

# Desafío VETA PODEROSA

## CONCEPTUALIZATION OF THE CHALLENGE

Using the water



## ● CHALLENGE

How might we generate water for human consumption in the influence area of Poderosa using the effluent from the Estrella pithead?

## ● STRATEGIC OBJECTIVE

Take advantage of the water from the mine effluents, with the objective of reducing the dependence on the use of water from water sources and ensuring the quantity and quality of treated water to cover the water demand for human consumption within the Poderosa influence area..

## ● BACKGROUND

The effluent in question is the product of the La Estrella sector exploitation zone. This effluent is currently treated with a coagulation, flocculation, and sedimentation system inside the mine, according to compliance with LMP according to DSN° - 010-2010 MINAM. Once treated, it is discharged into the El Tingo River and complies with ECA III, being suitable for use in irrigation. It is estimated that the amount of water that makes up this effluent is sufficient to supply the mining operation and therefore a significant proportion can be used for human consumption. The above ensures compliance with the Water Quality Regulation for Human Consumption DS N° 031-2010-SA.

## ● DESCRIPTION OF PROBLEM

- a) **General aspects:** The effluent in question is the product of the La Estrella sector exploitation zone. This effluent is currently treated with a coagulation, flocculation, and sedimentation system inside the mine, according to compliance with LMP according to DSN° - 010-2010 MINAM. Once treated, it is discharged into the El Tingo River and complies with ECA III, being suitable for use in irrigation.

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- b) Concurrence:** Effluents are a continuous flow that depends on the hydrological characteristics of the mining deposit and the method of exploitation.
- c) Who does it affect?** The community in the Poderosa influence area, as there is a water stress associated with illegal mining activity in the area. In Vijus Town and Marañón-Vijus Production Unit, it is estimated that around 3600 inhabitants and 854 employees respectively live.
- d) Opportunity:** Use effluents present in Poderosa's mining production work, typical of excavation methods and their effects on existing aquifer filtrations and surface runoff. The above defines the hydrogeology of the deposit and therefore represents a challenge for mining operations and certainly an opportunity in proper management of its use. In this context, its use mainly oriented towards human consumption presents itself as an approachable challenge/opportunity given the water stress in Poderosa's influence area and seeking to avoid discharge into El Tingo River.

## ● TARGET AUDIENCE

- Plant Superintendency
- Environmental Management Superintendency
- Community Relations Department

## ● EXPECTED IMPACT

Availability of water for human consumption within Poderosa's influence area, in compliance with Water Quality Regulation for Human Consumption DS N° 031-2010-SA.

## ● EVALUATED SOLUTIONS

Poderosa has automated filtration and ultrafiltration plants. With NECON - 10000 plant from Germany tests were carried out with Consuelo mine effluent for heavy metal removal and thus achieve human consumption quality according to applicable regulations. The plant has a nominal capacity of 20m<sup>3</sup>/h (5.5L/sec), which uses filtration and electrolysis processes for drinking water treatment, reducing heavy metal concentrations such as arsenic. In test results, 1.31m<sup>3</sup>/h were obtained, equivalent to 6.6% of nominal flow treated, achieving removal of 28.4% arsenic.

## ● SOLUCION REQUIREMENTS

- Any potential solution must consider ensuring water quality (by reducing arsenic levels), considering that it will be used for human consumption, in compliance with Water Quality Regulation for Human Consumption DS N° 031-2010-SA.
- Evaluation of implementation costs.
- Description of technology and/or infrastructure required.
- Evaluation of regulatory framework for solution viability.
- Technology with competitive treatment cost.

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

Quality treated water for human consumption in compliance with DS N° 031-2010-SA Regulation within Poderosa's influence area.

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