Locksley Resources Limited: Paves Pathway to 100% Made in America Antimony

22.09.2025 | ABN Newswire

Perth, Australia - Locksley Resources Ltd. (ASX:LKY) (FRA:X5L) (OTCMKTS:LKYRF) is pleased to advise results from initial metallurgical testwork completed by the Company on samples collected from the Desert Antimony Mine ("DAM") Prospect, validating that the Mojave Project can deliver the feedstock required to underpin a domestic mine-to-market antimony supply chain. Recovery rates of this level confirm Locksley's pathway to 100% Made in America Antimony, directly aligned with U.S. government priorities for onshore critical mineral supply security.

Highlights

- Excellent metallurgical recoveries ranging between 82.9% and 85.9%, validating that the Mojave project can deliver the feedstock required to underpin a domestic mine-to-market antimony supply chain

- Recovery rates of this level confirm Locksley's pathway to 100% Made in America Antimony, directly aligned with U.S. government priorities for onshore critical mineral supply security

- Options to use concentrate in a pilot test to produce antimony metal ingot, antimony oxide and antimony trisulphide being assessed -

- Composite sample collected from surface is expected to have undergone some level of oxidation. Antimony recoveries expected to improve further with fresh rock samples (to be collected from drilling) as level of Antimony mineral oxidation expected to be reduced

- Assayed head grade of composite sample of 9.6% Antimony, compared to calculated head grade from each test completed ranging from 10.0% Sb to 11.1%

- High-grade initial rougher concentrate of 59.6% Antimony (R04- stage 1) indicates antimony minerals liberate naturally from the initial grind, with rougher concentrate regrinding and cleaning expected to achieve a high-grade concentrate at high Antimony recovery

- Final rougher peak concentrate grade achieved of 39.1% Antimony (R02-stage 1-5), with 5 tests exceeding 35.1% Antimony and 1 test achieving 27.5% Antimony

- Concentrate sent to Rice University to commence with Dep Eutectic Solvent extraction testwork using DeepSolv(TM) methodology

- Upon completion of the testwork, high quality Antimony concentrate samples will be delivered to Rice University for commencement of Thrust 1 extraction and production of antimony metal using DeepSolv(TM) technology, further advancing Lockksley's role in securing domestic U.S. critical minerals supply chain

Metallurgical Testwork Program

Locksley engaged specialist metallurgical consultants SGS Australia owned Independent Metallurgical Operations Pty Ltd (IMO) to oversee an initial metallurgical testwork program on a 23.1kg composite sample grading 9.6% antimony ("Sb"), collected from surface stocks at DAM (Figure 1). The composite sample was delivered to Base Metallurgical Laboratories located in Tucson Arizona for the planed testwork.

A standard flowsheet was devised by IMO to undertake a series of six flotation tests using a variety of reagents and initial rougher stage flotation steps, conditioning time and grind sizes. The results from each of the tests are shown on Table 1.

In all tests, the flotation proved effective in recovery of Stibnite (the antimony hosting mineral) from the composite sample and importantly produced a concentrate exceeding 30% Sb in 5 out of the 6 tests completed. Furthermore, initial stage 1 steps delivered a high grade concentrate up to 59.6% Sb (R04-stage 1), indicating that the antimony minerals liberate naturally from the initial grind, with rougher concentrate regrinding and cleaning expected to achieve a high-grade concentrate at high Sb recovery. This is significant as the testwork has demonstrated the potential to produce a high grade concentrate which could meet

required specifications as feedstock material for conventional pyrometallurgical process.

Further testwork is ongoing with the objective of improving stibnite recovery and concentrate grade. It is anticipated that this will be achieved with subsequent regrind and cleaning stages with the goal of targeting a final concentrate grade of >50% Sb (note pure stibnite has a theoretical grade of 71.68% Sb).

Next Steps

Metallurgical testwork is ongoing and the following activities are planned or underway:

1. Further regrind and cleaning testwork to determine overall recovery and concentrate grade

2. Mineralogical testwork on the head, concentrate and tail to determine stibnite deportment to develop an understanding of the ore characteristics

3. Provide a sample of concentrate to Rice University to commence with Dep Eutectic Solvent extraction testwork using DeepSolv(TM) methodology

4. Investigate options to use the concentrate in a pilot test to produce antimony metal ingot, antimony oxide and antimony trisulphide

Julian Woodcock, Technical Director of Locksley Resources, commented:

"This is an excellent milestone to have achieved for the Mojave Project, which demonstrates that conventional flotation technology is suitable to produce a stibnite concentrate from the Desert Antimony Mine Prospect. What is also remarkable is the success of the testwork on surface samples, which have been susceptible to oxidation. I am extremely encouraged by the results and optimistic that with further testwork we will be able to improve on this already high-quality first-pass outcome. This activity continues to rapidly advance our strategy to provide onshore supply of antimony to the U.S. market."

*To view tables and figures, please visit:
https://abnnewswire.net/lnk/19N2O557

About Locksley Resources Limited:

Locksley Resources Limited (ASX:LKY) (FRA:X5L) (OTCMKTS:LKYRF) is an ASX listed explorer focused on critical minerals in the United States of America. The Company is actively advancing exploration across two key assets: the Mojave Project in California, targeting rare earth elements (REEs) and antimony. Locksley Resources aims to generate shareholder value through strategic exploration, discovery and development in this highly prospective mineral region.

Mojave Project

Located in the Mojave Desert, California, the Mojave Project comprises over 250 claims across two contiguous prospect areas, namely, the North Block/Northeast Block and the El Campo Prospect. The North Block directly abuts claims held by MP Materials, while El Campo lies along strike of the Mountain Pass Mine and is enveloped by MP Materials' claims, highlighting the strong geological continuity and exploration potential of the project area.

In addition to rare earths, the Mojave Project hosts the historic "Desert Antimony Mine", which last operated in 1937. Despite the United States currently having no domestic antimony production, demand for the metal remains high due to its essential role in defense systems, semiconductors, and metal alloys. With significant surface sample results, the Desert Mine prospect represents one of the highest-grade known antimony occurrences in the U.S.

Locksley's North American position is further strengthened by rising geopolitical urgency to diversify supply chains away from China, the global leader in both REE & antimony production. With its maiden drilling program planned, the Mojave Project is uniquely positioned to align with U.S. strategic objectives around critical mineral independence and economic security.

Tottenham Project

Locksley's Australian portfolio comprises the advanced Tottenham Copper-Gold Project in New South Wales, focused on VMS-style mineralisation

Source:
Locksley Resources Limited

Contact:

Locksley Resources Limited T: +61 8 9481 0389 E: info@locksleyresources.com.au