COUGARENERGY

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ASX ANNOUNCEMENT

17 July 2013

MACKENZIE PCI COAL PROJECT | MAIDEN RESOURCE STATEMENT

HIGHLIGHTS

- **Cougar Energy releases maiden Inferred JORC Resource of 201Mt.**
- **Coal quality confirms potential for a PCI grade product.**
- **New Resource covers only 70% of project, with upside potential.**
- **Scoping study of Mackenzie PCI project commenced.**
- **Mackenzie project adds to the Company's existing coal inventory.**
- **Mackenzie tenement well positioned for infrastructure and logistical support.**

Cougar Energy Limited (ASX: CXY - "the Company") is pleased to announce a significant maiden JORC Inferred Resource estimate for its 100% owned Mackenzie PCI Coal Project ("Mackenzie" or "the project").

The project is located approximately 25 km north-east of Blackwater in the Bowen Basin in Central Queensland and covers an area of 21 km². It is situated between the open cut operating mines of Jellinbah and Yarrabee, both long-term producers of PCI grade export coal.

Cougar Energy Chief Executive Officer & Managing Director Rob Neill said: "The Phase 1 exploration program at Mackenzie has exceeded our expectations with 70% of the deposit modelled and has successfully generated a significant discovery of PCI coal. This is very exciting news for Cougar Energy shareholders who now have an investment in a significant PCI coal asset."

"It gives us great confidence now to progress our scoping study for the project."

Exploration Program

Phase 1 exploration program work was completed at Mackenzie on 24 June 2013. All holes drilled intersected the targeted Rangal Coal Measures sequence – the **Aries, Castor, Pollux and Pisces seams.** Based on logging, geophysics and laboratory testing, the seams are consistent with the regional geology.

Phase 1 of the field work consisted of 3 holes (with data available on a further 4 previously drilled holes along the western edge of the tenement) and concentrated on the southern section of the EPC which covers approximately 60% of the 2,200ha project area. A total of 2,197 metres was drilled including 262 metres of HQ size core.

The coal resources are at moderate depth and range from a minimum of 283m in hole CED002 to a maximum depth at the base of the sequence of 451m in hole CED003.

Coal quality testing indicates the seams have the potential to support a PCI grade product.

The graphic below shows the Mackenzie project location and extent of the coal resources:

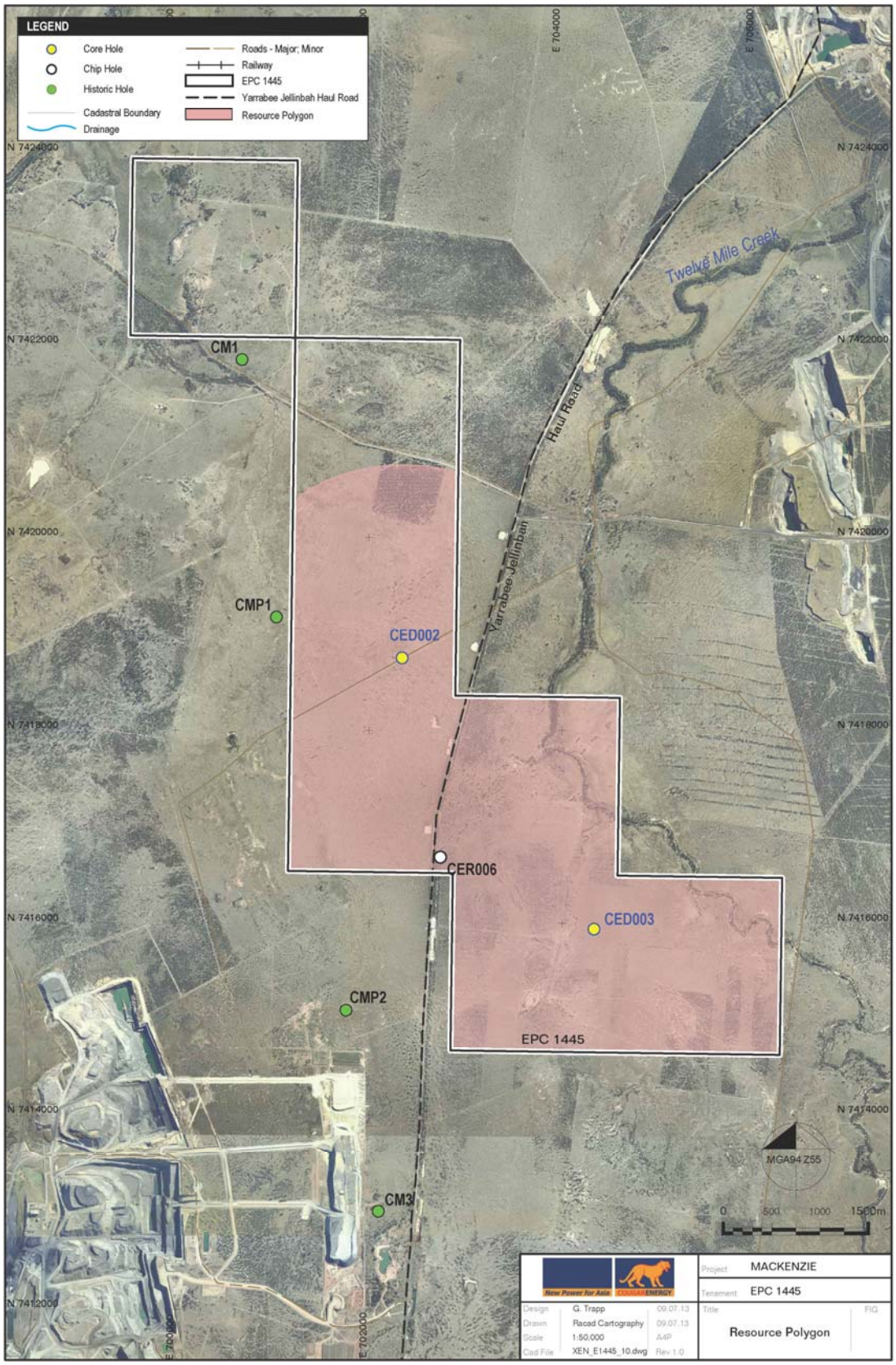

Figure 1: Mackenzie PCI Project and Resource Polygons

Resource Estimate

Independent consultants, Xenith Consulting, were commissioned to undertake geological modelling and complete the resource estimation work for the Project. The results were prepared under the requirements of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC Code) (refer Appendix A).

Inferred Coal Resources within the Project area are estimated at 201 Mt as shown in Table 1 below:

Inferred Coal Resources – MacKenzie					
Seam	Average Thickness	Coal Area	Coal Volume	PRD	Mass
	[m]	[Ha]	[M bcm]	[g/cc]	[Mt]
Aries	2.80	1,650	46	1.51	**70**
Pollux Upper	3.16	1,650	52	1.58	**82**
Pisces	1.91	1,650	32	1.55	**49**
				Total Tonnes	**201**

Table 1: Summary of Coal Resources

Raw Coal Quality

The results of the coal quality testing are summarised in Table 2 below:

Quality - Raw Air Dried Basis (adb)								
Seam	IM [%]	ASH [%]	VM [%]	FC [%]	RD [g/cc]	CSN	TS [%]	SE [Mj/Kg]
Aries	1.6	21.4	14.7	62.3	1.53	3.5	0.53	29.08
Pollux Upper	2.0	27.4	13.3	57.3	1.61	1.0	-	-
Pisces	1.7	25.9	14.5	57.9	1.58	1.0	0.38	25.65

Table 2: Summary of Raw Coal Quality

Attractive Infrastructure Support

The Mackenzie tenement is well located close to existing logistics infrastructure.

A haul road owned by Yarrabee coal mine runs north to south directly through the tenement. Mackenzie is located approximately 26 kilometres to the north of the Boonal coal load-out facility and the Blackwater rail line which transports coal to the Port of Gladstone.

The map on the following page shows the location of the Mackenzie tenement.

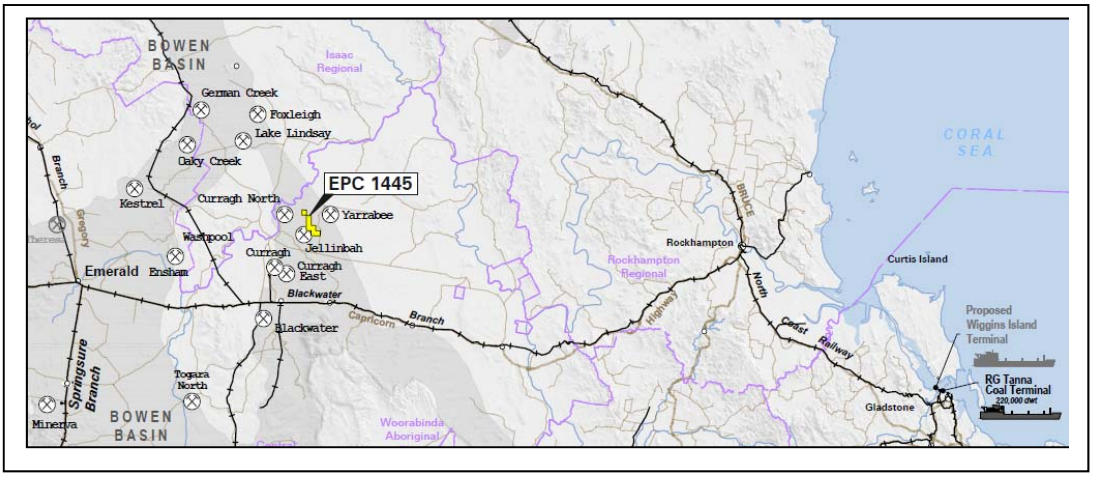

Figure 2: Location of Mackenzie and Existing infrastructure

Forward Work Plan

The Company has commenced its scoping study for an underground mine development at Mackenzie. As part of this study further coal washability and geotechnical test work will be completed over the next quarter. Planning has also commenced for the Phase 2 exploration program scheduled to commence later this year.

Phase 2 of the company's exploration program will focus on the southern section of the project and will be targeted at improving the resource definition of the target seams.

The Company will now endeavor to progress discussions with potential cornerstone investors based on the results of this JORC Inferred Resource.

Rob Neill
CEO & Managing Director

COMPETENT PERSON'S STATEMENT

The information in this Announcement that relates to the JORC Inferred Coal Resource estimated at the Mackenzie Project EPC 1445 (MDLa 503,504) is based on information compiled by Mr Troy Turner, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Turner is a full-time employee of Xenith Consulting Pty Ltd. Mr Turner is a qualified geologist and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC Code). The estimates of the Coal Resource in this Announcement are considered to be a true reflection of the Coal Resource as at 17 July 2013 and have been carried out in accordance with the principles and guidelines of the JORC Code. Mr Turner consents to the inclusion of the matters based on his information in the form and context in which they appear in this Announcement.

Appendix A. JORC CODE, 2012 EDITION – TABLE 1

SECTION 1 SAMPLING TECHNIQUES AND DATA

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

Criteria	JORC Code explanation	CP Comments
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	• All coal plies from the 5 major seams that were greater than 0.2 metres ("m") were sampled. Any stone band greater than 0.3 m in thickness was sampled separately to the coal. All sampled coal core was double bagged on site and were transported to the laboratory for testing. Samples were assigned individual sample numbers and accompanied by a sample advice sheet. • Not all holes drilled for this project were sampled. There were two core holes, with two pilot holes and one additional rotary chip hole. Only the two core holes were sampled. • Coal quality samples from cored holes are being sent to the Bureau Veritas International Trade Australia Pty Ltd ("BV") coal quality laboratory in Brendale, QLD. All coal quality samples were prepared and analysed using Australian Standard testing methodologies. • There were 4 historical gas holes that were drilled by Bow Energy, outside the EPC boundary (to the West). These 4 holes were used in the creation of the model with data obtained from a data share agreement.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core	• All coal quality holes were cored (partially or fully) using a HQ3 size barrel, 61.3 millimetres ("mm") core diameter. • Structural holes were fully chipped using PCD bit and mud drilling fluids.

Criteria	JORC Code explanation	CP Comments
	diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	• A full list drill holes and drilling methods is available in Table 1.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• An assessment of core recovery has been made by comparing the measured recovered thickness and the thickness in the geophysical log; if the seam was slightly below 95% then other data (e.g. geologist's recovery sheets and photos) were examined before a redrill was required. A linear core recovery was found to be more representative than a volumetric recovery calculated by the laboratory. • Samples volumetric recovery factor were also established and verified by the coal quality laboratory.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All cores were geologically logged, marked and photographed before sampling; geological/geotechnical features identified were reported. • All chipped holes were geologically logged. • All holes were geophysical logged with a minimum density, caliper, gamma and verticality, unless operational difficulties prevented logging or part logging of a hole. One hole had scanner completed while another hole had sonic. • All geophysical tools were calibrated by the logging company Weatherford using their own strict calibration procedures, carried out at their central Queensland base.
Sub-sampling techniques and sample preparation	• If core, whether cut, sawn and whether quarter, half or all core take • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• All core coal samples were double bagged on site and are being transported to the laboratory for testing. • The lab, BV complies with Australian Standards for sample preparation and sub sampling. • All coal samples will be crushed to a top size of 11.2 mm before analysis, which is common in the industry for HQ3 core (61.3 mm core diameter). • The Pollux Upper seam was then subjected to further testing, to obtain washability data. Including drop shatter from 2.0m, wet tumble and re-sizing. • Gravity determinations are still being completed via Float Sink testing on these additional sizes to determine ash distribution and

Criteria	JORC Code explanation	CP Comments
		potential CHPP product and yield.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• The coal quality laboratory BV complies with Australian Standards for all coal quality tests and is certified by the National Association of Testing Authorities, Australia (NATA). • Geophysical tools were calibrated by the logging company Weatherford.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Many levels of analysis results verification are included in the Australian Standards relating to coal quality analysis. • Raw coal quality results have been received, and the results of the quality on an air dried basis are listed in Table 2.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• Hole locations were initially set by handheld gps, and were professionally surveyed by Wilson Survey Group at the completion of the drilling operations. • One topographic dataset has been used: • The topography surface was generated from ASTER Global Digital Elevation Model (“ASTER GDEM”) survey. It has been captured with 1.5 arc-second resolution, equivalent to approximately 32.0 m.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	• Drill hole spacing has been dictated by the characteristics and consistency of the Aries, Castor, Pollux Upper, Pollux Lower and Pisces seams in the deposit. Maximum drill hole spacing within the project area is currently approximately 2,000 m. • Considering the continuity of the main seams in the deposit, this spacing has proven to be sufficient to give adequate control to the model and give the required confidence in the geological

Criteria	JORC Code explanation	CP Comments
	• Whether sample compositing has been applied.	interpretation for an inferred resource.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The orientation and spacing of the drilling grid is deemed to be suitable to display coal seam continuity within the target area.
Sample security	• The measures taken to ensure sample security.	• Sample security was ensured under a chain of custody between East Coast Exploration (ECE) personnel on site and the BV lab.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Xenith and ECE were responsible for implementing the sampling techniques and data.

TABLE 1 : DRILL HOLES

Hole Name	Lease Domain	Hole Type	Aries Thickness (m)	Castor Thickness (m)	Pollux Upper Thickness (m)	Pollux Lower Thickness (m)	Pisces Thickness (m)	Aries Quality (REC%)	Castor Quality (REC%)	Pollux Upper Quality (REC%)	Pollux Lower Quality (REC%)	Pisces Quality (REC%)	JORC PoB	Bit Size (mm)	Core Diameter (mm)	Geophysical Tools Run	Datum	Projection	Easting (m)	Northing (m)	RL (m)	TD (m)
G=Gamma, D=Density, C=Caliper, V=Sonic, Z=Verticality, N=Neutron, S=Scanner, R=Resistivity, I=Dipmeter, A=Acoustic Scanner, P=Spontaneous Potential, E=Electric Survey, M=Micro Inverse, H=Photo Density Sonde, T=DTCM, E=PEDN, L=PDL, W=WSS, B=PS-BEF																						
CED002	EPC1445	CORE	4.06	1.46	4.01	0.90	2.26	YES	YES	YES	YES	YES	AR, PLXU, PIS	96	61.5	DGCVNRIA	GDA 94	MGA Z55	702,362.59	7,418,753.05	140.44	436.00
CED003	EPC1445	CORE	n/a	1.38	2.81	n/a	4.10	NO	YES	YES	YES	YES	PLXU, PIS	96	61.5	DGCSNRIA	GDA 94	MGA Z55	704,321.92	7,415,944.73	138.32	462.30
CED003R	EPC1445	CORE	1.89	n/a	n/a	n/a	n/a	YES	NO	NO	NO	NO	AR only	96	61.5	DGCZR	GDA 94	MGA Z55	704,316.95	7,415,931.55	138.41	386.56
CER006	EPC1114	CHIP	2.50	0.95	2.38	0.97	1.00	NO	NO	NO	NO	NO	NO	96	61.5	DGCZR	GDA 94	MGA Z55	702,707.60	7,416,684.75	139.71	422.51
CER008	EPC1445	PILOT	4.20	1.50	4.35	0.80	4.25	NO	NO	NO	NO	NO	NO	96	61.5	DGCZR	GDA 94	MGA Z55	702,367.63	7,418,755.86	140.43	440.00
CER009	EPC1445	PILOT	1.81	1.24	3.29	2.84	3.86	NO	NO	NO	NO	NO	NO	96	61.5	DGCZR	GDA 94	MGA Z55	704,321.43	7,415,935.97	138.36	465.00
CM1	EPC1114	CORE	3.20	1.60	2.38	0.63	1.52	YES	YES	YES	YES	YES	NO	96	61.5	DGCZR	GDA 94	MGA Z55	700,687.00	7,421,848.00	422.00	750.33
CM3	EPC1114	CORE	2.65	0.74	3.82	4.20	2.00	YES	YES	YES	YES	YES	NO	96	61.5	DGCZR	GDA 94	MGA Z55	702,095.00	7,412,998.00	149.00	400.00
CMP1	EPC1114	CORE	2.50	1.75	2.90	1.10	2.50	NO	NO	NO	NO	NO	NO	96	61.5	DGCZR	GDA 94	MGA Z55	701,043.00	7,419,176.00	122.00	644.00
CMP2	EPC1114	CORE	3.17	1.60	4.34	2.88	n/a	NO	NO	NO	NO	NO	NO	96	61.5	DGCZR	GDA 94	MGA Z55	701,761.00	7,415,091.00	134.00	626.85

SECTION 2 REPORTING OF EXPLORATION RESULTS

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

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>CP Comments</th></tr>
<tr><td>Mineral tenement and land tenure status</td><td>• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.
• The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</td><td>• Cougar holds one tenement that covers the Mackenzie project area.
<table>
<tr><th>Tenure Type</th><th>Tenure No</th><th>Date Logged</th><th>Area in hectares ("ha")</th><th>Sub-Blocks</th><th>Holder</th></tr>
<tr><td>EPC</td><td>1445</td><td>1/7/2008</td><td>2200</td><td>7</td><td>Cougar Energy Ltd.</td></tr>
</table></td></tr>
<tr><td>Exploration done by other parties</td><td>• Acknowledgment and appraisal of exploration by other parties.</td><td>• Exploration drilling undertaken by other parties in the Mackenzie area has been reviewed as a part of this report.
• There are four historic boreholes drilled by BOW Energy external to the lease boundary that were also used in the geological model. These were captured under a data share agreement.</td></tr>
<tr><td>Geology</td><td>• Deposit type, geological setting and style of mineralisation.</td><td>• The Mackenzie area lies within the Bowen Basin, which covers an area estimated at 60,000 km^2. The Coal seams occur in five main seam groups in the Mackenzie area: Aries, Castor, Pollux Upper, Pollux Lower and the Pisces seams with a cumulative thickness</td></tr>
</table>

Criteria	JORC Code explanation	CP Comments
		range of approximately 7–11 m including all the seams, and 6-8 m excluding the Castor and Pollux Lower seams.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: • easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth • hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All drill holes have been modelled from vertical, although hole deviation (from vertical) has been recorded for all holes. Deviation modelling is under consideration for the next model update in 2013.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• All seams where multiple coal quality samples were taken and given a composite value (generated within the Ventyx Minescape software) weighting each quality by thickness and insitu density, with the exception of insitu density which is weighted on thickness.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• The current data within the Mackenzie area demonstrates, with sufficient confidence, that the deposit has lateral continuity. As such, data has been extrapolated to a maximum of 2,000 m past the last drill hole or to the lease boundary limits which ever is closer.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of	• All appropriate diagrams are contained within the report. • A cross section map is shown in Figure 1. • The resource polygon, with bore hole locations is shown in Figure

Criteria	JORC Code explanation	CP Comments
	drill hole collar locations and appropriate sectional views.	2.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• All exploration results, including coal quality lab results, within the Mackenzie area have been fully collated and reported to Xenith.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• Geotechnical logging, sampling and testing from the overburden, interburden, seam roof/floor and coal (such as defect logging, field point load testing and laboratory testing) has been undertaken, results have yet to be received from Trilabs in Brisbane.
Further work	• The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Cougar plan to increase the drilling and coal quality sample density throughout EPC 1445 in their 2013/14 drilling program. • A map with the current borehole locations, and three proposed locations is shown in Figure 3.

SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

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

Criteria	JORC Code explanation	CP Comments
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• ECE uses the field drill hole database program Task manager as well as Microsoft Excel software for data storage. • Data is also validated by Xenith by checks run in Ventyx Minescape software, version 5.4.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Xenith did undertake a site visit on the 6th of June 2013. A review was conducted on the field procedures and sampling practices, and they were deemed to be of an acceptable industry standard at the time of the visit. Provided the geological nature of the deposit and the unchanged status of the Mackenzie area, the Competent Persons' existing knowledge of the area is deemed sufficient.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The drill hole density in the Mackenzie area allows reasonable level of confidence in the nature of seam thickness and quality consistency. • At this point no faults or discontinuities have been modelled, and further exploration would be required to define any such structures.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The target Aries coal seam extends approximately 6.0 km along strike and approximately 3.0 km perpendicular to strike with an approximate average thickness of 2.8 m. • The target Pollux Upper coal seam extends approximately 6.0 km along strike and approximately 3.0 km perpendicular to strike with an approximate average thickness of 3.2 m. • The target Pisces coal seam extends approximately 6.0 km along strike and approximately 3.0 km perpendicular to strike with an approximate average thickness of 1.9 m. • The current resource extent covers approximately 16.5 km^2 in the

Criteria	JORC Code explanation	CP Comments
		southern part of the tenement. • The depth of the modelled Aries seam ranges from 181.0 m in the south-west tenement area to 352.0 m in the eastern part. • The depth of the modelled Pollux Upper seam ranges from 229.0 m in the south-west tenement area to 407.0 m in the eastern part. • The depth of the modelled Pisces seam ranges from 253.0 m in the south-west part of the tenement area to 447.0 m in the eastern part.
Estimation and Modeling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• The geological model and resource estimate were constructed using Ventyx Minescape software (version 5.4) using the Finite Element Method (FEM) interpolator with 1, 1, 0 parameters for thickness, surface and trend respectively. A maximum extrapolation distance of 2,000 m from a data point was used. • Limits were placed on the JORC Resource Estimate with cut-offs at 1.5 m thickness for all coal seams, with the minimum parting thickness of 0.3 m to be considered within the seam. Stone bands greater than 0.3 m are not included within the seam, so modelling of the seam split occurs. • No previous Resource estimates have been undertaken on the project.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages are estimated using calculated Preston Sanders Insitu density using air dried moisture, total moisture and moisture holding capacities from coal samples. Based on results from coal quality testing, insitu moisture has been estimated to 5%. • Insitu moisture was determined by using the ACARP formula

Criteria	JORC Code explanation	CP Comments
		relating insitu moisture to the average air dried moisture of the coal.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• No ash cut-offs have been applied to the deposit, because all the seams were below the nominal cut-off of 50%.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions.	• Xenith have applied a minimum thickness appropriate to the potential mining method, see '*Estimation and modelling techniques*' and deem the coal resource has reasonable prospects of economic extraction by underground methods, most likely retreat longwall mining or bord/pillar techniques.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Xenith has commissioned M Resources Pty Ltd, to assist with the review of coal laboratory results. This work will include a total of 2 bore core samples from the Aries, Pollux Upper, and Pisces seams.
Environmen-tal factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• An EIS report has not been completed at this time at the project is in its infancy - it is Xenith's opinion that there are no limiting environmental factors at this stage of the project development.

Criteria	JORC Code explanation	CP Comments
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Preston Sanders Insitu Relative Density Estimation – The insitu density of the coal seams has been estimated using the Preston Sanders insitu relative density estimation equation. • Samples with raw ash, air dried basis (adb), were assigned an insitu moisture of 5%. • Insitu moisture was determined by using the ACARP formula.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• One Resource category, Inferred, has been categorised in the project which was dependant on the level of confidence in the seam structure and continuity plus the level of variability in the coal quality data. Maximum distance between valid points of observation (PoB) for the resource category are: Inferred – 4,000 m.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• No audits of this 2013 Resource Estimate have been conducted.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• No geostatistical modelling has been completed. Factors that could affect the accuracy of the estimate include unknown fault or fold structures between completed boreholes, seam washouts in roof or inseam stone bands developing. No evidence exists as this point in time for these apart from 2 large regional faults currently flanking the property on either side.

TABLE 2: RESOURCE ESTIMATION

Inferred Coal Resources - Mackenzie						Quality - Raw Air Dried Basis (adb)							
Seam	Average Thickness [m]	Coal Area [Ha]	Coal Volume [M bcm]	PRD [g/cc]	Mass [Mt]	IM [%]	ASH [%]	VM [%]	FC [%]	RD [g/cc]	CSN	TS [%]	SE [Mj/Kg]
Aries	2.80	1,650	46.3	1.51	**69.7**	1.6	21.4	14.7	62.3	1.53	3.5	0.53	29.08
Pollux Upper	3.16	1,650	52.2	1.58	**82.6**	2.0	27.4	13.3	57.3	1.61	1.0		
Pisces	1.91	1,650	31.6	1.55	**49.1**	1.7	25.9	14.5	57.9	1.58	1.0	0.38	25.65
				Total Tonnes	**201.4**								

FIGURE 1: CROSS SECTION MAP

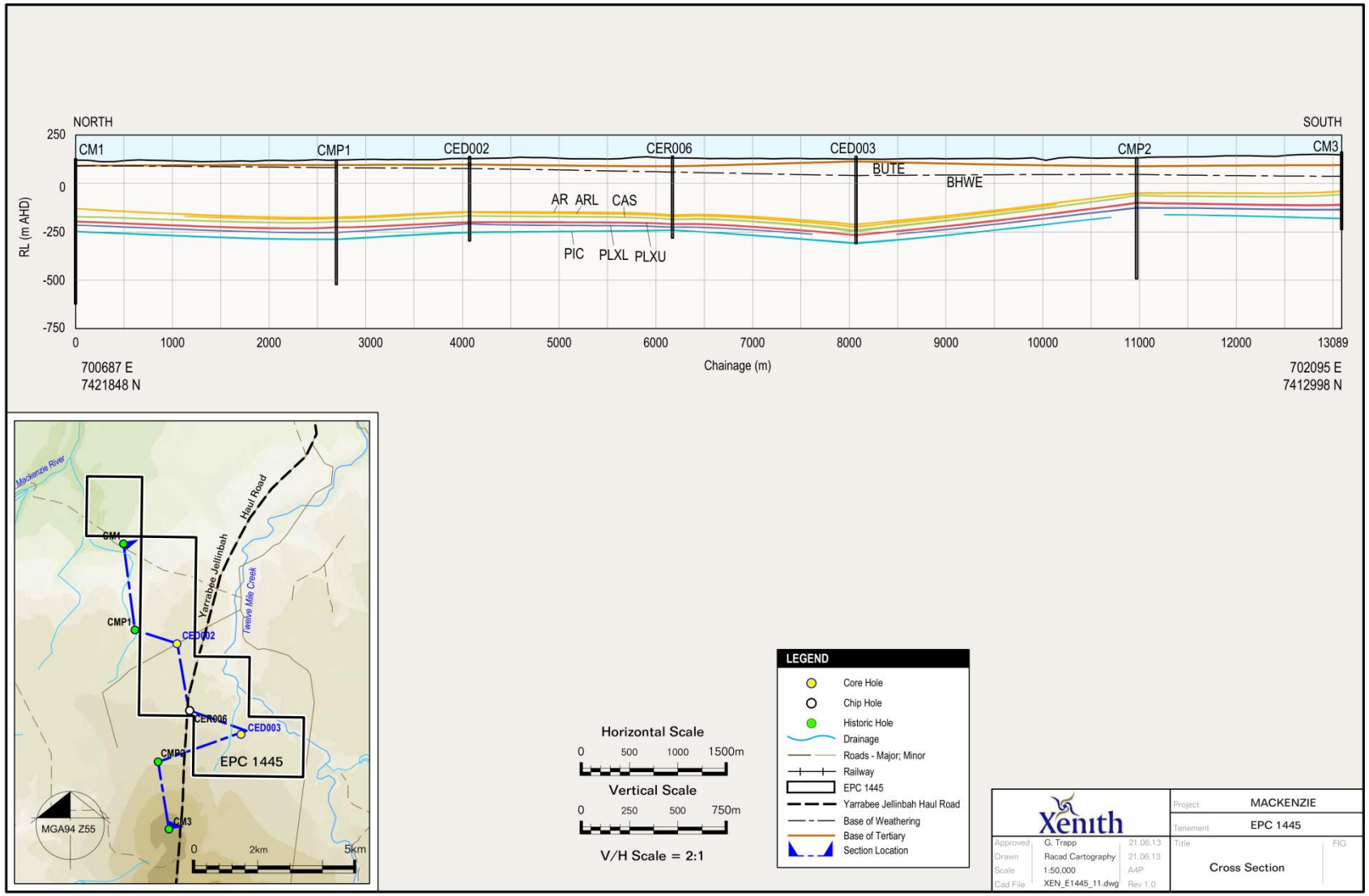

FIGURE 2: RESOURCE POLYGON COVERAGE WITH BOREHOLE LOCATIONS

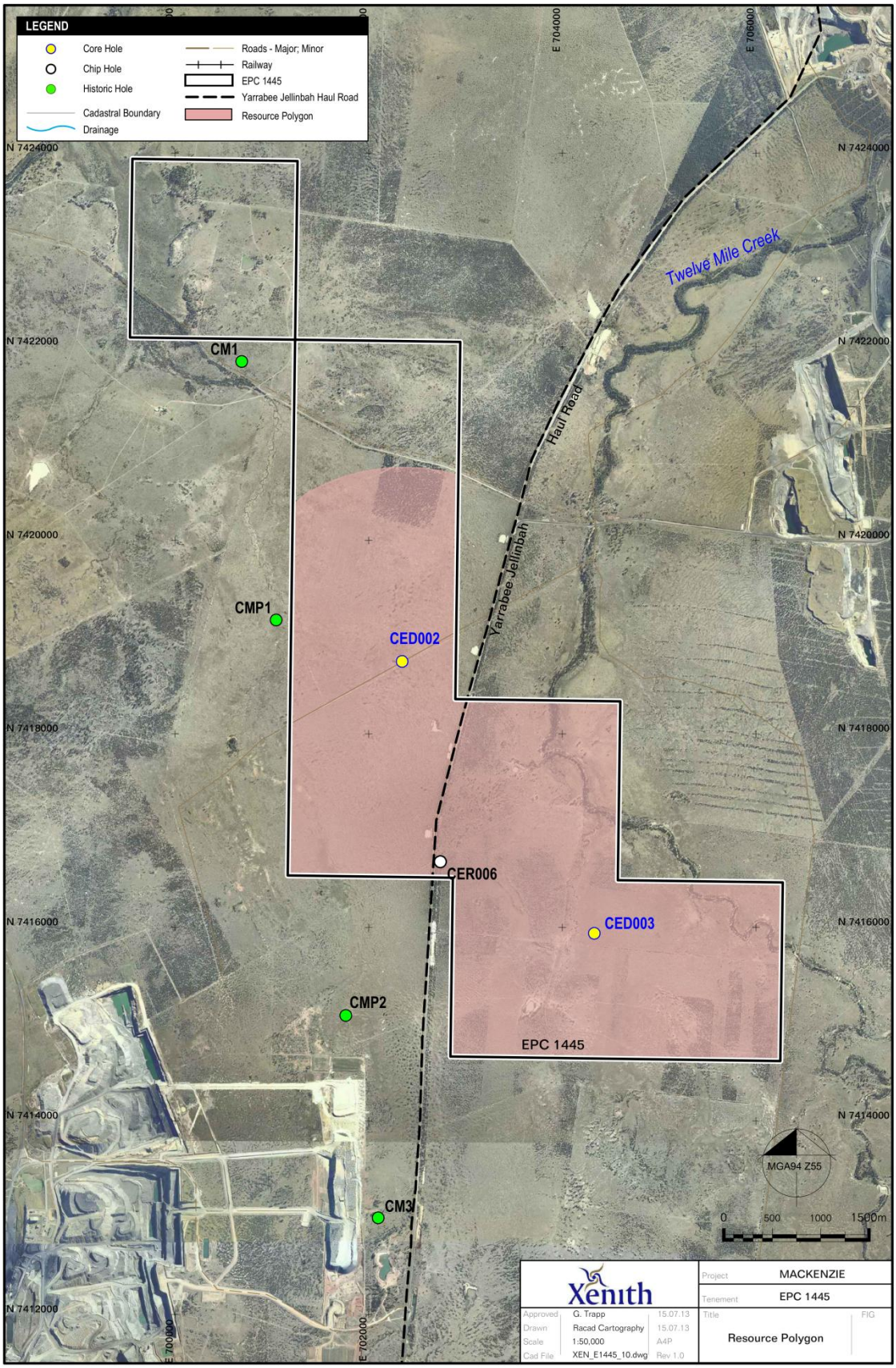

FIGURE 3: BOREHOLE LOCATION MAP WITH PROPOSED PHASE 2 LOCATIONS

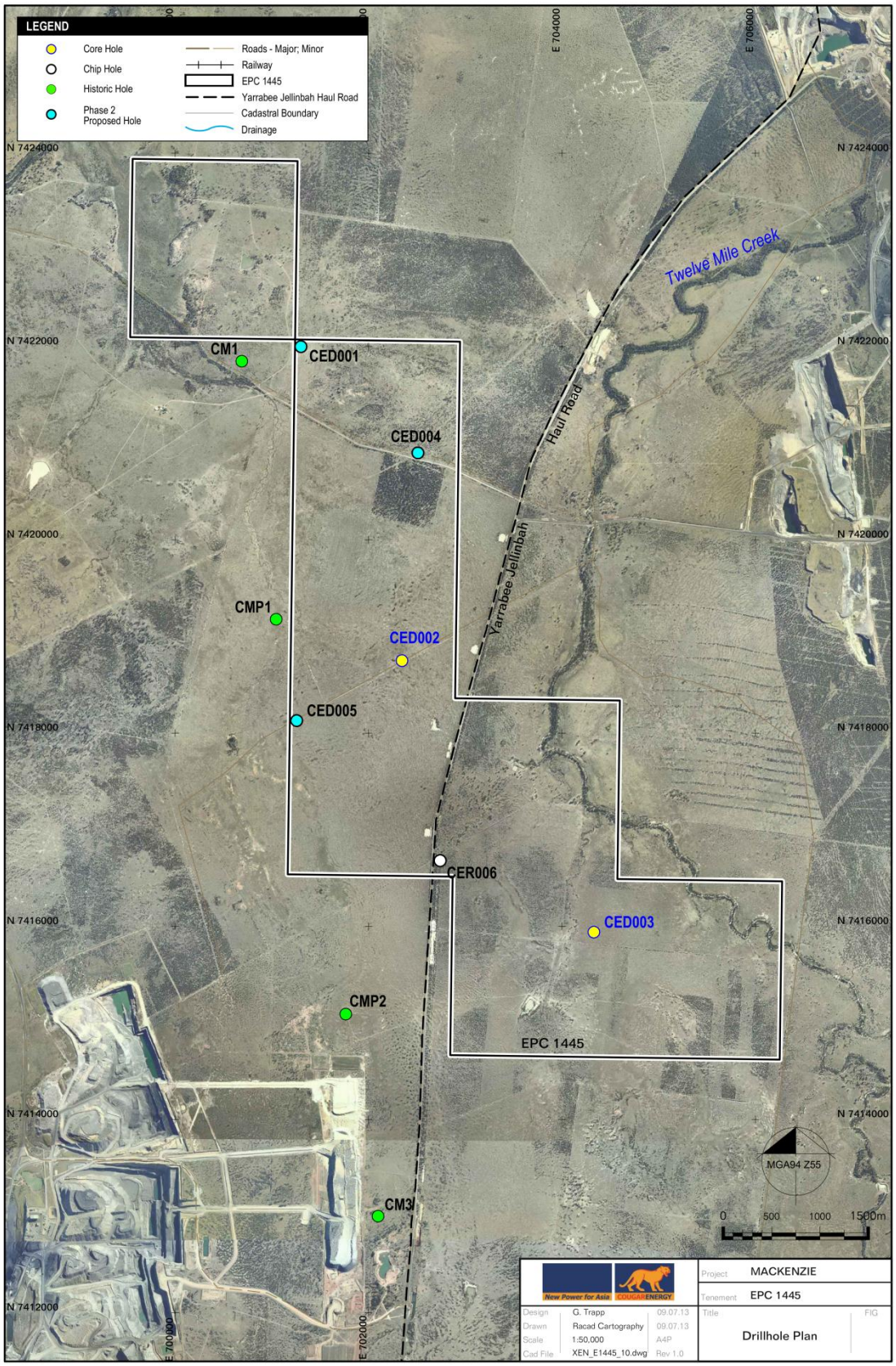

FIGURE 4: GENERAL STRATIGRAPHIC COLUMN