



2 February 2011

Companies Announcement Office
Via Electronic Lodgement

PENINSULA ANNOUNCES 33Mlbs U₃O₈ RESOURCE AT LANCE

Highlights:

- **JORC-compliant Resource Estimate now totalling 32.95Mlbs U₃O₈ comprising:**
- **Measured and Indicated Resource of 10.5Mlbs U₃O₈**
- **14% increase in Measured and Indicated Resource from 9.2Mlbs U₃O₈ to 10.5Mlbs**
- **Measured and Indicated U₃O₈, comprising 32% of the total resource estimate**
- **31% increase in total resource estimate**
- **98% of Ross Permit Area resource defined to Indicated or Measured Category**
- **Ross Permit Area Initial vanadium resource of 1.7Mlbs V₂O₅**

Summary

The Directors of Peninsula Energy Limited (**Peninsula**) are pleased to announce a further upgrade to the JORC-compliant Resource Estimate for the Lance uranium projects in Wyoming, USA (**Lance Projects**). This upgrade has been achieved by the completion of an additional 223 drill holes for 136,425 feet (41,582m).

The revised JORC compliant resource estimate of 32.95Mlbs U₃O₈ represents a 31% increase to the total resource estimate including a 14% increase in Measured and Indicated Resource.

In addition, Peninsula is pleased to announce an initial vanadium resource in the Ross Permit Area of 1.7Mlbs V₂O₅.

Since the cut-off date for this resource estimate, further drilling has produced 14 separate GT intersections that exceed 0.2GT. These results will add further to the resource base and clearly demonstrate the ongoing growth potential of the project.

Executive Chairman Gus Simpson said "We are very pleased with these results and Peninsula is expanding its drilling efforts to convert further inferred resource to indicated where it can be considered for inclusion in the reserve calculation".

Level 1, 477 Hay Street, Subiaco WA 6008, PO Box 8129, Subiaco East WA 6008

Phone: +61 (0)8 9380 9920 Fax: +61 (0)8 9381 5064

Peninsula Energy Limited - ABN: 67 062 409 303

Updated Lance JORC-Compliant Resource Estimate – January 2011

Since the release of the updated JORC resource estimate on August 17, 2010, Peninsula has continued resource conversion and exploration drilling with the completion of a further 223 drill holes mostly within and nearby to the Ross Permit Area. This drilling has helped achieve an average drill spacing of 87 feet (26.5m) and has successfully demonstrated the continuity of the known mineralisation and expanded the limits in these resource areas.

Table 1: Lance Project Updated Resource Estimate – January 2011

Resource Classification	Tonnes Ore (M)	U ₃ O ₈ kg (M)	U ₃ O ₈ lbs (M)	Grade (ppm U ₃ O ₈)
Measured	3.7	1.7	3.8	472
Indicated	7.0	3.0	6.7	434
Inferred	22.6	10.2	22.5	450
Total	33.3	14.9	32.9	449

(The JORC resource is reported above a lower grade cut-off of 200ppm and a GT of 0.2).

Note figures may not sum due to rounding.

The resource has been calculated by applying a combined constraint of a grade thickness product (GT) of 0.2 contour and 200ppm U₃O₈. These lower cut offs are considered to be appropriate for both calculating and reporting of In-Situ Recovery (ISR) resources at the Lance Projects.

The measured, indicated and inferred resources are located in confined aquifers, (which are a requirement for successful ISR mining) that have demonstrated positive ISR recovery test-work.

Geological modeling of the extensive downhole geophysical data has accurately defined the impermeable shales and mudstones that form the confining seals to the mineralised aquifers.

At Ross (including the Ross Permit Area) there is a now a combined measured, indicated and inferred resource of 22Mlbs U₃O₈, an increase of 36% from the updated August estimate. Within the Ross Permit Area the combined measured, indicated and inferred resource totals 5.8Mlbs U₃O₈ at an average grade of 478ppm and an average GT of 0.47.

A further 70 exploration holes have been drilled after the cut-off date for this resource estimate, producing 14 separate GT intersections that exceed 0.2GT together with 33 additional intersections that contain mineralisation in excess of 200ppm U₃O₈. These results will add further to the resource base and clearly demonstrate the ongoing growth potential of the project.

During the last two months exploration drilling along interpreted redox-boundaries has produced very successful results particularly in the area immediately north west of the permit area. These results comprise 20 separate >0.2GT intersections. In addition to upgrading inferred resources to indicated, these results have confirmed the robustness of the inferred resource model such that additional inferred classifications have been applied to redox fronts that have been defined by previous drilling. Resource conversion and exploration drilling will continue with two rotary mud rigs employed full time in the northern Ross area and a third rig engaged at Barber to identify additional uranium mineralisation in the area and increase the resource inventory at Barber.

Table 2: Lance Project U₃O₈ Resource Estimate by Area and Category

Ross	Tonnes	Grade (ppm U ₃ O ₈)	U ₃ O ₈ (lbs)	Average Thickness (ft)	Average GT
Measured	3,025,370	475	3,166,302	10.5	0.51
Indicated	4,986,045	447	4,916,076	11.3	0.50
Inferred	13,984,175	450	13,873,406	10.4	0.47
Total	21,995,589	453	21,955,784	11.6	0.55

Barber	Tonnes	Grade (ppm U ₃ O ₈)	U ₃ O ₈ (lbs)	Average Thickness (ft)	Average GT
Measured	636,302	461	647,045	8.6	0.40
Indicated	2,002,184	400	1,765,263	7.7	0.31
Inferred	8,649,427	450	8,580,915	7.5	0.31
Total	11,287,913	442	10,993,223	7.6	0.32

Vanadium Resource

Peninsula has recently completed a representative core sampling program over the Ross Permit Area resource in order to obtain sufficient data to define a vanadium resource. The initial calculated vanadium resource for the Ross Permit Area is summarised in Table 3 below.

Table 3: Initial Vanadium Resource

Ross Permit Area	Tonnes	Grade (ppm V ₂ O ₅)	V ₂ O ₅ (lbs)
Measured	2,354,081	145	749,913
Indicated	3,052,008	143	960,516
Inferred	115,962	135	34,513
Total	5,522,051	143	1,744,942

The potential to expand this initial Vanadium resource is likely subject to the collection of planned core sampling outside of the Ross Permit Area.

Initial metallurgical testwork completed by Lyntek and operating results from the R&D plant in the late 1970's has demonstrated that vanadium can be extracted successfully as a by-product concurrent with uranium production. More exhaustive metallurgical tests are underway.

Grade/Thickness Contouring

Grade/thickness contouring is the most appropriate method to transition resources to reserves when the planned mineral recovery method is ISR.

ISR involves the drilling of clusters of injection, recovery and monitoring wells to facilitate the recycling of oxygen enriched ground water through the mineralised sandstone to re solubilise and mobilize the uranium for pumping it to the surface processing plant for processing into yellow cake.

When mineral content is presented as an amount per tonne it assumes that there is a cost per tonne to mine and process the ore to recover the mineral which has an absolute value.

In ISR mining this is not the case; this recovery method has a cost structure associated with the drilling, casing and perforating of extraction, injection and monitoring well clusters. These, combined with the cost of reagents and processing into yellow cake are deducted from mineral revenues to determine gross margin.

Subsequently it is the grade/thickness (0.20GT) quotient, not parts per tonne, that determine if a bounded mineral zone is to be mined. Once these costs are incurred, it is recovered pounds of mineral that determines the gross margin. Thus when an ISR feasibility study estimates mineral recovery costs it is as a cost per pound recovered (PEN June 2010 PFS estimate total costs at \$30 per pound recovered).

Mineralised Potential

The Lance project covers an area of over 120km² within which there is a combined total of at least 305 line kilometres (190 miles) of known stacked roll fronts. Of this total, only a small percentage has been explored with over 90% of the drilling concentrated within the more advanced Ross and Barber areas. Based on the historic conversion rate from roll front length to a drill-defined resource the mineralised potential of the Lance Projects, which is in addition to the JORC-compliant resource, is assessed at between 95 and 145 Mlbs eU₃O₈. The upgrade in mineralised potential from previous estimates is based on an anticipated grade range of 360ppm eU₃O₈ to 500ppm eU₃O₈. This grade range represents the minimum and maximum modelled grades respectively.

Lance Project Mineralised Potential

Exploration Areas	Tonnes (M)		Grade (ppm eU ₃ O ₈)		eU ₃ O ₈ (Mlbs)	
	From	To	From	To	From	To
Range						
Total	117.7	134.7	360	500	95	145

Drilling Program and Resource Confidence

On-going drilling will continue to upgrade the Inferred Resource to Indicated Status, such that it can be considered for conversion to a reserve as part of the Definitive Feasibility Study and continue to convert areas of mineralised potential into JORC-compliant resources. The positive results to date provide further confidence that mining will commence within the targeted time-frame (assuming regulatory approval timeframes and funding options are achieved) with production continuing over an extended mine-life.

Historic Data and Resource Estimation

The methodology, estimation details and assumptions used in estimating the Inferred and Indicated Resource and also the Mineralised Potential at the Lance Projects is summarised as follows:

- Each log was scanned by Cadd Services (Denver) and then digitized by Logdigi Inc. (Houston). The gamma curves for each log were further processed in Wyoming to convert each gamma curve to numerical equivalent counts per second and percent grade eU₃O₈.

- Down-hole grade composites were calculated using a 2.5ft/100ppm cut off. Each grade composite was then extracted to obtain the centroid position of each composite. Every composite was then analysed in 3D and manually classified according to area and vertical horizon.
- Using Surpac, a Voronoi tessellation algorithm was then applied to the respective data from each area and horizon to create a series of polygons each of which were attributed with thickness, volume and tonnage and grade. These polygons were intersected by the 0.2GT contour so that no measured or indicated material was reported outside the GT contour.
- The JORC-compliant resource is reported above a lower grade cut off of 200ppm and a GT of 0.2.
- Disequilibrium factors were calculated using the Peninsula PFN database comprising over 500 determinations and categorized by area and lithological horizon.
- Specific disequilibrium factors have been applied to the relevant parts of the resource based on comparative studies between PFN and gamma data.
- Recovery Rate of 76% (80% from mine in solution and 95% recovery from solution).
- An average bulk density of 2.1, as determined from 66 core samples, has been used for the tonnage calculation.
- An average U_3O_8/V_2O_5 ratio based on 90 chemical assays of 3:1 was used to define the V_2O_5 resource within the Ross Permit Area.

Peninsula controls the majority of the surface and minerals rights in the Oshoto Region and is currently acquiring additional areas that are considered prospective for roll front style uranium mineralisation.

Yours Sincerely



John (Gus) Simpson
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 Alf Gillman and Mr Jim Guiling. Mr Gillman is a Fellow of the Australian Institute of Mining and Metallurgy. Mr Gillman is General Manager Project Development and is a Competent Person under the definition of the 2004 JORC Code. Mr Guiling is a Member of a Recognised Overseas Professional Organisation included in a list promulgated by the ASX (Member of Mining and Metallurgy Society of America and SME Registered Member of the Society of Mining, Metallurgy and Exploration Inc). Mr Guiling is Principal of independent consultants World Industrial Minerals. Both Mr Gillman and Mr Guiling 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 a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Both Mr Gillman and Mr Guiling consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

Level 1, 477 Hay Street, Subiaco WA 6008, PO Box 8129, Subiaco East WA 6008

Phone: +61 (0)8 9380 9920 Fax: +61 (0)8 9381 5064

Peninsula Energy Limited - ABN: 67 062 409 303

Please note that in accordance with Clause 18 of the JORC (2004) Code, the potential quantity and grade of the "Mineralised Potential" 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.

Disequilibrium Explanatory Statement: eU3O8 refers to the equivalent U3O8 grade. This is estimated from gross-gamma down hole measurements corrected for water and drilling mud in each hole. Geochemical analysis may show higher or lower amounts of actual U3O8, the difference being referred to as disequilibrium. Disequilibrium factors were calculated using the Peninsula PFN database and categorized by area and lithological horizon. Specific disequilibrium factors have been applied to the relevant parts of the resource based on comparative studies between PFN and gamma data. There is an average positive 11% factor applied.