



# EXPANDE Open Innovation Program in Mining

Challenge BHP-13-2019:  
“Prevention and / or mitigation of  
the impact by longitudinal cuts of  
belts”

DATE: «June,  
2019»

# Challenge BHP-13-2019: “Prevention and / or mitigation of the impact by longitudinal cuts of belts”

This project is managed by BHP's Supply Innovation area and is an initiative associated with the National Program Minería Alta Ley and supported by the Program Open Innovation in Mining (EXPANDE) developed by Fundación Chile (FCh).

The common purpose is to drive innovation and make a better future for global mining possible while enhancing the mining ecosystem in Chile along with constituting a collaborative model that enables the best solutions to the highly complex challenges of the mining sector today and in the future.

# Description of the challenge

- Context

Spence Miner has a circuit of belts that transport the ore from the primary crusher, through the agglomerator and the formation of the leach pile, to the gravel dump (see Flow diagram).

Different events of longitudinal belt cutting have occurred along the transport system due to the presence of elements foreign to the ore (stringers or bars of the conveyor systems, agglomerator drum lifter, transfer chutes plates, idlers collars, etc.). These elements are mainly metallic, although there are also elements with other materials and alloys.

It should be noted that the belts of this system are textiles and cables type

- Objective and scope

We are looking for technological solutions that prevent the longitudinal cutting of conveyor belts and / or reduce their consequence, thus facilitating their repair and commissioning.

# Description of the challenge

- Current situation of the problem, affected process

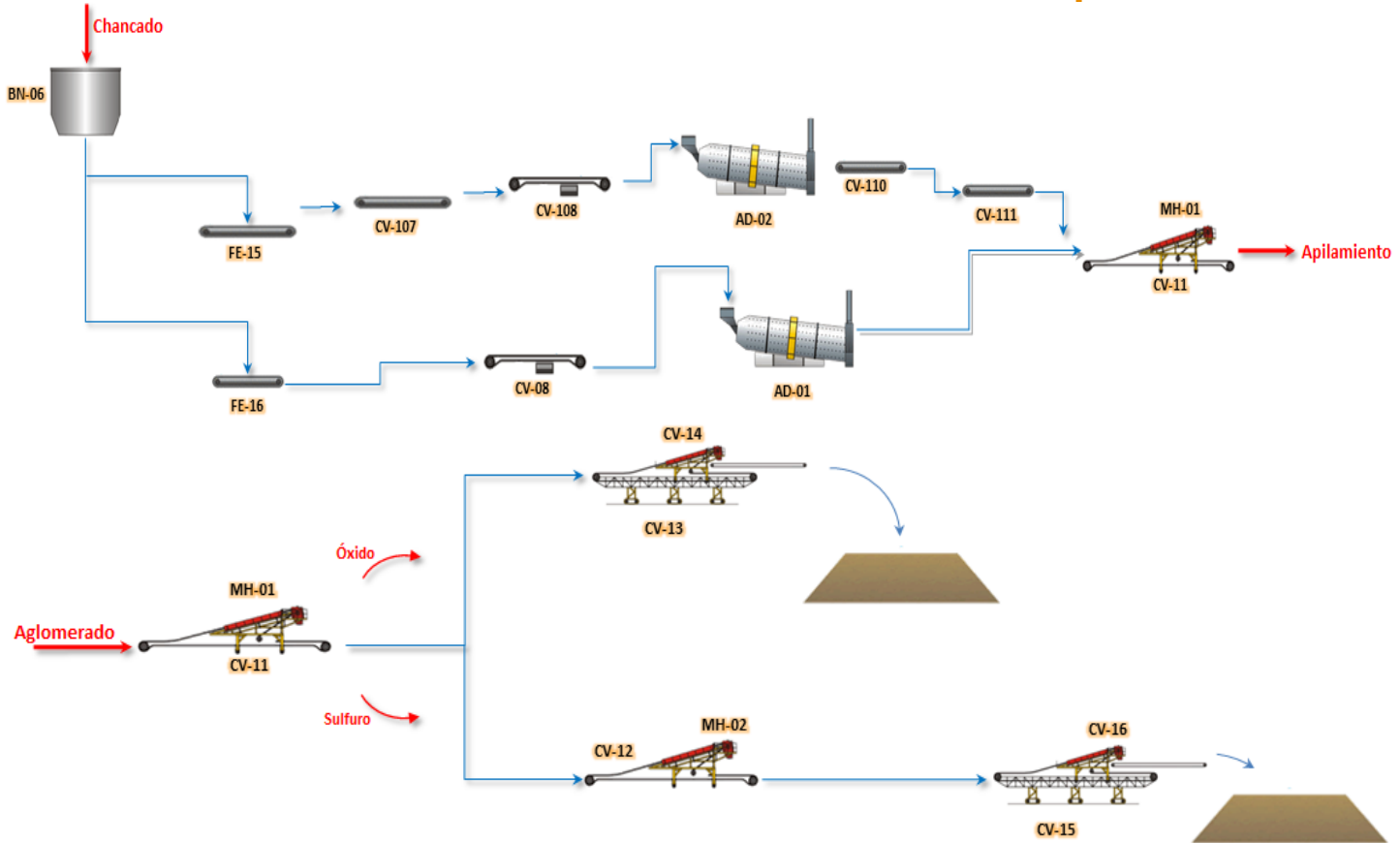
During 2018 these events caused plant shutdowns of up to 3 days of detention with a longitudinal cut of up to 1,500 m of belt.

As indicated in the context, this challenge impacts the dry area (includes stacking) and gravel area.

- Technologies already applied
  - There are electromagnets (under each feeder of crushing and in some systems of dry area belts) for the removal of strangers metallic elements.
  - Metal detectors have been installed in both excavators, which are in calibration.
  - Change of bolts (more resistant to corrosion) that support the coatings that come off the agglomeration drums.
  - Electronic sensors for belt cutting and mechanical sensors for detachment of belt strips.
  - Best cleaning practices to avoid accumulation and lifting of idler table stringers.

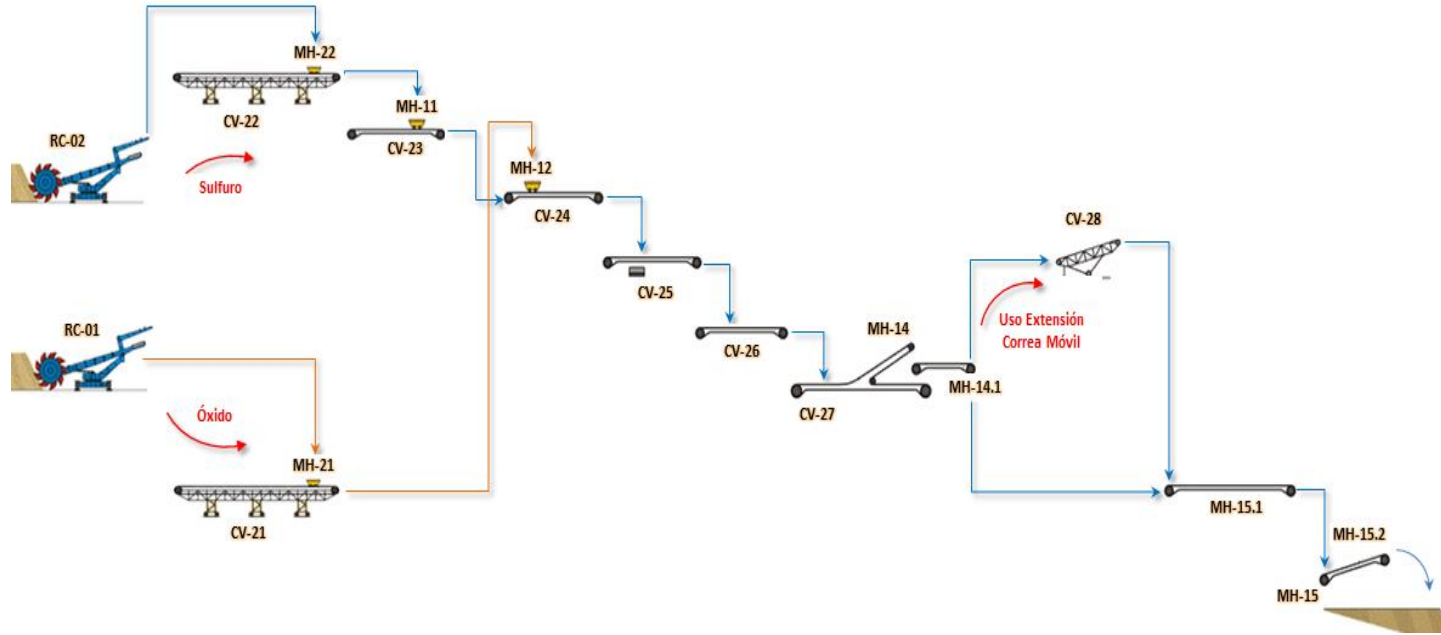
# AGGLOMERATION PLANT - STACKING

## Spence Plant



# GRAVEL PLANT

# Spence Plant



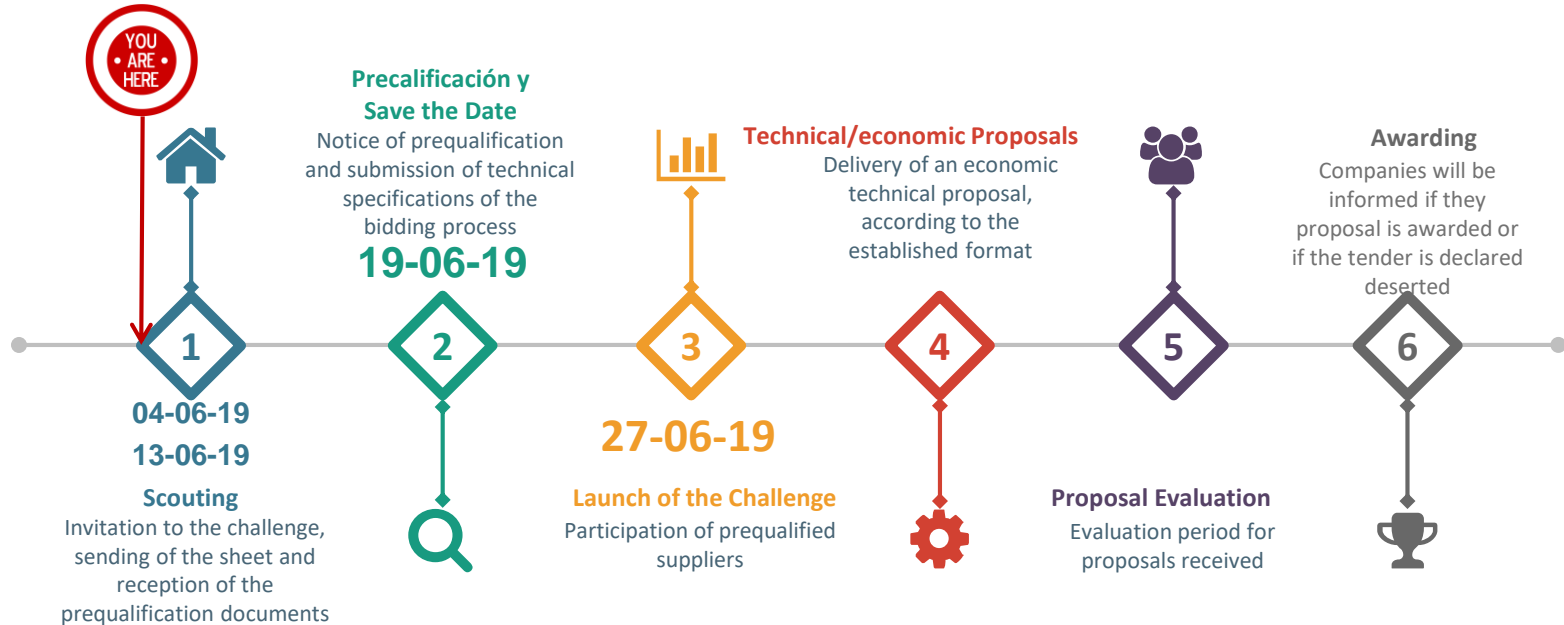
# Prequalification documents

The following information is requested for this prequalification stage :

- National and international Companies/Suppliers
  - Relevant competences and experience of the supplier's team member for the Challenge.
  - Previous experience in similar solutions.
  - Description of the technological solution and degree of technological maturity (Solution under development, tested, implemented and/or in operation)
  - Success stories
  - Ability to provide operational and maintenance services in the field.
- International Companies/Suppliers
  - Availability to operate in Chile or through technical/commercial representatives .

**The format of the information delivered is free (pptx, pdf, image) and can be a brochure or presentation of the company's capabilities and technological solutions that apply to the proposed challenge.**

# Stages of development of the process



**We received documentation for pre-qualification until June 13, 18:00 hrs. (local time)**

1. Scouting
  - In case of interest, sending of an email and technical background for prequalification. These are indicated in the data sheet.
2. Prequalification
  - Expande will send mail notifying if your company pre-qualifies or not to participate in the challenge.
  - Expande will send technical documentation and forms of the Pack tender BHP for revision by the selected suppliers.
  - Sending of letter of acceptance or justification for not participating in challenge (Attachments «BHP-13-2019-Letter of Acceptance.docx», «BHP-13-2019-Letter of Justification for Non-Participation»).
  - In case of acceptance, please confirm participation on the launch day and send a list of participants of the company.