Andromeda Metals Limited
ABN: 75 061 503 375

Corporate details:

ASX Code: ADN

Cash: $1.006 million
(as at 31 December 2018)

Issued Capital:
1,084,422,288 ordinary shares
486,280,451 ADNOB options
22,476,507 unlisted options

Directors:

Rhod Grivas
Non-Executive Chairman

James Marsh
Managing Director

Nick Harding
Executive Director and Company Secretary

Andrew Shearer
Non-Executive Director

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Andromeda METALS

ASX Announcement

12 February 2019

Poochera Project Halloysite Kaolin Mineral Resource

Summary

- **A JORC 2012 Mineral Resource estimate has been completed calculating the halloysite content within the Careys' Well kaolin deposit at Poochera in South Australia.**
- **9.7 million tonnes of halloysite kaolin, located in two zones, is contained within the "bright white" kaolinised granite deposit.**
- **The 9.7 million tonnes of halloysite kaolinised granite will yield 5.3 million tonnes of minus 45 micron halloysite kaolin product containing 18.4% halloysite, which is significantly above the typical 10% threshold required for the ceramics industry.**
- **92% of the halloysite kaolin Mineral Resource is categorised as Measured and Indicated providing significant ore for consideration in Scoping Study investigations.**
- **The halloysite kaolin Mineral Resource was defined from existing drilling results with the mineralised zone remaining open to the north east and south.**
- **Future drilling will be designed to target extensions to the currently defined mineralisation.**
- **The updated Mineral Resource will now be used in mine design configurations currently under consideration.**
- **A 140 tonne shipment of raw ore from Carey's Well is now in China ahead of commercial scale testing post Chinese New Year. Final processed product results will be provided to potential end-use ceramic customers for commercial evaluation and incorporated into the Scoping Study.**

Discussion

Andromeda Metals Limited (ASX Code: ADN) is pleased to report an updated Mineral Resource estimate reported in accordance with the 2012 JORC Code and Guidelines for the Carey's Well kaolin deposit located on EL 5814 near Poochera on the west coast of South Australia's Eyre Peninsula.

The Carey's Well kaolin resource is one of a number of kaolin (+halloysite) prospects which are included under a Joint Venture agreement in place with Minotaur Exploration Limited (ASX: MEP). This resource estimate calculates the

halloysite content of the "bright white" kaolinised granite estimate both completed by independent geological consultancy group H&S Consultants Pty Ltd ("H&SC) in August 2018 (ASX release 22 August 2018).

A summary of the new Mineral Resource is given below in Table 1, and a full report prepared by H&SC is included as an Appendix to this release.

Table 1 – Halloysite Kaolin Mineral Resource

Halloysite Zone	Category	Volume	Mt	Reflectance
SE Area	Measured	779,492	1.1	83.7
	Indicated	875,781	1.3	83.5
	Inferred	315,039	0.5	84.7
Sub Total		1,970,313	2.8	83.8
North	Measured	2,830,078	4.1	82.5
	Indicated	1,762,891	2.5	82.4
	Inferred	213,672	0.3	84.0
Sub Total		4,806,641	6.9	82.5
Total		**6,776,953**	**9.7**	**82.9**

The estimate of 9.7Mt of halloysite kaolinised granite, with minimum raw kaolin ISO brightness (R457) of 75, includes 5.2Mt in Measured, 3.8Mt in Indicated, and 0.8Mt in Inferred for the resource categories. This material will yield 5.3Mt of halloysite 'bright white" kaolin product when applying the -45 micron recovery factor with an average halloysite grade of 18.4% in the kaolin fraction, with the remaining approximate 50% being largely residual quartz from the weathering process.

In October 2018 a bulk sample program included designing and implementing an appropriate method to determine bulk rock density on the unconsolidated, porous kaolin-halloysite material. The average in-situ bulk rock density measured for the material sampled was 1.83 tonnes/m^3, whilst the average dry bulk rock density was 1.44 tonnes/m^3. The average moisture content of the bulk sample material was measured to be 21.6 wt.%. The average dry bulk rock density of 1.44 tonnes/m^3 used in this Mineral Resource estimate is materially different from the density estimate of 1.7 tonnes/m^3 (based on 8 samples) used in the previous Mineral Resource estimates.

The updated Mineral Resource will now be used for consideration in mine design evaluations as part of the Scoping Study that is currently underway.

James Marsh
Managing Director

Appendix - Resource estimation report prepared by independent geological consultancy group H&S Consultants Pty Ltd

Updated Resource Estimates for the Poochera Kaolin Deposit, SA

H&S Consultants Pty Ltd ("H&SC") was commissioned by Andromeda Metals Limited ("ADN") to complete updated Mineral Resource estimates for the Poochera (formerly Carey's Well) Kaolin Deposit in South Australia, 130kms south east of Ceduna. Development of the project is a joint venture between ADN and Minotaur Exploration ("MEP"). The target commodity is kaolin with the capacity to be processed to give high purity alumina ("HPA") with a second stream of raw feed material as direct shipping ore. The new estimates now relate to additional work completed by ADN on the halloysite content of the kaolin. The estimates have been reported in accordance with the 2012 JORC Code and Guidelines. H&SC previously completed a resource estimate for the kaolin deposit in September 2018

Analysis for halloysite content has been completed by CSIRO on a substantial number of samples from both the 2008 and 2011 drilling by MEP. This new data has been used to define two halloysite zones at a nominal 10% halloysite grade within the kaolin deposit. These zones now form the areal basis for the updated estimates.

The deposit comprises flat-lying kaolin, between 8 and 24m below surface, generated from extensive weathering of a granite. The current estimates cover an area of roughly 1.3km by 1km with a kaolin thickness ranging from 3m to 28m with the deposit open to the north east and south/south east. Overburden consists of a thin soil layer overlying calcrete which in turn overlies a mixed sequence of alluvial clays, sands and gravels. The top of the kaolin is silicified and the base of silicification marks the top of the kaolin resource whilst the change in weathering intensity marks the base of the kaolin resource.

MEP has supplied the drillhole database for the deposit, which H&SC has accepted in good faith as an accurate, reliable and complete representation of the available data. The responsibility for quality control for the 2008 and 2011 drilling resides solely with MEP. The 2013 drilling has been used for geological interpretation only and for check modelling. H&SC performed very limited validation of the data and noted no sample recovery data was available along with limited QAQC data and possible issues with the density data. However, the drillhole database for Poochera is satisfactory for resource estimation purposes.

A brief review of the limited QAQC procedures and outcomes indicates no obvious issues with the sampling or analysis data.

The new resource estimates for Poochera are based almost entirely on the MEP 2011 drilling (153 holes for 3,794.6m) on approximately 100m centres. Additionally, 6 MEP Calweld large diameter drillholes completed in 2008 have been included along with geological input from 27 holes drilled in 2013 by Adelaide Brighton ("ABC") for 882m. All drillholes are vertical intersecting the flat-lying mineralisation at right angles and nearly all holes intersected upper (hangingwall) and lower (footwall) contacts to the mineralisation.

H&SC completed a new geological interpretation on a combination of 50m and 100m spaced E-W sections for the deposit area under investigation. This work used the drillhole logging of kaolin, assayed samples and geological sense resulting in the creation of 3D surfaces for the base of soil, the

base of calcrete, the top and base of kaolin with the surfaces snapped to drillholes. It is apparent that mineralisation forms both sharp and gradational contacts with the decomposed granite and the overlying alluvial sediments.

On receipt of the halloysite results in December 2018 it was evident that the areas of significant halloysite-containing kaolin comprised two zones and as a result two new 3D surfaces were interpreted to represent these two zones.

A total of 214 five metre composites were extracted from the drillhole database constrained by the kaolin wireframes. Grade interpolation was completed for the minus45 micron recovered material, along with Al_2O_3, Fe_2O_3, SiO_2, TiO_2, R457 (reflectance - ISO-brightness) and PDS2 micron particle size data, all obtained on the minus45 micron material. For the halloysite data there were 203 5m composites. Statistical analysis of the composite data indicated nominally normal distributions, reasonably well-structured data and low coefficients of variation, all of which resulted in no top cuts being applied. Variography showed weak to reasonable continuity for all elements.

Ordinary Kriging was applied for the grade interpolation using the H&SC in-house GS3 modelling software. A single search domain was used for the element grade interpolation reflecting the reasonable overall consistency in strike and dip of the mineralisation. Block size was 50m by 50m by 5m (X, Y & Z) with 12.5m by 12.5m by 1.25m sub-blocking. A 3 pass search strategy was employed with an initial Measured Resource search (Pass 1) of 150m by 150m by 7.5m with a minimum number of 12 data and 4 octants. This was expanded in two stages to an Indicated Resource (Pass 2) and Inferred Resource (Pass 3) with a maximum search of 250m by 250m by 12.5m with a minimum of 8 data and 4 octants for Indicated and a minimum 4 data and 2 octants for Inferred. Modelling was unconstrained on the lateral peripheries of the deposit with the maximum extrapolation being approximately 200m. The only hard boundaries were the kaolin mineral bounding wireframes and the halloysite mineral zone.

In October 2018 a bulk sample programme included designing and implementing an appropriate method to determine bulk rock density on the unconsolidated, porous kaolin-halloysite material. The method involved vacuum sealing fresh samples and completing weight in air weight/water measurements along with oven-drying the sample. A total of 220 samples were collected on which density determinations were completed. The same sample suite was used to determine moisture content. The average in-situ bulk rock density measured for the material sampled was 1.83 tonnes/m^3, whilst the average dry bulk rock density was 1.44 tonnes/m^3. The average moisture content of the bulk sample material was measured to be 21.6 wt%. The average dry bulk rock density of 1.44 tonnes/m^3 is materially different from the density estimate of 1.7 tonnes/m^3 (based on 8 samples) used in the previous Mineral Resource estimates.

Block model validation consisted of a visual comparison of block grades with drillhole assays and composite values, a review of the summary statistics for the block grades and composite values, including analyses of cumulative frequency curves for each element. No significant issues were noted. A check model for a sub-area of the deposit, based on the ABC 2013 drilling using calculated kaolin grades compared to minus45 micron material, resulted in a <6% difference in estimated amount of contained kaolin with the H&SC model. Comparison of the H&SC model with the MEP 2012 resource estimate shows no major difference in the estimated amount of contained kaolin despite the increase in sophistication of the H&SC modelling method.

Reporting of the updated Mineral Resource estimates for the Poochera deposit uses block centroids with interpolated grade within the two kaolin wireframes and above the halloysite wireframe for an

ISO-brightness (R457 nm) cut off of 75 (on a 0-100 scale as per the MEP 2012 estimate). A density value of 1.44t/m3 is used.

ADN has informed H&SC that they intend to selectively mine the deposit in an open pit scenario. The resource estimates have been modelled and classified on this assumption. The resource estimates are classified as Measured, Indicated and Inferred. The classification of the resources is based primarily on the drillhole/sample spacing, the geological model, QA/QC outcomes, density data and drillhole recoveries. The new kaolinised granite resource estimates for the Poochera deposit are included below.

Halloysite Zone	Category	Volume	Mt	Reflectance
SE Area	Measured	779,492	1.1	83.7
	Indicated	875,781	1.3	83.5
	Inferred	315,039	0.5	84.7
Sub Total		1,970,313	2.8	83.8
North	Measured	2,830,078	4.1	82.5
	Indicated	1,762,891	2.5	82.4
	Inferred	213,672	0.3	84.0
Sub Total		4,806,641	6.9	82.5
Total		**6,776,953**	**9.7**	**82.9**

(minor rounding errors)

The result of applying the minus45 micron recovery factor to give the kaolin estimates is displayed in the table below. The grade results are from the assays of the -45micron fraction.

Halloysite Zone	Category	Volume	Mt	R457	PSD-2µm %	Halloysite %	Al_2O_3 %	Fe_2O_3 %	SiO_2 %	TiO_2 %
SE Area	Measured	430,380	0.6	83.8	69.2	18.9	37.4	0.62	47.2	0.39
	Indicated	486,238	0.7	83.7	68.7	18.2	37.5	0.66	47.1	0.47
	Inferred	185,414	0.3	84.8	66.3	18.4	37.8	0.67	47.0	0.5
Sub Total		1,102,032	1.6	83.9	68.5	18.5	37.5	0.64	47.1	0.44
North	Measured	1,519,072	2.2	82.5	67.8	18.6	37.2	0.57	47.3	0.43
	Indicated	927,171	1.3	82.5	68.7	18.1	36.8	0.57	47.8	0.4
	Inferred	123,235	0.2	84.1	68.8	16.0	37.8	0.44	46.2	0.59
Sub Total		2,569,478	3.7	82.6	68.1	18.3	37.0	0.56	47.4	0.42
Total		**3,671,510**	**5.3**	**83.0**	**68.2**	**18.4**	**37.2**	**0.59**	**47.3**	**0.43**

(minor rounding errors)

The above Mineral Resources are smaller than the previous 2018 estimates, this is due to the halloysite analysis constraint and the lower density value being applied. The impact of using a zero R457 cut off is minimal.

BHM Consultants were commissioned to undertake the necessary concept metallurgical investigation and future process design aspects for upgrading typical hydrous processed kaolin from [Poochera] to a saleable HPA product via industry standard hydrometallurgical processing routes. The BHM testwork indicates that an HPA product with 99.99% purity is readily producible from [Poochera] kaolin/halloysite feedstock using an industry standard HCL two-stage dissolution-precipitation process, with the initial testwork achieving 99.9855% alumina (*source document: ASX release by Andromeda 30th May 2018*).

Exploration Potential for the kaolin mineralisation comprises two elements:

1. Peripheral areas to the current halloysite-analysis defined area where there is low grade halloysite material (<10% in 45micron fraction) or there has been no CSIRO analysis of the kaolin. The potential increase via increased area is thought to be incremental.

2. Peripheral blocks to the north east and south east of the 2018 defined resource estimates within the interpreted mineral wireframes and approximates to 6 to 10Mt containing an estimated 3 to 5Mt of kaolin (with or without halloysite).

The potential quantity and grade of the Exploration Potential is conceptual in nature and there has been insufficient exploration to define a Mineral Resource over that area. It is uncertain if further exploration will result in an expansion to the Mineral Resource.

Future work should attempt to confirm drilling recoveries, including the identification of wet samples. It would be advisable to complete some closer spaced drilling e.g. on 50m centres, to confirm geological and grade continuity. It would also be advisable to undertake some pitting to ascertain the 3D nature of the kaolin and elucidate any structural information e.g. jointing, fractures, quartz content that may be relevant to any possible product variation. If additional resources are required then further drilling to the north and the south of current Mineral Resource estimates is recommended.

A series of figures and tables appear in Appendix 1.

A brief QAQC report is included in Appendix 2.

Simon Tear
Director and Consulting Geologist
H&S Consultants Pty Ltd

The data in this report that relates to the Minotaur Exploration Results for the Poochera Kaolin Project is based on information evaluated by Dr Antonio Belperio who is a Fellow of the Australasian Institute of Mining and Metallurgy (FAusIMM), an executive director of Minotaur and part-time consultant to Andromeda. Dr Belperio has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code"). Dr Belperio consents to inclusion in this document of the information in the form and context in which it appears.

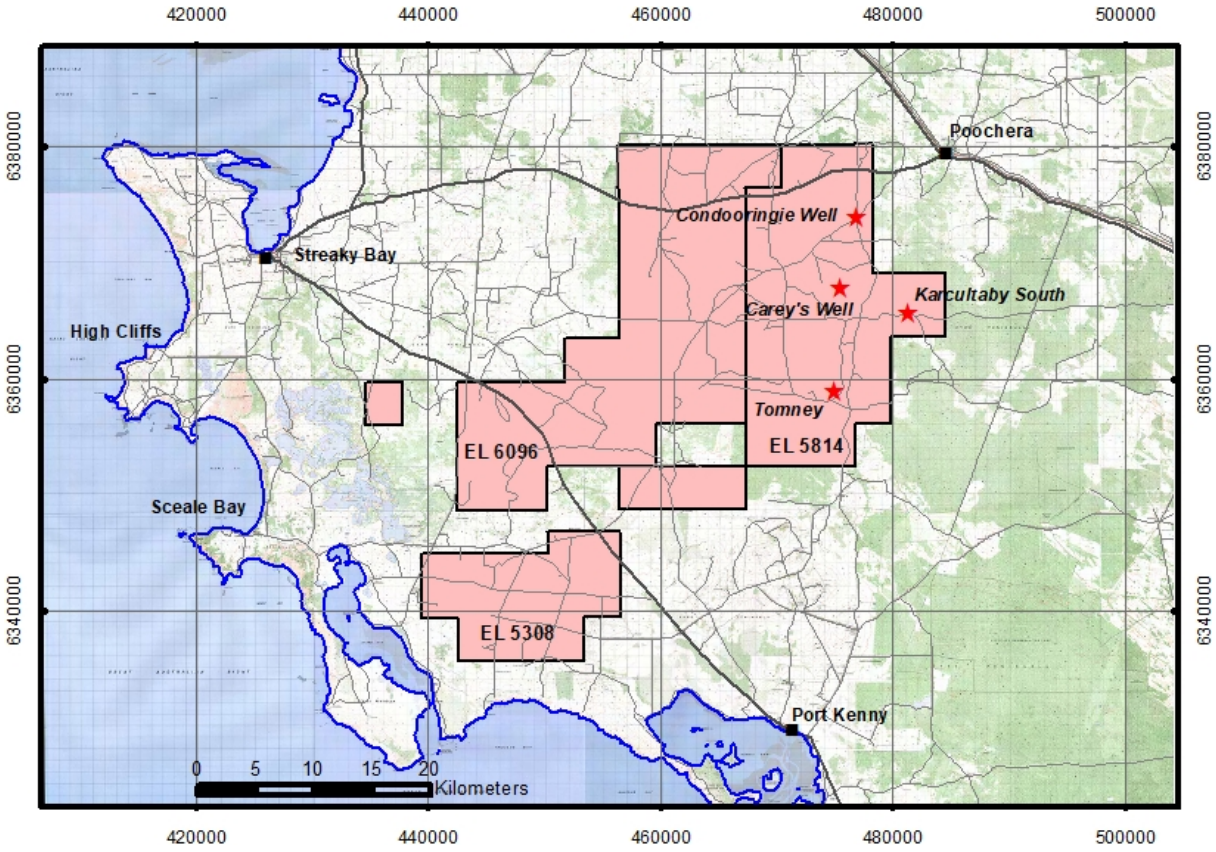
The data in this report that relates to Mineral Resource Estimates for the Poochera Kaolin Project is based on information evaluated by Mr Simon Tear who is a Member of The Australasian Institute of Mining and Metallurgy (MAusIMM) and who has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code"). Mr Tear is a Director of H&S Consultants Pty Ltd and he consents to the inclusion in the report of the Mineral Resource in the form and context in which they appear.

Some of the data in this report that relates to Product Specification for the Poochera Kaolin Project which is based on information evaluated by Mr Graham Lee who is a Fellow of The Australasian Institute of Mining and Metallurgy (FAusIMM) and who has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code"). Mr Lee is an Associate of H&S Consultants Pty Ltd and he consents to the inclusion in the report of the Mineral Resource in the form and context in which they appear.

Appendix 1

The map below shows the location of the Carey's Well Kaolin Project, now called Poochera, in South Australia.

Poochera Kaolin Project Location Map



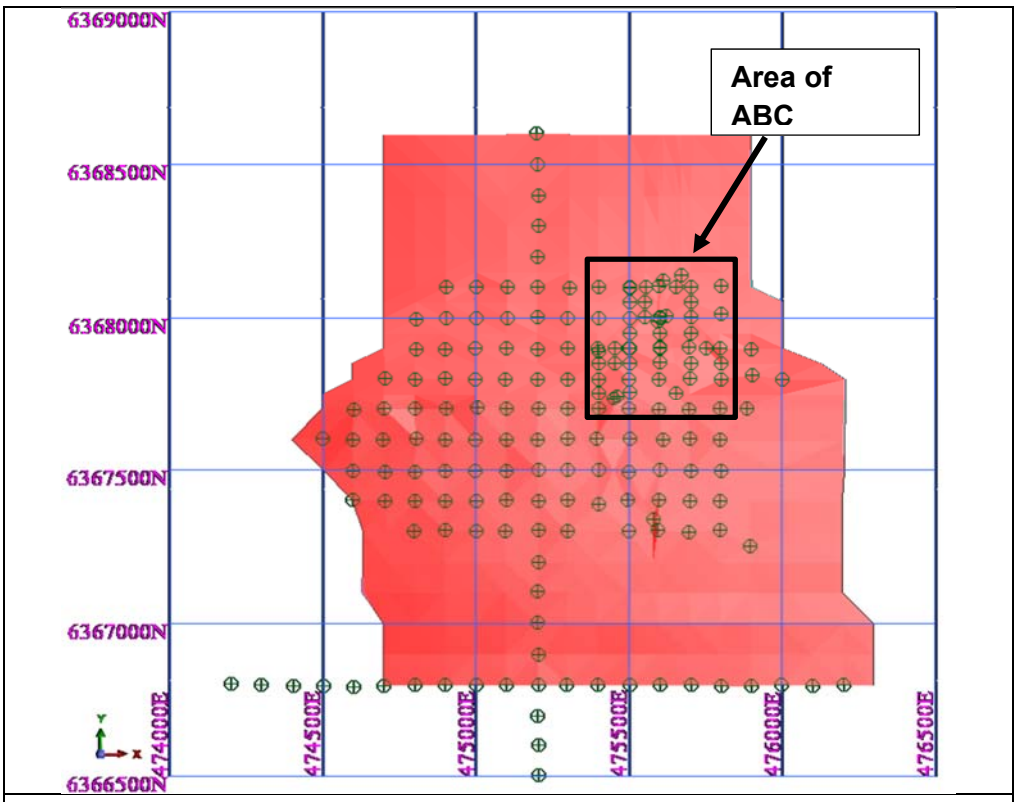
(source: MEP)

A plan view of the geological interpretation for the kaolin body is included below. Definition of the kaolin material is based on the "KG" logged geology code in combination with composite samples with assays. The limitation of the 1m sample interval from the aircore drilling and the gradational boundaries associated with the granite weathering meant that no other geological domains within the kaolin were used as either hard or soft boundaries.

A second image below shows the isopach map for the logged kaolin from all drilling. It shows a thicker central zone with an approximate elongate strike direction of ENE. A second zone of increased thickness occurs in the SE corner of the drilling grid.

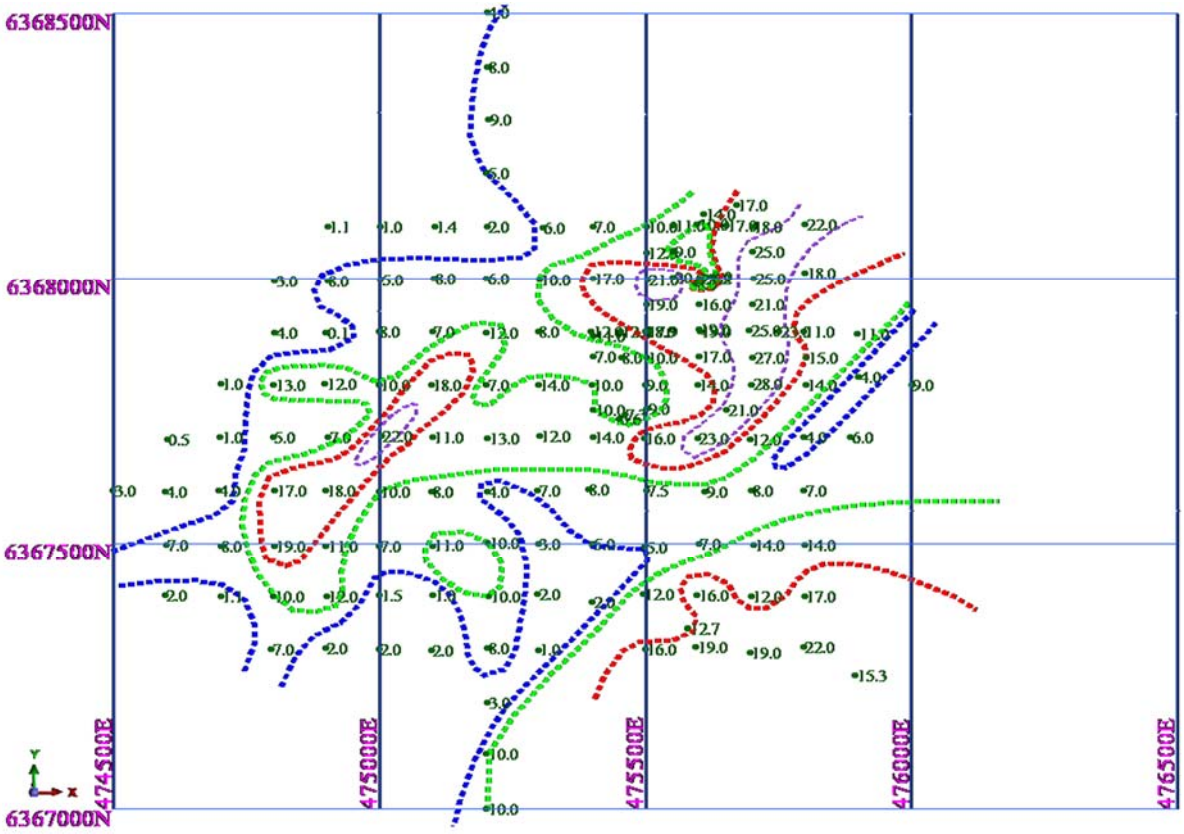
The map also shows areas of where the deposit could be considered open ie to the NE and SE.

Geological Interpretation of Kaolin Plan View



(red surface = top of kaolinised granite; green circles = 2008 & 2011 drillhole collars)

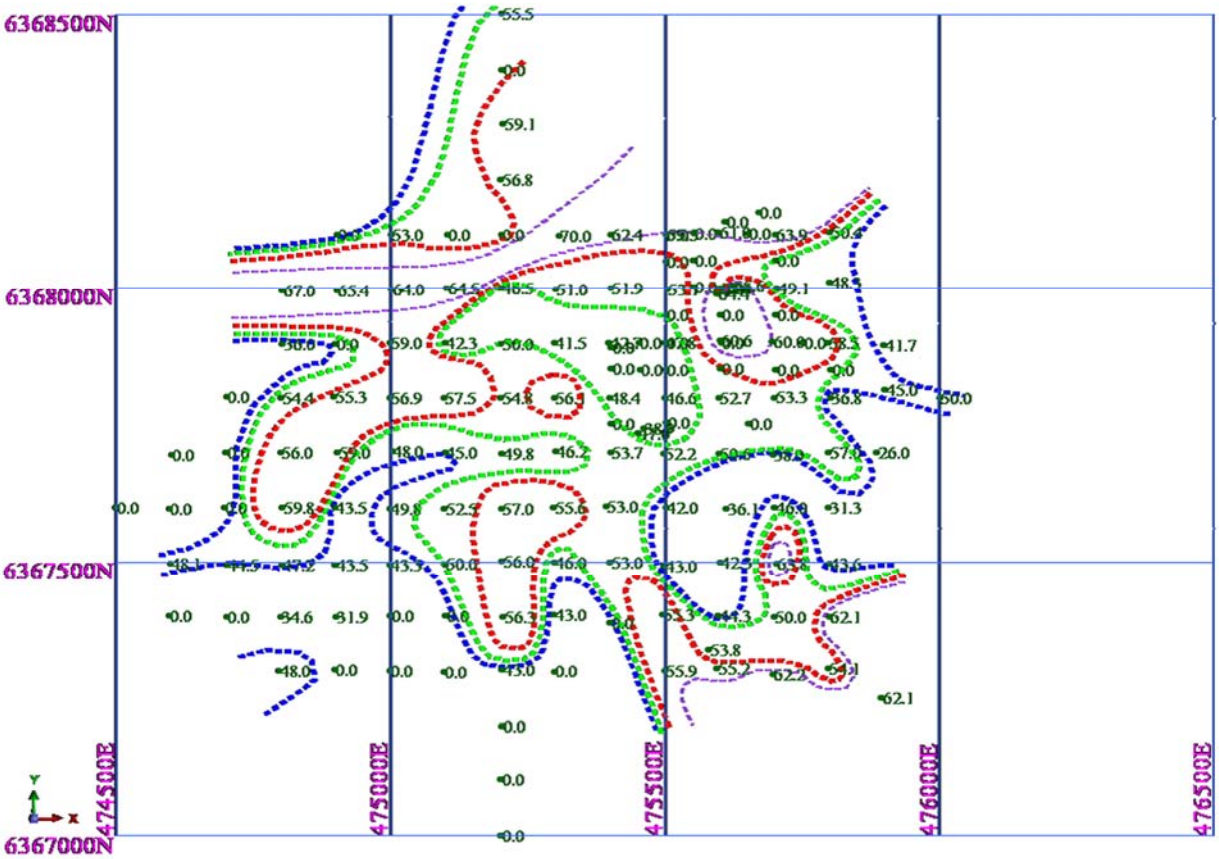
Logged Kaolin Isopach Map



(contours purple = >20m thick; red = 15 to 20m; green = 10 to 15m; blue = 5 to 10m)

The image below shows the contours for the averaged minus45 micron recovered material for each MEP drillhole, notionally representing the concentration of kaolin (from CSIRO testwork). Generally, kaolin concentration is relatively variable except for a narrow ENE-striking band of increased kaolin material in the north of the drilling grid. This does not correspond with any increased kaolin thickness but perhaps forms at the northern margin of the thicker zone identified in the figure above. All this suggests the impact of more than one weathering process on the kaolin material.

minus45µm Micron Average Hole Recovery Contour Map

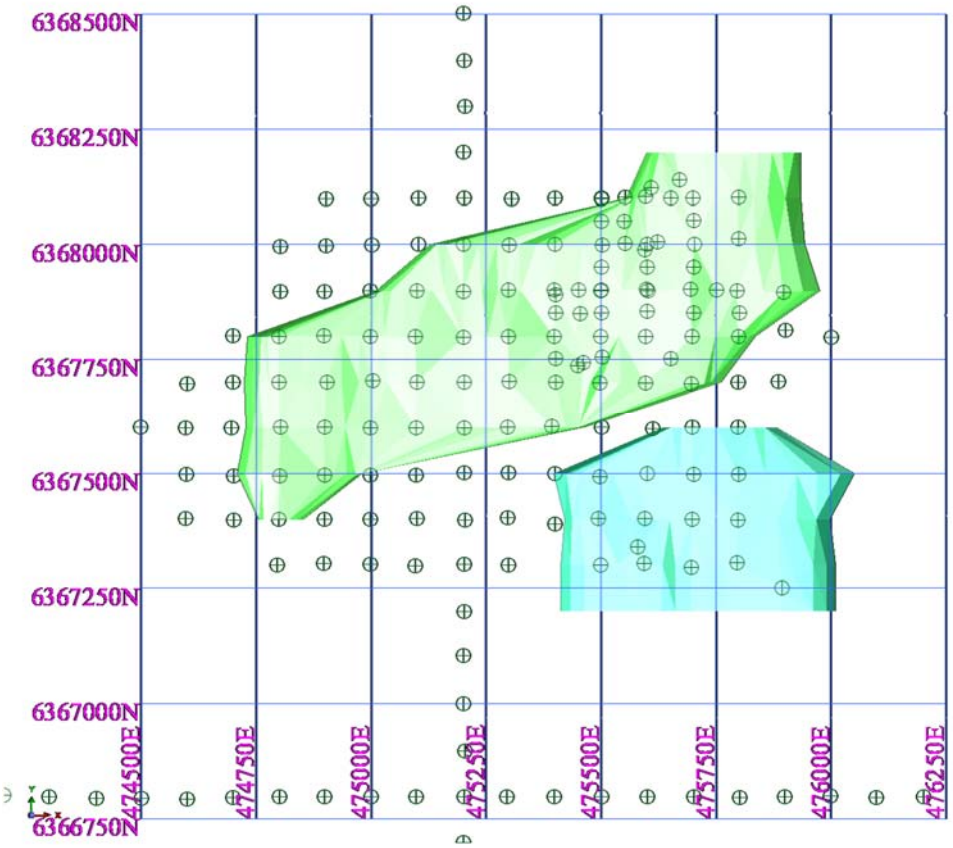


(contours purple = >60% thick; red = 55 to 60%; green = 50 to 55%; blue = 45 to 50%)

The figure below shows significant halloysite zones interpreted from the CSIRO analyses at a nominal cut off of 10% halloysite (cut off decided from discussions with ADN).

H&SC still suspects that the structure of the parent granite may have some influence on the halloysite distribution as there may be either accelerated weathering along joints/faults etc, or some structure has allowed for hydrothermal solutions in the past to circulate and cause alteration.

Interpretation of Significant Halloysite Zones from CSIRO Data



5m composites for resource modelling were generated from the drillhole database using the upper and lower kaolin surfaces. Summary statistics for the 5m composited data are included below. Elements that were modelled include the percentage of minus45 micron recovered material, along with assays derived from that minus45 micron fraction i.e. the R457 reflectance measure, the minus2 micron particle size distribution percentage, the CSIRO halloysite analysis and the XRF values for Al_2O_3, Fe_2O_3, SiO_2 & TiO_2. The well-structured data and the relatively low coefficients of variation ("CV" = SD/mean) suggest that the data is not skewed and that no top cutting of the data is required.

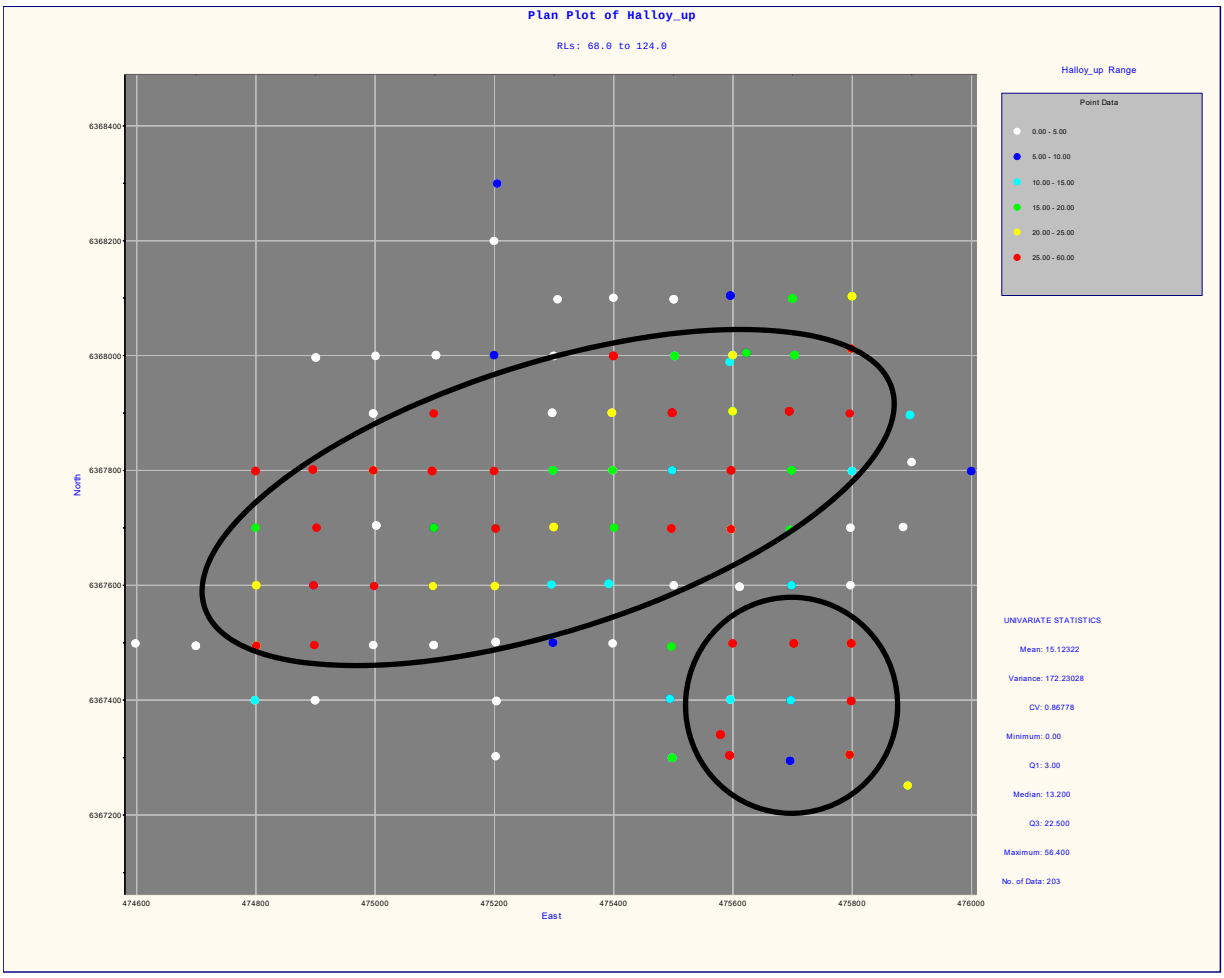
Poochera Univariate Statistics for Composites

	minus45	*R457*	*PSD_2*	*Halloy*	*Al_2O_3*	*Fe_2O_3*	*SiO_2*	*TiO_2*
Mean	52.12	82.14	68.75	15.12	36.71	0.58	47.86	0.41
Median	54.10	83.50	69.43	13.4	37.11	0.56	47.35	0.42
Mode	60.00	84.40	63.80	0	35.89	0.42	48.46	0.08
Standard Deviation (SD)	9.54	4.33	7.56	13.16	1.87	0.21	2.18	0.33
Sample Variance	91.01	18.74	57.13	173.08	3.49	0.04	4.76	0.11
Coeff of Variation (CV)	0.18	0.05	0.11	0.87	0.05	0.37	0.05	0.80
Kurtosis	-0.35	1.19	19.83	0.31	8.77	3.57	11.28	3.91
Skewness	-0.56	-1.09	-2.65	0.85	-2.45	0.96	2.73	1.35
Range	46	24.30	74.98	56.4	12.76	1.57	17.07	2.18
Minimum	25	65.50	7.02	0	26.36	0.16	44.61	0.05
Maximum	71	89.80	82	56.4	39.11	1.73	61.68	2.23
Count	214	214	214	203	213	213	213	213

(one sample had no XRF analysis)

An example of the Poochera composite distribution for the halloysite grades material is included below. The black outlines show the two main areas of halloysite concentration. It is worth noting that MEP has stated that CSIRO studies have indicated that nearly all the minus45 micron material is kaolin.

Poochera Composite Data Distribution Halloysite Plan

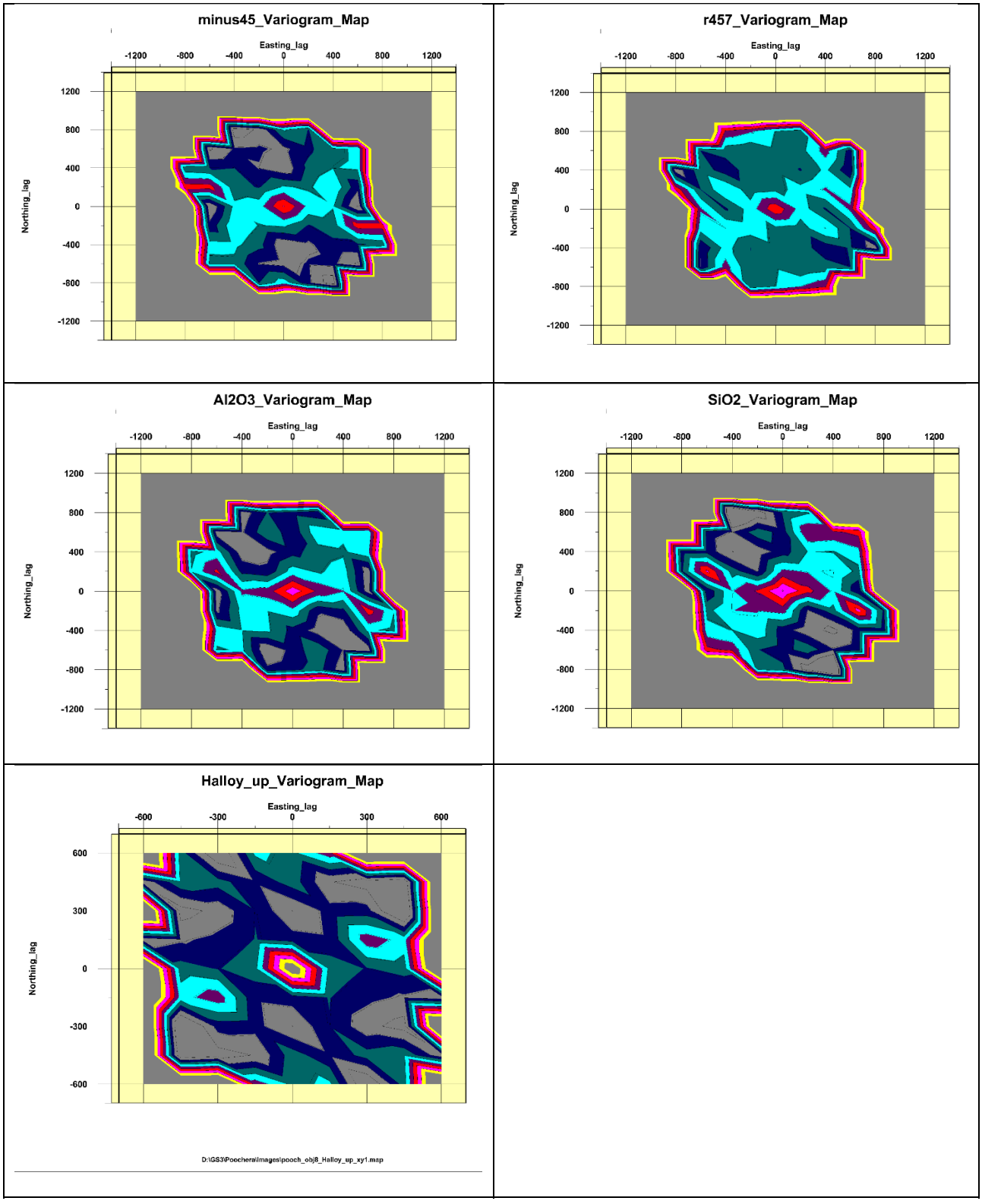


Of interest is the higher grades observed at the south eastern and north eastern edges of the deposit indicating the deposit is open in both of those areas.

The drillhole sample compositing has generated a limitation on the ability to analyse any subtleties in the chemical/mineralogical variation of the kaolin. As a result, variography is considered only modest mainly due to a lack of data that makes it difficult to delineate structure in the data and hence inform on grade continuity.

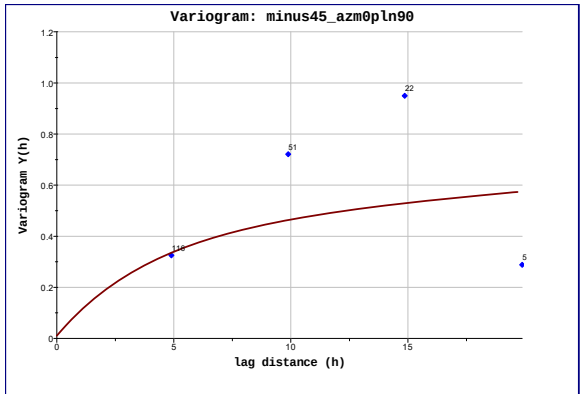
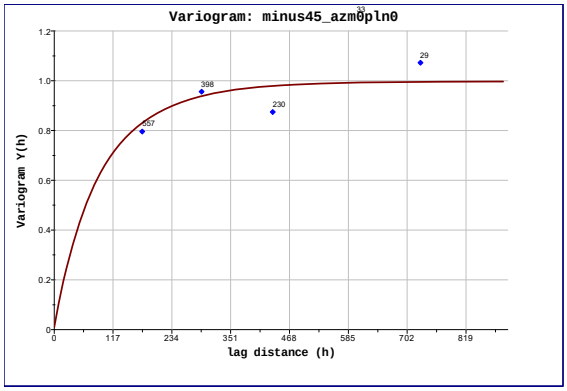
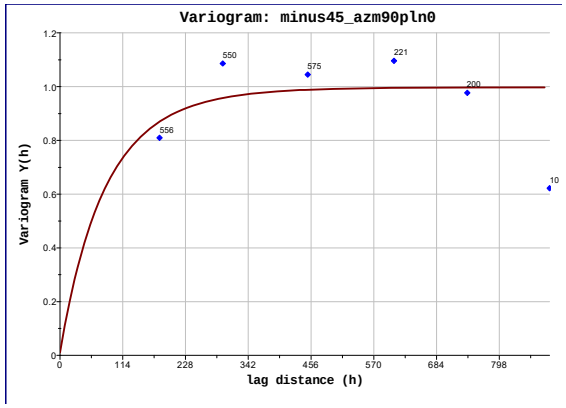
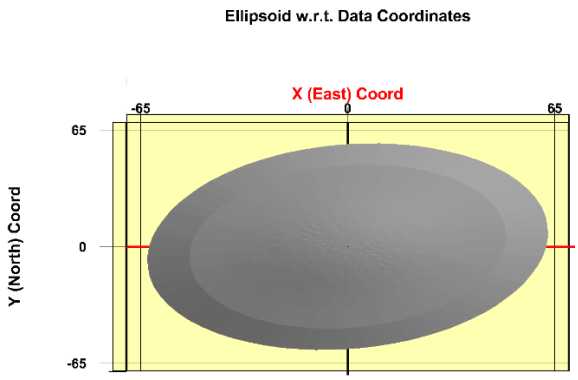
The XY variogram maps for the minus45 micron material, the R457 reflectance, Al_2O_3, SiO_2 and halloysite are included below. There are strong indications of an E-W grade continuity direction. The reason for this direction is uncertain but may be a function of an E-W fault that has allowed for more intense/penetrative weathering of the granite. It may also be due to a fundamental granite foliation or some other primary mineralogical variation in granite composition. The less structured halloysite map is a reflection of a lack of grade continuity and may be linked to the relatively higher CV.

Example of Variogram Maps for 5m Composites



An example of variograms and the variogram model for the minus45 micron material are included below. The impact of the 5m compositing and lack of structure is evident in the downhole variogram. The variogram model is a flat ellipse slightly rotated north of east.

Example of Variograms for the minus45µm Material

Downhole	E-W Direction 1
	
N-S Direction 2	**Variogram Model (plan view)**
	

Details of the search parameters for the resource modelling are included in the table below.

Search Parameters for Grade Interpolation

	Pass 1	Pass 2	Pass 3	Rotations
X	150	250	250	0
Y	150	250	250	0
Z	7.5	12.5	12.5	0
Min Data	8	8	4	
Max Data	32	32	32	
Min Octants	4	4	2	

(trigonometrical convention for rotations)

Estimation results for the pass categories for the Poochera Deposit are reported below for block centroids between the upper and lower kaolin wireframe surfaces at a 75 R457 reflectance cut off grade constrained the limit of the halloysite interpretation.

Poochera Raw Feed Global Estimation Results for Halloysite Material

Halloysite Zone	Pass No	Volume	Tonnes	R457
SE Area	Pass 1	779,492	1,122,469	83.7
	Pass 2	875,781	1,261,125	83.5
	Pass 3	315,039	453,656	84.7
Sub Total		1,970,313	2,837,250	83.8
Northern	Pass 1	2,830,078	4,075,313	82.5
	Pass 2	1,762,891	2,538,563	82.4
	Pass 3	213,672	307,688	84.0
Sub Total		4,806,641	6,921,563	82.5
Total		**6,776,953**	**9,758,813**	**82.9**

(use of significant figures does not imply accuracy)

If the minus45 micron grade is applied as a recovery factor (volume adjustment factor) and assuming that all of that that material is kaolin, the following estimates are generated. The assay grades are derived from analysis of the -45 micron fraction.

Poochera Kaolin/Halloysite Estimation Results

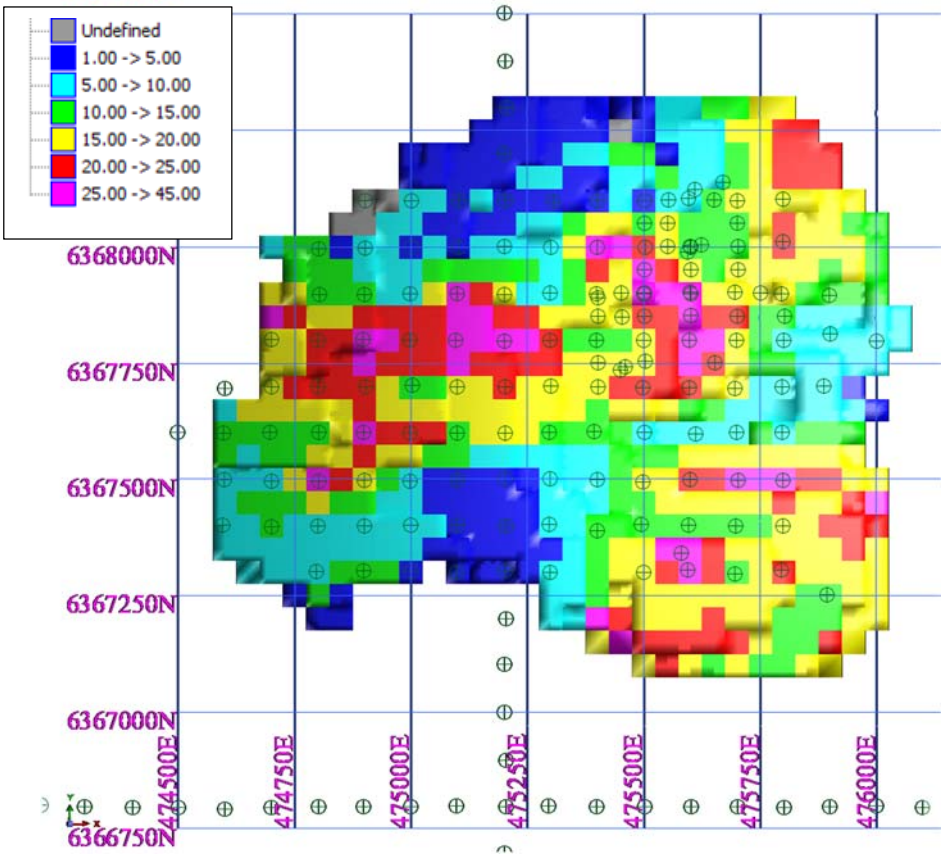
Halloysite Zone	Pass No	Volume	Tonnes	R457	PSD-2µm %	Halloysite %
Se area	Pass 1	430,380	619,747	83.8	69.2	18.9
	Pass 2	486,238	700,183	83.7	68.7	18.2
	Pass 3	185,414	266,996	84.8	66.3	18.4
Sub Total		1,102,032	1,586,926	83.9	68.5	18.5
Northern	Pass 1	1,519,072	2,187,464	82.5	67.8	18.6
	Pass 2	927,171	1,335,126	82.5	68.7	18.1
	Pass 3	123,235	177,458	84.1	68.8	16.0
Sub Total		2,569,478	3,700,048	82.6	68.1	18.3
Total		**3,671,510**	**5,286,974**	**83.0**	**68.2**	**18.4**

Halloysite Zone	Pass No	Volume	Tonnes	Al_2O_3 %	Fe_2O_3 %	SiO_2 %	TiO_2 %
Se area	Pass 1	430,380	619,747	37.4	0.62	47.2	0.39
	Pass 2	486,238	700,183	37.5	0.66	47.1	0.47
	Pass 3	185,414	266,996	37.8	0.67	47.0	0.5
Sub Total		1,102,032	1,586,926	37.5	0.64	47.1	0.44
Northern	Pass 1	1,519,072	2,187,464	37.2	0.57	47.3	0.43
	Pass 2	927,171	1,335,126	36.8	0.57	47.8	0.4
	Pass 3	123,235	177,458	37.8	0.44	46.2	0.59
Sub Total		2,569,478	3,700,048	37.0	0.56	47.4	0.42
Total		**3,671,510**	**5,286,974**	**37.2**	**0.59**	**47.3**	**0.43**

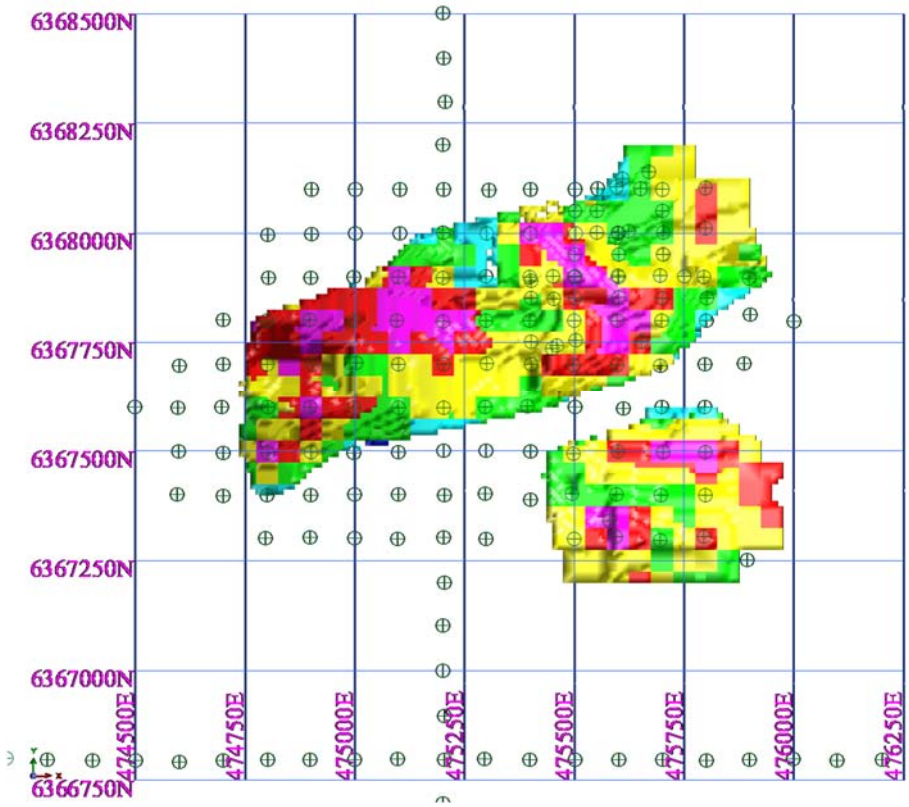
(use of significant figures does not imply accuracy)

An example of the block grade distribution for the halloysite grade material is included below. The blocks shown represent the top of the kaolin deposit. The following figure shows the halloysite block grade distribution for the interpreted halloysite area (based on the interpreted wireframes shown earlier).

Poochera Halloysite Global Block Grade Distribution



Poochera Halloysite Block Grade Distribution for Halloysite Zones



Validation of the H&SC block model has involved a visual comparison of block grades with drillhole assay values. No issues were noted.

Classification of the resource estimates is derived from the search passes and is detailed below.

Rockface Resource Classification

Classification	Pass Category
Measured	Pass 1
Indicated	Pass 2
Inferred	Pass 3

Other considerations in the classification include the following:

Positive

- Aircore drilling is recent on a systematic 100m by 100m grid
- Reasonably spaced drilling adequate for Measured and Indicated Resources
- Composite data does not appear to be skewed such that Ordinary Kriging is an appropriate modelling method
- A reasonably good geological understanding of the deposit and the controls to mineralisation.
- Limited QAQC for the recent drilling has indicated no obvious issues with the sample preparation or analysis.
- Robust resources by comparison with the 2012 MEP Mineral Resources and a check model based on the 2013 ABC drilling.
- 2018 bulk sampling work has allowed for an improved method of density measurement and increase in the number of density data albeit from a relatively small area.
- Preliminary testwork on alumina content and the ability to produce HPA previously carried out with Bureau Veritas, UniSA and the University of Newcastle showed that the [Poochera] product would be suitable for HPA generation with the added bonus that it gives a significantly higher alumina mass yield than comparable Australian kaolin deposits.
- BHM Consultants were commissioned to undertake the necessary concept metallurgical investigation and future process design aspects for upgrading typical hydrous processed kaolin from [Poochera] to a saleable HPA product via industry standard hydrometallurgical processing routes. The BHM testwork indicates that an HPA product with 99.99% purity is readily available from [Poochera] kaolin/halloysite feedstock using an industry standard HCL two-stage dissolution-precipitation process, with the initial testwork achieving 99.9855% alumina.

Negative

- Lack of any close spaced drilling to confirm grade continuity lending itself to relatively weak/modest variography
- No drilling sample recoveries data.
- Possible uncertainties to the base of mineralisation with the chance of an undulating surface to the kaolin.
- Limited QAQC data.

The figures below represent the Mineral Resources for the Poochera Kaolin Deposit at a cut-off grade of 75% R457 reflectance within the halloysite defined area.

Poochera Raw Feed Material Global Resource Estimates for halloysite Zones

Halloysite Zone	Category	Volume	Mt	Reflectance
SE Area	Measured	779,492	1.1	83.7
	Indicated	875,781	1.3	83.5
	Inferred	315,039	0.5	84.7
Sub Total		1,970,313	2.8	83.8
North	Measured	2,830,078	4.1	82.5
	Indicated	1,762,891	2.5	82.4
	Inferred	213,672	0.3	84.0
Sub Total		4,806,641	6.9	82.5
Total		**6,776,953**	**9.7**	**82.9**

(minor rounding errors)

The result of applying the minus45 micron recovery factor to give the kaolin estimates is displayed in the table below:

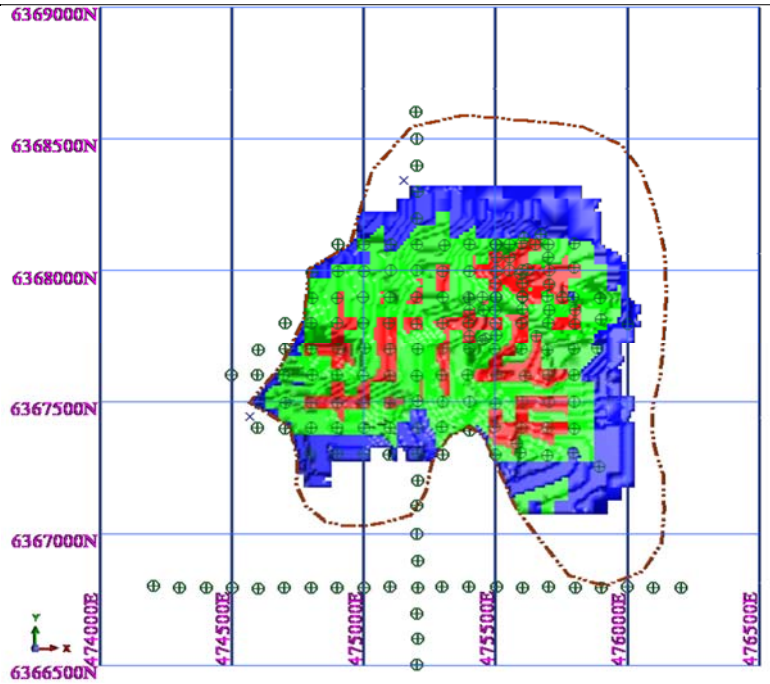
Halloysite Zone	Category	Volume	Mt	R457	PSD-2µm %	Halloysite %	Al_2O_3 %	Fe_2O_3 %	SiO_2 %	TiO_2 %
SE Area	Measured	430,380	0.6	83.8	69.2	18.9	37.4	0.62	47.2	0.39
	Indicated	486,238	0.7	83.7	68.7	18.2	37.5	0.66	47.1	0.47
	Inferred	185,414	0.3	84.8	66.3	18.4	37.8	0.67	47.0	0.5
Sub Total		1,102,032	1.6	83.9	68.5	18.5	37.5	0.64	47.1	0.44
North	Measured	1,519,072	2.2	82.5	67.8	18.6	37.2	0.57	47.3	0.43
	Indicated	927,171	1.3	82.5	68.7	18.1	36.8	0.57	47.8	0.4
	Inferred	123,235	0.2	84.1	68.8	16.0	37.8	0.44	46.2	0.59
Sub Total		2,569,478	3.7	82.6	68.1	18.3	37.0	0.56	47.4	0.42
Total		**3,671,510**	**5.3**	**83.0**	**68.2**	**18.4**	**37.2**	**0.59**	**47.3**	**0.43**

(minor rounding errors)

Classification of the Poochera resource estimates from the previous resource estimates is compared with the classification of the new estimates (the brown line marks the original MEP Inferred Resource outline).

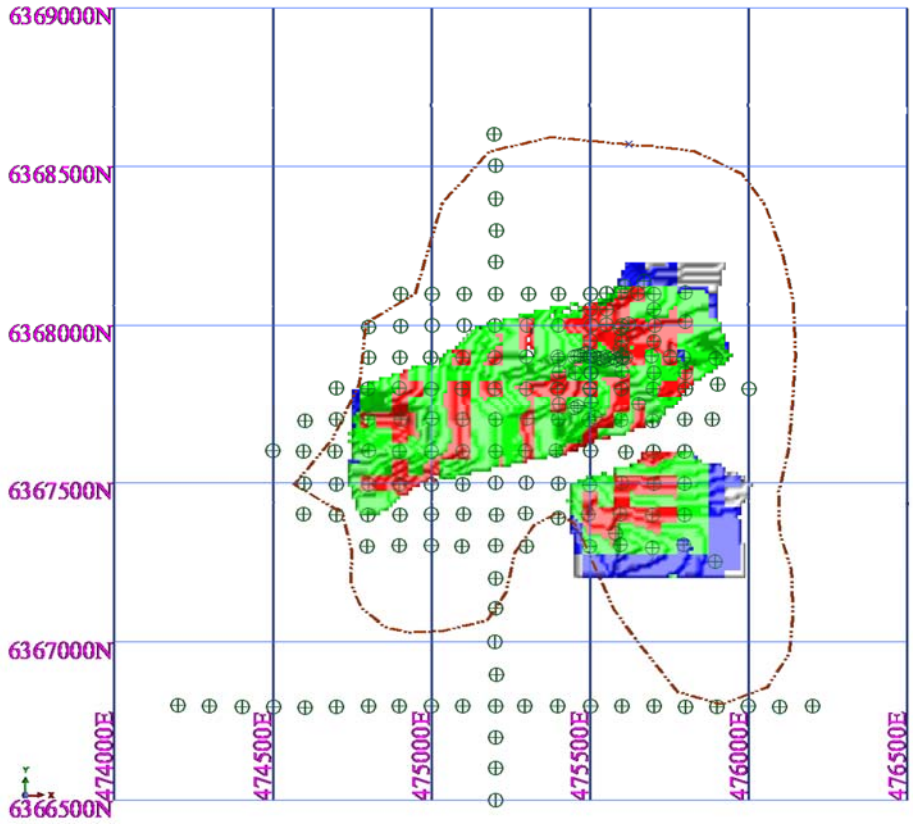
Poochera Resource Category for Blocks

August 2018 Kaolin Resource Estimates



(red = Measured; green = Indicated; blue = Inferred)

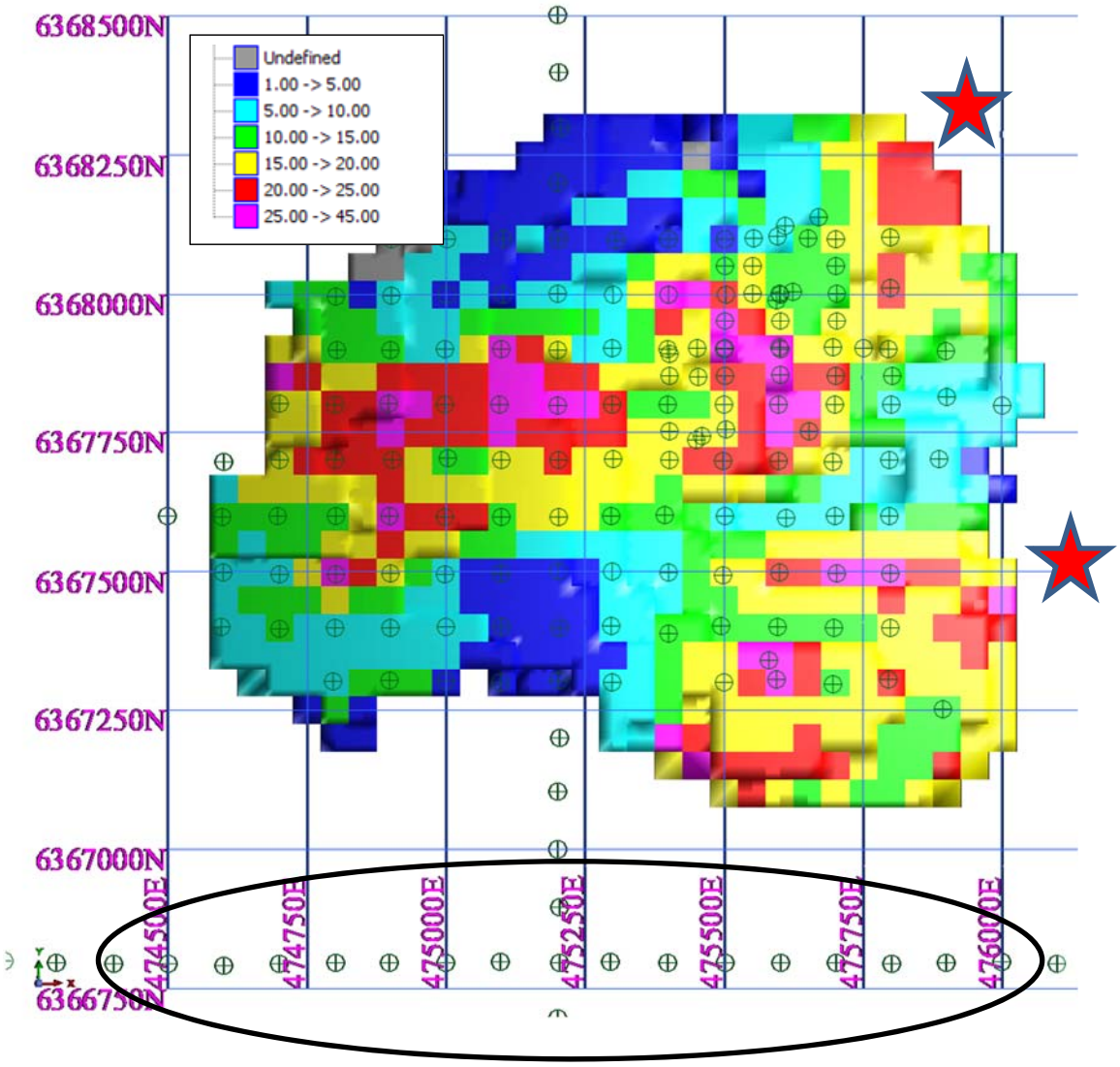
January 2019 Kaolin/Halloysite Resource Estimates



Exploration potential for the Poochera kaolin deposit comprises blocks within the 2009 MEP Inferred Resource that have no interpolated grade (red stars in the figure below). This amounts to approximately 6-10Mt of material with an estimated kaolin tonnage of 3 to 5Mt at depths from surface of 6 to 18m. There may be scope for further resource extensions outside the 2009 Inferred Shape as the E-W line of holes to the south of the deposit (black ellipse in the figure below) contain significant intervals of kaolin based on the geological logging at roughly 12 to 29m below surface.

The potential quantity and grade of the Exploration Potential is conceptual in nature and there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource.

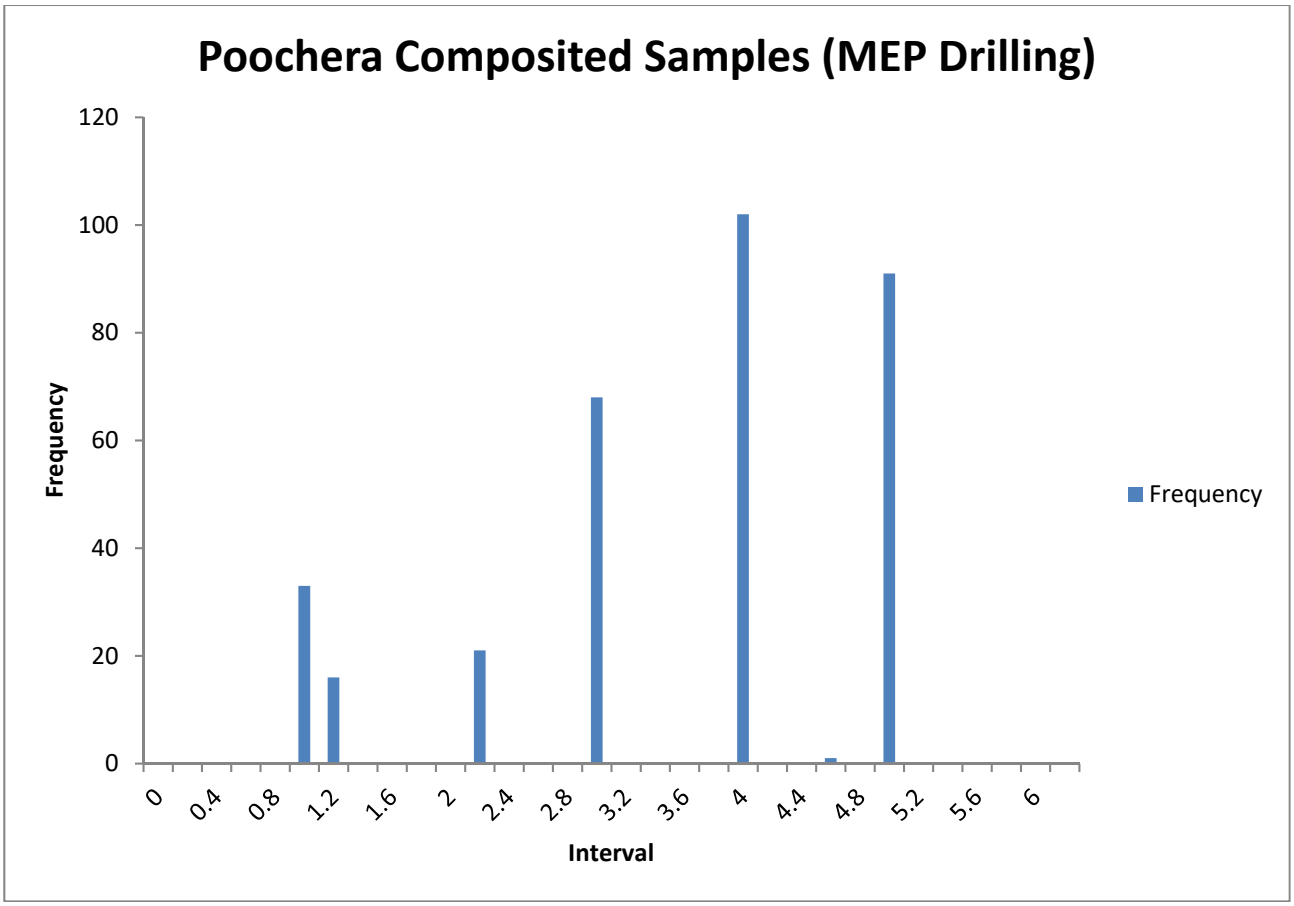
Areas of Exploration Potential for Poochera



Appendix 2

QAQC Report for Poochera Kaolin Deposit, South Australia

H&SC has been supplied what it believes to be the full QAQC data for the 2011 aircore drilling completed by Minotaur Exploration for the Poochera Kaolin Deposit in South Australia. The additional drilling on the deposit has been completed by MEP in 2008 (6 Calweld holes) and Adelaide Brighton in 2013 (27 Calweld holes). The resource estimates have been based on the 2008 and 2011 drilling. It should be noted that the number of composited samples from the 2008 drilling is approximately 5% of the total. The original drilling samples were 1m in length but composite samples were produced by MEP based on visual reflectance estimates and drill logs. The composited lengths ranged from 1m to 5m.



1. Recoveries

No drill sample recovery data was supplied.

2. Standards

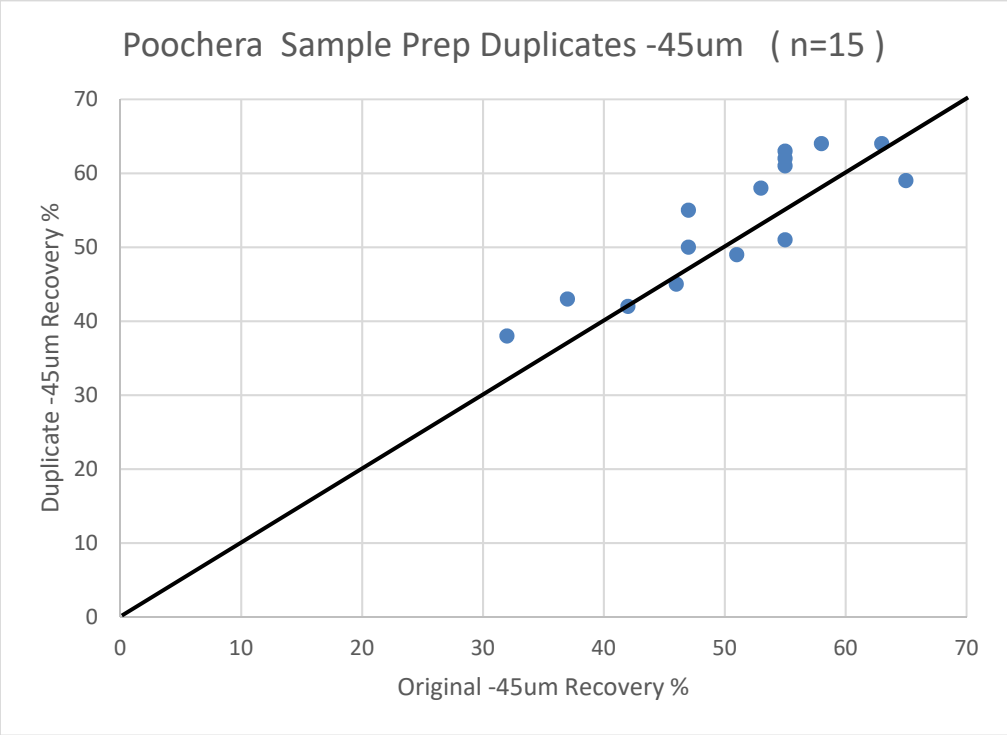
No standards or blanks were used.

3. Field Duplicates

No drillhole duplicates were collected for the 1m intervals.

4. Sample Prep (Lab) Duplicates

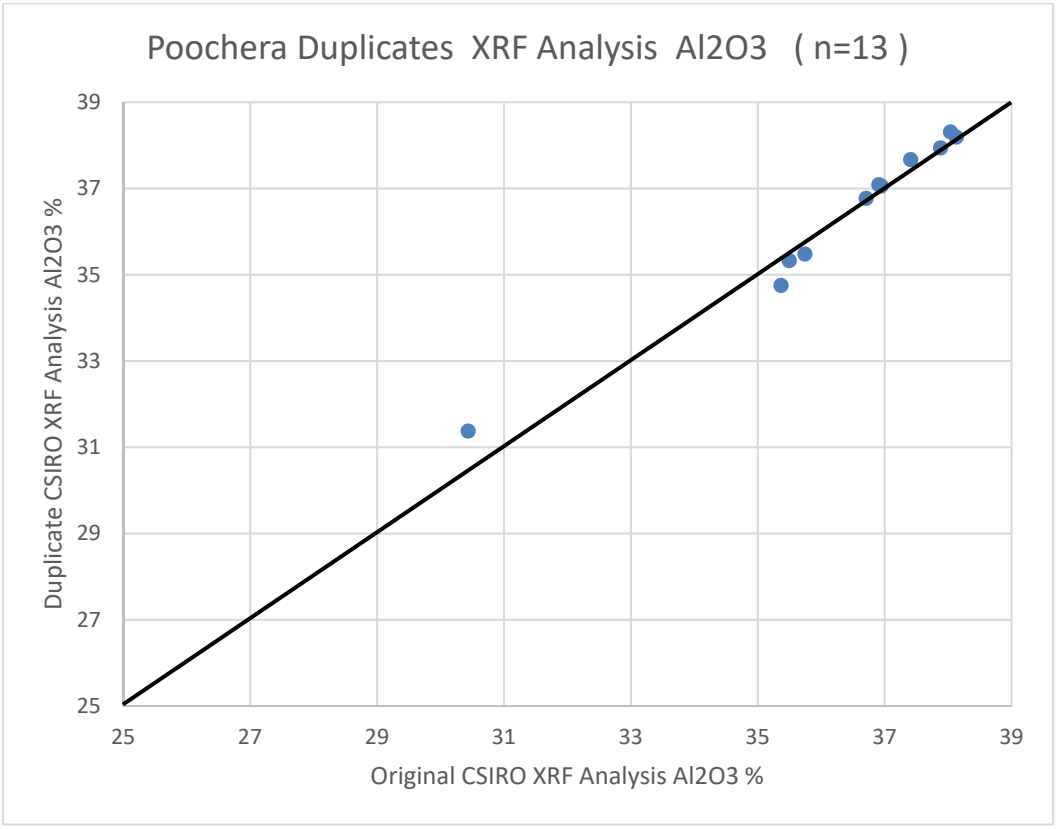
From the composited drillhole samples 23 duplicate samples were generated. These duplicates were repeated composites from the original 1m interval sample bags. Data for the recovery of the minus 45um material was available for only 15 samples. The data indicated a slight bias of higher recoveries for the duplicate sample (see figure below). H&SC is uncertain as to why this should be so but it is not considered significant.

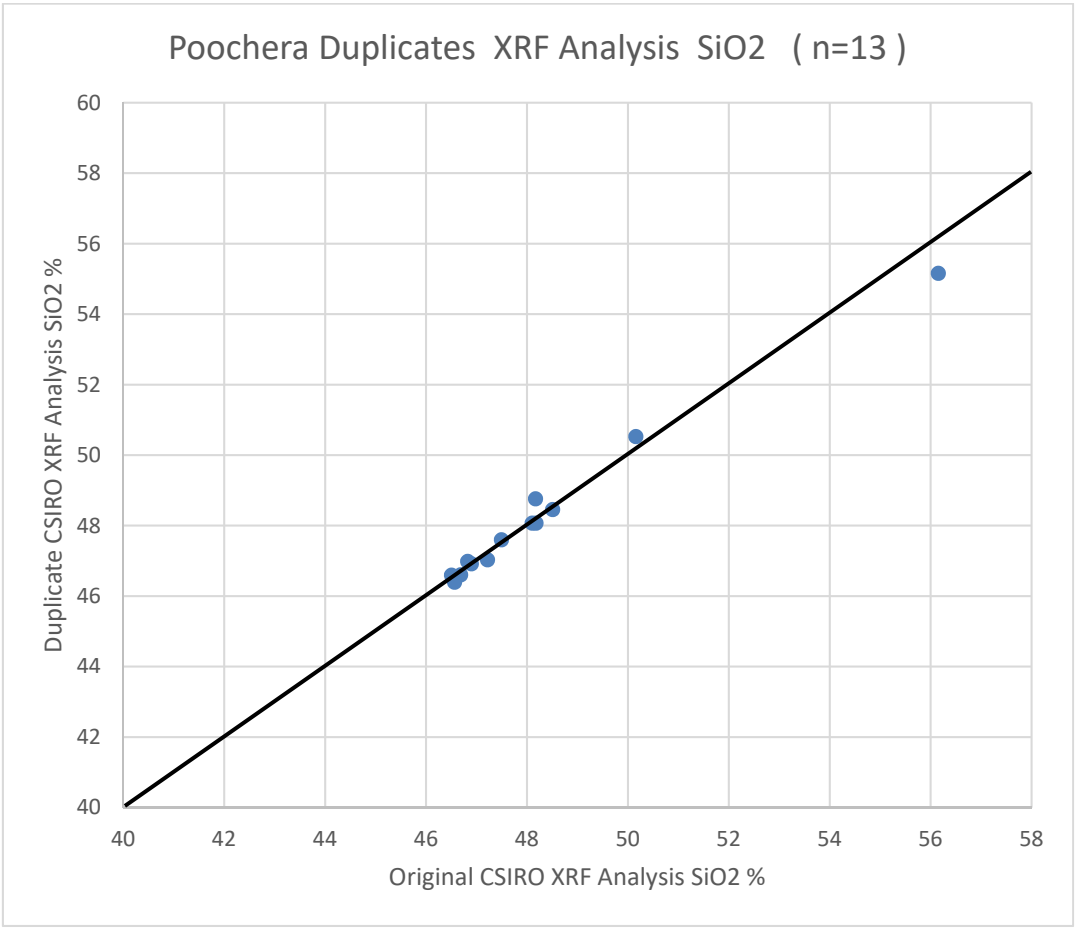


5. Analytical Duplicates (Replicates)

Duplicates assays were supplied for the CSIRO XRF data. These assays were derived from the duplicate sample prep material mentioned above. The dataset comprised a total of 13 samples.

Plots of original versus duplicate are included for Al2O3, SiO2, Fe2O3 and TiO2. No significant issues are noted with the data. One outlier sample exists associated with low kaolin composition.


Poochera Duplicates XRF Analysis Al2O3 (n=13)
Duplicate CSIRO XRF Analysis Al2O3 %
Original CSIRO XRF Analysis Al2O3 %
39
37
35
33
31
29
27
25
25
27
29
31
33
35
37
39


Poochera Duplicates XRF Analysis SiO2 (n=13)
Duplicate CSIRO XRF Analysis SiO2 %
Original CSIRO XRF Analysis SiO2 %
60
58
56
54
52
50
48
46
44
42
40
40
42
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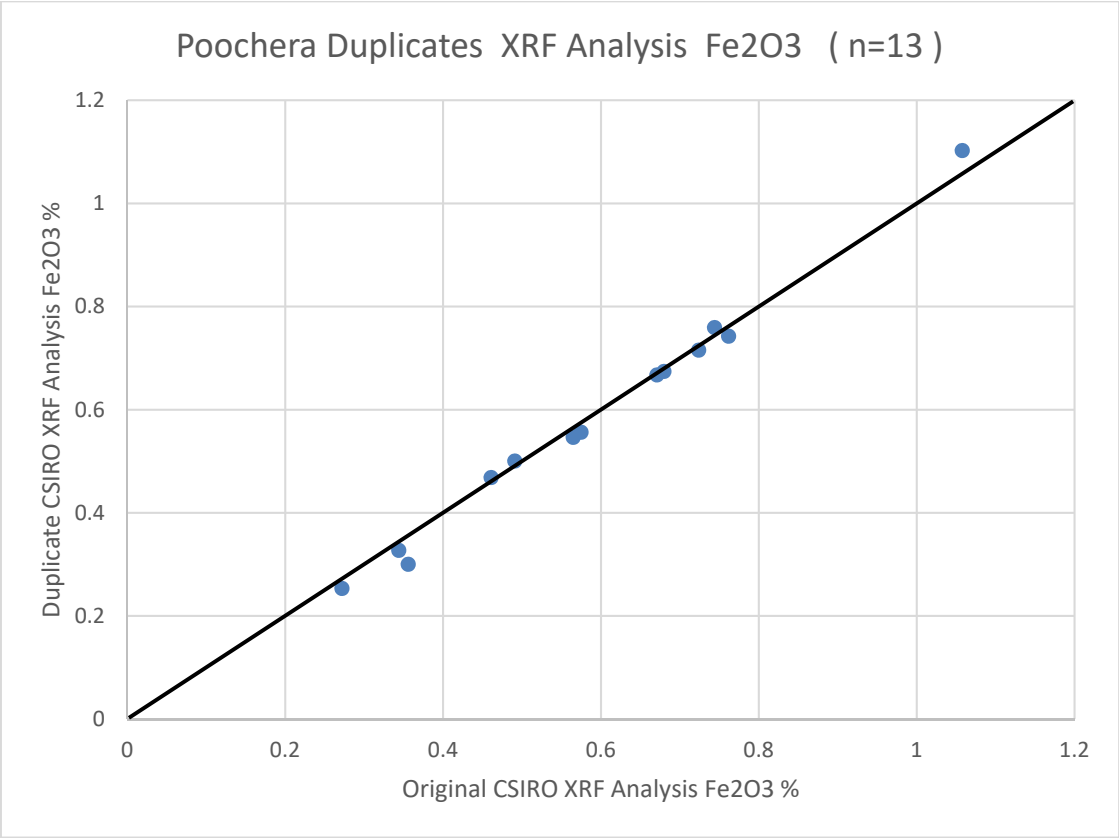
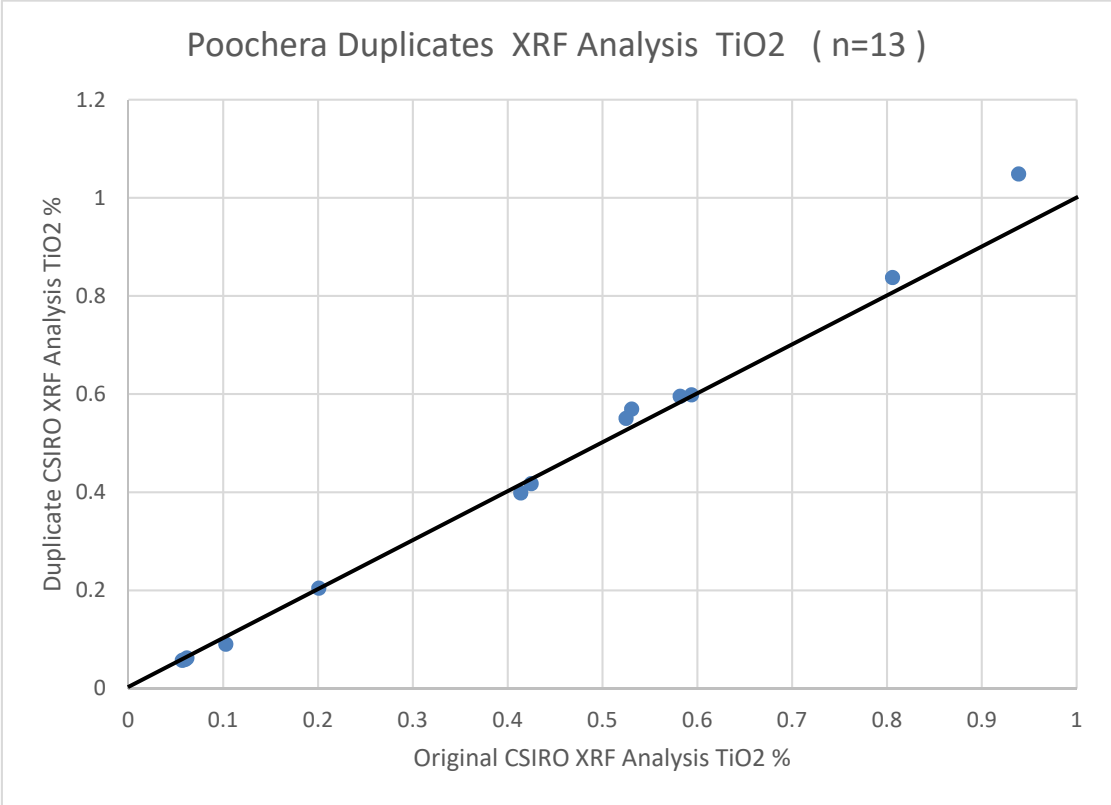
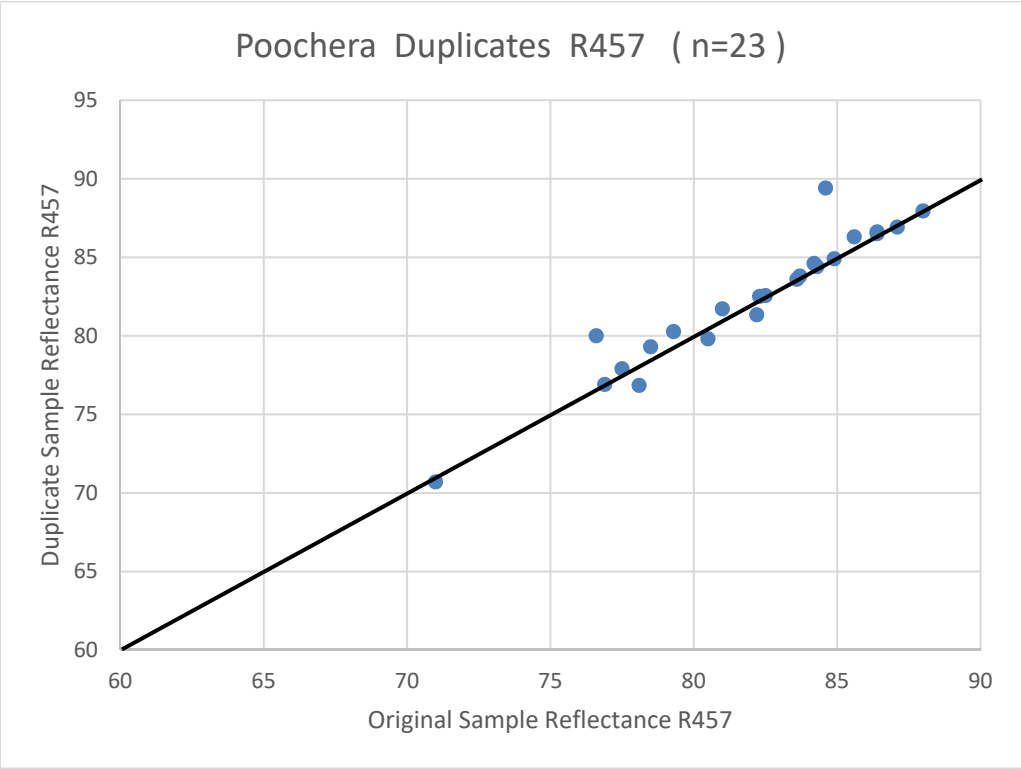
48
50
52
54
56
58

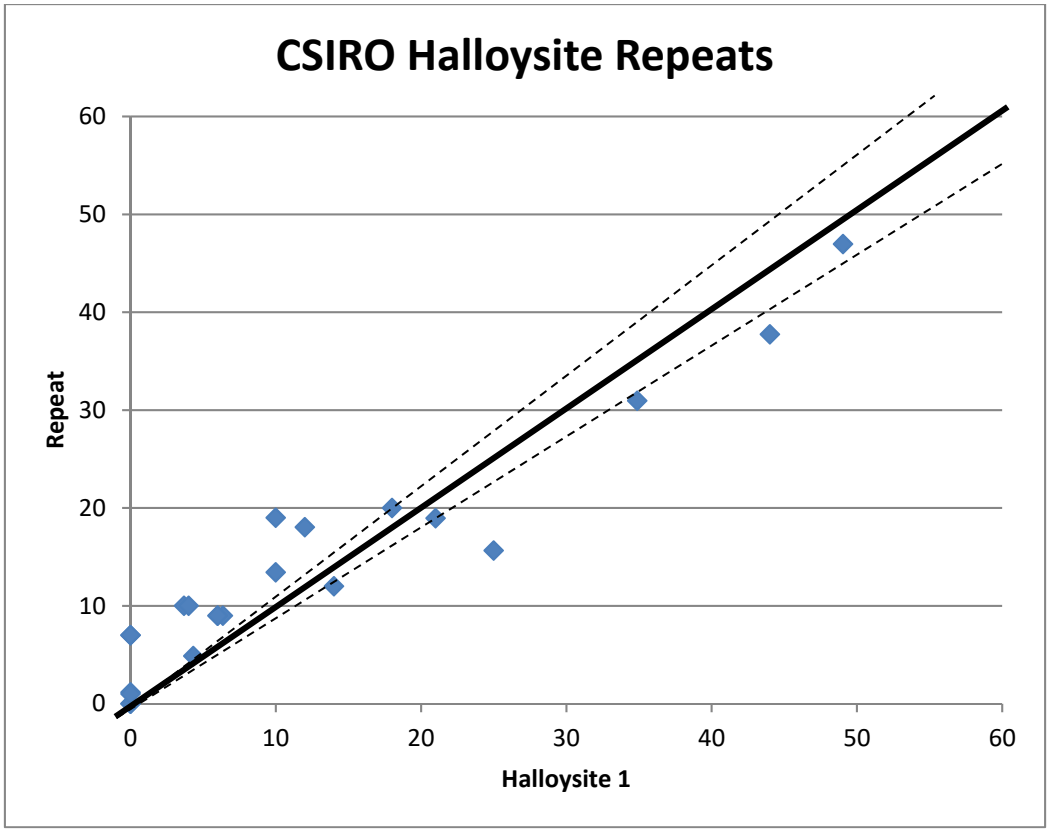




Duplicate analyses of the R457 reflectance was completed on 23 samples. The results were acceptable for the majority of the data but two outliers are noted for the duplicate samples. H&SC is uncertain as to why this should be so but it is not considered significant.



The QAQC work for all the CSIRO halloysite 2018 analysis has now indicated an increased level of reliability for the assays results in regard to the amount of halloysite present. Minor repeatability issues remain but are not significant enough to undermine any attempts at resource modelling and resource classification. The graph below shows the repeatability of assays and includes values form the 2012/2018 re analysis. It indicates a small positive bias for the repeats at halloysite grades below 12%. Otherwise the results are reasonable.



(the black line is the 1: 1 ratio; black dash lines = +/- 10%)(provided by Tony Belperio of Minotaur)

6. Second Lab Checks

No second lab checks were completed.

7. Twin Holes

No twin holes were completed by MEP for the 2011 drilling. The ABC drilling targeted a sub-area of the deposit and included 5 pairs of holes twinned with the MEP 2011 drilling. Details of the twinned pairs are included in the table below. The comparison is made between the logged kaolinised granite intervals from both sets of drill logs. There are some variations in the logged intervals – see cumulative interval differences. However, the overall weighted average difference of kaolin between the 2011 and 2013 intervals is just under 7%.

	Logged Kaolinised Granite				**Logged Kaolinised Granite**			
2011 Hole	**Interval**	**From**	**-45um %**	**2013 Hole**	**Interval**	**From**	**Kaolin %**	**Hole dist**
CW11AC044	12m	12m	42.67	CW13RC025	9m	11m	36.25	10m
CW11AC045	18m	12m	47.83	CW13RC010	17m	13m	47.43	2.6m
CW11AC046	20m	16m	60.63	CW13RC011	20m	15m	64.53	4.1m
CW11AC057	21m	18m	53.57	CW13RC005	17m	22m	59.7	1.4m
CW11AC065	10m	13m	59.50	CW13RC022	10m	13m	58.82	1.6m
Total	**81m**	**wt ave**	**46.84**	**Total**	**73m**	**wt ave**	**55.63**	

(assumption: all of the -45um material is kaolin)

Simon Tear
Director and Consulting Geologist
H&S Consultants Pty Ltd

JORC Code, 2012 Edition – Table 1 Poochera Kaolin Deposit

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	• Aircore drilling of vertical holes to industry standard completed by Minotaur ("MEP") generating 1m chip samples. A total of 153 holes for 3,795m completed in 2011. Drilling generally penetrated beyond the kaolinite to the partially decomposed parent granite. Maximum drilling depth is 48m. • Samples composited based on perceived reflectance levels. Composite intervals range from 1-5m • Sample preparation and initial testing was carried out at Minotaur's pilot kaolin processing facility at Streaky Bay, South Australia. • Sample processing generated results for minus45 micron material with follow up assaying consisting of industry standard XRF analysis, ICP analysis and reflectance measurement suite. Additional analysis for halloysite was undertaken as a separate phase. • Kaolinite is a white, weathered clay product easily distinguished in drilling. The mineralisation forms a flat lying blanket atop a partially decomposed granite. Cover material comprises alluvial clays and sands and calcrete. The kaolinite is capped by a silicified zone generally logged as 1m thick. • The anticipated product for the 2011 drilling was a high quality high reflectance material for use in paper coating. Andromeda ("ADN") are looking at several different options including supply of raw material feed and semi-processed product for ceramics applications. • 6 Calweld holes for 142m were drilled in 2008 by MEP in order to supply bulk samples. These holes are included in the new resource estimates. • Additional drilling of 27 reverse circulation (RC) holes for 882m by Adelaide Brighton ("ABC") was completed in 2013. Drilling comprised a sub-area of the MEP-defined kaolinite body with the anticipated product being suitable as a cement filler. Sampling and analysis was different to the MEP work and has not been used to numerically help define the Mineral Resources.

Criteria	JORC Code explanation	Commentary
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• 2011 MEP : Drilling completed by contractor Johannsen Drilling using an Edson 2000 drill rig. Some drillholes were pre-collared using a rotary air blast (RAB) open hole hammer technique to penetrate hard bands of shallow calcrete and, where present, a silcrete horizon at the top of the kaolinised granite. The majority of the drilled metres were completed with 75mm diameter aircore drilling technique. • 2013 ABC : Reverse circulation (RC) drilling completed by Coughlan Drilling contractors; diameter and drill bit unspecified however ABC drilling data have not been used to numerically help define the Mineral Resources.2008 MEP: Drilling completed by contractor Kim Thiele using a Calweld rig to drill 810mm diameter holes enabling collection of approximately 1 tonne of kaolinised material per downhole metre drilled.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• 2011 aircore MEP: No recovery data were available. Damp intervals were recorded in logging. The depth of penetration of the drill bit was noted and the downhole interval recorded for each aircore sample. • 2013 RC ABC: No recovery data were available. Damp intervals were recorded in logging. The depth of penetration of the drill bit was noted and the downhole interval recorded for each RC sample. • 2008 Calweld MEP: No recovery data were available. Damp intervals were recorded in logging. The depth of penetration of the drill bit was noted and the downhole interval recorded for each bulka bag filled with Calweld sample. • Geological logging was undertaken by the onsite geologist during each drilling programme. Determination of optimal samples and, conversely, intervals of poor recovery were based on visual observation of kaolinised material collected from each metre drilled. • Sample recovery is expected to have minimal negative impact on samples collected. • There was no obvious evidence of bias in the samples.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature.	• 2011 aircore MEP: All drill samples were logged by an experienced geologist on-site at the time of drilling. Observations on lithology, colour, degree of weathering, mineralisation and alteration for sampled material were recorded.

Criteria	JORC Code explanation	Commentary
	Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• 2013 RC ABC: All drill samples were logged by an experienced geologist on-site at the time of drilling. Observations on lithology, colour, and mineralisation for sampled material were recorded. • 2008 Calweld MEP: All drill samples were logged by an experienced geologist on-site at the time of drilling. Observations on lithology, colour, degree of weathering, mineralisation and alteration for sampled material were recorded. • All relevant intersections were logged. • All logging for 2008 and 2011 drilling has been converted to quantitative codes in the MEP database. • Data from the 2013 drilling has not been used to numerically help define the Mineral Resources.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• 2011 aircore MEP:. Sample compositing consisted of only contiguous 1m drill samples up to 5m in total length, based on drill logs and visual estimation of whiteness of material i.e. reflectance. Sample composites were prepared with the aim of including kaolinised granite of similar quality within each composite, although in some cases narrow bands of discoloured kaolinised granite were included in the composite to determine if poorer quality could be carried within the interval. Composite samples ideally weighed between 10 and 15 kg with equal amounts of kaolinised granite being taken from each 1m drillhole sample. In a few cases, because of a lack of sample, the composite samples weighed less than 10kg. When sample processing commenced it was soon found that a minimum sample weight of about 8kg was required for satisfactory blunging and processing. Consequently, a very few composite samples could not be processed. A total of 270 composite samples were prepared from 93 drillholes within the drilled resource definition area. Depending upon sufficient sample being available, about every tenth sample was duplicated, and was processed as a separate sample. 23 duplicate samples were prepared. • 2011 aircore MEP samples were processed by blunging at high solids content in a high shear blunger with sodium polyacrylate dispersant to ensure kaolin was fully dispersed and then screened and decanted to remove quartz and mica, to produce a minus 45 micron kaolin sample. Particle sizing was confirmed (>99% minus 45 micron) on site using a

Criteria	JORC Code explanation	Commentary
		Sedigraph 5100 particle size analyser. Based on the measured solids content of the blunged kaolinised granite slurry, the minus 45 micron kaolin percentage was determined by difference, after the plus 45 micron percentage was determined by wet screening and weighing. • 2013 RC ABC: All 1 metre samples from the 2013 RC drillholes were analysed in ABC's laboratory. Major elements (XRF) data were provided to MEP but not sub-sampling and sample preparation methodologies. Data from the 2013 drilling have not been used to numerically help define the Mineral Resources. • 2008 Calweld MEP : Selected bulk samples from the 2008 Carey's Well drilling were sub-sampled and processed at Minotaur's Streaky Bay kaolin processing facility to produce a range of hydrous kaolin products, including ParlaWhite90 (PW90). Full product characterisation was undertaken, including analysis of particle size distribution, ISO brightness, colour, +45µ grit content, oil absorption, surface area, major and minor elements and mineralogy. 100% of mineralised intervals of the Calweld drilling were sub-sampled from bulka bags at the Minotaur kaolin processing facility in Streaky Bay in 2012. Sub-samples were mixed with water then processed by blunging at high solids content in a high shear blunger with sodium polyacrylate dispersant to ensure kaolin was fully dispersed and then screened and decanted to remove quartz and mica to produce a minus 45 micron kaolin sample. • All MEP 2011 and 2008 sampling methods and sample sizes are deemed appropriate.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias)	• 2011 aircore MEP: ISO Brightness (R_{457}) and La*b* colour of the dried minus 45 micron kaolin powder were determined according to TAPPI standard T 534 om-03 using a Technibrite 1B spectrophotometer at Minotaur's Streaky Bay kaolin processing facility. The measured parameters of R457 brightness, L, a* and b* are internationally accepted spectral criteria for determinations of brightness, whiteness, redness and yellowness, respectively. Subsamples of minus 45 micron kaolin were forwarded to: o ALS Minerals laboratories in Adelaide for determination of 60 elements using method ME-MS61r (four acid digestion, ICP-MS),

Criteria	JORC Code explanation	Commentary
	and precision have been established.	o CSIRO, Division of Land and Water, Urbrae for XRF analysis of 11 major elements plus Cl and determination of mineralogy by XRD. The CSIRO data confirm that the minus 45 micron fraction is dominantly kaolin (kaolinite with halloysite in varying abundance) with traces of quartz, mica and microcline feldspar. • 2013 RC ABC All 1 metre samples from the 2013 RC drillholes were analysed in ABC's laboratory for major elements (XRF), however sub-sampling and sample preparation methodologies were not disclosed. Data from the 2013 drilling have not been used to numerically help define the Mineral Resources. • 2008 Calweld MEPISO Brightness (R_{457}) and La*b* colour of the dried minus 45 micron kaolin powder were determined according to TAPPI standard T 534 om-03 using a Technibrite 1B spectrophotometer at Minotaur's Streaky Bay kaolin processing facility. The measured parameters of R457 brightness, L, a* and b* are internationally accepted spectral criteria for determinations of brightness, whiteness, redness and yellowness, respectively. Subsamples of minus 45 micron kaolin were forwarded to: o ALS Minerals laboratories in Adelaide for determination of 60 elements using method ME-MS61r (four acid digestion, ICP-MS), o CSIRO, Division of Land and Water, Urbrae for XRF analysis of 11 major elements plus Cl and determination of mineralogy by XRD. • The CSIRO data confirm that the minus 45 micron fraction is dominantly kaolin (kaolinite with halloysite in varying abundance) with traces of quartz, mica and microcline feldspar. • No standards or blanks were used for the element assaying • All assay methods were appropriate at the time of undertaking. • No secondary lab checks were completed. • Analytical techniques used by BHM Process Consultants for HPA testing are considered appropriate and included test work through Nagrom Mineral Laboratories and independent verification through Labwest Minerals Analysis. BHM Process Consultants have a strong expertise in analysis of industrial minerals.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Sample and assay data from MEP 2008 Calweld and 2011 aircore drilling have been compiled and reviewed by the senior geologists involved in the logging and sampling of the drill core, cross-checking assays with the geological logs and representative samples. No independent intercept verification has been undertaken. No twin holes were completed by MEP for the 2011 drilling. • 5 pairs of twinned holes exist for the MEP 2011 drilling and the ABC 2013 drilling. The results indicate some variations in the logged intervals. However, the overall weighted average difference of between the amount of minus45micron material and the kaolinite content between the 2011 and 2013 intervals is just under 7%. • All 2008 and 2011 drilling and testing data have been validated within the MEP GBIS samples database. • Any below detection values were substituted with half lower detection limit values for resource estimation purposes
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• Survey pickup of 2011 aircore drilling collar locations by differential GPS accurately located and levelled all collars. Collar surveys completed by contractor Peter Crettenden using a Trimble R8 RTK (Real Time Kinematic) System with horizontal accuracy of +/- 20mm and vertical accuracy of +/- 30mm, cross-checked against differential GPS survey data collected by licensed surveyors Hennig & Co in March 2011. • 2013 ABC RC drilling collar locations located by handheld GPS (accuracy unspecified) at the time of drilling. Data from the 2013 drilling have not been used to numerically help define the Mineral Resources. • 2008 Calweld drilling collar locations located by handheld GPS (horizontal accuracy unspecified) at the time of drilling. Collars levelled vertically in 2011 utilising survey data collected by contractor Peter Crettenden using a Trimble R8 RTK (Real Time Kinematic) System with vertical accuracy of +/- 30mm. • No downhole surveys have been completed – all holes are vertical and generally <30m deep • Grid projection is MGA94 Zone 53 • A topographic surface has been created based on an accurate contour plan of the Poochera kaolin deposit area produced in March 2011 by licensed

Criteria	JORC Code explanation	Commentary
		surveyors Hennig & Co. utilising differential GPS (+/-0.2m accuracy).
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• 2011 MEP : Drillhole spacing is 100m by 100m with downhole sampling at 1m intervals with sample compositing of only contiguous 1m samples up to 5m based on drill logs and visual estimation of whiteness of material i.e. reflectance. • 2013 ABC: Drillhole spacing is 100m by 100m, locally at 50m, with downhole sampling at 1m intervals. Area covered is approximately 400m by 400m in the NE quadrant of the Poochera deposit. Data from the 2013 drilling have not been used to numerically help define the Mineral Resources. • 2008 MEP : Variable drillhole spacing for bulk sampling at 1m downhole intervals. Area covered is approximately 1km x 1km within the Poochera deposit. • The drillhole spacing for the MEP work has established a high level of geological continuity for the kaolinite. The spacing is also suitable for establishing a reasonable level of grade continuity for the kaolinite and any impurities. • The sample compositing for the 2011 work has imposed a limitation on any detailed assessment of variability of kaolinite material for the deposit.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Vertical drilling generally achieved a very high angle of intercept with the flat-lying, stratabound mineralisation. • Drilling orientations are considered appropriate with no obvious bias.
Sample security	• The measures taken to ensure sample security.	• The drill samples were collected by Minotaur personnel then delivered to the kaolin processing facility either by Minotaur personnel, or competent exploration contractor. • Transport of samples from the Streaky Bay kaolin processing facility to Adelaide and other locations for further testwork has been undertaken by competent exploration contractors. Remnant samples are stored securely at Minotaur Exploration premises in Streaky Bay or Adelaide.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No external audits or reviews of the sampling techniques or data have been completed

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Poochera Kaolin-Halloysite Project (Exploration Licences 5814, 6096 and 6202, which is a subsequent licence to EL5308) includes the Poochera (Carey's Well) deposit, which is located on EL5814. • The Poochera Project is held by subsidiaries of Minotaur Exploration Limited and is joint ventured to Andromeda under terms detailed in the ADN ASX release dated 26 April 2018. • There are no known non-government royalties due beyond the Minotaur JV agreement terms. • The underlying land title is freehold that extinguishes Native Title. • There are no known historical sites within the Carey's Well/Poochera area which preclude exploration or mineral development. • All tenements are secure and compliant with Government of South Australia Department for Energy and Mining requirements at the date of this report.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• MEP has conducted exploration in the Carey's Well/Poochera area since the tenement was granted in 2005. • The general area that is the subject of this report has been explored for kaolinitic products in the past by Transoil NL, SA Paper Clays ECC (Pacific) & Commercial Minerals Ltd. ADN has reviewed past exploration conducted by MEP.
Geology	• Deposit type, geological setting and style of mineralisation.	• Kaolin deposits, such as Poochera/Carey's Well, developed in situ by lateritic weathering of the feldspar-rich Hiltaba Granite. • The resultant kaolin deposit at Carey's Well is a sub-horizontal zone of kaolinised granite resting with a fairly sharp contact on unweathered

Criteria	JORC Code explanation	Commentary
		granite. The kaolinised zone is overlain by loosely consolidated Tertiary and Quaternary sediments. • High quality kaolin-halloysite deposits occur extensively across the Poochera Project area • Halloysite is a rare derivative of kaolin where the mineral occurs as nanotubes. Halloysite has a wide variety of industrial uses beyond simple kaolin and commands a significant premium above the average kaolin price. The Poochera kaolin deposits contain variable admixtures of kaolin and halloysite that appear amenable to selective mining to produce specific low, medium and high halloysite blends for the ceramic markets, new nanotechnology applications and as a strengthening additive in the cement and petroleum fracking industries.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• Exploration results have been reported in the public domain with an ASX release for the initial resource estimate publicised on 8 February 2012. • Exploration results not being reported.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values	• Exploration results not being reported.

Criteria	JORC Code explanation	Commentary
	should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• Exploration results not being reported. • Drill hole angle relative to mineralisation has been almost perpendicular. Generally, the stratabound intercepts are close to true width.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Exploration results not being reported.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Exploration results not being reported.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• Metallurgical testwork conducted by BHM Process consultants utilising industry standard two-stage acid dissolution and precipitation product with chemical analysis through Nagrom Mineral Laboratories and Labwest Mineral Analysis.
Further work	• The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Further HPA metallurgical testwork and additional halloysite analyses will be conducted as part of future Scoping and Feasibility studies.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• All relevant data were entered into an Access database where various validation checks were performed including duplicate entries, sample overlap, unusual assay values and missing data. • Data linked to Surpac for wireframing, block model creation and resource reporting. • Visual reviews of data were conducted to confirm consistency in logging and drillhole trajectories. • Assessment of the data confirms that it is suitable for resource estimation.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• No site visit by H&SC personnel was completed due to time and budgetary constraints. • Multiple site visits were completed by Tony Belperio, Executive Director of MEP • A site visit was recently completed by Rhod Grivas, Chairman of ADN. James Marsh, Managing Director of ADN has historically visited the area several times
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The geological understanding is quite straightforward with the 2008 and 2011 MEP drilling density allowing for a high level of confidence. • Consistent logging has allowed for the definition of a series of 3D geological surfaces. These surfaces comprise a base of soil, a base of silcrete, a top of kaolinite mineralisation (generally coincides with the base of silicified kaolinite), a base of kaolinite (generally coincides with the top of partially decomposed granite) and a base of drilling surface. • The surfaces indicate the flat-lying nature to the mineralisation although there are significant variations in thickness of the kaolinite. • In most cases the top and base of the kaolinite mineralisation is defined by where the material has been assayed. • The 2013 ABC drilling has been used to help define the geological surfaces where appropriate information exists.

Criteria	JORC Code explanation	Commentary
		• Wireframe extrapolation is generally 100m beyond the last drillhole; termination of wireframes is due a combination of geology and a lack of drilling. • On receipt of halloysite analyses from CSIRO the interpretation was advanced with the definition of a halloysite zone using a nominal 10% halloysite (for -45 micron size fraction) • The existing interpretation honours all the available data; an alternative interpretation is unlikely to have a significant impact on the resource estimates.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• Mineralisation can be modelled for 1km of strike length, and down dip for 1.5km (very shallow dip of 2^{o} to the east). The mineralised zone appears to comprise two parallel N-S striking depressions with thicknesses ranging from 3 to 28m. • The depth below surface to the top of the mineralisation ranges between 8 and 24metres.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to	• Mineral wireframes and geological surfaces are based on interpretations completed on sections with strings snapped to drill holes. • Surpac mining software was used for the interpretation and block model reporting. The GS3 software was used for block grade interpolation. • The kaolin wireframes were used to control the composite selection and the loading of subsequently modelled data into the block model. • Geostatistics were performed for minus45micron material, Al_2O_3, Fe_2O_3, SiO_2, TiO_2, R457 (reflectance) and 2micron particle size data. Halloysite percentage was also analysed • Correlation between the main economic elements was weak indicating possible mineral zonation, which is not an uncommon feature with the type of mineralisation. • Drillhole spacing is 100m with sample compositing up to 5m (predominantly 4 to 5m). • Parent block sizes were 50m in the X (east) direction, 50m in the Y (north) direction and 5m in the Z (RL) direction with sub-blocking to 12.5m by 12.5m by 1.25m. • The Ordinary Kriging estimation method was used.

Criteria	JORC Code explanation	Commentary
	control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• 214 five metre (5m) composites were selected using the relevant wireframes; residuals of <2.5m were discarded. 203 samples had halloysite analyses. • No top cutting was applied; the coefficients of variation for the relevant composite datasets suggest that the data is not sufficiently skewed or unstructured to warrant top cutting. • 3 estimation search passes were used with an increasing search radius and decreasing number of data points. • Search size: 150 by 150 by 7.5m (Measured), 250 by 250 by 15m (Indicated) to 250 by 250 by 15m (Inferred) with 8 minimum data (Measured and Indicated) decreasing to 4 (Inferred). • The first and second passes used an octant-based search where at least 4 octants had to be estimated; the remaining pass 3 used a 2 octant based search. • Variography was modest mainly due to the limited amount of sample data, particularly in the down dip direction in combination with localised thinness of some of the mineral zones. • One search ellipse was used, orientated to follow the strike, dip and plunge trend of the mineral unit. • Model validation has consisted of visual comparison of block grades and composite values and indicated a good match. Comparison of summary statistics for block grades and composite values has indicated a very small risk of overestimation of grade for certain elements for certain lodes usually in the Inferred category. This is due to the deposit being open with zones of higher grade material on the margin. • There are relatively limited changes from the MEP 2012 global resource estimates and this provides a good level of confidence in the resource estimates and their classification. • The 2013 ABC drilling data was modelled as a check model as it only covers part of the deposit. This model used different data sources, namely kaolinite and silica percentages, rather than minus45micron and R457 reflectance values. The check model for this sub-area reported only a 5% difference in the interpreted kaolinite content with the MEP model.

Criteria	JORC Code explanation	Commentary
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages are estimated on a dry weight basis.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• Resource estimates have been reported at a 75 R457 reflectance within the upper and lower kaolinite surfaces. A second constraint uses the area defined as halloysite containing from CSIRO analyses at a nominal 10% halloysite from the -45 micron recovered fraction. The -45micron values were used as a volume adjustment factor being indicative of kaolinite material. • There is a very limited amount of unassayed kaolinite material outside the new resource estimates • The cut-off grade at which the resource is quoted reflects the intended bulk-mining approach.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• H&SC's understanding based on information supplied by ADN is for an open pit mining scenario. • The proposed mining method will be a truck-shovel operation • Minimum mining dimensions are the sub-block size of 12.5m by 12.5m by 1.25m. • The current assumptions for the mining dilution and recovery for the open pit mine are 5% dilution and 95% recovery. The initial plan for mining start up will be sell the product as direct shipping ore.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Preliminary testwork on alumina content and the ability to produce HPA previously carried out with Bureau Veritas, UniSA and the University of Newcastle showed that the Poochera/Carey's Well product would be suitable for HPA generation with the added advantage that it gives a significantly higher alumina mass yield than comparable Australian kaolins. • BHM Process Consultants were commissioned to undertake the necessary concept metallurgical investigation and future process design aspects for upgrading typical hydrous processed kaolin from Poochera/Carey's Well to a saleable HPA product via industry standard hydrometallurgical processing routes. BHM have specific metallurgical experience and knowledge in the field of HPA production principles as well as being hydrometallurgical

Criteria	JORC Code explanation	Commentary
		specialists that understand the intricate processes involved in HPA production. • The BHM testwork indicates that an HPA product with 99.99% purity is readily available from Poochera/Carey's Well kaolin/halloysite feedstock using an industry standard HCL two-stage dissolution-precipitation process, with the initial testwork achieving 99.9855% alumina. Key impurities in the first testwork include Silicon (66.84ppm), Sodium (30.16ppm) and Iron (28.28ppm), each of which can be expected to be further reduced by processing improvements moving forward.
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• A 12 month baseline flora study has already been completed and consultants are being engaged to complete all the environmental studies required for a mining licence. • The Poochera/Carey's Well deposit area is currently utilised for grazing and cereal cropping. There are also areas of unused ground • There will be no tailings. A storage area for the overburden will be required initially. If it is decided to dry semi-processing on site at a later stage there will be approx. 50% of sand rejects that may be stockpiled or used for backfilling. • No large river systems pass through the area.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• In October 2018 a bulk sample programme included designing and implementing an appropriate method to determine bulk rock density on the unconsolidated, porous kaolin-halloysite material. • The method involved vacuum sealing fresh samples and completing weight in air weight/water measurements along with oven-drying the sample. • A total of 220 samples were collected on which density determinations were completed. • The same sample suite was used to determine moisture content. • The average in-situ bulk rock density measured for the material sampled was 1.83 tonnes/m^3, whilst the average dry bulk rock density was 1.44 tonnes/m^3. • The average moisture content of the bulk sample material was measured to be 21.6 wt%. • The average dry bulk rock density of 1.44 tonnes/m^3 is materially different

Criteria	JORC Code explanation	Commentary
		from the density estimate of 1.7 tonnes/m^3 (based on 8 samples) used in the previous Mineral Resource estimates. • This 1.44 t/m^3value has been used as a default density value for subsequent resource estimation. • The default density value is considered reasonable, (possibly slightly conservative); it is generated from a large number of samples but from a relatively small area (the bulk sample).
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• Mineral Resources have been classified on the estimation search pass category subject to assessment of other impacting factors such as drillhole spacing (variography), sampling procedures, QAQC outcomes, density measurements, geological model and previous resource estimates. • The classification appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• No reviews or audits have been completed.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The Mineral Resources have been classified using a qualitative assessment of a number of factors including the geological understanding in conjunction with the simplicity of mineralisation, the drillhole spacing, sample recoveries (the lack thereof), sampling procedure, QA/QC data and density data. • The Mineral Resource estimates are considered to be accurate globally, but there is some uncertainty in the local estimates due to the sample compositing (and density data) giving a lack of detailed definition of any subtle variations in the deposit. • No mining of the deposit has taken place so no production data is available for comparison.