
**QUARTERLY ACTIVITY REPORT
FOR THE PERIOD ENDED 31 DECEMBER 2009**

- **Initial samples returned from Pampas with significant results.**
- **Research completed on investigations into the mineralogy of lithium mineralisation at Llamara and Cerro Soledad.**
- **Cash at bank at the end of the quarter was \$3.5 million.**

Chile and Peru - Exploration Update

Pampas

The second phase of reverse circulation drilling was completed at Pampas during the quarter. This programme was designed to follow up the encouraging uranium intersections returned from the first drilling programme to follow up the unclosed uranium anomaly.

In order to reduce the number of low grade or barren samples submitted to the laboratory, the samples were screened using a cut-off of 20evUppm level as determined by taking a differential spectrometer reading of the sample bag. This resulted in only a small number of samples being submitted to the laboratory. However on receipt of these results it has become apparent that the disequilibrium shown by the uranium in all of Lefroy's projects has resulted in potentially high grade samples being excluded. This is evident by the fact that 50% of the holes assayed have ended in significant uranium grades (>50ppm U).

Additional samples have now been submitted for assay and results are awaited. However some encouraging results have been returned to date with a best intersection of 6m@ 257ppm U from hole PSRC68 (20-26m) including 2m @ 488ppm U from 21-23m. Significantly these partial results have confirmed the continuance of the anomalous trend to the north which remains unclosed. The significant intersections from the results received to date are summarised in the table.

Significant Results to Date – Pampas 2nd Phase Drilling

Drill Hole	From (m)	To(m)	Interval(m)	U ppm
PSRC61	9	11	2	36.15
PSRC67	27	29	1	50.20
PSRC68	20	26	6	257.00
PSRC68	21	23	2	488.00
PSRC74	29	30	1	20.70
PSRC76	1	2	1	85.30
PSRC79	8	9	1	10.75
PSRC81	5	8	3	56.00
PSRC82	5	6	1	12.55
PSRC85	15	16	1	188.50
PSRC85	15	19	4	82.30
PSRC89	15	17	2	77.50

Lithium Metallurgical Research

Detailed particle size separation and XRD analysis has confirmed that the lithium identified at Llamara and Cerro Soledad is in the form of hectorite, a smectite clay species in which lithium replaces magnesium in the clay lattice. Assays on different size fractions of material subjected to investigation have shown that the lithium grade can be substantially upgraded from 1800 -2400ppm Li in the fine fractions and hence some beneficiation appears possible.

However the metallurgical treatment of hectorite remains to be shown to be commercially viable, although Western Lithium Corporation's Kings Valley hectorite project in Nevada is at feasibility stage. In considering the potential risks associated with pursuing new processes and considering that Lefroy's primary focus is uranium, no further work is anticipated on the potential lithium resource at Llamara and Cerro Soledad during the next quarter.

Project Review

A complete review of exploration results to date has been undertaken during the quarter. In summary:

- Potentially economic grades of uranium from soil, rock and drill samples have been returned from Llamara, Cerro Soledad and Pampas projects.
- Only a small area (<10%) of the potential host sequence in these three projects has received any exploration and hence the potential for further mineralisation is considerable. Anomalies remain unclosed on all three projects.
- Despite high grade surface mineralisation being identified for over 14km of strike within the Salar Grande project, the mineralisation has not been effectively drill tested and considerable potential remains.
- While three areas of carnotite mineralisation have been recognized at Cardones, only preliminary reconnaissance has been undertaken at this project and the potential remains untested.

Lefroy considers that the potential of its uranium projects is considerable and warrant further work. However the next stage of exploration requires escalated expenditure to allow aerial geophysical surveys to prioritise areas for exploration and further drilling. Lefroy is currently reviewing all of the exploration results to date and entertaining the possibility of a suitably qualified joint venture partner to share future exploration expenditure.

CORPORATE

FINANCIAL POSITION

At the end of the quarter Lefroy had a cash balance of \$3.5 million.

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The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Carl Swensson who is a Member of the AUSIMM. Mr. Swensson is a Director of the Company. Mr. Swensson 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 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Swensson consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.