Open File Envelope No. 3734

EL 550

KINGS BLUFF

PROGRESS AND FINAL REPORTS TO LICENCE SURRENDER FOR THE PERIOD 13/11/1979 TO 1/4/1980

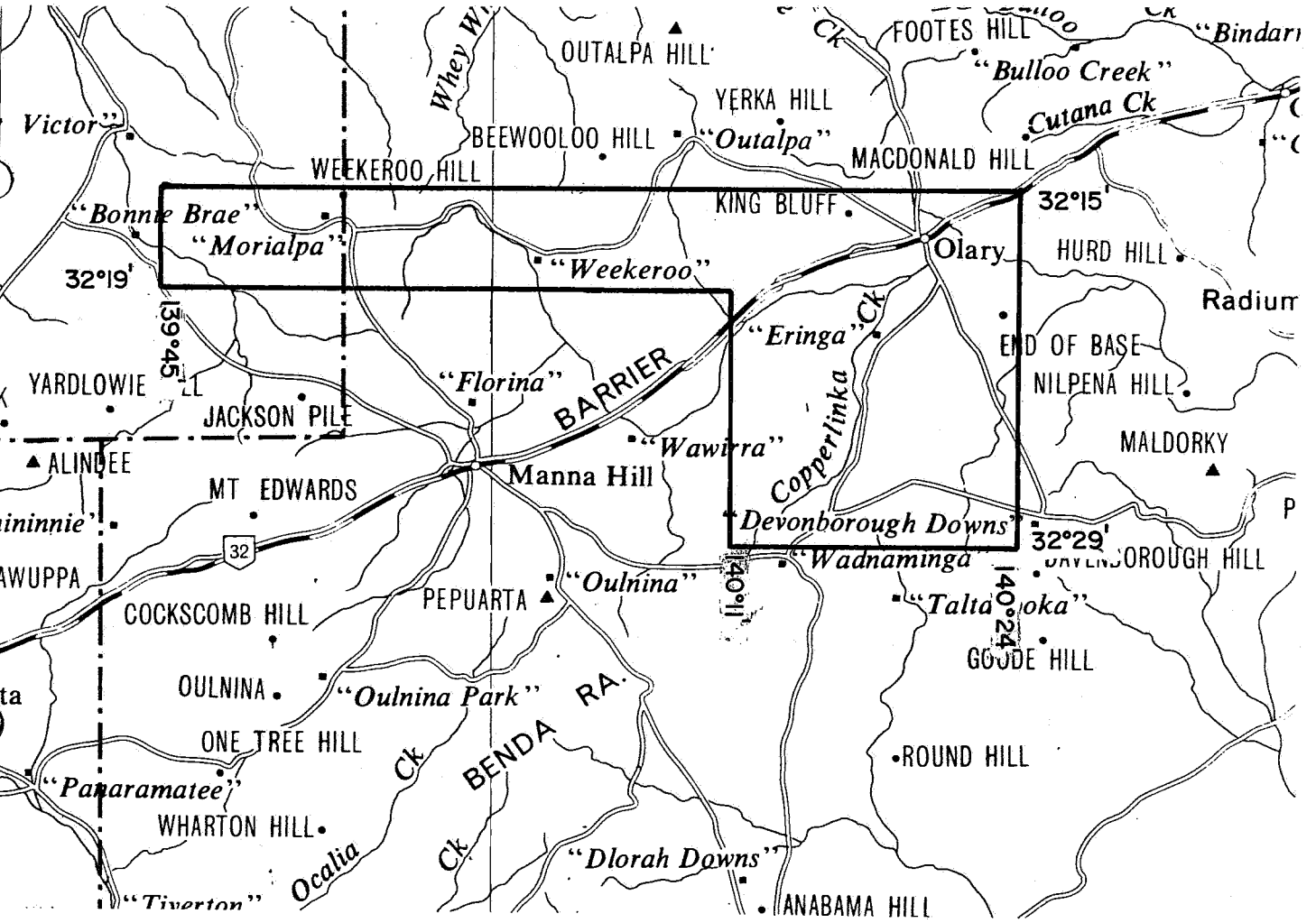
Submitted by
CRA Exploration Pty Ltd
1980

Enquiries: Customer Services Branch
Minerals and Energy Resources
7th Floor
101 Grenfell Street, Adelaide 5000

Telephone: (08) 8463 3000
Facsimile: (08) 8204 1880

Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



SCALE 1:500,000

KILOMETRES 10 0 10 20 30 40 50 KILOMETRES

APPLICANT: C.R.A. EXPLORATION PTY LTD

DM: 319/79

AREA: 830 square kilometres

1:250000 PLANS: OLARY

LOCALITY: OLARY

SURRENDERED

DATE GRANTED: 13·11·79

DATE EXPIRED:

EL No: 550

CONTENTS ENVELOPE 3734

TENEMENT: EXPORATION LICENCE No. 550 002

TENEMENT HOLDER: C.R.A. EXPLORATION PTY. LTD

REPORTS:

COLLIER, J. 1980

Exploration Licence No 550 Kings Bluff, South Australia. Report for the Quarter ended 12th February 1980 (pgs 3-8)

Plans:

SAa 264	Location Plan.	(3734-1)
SAa 419	Preliminary Geology	(3734-2)

REPORTS:

McCONACHY T.F. and MAYER T.E.

Final report on Kings Bluff, Exploration Licence 550.
South Australia (pgs. 9-22)

Plans:

SAa 264	Location Plan.	(3734-1)
SAa 419	Preliminary Geology	(3734-2)
SAa 415	Sketch map of Kings Bluff.	(pg. 23)
SAa416	Eringa Mine Sketch Plan.	(3734-3)

ENCLOSURE 1

Drawing No. 1768

Bouger gravity and Magnetic contours Anpepena gold fields. (3734-4)

C.R.A. EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)

28th FLOOR, 55 COLLINS STREET, MELBOURNE,
AUSTRALIA 3001

003

G.P.O. BOX 384D
MELBOURNE, AUSTRALIA 3001
TELEGRAMS: "CONRIO"
TELEX: AA30108
TELEPHONE: (AREA CODE 03)
SWITCHBOARD: 658 3333
DIRECT LINE: 658

IN REPLY PLEASE QUOTE

10 April 1980

The Director
PO Box 151
EASTWOOD SA 5063

Dear Sir,

EL 550 - Kings Bluff, SA
Report for the Quarter Ended 12 February 1980

Please find enclosed report 9993 by T E Mayer entitled "First Quarterly Report on Kings Bluff EL 550, South Australia for period ending 12 February 1980".

Exploration since the granting of this licence has indicated that the area has very little potential to host significant gold mineralisation.

Expenditure for the period ended 29 February, the nearest accounting period, amounted to $6385 comprising:

Salaries and wages	$1994
General supplies	1503
Vehicles	1149
Travel and accommodation	880
General overheads	859
	$6385

Yours faithfully,

for J Collier
General Manager

Enc

C.R.A. EXPLORATION PTY. LIMITED

FIRST QUARTERLY REPORT ON KINGS BLUFF E.L. 550, SOUTH AUSTRALIA FOR PERIOD ENDING 12.2.80

AUTHOR:	T.E. MAYER
SUBMITTED TO:	D.R. KENNEDY
COPIES TO:	C.R.A.E. LIBRARY S.A.D.M.E.
DATE:	24.3.1980

CONTENTS

	PAGE
1. ABSTRACT	1
2. INTRODUCTION	1
3. CONCLUSION AND RECOMMENDATION	1
4. INVESTIGATION	2
KEYWORDS	3
LIST OF PLANS	3

1. ABSTRACT

Initial investigations of prospective horizons within E.L. 550 have proved negative. Likewise, examination of old workings within the Exploration Licence has not delineated any prospects for further exploration. Relinquishment will be recommended in a Final Report.

2. INTRODUCTION

E.L. 550 was applied for on 11th May, 1979 and granted on 13th November, 1979.

The Tarcowie Siltstone and Waukaringa Siltstone units were examined for their stratabound gold potential.

Old gold workings have been examined and assessed.

3. CONCLUSION AND RECOMMENDATION

3.1 No prospects have been defined.

3.2 Relinquishment will be recommended in a Final Report.

4. INVESTIGATIONS

The Tarcowie siltstone and Waukaringa Siltstone units have been examined for stratabound gold mineralisation potential. All observed stratabound veins were found to be thin, milky quartz and discontinuous.

Old workings have been examined at Kings Bluff, Eringa Mine and Copperlinka Mine. Veins were found to be too thin, too poorly mineralised and/or too steeply dipping to be of economic interest.

Full details of work undertaken will appear in the Final (Relinquishment) Report.

T. E. Mayer

T.E. MAYER

KEYWORDS

Gold, quartz veins, stratabound, Tarcowie Siltstone, Waukaringa Siltstone

LOCATION

Olary SI 54-2

LIST OF PLANS

SAa 264	Location Diagram	1:250 000
SAa 419	Preliminary Geology	1:250 000

△OUTALPA

140° 00'

140° 15'

140° 30'

"Mt Victor"

139°45'

IRON HILL

MACDONALD HILL △

140°24'

32° 15'

△WEEKEROO HILL

△KINGS BLUFF

OLARY

"Bonnie Brae"

32° 19'

OUTALPA

APPROX. AREA = 830 km²

△END OF BASE

JACKSONS PILE

KARKALA PEAK

△ALINDEE

MANNAHILL

WAWIRRA HILLS

"Devonborough Downs"

DENE HILL

32°29'

Wadnaminga

140°11'

32° 30'

TATTAWUPPA

WINNININNIE

ION HILL

3734-1

129° 131° 133° 135° 137° 139° 141°

26° 28° 30° 32° 34° 36°

SOUTH AUSTRALIA

KINGS BLUFF E.L 550

ADELAIDE

BENDA RANGE

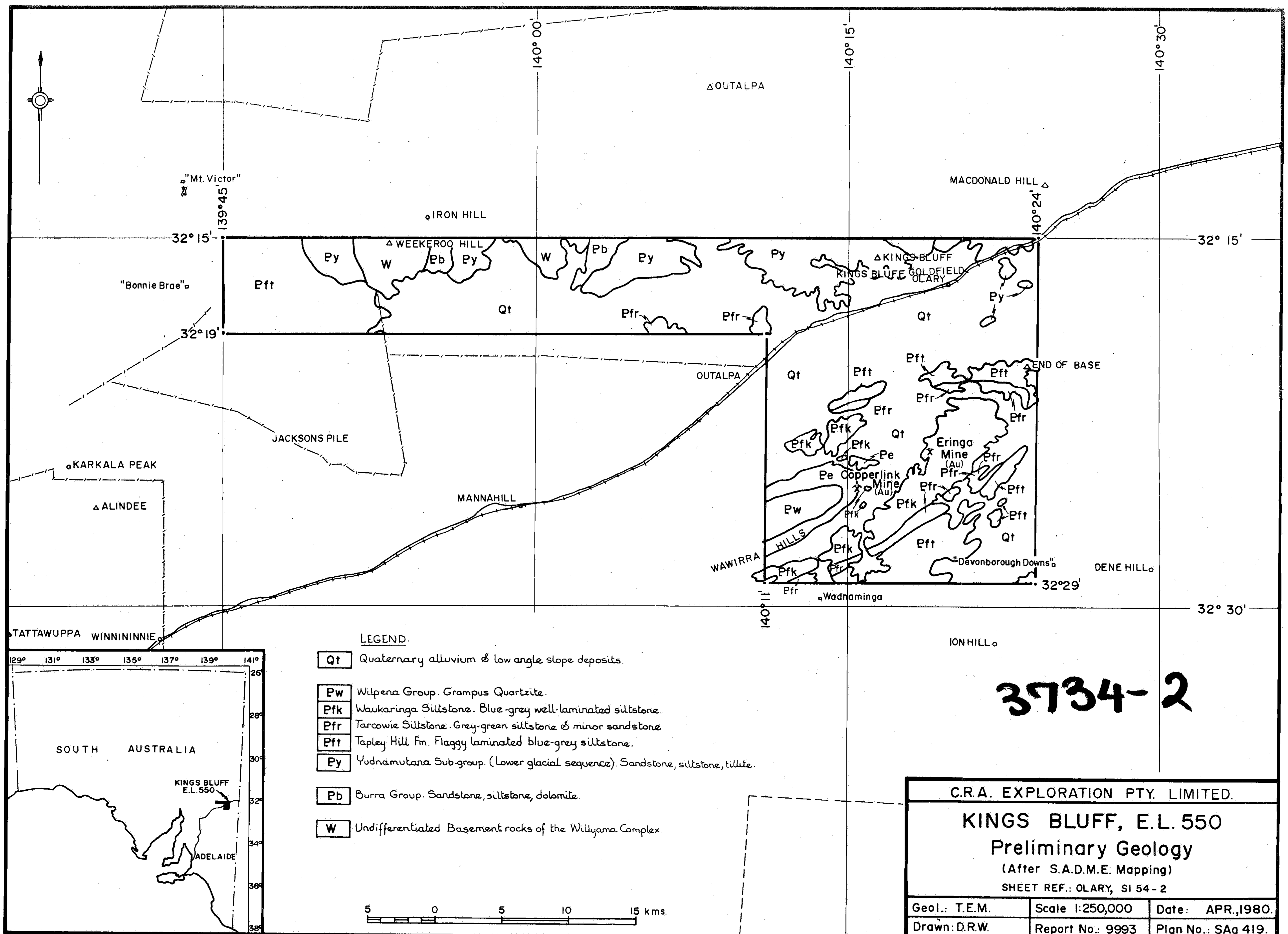
5 0 5 10 15 kms

C.R.A. EXPLORATION PTY. LIMITED

KINGS BLUFF, E.L. 550 LOCATION MAP

SHEET REF.: OLARY, SI 54-2

Geol.: T.E.M.	Scale 1:250,000	Date: APR. 1980.
Drawn. D.R.W.	Report No. 9993.	Plan No.: SAa 264



140° 00'
140° 15'
140° 30'
OUTALPA
"Mt. Victor"
139°45'
IRON HILL
MACDONALD HILL
140°24'
32° 15'
WEEKEROO HILL
KINGS BLUFF
KINGS BLUFF GOLDFIELD
OLARY
"Bonnie Brae"
32°19'
OUTALPA
END OF BASE
JACKSONS PILE
KARKALA PEAK
ALINDEE
MANNAHILL
Eringa Mine (Au)
Copperlink Mine (Au)
WAWIRRA HILLS
"Devonborough Downs"
DENE HILL
32°29'
Wadnaminga
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32° 30'
TATTAWUPPA
WINNININNIE
ION HILL
Qt
Pw
Pfk
Pfr
Pft
Py
Pb
W
Pe
SOUTH AUSTRALIA
KINGS BLUFF E.L. 550
ADELAIDE
129° 131° 133° 135° 137° 139° 141°
26° 28° 30° 32° 34° 36° 38°
LEGEND.
Qt Quaternary alluvium & low angle slope deposits.
Pw Wilpena Group. Grampus Quartzite.
Pfk Waukaringa Siltstone. Blue-grey well-laminated siltstone.
Pfr Tarcowie Siltstone. Grey-green siltstone & minor sandstone
Pft Tapley Hill Fm. Flaggy laminated blue-grey siltstone.
Py Yudnamutana Sub-group. (Lower glacial sequence). Sandstone, siltstone, tillite.
Pb Burra Group. Sandstone, siltstone, dolomite.
W Undifferentiated Basement rocks of the Willyama Complex.
5 0 5 10 15 kms.
3734-2
C.R.A. EXPLORATION PTY. LIMITED.
KINGS BLUFF, E.L. 550
Preliminary Geology
(After S.A.D.M.E. Mapping)
SHEET REF.: OLARY, SI 54-2
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Report No.: 9993
Date: APR.,1980.
Plan No.: SAa 419.

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IN REPLY PLEASE QUOTE

1 May 1980

The Director of Mines
PO Box 151
EASTWOOD SA 5063

Dear Sir,

EL 550 - Kings Bluff, South Australia
Final Report

Please find enclosed report 9993 by T F McConachy and T E Mayer entitled "Final Report on Kings Bluff EL 550, South Australia", dated 31 March, 1980.

Exploration failed to detect indications of gold bearing targets of sufficient tonnage to warrant continuation of this programme.

Final expenditure on EL 550 amounted to $7829 comprising:

Salaries and Wages	$2723
General Supplies	1648
Vehicles	1291
Travel and Accommodation	880
General Overheads	1287
	$7829

Yours faithfully,

for J Collier
General Manager

C.R.A. EXPLORATION PTY. LIMITED

FINAL REPORT ON

KINGS BLUFF E.L. 550, SOUTH AUSTRALIA

AUTHORS: T.F. MC CONACHY
T.E. MAYER

SUBMITTED TO: D.R. KENNEDY

COPIES TO: C.R.A.E. LIBRARY
S.A.D.M.E.

DATE: 31.3.1980

CONTENTS

1.	ABSTRACT	1
2.	INTRODUCTION	1
3.	CONCLUSIONS & RECOMMENDATIONS	1
4.	GEOLOGY	2
5.	INVESTIGATIONS	2
	5.1 REGIONAL RECONNAISSANCE	2
	5.2 KINGS BLUFF GOLDFIELD	3
	5.3 ERINGA MINE	3
	5.4 COPPERLINKA MINE	4
KEYWORDS		5
LIST OF ATTACHMENTS		5
LIST OF PLANS		5

012

1. ABSTRACT

Gold mineralisation with potential for mining by open cast method was sought. Regionally, fold closures and areas of shallow dip were examined for the presence of suitable stratabound mineralised veins. Old workings were investigated at Kings Bluff, Eringa and Copperlinka. No suitable prospects were defined.

Relinquishment is recommended.

2. INTRODUCTION

Kings Bluff E.L. 550 was applied for on May 11, 1979, and granted on November 13, 1979.

The Tarcowie Siltstone and Waukaringa Siltstone units were examined for their potential to host stratabound gold-mineralised-quartz veins suitable for mining by open cast method. Stratabound mineralised veins occur within these units in the adjacent E.L. 530 at Waukaringa, Ajax and Mannahill Goldfield. Investigations were confined to regions of relatively shallow dip, principally major fold closures.

Old gold workings at Kings Bluff, Eringa and Copperlinka were also examined and their potential assessed.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Rock outcrop is better than was anticipated.

3.1.1 Subsequently the potential for hidden stratabound veins is reduced.

3.2 Shallow-dipping stratabound quartz veins do occur within the Tarcowie Siltstone and Waukaringa Siltstone units, notably in the vicinity of the synclinal closure near Hogan's Dam on Eringa Park Station.

3.2.1 All observed stratabound veins were thin, milky quartz, and discontinuous along strike.

3.2.2 These veins offer little potential for further exploration.

3.3 No suitable gold prospects have been defined at any of the old gold workings examined.

3.4 Relinquishment is recommended.

4. GEOLOGY

Apart from a bilobal region of outcropping gneisses and schists of the Willyama Complex with onlapping Burra Group and Yudnamutana Sub-group sediments which occurs from north of Weekeroo to west of Morialpa, and another small area of Willyama Complex rocks to the northeast of Kings Bluff, much of E.L. 550 consists of gently south-west plunging, open-folded Umberatana Group sediments. Overlying Wilpena Group sediments, (Ulupa Siltstone), are found west of Copperlinka.

A generally thin cover of quarternary gravels, sand, soils and ubiquitous calcrete is variably superimposed on the above geology.

5. INVESTIGATIONS

5.1 Regional Reconnaissance

The Tarcowie Siltstone and Waukaringa Siltstone units which elsewhere host stratabound gold-mineralised veins, (i.e. at Waukaringa, Ajax, and Mannahill Goldfield), were examined in order to ascertain the potential for stratabound gold mineralisation within E.L. 550. Investigations were concentrated on areas of relatively shallow dip, particularly fold closures.

It was noted that the amount of outcrop was better than had been anticipated at the commencement of the programme. Quartz veins were easily located, since they were often found to be outcropping and/or marked by concentrations of quartz float. Consequently, the potential for the existence hidden veins of significant thickness is greatly reduced.

Stratabound quartz veins were examined within the area of investigation. Typical veins occur near Hogan's Dam and Reilly's Dam on Eringa Park Station. The veins are inevitably thin, (maximum thickness is forty centimetres), consisting of milky white quartz only, and are discontinuous along strike (less than 100 metres strike extent).

No further exploration is recommended.

5.2 Kings Bluff Goldfield

The goldfield is located seven kilometres west of Olary, south of Outalpa road. Thin, vertically dipping quartz veins have been mined within a feldspathic blocky quartzite. The quartz veins are transgressive and probably relate to tension joints of a broad shallow dipping anticline. Many of the workings are confined to the base of this 20 metre thick quartzite which forms a prominent scarp

and dip slope. The footwall consists of sericitic siltstone and psammitic rocks. Sericite is common. A pebble conglomerate crops out in places, (Appendix I).

The frequency and size of quartz veins could not be bulked into a large tonnage - low grade deposit. Plan No. SAa 415 is a sketch map of the area inspected.

5.3 Eringa Mine

Workings at Eringa Mine consist of two shafts approximately 150 metres apart, sunk on a quartz vein which strikes towards 040° mag. The vein can be traced for approximately 400 metres south-west from the main shaft which is the more south-westerly of the two shafts. The vein, where mineralised, consists of quartz, geothite and hematite with some malachite and azurite and trace amounts of gold. Mineralisation is confined to the vicinity of the main shaft which appears to be about fifteen metres deep with a (probably short) drive to the south-west. Maximum vein thickness is approximately one metre. The vein dips steeply, (approximately 85° to the north-west). North-east and south-west of the main shaft the vein consists predominantly of white quartz.

The second shaft has collapsed and the dump consists entirely of siltstone.

The host rock to the vein is a siltstone (Waukaringa Siltstone) which dips 45° towards the northwest.

The thinness of the vein, the steep dip, and the negligible gold content (a picked specimen from dump assayed 1.33 p.p.m. only), combine to make Eringa Mine unprospective.

Plan No. SAa 416 is a sketch plan of the area inspected.

5.4 Copperlinka Mine

Copperlinka Mine is situated in the closure of a regional syncline.

Workings at Copperlinka consist of several shafts, declines and small pits over an interval of approximately 300 metres. Many of the old workings have collapsed. One decline was examined underground. Mineralisation occurs in a brecciated quartz-goethite-hematite vein which appears to be strata-bound, the vein dipping 21° to the west. Maximum thickness is approximately 1.2 metres but this was observed to thin very rapidly down dip and was also seen to thin along strike.

The footwall consists of siltstone and dolomitic siltstone striking towards 173° mag. and dipping 21° west. The hanging wall consists of a thin quartzite bed, (approximately two

metres thick), overlain by a siltstone unit, (approximately fifteen metres thick), which is in turn overlain by an extensive quartzite unit, (Grampus Quartzite). Tillite outcrop was observed stratigraphically below the mine, which is thus tentatively stratigraphically assigned to a siltstone facies of the Pepuarta Tillite just below the base of the Grampus Quartzite.

It is considered that the mineralised vein is, in general, too thin to be of economic interest.

T.E. Mayer.

T.E. MAYER

KEYWORDS

Gold, quartz veins, stratabound, Tarcowie Siltstone, Waukaringa Siltstone

LOCATION

Olary SI 54-2

LIST OF ATTACHMENTS

APPENDIX I Petrographic Examination of Sample No. 222222, Kings Bluff Goldfield

APPENDIX II Kings Bluff Goldfield - Gold Assays

LIST OF PLANS

SAa 264	Location Diagram	1:250 000
SAa 419	Preliminary Geology	1:250 000
SAa 415	Sketch Plan Kings Bluff Goldfield	
SAa 416	Sketch Plan Eringa Mine	1: 2 500

APPENDIX I

Lowder Geoscience

Ore Petrology and Exploration Research

APPENDIX I

PETROGRAPHIC EXAMINATION OF

SAMPLE NO. 222222

KINGS BLUFF GOLDFIELD

Report No.: 79/80 5th September, 1979

For: C.R.A. Exploration Pty. Ltd.

G. G. LOWDER
Consulting Petrologist

Sample No. 222222 019

Rock Type Pebble conglomerate with phyllitic and schistose provenance

Hand Specimen A weathered, pebbly rock, generally pale brown, but with darker and lighter pebbles. Most of the pebbles are quite flat and show strong parallel orientation which represents bedding.

Thin Section This is a coarsely clastic sedimentary rock which consists mostly of pebble-sized lithic fragments. These are nearly all lenticular or disc-shaped and range up to 15 mm length in the section. They are generally tightly packed and oriented with long axes parallel. For reasons explained below, this preferred orientation represents bedding rather than metamorphic foliation.

Most lithic fragments consist of well defined, low grade metamorphic rock, grading from fine, massive sericite schist or phyllite, through quartz-sericite schist to slightly coarser grained quartz-muscovite schist. Graphite is present in moderate to abundant amounts in some fragments and in a number of cases supergene kaolin has replaced mica. Degraded biotite may be present in certain clasts, but widespread supergene limonite staining makes this uncertain. Strong micaceous foliation is present in most fragments and is generally parallel to the long axes. However, there is distinct though minor variation in degree and orientation of foliation between adjacent fragments, and some show strain-slip cleavage. These features indicate that the micaceous foliation is inherited from the metamorphic source rocks. The presence of cleavage is responsible for clastic grain shape and parallel alignment of the fragments represents bedding. Strongly oxidised opaque matter is present in many of the lithic clasts and a noteworthy feature is an unusual abundance of accessory tourmaline.

Apart from the schistose clasts the rock contains a number of quartzite pebbles. There are also several relatively large (up to 3 mm) grains of deformed quartz. Some of these are clasts in their own right, but most are contained within pebbles of schist or quartzite, in a manner suggesting relict porphyritic or pyroclastic texture. A few large grains of muscovite occur either singly or intergrown with quartz. The cementing matrix of the rock is largely finely granular quartz with limonite along grain boundaries.

Lithologically this rock may be described as pebble conglomerate with moderately well sorted clasts derived from a low grade metamorphic provenence. Origin of the phyllitic and schistose source rocks is obviously more obscure, but possible relict pyroclastic or porphyritic texture suggests that they may have included regionally metamorphosed acid volcanic rocks, and the presence of graphite indicates carbonaceous pelites.

APPENDIX II

C.R.A. EXPLORATION PTY. LIMITED
(Incorporated in New South Wales)
88 WOLLONGONG STREET
FYSHWICK. A C T. 2609

P O BOX 656.
FYSHWICK. 2609
TELEPHONE CANBERRA (062) 80 5655
TELEX AA 62750

021

4th September, 1979

APPENDIX II

Memorandum to : D.R. Kennedy
Copy : T.E. Mayer
From : T.F. McConachy

KINGS BLUFF GOLDFIELD - GOLD ASSAYS

Gold assays were received for six rock samples collected from Kings Bluff Goldfield, Olary. Only hand picked iron stained, dog tooth quartz returned appreciable gold of 2.93 ppm. Vertically dipping, narrow quartz veins are barren. The host feldspathic quartzite contains 0.08 ppm gold which is probably the source for gold in larger quartz veins.

The results reconfirm my initial impression that the area offers little scope for exploration. The attached sketch map shows approximate sample locations.

T.F. McConachy

Attachment :

Rock Chip Ledger.

AREA/PROSPECT .... SAMPLE Nos. 222218 GEOLOGIST T.Fm.K. DATE [illegible]

PLAN REFERENCE .... ANALYSED BY Zinc Corp

Sample No.		Au	Metal Content in ppm. Pb	Zn	Cu	Ag				Geological observations
222218		0.08								1m x 1m random chip sample of face exposing Ⓐ - sandstone, sericitic shear c Fe stnd.
19		<0.04								sericitic rock Fe
20		<0.04								4cm wide Ⓞ qz vein in feldspathic quartzite
21		<0.04								2cm wide qz vein c minor Fe staining
22		<0.04								sedimentary breccia - foot wall sequence.
23		2.93								hand picked Fe stnd vughy qz c terminate crystals, goeth in patches

140° 00'
140° 15'
140° 30'
△OUTALPA
"Mt Victor"
MACDONALD HILL △
139°45'
IRON HILL
140°24'
32° 15'
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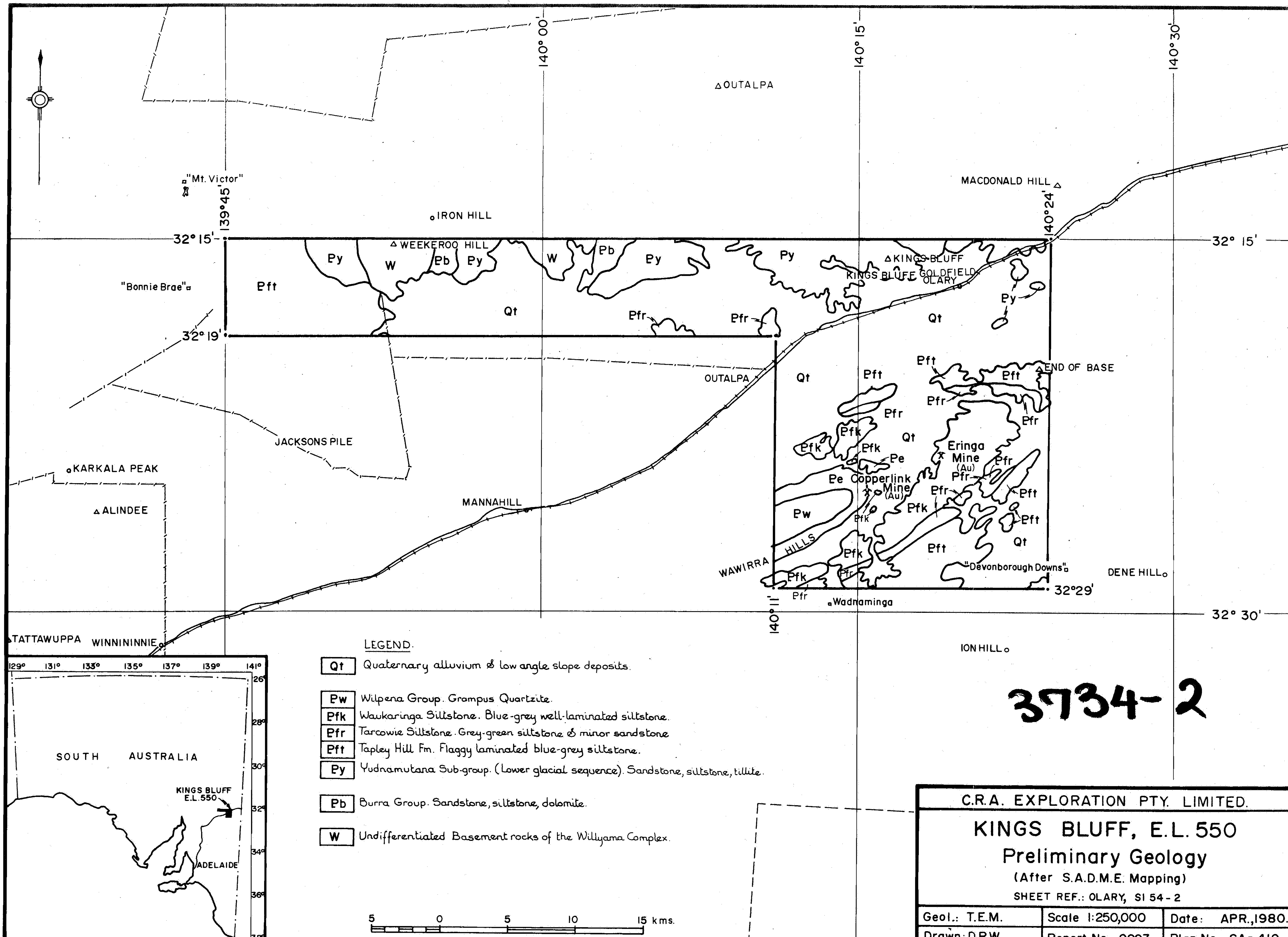
SOUTH AUSTRALIA
KINGS BLUFF E.L 550
ADELAIDE
BENDA RANGE
5 0 5 10 15 kms

C.R.A. EXPLORATION PTY. LIMITED

KINGS BLUFF, E.L. 550
LOCATION MAP

SHEET REF.: OLARY, SI 54-2

Geol.: T.E.M.	Scale 1:250,000	Date: APR. 1980
Drawn: D.R.W.	Report No: 9993.	Plan No.: SAa 264


C.R.A. EXPLORATION PTY. LIMITED.
KINGS BLUFF, E.L. 550
Preliminary Geology
(After S.A.D.M.E. Mapping)
SHEET REF.: OLARY, SI 54-2
Geol.: T.E.M.
Scale 1:250,000
Date: APR., 1980.
Drawn: D.R.W.
Report No.: 9993
Plan No.: SAa 419.
3734-2
LEGEND.
Qt Quaternary alluvium & low angle slope deposits.
Ꞓw Wilpena Group. Grampus Quartzite.
Ꞓfk Waukaringa Siltstone. Blue-grey well-laminated siltstone.
Ꞓfr Tarcowie Siltstone. Grey-green siltstone & minor sandstone
Ꞓft Tapley Hill Fm. Flaggy laminated blue-grey siltstone.
Ꞓy Yudnamutana Sub-group. (Lower glacial sequence). Sandstone, siltstone, tillite.
Ꞓb Burra Group. Sandstone, siltstone, dolomite.
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ION HILL
SOUTH AUSTRALIA
KINGS BLUFF E.L. 550
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26° 28° 30° 32° 34° 36° 38°

140°17' approx.

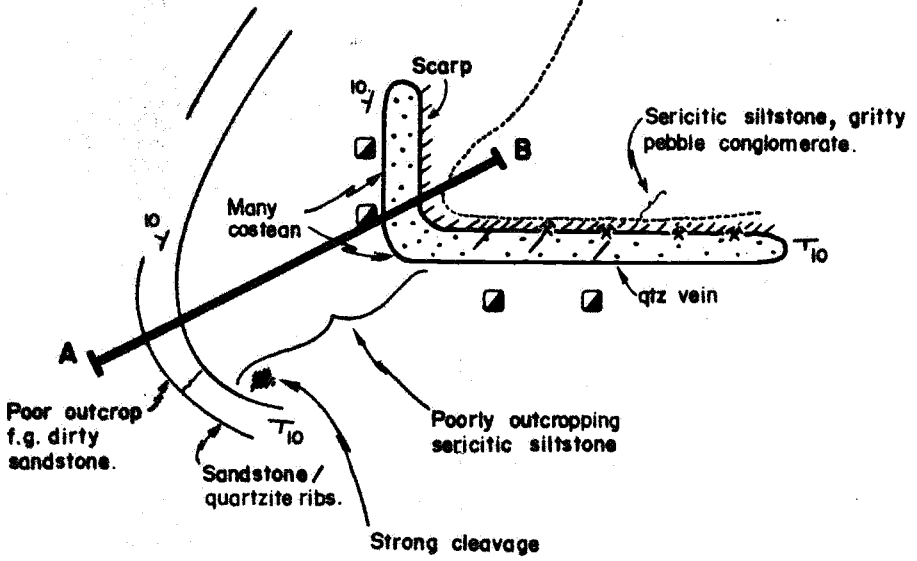
N

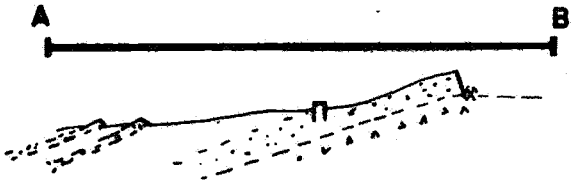
To Otary 6 Km.

To Outalpa H.S.

023

32°18' Approx





NOTE

Qtz veins trend 190 - 210°

Approx. 3 Kms.

C.R.A. EXPLORATION PTY. LTD.

KINGS BLUFF E.L. 550

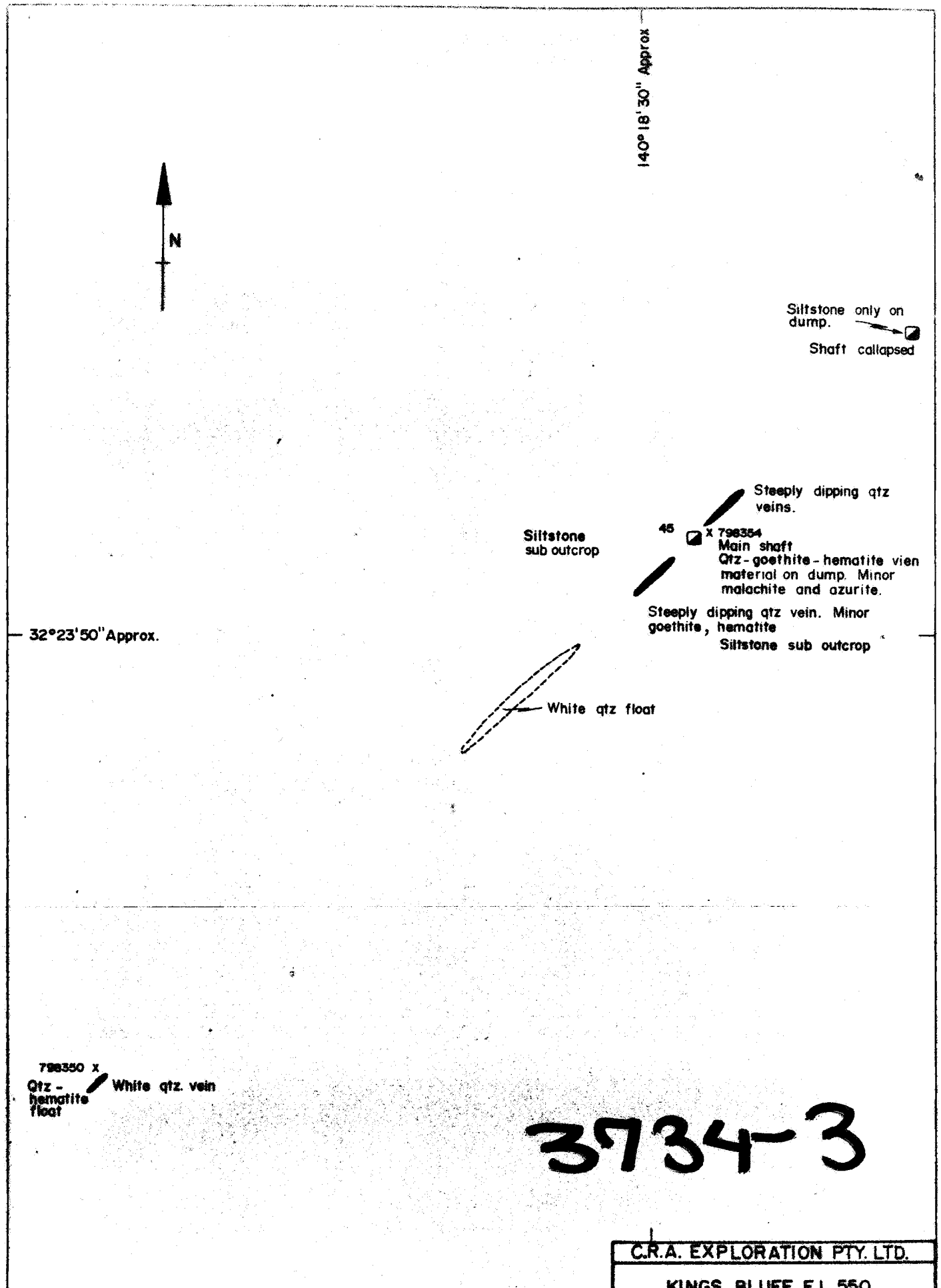
SKETCH MAP OF

KINGS BLUFF GOLDFIELD

Sheet Ref. Otary 5154-2. Report No. 9993

Geol. : T.F.McC. Date : March 80

Drawn : J.C.R. Plan No. SAg 415



3734-3

C.R.A. EXPLORATION PTY. LTD.

KINGS BLUFF E.L.550

ERINGA MINE

SKETCH PLAN

Sheet Ref. Olary SI54-2. Report N° 9993

Geol. : T.E.M.	Date : MARCH'80
Drawn : J.C.R.	Plan N°. : SAa 416