**ASX RELEASE** 



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# Pilot plant testing confirms Toro's proposed extraction process for Wiluna Uranium Project

Toro Energy Limited (ASX: TOE, "Toro") has completed a program of pilot plant processing test work as part of its continuing assessment of the Wiluna uranium project in Western Australia.

The integrated pilot plant campaign, consisting of two, separate 10-day continuous runs totalling approximately 480 hours of operation, was completed during August and September 2011. A total of 12,811 kg (run 1 = 6,219kg and run 2 =6,529kg) of material was tested through the two campaigns, with two separate samples of calcrete and clay dominant ores being tested individually to evaluate performance in the selected processing circuit.



The bulk ore grade material was extracted from the Centipede deposit during Toro's trial mining and resource evaluation pit in August 2010.

#### **Results Confirm Process**

The results achieved during the tests generally support the original projected parameters and results. The selected flow sheet successfully processed both ore types with minimal adjustment to the pilot plant circuit.

Importantly, saline groundwater from Wiluna project's Centipede deposit was successfully used as wash water and flocculent make-up water, significantly reducing the need for Toro to source high quality, low salinity water. Furthermore, chloride concentration build-up is markedly less than previously predicted which will enable common materials of construction to be used and result in capital cost savings.



Key Criteria	Outcome	Qualitative Description	
Particle Size Distribution	P <sub>80</sub> 400µm	Suitable for optimum uranium dissolution	
Uranium Dissolution	> 88%	>85% considered excellent	
Vanadium Rejection	40% in leach circuit	Reduces size and cost of uranium purification circuit Also high rejection during sodium di-urinate precipitation	
CCD* Underflow Density	42%-45%	Good but variable underflow densities, especially for calcrete dominant ore	
CCD* Recovery Efficiency	98%	Excellent recovery efficiencies achieved	
Uranium Recovery	83%-86%	Very good recovery for alkaline leach process	

Key quantitative and technical outcomes of the pilot plant work include:

"CCD" or "Counter Current Decantation"

An updated comparison of results obtained from the 2009 Optimisation Study, 2011 bench scale testwork and 2011 Pilot Plant can be found in Appendix 1.

These quantitative outcomes confirm the viability of the proposed process flow sheets – a key step in the advancement of the Wiluna uranium project – and demonstrate overall uranium recovery in the range of 83%-86%. Very pleasing to Toro was the quality of the sodium diurinate (SDU) product and the fact that further dissolved vanadium rejection was achieved through adsorption onto tailing solids. Toro expects this to improve the final product specification and minimise any potential penalties due to the presence of deleterious elements.

Very importantly no significant issues have been identified during the pilot plant process runs although further optimisation work has been identified that may improve the process further.

#### Further Optimisation

Additional testwork is underway to provide further technical information for use during the Definitive Feasibility Study (DFS) for Wiluna. The SDU produced during the pilot plant campaigns will be used to develop and optimise the final uranium product  $(UO_4)$  production circuit, and tailings samples generated during steady state operations have been collected for further Tailings Storage Facility (TSF) testwork. Further tests will also include SDU re-dissolution and uranium precipitation with hydrogen peroxide to further improve uranium product quality.

Toro's Managing Director, Greg Hall said today. "The results of the pilot plant testwork are very pleasing, and demonstrate that the agitated alkaline leach circuit is very viable for the Wiluna Uranium Project ore. The results provide a solid basis for our Definitive Feasibility Study and help improve our understanding of the engineering that will be required to deliver the Wiluna Project. Further testwork will now help us to refine the processing circuit and improve our technical knowledge," he said.

**Greg Hall** Managing Director



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Toro Energy is a modern Australian uranium company with progressive project development, acquisition and growth. The Company is based in Adelaide, South Australia with a project office in Perth, Western Australia.

Toro's flagship and wholly-owned Wiluna uranium project (includes existing mining lease) is 30 kilometres southeast of Wiluna in Central Western Australia.

Wiluna contains two shallow calcrete deposits, Lake Way and Centipede, with prefeasibility and optimisation studies completed and a definitive feasibility study underway. Toro has commenced the Approvals process targeting the Company's first uranium production by late 2013.

Toro has three other exploration and development projects in Western Australia, and owns uranium assets in the Northern Territory, South Australia and in Namibia, Africa. Toro is well funded with a supportive major shareholder in OZ Minerals.

www.toroenergy.com.au



## Appendix I

### Comparison 2009 Optimisation Study test results compared with 2011 Bench scale test results with 2011 Pilot plant average results

Description	Unit	Optimisation study	Bench scale test	Pilot plant test
U Blend Grade (trial pit)	g/t	466	489	512
Leach target grind size	P <sub>80</sub>	300	400	400
Leach temperature	°C	95	90	95
Leach Na <sub>2</sub> CO <sub>3</sub> concentration	g/L	27.5	35	35
Leach feed Density	% solid	35	35	35
Leach dissolution time	hours	24	16-24	24
Uranium dissolution efficiency	%	90	90	90.4
Vanadium dissolution	%	85	~45	58
Solid Liquid separation		7 Stage CCD	7 Stage CCD	7 Stage CCD
CCD 7 underflow density	% solid	50 (assumed)	45 (Tested)	43 (Average tested)
CCD dissolved loss	ppm	15.6	33.4	24-39
SDU feed PLS uranium concentration	ppm	342	363	358
SDU temperature	°C	80	80	80
SDU residence time	Hours	6	6	6
Barren SDU concentration	ppm	17	<10	57
Overall circuit recovery	%	86 (Metsim)	83 – 86 (Tested)	83 – 86 (Tested)