

# Desafío VETA PODEROSA

## CONCEPTUALIZATION OF THE CHALLENGE

Giving value to tailings



## ○ CHALLENGE

How might we generate sustainable and inclusive business models using tailings within a circularity framework?

## ○ STRATEGIC OBJECTIVE

Develop a strategy to add value to tailings through circularity and thus reduce environmental liabilities.

## ○ BACKGROUND

Poderosa has been making various efforts to reduce environmental liabilities related to tailings. They have agreements and have worked with cement companies, national and international universities, where tests were carried out for the recovery of gold, quartz, brick generation, agricultural use, roads, etc.

## ○ PROBLEM DESCRIPTION

- a) **General aspects:** At present, the volume of tailings resulting from 20 years of Poderosa's operation exceeds 10 million tons. It has laws close to 1.2 to 1.5 grams/ton and 15 g/ton of silver, with a pH of 8. Composed of approximately 10% sulfides and 55% silicates, it represents a good opportunity under a scenario of separation or elimination of sulfides, to access the development of different applications.
- b) **Concurrence:** Currently, there are 12-13 Mton of tailings with potential for reprocessing, which is the result of more than 20 years of Poderosa's operation. This environmental liability continues to increase given the characteristics of the mine-plant process.
- c) **Who is affected?** Metallurgy, plant, mine, environmental management, and community superintendencies.

d) **Problem/opportunity:** Environmental liability generated by tailings resulting from mining activity.

## TARGET AUDIENCE

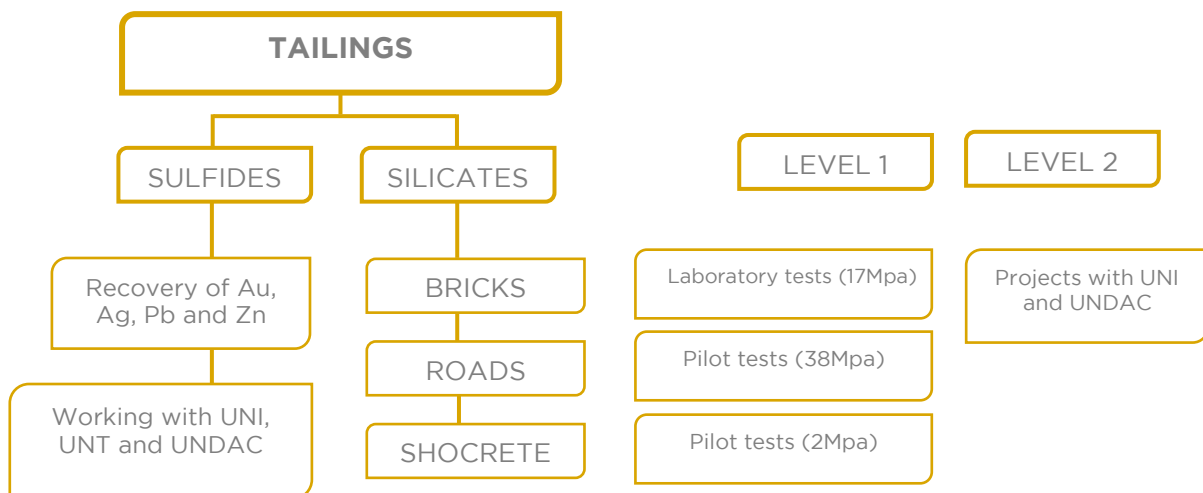
- Plant superintendency
- Metallurgy department
- Planning superintendency

## EXPECTED IMPACT

- Reduce environmental liability associated with tailings storage.
- Reduce tailings disposal costs.
- Mitigation of risks associated with tailings storage.
- Evaluate the volume of tailings reduction/year.
- Demystification of cyanide risk.

## EVALUATED SOLUTIONS

- Regarding sulfides, recovery of Au, Ag, Pb, Zn, etc., for which we are working with various universities.
- Regarding silicates, work has been done on:
  - o Brick generation, laboratory tests were carried out (17 Mpa).
  - o Road development, pilot tests were carried out (38 Mpa).
  - o Shocret, pilot tests were carried out (2 Mpa)



## ● SOLUTION REQUIREMENTS

- Accompaniment in conceptual development, piloting, and R&D.
- Infrastructure development
- Laboratory and technical studies.
- Study of the market for final applications (value-added products).
- Regulatory/normative review on the use of tailings in construction materials and others.
- Communication campaigns on tailings management and revaluation (reporting positive impacts).
- Technologies that promote the recovery of commercial value minerals contained in tailings.

## ● OUTPUT. WHAT DOES THE END USER GET?

Increase in the life span of tailing ponds, utilization and value generation of tailings and recovery of valuable commercial metals.

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