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EL 1942

POOCHERA KAOLIN PROJECT

FINAL REPORT TO LICENCE EXPIRY FOR THE PERIOD 28/6/94 TO 27/6/95

Submitted by
Commercial Minerals Ltd
1995

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PRIMARY INDUSTRIES AND RESOURCES SA

ENVELOPE 8935

TENEMENT: EL 1942 Poochera

TENEMENT HOLDER: Commercial Minerals Ltd

CONTENTS

END OF CONTENTS

SEPARATELY HELD DATA

DRILLHOLE SAMPLES (held by MESA Core Library);

For up to date information on available drillhole samples, contact the Supervisor, MESA Core Library and quote the Exploration Licence and drillhole number/s you wish to query.

CO 19-23.

COMMERCIAL MINERALS LIMITED

A.C.N. 000 971 844

A Member of the Normandy Mining Group

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FINAL REPORT ON EXPLORATION LICENCE NO 1942 POOCHERA KAOLIN PROJECT ELLISTON 1: 250 000 SHEET SI 53-6

Author: L C Barnes

Date: 10 July 1995

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Report No. 30 014

REPORT NUMBER: **30 014**

TITLE: **FINAL REPORT ON EXPLORATION LICENCE NO 1942 POOCHERA KAOLIN PROJECT ELLISTON 1: 250 000 SHEET SI 53-6**

AUTHOR: **L.C. BARNES**

DATE: **10 JULY 1995**

LOCATION MAP:

ABSTRACT

This report summarises work carried out on Exploration Licence 1942 during the 12 month period ending 27 June 1995.

Five RC aircore drillholes totalling 85m were drilled with about 500m spacing along the Port Kenny - Colley road transecting the EL. Four of these holes intersected kaolinised granite.

From three of these holes six composite samples were prepared and evaluated at the University of South Australia, CSIRO Division of Soils and CML's own laboratory. Testwork comprised -45μm yield, -2μm yield, determination of salt content and kaolin morphology (halloysite content), chemistry and raw and fired whiteness (reflectance).

Samples from EL 1942, like other samples of kaolinised granite from the Colley area, contained trace amount of unkaolinised biotite mica and ? feldspar. The presence of fine black mica flakes results in poor raw and fired whiteness and no further work is recommended in this area.

EL 1942 has been allowed to expire.

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FIGURES

1. INTRODUCTION

1.1 History

Drilling over an area of about 2 500 km^2 south and southwest of Poochera on northwestern Eyre Peninsula, South Australia has recognised the widespread occurence of deeply kaolinised granitic and metasedimentary basement.

Commercial Minerals Ltd (CML) became actively involved in exploration for kaolin in the Poochera area in 1991 when a bulk sampling program was carried out at Carey's Well deposit. In September 1994 CML commenced active exploration to assess the kaolin potential of the Poochera - Port Kenny area.

Exploration Licence was granted on 28 June 1994 and this report summarises exploration carried out by CML during the twelve month period of tenure of this licence.

1.2 Location and Tenure

EL 1942, covering an area of approximately 14km^2, is centred about 8km north-northeast of Port Kenny on Eyre Peninsula, South Australia (Fig. 1). The EL covers all of section 19, and intersecting road, in the hundred of Witera but excludes the area reserved from the Operative Provisions of the Mining Act, (Fig. 2).

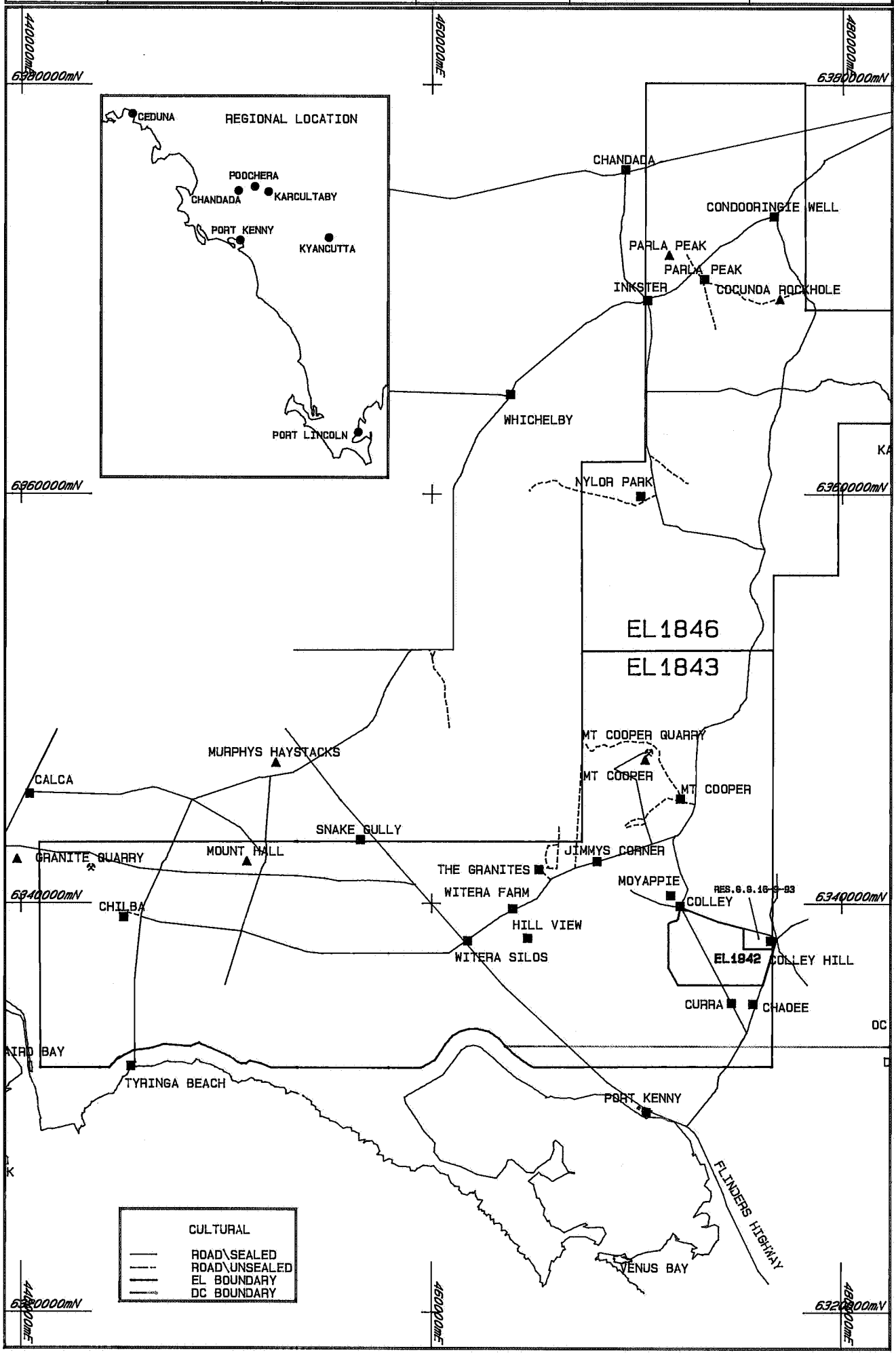
EL 1942 lies entirely with EL 1843 which was granted to CML in July 1993. At that time all of section 19, hundred Witera was reserved from the Operative Provisions of the Mining Act (1971) and was thus excluded from EL 1843. This reservation was in place in order to protect the granite outcrops at Colley Hill.

Following the granting of EL 1843 Mines and Energy South Australia (MESA) recognised that the reserved area could be substantially reduced whilst still affording protection for all granite outcrops. In September 1993 the reserved area was reduced to approximately 210ha in the northeast corner of section 19 as shown on Figure 2. Consequently the rest of section 19 became available for mineral exploration and CML made application for an Exploration Licence. EL 1942 was granted on 28 June 1994 for a period of one year.

Scale	DATE	FIGURE
1: 250000	10\1\95	(1)
	P&LFILE P009	PLTFILE P009

POOCHERA KAOLIN PROJECT
LOCALITY MAP
FIGURE 1

COMMERCIAL MINERALS LTD
OLD MAITLAND ROAD
SANDGATE N.S.W.



SCHEDULE A

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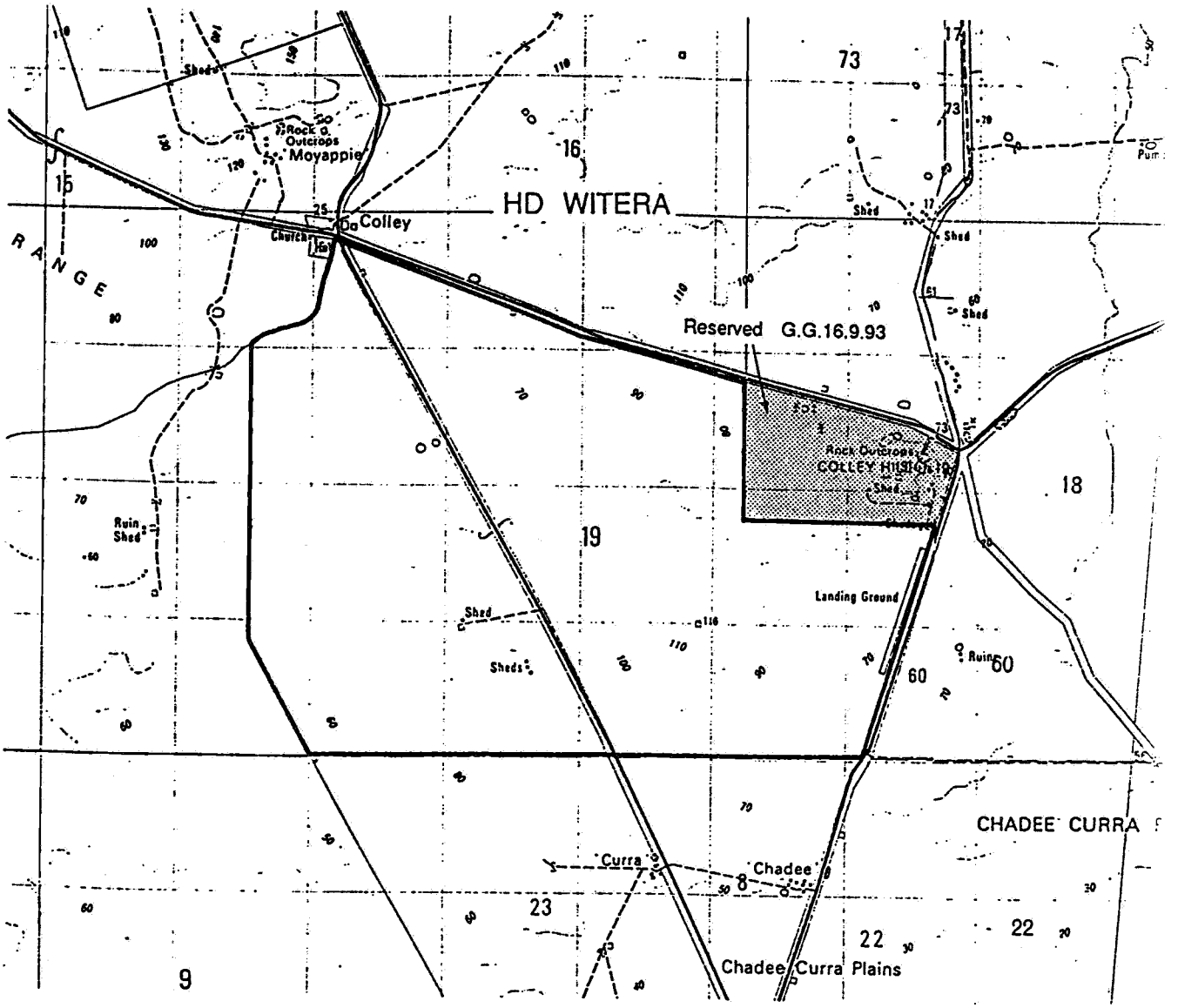


SCALE 1 : 50 000

1 0 1 2 3 4 5

KILOMETRES

NOTE : There is no warranty that the boundary of this Exploration Licence is correct in relation to other features on the map. The boundary is to be ascertained by reference to the Australian Geodetic Datum

The topography of the area is gently undulating. Most of the land has been cleared with the exception of some remnant patches of mallee scrub, mainly alongside roads. The major land use is cereal cropping and sheep grazing.

The climate is dry, with mean annual rainfall being about 300mm. Average maximum January and June temperatures are 28.6°C and 16.9°C respectively.

91.3 Previous Work

Ferris and Keeling (1993) detailed kaolin exploration in the the Poochera area up to 1992. Exploration activity is summarised in Collins (1994). No kaolin exploration has previously been carried out on EL 1942.

2. GEOLOGY

Regional geology of the area is shown on the ELLISTON 1:250 000 geological sheet (Flint, 1989), and described in the accompanying Explanatory Notes (Flint, 1992).

The Colley Hill area lies within the central region of the Gawler Craton, a large crystalline basement province consisting of variably deformed Late Archaean to Mesoproterozoic rocks. Three tectonic megacycles are recognised within the Gawler Craton:

Late Archaean-Palaeoproterozoic - An Archaean volcanic-sedimentary sequence complexly deformed, metamorphosed, and intruded by granitoids during the Sleafordian Orogeny (2500-2300 Ma). This is known as the Sleaford Complex.

Palaeoproterozoic - Several discrete phases of sedimentation and volcanism with associated magmatism (Lincoln Complex), deformation, and metamorphism during the Kimban Orogeny (18500-1700 Ma).

Mesoproterozoic - Extensive anorgenic (1950 Ma) volcanism (Gawler Range Volcanics) with contemporaneous granitoid plutonism (Hiltaba Suite).

In the Colley Hill area the basement is entirely comprised of Hiltaba Suite Granite (Calca Granite on ELLISTON). Porphyritic rhyolite (Gawler Range Volcanics) crops out at Mount Cooper, about 7km north of Colley where it is quarried for road sealing aggregate.

Hiltaba Suite granite is underformed and coarse grained. It consists predominantly of potash feldspar and quartz with minor plagioclase and minor to rare biotite and hornblende.

Outcrops of Hiltaba Suite granite are restricted to isolated rounded hills including Colley Hill, immediately to the northeast of EL 1942, and Mount Hall and Calca Hill to the west. Within EL 1942 basement is everywhere obscured by younger sediments.

The overlying Quaternary cover is dominated by Bridgewater Formation of Pleistocene age, which comprises fine to medium grained calcareous aeolianite and calcarenite. The thickness of this unit varies from less than 5m inland to over 90m in some coastal sections (i.e. Cape Radstock). During Bridgewater Formation deposition, episodes of sediment accumulation were interspersed with erosion and arid pedogenesis, producing multiple horizons of sheet, nodular and massive calcretes with carbonate soils.

Prior to deposition of Bridgewater Formation Archaean-Proterozoic basement rocks were extensively kaolinised. Timing of the kaolinisation event(s) is not known although it is believed to be related to climatic (ie deep weathering) rather than hydrothermal kaolinisation. Foliated basement rocks are extensively weathered, however, the higher mica and mafics content produce inferior quality kaolin (eg. Tomney deposits).

Because of the coarse-grained unfoliated nature of Hiltaba Suite granite weathering profiles are generally thinner but kaolin quality is generally superior (eg. Carey's Well deposit) and to date CML has concentrated exploration to areas of kaolinised Hiltaba Suite granite.

3. EXPLORATION

3.1 Drilling Summary

As part of a regional exploration program 18 RC aircore holes were drilled on EL 1843 in the Witera-Colley area in late 1993.

Holes CO7, CO9-11, CO13-15 and CO17-18 were on road reserves surrounding section 19 and kaolinised granite was intersected in most of these. All holes were outside the boundaries of section 19 and thus were within Exploration Licence 1843.

With the application for and granting of EL 1942 exploration in the Colley area was completed with drilling along the Port Kenny - Colley road transecting section 19. Within EL 1942 five holes were drilled totalling 85m. Drillhole locations are shown on Figure 3.

All holes were drilled using the technique whereby open hole (with hammer if required) was employed through the overburden, switching to RC - aircore to sample the kaolinised profile. This technique proved very successful with, it is believed, very little loss of sample. Kaolinised granite was intersected in four of the five holes with 35 one metre samples being taken from three holes (CO19/20 and 21). Drillhole locations and geological logs for all holes within EL 1942 are included as Appendix A.

A generalised drillhole section is included as Figure 4.

3.2 Sampling Compositing

On the completion of drilling all samples were re-located to CML, Gillman. The samples were laid out in holes, and intervals for compositing were determined. Intervals were composited using the following criteria:

Only samples from individual holes to be composited,

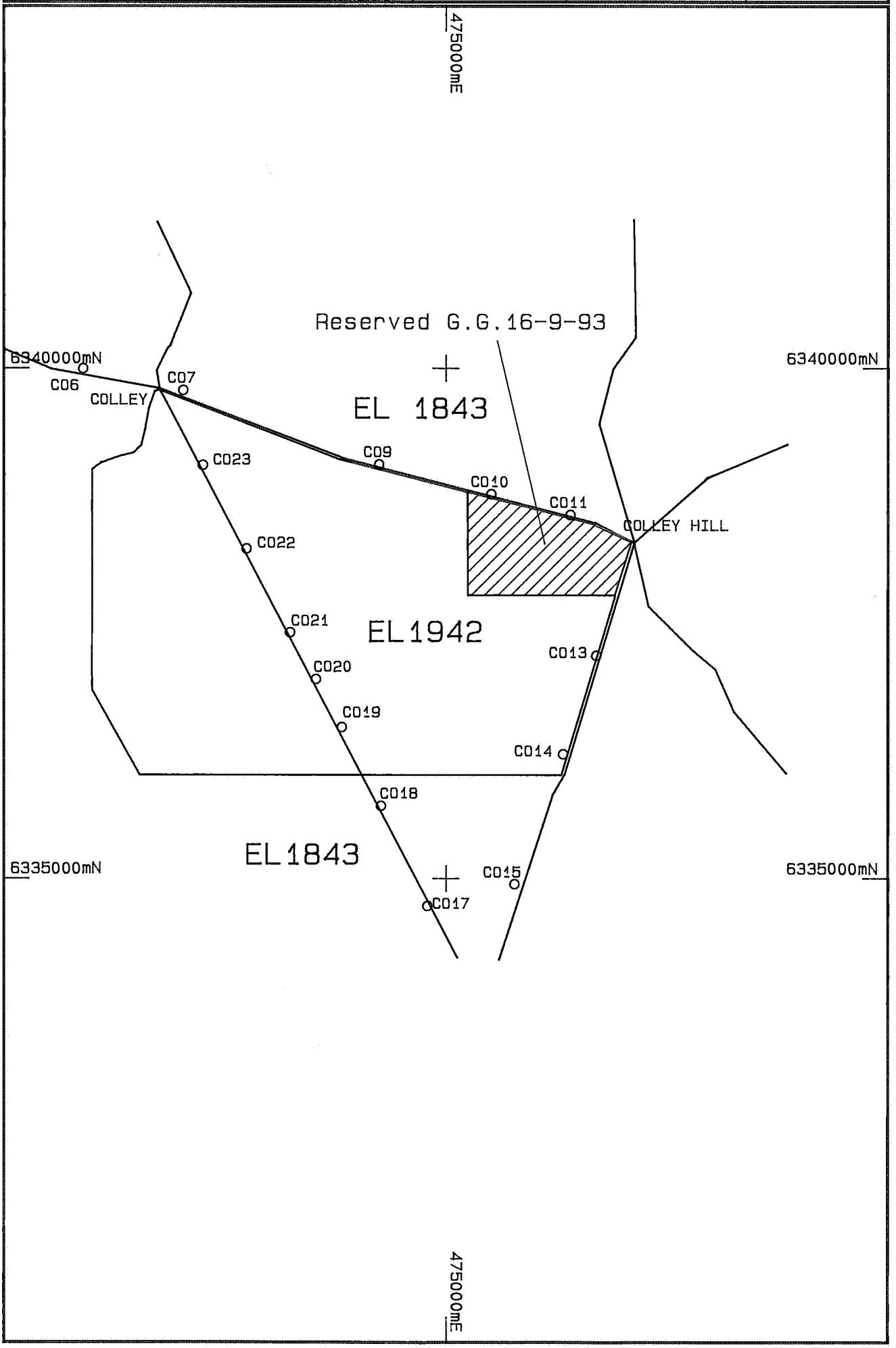
A maximum composite thickness of 5 metres,

All one metre samples in a composite to be consecutive, and

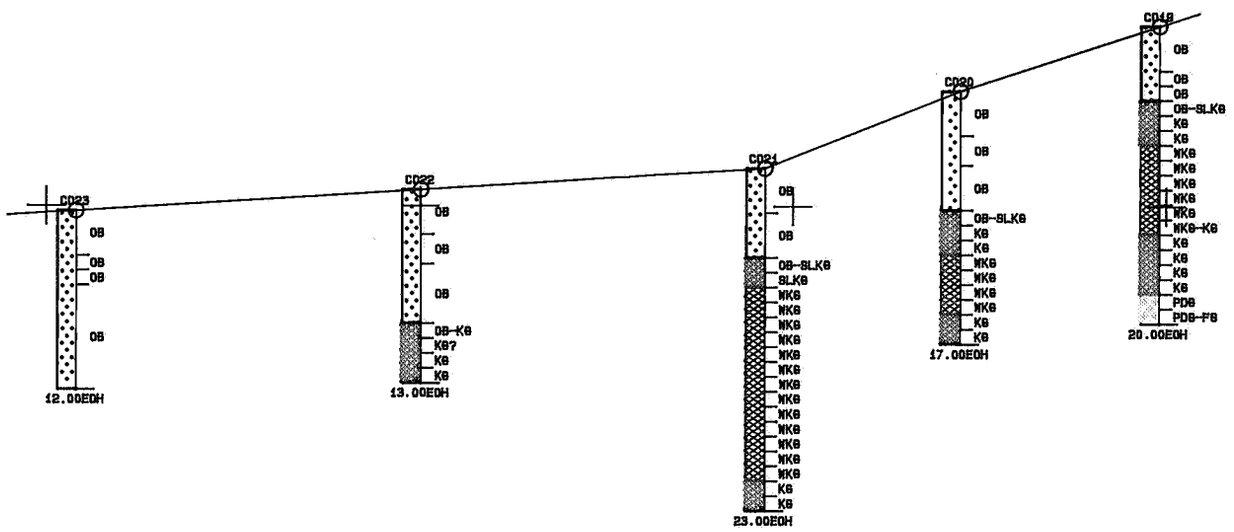
Only white to off-white kaolinised granite to be composited.

From drillholes within EL1942 six composite samples were generated as set out in Table I below.

			Scale 1: 50000	DATE 07\7\95	FIGURE ( )	POOCHERA KAOLIN PROJECT COLLEY AREA 1994 DRILLING	COMMERCIAL MINERALS LTD OLD MAITLAND ROAD SANDGATE N.S.W.
				PGLFILE P0026	PLTFILE P0026		



-3000mE -2000mE -1000mE 0mE 1000mE 2000mE



HATCHING

- WHITE KAOLINISED GRANITE
- KAOLINISED GRANITE
- SILICIFIED KAOLINISED GRANITE
- FRESH GRANITE
- PARTLY DECOMPOSED GRANITE
- OVERBURDEN

= 40: 1

NOTES :

NOTES :

XSCALE 1: 20000	DATE 10\1\95	FIGURE ( )	POOCHERA KAOLIN PROJECT COLLEY AREA NW-SE SECTION (VIEW NE)
YSCALE 1: 500	PGLFILE P0016A	PLTFILE P0016A	COMMERCIA OLD MA SANDG

When compositing, each one metre sample was split using a 25:75 sample riffle. A standard volume (two scoops) was taken from the 25% split. In this way each one metre sample had equal weighting in the composite. The standard volume from each one metre sample was combined and the composite sample was riffle split to produce a 1-2kg sample for testing, the remainder of the sample was retained for future reference.

TABLE I - SAMPLE COMPOSITES

Hole	Interval (m)	Thick (m)	Sample No
CO19	7-10	3	249738
CO19	10-13	3	249739
CO20	11-15	4	249740
CO21	8-13	5	249741
CO21	13-17	4	249742
CO21	17-21	4	249743

4. SAMPLE PREPARATION AND TESTING

The composite samples were subjected to a range of tests to determine suitability for various applications. The samples analysis flowchart is included as Figure 5.

4.1 University of South Australia (UNISA)

The six composite samples from drillholes within EL 1942 were sent to the Metallurgy Department of the Gartrell School of Mining, Metallurgy, and Applied Geology, University of South Australia for sample preparation and initial evaluation.

Test work comprised: as received moisture, conductivity and pH, >45μm yield, and <45μm yield. Results of this work are presented in Appendix B.

4.2 CSIRO

A 100g subsample of the -45μm fraction as prepared by UNISA was sent to the CSIRO Division of Soils Laboratory, Urrbrae, South Australia.

Work comprised; conductivity, <2μm yield, halloysite content in the <2μm fraction, and XRD. Results from this work are presented in Appendix C.

Halloysite content was determined using the FT-IR Partial Least-Squares (FR-IRPLS) technique developed by CSIRO (Janik and Keeling, 1991, Keeling et al, 1993). This method proved to be both quick and accurate. Halloysite content is important as it is believed to affect the rheological properties of kaolin, an important factor in paper coating and ceramic applications.

Scanning Electron Microscope (SEM) examination of Samples # 249738 and # 249740 was also conducted to compare point counting halloysite determinations with FR-IR results, and examine the morphology of the kaolin particles.

Results of SEM examination are summarised below. Plate numbers refer to SEM photomicrographs included in Keeling et al 1995 and reproduced herein.

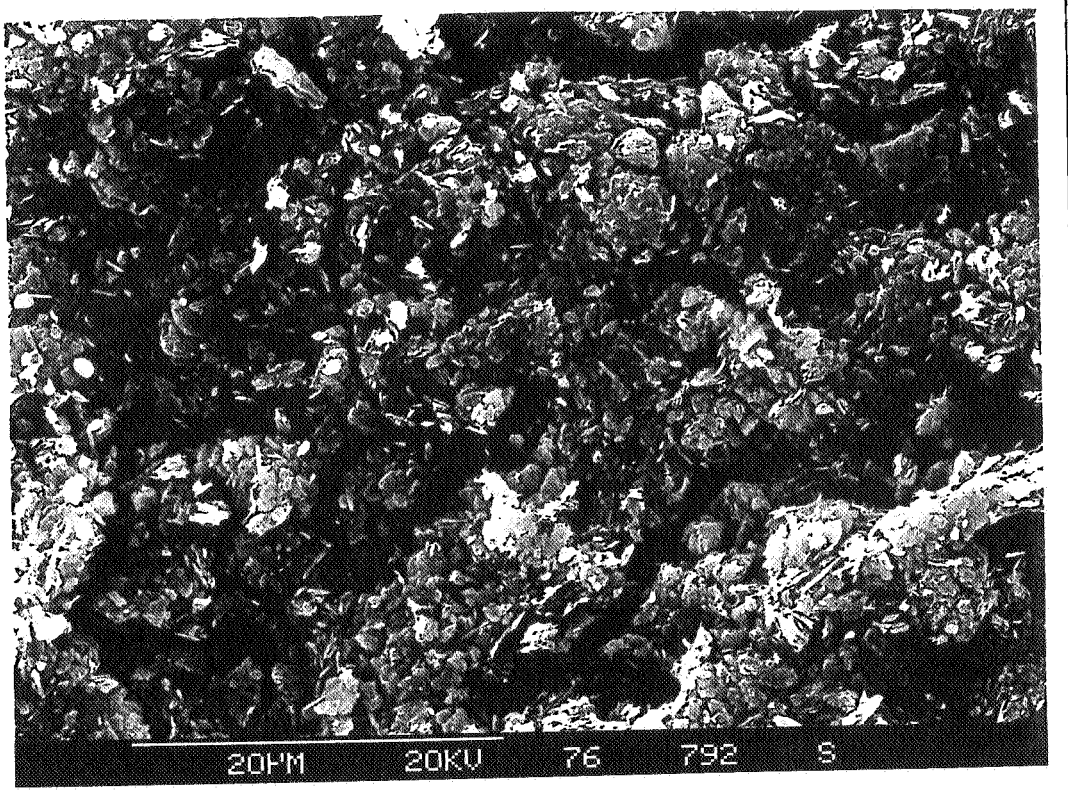


Plate 31. *Sample CO19 7-10 m (<45 μm)* - Mostly fine-grained kaolinite as interleaved, curved flakes with rare halloysite tubes. Photo no. 76/792, scale bar 20 μm.

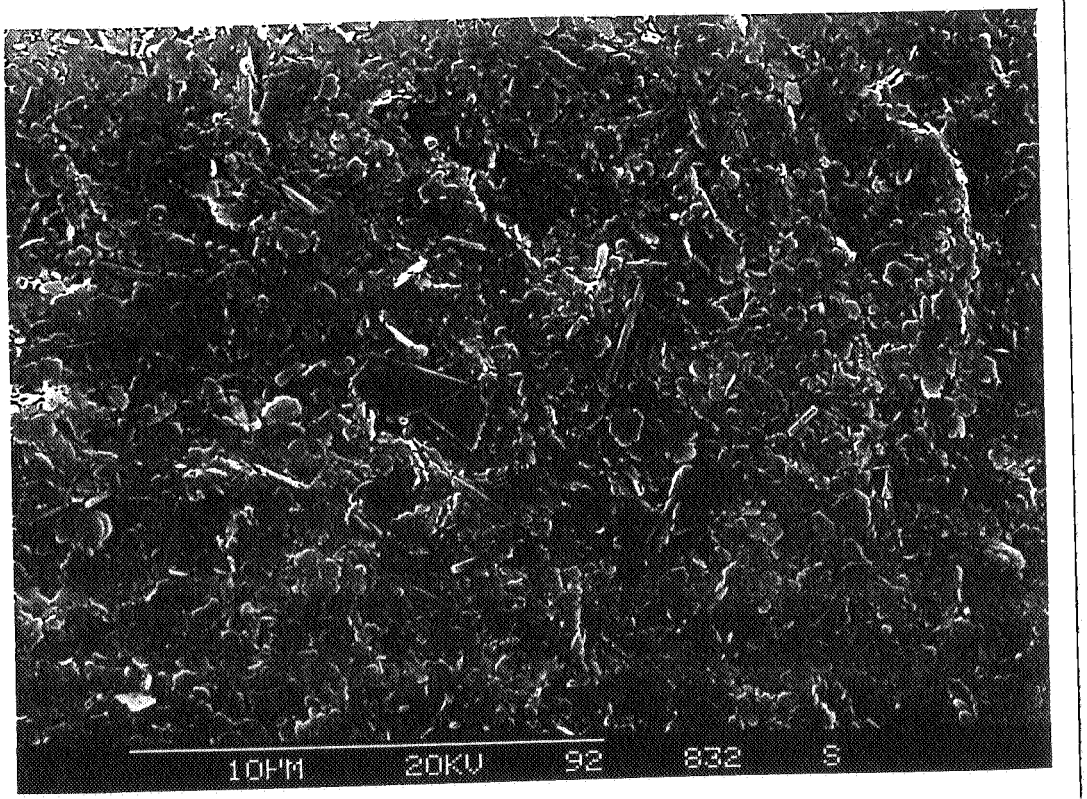


Plate 32. *Sample CO19 7-10 m (<2 μm)* - Thin flakes of fine-grained kaolinite with rare halloysite tubes. Photo no. 92/832, scale bar 10 μm.

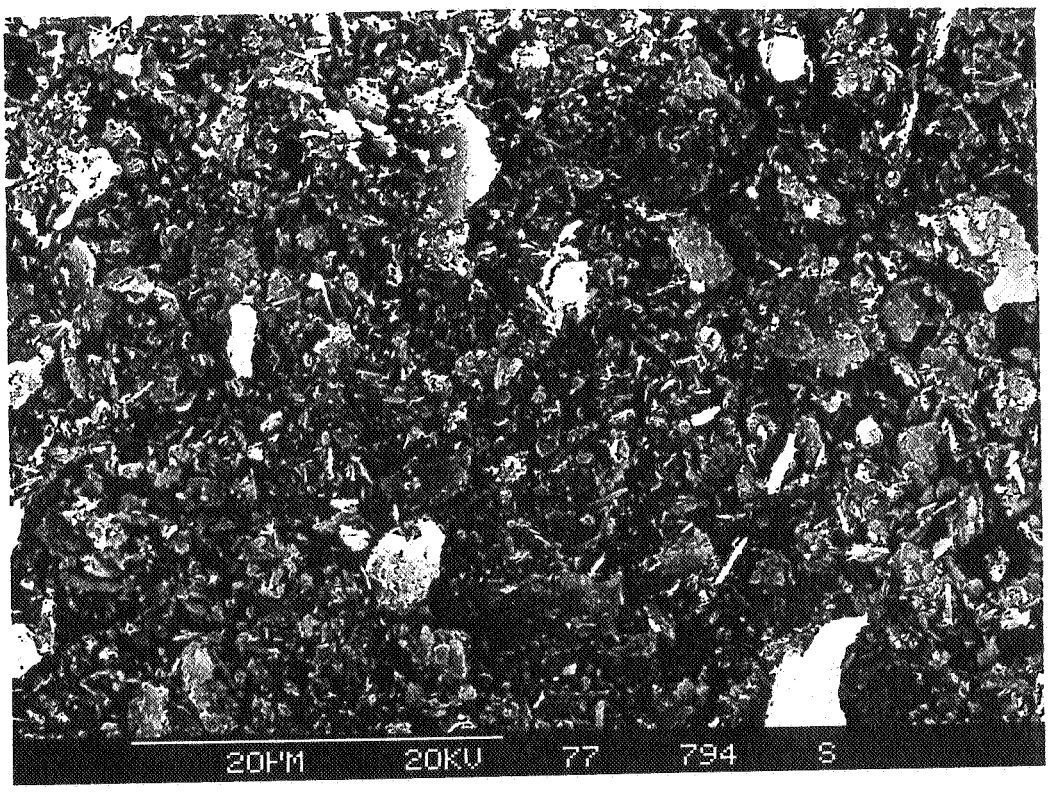


Plate 33. *Sample CO20 11-15 m (<45 μm)* - Wide range of kaolinite particle sizes from large platelets to very fine fragments. Trace of halloysite tubes. Photo no. 77/794, scale bar 20 μm.

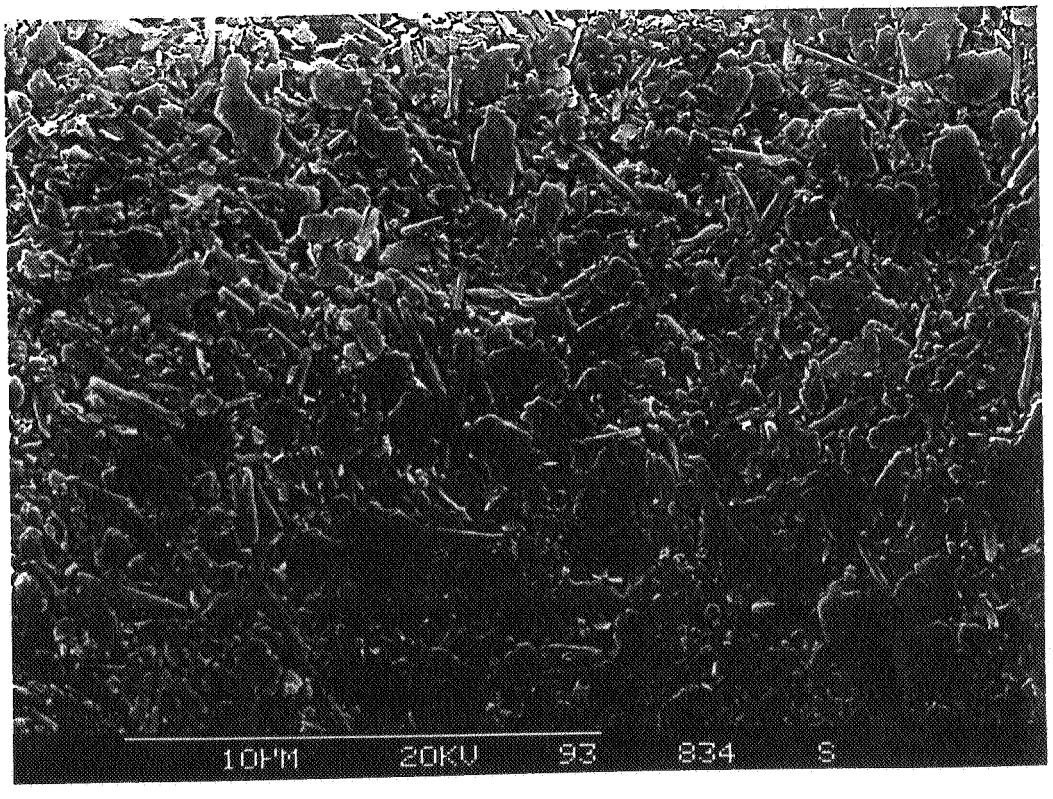


Plate 34. *Sample CO20 11-15 m (<2 μm)* - Broad range of kaolinite particle sizes including thin sheets, very fine-grained rounded fragments (halloysite?), and minor halloysite tubes. Photo no. 93/834, scale bar 10 μm.

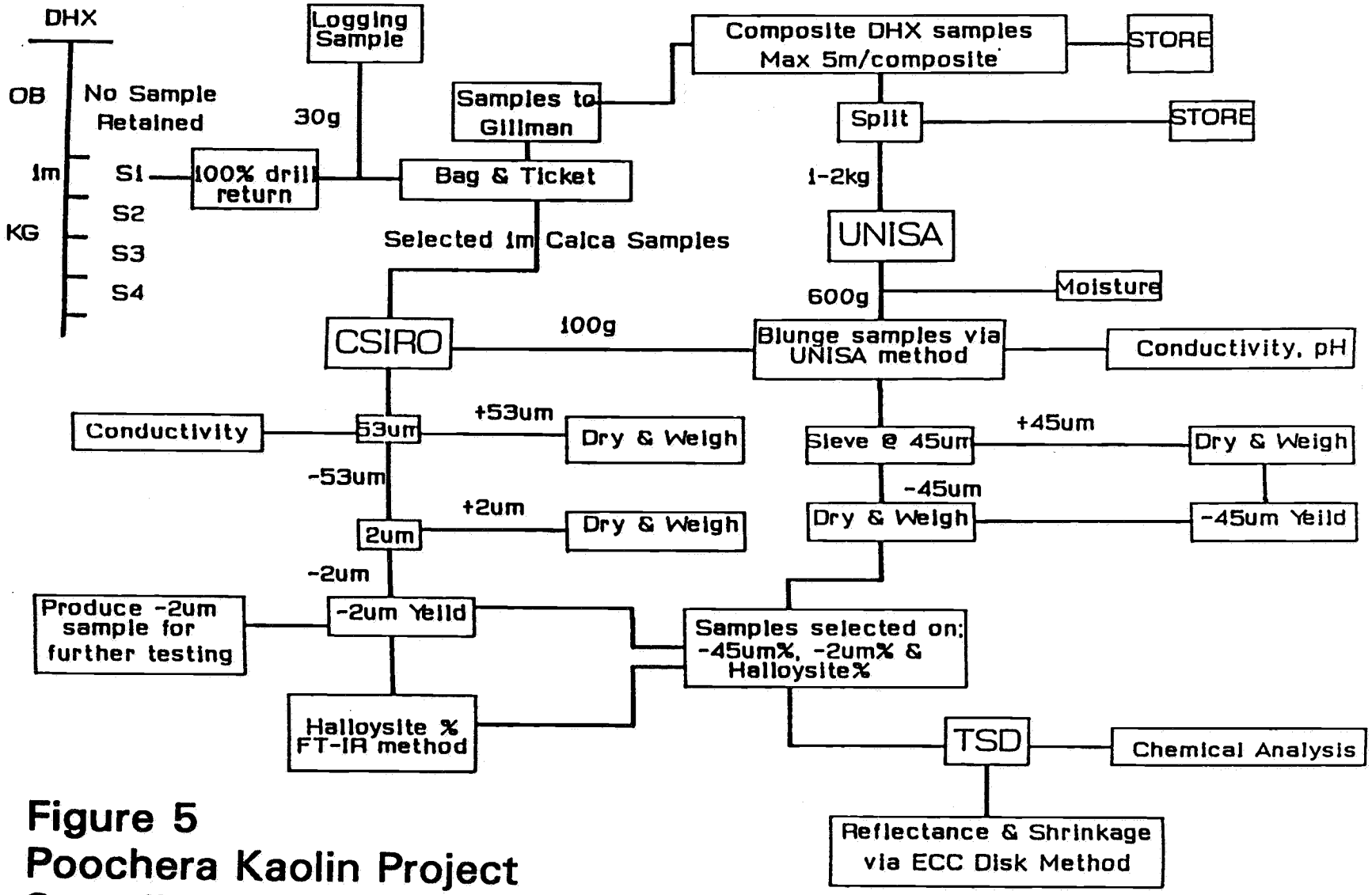


Figure 5
Poochera Kaolin Project
Sampling & Testwork
Flowchart

02000

Sample	Size (µm)	Yield %	Description	Halloysite % (IR)	Plate No
# 249738 CO19/7-10m	<45	52	Mostly fine-grained kaolinite as interleaved, curved flakes with rare halloysite tubes.		31
	<2	39	Thin flakes of fine-grained kaolinite with rare halloysite tubes	5	32
# 249740 CO20/11-15m	<45	43	Kaolinite showing a wide range of particle sizes as fine fragments to large platelets.		33
			Broad range of kaolinite particles sizes including thin sheets, very fine-grained rounded fragments (halloysite?) and minor halloysite tubes.	<5	34

4.3 TSD

Based on the results received from UNISA and CSIRO, three of the composite samples from EL 1942 were sent to CML's Technical Services Division (TSD) laboratory in Melbourne.

Analyses conducted included: major element chemical analysis, brightness determinations of unfired samples, and reflectance and shrinkage tests. Results from this work are presented in Appendix D.

During firing, some disks cracked and/or became concave due to inappropriate firing rests. More suitable firing tests will be used in future programme. This cracking and concaving would have a deleterious effect on measured reflectance.

4.4 Results of Testing

In general samples from drillholes within EL 1942 reported results similar to these obtained from kaolinised granite elsewhere in the Poochera project area, particularly with regard the -45µm yield, salinity, halloysite content and particle morphology.

However, unlike samples from other areas, kaolinised granite from the Colley area generally showed fine, black specks. These black specks were thought to be unkaolinised biotite flakes.

The relatively low alumina contents and elevated SiO_2, Fe_2O, and K_2O values reported from Colley samples also suggest silicate minerals (biotite, feldspar etc) are present, suggesting incomplete kaolinisation of granite in this area.

The presence of biotite has a significant effect on the whiteness (reflectance), both raw and fired. Whiteness reported for all samples from the Colley area, including those from EL 1942, were 5-15 points less than reflectance values reported for samples from other areas.

5. CONCLUSIONS

Testing of samples of kaolinised granite intersected in three holes drilled within EL 1942 showed the kaolin to be impure and have very poor raw and fired whiteness.

Samples of kaolinised granite from nearby drillholes on EL 1843 also exhibit poor whiteness and reflectance and suggest that the Hiltaba Suite granite has been incompletely kaolinised in the Colley - Colley Hill area.

Consequently, further work is not warranted in this area and it is recommended that Exploration Licence 1942 be allowed to expire.

6. REFERENCES

Collins, P. 1994. Technical Report on Exploration Licence No's 1843 and 1846 for twelve months to 11 July 1994. Poochera Kaolin Project. STREAKY BAY and ELLISTON 1:250 000 SHEETS SI 53-2 and SI 53-6.

Ferris, G.M. and Keeling, J.L.,1993. Review of exploration for kaolin near Poochera, northern Eyre Peninsula, South Australia. South Australia. Department of Mines and Energy, Report Book 93/18. (unpublished).

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Keeling, J.L., Janik, L.J., Ferris, G.M., Raven, M.D., McClure, S.G.,and Cameron, G., 1995. Results of Investigation of kaolin samples from exploration drilling on northwestern Eyre Peninsula, South Australia. (Commercial Minerals Limited). CSIRO - Division of Soils Technical Report No 22/1995.

7. EXPENDITURE

Expenditure associated with exploration on EL 1942 have been reported with expenditure for EL 1846. It is estimated that total expenditure on EL 1942 amounts to $6 480 made up as follows:

	$
Drilling	
Direct Costs 85m @ $20/m	1700
Consumables	200
Freight	40
Sample Preparation/Storage	240
Laboratory Costs	
UNISA	120
CSIRO	800
TSD	350
Tenement Costs/Rental	375
Other/Office costs	180
Geological Supervision	
Time Charges - Field	1750
- Office	350
Accommodation and Meals	375
TOTAL	6 480

BIBLIOGRAPHIC DATA-SHEET

REPORT NUMBER:	30 014
REPORT TITLE	Final Report on Exploration Licence No 1942 Poochera Kaolin Project ELLISTON 1:250 000 sheet SI 53-6
PROSPECT NAME(S)	Colley Hill
TENEMENT NUMBER	EL 1942
OWNER/JV PARTNERS:	Commercial Minerals Limited (100%)
COMMODITY(IES)	Kaolin
TECTONIC UNIT(S)	Gawler Craton
STRATIGRAPHIC UNIT	Hiltaba Granite Suite Calca Granite Bridgewater Formation
1:250 000 MAP SHEET(S):	ELLISTON SI 53-6
1:100 000 MAP SHEET(S):	5831
KEYWORDS	Gawler Craton Hiltaba Granite Suite RC Drilling Sample Analysis

APPENDIX A

Drillhole Summary and Geological Logs of Drillholes

DRILL HOLE SUMMARY EL 1942

HOLE LOCATION DATA

Hole #	Total depth (m)	Easting	Northing	RL
CO19	20	473982.273	6336484.310	87.1202
CO20	17	473729.840	6336954.640	82.7562
CO21	23	473478.084	6337414.258	77.5672
CO22	13			
CO23	12	472625.858	6339050.543	74.6582

GEOLOGICAL LOGS

Hole #	Type	From	To	Lithology	Description	Sample No
CO19	OHH	0.0	3.0	OB	Sand, f-m, calcareous, cream to pink	
CO19	OHH	3.0	4.0	OB	Sand, f-c, calcareous, minor gravel, tan.	
CO19	OHH	4.0	5.0	OB	Sand, f-c, cream-tan	
CO19	OHH	5.0	6.0	OB-SLKG	As above, grading to SLKG	
CO19	RCAC	6.0	7.0	KG	Kaolinised granite, off-white	248796
CO19	RCAC	7.0	8.0	KG	Kaolinised granite, off-white to white	248797
CO19	RCAC	8.0	9.0	WKG	Kaolinised granite, white	248798
CO19	RCAC	9.0	10.0	WKG	Kaolinised granite, white	248799
CO19	RCAC	10.0	11.0	WKG	Kaolinised granite, white	248800
CO19	RCAC	11.0	12.0	WKG	Kaolinised granite, white	248801
CO19	RCAC	12.0	13.0	WKG	Kaolinised granite, white	248802
CO19	RCAC	13.0	14.0	WKG-KG	Kaolinised granite, white to yellow	248803
CO19	RCAC	14.0	15.0	KG	Kaolinised granite, cream to tan	248804
CO19	RCAC	15.0	16.0	KG	Kaolinised granite, tan to cream	248805
CO19	RCAC	16.0	17.0	KG	Kaolinised granite, tan to cream	248806
CO19	RCAC	17.0	18.0	KG	Kaolinised granite, tan to cream	248807
CO19	RCAC	18.0	19.0	PDG	Granite, partly decomposed, tan to pink	248808
CO19	RCAC	19.0	20.0	PFG-FG	As above becoming fresh granite, pink	248809

EOH 20M

Hole #	Type	From	To	Lithology	Description	Sample No
CO20	OHH	0.0	3.0	OB	Sand, f-m, calcareous, cream to pink	
CO20	OHH	3.0	5.0	OB	Sand, f-c, calcareous, cream to brown	
CO20	OHH	5.0	8.0	OB	Sand, f-c, off white to tan	
CO20	RCAC	8.0	9.0	OB-SLKG	Sand, f-c, cream grading to SLKG	
CO20	RCAC	9.0	10.0	KG	Kaolinised granite, pink to cream	248810
CO20	RCAC	10.0	11.0	KG	Kaolinised granite, white to cream	248811
CO20	RCAC	11.0	12.0	WKG	Kaolinised granite, white	248812
CO20	RCAC	12.0	13.0	WKG	Kaolinised granite, white	248813
CO20	RCAC	13.0	14.0	WKG	Kaolinised granite, white	248814
CO20	RCAC	14.0	15.0	WKG	Kaolinised granite, white, minor staining	248815
CO20	RCAC	15.0	16.0	KG	Kaolinised granite, mottled white to tan	248816
CO20	RCAC	16.0	17.0	KG	Kaolinised granite, pink to off-white	248817

EOH 17M

Hole #	Type	From	To	Lithology	Description	Sample No
CO21	OHH	0.0	3.0	OB	Sand, f-m, calcareous, cream to brown	
CO21	OHH	3.0	6.0	OB	Sand, f-c, brown-cream	
CO21	RCAC	6.0	7.0	OB-slkg	Sand, f-c, cream grading to SLKG	
CO21	RCAC	7.0	8.0	SLKG	Slightly kaolinised granite, white to cream	
CO21	RCAC	8.0	9.0	WKG	Kaolinised granite, white	248818
CO21	RCAC	9.0	10.0	WKG	Kaolinised granite, white	248819
CO21	RCAC	10.0	11.0	WKG	Kaolinised granite, white	248820
CO21	RCAC	11.0	12.0	WKG	Kaolinised granite, white	248821
CO21	RCAC	12.0	13.0	WKG	Kaolinised granite, white	248822
CO21	RCAC	13.0	14.0	WKG	Kaolinised granite, white	248823
CO21	RCAC	14.0	15.0	WKG	Kaolinised granite, white	248824
CO21	RCAC	15.0	16.0	WKG	Kaolinised granite, white	248825
CO21	RCAC	16.0	17.0	WKG	Kaolinised granite, white	248826
CO21	RCAC	17.0	18.0	WKG	Kaolinised granite, white	248827
CO21	RCAC	18.0	19.0	WKG	Kaolinised granite, white	248828
CO21	RCAC	19.0	20.0	WKG	Kaolinised granite, white	248829
CO21	RCAC	20.0	21.0	WKG	Kaolinised granite, white	248830
CO21	RCAC	21.0	22.0	KG	Kaolinised granite, white to tan poor sample	
CO21	RCAC	22.0	23.0	KG	Kaolinised granite, tan, very wet	

EOH 23M

Hole #	Type	From	To	Lithology	Description	Sample No
CO22	OHH	0.0	3.0	OB	Sand and gravel, f-c calcareous, cream to yellow	
CO22	OHH	3.0	5.0	OB	Sandy clay, f, brown to tan	
CO22	OHH	5.0	9.0	OB	Sand and gravel, cream to brown	
CO22	RCAC	9.0	10.0	OB-KG	Sand f-c, brown grading to KG white to cream	
CO22	RCAC	10.0	11.0	KG?	Kaolinised granite, white to cream (blocked bit)	
CO22	RCAC	11.0	12.0	KG	Kaolinised granite, tan to cream, WET	
CO22	RCAC	12.0	13.0	KG	Kaolinised granite, tan to cream, WET	

EOH 13M - HOLE ABANDONED

Hole #	Type	From	To	Lithology	Description	Sample No
CO23	OHH	0.0	3.0	OB	Sand, f-m calcareous, cream	
CO23	OHH	3.0	4.0	OB	Gravel, calcareous, cream to tan	
CO23	OHH	4.0	5.0	OB	Sandy clay, brown	
CO23	OHH	5.0	12.0	OB	Sand, f-c, cream to tan, unconsolidated	

EOH 12M - HOLE ABANDONED

APPENDIX B

UNISA Test Results

Location	Sample Number	Conductivity		pH	Sample Weight (g)	% Coarse	% Fine	Dry Weight	Approx. % Moisture
		mS	ppm TDS						
CO19/7-10	249738	5.96	3590	4.9	600	47.5	52.5	569	5.2
CO19/10-13	249739	6.08	3700	4.3	600	57.0	43.0	555	7.5
CO20/11-15	249740	5.73	3470	4.4	600	56.5	43.5	551.5	8.1
CO21/8-13	249741	4.70	2770	5.2	600	51.3	48.7	511.5	14.8
CO21/13-17	249742	2.27	1275	4.6	600	49.4	50.6	510	15.0
CO21/17-21	249743	4.53	2660	5.2	600	45.1	54.9	536	10.7

APPENDIX C

CSIRO Test Results

Hole No/ Depth (m)	CML Sample No	Size distribution		Electrical Conductivity	Total soluble salts (approx)	IR spectra	IR spectra	Halloysite % (<2 μm fraction)
		>53 μm (%)	<2 μm (%)	dS/m	ppm	A	B	
CO19/7-10	249738	47.5	38.7	0.19	646	$_S$5493	$_S$5549	5
CO19/10-13	249739	57.0	30.1	0.20	680	$_S$5494	$_S$5550	<5
CO20/11-15	249740	56.5	20.7	0.19	646	$_S$5495	$_S$5551	9
CO21/8-13	249741	51.3	31.8	0.21	714	$_S$5496	$_S$5552	23
CO21/13-17	249742	49.4	43.1	0.18	612	$_S$5498	$_S$5553	28
CO21/17-21	249743	45.1	39.5	0.14	476	$_S$5499	$_S$5554	13

APPENDIX D

TSD Test Results

SAMPLE	Al_2O_3	Fe_2O_3	SiO_2	MgO	TiO_2	CaO	Na_2O	K_2O	LOI
NZ CHINA CLAY	36.7	0.24	48.8	<0.01	0.06	<0.01	0.03	<0.01	14.3
249738	33.6	1.0	50.9	0.21	0.49	0.07	0.11	0.21	13.0
249739	32.9	0.71	52.1	0.18	0.48	0.04	0.10	1.5	11.7
249740	28.6	0.91	58.9	0.07	0.43	0.04	0.11	0.17	11.0

SAMPLE	POWDER REFLECTANCE	REFLECTANCE AND SHRINKAGE USING ECC DISC METHOD						
		REF 105°C	REF 1080°C	%SHRINKAGE 1080°C	REF 1180°C	SHRINKAGE 1180°C	REF 1280°C	SHRINKAGE 1280°C
NZ CHINA	84	97	106	6.2	108	6.8	108	13.0
249738	65	73	86	4.5	86	8.5	83Φ	15.4
249739	76	84	97	4.1	92	12.1	85§	18.5
249740	70	78	86	3.7	94	6.4	90	13.0

Results for reflectance indicated with

(i) Φ indicates the disc started to concave

(ii) § indicates the disc exhibited cracking on the reflectance face