

TREATMENT OF ACIDIC PIT LAKE WATERS

The Challenge

Disruptive solutions are sought to treat the acidic water accumulated in the pit to recover value, regulate cumulative volume, and to enable discharge as an ecosystem(*) booster through a sustainable long-term-treatment process.

Proposals that additionally incorporate technology to recover high-value elements, such as rare earths, will be considered and valued.

The solutions must be able to obtain water with a chemical quality available in the annex.

(*) *Complex network or interconnected system that represents multiple options where the use of this water could enable value generation: ecological, community, production, etc.)*

[Download Annex](#)

Background

Copper post-processing facilities remain at LA. Specifically, there are 4 open pits, 3 leaching heaps and 7 tailing storage facilities. All the acidic water accumulated in the pits and coming from affected water is managed through a large network of ditch and pumping systems, whose content reaches a volume of 13 million m³ of acidic water. This water is consistent with the characteristics of PLS (pregnant leach solution) from the leaching process is available in the table in Annex.

About The Asset

BHP manages 23 non-producing sites located in Canada and the United States. *Legacy Assets* portfolio include open-pit and underground copper, zinc, gold, tin and uranium mining operations, which are currently in various stages of closure and post-closure. The type of remaining facilities across the sites are tailings storage, waste dumps, leached ore, water treatment plants, in some cases including associated infrastructure such as site offices, energy infrastructure, and water supply. All underground facilities are flooded, and some open pits have fully formed lakes. For this initiative, *Legacy Assets* will be addressed LA.

The LA zone is semi-arid with a climate cycle of winter precipitation, spring drought, summer precipitation, and fall drought. The mean annual precipitation is approximately 430 mm; the monthly average high and low temperature ranges between 36° C - 21° C in July and 13° C - 1° C in December. The altitude is between 975 - 1560 m.a.s.l. Solar radiance is 3.5-4.0 KWh/m³/day.