INDEX GROUP OF COMPANIES

ANNUAL REPORT

FOR EL 33/2004

December 2005

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1. SUMMARY

The Index Group has developed an international market for silica sand products. Index is seeking to expand its market and product range. To ensure adequate and reliable supply for its customers Index is required to expand its resource base in Tasmania.

The first year's exploration was designed to review the potential of the Exploration Licence, sample the most readily accessible portions, reduce the area under Licence and to identify areas for the 2005 calendar year worthy of investigation.

Various forms of sampling included hand grab, excavator and air core rig indicated several locations for silica flour with variable heavy mineral content.

To date surveys have resulted in silica flour deposits being located as 'mesas' but these carry noticeable heavy mineral content.

The other class of silica deposit is lower in heavy mineral content and from limited sampling appears to offer significant tonnages. Access after record rains prevented this area from being drilled in 2005. It is hoped that access can be gained after the rains ease off in the summer months.

The drill program was delayed by some 4 months due to unavailability of an air core rig.

It is recommended that the area be maintained at 187 sq km.

2 INTRODUCTION

The aim of the exploration program is to locate silica deposits which can provide a secure raw product supply to the Burnie Processing Plant.

The Index Group's exploration philosophy is to take the existing knowledge on the known relationships between the development of industrial grade silica generated by silicification processes in the basal Tertiary on the underlying Corinna and Savage Dolomites and expand the search for silica deposits which may be able to be beneficiated. To date attention has focussed on attempting to bring in to production limited tonnage surficial deposits and this has in turn impacted on Index's ability to meet its market demands. However, preliminary investigations and road side sampling suggest the development of a significant proportion of suitable Tertiary sand and gravel deposits in the general area.

Most of the potential areas are near the tops of rises and most of these are accessible by forestry track.

Other areas which became of interest include those in the southern and western sector. These were identified by the use of radiometric data kindly supplied by the Geophysical Department of Mineral Resources Tasmania and from acquired Aster images from Geoimage, Brisbane , Queensland.

The combination of these techniques coupled with sampling by hand, excavator and drill has enable a clearer understanding of the potential to emerge along with an estimate of possible tonnages.

3 TENEMENT INFORMATION

Exploration Licence EL 33/2004 was issued to the Index Group of Companies consisting of 187 square kilometres in the Blackwater District and applies to all Category 3 and Category 5(a) Minerals.

The Exploration Licence was issued on for five years with an expiry date of 26 November, 2009 and an expenditure commitment of over two years.

It is recommended that the area of the Exploration Licence be maintained for the next twelve months before reductions are contemplated.

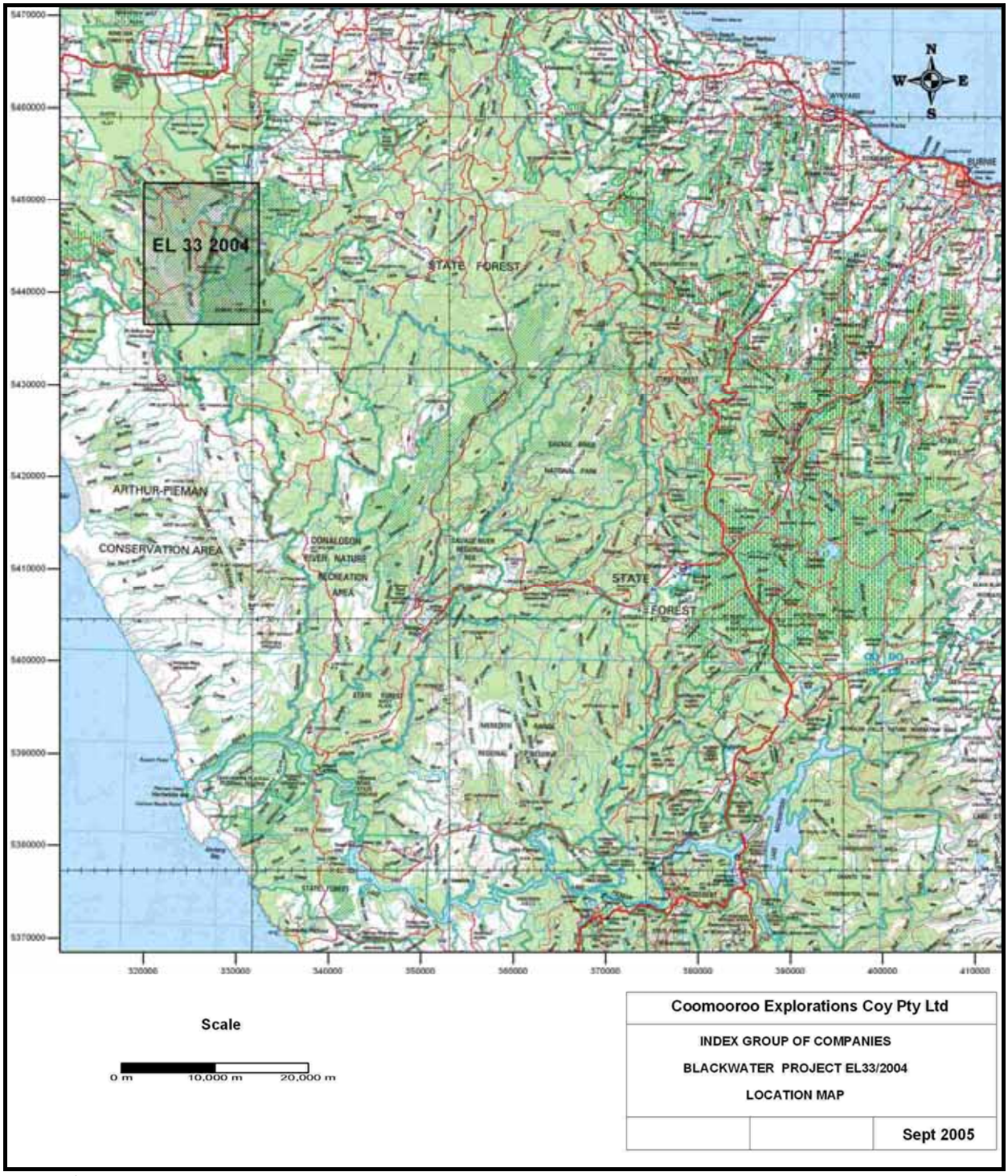

Figure 1 Location Map EL 33/2004

4 WORK CONDUCTED DURING 2004/5

Silica flour occurrences had previously been discovered and sampled within EL33/2004 and the first aim of the current mapping was to determine the extent and size of known occurrences.

Interpretation of radiometric surveys and topographical information indicated further sites were prospective and these sites were also to be investigated.

As far as was practical the extent of known occurrences was determined and some previously unknown occurrences found and sampled. The geological structures relevant to this investigation have been determined and approximate lithological boundaries plotted in main areas of interest within EL33/2004.

In summary the work conducted during the first 12 months of the licence period included the following topics:

1. Helicopter traverse

2. Follow up ground reconnaissance sampling and traversing

3. Correlation studies between known deposits and geophysical surveys from data kindly supplied by the Geophysics Department, Mineral Resources, Tasmania

4. Field mapping with emphasis on silica flour sites and their relationship to the underlying geology

5. Laboratory work included particle size determinations and gross chemical analyses - both conducted at Index's facilities at Heybridge, Tasmania

6. Compilation mapping of the items 1-5 and reporting by A Chester.

7. Conducted site inspection with Departmental Representative in preparation for excavator program along Blackwater 5 track and south of the Franklin River Blackwater Road intersection

8. Commence pitting program on 4th May 2005 and completed 6th May, 2005.

9. A total of 13 pits were dug and reclaimed over this period.

10. The pits were surveyed by GPS and the levels shot.

11. Samples from the site were analysed at the Index Group of Companies laboratory, Burnie, Tasmania.

12. A total chemical analysis was conducted on all samples.

13. Selected samples were sized at +250, +106 and -106 and re-analysed.

14. Maps were prepared by contract geologist A Chester to show levels and distribution of resources after the initial pitting program.

15. Satellite imaging interpretation from Aster images supplied by Geoimage, Brisbane

16. A preliminary geological report has been prepared.

17. Air-core drilling was conducted along Blackwater 5 road, from 21-24/11/05. Holes were sited approximately 100m apart along Blackwater 5 and this fence of holes should provide an indication of the depth profiles etc.

18. Samples were collected from the drilling and sent to the Index Group of Companies laboratory, Burnie, Tasmania for total oxide analysis by ICP with emphasis on chromium content.

5 LOCATION AND ACCESS.

The northern boundary of EL33/2004 is located approximately 25 km southwest of Smithton in northwest Tasmania, an area managed mainly by the Forestry Commission for timber production. Access to the area is by bitumen road from Smithton and the Forestry Commission have a network of gravel roads that give access to a number of ridges within the exploration lease.

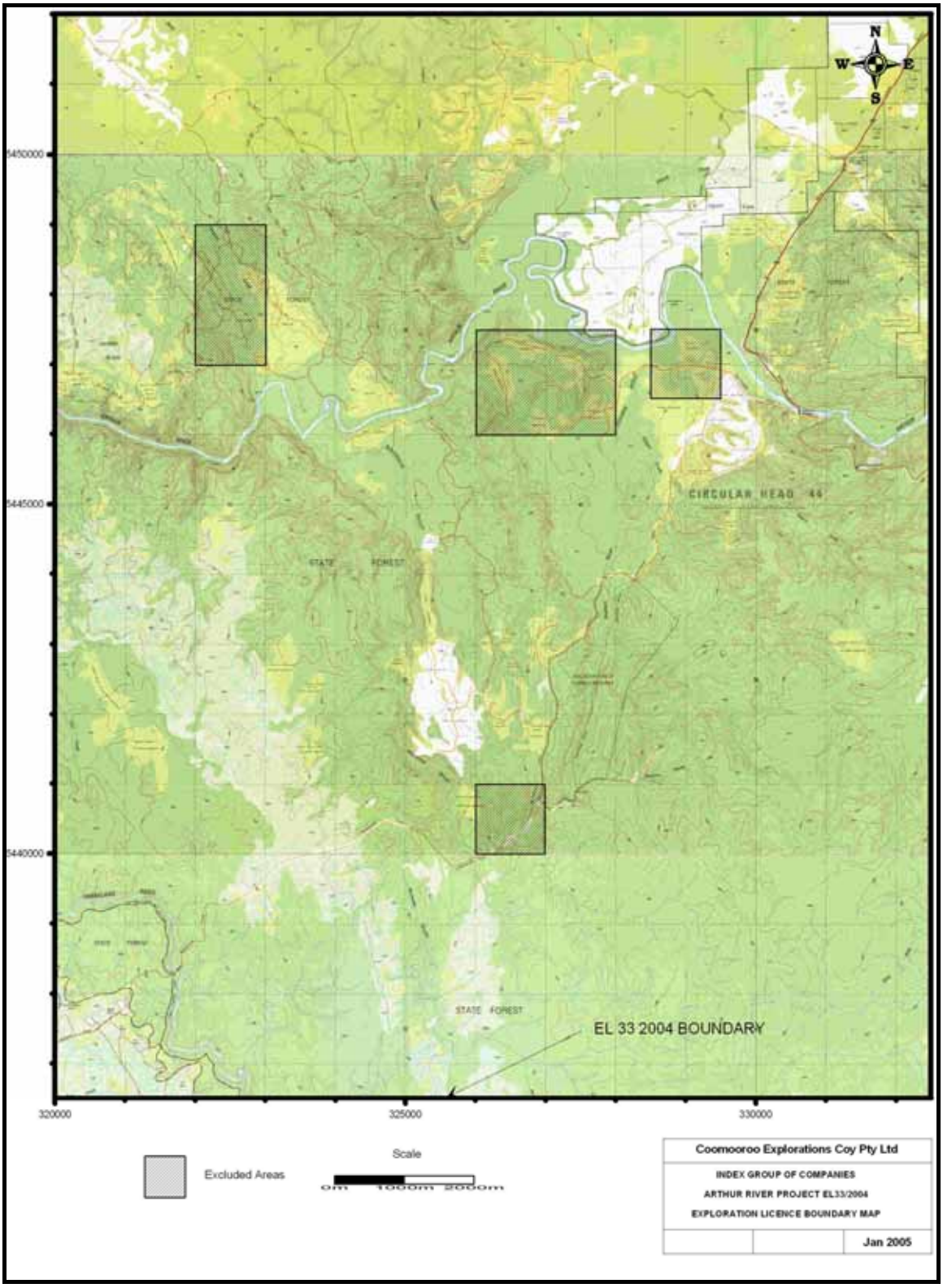

Figure 2 Exploration Licence EL 33/2004 with excluded areas

Vegetation ranges from heath through wet eucalypt forest to rainforest and this to some extent reflects the underlying lithology. Heath generally covers Rocky Cape Group, wet eucalypt forest is found on gravels and volcanic derived siltstones and dense rainforest occurs in valley areas, which may include dolomite. In area where clear felling has occurred regrowth is dense and makes progress very slow and geology difficult to determine. Beyond logged regions the forest tends to be more open but the forest floor is covered in moss and ferns with a deep litter layer so little geology is revealed. Heath areas are heavily vegetated with a thick peat soil so outcrop is restricted to creek beds. In the southeast sector horizontal scrub was encountered.

Topographically the area is a peneplain that has been dissected by erosion of the modern river and stream systems. The Arthur River divides the exploration lease into two sectors, with the central section eroded below the level where silica flour could be expected to be located. The Arthur River valley cuts across a bend in the underlying geology and some distinctive bends in the river are likely to be determined by the underlying geology. In general, the topography has little relief but creeks have eroded deep gullies with steep sides, and the courses of some of these streams seem to be controlled by geological structures including folds and faults. Tracks tend to follow ridge tops where the ground tends to be level.

6. GEOLOGICAL SETTING OF EL 33/2004 (adapted from reports by A Chester)

EL33/2004 lies at the southern edge of the Smithton Trough and extends into the surrounding Rocky Cape Block with the rocks in this area having been deposited from Mesozoic through to the Cambrian. Folding and thrusting occurred during the Cambrian forming the underlying structure now seen in the area however during the Tabberabberan Orogeny some tightening of folds occurred. Major faults may also have been established during the Cambrian but complex faulting also resulted from the intrusion of granite during the Devonian and older faults may also have been reactivated. Siliceous fluids may have been introduced during the Devonian or at a later time and these have replaced parts of the Neoproterozoic dolomite and it is the breakdown of this siliceous replacement by recent weathering that produces silica flour. Two different dolomite sequences are present in the exploration lease, Smithton Dolomite and Black River Dolomite, but both have been replaced to some extent by silica and both have weathered to form silica flour. However the Smithton Dolomite is host to the largest silica flour occurrences.

In the central regions of the exploration lease a series of parallel north-to-north westerly trending tight fold occur and these are cut-off to the southeast by the major Roger River Fault. North of the Arthur River gravels cover large areas and other flat areas under farmland are presumably underlain by dolomite as indicated by the presence of sinkholes. The presence of sinkholes would also indicate relatively pure dolomite so silica flour occurrences are unlikely. In the southwest siltstones, correlates of the Rocky Cape Group emerge. East of the Roger River Fault outcrops of basalt and volcanic of the Kanunnah Volcanics occur.

Silica flour occurs along linears related to the tightly folded Neoproterozoic sequences in the central part of the exploration lease and is mainly associated with the Smithton Dolomite. To illustrate the topographic expression of ridges where silica flour is located a schematic cross section of Blackwater 5 spur is shown in Figure 1. The synclinal dolomite sequence has a central ridge of silicified dolomite with the relatively pure dolomite eroded into valleys on either side. A stratigraphic sequence was determined from mapping and this is shown in Figure 2 but no attempt was made to determine thicknesses of beds due to the constraints of time and poor outcrop. A schematic west-east cross section of the exploration lease is shown in Figure 3 and this shows the relationships between the Black River Dolomite and the Smithton Dolomite. The synclinal folds in the Smithton Dolomite may have been significant in channelling siliceous fluids.

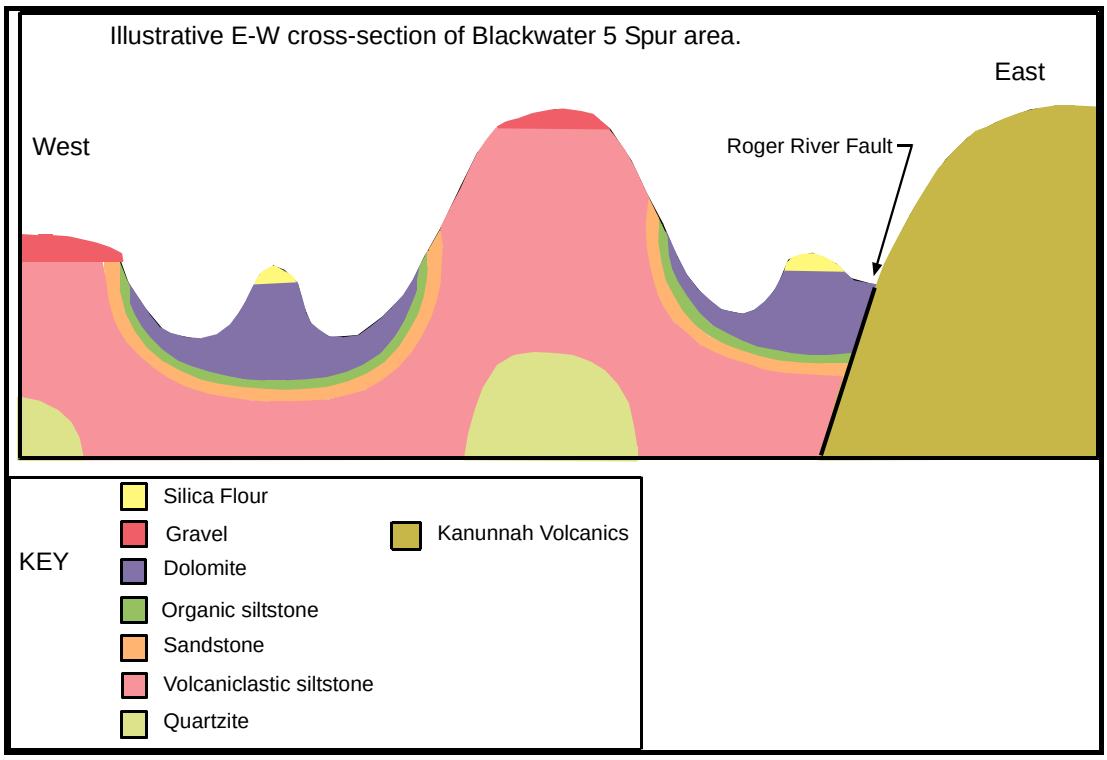

Figure 3 Cross Section showing silica four occurs on hill tops

Illustrative cross section, not to scale, of the Blackwater 5 ridge showing that silica flour occurs on ridge tops along synclines of Smithton Dolomite.

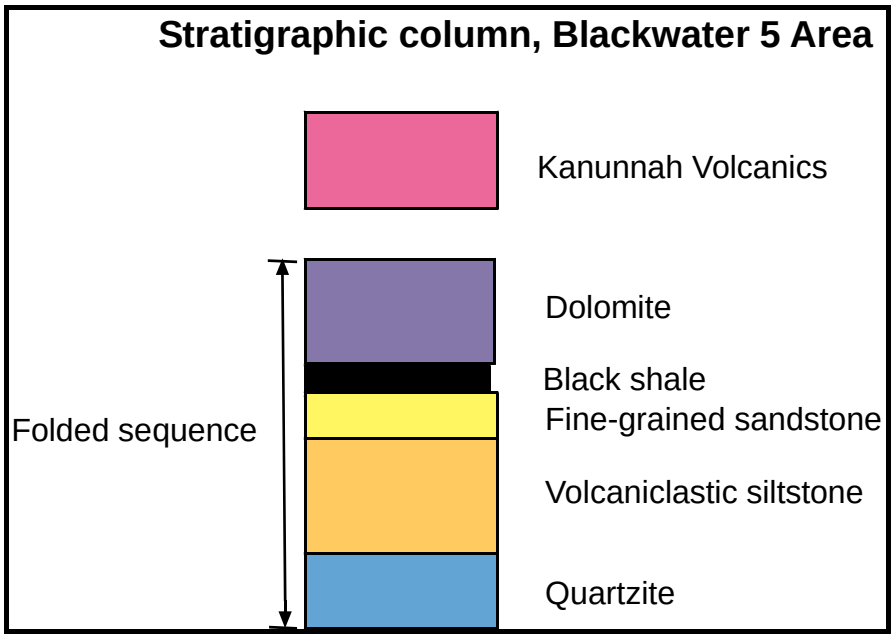

Figure 4 Stratigraphic Column for the Blacwater 5 ridge area

Silica flour occurs at the top of the dolomite sequence. No attempt was made to determine thickness of beds so thicknesses shown are illustrative only.

Complex faulting has occurred at the southern end of the Roger River Fault and this may have provided conduits for the introduction of siliceous fluids, which have flowed down the cores of the synclines and altered the Smithton Dolomite. As will be explained further the effects of silicification appear to be less

intense to the north of the Arthur River indicating that siliceous fluids were introduced from the south. During the course of mapping the traces of faults were not fully resolved.

Radiometric images of the exploration lease have proved useful in delineating the underlying geology in the absence of definite outcrop. Rapid colour changes on the radiometric images tend to define lithological changes but do not give any reliable indications as to the presence of silica flour.

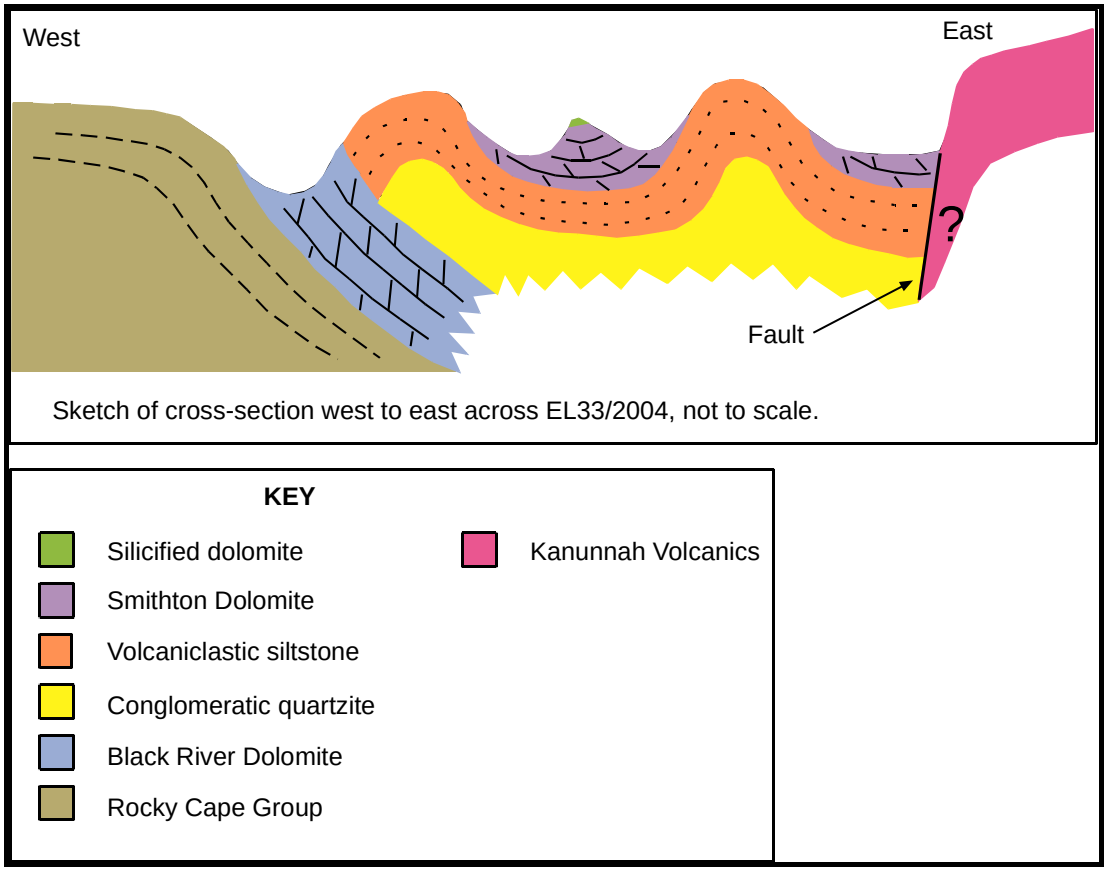

Figure 5 Schematic Cross Section of EL 33/2004

Note that two dolomite sequences are present but the main silica flour occurrences are associated with the Smithton Dolomite.

Location of silica flour deposits.

The main silica flour deposits were found along two parallel trends, which in the central parts of the exploration lease are northerly and then curve north westerly in the northern sectors of the lease before disappearing under cover. Silica flour occurs near the crests of ridges formed of silicified dolomite along synclinal axes. The ridges have formed due to the preferential erosion of dolomite on the limbs of synclines leaving the relatively resistant silicified dolomite upstanding. Creeks have in places crosscut these ridges so the silica flour now occurs as pods at irregular intervals along the ridge tops at elevation between 140 m and 80 m, with higher elevations to the south.

The largest occurrences of silica flour are found along Blackwater 5 Spur with a southerly expression of this trend on Blackwater Road near the Blackwater 6 junction. A parallel trend starts just south of where Stephens Rivulet crosses Blackwater Road and this links with occurrences on Blackwater 1 Road near the Arthur River but north of the river this trend disappears under cover. Although I have described this as a trend a major section has been either faulted out or eroded to the northwest of Stephens Rivulet. A third trend south of the Arthur River does not appear to be fold related but follows the Rodger River Fault from

Stephens Rivulet Crossing on Blackwater Road north to the Arthur River but only minor occurrences are present along this trend. The Roger River Fault truncates all these trends in the south.

Further occurrences are found to the west along Blackwater Road, one of which contains sedimentary structures and is probably not an in-situ deposit. Near the Blackwater 8 junction with Blackwater Road is an occurrence probably related to the Black River Dolomite. Further to the north this Black River Dolomite outcrops in the valley of the Blackwater Rivulet and no occurrences of silica flour were noted in that locality. Blackwater 8 appears to be the western limit for silica flour in the southern sector as Rocky Cape Group siltstones outcrop beyond this point.

A minor occurrence of silica flour was found at 326575 mE, 5438850 mN, which appears to lie right on the Roger River Fault as there was an abrupt change from Rocky Cape Group to volcanic derived siltstone near this point. This was the most southerly occurrence of silica flour noted.

Another southern site of interest is centred near 328500 mE, 5438500 mN, but I had great difficulty accessing this site due to the presence of horizontal scrub and the closest I approached was 327120 mE, 5437375 mN, at which point the underlying rock was volcanic derived siltstone.

Stars on the geological map show sites where silica flour occurrences were noted.

Appearance of silica flour deposits.

(a) In-situ.

Two types of silica flour deposits occur in this area, one in-situ and the other sedimentary. From an exploration perspective the most important type is the in-situ, as definite criteria can be established leading to their locations. The in-situ material occurs above bedrock of silicified dolomite occurring along the axes of synclinal structures. Silica flour occurs as a fine white non-cemented material, which can be relatively hard to dig. It becomes progressively more compact at the lower levels where hard lumps of quartz begin to occur and then a distinctive vuggy silicified dolomite is found beneath the flour deposits. The silicified dolomite also contains banded quartz veins and nodules similar to agate and photographs of these are shown in Figure 4. Below the vuggy silicified dolomite in some cases a sugary textured dolomite is located with no trace of bedding. The change between silica flour through to sugary textured dolomite generally occurs over a depth of less than one metre.
Most deposits noted were approximately 2 m thick and usually had about 1 m of surficial cover.

Figure 6 Banded agate silicified dolomite

Photographs of banded agate-like silicified dolomite and vuggy formation found at the base of silica flour occurrences.

In the northern sections of the exploration lease silica flour was found resting on silicified dolomite where sedimentary features were still visible and no sugary textured dolomite was present suggesting that the silicification process was stronger further to the south. Further evidence of less intense silicification of dolomite in the north could be gained from the lower relief noticed in this area suggesting that less differential erosion has occurred.

Semi-solid silica flour was encountered for up to 2 m above vuggy silicified dolomite and this can only be broken up with difficulty using a hand shovel. Fine silica flour occurs near the surface where it can be scooped up by hand and is usually of whiter appearance than material deeper down. Most deposits noted were approximately 2 m thick and often had 1 m of surficial cover consisting of root zones in humic forest soil with a cover of forest litter. Maximum thickness of silica flour measured was 3.6 m.

(b) Sedimentary.

The second type of deposit was found in close proximity to in-situ occurrences but could be recognised as different by the presence of graded bedding and in some cases were located within scour structures and in association with white clays. The best example of graded bedding was in a bank on Blackwater Road at 326675 mE, 544150 mN, where silica flour 3.5 m thick occurred. A photograph of this site is shown in Figure 5 in which it is possible to see beds of relatively pure silica flour between thinner beds of pebbles. Silica flour occurs within scour structures at 326225 mE, 5443000 mN on Blackwater 5 Spur where it associated with white clay. All probable sedimentary occurrences were small although the silica flour was well sorted and appeared to be relatively pure.

Figure 7 Bedding features in silica flour

Photograph of silica flour deposit on Blackwater Road showing bedding features. The shovel handle is 450 mm long.

Apparent sequence of events leading to the formation of silica flour deposits.

Regional structure is important as silica flour is found along the cores of synclines and close to major regional fault systems. The sequence of events leading to the formation of silica flour appears to be as follows.

1. Deposition of dolomite.
2. Folding of sequences containing the dolomite with possible contemporaneous faulting.
3. Erosion of the folded sequence.
4. Introduction of siliceous fluids, which apparently flowed along synclinal axes and may have been introduced along the fault system from the south.
5. Deposition of surficial gravels over the silicified dolomite.
6. Erosion to produce the present topography.
7. Weathering of silicified dolomite to form silica flour.
8. Minor transport of some eroded silica flour to form sedimentary deposits.

Sample sites.

An orientation sampling survey on roadside outcrops albeit on limited tonnage indicated that silica flour was developing with similar characteristics to the Corinna deposits. However, the heavy mineral fraction appeared to be higher even though the silica possessed flour like qualities (see map).

J-M survey January 2005									
	Fe203	**TiO2**	**Al203**	**CaO**	**MgO**	**Mn**	**Cu**	**Cr**	**Ni**
JM - 1	**27**	**122**	**115**	**202**	**96**	**0.6**	**0.5**	**1.5**	**0.6**
JM - 2	**116**	**155**	**178**	**259**	**138**	**2.8**	**0.3**	**1.5**	**0.3**
JM - 3	**24**	**150**	**148**	**1247**	**467**	**0.4**	**0.5**	**1.2**	**2.8**
JM - 4	**49**	**142**	**510**	**202**	**98**	**0.5**	**0.4**	**2.7**	**0.6**
JM - 5	**159**	**93**	**1063**	**135**	**94**	**1.7**	**1.1**	**117**	**0.7**
JM - 6	**86**	**24**	**405**	**372**	**208**	**1.2**	**0.5**	**13**	**3.2**
JM - 7	**133**	**72**	**579**	**156**	**59**	**1**	**0.8**	**26**	**4.1**
JM - 8	**26**	**154**	**253**	**102**	**41**	**0.4**	**0.4**	**2.0**	**0.5**
JM - 9	**1028**	**16**	**1954**	**111**	**222**	**25**	**3.5**	**64**	**1.1**
JM - 10	**788**	**24**	**1962**	**123**	**273**	**11**	**2.2**	**232**	**1.6**
JM - 11	**658**	**17**	**1199**	**143**	**132**	**15**	**2.8**	**134**	**1.6**
JM - 12	**308**	**23**	**949**	**72**	**74**	**5.5**	**2.3**	**50**	**0.7**
JM - 13	**644**	**44**	**1936**	**114**	**190**	**7.4**	**2.1**	**92**	**0.8**
JM - 14	**51**	**94**	**87**	**335**	**123**	**0.5**	**1.1**	**5.5**	**1.6**
JM - 15	**60**	**83**	**338**	**501**	**116**	**0.7**	**0.8**	**9.2**	**0.6**
JM - 16	**464**	**18**	**1228**	**92**	**150**	**6.2**	**2.6**	**155**	**1.3**
JM - 17	**419**	**20**	**1175**	**95**	**145**	**5.9**	**2.3**	**138**	**1**

Table 1 Reconnaissance Sampling - first survey

Reconnaissance Sampling by A Chester

Samples of silica flour were collected from the following sites and delivered to Index Minerals, Burnie, for analysis.

Sample ID	Easting mE	Northing mN
BW5 A1	326150	5443250
BW5 A2	326625	5443150
BW5 A3	325900	5445250
BW5 A4	325875	5445050
BW5 A5	325662	5444626
BW5 A6	325550	5444525
BW1	326425	5440150
BW3S A1	328525	5445225
BW1 A1	326225	5447075
BW1 A2	326425	5446500
BH1	323075	5449550
BH2	323025	5449212
BW1 B2	324337	5440200

Physical description of samples.

BW5 A1.

This is a small occurrence of silica flour exposed on the southern flank of a hilltop on Blackwater 5 Spur with vuggy silicified dolomite at the base. The silica flour is 2 m thick and covered by a thin cover of humic soil. Hard lumps of silica 10-15 mm diameter could be felt in the silica flour while digging out sample material. A creek has eroded a gully cross cutting the ridge near this location so no extensive development of silica flour is present.

Under the microscope some plant material could be seen in the silica flour but no detectable mineral impurities. Particle size is relatively fine.

BW5 A2

Sample obtained from a bank ~3 m high but above this site sugary textured dolomite was exposed suggesting the occurrence may have been colluvial. The silica flour had a distinct white colour and contained lumpy material. Under the microscope no discernible impurities could be detected apart from plant material.

BW5 A3

This was the most northerly site for silica flour occurrences along Blackwater 5 Spur and beyond this point the Arthur River has eroded a valley, which is covered in riverine sediments. The surface material at the sample site was covered in rounded quartz pebbles mostly in the size range 10-20 mm diameter. The lower part of a 2 m high bank was sampled and this had a clean white appearance however the area of the occurrence was probably less than 10 sq. m.

Under the microscope the grain size was medium grading to fine. Occasional grains had a slight pink tinge, possibly staining by iron, but generally the sample appeared to be relatively pure.

BW5 A4

This sample was obtained from the southern side of the same hill as BW5 A3 and appeared to be the southern limit for silica flour on this hilltop. The two sites were separated by pebbly material on the surface but may have continuous contact at a lower level. The sample material has a slight grey tinge and under the microscope was found to contain numerous black grains.

Point counts.

Silica flour grains	Black grains	Clay grains
196	2	3
150	1	2
135	1	2

BW5 A5

This site had 1 m of silica flour exposed but from observations in the surrounding area had a probable thickness of ~2 m. The silica flour had a clean white appearance with a base of vuggy and agate like silicified dolomite. Approximately 1 m thickness of humic forest soil covered the silica flour.

Under the microscope the silica flour had a fine particle size with no discernible mineral impurities but minor plant material was present.

BW5 A6

Sampled from a 2 m high bank, which had pebbly top and clean silica flour lower down. Sieving the pebbles out on site could probably separate silica flour. Continuous silica flour occurred from BW5 A6 to beyond BW5 A5 and so this site may prove to be of economic size.

Under the microscope the particles of silica flour were rather coarse and some iron staining was apparent. Point counting established a ratio of 1:200 grains iron stained.

BW 1

Sample from bank measuring 3.5 m thick and silica flour occurred on both sides of Blackwater Road at this point but could not be traced away from the road to the north due to the thick forest litter and to the south the ground fell away. The site is situated on the point of a spur so the silica flour was probably an isolated occurrence and extended only for 20 m along Blackwater Road. This site had definite bedding features suggesting sedimentary processes deposited it. The lowest part of the bank had a 1.5 m bed of silica flour but the base could not be seen.

Under the microscope the grain size was relatively uniform medium grained. Impurities occurred in the form of black and red grains.

Point counts.

Silica flour grains	Black grains	Red grains
140	3	1
71	4	
43	3	

BW3S A1

Silica flour occurred just at the base of a rise to a solitary hill on a flat gravely plain. The hill itself had vuggy and agate-like silicified dolomite exposed on its crest such as that normally seen at the base of

silica flour occurrences. The silica flour was found on a slight ridge running east-west and no silica flour could be found off the ridge. Approximately 500 mm of peaty soil covered the silica flour and vuggy dolomite occurred at its base. The silica flour could only be traced for a distance of 7 m in an east west direction and could not be traced north-south.

The silica flour was grey and contained some lumpy material. Under the microscope the particles appeared to be uniformly fine with minimal impurities apart from plant material. The small size of this occurrence with only minor showings at other points around the hill indicates this area does not warrant further investigation.

BW1 A1

This sample was collected from a point, which is assumed to be along strike from the site on Blackwater Road south of Stephens Rivulet crossing. Silica flour approximately 1 m thick was found outcropping over a 5 m long section on the northern side of a slight rise. The sample contains ants and plant material. Silica flour appears white and to be relatively pure.

Under the microscope it has very fine particle size with what to the eye look like larger particles actually being agglomerations of fine particles. Minor iron staining occurs on some grains with a ratio of 1:300 in relation to pure silica flour. Interest in this site is for determination of the trend for possible localities further north, as the site itself is too small to consider as a potential target.

BW1 A2

This site occurred on the south western edge of a ridge and appeared to have silica flour thickness of ~3m. The fine white silica flour contained angular quartzite blocks some up to 400 mm long. The surface material was fine white powder but 50-60 mm below the surface it became harder to dig and contained hard lumps. This site is definitely along strike from BW1 A1 but although thicker was not extensive.

Under the microscope the particle size was fine and the silica flour appeared to be pure with no discernible extraneous grains.

BH1

This site occurs along strike from Blackwater 5 ridge but north of the Arthur River. Due to the forest cover it was difficult to determine a thickness for this site but it was over 1 m thick. Sandy and pebbly gravel seemed to flank the silica flour and some clearing would be required to determine the extent of silica flour at this site.

The silica flour appears as dirty grey and contains some lumpy material. Under the microscope the lumpy material appears to be an agglomeration of finer particles but not cemented together. The fine particles look like single crystals, clear and pure. Grey staining appears to be from humic material in the sample. Occasional grains are black and even rare reddish (iron stained?) grains occur.

BH2

Sample site was on the north western slope of a hill near the lower limit of silica flour occurrences which spread over a distance of 500 m to the south and up to 120 m east to west. The base of the silica flour could not be determined so thickness was at least 2 m. The sample contains hard lumps, which seem to be decomposed silica.

Under the microscope most particles of silica flour are fine with very fine overgrowths but some particularly large grains do occur and some black grains are present.

Point counts.

Silica flour grains	Black grains	Pink grains
120	1	-
105	-	-
220	1	1
305	-	1

BW1 B2

This sample was located at the eastern edge of the Rocky Cape outcrop where it contacts the Black River Dolomite. A fault trending northeast-southwest is located close to this site and may be significant to the location of silica flour. The silica flour was ~1 m in thickness and appeared to curve with the fall of the land. Parts of the occurrence were very pebbly and regular lines of dark staining appeared to be coming from roots. Silica flour was a dirty grey colour and contained some larger lumps.

Under the microscope the grains appeared to be fine and contained some plant matter. The grey colour appears to be caused by fine black mineral particles. The lumps are actually agglomerations of fine particles but are not cemented. Point count gives a ratio of 1 black to 200 silica flour particles.

Results

The results below point to a variable heavy mineral content. On importance is the chromium content some of which is well inside specifications high quality end users.

Survey March 2005 for PSD's								
Date		PSD'S Survey						
March	sample	300	250	212	150	106	75	-75
2005	BW1	32.3	12.9	10.8	17.4	12.4	4.9	9.3
		28.9	12.8	10.8	18.4	13.5	5.2	10.5
	av	30.6	12.8	10.8	17.9	13.0	5.1	9.8
	BW1 A1	7.6	2.3	2.4	7.9	10.9	16.1	52.8
		7.3	1.8	2.3	7.5	10.7	15.2	55.2
	av	7.5	2.1	2.3	7.7	10.8	15.6	54
	BW1 A2	14.2	4.1	4.1	10.3	10.4	10.8	46.1
		13.9	4.3	4.4	10.2	10.7	11.3	45.2
	av	14.0	4.2	4.3	10.2	10.6	11.0	45.7
	BW3 SA1	27.3	7.4	6.9	13.5	12.1	10.2	22.6
		25.9	4.8	6.8	13.7	12.2	10.2	23.4
	av	26.6	7.6	6.8	13.6	12.2	10.2	23.0
	BW5 A1	32.1	5.7	5.7	16.2	13.6	9.4	17.3
		33.9	5.7	6.2	15.8	12.8	8.9	16.7
	av	33.0	5.7	5.9	16.0	13.3	9.2	17.0
	BW5 A2	14.2	4.1	4.1	10.3	10.4	10.8	46.1
		13.9	4.3	4.4	10.2	10.7	11.3	45.2
	av	14.0	4.2	4.3	10.2	10.6	11.0	45.7
	BW5 A3	54.6	7.4	5.7	10.6	8.4	6.1	7.2
		54.5	7.9	6.0	10.9	8.1	5.9	6.7
	av	54.5	7.6	5.9	10.7	8.3	6.0	7.0
	BW5 A4	6.5	1.8	8.2	35.9	19.3	9.5	18.8
		6.3	2.0	8.5	36.7	19.1	9.2	18.2
	av	6.4	1.9	8.4	36.3	19.2	9.3	18.5
	BW5 A5	40.3	3.8	3.0	6.4	6.0	7.7	32.6

Table 2 Percentage Size Distributions Selected Samples April 2005

Survey - March 2005 **Allin Fusion not washed**

Results in ppm

Sample	Fe2O3	TiO2	Al2O3	CaO	MgO	Mn	Cu	Cr 267	Ni
BW 1	680	48	1699	102	100	25.2	4.83	37.4	0.78
BW 1 - A1	39	321	266	507	312	0.53	2.22	2.40	0.13
BW 1 - A2	61	177	397	323	173	0.85	1.45	10.7	1.03
BW 3 - 5A1	275	204	375	92	41	5.89	1.80	9.91	0.17
BW 5 - A1	34	317	282	341	57	0.42	1.57	3.09	0.22
BW 5 - A2	314	168	1320	163	101	3.32	2.08	84.1	0.53
BW 5 - A3	49	269	1545	46	18	0.37	1.30	2.02	0.28
BW 5 - A4	345	48	1066	79	63	6.53	3.40	25.1	0.50
BW 5 - A5	55	330	531	295	94	0.57	1.73	8.53	0.22
BW 5 - A6	80	313	701	66	33	0.51	1.43	20.7	0.31
BW1 B1	1084	803	3256	57	162	47	0.93	4.61	0.35
BH1	368	706	947	59	143	3.6	1.46	322	0.78
BH2	461	705	1098	97	169	5.23	1.77	310	0.98

Table 3 Selected total Oxide and element results April 2005

Excavator Derived samples

A series of excavations in the Blackwater area were conducted between 4-6th May 2005. See map

Summary.

Excavations confirmed the existence of silica flour in this area with thicknesses averaging 2m over the areas previously determined to contain silica flour. It appears there is also the possibility that silica flour occurs at two levels with a layer of peat between the levels.

Stratigraphy.

The following stratigraphy is deduced from observations of excavated holes along Blackwater 5 Spur and is an interpretation, which requires confirmation by drilling.

The surface layer of forest litter and humic soil, was generally 300 mm in thickness but ranging up to 500 mm thickness.

Silica flour, is generally 2 to 2.5 m thick but ranging up to 4 m+ on hilltops. The lowest 200-300 mm often contains pebbly material up to 20 mm in size.

Peat, thickness undetermined but it is probably 2-3 m thick.

There is a conglomerate of well-rounded pebbles with siliceous composition.

The Silica flour may be possibly up to 3 m thick.

Peat which also appears to act as a basal layer.

Descriptions of each pit.

BW1.

Silica sand visible at the surface and formed a bed 1.2 m thick resting on peat with a sharp contact. In places the silica sand filled channels scoured into the peat up to 600 mm deep. The silica sand was in 1-2 mm size range and there was no fabric in the bed. Pit was dug to 3.5 m depth where it was still peat but small gravel beds occurred in the last metre. Pebbles were up to 50 mm ø.

BW2.

At the surface material was pebbly with a silica flour matrix. Peat layer at 1.8 m depth. Total thickness of silica flour 1.5 m.

BW3.

Forest litter layer 300 mm thick then silica flour for 2 m. Gravelly material under the silica flour had rounded pebbles to 50 mm ø and this continued to the base of the hole at 4 m. There was a sharp boundary between the silica flour and the gravel.

BW4.

Hole dug to 3 m depth and contained gravel with well-rounded clasts up to 100 mm ø. Matrix was coarse sand and fine silt, immature, greater than 30%. The basal gravel and silica flour were probably reworked.

BW5.

Silica flour for 2.3 m then coarse material in a silica flour matrix. Peat horizon at 3.2. m depth with silica flour occurring all the way down to the peat. Note that in this hole the peat is the second peat horizon.

BW6.

2.7 m of high quality silica flour with coarse base material at 4 m depth.

BW7.

3m of good silica flour then peat horizon.

BW8.

Vuggy agate-like silicified dolomite within a sandy matrix. Proportions of matrix to rock fragments rapidly increased until solid rock was reached at 1 m depth.

BW9.

Minimal silica flour under forest litter then yellow clay layer was encountered at 1 m depth. The silica flour was discoloured yellow and assumed to be contaminated by iron so no sample was taken.

BW10.

Solid dolomite just under the surface.

BW11.

Silica flour for 2.5 m then solid agate-like, silicified dolomite rock.

BW12.

500 mm soil, then 1 m of silica flour containing broken fragments of vuggy silicified dolomite. The proportions of broken rock to silica flour rapidly increased over the next 1.5 m until at 2.5 m depth solid rock was encountered.

BW13.

At this site a road cut bank was scraped clean rather than dig a pit. Forest litter at surface then 2 m of good silica flour then a pebbly layer before peat.

BW14.

Soil layer 500 mm thick then well-rounded gravel conglomerate with clasts up to 75 mm ø in a silica flour matrix for 2.5 m. Solid rock encountered at 3.5m.

BW16.

Pebbly material on the surface. At 500 mm depth pebbly conglomerate with silica flour matrix then at 1 m orange clay.

BW17.

Pebbly material on surface and soil looked to be iron-stained. Pebbly conglomerate with well-rounded clasts to 50mm ø within a sandy matrix. At 1 m depth orange clay.

BW18.

Broken fragments of silicified dolomite in silica flour matrix for 2 m then solid silicified dolomite rock.

BW19.

2.5 m thickness of silica flour then base of dark clay.

BW20.

2.5 m thickness of coarse silica flour, near the base of this layer some fragmented solid dolomite material was encountered. Base agate-like silicified dolomite. Bank above pit probably contained 3-4 m of silica flour so that total thickness of silica flour at this point was 5.5-6.5 m.

BW21.

Bank was scraped at this point rather than digging a pit. Full bank contained agate-like silicified dolomite fragments in a coarse silica flour matrix. Silica flour present for 300 mm near the surface but was heavily contaminated with organic matter.

BW22.

2 m of silica sand above a layer of well-sorted pebbly gravel. Base of peat.

BW23.

Reasonably pure silica sand for 2 m to peat layer. Organic material contaminated the surface for 300 mm and some rocky fragments were present near the base of the silica sand.

BW25.

Minimal silica sand at the surface and full of tree roots. Peat layer was just below the surface.

BW26.

Yellow clay just below the forest litter, then dirty rocky sand for 1 m then a second grey clay layer. This pit marks the edge of the silica sand to the west of Blackwater 5.

BW27.

Silica flour for 2 m then a pebbly layer with a silica flour matrix. Pebbles to 50 mm ø and well rounded. Total depth of hole 2.7 m and pebbles were continuous to the bottom of the hole. Minor surface layer of humic material.

BW28.

Surface humic layer 300 mm thick then straight into silica flour. Peat layer at 1.2 m depth. A lense of yellow clay was noted on one face. A pebbly layer was encountered just above the peat with pebbles to 100 mm ø with a gradual transition between silica flour and pebbly gravel.

BW29.

Minimal surface layer of silica sand then directly into peat. This pit marks the edge of silica sand.
BW30.

Surface humic layer 400 mm thick then 1 m thickness of grey-coloured silica sand before peat layer at 1.4 m depth.

BW31.

600 mm beneath surface solid conglomerate well cemented with rounded siliceous pebbles up to 50 mm ø.

BW32.

This site was hand augered so only limited depth could be sampled. Top 500 mm was peat soil then coarse gritty sand. Auger would not satisfactorily lift this gritty material so this effectively became the bottom of the hole.

BW33.

Hand augered hole. 600 mm of peat soil then quartz pebbles 10-200 mm somewhat angular.

BW34.

Hand sampled from road cut. Soil layer then silica flour containing pebbly layers ~1 m thick before peat bed. Note bedding within peat was almost vertical.

Results

The results from sample sites BW 30 to BW 34(s) suggest a lower regional heavy mineral content and a lower chromium content.

It is proposed to access these areas in 2006.

Exploration Survey - May 2005

Sample	Fe2O3	TiO2	Al2O3	CaO	MgO	Mn	Cu	Cr 267	Cr 206	Cr 205 #	Cr 357	Ni
BW 1	639	277	2271	99	211	9.4	3.1	172	171	169	181	0.8
BW 2	564	285	2267	142	215	9.8	4.3	100	98	96	104	1.0
BW 3A	767	225	1963	152	152	17	2.2	144	141	141	156	0.7
BW 3B	360	298	2243	116	194	6.1	5.2	53	51	51	54	0.6
BW 4(S)	644	292	1853	84	249	8.2	76	322	329	321	350	2.4
BW 5	193	284	592	46	58	2.6	1.4	65	63	63	67	0.4
BW 6	369	267	889	71	84	6.4	2.3	95	92	92	99	0.5
BW 7	774	262	2870	107	263	11	2.3	73	71	72	77	0.7
BW 8	316	292	948	121	126	2.9	35	157	157	154	166	0.8
BW 11	49	314	298	200	48	0.5	1.4	3.8	2.6	2.9	2.9	0.1
BW 12(S)	178	312	624	465	106	1.6	2.2	29	27	27	29	0.2
BW 12(L)	258	300	1102	264	146	3.2	1.3	56	54	54	58	0.4
BW 14	258	304	1294	214	145	3.1	3.6	120	120	118	130	0.8
BW 18	151	318	613	299	64	1.6	4.4	19	17	17	19	0.2
BW 19	68	322	618	357	70	0.9	1.6	19	18	18	19	0.2
BW 20	69	289	478	45	15	0.6	0.4	3.6	2.3	2.5	2.5	0.1
BW 21	98	314	620	61	32	1.0	0.6	28	27	27	29	0.3
BW 23	210	307	1856	100	161	1.9	1.4	85	86	84	91	0.5
BW 27	292	276	1051	88	91	4.0	2.6	77	76	75	83	0.6
BW 27(P)	511	274	2126	108	205	7.7	4.4	238	243	235	269	1.7
BW 28	376	297	1575	85	171	5.5	3.1	227	232	223	253	1.3
BW 30	204	286	1212	61	59	4.7	3.1	7.3	5.4	7.0	5.7	0.3
BW 31	241	292	1932	68	76	4.8	7.7	14	13	14	13	0.4
BW 32(S)	139	320	1457	45	60	2.5	3.8	31	30	30	32	0.7
BW 34(S)	147	306	894	50	40	3.6	2.2	5.9	3.9	5.1	4.3	0.2

Table 4 Total Element and Oxide Analyses

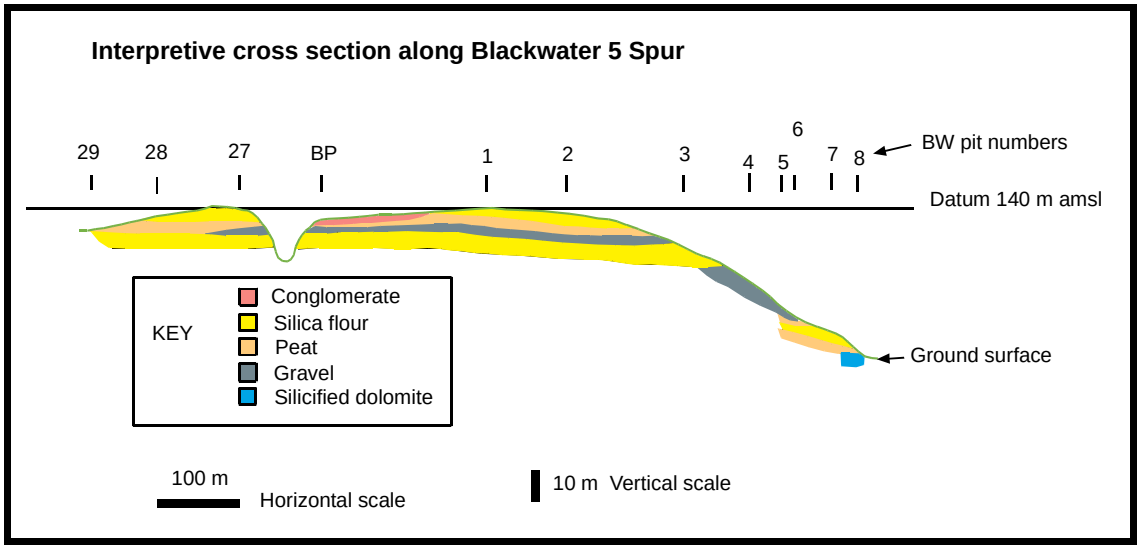

Figure 8 Cross Section along Blackwater 5 Spur

Illustrative cross section along Blackwater 5 Spur, road has been straightened for convenience of the section.

BW pit numbers are placed at the relative horizontal distances based on GPS positions. Datum of 140 m established from Topographic map.

Top silica flour bed has a maximum thickness of 2 m and bottom bed is 3-4 m thick. Conglomerate is well-cemented and is of similar composition to gravel beds. This cross section has been interpreted from the results of excavations along Blackwater 5 Spur.

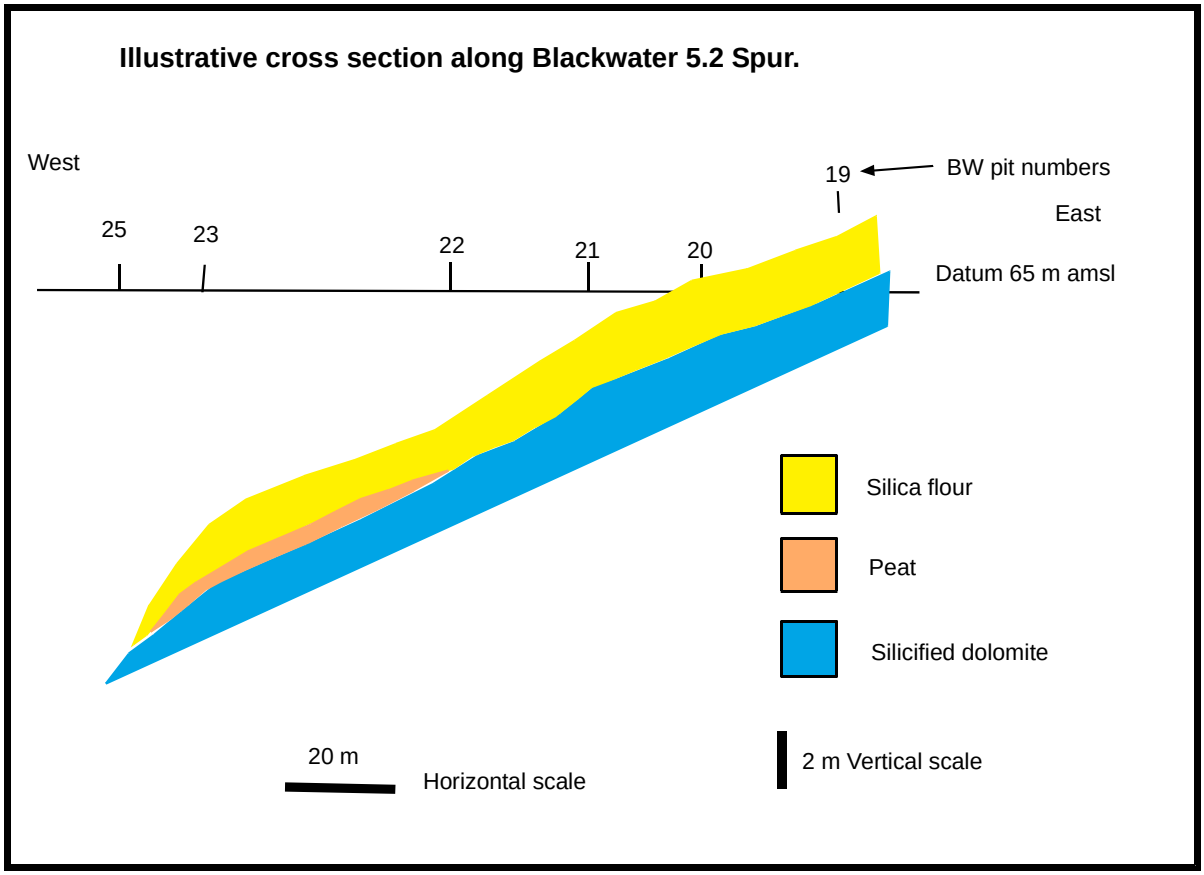

Figure 9 Cross Section along Blackwater 5.2 spur

Note peat layer only occurs at the western end of the sequence. Much of the upper parts of the silica flour contain fragments of silicified dolomite.

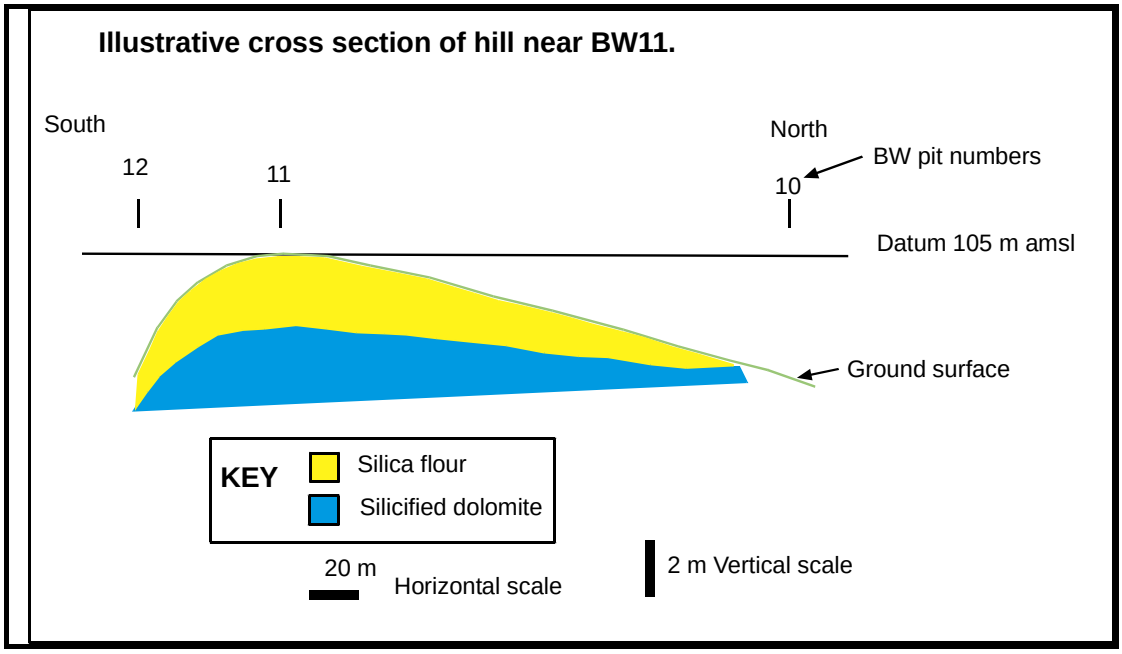

Figure 10 Cross Section on hilltop near BW11

Illustrative cross section of hilltop near BW11 along Blackwater 5 Spur. Maximum thickness of silica flour is 2.5 m.

Report on air-core drilling along Blackwater 5 road, 21-24/11/05.

by Alan Chester.

Summary.

Eighteen holes were drilled and logged along Blackwater 5 Road. Where possible these holes were drilled to bedrock, however this was only achieved on five holes. A 400 m length of the ridge appears to have on average 4 m thickness of silica flour, basically at the surface. Lower layers of silica flour were detected beneath 3+ m of peat and clay. Due to difficulties with drilling it was not possible to confirm the continuity or quality of these lower layers of silica flour.

Drilling Rig

Rig was mounted on a tandem trailer towed behind an Isuzu 4WD truck of 12.2 tonnes gross. Mast of the rig was 5 m high and was jacked up by hydraulic rams. A hydraulic motor rotated the drill rods, each 3 m long. A 400/200 air compressor driven by a Cummins diesel was mounted on the back of the truck. A cyclone 350 mm in diameter and 450 mm high was mounted on the side of the trailer and samples were collected in buckets at the base of the cyclone. Drill rods had an outside diameter of 70 mm and internal bore of 36 mm. It took approximately 0.5 hours to initially set up but moves could be made between holes in 15 minutes as all that was necessary was to withdraw the rods from the previous hole and level the rig at the next site.

The drilling rig worked well in dry holes and the crew were efficient and hard working, not even stopping for lunch or morning tea. Drill rods were left across the back of a Toyota 4WD flat tray and so were moved along from site to site without having to be packed away.

Results.

Summary logs for each hole are attached in Appendix 1. The stratigraphy is more complex than indicated by the excavator survey. It appears that lenses of peat, clay, pebbly quartz and silica sand occur throughout the sequence. An interpreted cross-section is attached. Unfortunately it was not possible to drill to bedrock in all holes so the continuity of lower silica flour layers (lenses?) could not be confirmed.

A 400 m section of the ridge contains an average thickness of 4 m of silica flour basically at the surface with up to 6 m thickness within this section. A rough calculation of the quantity of silica flour contained in this section is 400 m length, 50 m width and 4 m depth, approximately 130 000 tonnes.

Coarse pebbly material also caused loss of air pressure and prevented samples being brought to the surface. Pebbles in the 10-15 mm size range also on occasions blocked the drill annulus, however this was a minor problem compared to mud contamination.

Samples.

Samples were taken of possible silica flour and also of other materials encountered, peat, coarse quartz grit and clay for reference purposes. A catalogue of samples collected is attached in Appendix 1.

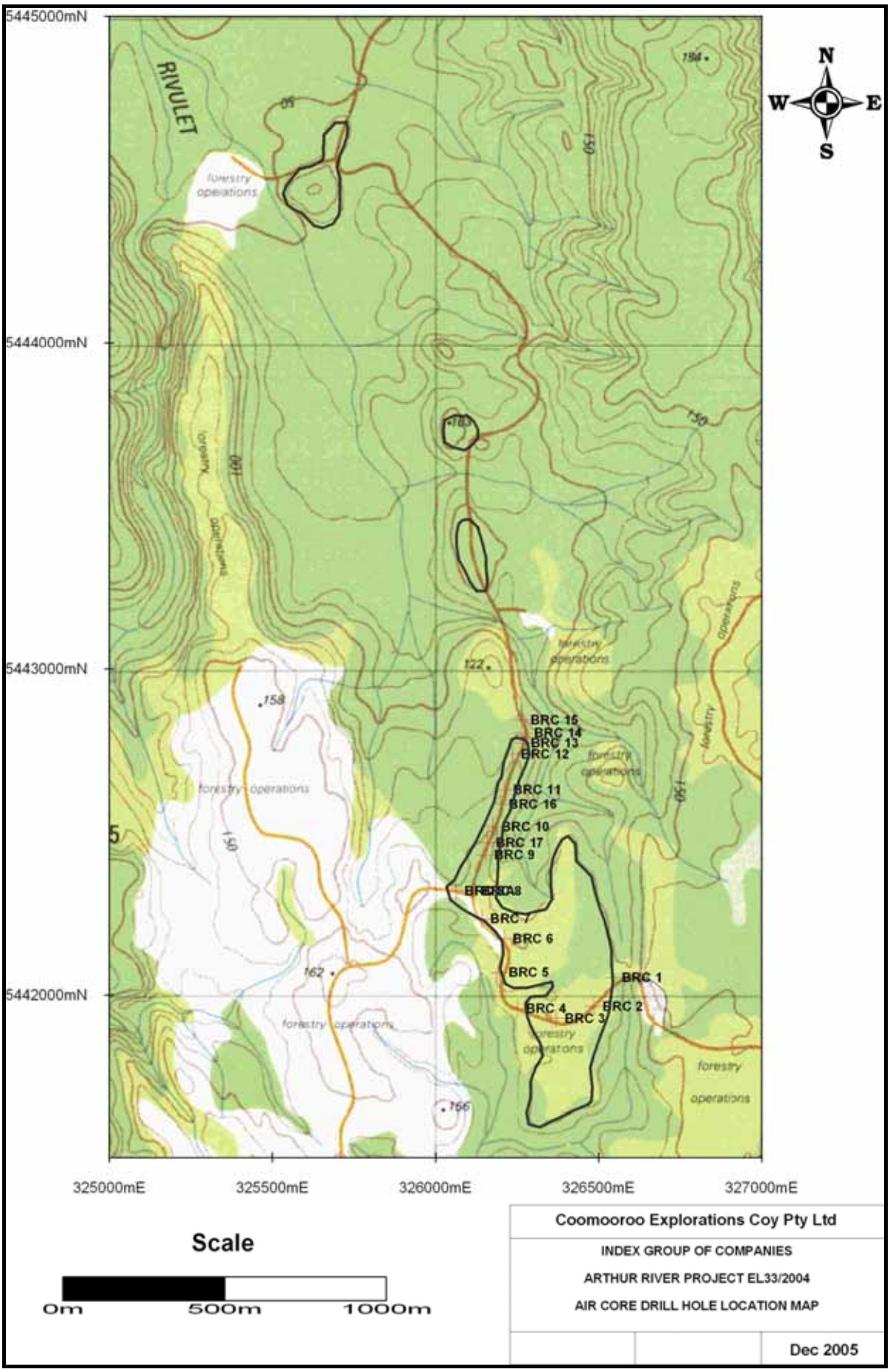

Figure 11 Aircore drill hole locations map

Rehabilitation.

As the drilling rig was able to work from the road, no rehabilitation is required. All holes were plugged with rocks and covered by soil.

Elevation survey.

A dumpy level was used to plot the approximate vertical positions of the tops of each hole. Actual elevations were approximated from the Sumac 1:25 000 topographic map. The dumpy level survey was commenced near the dolomite quarry from the 150 m contour. Crosscheck was made at Blackwater 5.1 intersection to ensure level was still within tolerance of the map. Sites as surveyed were checked against the map positions and appear to correspond to mapped elevations. Survey was made to within 100 mm but elevations quoted are to the nearest metre due to inaccuracy of initial datum. Relative heights between holes can be assumed to be accurate.

Hole positions.

Hole positions were determined using GPS. A correction was made to these positions based on the mapped position of Blackwater 5.1 intersection. Sites were placed approximately 100 m apart and 50 m apart on the northern slopes of the ridge. Two extra holes, BRC 16 and BRC 17, were placed between BRC 9 and BRC 11 so that 50 m spacing also occurs along part of the best apparent section for silica flour (see map above).

Laboratory Results

Exploration Survey Results

Received: November 2005 Assayed: 7th. December 2005

"Selected Samples from Blackwater 5 air-core drilling"

Chemical ppm	Sample ID	Fe_2O_3	TiO_2	Al_2O_3	CaO	MgO	Mn	Cu	Cr 267	Ni
	BRC 1 (2M)	1347	3182	2771	139	185	7.0	3.0	169	1.4
	BRC 9 (3M)	3671	3226	6314	11445	10531	20	4.1	167	3.7
	BRC11 (3M)	1630	3350	2862	927	750	13	3.0	229	2.1
	BRC13 (2M)	978	963	1834	3676	2608	5.4	2.0	24	0.9
	BRC16 (3M)	2058	3399	2642	1115	968	12	3.3	258	2.1
	BRC17 (3M)	2389	2205	6796	123	716	17	3.0	769	5.2

7 CONCLUSIONS

There have been several areas of silica flour located during the first term of the licence.

In general the Tertiary investigated during this period represented a normal Tertiary environment in southern Australia with perched sand, clay and pebble to cobble gravels predominating with minor sand interbeds showing as much as two fossil soil horizons.

it is recommended that the south western sector of the Exploration Licence be explored more fully as it appears from reconnaissance sampling that there are large areas of silica sand possibly occurring under the heath.

It is also recommended that the Exploration Licence be retained at 187 sq km.

8 PROPOSED WORKS PROGRAM FOR 2006.

It is proposed to test the sequences by using an excavator during 2006 with follow up work to be conducted with an air core rig

Appendix 1

Air core Drill logs

BRC 12

Depth	Stratigraphy	Comments
1	Silica flour	
2	Grey silica flour	Damp
3	Sil fl/brown clay	Clay easily moulded in hands
4	Plastic clay	Light coloured clay, came up as balls 15-20 mm dia. Minor peat occurs as lumps and darker colour
5	Plastic clay	Became drier in lower section
6	Silica flour/clay	Some pebbles to 5 mm. Top 0.5 m contained clay, lower silica flour
7	Silica flour	Lowest part brown sand
8	Brown sand/pebbles	20% rounded quartz pebbles to 20 mm, mostly 5-10 mm
9	Brown sand	20% rounded pebbles to 10 mm. A few to 20 mm
10	Brown silica flour	Contains lumps of peat and some pebbles to 15 mm
11	Brown silica flour	40% peat
12	Peat	minor quartz pebbles to 4 mm rounded
13	Grey silica flour	Minor component sub-rounded quartz to 3 mm
14	Grey silica flour	Contains 30% grit 3-5 mm
		Grit content increasing, drill rod getting stuck, copious water.
		Stopped drilling, just getting brown glug

BRC 13

Depth	Stratigraphy	Comments
1	Silica flour	Contaminated with soil and road fill
2	Grey silica flour	Minor component of angular quartz to 3 mm
3	Coarse grit	Angular quartz to 5 mm
4	Brown sand	Quartz sand with peat content
5	Brown sand	Peat content
6	Brown clayey sand	
7	Brown clayey sand	Small sample contains peat. Losing air and not bringing up sample
8	Brown clay	Stopped drilling due loss of sample

BRC 14

Depth	Stratigraphy	Comments
1	Grey silica flour	Cleaned rig before starting hole. First metre contained some fragmented quartz to 5 mm
2	Grey silica flour	Appears a little cleaner than first metre but similar texture
3	Mixture silica flour and yellow clay	
4	Peat	
5	Brown sand	
		Hit water and only bringing up muddy water

BRC 15

Depth	Stratigraphy	Comments
1	Silicified dolomite	Broken fragments of agate like material.

BRC 16

Depth	Stratigraphy	Comments
1	Grey silica flour	Contains a few rounded quartz pebbles to 15 mm
2	Grey silica flour	Contains a few rounded quartz pebbles to 10 mm, cleaned rig
3	Grey silica flour	Contains rounded pebbles to 10 mm
4	Grey silica flour	A few rounded quartz pebbles to 20 mm
5	Grey silica flour	A few rounded quartz pebbles to 20 mm
6	Grey silica flour	20% rounded quartz pebbles 5 mm, a few to 10 mm
7	Brown sand	Peat and sand mixture
8	Peat	Hit water at base of this metre. Stopped drilling as sample became brown glug

BRC 17

Depth	Stratigraphy	Comments
1	Grey silica flour	Initial part had some humic matter
2	Grey silica flour	Contains some coarse gritty quartz 3-5 mm and some larger pebbles to 20 mm. Some black pebbles to 5 mm probably dolomite (rounded) Hit water at the base of this metre
3	Brown sludge	Peat visible in dry parts. Cleaned rig, strong H_2S odour
4	Peat	Some silica sand content
5	Peat	Hit more water, cleaned rig
6	Brown sand	Contains a variety of quartz pebbles up to 15 mm, all rounded
7	Brown sand	Contains rounded pebbles up to 20 mm (10%)
8	Grey silica flour	Contains a few rounded quartz pebbles to 20 mm, cleaned rig
9	Brown sand	Small sample, contains some pebbles to 15 mm
10	Peat	
11	Peat	Almost black, hit water
12	Peat	Copious water, losing air pressure, apparently blowing out into porous material. Stopped drilling as no sample could be brought up

BRC 1

Depth	Stratigraphy	Comments
1	Grey silica flour	Probably contains some road fill and gravel
2	Silica flour	Grey colour with minor quartz to 5 mm
3-3.5	Silica flour	
3.5-4	Peat	
5	Peat	
5.5	Water	
6	Peat	
7	Peat	Sample bucket full of water
8	Peat	Bucket full of water, very little sample
9	Peat	Very little sample, water, changed bit
10	Quartz grit	Coarse quartz 2-3 mm, angular particles, some to 5 mm, water
11	Quartz grit	Mostly dirty water, angular quartz 3-4 mm some to 5 mm
12	Quartz grit	Quartz mainly sand size, angular particles, brown colour. Stopped drilling due to contamination from peat above

BRC 2

Depth	Stratigraphy	Comments
1	Humic soil	
2	Humic soil	Trace of lighter coloured material but very wet
3	Hit water	Some quartz grit to 1 mm
3.5	bedrock	Mixture of peat and gritty sand in last 0.5 m

BRC 3

Depth	Stratigraphy	Comments
1	Soil	Clay content with rounded pebbles to 15 mm (10%) some silica flour in lower parts
2	Soil	Clay and less pebbles than above, fine quartz sand, brown
3	Brown clay	No pebbles, some indications of quartz sand
4	Brown clay	Some included fine quartz sand giving the total a lighter brown colour
5	Peat	Contains a minor component of dolomite fragments to 20 mm
6	Brown silica flour?	Fine powder consistency, contains quartz fragments to 0.5 mm
7	Brown silica flour?	As above but with some rounded quartz pebbles to 15 mm
8	Brown silica flour?	As above but pebbles only to 10 mm
8.5	Water	Sticky brown mud
9	Peat	Very wet sample, some sparse pebbles to 10 mm
10	Peat	Poor recovery mostly water. A few pebbles to 5 mm
11	Brown clay	Putty consistency, mostly water
11.5	bedrock	Brought up as broken pieces of quartz to 10 mm

BRC 4

Depth	Stratigraphy	Comments
1	Grey soil	Quartz sandy and grey colour
2	Silica flour	Light brown colour
3	Silica flour/clay	Yellow-brown colour
3.5	Dolomite	Bedrock

BRC 5

Depth	Stratigraphy	Comments
1	Soil and some sil fl	Silica flour reasonably clean. Drill bit clogged
2	Clay	Mostly brown clay with some silica flour
3	Brown clay, dry	Some fragments of quartz to 5 mm
4	Brown clay	Some fragments of peat. Minor component of rounded quartz pebbles to 5 mm
5	Brown clay	Pebbles to 30 mm, rounded quartz as minor component
6	Brown clay	No pebbles, fine quartz sand present and traces of peat Hit water
7	Peat	
8	Black liquid, probably peat	Lots of water spouting up drill stem
9		Virtually no sample, mostly dark brown muddy water Seemed like a cavity was created around drill bit, no sample, stopped drilling

BRC 6

Depth	Stratigraphy	Comments
1	Silica flour	Grey colour
2	Silica flour	Quartz pebbles to 10 mm as minor component. Grey colour Hit water, no indications of peat
3	Peat	
4	Quartz pebbles	Loose rounded pebbles to 15 mm. Sample contaminated from peat above and muddy water but indications are there may be a silica flour matrix
5	Peat	Minor component of broken quartz fragments to 2 mm
6	Dolomite	Bedrock

BRC 7

Depth	Stratigraphy	Comments
1	Grey silica flour	Possibly contaminated with road gravel
2	Quartz pebbles	Quartz pebbles 15-20 mm rounded, block drill bit
	Silica flour	Grey colour, contains pebbles to 10 mm, rounded quartz
3	Grey silica flour	Contains pebbles to 15 mm as minor component
4	Fine brown sand	Quartz visible with hand lens, however brown colour suggest not useful
5	Fine brown sand	Contains some peat and quartz rounded pebbles to 10 mm Hit water 5-15 mm pebbles Distinct H_2S odour
6	Peat	Contains conglomerate of pebbles up to 10 mm, quartz mostly rounded Copious water from drill hole. Sample not coming up, stopped drilling

BRC 8

Depth	Stratigraphy	Comments
1	Humic soil/silica fl	Sample brown colour
2	Brown silica flour	Small sample, some block-up problems, darker than first metre
3	Brown silica flour	Small sample contains quartz pebbles to 5 mm (5%)
4	Silica flour	Dark brown, contains 30% peat, also rounded quartz pebbles to 30 mm This hole is 20 m east of a pit which contained pure white silica flour yet this hole yields brown material
5	Brown sand/pebbles	Pebbles to 30 mm rounded quartz. With hand lens black particles are visible, possibly dolomite. Also contains brown clay. Material not coming up drill stem satisfactorily due to sticky wet consistency. Blocking up connection fittings and cyclone. Uncoupled all fittings and cleaned out by scraping and blowing.
6	Brown sludge	H_2S odour, brown sand/ peat mixture also contains some pebbles to 20 mm. Wet and runny and water is squirting up drill stem
7	Brown clay	Not sloppy as above but still wet, plastic in hands
8	Peat/ quartz grit	Drier material, peat at first, then silica flour and quartz grit 3-5 mm. Light brown colour with angular grit. Drilling has become harder bit only progressing slowly
9	Grey silica flour	Drilling become easier, Silica flour matrix with angular quartz fragments to 5 mm. Hit water again at 9.5 m
10	Grey silica flour	Drier material contains some fragments of quartz to 15 mm
11	Grey silica flour	Minor angular quartz to 3 mm. Generally all fine material, looks like cement. Drilling has become hard again, more water, decided to discontinue at 11.7 m
12	Brown sludge	Dry parts similar to above. Last part had small black particles, probably dolomite. Left sample to dry, too wet to recognise anything. Came back just brown mud

BRC 8A

Depth	Stratigraphy	Comments
1	Grey silica flour	
2	Grey silica flour	Rounded pebbles to 20 mm, angular quartz material to 10 mm, some clay giving brown tinge to material
3	Brown grit	Quartz fragments to 3 mm and brown matrix clay some larger pebbles to 20 mm
4	Rounded quartz pebbles in clay matrix	Pebbles to 15 mm rounded
5	Brown clay	Matrix of brown clay, damp and mouldable. Some quartz fragments and some quartz pebbles to 20 mm, most 2-3 mm
6	Peat	Contains rounded pebbles to 25 mm, quartz
7	Peat	Contains rounded pebbles (20%) up to 25 mm quartz, some broken quartz fragments
8	Peat	Rounded quartz pebbles to 25 mm (10%), some smaller fragments
9	Peat	Minor rounded quartz pebbles to 20 mm Hit water at 9.25 m
10	Peat	Cyclone clogged up, had to be cleaned out
11	Peat	Drilling became hard, coarse quartz fragments to 10 mm. Not bringing up sample, stopped drilling

BRC 9

Depth	Stratigraphy	Comments
1	Silica flour	Dirty grey colour
2	Silica flour	Dirty grey colour
3	Silica flour	Dirty grey colour
4	Silica flour	Dirty grey colour and only small sample
5	Silica flour	Sample very dirty
6	Brown silica flour	Looks as though may contain peat
7	Brown clay	Damp
8	Silica sand/clay	Light brown colour, contains 10% coarse quartz to 2 mm. Minor black coloured rounded pebbles (presumably dolomite) less than 2 mm Drill pipes clogging up, damp clay, stopped drilling
8.5	Brown clay	

BRC 10

Depth	Stratigraphy	Comments
1	Silica flour, brown	Contaminated with root material, cleaned rig
2	Silica flour, light brown	Contains some rounded pebbles to 10 mm (10%)
3	Silica flour	A little cleaner but still dirty. Contains angular quartz pebbles to 10 mm also rounded quartz pebbles to 10 mm and minor rounded dolomite pebbles
4	Silica flour	Dirty brown, no pebbles, contains peat Hit water
5	Peat	Copious water, strong H_2S odour
6	Peat	Wet
7	Peat	Dry, 10% rounded quartz pebbles to 5 mm
8	Peat	Dry, 30% rounded and some angular quartz pebbles to 10 mm
9	Peat	Rounded dolomite pebbles to 15 mm Tried to go deeper but pebbles clogged the drill annulus. Decided to stop drilling. Presence of dolomite pebbles probably indicates close to bedrock

BRC 11

Depth	Stratigraphy	Comments
1	Silica flour	Dirty grey colour, contains pebbles to 10 mm
2	Silica flour	Dirty grey colour, contains minor pebbles to 5 mm rounded
3	Silica flour	20% rounded quartz pebbles to 15 mm. Dirty grey
4	Silica flour	10% angular quartz pebbles to 5 mm, dirty grey
5	Silica flour	Coarse gritty material with angular pebbles to 10 mm, dirty grey
6	Silica flour/peat	
7	Peat	Peat started to come in during this metre.
8	Peat	Small sample, minor traces of decayed dolomite rounded pebbles
9	Brown clay	
10	Coarse grit	
11	Coarse grit	Most particles 1-2 mm, 10% rounded quartz pebbles to 5 mm. Minor component of rounded dolomite to 5 mm. Overall brown colour
12	Peat	Most particles 1-2 mm, some finer. Overall brown colour.
	Sub-rounded quartz pebbles	10% rounded dolomite to 5 mm. Contains some peat Hit water, still coarse pebbly material Not coming up drill stem properly, very wet and black. Stopped drilling

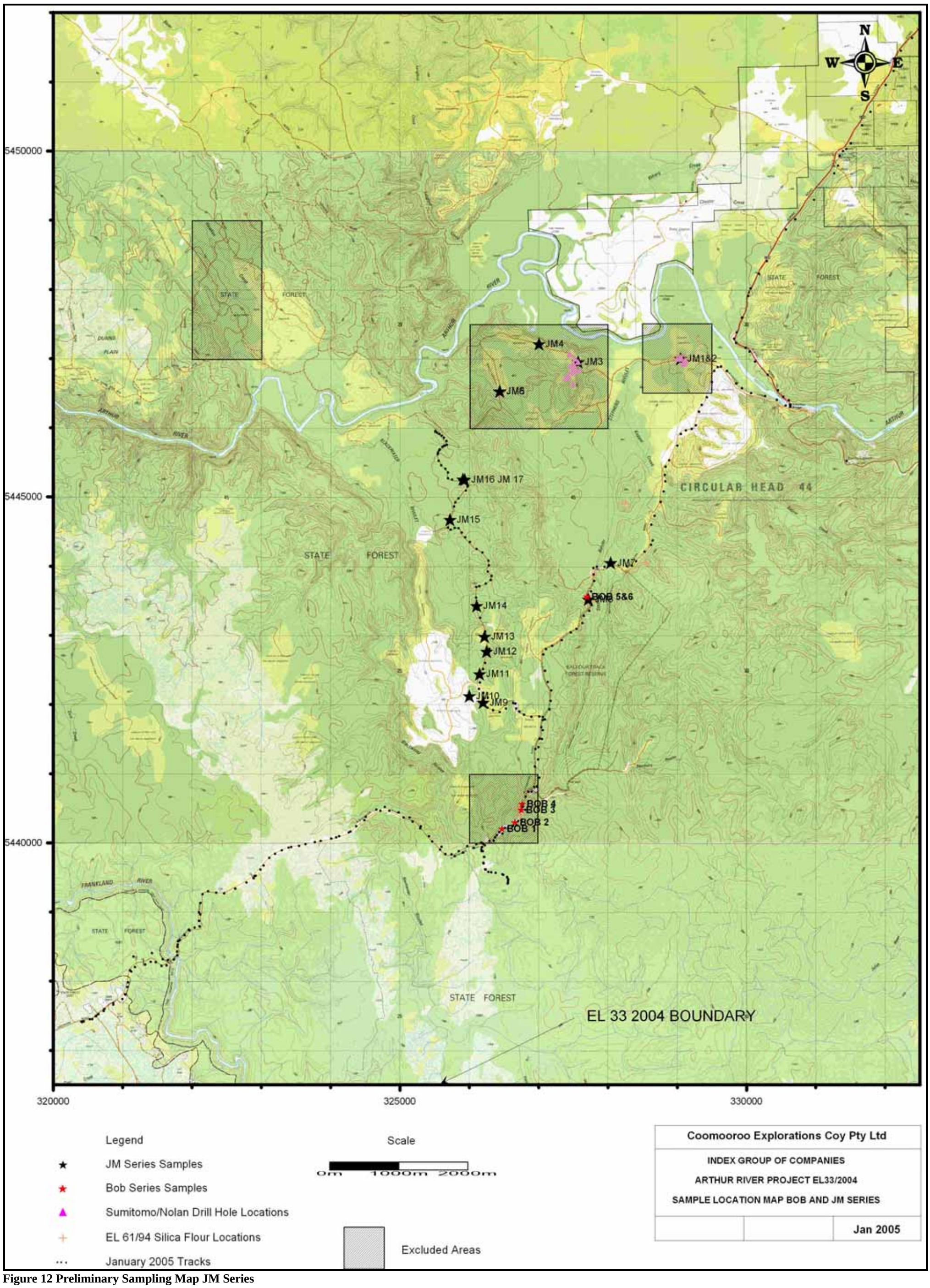

Figure 12 Preliminary Sampling Map JM Series

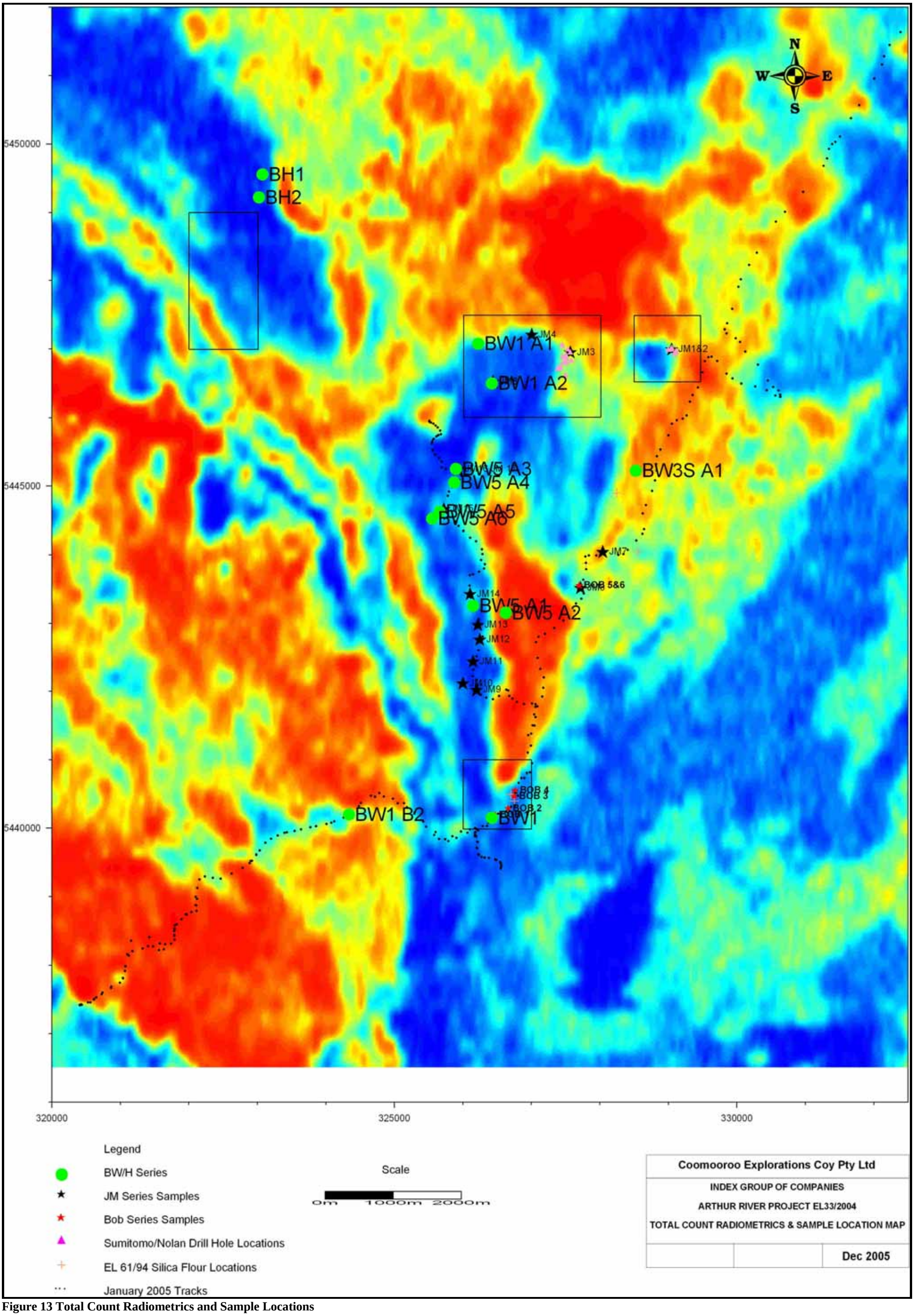

Figure 13 Total Count Radiometrics and Sample Locations

Figure 14 BW Series excavator pits on Aster Image