EXPLORATION LICENCE 7/72:

PORT SORELL AREA,

COMPLETION REPORT

JOHN T. IRVING

JANUARY, 1973

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DRSG

704602

JOHN T. IRVING

EXPLORATION LICENCE 7/72:

PORT SORELL AREA,

COMPLETION REPORT

ABSTRACT:

A rapid field investigation was undertaken for phosphates, particularly within the Cambrian units of this area. Concurrently a regional sampling for base metal mineralisation was made.

Stream sediment samples showed an extremely small proportion of material which passed heavy media concentration. Analytical results on those samples which contained heavy minerals did not justify further sampling.

Field phosphate tests showed some carbonates and weakly phosphatic material in some Cambrian sections, but these were patently sub economic. The Permian in places has considerable phosphate content, but is highly variable. It is not considered economic.

There was no encouragement encountered for further exploration expenditure and the area was relinquished on October 9, 1972, prior to the acquisition of analytical data.

John T. Irving

5-1-1973.

1. PROPOSAL:

In the light of the known Cambrian euxinic environment in parts of the Port Sorell area, it was proposed to carry out a rapid field investigation for phosphates. It was known that areas both to the east and west had been examined for phosphate potential, but it was understood that this area had not been prospected.

It was also intended to see if there was any base metal mineralisation.

2. INVESTIGATIONS:

Most of the field work was carried out during the winter. A few areas proved to be inaccessible due to the level of the streams. Vehicles were easily bogged, particularly in the plastic Permian soils.

Stream sediment sampling was carried out on a regional basis by pan concentrating a -8mesh sample to about a 1½ to 2lb size.

Six half pint water samples were taken, together with a representative selection of 23 rock samples, and in the Permian areas, 2lb soil samples were taken. Forty or more field chemical tests for phosphates were undertaken using a prepared ammonium molybdate solution.

A McPhar GTV-1 scintillometer was used in some areas, with readings taken in all three modes.

All of the twenty six stream sediment samples were subjected to heavy media separation and examined under Ultra Violet light. In some cases samples were examined petrographically by grain counting. These were analysed spectrographically for Cr, W, Mo, Mn, Nb, Be, Th, Cu, Pb, Zn, Sn, Ag, Ba, Sr, Y, La and Ce. The remainder were examined for Cu, Pb, Zn, and Sn only.

The results are shown as follows:-

Sample Location Map	Appendix 1
Petrographic	Appendix 2
Stream sediment Geochemistry	Appendices 3 & 4
Stream water Geochemistry	Not tested
Scintillometer Readings	Appendix 5
Field test results for Phosphates	Appendix 6

together with sketches of the 2 Permian sections tested.

3. CONCLUSIONS:

After pan concentration and heavy media separation there was an unexpectedly small proportion of heavy minerals present. In some cases insufficient for geochemical analysis. The geochemical results achieved were considered inadequate to justify further work.

The field phosphate tests on Cambrian rocks were mostly negative, and at best showed only a very small amount of phosphate present. The Permian sections did contain phosphates, and, in a few locations, could have been called plentiful. However, this unit is considered insufficiently 'condensed' to be an economic source of phosphates. It is also extremely variable.

The scintillometer showed that radioactivity in the area was at a particularly low level. Nowhere could we obtain results which appeared to justify further work. Accordingly, we disposed of the water, soil and rock samples obtained and relinquished the area.

J.T. Irving.

APPENDIX I

704C05

73-927

012

AUSTRALIA 1:100,000
TOPOGRAPHIC SURVEY

Exploration Licence 7/72 - Port Sorell Area.
John T. Irving Sample Locations

Sample Location Points

TAMAR

REFER TO THIS MAP AS: SHEET 8215 (EDITION 1)
SERIES R661

NMP/69/089

EDITION 1-DNM
SERIES R 661

TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: AUSTRALIAN GEODETIC DATUM 1966

SCALE 1:100,000

8 Miles
12 Kilometres

BLACK NUMBERED GRID LINES ARE 1,000 METRE INTERVALS OF THE AUSTRALIAN MAP GRID ZONE 55
GRID VALUES ARE SHOWN IN FULL ONLY AT THE SOUTH WEST CORNER OF THE MAP

CONTOUR INTERVAL 20 METRES
ELEVATIONS IN METRES
VERTICAL DATUM: MEAN SEA LEVEL

PRODUCED by the Lands and Surveys Department Tasmania, for the Commonwealth Department of National Development, as part of the national mapping programme.
PRINTED by the authority of the Minister for National Development 1970
DISTRIBUTED to the Defence Services by the Royal Australian Survey Corps and to other map users by the Department of National Development. A state edition is available from the Lands and Surveys Department, Hobart.
MAP ACCURACY: the average accuracy of this map is ±25 metres in the horizontal position of well defined detail and ±5 metres in elevation.
MAP RELIABILITY: Topographic information shown on this map is correct to 1970
ROAD CLASSIFICATION: Roads are classified according to their intended function as part of the national road system. Classification of road surfaces will be shown on larger scale series when published.

5 cm

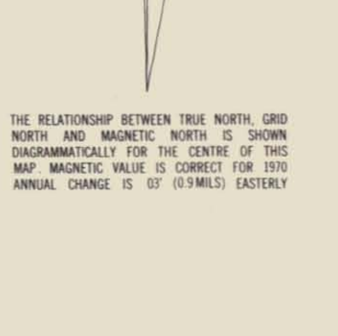
Built-up area, National route marker
Principal road and highway; Cutting
Secondary road; Embankment
Road under construction
Minor road
Vehicular track
Bridge road; Bridge railway; Tunnel railway
Gate; Cattle grid
Railway, multiple track; Station; Siding
Railway, single track; Station with siding
Light railway or tramway

Power transmission line (cross country)
Fence; Levee or bank
Mine; Windmill; Quarry
Building; Church; Ruins; Yard
Trig station; Bench mark; Spot elevation — △ BM·306 ·220
Contour with value; Auxiliary contour
Depression contour; Cliff
Forest, dense; medium; scattered
Scrub, dense; medium; scattered
Tropical rain forest; Pine plantation
Windbreak

Orchard or vineyard; Mangrove
Swamp perennial; intermittent
Land subject to inundation; Ricefield
Lake, perennial; Stream, perennial
Lake, intermittent; Stream, intermittent
Lake, mainly dry; Stream, mainly dry
Bore or well; Spring; Tank or small dam
Breakwater; Pier; Wharf
Wreck, exposed; Lighthouse
Rock, bare or awash; Foreshore flat; Sand
Reef; Ledge

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION: 55G	TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 100 METRES	
100,000 METRE SQUARE IDENTIFICATION (DQ, EQ, 500)	SAMPLE POINT: 419 △ STEWARTS HILL	
	1 Read letters identifying 100,000 metre square in which the point lies:	DQ
	2 Locate first VERTICAL grid line to LEFT of point and read LARGE figures labelling the line in either the top or bottom margin, or on the line itself:	83
	3 Estimate tenths from grid line to point:	0
	4 Locate first HORIZONTAL grid line BELOW point and read LARGE figures labelling the line in either the left or right margin, or on the line itself:	29
	5 Estimate tenths from grid line to point:	6
IGNORE the SMALLER figures of any grid number; these are for finding the full co-ordinates. Use ONLY the LARGER figures of the grid number; example: 459000	SAMPLE REFERENCE:	DQ830296
	If reporting beyond 18° in any direction, prefix Grid Zone Designation, as: 55GDQ830296	



THE RELATIONSHIP BETWEEN TRUE NORTH, GRID NORTH AND MAGNETIC NORTH IS SHOWN DIAGRAMMATICALLY FOR THE CENTRE OF THIS MAP. MAGNETIC VALUE IS CORRECT FOR 1970 ANNUAL CHANGE IS 03' (0.9 MILS) EASTERLY

INDEX TO ADJOINING MAPS

BASS	STRAIT	NINTH ISLAND 8316
FORTH 8115	TAMAR 8215	ST. PATRICKS 8315
MERSEY 8114	MEANDER 8214	SOUTH ESK 8314

TAMAR
SHEET 8215
TASMANIA

LABTECH PTY. LTD.
ANALYSTS
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237 Great Eastern Highway, Midland • G.P.O. Box U1938, Perth, Western Australia, 6001 • Telephone: 74 2566 • Telegrams: "Exserv" Perth

APPENDIX 2: 704006

A MEMBER OF THE SAMPEY GROUP

11th October, 1972

JOB NO. 5424 Our Ref: A129

Sample No.	OPAQUES Magnetite	?Ilmenite	Fe Oxides + Leucoxene	Zircon	Rutile	Tourmaline	Garnet	Monazite	Andalusite	Epidote	Chromite	Pyrite
PS14	14	40	20	15	5	3	3	tr				
PS15	7	30	10	35	10	6	2	tr	tr	tr		
PS16	10	20	16	5	2	tr	2	tr	1			
PS19	7	12	35	30	10	3	2	tr				1
PS20	10	20	50	15	3	2	tr	tr				
PS21	2	10	70	7	2	4	tr	tr	15			
PS22	1	8	80	1	tr	tr			10			
PS23	7	25	50	1	tr	tr	2		3	2	10	tr
PS24	5	10	80	2	tr	tr			3			
PS25	10	5	70	3	tr	2			10	tr		
PS26	4	50	40	1	tr	tr			5		tr	
PS39	3	30	15	10	3	3	10	1	tr			25% clinopyroxen
PS43	5	20	65	1	tr	1	1		tr	3		4% chlorite

C.I.M.

004 Part Scroll

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APPENDIX 3:
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704007

237 Great Eastern Highway, Midland • G.P.O. Box U1938, Perth, Western Australia, 6001 • Telephone: 74 2566 • Telegrams: "Exserv" Perth

25th September, 1972.

Mr. J.T. Irving,
Valley Exploration Pty. Ltd.,
1st Floor, 28 Market Street,
MELBOURNE
Victoria, 3000

Dear Sir,

Heavy Mineral Samples. P.S.6-43
Our Ref: GC/JMS/X129,A129

Before proceeding with this work I must draw your attention to the amount of heavy mineral material in some of your samples (see attached list).

The next stage in this job is for Emission Spectroscopy by Amdel, however in some cases there will be insufficient sample, while in others where analysis can be carried out there will be insufficient remaining for accurate grain counts.

Amdel usually require approximately 10 gms, however it can be done with as little as 1 gm. As far as grain counts are concerned, our petrologist should be able to identify all samples even in cases where only a few grains are present.

We are currently holding one third of untreated sample, even if this was to be used it would have little or no effect on the heavy mineral quantities from the -20 mesh fraction.

I propose that all samples >1 gram be sent to Amdel while those <1 gram are grain counted . On receiving Amdel's results we can then make a decision on whether or not grain counting is warranted on those samples.

No further work will be done on these samples until confirmation is received that you are happy with this approach.

Yours faithfully,

.....
(GRAEME CARTY)

005

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704008

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	Weight of -20# Fraction	Weight of Heavy Minerals in -20# Fraction
P.S. 6	20 grams	2.9 grams ✓
7	21 "	2.7 " ✓
8	235 "	6.2 " ✓
10	224 "	2.8 " ✓
11	35 "	3.2 " ✓
13	93 "	8.2 " ✓
14	80 "	0.8 "
15	123 "	0.6 "
16	27 "	0.7 "
18	135 "	2.0 " ✓
19	80 "	0.5 "
20	217 "	0.8 "
21	255 "	0.6 "
22	145 "	1.1 " ✓
23	52 "	0.8 "
24	75 "	0.3 "
25	47 "	0.3 "
26	35 "	1.1 " ✓
39	292 "	0.6 "
40	525 "	3.1 " ✓
41	735 "	2.4 " ✓
42	250 "	16.3 " ✓
43	150 "	1.2 " ✓

25 Sept 72.

APPENDIX 4: (a) 704009 006

AMDEL ANALYTICAL SERVICE

JOB: ..1533/73..

Semi-Quantitative Spectrographic Analysis Schemes A1,A2,A3,A4,A5 & A6 BATCH ...1.....

Results in ppm unless otherwise stated. Detection limits in brackets

Sample No.	PS 6	7	8	10	11	13	18	Sample No.	PS 6	7	8	10	11	13	18
A1								A2 Contd.							
Co (5)								Ge (1)							
Ni (5)								As (50)							
Cr (20)	500	300	800	1,500	1,000	2,000	2,500	Sb (30)							
V (10)								A3							
W (50)	x	x	x	x	x	x	x	Te (20)							
Mo (3)	x	x	x	x	x	x	x	Tl (1)							
Mn (10)	800	250	2,000	1,000	2,000	2,000	1,500	P (100)							
Ta (100)								A4							
Nb (20)	20	20	30	30	30	20	30	Na (50)							
Be (1)	x	x	x	x	x	x	x	Li (1)							
Th (100)	x	x	x	x	x	x	x	A5							
Pt (10)								K (5)							
Pd (10)								Rb (10)							
Os (10)								Cs (30)							
Ir (2)								A6							
Rh (2)								Ba (50)	x	x	300	1,000	1,000	1,000	x
Ru (2)								Sr (10)	x	x	x	x	x	x	x
A2								Y (10)	30	x	500	150	100	100	100
Cu (0.5)	200	150	150	150	300	150	300	La (100)	300	x	3,000	300	150	200	150
Pb (1)	30	30	30	20	30	10	80	Ce (300)	600	x	6,000	600	300	400	300
Zn (20)	80	20	20	30	20	x	30	Nd (300)							
Sn (1)	40	10	1,000	250	100	80	100	Pr (100)							
Cd (3)								Ti (100)							
Bi (1)								Er (100)							
Ag (0 1)	x	x	x	x	x	x	x	Sc (50)							

704010

007

AMDEL ANALYTICAL SERVICE

APPENDIX 4: (b)

JOB: ..1533/73..

Semi-Quantitative Spectrographic Analysis Schemes A1,A2,A3,A4,A5 & A6 BATCH .2.....

Results in ppm unless otherwise stated. Detection limits in brackets

Sample No.	PS 40	41	42
A1			
Co (5)			
Ni (5)			
Cr (20)	2,500	3,000	>10,000
V (10)			
W (50)	x	x	x
Mo (3)	x	x	x
Mn (10)	2,500	2,500	400
Ta (100)			
Nb (20)	50	80	x
Be (1)	x	x	x
Th (100)	x	x	x
Pt (10)			
Pd (10)			
Os (10)			
Ir (2)			
Rh (2)			
Ru (2)			
A2			
Cu (0.5)	150	100	100
Pb (1)	20	50	10
Zn (20)	20	30	*
Sn (1)	40	100	30
Cd (3)			
Bi (1)			
Ag (0.1)	x	x	x
Au (3)			
Ga (1)			

Sample No.	PS 40	41	42
A2 Contd.			
Ge (1)			
As (50)			
Sb (30)			
A3			
Te (20)			
Tl (1)			
P (100)			
A4			
Na (50)			
Li (1)			
A5			
K (5)			
Rb (10)			
Cs (30)			
A6			
Ba (50)	x	x	1,500
Sr (10)	x	x	x
Y (10)	300	500	200
La (100)	900	900	x
Ce (300)	2,000	2,000	x
Nd (300)			
Pr (100)			
Ti (100)			
Er (100)			
Sc (50)			
Eu (50)			

* UNAVAILABLE DUE TO INTERFERENCE

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Field Sheet No:— APPENDIX 4:(c)

Line No.:— 704C11

Project/Charge/ Despatch Note No.:—

Date:— 30-OCT-72

Any queries please quote Lab. Sheet Number:— 5424 /1

SAMPLE	U.V.	SCINT
PS 6	N	100-150
PS 7	N	100-150
PS 8	N	100-150
PS10	+	100-150
PS11	N	100-150
PS13	N	100-150
PS14	N	100-150
PS15	N	100-150
PS16	N	100-150
PS18	N	100-150
PS19	N	100-150
PS20	N	100-150
PS21	N	100-150
PS22	N	100-150
PS23	N	100-150
PS24	N	100-150
PS25	N	100-150
PS26	N	100-150
PS39	N	100-150
PS40	N	100-150
PS41	N	100-150
PS42	N	100-150
PS43	N	100-150

PS10 HAD SEVERAL SMALL GRAINS FLUORESCE IN VIOLET RAY.

ALL OTHERS WERE NEGATIVE.

SCINTILLOMETER READINGS WERE ALL 100-150 COUNTS/MINUTE.

BACKGROUND READINGS WERE ALSO IN THIS RANGE WITHIN THE AREA OF TESTING.

METHOD SPEC SPEC

FORM S34 FOR METHOD DETAILS SEE PRICE LIST

JOB NUMBER 5424 RACK NUMBER 4927

APPENDIX NO.5

SCINTILLOMETER RESULTS:

		Combined Count Cpm	U+Th / 3.5	Th / 3.5
561	Epf Griffiths Pt.	300	50	25
562		600	75	25
PS24	Brown's Creek	1000-1200	60	25-40
PS23	Cambrian	1000	45	15
	Proterozoic	2000	90	25
PS19		500	25	10
518		1800	60	25
520		1400	40	30
PS15	Franklin Rivulet	800	45	25
PS13	Franklin Rivulet	1300	60	40
PS16	Flag Creek	1100	50	20
PS12	Rudges Barite Prospect, General	1000		
	In costean - local	2000	100	60
PS11	Sugar Creek	2100	80	40
PS 9	Between Rudges and Flag Creek	600	40	35
PS 8	Saxons Creek	1200	60	35

Readings were taken in other areas but not recorded.

They were all similarly within the regionally low levels.

APPENDIX NO.6:

Results of AMO_4 Field Tests for Phosphate

Sample No.	AMO_4 Result	Comment
565	None	Epd Chert
568	None	Epf Silicified dolomite
569	None	? Serpentine
562	None	Epd Chert
564	None	? asbestos from quarry
566	None	Epe pyritic slate and serpentine
370	None	Epd chert
561	None	Epf silicified dolomite
590	None	Epe sandstone
563	None	Epa laminated siltstone
588	Slight	Epe Slate and chert
517	None	Epc weathered slate or siltstone
520	None	Epe pyritic slate
598	None	unknown intrusive with quartz veins
518	None	Epe slate from quarry
PS17	None	Ed dolerite
PS49	None	Epe non pyritic slate
PS48	None	Epe pyritic slate and chert
PS50	Slight	Epe non pyritic

Samples from Permian Section (Figure 1)
This is a road cutting at coordinates 451,000:920,500

Section No.	Sample No.	AMO_4 Result	Comments
1	PS30	Very Good	
2	PS31	Very Good	
3	PS32	Very Good	
4	PS33	Very Good	
5	PS34	Moderate	
6	PS35	None	
7	PS36	None	
8	PS37	Very Good	
9	PS38	Good	Much gas from limestone bands

APPENDIX NO. 6 CONT:

Samples from the Cambrian laminated siltstone as shown in Figure 2 is in the road cutting at coordinates 454,300:919,700.

Six samples were tested along the 200 ft. length of the cutting. There was a small amount of carbonate in places. It was very difficult to be sure that there was not phosphate because of the iron rich solutions. It was believed that the amount of phosphate present was slight, if any at all. A composite of the six samples was taken as PS46.

FIGURE 1:

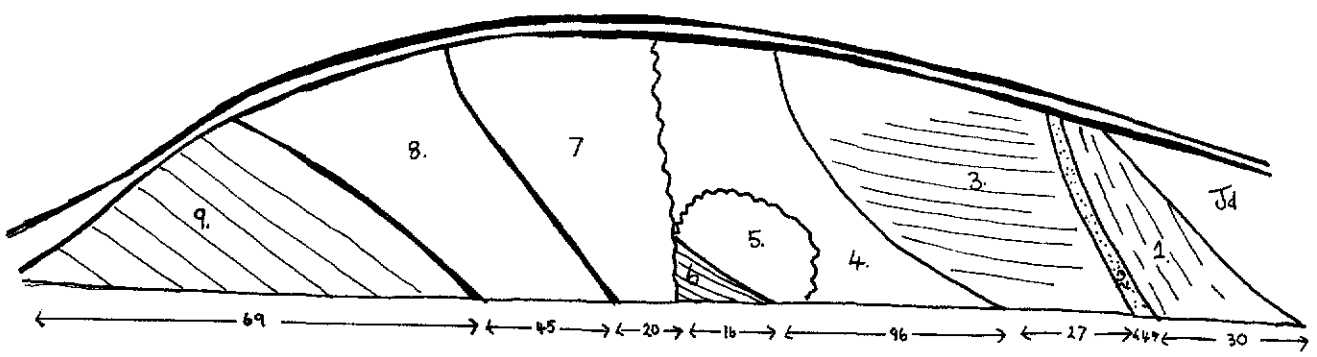

FIGURE 2: