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Companies Announcement Office
Via Electronic Lodgement

13% RESOURCE EXPANSION AND UPGRADE AT KAROO PROJECTS IN SOUTH AFRICA

Highlights

- **Total JORC Code-Compliant Resource of 56.9Mlbs grading 1,108 ppm eU_3O_8**
- **Indicated Resource increase of 30% to 21.9Mlbs grading 1,242 ppm eU_3O_8**
- **Inferred Resource of 35Mlbs eU_3O_8 grading 1,038 ppm eU_3O_8**
- **Pre-Feasibility work progressing well**

Summary

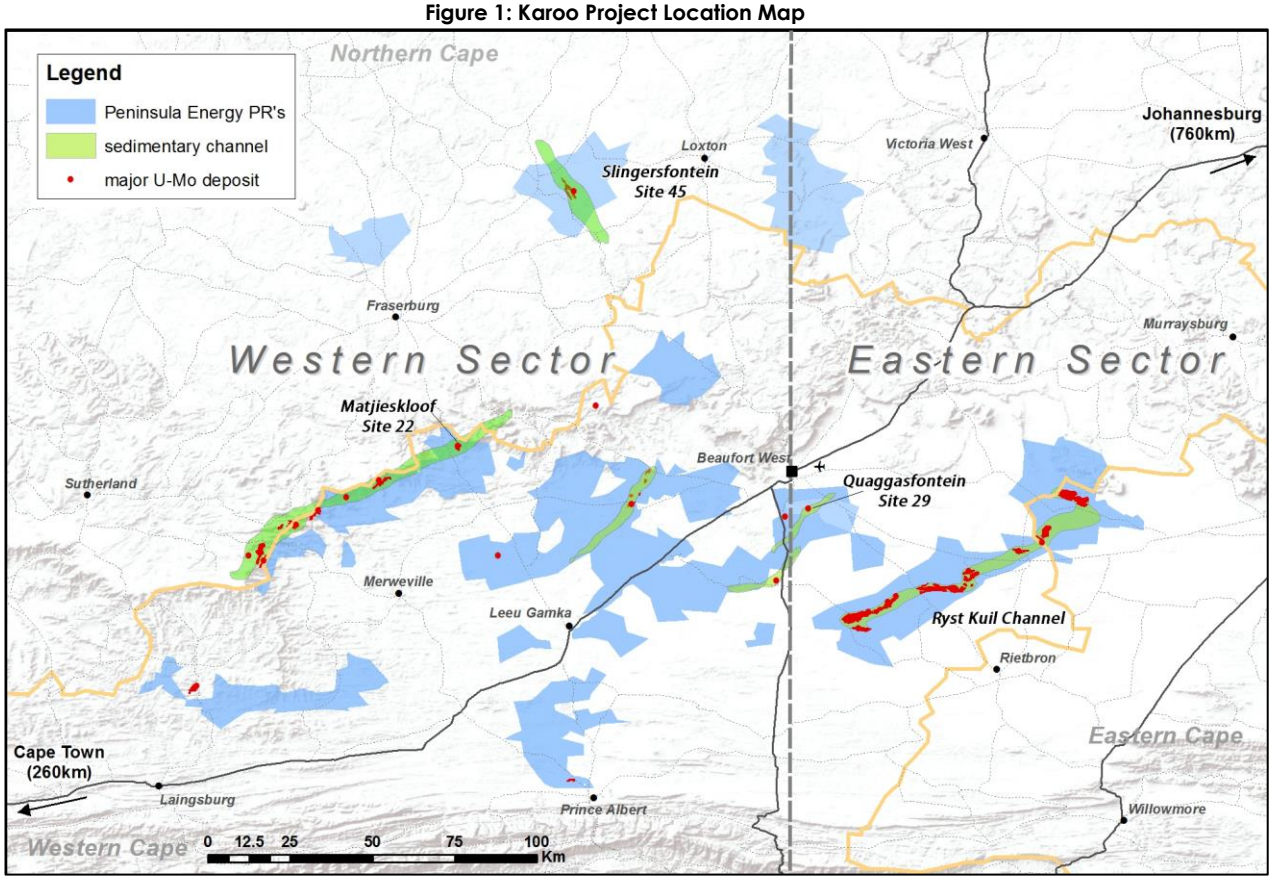
Peninsula Energy Limited (Peninsula) is pleased to announce an updated JORC Code-compliant Mineral Resource estimate of 56.9Mlbs eU_3O_8 at the Karoo Projects in the Cape Provinces of South Africa **(Karoo Project).**

This includes an increased indicated resource of 21.9Mlbs with an increased grade of 1,242ppm eU_3O_8 (cut off of 600ppm eU_3O_8), which is a 30% increase.

The increase in the Karoo resource is the result of the inclusion of data from the 2013 drill program and the adoption of a revised block model reporting methodology in line with the Local Uniform Conditioning formalism.

Executive Chairman Gus Simpson said "*We are pleased with this resource upgrade which has the potential to enhance the overall project economics at Karoo. Current activities are focused on the feasibility work and completing further delineation drilling to add to resource inventories.* "

Figure 1: Karoo Project Location Map



Karoo Project – JORC Code-Compliant Resource Estimate

The updated resource estimate, as shown in Table 1, is based on 7,230 drill holes from a database comprising 9,343 drill holes, which includes 1,245 holes drilled or re-logged by Peninsula since 2011 (including 16 diamond holes and 801 reverse circulation holes). During 2013 Peninsula completed 67 holes at the De Pannen prospect and re-logged 291 holes in the Ryst Kuil area.

Table 1: Classified JORC-Compliant Resource Estimate, Karoo Project: eU3O8

Classification	eU3O8 (ppm) CUT-OFF	Tonnes (millions)	eU3O8 (ppm)	eU3O8 (million lbs)
Indicated	**600**	**8.0**	**1,242**	**21.9**
Inferred	**600**	**15.3**	**1,038**	**35.0**
Total	**600**	**23.3**	**1,108**	**56.9**

The resource estimate was carried out by Optiro Pty Ltd. Mineral Resources have been classified on the basis of confidence in geological and grade continuity using the drilling density, geological model, modelled grade continuity and conditional bias measures (kriging efficiency).

The incorporation of new drilling data and the adoption of a revised block model reporting methodology in line with the Local Uniform Conditioning formalism has resulted in an overall increase in project contained metal, with the most significant increase related to the Ryst Kuil deposit (as depicted in Figure 1 above).

The historic and current drilling is distributed over two main areas – the Western and Eastern Sectors, as shown in Figure 1, and includes results for more than 4,000 mineralised intervals.

The majority of indicated resources have been drilled at an average spacing of 50m x 50m. Inferred Mineral Resources have been defined in areas of 100m x 100m up to 400m x 400m drill spacing.

A bulk density of 2.67 t/m^3 (based on 1,425 representative sample determinations) was applied to derive the resource tonnage.

The Eastern Sector covers the majority of the reported resources including the Ryst Kuil Channel and Quaggasfontein (Site 29). The Western Sector encompasses the Matjieskloof (Site 22) and Slingersfontein/Davidskolk (Site 45) resources together with the majority of the Exploration Targets. Total resources by Sector are detailed in Table 2.

Table 2: Detailed Classified JORC-Compliant Resource Estimate, Karoo Project: eU3O8

Classification	Sector	eU_3O_8 (ppm) CUT-OFF	Tonnes (millions)	eU_3O_8 (ppm)	eU_3O_8 (million lbs)
Indicated	Eastern	600	7.1	1,206	18.7
	Western	600	0.9	1,657	3.2
Inferred	Eastern	600	11.8	1,046	27.2
	Western	600	3.5	1,019	7.8
Total	**Total**	**600**	**23.3**	**1,108**	**56.9**

Note: Totals may not sum exactly due to rounding.

Development

Peninsula commenced with a Pre-Feasibility Study (PFS) for the Karoo Project in November 2013 based on an alkaline processing route. In support of the PFS the Company appointed Mintek, a South African based global leader in mineral and metallurgical test work, to undertake validation metallurgical test work on five discrete mineral samples from five mining areas within the Eastern Sector.

This test work was successfully completed at the end of February, and Mintek are currently preparing the final test work report which is scheduled to be issued by the end of March.

The initial feedback received to date indicates that the test work results are aligned with historical test work done in the area, thereby confirming the process efficiencies and operating costs assumptions and inputs used in the project Scoping Study and associated Basic Economic Assessment (BEA).

Further test work will be undertaken at Mintek during March and April on the introduction of radiometric sorting technology to the process flow design which will further assist in reducing development and ongoing operating costs. Further metallurgical optimisation test work is also planned to continue as part of the PFS project evaluation.

In parallel to the pre-feasibility work, Peninsula also plans to continue infill resource-upgrade drilling combined with targeted exploration drilling to progressively increase the Karoo resource base and enhance the overall project economics.

It is the belief of the Company that with consolidation the various Karoo deposits offer several potential large-scale development options, including simultaneous open pit, adit-access and decline-access mining operations feeding through to a single central processing plant.

Exploration Target

The Karoo Projects cover a significant proportion of the Karoo Basin Permian sandstones, which are believed to represent an Exploration Target of between 250 and 350 Mlbs U_3O_8.

Table 3: Karoo Project Total Exploration Target

Exploration Areas	Tonnes (M)		Grade (ppmU_3O_8)		eU_3O_8 (Mlbs)	
Range	From	To	From	To	From	To
Total	126	133	900	1200	250	350

Please note that in accordance with Clause 17 of the JORC (2012) Code, the potential quantity and grade of the "Exploration Target" in this announcement must be considered conceptual in nature as there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource.

The following information is provided in accordance with the JORC Code (2012) and the ASX Listing Rules Chapter 5 with regard to the reporting of Exploration Targets.

Basis of Exploration Target

The Exploration Target is based on a combination of Exploration Results and proposed exploration programs.

Exploration Results

The database currently contains 9,343 historic holes, of which 7,230 have been used to determine the JORC 2012 compliant Mineral Resource and subsequent update and to extrapolate between areas of limited drilling still within the mineralised trends. Many of the remaining collar positions are for historic holes that are not within the current resource areas or are inaccessible (filled in over time). For a comprehensive description of drilling information readers are referred to the JORC Table 1 declaration included in this announcement.

Proposed Exploration Programs

Peninsula has prospecting rights to 7,550 square kilometres of ground. This package covers the most prospective mineralised trend that have a cumulative strike length of 23km. Peninsula intends to continue exploration over this ground using airborne radiometric data, geological mapping and prospecting together with follow up drilling with the intention of locating additional material for future mining and processing.

Basis of Grade and Tonnage Range Determination

With a database of 9,343 drill holes together with several thousand historic holes not yet located and entered into the database, and several decades of geological research and surface exploration, the level of exploration knowledge on which the Exploration Target is based is considered to be high.

The current Karoo resources are located on two well-defined sedimentary channels that each extends for at least 100 kms along strike. These channels have, according to historic records, been tested both recently and historically by in excess of 10,000 exploration drill holes representing 1.6 million metres of drilling. Along these channels JORC-compliant resources have been estimated in localised areas in which reliable drilling data is available. The zones between the JORC-compliant resources areas form the Exploration Target because of the following:

- *Continuity of the prospective sandstone established by geological mapping and regional drilling*
- *Historic estimates of mineralisation based on drilling which has not yet been validated by Peninsula*

The current JORC Code-compliant resource of the Ryst Kuil channel alone, which represents the most completely drilled portion of the resources, comprises 18.5 Mt at 1,105ppm eU_3O_8. This resource tonnage is distributed over a cumulative strike length of 23km representing approximately 0.80M tonnes/km. The Exploration Target is based on a combination of:

- *the total cumulative prospective strike length of the undrilled sections of the channel multiplied by the demonstrated tonnage/km, combined with,*
- *the areas of known mineralisation for which historic estimates exists but are not included in the JORC-compliant resource*
- *the grade range represents the lowest resource area grades and highest resource area grades*

Summary of the Relevant Exploration Data Available and the Nature of the Results

For a comprehensive description of drilling information readers are referred to JORC Table 1 included in this announcement.

Proposed Exploration Activities Designed To Test Validity of the Exploration Target

Over the next 3-5 years ongoing exploration drilling is proposed to expand the JORC-compliant resource within the Exploration Target areas. This initial 3-5 years program will be focussed on the Eastern Sector Ryst Kuil channel. Exploration activities will mostly comprise geophysical logging and geochemical sampling of additional drill holes, ground-based prospecting and geological mapping.

Testing of the Western Sector Exploration Target area, utilising the same exploration techniques, will commence during a 5-10 year time frame.

The information in this announcement that relates to Exploration Targets, Exploration Results and Exploration Potential at Peninsula's Karoo Projects is based on information compiled by Mr Alfred Gillman and Mr George van der Walt. Mr Gillman is a Fellow of the Australian Institute of Mining and Metallurgy (CP Geology). Mr Gillman is Technical Director and is a Competent Person under the definition of the 2012 JORC Code. Mr van der Walt is a member of a Recognised Overseas Professional Organisation included in a list promulgated by the ASX (The South African Council of Natural Scientific Professions, Geological Society of South Africa). Mr van der Walt is a Director of Geoconsult International. Both Mr Gillman and Mr van der Walt have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Both Mr Gillman and Mr van der Walt consent to the inclusion in the announcement of the matters based on their information in the form and context in which it appears.

Yours sincerely

John (Gus) Simpson
Executive Chairman

For further information, please contact our office on (08) 9380 9920 during normal business hours**.**

Competent Person

The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Alfred Gillman. Mr Gillman is a Fellow of the Australian Institute of Mining and Metallurgy (CP Geology). Mr Gillman is the Technical Director of Peninsula Energy Ltd and is a Competent Person under the definition of the 2012 JORC Code. Mr Gillman 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 as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Gillman consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in the report which relates to Mineral Resources is based upon information compiled by Ian Glacken, who is a Fellow of the Australasian Institute of Mining and Metallurgy. Ian Glacken is an employee of Optiro Pty Ltd 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. Ian Glacken consents to the inclusion in the report of a summary based upon his information in the form and context in which it appears.

The information in this report which relates to Geology and Mineralized Potential is based on information compiled by Mr George van der Walt. Mr van der Walt is a member of a Recognised Overseas Professional Organisation included in a list promulgated by the ASX (The South African Council of Natural Scientific Professions, Geological Society of South Africa). Mr van der Walt is a Director of Geo-Consult International (Pty) Ltd. Mr van der Walt have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr van der Walt consents to the inclusion in the report of a summary based upon his information in the form and context in which it appears.

JORC Table 1
Karoo Project

The table below is a description of the assessment and reporting criteria used in the Karoo Project Mineral estimation that reflects those presented in Table 1 of *The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves* (The JORC Code, 2012). The Karoo Project Mineral Resource statement was prepared for the following deposits: Bok Vlei, De Pannen, Hanne Kuil, Ryst Kuil (which includes Ryst Kuil Central, Main, East, North, and South), Matjieskloof, Quaggasfontein, and Slingersfontein.

Criteria	Explanation
Sampling techniques and Data	
Sampling techniques	• The primary method of grade determination was through gamma logging for equivalent uranium (eU_3O_8) using a GeoVista natural gamma sonde. • Chemical assays were only used to check for correlation with gamma probe grades, disequilibrium and molybdenum concentrations and as such are not considered relevant to the resource estimation process. However, industry standard QAQC measures such as certified reference material, blanks and repeat assays were used. • Reverse circulation (RC) chips were collected at 1m intervals and in some cases over 0.5m intervals over the mineralised zone. The chips were collected into plastic sample bags from a cyclone to ensure maximum recovery. The samples were split using a standard riffler to around 0.25 to 0.5 kg per sample and sent to an ISO-accredited laboratory in Cape Town (Scientific Services cc) for U_3O_8 and Mo analysis by pressed-pellet XRF. • Full core was split using a rock saw and half-core samples were taken at 20 cm intervals. Core recovery was recorded into the database.
Drilling techniques	• Percussion • Reverse Circulation (130mm diameter) • Diamond coring – NQ diameter • No physical samples were used for the resource estimation. • 100% of samples used in the resource estimation were obtained using radiometric gamma logging equipment.
Drill sample recovery	• Core recoveries were monitored and were generally good (>95%). • RC recoveries were not routinely monitored, but are considered immaterial to the resource estimation process as no physical samples were used for the resource estimation.
Logging	• All open historic holes and redrilled holes were logged radiometrically using a natural gamma sonde. • All Peninsula, RC and core holes were logged lithologically using a coded logging system for rock type, grain size, colour, alteration and any other relevant observations.
Subsampling techniques and sample preparation	• Samples from diamond drilling were collected as sawn half-core or in some cases full-core. • A combination of cyclone and riffle splitter to produce 0.25-0.5 kg subsamples of RC chips was used. Wet intervals were sub-sampled with scoop or spear. Samples were oven-dried at the laboratory if necessary.
Quality of assay data and laboratory tests	• Calibration and control hole logging was done on a routine basis for gamma probe grades and a representative set of relogging has also been undertaken.

Criteria	Explanation
	• QC procedures employed in all recent drill programs (post 2005) included the insertion of certified reference standards (1:20), blank samples (1:20) and umpire laboratory check samples (1:20) to monitor the accuracy and precision of laboratory data. • The overall quality of QAQC is considered adequate to ensure the validity of the data used for resource estimation purposes.
Verification of sampling and assaying	• No physical samples were used for the resource estimation. • Physical samples and assays were used only for QAQC checks on the gamma data and to assess possible disequlibrium effects.
Location of data points	• All collar positions were located initially by hand-held GPS and later surveyed by a professional surveyor using DGPS equipment. • Downhole deviation surveys were not routinely carried out in holes of less than 100m depth. Deeper holes were surveyed using a standard electromagnetic deviation tool.
Data spacing and distribution	Western Sector Deposits • Drilling spacing ranges from 300 x 300 metre pattern, 100 x 100 metre to a 50 x 50 metre pattern. • 100% of the drilling is sub-vertical or vertical. Eastern Sector Deposits • Drilling spacing ranges from 400 x 400 metre pattern, 200 x 200 metre, 50 x 50 metre to a 25 x 25 metre patterns. • 100% of the drilling is sub-vertical or vertical.
Orientation of data in relation to geological structure	Western Sector Deposits • The dip of the mineralisation for 100% of the deposit varies from 0° to -10°. Local grade continuity follows the dip of the mineralisation for the entire deposit. All drilling intersects local grade continuity with 80 to 90 degree angles. • No biases are expected from the drilling direction. Eastern Sector Deposits • The dip of the mineralisation for the entire deposit varies from 0° to -8°. Local grade continuity follows the dip of the mineralisation for the entire deposit. All drilling intersects local grade continuity with 90 degree angles. • No biases are expected from the drilling direction.
Sample security	• All data used to prepare the Mineral Resource were radiometric gamma log data. • Appropriate measures were taken to ensure sample security of the chemical samples used for QAQC purposes.
Audits and reviews of sampling and assaying	• Audits and reviews on sampling and assaying are not relevant as no physical samples or assays were used in the resource grade estimation. • Gamma data and data reduction to eU_3O_8 was carried out under the supervision of Geotron Systems (Pty) Ltd. Geotron established procedures for collection and processing of raw gamma data.
Estimation and reporting of Karoo Mineral Resources	
Database integrity	• Optiro performed a visual validation by reviewing drillholes on section and by subjecting drillhole data to data auditing processes in Datamine and Surpac (e.g. checks for sample overlaps etc.).
Site visits	• No site visit has been undertaken by Optiro. • Mr Van Der Walt has visited the various sites on numerous occasions (typically one visit per month) since 2010 in order to observe drilling

Criteria	Explanation
	sampling and probing operations in order to ensure proper QAQC, sampling and probing protocols are maintained.
Geological interpretation	• The sandstones that make up the various formations of the Karoo uranium deposits were all deposited in a fluvial environment as channel sand or overbank deposits. They are characterised by fining-upward sequences comprising thick, laterally persistent, tabular, sheet-like sandstones as well as lenticular, generally thinner sandstones which taper rapidly. • Uranium mineralisation occurs preferentially in the basal sandy members of each cycle, which were deposited under more reducing conditions. Within the sandstone, uranium distribution correlates well with organic carbon although there may have been local migration into carbonate-rich solutions. The primary uranium-bearing minerals are coffinite and uraninite representing tetravalent forms in the reduced zone (organic carbon acting as the reducing agent to precipitate uranium). Several other secondary hexavalent forms of uranium minerals occur in the weathered zone. Molybdenum and, to a much lesser degree, copper and arsenic are the main associated elements, with calcite as a common gangue mineral. • Mineralisation for all deposits was modelled in two zones; a high grade core within the Leapfrog™ wireframes encompassed by a low grade envelope. The low grade envelope was defined in plan view by a mineralisation boundary polygon which extended no more than 5 metres beyond the edge of the Leapfrog wireframes. The upper and lower extent of the low grade zone was defined by a triangulated surface, based on the upper and lower limits of mineralisation for all drillholes within each deposit.
Dimensions	Western Sector Deposits • In plan orientation, the deposits range from approximately 2,000 metres long and 500 metres wide to approximately 4,000 metres long and 2,700 metres wide. The high grade lenses within the deposit range from a few metres to over 100 metres wide average 1 m thick in section. The largest are as much as 150 m – 200 m wide and up to 5-8 m thick. • Mineralisation has vertical extents ranging between 1030-1075 mRL and 1175-1240 mRL. Eastern Sector Deposits • In plan orientation, the deposits range from approximately 1,000 metres long and 2,500 metres wide to approximately 16,000 metres long and 900 to 3,000 metres wide. The high grade lenses within the deposit range from a few metres to tens of metres wide and up to 6 m thick (averaging 1-2 m thick) in section. The largest are as much as 150 m – 200 m wide and up to 5-8 m thick. • Mineralisation has vertical extents ranging between 665 and 1100 mRL.
Estimation and modelling techniques	• Drillhole sample data was flagged as high grade within the three dimensional Leapfrog wireframes. Sample data outside the Leapfrog wireframes but within the polygonal mineralisation boundaries and between the mineralisation surfaces were flagged as low grade. • Sample data was composited to a 0.2 metre downhole length using a best fit-compositing method. Residual samples (those composite intervals for which there were less than 50% of the composite length) were considered biased and hence were not included in the estimate.

Criteria	Explanation
	• An analysis of the grade distribution characteristics of the domain composites for each deposit was undertaken. In each case one of the following was identified: unacceptably high CVs, noticeable high grade inflection points on log-probability graphs and/or significant gaps on disintegration plots. Top cuts ranged from 3,000 to a maximum of 15,000 ppm eU3O8. • Directional variograms were modelled using traditional variograms or a normal score transformation. In general the grade continuity was poor within each domain; some domains are very sparsely sampled and this has been reflected in the classification. • Kriging neighbourhood analysis was performed on a whole of domain basis in order to optimise the block size, search distances, sample numbers, and number of discretisation points. • A block model was constructed for each deposit using a 20mE by 20mN by 1mRL parent block size with sub-celling to 5mE by 5mN by 0.5mRL. • Estimation was carried out using ordinary kriging (OK) at the parent block scale. Three estimation passes were used for both the high grade and the low grade domains. In general, the first pass used the range of the variograms and a large number of samples; the second pass used the same range, but with a lower number of samples; the third pass used a larger range (up to twice the variogram range) and as few as two samples. A fourth pass was used to assign an average grade to blocks which were not estimated by the first three passes. • Summary declustered statistics for each domain were derived using an optimised cell declustering algorithm. These declustered statistics were used to validate the grade estimation process. • Indicated resources were subject to post processing using the Local Uniform Conditioning (LUC) technique, which reports the theoretical tonnage available using a specified selective mining unit size related to an anticipated production method. Recoverable resources were generated in this way above a 600 ppm eU3O8 cut-off.
Moisture	• Tonnes have been estimated on a dry basis.
Cut-off parameters	• Indicated and Inferred Resources have been reported above a 600ppm eU3O8 cut-off grade. Inferred Resources have not been subject to post-processing whereas Indicated Resources (with the exception of a small tonnage at De Pannen) have been subject to post-processing using LUC.
Mining factors or assumptions	• No mining factors (i.e. dilution, ore loss, recoverable resources at selective mining block size) have been applied.
Metallurgical factors or assumptions	• No metallurgical assumptions have been built into the resources.
Environmental factors or assumptions	• No environmental assumptions have been built into the resources.
Bulk density	• The average of a total of 1,425 bulk density determinations was used to assign an average bulk density for all the resource areas.
Classification criteria	• Mineral Resources have been classified on the basis of confidence in geological and grade continuity using the drilling density, geological model, modelled grade continuity and conditional bias measures (kriging efficiency). • Indicated Mineral Resources have been defined generally in areas of

Criteria	Explanation
	50 by 50 m drill spacing. • Inferred Mineral Resources have been defined in areas of 100x100 metre up to 200x200 metre drill spacing for all deposits except the north eastern parts of the Eastern Sector. In this area Inferred Mineral Resources were defined on the basis of the similarity of its mineralisation with other deposits, despite its average drill spacing of 400x400 metres.
Block Model verification	• For each deposit, the OK model was validated against the input drillhole composites for each domain. Comparisons were also carried out against the declustered drillhole samples for each domain and by northing, easting and elevation slices against the drillhole data.
Audits or reviews	• No independent review or audit of the resource was completed. • The resource estimate was visually reviewed on section by Optiro and Peninsula staff. • The estimated grades were validated against declustered average eU3O8 grades for each deposit. In addition, profile plots of estimated grade for northing, easting, and elevation were validated against composite grades for each deposit.
Discussion of relative accuracy/ confidence	• Optiro places a relative accuracy of +/- 20% (at a 90 % confidence level) in the Mineral Resource estimate at the global level for the Indicated Resources based on the estimation technique, data quality and distribution. Inferred Resources would have a lower level of confidence outside of this range.