5	5
18	5936 RS 289	0.310	<0.02	1.56	98.50	<10	<1	5	5
19	5936 RS 291	0.126	<0.02	1.66	99.17	<10	<1	<5	<5
20	5936 RS 295	1.807	0.31	8.42	99.09	<10	<1	15	10
21	5936 RS 297	0.353	0.06	1.54	98.95	<10	<1	35	5
22	5936 RS 303	1.758	0.12	6.92	99.31	<10	<1	15	20
23	5936 RS 309	0.993	0.25	7.69	99.56	<10	<1	10	<5
24	5936 RS 311	0.637	0.02	2.62	98.87	<10	<1	<5	5
25	5936 RS 313	0.665	<0.02	3.83	98.93	<10	<1	<5	5

Results in ppm unless otherwise specified
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A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	6 OF 12

TUBE No.	SAMPLE No.	MgO	P2O5	Fe2O3	Total	Bi	Cd	Co	Ni
1	5936 RS 318	1.046	0.09	7.56	98.80	<10	<1	10	70
2	5936 RS 325	1.147	0.28	10.39	99.19	<10	<1	65	15
3	5936 RS 328	0.580	0.17	2.40	99.10	<10	<1	<5	<5
4	5936 RS 335	4.891	0.21	7.71	99.46	<10	<1	30	15
5	5936 RS 340	0.091	<0.02	1.46	99.50	<10	<1	<5	<5
6	5936 RS 343	0.139	<0.02	2.62	99.62	<10	<1	<5	5
7	QC5936 RS 240	0.463	0.08	5.69	99.33	<10	<1	<5	5 (5)
8	QC5936 RS 340	0.078	<0.02	1.28	98.08	<10	<1	<5	<5 (<5)
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23	DETECTION	0.003	0.02	0.02	0.01	10	1	5	5
24	UNITS	%	%	%	%	PPM	PPM	PPM	PPM
25	METHOD	OI204	OI204	OI204	OI204	GA101	GA101	GA101	GA101

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ANALYTICAL DATA

Cu Pb Zn
Cr

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	7 OF 12

TUBE No.	SAMPLE No.	Pb	Zn	Cr	Fe	Mn	Mo	Ag	Cu
1	5936 RS 221	40	100	10	3.75	1520	<10	0.5	20
2	5936 RS 234	15	50	5	3.35	1070	<10	0.5	20
3	5936 RS 240	20	65	5	4.06	95	<10	0.5	20
4	5936 RS 242	25	5	<5	0.68	225	<10	0.5	<5
5	5936 RS 246	20	15	10	0.74	345	20	0.5	5
6	5936 RS 248	5	20	20	0.85	420	30	<0.5	10
7	5936 RS 254	350	2015	10	8.66	5660	10	1.0	120
8	5936 RS 256	35	30	<5	0.65	105	20	0.5	5
9	5936 RS 258	5	20	5	0.99	70	100	0.5	<5
10	5936 RS 262	5	35	10	2.25	115	60	<0.5	35
11	5936 RS 267	15	45	<5	1.19	255	10	0.5	<5
12	5936 RS 270	65	5	<5	0.51	75	10	0.5	<5
13	5936 RS 275	45	5	5	1.06	90	<10	1.5	5
14	5936 RS 277	20	<5	35	4.00	115	<10	0.5	5
15	5936 RS 283	10	70	55	5.88	1595	<10	1.0	5
16	5936 RS 285	20	50	35	3.03	85	<10	<0.5	55
17	5936 RS 287	5	45	15	3.46	1225	<10	0.5	5
18	5936 RS 289	<5	5	10	1.31	70	<10	3.5	<5
19	5936 RS 291	<5	<5	10	1.04	50	<10	0.5	<5
20	5936 RS 295	5	60	<5	5.34	295	<10	0.5	10
21	5936 RS 297	10	5	15	0.95	25	10	0.5	<5
22	5936 RS 303	15	100	10	3.90	490	10	0.5	15
23	5936 RS 309	5	60	<5	4.91	480	<10	0.5	<5
24	5936 RS 311	5	10	20	3.03	110	<10	<0.5	<5
25	5936 RS 313	5	30	10	2.46	120	<10	<0.5	5

Results in ppm unless otherwise specified
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AUTHORISED OFFICER D.K.Rowley

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	8 OF 12

TUBE No.	SAMPLE No.		Pb	Zn	Cr	Fe	Mn	Mo	Ag	Cu
1	5936 RS	318	15	75	45	4.93	95	<10	<0.5	5
2	5936 RS	325	10	185	<5	6.70	635	<10	<0.5	20
3	5936 RS	328	5	20	5	1.47	45	<10	0.5	5
4	5936 RS	335	5	115	<5	5.02	560	<10	<0.5	15
5	5936 RS	340	5	<5	30	0.98	310	<10	0.5	<5
6	5936 RS	343	<5	<5	50	1.66	590	<10	0.5	5
7	QC5936 RS	240	20 ✓	65 ✓	5 ✓	4.04	100	<10	0.5	✓ 20
8	QC5936 RS	340	✓ 5	<5 ✓	35 (30)	0.93	310	<10	<0.5	<5 ✓
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		5	5	5	0.01	5	10	0.5	5
24	UNITS		PPM	PPM	PPM	%	PPM	PPM	PPM	PPM
25	METHOD		GA101	GA101	GA101	GA101	GA101	GA101	GA101	GA101

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A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

Au Pt

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	9 OF 12

TUBE No.	SAMPLE No.	Au	Pt	Pd	U	Sb	Sn	Rb	Se
1	5936 RS 221	1.36	0.64	0.99	4	<3	<3	160	<3
2	5936 RS 234	1.40	0.69	1.11	4	5	<3	200	<3
3	5936 RS 240	3.86	0.59	0.52	8	<3	<3	200	5
4	5936 RS 242	<1.00	<0.50	0.59	6	<3	3	140	<3
5	5936 RS 246	<1.00	<0.50	<0.50	4	3	3	95	<3
6	5936 RS 248	<1.00	<0.50	<0.50	<3	<3	3	70	<3
7	5936 RS 254	<1.00	<0.50	<0.50	5	<3	5	120	<3
8	5936 RS 256	<1.00	<0.50	<0.50	7	<3	<3	100	<3
9	5936 RS 258	<1.00	<0.50	<0.50	3	<3	<3	130	<3
10	5936 RS 262	1.03	<0.50	<0.50	8	<3	3	140	<3
11	5936 RS 267	<1.00	<0.50	<0.50	3	<3	<3	160	<3
12	5936 RS 270	<1.00	<0.50	<0.50	3	<3	<3	75	<3
13	5936 RS 275	<1.00	<0.50	<0.50	<3	<3	4	140	<3
14	5936 RS 277	<1.00	0.72	1.29	3	<3	<3	16	<3
15	5936 RS 283	<1.00	1.61	1.67	<3	<3	<3	60	<3
16	5936 RS 285	<1.00	1.29	2.20	4	<3	<3	110	<3
17	5936 RS 287	<1.00	0.53	0.66	<3	<3	<3	65	<3
18	5936 RS 289	<1.00	0.54	0.91	<3	<3	<3	<5	<3
19	5936 RS 291	<1.00	<0.50	<0.50	<3	<3	<3	<5	<3
20	5936 RS 295	3.66	0.70	<0.50	5	<3	4	85	<3
21	5936 RS 297	1.39	<0.50	0.53	4	9	<3	35	<3
22	5936 RS 303	<1.00	0.82	0.98	<3	<3	4	220	<3
23	5936 RS 309	<1.00	<0.50	0.65	3	<3	<3	110	<3
24	5936 RS 311	<1.00	0.57	0.76	<3	<3	<3	60	<3
25	5936 RS 313	<1.00	0.51	0.93	3	<3	<3	85	<3

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 D.K.Rowley

ANALABS

A Division of Inchcape Inspection and Testing Services Australia Pty. Ltd.
A.C.N. 004 591 664

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	10 OF 12

TUBE No.	SAMPLE No.		Au	Pt	Pd	U	Sb	Sn	Rb	Se
1	5936 RS 318		1.57	0.97	1.22	4	<3	<3	140	<3
2	5936 RS 325		<1.00	<0.50	0.52	3	<3	<3	45	<3
3	5936 RS 328		<1.00	<0.50	0.68	6	<3	<3	150	<3
4	5936 RS 335		<1.00	<0.50	<0.50	<3	<3	<3	95	<3
5	5936 RS 340		<1.00	<0.50	<0.50	4	<3	<3	80	<3
6	5936 RS 343		1.54	0.56	0.51	3	<3	<3	100	<3
7	QC5936 RS 240		5.19 (3.86)	0.59 ✓	0.90	5	<3	5	200	4
8	QC5936 RS 340		<1.00 ✓	<0.50 ✓	0.59	<3	<3	<3	80	<3
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		1.00	0.50	0.50	3	3	3	5	3
24	UNITS		ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm
25	METHOD		GG333	GG333	GG333	GX401	GX401	GX401	GX401	GX401

Results in ppm unless otherwise specified
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AUTHORISED OFFICER D.K. Rowley

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	11 OF 12

TUBE No.	SAMPLE No.	W							
1	5936 RS 221	<10							
2	5936 RS 234	<10							
3	5936 RS 240	<10							
4	5936 RS 242	15							
5	5936 RS 246	20							
6	5936 RS 248	15							
7	5936 RS 254	<10							
8	5936 RS 256	<10							
9	5936 RS 258	<10							
10	5936 RS 262	<10							
11	5936 RS 267	<10							
12	5936 RS 270	<10							
13	5936 RS 275	15							
14	5936 RS 277	40							
15	5936 RS 283	10							
16	5936 RS 285	<10							
17	5936 RS 287	<10							
18	5936 RS 289	30							
19	5936 RS 291	<10							
20	5936 RS 295	<10							
21	5936 RS 297	110							
22	5936 RS 303	<10							
23	5936 RS 309	<10							
24	5936 RS 311	<10							
25	5936 RS 313	<10							

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

AUTHORISED OFFICER D.K.Rowley

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ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	105000.35.07247	13/01/92	12/03/492.Ex1	12 OF 12

TUBE No.	SAMPLE No.		W							
1	5936 RS 318		<10							
2	5936 RS 325		<10							
3	5936 RS 328		<10							
4	5936 RS 335		<10							
5	5936 RS 340		<10							
6	5936 RS 343		<10							
7	QC5936 RS 240		<10							
8	QC5936 RS 340		<10							
9										
10										
11										
12										
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15										
16										
17										
18										
19										
20										
21										
22										
23	DETECTION		10							
24	UNITS		ppm							
25	METHOD		GX401							

Results in ppm unless otherwise specified
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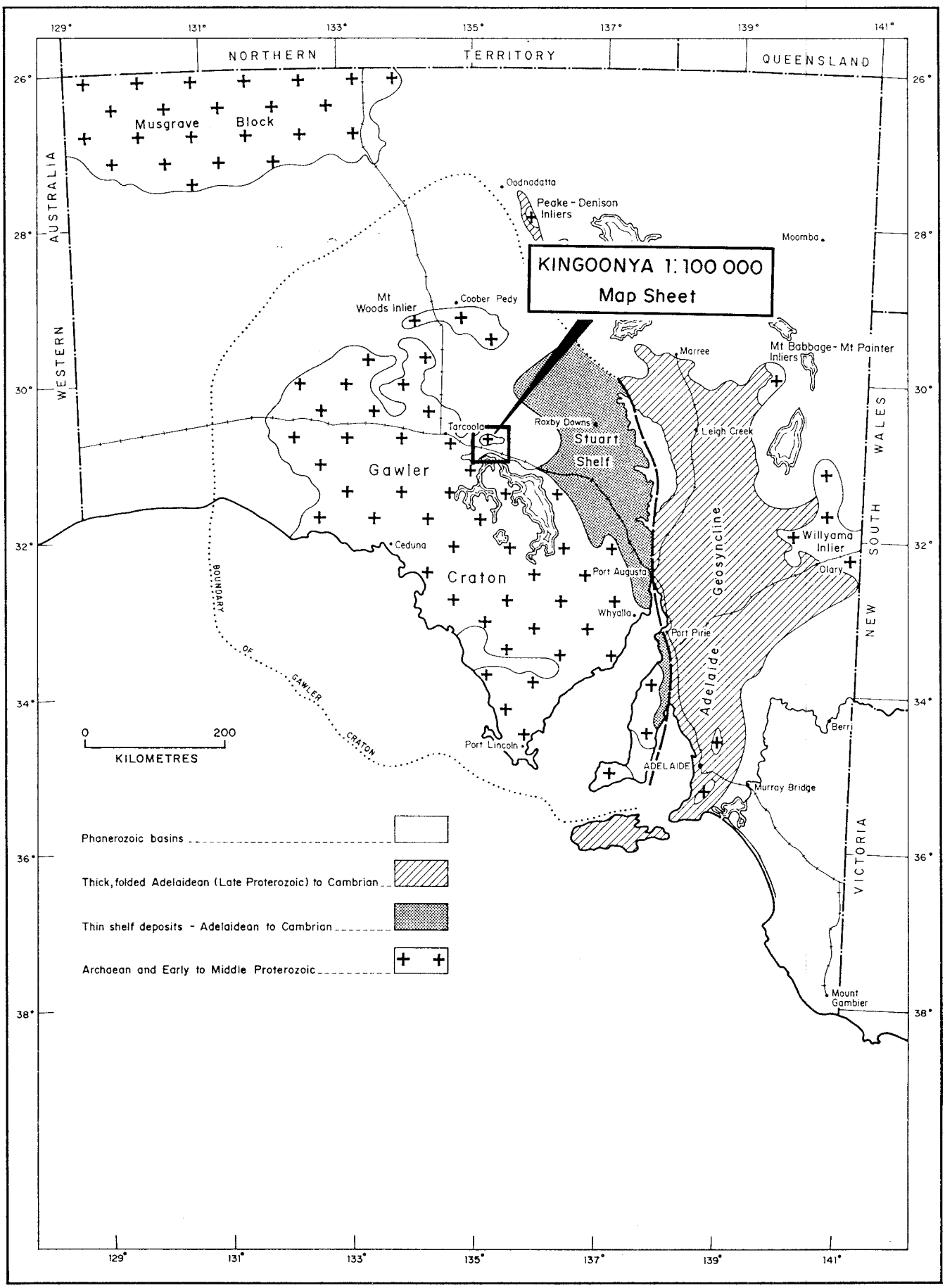
AUTHORISED OFFICER D.K.Rowley



KINGOONYA BEDROCK DRILLING PROGRAM

Locality plan showing Kingoonya 1:100 000 Map Sheet

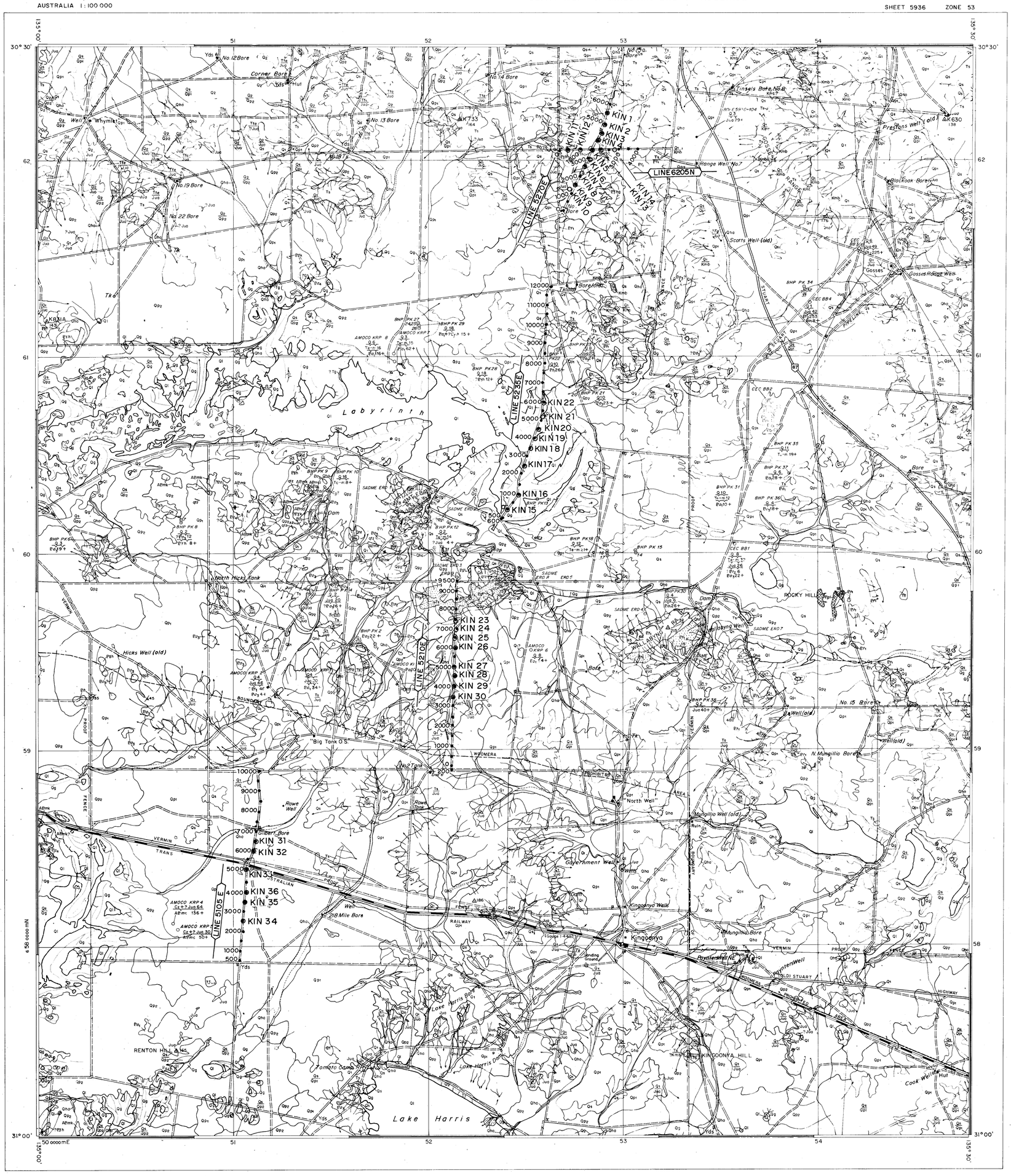
Fig 1

92-384

KINGOONYA

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF MINES AND ENERGY ADELAIDE

AUSTRALIA 1:100 000 SHEET 5936 ZONE 53



REFERENCE

CAINOZOIC

QUATERNARY — HOLOCENE

Qha Alluvium of modern drainage: orange and red gravel, sand, silt and clay.

Qht Talus and slope deposits: gravel and sand containing fragments of quartzite, conglomerate, chert or banded iron formation.

Qs Red–orange quartz sand dunes and spreads. Probably as old as Pleistocene in places.

Qg White gypsiferous lunette dunes and flats bordering playa lakes. Locally cemented by massive gypsum. May have thin Qs sand veneer.

Ql Playa lake deposits: gypsiferous and saline sand, silt and clay.

QUATERNARY — PLEISTOCENE

Q2 Q1 Q2: Red–brown ferruginous clay, silt and sand, with scattered ironstone granules and prominent "buckshot" ironstone gravel veneer.
Q1: Red–brown sand, silt and clay, with surface lag of silcrete ferruginous silcrete and quartzite gibbers. Soil often powdery, gypsiferous.

Qp2 Red–brown, partly indurated clayey sand, locally with coarse quartz sand on surface. Calcrete weakly developed or absent.

Qp1 Orange to red–brown, partly indurated clayey sand, with calcrete strongly developed as sheets and nodules. Occasionally has sparse to dense silcrete gibber lag on surface.

TERTIARY — MIOCENE / OLIGOCENE

Tg GARFORD FORMATION equivalent ?: Cream, very fine–grained limestone with MnO2 dendrites (Scotts Well). Green, gypsiferous, silty clay, mottled red–brown, and may overlie yellow–brown sandy clay (Lake Labyrinth).

Ts Fine–grained to pebbly, mostly poorly–sorted grey sand, usually silcreted, grading to massive "grey–billy" silcrete. Commonly ferruginised to yellow–brown colour. Occasionally conglomeratic, with pebbles to boulders of quartzite and quartz, and local silcrete, chert, acid volcanics or greisen. White, saccharoidal, fine–to medium–grained, well–sorted silcreted sandstone, with prominent large–scale cross–bedding, minor pebbly interbeds and rare ripple–marks.

Te–m Pale green, grey and brown, sandy or silty clay, often oxidised to red–brown colour and containing scattered carbonaceous fragments; white to yellow–orange, fine to medium–grained quartz sand with minor quartz pebbles; black, gypsiferous and carbonaceous clay and sand. Probably comprises Miocene GARFORD FORMATION and Eocene PIDINGA FORMATION. (Subsurface only).

Tfe Yellow to dark brown lateritic ironstone, developed within ALGEBUCKINA SANDSTONE. Probably includes Tertiary sandstone.

MESOZOIC

EROMANGA BASIN

CRETACEOUS

Kmb BULLDOG SHALE: Massive, white, kaolinitic mudstone and siltstone, rarely sandy. Rare interbeds of fine–to coarse–grained kaolinitic sandstone.

JURASSIC

Jua ALGEBUCKINA SANDSTONE: White, kaolinitic, fine–grained to granular sandstone, with interbeds of white, kaolinitic mudstone and sandy siltstone. Quartz grains may be milky, smoky, orange or bluish. Local pebbly sandstone or conglomerate, with clasts of quartz and quartzite, and rare kaolinitic siltstone, acid volcanics, banded iron formation or chert. Usually massive; local trough cross–bedding. Commonly silicified where overlain by silcreted Ts sandstone.

PROTEROZOIC

GAWLER CRATON

MIDDLE PROTEROZOIC

Eβ Dolerite dykes of GAIRDNER DYKE SWARM (Subsurface).

VICTORIA SUITE

Eδhg Quartz ± muscovite ± topaz ± pyrite ± fluorite ± zircon greisen, developed by alteration of porphyritic microgranite, and quartzite of TARCOOLA FORMATION.

Eδh Red to pink, fine– to coarse–grained microcline + quartz + plagioclase ± hornblende ± biotite granite – adamellite, and orthoclase + pyroxene + hornblende syenite, occasionally porphyritic or granophyric; dark red to pink, mafic – poor porphyritic microgranite. Biotite + hornblende granodiorite and quartz monzodiorite reported in drillholes.

Eα4 WILTABBIE VOLCANICS equivalent ?: Dykes of red–orange to pink rhyolite, grey porphyritic rhyodacite and grey, vesicular basalt.

GAWLER RANGE VOLCANICS

Eα3 EALBARA RHYOLITE (Eα3): Brick–red, red–brown, grey and purple rhyolitic, rhyodacitic and dacitic welded tuff and ignimbrite, with common compaction layering and flattened lapilli. Generally porphyritic, with phenocrysts of quartz and red–orange K–feldspar in rhyolite and rhyodacite, and pink–white plagioclase in rhyodacite and dacite. Purple–red and brick–red porphyritic rhyolite and rhyodacite lava flows at Tomato Rocks, with prominent, large scale, contorted flow–banding.
(Eα2): Off–white, greenish and pink, massive and finely–banded (?tuffaceous) chert, fine to coarse rhyolitic lapilli tuff and agglomerate, and flow–banded, sparsely porphyritic, rhyolite lava; common finely–laminated siliceous concretions and geodes in cherts.

Eα2

Eα1 KONKABY BASALT: Blue–green, dark green and black, andesitic and basaltic amygdaloidal lava, agglomerate and lapilli tuff. Mostly strongly altered.

LABYRINTH FORMATION

Eγl Off–white, pink and purple, sericitic pebbly sandstone, with pebbles to large boulders of white, red or dull green quartzite, quartz, quartzite–breccia, grey, brown or cream limestone or dolomite (some stromatolitic), and minor banded iron formation, mottled chert, shale, acid volcanics, granite or dolerite. Rare possible interbeds of pale brown, pink and buff rhyodacitic ignimbrite and rhyolitic welded tuff.

Λ Off–white, pink and purple, sericitic, foliated medium– to very coarse–grained sandstone, with local interbeds of sericitic phyllite, siltstone, fine– grained sandstone and rhyolitic tuff. Local, prominent, moderate–scale high–angle cross–bedding, and heavy mineral laminae. Scattered quartz, quartzite and chert pebbles.

Interbed of pink, foliated rhyolite and pink or white, mottled chert. Radiometric age ca. 1620 Ma (U–Pb).

Finely banded, stromatolitic, brecciated or mottled, pink, white and dark grey chert. Occasionally strongly ferruginised.

TARCOOLA FORMATION

Eγ2 Dark red, orange and grey–green, indurated, fine to medium–grained lithic sandstone, and laminated and massive cherty and carbonaceous siltstone to very fine–grained sandstone. Interbeds of dark green–black magnetic basalt and pink–orange rhyolite in drillholes. (Stratigraphic position uncertain).

Eγ1 Interbedded, foliated, red–brown to buff, micaceous siltstone, shale and fine– to medium–grained sandstone, commonly cross–bedded. Local highly weathered and ferruginised amygdaloidal basalt, possibly partly fragmental or tuffaceous.

White to very pale green or pink–brown, massive, medium– grained to granular, silicified quartzite, occasionally cross–bedded. Rare clay pellets. Occasional pebbly quartzite and local flaggy, silty quartzite interbeds. Thin, dark grey to red ferruginous quartzite bed at top.

White, medium–to coarse–grained silicified quartzite containing rounded pebbles of white quartz and quartzite, red jasper and grey–red iron formation. Grades upwards into overlying quartzite.

ARCHAEAN TO EARLY PROTEROZOIC

EARLY PROTEROZOIC — PLUMBAROGEMY INTRUSIVES

Eδk Red to orange, medium–to coarse–grained quartz + plagioclase + K feldspar granitoid gneiss, occasionally porphyritic. Contains local flourite.

THYTHOMIA GROUP

Eh WILGENA HILL JASPILITE: Blue–black, brown or red and black quartz + magnetite + limonite banded iron formation. Minor interbedded banded chert.

MULGATHING COMPLEX

AEmk KENELLA GNEISS: Orange to red, fine to coarse–grained, quartz + microcline + plagioclase ± muscovite ± garnet gneissic granite and grey–pink, coarse–grained plagioclase + quartz + K–feldspar + biotite gneissic adamellite. Local hornblende + plagioclase amphibolite, and greenish quartz + muscovite schist.

AEmc CHRISTIE GNEISS: Quartzofeldspathic gneiss with local garnet, sillimanite, magnetite or pyrite; chloritised and sericitised. (In drillholes)

AEmci Brown, quartz + limonite + cummingtonite/grunerite ± magnetite banded iron formation. Rare ferruginous, pyritic banded chert.

Local occurrence only, limits not shown.....Jua

HEAD STATION, OUT STATION, HUT
NATIONAL ROUTE NUMBER
HIGHWAY OR MAIN ROAD
SECONDARY ROAD
TRACK
TRACK ALONG BOUNDARY FENCE
RAILWAY AND STATION
RAILWAY AND SIDING
MAJOR ROAD BRIDGE, RAILWAY BRIDGE
BOUNDARY FENCE, FENCE ALONG HIGHWAY
INTERNAL FENCE
VERMIN PROOF, DOG FENCE — V P F D F
POWER TRANSMISSION LINE
MINERAL FEATURES
MINOR MINERAL OCCURRENCE, PROSPECT
MINE, ALLUVIAL WORKINGS
OPEN CUT, QUARRY
YARD
TRIG–STATION, ASTRONOMICAL STATION
IDENTIFIED HILL OR MOUNTAIN, CAIRN, PILE
SPOT ELEVATION
CONTOURS, DEPRESSION CONTOURS
ESCARPMENT
EMBANKMENT
SAND DUNE
DRAINAGE
RIVER, CREEKS
BRAIDED STREAM WITH FLOOD CHANNEL
FLOOD PLAIN BOUNDARY
CLAYPAN, SALTPAN (PLAYA LAKE), SWAMP
BORE, WELL
TANK
ARTESIAN BORE
SPRING
WATERHOLE
DAM

GEOLOGICAL BOUNDARY
OBSERVED
INFERRED
UNCONFORMITY
FAULT, THRUST FAULT
OBSERVED
INFERRED
BEDDING
INCLINED
HORIZONTAL, VERTICAL
VOLCANIC LAYERING
INCLINED
VERTICAL
CLEAVAGE
INCLINED
VERTICAL
SECOND CLEAVAGE

FOLIATION
INCLINED
VERTICAL
DRILLHOLE
ROTARY
DIAMOND
PERCUSSION
STRATA SEQUENCE (THICKNESS IN METRES) Cr 0·4 / Kmb 53
DRILLHOLE REFERENCE
CARPENTARIA EXPLORATION CO. PTY. LTD. CEC
AMOCO MINERALS AUST. CO. AMOCO
BHP MINERALS LTD. BHP
SA DEPT OF MINES & ENERGY SADME

MAGNETIC STATIONS • 3000
MAGNETIC TRAVERSES LINE 1234 E
DRILLHOLE O KIN2

1:100 000 SHEET INDEX

BON BON	EBA	PARAKYLIA
KINGOONYA		
KINGOONYA	VIVIAN	YOUNGHUSBAND

DEPARTMENT OF MINES AND ENERGY
SCALE 1:100 000
KILOMETRES 2 1 0 2 4 6 8 10 12 KILOMETRES

UNIVERSAL TRANSVERSE MERCATOR PROJECTION.
HORIZONTAL DATUM: AUSTRALIAN GEODETIC GRID 1966.
GRID LINES ARE 10000–METRE INTERVALS OF THE AUSTRALIAN MAP GRID.

Compiled from material supplied by Department of Defence, Army Survey Corps., Canberra.

Prepared by the Drafting Branch for use within the SA Department of Mines and Energy.

LOCALITY PLAN

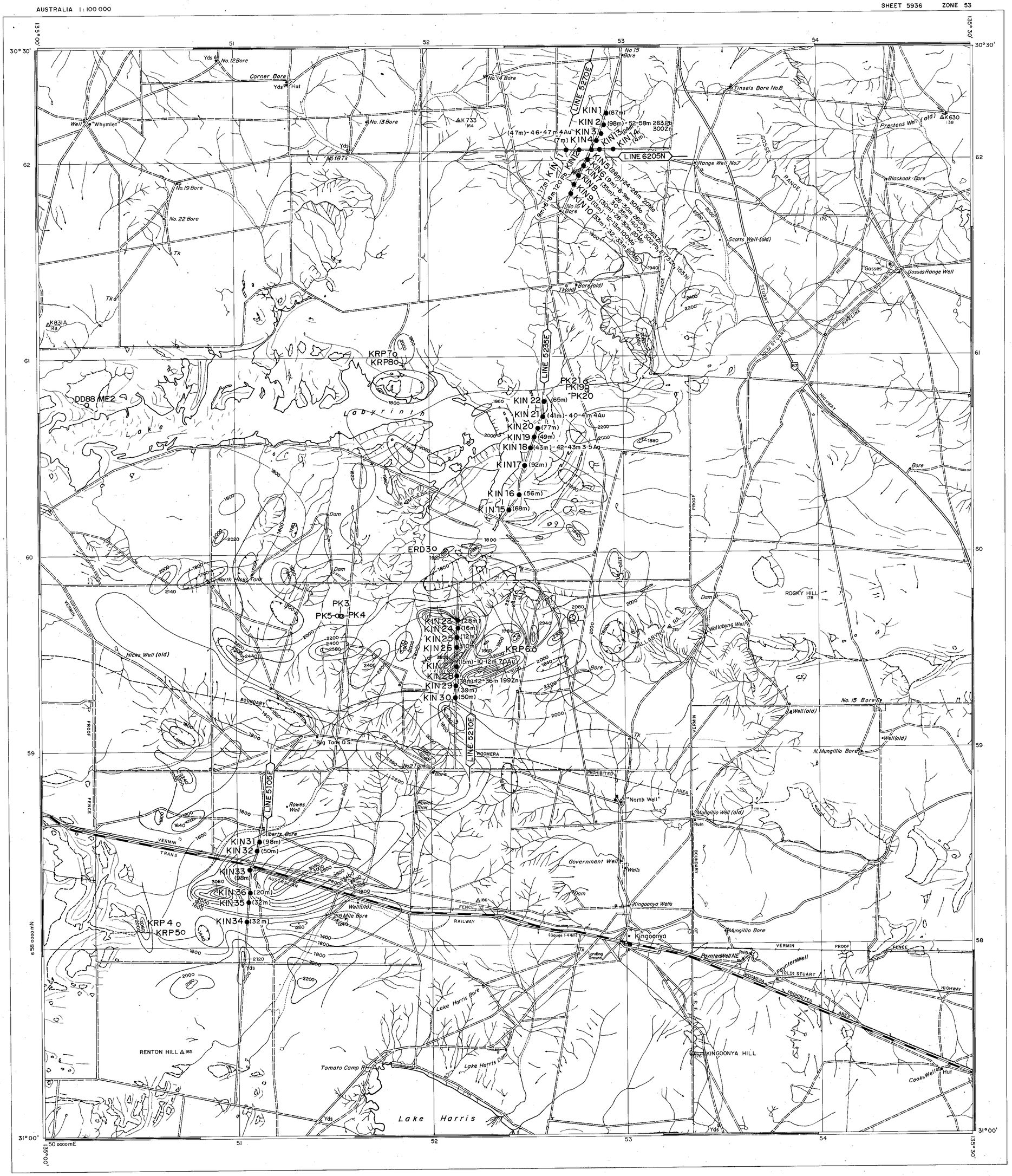
KINGOONYA BEDROCK DRILLING PROGRAM
GROUND MAGNETIC TRAVERSE AND DRILLHOLE LOCATIONS
KINGOONYA SHEET 5936

Fig 2
92–100

KINGOONYA

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF MINES AND ENERGY ADELAIDE

AUSTRALIA 1:100 000 — SHEET 5936 — ZONE 53



REFERENCE

AEROMAGNETIC CONTOURS (values in gammas) ..... 2000 / 1800

DRILLHOLE NUMBER WITH DEPTH ASSAYS IN PARTS PER MILLION EXCEPT Au WHICH IS IN PARTS PER BILLION ..... KIN●

SELECTED EXPLORATION & STRATIGRAPHIC DRILLHOLES REFERRED TO IN TEXT

BHP MINERALS LTD ..... PKo
AMOCO MINERALS AUST ..... KRPo
SADME ..... ERDo
CRA EXPLORATION PTY LTD. DD88 ME2o

HEAD STATION, OUT STATION, HUT ..... ▪ ▪ ▪
NATIONAL ROUTE NUMBER 23
HIGHWAY OR MAIN ROAD ..... ═══
SECONDARY ROAD ..... ═══
TRACK ..... ═══
TRACK ALONG BOUNDARY FENCE ..... ═══
RAILWAY AND STATION ..... ═══
RAILWAY AND SIDING ..... ═══
MAJOR ROAD BRIDGE, RAILWAY BRIDGE ..... ═══
BOUNDARY FENCE, FENCE ALONG HIGHWAY ..... ═══
INTERNAL FENCE ..... ═══
VERMIN PROOF, DOG FENCE ..... V.P.F. D.F.
POWER TRANSMISSION LINE .....
MINERAL FEATURES
MINOR MINERAL OCCURRENCE, PROSPECT ..... •U
MINE, ALLUVIAL WORKINGS .....
OPEN CUT, QUARRY .....
YARD .....
TRIG-STATION, ASTRONOMICAL STATION .....
IDENTIFIED HILL OR MOUNTAIN, CAIRN, PILE .....
SPOT ELEVATION ..... •73
CONTOURS, DEPRESSION CONTOURS ..... 100 / 10
ESCARPMENT .....
EMBANKMENT .....
SAND DUNE .....
DRAINAGE
RIVER, CREEKS .....
BRAIDED STREAM WITH FLOOD CHANNEL .....
FLOOD PLAIN BOUNDARY .....
CLAYPAN, SALTPAN (PLAYA LAKE), SWAMP .....
BORE, WELL .....
TANK .....
ARTESIAN BORE .....
SPRING .....
WATERHOLE .....
DAM .....

1:100 000 SHEET INDEX

BON BON	EBA	PARAKYLIA
KINGOONYA		
KINGOONYA	VIVIAN	YOUNGHUSBAND

DEPARTMENT OF MINES AND ENERGY

SCALE 1:100 000

KILOMETRES 2 1 0 2 4 6 8 10 12 KILOMETRES

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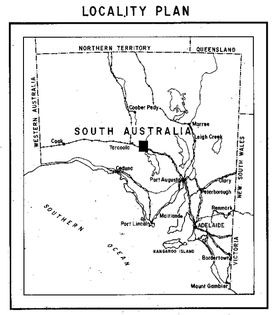
LOCALITY PLAN



KINGOONYA BEDROCK DRILLING PROGRAM

DRILLHOLE LOCATIONS, RESULTS AND AEROMAGNETIC FEATURES

KINGOONYA SHEET 5936

Fig 3
92-385