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MICROFILMED

EXPLORATION LICENCE 18/76

SISTERS CREEK, TASMANIA

EXPLORATION PROGRAMME

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Summary

Following favourable surface sampling, shallow reconnaissance percussion drilling to a maximum depth of 21 metres was carried out on the Jacob Quartzite in the Sisters Creek area of western north Tasmania.

Weathering to chemically acceptable, but often soft, quartzite is extensive, extending to at least 21 metres in some areas. The quartzite appears to be largely unacceptably aluminous in the unweathered form. However a limited amount of hard, chemically acceptable quartzite was located extending to the 21 metres maximum depth of drilling, and this could represent primarily low alumina quartzite.

1. Introduction

The Sisters Creek area lies on the western north coast of Tasmania (see Figure 1).

Exploration Licence 18/76, of 44 square kilometres, was granted to the B.H.P. Co. Ltd. on 6th August, 1976 for six months, and renewed on 5th February, 1977 for a further six months.

Quartzites of Proterozoic age are shown on Mines Department maps of the area. The Jacob Quartzite was chosen for further work because of apparently good surface properties, similarity to other areas, and accessibility.

The area was initially surface sampled. A programme of percussion drilling was carried out on the Jacob Quartzite from 10th to 14th December, 1977, to determine if acceptable surface quartzite extends to depth. The drilling was planned as a reconnaissance programme to locate suitable quartzite, if any, and to indicate its extent, not to delineate deposits.

2. Geology

The Rocky Cape Group of Precambrian rocks contains two predominantly quartzite units, the Jacob Quartzite and a unit within the older Detention Sub-Group, each over 1200 m thick. These form resistant ridges in the area, the Sisters' Hills, Dip Range and Rocky Cape.

The quartzites are similar in most respects, typically consisting of fine, even grained, well bedded quartzite with a granular to glassy appearance depending on cementation. Quartz content is in excess of 98%, occurring as grains, cemented by quartz in optical continuity, but showing ghosts of original grains as lines of fine dust.

The orthoquartzites are often cross bedded.

Isoclinal folds are visible in quartzite and interbedded schist-quartzite at the southern end of the Jacob Quartzite, near Meunna.

Interbedded siltstone on a large and small scale occurs within the quartzites, though bands of pure quartzite in excess of 50 m thick are visible in outcrop. The more aluminous quartzites and schist are recessive on the surface giving poor or no outcrop.

Weathering appears to have been intense and extensive with soft sandy quartzite occurring to beyond the 21 m depth of drilling in some holes. Hard quartzite was also intersected to 21 m, the full depth of drilling. Surface

004

silicification appears to have occurred in some outcrops forming a "cap" over soft sandy weathered quartzite. Darker brown material in some holes often indicates an increase in alumina as less weathered material was intersected.

Dips generally range from 50 - 85° in the areas drilled.

3. Work Carried Out

3.1 Sampling and Reconnaissance

A number of surface bulk chip samples were taken. Locations of these are shown on Figure 2, and results are given in Appendix 3.

The quartzites were broadly examined to determine drilling sites, which were located on aerial photographs.

3.2 Drilling

Twenty-one angle and vertical percussion holes totalling 312 metres were drilled to a maximum depth of 21 metres. The locations are shown on Figure 2. Drilling was done with an Atlas Copco airtrac drill fitted with a dust and sample collector. Samples were collected at 3 metre rod changes and riffled down to approximately one kilogram.

Samples were logged and 43 samples from selected intervals were submitted for SiO_2 , Al_2O_3 and Fe_2O_3 analysis by BHP's Newcastle laboratories.

Drilling was restricted by water at shallow depths in many cases, which restricted sampling.

Drill logs are given in Appendix 1, and drill sample analyses are given in Appendix 2.

4. Discussion of Results

4.1 Surface Sampling

Most surface samples are of acceptable chemical grade, and drilling supported this. Virtually any quartzite is sufficiently altered in the top 3 metres to be acceptable.

Physical tests were carried out on three samples, two of which gave acceptable results. The third was friable and represented micaceous quartzite at depth as shown by later drilling.

4.2 Drilling

1. Hard, chemically acceptable quartzite extends to the 21 metre limit of drilling in some holes, and

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basically low alumina quartzites appear to exist extending below weathering.

2. There is a general increase in alumina with depth, and most of the quartzite appears to be chemically unacceptable in weathered form.

3. Depth of weathering, as evidenced by soft sandy quartzite, is variable to in excess of the 21 metre maximum depth of drilling. Surface silicification is common with a hard capping over weathered or solid quartzite.

4. Material logged as hard was comparable to and harder than quartzite drilled elsewhere in Tasmania, by comparison with bit wear and drill penetration.

5. A number of holes were stopped prematurely in good quartzite at the water table, beyond which sampling became unreliable.

6. Extensive non-outcrop areas concealed mainly softer, shaley, schistose quartzite.

Appendix 1

Drill Logs

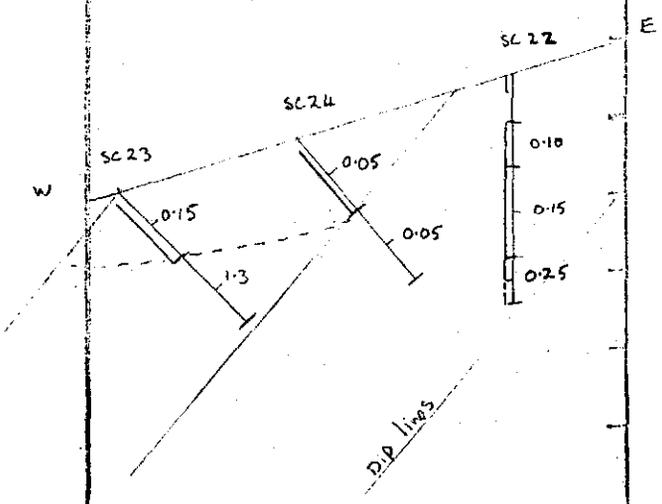
007

330008

Location: *Cook Creek* Coordinates: *See Plans* Geographical: *SC 22 AUSTIN*
 Angle of depression: *Vert.* Bearing: *(diag)*
 Drill: *Collinwood Rotary Driller* Core: *SC 22* Drill type: *P/C* Air: *frac* Commenced: *10/12/76*
 Sheet: *1* of *1* Scale: *1/100* Completed: *10/12/76*

Geology	Depth (m)	Comments	Analysis %		
			SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white quartzite		Outcrop dips 50°/290°			
Very soft white quartzite with minor hard patches. Sandy sample.		Drilled on crest of hill in vitreous outcrop.			
Very hard white vitreous quartzite, chips of vitreous and sucrose friable quartzite in sample			98.9	0.10	0.15
Very hard white quartzite. Cavity from 6.5-7.5					
Very hard white quartzite but poor recovery due to cavity above.			98.8	0.15	0.25
softer white quartzite.			98.9	0.25	0.25

END HOLE 15 m



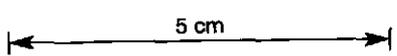
Diagrammatic section across strike @ 1:500
 % Al₂O₃ plotted
 | Hard,
 | medium hard,
 | otherwise soft

5 cm

Location, 2nd Crk Coordinates, Lat. 49° 15' N Longitude, 130° 00' W
 Angle of depression, 45° Bearing (log) 130°
 Drill Co. Northwest Valley Driller Core 10/22 Drill type P/S Air trac. Commented
 Sheet 1 of 1 Scale 1:100 Completed 10/12/76

330009

Geology	Comments	Analysis %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white quartzite with a lot of vitreous and sucrose chips in sample.	Outcrop dips 50°/310° Across strike in down dip direction from 21.	98.7	0.15	0.25
As above with some softer patches				
Very soft grey-white weathered quartzite giving a sandy sample. Very slightly micaceous with fine brown flakes.		97.0	1.3	0.35
END HOLE 12 m	see sc 22 section			

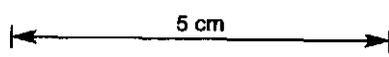


093

330010

Location: White Creek Coordinates: Lat. 58° 11' 00" Geographical 5024
 Angle of depression: 55° Bearing (Mag): 130° Austin's
 Drill Code: WPC Rotary Driller: Site Drill type: A/C Air Use: Commenced: Completed: 10/12/76
 Sheet: 1 of 1 Scale: 1:100

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
soil	Outcrop dips 50°/310°			
hard white quartzite				
hard with some softer.	collected 12 m east of 23 (up dip) but still down dip from 22.	98.8	0.05	0.20
As above.				
Soft sandy sample with chips of white sucrose and vitreous quartzite.				
		99.3	0.05	0.15
As above				
END HOLE 12m	see SC22 section			



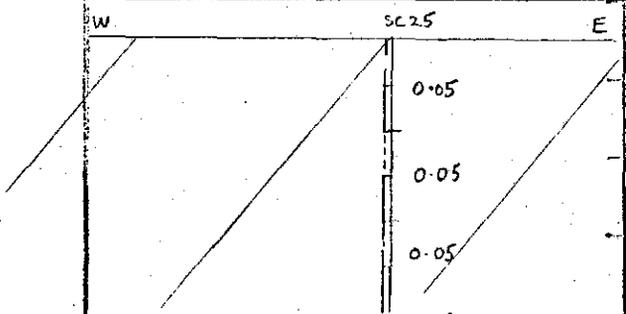
010

SC25
McGee

Location: Sisters Creek Coordinates: Elevation: Plains
 Angle of Depression: Vert Bearing (Mag):
 Drill: Collector: Driller: Glen Drill type: A/C Air Rec:
 Sheet: 1 of 1 Scale: 1:100 Completed: 11/12/76

330011

Geology	Comments	Analysis %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard outcrop				
Soft loose sand and lumps of quartzite				
Hard white quartzite with white chips of vitreous and sucrose quartzite.	Drilled into thin (0.5m) outcrop band on soft sandy hillside outcrop dip 50°/30°	99.4	0.05	0.10
Medium hard as above.				
Hard as above.		99.5	0.05	0.15
Hard with a medium hard section in the middle otherwise as above.				
Hard with white vitreous quartzite chips.		99.6	0.05	0.15
Soft quartzite giving light brown sandy END HOLE 21m sample.				
		99.0	0.10	0.15



Diagrammatic section across strike @ 1:500
 % Al₂O₃ plotted.

| Hard
 : Medium hard

5 cm

011

330012

GC26
McGraw

Location, Fisher Creek Coordinates, Lat. 28° 15' S Longitude 151° 15' E
 Angle of depression, 60° Bearing (Mag) 300°
 Drill Collar, West Valley Driller Glen Drill type, A/C Airtrac Comments
 Sheet 1 of 1 Scale 1:500 Completed

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white vitreous quartzite giving a sample with a lot of chips.	Outcrop, dips 50/20	99.2	0.05	0.05
Medium hard to soft creamy coloured quartzite				
soft creamy coloured quartzite giving a few sucrose and vitreous chips		99.3	0.05	0.10
Very soft sandy light grey weathered quartzite		99.3	0.05	0.15
Very poor recovery but apparently as above.				
END HOLE 21 m				
Diagrammatic section across strike @ 1:500 % Al ₂ O ₃ plotted Hard, Medium hard, otherwise soft.				



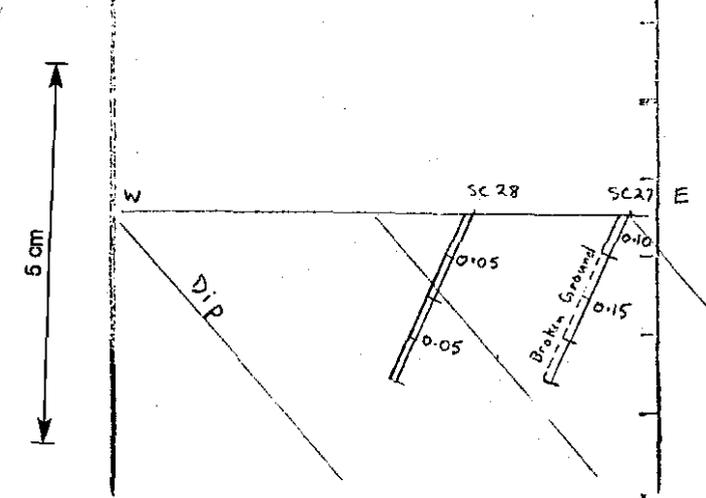
012

330013

Location: *Siberia Creek* Coordinates: *60° 59' 20" N, 140° 00' 00" W*
 Angle of depression: *65°* Bearing (Mag): *140°*
 Drill: *Walt Valley Driller* Core: *100%* Drill type: *A/C* Air: *trac*
 Sheet: *1* of *1* Scale: *1:100* Geographical: *McGraw's*
 Completed: *5/1/50*

Geology	Comments	Analysis %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white vitreous siliceous quartzite.	Outcrop dips 50°/300°	99.4	0.10	0.10
Brown soft sandy quartzite sample with a lot of white granully quartzite chips indicating broken ground.		99.0	0.15	0.15
As above but very wet and hole stopped because of broken ground and contamination from sides of hole.				

END HOLE 12m



Diagrammatic section across strike @ 1:500
 % Al₂O₃ plotted
 — Hard
 - - - Medium hard

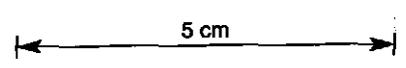
013

330014

SC 28

Location: Baker's Creek Coordinates, local: See Plans
 Angle of depression: 65° Bearing (comp): 140°
 Drill: Collect Well Pully Driller Size: P 1 1/2 Drill type: P/A Air/Trac.
 Sheet: 1 of 1 Scale: 1/100 Commenced: Completed: 11/12/70

Geology	Depth (m)	Comments	Analysis %		
			SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white quartzite		Outcrop 50°/30°			
			99.3	0.05	0.15
As above with loose dark brown and big white quartzite chips. Occasional clay balls.					
Very big hard white and dark brown quartzite chips within light brown sandy sample. Very hard drilling.			99.2	0.05	0.15
Wet at bottom, stopped drilling.					
END HOLE 12 m.		see SC 27			



014

330015

Location, Water Creek Coordinates, East 100 Meters Geographical SC 29 ELPHINS
 Angle of depression, 50° Bearing (Mag) 270°
 Drill Co. North West Drilling Driller Also F. H. D. S. Drill type A/L Air line Commented
 Sheet 1 of 1 Scale 1:100 Completed 12/12/76

Geology	Depth (m)	Comments	Analyses %		
			SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white quartzite with chips in sample.		Outcrop dips 70°/90°			
Off white to light brown coarse gravelly sample with many hard white quartzite chips. Med hard drilling with occasional soft patches. Some yellow-brown stained vitreous chips.					
Apparently as before but too wet for reliable sampling.					
Soft, sandy and wet.					
<p>END HOLE 12m</p> <p>5 cm</p>					
<p>Diagrammatic section across strike @ 1:500 % Al₂O₃ plotted</p> <p>— Hard, - - - Medium hard, otherwise soft.</p>					

015

330016

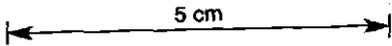
Location: Sutherland Coast. Coordinates: East 20° 15' 00" S, South 150° 00' 00" E
 Angle of depression: 45° Bearing (true): 280°
 Drill Co: Marshall's Valley Driller. Alloy: HSS Drill type: A/C. Pitch: 1.5mm
 Sheet 1 of 1 Scale: 1/100
 Geographical: SC30 ELPHINSTONE S.
 Completed: 12/12/76

Geology	Comments	Analysis %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Very hard white chips of vitreous and sucrose quartzite in white powder.	Outcrop dips vertically to slightly toward 100°.	99.3	0.10	0.10
As above with a soft brown patch midway. stepped hole due to water at the beginning of the next next interval.		99.4	0.05	0.05
<p>END HOLE 12m</p> <p>← 5 cm →</p> <p>sketch section scale 1:500 % Al₂O₃ plotted Hard, otherwise soft</p>				

016

330017

Location, Sister Creek Coordinates, local. see Plans SC 31
 Angle of depression. 55° Bearing (true) 280° Geographical E. LPHINSTON.
 Drill Collect. West Valley Driller. Glen. P. 29 Drill type. P/C. Aichec Commenced.
 Sheet 1 of 1 Scale 1:100 Completed.

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
White and yellow medium hard and soft quartzite with white chips and powder.	Outcrop 60° dip toward 90°.			
sandy very soft with brown vitreous and sacrose quartzite.		99.4	0.05	0.30
As above.				
soft dark brown sand no sample END HOLE 9 m.	see SC 29 @ 30 for section			
				

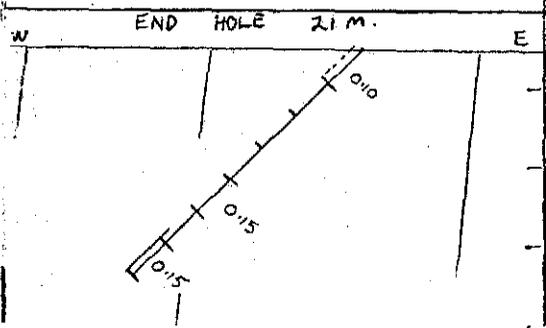
017

330018

Location, Sisters, Creek Coordinates, East, 54° 15' Geographical 5032
 ELPHINSTON
 Angle of depression, 45° Bearing (Mag), 300°
 Drill Co. Method, Rotary Driller, Core, Drill type, P/C Air, Dry Commenced,
 Street, of Scale 1:100 Completed, 12/12/76

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Medium hard white quartzite	Outcrop vertical to slightly west dipping. Stained porous outcrop.	99.3	0.10	0.30
soft white to light brown powdered weathered quartzite moist and tending to clog ripples suggesting clay?				
Very soft sandy weathered white quartzite.				
As above		99.1	0.15	0.25
As above, harder last metre.				
Hard to very hard white quartzite.		98.9	0.15	0.25

5 cm



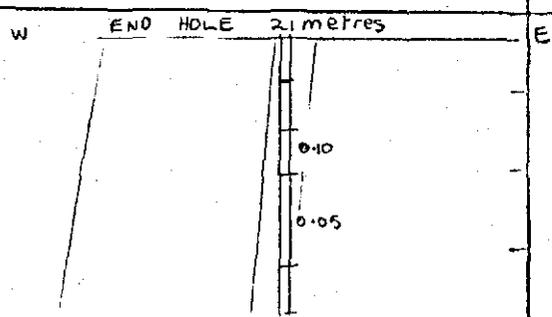
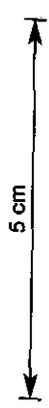
Diagrammatic section
 scale 1:500
 % Al₂O₃ plotted
 | Hard,
 | medium,
 otherwise soft.

018

330019

THE GEOLOGICAL SURVEY OF GREAT BRITAIN
 Location: ... Coordinates: ...
 Angle of depression: Vert ... Bearing (Mag) ...
 Drill Co. ... Drill type: P/A Air/roc ...
 Sheet: 1 of 1 Scale: 1/1000 ...
 Geographical: SC 33 EL PHINSTONE S.
 Completed: 12/12/76

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white quartzite. Powdered sample with very few chips.	Outcrop: subvertical. Hole drilled down dip to test variation in hardness of one band with depth.			
As above with a little yellowish powder giving creamy overall colour.				
white as 0-3		99.2	0.10	0.45
Creamy coloured medium hard quartzite		99.3	0.05	0.20
white hard quartzite.				
Hard brown quartzite Slightly micaceous?	Drill hole was sited near the edge of a band. Driller felt that bit had run off out of the quartzite band.	98.1	0.70	0.20



Diagrammatic section
 1:500 scale
 % Al₂O₃ plotted
 | Hard

013

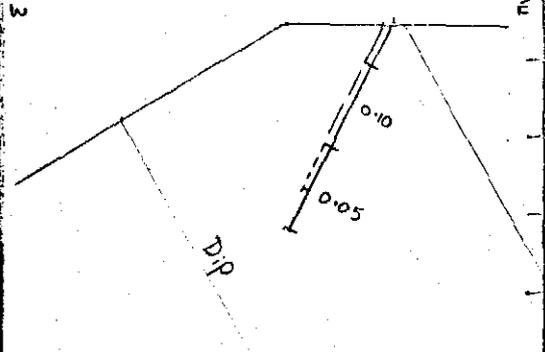
330020

Location: Walter Creek Coordinates: 120° 11' E
 Angle of depression: 65° Bearing (Mag): 300
 Drill: Collect West Valley Driller Site: 120022 Drill type: 0/0 Date: 13/12/76
 Sheet: 1 of 1 Scale: 1:500 Completed: 13/12/76

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white powdered quartzite with a few clean chips.	Outcrop dips at 60° toward 120°. Slope commencing 7 metres west of hole dips down at 32° to river.			
Off-white quartzite with a few sucrose chips. Medium hard with soft patches.		99.1	0.10	0.25
Medium hard white with quite a few white sucrose chips		99.4	0.05	0.25
Soft sandy light grey sample with a few sucrose chips.	Hole collapsed.			

END HOLE 15 metres

5 cm



Diagrammatic section
 scale 1:500
 % Al₂O₃ plotted
 | Hard,
 | Medium,
 | soft

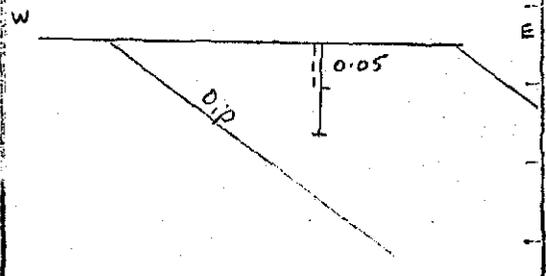
020

330021

Location: Crack Coordinates: Lat. 59° 15' N Long. 15° 30' W Geographical 9C35
 Angle of depression: Vert Bearing (Mag): S ELPHINSTONE
 Drill: Collin's Hand Pulley Driller Size: 1 1/2" Drill type: A/C Airtac Commenced: 13/12/76
 Sheet: 1 of 1 Scale: 1:50 Completed:

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Med hard to soft white and yellow brown quartzite with some vitreous yellow brown chips.	Outcrop dips 35°/120° outcrop probably surface hardened.	99.4	0.05	0.20
soft quartzite as above, wet at bottom.				
END HOLE 6 m.				

5 cm



Diagrammatic section
 % Al₂O₃ plotted
 scale 1:500
 1 medium hard,
 soft.

021

330022

Location, Sisters Creek ... Coordinates, local, Sec. Plans ... Geographical E. ... SC 36, Dick's
 Angle of depression, 65° ... Bearing (Mag) 300° ... S.
 Drill Collected West Dilling Driller, Glen ... Drill type, A/C Airline Commercial, 13/12/76
 Sheet 1 of 1 ... Scale, 1:500 ... Completed.

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard vitreous white quartzite giving chips.	Outcrop dips 45°/120			
Soft white sandy broken quartzite		99.1	0.20	0.35
Medium hard to soft at top to hard at bottom. white quartzite producing a lot of chips and large white vitreous lumps				
Hard off white quartzite giving lots of chips.				
As above with some light brown patches discolouring sample.		98.8	0.25	0.25
light brown off white hard quartzite with white and brown vitreous chips.				
As above but brown quartzite with a few pale shale fragments.		95.6	2.0	0.35
<p>END HOLE 21 m.</p>		<p>Diagrammatic section scale 1:500 % Al₂O₃ plotted Hard : Medium . soft</p>		

5 cm

022

330023

5037 DICKS

Location, Aslers Creek Coordinates, Local 229 Plane Geographical S
 Angle of depression, Vert. Bearing (log)
 Drill Colson Wol Tully Driller, Glen Paul 29 Drill type, P/A mic trsc
 Sheet 1 of 1 Scale 1/100 Completed 13/12/76

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
soil				
white and brown medium hard quartzite Not sampled.	Poorly outcropping quartzite which looked as though it would be unacceptable at depth.			
Dark brown medium hard quartzite. Not sampled	Outcrop dips 40°/300°			
END HOLE 12 m.				
1:500 Medium hard				

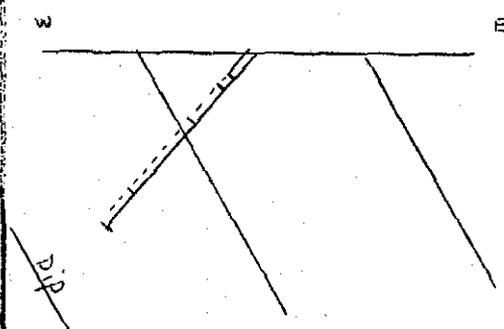
023

330024

Location, Arden's Creek Coordinates, Local 282 11405 Geographical, 5650 Dick's
 Angle of depression 50° Bearing (dip) 290°
 Drill Collins West Valley Driller Core P 11405 Drill type B/C Air trace Commenced
 Sheet 1 of 1 Scale 1:100 Completed 14/12/76

Geology	Comments	Analyses			
		3.0%	4.5%	9.0%	10%
Very hard white silicified quartzite cap.	Outcrop dips 60°/120° small outcrop on a low, soil covered ridge top.				
Medium hard white quartzite.					
Light grey medium hard to soft quartzite.					
Yellow brown clayey powdered soft to medium hard quartzite					
As above, slightly lighter coloured, yellowish powder containing hard dark siltstone fragments.					
END HOLE 15m.					

5 cm



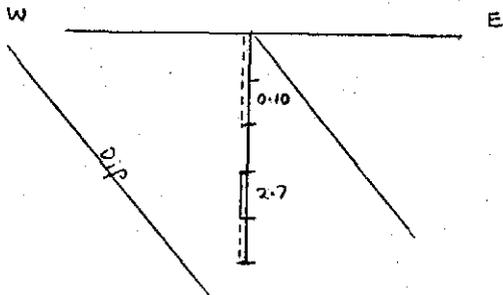
Diagrammatic section across strike @
 1:500
 | Hard
 - medium to soft.

024

330025

Location, Sofia Creek Coordinates, Local S.S. Plans Geographical SC 39
 Angle of depression, Vert Bearing (Mag) Dicks
 Drill Co. North West Valley Driller Geo. Pat 25 Drill type A/C Air trac. Commenced
 Sheet 1 of 1 Scale 1/100 Completed 14/12/76

Geology	Depth (m)	Comments	Analyses %		
			SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
soil		Outcrop dips 50°/120° Very little outcrop, mainly rounded soil covered hill. Not expected to be of good quality.			
White medium hard to soft sandy quartzite sample with some white chips.			99.0	0.10	0.25
White grey and yellow soft clayey quartzite with yellow brown and white chips.					
White hard quartzite with white vitreous chips and lumps. A few white clayey fragments.			94.5	2.7	0.30
As above, softer and sandier with possibly a few shaley fragments.		Bogged bit stepped hole. Bit retrieved.			
END HOLE 15m.					



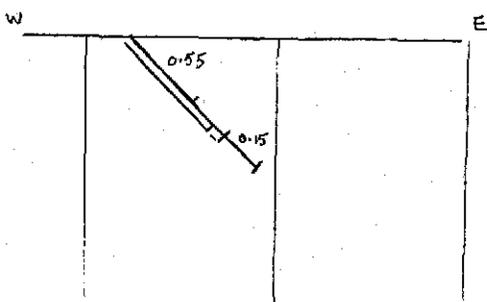
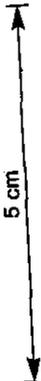
Diagrammatic section across strike
 scale 1:500
 % Al₂O₃ plotted
 | Hard,
 | medium,
 | soft.

025

330026

DRILLER: [blank] DRILL TITLE: **3240**
 Location: [blank] Geographic: **Dick's**
 Angle of depression: **45°** Boring (mg): **105°**
 Drill: **Colony Valley Driller** Drill type: **R/C** Commenced: [blank]
 Street: [blank] Scale: **1/10** Completed: **14/12/76**

Geology	Depth (m)	Comments	Analyses %		
			SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Hard white powdered quartzite with some clean chips of translucent quartzite.		Outcrop dips steeply east and west and looks silicified.	98.3	0.55	0.30
light brown softer quartzite.					
Soft dark brown sandy sample with chips of dark brown and white vitreous quartzite.		water stopped drilling.	98.7	0.15	0.25
END HOLE 12 metres					



1:500
 % Alumina
 | Hard
 : medium,
 soft.

036

330027

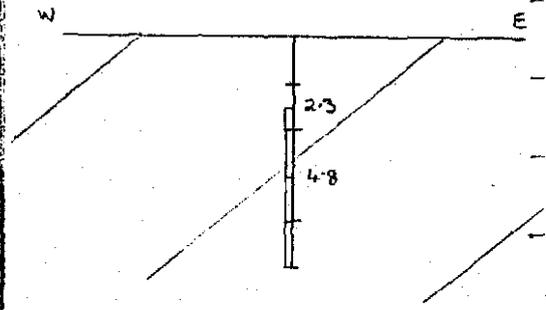
SC41

DICKS

Location, Soter, Creek, Coordinates, East, North, UTM, Geographical, UTM
 Angle of depression, Vert, Bearing (Mag)
 Drill Collect, West, Jolly, Driller, Core, Path, Drill type, P/C, Airline, Commenced
 Sheet, of, Scale, 1:500, Completed, 14/12/76

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Soft white sandy sample with white and translucent chips and lumps of sucrose weathered quartzite	Outcrop dips 40° toward 320° Roadway south of sand pits.			
Soft brown powdery quartzite				
Harder with dark brown and light grey vitreous quartzite chips and white powder		95.7	2.3	0.35
Hard, white powdered sample with a lot of light grey vitreous quartzite chips and some micaceous fragments.		91.1	4.8	0.75
similar to above but light brown, with micaceous fragments of schist.				
The outcrop is leached and banded and looks as if it would become micaceous at depth.	stopped hole because of mica.			

END HOLE 15 metres

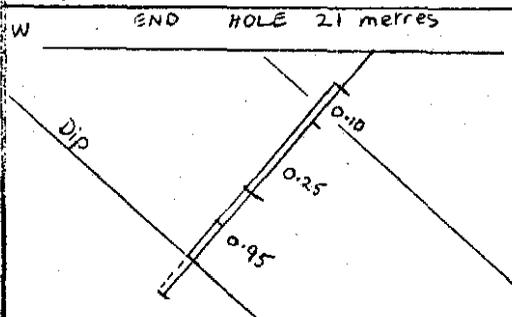


Diagrammatic section across strike
 scale 1:500
 % Al₂O₃ plotted
 | Hard,
 | soft.

027

330028

Location, *Swain's Creek* Coordinates, *Lat. See Plans*
 Angle of depression, *50°* Bearing, *(120) 280°*
 Drill Collection Method, *Jacky Driller* Scale, *1/100*
 Sheet, *1* of *1* Drill type, *A/A Air/roc*
 Geographical *5042*
 Dicks
 Completed, *14/12/76*

Geology	Comments	Analyses %		
		SiO ₂	Al ₂ O ₃	Fe ₂ O ₃
Soil and sand, not sampled.	Outcrop Dips 40° toward 100°. Vitreous outcrop, looks silicified.			
Hard to very hard at base. Powdered white quartzite with a few hard, vitreous surface brown stained chips of quartzite,	Busted bit at 11m.	98.9	0.10	0.15
		98.8	0.25	0.20
Very white, very hard quartzite producing hard vitreous chips and powder.		97.1	0.95	0.45
As above but softer at bottom.				
Softer but still medium hard. Light yellow brown coloured powdered quartzite with chips of brown quartzite	May be through the band which outcrops			
 <p>W END HOLE 21 metres E</p> <p>Dip</p> <p>0.10</p> <p>0.25</p> <p>0.95</p> <p>5 cm</p>	Diagrammatic section across strike. Scale 1:500 % Al ₂ O ₃ plotted Hard : medium hard.			

028

330029

Appendix 2

Drill Sample Analysis Results

E.L.18/76 - Sisters CreekAnalysis of Dried Samples.

<u>Sampled Marked</u>	<u>SiO₂</u>	<u>Fe₂O₃</u>	<u>Al₂O₃</u>
SC22 3-6 m	98.9	0.15	0.10 %
SC22 6-12 m	98.8	0.25	0.15
SC22 12-15 m	98.9	0.25	0.25
SC23 0-6 m	98.7	0.25	0.15
SC23 6-12 m	97.0	0.35	1.3
SC24 0-6 m	98.8	0.20	0.05
SC24 6-12 m	99.3	0.15	0.05
SC25 0-6 m	99.4	0.10	0.05
SC25 6-12 m	99.5	0.15	0.05
SC25 12-18 m	99.6	0.15	0.05
SC25 18-21 m	99.0	0.20	0.10
SC26 0-6 m	99.2	0.05	0.05
SC26 6-12 m	99.3	0.10	0.05
SC26 12-15 m	99.3	0.15	0.05
SC27 0-3 m	99.4	0.10	0.10
SC27 3-9 m	99.0	0.15	0.15
SC28 0-6 m	99.3	0.15	0.05
SC28 6-12 m	99.2	0.15	0.05
SC30 0-6 m	99.3	0.10	0.10
SC30 6-12 m	99.4	0.05	0.05
SC31 3-6 m	99.4	0.30	0.05
SC32 0-3 m	99.3	0.30	0.10
SC32 12-15 m	99.1	0.25	0.15
SC32 18-21 m	98.9	0.25	0.15
SC33 6-9 m	99.2	0.45	0.10
SC33 9-15 m	99.3	0.20	0.05
SC33 18-21 m	98.1	0.20	0.70
SC34 3-9 m	99.1	0.25	0.10
SC34 9-15 m	99.4	0.25	0.05
SC35 0-3 m	99.4	0.20	0.05
SC36 0-6 m	99.1	0.35	0.20
SC36 6-12 m	98.8	0.25	0.25
SC36 12-18 m	95.6	0.35	2.0
SC39 3-6 m	99.0	0.25	0.10
SC39 9-12 m	94.5	0.30	2.7
SC40 0-6 m	98.3	0.30	0.55
SC40 9-12 m	98.7	0.25	0.15
SC41 3-6 m	95.7	0.35	2.3
SC41 6-12 m	91.1	0.75	4.8
SC42 3-6 m	98.9	0.15	0.10
SC42 6-12 m	98.8	0.20	0.25
SC42 12-18 m	97.1	0.45	0.95

Appendix 3

Surface Chip Sample

Analysis Results

ANALYSES AND TEST RESULTS

Sample No.	Location (See also map, (Appendix I.))	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	P ₂ O ₅ %	Thermal Stability	
						+3/4" after heating %	+3/16 after tumbling %
MEL 5439	Dick's-Sisters Ck.	98.5	0.30	0.85	<0.02	84.0	95.5
5438	" " "	98.4	0.05	0.90	<0.02	Weathered - thermally unstable	
5440	Sisters Ck Beach Road cutting	98.5	0.05	1.20	<0.02		
5441	2nd headland east from Sisters Ck Beach	95.8	0.9	1.60	<0.02		
5442	As above	97.3	0.45	1.40	<0.02		
5443	1st headland east of Sisters Ck Beach	96.4	0.45	2.60	<0.02		
5444	Boat Harbour	97.4	0.60	1.0	<0.02		
					LOI %		
5479	Dick's-Sisters Ck.	99.0	0.39	0.38	0.2	100	98.6
5455	Brambles Quarry east of Smithton	97.6	0.12	1.2	<0.02	81.9	94.9

ANALYSES AND TEST RESULTS (continued)

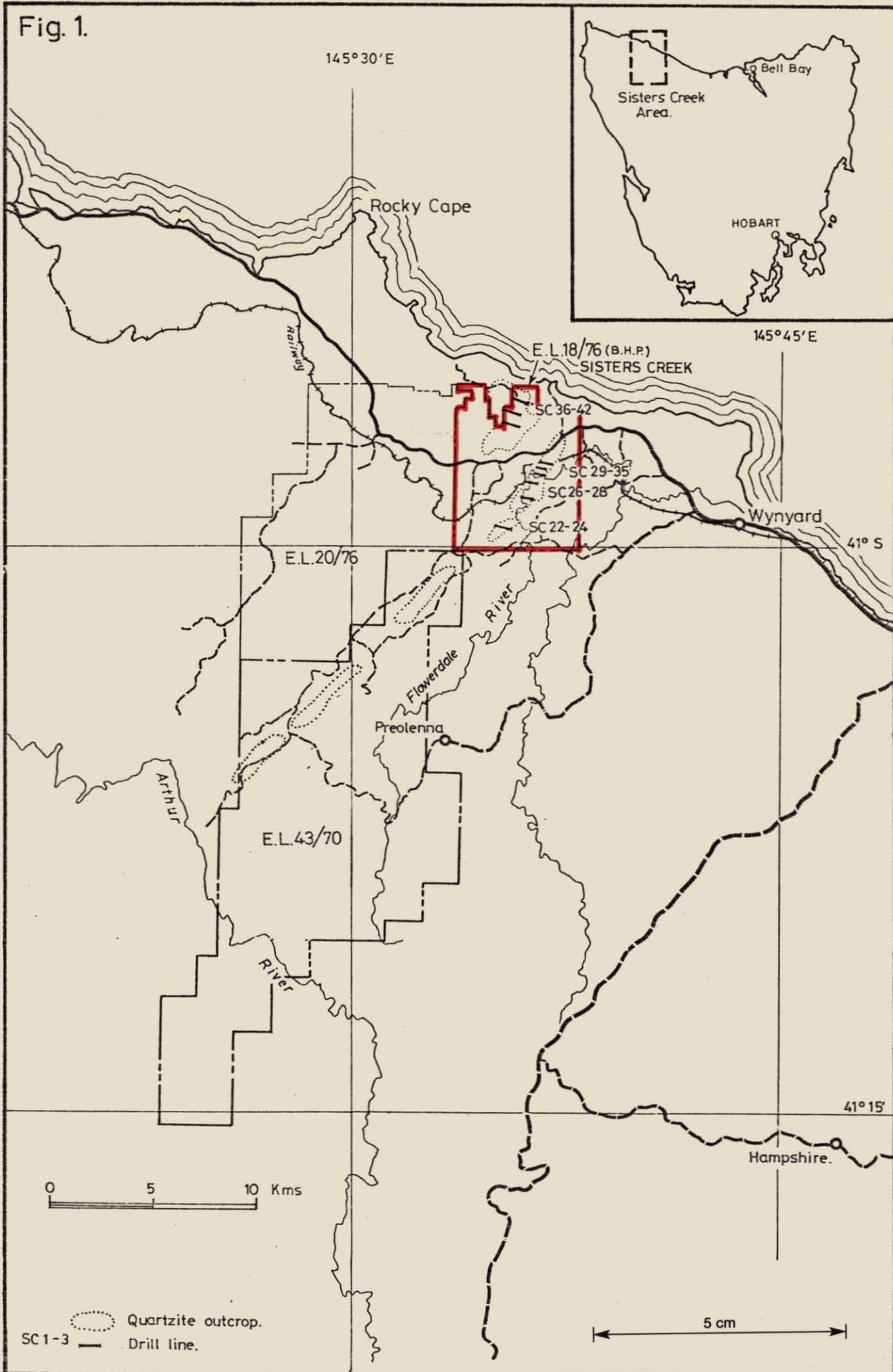
Sample No.	Location (see also map)	SiO ₂ %	Al ₂ O ₃ %	Fe ₂ O ₃ %	P ₂ O ₅ %	LOI %
MEL 5476	NW of Moorleah, S of Flowerdale R.	98.7	0.11			0.10
5477	"	99.4	0.03			0.14
5478	"	99.4	0.05			0.11
5503	Dick's, S of Sisters Ck. Rd.	99.7	0.03			0.04
5504	S of Boat Harbour, S of Sisters Ck. Rd.	99.3	0.08			0.11
5505	Weir on Flower- dale, N of Moorleah	99.1	0.20			0.15

330033 032

033

330034

Fig. 1.



 Quartzite outcrop.
 Drill line.

Centre
Melbourne

Date
29-3-77

THE BROKEN HILL PROPRIETARY CO. LTD.

QUARTZITE AREAS, SISTERS CREEK

E.L. 18/76. TASMANIA

Project No.

Drawing No.
A4-1765

330035

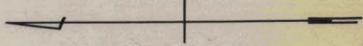
034



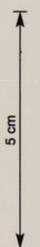
145° 30' E.

WELLINGTON

41° 00' S



-  Boundary of Jacob Quartzite.
-  SC 36-39 Percussion drill holes.
-  5503 Bulk chip sample traverse.



THE BROKEN HILL PROPRIETARY CO. LTD. EXPLORATION DEPARTMENT			
E.L. 18/76 QUARTZITE - SISTERS CREEK, T.A.S. LOCATION MAPS, DRILL HOLES AND SURFACE CHIP SAMPLES 77-1194.			
Drawn:	Date: 4-5-77	Centre: Melbourne	
Traced:	Project No.		Drawing No.
Checked:			A2-
O.I.C.:			

360 361 362 365 364 315