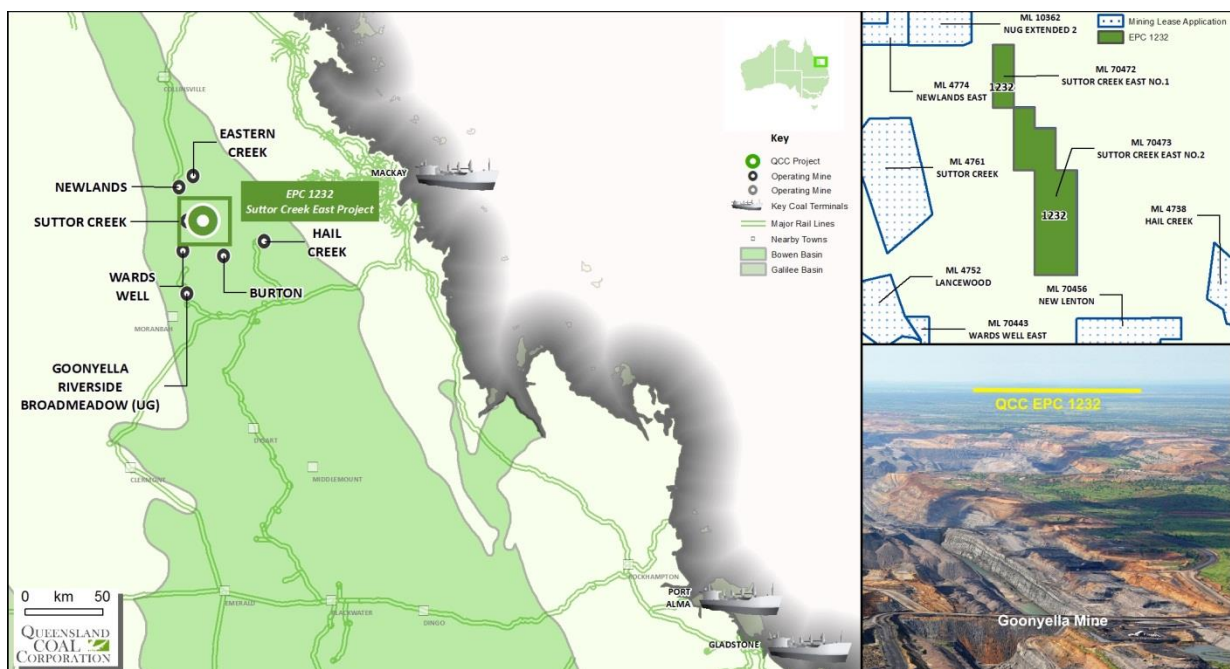


# Queensland Coking Coal Pty Ltd

## EPC 1232 - Suttor Creek Project

### ANNUAL REPORT FOR THE SEVENTH YEAR PERIOD 6 MAY 2016 TO 5 MAY 2017



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## 1 SUMMARY

Exploration Permit for Coal (EPC) 1232 was granted to Queensland Coking Coal Pty Ltd (QCC) on the 6<sup>th</sup> of May 2010. The exploration permit comprises 18 sub-blocks and an approximate area of 58 km<sup>2</sup>.

EPC 1232, known as the Suttor Creek Project, features coal deposits occurring within the Rangel Coal Measures (RCM), Fort Cooper Coal Measures (FCCM) and Moranbah Coal Measures (MCM). Resource modelling has been performed by Geoconsult Pty Ltd to establish conceptual targets within the RCM and MCM. The FCCM coals are not included as targets, despite hosting the thick and well recognized Girrah seam. This unit was omitted on the basis that further correlation is required. QCC is confident that a significant target can be added when this work has concluded.

No work was undertaken in the seventh year of tenure in consideration of joint venture issues and the market sentiment towards coal projects.

It is envisaged that the Suttor Creek Project will be developed into an underground coking coal mine. The Project will focus on the same coals as the Burton Mine (located to the southeast) and the Eastern Creek Mine to the north. The target seams will be the Leichhardt (Upper Newlands equivalent) and Vermont seams (Lower Newlands equivalent) of the RCM.

QCC has identified a potentially recoverable resource of 167.8 Mt. Internal mine plans have been developed for a single seam longwall operation extracting the upper target seam over 25 years.

## 2 INTRODUCTION

Queensland Coking Coal Pty Ltd (QCC) is a privately owned Australian company, incorporated for the purpose of sourcing, developing, exploring and operating coking and thermal coal tenements.

The Exploration Permits for Coal (EPCs) held by QCC are located within the Bowen Basin, Australia's most important coal basin. This report outlines exploration activities conducted by QCC over EPC 1232 during Year 6.

### 2.1 Tenure Information

Exploration Permit for Coal (EPC) 1232 was granted to QCC for a period of five years consisting of 18 sub-blocks in total. Details of current tenure are shown in Table 1.

Table 1– Tenement details for EPC 1232

Tenure Number	EPC 1232
Basin	Bowen
Date Lodged	12 February 2008
Date of Grant	6 May 2010
Date Expires	5 May 2015
Renewal lodged	9 Feb 2015
Term	5 Years
Sub-Blocks	18

## 2.2 Sub Block Information

Table 2– Sub block details for EPC 1232

Sub-block Details		
BIM Code	Block Number	Sub-blocks
CLER	1129	----- M ----- R ----- W -----
CLER	1201	-- C ----- H J ----- N O ----- T U ----- Y Z
CLER	1273	--- D E --- J K --- O P -----
Current number of sub-blocks held:		18

## 2.3 Location

Figure 1 shows the location of EPC 1232 in relation to townships and coal rail transport in Queensland.

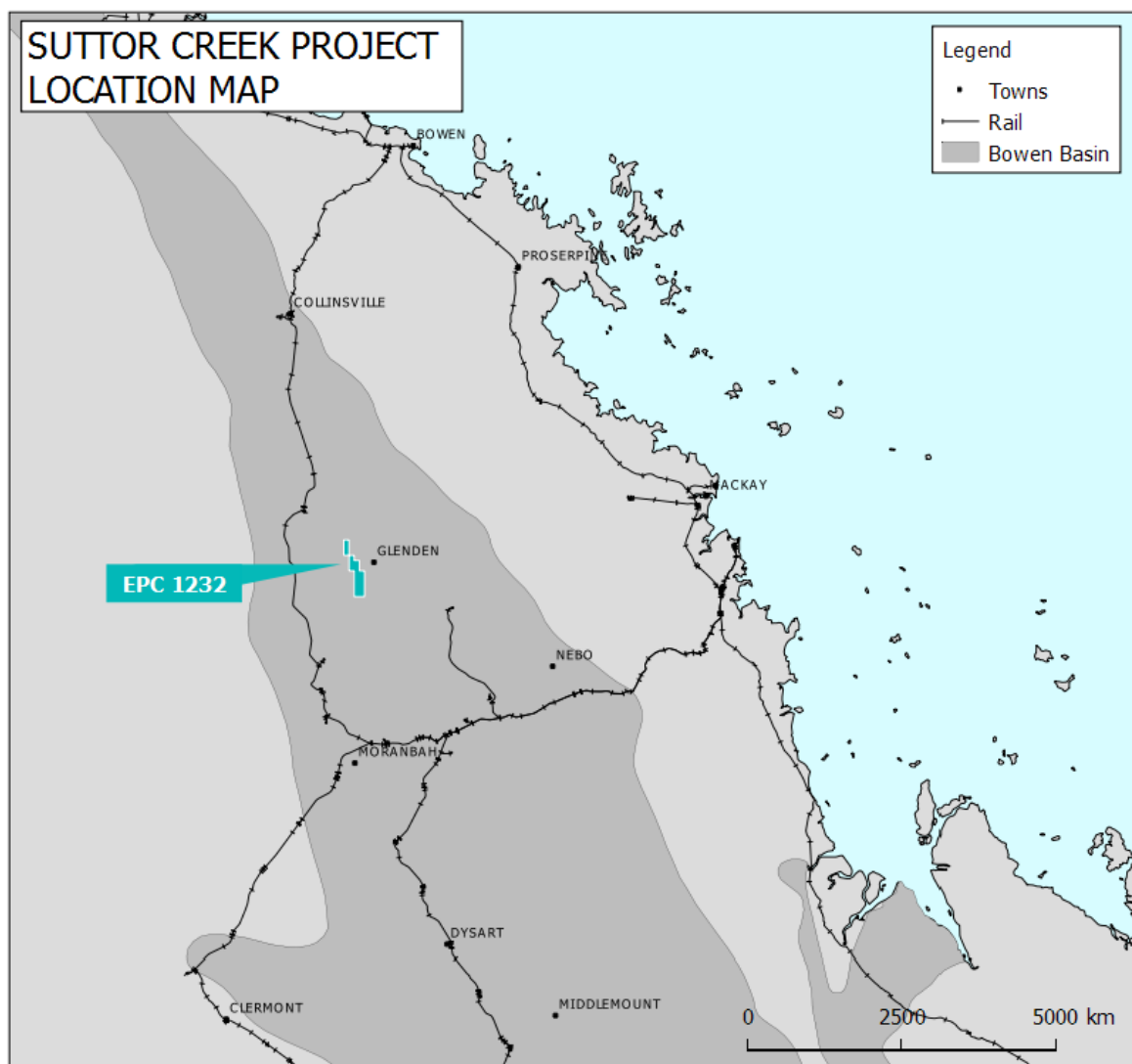


Figure 1 - Regional location map of EPC 1232

## 2.4 General Description of Area and Access

EPC 1232 is situated in the northern part of the Bowen Basin in Queensland. The tenement is approximately 60 km north of Moranbah, 5 km west of Glenden and 125 km west of Mackay. The tenement lies approximately 15 km southeast of an existing rail line which connects Newlands Mine to Abbot Point Coal Terminal.

The tenement is surrounded by numerous current mining operations including:

- Eastern Creek Mine: 7 km to the north
- Newlands Mine: 11 km to the northwest
- Suttor Creek Mine: 9 km to the west
- Burton Mine: 10 km to the south
- Hail Creek Mine: 28 km to the east

EPC 1232 is accessible from Glenden via the sealed Glenden-Newlands Road or the gravel Glenden-Collinsville Road.

## 2.5 Exploration Rationale

Coal resources in the Suttor Creek Project are found within the Rangal Coal Measures (RCM), Fort Cooper Coal Measures (FCCM) and Moranbah Coal Measures (MCM). Resource modelling has produced a conceptual target of 1,904 to 2,553 Mt within the Rangal and Moranbah Coal Measures. The FCCM have been identified on tenement but require further delineation before inclusion into the geological model.

## 2.6 Results of Literature Searches

There has been significant exploration in the region of EPC 1232 though not as much directly west of Glenden and over the tenement area. The focus of early exploration in the area surrounding EPC 1232 was for petroleum and gas. There are 38 coal seam gas wells located within 10 km of the tenement boundary and one located inside the EPC 1232 boundary (Glenden 1S).

Authority to Prospect (ATP) 3C was granted to Thiess Bros Pty Ltd in 1964 (CR 7937) and then transferred in the same year to Thiess Peabody Mitsui Coal Pty Ltd. Exploration started as widespread regional drilling and surface mapping and later focussed on areas of interest. The focus of the exploration was for the discovery of coking coal for the international metallurgical industry. Their exploration eventually led to the development of the Burton Coal mine, operated by Thiess, which produced its first coal in 1996. The mine produced 2.1 Mtpa of largely coking coal in 2013 for the export market. Burton's resources are hosted in the Leichhardt and Vermont coal seams of the Rangal Coal Measures (RCM) which are the primary targets within EPC 1232.

Glenden 1S was drilled by MGC Resources Australia (EPP 364) in the northwest of what is now EPC 1232 (CR 24889, CR 25687). The well was spudded in November 1992 and drilled to a total depth of 93.7 m. Drilling intersected both the RCM and the Fort Cooper Coal Measures. The Leichhardt and Vermont seams were both intersected in the RCM with 5.9 m and 4.0 m of net coal respectively. A summary of the stratigraphy encountered can be seen in Table 3 below.

Table 3 – Stratigraphy of Glenden 1S

STRATIGRAPHY				
STRATIGRAPHIC UNIT	FROM (m) K.B.	TO (m) K.B.	INTERV AL (m)	NET COAL (m)
<b>Rewan Group</b> (Triassic)	1.3	547.0	545.7	
<b>Rangal Coal Measures</b> (Upper Permian)	547.0	668.2	121.2	
unnamed R05 Seam	547.0	547.4	0.4	
unnamed R10 Seam	555.7	556.2	0.5	
Leichhardt Seam	579.0	585.5	6.5	5.9
Vermont Seam	622.5	628.9	6.4	4.0
<b>Fort Cooper Coal Measures</b> (U Permian)	668.2	696.2	28.0 +	
Girrah Seam	668.2	687.1	18.9	11.6
Yarrabee Tuff	671.7			

The next closest historical CSG wells to EPC 1232 were drilled to the west of the tenement by the companies MGC and CH4 (Figure 2). Significant holes with drilling results publically available include: Suttor Creek 1, 2, 3, and 4 (CR 21856, 24893, 25653, 30483) and SC 1P, 3P, 5P and LW 9C (CR 21865, 63706, 53478, 61190).

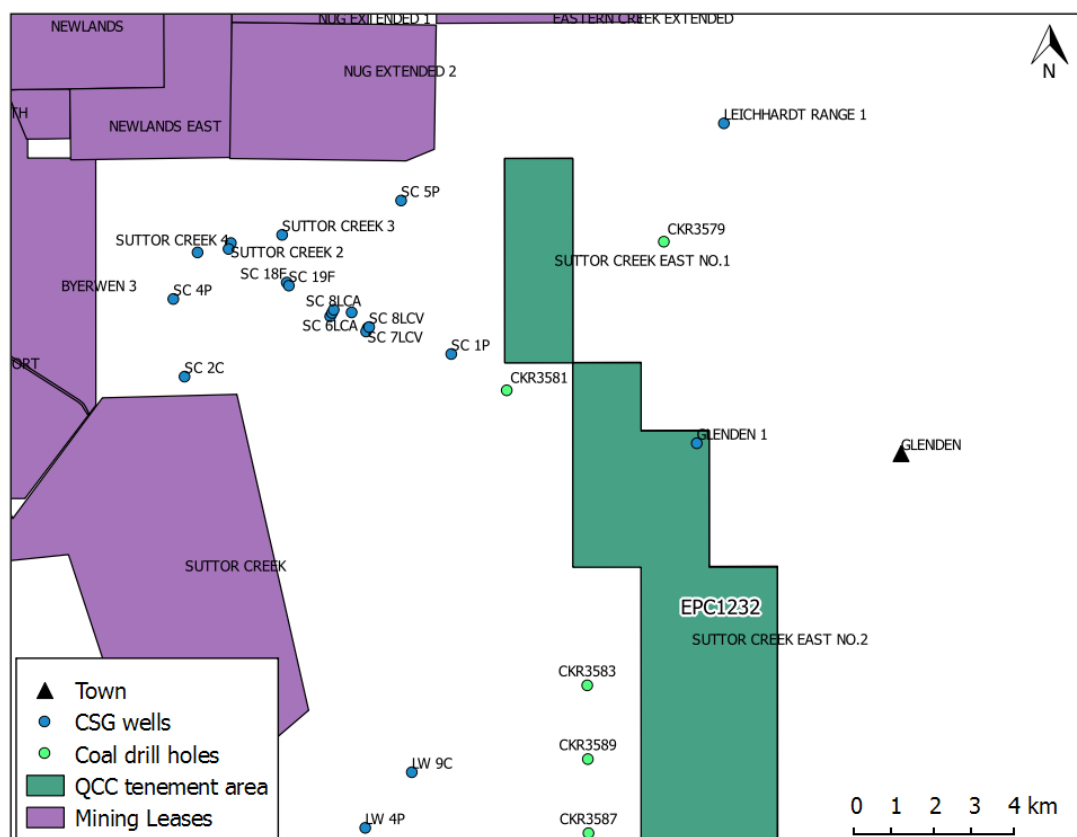


Figure 2 – Location map of historical drilling and Mining Leases surrounding EPC 1232



Of the nearby CSG wells drilled by CH4, SC 1P is the closest to the boundary of EPC 1232. The well was drilled in 1989 and reached 1060 m total depth (CR21864). The hole penetrated the RCM, FCCM and terminated in the Moranbah Coal measures. A stratigraphic summary table from the well completion report is shown below in Figure 3.

Stratigraphic Table			
Formation	Depth (m)	Elev. (AHD) (m)	Thickness (m)
<u>Tertiary</u>			
Alluvials	Surface	320.0	6.0
Volcanics	6.0	314.0	51.0
<u>Triassic</u>			
Rewan Group	57.0	263.0	91.0
<u>Upper Permian</u>			
Rangal Coal Measures	148.0	172.0	192.4
U. Leichhardt seam	175.0	+145.0	2.8
U. Leichhardt seam	273.0	47.0	2.8
L. Leichhardt seam	188.0	132.0	2.4
L. Leichhardt seam	291.0	29.0	2.4
Fort Cooper Coal Measures	340.4	-20.4	520.0
Upper Girraha seam	365.0	-45.0	22.3
Lower Girraha seam	679.0	-359.0	16.0
Moranbah Coal Measures	860.4	-540.4	200.0+
Upper Goonyella seam	913.1	-593.1	5.0
"P" seam	967.5	-647.5	5.1
Middle Goonyella seam	1031.4	-711.4	3.2
Total Depth - Driller	1060.4	-740.4	

Figure 3 – Stratigraphic summary information for CSG well SC1P

The next three closest CSG wells drilled by CH4 subsequent to SC1P are SC 3P, 5P and LW 9C; all of which are located within 20 km of the tenement boundary (Figure 2). All three holes intersected coal in the RCM though the seam thickness appears to diminish in the south (LW 9C intersected only 2 m of coal in the RCM). Stratigraphic summaries for each hole are shown below.

Table 4 – CSG well SC 3P stratigraphic table drilled by CH4 (CR61174)

Formation Tops	Depth From (m)	Depth To (m)	Depth ASL (m)	Net Coal (m)
Alluvium	0.00	6.00	328.76	0.00
Tertiary	6.00	7.00	322.76	0.00
Rewan Formation	26.00	50.00	302.76	0.00
Rangal Coal Measures	50.00	441.30	278.76	6.90
Fort Cooper Coal Measures	441.30		-112.54	18.50

Table 5 - CSG well SC 5P stratigraphic table drilled by CH4 (CR63706)

Formation	Depth From (m)	Thickness (m)	Elevation (m SS)	Net Coal (m)
Alluvium / Quaternary	0	14	343.43	0
Tertiary	14	10	329.43	0
Rewan Formation	24	463	319.43	0
Rangal Coal Measures	487+	270+	-143.51	8.40 <sup>2</sup>

Formation Tops	Depth From (m)	Depth To (m)	Depth ASL (m)	Net Coal (m)
Base of Tertiary	0.0	2.0	354.9	0.0
Base of Weathering	0.0	64.0	354.9	0.0
Rangal Coal Measures	64.0	371.3	290.9	2.0
Fort Coopers Coal Measures	371.3		-16.4	60.8

Figures 5 and 6 both show that the thickness of both the UNS and the LNS is greatest in the northeast corner of the area modelled. This area of seam thickness greater than 5 m is shown in red in the Figures below and borders on the northern extent of EPC 1232.

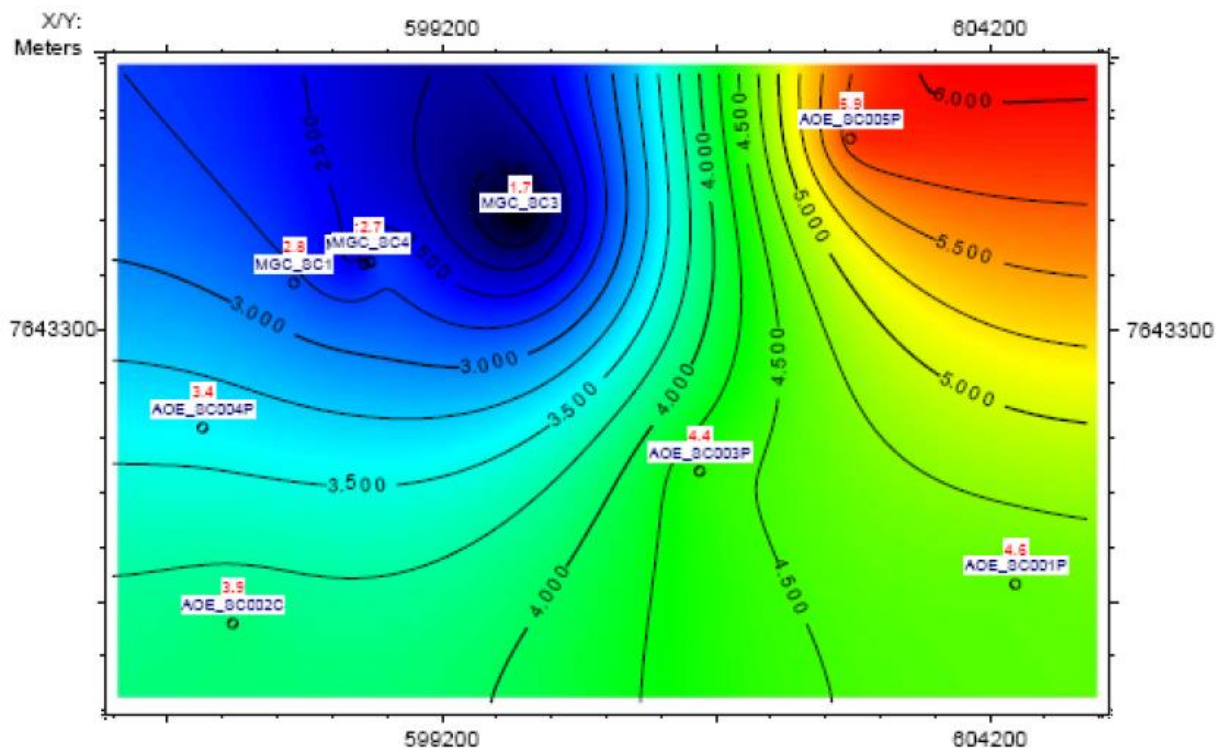


Figure 5 - Isopach Map showing the relative thickness of the UNS (Scale = 1:50,000) (CR63706)

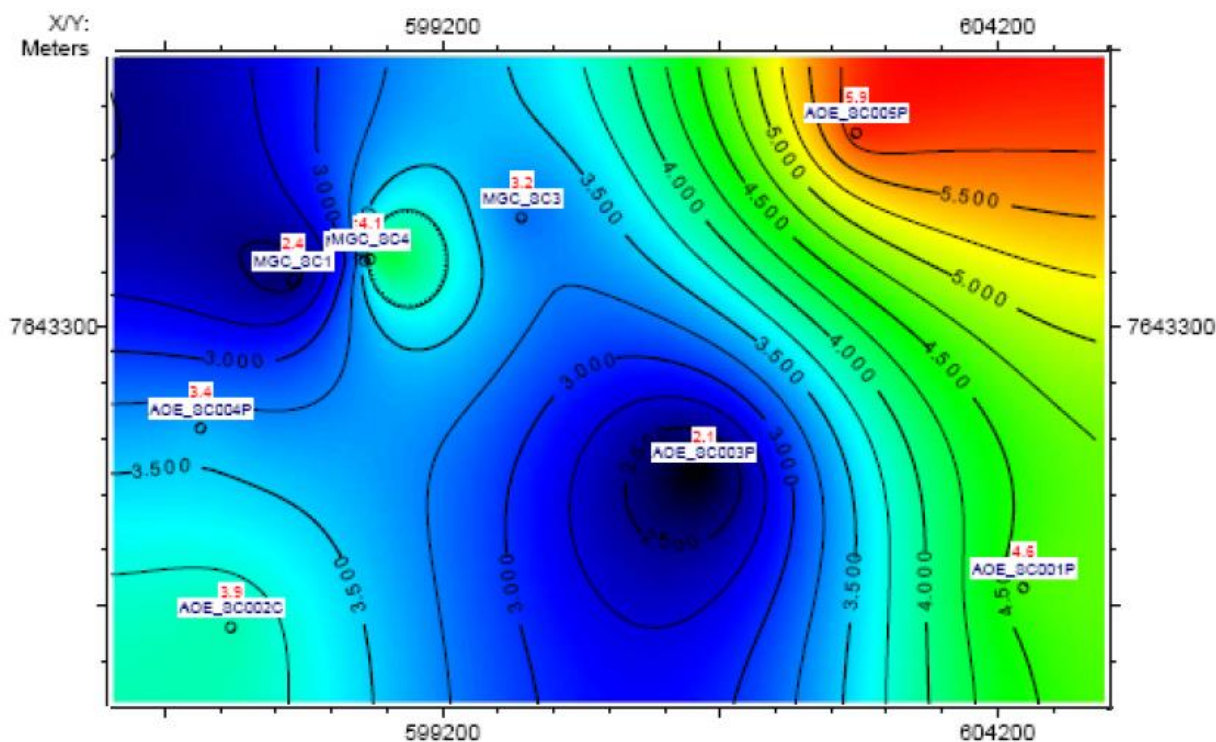


Figure 6 - Isopach Map showing the relative thickness of the LNS (Scale = 1:50,000) (CR63706)

MGC Resources Australia Pty Ltd also shot three seismic survey lines which transect EPC 1232 in 1990 (CR 31076, 31062, 23698, 24909). These surveys located an anticlinal feature and thrust fault in the area. Further exploration was encouraged to target the Rangal and Fort Cooper Coal Measures with the top of the Moranbah Coal Measures assumed to be approximately 700 m.

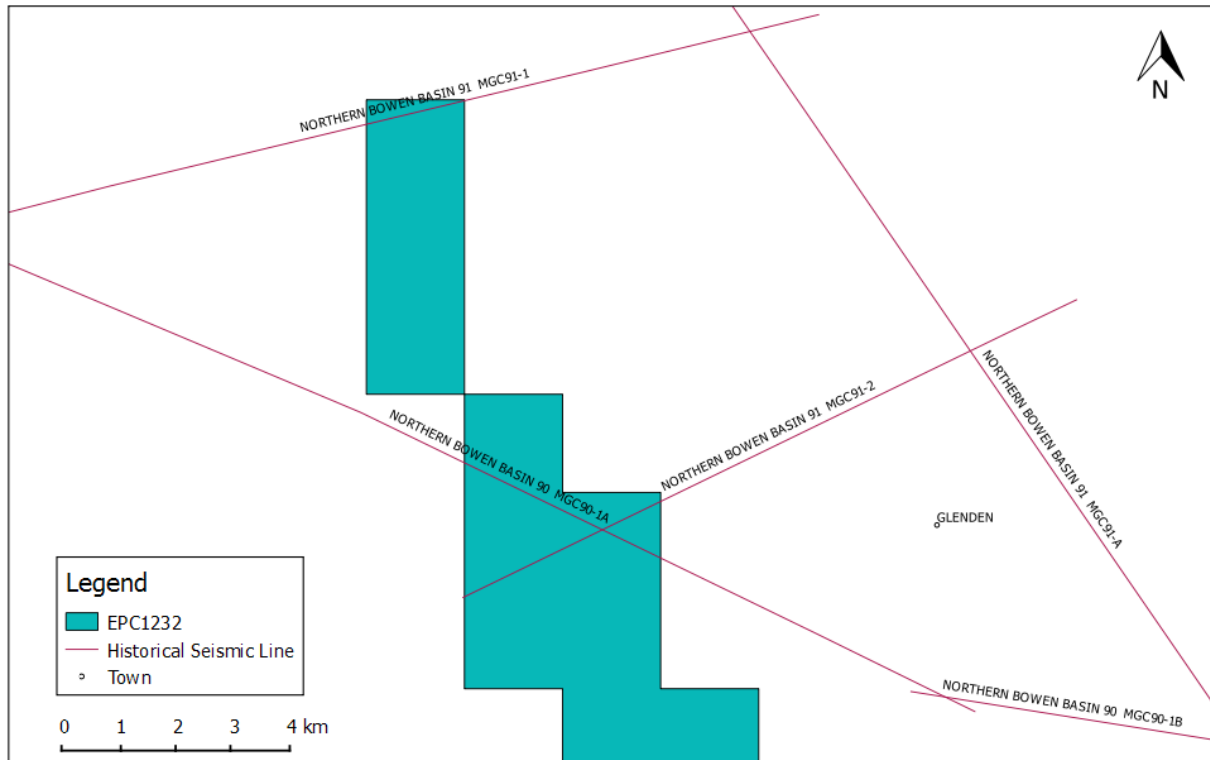


Figure 7 – Location of historical seismic lines conducted by MGC Resources Australia that intersect the north of EPC 1232

There are relatively few coal core holes in the area of EPC 1232. One of the earliest companies to drill for coal nearby was Dacon Collieries Properties Pty Ltd who were granted ATP 86C in 1970 and relinquished completely two years later. This tenement partially covered the same ground as EPC 1232 extending another 27 km further south. Based on five drill holes, it was concluded that the coal was located between 690-1000 feet in depth and had no economic potential. Only one of these holes was deep enough to intersect the Rangal Coal Measures (CR3199).

The closest holes drilled for coal exploration to EPC 1232 were conducted over sub-blocks now relinquished from EPC 727. The Cerito Creek project (EPC 727) was granted to the NCA Joint Venture in March 2001 and in 2003 Xstrata Coal Queensland gained full ownership. In a 2013 relinquishment report (CR78892) 8 sub-blocks were dropped from along the western border of EPC 1232 and another 4 to the northeast (Figure 2). Details of the 5 holes are summarised in Table 7 and their place in the geological model is discussed below:

- Coal was only intersected in the two northern holes (CKR3759 and CKR3581). These were the only holes that were logged with wireline geophysics which included: long and short spaced density, natural gamma, calliper, neutron, sonic, resistivity and verticality logs.
- The UNS coal intersected in CKR3579 was affected by igneous intrusions interpreted to be sills of Cretaceous age.



- Geological structural mapping places the Burton Range Fault Zone running along the west of EPC 1232 and through its southern half with a NE.
- Overburden depth to the UNS is interpreted as 500 m on the western boundary of the southern half of EPC 1232. In the north of the tenement the UNS is interpreted to occur much shallower at 300-400 m depth.
- Seam thickness of the UNS is significant in the north of EPC 1232 ranging from 6 m on the eastern boundary to 9 m in the west. (CR 78892)

Table 7 – Summary of CKR series coal drill holes

Borehole Number	Surveyed Easting	Surveyed Northing	Surveyed RL	Drilling Commenced	Drilling Completed	Total Depth (m)
CKR3579	609487.88	7643867.69	339.04	13/06/2003	30/10/2003	510.0
CKR3581	605474.42	7639868.37	313.84	17/06/2003	19/06/2003	384.0
CKR3583	607464.53	7631865.16	367.90	18/06/2003	21/06/2003	450.0
CKR3587	607469.32	7627861.60	429.98	21/06/2003	23/06/2003	450.0
CKR3589	607466.70	7629867.26	395.35	23/06/2003	10/07/2003	340.0

The Department of Mines and Energy drilled three holes within a 10 km buffer of EPC 1232: Drake 12, Drake 27 and Grosvenor 6. It was noted that the Rangal coal seams, most significantly the Leichhardt Seam, deteriorated in the region west of the Burton Fault. Seams eventually coalesce to the north forming a single seam at Newlands. In 2008, The DME published an electronic and hardcopy structural geology map with explanatory notes for the Bowen Basin as interpreted from open file exploration data and airborne geophysics (Sliwa and others, 2008).

### 3 NATIVE TITLE & CULTURAL HERITAGE

EPC 1232 lies within the external boundaries of the Birri People, Jangga People and Wiri Core Country Native Title Claim Areas. Queensland Coking Coal Pty Ltd has current agreements in place with the Birri People and Jangga People. An agreement is under negotiation with the Wiri Core Country native title party. The terms of these agreements satisfy Queensland Coking Coal's obligations pursuant to the Aboriginal Cultural Heritage Act (Qld) 2003 and the Native Title Act (Cth) 1993.

As all significant Aboriginal Cultural Heritage in Queensland is protected under the Aboriginal Cultural Heritage Act 2003, all reasonable and practical measures have been, and will continue to be, undertaken to ensure that exploration activities do not harm Aboriginal Cultural Heritage. This includes adherence to the Cultural Heritage Duty of Care Guidelines (under the Act) as well as training of all relevant staff and contractors to be aware of their Cultural Heritage responsibilities.

## 4 GEOLOGY

EPC 1232 is located in the north of the Permian-Triassic Bowen Basin. The Basin is the northern part of the 1,800 km long Bowen-Sydney-Gunnedah Basin, a thick meridional accumulation of Permian and Triassic sediments with extensive coal measure development. The exposed part of the basin in Central Queensland is triangular in shape, 250 km wide at its base and 600 km long.

The Bowen Basin is divided into a number of tectonic units comprising north-northwest to south-southeast trending shelves/platforms, separated by sedimentary troughs. The major structural unit surrounding the Project is a major axis of deposition; the Nebo Synclinorium, which shares a border with the Collinsville Shelf to the west of the Project (Figure 8).

Folding within the Bowen Basin is gentle and commonly relates to drag on thrust faults at the eastern margin of the Basin. The boundary of the Nebo Synclinorium, a northerly extension of the Taroom Trough, and the Collinsville Shelf is marked by a major thrust fault system termed the Jellinbah Thrust Fault Zone.

The location of EPC 1232 within the tectonic units of the northern Bowen Basin is shown in Figure 8 below. The cross-section B WSW-ENE indicated in Figure 8 is shown in Figure 9.

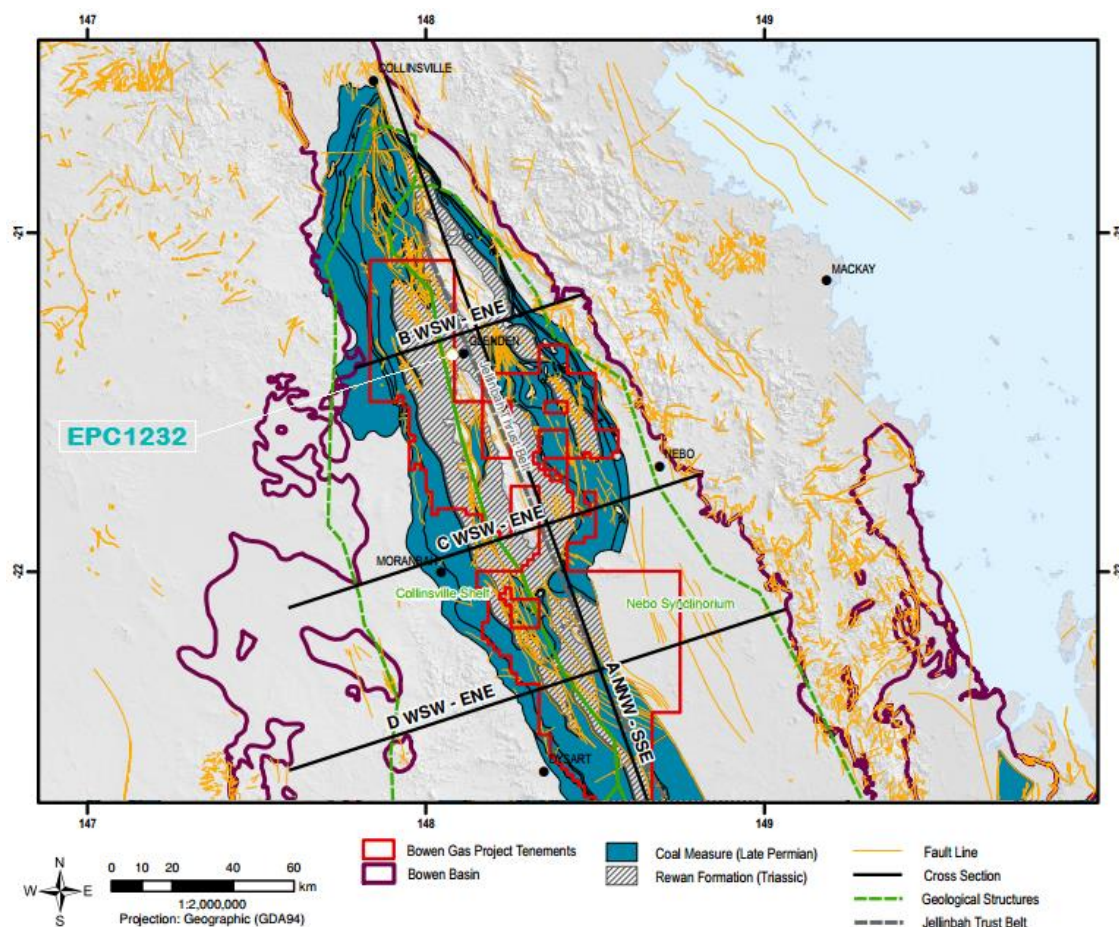


Figure 8 - Structural elements of the northern Bowen Basin and location of EPC 1232 and cross sections (Arrow Energy Pty Ltd, 2013)

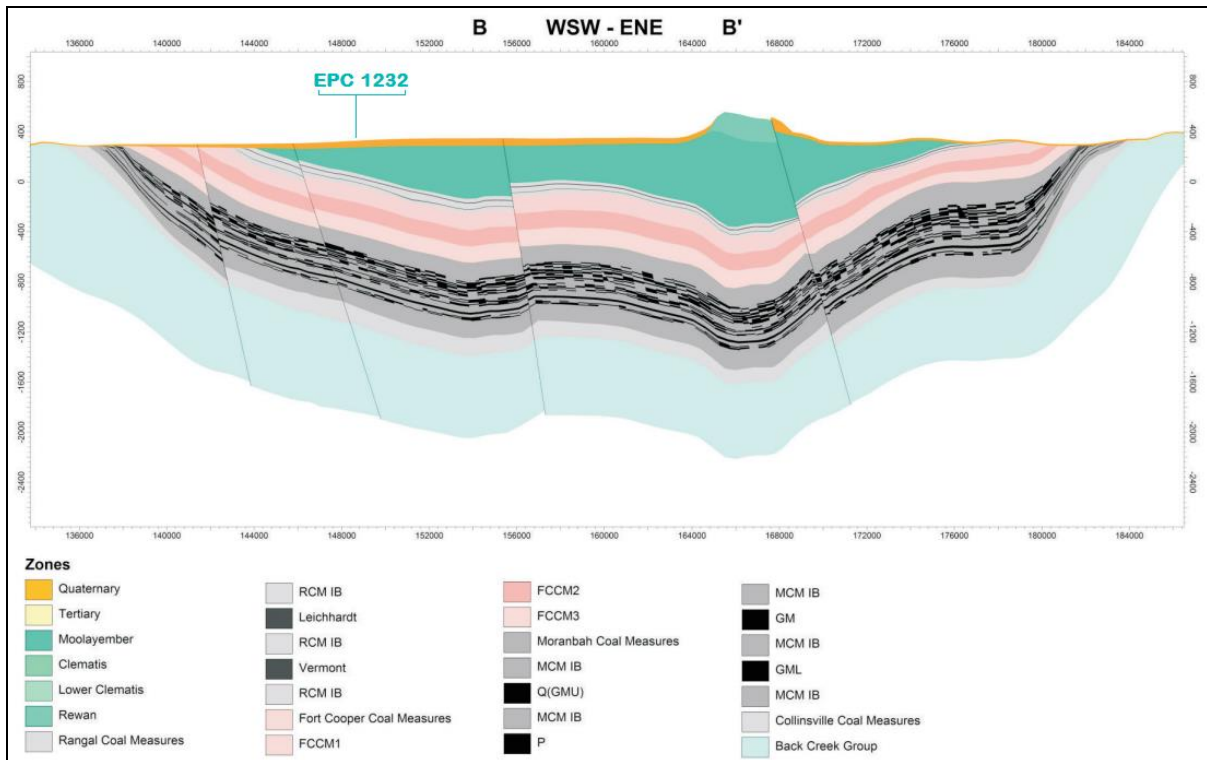


Figure 9 – Diagrammatic cross section of the northern Bowen Basin: Line B WSW-ENE (Arrow Energy Pty Ltd, 2013)

#### 4.1 Local Geology

EPC 1232 is located on the western edge of the Nebo Syncline in the northern Bowen Basin. Economic coal resources occur in a stacked series of coal bearing sedimentary sequences found widely throughout the Bowen Basin. Coal found within the tenement is at depths suited to underground mining and structurally affected by the Jellinbah-Burton Range Fault Zone. This Fault Zone is a north-north-westerly trending thrust structure which intersects the tenement and may offer uplifted regions of shallower coal. This thrust system separates the Nebo Syncline from the Collinsville Shelf to the west.

Surface geology in the region of EPC 1232 includes Tertiary basalts, sediments of the Sutor Formation and sheets of Quaternary alluvium. The basalt flows follow pre-Tertiary valleys and the erosion of Cenozoic sediments has resulted in a highly variable thickness of cover and depth of weathering. Consequently, the precise subcrop of the coal measures is often difficult to ascertain. The Tertiary Sutor Formation unconformably overlies the Permian and Triassic strata.

Rewan Group thickness varies as a consequence of weathering processes. It is characterized by the presence of green sandstone and siltstones with mottled red brown mudstones, and a lack of preserved plant material, which distinguishes it from the darker, greyer carbonaceous sediments of the underlying Rangal coal sequence. The colour change probably reflects a climatic change whilst the Triassic sediments are representative of purely continental fluvial and lacustrine deposition.

Within EPC 1232, the Triassic Rewan Group strata occur on surface and are underlain by the Rangal Coal Measures (RCM). The RCM are ~150 m thick and contain substantial coal in the Leichhardt and Vermont Seams (Upper and Lower Newlands Seams equivalents) which range in thickness over the



project from 3 to 9 m (CR61174). The RCM are the primary exploration target within the QCC Suttor Creek Project.

The RCM dip gently to the east over the project and are mined extensively to the north, west, south and southeast. Beneath the RCM lie the Fort Cooper Coal Measures (FCCM) followed by the Moranbah Coal Measures (MCM). These coal sequences progressively outcrop to the west of the area and also known to hold economic coal seams.

The Rangal sequence is underlain by the Fort Cooper Coal Measures which are up to 400 m thick, comprising predominantly a banded lithic siltstone and carbonaceous mudstone succession, marked at the top by the marker Yarrabee tuff bed. The thick banded Girrah seam lies near the top of the sequence, and is a characteristically interbanded with numerous tuffaceous dirt, and carbonaceous intercalations. To the south, this seam has a dull appearance but has locally shown petrographically high vitrinite content and swelling numbers that make this a secondary target.

The Fort Cooper Coal Measures overlie the Moranbah Coal Measures which subcrop to the west of the region in the Suttor Creek Mine area, with hard coking coal seams between 1.5 - 7 m thick in a more sandstone rich sequence. The whole sequence is approximately 250 - 300 m thick with an aggregate coal thickness of ~ 15 m. (CR53478)

A full stratigraphic column of the Byerwen Coal Project (10 km west of EPC 1232) is shown below in Figure 10 followed by a detailed column of coal measures within EPC 1232 in Figure 11.

Age	Group	Formation	Description
Quaternary		Alluvium	Mud, sand, minor gravel (alluvium), residual soil and colluvium
Tertiary		Suttor Formation	Quartz sandstone, clayey sandstone, mudstone and conglomerate; fluvial and lacustrine sediments and minor interbedded basalt
Triassic	Rewan Group	Arcadia Formation	Green lithic sandstone, green and red sandstone and mudstone
		Sagittarius Sandstone	Feldspathic and lithic sandstone with mudstone interbeds
Late Permian	Blackwater Group	Rangal Coal Measures (RCM)	Sandstone, siltstone, mudstone, coal, tuff and conglomerate
		Fort Cooper Coal Measures (FCCM)	Medium to coarse-grained, volcano-lithic sandstone, conglomerate, tuff, tuffaceous mudstone, coal and shale
		Moranbah Coal Measures (MCM)	Lithic sandstone, siltstone, shale, coal, mudstone and conglomerate
Early Permian	Back Creek Group	Exmoor Formation	Quartzose to sub-labile sandstone, siltstone and rare limestone
		Gebbie Formation	Quartzose to lithic sandstone, sandy siltstone, siltstone, carbonaceous shale and calcareous sandstone
		Tiverton Formation	Lithic sandstone, coquinite, calcareous sandstone and siltstone, conglomerate
		Blenheim Formation	Carbonaceous and micaceous sandstone, siltstone, shale, coquinite and minor conglomerate

Figure 10 – Stratigraphic column from the Byerwen Project; 10 km west of the EPC 1232 area (QCoal Group, 2013)

EPC 1232 Stratigraphy			
PERIOD	GROUP	FORMATION	MAIN SEAMS
LATE PERMIAN	BLACKWATER GROUP	Rangal Coal Measures	Leichhart Seam
			Vermont Seam
		Fort Cooper Coal Measures	Girrah Seam
			Undifferentiated FCCM Seam
			Undifferentiated FCCM Seam
			Undifferentiated FCCM Seam
			Undifferentiated FCCM Seam
			Undifferentiated FCCM Seam
			Undifferentiated FCCM Seam
			Undifferentiated FCCM Seam
	BACK CREEK FORMATION	Moranbah/ German Creek Formation	Q Seam
			Goonyella Upper
			P Seam
			Goonyella Middle
			C Seam
			Goonyella Lower

\* Not To Scale, Adapted from Scott, Beeston & Carr, 1995

Figure 11 - Generalised stratigraphy coal bearing formations within EPC 1232

## 5 EXPLORATION

QCC conducted a drill program during Year 1 of tenure (2010-11). The program included four chipped holes and one core hole (SC001\_A). Three of the chip holes were drilled during 2010 with the forth chip hole and SC001\_A being drilled during the following year. A summary of the holes drilled is shown below in Table 8 and their locations are shown in Figure 12.

No work was undertaken in the seventh year of tenure in consideration of joint venture issues and the market sentiment towards coal projects.

Table 8 – Summary of drill holes conducted in Year 1

HOLEID	EASTING	NORTHING	RL (m)	TD (m)
SC001_A	606714.48 m E	7646144.76 m S	373	480.57
SC003_A	607310.10 m E	7639433.01 m S	331	295
SC004_A	607548.26 m E	7637123.16 m S	345	289.5
SC005_A	612348.06 m E	7635147.12 m S	377	302.8
SC006_A	609013.54 m E	7632613.90 m S	374	252

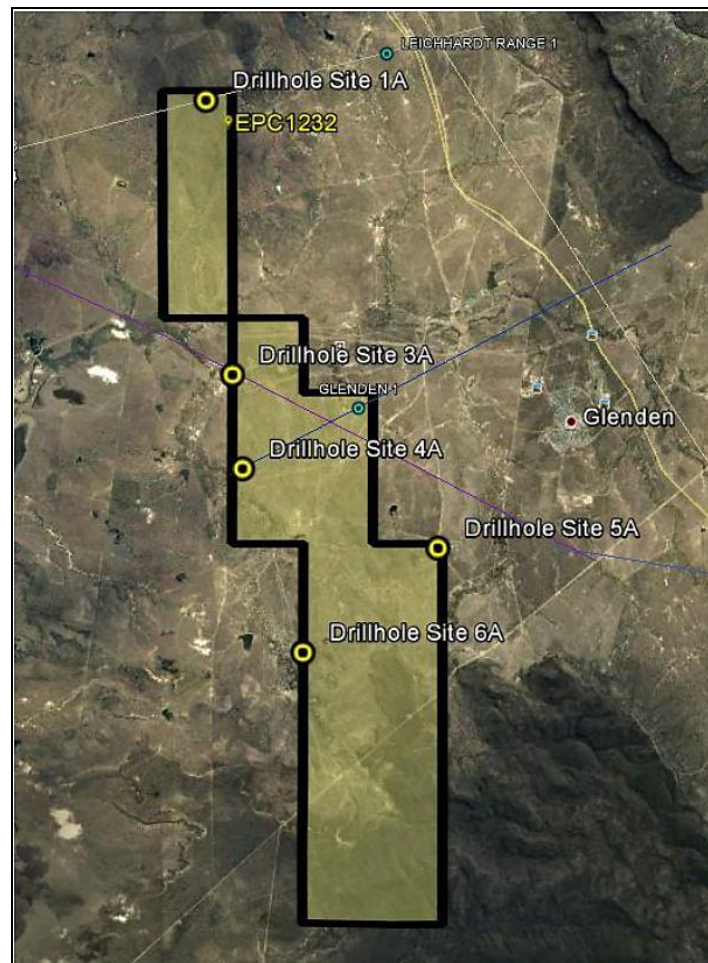


Figure 12 – Location of Year 1 drilling conducted by QCC

Drilling commenced in October of 2010; 5 holes were pre-collared with one hole drilled to completion. The drilling activity ended in March 2011 after numerous issues with wet weather and flooding across central Queensland at that time.

Complete down hole geophysics have not been captured from any of the bores, the completed bore was blocked below the casing and above the coal seams of interest, and as such is not able to provide any further information.

Samples have been taken and sent to the lab on the 20<sup>th</sup> April 2011. Geologist logs of the seams indicate that some plies of the intersected seams were intruded and coked which is supported by lab results. As such the results are of little use for determining quality of the seams throughout the area.

## Modelling

Queensland Coal Corporation commissioned GeoConsult Pty Ltd in February 2012 to create a geological database and model for EPC 1232. GeoConsult made figures available for the RCM and MCM (Table 9), but reported further correlation work was required on the FCCM before even applying a conceptual exploration target to the measures. At this stage, QCC is still gathering data on the FCCM to include it in the conceptual exploration target.

Table 9 – Conceptual Resource Estimates for EPC 1232

RESOURCE ESTIMATE	FORMATION	SEAM	THICKNESS (M)	EXPECTED DEPTHS (M)	AREA APPROX (KM2)	VOLUME (M3)	TONNAGE RANGE (Mt)
Conceptual Target	RCM	Leichhardt	3.92 - 7.73	327 - 610	45	260,100,000	272 to 387
Conceptual Target	RCM	Vermont	3.88 - 6.03	353 - 647	45	205,300,000	232 to 306
No Target Generated	FCCM	Girrah	-	-	-	-	-
No Target Generated	FCCM	Undefined	-	-	-	-	-
Conceptual Target	MCM	Q	1.94 - 4.51	620 - 894	45	126,600,000	140 to 180
Conceptual Target	MCM	GU	3.31 - 3.80	676 - 945	45	156,800,000	170 to 230
Conceptual Target	MCM	P	2.59 - 6.55	768 - 1046	45	189,800,000	210 to 280
Conceptual Target	MCM	GM	6.47 - 13.22	820 - 1109	45	419,300,000	470 to 620
Conceptual Target	MCM	C	1.32 - 2.53	844 - 1127	45	97,400,000	100 to 140
Conceptual Target	MCM	GL	5.87 - 6.96	890 - 1193	45	277,300,000	310 to 410
<b>Total Conceptual Target</b>	<b>ALL</b>	<b>ALL</b>	<b>1.32-13.22</b>	<b>327 - 1193</b>	<b>45</b>	<b>1,732,600,000</b>	<b>1900 to 2550</b>

A preliminary mine design was developed in Year 3 using the grids produced by this model and subsequently submitted to the government as part of the Mining Lease Application process. In this mine design it was considered there was only sufficient structural and quality information from one seam (Leichhardt) to facilitate a mine design. This mine design has still identified a potentially recoverable resource of 167.8 Mt from this single seam. This mine design has been developed for a single seam longwall operation in the Leichhardt seam over 25 years. Further drilling and data acquisition from other seams should enable their inclusions in further mine design updates.

QCC has continued work on the database, geological model and MLA. The model is being used to identify targets for a second drill program as well as 2D seismic line locations which will both provide further control in the north of EPC 1232.

## 5.1 Resource Statements

No resource or reserve statements have been released for coal resources located within EPC 1232 to date. QCC commissioned GeoConsult in February 2012 to create a geological database and model for the EPC 1232 and has since conducted further studies of the tenement's geology and prospects.

The historical drill hole dataset assembled as part of the insitu resource target estimate formed the basis of the model. As the drill hole data had been collated from multiple sources, revisions to the dataset were undertaken to unify the stratigraphic coding. The final dataset comprised 3 coal measures, 10 coal seams and 23 modelled horizons. No seam ply or parting correlations have been attempted at this stage.

The drill hole data for the EPC1232 Suttor Creek Project is stored in an ISIS geological database. ISIS is a software package designed to store and model drill hole lithological intersections, geotechnical logs,

wireline geophysical traces and analytical sample data. The ISIS database is a component of the Vulcan modelling software. Initially the regional exploration dataset comprised 1 coal exploration drill hole on EPC1232 from 2011, 129 pre-2011 coal exploration drill holes, 8 DME coal bores, 14 coal seam gas wells and 34 water bores.

Coal quality raw proximate analyses for the R1, R2, UNS and LNS Seams for 8 holes around the resource have been compiled into a basic CQ database. Glenden 1, is within EPC1232 and provides the primary information on the likely coal quality for the resource. The current distribution of coal quality data is sparse; however there was sufficient information to model RD (analytical relative density), ash, inherent moisture, volatile matter and fixed carbon. The results have been used to give estimates on the range in coal quality expected for the seams across the area.

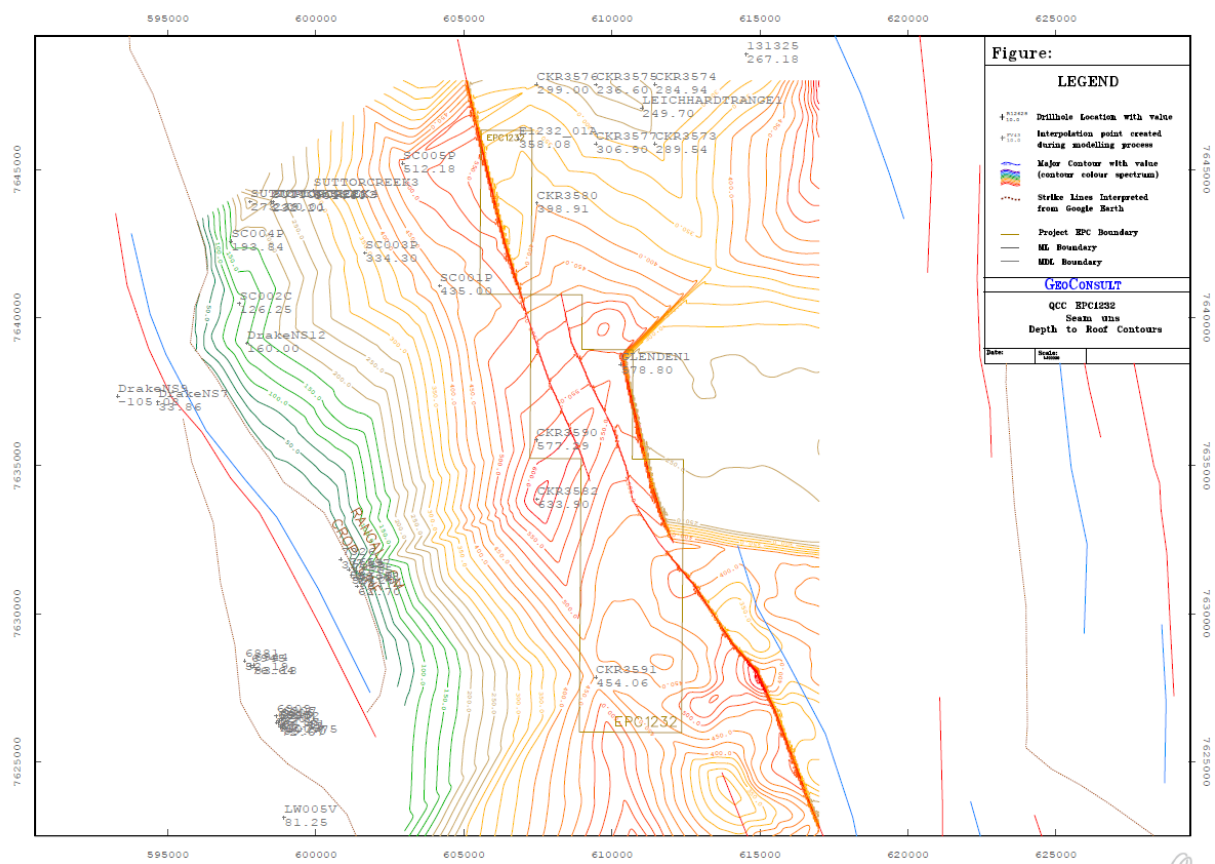
Table 10 – Estimated coal quality for UNS and LNS modelled over the Project area (Buck, 2012)

Resource Estimate	Seam	Project	Polygon	Raw RD	Raw Ash (%ad)	Raw Inherent Moisture (%ad)	Raw Volatile Matter (%ad)	Raw Fixed Carbon (%ad)	Raw Total Sulphur (%)
Exploration Target	UNS	EPC1232	RESO2012_UN_S_TAR	1.40-1.48	10.5-17.7	1.5-1.7	26.0-26.1	48.5-49.3	0.47-0.50
Exploration Target	LNS	EPC1232	RESO2012_LNS_TAR	1.42-1.56	13.9-32.9	1.5-1.8	19.2-19.4	35.5-36.1	0.46-0.50

Based on the current insufficient level of confidence in the geological assessment and geological model of the Project the UNS and LNS coal targets have been classified as Exploration Targets. This is based primarily on missing data (wireline density, lithology logs, and complete coal quality results) from a drill hole key to the main resource block. Other contributing factors are the major fault zone, the likelihood of intrusions, and the drill hole spacing; typically exceeding 4 km.

A plan of the modelled depth to roof contours for the UNS seam is shown below in Figure 13.





- Esterle, J., & Sliwa, R. (2002). *Bowen Basin Supermodel 2000 - CSIRO Exploration and Mining Report 976C*. ACARP Project C9021.
- Geological Survey of Queensland. (2012). *QDEX - Queensland Digital Exploration Reports*. Retrieved March 7, 2012, from Geological Survey of Queensland : <http://qdexguest.deedi.qld.gov.au>
- QCoal Group. (2013, May). *Byerwen Coal Project Environmental Impact Statement*. Retrieved from Byerwen Coal Pty Ltd : <http://byerwen-eis.qcoal.com.au/>
- Sliwa, R., Hamilton, S., Hodgkinson, J., & Draper, J. (2008). An interpretation based on airbourne geophysics and open file exploration data (Map compilations with explanation notes). *Bowen Basin Structural Geology*.

**Tabulated QDEX search data reporting follows:**

Historical Exploration Reports				
Decade	Tenure	CR #	Report Title	Author
2000	EPC 727	56525	EPC 727, CERITO CREEK, PARTIAL RELINQUISHMENT REPORT FOR PERIOD ENDING 14/3/09	OSBORNE, C
2000	EPC 727	44678	EPC 727, CERITO CREEK, PARTIAL RELINQUISHMENT REPORT FOR THE PERIOD ENDED 14/3/07	OSBORNE, C L
1970	EPC 86	3471	SOUTH OF COLLINSVILLE FINAL REPORT	ANONYMOUS
1970	EPC 86	3199	A-P 86C, PROGRESS REPORT TO 30.06.70, RED HILL EAST EXPLORATION AREA.	SANDERSON G, VITNELL B W
1960	EPC 3	29301	REASSESSMENT OF THE BEE CREEK COALFIELDS - BORE LOGS	QUINN, G W
1960	EPC 3	25336	A-P 3C, REPORT ON AREAS RELINQUISHED 10/3/87 FROM ML 4761 (SUTTOR CREEK)	BRAIN, T J, SMITH, R J
1960	EPC 3	7938	REPORT ON AN AIRBORNE MAGNETIC SURVEY OVER THE SUTTOR CREEK AREA, A-P 3C.	HARMAN P
1960	EPC 3	7937	A-P 3C, REPORT ON FINAL AREA RELINQUISHMENT.	BUZACOTT R
1990	EPP 364	24889	EPP 364, MGC BURTON NORTH 1, WELL COMPLETION REPORT	PIPER, A
1990	EPP 364	25687	EPP 364, BOWEN BASIN, MGC GLENDEN 1, TEST INTERPRETATION REPORT	BADRI, M
1980	ML 4116, ML 4118, ML 4122, ML 4250, ML 4255, ML 4279, ML 4280, ML 4292, ML 4325, ML 201192, ML 201202, ML 202047	21856	ML 3621, 6788, 6796, 6808, 7458, 7473, 7595, 7596, 7679, 7689, 7728, 7893 (HERBERTON), NYMBOOL - EMUFORD, REVIEW OF TALMIN PTY LTD ALLUVIAL MINING OPERATIONS AND HARD ROCK LEASES	HANCOCK, R G & THOMAS, C M
1990	EPP 364	24893	EPP 364, MGC SUTTOR CREEK 2, WELL COMPLETION REPORT	PIPER, A
1990	EPP 364	25653	EPP 364, MGC SUTTOR CREEK 2, TEST INTERPRETATION REPORT	BADRI, M
1990	EPP 364	30483	A-P 364P, MGC SUTTOR CREEK 3, WELL COMPLETION REPORT	FALKNER, A, WHITE, J
1990	EPP 364	21865	A-P 364P, NQE SUTTOR CREEK 1, WELL COMPLETION REPORT	ANONYMOUS
2000	EPP 364	63706	A-P 364P, CH4 SC 5P, WELL COMPLETION REPORT	FRASER, B
2000	EPP 364	53478	A-P 364P, CH4 SC 3P, WELL PROPOSAL REPORT	FRASER, B
2010	EPP 364	61190	A-P 364P, CH4 LW 9C, WELL COMPLETION REPORT	OBERHARDT, N
1980	EPM 3352, EPM 4273, EPM 4609	21864	A-P 3352M, 4273M, 4609M, REPORT OF EXPLORATION FOR THE TWELVE MONTH PERIOD ENDED 29/9/88	KIRK, B I
2010	EPP 364	61174	A-P 364P, CH4 SC 3P, WELL COMPLETION REPORT	MCDONALD, A
2000	EPP 364	63706	A-P 364P, CH4 SC 5P, WELL COMPLETION REPORT	FRASER, B
1990	EPP 364	24909	A-P 364P, 1991 MGC NORTH BOWEN BASIN SEISMIC SURVEY, FINAL REPORT - GEOLOGICAL INTERPRETATION	ANONYMOUS
1990	EPP 364	23698	A-P 364P, BOWEN BASIN, REPORT ON SEISMIC AND WELL LOG DATA PROCESSING	ANONYMOUS

Historical Exploration Reports				
1990	EPP 364	31062	A-P 364P, REPROCESSING AND INTERPRETATION OF SEISMIC LINES 90-03 AND 91-13 OVER THE STRATHFIELD PROSPECT, AND LINE 91-05 OVER THE BURTON DOWNS PROSPECT	EVANS, B J, UROSEVIC, M, COCKER, J
1990	EPP 364	31076	A-P 364P, MGC NORTHERN BOWEN BASIN 91, FIELD OPERATION REPORT (SEISMIC SURVEY)	ANONYMOUS
2010	EPC 727	78892	EPC 727, CERITO CREEK, PARTIAL RELINQUISHMENT REPORT FOR PERIOD ENDED 14/3/13	JOHNSON, R