Chapter 8: Contingency and Emergency Prevention Plan

EIA Espejo de Tarapacá

Region of Tarapacá, Chile

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8. PLAN OF PREVENTION OF CONTINGENCIES AND EMERGENCIES

8.1. 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.

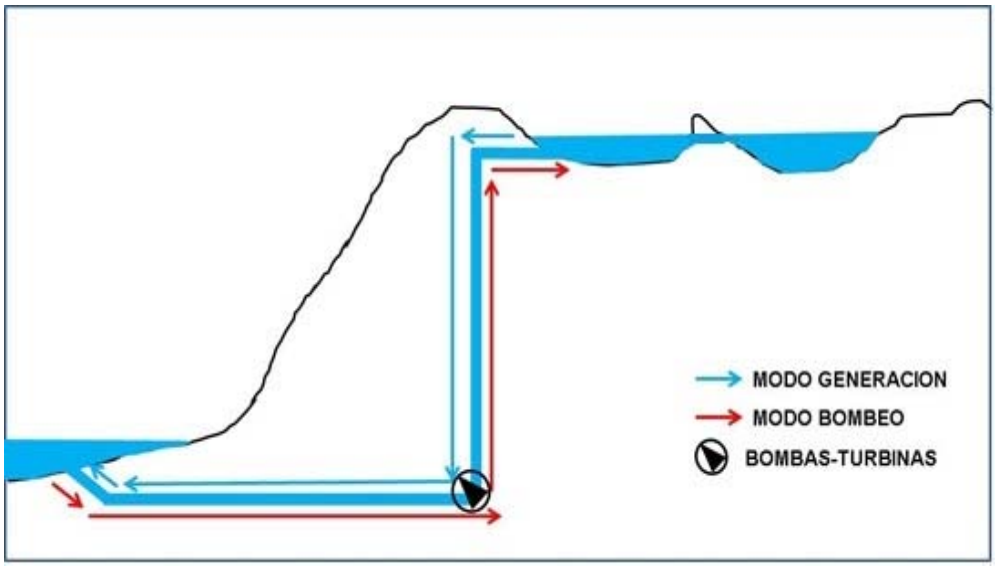
The installed power will be 300 MW and It will have three reversible hydraulic turbines of the Francis type of 100 MW each.

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 8-1: Representation of the Operation Reversible: Pumping/Generation.



Source: Self-elaboration

An annual average generation of 1.75 GWh/day is estimated to inject electricity into the existing Lagunas substation of the large North interconnected system (SING) by means of a 65 km long power 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 8-2: Works of the project

Source: Self-elaboration

The present Chapter Details and Plan of prevention of Contingencies and The Plan of Emergencies for the Project Espejo de Tarapacá, According to the D.s. No 40/2012 of the Ministry of the Environment, That approves the Environmental impact Assessment System regulation So what It seeks to avoid the occurrence of adverse effects on the population or the environment and to allow effective intervention in situations that alter the normal development of this project or activity and that could cause damage to life, human health or the environment. As indicated in title III, Letter J) of article 18 of the Regulations of the Environmental Impact Assessment System (RSEIA), an environmental impact study should contain environmental risk prevention and accident control measures, as Established in paragraph 2 of title VI of the Environmental impact Assessment System (RSEIA).

The Plan of prevention of Contingencies It contains the operational measures and design criteria designed to prevent or minimize the occurrence of accidental risk situations for the person and the Medio AmbiEntity. The objective of this Plan is to identify potential contingencies with consequences of total or partial disruption of activities inherent in service operations, which may pose a risk to people, resources, or the environment.

On the other hand, EL Plan of Emergency is intended to protect the life and safety of People, The TRA And the environment, as well as Minimize the loss of equipment and materials resulting from the emergency, in the eventuality that The contingency prevention Plan Be overcome. EL Emergency Plan defines Policies, organization and methods, which Will take Out at the time of facing An emergency or disasters, Both in the General as in the particular.

8.2. ToLcances

The present Plan of prevention of Contingencies and emergencies It is applicable to all personnel working in the construction, operation and/or closing of the project Espejo de Tarapacá, Whether these hired By The Holder By the main contractor, or by Subcontracts and external.

It is important to note that The headline In general, And EL Project In particular, Has A risk prevention strategy that incorporates considerations to the management and/or administrative control of Their Contractors And Operators in the Different stages of development to protect the life and safety of workers and the environment, in addition to minimizing equipment and material losses.

8.3. Definitions

Accident: Any incident whose consequence is UA direct and measurable loss, be it injury to people, damage to the environment or Losses Materials.

Emergency: Unforeseen event that generates or can cause damage to people, facilities, equipment, environment and/or community.

Minor emergency: An emergency that only involves environmental-localized condition, not having injured or directly affected people.

Major emergency: Emergency involving damage, injury or death of people and damage to the environment Or Only Damage to the environment on a large scale.

Evacuation: ToBandono of a control room, building, Office, local, enclosure, Working front, installation of operations, etc., in the face of an emergency.

Incident: Any unwanted unplanned event that can generate negative consequences in the system (Pollution Affection for the environment, Damage, injury, loss, etc.).

Accident control measures: Set of measures that They are intended to intervene effectively in events that alter the normal development of a project or activity, as long as they can cause harm to life, health or the environment.

PEE Emergency meeting point.

Plan of Emergency: Plan What It contains the measures to be taken to control and minimize Impacts on the eventuality that the prevention Plan Contingencies Environmental is overcome, Derived from the eventual occurrence of situation Natural or operational ones.

Contingency prevention Plan: Plan that defines LAs measures Whose Purpose Is Reduce or prevent unfavourable or undesirable effects on human health or the environment, which could lead to loss, Significant decrease, detriment or impairment to one or more elements thereof, as a result of the execution of the project or activity.

Risk of occurrence of natural phenomenals: Corresponds to the risks associated with phenomena other than normal operation Of the project such as earthquakes, earthquakes, floods, etc.

Emergency Coordinator: The person in charge of leading and coordinate The actions to follow in the face of an emergency.

Head of EMerger: is the Designated person By the administration of the company, Being the Directly responsible for the execution of the Work and Operation In the field, managing human and material resources In the face of an emergency.

8.4. Responsible

The main responsible actors within the Contingency prevention Plan Are the Supervisor And all workers directly contracted by the holding company or by contractor or external companies.

Supervisor: is responsible for the control of situations that may generate an emergency (Emergency coordinator), you must conduct inspections of the areas, materials and equipment that may be the source of an emergency and take the appropriate preventive measures.

Workers: Must Actively participate in reporting situations that could generate an emergency, as well as abide by instructions given by your Supervisor whenever an emergency occurs.

8.5. Origin of the Planes.

According to what is stated in The Article N º 102, N º 103 and N º 104 of the DS N ° 40/2012 of Minister of Environment that APRUEBTo the regulation of the Seia, The following is established:

Article 102.-Provenance of these plans.

If the description of the project or activity or the characteristics of its place of location, it is possible to deduce any situations of risk to the environment, the owner must propose a contingency prevention plan and an emergency plan.

Article 103.-Contingency prevention Plan.

The plan should identify situations of risk or contingency that may affect the environment or the population and describe the actions Or measures to be implemented to prevent these from occurring or to minimize the probability of occurrence.

Article 104.-Emergency Plan.

The plan should describe the actions to be implemented in the event of aTo Emergency. The objective of these measures is to control the emergency and/or minimize its effects on the environment or the population.

I agree To the above, the project Must perform A Contingency prevention Plan And a Plan of Emergencies, The basis of these considerations is from Chapter 1 Description of Project and Chapter 3 of baseline of this EIA.

8.6. Identification Of Risks

The expected risks, By Each Stage of Development of Project, Whether of natural origin and Anthropic, are indicated in Table 8-1And Is Detailed later.

Table 8-1. Risks identified by phase of the project.

Risk		Phases		
		Construction	Operation	Closing
Natural	Earthquake	X	X	X
	Tsunami	X	X	X
	Mud and flood flow	X	X	X
	Sliding and Landslides	X	X	X
	Tidal waves	X	X	X
Anthropic	Spills at sea	X		X
	Land spills	X	X	X
	Fire	X		X
	Traffic accidents	X	X	X
	Use of equipment and heavy machinery	X		X
	Transport, Storage Manipulation and use of explosives	X		X
	Land movement	X		X
	Dismantling of equipment			X
	Immersion	X	X	

Source: Self-elaboration

8.6.1 Description of Natural hazards

Natural risk is the probability of occurrence of catastrophic natural events with consequences for the population, the built environment and/or natural resources, and whose cause or trigger factor is Lazio With the structure and dynamics of meteorological, geomorphologic, hydrological, seismic and/or volcanic (floods, mass removals, etc.).

Whereas there are risks or geological hazards inherent to LA nature of the land Which are the coastal plains, the FArellón Coastal and the Cordillera de la Cost Where The project works will be inserted, has been defined The disposition of installations and surface works seeking to minimise the impact of such risks, in the event of catastrophic phenomena occurring. is so What As to face the construction period has been arranged to locate The Installation Ones of tasks In safe places, in addition to the implementation of the alarm systems that allow the timely evacuation and safe transit of the personnel in the eventuality That there should be an

emergency for this concept. On the other hand, in the designs of the works and routines of operation have been incorporated the necessary safeguards to avoid damages to third against the eventual occurrence of some natural phenomenon of catastrophic characteristics.

It has also been addressed, from the point of view of engineering, the prevention and control of other risks inherent to the typology and size of the project, and the characteristics of its insertion area, aspects that have been included in the design considerations And programming of works, described in the chapter 1 EIA, Project description.

These risks were identified in The baseline Geology and geomorphology Perform To For this EIA.

8.6.1.1 Risks Of Earthquakes

Chile is one of the most seismic countries on the planet, on average, every ten years there is an earthquake of magnitude greater than 8 in some part of the territory. The level of seismicity is such that since 1962, there have been more than 4,000 earthquakes of magnitude greater than 5 (Madariaga R., 1998).

The largest earthquakes in Chile originate mainly in the Chilean-Peruvian oceanic fossa which corresponds to a subduction mechanism of the NAZCA plate under the South American Plate, at a distance from the coast that can vary between 100 and 200 km.

The Department of Seismology of the University of Chile (National Seismological Service) has seismic stations distributed throughout the country in order to monitor and catastrar the totality of earthquakes occurring in the national territory.

The area of interest in this study, between 19 ° S and 22 ° S, is characterized by high seismic activity.

The part of the project located in the relatively flat areas of the Cordillera de la Costa, presents a low to zero seismic risk. However, the part of the project located on the coast and the coastal cliff, presents a high seismic risk, not direct in relation to the destruction of works, but indirect by the generation of processes of removals in masses in areas of steep slope, as Consequence of such a seismic event, and/or the occurrence of a possible tsunami.

In the Annex 8-1 It Adjunct To "Seismic risk assessment, coefficients and seismic spectrum, Project Espejo de Tarapacá". In this study se have defined two earthquakes design, each of them associated with two seismic sources that control the seismicity of the project sector for two maximum credible conditions (MCE) and operational (OBE). Based on these four design earthquakes, the seismic coefficients and the design spectra associated with this project have been proposed.

The seismic design for the maximum credible earthquake condition (MCE) is controlled by an earthquake subductivo interplate type thrust of Mw = 8.8 with an average hypocentral distance of 80 Km to the installations of the Central Mirror project of Tarapacá. In the case of the operational earthquake condition (OBE) The seismic design is also controlled by an earthquake subductivo interplate type thrust with the same average hypocentral distance of 80 km but of magnitude Mw = 8.0, similar to the earthquake of Iquique of April 1 Of 2014. The extensive results of this study are presented in AExo 8-1.

8.6.1.2 Risks Of Tsunami

Chile is one of the main tsunami generators in the Pacific Ocean. Indeed, "tsunamigénicos" earthquakes are usually associated with subduction zones, and since many subduction zones are bordering the Pacific basin, the vast majority of tsunamis have occurred in the Pacific Ocean (Hydrographic and Oceanographic Service of the Navy, http://www.snamchile.cl/, November 2013).

The characteristics of a tsunami on reaching the coast They depend on the point of origin, The magnitude of the phenomenon that induces it; of the depth In which it occurs, Of the coastline configuration and the underwater topography.

The Hydrographic and oceanographic Service of the Navy (shoal), which has started from the year 1997 the execution of the project CITSU, which consists in the elaboration of letters of flood by Tsunami for the coast of Chile, indicates that in extreme cases, the level of the sea is the Evado to more than 15 m for tsunamis of distant origin and over 30 m for tsunamis detected near the epicenter of the earthquake and specifies that the flood can be extended to more than 300 m inland, covering extensive areas with water and debris, depending on the local topography.

To identify and specifically evaluate the potential risk of flooding in the area of interest of the project, a study of flood risk sector was developed Cromache Bay, region of Tarapacá by the DGEO of the University of Concepción, See annex 8-2.

8.6.1.3 Flow of BArro and ToLuvión

Mass removal processes are defined as "transport processes of slow or rapid mobilization material of certain volume of soil, rock or both, in various proportions, geneBy a number of factors (Hauser, 1993).

They are classified according to three main criteria:

- The speed of movement (slow or fast)
- The type of movement (mainly fall, slip or flow)

- The type of material you drag (rock, soil or debris)

In The region of Tarapacá In the Andean sector, Detrital or Alluvia flows occur as a result of high intensity rainfall occurring mainly in the winter period.

Alluvial flows occur from the abrupt collapse of a glacial lake or sporadic Rain (Hauser, 1993). According to Hauser (1993), these flows are defined as local and sudden or torrent of relatively large and short-lived volume, overflowing riverbeds in dry valleys, in semi-arid zones, transporting an enormous load of mud and rocky fragments, Generally linked to very sporadic rains, of short duration and of great intensity. Slopes greater than 25 ° in the headwaters of the watersheds, are favorable for the development of flows or Alluvia (Hauser,1993).

In the coastal zone and the flood zone, for having slopes less than 15 °, the risk is very low. Is A risk zone In the whole part of the cliff of the coastal cliff with slopes above 30 °, sufficient to provoke, In case of rain, Important detrital flows. On the other hand, it is important to consider that the impact of an episode of mud flow over the area of the coastal plains could be important depending on the amount of material removed.

8.6.1.4 Risks and landslides

Landslides are removals of masses of rocks and soils that slide according to more or less net breakage surfaces in a straight or derived form. By overcoming the cut resistance, it generates movement of the material that moves separately from the set with the same speed in all its parts, preserving its structure and its original shape (Hauser, 1993).

Rock falls are fast movements, mobilizing more or less homogeneous rocky volumes in a vertical area or steep slope. They consist of the release, by gravity, of blocks of rocks. In the presence of an earthquake can be generated from fractured rocks, meteorizadas, low resistant, in areas where the slopes are greater or equal to 40 ° (Keefer, 1984).

In the coastal zone and in the zone of flooding, the risk is mainly low by presenting slopes less than 10 °. Locally, in areas of higher slope corresponding to the hills surrounding the two reservoir basins (10 °-20 °), the risk is considered as a medium.

The area of the coastal cliff so an area northeast of the map has slopes above 20 ° and therefore present a high risk of landslide. Locally, the cliff has slopes exceeding 35 ° presenting in this case a high risk of Glide and Rock. The risk fell DA de Roca is present only locally in the coastal cliff where the slopes exceed 45 °.

8.6.1.5 Risks Of Tidal waves

During the construction stage of the project there is a risk that Tidal waves Endanger the construction and assembly facilities of the underwater intake, with risk also for the workers and the Environment.

TheS Tidal waves They also jeopardize the installation of operations on the beach.

8.6.2 Description of Anthropic Risks

The anthropic risk refers to accidental events whose origin or trigger factor is related to human activities. In the case of the project, these risks are mainly related to the construction activities and operation of the works.

8.6.2.1 Risk of DMiss Me CombustibleS, LubricanteS Or Substances Eligrosas In the MAr

There is a risk of fuel spillage, lubricant or hazardous substances To the sea by breakdowns, tipping and/or sinking of ships and supporting machinery for the assembly and construction of the intake during the construction stage. This risk also exists from the dumping of lubricants and fuel from the working front on the beach.

8.6.2.2 Risk of DMiss Me COmbustibleS, LUbricanteS Or SSubstances QEligrosas at TIerra

This type of risk is generated by the transport, storage and handling of some potentially dangerous materials such as gasoline, oil, machinery oil Paintings and solvents. The immediate consequences Direct By the spillage of dangerous substances range from injuries, Burns, asphyxiations, among other, for people and wildlife. This type of risk will be present during the construction, particularly associated with the transfer of inputs required for the execution of works and their temporary storage in the installation of operations.

This risk is also present in the operation stage as it will be carried out Transport, storage and manipulation of solvents, paints and lubricants for the maintenance of structures and machinery.

This risk is not considered at the closing stage because of its low probability of occurrence.

8.6.2.3 Risk of fire

The risk of fire refers to a condition that may contribute to the onset or propagation of the fire and may pose a danger to the lives of persons and/or Public and private property.

In the case of the project, in the construction phase it is possible to find this type of risk in the fuel storage enclosure, In the Installation Ones of slaughter or other substances used. This risk Also will be present in the operation phase In the hazardous waste cellar and inside the Cavern of machines. In the closing stage the probability of occurrence of an In Cendio is low considering The main activity is The Demobilization.

8.6.2.4 Risk for ToCcidentes TRánsito ToPartners in the project

It implies the occurrence of collisions against fixed obstacles or collisions between two vehicles, abuses and overturns. In this respect, misleading manoeuvres, unfavourable climatic conditions, condition of roads and maintenance of vehicles influence him. This risk will be present in All Stages of development of the Project (Construction, Operation and closing), whereas there will be a permanent vehicular flow.

8.6.2.5 Risk By USe of EQuipments and machineriesMAquinaria QEsada

This type of risk is associated with the use of Equipment and heavy machinery in the Temporary and permanent works of the project In the phase Of Construction. Equipment and Machinery Considered Are: (Hopper trucks, Backhoe, grader, bulldozer, welding machines, caterpillar.

This risk Also will be present in the phase of Closing the project. En the phase of Operation is not considered, since heavy machinery will not be used.

8.6.2.6 Risk for transport, Storage, loading And use of explosives

This Type of Risk is located Associated with the activities of storage (gunpowder), transport Loading and use Blasting of explosives, For the construction Of Tunnels, access road, Port of Adduction and Norwegian shooting. This risk is not present in The Operation and closing of the project.

8.6.2.7 Risk for associated with tunnel construction

This type of risk Is Associated with tunnel construction activities of Adduction, Roads and dump.

This risk is not present in the operation phase.

The Risk is present at the project closing stage in the ESC disposition activitiesShoulders, road leveling, Restitution of reliefs, Filled with tunnels and portals.

8.6.2.8 Risk for mounting of equipment

This risk is present exclusively in the dismantling activities of floodgates, grids, withdrawals of equipment and electromagnetic elements in the closing phase of the project.

8.6.2.9 Risk of immersion

This risk is present in the activities of filling the reservoir during the construction stage and during the operation of the project, to the fall of people or animals to the reservoir. Given the constructive characteristics it is estimated that the risk of occurrence will be low.

8.6.3 General Risk prevention Strategy

The owner has a general risk prevention strategy that incorporates some measures to the project in its different stages of development (Construction, operation and closure). This strategy has the following components:

8.6.3.1 Incorporated Measures in the Layout INgeniería of the project

From the engineering studies carried out we have incorporated measures aimed at preventing and/or minimizing the risks associated with this type of project. These measures will be ratified by the future basic engineering studies and other considerations assumed by the contractor prior authorization of the holder**.**

8.6.3.2 Verify system the compliance of the current regulations

Both engineering design and construction programs will consider the full compliance of current regulations. This regulation refers to aspects related to the sanitary and environmental conditions of workplaces, accidents and illnesses, risk prevention, health and safety. In this context, The headline It shall ensure that each of the requirements and conditions established by law are fulfilled.

8.6.3.3 Technical supervision of the construction

The headline It will count, as part of the technical supervision of the works, With a specialist in Terrestrial and marine fauna, who will undertake, prior to the field preparation activities, To Inspection In areas that will be affected by the project, Considered individuals from The fauna That can be avoided.

The field supervision of a wildlife specialist shall be applied as a preventive measure, who shall oversee the work in the field, at the beginning of these, As during its development, with a quarterly frequency.

In the event that the presence of conservation interest species is detected during this supervision, complementary measures of transfer or others measures As appropriate, according to the vulnerability of the specimens detected and the type of works. Reports of expert supervision will be sent to the relevant authorities.

8.6.3.4 Technical Training for project workers

The headline Manage the realization of Technical training for project workers, on topics of terrestrial flora and fauna and aquatic, through pamphlets and talks, so as to create awareness and procedures for the protection of Flora and The Fauna, and restrictions on cutting, gathering, chasing, repelling and hunting.

8.6.3.5 Internal risk Control Programs

The headline will require its construction contractors The fulfillment of An internal regulation of order, hygiene, Security and environment which will be applied at all stages of project development. Its contents, scope and supervision shall be in accordance with the requirements of the current regulations.

The Holder Will have an emergency plan in the installation of operations, the one that will be coordinated with the prescriptions that in this matter establishes The law. All contractors and subcontractors must subscribe to this plan and incorporate it into their activity.

Additionally The headline It will ensure that the facilities are equipped with sufficient equipment and infrastructure to deal with any emergencies that may occur during the development of the project.

With regard to occupational hazards, those contained in the Health Code and Supreme Decree No 594 on Occupational safety and environment shall be considered, some of the relevant elements of which are:

- Safe workplaces that meet the requirements set out in the Minsal DS No. 594 on basic sanitary and environmental conditions in the workplace.

- Systems and working methods which do not involve risks to health, the environment or safety, such as: fire control and protection programmes, transportation of fuels and specifying their modes of operation in standards or Instructions of the security associations and superintendence of electricity and fuel.

- Suitably trained personnel to recognize, evaluate and control hazards in workplaces, whose occurrence causes A deterioration of the environment, established in the D. S N °

40 of the mystery of work and social welfare approves the regulation on prevention of occupational risks.

On the other hand, inside the installation of tasks, safety zones will be defined as evacuation areas before any seismic event, avalanche or landslide, and IncEndio.

This Plan will consider keeping Always communication and areas of work with health services personnel, firefighters, Carabineros, ONEMI, etc.

8.6.4 Measures Of Prevention of Contingencies.

In the Following tables General measures are indicated Of Prevention of Contingencies To be be applied if one or more of the risks mentioned above are generated during the different stages of the project.

Table 8-2. Contingency measures ToDoptadas for natural hazards.

Risk	Measures Of Prevention Contingencies
Mud and avalanche flows	Construction Stage: • To prevent damage to people and facilities the Location of the operations facility has been carried out outside the areas at risk of mud and avalanche flows. • If you detect this Situation will be activated's ATo Alarm. • Staff should approach meeting points if the Emergency coordinator says so. These points of encounter They'll have to be signposted. • Be done's A monitoring of the affected area To assess and report damage To the relevant authority, if the environmental or community condition so merits. • The use of heavy machinery will be managed to clear the affected areas. Operation Stage and closing • During the Operation Cap, Central will have A contingency prevention Plan And Emergency, which will include the indications Given for the construction stage and that In this matter set the RCA.
Landslides and landslides	Construction Stage: • To prevent damage to people and facilities LA location of the facilities, has been defined, outside the areas exposed to gravitational phenomena. • Without prejudice to the above point, in those areas of site construction, service roads and installation of operations, the slope of the cuts will be adapted to the characteristics of soil stability. • Containment measures of sectors especially sensitive to the risk of slipping will be implemented. Techniques such as containment nets, revegetation and/or terracing of slopes are considered. • Inspections will be carried out on slopes and embankments in such a way as to detect deficiencies in the handling of slopes, which can give rise to situations of risk. Operation Stage and closing • During the operation stage, the plant will have a contingency and emergency prevention Plan, which includes the indications given for the construction stage and which in this area establishes the RCA.
Tsunami	Construction Stage: • Not to be located's The InstallationOperations in areas exposed to flooding. Operation Stage and closing: • During the operation stage, the plant will have a contingency and emergency prevention Plan, which includes the indications given for the construction stage and which in this area establishes the RCA.
Earthquakes	• The design of engineering and the construction of the project's facilities comply with national and international standards of seismic resistance. • In case of occurring A In any of the stages of the project will be activated's The emergency Plan. • The affected area will be monitored to assess and report damage to the relevant authority, if there is Community environmental damage.
Tidal waves	Construction Stage: • We will take knowledge of the sea conditions every day on the official site of the Shoah before the daily work planning • No work will be done in areas exposed to waves and winds during the storm. • Rescue teams will be installed in case of immersion. Operation Stage: • The sea conditions will be taken up every day on the official site of the Shoah prior to the planning of the maintenance work. • No work will be done in areas exposed to waves and winds during the storm.

Source: Self-elaboration

Table 8-3. Contingency measures For anthropic risks.

Risk	Prevention measures of contingencies
Risk of spillage of fuel, lubricant or hazardous substances in the sea	Associated security measures: • This risk is associated with failures and/or tipping that can be suffered by vessels, marine cranes and auxiliary vessels for the construction and assembly of the intake in the sea. • In each operation the correct state of the fuel tanks, crankcases, motors, lubricating and fuel sleeves of the boats and machinery will be verified, as well as the correct state of the hydraulic oil hoses of the machinery to Use. • The drivers of Vessels and marine machinery shall have the licences and permits granted by the maritime authority for the handling of vessels and maritime machines up to date, As well as in first aid procedures and control of eventual spills (includes the instruction of the procedures associated with the handling of dangerous substances). • Before a spill the boat operator or machinery must stop The engine The main and auxiliary engines if any and stopPesti Any source of ignition if possible. • If there is a spill it will be treated To stop it, without risking its own safety. • The spill arrest kit will be used for fuel or oil stain • Once the stain is controlled, it will be used to collect the fuel or lubricant stain using a skimmer or other manual method. • Security measures associated with storage and handling: • It is not considered storage or manipulation of these substances in the sea. Operation Stage: • The same precepts as in the construction stage during the inspections or maintenance of the intake will be observed.. Closing stage: • Ditto to the measures indicated for the construction phase.
Risk of spillage of fuel, lubricant or hazardous substances on the ground	Safety measures associated with transport: • The transport of fuel will be carried out by authorized companies. • The transport of liquids, such as fuel and others which may be required in the slaughter, shall be governed by the provisions of the legislation in force. • The carrier or driver shall have the appropriate licence, together with the training necessary to respond in the event of accidents, with spillage of the substances transported. • The drivers of transport vehicles will have training in handling and handling of the substances they carry, as well as in first aid procedures and control of eventual spills (includes the instruction of the procedures associated with the handling of hazardous substances). • Security measures associated with storage and handling: • Personnel will be trained to handle and store this type of substances in the facilities of slaughter. • A special storage area for these materials shall be available to the interior of the slaughter plant, which shall be duly signposted and conditioned according to the provisions of the competent authorities. • The fuel and oil drums will be placed on wooden pallets or other devices in order to facilitate their transport and to avoid the humidity and corrosion of them, because of the direct contact between the drums and the ground. • It will be available in this area of elements that allow the containment of spills of medium magnitude. • The enclosures of these substances shall have the respective safety sheets, which shall contain, among other data, the characteristics of the substances, their risks and the emergency procedures to be activated in the event of a risk statement. • The fuel load to machinery and equipment used during construction will be done in a

Risk	Prevention measures of contingencies
	previously defined and clearly demarcated area • Exchange oils and other oily wastes shall be stored in suitable places and in empty and closed drums for later disposal in approved locations or returned to suppliers. • It should be noted that for the operation of machinery and motor vehicles to be used in construction works, oil will be required Diesel And petrol, which will be supplied by local distribution companies. • Under DS No. 379/86 of the Ministry of Economy, which regulates the storage of liquid fuels derived from oil destined for own consumption, contractors will be required to register fuel ponds in the records of the Superintendence of electricity and fuels (SEC), provided that they have a capacity exceeding 1.1 m3, otherwise it will not be necessary to register in that register. Operation Stage: • Ditto to the measures indicated for the construction phase. Closing stage: • Ditto to the measures indicated for the construction phase.
Fire in the slaughter area	Construction Stage: • The Contractor shall be governed by the measures and obligations established by Spejo de Tarapacá SpA To minimize the risk of fire. • In the installation of operations, specially-enabled enclosures for the storage of fuel and other flammable substances shall be constructed. Flammable materials shall be kept in an orderly and classified form inside the enclosure. The risk prevention will carry out a permanent inspection, detecting possible failures in the procedures of handling these substances. • The contractors shall have the basic elements required to combat any hint of fire or fire in the areas of work and installation of operations, as established by the regulations in force in this area (extinguishers, hoses, sand drums , etc.). • The affected area will be monitored to assess and report damage to the relevant authority if there isn Environmental or community damage. Operation Stage: • For the type of works, no special actions are contemplated for fire events during this stage, except those established by law. Closing stage: • Ditto to the measures indicated for the construction phase.
Traffic accidents	Construction Stage: • Road safety training will be given to all drivers involved in the construction and operation of the project. • An internal regulation of good conduct for the safe driving of vehicles will be executed. Failure to comply with this Regulation shall be grounds for immediate dismissal. • The staff to hire to handle the trucks, buses or machinery, will be qualified staff, with driver's license per day. They will be required to leave as stated in the Traffic Law (No. 18,290). • The contractor will implement a formal procedure to deal with traffic accidents that allow the emergency to be addressed in a timely manner, which remains inside each cargo vehicle. • Drivers will be trained on the actions to be followed before a casualty in the route. • Proper signage will be implemented in the construction area • The weight of trucks loaded with equipment or materials shall not exceed the maximum permissible according to the routes/bridges being used. Otherwise, the corresponding permissions will be obtained from the direction of the roadway in each case.

Risk	Prevention measures of contingencies
	Operation Stage and closing: • Ditto to the measures indicated for the construction phase.
Use of Equipment and Heavy Machinery	Construction Stage: • The contractor will implement a formal procedure For The operation Que Allow to attend Safe way to drive and operate machinery, which will remain Inside each team. • Operators and drivers will be trained Regarding the actions to beGo to a sinister. • Proper signage will be implemented in the construction area • The operation of equipment Must not exceed the maximum permissible According to the Manual of Operation. • Is Implement's A maintenance plan of equipment and machinery. • If any intervention of an archaeological site is detected, the work must be stopped in that sector and informed to the authorities. • The supervisor will be responsible for guarding the archeological site under the same conditions as Detected. Operation and closing stage: • Special actions are not envisaged during this stage except those established by law.
Use transport, storage and Manipulation of explosives	Transport safety measures • The faithful fulfillment of the Chilean standard NCH 383-of. 55 security measures in the storage of explosives. • The faithful fulfillment of the Chilean standard NCh 392-of. 60 containers for the storage and transport of explosives and ammunition. • The faithful fulfillment ofL DS No. 83/2007, Ministry of National Defence, Regulation COmplementario of Law 17,798, About COntrol ToRMS and Similar elements. • The respective signalling shall be installed in all sectors where necessary Explosives manipulation. • All operations involving use of explosives will be carried out by personnel Specialized, and applying the requirements of the expert in risk prevention. • Any vehicle for the transport of explosives shall be conducted only by personnel Authorized. • The driver of the explosives transport truck must be in possession of the Explosives handling license To the day issued by the relevant service in this matter. • The explosives transport vehicle must be in good mechanical condition to Which, the supervisor You will verify that the maintenance records are located A day. • The driver must perform a check-list DIario before taking start the transport. • Every transport vehicle must have the following implementation of Security: - 2 extinguishers of 10 kilos - 4 N FlagsEgra/Yellow - 2 side signs with "explosives" Legend (orange background with black letters) 20 X 80 cm. - Electric Breaker - Two ground chains - Exhaust pipe covering with insulating material and spark arresting system. Security measures handling • In order to operate with explosives, only properly instructed persons can be designated and Who is registered as a manipulator of explosives before the Directorate General of National Mobilization (DGMN). • People who handle explosives must be aware of the responsibility they acquire and the care they must have in respecting the instructions they have received from the supervisor. • Personnel carrying, handling and using explosives, smoking, carrying matches and

Risk	Prevention measures of contingencies
	artifacts that produce open flames or emit sparks or heat are strictly prohibited. • It is prohibited to carry out any other activity outside the loading of explosives, less than 50 M The place where the operation will be executed. Only persons responsible for the blasting and control supervision may be present. The safety area must be properly marked with yellow black cones and signs with the legend "explosives, do not pass". • The contractor will implement a formal procedure for the Explosives handling that allows to attend Of Safely This activity. Security measures Storage • The magazine must be authorized by the relevant authority in this matter, which will also be built with all the measures and conditions required by the DS No. 83/2007, Ministry of National Defence, supplementary regulation of Law No. 17,798, on Control of weapons and similar elements. • The magazine must remain closed, except when the explosives are stored or removed. Only the amount authorized by the auditing authority must be stored. • It is forbidden to enter the installation of the Powder keg Smoking, with matches, lighters, heating devices and any object that could produce sparks or heat • In the explosive tank, a grounded copper bar must be maintained, so that people entering, discharge static electricity from your body and clothing. • At the time of receiving explosives, the magazine must suspend all offices. • The magazine must be kept permanently clean, both inside and outside. • Tools used to open boxes and drawers must be made of wood or non-sparking materials or accumulate static electricity (wedges, decks, etc.). • The magazine will be in charge of a person responsible for the movement of the explosives (reception, storage, delivery), who will have to take control in the authorized systems and registration forms, of all the elements delivered to his custody. Operation Stage: • are not contemplated The use of explosives in these two stages. Closing stage: • The same precepts as in the construction stage will be observed.
Ground movement	Construction Stage: • The contractor will implement a formal procedure to The operation that allows you to take care of Securely ground motion. • The constituent will have a permanent topography team to control the different works to be executed. The escarpment and project geometry will be verified at location and dimensions for each layer of material being removed or placed. • Operators and drivers will be trained in the actions to be followed in the event of an accident. • The signalling will be implemented for the marine and rubble collection areas. • The operation of equipment shall not exceed the maximum permissible in accordance with the operating manual. • A maintenance plan will be implemented of equipment and machinery. • If any intervention of an archaeological site is detected, the work must be stopped in that sector and informed to the authorities. • The supervisor will be responsible for guarding the archaeological site and will notify the management of the project, who will notify the CMN. Operation Stage and closing : • During the operation and closing phase, it will include the indications in this area of the RCA.
Dismantling of equipment	Stage of Closing: • The contractor will implement a formal procedure for the operation to ensure that the

Risk	Prevention measures of contingencies
	dismantling is safely addressed. • Operators and drivers will be trained in the actions to be followed in the event of an accident. • The operation of equipment shall not exceed the maximum permissible in accordance with the operating manual. • A plan for the maintenance of equipment and machinery will be implemented. • During the stage Of Closing Is It shall include the indications set out in this area of the RCA.
Immersion risks	Construction Stage: • The contractor will implement a formal procedure for the operation that allows Sure a drop in the water. • The principal will have rescue and resuscitation teams in case of emergencies. • Operators and drivers will be trained in the actions to be followed in the event of an accident. • It ImplemEntará the signalling indicating the risk of immersion and its preventive measures. • The operation of equipment shall not exceed the maximum permissible in accordance with the operating manual. • Operation and closing stage: • During the operation and closing phase, it will include the indications in this area of the RCA.

Source: Self-elaboration

8.6.5 Contingency Measures for the Control of increase of the temperature of the Load From the Reservoir.

8.6.5.1 Background:

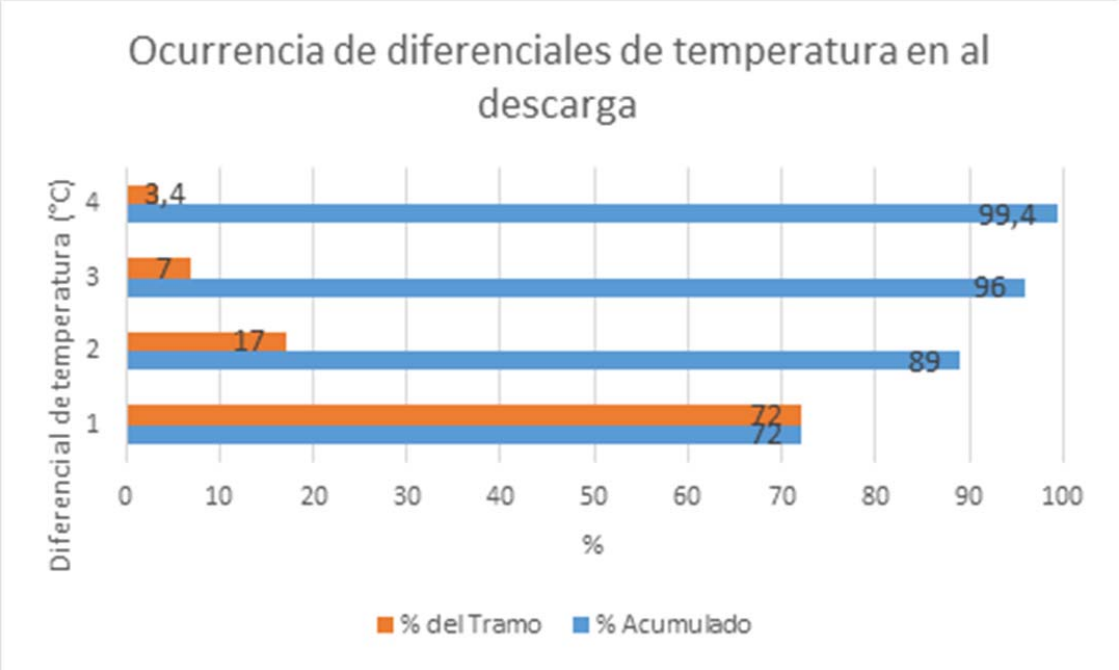
The project Espejo de Tarapacá considers a normal daily operation (24 h) which on average captures 45 m^3/s Seawater for 8 h/day, day and then discharge 28 m^3/s for 16 h at night, for the same work, located 343 m from the coast outside the Coastal Protection Zone (ZPL). It is estimated that the time of travel of the water from the reservoir since it is collected until it is restored at sea, through approximately 2,400 m of underground hydraulic works, is about 30 min.

According to the modeling carried out for the project Espejo de Tarapacá, one has to of the three parameters modeled in near and distant field, namely temperature, salinity and suspended solids, is the temperature of the water discharged from the reservoir the Variable where the results indicated the greatest variation. Therefore, it is there that the management of the contingency will be concentrated.

It should be noted that by the location of the point of discharge (and suction), outside the coastal protection zone, the parameters to be complied by normative correspond to table N ° 5 of the DS 90/2000 of MINSEGPRES. This table does not set a restriction on the discharge temperature and for the values in which it is set, the discharge complies.

By retaking the results of the modeling, in the Near field, at the time of reaching the sea, the temperature of the water in normal operation will behave as follows:

Figure 8-3: Occurrence of Temperature difference in the Load



Source: Self-elaboration

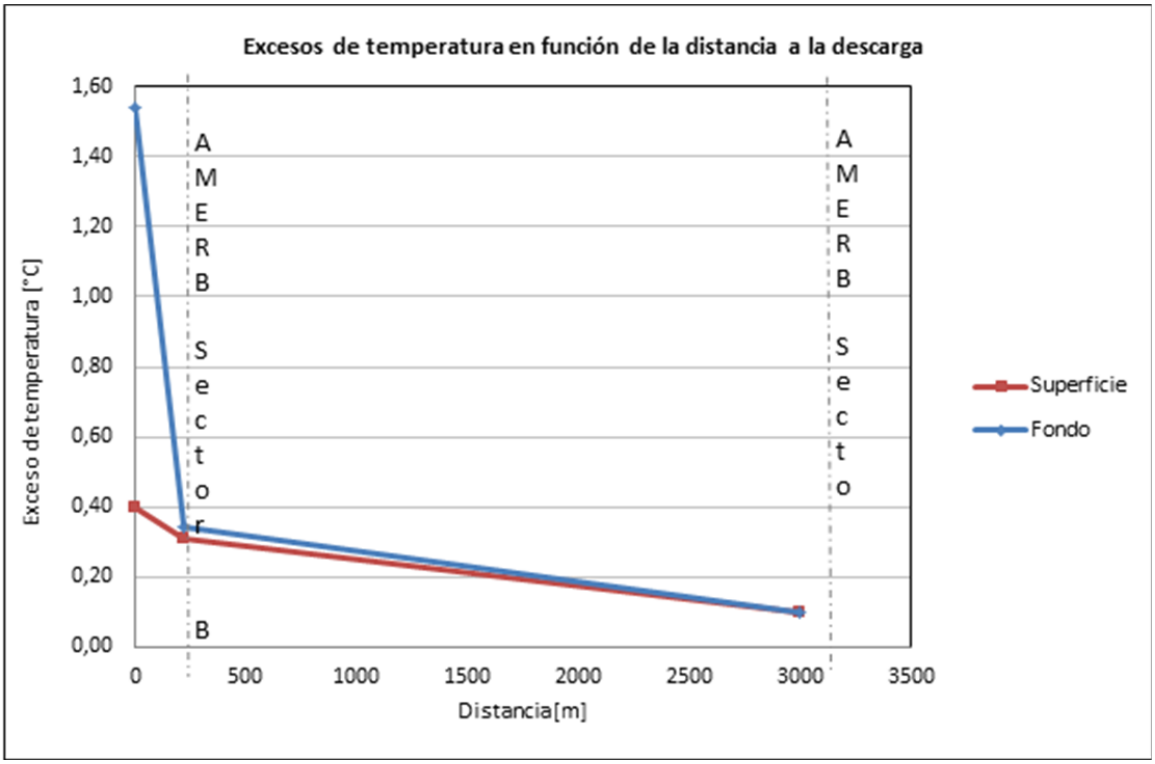
This means that 89% of the time the differential in the near-field discharge will be below 2 °c and 99.4% of the time under 4 °c at that specific point.

Seen otherwise, 72% of the time the differential will be under 1 °c, 17% of the time will be between 1 °c and under 2 °c of differential, 7% of the time will be between 2 °c and less than 3 °c and 3.4% of the time will be between 3 °c and under 4 °c.

The 0.6% of the missing time the differential in the near field will be between 4 °c and under 8 º C.

On the other hand, for distant field, the thermal dispersion pen indicates that the differentials as far as we move away from the discharge point are lower. The results for the spring season indicate that the maximum differential is below 1.6 °c.

Figure 8-4: Differential max temperature



Source: Self-elaboration

It should be remembered that, as mentioned above, the point of discharge is approximately 343 m from the coastal border for corresponding regulatory purposes. When analyzing the differential in field far from the AMERB B of Caleta San Marcos, whose closest point is its south-west limit to 155 m approximately of the discharge, we note that at that distance the temperature differential in spring is under 0.4 °c .

This means that no significant impacts are expected from the temperature of the discharge in normal operation.

In addition to the normal operation, two scenarios of extraordinary operation were modeled. These cases are exceptional since they correspond failures in the interconnected system of the large North (SING) events which by their nature are not predictable.

The longest typical SING fault of the last years of operation was determined, this lasts almost 24 h continuous. On the other hand, another extreme scenario was sought, which would correspond to the emptying of the reservoir, which corresponds to 9.7 days when it is at its

maximum level of Storage. To extreme the results of the modeling in near field, it was considered that the discharge is done in continuous form at full capacity, ie delivering a flow of 56 m3/s to the sea and generating 300MW.

Based on the results of the normal operation, it was determined that the worst scenario of occurrence of these exceptional cases corresponds to the moment when the highest water temperatures are given in the reservoir, at the end of the summer, since the water discharge is accentuated When the highest temperature differential could be given.

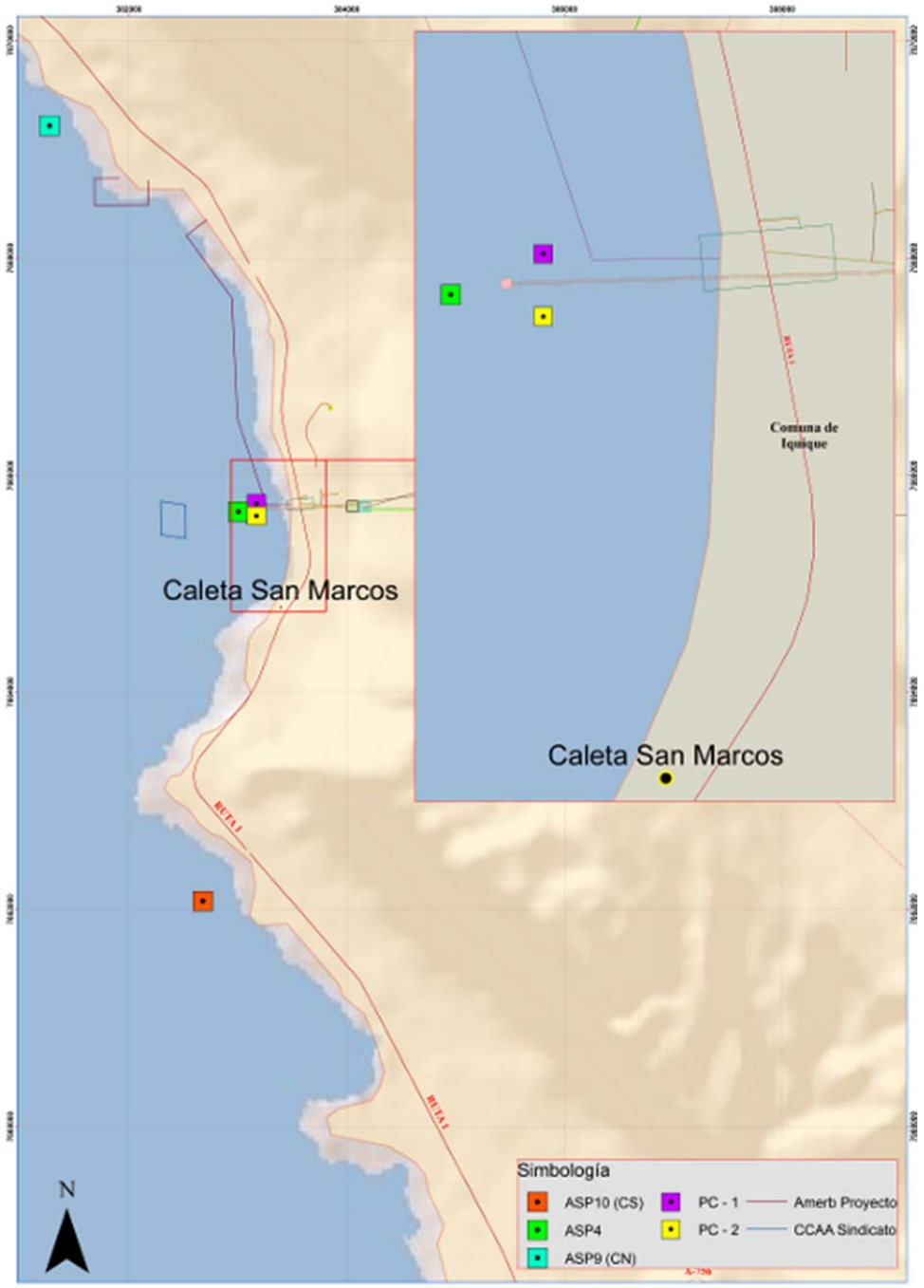
The results of these scenarios result in maximum temperature differentials from the receiving medium of 8.7 °c and 11.2 °c at the point of discharge.

The objective of the management of the contingency is to protect the marine environment in the eventual cases in which the differential of the discharge temperature is maintained in the time and could fall in exceptional cases. For its implementation, the following differentials have been determined as detonating limits of the contingency management: the 6 °c in the near field in the surface and the 4.5 °c in the surface at 75 m of the discharge in the direction to the AMERB B are exceeded.

8.6.5.2 Contingency Measure of GEstión at different temperature:

To monitor the temperature of the marine environment and Environment of the project are considered points of measurement in the sector of the reservoir, in the discharge, in an arc to 75 m of distance of the point of discharge and to 500 m of the discharge to the north and the south.

Figure 8-5: Points of MEdition for Monitored Temperature



Source: Self-elaboration

Based on the information to be delivered by monitoring measurements, contingency management will be organized in response to the extended and joint improvement of the differentials in the following points:

- Differential greater than 6 °c in surface-level discharge
- Differential higher than 4.5 ° C on surface at 75 m distance from the south west boundary of AMERB B.

When both thresholds are exceeded for more than 4 h continuous, the production capacity in generating mode of the plant will be limited to 225 MW (75% of its nominal capacity), thus reducing the discharge of water to the sea.

If, after operating in these conditions for 24 hours of discharge, the temperature differential continues to exceed 6 °c and 4.5 °c at the points indicated above, the generation capacity in generation mode will be derestricted and for another 48 hours. From the plant to 180 MW (60% of its nominal capacity).

If again, when operating under these conditions during the following 24 hours of discharge, the temperature differential continues to exceed 6 °c and 4.5 °c at the points indicated above, restricting the capacity of generation in mode Generation of the plant at 140 MW (47.5% of its nominal capacity).

If after those hours of operation with restrictions, the temperature differential above 6 °c and 4.5 °c still persists at the points indicated above, the nominal production capacity of the plant will be derestricted, now at 100 MW (33% of its Nominal capacity), during a new 24-hour discharge period.

If, after all these phases of restricted operation, the temperature condition persists, a process of mechanical mixing of the accumulated water in the reservoir shall be carried out, starting with the area of deep water closest to the work of Toma. This process will continue to decrease the temperature.

In any of the stages previously described for the contingency management, when the temperature differentials lower, that is to say, they are at a level lower than the thresholds proposed and remain thus for 4 H continuous, the restrictions are released And the operation of the plant can be retaken to a greater capacity.

In no case of increase of temperature differential will be restricted the suction or pumping of seawater since with this contribution it can contribute to reduce the temperature of the water of the reservoir.

From each contingency management event a report will be prepared to be delivered to the Superintendence of the environment together with the annual Environmental Monitoring report.

8.7. Plan of Emergencies

The emergency Plan TIene to define the concrete actions to take and implement a series of measures in the event that Fail the preventive actions indicated in the previous section And It is composed of a series of specific measures for each risk, So as to minimize damage to the facilities, communities and the environment.

The Plan will be presented to all the employees of the company, in order to act in a coordinated way under a methodology and to achieve an efficient response to the risk, to minimize the negative effects during and after the emergency occurred.

The Plan Emergency will be launched From Activating the alarm by Any Existing communication system: radio, telephoneVisual Or in a lively voice.

8.7.1 Emergency organization

For emergencies, There are several roles that are key in controlling it. The role of head of emergency will be taken by the preventionist who is on duty at the time of the incident. Hierarchically about them will be the General emergency coordinator. The activities And Responsibilities of the team are described below:

8.7.1.1 Emergency Committee

In the case of the construction stage, the emergency committee shall be formed by:

- Project Manager
- Chief Shift
- Risk prevention Manager of the contractor (Chief of emergency)
- Risk prevention Manager of the holder
- Owner Environment Manager
- Owner's construction manager. (General emergency Coordinator)

In the case of the operation stage, the emergency committee shall be formed by:

- Plant Manager (General emergency Coordinator)
- Chief Shift
- Risk prevention Manager Of the holder (Chief of emergency)
- Owner Environment Manager

The emergency committee must meet regularly or when circumstances require, to verify compliance with the procedures is Pecíficos that are established at the beginning of construction and operation respectively, define standards or analyze other Matters of interest. In each session, a minutes of the issues addressed should be raised.

In its main preventive activities, the following are envisaged:

- To ensure the implementation, conservation and fulfillment of this procedure.
- Schedule emergency drills by setting priorities according to the risk assessment carried out.
- The recommendations resulting from the evaluation must be materialized according to the procedure of preventive and corrective actions.
- Determine training needs on the protocols and emergency plans of plant operators and auxiliary personnel.
- Check that the fire extinguishing equipment is periodically checked, Alarms, first aid items (stretcher, medicine cabinet, etc.)

8.7.1.2 General Emergency Coordinator

The General Coordinator of emergency It has the following functions:

- Manage the necessary logistical support requested by the chief of emergency
- It will be responsible to give the internal alarm and communicate First of all With the nearest care center, if Because of the emergency there are injuries or damage to people, Giving notice, if necessary, to external emergency services such as firefighters, maritime salvage, Carabineros, etc..
- It will be responsible for giving notice to the Superintendence of the environment in case of environmental damage or affection to the environment.

- It shall communicate to the General manager the situation which is experienced in the facilities and the measures that have been taken.
- You will be responsible for coordinating the actions.
- It will give instruction to terminate with normal operations, due to the existence of dangerous conditions resulting from the emergency, ordering to stop and de-energize the equipment to proceed to the evacuation.

8.7.1.3 Head of emergencies

The chief of emergency will be the chief of the shift present at the time the emergency occurs. The head of emergency Has the following functions:

- It will attend the place of the emergency, to evaluate the magnitude and propagation.
- It will assess whether the situation warrants evacuating the facilities.
- Identify and evaluate hazardous conditions on the ground.
- You will notify and maintain permanent contact with the emergency coordinator.
- After the event will issue the corresponding report for the emergency coordinator.

8.7.1.4 General Staff

All the personnel of the work must Meet The following Obligations:

- They will follow what is indicated in their specific procedures.
- They will not be involved in the emergency control unless instructed by the head of emergency or the emergency coordinator.
- They will follow the evacuation instructions issued by the emergency chief or the emergency coordinator or external emergency equipment, in an orderly manner.

8.7.2 Procedures for Environmental protection ToMbiental Before DErrames

1) Warn of the situation toL Immediate superior or to the head of emergency.
2) Have the safety sheet of The spilled substance
3) The most relevant characteristics of the substance should be identified in the safety sheet (identify the risks associated with health, flammability, reactivity, Types of personal protection elements, forms of extinction, effects on the environment, among others.

4) Assess the severity of the situation, verifying the existence of the spill and classifying it if it is a minor emergency or major emergency in order to define the appropriate measures for its action.

5) If the spill is classified as minor:

- If the spill or infiltration occurs from piping, cut the flow in the affected line by closing the corresponding valves upstream of the infiltration/breakage.
- If this is the case, stop the infiltration, closing containers properly, changing their position to stop the spill or placing it inside another container.
- Recover the spilled substance with the materials arranged in the emergency Kit.

6) If the spill is classified as higher:

- Give notice to external emergency services such as hospitals, firefighters, police.
- The injured persons should be first rescued if any.
- Those responsible for controlling the spill must first be conditioned with personal protective elements.
- Block sewer drains, to prevent the product from entering these facilities, to contain spillage with material available on site by means of dikes (ditches) of sand, sandbags, dirt and/or sawdust.
- Mark the spill area with signs that warn of the situation.
- Keep the public away from the danger area.
- Collect the spill in containers if this is possible without risk. If contaminated water is generated, it must be recovered in containers intended for this purpose.

7) Once the control tasks have been completed, collect the materials and/or products used for the control of the spill, place them in suitable containers, closed and identified until their withdrawal by an authorized company.

8) The head of emergency should evaluate the condition of damaged equipment and installations, signaling the risks with "danger not to operate" cards or fencing the sector with danger tape.

9) The head of emergency shall issue a technical report on the causes of the emergency, and to refer it to the head of the plant.

8.7.3 General emergency measures

In emergencies, the most important thing will be to safeguard the physical integrity of the people and the timely communication according to the specific emergency protocol by and thus avoid a propagation to the environment and the community

The head of emergency, depending on the level and type of emergency, will paralyze the tasks, evacuate workers and/or equipment and normalize the operations as soon as possible. In the event of an emergency, anyone who identifies a casualty must remain calm and clearly inform the following:

a. Type of emergency (case).
b. Time and place that happened.
c. The existence of injuries and In your case type of injuries.
d. Existence of Damage to the environment And in your case type of condition.
e. Give the name and charge.

All personnel must know the safety zones defined by the project, called emergency Meeting points (PEE). It will be the responsibility of the emergency coordinator to make this information known and to maintain these points in adequate safety conditions.

8.7.4 Communication system in case of emergencies

For an efficient application of contingency prevention plans And Emergency Exposed, there should be an expedited communication with the Coordinator General of emergencies And The head of emergencies, as well as with the relevant external actors.

Communication mechanisms in the face of an emergency will be:

- Voice alarm: It should be used to communicate the emergency to people around the person who is communicating the alarm.
- Alarm by means of sirens, intercoms, radio or telephone.

The external entities responsible for responding to emergencies should also be contacted. So, depending on the incident, you will contact:

- Mutual security.
- Iquique Hospital.
- Superintendence of the environment.

- Fire.
- Carabineros de Chile.
- Maritime authority of Iquique.
- Illustrious Municipality of Iquique.
- Illustrious Municipality of Pozo Almonte.
- Onemi of the region of Tarapacá.
- Health care.
- BeVice NToof GEoGeology and MInEría.
- Regional Highway Management.
- SNational Ervice of fishing.
- Agricultural and Livestock Service

The telephones and contact addresses are presented in Appendix 1 of this document, to facilitate access to this information.

8.7.5 Communication and working with communities

There will be a communication and working procedure with the Communities of Caleta San Marcos and Rio Seco, which are the communities Close to the project area. The purpose of the procedure will be Maintain expeditious and transparent communication between the parties and a permanent flow of information, in particular during emergencies.

For the Communication between the communities and the project owner who will operate in the situationis contingency and emergency, will be done in the first instance by CTelephone contact with community representatives And if this is not possible, visit directly to the home of these.

8.7.5.1 Telephone contact with Communities representatives Or VIsits dominciles

i. <u>General description of the mechanism</u>

Every time an incident happens that may affect the communities near the project (Caleta San Marcos and/or Caleta Rio Seco), jeopardizing their safety, that of their assets, as well as the natural resources of the sector such as water, flora , fauna, soil and air quality, the company through the emergency coordinator will immediately contact the representatives of the

communities to put in antecedent the population. This communication will be done either by telephone or by personally addressingL Personal Address Of the representatives, whenever they are not Them Get in touch by phone. Contact persons in the community They will be the mayor of Mar, representative of neighborhood associations, representative of associations of shellfish divers, head of school, head of Health Center, among others, both Caleta San Marcos and Caleta Rio Seco.

ii. Responsible for the mechanism

Those responsible for communicating emergency situations will be the project holder, through the emergency coordinator, first, and the Community representative who will be responsible for transmitting what happened to the members of his community.

iii. Response time

The response time in case of emergencies should be as small as possible, depending on the magnitude of the incident, the representatives of the communities will be contacted together with the respective authorities.

8.7.5.2 Meetings with Representative of the EOmpany

Notwithstanding the foregoing, within the framework of the owner's relationship with the communities, there will be a permanently available communication channel to address the concerns of communities in the area of security and control of Emergency.

i. General description of the mechanism

Communities, through their representatives, may request a meeting with the company's owner At any time, In order to Consult and discuss concerns regarding emergencies and incidents experienced at the site of the project.

ii. Responsible for the mechanism

Those responsible for coordinating these meetings and raising a minutes of the consultations or observations that arise at each meeting, will be the owner of the project, through their Community Relations Area, and the community representative who will be responsible for transmitting invitations to members of his community.

iii. Communication procedure

The person representing each community may request a meeting with the responsible of this mechanism, with whom a date and time must be agreed for the meeting. The place will be agreed by mutual agreement between the two parties. During the meeting, a minutes will be raised to record the points addressed and the agreements taken. The Minutes will be read at the end of the meeting and the representatives of the community and the company will sign the act. Attendance registration and photographs of the meeting will be lifted as long as there is no objection from the community.

If applicable, lA company shall draw up a minutes of response to the consultations and requests of the communities registered in the minutes, which will be delivered personally to the representatives of the communities.

iv. Response time

Once the registration of the Request of the Meeting, A follow up will be carried out until the delivery of the respective response. The consultations or observations made at the meeting and recorded in the minutes thereof shall have a response time of no more than 15 days and shall be addressed to the representatives of the communities.

v. Authorized authorities and spokespersons

It shall be recognised as authoritative authorities and spokespersons for the submission of consultations to the company the presidents of the respective neighbours ' meetings, or to whom they formally designate in writing by the company, shall be responsible for the area of community relations.

8.7.6 Record of Incidents and emergencies

In the event of any type of emergency involving the fauna of the project area, it will be informed immediately to the Appropriate authority depending on the nature of the emergency.

Without prejudice to the foregoing, and once the emergency has been exceeded, an emergency report shall be sent to the agricultural and livestock service, indicating its origin, characteristics and consequences.

In order to maintain a meticulous record of all incidents and/or emergencies in the area of the project, a professional will have in charge, as part of their work, the maintenance of a registration book of them. The information contained in that book shall be as follows:

- Date and time

- georeferenced location of incident or emergency site
- Species and number of specimens involved
- Witnesses or people involved
- Brief description of the facts
- Measures taken, in the event of existing
- Photographs, if any
- Identification of notified authority (ies)

8.7.7 Drills

The plans described above will be tested at least once a year by emergency response drills, according to an annual drill program that will be established prior to the commencement of construction activities.

On the part of the proprietor, the areas of security and community relations will be in charge of the simulations.

8.7.8 Description of the emergency situations

The contents of an emergency Plan depend on the type of activity to be carried out, so it is considered paramount and necessary to evaluate the factors of dangers existing in the technologies to be used and to face the risks in the activities associated to the project, Susceptible to affect the environment and cause accidents or emergencies.

For such purposes, emergencies can be classified according to their origin, whether these natural or anthropic risks, as mentioned above. The Table 8-4 And Table 8-5 They present the measures for emergency situations, Natural Hazards and Anthropic.

Table 8-4. Measures of Emergencies of RIesgos Naturals.

Risk	Emergency measures
Mud flows, avalanches, landslides and landslides	Construction Stage: • The emergency manager who will be the risk prevention manager of the contractor during the construction and the risk prevention officer of the owner during the operation will be immediately notified. • Depending on the magnitude of the event, the works will be immediately paralyzed and if applicable, all personnel will be evacuated to safe areas. Only construction operations may be activated when the ONEMI or Carabineros has informed the supervisor that the area is out of danger. • A restriction area will be immediately delimited, where only trained personnel can enter. • Trained personnel will inspect the site of the accident, verifying that there are no injuries in the area. • In case of registering injured by this accident, they will be taken to a care center. • A specialist in risk prevention, will inspect the area, demarcating the areas of risk. The professional will determine if it is advisable to relocate the facilities. If this is the case, the relevant authorities will be informed. Operation Stage • During the operation phase, the Central will continue to apply the emergency prevention measures, which also include the measures proposed in this EIA as well as the indications that the RCA establishes in this area. Closing stage • Ditto to the measures indicated for the construction phase.
Tsunami	Construction Stage: • The head of the land shall be notified immediately to the person who will inform the risk prevention • The communications procedure will be activated according to the magnitude of the emergency. • Depending on the magnitude of the flood, the works will be immediately paralyzed and if applicable, all personnel will be evacuated to safe areas. Operation and closing stage: • In the face of the emergency situation of a surprise flood of rivers, a Plan of action is considered, with the following activities, alarm issuance, personnel evacuation and equipment detention.
Earthquakes	Construction Stage: • Depending on the magnitude of the earthquake, the alarm will be activated and if applicable, the evacuation will be ordered to the safety zones. • Workers should stay in the safety zone and wait for instructions from trained personnel. • Produced an earthquake, The headline It will proceed to evaluate the damage in the physical structure of the elements of capture, conduction of channels and storage, establishing equipment of repair of these systems. • In the event that there are damages which impede the normal functioning of the plants, the competent authorities shall be informed of this situation. Operation and closing stage: • Ditto to the measures indicated for the construction phase.

Source: Self-elaboration

Table 8-5. Emergency measures of RIesgos ToNtrópicos.

Risk	Emergency measures
Spillage of fuel, lubricant or hazardous substances into the sea	• Before a spill the boat or machinery operator must stop the main motor and the auxiliary motors if any, and it stops any source of ignition if possible. • People who are injured or intoxicated should be addressed in the first place. • If there is a spill it will try to stop it, without putting in water the safety itself. • The spill arrest kit will be used to control fuel or oil stain. • Once the stain is controlled, it will be used to collect the fuel or lubricant stain using a skimmer or other manual method. • The chief of emergency will be notified.
Risk of spillage of fuel, lubricant or hazardous substances on the ground	• The vehicle engine and any ignition source should be stopped if possible. • People who are injured or intoxicated should be addressed in the first place. • If there is a fuel spill it will try to stop, without putting in water the safety itself. • A containment dam will form with inert absorbent material (sand or dry earth). • Not allowedThe product reaches sewers, bodies of water, land or vegetation. • Collect and dispose of the waste in appropriate packaging, close, identify and transfer to authorized final recipient. • The chief of emergency will be notified.
Fire in the slaughter area	Construction Stage: • The fire alarm will be activated. • The emergency chief and the emergency Coordinator will be promptly notified. • The fire procedure will be activated, extinguishers will be used to extinguish the fire, only if the accident is controllable. • If it is not possible to control the situation, firefighters will be immediately notified and workers will be evacuated to the safety zones. • The area will be inspected to verify the presence of injured. If this is the case, it will be transferred immediately to an assistance centre. • The causes of the accident should be investigated • Activities may only be reactivated once the claim is controlled. Operation and closing stages: • Ditto to the measures indicated for the construction phase.
Traffic accidents	Construction Stage: • The emergency chief will be informed of the accident. • The emergency will be dimensioned • The event will be classified as a traffic accident (mild, serious, serious) • The communications Plan with Ambulance (131), firefighters (132) and Carabineros (133) will be activated, informing about the occurrence of the accident, its severity and the identification of the persons and vehicles involved. • The affected area shall be demarcated, prohibiting entry into the area of the accident. • The area will be inspected by qualified personnel to verify the presence of injured persons. If this is the case, it will be transferred immediately to an assistance centre. • Once the situation has been controlled, the road will be restored by providing equipment and machinery to help clear the route in the shortest term (once the responsible authority authorizes it). • The insurance companies involved will be given timely notice. • Timely information will be given to those in charge of the company. • The accident will be recorded and reported in a previously defined form. A complete description of the response to the emergency will be made, collecting all the possible evidence, in order to make the corrections that the case warrants and improve the procedures. Operation and closing stages:

Risk	Emergency measures
	• Ditto to the measures indicated for the construction phase.
Hazardous substances spilled in work areas and during transportation	Construction Stage: In case of spillage due to traffic accident • It will check for people who have been affected by the spill. If required, the appropriate elements shall be used to protect the life and health of such persons first. • with fuel and/or oil spills, all contaminated material will be removed and the conditions of the site will be reconditioned. • If there is any spilled product, it will be shoveled to empty it into a hermetically sealed container and also put it into a thick plastic bag which, in turn, must be closed. Polyethylene containers will be used. • Both the final disposition of the substance and the corresponding cleaning of the truck (contaminated remains due to the accident) will be carried out by a company specializing in the treatment of hazardous waste. • The construction contractor shall keep copies of the respective documentation of both the transport and the final disposition. • Actions will be incorporated to allow a timely and rapid clearing of the road in coordination with Carabineros de Chile and the Directorate of Highways. • In case of no spillage of substances, the truck will be lifted to allow the free movement of the vehicles. • The evaluation of an accident with Effusion will consider the state of the superficial and subterranean water resources, report to be referred to the environmental authority. • The person in charge of the emergency control will maintain permanent contact with the holder to inform him and to receive his instructions. • If the emergency has occurred, a technical report shall be issued to the relevant health authority. In case of accidental spillage on working fronts • Identification and location of the contamination source, to proceed immediately to its neutralization or control. • A complete written and/or graphical record of the event will be made and of the immediate measures taken. • If it is an event that by its size can affect third parties downstream of the focus of pollution, the health authority will be notified about the location and magnitude of the event. • An internal investigation will be activated on the causes of the event and the efficiency or sufficiency of the preventive or corrective actions taken, in order to correct the procedures that prevent the situation from repeating itself in the future. • Each working front will have the necessary implementation for the removal of the spilled substance, be it shovels, machinery, pumps, temporary storage ponds, as required. The procedures set out in the safety sheet must also be followed. In case of spills of chemicals or contaminants (oils, lubricants and paints) to the ground. • An immediate cleaning and removal of the affected soil will be carried out, being bagged and transported to an authorized site for its treatment and final disposition. • The excavated soil will be filled with material of similar characteristics to the original and Leveled at a height similar to the original floor. • In case of spills of liquid waste and dangerous substances to the sea • The holder shall apply the emergency Plan: for the control of accidental contamination of water bodies, by informing the relevant organizations as indicated in that procedure. Operation Stage: • This type of emergency is not anticipated during the operation stage. Closing stage: • Ditto to the measures indicated for the construction phase.
Use of equipment	Construction Stage:

Risk	Emergency measures
and heavy machinery	• The field Chief will be informed of the accident. • The emergency will be dimensioned • The event will be classified (mild, serious, serious). • The communications Plan will be activated if the situation is warranted by ambulance (131), firefighters (132) and Carabineros (133), reporting on the occurrence of the accident, its severity and the identification of the persons and vehicles involved. • The affected area shall be demarcated, prohibiting entry into the area of the accident. • The area will be inspected by qualified personnel to verify the presence of injured persons. If this is the case, it will be transferred immediately to an assistance centre. • Once the situation has been controlled, the road will be restored by providing equipment and machinery to help clear the route in the shortest term (once the responsible authority authorizes it). • The insurance companies involved will be given timely notice. • Timely information will be given to those in charge of the company. • The accident will be recorded and reported in a previously defined form. A complete description of the response to the emergency will be made, collecting all the possible evidence, in order to make the corrections that the case warrants and improve the procedures. Operation and closing stages: • Ditto to the measures indicated for the construction phase.
Transport, storage and handling of explosives	Emergency transport measures • The contractor will implement a formal procedure for the transport of explosives to ensure that this activity is safely addressed. • If during the journey to the interior of the project area there is an emergency (Panne) the driver must first inform the head of the shift or whoever replaces it, about the situation. You must place triangles or cones to highlight the presence of the vehicle and should not leave the vehicle at any time until the assistance arrives. • In the event of a fire in the explosive transport vehicle, the driver must give notice to the land chief. The portable fire extinguishers of the explosive transport vehicle should be used only if the engine or tyres are affected by the fires. • If the fire affects the bodywork and spreads to the explosive load, the driver must immediately abandon the vehicle and give the voice of alarm. The area will be evacuated (minimum 500 meters) and access will be closed requesting the support of the land manager. Emergency handling measures • The field Chief will be informed of the type of incident. • The emergency will be dimensioned • The event will be classified (mild, serious, serious). • The communications Plan will be activated if the situation is warranted by ambulance (131), Firefighters (132) and Carabineros (133), reporting on the occurrence of the accident, its severity and the identification of the persons and vehicles involved. • The affected area will be demarcated, prohibiting entry into the area. • The area will be inspected by qualified personnel to verify the presence of injured persons. If this is the case, it will be transferred immediately to an assistance centre. • The insurance companies involved will be given timely notice. • Timely information will be given to those in charge of the company. • The accident will be recorded and reported in a previously defined form. A complete description of the response to the emergency will be made, collecting all possible evidence, in order to make the corrections that the case warrants and improve the procedures Emergency storage measures

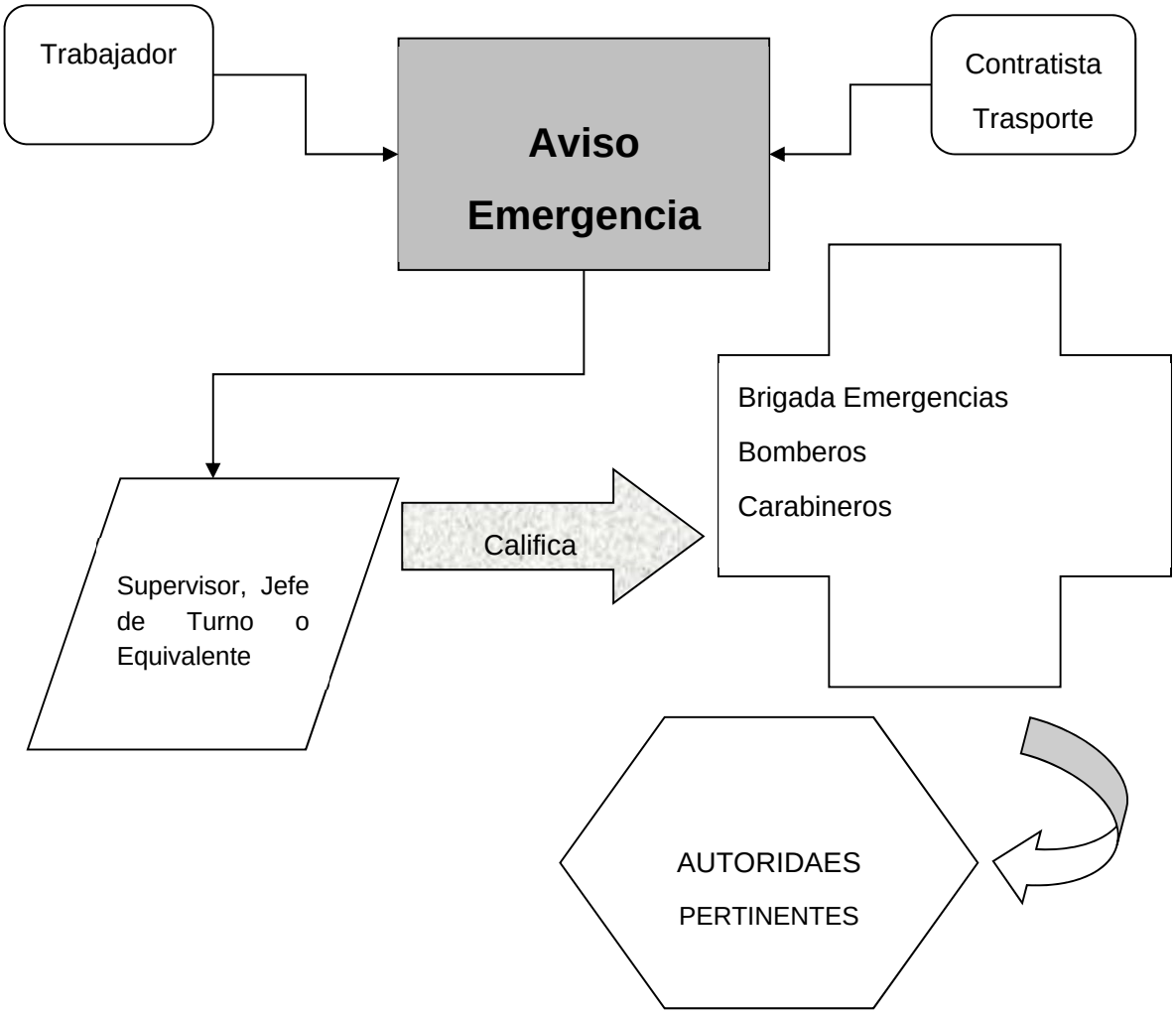
Risk	Emergency measures
	• In case of a fire inside the magazine, it should not be fought by the personnel of the magazine. These workers must be removed, the same as those in the vicinity and must be placed in a safe place, defined previously in the emergency procedure. • The field Chief will be informed of the type of incident. • The emergency will be dimensioned • The event will be classified (mild, serious, serious). • The communications Plan will be activated if the situation is warranted by ambulance (131), firefighters (132) and Carabineros (133), reporting on the occurrence of the accident, its severity and the identification of the persons and vehicles involved. • The affected area will be demarcated, prohibiting entry into the area. • The area will be inspected by qualified personnel to verify the presence of injured persons. If this is the case, it will be transferred immediately to an assistance centre. • The insurance companies involved will be given timely notice. • Timely information will be given to those in charge of the company. • The accident will be recorded and reported in a previously defined form. A complete description of the response to the emergency will be made, collecting all possible evidence, in order to make the corrections that the case warrants and improve the procedures. Operation and closing stages: Special actions are not envisaged during these stages of the project.
Ground movement	Construction Stage: • The field Chief will be informed of the accident. • The emergency will be dimensioned • Event will be classified accident (mild, serious and serious) • The communications Plan will be activated if it is warranted by ambulance (131), firefighters (132) and Carabineros (133), reporting on the occurrence of the accident, its severity and the identification of the persons and vehicles involved. • The affected area shall be demarcated, prohibiting entry into the area of the accident. • The area will be inspected by qualified personnel to verify the presence of injured persons. If this is the case, it will be transferred immediately to an assistance centre. • The insurance companies involved will be given timely notice. • Timely information will be given to those in charge of the company. • The accident will be recorded and reported in a previously defined form. A complete description of the response to the emergency will be made, collecting all the possible evidence, in order to make the corrections that the case warrants and improve the procedures. Operation Stage: • Special actions are not envisaged during this stage. Closing stage: • Ditto to the measures indicated for the construction phase.
Dismantling of equipment	Closing stage: • The field Chief will be informed of the accident. • The emergency will be dimensioned and the entire area will be demarcated with hard barriers, cones and persons who impede the entry of third parties. • The accident event will be classified (severe and there are injuries to people) • The communications Plan will be activated if it is warranted by ambulance (131), firefighters (132) and Carabineros (133), reporting on the occurrence of the accident, its severity and the identification of the persons and vehicles involved. • The affected area shall be demarcated, prohibiting entry into the area of the accident. • The area will be inspected by qualified personnel to verify the presence of injured

Risk	Emergency measures
	persons. If this is the case, it will be transferred immediately to an assistance centre. • The insurance companies involved will be given timely notice. • Timely information will be given to those in charge of the company. • The accident will be recorded and reported in a previously defined form. A complete description of the response to the emergency will be made, collecting all the possible evidence, in order to make the corrections that the case warrants and improve the procedures. • During the closing phase, the indications set out in this field shall be included in the RCA.
Immersion risks	Construction Stage: • The field Chief will be informed of the accident. • The emergency will be dimensioned • Crash event will be classified (severe) • The communications Plan will be activated if it is warranted by ambulance (131), Marine Search and Rescue (137) and Carabineros (133), reporting on the occurrence of the accident, its severity and the identification of the persons and vehicles involved. • The area will be inspected by qualified personnel to verify the presence of injured persons. If this is the case, it will be transferred immediately to a health care facility (Emergency Brigade). • The insurance companies involved will be given timely notice. • Timely information will be given to those in charge of the company. • The accident will be recorded and reported in a previously defined form. A complete description of the response to the emergency will be made, collecting all the possible evidence, in order to make the corrections that the case warrants and improve the procedures. Operation Stage: • Special actions are not envisaged during this stage. Closing stage: • Ditto to the measures indicated for the construction phase

Source: Self-elaboration

8.8. Emergency flow

Figure 8-6: Emergency flowchart



Source: Self-elaboration

8.9. Appendix 1: Emergency phones

Table 8-6. Emergency phones.

Telephone Emergency phones

Entity	Address	Phone number
Mutual Security	Orella n ° 769, Iquique	57-2408700
Achs	Amunátegui N ° 1517, Iquique	57-2402925
Hospital (131)	Heroes of conception N º 502Iquique	57-2395555
Fire (132)	Bolívar N ° 414Iquique	57-2421212
Carabineros de Chile (133)	Or'Higgins 427Iquique	57-2557040
Superintendence of the environment	Washington 2369, Antofagasta	55-2895325
Maritime Governorate of Iquique	Jorge Barrera 98, Iquique	57-2401900
Municipality of Iquique	Calle Aníbal Pinto 50 Ex-Customs buildingIquique	57-2514677
Pozo Almonte Municipality	Calle Manuel Balmaceda 276, Pozo Almonte	57-2407240
General Emergencies Phones		
Entity	**Address**	**Phone number**
Agricultural and Livestock Service	Orella 440, Iquique	57-2470115
Sernapesca	Pasaje Alessandri 470 Dept. 110 Iquique	57-2573249
National Emergency Office	Salvador Allende ex Pedro Prado 3420, Iquique	57-2374400
Sernageomin	Prentice Bolas 125 Iquique	57-2427462
Regional Highway Management	Tarapacá 130, 3 ° piso, Iquique	57-2572038

Source: Self-elaboration