



# **Chapter 6: Potential Risks to the Health of Population referred to in Letter a) of Article 11 of Law 19,300 EIA Espejo de Tarapacá Region of Tarapacá Chile**

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## 6. POTENTIAL RISKS FOR THE HEALTH OF THE POPULATION REFERRED TO IN ARTICLE 11 (A) OF THE LAW 19.300

### 6.1. Introduction

The project of hydro-pumping plant with seawater "Espejo de Tarapacá" will be located in the communes of Iquique and Pozo Almonte, province of Iquique, Region of Tarapacá, approximately 100 km south of the city of Iquique. The nearest towns are the River Seco Cove, next to a project path and 14 km further south, Caleta San Marcos, located at 500 m from the project.

The project consists of the installation and operation of a reversible hydraulic plant, i.e. the same machines function as pumps in a sense of water circulation or as turbines in the other direction, are the modes pumping and generation respectively. Likewise, regardless of the mode of operation in which the plant is operating, the same surface works, the water canalizations, the underground and the submarine will be used.

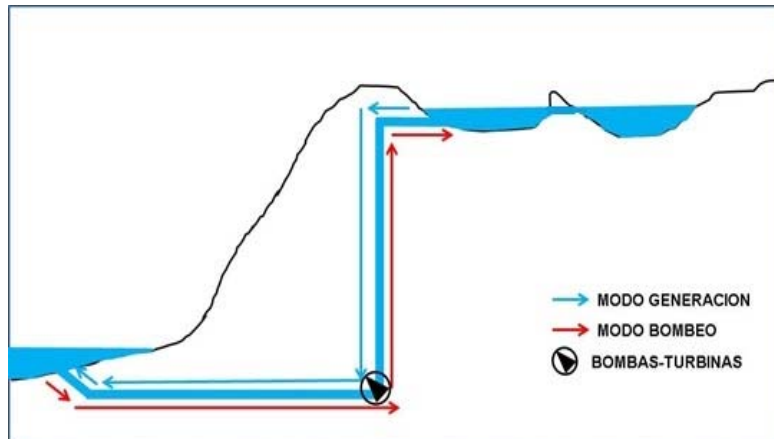
The installed power will be of 300MW and it will have three reversible hydraulic turbines of the Francis type of 100 MW each.

In its operation, during the day it'll pump seawater through Pumping Equipment-generation which will be carried through a tunnel to Natural concavities located at 585 M.A.S.L. These concavities will be covered by a bituminous membrane and the reservoir of seawater to be generated will have an area of approximately 375 ha, at an approximate height of 609 M.A.S.L. This reservoir will accumulate seawater pumped during the day. Then, during the night, the plant will operate in generation mode, the accumulated water in the reservoir will flow by gravity towards the sea, taking advantage of the height between the coastal border and the plateau, going through the same pump-generation equipment, this time to generate Electricity

The point of intake and discharge of water in the sea is the same, since the plant is reversible and will use the same works and machines for the circulation of seawater in pumping mode and in generation mode. All these works are in the commune of Iquique.

The following figure presents a diagram that charts the reversible operation mode of this control unit.

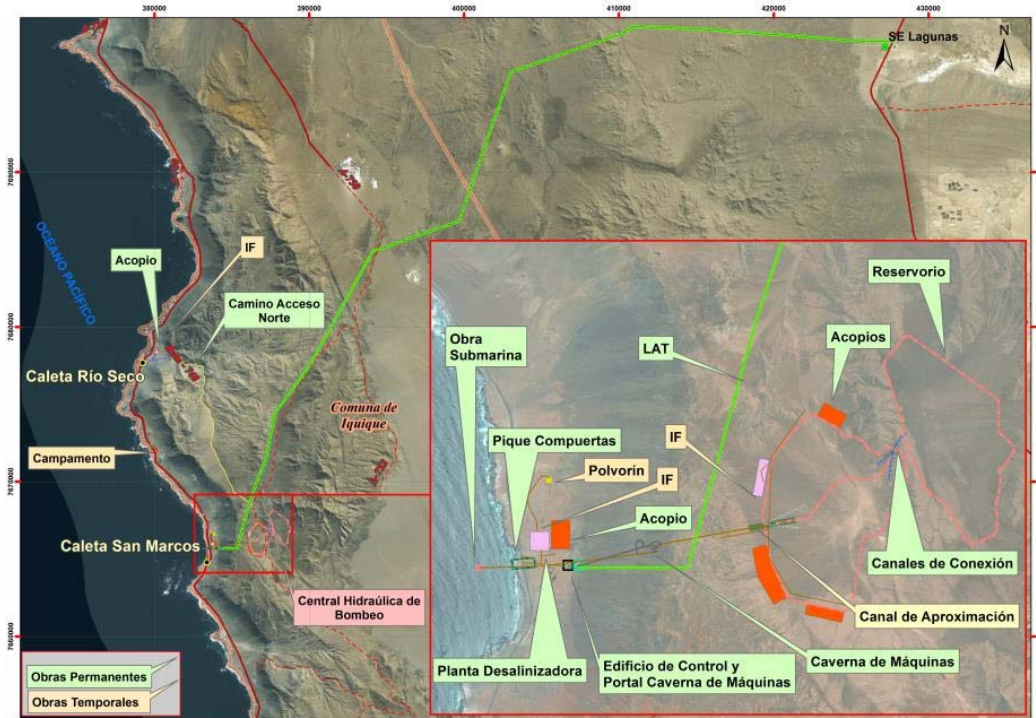
Figure 6-1. Representation of the Operation Reversible : Pumping/Generation.



An annual average generation of 1.75 is estimated Gwh/day which will inject electricity into the existing Lagunas substation of the large North interconnected system (SING) by means of a 65 km long electrical transmission line (LAT). The last 35 km approximately, of LAT are in the commune of Pozo Almonte.

In the following figure you can see the location of the works of the project.

**Figure 6-2. Works of the project**



The point below explains the requirements for the presentation of this chapter.

## 6.2. Potential Rlesgos for the Savalanche of the Population referred to in LEtra a) of the Article 11 of the LEY 19,300

One of the MoDlcations Background Introduced by the D. S N ° 40/2012, it says relation to rectify the emptiness produced in those situations in which the proprietor From a Project or activity Entered To SEIA through A EIA For generating risks to the health of the population in the terms of literal a) of artLaw No. 11 of the Act N ° 19.300; Yes(n) that there exists a primary quality or emission standard in the Chilean legal system or in the reference States referred to in article 11 of the same normative body.

The solution incorporated by the new normative text for such situations is enshrined in article 18 (literal h) of the same legal body. In fact, the standard requires as an obligation when the assumptions referred to in the preceding paragraph are presented, the obligation The Incumbent

on including A specific chapter on the potential risks that the project or activity could generate in people's health.

The same article 18 literal h) indicates the minimum contents Of the chapter, demanding At least, Is following factors:

- Indication of which emissions, effluents or residues of the project or activity generate the effect referred to in (a) of article 11 of the Act, indicating its quantification and characterization, including its toxicological information which shall include, inter alia, the nature of the health effects that may occur from such exposure and reference doses (RfD) and/or reference concentrations (Rfc) for non-carcinogenic contaminants or the slope factors for carcinogenic pollutants (CSF);
- Description of the means and mechanisms for transporting and transforming such emissions, effluents or waste, as well as their final destination;
- Identification of the population potentially exposed, including the population of greater exposure and of greater susceptibility to exposure, its size, location and sociodemographic characteristics;
- Identification of potential and complete exposure routes of the population to pollutants, through the elaboration of a conceptual model incorporating potentially exposed sources, pathways and population;
- Estimation of the level of exposure for each identified route of exposure that should consider the prediction of impacts on the physical components associated with such pathways, as well as the frequency, duration and contact rate of the population exposure;
- For carcinogenic agents, the estimation of the incremental risk of developing cancer based on the slope factor, or equivalent, and the daily dose of chronic exposure;
- For non-carcinogenic agents, the comparison of the level of exposure with the dose and/or reference concentration, or equivalent; And
- Analysis of the uncertainty of the results, as well as the detail of the assumptions considered for the calculation.

Notwithstanding the foregoing, and in accordance with the provisions of the AnálilIncome relevance sis (Chapter 5) The project "Espejo de Tarapacá " does not enter as EIA and(n) virtue of the provisions of article 11 (a) of the Law N ° 19.300 In relation to article 5 Of the SEIA regulation, Whenever it generates neither Presents effects, characteristics or circumstances involving risks for the health of the population.

In particular, The emissions, waste and effluents of the project during its phases, have primary standards of quality or emission, All in force in Chile. Indeed, and in direct Relationship to

Chapter 5 In that part that discards the potential risk to the health of the population, Is verified L(a) Identification of emissions, effluents and waste Derivatives by Project in all its stages, identification that allows Conclude that all of them They are regulated by national regulations. Therefore, the application and development of this chapter is ruled out.