EPC 571

REPORT ON FINAL RELINQUISHMENT

JUNE 2003

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On behalf of

WESFARMERS CURRAGH PTY LTD
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SUMMARY

The relinquishment of all remaining sun-blocks of EPC 571 is due to the sale of MDL 170 Girrah by Wesfarmers Curragh Pty Ltd to Anglo Coal Australia Pty Ltd on the 28th February 2003. Wesfarmers Curragh Pty Ltd no longer requires to hold EPC 571 while options to develop Girrah are evaluated.

Wesfarmers Curragh Pty Ltd is relinquishing both EPC 603 and EPC 571. A Geological Treatise of EPC 571 and EPC 603 has been compiled by Wesfarmers Curragh Pty Ltd and delivered to the Department of Natural Resources and Mines on the 11th July 2003.

1.0 INTRODUCTION

EPC 571 Cooroora was granted on the 23rd November 1994 to Arco Coal Australia Incorporated. The permit area originally covered 36 sub blocks, mostly to the west of the adjoining permit EPC525 and south of the adjoining permit EPC603. Ownership of EPC571 passed to Wesfarmers Coal Holdings in August 2000. Title passed to Wesfarmers Curragh Pty. Ltd. on 5 January 2001. On the 22nd November 2000 a partial relinquishment of 16 sub blocks was made. This is the Final Relinquishment Report for EPC 571 covering the remaining 20 sub blocks as listed below:

CLERMONT	**2866**	**CDE**	**HJK**	**OP TU XYZ**
	2938	**DE**	**JK**	**OP**
	2939		**L**	

The reason for relinquishment of EPC 571 is due to Wesfarmers Curragh Pty Ltd no longer requiring hold over EPC 571 while options to develop Girrah are evaluated. It was envisaged that if Wesfarmers Curragh Pty Ltd developed Girrah which lies immediatedly to the north of EPC 603 and EPC 571, a possible option was to haul the coal from Girrah through EPC 603 and EPC 571 and process and rail the coal from the Curragh Mine. On the 28th February 2003 Wesfarmers Curragh Pty Ltd sold MDL 170 Girrah to Anglo Coal Australia Pty Ltd, therefore no longer requiring EPC 571.

This report is a collation of information and previous reports by a number of geologists and is not presented as original work.

1.1 Location and Access

EPC 571 lies 200km west of Rockhampton and 30km north of the town of Blackwater. The Mackenzie River flows through the southern sub-blocks of EPC 571 and EPC 603 borders EPC 571 in the north. Access to the area is gained from the Capricorn Highway via the Bedford Weir - Mt Stuart Road and unsealed station roads and tracks..

The area is mainly gently undulating with a flat alluvial plain bordering the Mackenzie River. The land is mostly cleared and is utilised for cattle grazing. The land is held by two grazing properties, Cooroorah and Barnett.

A location plan including property locations is shown in Figure 1. Sub-block locations within EPC 571 (relinquished area) are shown in Figure 2.

1.2 Exploration Target

The exploration target on EPC 571 was a small downthrown block containing Rangal Coal Measures. A secondary target was domestic steaming coal. Lower ash plies in thicker seams below the Rangal Coal Measures were known elsewhere. Low dips combined with a shallow base of weathering was believed to enable occurrence of low ratio steaming coal in the area.

In the remaining 20 sub-blocks of EPC 571, only twenty-one drill holes are located from a previous drill program by ARCO Coal Australia Pty Ltd. The (21) open holes were drilled by ARCO Australia Pty Ltd in June/July and October/November of 1996. The holes were part of a program of (38) stratigraphic drill holes to examine the distribution, setting and characteristics of coal seams within the permit area. Petrographic studies of drill hole cutting samples were carried out to assist in correlation of rock units. The possibility that a fault block preserved outlier of Rangal Coal Measures may exist in the area was a factor considered in exploring the area.

2.0 REGIONAL GEOLOGY

The relinquished area is located on the eastern side of the Comet Ridge in the southern central part of the Bowen Basin. The regional dip of sediments is to the east into the Mimosa Syncline at between 3 and 5 degrees.

The stratigraphy within and around EPC 571 consists of units of the Upper Permian Blackwater Group which includes the Fair Hill Formation and the Burngrove Formation.

Extensive deposits of Tertiary and Quaternary alluvial sediments cover the southern and eastern areas of the EPC.

3.0 PREVIOUS WORK

Coal exploration has previously been undertaken in the Cooroora Creek area by the Utah Development Company in 1962 and by the O'Connell Corporation Limited in 1968. Two UDC holes are located in the north-east of the relinquished area, U41 and U43. The O'Connell Corporation drilled 15 holes on 3 lines. Eight O'Connell holes are located throughout the relinquished area. A fully cored stratigraphic hole (Blackwater NS 180) was drilled by the Geological Survey of Queensland in 1971.

Locations of previous drill holes are shown in **Figure 3** Accuracy of these locations is limited.

4.0 OUTLINE OF WORK UNDERTAKEN

Exploration in the relinquished area since 1994 has included collection of previous geological data, interpretation of satellite and air imagery, ground mapping and a program of stratigraphic drilling to examine the distribution, setting and characteristics of coal seams within the permit area. Petrological studies of drill hole cuttings and outcrop samples were carried out to assist in correlation of rock units.

4.1 Aerial Photography

Two runs of colour aerial photography which included coverage of EPC 571 at a nominal scale of 1:25,000 were taken by to Aerometrix for Curragh Queensland Mining Pty Ltd in December 1994. Prints and enlargements were distributed to relevant property owners in 1996 and are no longer available.

4.2 Lineament Study

A structural study of SPOT and Landsat TM images was carried out by Mark Biggs of Queensland Geological Services for CQML in 1994. The study aimed to identify major structural domains, relate them to published studies and to attempt to identify outliers of Rangal Coal Measures in down-faulted blocks. The study concluded that the major structural trends described by Mallett and other (1988) were correct, and that "the area is dominated by northwest trending linears or zones of linears that may represent thrust faults with downthrows to the west. A conjugate set of less prominent linears trends "east-northeast".

The study concluded that it was unlikely that significant subcrop of Rangal Coal Measures was present in the area but that shallow intersections of coal were likely to exist.

An edited version of this study (**Appendix 2**) and a map of the major lineaments and fold axes has previously reported in *EPC 571 Cooroora Creek – Report for the twelve months ended 23rd November 1995 (Drawing 2).*

4.3 Ground Mapping

Mapping of EPC 571 started in 1995 and was completed during 1996. Traversing of the major creek systems was most useful as surface outcrop outside creek banks is rare. Mapping concentrated on Cooroora Creek and its tributaries which drain much of the northern half of the permit area. In the southern part of the area where drainage is not well developed, traverses were made along fence lines. Two short sections of the Mackenzie River were also traversed. Much of the Mackenzie River in the permit area has been flooded by the Bedford Weir reservoir, covering outcrop that may have been visible in the river bed. The water level at the weir has since been raised by several metres, further obscuring features visible in 1995.

Mapping was controlled using hand-held Trimble Geoexplorer GPS units and a base station to provide differentially corrected observation points to an accuracy of +/- 3m. Mapping was conducted prior to the removal of deliberate inaccuracy of GPS signals by

the United States authorities and differential correction was essential. The observation points were transferred into the Curragh Queensland Mining Pty Ltd Silicon Graphics computer system. Maptek Vulcan computer modelling software was used for map production.

The Geological Outcrop and Drill Hole Map included with this report shows the location, lithology and attitude of mapped outcrops (**Figure 3**.

4.4 Petrography

Four outcrop samples from orientation traverses of the type sections of the Burngrove and Fair Hill Formations were submitted to K. R. Martin Pty Ltd for petrographic analysis. One of these samples, 571-F04 is located in the relinquished area (**Figure 3) a**nd thin section descriptions and tables listing the point count analysis and calculated QRF ratios are included in **Appendix 6**.

A further nineteen hand specimen samples from within the permit area and two orientation samples from outside the area were analysed by K.R. Martin Pty Ltd after completion of mapping within EPC 571. Ten of these samples were taken from the relinquished area. The location of these samples are shown on **Figure 3,** and sample descriptions and comments are included in **Appendix 6** & **7**.

Forty-five cutting samples from the initial series of drill holes numbered **CO001**, **CO006 – 9** were submitted to K.R. Martin Pty Ltd for petrological study. The study included petrographic descriptions, calculation and plotting of QFR ratios, and assignment of the samples to their respective formations based on the known petrology of the formations within the permit area. The results are presented in **Appendix 4.** All samples, except **CO001** cuttings, are located within the relinquished area.

A further 106 cutting samples from drill holes **CO010 to CO038** (excluding CO034 – 36) were submitted to K.R. Martin Pty Ltd in November 1996. Cutting samples from drill holes **CO011, CO012, CO013, CO016, CO019, CO020, CO021, CO024,**

CO025, CO029, CO030, CO031, CO037 and **CO038** are within the relinquished area. The results are presented in **Appendix 5**.

4.5 Stratigraphic Drilling

During 1996 two stages of drilling took place in the relinquishment area to investigate the thick seam intersection in drill hole OC2 and whether it continued along strike, and secondly to assess coal seam development in the upper Burngrove Formation and to check for possible fault block preserved Rangal Coal Measures on the eastern boundary of the permit area.

A total of 38 open holes were drilled on four lines across the strike of the coal measures. The first program of nine open holes (CO005 – CO009 within the relinquishment area) were drilled between June 24th and July 3rd 1996 by Resource Drilling Pty Ltd. A second program of 29 open holes (CO0011-13, CO016, CO019-21, CO024, CO025, CO029-31, CO034, CO035, CO037 and CO038 are within the relinquishment area) were drilled by Depco Pty Ltd between October 19th and November 18th 1996.

Most of the holes were drilled to a depth of 90 to 110 metres at one kilometre intervals on four east-west lines across the permit area (**Figure 3**). Two lines covered the stratigraphy over the full east-west section of the north-south striking coal measures. The two other lines covered the eastern most or upper part of the succession within the permit area. This enabled generally good correlation of litho-stratigraphic units, including coal seams, between drill holes both through each section and along strike. English logs (Appendix III) and graphic logs (Drawings 2 to 6) are included in Arco Coal Australia Inc, 1996, *EPC571 Cooroora: Report for the twelve months ended 23 November 1996.*

Seams intersected in the relinquished area include the Leo, Scorpio, Centaur, Phoenix, and Pegasus. All the seams contain abundant stone bands and the coal plies have high inherent ash. The Scorpio seam coal plies indicate better quality with an apparent density of down to 1.75g/cm³ (interpreted from geophysical logs). Coal seam intersections are summarised in **Table 2.**

The drilling statistics for both programs within the relinquishment area are shown below in **Table 1**. Coal seam intersections are summarised in **Table 2.**

Table 1. Drilling Statistics

Period	Hole Type	No. of Holes	Casing (m)	Total (m)
June/July 1996	Open	5	34.00	344.00
Oct./Nov. 1996	Open	16	223.00	1458.00
TOTAL		21		1802.00

4.5 Geophysical Logging

All holes were geophysically logged for natural gamma ray, density and calliper. Both long spaced (32cm) and short spaced (12cm) density logs were run. Neutron and sonic logs were run for all drill holes in the relinquished area except for CO005 and CO019. CO020 did not have a sonic log produced. Geoscience Associates Australia performed the logging. Interpretations of coal seam depth and thickness were obtained from the geophysical logs and incorporated into the drill hole cuttings logs. Assessment of coal quality was made from density logs calibrated in apparent g/cm^3. Copies of the geophysical logs have already been provided to the Department of Natural Resources and Mines within "EPC 571 Cooroora Report for the Twelve Months ended 23 November 1996" ARCO Coal Australia Pty Ltd.

TABLE 2.

SUMMARY OF COAL SEAM INTERSECTIONS

HOLE NAME	TYPE	Total Depth	Seam	Roof	Floor	Seam Thickness	Comment
CO005	Open	18.00					Abandoned
CO006	Open	96.00					No Coal
CO007	Open	91.00					No Coal
CO008	Open	90.00					No Coal
CO009	Open	49.00					Abandoned
CO011	Open	103.00	Phoenix	85.34	90.56	5.22	Coaly shale
CO012	Open	91.00					No Coal
CO013	Open	85.00	Scorpio	36.26	41.98	5.72	
			Centaur	63.50	67.64	4.14	
CO016	Open	91.00	Scorpio	32.54	35.72	3.18	
			Centaur	60.68	63.26	2.58	
			Unnamed	76.00	77.00	1.00	
CO019	Open	91.00	Phoenix	22.75	30.30	7.55	
			Pegasus	59.70	61.88	2.18	
CO020	Open	97.00	Phoenix	72.54	79.32	6.78	
CO021	Open	103.00					No Coal
CO024	Open	107.00	Leo	29.50	31.20	1.70	H2S Gas
			Scorpio	59.41	62.60	3.19	
			Centaur	90.70	93.02	2.32	
CO025	Open	91.00	Phoenix	55.60	57.49	1.89	
			Pegasus	69.84	73.20	3.36	
CO029	Open	103.00					No Coal
CO030	Open	91.00					No Coal
CO031	Open	95.00	Scorpio	47.08	52.63	5.55	
			Centaur (u)	67.80	68.95	1.15	
			Unnamed	73.90	75.20	1.30	
			Centaur (l)	86.47	88.75	2.28	
CO034	Open	49.00	Centaur (u)	39.78	41.80	2.02	
CO035	Open	49.00	Centaur (u)	23.70	24.97	1.27	
			Centaur (l)	34.83	36.76	1.93	
CO037	Open	91.00	Scorpio	16.85	19.60	2.75	
			Centaur	45.16	49.62	4.46	
CO038	Open	91.00	Scorpio	50.86	56.78	5.92	
			Centaur (u)	76.29	77.48	1.19	
			Unnamed	81.94	83.28	1.34	

4.6 Surveying

Drill Hole survey for holes within the relinquishment area is tabled below in **Table 3.**

EPC 571 Relinquishment area
Drill hole survey location

HOLE	DATE DRILLED	EASTING	NORTHING	COLLAR R.L.	TOTAL DEPTH	CASING DEPTH	WATE DEPTH
CO005	27/06/1996	684551.49	7416481.44	132.77	18.00	16.00	
CO006	27/06/1996	684190.50	7424041.64	126.08	96.00	1.00	52.00
CO007	1/07/1996	684915.39	7423978.28	123.68	91.00	10.00	
CO008	2/07/1996	685847.60	7423938.22	119.85	90.00	0.00	
CO009	3/07/1996	684552.55	7420016.25	147.68	49.00	7.00	
CO011	20/10/1996	685072.92	7418467.12	149.88	103.00	13.00	
CO012	21/10/1996	686063.13	7418484.78	148.49	103.00	20.00	
CO013	21/10/1996	687043.92	7418670.70	141.72	91.00	11.00	
CO016	24/10/1996	687336.26	7421672.28	130.27	91.00	7.00	
CO019	29/10/1996	684557.24	7416495.27	132.99	91.00	22.00	
CO020	30/10/1996	685635.98	7416478.71	134.05	97.00	18.00	31.00
CO021	30/10/1996	686635.88	7416793.29	133.20	103.00	17.00	33.00
CO024	2/11/1996	687105.89	7423943.71	121.60	107.00	10.00	21.00
CO025	2/11/1996	683849.18	7427611.26	155.19	91.00	4.00	
CO029	4/11/1996	684870.53	7427547.29	143.73	103.00	6.00	
CO030	4/11/1996	685744.69	7427474.11	149.13	103.00	19.00	34.00
CO031	4/11/1996	686742.55	7427608.80	143.21	95.00	24.00	
CO034	6/11/1996	686308.40	7427445.05	149.05	49.00	19.00	
CO035	8/11/1996	686122.15	7427316.78	147.27	49.00	18.00	
CO037	9/11/1996	687324.65	7420037.58	133.30	91.00	6.00	
CO038	1/11/1996	687111.51	7427112.96	133.76	91.00	9.00	

4.7 Rehabilitation

The twenty-one holes between CO005 to CO038 that are within the relinquished area, have been rehabilitated and are reported in the Final Rehabilitation Report and Environmental Audit for EPC 571.

5.0 GEOLOGY

5.1 Stratigraphy

The stratigraphy of the relinquished area consists of Upper Permian sediments of the Fair Hill Formation and the Burngrove Formation. Extensive deposits of Tertiary and Quaternary alluvial sediments cover the southern and eastern areas of the EPC. No Rangal Coal Measures sediments were mapped at the surface of the relinquished area and no Rangal Seams drilled within the relinquished area. No sediments of the MacMillan Formation were encountered as outcrop or drilled within the area of relinquishment.

The stratigraphic sequence within the permit area is outlined below:

Quaternary	**Alluvial Sediments**
Tertiary	**Alluvial Sediments**
Upper Permian	**Burngrove Formation**
	Fair Hill Formation
Lower to Upper Permian	**MacMillan Formation**

The complete stratigraphic sequence, including surrounding areas of EPC 571 is depicted in **Figure 4**.

MacMillan Formation

No positively identified MacMillan Formation sediments were intersected in drilling of the relinquished area.

Fairhill Formation

The Fair Hill Formation is predominantly an arenaceous unit occupying a substantial area around the axis of the Comet Anticline in the area north of the Mackenzie River. The unit is composed mainly of fine to very coarse grained volcanolithic and quartz rich sandstone with interbedded siltstone, mudstone, tuffs, and minor carbonaceous shale and coal. The Formation is about 155 metres thick on the southern drill line on Cooroorah.

A prominently outcropping bed of medium to very coarse grained quartz-rich sandstone occurs approximatedly 20 to 30 metres below the base of the Burngrove Formation and strikes for about three kilometres to the south-southeast from near Cooroorah Homestead to the Mackenzie River. This sandstone has a mean QFR ratio of 85:6:9 (Baker and Martin, January 1996). Prouza (1977) and Baker et. al. (1993) state that the quartz-rich beds occur in the basal Fairhill Formation. This would indicate that the quartz-rich sandstone described above has been faulted into its present position overlying volcanolithic sandstones. An alternative explanation is that the quartz-rich sandstone is interbedded in the upper Fairhill Formation sequence. This sandstone is characterised by tabular cross-beds approaching one metre in thickness indicating that the unit was deposited in a similar fluvial channel environment to the underlying trough cross-bedded volcanolithic sandstones. The quartz-rich sandstone cross-beds dip to the south-east at an apparent dip of about 16 degrees, supporting the proposition that these sediments were derived from the cratonic high to the west or northwest.

Grey to dark grey, micaceous siltstone interbeds were mapped within the Fairhill Formation sandstones. Minor coal and shaley coal were intersected in drill holes in the Formation.

Burngrove Formation

The greenish coloured, chlorite rich sediments of the Burngrove Formation outcrop in the central-northern part of the permit area in Cooroora Creek and its' tributaries. Drill hole evidence shows the formation extends over the eastern two-thirds of the permit area, up to the eastern boundary. The Formation has a thickness of at least 280 metres at the northern end of the permit area.

Fine grained greenish-grey lithic sandstones are the dominant lithology of the upper half of the unit. These sandstones exhibit trough cross-bedding and planar bedding. The lower half of the unit is mainly olive-green to greenish-grey siltstone (grey below the base of weathering) with subordinate interbeds of fine sandstone and a basal member of dark grey to black siltstone with interbedded pale tuffaceous claystones (Black Alley Shale equivalent).

Petrological study of drill hole cuttings from the lower Burngrove Formation shows that the section contains a mix of lithologies including mudrock, fine grained tuff, argillaceous siltstone and very fine to medium grained volcanolithic sandstones.

Rangal Coal Measures

No positively identified Rangal Coal Measures sediments were intersected in drilling of the relinquished area.

Cainozoic

A large part of the eastern and southern area of EPC571 is covered by alluvial sediments and soils of Tertiary and Quaternary age. The sediments occur as unconsolidated recent deposits in stream channels and on the Mackenzie River flood plain, and as higher level unconsolidated silts, sands and gravels. The gravels often occupy the highest ground in the area south of Cooroora Creek. Silt, sand and gravel was encountered in drill holes to thicknesses of up to 25 metres on the Mackenzie River

flood plain and up to 20 metres thick on the higher level Tertiary fluvials (drill hole CO012).

5.2 Structure

The Burngrove Formation and upper Fair Hill Formation sediments in the EPC generally strike north-south and dip gently to the east into the Mimosa Syncline.

Gentle, large scale folds, with east-west axes are located across the area. An anticline occurs at the southern end of the permit area, indicated by a shift to the east of the Burngrove Formation – Fairhill Formation boundary. A syncline axis is located about 8 km north, along Cooroora Creek. Another slightly more tightly folded large scale anticline occurs about 2km north of the permit area.

Small scale thrust faulting and normal faulting was observed in outcrops of the Burngrove Formation. A thrust fault duplex was mapped in a creek bank 400metres west of drill hole OC30, where a 0.3m thick olive-green , chloritic tuff is repeated in an outcrop by three close spaced faults dipping at about 13 degrees to the east north-east. This stream channel maybe controlled by a larger scale thrust fault. Further faulting in this creek is indicated by steeply westward and southeast dipping sediments located about 400 metres north of the thrust fault duplex. Larger scale faulting was suspected by Baker and Martin (1996b) with the Burngrove Formation below the Fairhill Formation.

There is also evidence of faulting on two of the drill lines. On the northern Wilpena road line, the low dip between the Scorpio Seam intersections in CO031 and CO038 (**Figure 3)** may be the result of medium scale thrust faulting between these two drill holes. On the southern most drill line between holes CO010 (one km west of CO019) and CO019, there is a gap in the correlation that maybe the result of normal faulting or steepening of the strata between the two holes.

5.3 Coal Seams

A number of coal seams occur within the Burngrove and Fairhill Formations. Exploration confirms the view held by earlier workers that seams in these Formations generally contain numerous shaley interbeds and that most coal plies tend to have higher inherent ash in the relinquished area. Low ash plies have not been observed in the relinquished area. Variation of seam thickness along strike is not uncommon.

Coal seams were identified using the naming convention established by Staines (1972) and used by Prouza (1977). Seam depth, thickness and quality was derived from interpretation of geophysical logs.

No coal seams of economic potential were found in the relinquished area.

Leo Seam

The Leo Seam was encountered only in drill hole CO024 in the north-east of the permit area near Cooroora Creek. The seam had a thickness of 1.70 metres and was intersected 28 metres above the Scorpio Seam. The apparent seam density as indicated by the density log is in excess of 2 g/cm^3.

Scorpio Seam

The Scorpio Seam lies about 35 metres below the Leo Seam. The north-south striking seam was intersected in six holes over the 14 km length of the permit area. The seam ranges in thickness from 5.55 metres in CO031 at the northern end of the permit area to a minimum of 2.75 metres in CO037 in the middle of EPC 571. At the southern end of the EPC the seam is 4.63 thick in CO036 (just to the east of the relinquished area). The Scorpio Seam is characterised by two, high gamma, pale tuffaceous claystone interbeds 2.5 to 3 metres apart. In the middle of the area around CO016 and CO024, the upper part of the seam including the upper marker tuff band is not present, possibly due to a wash out.

The seam contains numerous interbeds of siltstone and claystone. The density log indicates that the coal plies have high inherent ash with little of the density curve plotting at a density of less than 1.75g/cm³.

Centaur Seam

The Centaur Seam lies from 15 to 28 metres below the Scorpio Seam and extends the length of the permit area. The seam thickness varies from 1.1 to 4.5 metres. In the southern half of the permit area, the seam is of higher quality at the roof where it has a distinct sharp contact with the overlying roof rock and an apparent density of 1.7g/cm³. The seam contains three major stone bands and becomes increasingly shaley towards the floor. On the northern Wilpena Road Line, the seam is split into upper (u) and lower (l) sections with a separation of up to 18 metres.

Phoenix Seam

The Phoenix Seam lies about 120 metres below the Centaur Seam and forms the uppermost member of the Fairhill Formation. The Phoenix Seam was intersected in 4 drillholes within the relinquished area, CO011,19 and 20 in the south-west and in CO025 in the north-west. The seam is thickest in the southern end of the permit area (7.55metres in CO019) and thins to the north (1.89 metres in CO025). Most coal plies have an apparent density of greater than 2g/cm³. The Phoenix Seam may correlate with minor coal interbedded with mudstone and siltstone in the Mines Department hole NS180.

Pegasus Seam

The Pegasus Seam was intersected in CO025 12.35 metres below the Phoenix Seam in the northwest of the relinquished area with a thickness of 3.36 metres; and in CO019 29.40 metres below the Phoenix Seam in the south-west of the relinquished area with a thickness of 2.18 metres. The interburden between the Pegasus and Phoenix Seams increases to the south. The seam is of poor quality with an apparent density generally greater than 2 g/cm³.

6.0 CONCLUSION

The remaining 20 sub blocks of EPC 571, the subject of this final relinquishment report, has been aerial photographed, ground mapped and a limited number of exploration drill holes completed, including petrological analysis of handspecimens and cuttings. However no potentially economic coal deposits of domestic steaming coal or coking coal is indicated. Shallow low ratio coal exists in the area. Further work may reveal suitable coal within the Centaur and Scorpio Seam for possibly fluidised bed applications.

As MDL 170 Girrah, immediatedly to the north of EPC 603 and EPC 571, has now been sold, Wesfarmers Curragh Qld Mining Pty Ltd no longer requires to hold EPC 571 and relinquishes the entirety of EPC 571 Cooroora.

REFERENCES

Arco Coal Australia Inc, 1996, *EPC571 Cooroora: Report for the twelve months ended 23 November 1995*, Confidential Statutory Report to Qld. Dept. of Mines and Energy. Prepared by D.T. Broome (Qld Geological Services Pty Ltd).

Arco Coal Australia Inc, 1997, *EPC571 Cooroora: Report for the twelve months ended 23 November 1996*, Confidential Statutory Report to Qld. Dept. of Mines and Energy. Prepared by D.T. Broome (Qld Geological Services Pty Ltd).

Baker, J.C., Fielding, C.R., Caritat, P. de and Wilkinson, M.M., 1993: *Permain Evolution of Sandstone Composition in a Complex Back-arc to Foreland Basin: the Bowen Basin, Eastern Australia.* Journal of Sedimentary Petrology, v. 63, pp. 881-893.

Baker, J.C. and Martin, K.R., 1996b: *Petrology of Cuttings Samples from Late Permian Formations near Blackwater, Central Bowen Basin.*

Prouza, V., 1977: *Coal Exploration, South Central Bowen Basin, MT. Stuart-Comet area.* Queensland Geological Survey, Record 1977/27, pp 1-15.

Staines, H.R.E., 1972: *Blackwater Coalfield. Correlation of Seams in the Rangal Coal Measures, Mackenzie River to Sirius Creek*, Rep. Geol. Surv. Qd, 70, pp 1-11.

APPENDIX 1

DRILL HOLE ENGLISH LOGS

APPENDIX 2

EXTRACT FROM REPORT ON STRUCTURAL INTERPRETATION OF SATELLITE IMAGES

APPENDIX 3

EXTRACT FROM REPORT BY AUSTRALIAN PHOTOGEOLOGICAL CONSULTANTS PTY LTD

APPENDIX 4

PETROLOGY OF CUTTINGS SAMPLES FROM LATE PERMIAN FORMATIONS NEAR BLACKWATER, CENTRAL BOWEN BASIN, 22 OCTOBER 1996 (CO006 – CO009).

APPENDIX 5

PETROLOGY OF CUTTINGS SAMPLES FROM LATE PERMIAN FORMATIONS NEAR BLACKWATER, CENTRAL BOWEN BASIN (CO011 – CO038).

APPENDIX 6

PETROLOGY OF OUTCROP AND SUBSURFACE SAMPLES FROM LATE PERMIAN FORMATIONS NEAR BLACKWATER, CENTRAL BOWEN BASIN, 14 JUNE 1995.

APPENDIX 7

PETROLOGY OF OUTCROP SAMPLES FROM LATE PERMIAN FORMATIONS NEAR BLACKWATER, CENTRAL BOWEN BASIN, 15 JANUARY 1996.