

9 June 2015

## MAMAHAK PROJECT – JORC RESOURCES STATEMENT FOR MCM

Based on the results of additional drilling and sampling work carried out in 2013 and 2014, the geological models for PT Mamahak Coal Mining (“MCM”) have now been updated. The MCM coal concession, located in the West Kutai Regency, East Kalimantan Province, Indonesia is owned by Kangaroo Resources Limited (“KRL”) through its Indonesian holding entity PT Karsa Optima Jaya (“KOJ”)



### 1 - Geophysical logging of drill holes

The Company is pleased to report that this work has now been reviewed by independent consultants PT New Resource Mine Consulting (“NRM”) and a new JORC Code 2012 Mineral Resource Statement has been prepared and issued (Date Mar 2015) which identifies an overall **33%** increase in Coal Resources at the MCM mining concession since the last JORC statement was issued on behalf of by PT SMG Consultants (“SMGC”), MCM (dated Feb 2011)

This ‘Statement of Open Cut Coal Resources’ (the “Statement”), is produced by NRM solely for MCM. The Statement covers the southern part of the MCM concession covering an area of 1,439 Ha (the “Project”) where drilling has been focused.



#### 1 – Obtaining coal samples for analysis from core drilling

The Coal Resources estimated for the **MCM deposit total 14.0 million tonnes (Mt)**, of which **1.6 Mt is categorised as Measured**, **8.3 Mt is categorised as Indicated** with the **balance of 4.1 Mt as Inferred**. In the West Block, Coal Resources have been estimated to elevation minus 50 m, and in the East Block to elevation 0 m (Note: different elevation cut-offs are due to variance in average topography between blocks). Coal Resource estimates excluded coal seams less than 0.20 m in thickness and use an estimated in situ RD that is calculated from the air dried RD and using the Preston-Sanders (1993) conversion formula to convert to an in situ RD using Total Moisture (TM.) Coal Resources totals have been rounded to the nearest 0.10 Mt to reflect the order of accuracy of the estimate.

The Coal Resources by block are summarized on Table 1 below.

Block	Coal Resources (Mt)				Basal	TM %	Ash %	TS %	CV kcal/kg		RD g/cc
	Measured	Indicated	Inferred	Total	RL	(ar)	(adb)	(adb)	(gar)	(adb)	(In situ)
West	0.5	4.1	2.0	6.6	-50	5.3	12.4	1.75	7,000	7,235	1.34
East	1.1	4.2	2.1	7.4	0	4.2	10.5	1.43	7,185	7,345	1.32
<b>TOTAL</b>	<b>1.6</b>	<b>8.3</b>	<b>4.1</b>	<b>14.0</b>		<b>4.8</b>	<b>11.6</b>	<b>1.62</b>	<b>7,080</b>	<b>7,285</b>	<b>1.33</b>

**Table 1 – Coal Resources summary by Block**





A comparative table showing the variance in Coal Resources between the previous SMGC Statement and the current NRM Statement is shown in Table 2 below.

		Coal Resources (Mt)				Coal Quality			
		Measured	Indicated	Inferred	Total	TM %	Ash %	TS %	CV kcal/kg
						(ar)	(adb)	(adb)	(gar)
Feb-15	NRM	1.6	8.3	4.1	14.0	4.8	11.6	1.62	7,080
Aug-11	SMGC	6.9	3.1	0.5	10.5	3.2	9.2	1.62	7,420
<b>VARIANCE</b>		<b>-5.3</b>	<b>5.2</b>	<b>3.6</b>	<b>3.5</b>	<b>1.6</b>	<b>2.4</b>	<b>0</b>	<b>-340</b>

**Table 2 – Current versus Previous Coal Resource Estimates**

A summary of material information related to the “Statement of Open Cut Coal Resources” is provided as follows:-

- Geology and geological interpretation:- Mamahak lies within the western part of the Kutai Basin which is comprised of a series of Tertiary Sedimentary rock from Eocene to Pliocene age. The Kutai Basin commenced deformation in the Middle Eocene. Geological interpretation is based on drilling data combined with regional geological information, topographical features (lineaments) and coal quality analyses.
- Sampling and sub-sampling techniques:- All core lithology was logged in the core barrel splits to minimise disturbance of the sample and avoid coal loss due to unnecessary additional handling. The core was photographed before being wrapped in plastic and sealed to preserve the coal properties. Non-coal partings greater than 0.07 m were sampled separately, these were secured in separate sealed plastic bags. Coal sampling has been undertaken on a ply-by-ply basis. Only analysis from cores with recovery above 90% has been used in modelling and resource estimation. Coal sampling procedures were commensurate with international standards and all core analysed in internationally certified laboratories to appropriate standards.
- Drilling techniques:- Drilling was by conventional rotary methods using water/drill mud for drill circulation. Data includes both full and touch/partly coring in addition to open-hole drilling.
- The criteria used for classification, including drill and data spacing and distribution:- The determination of resource categorization is based on coal seam continuity in terms of thickness, quality and structural complexity. Other non-geological boundaries considered include geographical (e.g. major drainage system), legal (forest boundaries, major infrastructure) and social (major towns). Spacing line of drilling is approximately 50m to 150m which is considered adequate for classification of Coal resources to Measured and Indicated categories.
- Sample analysis method:- A number of “twin” cored holes were submitted for analytical test-work. Analyses typically include Total Moisture, Proximate Analysis, Total Sulphur, Calorific Value and Relative Density (stage1 test-work) and stage2 test-work including Ultimate Analysis, Ash Analysis, also basic coking property testing, including Crucible Swelling Number (CSN).



- Estimation methodology:- A computer model was created using Ventyx “Minescape” software, a surface modeling technique designed specifically for coal seam modeling. The individual coal seams were correlated using geophysical logs and seam depth and thickness determined by reconciliation of coal cores with geophysical logs. Only drill-holes with geophysical logs were used for modelling and resource estimation.
- Cut-off grade(s), including the basis for the selected cut-off grade(s):- Cut-off parameter for resources boundary limited by minimum coal thickness up to 0.20 m, no coal resources reported below minus 50 m RL in the west block and below 0 m RL in the East Block. Coal resources were also limited by the concession boundary, topography boundary and by the depth of weathering.
- Mining and metallurgical methods and parameters:- The mining method used previously at Mamahak was conventional open pit mining using backhoe style hydraulic excavators loading off highway dump trucks for both waste and ore mining. In determining Mineable Coal (non-JORC) reasonable factors have been used for roof and floor loss, dilution and minimum coal parting thickness as well as diluting material properties. Coal quality is as per the geological model combined with loss, dilution and moisture adjustments.

Coal Reserves at current depressed coal prices are currently estimated at **NIL** therefore no Coal Reserves Statement has been prepared, however the ‘Statement of Open Cut Coal Resources’ also includes a sensitivity analysis showing indicative Mineable Coal (non JORC) which has been estimated separately for the 2 main mining blocks in MCM using benchmark thermal coal prices ranging from US\$70 to US\$110. The outcomes of the sensitivity study are shown in Table 3 below.

Block	Benchmark Coal Price @ 6,322 kcal/kg (gar) – US\$/t	Project Coal Price @ 6,870 kcal/kg (gar) – US\$/t	Breakeven Strip Ratio (BESR) (bcm/t)	Waste (Mbcm)	Coal (Mt)	Average SR (bcm/t)
West	70	78.7	13.6	0.0	0.0	0.0
	80	89.1	17.0	9.6	0.6	17.3
	90	99.4	21.0	14.1	0.8	17.9
	100	109.7	23.9	20.2	1.1	19.1
	110	120.1	27.3	32.1	1.5	21.0
East	70	76	12.7	4.6	0.4	12.4
	80	86.9	16.3	7.3	0.6	13.1
	90	97.8	20.4	17.4	1.1	15.9
	100	108.7	23.5	39.6	2.0	19.5
	110	119.6	27.2	48.2	2.4	20.4

*Note : the quantities shown above are indicative Mineable Coal quantities and are presented for the purposes of showing the potential variance or sensitivity to coal price.*

**Table 3 –Sensitivity Table - West and East Block**



This latest geological modelling work and the corresponding 'Statement of Open Cut Coal Resources' at 28 Feb 2015 prepared by NRM provides the Company with more accurate information and a much higher level of confidence with which to plan the future development of MCM.

**Further information:**

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## JORC CODE (2012) COMPLIANCE CHECK LIST SUMMARY

### Section 1 - JORC Sampling Techniques and Data

(Criteria in this Section apply to all succeeding sections)

No.	Section // Criteria	NRM Comment
1	Coal sampling techniques.	Almost all of quality holes used coal sampling ply by ply mentioned: 2 cm sediment roof, 2 cm coal roof, coal body in 1 sample, 2 cm coal floor and 2 cm sediment floor and adjusted with geophysical logging particularly for seam thickness.
2	Drilling Techniques	The drilling system used a rotary continues to full or touch/ partly coring. There are also open holes.
3	Drill sample recovery	Only analyses from cores with recovery >90%
4	Logging	A site geologist (PT MCM) was present at all times and preliminary core logs were derived from "cuttings" and core depths. Most of holes were geophysically logged and drill logs and coal sample depths subsequently reconciled against the geophysical logs. The holes without geophysical log data has been excluded as data point in the resources categorization.
5	Sub-sampling techniques and sample preparation	Coal core was sampled using coal sampling procedures commensurate with International standards. All core analyzed in laboratory to appropriate international standards.
6	Quality of assay data and laboratory tests.	Most of samples were submitted to an independent accredited lab Geoservices laboratory at Balikpapan, Indonesia. Total of 812 samples from 361 holes were analysed using ISO method for proximate analysis CV, TM, Ash, CSN, fluidity and Vitrinite. ASTM method for HGI, and AS method for RD and Ash analysis.
7	Location of data points.	Most of drillhole collars were surveyed by Total Station and derived from benchmark points in concession. Some holes still remain using GPS, and for the categorization purpose these holes has been excluded as data point.
8	Data spacing and distribution.	Drillholes has been concentrated in 2 blocks, west and east in the south part of concession ("the project") with approximately 1,439 Ha. Spacing line of drilling is approximately 50 to 150 m which is considered adequate for classification of Coal Resources to Measured and Indicated category with due consideration for the variance in coal seam thickness, coal quality and structural complexity.
9	Orientation of data in relation to geological structure	Drillhole lines were designed perpendicular to the strike of deposit. A number of hole intercepts were down dip to ensure seam continuity and quality. All drillholes were vertical.
10	Sample security	Sample was and wrapped with plastic kept in a core box before sampling. Samples were subsequently sealed with appropriate sample labelling and documentation prior to submission to the lab.
11	Audits or reviews	Result from lab checked ply by ply, with anomalies sent back to laboratory. As per findings in this review, plus internal reconciliation and peer review.



## Section 2 - JORC Reporting of Exploration Results

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

No.	Section // Criteria	NRM Comment
1	Mineral Tenement and land tenure status.	The mining concession is held under IUP Operation - production number 545/K.341a years in 2010 granted in April 7, 2010 and is valid for 12 years can be extended as per regulation. Clear an Clean certificate for the concession registered with number 254/Bb/03/2014 granted on August 28, 2014.
2	Exploration done by other parties	All exploration data was generated by the Client using the services of third party sub-contractors.
3	Geology	The mining concession is underlain by the Late Eocene age Haloq Formation. The West Block is an anticline trending north-south, and the East Block is a monocline dipping to southeast. Both deposits are multi-seam deposits with 12 seams ranging in average thickness from 0.1 m to 0.6 m in the West Block and 14 seams ranging in average thickness from 0.4 m to 0.8 m. Coal seams are relatively consistent in thickness and quality.
4	Drill hole Information	In the West Block, total of 603 holes have been drilled, including 204 partly cored (mostly "twin" holes). In the East Block, total of 440 holes have been drilled, including 157 partly cored (mostly "twin" holes). Only holes with geophysical logging and surveyed by Total Station used as data point.
5	Data aggregation methods	For the composite quality data NRM use weighting averaging based on tonnage.
6	Relationship between mineralisation widths and intercept lengths	For modelling purposes NRM used raw data from drillholes that was adjusted with geophysical logging which represents apparent thickness.
7	Diagrams	<p>General Relationship between Exploration Results, Coal Resources and Coal Reserves (JORC Code, 2012)</p> <p>General Location – The Project</p> <p>Site Layout / Mining Concession – The Project</p> <p>Topographic Map - The Project</p> <p>Regional Geological Map - The Project</p> <p>General Stratigraphic Column - The Project</p> <p>Typical Cross Sections - The Project</p> <p>Drillhole Location Plan</p> <p>General Stratigraphic Column - Kutai Basin</p> <p>Typical Geophysical Logging - The Project</p> <p>Structural Contours Floor - All Seam</p> <p>Thickness Conture - All Seam</p> <p>Calorific Value (gar) -All Seam</p> <p>Coal Resource Limits - All Seam</p>
8	Balanced reporting	All data was reported in the report
9	Other substantive exploration data	Geotechnical and Hydrological study.
10	Further work	Propose additional infill drilling prior to production.



### Section 3 – JORC Estimation and Reporting of Mineral Resources

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

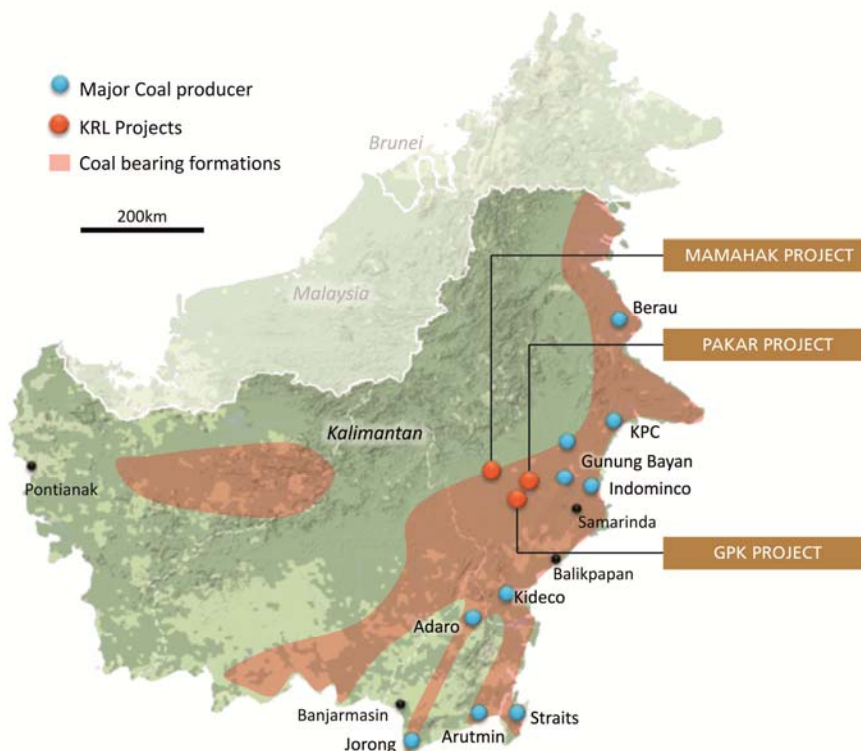
No.	Section // Criteria	NRM Comment
1	Database integrity	Drillholes with no geophysical log data has been excluded from the model database and coal seam data (including quality) entered into the geological database was reconciled against the logs and each hole already checked using geophysical logging.
2	Site visits	A number of site visits were carried out by NRM Senior Consultants (Geology and Mining) and the Competent Person (Resources and Reserve) has also visited the site.
3	Geological interpretation	Geological interpretation by drilling data combined with regional geological information, topographical features (lineaments) and coal quality analyses.
4	Dimensions	The West Block deposits are multiple-seam with ~3 km from N-S and ~4 km E-W, with 12 seams. The main seams is seam C with average seam thicknesses of 0.6 m. Weathering depth is based on drillhole intersections. The East Block deposits are multiple-seam with ~2.5 km from N-S and ~5.5 km E-W, with 14 seams. The main seams is seam DE group with average seam thicknesses of 0.5 m. Weathering depth is based on drillhole intersections.
5	Estimation and modelling techniques	A computer model was created using Ventyx "Minescape" software, a surface modelling technique designed specifically for coal seam modelling. Check estimates were undertaken. The model grid size is 25 m x 25 m.
6	Moisture	All coal samples were analysed for TM (ar) and Inherent Moisture (adb). No EQM analysis were performed.
7	Cut-off parameters	Cut-off parameter for resources boundary limited by minimum coal thickness up to 0.2 m, no Coal Resources reported below minus 50 mRL in the West Block and below 0 mRL in the East Block and outside of the concession boundary, and limited by weathering zone also topography boundary. For the composite quality data NRM uses weighted averaging based on tonnage.
8	Mining factors or assumptions	Not applied.
9	Metallurgical factors or assumptions	Not applied.
10	Environmental factors or assumptions	Not applied.
11	Bulk density	Not applied.
12	Classification	The classification of Coal Resources by the Competent Person was based on drill spacing, data collection methods and the geological continuity.
13	Audits or reviews.	As per findings in this review, plus internal reconciliation and peer review.
14	Discussion of relative accuracy/ confidence	Review data by seam, check consistency thickness and quality by statistic, contour and geophysical logs. Resource categories based on geological, quality and structural continuity as detailed in the relevant sections of the Statement.



## COMPETENT PERSON STATEMENTS

**Mamahak Coal Project 2015:** *The resource estimate has been prepared in accordance with the "JORC code" by PT New Resource Mining Consulting (PT NRM). The estimate of the Mamahak resources has been calculated and reviewed by Mr. William Park, BSc (Geology), BEcon, MAIG, MAusIMM. Mr Park is Principal Consultant to PT NRM, who was responsible for all content within the Technical Report titled "Statement of Open Cut Coal Resources – Mamakak Coal Project", located in Long Bagun District, Kutai Barat Regency, East Kalimantan – Indonesia, 31st March, 2015", and is a Competent Person in accordance with the requirements of the 2012 Australasian Code for Reporting of Mineral Resources and Ore Reserves (the JORC Code). Mr Park is a Member of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Mr. Park consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.*

**Mamahak Coal Project 2011:** *The resource estimate has been prepared in accordance with the "JORC code" by PT SMG Consultants Pty Ltd (PT SMGC). The estimate of the Mamahak resources has been calculated and reviewed by Mr. Mark J Manners, B.Sc (Geology), an employee of PT SMGC, who was responsible for all content within the Technical Report titled "Resource Report – Mamahak Coal Project, Long Bagun District, Kutai Barat Regency, East Kalimantan – Indonesia, 2nd February, 2011", and is a Competent Person in accordance with the requirements of the 2004 Australasian Code for Reporting of Mineral Resources and Ore Reserves (the JORC Code). Mr Manners is a Member of the Australasian Institute of Mining and Metallurgy. Mr. Manners consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.*



### 3 – Location of KRL projects in Kalimantan, Indonesia