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Companies Announcement Office
Via Electronic Lodgement

SUITABILITY FOR IN-SITU RECOVERY (ISR) CONFIRMED

Independent review of historical data has confirmed that the Lance Project is suitable for In-Situ Recovery mining.

Highlights

- **Impermeable shale beds exist above and below the uraniferous sandstones**
- **Horizontal and vertical permeability and porosity is suitable for ISR**
- **Uranium was successfully leached from core testing**
- **Successful hydrological testing indicates good groundwater recharge and movement**
- **Successful in-situ leaching of uranium**
- **Mineralised sands are below the water table, and the water is suitable for ISR**
- **Hydrostatic pressures in mineralised sands are conducive to uranium dissolution**
- **Successful restoration of the groundwater**

Summary

Peninsula Minerals is pleased to announce the results of the independent engineering review of the historic hydrologic, process and production data generated at the Lance Projects in Wyoming, USA **("Lance Projects")**. The review, which was conducted by independent consultants World Industrial Minerals (**"WIM"**), confirmed that "the historic testing addressed all key criteria for a successful ISR operation" and provides a high level of confidence that the Lance Projects are suitable for ISR recovery.

In-Situ Recovery Overview

The purpose of this review was to determine if the sandstone hosted uranium deposits present on the Lance Projects have all of the characteristics necessary for economic ISR recovery.

ISR is the extraction of uranium from sandstone aquifers by the cycling of oxygen enriched water through the aquifer which hosts U_3O_8 deposits on the redox fronts. Comparisons to extracting oil or gas from sandstone hosts can be made. These deposits formed from the precipitation of U_3O_8 out of solution when uranium enriched ground water moving through the sandstone encounters an oxygen reduced (redox front) section of the aquifer. Assuming the sandstone aquifer meets the pre-conditions for this style of mineral extraction this is a relatively simple, low cost operation. The mining operation can be low cost as there is no blasting, earth moving and milling component to the process. Typically 36% of the worlds uranium production is derived from ISR operations.

The following key criteria were assessed:

- Aquifer geology and containment;
- Permeability/Porosity of the mineralised aquifers and shale/siltstone units;
- Solubility of uranium in laboratory and field tests; and
- That the mineralised sands are below the water table, and the water is suitable for ISR.

Aquifer Geology and Containment

The uranium deposits present in the Lance Project Area are mostly tabular in nature and hosted in 22 stacked mineralised sandstone units separated by impermeable mudstones/siltstones. Zones of consistent mineralisation are characterised by broad widths of clean sandstone bounded above and below by shale beds. The bounding shale horizons are present in all areas where logs were available for review. This configuration is ideal for in-situ recovery of uranium where isolation of the aquifer being mined is essential.

A petrographic study of the core from the push-pull test hole SP758R located at the Oshoto deposit (part of the Ross Project Area within the Lance Projects) showed the composition of the aquifer to be comprised of clean, fine to medium grained sandstone. The sandstone is dominantly quartz (60%), with a low (5%) clay content. The sand examined also contained 1% organic material (a key reductant for the deposition of uranium). This composition is typical of many Wyoming uranium deposits and the clean nature of the sand results in the high permeability's and porosities discussed below.

Permeability/ Porosity

Porosity and permeability are vital criteria for ISR. Porosity measures the amount of water that can be contained by an aquifer, and this is related to the amount of space between the sand grains. Permeability measures how quickly a fluid can move through an aquifer. Tests on select cores in the Ross Project area were conducted in 1976 and 1977. The permeability of the sandstones tested, commonly between 1,000 and 2,000 millidarcy's (and up to 3,944 millidarcy's) meets or exceeds that of nearby ISR Projects being developed (where permeability's over 700 millidarcy's are considered good) and is very suitable for ISR mining methods. The mineralised sandstone units commonly contain thin (typically less than one foot) horizons of siltstone and shale, however these discontinuous shale horizons do not affect the permeability of the sand units appreciably and tend to increase the ratio of horizontal to vertical permeability. This is advantageous in helping control the flow of solution underground and is typical of uraniferous sandstone units in Wyoming.

Uranium Solubility Testing

- **Laboratory Tests**

  The Bethlehem Research Lab conducted leach tests on cores from the Ross Project Area. The grade of the core tested was 0.16% U_3O_8. The cores were leached with two different lixivants; ammonium bicarbonate and sulphuric acid. It should be noted that neither of these leach solutions are used today in the US. Both of the leach tests were successful, with 89% recovery of uranium from the ammonium leach and 95% recovery from the sulphuric acid leach. The leach tests, although not a direct analogue of ISR, clearly prove that uranium can be successfully leached from the projects rocks. In the upcoming drill program Peninsula will conduct a series of further core tests using lixivants in use today (e.g. Sodium bicarbonate and oxygen).

- **On Site Push-Pull In-Situ Recovery Test**

  A push-pull test was conducted in the north of the Ross Project for ten days in 1976 with a solution of ammonium bicarbonate and ammonium hydroxide injected into the uranium bearing "J" sand. Injection was conducted for two days, and the lixivant was left to react with the uranium bearing aquifer for a week. Two days of pumping were then conducted and it was estimated that 6 pounds of uranium were contained in the 4055 gallons pumped from the well.

  The solution was passed through a column containing ion exchange resin and practically all of the extracted uranium was absorbed by the resin, highlighting the suitability of the resin exchange process for this area. The push-pull test successfully demonstrated that the aquifer in the area was contained, water quality was good, and uranium was soluble under oxidizing conditions and could be readily absorbed onto ion exchange resin. These results were seen as very encouraging and the installation of a more advanced pilot plant test facility commenced soon after.

- **Larger Scale Five Spot Test and Pilot Plant**

  A more advanced facility with a design capacity of 40,000 lb/year U_3O_8 was installed and operated from October 1977 until April 1978, prior to being shut down prematurely following the Three Mile Island incident. A 5 spot pattern comprising one extraction well surrounded by four injection wells (the standard well field layout and most commonly used design today) was established in the central portion of the Ross Project targeting the "J" or B sand again. A benign sodium bicarbonate lixivant was used in the pilot plant and this method is still the preferred leaching agent used in Wyoming today. The premature shut down prevented a thorough assessment as to the uranium extracted in the trial with the partially uranium loaded resins sold to a nearby uranium processing facility.

  Of major importance to Peninsula's future plans was the completion of a series of hydrological tests prior to mining commencement. These tests were to determine:

  - Degree of hydraulic isolation of the ore bearing aquifer;
  - The parameter's transmissivity, storage coefficient and the hydraulic conductivity (permeability of the aquifer); and
  - The potential for contamination of the water outside of the mining zone and its rate of movement.

The results of the test were highly encouraging. A regionally extensive clay/shale layer was identified between the A and B aquifers preventing co-mingling of the uranium extracting solutions and other ground waters; vital criteria for an ISR operation. Analysis of the cores taken from the mineralised B aquifer gave porosities between 19.6% and 28.6%, and excellent horizontal permeability's to 3944 millidarcy's as discussed above. Analysis of the pumping test data showed no leakage between Aquifer A and Aquifer B during a 72 hour pumping test. The computed flow rate of Aquifer B under natural conditions is less than 1 foot per year which gives a great deal of control in managing a well field. Additionally, the tests showed that within the 1,700-foot cone of depression developed during the pumping period there were no hydrological boundaries encountered indicating that the B aquifer is relatively consistent for a radius of 1,300 feet (396m) or more. For ISR mining purposes this means that injected lixivants can be recovered over at least a 1,300-foot (396m) radius without disruption or loss of uranium loaded solutions.

Despite the Pilot Plant being shut down prematurely, a number of very important criteria were verified in the test, in particular the strongly positive hydrologic parameters and the ability to dissolve uranium using the currently used sodium bicarbonate lixivant.

Aquifer Water Characteristics

Testing as part of the baseline monitoring program conducted during the 5 spot test revealed a good quality of water, with the principal salts present being sodium bicarbonate and sodium sulphate, common in groundwater in this area and are not deleterious to an ISR operation. Calcium content of the water at this site was considered quite low at 11 milligrams per litre.

In a recent press interview, Glen Catchpole, experienced ISR operator and CEO of Uranerz, a Wyoming company currently developing an ISR mine south of the Lance Project, discussed the advantages of hydrostatic pressure or head in the mineralised aquifer. The more pressure there is in the mineralised aquifer the greater the amount of oxygen that can be injected and put into solution. The more oxygen that can be put into solution, the more effectively the uranium can be dissolved or oxidized. Therefore uranium recovery is more economical with greater oxygenation of the ground water.

The hydrological testing at the Ross Project "B" aquifer (mineralised zone) as part of the 5 Spot Test showed a promising positive hydrostatic head from the artesian non flowing aquifer when the test work was done in 1977, where the water table was around 110 ft (33m) and the ore zone was 430ft (131m) below surface. However, additional testing is planned to determine the formation hydrostatic pressure or head currently.

At the termination of the in-situ leach tests the uranium bearing aquifer was flushed and successfully restored to a quality level acceptable to Wyoming State Regulators and the Nuclear Regulatory Commission (NRC), with all bonds released and returned to the Joint Venture partners in 1984. The historic information showed that the aquifer and water quality were suitable for ISR mining. The fact that reclamation was successful is a major positive for the completion of future reclamation. One of the tasks in the upcoming drilling programme by Peninsula will be to establish baseline water quality in the Ross Project area.

Lance Project Background

The Lance Project is located on the North-East side of the Powder River Basin in Wyoming. The original NuBeth Joint Venture, a joint venture between Nuclear Dynamics Inc, Bethlehem Steel Corporation and later Pacific Power and Hydro (**"NuBeth JV"**), discovered thirteen substantial zones of uranium mineralisation associated with an extensive system of roll fronts through drilling between 1970 and 1979.

As part of this exploration program, the NuBeth JV drilled more than 5,000 exploration and development holes, totalling in excess of 912,000 metres. This historic drilling data was acquired by Peninsula in 2007 and has defined a little known uranium district, mainly due to this drilling data and other project related data being held by one related entity since its discovery in 1970. Peninsula now holds title over 7 of the 13 mineralised areas defined by the historic drilling, making it the dominant mineral rights holder in this re-discovered uranium district. As previously announced, the Company continues to actively acquire mineral title over the remaining Project Areas as part of its dedicated land acquisition programme.

Conclusions

Based on the findings of the independent review, World Industrial Minerals concluded that the NuBeth JV confirmed the vabidity of recovering uranium from uraniferous sandstones present in the Ross Project area. Peninsula can now continue to proceed towards development and mining at Lance with a high degree of confidence that the project area is suitable for an ISR operation. Further hydrological data will be gathered from the planned drilling and metallurgical testing program that is planned to commence in mid-September.

Yours Sincerely

John (Gus) Simpson
Chairman

For further information, please contact our office on (08)9420 9333 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 Jim Guilinger, Principal of independent consultants World Industrial Minerals who 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 a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Guilinger consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.