



## APPENDIX 6 – GAS DESORPTION REPORT

**Blue Energy Ltd**  
**Itude\_3**  
**Desorption Data Summary Report**

Prepared by:  
P. McGrath - GeoConsult Pty Ltd  
Reviewed by:  
W. Smyth and R. Clare - GeoConsult Pty Ltd  
Approved by:  
C. Harman and M. Swift – Blue Energy Ltd

For

Blue Energy Ltd  
Suite 15C, 421 Brunswick Street  
Fortitude Valley QLD 4006  
Australia

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## Table of Contents

List of Tables.....	ii
List of Figures .....	ii
List of Appendices .....	ii
Disclaimer .....	iii
1 Introduction .....	1
2 Personnel .....	1
3 Glossary of Terms and Abbreviations .....	1
4 Sampling and Analysis Method.....	2
4.1 Coring .....	2
4.2 Coal Desorption Sampling .....	2
4.3 Slow Desorption Testing.....	2
4.3.1 Lost Gas ( $Q_1$ ) Analysis .....	3
4.3.2 Measureable Gas ( $Q_2$ ) Analysis .....	3
4.3.3 Residual Gas ( $Q_3$ ) Sample Analysis .....	3
4.3.4 Desorption Sample Slabbing .....	3
4.3.5 Slabbed Core Photography.....	3
4.3.6 Lithological and Geotechnical Logging .....	3
4.4 Formation Fluid Sampling .....	4
4.5 Gas Composition Sampling and Analysis.....	4
4.6 Gas Isotope Sampling and Analysis .....	4
4.7 Coal Lab Sampling .....	4
4.8 Coal Quality Sampling .....	5
4.9 Adsorption Isotherm Analysis .....	5
4.10 Petrographic Analysis.....	5
5 Results.....	6
5.1 Slow Desorption Results.....	6
5.1.1 Lost Gas ( $Q_1$ ).....	6
5.1.2 Measureable Gas ( $Q_2$ ) .....	7
5.1.3 Residual Gas ( $Q_3$ ).....	7
5.1.4 Measured Gas ( $Q_m$ ) and Desorbed Gas ( $Q_1 + Q_2$ ) .....	8
5.2 Coal Lab Sample Results.....	9
5.3 Gas Composition Results.....	10
5.4 Coal Quality Results.....	11
6 References .....	12

## List of Tables

Table 1 – Recommended criteria for satisfying AS 3980-1999. ....	2
Table 2 – Summary of desorption sample details.....	6
Table 3 – $Q_1$ results summary. ....	6
Table 4 – $Q_2$ results summary. ....	7
Table 5 – $Q_3$ results summary. ....	7
Table 6 - $Q_m$ and Desorbed Gas results summary.....	8
Table 7 - Summary of coal lab sample details.....	9
Table 8 – Gas composition results for composition A samples.....	10
Table 9 –Proximate analysis and Relative Density results. ....	11

## List of Figures

Figure 1 – Plot of $Q_m$ daf with depth.....	8
Figure 2 – Plot of $Q_m$ components.....	9
Figure 3 – Plot of methane percentage volume air free with depth. ....	10
Figure 4 – Plot of total gas as received with sample ash. ....	11

## List of Appendices

Appendix I	- GeoConsult Gas Desorption Data Summaries
Appendix II	- GeoConsult Q3 Analysis Report
Appendix III	- GeoConsult Lithological and Geotechnical Data
Appendix IV	- GeoConsult Desorption Core Photographs
Appendix V	- SIMTARS Gas Compositional Analysis Reports
Appendix VI	- BUREAU VERITAS Proximate Analysis Report

## Disclaimer

GeoConsult warrants that:

- (a) the contents of this report accurately reflect the results of the sampling undertaken; and
- (b) the sampling was completed in accordance with AS3980-1999 and any other Australian Standards listed in this report.

In all other respects, GeoConsult hereby excludes any other warranty or representation (express or implied) to the full extent permitted by law, and disclaims all liability for any loss (including consequential loss or damage), suffered or incurred by any other person, however caused (including negligence) as a result of the use of, or reliance on, the information contained in this report or the time taken to render this report.

## 1 Introduction

This report presents the results of slow desorption gas content testing carried out at Itude\_3 in Surat Basin ATP 854P for Blue Energy Ltd. On site testing of coal core was carried out from 25<sup>th</sup> July 2009 to 8<sup>th</sup> August 2009 by GeoConsult. Appended to this report are all reports relating to analyses undertaken by GeoConsult on behalf of and at the request of Blue Energy Ltd.

## 2 Personnel

Primary wellsite geological field duties were undertaken by Peter McGrath and Tom O'Malley of GeoConsult. Field laboratory services were provided by technicians Ben Corrigan, Nicholas Proulx and Andrew Welsh of GeoConsult. Simon Phillips of GeoConsult provided laboratory management services. Chris Harman of Blue Energy Ltd supervised the project. Lucas Drilling Rig 180 and crew provided well drilling services.

## 3 Glossary of Terms and Abbreviations

The following terms and abbreviations are used throughout this report and where applicable, conform to AS 3980-1999.

<i>Lost gas (<math>Q_1</math>)</i>	Gas lost from the sample, subsequent to the commencement of desorption (zero time) and prior to its containment in the gas canister (time on test); expressed as the quantity per unit mass of coal.
<i>Measureable Gas (<math>Q_2</math>)</i>	Gas desorbed at atmospheric pressure from the non-pulverized coal sample; expressed as the quantity per unit mass of coal.
<i>Residual Gas (<math>Q_3</math>)</i>	Gas still contained in the coal at one atmosphere after desorption is complete; expressed as the quantity per unit mass of coal.
<i>Desorbed gas content</i>	The sum of $Q_1$ and $Q_2$ .
<i>Measured gas content (<math>Q_m</math>)</i>	The sum of $Q_1$ , $Q_2$ and $Q_3$ .
<i>Zero Time (<math>t_0</math>)</i>	That point in time at which desorption is deemed to have commenced. In this report zero time is deemed to be the time half way between when the core is pulled off bottom and when the core reaches the surface.
<i>Time On Test (<math>t_1</math>)</i>	That point in time at which the sample is sealed in the canister.
<i>Elapsed Time (<math>t_e</math>)</i>	Duration, in minutes, between zero time and time on test ( $t_0 - t_1$ ).
<i>Coal Seam Gas (CSG)</i>	Either biogenic or thermogenic methane gas, higher hydrocarbons, nitrogen, carbon dioxide and other gasses that are both generated and stored within coal seams.
<i>Methane (<math>CH_4</math>)</i>	The basic component of CSG, generated by decaying organic matter and by increasing coal rank.
<i>Dry Ash Free (daf)</i>	A standard basis for comparing coals without the diluting effects of inorganic constituents.

## 4 Sampling and Analysis Method

### 4.1 Coring

Coring was undertaken by Lucas Drilling using HQ3 sized coring equipment from a depth of 54.70 m to 292.73 m and using NQ3 sized coring equipment from a depth of 292.73 m to 383.20 m. Core runs measured a maximum of 6 metres. GeoConsult and Blue Energy Ltd personnel undertook lithological and geotechnical logging of each core run before the core was marked up and packed into plastic core boxes which were then photographed.

### 4.2 Coal Desorption Sampling

Representative coal samples were selected by the wellsite geologist for slow desorption testing and sealed in PVC canisters. The number of desorption samples taken was determined by the thickness of intersected coal in certain formations. The minimum coal seam thickness tested for each sample was 0.50 m. When selecting desorption intervals, coal with high mineral content or intrusive alteration was avoided. In order to reduce the amount of void space in the canister, HDPE plastic core blanks were used to occupy any additional length of the sampled interval. All desorption core samples taken were HQ3 in size (61.1 mm diameter) and were enclosed in HQ3 sized PVC splits before being sealed in a canister.

### 4.3 Slow Desorption Testing

Initial slow desorption testing was carried out in an onsite laboratory using the top feeding method (AS 3980-1999). All samples were assessed against a series of criteria designed to satisfy the recommendations of Australian Standard AS 3980-1999. The criteria and results are outlined in Table 1.

Table 1 – Recommended criteria for satisfying AS 3980-1999.

Item No	Description	Passed? Yes/No/NA
1	Canister test pressure to 90 kPa (gauge)	Yes
2	Canister leak test prior to placing on line	Yes
3	Sample > 20% CO <sub>2</sub> , fast desorption test	NA
4	Sample mass/crusher volume ratio 1:1 to 1:7	Yes
5	Gas testing reported at 20°C and 1 atmosphere	Yes
6	Q <sub>1</sub> determined	Yes
7	Q <sub>3</sub> determined	Yes
8	Crushing apparatus tested to produce 95% of material passing 212 µm mesh	Yes

Each desorption canister accommodated 1.0 m core lengths. It is desirable to keep the void space in the canister to a minimum hence when the length of coal core was less than the canister length HDPE plastic core blanks were used to fill the remaining void rather than roof or floor material. Throughout the duration of the test the canisters were kept in a drum of water at reservoir temperature to simulate in-situ temperature conditions.

In order to reduce the absorption of carbon dioxide from the desorbing gas into the bath water a brine solution was used and floating plastic discs were placed in each cylinder to reduce the contact area at the water/gas interface. Careful monitoring of the desorption process ensured that air leaks in the equipment were able to be detected and rectified.

At the completion of the well the samples were transported to GeoConsult's Brisbane Lab to complete slow desorption testing. The variation in temperature and pressure conditions during

transportation may be reflected in the desorption curve but it does not affect the total desorbed gas. Samples were taken off test when the rate of desorption was deemed to be negligible or to have ceased.

The slow desorption test consists of three phases. Lost gas ( $Q_1$ ), measureable gas ( $Q_2$ ) and residual gas ( $Q_3$ ). The sum of  $Q_1$ ,  $Q_2$  and  $Q_3$  is regarded as the measured gas content in the coal sample or  $Q_m$ . The sum of  $Q_1$  and  $Q_2$  is regarded as the desorbed gas content. All volumes are reported in cubic metres per tonne ( $m^3/t$ ).

#### **4.3.1 Lost Gas ( $Q_1$ ) Analysis**

Initial desorption results are plotted against the square root of time to create a linear equation which is extrapolated to time zero. Initial desorption readings were measured at short time intervals in order to accurately estimate the lost gas component.

#### **4.3.2 Measureable Gas ( $Q_2$ ) Analysis**

Volume measurements were taken at regular intervals and used to create a desorption curve showing the rate and a total volume of gas desorbed at the completion of the test. The ambient temperature and pressure in the laboratory and the temperature of the canister bath were recorded at each measurement so that the results could be corrected to standard temperature and pressure and so that the rate of desorption would best reflect the reservoir temperature.

#### **4.3.3 Residual Gas ( $Q_3$ ) Sample Analysis**

At least two samples of approximately 50 grams, representative of the coal contained in the canister, were selected from each desorption sample for  $Q_3$  testing at the completion of  $Q_2$  testing. Samples were crushed in a ring mill and the gas evolved was measured. Each sample was analysed for ash and moisture and an average value for all samples reported on an as analysed and dry ash free basis.

#### **4.3.4 Desorption Sample Slabbing**

Each desorption core sample was slabbed after  $Q_3$  sampling had been completed. Slabbing involves cutting the core in half length-ways using a diamond rock saw. Samples were retained in their original splits to reduce breakage.

#### **4.3.5 Slabbed Core Photography**

Each slabbed desorption core was photographed in sections using a Nikon high resolution DSLR camera. Individual photo sections were stitched together to create a single image of each desorption core sample. Slabbed desorption core photographs are presented in Appendix III.

#### **4.3.6 Lithological and Geotechnical Logging**

The lithological and geotechnical properties of one half of each slabbed sample were logged in detail as per GeoConsult's standard logging system which conforms to AS 1726–1993 and The Field Geologists' Manual (2001). The lithological and geotechnical logs are presented in Appendix III.



#### 4.4 Formation Fluid Sampling

Where possible a fluid sample was taken during drill stem testing (sample number BEIT3\_025) to determine the composition of the formation fluids with any samples dispatched directly to Blue Energy. An additional sample (sample number BEIT3\_028) was taken after a groundwater flow was observed after intersecting a cavity. The results of such analyses are not covered in this report.

#### 4.5 Gas Composition Sampling and Analysis

Where possible, two gas composition samples from selected desorption samples were taken at different stages in the test. Composition Sample A (Comp A) was taken after an initial gas volume had been desorbed (usually 4000 ml – 6000 ml) sufficient to purge helium or air trapped in the void space of the canister at the time of sampling. Composition Sample B (Comp B) was taken at a stage where the rate of desorption had slowed considerably and therefore represented the “later stage” of the test.

If the total desorbed gas volume of a desorption sample was below 4000 ml then only a Composition A sample was taken otherwise there would be no gas composition data. The compositional results of samples with low total desorbed gas should be interpreted with caution as they do not satisfy the GeoConsult criteria for a correct Composition A sample.

A gas standard sample was included in each analysis batch for quality assurance and quality control purposes.

All samples were collected in tedlar bags and were analysed by SIMTARS by gas chromatograph for methane, carbon dioxide, nitrogen, oxygen, argon (based on nitrogen content), hydrogen, carbon monoxide, helium, ethane and ethylene.

Every effort was made to reduce the amount of air contamination in the desorption sampling process. Each gas desorption canister was purged with helium prior to the insertion of desorption core samples in order to displace the air contained in the empty canister. Cylinders were set at their maximum height prior to the connection of a canister to reduce the volume of air contamination.

Raw gas composition results from SIMTARS were first normalised to a helium free basis then normalised to an air free basis using the following ratios of components in air relative to oxygen:

- N<sub>2</sub> 1:3.73
- CO<sub>2</sub> 1:0.0016
- Ar 1:0.046

#### 4.6 Gas Isotope Sampling and Analysis

Gas isotope testing was not conducted on any samples presented in this report.

#### 4.7 Coal Lab Sampling

Coal lab sampling was required to reduce the lead time of analytical results normally derived from desorption samples once removed from the canister. Coal lab samples (BEIT3\_022, BEIT3\_024, BEIT3\_026, BEIT3\_029 and BEIT3\_030) were taken in the field at convenient locations close to each desorption sample so as to approximate the composition of the desorption sample. Once selected the sample interval was measured and recorded and the sample placed in a plastic

sample bag. Coal lab samples underwent proximate analysis as per the methods described below. Adsorption isotherm, vitrinite reflectance and maceral analyses were not required for any Coal Lab samples as directed by Blue Energy.

#### **4.8 Coal Quality Sampling**

After slabbing, photography and logging, the remaining desorption sample was placed in a plastic sample bag and sent to Bureau Veritas for proximate analysis and relative density testing. Coal lab samples were sent to Bureau Veritas as whole bagged samples for proximate analysis and relative density testing.

#### **4.9 Adsorption Isotherm Analysis**

Adsorption Isotherm analysis was not required for any sample from Itude 1 as directed by Blue Energy.

#### **4.10 Petrographic Analysis**

Petrographic analysis was not required for any sample from Itude 1 as directed by Blue Energy.

## 5 Results

The following data are presented in this report:

- Lost gas ( $Q_1$ ), Measureable gas ( $Q_2$ ), Residual gas ( $Q_3$ ), Desorbed gas content ( $Q_1 + Q_2$ ), and Measured gas content ( $Q_m = Q_1 + Q_2 + Q_3$ ).
- Gas composition analyses (air and helium free).
- Proximate analysis and relative density for each desorption and lab sample.
- Residual gas ( $Q_3$ ) test ash and inherent moisture analyses.

### 5.1 Slow Desorption Results

Detailed results in the form of Gas Desorption Data Summaries are presented in Appendix I. A summary of general sample details is presented in Table 2.

Table 2 – Summary of desorption sample details.

Sample ID	Canister Number	Depths		Sample		Spacer		Stone		Coal		Seam Name
		From (m)	To (m)	Length (m)	Mass (Kg)	Length (m)	Mass (Kg)	Length (m)	Mass (Kg)	Length (m)	Mass (Kg)	
BEIT3_019	GC2112	130.16	130.80	0.64	3.38	0.30	0.86	0.07	0.60	0.57	1.92	Juandah CM
BEIT3_020	GC2115	147.59	148.59	1.00	4.18	0.00	0.00	0.24	1.24	0.76	2.94	Juandah CM
BEIT3_021	GC2108	148.59	149.57	0.98	4.42	0.00	0.00	0.25	1.32	0.73	3.10	Juandah CM
BEIT3_023	GC2116	251.89	252.47	0.58	4.16	0.40	1.14	0.44	2.44	0.14	0.58	Taroom CM
BEIT3_027	GC2101	286.81	287.50	0.69	4.68	0.30	0.84	0.47	2.64	0.22	1.20	Taroom CM

#### 5.1.1 Lost Gas ( $Q_1$ )

$Q_1$  results for Itude\_1 are presented in Table 3. Samples were put on test no more than 13 minutes after time zero.

Table 3 –  $Q_1$  results summary.

Sample ID	Core Off Bottom	Time Zero ( $t_0$ )	Test Start ( $t_1$ )	Delay Time ( $t_1 - t_0$ ) (mins)	$Q_1$ (ar $m^3/t$ )
BEIT3_019	26/07/2009 14:40:00	26/07/2009 14:40:30	26/07/2009 14:48:00	7.50	0.01
BEIT3_020	26/07/2009 15:50:00	26/07/2009 15:50:30	26/07/2009 15:58:00	7.50	0.03
BEIT3_021	26/07/2009 15:50:00	26/07/2009 15:50:30	26/07/2009 15:59:00	8.50	0.04
BEIT3_023	29/07/2009 16:24:00	29/07/2009 16:25:30	29/07/2009 16:36:40	11.17	0.25
BEIT3_027	30/07/2009 14:33:00	30/07/2009 14:35:00	30/07/2009 14:44:03	9.05	0.08

### 5.1.2 Measureable Gas (Q<sub>2</sub>)

Coal samples selected for slow desorption testing were allowed to desorb for periods of up to 22 days. The results of the tests are shown in Table 4.

Table 4 – Q<sub>2</sub> results summary.

Sample ID	Test Start	Test End	Days On Test	Measureable Gas (scc)	Q <sub>2</sub> (ar m <sup>3</sup> /t)
BEIT3_019	26/07/2009 14:48:00	17/08/2009 15:20:00	22.02	439	0.23
BEIT3_020	26/07/2009 15:58:00	17/08/2009 15:20:00	21.97	1598	0.54
BEIT3_021	26/07/2009 15:59:00	17/08/2009 15:20:00	21.97	1181	0.38
BEIT3_023	29/07/2009 16:36:40	17/08/2009 15:20:00	18.95	966	1.67
BEIT3_027	30/07/2009 14:44:03	17/08/2009 15:20:00	18.02	753	0.63

### 5.1.3 Residual Gas (Q<sub>3</sub>)

The results of Q<sub>3</sub> testing and analysis are summarised in Table 5 and the GeoConsult analysis data are included in Appendix II. At least two residual gas samples from each desorption sample were tested and the mean of all residual gas samples included in the Desorption Data Summary (Appendix I). The mean residual gas volume was then normalised to the total sample ash (Q<sub>3</sub> corrected).

Table 5 – Q<sub>3</sub> results summary.

Sample ID	Q <sub>3</sub> Mean (m <sup>3</sup> /t aa @STP)	Q <sub>3</sub> Mean (m <sup>3</sup> /t daf @STP)	Q <sub>3</sub> Corrected (m <sup>3</sup> /t aa @STP)
BEIT3_019	0.5	0.6	0.45
BEIT3_020	0.6	0.7	0.55
BEIT3_021	0.7	0.9	0.58
BEIT3_023	1.0	1.1	0.97
BEIT3_027	1.0	1.2	1.00

NOTE: aa = as analysed, daf = dry ash free and STP = standard temperature and pressure

### 5.1.4 Measured Gas ( $Q_m$ ) and Desorbed Gas ( $Q_1 + Q_2$ )

A summary of  $Q_m$  and Desorbed Gas contents is presented in Table 6. Gas contents are presented in cubic metres per tonne ( $m^3/t$ ).

The results are presented on a dry ash free (daf) basis in order to allow comparisons between samples and are recorded in the summary for each sample. The relationship between Measured Gas ( $Q_m$ ) daf and depth is shown in Figure 1. Figure 2 shows the percentage of each component making up the  $Q_m$  result for each sample.

Table 6 -  $Q_m$  and Desorbed Gas results summary.

Sample ID	Desorbed Gas ar ( $m^3/t$ )	Measured Gas ( $Q_m$ ) ar ( $m^3/t$ )	Desorbed Gas daf ( $m^3/t$ )	Measured Gas ( $Q_m$ ) daf ( $m^3/t$ )	Ash (ad %)	Inherent Moisture (ad %)
BEIT3_019	0.24	0.69	0.31	0.89	16.3	6.1
BEIT3_020	0.57	1.12	0.71	1.39	14.5	5.2
BEIT3_021	0.42	1.00	0.58	1.38	22.0	5.3
BEIT3_023	1.92	2.89	2.17	3.26	6.8	4.6
BEIT3_027	0.71	1.71	0.86	2.06	12.5	4.6

NOTE: Desorbed Gas =  $Q_1 + Q_2$  and Measured Gas ( $Q_m$ ) =  $Q_1 + Q_2 + Q_3$

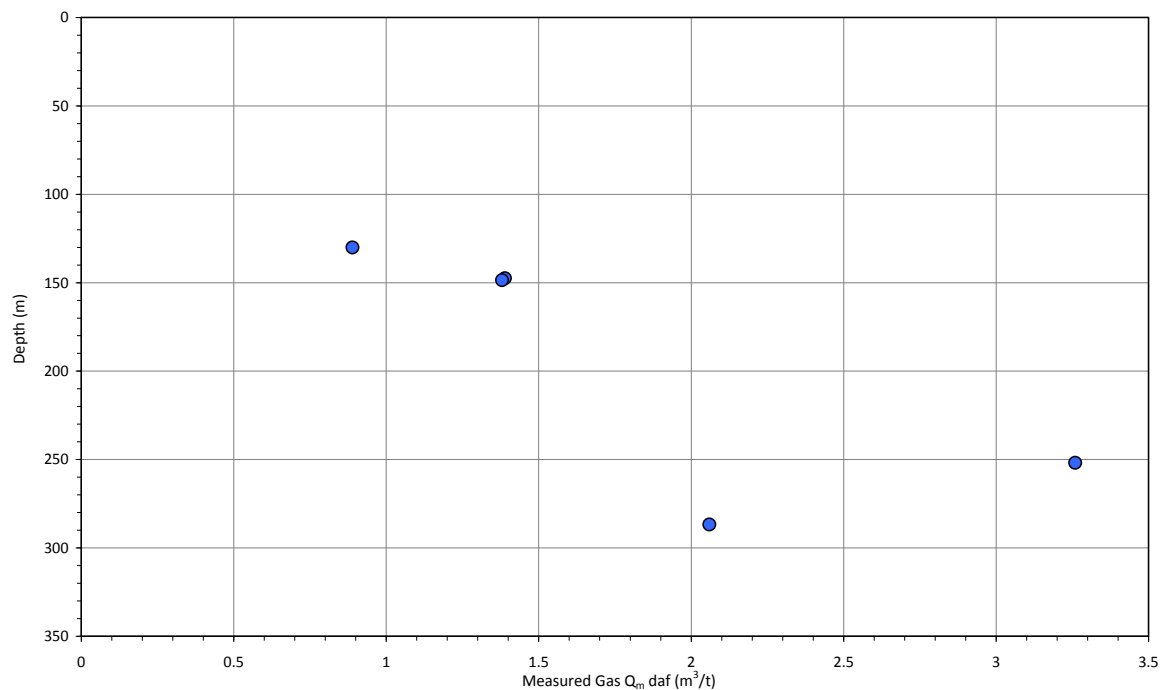


Figure 1 – Plot of  $Q_m$  daf with depth.

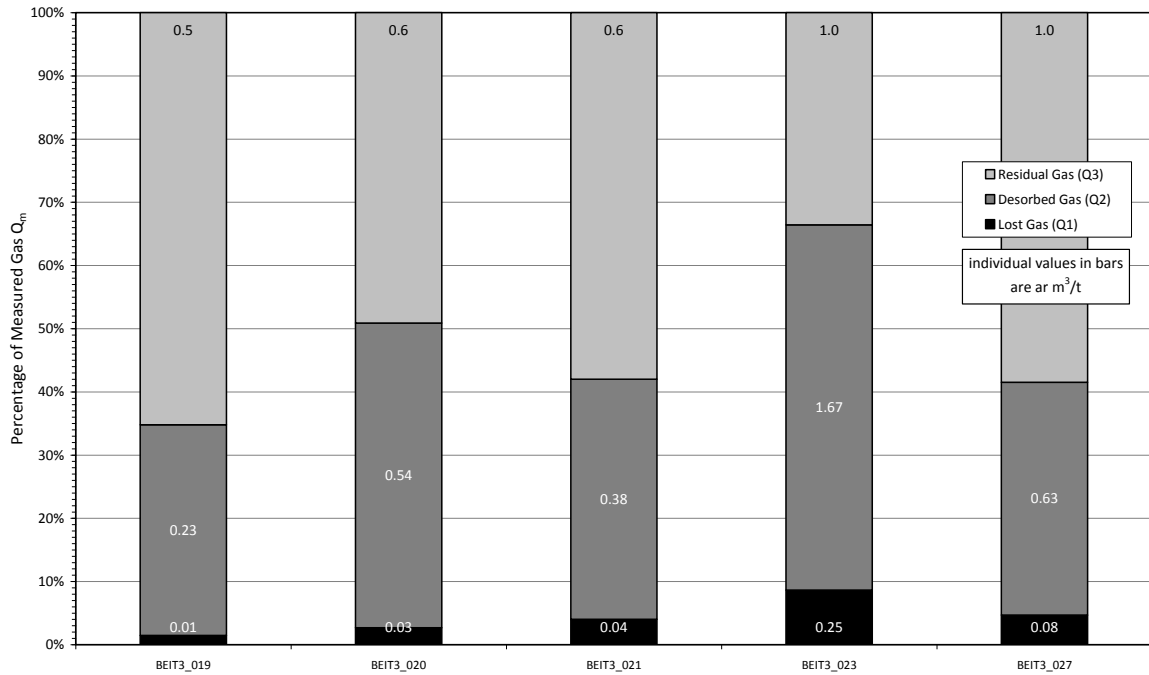


Figure 2 – Plot of Q<sub>m</sub> components.

## 5.2 Coal Lab Sample Results

A summary of coal lab sample details is presented in Table 7.

Table 7 - Summary of coal lab sample details

Sample ID	From Depth (m)	To Depth (m)	Sample Length (m)	Seam Name
BEIT3_022	146.59	146.89	0.30	Juandah CM
BEIT3_024	253.61	253.99	0.38	Taroom CM
BEIT3_026	271.28	271.49	0.21	Taroom CM
BEIT3_029	287.50	288.01	0.51	Taroom CM
BEIT3_030	289.77	289.97	0.20	Taroom CM

### 5.3 Gas Composition Results

Helium and air free normalised gas composition results for selected samples from Itude\_1 are shown in Table 8. As analysed Oxygen and Helium values are included for comparative purposes. These are normalised values derived from raw data presented in Appendix V. A plot of composition A sample methane percentage volumes versus depth is presented in Figure 3.

Table 8 – Gas composition results for composition A samples.

Sample ID	Date Sampled	Time Sampled	Air and Helium free results					As analysed results	
			Methane (CH <sub>4</sub> ) (%)	Carbon Dioxide (CO <sub>2</sub> ) (%)	Nitrogen (N <sub>2</sub> ) (%)	Ethane (C <sub>2</sub> H <sub>6</sub> ) (%)	Other (%)	Oxygen (O <sub>2</sub> ) (aa %)	Helium (He) (aa %)
BEIT2_019	NOT SAMPLED								
BEIT2_020_COMPA	01/08/2009	04:55	87.47	0.42	12.09	0.01	0.01	5.4	19.5
BEIT2_021_COMPA	01/08/2009	04:55	72.54	0.43	27.01	0.01	0.01	5.7	24.8
BEIT2_023_COMPA	01/08/2009	04:55	85.62	0.49	13.85	0.03	0.01	8.5	25.3
BEIT2_027	NOT SAMPLED								

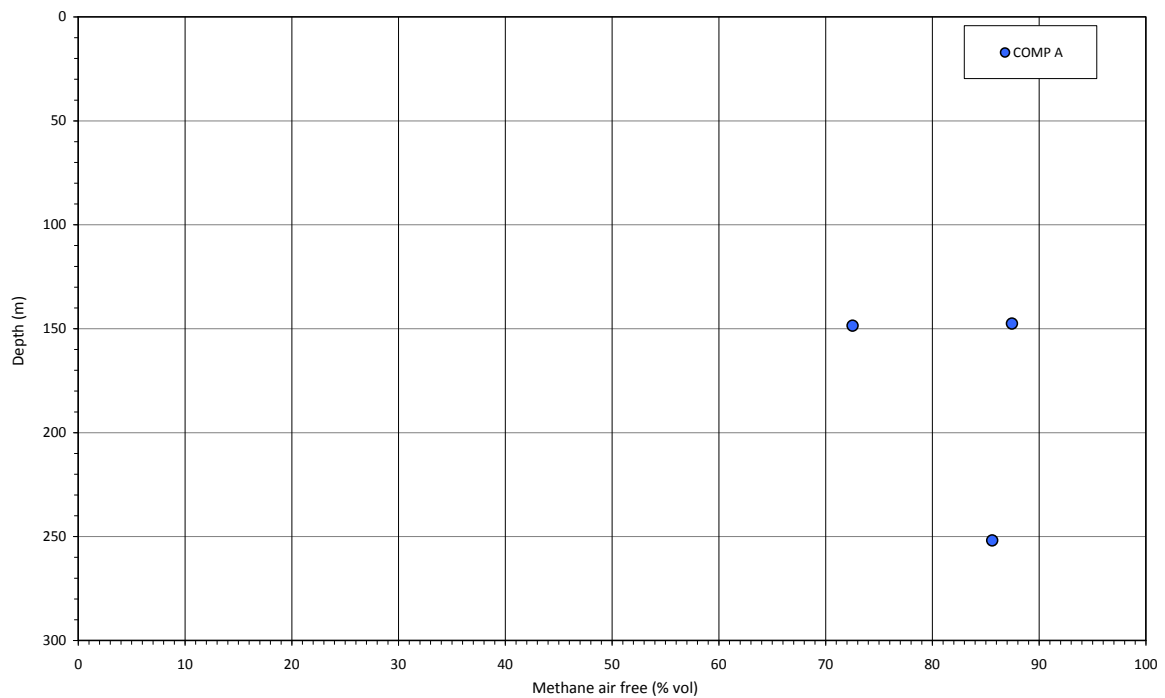


Figure 3 – Plot of methane percentage volume air free with depth.

### 5.4 Coal Quality Results

Proximate analysis and relative density results are shown in Table 9. Raw coal proximate analysis and relative density results from Bureau Veritas are presented in Appendix VI. Measured gas as received versus sample ash for desorption samples is presented in Figure 4.

Table 9 –Proximate analysis and Relative Density results.

Sample ID	Sample Type	Ash (ad %)	Inherent Moisture (ad %)	Volatile Matter (ad %)	Fixed Carbon (ad %)	Relative Density (ad)	Sample Mass (ad kg)
BEIT3_019	Desorption	16.3	6.1	41.8	35.8	1.35	0.891
BEIT3_020	Desorption	14.5	5.2	45.0	35.3	1.34	1.262
BEIT3_021	Desorption	22.0	5.3	40.3	32.4	1.41	1.365
BEIT3_022	Coal Lab	13.4	6.6	42.0	38.0	Not requested	1.127
BEIT3_023	Desorption	6.8	4.6	45.6	43.0	1.30	0.160
BEIT3_024	Coal Lab	37.7	4.1	35.0	23.2	Not requested	1.541
BEIT3_026	Coal Lab	13.9	6	42.1	38.0	Not requested	0.671
BEIT3_027	Desorption	12.5	4.6	42.4	40.5	1.35	0.426
BEIT3_029	Coal Lab	2.8	7.1	43.2	46.9	Not requested	1.176
BEIT3_030	Coal Lab	6.1	7.3	41.8	44.8	Not requested	0.698

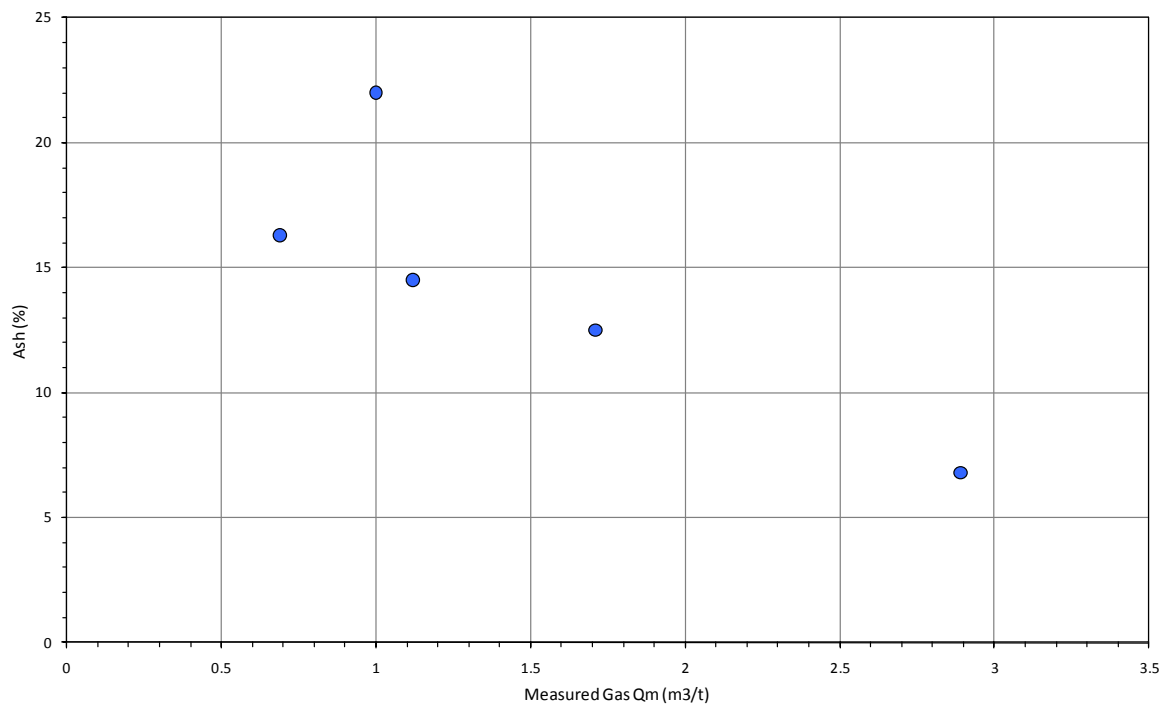


Figure 4 – Plot of total gas as received with sample ash.



## 6 References

AS 3980-1999: Guide to the Determination of Gas Content of Coal - Direct Desorption Method. Standards Association of Australia.

AS 1726-1993: Geotechnical Site Investigations. Standards Association of Australia.

Berkman, D.A. 2001: Field Geologists' Manual. Aus. IMM Monograph 9, Fourth Edition

## **Appendix I        - GeoConsult Gas Desorption Data Summaries**



# GAS DESORPTION DATA SUMMARY

**Blue Energy Ltd**  
**Well Name :** Itude\_3  
**Sample ID :** BEIT3\_019

BOREHOLE DETAILS	
Exploration Area	ATP_854P
Easting	630309 mE
Northing	GDA94 7130663 mN
Collar RL	603 m AHD

COAL SAMPLE DETAILS	
Seam Name	Juandah CM
From Depth (m)	130.16
To Depth (m)	130.80
Sample Length (m)	0.64
Sample Mass (kg)	3.38
Stone Length (m)	0.07
Stone Mass (kg)	1.46
Coal Length (m)	0.57
Coal Mass (kg)	1.92
Core Diameter (mm)	61.1 (HQ3)
Sample Slabbed?	Yes

TIMES	
Start Drilling Time	26/07/09 14:23:00
Core Off Bottom	26/07/09 14:40:00
Zero Time (t <sub>0</sub> )	26/07/09 14:40:30
Core On Surface	26/07/09 14:41:00
Core On Test (t <sub>1</sub> )	26/07/09 14:48:00
Core Off Test	17/08/09 15:20:00
Delay (t <sub>1</sub> - t <sub>0</sub> ) (mins)	7.50
Elapsed Desorption (dd)	22.02
30 Days On Test @	25/08/09
63% Sorption (hr)	140.16

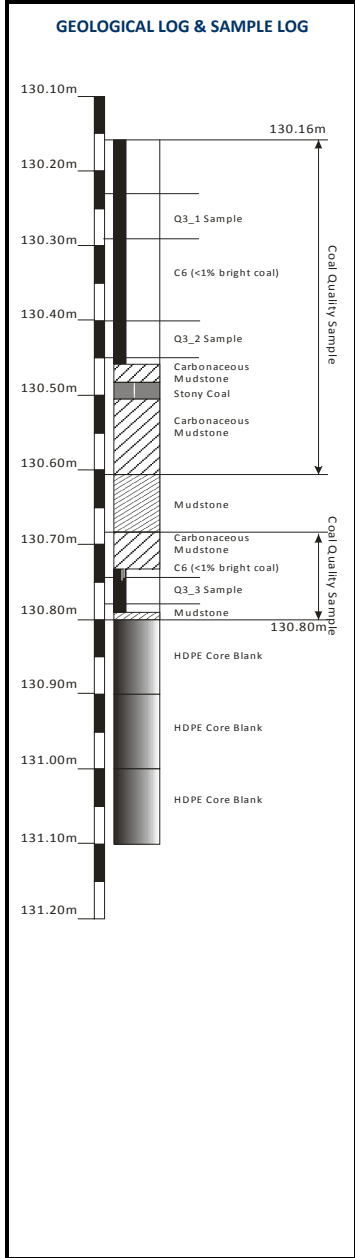
  

CANISTER DETAILS	
Canister Number	GC2112
Canister Length (m)	1.00
Tare Mass (kg)	4.52
Gross Mass (kg)	7.90
Estimated Void (cm <sup>3</sup> )	1662
Average Bath Temp (°C)	33

COAL QUALITY RESULTS (ad)		RESIDUAL GAS (Q <sub>3</sub> ) RESULTS (ad)	
Ash (%)	16.3	Average Ash (%)	9.0
IM (%)	6.1	Average IM (%)	8.8
VM (%)	41.8		
FC (%)	35.8		
RD	1.35		
Sample Mass (kg)	0.89		

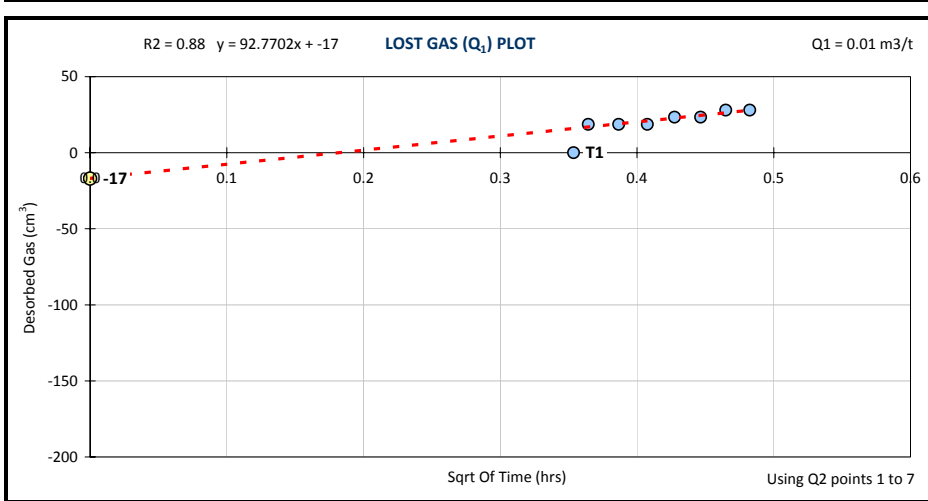
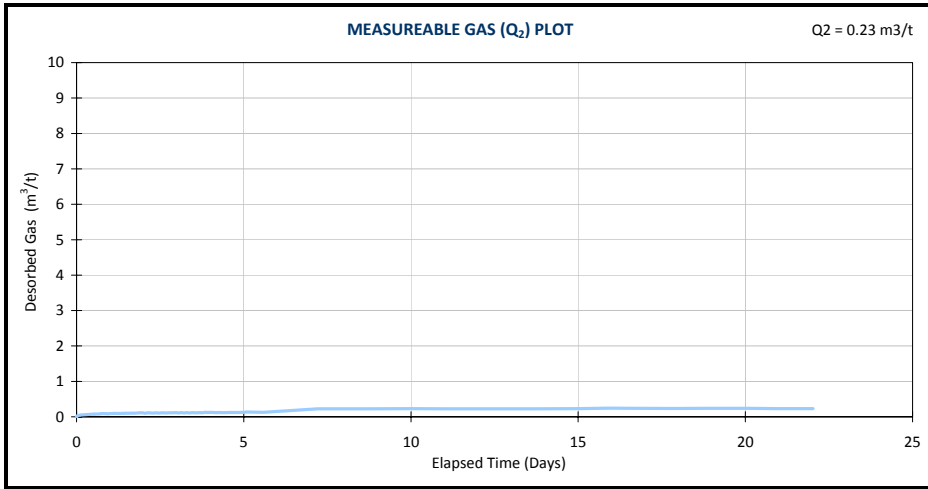
GAS COMPOSITION RESULTS (Air-Free unless otherwise stated)			
	Comp A	Comp B	Comp C
Vol Since t <sub>1</sub> (cm <sup>3</sup> )	NOT SAMPLED	NOT SAMPLED	NOT SAMPLED
Time Since t <sub>1</sub> (hrs)			
O <sub>2</sub> (aa %)			
CH <sub>4</sub> (%)			
CO <sub>2</sub> (%)			
N <sub>2</sub> (%)			
Ethane (%)			
Other 1 (%)			
Other 2 (%)			
Other (%)			



GAS QUANTITY RESULTS SUMMARY			
Lost Gas (cm <sup>3</sup> )	17		
Lost Gas Q <sub>1</sub> (m <sup>3</sup> /t)	0.01		
Measurable Gas (cm <sup>3</sup> )	439		
Measurable Gas Q <sub>2</sub> (m <sup>3</sup> /t)	0.23		
Residual Gas Q <sub>3</sub> (m <sup>3</sup> /t)	0.5		
Q <sub>3</sub> Corrected (m <sup>3</sup> /t)	0.45		

	ar (m <sup>3</sup> /t)	daf (m <sup>3</sup> /t)
Desorbed Gas (Q <sub>1</sub> + Q <sub>2</sub> )	0.24	0.31
Measured Gas Q <sub>m</sub> (Q <sub>1</sub> + Q <sub>2</sub> + Q <sub>3</sub> )	0.69	0.89



# GAS DESORPTION DATA SUMMARY

Blue Energy Ltd

Well Name :

Itude\_3

Sample ID :

BEIT3\_020

## BOREHOLE DETAILS

Exploration Area	ATP_854P
Easting	630309 mE
Northing	GDA94 7130663 mN
Collar RL	603 m AHD

## COAL SAMPLE DETAILS

Seam Name	Juandah CM
From Depth (m)	147.59
To Depth (m)	148.59
Sample Length (m)	1.00
Sample Mass (kg)	4.18
Stone Length (m)	0.24
Stone Mass (kg)	1.24
Coal Length (m)	0.76
Coal Mass (kg)	2.94
Core Diameter (mm)	61.1 (HQ3)
Sample Slabbed?	Yes

## TIMES

Start Drilling Time	26/07/09 15:32:00
Core Off Bottom	26/07/09 15:50:00
Zero Time (t <sub>0</sub> )	26/07/09 15:50:30
Core On Surface	26/07/09 15:51:00
Core On Test (t <sub>1</sub> )	26/07/09 15:58:00
Core Off Test	17/08/09 15:20:00
Delay (t <sub>1</sub> - t <sub>0</sub> ) (mins)	7.50
Elapsed Desorption (dd)	21.97
30 Days On Test @	25/08/09
63% Sorption (hr)	142.32

## CANISTER DETAILS

Canister Number	GP2115
Canister Length (m)	1.00
Tare Mass (kg)	4.64
Gross Mass (kg)	8.82
Estimated Void (cm <sup>3</sup> )	1665
Average Bath Temp (°C)	33

## COAL QUALITY RESULTS (ad)

Ash (%)	14.5
IM (%)	5.2
VM (%)	45.0
FC (%)	35.3
RD	1.34
Sample Mass (kg)	1.26

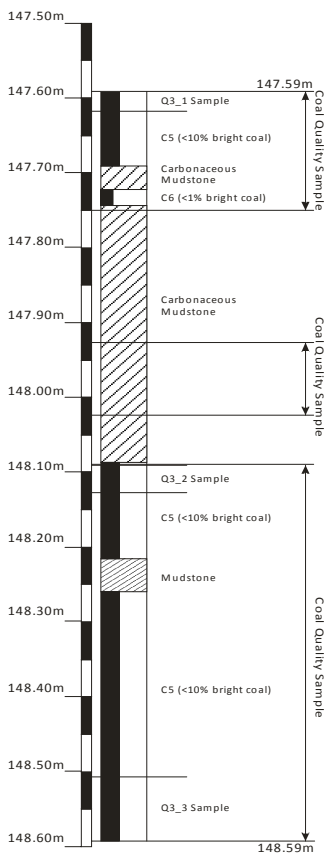
## RESIDUAL GAS (Q3) RESULTS (ad)

Average Ash (%)	8.5
Average IM (%)	8.6

## GAS COMPOSITION RESULTS (Air-Free unless otherwise stated)

	Comp A	Comp B	Comp C
Vol Since t <sub>1</sub> (cm <sup>3</sup> )	912	NOT SAMPLED	NOT SAMPLED
Time Since t <sub>1</sub> (hrs)	132.95		
O <sub>2</sub> (aa %)	5.40		
CH <sub>4</sub> (%)	87.47		
CO <sub>2</sub> (%)	0.42		
N <sub>2</sub> (%)	12.09		
Ethane (%)	0.01		
He (aa %)	19.50		
Other 2 (%)	N/A		
Other (%)	0.01		

## GEOLOGICAL LOG & SAMPLE LOG



## GAS QUANTITY RESULTS SUMMARY

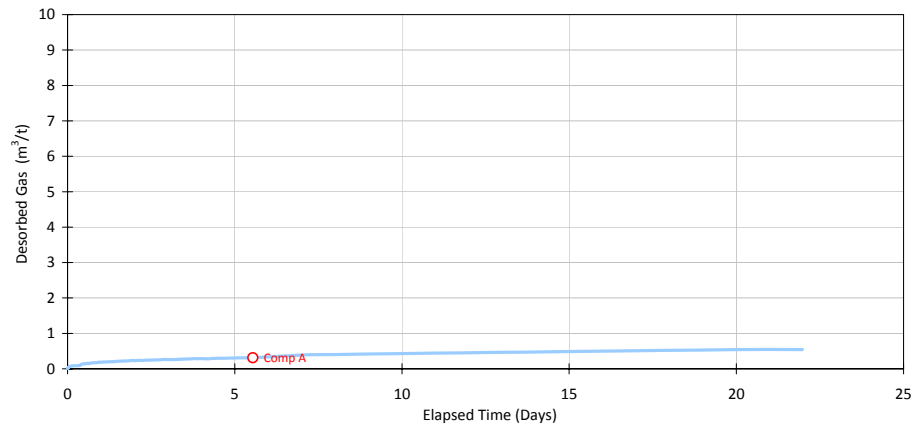
Lost Gas (cm <sup>3</sup> )	90		
Lost Gas Q <sub>1</sub> (m <sup>3</sup> /t)	0.03		
Measurable Gas (cm <sup>3</sup> )	1598		
Measurable Gas Q <sub>2</sub> (m <sup>3</sup> /t)	0.54		
Residual Gas Q <sub>3</sub> (m <sup>3</sup> /t)	0.6		
Q <sub>3</sub> Corrected (m <sup>3</sup> /t)	0.55		

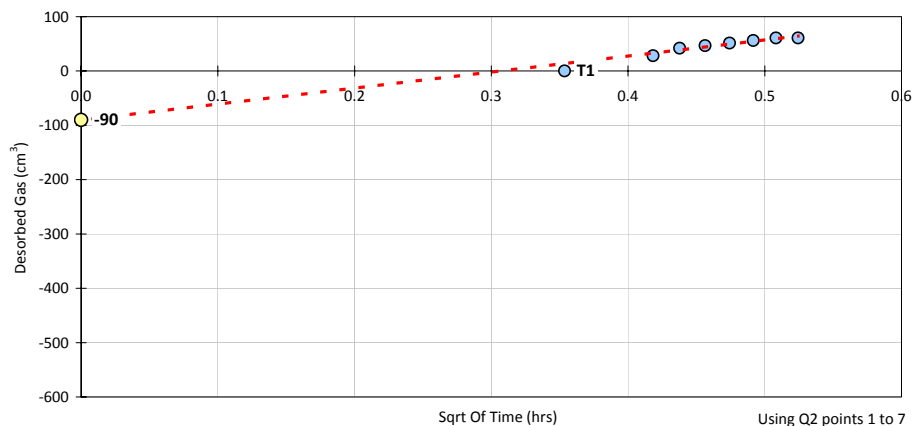
Desorbed Gas (Q <sub>1</sub> + Q <sub>2</sub> )	ar (m <sup>3</sup> /t)	0.57	daf (m <sup>3</sup> /t)	0.71
	Measured Gas Q <sub>m</sub> (Q <sub>1</sub> + Q <sub>2</sub> + Q <sub>3</sub> )	1.12	1.39	

## MEASUREABLE GAS (Q<sub>2</sub>) PLOT



## LOST GAS (Q<sub>1</sub>) PLOT





# GAS DESORPTION DATA SUMMARY

Blue Energy Ltd

Well Name :

Itude\_3

Sample ID :

BEIT3\_021

## BOREHOLE DETAILS

Exploration Area	ATP_854P
Easting	630309 mE
Northing	GDA94 7130663 mN
Collar RL	603 m AHD

## COAL SAMPLE DETAILS

Seam Name	Juandah CM
From Depth (m)	148.59
To Depth (m)	149.57
Sample Length (m)	0.98
Sample Mass (kg)	4.42
Stone Length (m)	0.25
Stone Mass (kg)	1.32
Coal Length (m)	0.73
Coal Mass (kg)	3.10
Core Diameter (mm)	61.1 (HQ3)
Sample Slabbed?	Yes

## TIMES

Start Drilling Time	26/07/09 15:32:00
Core Off Bottom	26/07/09 15:50:00
Zero Time (t <sub>0</sub> )	26/07/09 15:50:30
Core On Surface	26/07/09 15:51:00
Core On Test (t <sub>1</sub> )	26/07/09 15:59:00
Core Off Test	17/08/09 15:20:00
Delay (t <sub>1</sub> - t <sub>0</sub> ) (mins)	8.50
Elapsed Desorption (dd)	21.97
30 Days On Test @	25/08/09
63% Sorption (hr)	93.6

## CANISTER DETAILS

Canister Number	GP2108
Canister Length (m)	1.00
Tare Mass (kg)	4.52
Gross Mass (kg)	8.94
Estimated Void (cm <sup>3</sup> )	1674
Average Bath Temp (°C)	33

## COAL QUALITY RESULTS (ad)

Ash (%)	22.0
IM (%)	5.3
VM (%)	40.3
FC (%)	32.4
RD	1.41
Sample Mass (kg)	1.36

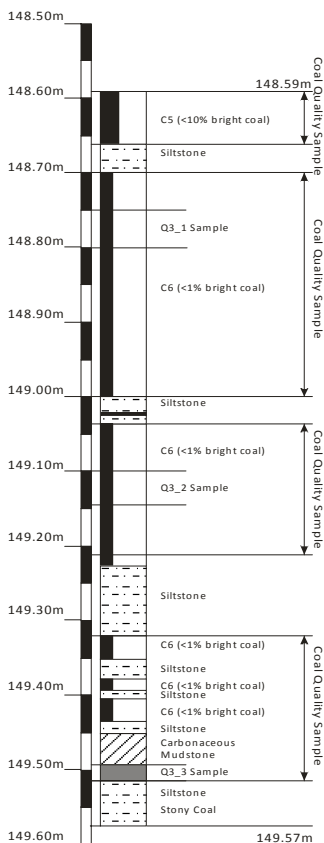
## RESIDUAL GAS (Q3) RESULTS (ad)

Average Ash (%)	10.0
Average IM (%)	8.8

## GAS COMPOSITION RESULTS (Air-Free unless otherwise stated)

	Comp A	Comp B	Comp C
Vol Since t <sub>1</sub> (cm <sup>3</sup> )	774	NOT SAMPLED	NOT SAMPLED
Time Since t <sub>1</sub> (hrs)	132.93		
O <sub>2</sub> (aa %)	5.70		
CH <sub>4</sub> (%)	72.54		
CO <sub>2</sub> (%)	0.43		
N <sub>2</sub> (%)	27.01		
Ethane (%)	0.01		
He (aa %)	24.80		
Other 2 (%)	N/A		
Other (%)	0.01		

## GEOLOGICAL LOG & SAMPLE LOG



## GAS QUANTITY RESULTS SUMMARY

Lost Gas (cm <sup>3</sup> )	118		
Lost Gas Q <sub>1</sub> (m <sup>3</sup> /t)	0.04		
Measurable Gas (cm <sup>3</sup> )	1181		
Measurable Gas Q <sub>2</sub> (m <sup>3</sup> /t)	0.38		
Residual Gas Q <sub>3</sub> (m <sup>3</sup> /t)	0.7		
Q <sub>3</sub> Corrected (m <sup>3</sup> /t)	0.58		

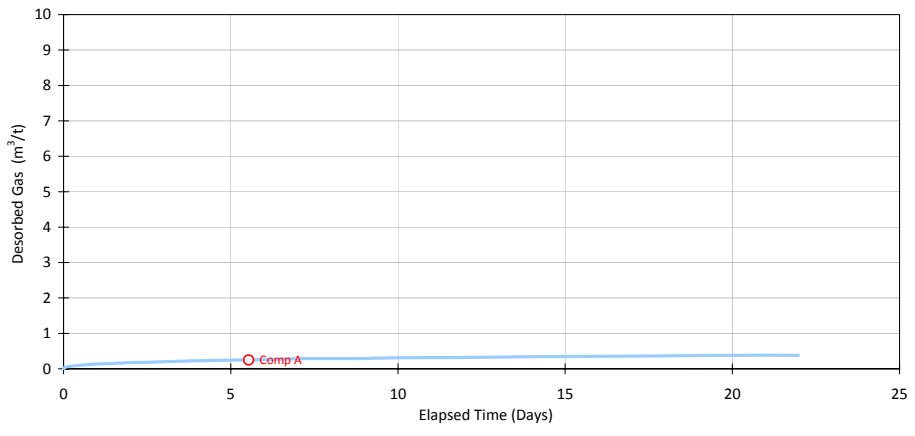
Desorbed Gas (Q <sub>1</sub> + Q <sub>2</sub> )	ar (m <sup>3</sup> /t)	daf (m <sup>3</sup> /t)
	0.42	0.58

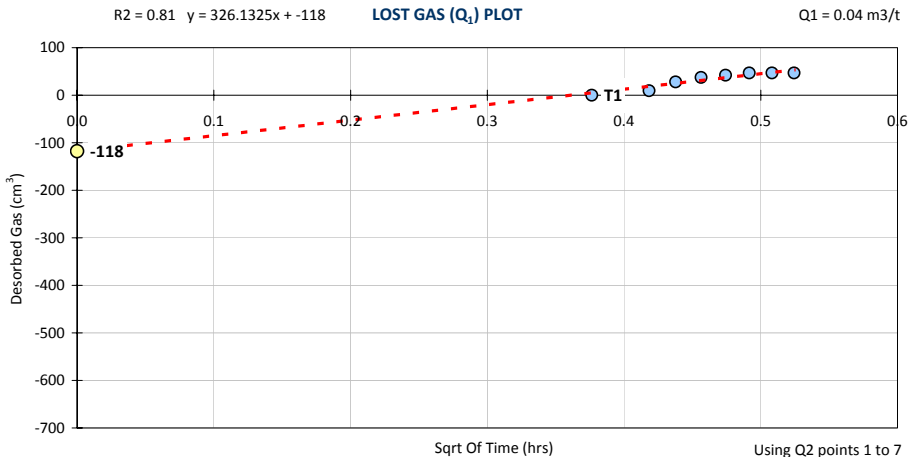
Measured Gas Q <sub>m</sub> (Q <sub>1</sub> + Q <sub>2</sub> + Q <sub>3</sub> )	1.00	1.38
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## MEASUREABLE GAS (Q<sub>2</sub>) PLOT



## LOST GAS (Q<sub>1</sub>) PLOT





# GAS DESORPTION DATA SUMMARY

Blue Energy Ltd

Well Name :

Itude\_3

Sample ID :

BEIT3\_023

## BOREHOLE DETAILS

Exploration Area	ATP_854P
Easting	630309 mE
Northing	GDA94
Collar RL	7130663 mN
	603 m AHD

## COAL SAMPLE DETAILS

Seam Name	Taroom CM
From Depth (m)	251.89
To Depth (m)	252.47
Sample Length (m)	0.58
Sample Mass (kg)	4.16
Stone Length (m)	0.44
Stone Mass (kg)	3.58
Coal Length (m)	0.14
Coal Mass (kg)	0.58
Core Diameter (mm)	61.1 (HQ3)
Sample Slabbed?	Yes

## TIMES

Start Drilling Time	29/07/09 14:49:00
Core Off Bottom	29/07/09 16:24:00
Zero Time (t <sub>0</sub> )	29/07/09 16:25:30
Core On Surface	29/07/09 16:27:00
Core On Test (t <sub>1</sub> )	29/07/09 16:36:40
Core Off Test	17/08/09 15:20:00
Delay (t <sub>1</sub> - t <sub>0</sub> ) (mins)	11.17
Elapsed Desorption (dd)	18.95
30 Days On Test @	28/08/09
63% Sorption (hr)	56.88

## CANISTER DETAILS

Canister Number	GC2116
Canister Length (m)	1.00
Tare Mass (kg)	4.56
Gross Mass (kg)	8.72
Estimated Void (cm <sup>3</sup> )	1659
Average Bath Temp (°C)	33

## COAL QUALITY RESULTS (ad)

Ash (%)	6.8
IM (%)	4.6
VM (%)	45.6
FC (%)	43.0
RD	1.30
Sample Mass (kg)	0.16

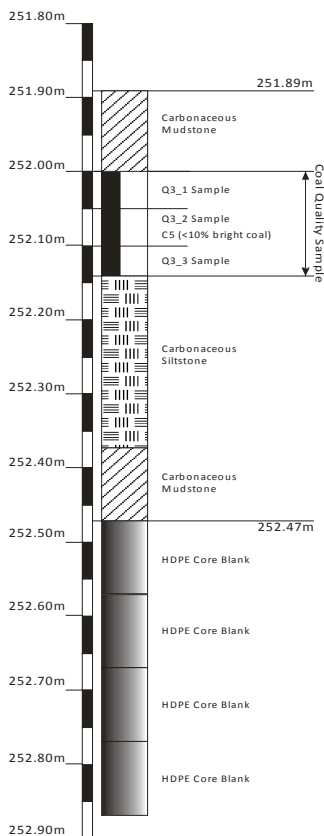
## RESIDUAL GAS (Q3) RESULTS (ad)

Average Ash (%)	4.9
Average IM (%)	7.9

## GAS COMPOSITION RESULTS (Air-Free unless otherwise stated)

	Comp A	Comp B	Comp C
Vol Since t <sub>1</sub> (cm <sup>3</sup> )	560	NOT SAMPLED	NOT SAMPLED
Time Since t <sub>1</sub> (hrs)	60.31		
O <sub>2</sub> (aa %)	8.50		
CH <sub>4</sub> (%)	85.62		
CO <sub>2</sub> (%)	4.49		
N <sub>2</sub> (%)	13.85		
Ethane (%)	0.03		
He (aa %)	25.30		
Other 2 (%)	N/A		
Other (%)	0.01		

## GEOLOGICAL LOG & SAMPLE LOG



## GAS QUANTITY RESULTS SUMMARY

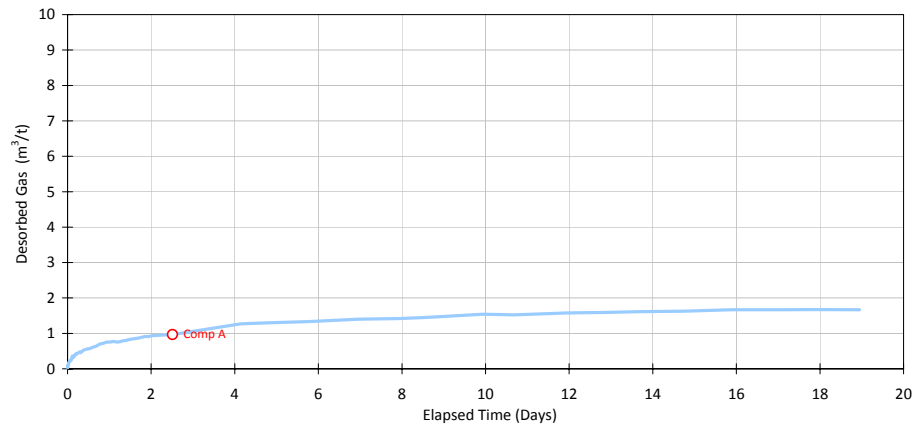
Lost Gas (cm <sup>3</sup> )	145		
Lost Gas Q <sub>1</sub> (m <sup>3</sup> /t)	0.25		
Measurable Gas (cm <sup>3</sup> )	966		
Measurable Gas Q <sub>2</sub> (m <sup>3</sup> /t)	1.67		
Residual Gas Q <sub>3</sub> (m <sup>3</sup> /t)	1.0		
Q <sub>3</sub> Corrected (m <sup>3</sup> /t)	0.97		

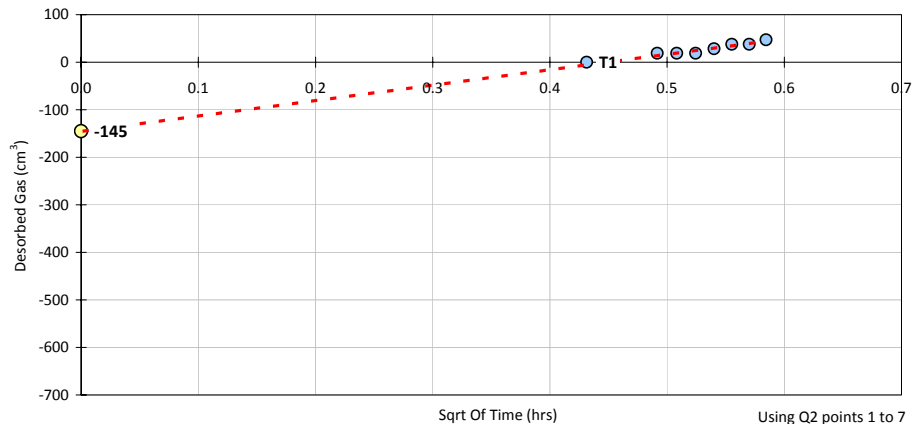
Desorbed Gas (Q <sub>1</sub> + Q <sub>2</sub> )	ar (m <sup>3</sup> /t)	1.92	daf (m <sup>3</sup> /t)	2.17
	Measured Gas Q <sub>m</sub> (Q <sub>1</sub> + Q <sub>2</sub> + Q <sub>3</sub> )	2.89	3.26	

## MEASUREABLE GAS (Q<sub>2</sub>) PLOT



## LOST GAS (Q<sub>1</sub>) PLOT





# GAS DESORPTION DATA SUMMARY

Blue Energy Ltd

Well Name :

Itude\_3

Sample ID :

BEIT3\_027

## BOREHOLE DETAILS

Exploration Area	ATP_854P
Easting	630309 mE
Northing	GDA94 7130663 mN
Collar RL	603 m AHD

## COAL SAMPLE DETAILS

Seam Name	Taroom CM
From Depth (m)	286.81
To Depth (m)	287.50
Sample Length (m)	0.69
Sample Mass (kg)	4.68
Stone Length (m)	0.47
Stone Mass (kg)	3.48
Coal Length (m)	0.22
Coal Mass (kg)	1.20
Core Diameter (mm)	61.1 (HQ3)
Sample Slabbed?	Yes

## TIMES

Start Drilling Time	30/07/09 13:08:00
Core Off Bottom	30/07/09 14:33:00
Zero Time (t <sub>0</sub> )	30/07/09 14:35:00
Core On Surface	30/07/09 14:37:00
Core On Test (t <sub>1</sub> )	30/07/09 14:44:03
Core Off Test	17/08/09 15:20:00
Delay (t <sub>1</sub> - t <sub>0</sub> ) (mins)	9.05
Elapsed Desorption (dd)	18.02
30 Days On Test @	29/08/09
63% Sorption (hr)	71.76

## CANISTER DETAILS

Canister Number	GC2101
Canister Length (m)	1.00
Tare Mass (kg)	4.50
Gross Mass (kg)	9.18
Estimated Void (cm <sup>3</sup> )	1661
Average Bath Temp (°C)	32

## COAL QUALITY RESULTS (ad)

Ash (%)	12.5
IM (%)	4.6
VM (%)	42.4
FC (%)	40.5
RD	1.35
Sample Mass (kg)	0.43

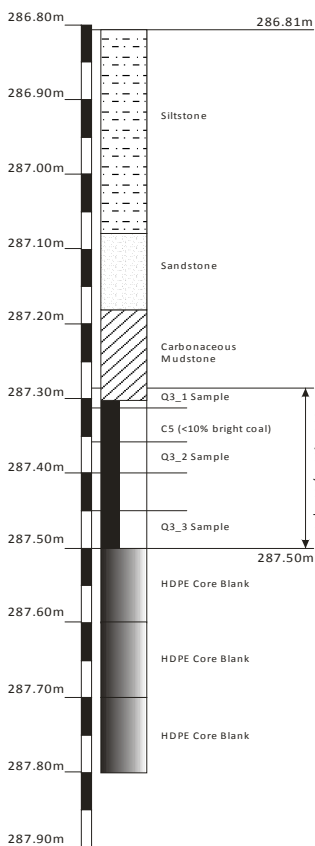
## RESIDUAL GAS (Q<sub>3</sub>) RESULTS (ad)

Average Ash (%)	12.5
Average IM (%)	8.1

## GAS COMPOSITION RESULTS (Air-Free unless otherwise stated)

	Comp A	Comp B	Comp C
Vol Since t <sub>1</sub> (cm <sup>3</sup> )	NOT SAMPLED	NOT SAMPLED	NOT SAMPLED
Time Since t <sub>1</sub> (hrs)			
O <sub>2</sub> (aa %)			
CH <sub>4</sub> (%)			
CO <sub>2</sub> (%)			
N <sub>2</sub> (%)			
Ethane (%)			
Other 1 (%)			
Other 2 (%)			
Other (%)			

## GEOLOGICAL LOG & SAMPLE LOG



## GAS QUANTITY RESULTS SUMMARY

Lost Gas (cm <sup>3</sup> )	94		
Lost Gas Q <sub>1</sub> (m <sup>3</sup> /t)	0.08		
Measurable Gas (cm <sup>3</sup> )	753		
Measurable Gas Q <sub>2</sub> (m <sup>3</sup> /t)	0.63		
Residual Gas Q <sub>3</sub> (m <sup>3</sup> /t)	1.0		
Q <sub>3</sub> Corrected (m <sup>3</sup> /t)	1.00		

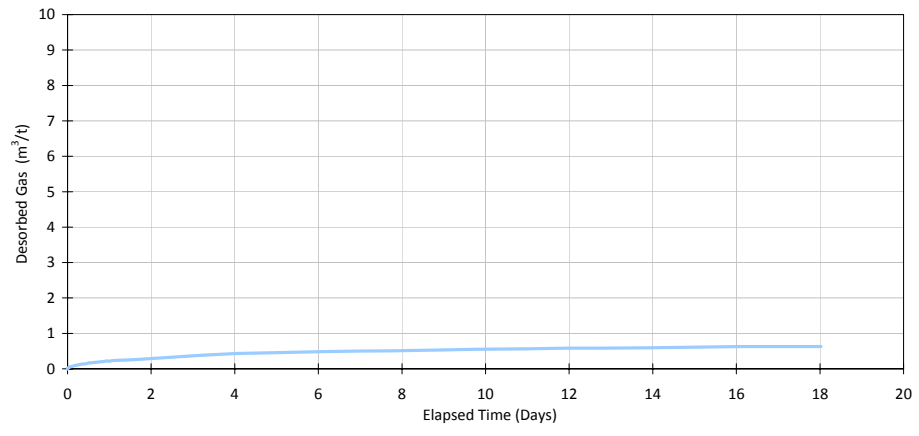
Desorbed Gas (Q <sub>1</sub> + Q <sub>2</sub> )	ar (m <sup>3</sup> /t)	daf (m <sup>3</sup> /t)
	0.71	0.86

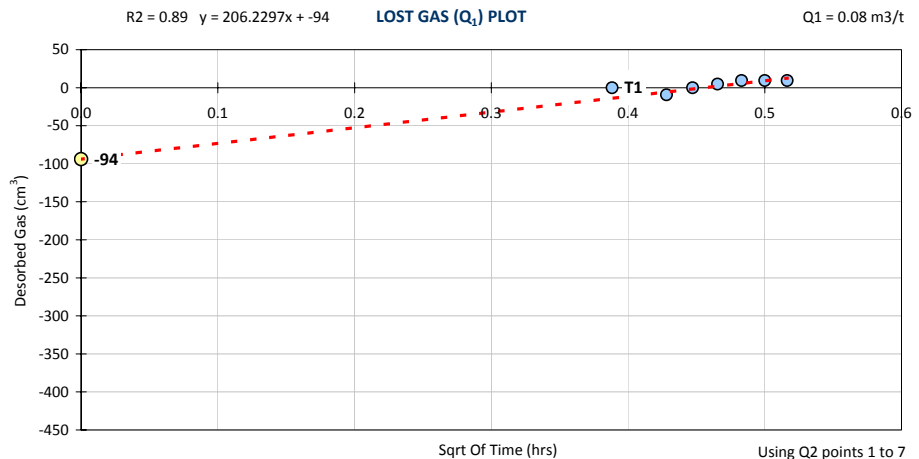
Measured Gas Q <sub>m</sub> (Q <sub>1</sub> + Q <sub>2</sub> + Q <sub>3</sub> )	1.71	2.06
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## MEASUREABLE GAS (Q<sub>2</sub>) PLOT



## LOST GAS (Q<sub>1</sub>) PLOT



## **Appendix II - GeoConsult Q3 Analysis Report**



Sample No.	Date Sampled	Time Sampled	From Depth (m)	To Depth (m)	Comment	Weight (g)	Temp (°C)	Pressure (hPa)	Start (ml)	Finish (ml)	Gas Content (cm <sup>3</sup> , aa)	Gas Content (m <sup>3</sup> /t, aa)	Gas Content (m <sup>3</sup> /t, aa @ STP)	Q3 Mean Gas Content (m <sup>3</sup> /t, aa @ STP)	Moisture (% ar)	Ash (% ar)	Gas Content (m <sup>3</sup> /t, DAF @ STP)	Q3 Mean Gas Content (m <sup>3</sup> /t, DAF @ STP)
BEIT3_019_Q3-1	18/08/2009	15:24	130.23	130.29	1/4 core	49.08	24.9	1025	112	146	34	0.7	0.7	0.5	7.2	7.6	0.8	0.6
BEIT3_019_Q3-2	18/08/2009	15:32	130.40	130.45	1/4 core	49.07	25	1025	96	120	24	0.5	0.5		9.6	3.6	0.6	
BEIT3_019_Q3-3	18/08/2009	15:40	130.74	130.78	1/3 core	49.06	25	1025	102	120	18	0.4	0.4		9.7	15.7	0.5	
BEIT3_020_Q3-1	19/08/2009	10:12	147.59	147.62	1/3 core	47.82	23.5	1029	86	110	24	0.5	0.5	0.6	9.9	13	0.6	0.7
BEIT3_020_Q3-2	19/08/2009	10:22	148.09	148.13	1/3 core	47.5	23.5	1029	166	193	27	0.6	0.6		8.1	5.7	0.7	
BEIT3_020_Q3-3	19/08/2009	10:32	148.51	148.59	1/3 core	47.71	23.5	1029	166	202	36	0.8	0.8		7.7	6.7	0.9	
BEIT3_021_Q3-1	19/08/2009	11:06	148.75	148.80	1/3 core	47.74	23.9	1028	164	190	26	0.5	0.5	0.7	8.7	3.2	0.6	0.9
BEIT3_021_Q3-2	19/08/2009	11:15	149.10	149.14	1/3 core	47.6	23.9	1028	164	206	42	0.9	0.9		8.8	3	1	
BEIT3_021_Q3-3	19/08/2009	11:22	149.49	149.52	1/3 core	47.25	23.9	1028	164	196	32	0.7	0.7		8.8	23.9	1	
BEIT3_023_Q3-1	19/08/2009	11:54	252.00	252.05	1/3 core	47.38	24.1	1027	164	210	46	1	1	1.0	7.8	5.1	1.1	1.1
BEIT3_023_Q3-2	19/08/2009	12:04	25.05	252.10	1/3 core	47.36	24.2	1027	166	200	34	0.7	0.7		8.7	3.5	0.8	
BEIT3_023_Q3-3	19/08/2009	12:14	252.10	252.14	1/3 core	47.71	24.2	1027	164	220	56	1.2	1.2		7.1	6.2	1.4	
BEIT3_027_Q3-1	19/08/2009	12:40	287.28	287.32	1/3 core	47.85	24.4	1026	166	208	42	0.9	0.9	1.0	6.1	19.8	1.2	1.2
BEIT3_027_Q3-2	19/08/2009	12:51	287.36	287.40	1/3 core	47.54	24.4	1026	164	206	42	0.9	0.9		9	11.4	1.1	
BEIT3_027_Q3-3	19/08/2009	12:59	287.45	287.50	1/3 core	47.24	24.5	1026	164	220	56	1.2	1.2		9.1	6.3	1.4	

## **Appendix III - GeoConsult Lithological and Geotechnical Data**





## DESCRIPTION SAMPLE GRAPHIC DEFECT LOG

BOREHOLE:

ITUDE 3

Client/Project : Blue Energy - ATP 854 Logged By : N.Proulx

On : 5 / 10 / 2009

PAGE 1 OF 2

<b>(1) TYPE</b> B - bedding J - joint F - fault S - shear C - crushed DI - drilling induced KL - core loss CL - clay band FG - fault gouge FB - fault breccia	<b>(2) Defect Number</b> Use when a number of defects are same  <b>(3) Shape</b> U - undulating P - planar I - irregular  <b>(4) Dip (Degrees)</b> 0 - 90 (vertical) (relative to horizontal)	<b>(5) Surface</b> VR - very rough RR - rough SR - slightly rough SS - smooth SL - slickensided eg: RR SS SL	<b>(6) Infill / Thickness (mm)</b> OP - open ST - stained CD - coated CE - cemented CA - calcite FE - iron oxide QU - quartz CH - chlorite MN - manganese PY - pyrite LI - limonite CB - carbonaceous CO - coal CL - clay soft and swelling CT - clay stiff CS - clay silty/sandy SA - sandy particle/fault breccia	<b>(7) Weathering / Alteration</b> FR - Fresh Rock (6) * SW - Slightly Weathered (5) MW - Mod Weathered (3) HW - Highly Weathered (1) EW - Decomposed (0) RS - Residual Soil (0)  *Unweathered unless otherwise stated	<b>(8) Tips</b> T0 - No tips terminate in core T1 - One tip ends in core T2 - Both tips end in core  <b>(9) Termination</b> U - Within unit S - Siltstone F - On fracture B - Bright coal  <b>(10) Extent - measure in mm</b>
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Sample :	BEIT3-019																																																																																																														
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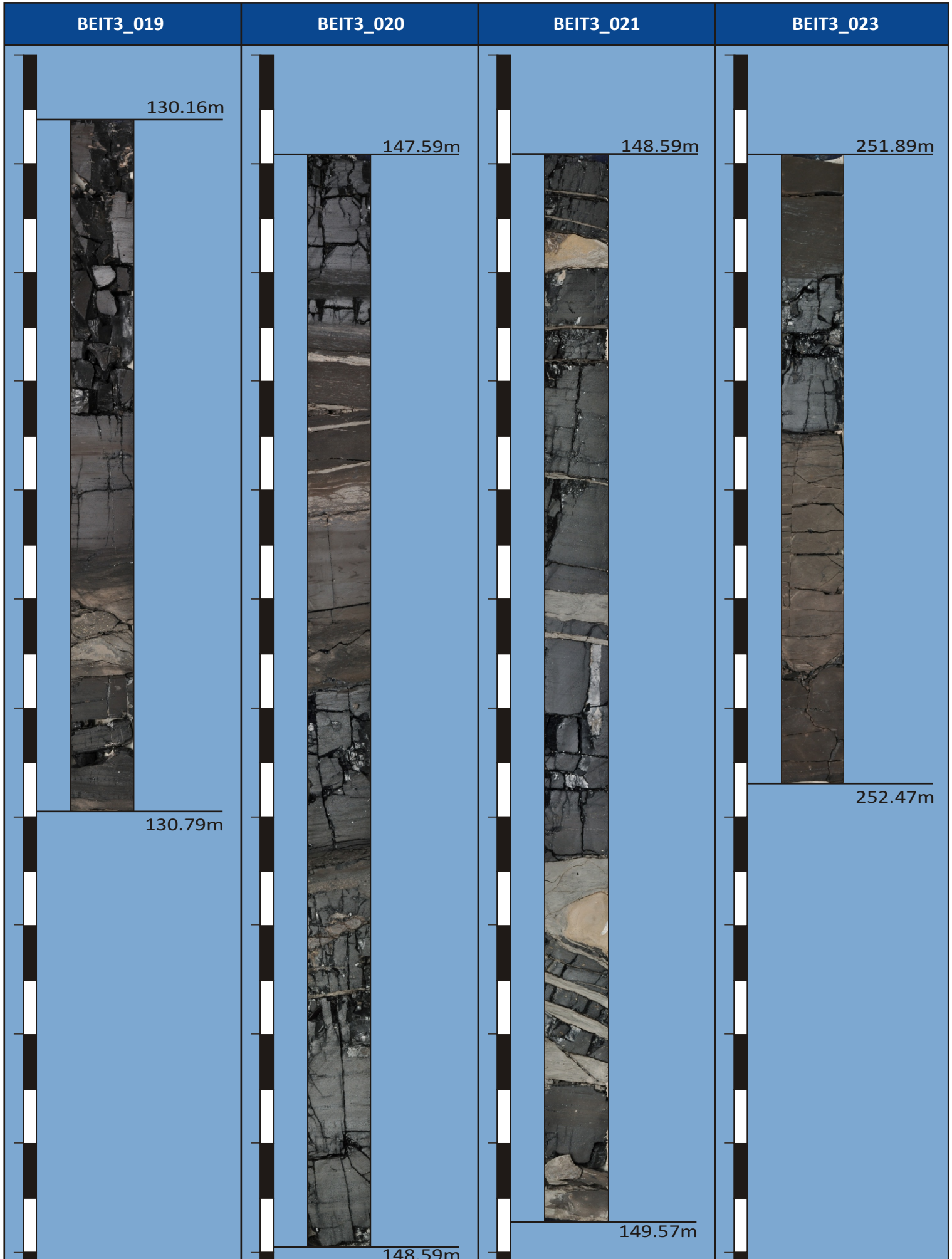
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x x x = crushed zone



## **Appendix IV     - GeoConsult Desorption Core Photographs**



BEIT3\_027

286.81m

287.50m





## Appendix V - SIMTARS Gas Compositional Analysis Reports

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## Analysis Report

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<b>Report Number</b>	OG510669N1
<b>Report Issue Date</b>	August 25, 2009
<b>Report To</b>	Geoconsult Pty Ltd Spring Hill QLD
<b>Client Reference</b>	BEIT3
<b>Job Description</b>	Four samples for general gas analysis
<b>Date Received</b>	August 10, 2009
<b>Date Tested/Completed</b>	August 10, 2009
<b>Responsibility for Sampling</b>	Client
<b>Approved Signatory</b>	Inga Drillis - Analytical Chemist 

---

This document is issued in accordance with NATA's accreditation requirements. Accredited for compliance with ISO/IEC 17025. Accreditation Number 2681.

Unless otherwise indicated responsibility for sampling rests with the client. Where test items are submitted by the client results expressed in this report relate only to test items as received. This document may not be reproduced except in full or used in any way for advertising purposes without the written approval of the laboratory.

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**Report Number: OG510669N1**

**Results:**

Laboratory Number		OG510669/ 1	OG510669/ 2	OG510669/ 3	OG510669/ 4	
Sample Identification		BEIT3_020A	BEIT3_021A	BEIT3_023A	BEIT3_099A	% Relative
Component	Limit of Reporting	Normalised Concentration v/v%	Normalised Concentration v/v%	Normalised Concentration v/v%	Normalised Concentration v/v%	Uncertainty +/-
Helium	0.001	19.5	24.8	25.3	0.004	10.7
Hydrogen	0.001	<0.001	<0.001	<0.001	<0.001	5.1
Oxygen	0.1	5.4	5.7	8.5	0.4	5.1
Nitrogen	0.1	26.7	25.9	36.4	2.2	0.8
Methane	0.01	47.9	43.0	29.2	95.5	5.8
Carbon Monoxide	0.0005	0.0065	0.0065	0.0042	<0.0005	10.2
Carbon Dioxide	0.01	0.24	0.26	0.18	1.89	6.0
Ethylene	0.002	<0.002	<0.002	<0.002	<0.002	15.0
Ethane	0.002	0.006	0.008	0.010	0.014	15.0
Argon*	0.1	0.3	0.3	0.4	<0.1	NA
Total		100.0	100.0	100.0	100.0	

\* Argon is a calculated result based on the Nitrogen Concentration

**Reference :**

1. Simtars Laboratory Procedure LP0043 - "Procedure for Analysis of General Permanent Gases Using a Micro Gas Chromatograph".

## **Appendix VI - BUREAU VERITAS Proximate Analysis Report**



Bureau Veritas International Trade  
Australia  
Brisbane Laboratory  
221 Leitchs Rd  
Brendale QLD 4500  
PO Box 5805  
Brendale QLD 4500  
Ph 07 3883 6800  
Fax 07 3883 6840

**REFERENCE NUMBER:** BR1284077

**REPORT TITLE:** Blue Energy - Itude 3

**CLIENT NAME AND ADDRESS:** Geoconsult Pty Ltd  
11/541 Boundary St  
SPRING HILL QLD 4000

**DATE SAMPLED:** Samples Analysed as Supplied

**DATE SAMPLES RECEIVED:** 24/08/2009

**DATE SAMPLES ANALYSED:** Samples analysed between 25/08/09 and 16/09/09

**PAGE NUMBER:** 1 of 4

**SIGNATURE:**

**REPORTED BY:** Rebeca Val  
Reporting officer

**DATE REPORTED:** 17/09/2009

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VERITAS**

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Trade Australia  
Brisbane Laboratory  
221 Leitchs Rd  
Brendale QLD 4500  
PO Box 5805  
Brendale QLD 4500  
Ph 07 3883 6800  
Fax 07 3883 6840

**ORIGIN :** GeoConsult P/L **BV REF No. :** BR1284077  
**DESCRIPTION :** Blue Energy - Itude 3 **DATE REC'D :** 24/08/09  
**REPORTED TO :** Mr Simon Phillips **Date Reported :** 17/09/09

---

		<b>BEIT3_019</b>	<b>BEIT3_020</b>	<b>BEIT3_021</b>	<b>BEIT3_023</b>
Mass	g (ar)	939.2	1333.3	1439.4	167.7
	g (ad)	890.5	1261.9	1364.5	159.6
<b>Proximate Analysis</b>	(ad)				
Air Dried Moisture	(%)	6.1	5.2	5.3	4.6
Ash	(%)	16.3	14.5	22.0	6.8
Volatile Matter	(%)	41.8	45.0	40.3	45.6
Fixed Carbon	(%)	35.8	35.3	32.4	43.0
<b>Relative Density</b>		1.35	1.34	1.41	1.30

		<b>BEIT3_027</b>
Mass	g (ar)	451.8
	g (ad)	425.5
<b>Proximate Analysis</b>	(ad)	
Air Dried Moisture	(%)	4.6
Ash	(%)	12.5
Volatile Matter	(%)	42.4
Fixed Carbon	(%)	40.5
<b>Relative Density</b>		1.35



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Brendale QLD 4500  
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**ORIGIN :** GeoConsult P/L  
**DESCRIPTION :** Blue Energy - Itude 3  
**REPORTED TO :** Mr Simon Phillips

**BV REF No. :** BR1284077  
**DATE REC'D :** 24/08/09  
**Date Reported :** 17/09/09

**Proximate Analysis**

	<b>Air Dried Moisture (% ar)</b>	<b>Ash (% ar)</b>
BEIT3_019_Q3_1	7.2	7.6
BEIT3_019_Q3_2	9.6	3.6
BEIT3_019_Q3_3	9.7	15.7
BEIT3_020_Q3_1	9.9	13.0
BEIT3_020_Q3_2	8.1	5.7
BEIT3_020_Q3_3	7.7	6.7
BEIT3_021_Q3_1	8.7	3.2
BEIT3_021_Q3_2	8.8	3.0
BEIT3_021_Q3_3	8.8	23.9
BEIT3_023_Q3_1	7.8	5.1
BEIT3_023_Q3_2	8.7	3.5
BEIT3_023_Q3_3	7.1	6.2
BEIT3_027_Q3_1	6.1	19.8
BEIT3_027_Q3_2	9.0	11.4
BEIT3_027_Q3_3	9.1	6.3

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Brendale QLD 4500  
Ph 07 3883 6800  
Fax 07 3883 6840

REFERENCE NUMBER: BR1284077

### **STANDARD METHODS LISTING**

The analyses reported herein have been performed according to the following Australian Standard Methods (where applicable):

<b>Standard Reference</b>	<b>Description</b>
AS1038.3	Proximate Analysis: Inherent Moisture, Ash, Volatile Matter
AS1038.21.1.1	Relative Density – Density Bottle Method

**Notes:**

1. Acceptance and reporting of results is in accordance with AS1038.16.
2. All analyses reported to Air-Dried Basis unless otherwise indicated.

**Bureau Veritas International Trade Australia Pty Ltd (Bureau Veritas Group) has carried out the preparation and analysis of samples to the best of its ability and with due regard to the importance of all samples submitted. However in the event of default by Bureau Veritas International Trade Australia Pty Ltd (Bureau Veritas Group) in providing services as defined by contracts, Bureau Veritas International Trade Australia Pty Ltd shall have no other liability for any negligent act, default, omission or breach of such contract. The liability of our company is limited by our General Terms and Conditions of Service. At all times, the results of analysis must be interpreted as pertaining to the samples as they were received at the laboratory.**





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Brisbane Laboratory  
221 Leitchs Rd  
Brendale QLD 4500  
PO Box 5805  
Brendale QLD 4500  
Ph 07 3883 6800  
Fax 07 3883 6840

REFERENCE NUMBER: BR1249575

REPORT TITLE: Blue Energy – Itude 3

CLIENT NAME AND ADDRESS: GeoConsult P/L  
11/541 Boundary St  
SPRING HILL QLD 4000

DATE SAMPLED: Samples Analysed as Supplied

DATE SAMPLES RECEIVED: 5/08/09

DATE SAMPLES ANALYSED: Samples analysed between 6/08/09 and 12/08/09

PAGE NUMBER: 1 of 3

SIGNATURE:

REPORTED BY: Liz Holt  
Manager BVIT Brisbane

DATE REPORTED: 13/08/09

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Page 1 of 3



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221 Leitchs Rd  
Brendale QLD 4500  
PO Box 5805  
Brendale QLD 4500  
Ph 07 3883 6800  
Fax 07 3883 6840

ORIGIN : GeoConsult P/L  
DESCRIPTION : Blue Energy Itube3  
REPORTED TO : Mr Simon Phillips

BV REF No. : BR1249575  
DATE REC'D : 5/08/09  
Date Reported : 13/08/09

**BEIT3\_022 BEIT3\_024 BEIT3\_026**

Mass	g (ar)	1136.3	1562.8	672.2
	g (ad)	1126.6	1540.7	670.5
<b>Proximate Analysis</b> (ad)				
Air Dried Moisture	(%)	6.6	4.1	6.0
Ash	(%)	13.4	37.7	13.9
Volatile Matter	(%)	42.0	35.0	42.1
Fixed Carbon	(%)	38.0	23.2	38.0

**BEIT3\_029 BEIT3\_030**

Mass	g (ar)	1198.4	1176.0
	g (ad)	704.7	697.7
<b>Proximate Analysis</b> (ad)			
Air Dried Moisture	(%)	7.1	7.3
Ash	(%)	2.8	6.1
Volatile Matter	(%)	43.2	41.8
Fixed Carbon	(%)	46.9	44.8

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Bureau Veritas International  
Trade Australia  
Brisbane Laboratory  
221 Leitchs Rd  
Brendale QLD 4500  
PO Box 5805  
Brendale QLD 4500  
Ph 07 3883 6800  
Fax 07 3883 6840

REFERENCE NUMBER: BR1214824

### STANDARD METHODS LISTING

The analyses reported herein have been performed according to the following Australian Standard Methods (where applicable):

<b>Standard Reference</b>	<b>Description</b>
AS1038.3	Proximate Analysis: Inherent Moisture, Ash, Volatile Matter

**Notes:**

- (1) Acceptance and reporting of results is in accordance with AS1038.16.
- (2) All analyses reported to Air-Dried Basis unless otherwise indicated.

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