CHAPTER 3
COMPLIANCE PLAN OF THE APPLICABLE ENVIRONMENTAL LEGISLATION

In this chapter, the development of the content required by letter g) article 12 from the Act 19.300, and letter d) article 12, Supreme Decree N°95/01 of the Ministry General Secretariat of the President of the Republic, which fixes the text revised by the Environmental Impact Assessment Regulations (RSEIA), in relation to the development of a compliance plan of the environmental legislation applicable to the project, with a general character standard indication and the specific one directly associated to the protection of the Environment, preservation of nature, use and management of natural resources and the environmental permits per sector that the project will require for its execution.

For the purpose of its analysis and development, the chapter has been divided in three sections dealing with the following matters:

- Applicable environmental regulations of general character
- Applicable environmental regulations of specific character and
- Environmental permits of associated sectors.

Due to the Act 19.300 has not defined what should be understood as environmental legislation, in this chapter the criteria agreed by the Directive Board of the National Environment Commission, Agreement N°236, of September 25th 2003, which verbatim states: "In SEIA the environmental character regulation applicable to the project is comprised by the current regulations, which have an environmental component. In this set of regulations the primary and secondary environmental quality and the emission standards for air, water and land are found, besides, these are integrated by all the standards which have an environmental component, either expressed on the compliance of the standards, in the requirements to comply with the environmental permits established in Title VII SEIA Regulations, or in regulations on management, ban or use of natural resources, and in general, of environmental elements. The set of regulations of environmental character applicable to the project is determined case by case, because, depending on the type of project, the effects that presents or generates and the location for the carry out of it".

The identification of the environmental regulation applicable to the Project has been determined upon the base of potential environmental impacts associated to its activities.

3.1 ENVIRONMENTAL REGULATIONS OF GENERAL CHARACTER APPLICABLE TO THE PROJECT

3.1.1 Constitution of the Republic

Published on September 22nd 2005, Article 19° establishes the foundations of the environmental regulation in the Chilean Law, when declares:

"The Constitution guarantees to every person: (...) N°8 "The right to live in an environment free of pollution, it is the State duty to safeguard this right to be unaffected and protect the preservation of nature. The Law will be able to establish specific restrictions to the exercise of determined rights or freedoms in order to protect the environment".

The exercise of this right of constitutional rank is regulated by dispositions in Act 19.300, with regards Environment General Foundations, without prejudice to other legal standards may establish on this matter.

3.1.2 Act N° 19.300, Environment General Foundations Law

Published on March 9th 1994, this Act constitutes a basic legal framework of the whole environmental regulations of the country, making sure that the necessary tools and institutions for protecting the environment in harmony and in keeping with the constitutional precept of article 19 N°8 of the Constitution of the State are regulated and developed.

Title I contains five dispositions of general character. The first article establishes that "The right to live in an environment free of pollution, protection of the environment, preservation of nature, and conservation of the environmental heritage will be regulated by the dispositions of this act, without prejudice of what other legal dispositions establish upon this matter".

On the other hand, the second article defines 23 terms used in the act. Its importance lies in not only by the fact that this is the first occasion that the legislator addresses some of the terms, but its approach in front of subsequent legal texts relating to specific environmental matters.

Moreover, title II numbers and regulates a set of tools for the protection of the environment. The most relevant are:

- Education and Investigation;
- Environmental Impact Assessment System;
- Environmental quality standards and the preservation of nature, and conservation of the environmental heritage;
- Emission standards, and
- Management, prevention or decontamination plans.

From the Environmental Impact Assessment System;

Paragraph 2° of Title II regulates the Environmental Impact Assessment System (SEIA), understanding as environmental impact assessment, in accordance to what is established in article 2° letter j) of the act, the "procedure in charge of the National Environmental Commission or by the correspondent Regional Commission, in case that, based on an Environmental Impact Declaration or Study, determines if the environmental impact of an activity or project is adjusted to the current standards".

Article 10 describes projects or activities liable to cause an environmental impact, in any of its phases, which should be submitted to SEIA.

Regarding the "Alto Maipo Hydroelectric" Project, the Act 19.300 in Article 10, letter c mentions the power plants generating energy greater than 3MW, among the typing of the project that should be submitted to the Environmental Impact Assessment System, as well as the SEIA Regulations, it is stated in article 3 letter c.

The entry to SEIA should be done through the presentation of an Environmental Impact Declaration or Study before the National Environmental Commission or by the Regional Commission, as the case may be. An Environmental Impact Study (EIA) should be presented when the project or activity generates or presents at least one of the effects, characteristics or circumstances described in article 11, on the contrary, an Environmental Impact Declaration as an affidavit, should be presented.

It is understood by EIA, the document describing in details the characteristics of a project or activity expected to be carried out or modified. It must provide well-founded backgrounds for prediction, identification and interpretation of its environmental impact and must describe actions that bill be executed in order to prevent or minimize its significant adverse effects.

The remaining quoted article develops the EIA and DIA contents and the administrative procedure that should be followed for its processing in CONAMA or COREMA as appropriate.

The assessment process will conclude with a resolution (RCA) that environmentally qualifies the project or activity, which should be notified to the administrative authorities competent to solve over the activity or project, and to the person accountable of the project.

Against RCA, the act establishes a claim resource which could be filed by the person accountable of the project in the following cases:

- Against the resolution which refuses a DIA, the claim will proceed before an Executive Director of the National Environmental Commission.
- Against the resolution refusing or establishing conditions or demands of an EIA, the claim will proceed before an Executive Director of the National Environmental Commission.

According to the determined through such well-founded resolution it will be possible to file a claim within 30 days from its notification day on, before a competent professional judge, in accordance to what is arranged on articles 60 and subsequent articles thereof. The above mentioned, without prejudice of the general character resources contemplated by the Chilean legal system.

3.1.3 Supreme Decree N°95/01 of the Ministry General Secretariat of the Presidency, which fixes the Revised Text of the Environmental Impact Assessment System Regulations

With its publication on December 7th 2002, the Regulations makes SEIA operative, established in the Act 19.300. This implies that all the projects contemplated in article 10 of the Act, before its execution or modification, should be environmentally assessed through a DIA or an EIA. The most relevant matters addressed by the Regulations are:

- It specifies which are the projects or activities contemplated in article 10 of the Act 19.300, which are compelled to undergo through SEIA before its execution or modification.

- It clarifies and breaks down the criteria on article 11 of the Act to determine the origin of the EIA.

- It fixes the administrative procedure that, both DIA and EIA, must keep to.

- It establishes the permit list considered as environmental sectors, which if applicable to a certain project, must be included in the corresponding document, on either an EAI or a DIA.

In relation to PHAM:

The incumbent of this, complies with the obligations established in the environmental regulation of general character through the entry of the project to SEIA, since it deals with a power plant generating energy greater than 3 MW according to the Act and its regulatory text (letter c of art.3) Similarly, the commitment to obey the right to live in an environment free of pollution declared through the compliance of the environmental regulation of specific character, current and applicable to the project, which is presented in the following section.

3.1.4 General Ordinance on Urbanism and Construction (OGUC)

According to its article 1.1.1., the OGUC is the General Law Regulations on Urbanism and Constructions (LGUC). It regulates the administrative procedure, the town planning process, the urbanization process, and the construction process among others. The object treated material does not escape those matters defined in LGUC. Thus, the detailed developments of such matters are in the OGUC.

For effects of general standard applicable to the project and because of dealing with a project of an energy infrastructure according to OGUC, all the aspects referring to the definition, permit or ban of those referred uses must be considered, which may be contained in:

a) Definition and content of the OGUC with regards the infrastructure use;
b) The general dispositions, zones or restrictions established by the corresponding planning tool regarding such uses.

In terms of the first paragraph, Article 2.1.29 of OGUC defines as infrastructure use those referred to buildings or facilities and networks or layouts destined to **transport infrastructure**, **sanitary infrastructure**, and **energy infrastructure** such as, generating or supply plants of electricity, gas, and telecommunications, etc.

According to the described series of articles in the previous paragraph, and regarding the in subparagraph b) these uses will be understood as always admitted and will be subject to the dispositions established by the competent organizations, corresponding in these cases to the territorial planning tool to recognize only the strips or zones of protection determined by the standard of the corresponding organization and destined them to green areas, roads or uses admitted by such standard.

In order to complement the above, Circular 0355 by the Ministry of Housing clarifies concepts in terms of the supply networks and its difference with the infrastructure works. It is also analyzed in it, the dispositions that for this type of land use it corresponds to standard in the territorial planning tool according to its level, as well as origin for the grant of municipal permits for the materialization of the corresponding works.

In accordance with what is established in such Circular, the territorial planning tool could establish the conditions or requirements that will allow the carry out of the facilities or buildings inherent in this type of use without prejudice of compliance of the environmental regulations, the General Law on Urbanism and Construction standards, its General Ordinance, and some other pertinent dispositions.

The before mentioned indicates that the current regulation does not entitles the prohibition of location for theses uses, it only entitles the territorial planning tools to establish-in its corresponding competences framework- the conditions or requirements that allow the carry out of the necessary facilities or building for this type of use.

For effects of application of the provision in examination, and in absence of a definition declared in OGUC, the same Circular comments on the meaning of the network concept, understood as a "Group of elements organized for a determined goal, water supply Network, telegraph or telephone Network, train or highways Network". Therefore, it expresses that that the networks and drawings are constituted by the organized group of elements that allow the supply of service they render, from the generation area up to the destination location.

Complementing the above, the Circular warns that all the components associated to conduction, supply, transfer or evacuation through tracks, train routes, pipelines, poles, mobile telephone antennas, sewage lift station plant, electrical substations, household solutions which in article 134 of the General Law gives responsibility to the town developer of a land (sewage treatment, drinking water capturing, tanks, etc.), or others of similar nature either these are buried or not, are part of the network and drawings, and are inherent to the infrastructure that are serving to.

In order to reconcile the functioning of the facilities of this type of use which are part of the network together with the diverse uses of land established in the planning tool of a determined zone, this tool could make demands such as tree planting, vegetation, noise screens, building covers, etc., in order to mitigate the adverse impacts that it might be generated in the zone where they are carries out. This, without prejudice of the compliance of other standards that establish municipal ordinances and the competent service regulations, for instance: DS Nº146 DO. 17.04.98 "Unpleasant Noise Emission Standard Generated By Fixed Sources".

For their part, the constructions and facilities (either contemplating buildings or not, and the network functioning needs) will have to comply with the conditions and requirements for its carrying out established by the corresponding territorial planning tool.

In relation to PHAM:

PHAM, without exception, involves infrastructure works of "network" and "constructions" associated to the infrastructure use described by OGUC. The networks will correspond to tunnels and covered pipelines, the rest of PHAM facilities are temporary (workplace installation in construction phase) or, permanent but of underground type such as machinery caverns and electrical substation. This last installation will be encapsulated and will be carried out in El Sauce sector, an inhabited area.

As consequence, and dealing with an energy infrastructure project (which fundamentally involves networks), the PHAM would not present incompatibility with what has been stated in previous paragraphs, because this are understood as admitted by IPT.

3.1.5 Resolution N°20 and its Modifications, the Metropolitan Regional Governance Passes the Metropolitan Regulating Plan of Santiago

The municipality is part of the planning area of the Metropolitan Regulating Plan of Santiago (PRMS) which establishes the zones at an inter-municipal level, covering the whole Metropolitan Region, and therefore, the town where the project is developed (see section 5.7.2., Chapter 5, Base Line).

Most of the infrastructure works, either networks or constructions described in the previous paragraphs, are located in what is denominated according to Title 8° of such body of legislation as an Excluded Area for Urban Development, whose macro-structure is constituted by High Risk Areas for Human Settlement, Natural Value Areas and/or agriculture, livestock and forestry interest, and Protected Areas of the Metropolitan Infrastructure.

Then, the macro-areas where the project is located are subdivided in the following categories, where different installations of the project would be located on:

High Risk Area for Human Settlement:

- Risk Area due to Floods is not understood.
- Ravines of geophysics risk associated to natural events.

Natural Value Area:

- Ecological Conservation (includes Conservation of Snow Resource and Wildlife Protected Areas).
- Ecological Protection with Controlled Development.

Protection of the Metropolitan Infrastructure Area:

- Protection of Source Areas of Water Supply.

As we stated in paragraph 3.1.4, practically all PHAM works are, according to the OGUC infrastructure networks, and as such, to the current regulation, are understood as admitted in a territory. The planning tool might set strips or conditions to these ones, a situation which is not shown in PRMS regulation in relation to the future infrastructure networks, but only to the existing ones.

Without prejudice of the above mentioned, most part of the installations of the project linked to the infrastructure network concept will be carried out in the ecological conservation zone, which according to the dispositions on the Ordinance determined by PRMS, should be maintained in its natural state in order to ensure and contribute the balance and quality of the environment, as well as protecting the land heritage. Integral parts of these areas are the upper sectors of the basins and micro-watersheds; water reservoirs and natural courses; conservation of snow resource areas; mountaintops and cliffs; the flora enclaves and fauna shelters, as well as the prominent land components.

Following the above and due to PRMS as well as any other planning tool does not require to pronounce themselves with regards the infrastructure networks according to OGUC, which states that in these areas the development of activities that will ensure the permanence of natural values, restricting the use for purposes such as: scientific, cultural, education, leisure, sports, and tourism with minimum and indispensable facilities and/or constructions for its enabling. Similarly, the development of agriculture, livestock or forestry activities will be permitted in a controlled fashion. Farm divisions will not be permitted in these areas.

It is possible to conclude that with regards non-contemplated projects in subsection 5° article 8.3.1.1., it will be required the presentation of an Environmental Impact Assessment Study and the authorization of Regional Secretariat of the Ministry of Housing and Urbanism of the Metropolitan Region, which will grant, prior to make an enquiry to the corresponding organizations (CONAF, Regional Secretariat of the Ministry of National Goods, National Monuments Council, etc.), for its carrying out, besides, a supported report by Regional Secretariat of the Ministry of Agriculture, as required in article 8.1.3. of the same territorial planning tool. Such authorizations and/or reports shall be obtained prior to the startup of the works.

On the other hand, and with regards the works located in the Ecological Protected Area with Controlled Development, in article 8.3.1.2. of PRMS, it is established that such areas correspond to those where development will be possible as well as the agriculture, livestock and forestry activities and/or agricultural and livestock activities, as long as they keep the natural surrounding features and the interventions they might generate, will contribute to improve the quality of the environment or increase its landscape values.

Without prejudice of the before mentioned, the legal system for the natural value areas is comprised of, besides the arranged by PRMS, by what is declared in the General Urbanism and Constructions Ordinance, and by what is stated in Circular N°45 of the Urban Development Division of MINVU, dated on January 20th 1998, referred to Inter-municipality Regulators Planning Elaboration. To this respect it is necessary to specify that such Circular has been abolished in the aspects referring the field of activity in the rural area of the planning tools in this scale by Circular 0138, DDU 146 April 2005, which states: "in the rural area of these planning tools the following legal dispositions and current regulations are applied: a) definition of zones or conditions for the installation of annoying and hazardous industries, landfill of wastes....; b) determination of risk areas...; c) determination of environmental protection areas of natural value resources, in compliance with to article 2.1.18 of OGUC.

These implies then, that out of the urban limits according to what is stated in articles 52, 53, and 54 of the General Law on Urbanism and Construction, and in terms of what is declared in the precedent paragraph, the incumbent will be able to process the infrastructure works, without prejudice of compliance with the environmental regulation, an application in exchange of land use according to the General Law on Urbanism and Constructions Art 55 of DFL 458.

In relation to PHAM:

Most of the Installations by PHAM correspond to infrastructure network, which will be carried out in an area defined by PRMS as Ecological Conservation area. In accordance with stated in the previous paragraphs and without prejudice if the environmental regulation application, the infrastructure networks are understood as admitted in the territory.

According to Article 2.1.29 of the General Ordinance on Urbanism and Construction (OGUC), it is defined as Infrastructure use that referred to the constructions or installations and to the networks or layout destined to; transport infrastructure, sanitary infrastructure, and energy infrastructures such as, power plants generating or supplying power, gas and telecommunications, gas pipelines, etc. With regards the general dispositions, zones or restrictions established by PMRS, such uses will be understood as always admitted and will be abide by the dispositions that competent organizations establish, corresponding in these cases to the territorial planning tool on recognizing only the strips or protected zones determined by the standard of the corresponding organization and assigned to green areas, roads or uses admitted by such standard.

In accordance with what is established in Circular 355 of the Ministry of Housing, the territorial planning tool could establish the conditions or requirements that will allow the carry out of the facilities or buildings inherent in this type of use without prejudice of compliance of the environmental regulations, the General Law on Urbanism and Construction standards, its General Ordinance, and the pertinent dispositions. The before mentioned indicates that the current regulation does not entitles the prohibition of location for theses uses, it only entitles the territorial planning tools to establish in its corresponding competences framework- the conditions or requirements that allow the carry out of the necessary facilities or building for this type of use.

In absence of a definition declared in OGUC, the same Circular comments regarding the meaning of the network concept, understood as a "Group of elements organized for a determined goal, water supply Network, telegraph or telephone Network, train or highways Network". Therefore, it expresses that that the networks and layouts are constituted by the organized group of elements that allow the supply of service they render, from the generation area up to the destination location.

As consequence, and dealing with an energy infrastructure project (which fundamentally involves networks), the PHAM would not present incompatibility with stated in previously, due to this are understood as admitted by IPT.

Regarding the measurements contemplated by the project in order to preserve the biodiversity, tourism and the landscape value of the zone, these have been extensively described in EIA (chapter 6). It essentially deals with measurements and/or criteria incorporated in the engineering of the project (criteria such as environmental location, definition of restricted areas, etc.) and concrete actions that come up from the environmental assessment process (mitigation, compensation and restoration measurements).

3.1.6 Decree with Force of Law N°4 Dated on February 5th 2007, fixing the Revise, Coordinated and Systematized Text of the General Law on Electrical Services

The General Law on Electrical Services governs the production, transport, supply, the concessions regime and tariffs of electric energy, and the State functions regarding these matters.

The hydraulic power plants producing electric power can count with a concession granted by the State, which gives them certain benefits such as right of way necessary for its installation or construction of the electric transport line. The Law stipulates that the rights for exploitation of water resources for the production of electric power should be subject to the Code of Waters. Concessions are also granted to establish electric substations and transport lines of electric power, and to establish, operate, and exploit the facilities of public service supply.

In relation to PHAM:

The Incumbent of the Project owns the rights of use of water for non-consumptive use and for both permanent and temporary, and continuous and discontinuous exercise of its use in the Alto Maipo Hydroelectric Project. The granted flows; the information regarding its catchment and restitution points; the resolutions through which these were constituted and its registration to the corresponding Real Estate Register described in Chapter 2 of this EIA.

Without prejudice of the above, in order to adapt AES Gener S.A. rights to the needs of Alto Maipo Hydroelectric Project, up to the date, several applications on transferring use of water rights of non-consumptive use before the Directorate General of Waters (DGA) are in process, as presented in the files VT-1302-226; VT-1302-227 VT-1302-228; VT-1302-229; VT-1302-230 y VT-1302- without/n°, corresponding to Las Placas; Cajón del Morado; La Engorda Stream, Colina Stream, El Yeso River, and Colorado River flows.

It seems there are no problems for the Directorate General of Waters to approve such applications, up to the date, as long as they do not affect in any way third party rights of the zone and there are water resources needed for such effect.

3.1.7 Supreme Decree N°327, General Law Regulations on Electric Services

The Regulations established in art 8° that hydraulic power plants, electric substations, and transport lines could be installed without requiring concession when the person concerned wishes so. The referred concessions could be temporary (to study the projects) or permanent. The final concessions are granted through supreme decree by the Ministry of Economy, by order from the President of the Republic. The permits concerning the electric installations that do not require concession are granted by the Municipalities.

The electric concessions can only be granted to Chilean citizens and to incorporated companies according to the laws of the country.

The application for provisional concessions must be presented in the Superintendency of Electricity and Fuels, these are published through summaries in a newspaper of national circulation, they are communicated to the Ministry of National Goods if they affect state land, and they are also published in the Official Journal. The superintendent has 90 days to solve, with foundation, the applications of provisional concessions from its publication in the Official Journal. The provisional concession resolution grants the concessionaire the right to obtain from the Professional Judge on Mayor Claims respective of the corresponding permit to practice or make practice on state, municipal or individual land, the measurements and studies that might be necessary for the preparation of the final project of the works between the concessions. The Judge him/herself fixes the compensations to the affected parties with the works.

The application of the final concession is presented to the Ministry of Economy, and is not necessary to have a previous temporary concession. If appropriate, the Ministry of Economy, prior to report to the Superintendency of the field, grants final concession within 120 days from the application day. The final concessions are granted with an undefined date and must be reduced to public writing by the interested party before 30 days from its publication in the Official Journal.

The minimum zone of concessions for public services of supply comprises a strip of one hundred meters surrounding all the existing lines of the company, being these by air or underground.

The concessions for hydroelectric power plants generators of electric power create on favor of the concessionaire right of way of hydroelectric works declared on the Law, in order to occupy the lands needed for the works; to occupy and closing an extension of half hectare the lands adjoining the intake, with the purpose of use them to build rooms for the people in charge of surveillance and work preservation, and to the necessary materials for safety and repairs of them; in order to occupy and close the necessary lands for impoundments, landfills, clarifying, water accumulation tanks, pressure chambers, pipes, hydroelectric power plants with its premises, rooms for the surveillance staff, access roads, deposits for materials, and in general, all the required works for the hydroelectric facilities.

The concessions on transport lines, substations, and public service of supply create rights of way on favor of the concessionaire to lie out air or underground lines through alien properties; in order to occupy the necessary lands for the transportation of electric power from the power generation plant or substation, to the consumption or implementation points; and to occupy and close the necessary lands for the electric substations including the rooms for the surveillance staff.

In the case of rights of way, the right of way land owner has the right to be paid of the worth of the whole land occupied by the works, the worth of the damage caused during construction, and a compensation for the transit that the concessionaire has the right to make for custody effects, conservation, and repairs of the lines.

In relation to PHAM:

GENER will process the final concession for construction and operation of the hydroelectric power plants before the Ministry of Economy.

3.2 ENVIRONMENTAL REGULATION OF SPECIFIC CHARACTER APPLICABLE TO THE PROJECT

The identification of the specific environmental regulation applicable to the Project has been determined upon the base of environmental impacts associated to its works and actions.

For each one of the standards identified as applicable to the Project, the regulated matter and the phase or stage of the Project in which the impact or environmental effect is generated. Therefore, its name, publication date, and the Ministry or office in charge which emitted, are set.

Subsequently, a brief description of the content of the standard is presented, as well as the confirmation of the compliance with the contained dispositions in each one of them, and the competent authority to enforce its fulfillment.

With the goal of presenting the information in an orderly and systematized fashion, the analysis of each one of the standards has been done with an index card format.

3.2.1 Air

REGULATED MATTER	**Emissions of Particulate Matter**
Phase	**Construction**
STANDARD	**Supreme Decree N°144**
Name:	It establishes standards to avoid emissions or atmospheric pollutants of any nature.
Publication date:	2nd May 1961
Ministry:	Health
APPLICATION SCOPE	Domestic
MATTER	This decree contains a general mandate to point out in its article 1 that "gases, fumes, smokes, dust, emissions or pollutants of any nature, produced in any manufacturing establishment or workplace, should be captured or eliminated in such a way that will not cause any harm, damage or inconveniences to the neighborhood".
IN RELATION TO THE PROJECT	During the construction stage, the main emissions to the atmosphere correspond to ground movement, especially to the load and download of excavated materials. Such emissions are characterized in Chapter 2 of this Environmental Impact Study. During the operation stage of the project, only generate gas emissions will be generated because of the personnel transportation, which are considered as marginal.
COMPLIANCE	It is estimated that the total amount of emissions of particulate matter (MP) derived from construction works by PHAM will reach, in a worst case scenario, a total of 277 ton/year. Detail of the emissions estimated to be generated into the atmosphere by the Project is presented in Annex 5, attached to EIA. The measurements that the Project incumbent will implement to minimize the emissions of particulate matter that might cause inconveniences, especially to the workers are presented in Section 2.5.3 Chapter 2 and in section 6.4.1.1, of Chapter 6.
ENFORCEMENT	According to article 8 of this regulations text, the National Health Service, current Regional Sanitary Authority, will be in charge of overseeing the compliance of all the dispositions referred in such text.

REGULATED MATTER	**Emissions of Particulate Matter**
Phase	**Construction**
STANDARD	**Supreme Decree N°58**
Name:	Revised and Updated Prevention and Atmospheric Decontamination Plan for the Metropolitan Region (PPDA)
Publication date:	29th January 2004
Ministry:	General Secretariat of the Presidency
MATTER	The art. 51 of PPDA points out that all those projects or new activities and changes to those existing subject to SEIA, must comply with the following conditions: 1. Those projects or new activities and its modifications, in any stage that have an associated total annual emission that implies a growth in the base situation over the values presented in the specified table, must compensate its emission with a 150% (Table values as pollutant: MP10, 10 t/year; CO, 100 t/year; NOx, 50 t/year, COv, 100 t/year, SOx). 2. The compensation of emissions will be 150% the total amount of emissions of the activity or project for one or more pollutants exceeding the referred value in the previous table. These emissions will correspond to direct emissions, that is to say, the ones to be emitted within the land or ground where the activity will be developed, and the indirect emissions, such as, those associated to the increase of transport due to the new activity. 3. Dealing with specific stationary sources it is considered the emission compensation according to DS N°4/92 and DS N°812/95, both from the Ministry of Health. 4. The conditions mentioned with regards the emissions compensation will not substitute the imposed demands in other current standards in the Metropolitan region, for the referred pollutants. It establishes an Emission Compensation System and in this emission reduction acknowledgement to those Projects in the public or private sector entering the SEIA, either voluntary or mandatory and that confirm net reduction emission, this project situation, including construction and operation, would mean minor emissions, instead of a situation without project, they will have a recognition in the reduction emissions in the corresponding RCA. The RCA will have to point out the net emission reduction estimated for the project.
IN RELATION TO THE PROJECT	During the construction stage, the main emission into the atmosphere will correspond to the particulate matter generated by the activities related to the material movement such as load and download of materials and the excavation works. Because the project is located in the Metropolitan Region, is subject to the Prevention and Atmospheric Decontamination of the Metropolitan Region (PPDA).

COMPLIANCE	The results of the Emission Estimation Study shows that during the construction stage of PHAM, the emission rates of CO, HC, NOx remain within the limits established by the Supreme Decree N°58 of MINSEGPRES (preventive Decontamination Plan and Decontamination for the Metropolitan Region). Regarding the MP10 emissions, the emission rate of the project will exceed the limits established by PPDA in 267 ton/year (see Annex 4, attached to EIA). Therefore, the project presents as compensation proposal, consisting on improvement of the G-455 and G-25 roads as stated in Appendix 5 of EIA "Emission Compensation Programme". In this sense the implementation of this measure will have an immediate effect on the total amount of emissions generated by this source of emission. According to the calculation done (see Annex 4), the planned improvement will allow to reduce emissions of 1.672 ton/year currently emitted in the zone, up to 502 ton/year, which implies a reduction of 1.170 ton/year, 150% an amount greater than the emission generated by the project, allowing to comply with what has been established in PPDA.
ENFORCEMENT	COREMA Metropolitan Region, Sanitary Authority.

REGULATED MATTER	**Emissions of Particulate Matter**
Phase	**Construction**
STANDARD	**Supreme Decree N°59**
Name:	It establishes a standard of primary quality for breathable particulate matter MP-10, especially from values defining emergency situations.
Publication date:	May 25th 1998 and September 11th 2001, respectably.
Ministry:	General Secretariat of the Presidency
APPLICATION SCOPE	Domestic
MATTER	It establishes the standard of primary quality for breathable particulate matter, defining levels which determine the environmental emergency situations for such element, and establishes prognosis and measurement methods for the whole Chilean territory. According to arranged in article 2°, the standard of quality for the PM10 pollutant is 150 µg/m^3 N, in a concentration of 24 hours, and fifty micrograms per normal cubit meter (50 µg/m^3 N), in annual concentration. On the other hand, article 3° defines the levels originating environmental emergency situations for particulate matter. In order to determine these levels it must be considered whether the calculated value for the quality of air, in a 24 hour concentration, is within the range stated in such article.
IN RELATION TO THE PROJECT	The project will generate MP from the construction activities, specifically load and download, excavations, and transit of machinery.
COMPLIANCE	The emissions in the atmosphere detailed by PHAM are presented in Annex 4, attached to this EIA. The presented environmental impact assessment allows confirming the total MP emission, due to the construction of the project, considering the compensation proposal and the additional control measurements, will not generate significant effects over the current air quality. On the contrary, it is expected that the improvements of the G-455 and G-25 routes will reduce emissions generated by the current transit of trucks (Annex 5).
ENFORCEMENT	Regional Sanitary Authority.

REGULATED MATTER	**Air / Particulate Matter**
Phase	**Construction**
STANDARD:	**Supreme Decree N°75.**
Name:	It establishes the Conditions for the Indicated Transport of Loads
Publication date:	July 7th 1987
Ministry or Office in Charge:	Ministry of Transport and Telecommunications
APPLICATION SCOPE	Domestic
MATTER	This body points out that vehicles transporting wastes, sand, gravel, and other types of materials, either solids or liquids that may leak or run-off into the ground, will be manufacture in order to prevent this to happen regardless of any situation. It also adds that in urban areas, the transport of material that might produce dust, such as debris, cement, gypsum, etc. must be efficiently and totally covering the materials with canvas or plastics of adequate dimensions or another system that will prevent dispersion to the air.
IN RELATION TO THE PROJECT	The project considers, during the construction stage, the transport of material from the excavation area to the muck disposal areas through trucks, locomotives and conveyor belts according to what is stated in Chapter 2. Transport with trucks, of approximately 12 to 15 m^3 capacity, will be mainly carried out in El Colorado area. Whereas locomotives will be used in the other areas. The use of wagons for transport of excavated materials is possible due to the muck disposal areas will be located in an adjacent way to the sluice gates of the windows of the tunnel. This transport will be carried out during the construction stage of the project, that is to say, 4 years approximately.
COMPLIANCE	During the construction stage, the incumbent of the project will comply with the demands established in this standard through the use of suitable vehicles and the execution of actions to avoid the leakage or dispersion of the pollutants such as covering the transported materials with canvases, damping of them, appropriate load and download, periodic maintenance of the trucks, etc.
ENFORCEMENT	Chilean Police Force (Carabineros de Chile) and Municipal Inspectors.

REGULATED MATTER	**Atmospheric Emissions**
Phase	**Construction**
STANDARD	**Supreme Decree N°4**
Name:	It establishes pollutant emission Standards applicable to the motorized Vehicles and sets its control procedures.
Publication date:	29th January 1994
Ministry:	Transport and Telecommunications
APPLICATION SCOPE	Domestic
MATTER	The pollutant emission through the exhaust of the motorized vehicles with spark-ignition (Otto cycle) of two or four times, out of those that have not been established in the emission regulation declared in gr/Km, gr/HP-h, or gr/kw-h, could not exceed the maximum concentrations stated in DS. The years of use of the vehicle will be counted as the difference between the year that the control is performed and the manufacture year of the vehicle plus one unit. Visible smoke: only in engines of 4 times; it will only be permitted the emission of water steam. The carbon dioxide emission from the motorized vehicles of two wheels of spark-ignition (Otto cycle) of two or four times, could not exceed the maximum concentration of 4.5%.
IN RELATION TO THE PROJECT	The project considers the use of motorized vehicles, trucks and heavy machinery during the construction phase, which will generate combusted gas emissions.
COMPLIANCE	As measurement for controlling the combusted gas emissions, it will be demanded that the motorized vehicles, trucks and heavy machinery would be submitted to periodic maintenances, and to comply with the emission regulations established by the Ministry of Transports and Telecommunications, enforced through the Technical Review Certificate of the period.
ENFORCEMENT	Chilean Police Force (Carabineros de Chile) and Municipal and Public Works Inspectors.

REGULATED MATTER	**Atmospheric Emissions**
Phase	**Construction**
STANDARD	**Supreme Decree N°55**
Name:	Emission regulation to the indicated heavy motorized vehicles
Publication date:	March 8th 1994
Ministry:	Transport and Telecommunications
APPLICATION SCOPE	Regions stated in the standard
MATTER	This standard points out that heavy motorized vehicles, those destined for the transport of people or load, by streets and roads which have a vehicle gross weight equal or above 3.860 kilograms, whose first inscription in the National Registry for Motorize Vehicles of the Civil Registry Service and Identification, requested from September 1st 1994, only if these are mechanically suitable vehicles complying with the standards of emissions stated in article 4, in terms of the carbon monoxide (CO), total hydrocarbons (HC), nitrogen oxides (NOx), and particulate matter (MP) and if, after the technical review is confirmed to be in adequate conditions to be driven in the Metropolitan Region, mainland V Region, and the IV, VI, VII, VIII, IX, and X Region.
IN RELATION TO THE PROJECT	The Project considers the use of heavy motorized vehicles during the construction phase.
COMPLIANCE	As control measurement of the combusted gas emissions, it will be demanded that the heavy motorized vehicles, shall be submitted to periodic maintenances, and to comply with the emission regulations established by the Ministry of Transports and Telecommunications, enforced through the Technical Review Certificate.
ENFORCEMENT	Chilean Police Force (Carabineros de Chile), and Municipal and Public Works Inspectors.

3.2.2 Noise

REGULATED MATTER	**Noise**
Phase	**Construction**
STANDARD	**Supreme Decree N°146**
Name:	It establishes an Unpleasant Noise Emission Standard Generated By Fixed Sources.
Publication date:	April 17th 1998
Ministry:	General Secretariat of the Presidency
APPLICATION SCOPE	Domestic
MATTER	The standard established the maximum admitted levels of corrected sound pressure and the technical criteria to assess and qualify the emission of unpleasant noises generated by fixed sources towards the community such as industrial activities, trading, leisure, artistic ones and others. Article 4° of the Decree sets the maximum levels of corrected sound pressure obtained from the fixed source noise transmitter, measured in the location where the receptor is placed. The sound emission levels established in this decree are differentiated according to the zone that the receptor is located and the time that noises are emitted. In rural areas, the corrected sound pressure levels obtained from the emission of a fixed source of noise transmitter measured in the location where the receptor is placed, it will not be able to exceed background noise in 10dB (A) or more. It must be noted that in this case the standard has been used as reference, it is not clear if it is applicable to the Project in its construction stage because we are not dealing with a fixed source of works.
IN RELATION TO THE PROJECT	In the construction stage, the main sources of noise generation will be: i) machineries used in excavations and land movements, ii) blasts, iii) installations of works or camp sites, and iv) heavy trucks for transport of material from excavations and other type of materials. The detail of the noise generation levels in both phases of the project is presented in Chapter 6 of EIA.

COMPLIANCE	In the competence part of this standard, the use of land of the project area defined by the Metropolitan Regulating Plan of Santiago, and approved by the Municipality of San José de Maipo as can be seen in Certificate N°37/2008, attached to Annex 13 of EIA, correspond to use of rural land in the total area of insertion of PHAM. The corrected sound pressure levels obtained from the emission of a fixed source of noise transmitter measured in the location where the receptor is placed, it will not be able to exceed background noise in 10dB (A) or more. In Chapter 6, section 6.4.1.2 and Annex 30 "Noise", the acoustic impact assessment is presented with regards D.S 146/97 and the detail of the activities and actions mainly developed in the construction stage to guarantee the compliance of this standard. The proposed control measures take unfavorable conditions and mainly consider some sensitive points identified in the base line. For those acoustic impacts non-regulated by D.S 146/97, the Incumbent has considered the international regulations of countries determined in Article 7° of D.S. N°95/2001 by MINSEGPRES "Regulations of the Environmental Impact Assessment System" In the case of **mobile sources**, the calculation of emissions by the flow of load trucks and buses on public roads, a methodology based on the European Union recommendation was done, according to Guide du bruit of France (details of this guideline in Appendix 1 attached to Annex 30 of this EIA). Later on, the calculation of the emission with the reference parameters of the Federal Highway Administration regulations, "Procedures for Abatement of Highway Traffic Noise and Construction Noise", 23 C.F.R., Part 772, Federal Register, vol. 47, pp. 29653-29657, July 8th 1982 (FHWA), which considers the impact to be produced when the expected future levels approach or exceed certain limit values. On the other hand, in the case of **vibrations**, the impact assessment was carried out based on a modeling of the values of Vertical Particle Speed (in mm/s) expected vibration from the nearest receptor. Later on, the modeled values were assessed with regards the limits established on the standard "Title 30: Mineral Resources; Part 816—Permanent Program Performance Standards—Surface Mining Activities; § 816.67 Use of explosives: Control of adverse effects"[1], belonging to the United States (for further details, please see Appendix 2 attached to Annex 30 of this EIA) Finally, the complete noise and vibration emission assessment, and the description of the international standards, are shown in Annex 30 "Noise", attached to this EIA.
ENFORCEMENT	Regional Sanitary Authority.

[1] "Title 30, part 816, paragraph 816.67 of the Code of Federal Regulations

3.2.3 Water

REGULATED MATTER	**Drinking Water**
Phase	**Construction and Operation**
STANDARD	**Supreme Decree N°735**
Name:	Water Service Regulations destined to human consumption
Publication date:	December 19th 1969
Ministry:	Health
MATTER	Article1° establishes that every drinking water service should provide water of good quality in enough amounts to successfully supply the corresponding population to meet; it should also guarantee continuous supply against interruptions caused by failures in its facilities or its collection. In terms of the quality of the water, it establishes the maximum substance or chemical elements concentrations that might be in water for human consumption and it establishes treatment processes so water can be considered suitable for human consumption.
IN RELATION TO THE PROJECT	During the construction period, drinking water will be supplied to PHAM workers.
COMPLIANCE	Water supplied to workers will comply with NCH 409 which establishes the conditions for the quality of drinking water. Water will be extracted from ravines near the camp sites and then will be made to fit before its supply. The use of ravines water will be agreed together with the owners of the occupied lands; most of these ravines are born and die within the farms. Bottled water will be used in camp sites and workplaces as well. The above through the procedures presented in Chapter 2, section 2.3.2.4 "deployment of camp sites and installation of works"
ENFORCEMENT	Metropolitan Regional Secretariat of the Ministry of Health

REGULATED MATTER	**Drinking Water**
Phase	**Construction and Operation.**
STANDARD	**Supreme Decree N°594, modified by D.S. N°57**
Name:	Regulations on basic sanitary and environmental conditions in workplaces.
Publication date:	April 29th 2000 and November 7th 2003, respectably.
Ministry:	Health
APPLICATION SCOPE	Domestic
MATTER	Article 12 establishes that every workplace should have individual or collectively, drinking water destined for human consumption and basic hygiene and personal cleanliness use. Article 13 establishes the obligation by any type of drinking water supply system, this should comply with physical, chemical, radioactive, and bacteriology requirements set by the current regulation on this matter. Article 15 states that in those work areas or camp sites of transitional character where there are no drinking water service, the company should keep a drinking water supply as well, while in terms of amount and quality, to what is established in articles 13 and 14 of this regulations, per worker and per family member.
IN RELATION TO THE PROJECT	Water will be extracted from ravines near the camp sites and then will be made to fit before its supply.
COMPLIANCE	Drinking water supply will be kept at a minimum amount of 200 liters per person per day, which must comply with the parameters of NCH 409 on quality of drinking waters. These treatment systems will be authorized by the corresponding Public Services. Daily checks up for the compliance of the requirements on the quality of drinking water will be done internally at the camp sites and work installations.
ENFORCEMENT	Regional Sanitary Authority.

REGULATED MATTER	**Drinking Water**
Phase	**Construction**
STANDARD	**Decree N°446**
Name:	Chilean Standard 409, Drinking Water Requirements
Publication date:	June 27th 2006
Ministry:	Health
APPLICATION SCOPE	Domestic
MATTER	This technical Standard establishes the physical, chemical, radioactive and bacteriology requirements that drinking water should comply with for human consumption. This standard is applied to drinking water from any supply service.
IN RELATION TO THE PROJECT	Drinking water should be supplied for the consumption of the workers during construction works.
COMPLIANCE	Drinking water supply will be kept at a minimum amount of 200 liters per person per day, which must comply with the physical, chemical, radioactive and bacteriology requirements established in NCH 409, "Water Requirements for Human Consumption" according to art. 11, 12, 13 and 14 of D.S. Nº 594/99 of the Ministry of Health.
ENFORCEMENT	Regional Sanitary Authority.

REGULATED MATTER	**Sewage and Liquid Wastes**
Phase	**Construction**
STANDARD	**Decree with Force of Law N°725**
Name:	Sanitary Code
Publication date:	January 31st 1968
Ministry:	Health
APPLICATION SCOPE	Domestic
MATTER	Article 71 stipulates that the Health Service should approve projects with regards construction, repairs, modification and extension of any public or private work destined to evacuate, treat or final disposition of draining, sewage of any nature and industrial or mining wastes. Article 73 of the same legal body, prohibits the discharge of sewage to rivers or small lakes, or in any other source or mass of water that might help to supply drinking water to any populated area, irrigation or bathing stations, without having first its purification as stated in the regulations.
IN RELATION TO THE PROJECT	The project will require a sewage treatment system generated by the workers during construction, and a sequential sedimentation system for the treatment of sewage generated in the construction activities.
COMPLIANCE	Sewage will be treated in Modular Treatment Plants, located in the camp sites of the project which will count with the corresponding sanitary authority approval. During winter, these treated waters will be discharged to the nearest superficial water courses, complying with the maximum limits established by D.S. N°90/2001 in its Table N°1 which "Sets maximum limits allowed for discharge of liquid wastes to the river water body" In dry season, the treated waters will be reused for watering surfaces (see Annex 18). Sewage will be treated in a sequential sedimentation system which will be enabled in each workplace. During winter, these treated waters will be discharged to the nearest superficial water courses, complying with the maximum limits established by D.S. N°90/2001 in its Table N°1 which sets "maximum limits allowed for discharge of liquid wastes to the river water body" In dry season, the treated waters will be reused in its greatest ratio for processing concrete, or for activities proper of construction (see Annex 18).
ENFORCEMENT	Regional Sanitary Authority.

REGULATED MATTER	**Sewage**
Phase	**Construction**
STANDARD	**Supreme Decree N°594, modified by D.S. N°57**
Name:	Regulations on basic sanitary and environmental conditions in workplaces.
Publication date:	April 29th 2000 and December 7th 2003, respectably.
Ministry:	Health
APPLICATION SCOPE	Domestic
MATTER	Article 21 establishes that in every workplace, hygiene services of individual or collective use should be available and must have a toilet and basin. Article 24 of the standard quoted, states that in those temporary works where because of its nature would not be possible to install hygiene services connected to a sewer system, and the employer should provide at least sanitary latrine or portable toilets. Transport, enabling, and cleaning of them will be the employer's responsibility. Sewage of domestic character should be conducted to the public sewer system, if not possible, its final disposition should be done through systems or private plants according to the current specific regulations.
IN RELATION TO THE PROJECT	The project will require sanitary installations for the reception of sewage generated by the workers during construction stage.
COMPLIANCE	Hygiene services will be adjusted to what has been established in D.S. 594/99 of MINSAL, especially regarding the amount and other specifications (hot water, showers, etc.). The Contractor will look after the right maintenance and functioning of these services. In working faces with the presence of temporary workers, portable toilets will be set and will be managed by a company approved by the Sanitary Authority, arranging wastes of these units according to the current regulation.
ENFORCEMENT	Regional Sanitary Authority.

<table>
<tr><td>REGULATED MATTER</td><td>Liquid Wastes</td></tr>
<tr><td>Phase</td><td>Construction</td></tr>
<tr><td>STANDARD</td><td>Supreme Decree N°90</td></tr>
<tr><td>Name:</td><td>Emission standard for the regulation of pollutants associated to the liquid waste discharges to sea, continental and superficial waters.</td></tr>
<tr><td>Publication date:</td><td>March 7th 2001</td></tr>
<tr><td>Ministry:</td><td>General Secretariat of the Presidency</td></tr>
<tr><td>APPLICATION SCOPE</td><td>Domestic</td></tr>
<tr><td>MATTER</td><td>The current standard has as goal the environmental protection to prevent contamination of sea and continental waters of the Republic through control of pollutants associated to liquid wastes that are discharged to these receptive bodies. With the above, we achieve substantial improvements of the environmental quality of waters in order to keep or reach the environmental condition free of pollutants according to the Constitution and the Laws of the Republic.
By virtue of this standard, the maximum pollutants concentration allowed for chemical wastes discharged by the emitter sources into the superficial sea and continental water bodies of the Republic of Chile.</td></tr>
<tr><td>IN RELATION TO THE PROJECT</td><td>According to described in Chapter 2, the project will require a sewage treatment system generated by the workers during construction, and a sequential sedimentation system for the treatment of sewage generated in the construction activities.</td></tr>
<tr><td>COMPLIANCE</td><td>The treated waters that will be discharged into the superficial water courses shall comply, at any time, with the maximum limits stated in Table N°1 of D.S. Nº 90/2001.
In order to make a follow up of this compliance, a monitoring of each one of the discharges will be done. The approximated coordinates in such discharges are presented in the following table:
<table>
<tr><th>Treatment Plant / Sedimentation System</th><th>Type of treated water</th><th>Coordinate. This (UTM)</th><th>Coordinate. North (UTM)</th></tr>
<tr><td>N°1 El Volcán area</td><td>Sewage and Liquid Industry Waste</td><td>406.318</td><td>6.260.237</td></tr>
<tr><td>N°2 El Yeso area</td><td>Sewage and Liquid Industry Waste</td><td>399.027</td><td>6.273.587</td></tr>
<tr><td>N°3 Upper Aucayes areas</td><td>Sewage and Liquid Industry Waste</td><td>383.896</td><td>628.8042</td></tr>
<tr><td>N°3 Down Aucayes area</td><td>Sewage and Liquid Industry Waste</td><td>384.746</td><td>6.290.148</td></tr>
<tr><td>N°5 substation area (or Las Lajas tunnel)</td><td>Sewage and Liquid Industry Waste</td><td>379.936</td><td>6.287.536</td></tr>
<tr><td>N°6 Caballo Muerto area</td><td>Liquid Industry Waste</td><td>387.590</td><td>6.291.533</td></tr>
<tr><td>N°7 river Maipo discharge area</td><td>Liquid Industry Waste</td><td>368.455</td><td>6.283.966</td></tr>
</table>
Compete detail of the liquid waste management is presented in Annex 18 "Waste Management Plan for Working faces, workplace, and camp sites".</td></tr>
<tr><td>ENFORCEMENT</td><td>Enforcement of the current standard will be in charge of the</td></tr>
</table>

	Superintendency on Sanitary Services, to the General Directorate of Maritime Territory and Merchant Shipping and the Sanitary Authority, as appropriate.

REGULATED MATTER	**Quality of Waters**
Phase	**Construction**
STANDARD	**Supreme Decree N°876, Modified by Decree 105**
Name:	Official Chilean Standard N° 1.333 of Quality of Waters for different uses
Publication date:	July 5th 1978 and 1987, respectably.
Ministry:	Public Works
APPLICATION SCOPE	Domestic
MATTER	It sets the quality of water criteria according to the scientific requirements referred to physical, chemical and biology aspects, as per its determined use. It establishes requirements of water for human consumption, for animals, irrigation, aesthetics, and leisure, the requirements of waters for aquatic life as well.
IN RELATION TO THE PROJECT	Waters from hygienic services and, in some cases, from construction works surpluses will be generated.
COMPLIANCE	During the construction stage, sewage and liquid industry waste will be treated and discharged to the superficial water courses strictly following the maximum limits established by D.S. N°90/2001 in its Table N°1 which "Sets maximum limits allowed for discharge of liquid wastes to the river water body" Complementary, the operational control of the discharges will have as reference the NCh 1.333 "Requirements of water quality for different uses". Although, strictly speaking, this standard is not applicable for the use planned by the Project, the contained parameters will be considered as reference values for the environmental follow up. Complete detail of the liquid waste management is presented in Annex 18 "Waste Management Plan for Working faces, workplace, and camp sites".
ENFORCEMENT	Regional Sanitary Authority.

3.2.4 Hydraulic Works

REGULATED MATTER	**Hydraulic Works**
Phase	**Construction**
STANDARD:	**Decree with Force of Law N°1.122**
Name:	Code of Waters
Publication date:	October 29th 1981
Ministry:	Justice
APPLICATION SCOPE	Domestic
MATTER	Art. 294 of the Code of Waters, stipulates in its sub-paragraphs a), b) and d) that will require the approval by the General Director of Waters. a) Reservoirs with capacity over fifty thousand cubic meters or which wall will be more than five meters high; b) aqueducts which will drive more than two cubic meters per second, and c) siphons which cross the natural flows.
IN RELATION TO THE PROJECT	The project contemplates the total construction of 70 Km of tunnels out of which approximately 60 Km are adduction tunnels from both power plants most of them will work with pressure and the rest are constituted by access windows to the main tunnels, the access tunnels in the machinery caverns and the corresponding discharge tunnels from both power plants. On the other hand, for the crossing of rivers Yeso and Colorado, siphons made of steel with a buried concrete socket will be constituted in the river beds and covered with threaded protection (see section 2.2.2. "Superficial works").
COMPLIANCE	The constructions of siphons and adductions of the project will be adjusted to the dispositions on this decree. It is included in this EIA the formal and technical background of the Sector Environmental Permit in article 101 of the SEIA Regulations.
ENFORCEMENT	Directorate General of Waters

3.2.5 Wastes

REGULATED MATTER	**Solid Wastes**
Phase	**Construction and Operation**
STANDARD:	**Decree with Force of Law N°725**
Name:	Sanitary Code
Publication date:	January 31st 1968
Ministry:	Health
MATTER	Article 80 establishes that is the National Health Service the one who authorizes the installation and oversees the functioning at any location destined to accumulate, select or final disposal of garbage and any type of wastes.
IN RELATION TO THE PROJECT	During the construction stage, wastes or garbage will be generated, whose qualitative and quantitative features are detailed in Annex 18 "Waste Management Plan", attached to this EIA.
COMPLIANCE	For the compliance of this standard, GENER shall establish strict contractual demands to the Contractors to grant an adequate management and final disposal of solid wastes. Generally, these measures consider the following: – Marine: Final disposal of this material will be in muck disposals of the project authorized by the corresponding authority (See Annex 6 “Muck Disposal Plan”). – Construction wastes: It is anticipated a low generation rate of this type of wastes, therefore, will be reused and/or those who count with a commercial value will be place on sale. Without prejudice of it, surpluses will be transported by the Contractor to authorized waste tip (See Annex 18 "Waste Management Plan"). – Industrial wastes: It will prioritize by reuse of these materials in the working faces and/or third party sales. Those wastes that can no longer be reused or sold, will be temporarily stock up in a specially enabled yard in each one of the facilities, to later on be moved away and disposed in authorized waste tips by authorized companies of hazardous waste transportation (See Annex 18 "Waste Management Plan"). – Residential wastes or assimilated to households: These wastes will be stored in special containers located in each facility; they will be regularly moved away by the Contractor to be finally disposed in an authorized sanitary landfill (See Annex 18 "Waste Management Plan"). – Vegetable waste: Given the features on the vegetable coverage in the zone, it is estimated lower generation volume which will be produced mainly in the works of road opening and vegetation clearing in the tunnel windows, discharge chambers, and installation of some minor works (water intakes and electric substation).
ENFORCEMENT	Regional Sanitary Authority.

REGULATED MATTER	**Solid Wastes**
Phase	**Construction and Operation**
STANDARD	**Resolution N°5.081**
Name:	Declaration and Follow up System of Solid Industrial Waste
Publication date:	March 12th 1993
Ministry or Office in Charge:	Health and Environment Service of the Metropolitan Region
APPLICATION SCOPE	Metropolitan Region
MATTER	This resolution stipulates that industrial establishments located in the Metropolitan Region which generate as a result from their processes or operations, solid wastes or residues of industrial type (RISES), as well as carriers and addressees of the same, should declare the generated, transported or received industrial wastes. The objective of this resolution is to regulate the generation, accumulation, transportation and final disposal process of solid industrial wastes. In this way the Health and Environment Service of the Metropolitan Region seeks to know with certainty what happens with solid wastes, from its generation up to its final disposal. On this matter, the Resolution is clear pointing out that every solid industrial waste, from the moment that abandons the generator establishment and up to its final disposal, it must have the rights of the corresponding Declaration Document. This document will have specific information regarding the generated RISES, as well as information identified as generator, carrier and addressee of itself. Both the generator and the addressee of the rights count with a dateline of 10 working days of each month to prepare and issue to SESMA a consolidated which will have a summary of the generated and received wastes of the previous month.
IN RELATION TO THE PROJECT	During the construction stage wastes of industrial type will be generated in a lower scale, proper of machinery maintenance such as oil rest and lubricant oils.
COMPLIANCE	Those wastes that can no longer be reused or sold will be temporarily stock up in a specially enabled yard in each one of the camp sites or work facilities, to later on be moved away and disposed in authorized waste tips by authorized companies of hazardous waste transportation. For this, the staff in charge of transport of hazardous and non-hazardous wastes of industrial character or generated during construction out of the facilities of the project, will count at all times with a document of Waste Declaration and Follow Up according to stipulated in DS N° 148/03 and Resolution N° 5.081/93, both from MINSAL. A copy of each of these documents shall be sent to the corresponding Sanitary Authority at the moment of start the transportation (See Annex 18 "Waste Management Plan").
ENFORCEMENT	Regional Sanitary Authority.

3.2.6 Flora and Fauna

REGULATED MATTER	**Vegetation and flora**
Phase	**Construction**
STANDARD	**Supreme Decree N°366**
Name:	Exploitation of Tamarugo, Carob tree, Chañar, Guayacán, Olivillo, Carbón or Carbonillo, Espino, Boldo, Maitén, Litre, Bollen and Quillay.
Publication date:	February 17th 1944
Ministry:	Ministry of Lands and Settlement
MATTER	This legal body establishes in its art. 2 sub-paragraph a) the log or exploitation of trees and bushes indicated (with the exception of Quillay) will only be permitted during the months of April, May, June, and July, excluding the log and exploitation of "boldo leaves" which can be done only between the months of December to March of each year in the whole supply area of this specie in the Republic. Similarly, Art. 3 of this decree, stipulates according to art. 19 of the current Forest Law the prohibition of logging Quillay and exploitation of its products such as firewood charcoal and bark, between January 1st and April 30th of each year. Out of this period of time the people interested in exploiting this tree should ask a permit to the Agriculture and Livestock Service. On the other hand, Art. 6 prohibit the grubbing-up of quillayes in non-irrigated land and those of irrigation in slope without written authorization from the Agriculture and Livestock Service.
IN RELATION TO THE PROJECT	According to the results on the base line (see Chapter 5) in the zone where the project will be located it has been found some "Olivillo" specimen in "Los Maitenes area towards the upper section of the water shed of Colorado river and the Aucayes stream. Some Guayacán specimens were also found in the lower section of the Colorado watershed and some Espino, Maitén, Litre, Bollen and Quillay specimen over the Colorado watershed in direct influence area of the project.
COMPLIANCE	Logging these specimens will be carried out during the period of time indicated in this legal body. In the case of logging out of the permitted period of time, the contractor of works will ask for the corresponding authorizations.
ENFORCEMENT	Ministry of Agriculture and Chilean Police Force (Carabineros de Chile)

REGULATED MATTER	**Vegetation and flora**
Phase	**Construction and Operation**
STANDARD	**Supreme Decree Nº 4.363 and D. L Nº 701**
Name:	Approval of Final Text of the Forest Law and Regulations on Forestry Development
Publication date:	July 31st 1931 and October 28th 1974, respectably.
Ministry:	Lands and Settlement, and Agriculture, respectably.
MATTER	Art. 2 of the Forest Law establishes as mandatory that the lands qualified with forestry aptitude and the natural and man-made forests, are subject to the forestry management planning approved by the National Forestry Corporation (CONAF), according to the modes and obligations stipulated in the Act Decree N° 701 of 1974 on Forestry Development. Similarly, article 21 of DL N° 701 establishes that any logging or exploitation of native forest should be done prior to a management planning approved by the Corporation. The same obligation will run for the existing forest plantation in lands with preferred forestry aptitude. The expression "forest" is defined as "a populated area with vegetable formations where trees are predominant and take up a surface of at least 5.000 m^2, with minimum width of 40 m, an arborean canopy over 10% of such total surface in dry and semi dry conditions, and 25% in more favorable conditions. Finally, Article 5° of the Forest Law stipulates that is not allowed to: 1° logging native trees and bushes located in less than 400 m above springs that are born in hills and those located in less than 200 m of its shores from the point where the drainage basin is originated up to point where it reaches the plan; 2° logging or destruction of the arborean located in a radius less than 200 m from the springs that are born in non-irrigated flat lands; and 3° logging or exploitation of native trees and bushes located in slopes over 45%. Nevertheless, these areas will be available only by justified causes and prior to approval of the management plan according to the act decree N°701 of 1974.
IN RELATION TO THE PROJECT	In some parts of the project, especially under elevation of 1.500 meters above sea level, some tree specimen belonging to the sclerophyllous forest has been registered.
COMPLIANCE	In Annex 7 of EIA, the Logging and Reforestation Forest Management Plan in order to execute civil works is attached. While in Annex 29, the measures of specimen reposition constituting the forest are described.
ENFORCEMENT	National Forestry Corporation

REGULATED MATTER	**Vegetation and Flora**
Phase	**Construction and Operation**
STANDARD	**Decree 82**
Name:	Prohibits the Logging of Trees and Bushes in the Andean Pre-mountain range and Mountain Range Zone which states:
Publication date:	July 3rd 1974
Ministry:	Agriculture
MATTER	Prohibits the logging and exploiting of trees and bushes, in any fashion, that are located in the land within the limits stated in this decree. Which in most of its part, the lands between the Andean pre-mountain range and mountain range from the province of Santiago, are comprised of ravines, and great tourism attraction, not subject to agricultural or livestock exploitation, and very exposed to erosion. It is necessary to protect the pointed flora and fauna areas, preserving landscape beauty and avoiding destruction of the land.
IN RELATION TO THE PROJECT	In some parts of the project, especially under elevation of 1.500 meters above sea level, some tree specimen belonging to the sclerophyllous forest has been registered.
COMPLIANCE	With the exception of the work location area and prior to authorization by CONAF, during the construction phase the total logging of trees and bushes will be banned. In order to do this, a regulations training will be prepared, based on this legal body which will be trained to each one of the Contractors and its workers as a contract clause demanded by Gener.
ENFORCEMENT	According to article 3 of decree 82, the Chilean police force (Carabineros de Chile), SAG and CONAF will attribute all the necessary measures to obey the standards contained in this Decree, enforcing its compliance.

REGULATED MATTER	Terrestrial Fauna
Phase	**Construction and Operation**
STANDARD	**Act N°4.601 (text substituted by Act N°19.473/96)**
Name:	Hunting Law and its Regulation approved by D.S. N°5 modified this last one by D.S. N°53
Publication date:	September 27th 1996 and September 15th 2003, respectably.
Ministry:	Agriculture
MATTER	It regulates hunting, capturing, breed, conservation and sustainable use of animals from the wild fauna, with the exception of species and hydrobiological resources whose preservation is subject by the General Fishing and Aquaculture Law N°18.892. which was revised by the Supreme Decree N°430 of 1991 by the Ministry of Economy, Reconstruction, and Development. Besides, it bans, in the whole territory of the nation, hunting or capture of wild fauna specimens catalogued as endangered species, vulnerable, rare and barely known, as well as species catalogued as beneficial to the Agriculture, Livestock and Forestry activities, for maintenance of the natural ecosystem balance or may present reduced population density. Furthermore, the Hunting Law prohibits, at all times, to pick up nests, destroy burrows or recollect eggs and baby animals, with the exception of species declared as destructive.
IN RELATION TO THE PROJECT	According to the results of the Base Line, in the influence line corresponding to Colorado River, Cajón de la Engorda- El Morado stream, Lo Encañado Lake- El Manzanito Stream area, El Yeso Ravine and River, and Aucayes Stream, a total of 86 species were registered, among them 3 amphibian, 9 reptiles, 70 bird species out of them 9 are birds of prey, 10 waterbirds, and 51 non-prey birds; 4 species corresponding to mammal type. In the influence area corresponding to Aucayes-Alto, 26 species were recognized and among them 6 reptiles, 16 birds, and 4 mammals. According to the different sectors comprising this influence area, 8 were registered in Estanque area, 12 in El Camino Alto area, and 16 in El Camino Bajo area. In the influence area corresponding to Aucayes-Maitenes, while 25 species were recognized, among them, 6 reptiles, 17 birds, and 2 mammals. According to the different sectors comprising this influence area, 11 were registered in the Muck Disposal area, 20 in Camino area, and just 2 bird species in the Intake area.
COMPLIANCE	During the construction of the Project, hunting of amphibian, reptiles, birds and wild mammal animals will be banned, understanding the action or group of actions towards seizing of wild fauna specimens by death. On the other hand, the capture of all species referred to seizing live wild animals will be prohibited. This, through the preparation of a regulation instructive, based on this legal body which should be complied by each one of the Contractors and its workers as a contract clause demanded by Gener.
ENFORCEMENT	According to article 28 of the Law, the enforcement of this law and its regulations should be done by SAG.

3.2.7 Cultural Heritage

REGULATED MATTER	**Archaeological Heritage**
Phase	**Construction**
STANDARD	**Act N°17.288, modified by Act N°20.021**
Name:	Act on National Monuments
Publication date:	February 4th 1970 and June 14th 2005, respectably.
Ministry:	Education
APPLICATION SCOPE	Domestic
MATTER	It defines the delivery and tuition to the National Monuments Council, of the National Monuments denomination and within these the Historical Monuments, Public and Archaeological area, typical or picturesque zone, and Sanctuary Nature area declared as such by the Council request. Article 21 stipulates that according to the law the state-owned Archaeological Monuments are, ruins, deposits and anthropoid-archaeological pieces existing over or under the surface of national territory, including paleontological pieces. Article 26 of the law stipulates that regardless of the objective of an excavation, every person that finds ruins, deposits, pieces or objects of historical, anthropological or archaeological character, is compelled to report it immediately to the Governor of the Province, who will order the Police force (Carabineros) to be accountable for its surveillance up to the Council takes charge of the findings.
IN RELATION TO THE PROJECT	According to the results from the archaeological prospecting and the information obtained about the subject, in the influence area of the Project two highly sensitive zones were identified which have cultural interest resources. Out of these areas part of the indirect influence area of the project are present, that is to say, in areas not used by PHAM works. These areas correspond to: Lo Encañado Small lake where two (2) archaeological interest areas were identified (Las Morrenas area and Inca trail area); the Colorado River area - Aucayes Stream where it was registered an area called Aucayes 1.
COMPLIANCE	The project will not affect the identified areas in the Base Line (See Chapter 5). Without prejudice of it, and as protection fashion, GENER will contractually demand to the works contractor, the implementation of the following measurements; - Fencing of the areas at least 5 m of the perimeter of the found area. - Expert supervision by a permanent archaeologist in the construction works of the project. - Archaeology rescue plan of the archaeology findings that eventually could be detected during expert supervision in the direct influence area of the works of the project. - Training for the workers regarding possible presence of archaeology areas. Details of these risk prevention measures affected to the archaeology and paleontology heritage described in Chapter 7 of EIA.
ENFORCEMENT	National Monuments Council which counts with the cooperation of civil, military and the Chilean Police Force (Carabineros de Chile) authorities.

REGULATED MATTER	**Archaeological Heritage**
Phase	**Construction**
STANDARD	**Supreme Decree N°484**
Name:	Act N° 17.288 Regulations on National Monuments
Publication date:	April 2nd 1991
Ministry:	Education
APPLICATION SCOPE	Domestic
MATTER	This Regulation stipulates the archaeological, anthropological and paleontological prospecting and/or excavations in public and private lands, as well as the standards regulating the authorization by the National Monuments Council to be carried out and the use of the objects or species found will be subject to the standards contained in the Act N°17.288 and in this regulations. Similarly, it prescribes natural person or legal entity when doing prospecting and/or excavations in any location of the national territory and by any purpose would find ruins, deposits, pieces or objects of archaeological, anthropological or paleontological character, are compelled to immediately report the findings to the Provincial Governor, who will order the Police Force (Carabineros) to be accountable of its surveillance until the National Monuments Council is responsible for it.
IN RELATION TO THE PROJECT	In the insertion zone of the Project, especially in the Lo Encañado area, there are archaeological areas of preservation interest. In this same area there are, badly preserved, extensions of the old Inca Trail. The area also presents paleontological resources.
COMPLIANCE	The project does not contemplate intervention in the registered sites in the Lo Encañado area. For their part, the El Volcán canal and tunnel will cross, area where there is no current footprint of the Inca trail. Mainly because it has been previously intervened by other re-existing works (private road to Lo Encañado Lake and the mountain range aqueduct Laguna Negra). Nevertheless, due to the proximity of the works with the working faces, Gener has established a number of environmental risk control measurements to guarantee the protection of these elements of the Cultural Heritage, declared in the previous index card (See Chapter 7 of EIA). If due to excavations in any working face, pieces of archaeological value are accidentally found, a procedure according Act N°17.288 and this Regulations will be carried out. If with the execution of works of the Project, shall be necessary to rescue the pieces with archaeological value, the information allowing to credit the compliance of the Environmental Sector Permit of article 76 of SEIA Regulations will be presented. Some other preventive measurements regarding paleontological resources area stated in chapter 7.
ENFORCEMENT	National Monuments Council which counts with the cooperation of civil, military and the Chilean Police Force (Carabineros de Chile) authorities.

3.2.8 Hazardous Substances

REGULATED MATTER	**Transport of hazardous substances**
Phase	**Construction**
STANDARD:	**Supreme Decree N°298**
Name:	Regulates transport of hazardous load trucks on streets and roads
Publication date:	February 11th 1995
Ministry:	Transport and Telecommunications
MATTER	This Regulation establishes the applicable conditions, standards and procedures of transport of loads on streets and roads, of substances or products that because of its characteristics might be hazardous or represent risk to the health of the people, for public safety or the environment. In this sense, it regulates the features and requirements that transport vehicles must comply with; load, conditioning, stowing, discharge and hazardous substances manipulation; the standards that must be complied by the personnel participating in the transport operations, etc. For effects of this Regulation, hazardous substances will be considered those defined by the official Chilean standards NCh 382 Of/89 and NCh 2120/1 to 9 Of/98.
IN RELATION TO THE PROJECT	Fuels for the functioning of the vehicles and motorized equipment will be used, especially oil diesel and petrol.
COMPLIANCE	The fuel supply will be performed through tank trucks from supplier companies established in the Metropolitan Region. Transport Conditions: type of vehicle, load, conditioning, stowing, discharge and manipulation, as well as standards that the personnel participating in the transport operations, will be carried out looking after the compliance of the current regulation in this matter. Control in this regard, will be contractually demanded to the Contractors, being the transport of hazardous substances to or from PHAM work facilities a permanent condition, and only done by authorized companies.
ENFORCEMENT	Chilean Police Force (Carabineros de Chile), Municipal and Public Works Inspectors.

REGULATED MATTER	**Explosives**
Phase	**Construction and Operation**
STANDARD:	**Supreme Decree N°400**
Name:	It sets the Revise Text of the Act N°17.798 on Weapon and Explosives Control, modified by the Act N°20.014.
Publication date:	April 13th 1978 and May 13th 2005, respectably.
Ministry:	National Defense
MATTER	The Act on Weapon Control has the goal of regulating all those acts in relation to weapons and explosives, within this it is understood the possession of explosives. To this regard, the purchase of explosives will only be possible through a registration before the enforcing authority.
IN RELATION TO THE PROJECT	The constructive method for construction of tunnel and road cuts in some rock tranches will be carried out through the use of controlled explosions with explosives.
COMPLIANCE	Prior to the use of explosives, the Work Contractor will process the corresponding permits before the Ministry of Defense or some other competent body. The purchase of explosives will only be possible through a registration before the enforcing authority.
ENFORCEMENT	It corresponds to the Directorate General of National Mobilization, depending on the Ministry of National Defense.

REGULATED MATTER	**Explosives**
Phase	**Construction and Operation**
STANDARD:	**Supreme Decree N°77**
Name:	Complementary Regulations of the Act N°17.798 which establishes the weapon and explosives control,
Publication date:	April 29th 1982
Ministry:	National Defense
MATTER	Letter c) article 1° establishes that explosives are subject to control by the Directorate General of National Mobilization. Article 11 letter e) states that it is understood as explosives the substances or mixture of substances able to chemically react with great heat generation in a short period of time and a considerable increase of volume in relation to the initial element. The Directorate control falls over manufacturing, importing, bringing into the country, transferring, transporting, supplying, ownership, employment, consumption and /or agreement of any type over them. The enforcement authorities are to register the usual explosive consumers, grant free transit guidelines, and grant permits for explosive management. Article 76 compels to locate the facilities destined to storage the explosives, in locations permitted by the corresponding municipality and with the approval of the Directorate.
IN RELATION TO THE PROJECT	The constructive method for construction of tunnel and road cuts in some rock tranches will be carried out through the use of explosives.
COMPLIANCE	Each Contractor will grant the necessary permits for transporting and storage in a powder keg of explosives required in different working faces. The process of this type of permit will be demanded at a contract level.
ENFORCEMENT	It corresponds to the Directorate General of National Mobilization, depending on the Ministry of National Defense.

3.2.9 Fuels

REGULATED MATTER	**Liquid Fuels**
Phase	**Construction and Operation**
STANDARD:	**Supreme Decree N°379**
Name:	Regulations on minimum safety requirements for storage of Liquid Fuels of Oil by-product destined for their own use.
Publication date:	March 1st 1985
Ministry:	Economy and Reconstruction
APPLICATION SCOPE	Domestic
MATTER	This Regulation will be applied to shops, buildings, warehouses, garages, workshops, industries, hospitals, private households, etc., where liquid fuels of Oil by-products are stored along the whole territory of the Republic. It stipulates that the owner, leaseholder, concessionaire or manager in charge of the operation of the facilities, or its mere holder, will be responsible of its safety and application of this Regulation. Especially, it compels the owner, leaseholder, concessionaire or manager in charge of the facilities or its mere holder to obtain, prior to the tank service commissioning, its registration in the Superintendency of Electricity and Fuels (SEC) records. This will be required as long as the tanks have a capacity over 1.1 cubic meters; on the contrary, it will not be necessary to its registration in such body.
IN RELATION TO THE PROJECT	For the machinery and vehicle operations, the Contractor will require to use diesel oil and petrol.
COMPLIANCE	Storage of fuels will be done in tanks and/or storage drums, located in especially closed premises, which will have parapet walls. The tanks will be watertight, pressure and dent proof and will be orderly stored, according to what is established in this regulative body. Signs will be installed showing the presence of flammable products and prohibition inside and around the premises.
ENFORCEMENT	Superintendency of Electricity and Fuels.

3.2.10 Roads and Transport

REGULATED MATTER	**Roads and Transport**
Phase	**Construction and Operation**
STANDARD:	**Decree with Force of Law N°850**
Name:	It sets the revised, coordinated and systematized text of the Act N°15.840 of 1964 and DFL N°206 of 1960, Organic Law by the Ministry of Public Works
Publication date:	February 25th 1998
Ministry:	Public Works
MATTER	This standard prohibits to occupy, close, obstruct or divert public roads and, in general, to do any type of works in them. When a Municipality, company or a private needs to do works which may demand occupation or breaking of them, a permit should be requested to the Roads Directorate. Also, this standard establishes that the strip of public roads is subject to the Directorate itself, and they are destined to its use without prejudice of occupation by other parallel projects, authorized by the set procedure of such authority. In the other hand, stipulates that owners of adjacent farms with national roads can only open access roads to them, with previous authorization from the Road Directorate. Besides, such Directorate could ban any other type of access to those roads when a danger for the transit safety or hinder the free circulation is detected by themselves. It also states that is the Roads Directorate the one to authorize the form and conditions, with charges to the corresponding owners and prior payment of rights, the drinking water pipeline and drainage installations, sanitary works, irrigation channels, pipes or ducts for liquid supply, gases, cables, telephone wiring poles, telegraph or transmission of electric power or optic fiber, and in general, any type of installation that uses public roads and public dominion over its corresponding strips.
IN RELATION TO THE PROJECT	For carrying goods, machines, equipment, personal and excavation materials, the project considers the construction of service roads which will connect the work facilities (camp sites) and muck disposal areas with public roads of the project area through crossings and junctions. The feasibility of these crossings and the control measurements associated has been assessed by the Road Impact Study, attached to Annex 14 of EIA.
COMPLIANCE	The crossings and joints with public roads projects will completely comply with the demands established by the Roads Directorate, especially in terms of regulation of intersections, regulatory, preventive and informative signs, and geometric aspects such as turning radius and pipelines. In terms of provisional electric installations, this will be done prior to authorization of the Roads Directorate.
ENFORCEMENT	Enforcement of compliance of dispositions of this Decree will be in charge of the Public Workers Inspectors of Roads Directorate.

REGULATED MATTER	**Roads and Transport**
Phase	**Construction**
STANDARD	**Supreme Decree Nº 158, modified by Decree Nº 1910**
Name:	It Establishes Weight Limits per Shaft and Total Gross Weight Limits
Publication date:	April 7th 1980 and February 4th 2003, respectably.
Ministry:	Public Works
APPLICATION SCOPE	Domestic
MATTER	In order to avoid the early deterioration of street and roads pavement, the Roads Directorate of MOP, through this Decree, established maximum weight limits per shaft which loaded vehicles will be able to circulate over the roads of the country. Similarly, it establishes that in order to carry indivisible load with gross weight over 45 tons, a special permit must be required in the Roads Directorate. This same standard applies to urban roads, by direct remand of DS N°200 of MOP of 1993, "which Establishes Maximum Weights for Vehicles in order to Circulate on the Urban Roads of the Country".
IN RELATION TO THE PROJECT	The project considers in construction stage, the goods and personal transportation. The Sea transport does not contemplate the use of public roads, with the exception of the sea transport from the working face to VL2 portal up to the muck disposal area N°14, because in this working face muck disposals will not be installed near to the tunnel window. Similarly, it considers the carry of machines and equipment for assembly of the power plants.
COMPLIANCE	In this sense, the Project Incumbent will permanently supervise the weight control, in order to guarantee compliance of stated in DS N° 158 of January 1980 which establishes maximum gross weights in highways and in decrees N°200 of July 1993 and N°396 of November 1993 which establish maximum gross weights in urban roads. In both cases they cannot exceed 45 tons.
ENFORCEMENT	Chilean Police Force (Carabineros) and the Public Work Inspectors of Roads Directorate of MOP will enforce the compliance of the dispositions in this decree.

REGULATED MATTER	**Roads and Transport**
Phase	**Construction**
STANDARD	**Resolution N°1**
Name:	It establishes maximum dimensions of indicated vehicles.
Publication date:	January 21st 1995
Ministry:	Transport and Telecommunications
APPLICATION SCOPE	Domestic
MATTER	It establishes that vehicles circulating on public roads will not be able to exceed the stated dimensions in terms of maximum width, length and height. The Road Directorate will be able to authorize, in described cases, the circulation of vehicles that exceed the dimension established as maximum, such authorization should be expressed to the Police Force (Carabineros). a) Maximum outer width, with or without load 2.60 m b) Maximum Height from ground level, with or without load 4.20 m For cars transport it is accepted up to 4.30 m c) Maximum length considered between front and rear extremes of the vehicle:- c.1) Bus 13,20 m c.2) Articulated Bus 18,0 m c.3) 2 shaft Truck 11,0 m c.4) Semi-trailer 14,40 m c.5) Trailer 11,0 m c.6) Road Truck with semi-trailer 18,60 m c.7) Truck with trailer or any other combination 20, 50 m. c.8) Road Truck with special semi-trailer for cars transport: 22.40 m c.9) Truck with special trailer for transport of cars 22.40 m.
IN RELATION TO THE PROJECT	In PHAM construction stage, the transportation of materials, goods, equipment, and excavation material through public roads will be required, besides the buses and trucks transit for the transportation of the staff to and from the work facilities. The operation stage will require the transport of the staff working in the operational building and the in the field work maintenance operations.
COMPLIANCE	The trucks to be used will be adjusted to the limit dimension established in this regulation, not been able to exceed those dimensions, without considering the external review mirrors and its supports. In the eventual case of equipment transport in construction stage, which because of its size and/or weight, implies excess of the stated measurements, an authorization to the corresponding Roads Directorate will be required and the safety measures to adopt in each case will be agreed upon.
ENFORCEMENT	Chilean Police Force (Carabineros) and the Public Work Inspectors of Roads Directorate of MOP will enforce the compliance of the dispositions in this standard.

REGULATED MATTER	**Roads and Transport**
Phase	**Construction and Operation**
STANDARD:	**Resolution N°19 Modified by Decree N°1.665**
Name:	Abolishes Decree N°1.117 of 1981, on authorization for the circulation of vehicles exceeding the maximum weights.
Publication date:	February 25th 1984 and January 30th 2003, respectably.
Ministry:	Public Works
MATTER	This current standard establishes that the Roads Directorate will be able to authorize the vehicles circulation exceeding the maximum weights permitted when they meet the following requirements: The vehicle should transport machines or some other indivisible object; Transport cannot be done adequately by other means, and Weights to be authorized would such that the road infrastructure will not be subjected to tension states that might compromise their stability.
IN RELATION TO THE PROJECT	The project requires the carry of goods and equipment towards the work facilities and transport of excavation materials towards other muck disposal areas.
COMPLIANCE	In the eventual case of goods and equipment carrying in the construction stage, which because of its size and/or weight that may imply excess in the stated measurements, an authorization to the corresponding Roads Directorate will be required and the safety measures to adopt in each case will be agreed upon.
ENFORCEMENT	Public Work Inspectors from the Roads Directorate of MOP

REGULATED MATTER	**Roads and Transport**
Phase	**Construction and Operation**
STANDARD:	**Exempt Decree N°130**
Name:	It establishes restrictions over the transit of load trucks.
Publication date:	June 12th 1997
Ministry:	Illustrious Municipality of San José de Maipo
MATTER	This current standard establishes the suspension of traffic of trucks of over four tons from 14:00 hrs from Saturday up to 24:00 hrs of Sunday on the routes G-25 Puente Alto Volcán, and G-421 San Juan de Pirque El Toyo.
IN RELATION TO THE PROJECT	The project requires the carry of goods and equipment towards the work facilities and transport of excavation materials towards muck disposal areas on the road G-25.
COMPLIANCE	The roads to be used will be adjusted to the restrictions presented in this legal body, in terms of traffic suspension of trucks over four tons on route G-25.
ENFORCEMENT	Carabineros de Chile (Police Force).

3.2.11 Tourism Interest Zone

REGULATED MATTER	**Tourism Interest Zone**
Phase	**Construction and Operation**
STANDARD:	**Exempt Resolution N°1.138**
Name:	Declares National Tourism Interest Zone to the municipality of San José de Maipo
Publication date:	November 21st 2001
Office in charge:	National Tourism Service
MATTER	According to Article 11° of the Law Decree N°1.224, areas of the territory that might have especial conditions for tourism attraction, could be declared as National Tourism Interest Zones or Centers.
IN RELATION TO THE PROJECT	The project is completely developed in the municipality of San José de Maipo, specifically on the Colorado, Yeso and Volcán River basins, considered of great tourism value. In that regard, the activities involving the construction of works and components of PHAM will generate indirect or temporary, alterations to the tourist activity from the intervention on the municipal roads used by its visitors.
COMPLIANCE	Art. 10 paragraph d), of D.S 95, declares that the incumbent of a project should present an Environmental Impact Assessment if the project or activity generates significant alterations of the landscape or tourism value of an area declared as such by the Act N°1.224. In this sense the project enters the SEIA through this EIA where an impact forecast and assessment associated to tourism and environmental management measures that must be carried out to mitigate the intervention are presented.
ENFORCEMENT	It does not present enforcement

REGULATED MATTER	Environmental Value Area:
Phase	**Construction and Operation**
STANDARD:	**Exempt Decree N°693**
Name:	It Establishes an Area Protected from Hunting in Andean Santiago
Publication date:	February 8th 2003
Ministry:	Agriculture
MATTER	This decree establishes a temporary prohibition period of 30 years, counted from the publication date from the Official Journal for the hunting and capture of wild amphibian, reptiles, birds, and mammals in the area denominated as "Andean Santiago", published in the Cordillera province and Santiago of the Metropolitan Region whose boundaries are marked in the same standard.
IN RELATION TO THE PROJECT	The project is carried out in the municipality of San José de Maipo, declared as "Area Protected from Hunting of Andean Santiago". Similarly, and according to the delivered background by the base line, in the influence area of the Project a total of 86 species were found, 3 amphibian, 9 reptiles, 70 bird species, and 4 mammal species. Out of this total amount, 16 species in protected category were found, being most of them reptiles, followed by amphibian, mammals, and birds.
COMPLIANCE	During the construction of the Project, hunting of amphibian, reptiles, birds and wild mammal animals will be banned, understanding the action or group of actions towards seizing of wild fauna specimens by death. On the other hand, the capture of all species referred to seizing live wild animals will be prohibited. This, through the preparation of a regulation instructive, based on this legal body which should be complied by each one of the Contractors and its workers as a contract clause demanded by Gener.
ENFORCEMENT	Agriculture and Livestock Service

3.3 ENVIRONMENTAL PERMITS PER AREA

The environmental permits per area required for the Project are identified next, with a list provided in Title VII of Supreme Decree N°30 of the Environmental Impact Assessment System Regulations modified by D.S Nº95/02.

According to PHAM characteristics, a total of 8 environmental permits per sector have been identified, summarized in Table 3.3.1 whose analysis is presented in an index card format in section 3.3.2 until 3.3.8, which have identification of the applicable permit, the foundation standard contained in the Environmental Impact Assessment System Regulations, the standard per sector as reference, the competent authority for the grant of the permit, and finally, the requirements or minimum contents according to the SEIA Regulations are presented which must be enclosed with this EIA.

Table 3.3.1.
Summary of the Environmental Permits per Area Applicable to PHAM

Permit	Standard Source	Institution
Permits to carry radioactive materials in all modes of transport via terrestrial, aquatic or air, while such radioactive materials are not part of the means of transport.	Article 1 DS 12/85, Ministry of Mining. Art.83, D.S. Nº95/01, MINSEGPRES.	Regional Sanitary Authority.
Sewage Treatment System Authorization	Art. 71, letter b) Sanitary Code; Art. 91, D.S. Nº95/01, MINSEGPRES.	Regional Sanitary Authority.
Permit to accumulate and/or final disposal of household wastes and garbage of any type.	Articles 79 y 80, Sanitary Code Art.93, D.S. Nº95/01, MINSEGPRES.	Regional Sanitary Authority.
Permit to perform investigation fishing.	Title VII of the Act N°18.897, General Law of Fishing. Art. 95 D.S. Nº95/01, MINSEGPRES.	Ministry of Economy, Development and Reconstruction
Permit to log or exploit native forest, in any type of land, or crops located in lands preferentially of forestry aptitude	Art. 21 of Act Decree N°701, on Forestry Development Art.102 D.S. Nº95/01, MINSEGPRES.	National Forestry Corporation
Permit for regularization of works and defense of natural courses	Art. 41 y 171, DFL Nº1.122, Codes of Waters Art.106 D.S. Nº95/01, MINSEGPRES.	Directorate General of Waters
Permit for construction of works referred on article 294 of the Code of Waters	Art. 41 294, DFL Nº1.122, Code of Waters Art. 101, D.S. 95/01, MINSEGPRES.	Directorate General of Waters

3.3.1 Environmental Permit per Area of article 83

PERMIT	**Permits to carry radioactive materials in all modes of transport via terrestrial, aquatic or air, while such radioactive materials are not integral part of the means of transport.**	
STANDARD	SEIA Regulations	Article 83
	Reference per Area	Article 1 DS 12/85, Ministry of Mining.
AUTHORITY	Regional Secretariat of the Ministry of Health	

IN RELATION TO THE PROJECT

During the construction of PHAM, equipment with radioactive material consisting on nuclear decimeter to control densities in the road construction. This equipment is commonly used in this type of activities for many years and is designed so it is possible to work with them without causing any negative effects on the people. This equipment is not integral part of the means of transport. Therefore, it is applicable to PAS 83.

Requirements for its granting and technical and formal contents necessary to credit its compliance

In the Environmental Impact Declaration or Study, depending on the case, it must be point out the measurements allowing the avoidance during transportation the contamination with radioactive material.

The normal precautions to consider in its operation are:

- Transport of this equipment should be carried out by personnel duly qualified and trained.
- During transportation there is an element fixing it to the bodywork of the vehicle of transport.
- The operator will use a dosimeter which will show the moment when should stop operating the equipment (by number of hours in operation),
- The dosimeter shall be kept in a special place in the Control Laboratory to avoid the theft of it.
- The truck carrying the equipment should comply with the characteristics established by the regulations in order to guarantee or avoid contamination with radioactive materials.
- The truck shall have the corresponding maintenances according to the manufacturer.

For those general aspects not covered by D.S. N°12/85, the safety dispositions declared in Annex 32 "Risk Prevention and Contingencies Plan" referred to preventive measurements, including demands over the subcontractor companies, among them those in charge of transport of hazardous substances with regards obligations of the carrier and measurements for vehicles and equipment will be enforced.

3.3.2 Environmental Permit per Area of article 91

PERMIT	**Construction, modification and extension of any public or private work destined to evacuation, treatment or final disposal of drainage and sewage of any nature.**	
STANDARD	SEIA Regulations	Article 91
	Reference per Area	Art. 71, letter b) of D.F.L. 725/67, Sanitary Code[2]
AUTHORITY	Health Service	

IN RELATION TO THE PROJECT

During the execution of the project, sewage will be generated from workers during the construction and operation stage of PHAM. In construction stage, this sewage will be treated through a primary and secondary treatment in modular treatment plants of activated sludge type installed in each one of the camp sites. The generated waters in working face (portable toilets) will be treated by the contractor through vacuum tank truck to the camp sites for its treatment. During the operation stage, the project will use the facilities of the control building existing in Alfalfal Power Plant, not needing the installation of a sewage treatment system.

Parallel to the generation of sewage, during the construction stage, liquid wastes will be generated which will be treated in each installation of works through a sequential sedimentation system, consisting of a decanting well which will allow the splitting of liquid industrial wastes into clear waters and sediment sludge. (See Annex 18).

The sewage and liquid industry waste management will allow its discharge according to the parameters established in DS 90, which establishes the quality requirements for water in different uses.

Requirements for its granting and technical and formal contents necessary to credit its compliance

c) In sewage treatment plants:

c.1 The physical-chemical and microbiological characterization of the flow to be treated:

The typical characterization of sewage generated both in construction stage as operation stage are indicated in the following table:

Table 3.3.2.1
Sewage Physical Chemical Characteristics

Parameter	Expected value
pH.	6 – 8
Temperature	20 ºC
Total amount of suspended solids	220 mg/l
Oils and fats	60 mg/l
DBO_5	250 mg O2/l
Total Phosphorous	10 mg/l
Dissolved Iron	1 mg/l typical
Total Kjeldahl Nitrogen	50 mg/l
Faecal coliform or thermotolerants	107 NMP/100ml

c.2 Flow to be treated:

During the construction stage, an average of 68 m^3/day per camp site will be generated, considering a

[2] "Article 71.- The National Health Service is to pass the projects relative to construction, repair, modifications and extension of any public or private work destined to:
b) Evacuation, treatment or final disposal of drainage, sewage of any nature and industrial or mining wastes.
Before the exploitation of the mentioned works, they must be authorized by the National Health Service".

maximum contingent of 400 workers[3] with a mid-generation of 200 L/day/worker[4].
During the operation stage, the project will use the control building facilities existing in Alfalfal Power Plant; therefore, sewage to be treated will not be generated.

The liquid wastes generated during the construction stage of PHAM, will basically consist of suspended solid water, among those, sands, clays and cement and concrete wastes.

Approximated coordinates and courses where the discharges of treated water in the different installations are presented next:

Table 3.3.2.2
Sewage Coordinates and Discharge Courses

Treatment Plant / Sedimentation System	Type of treated water	Discharge course	Coordinates		Approximate distance to the course (m)
			East	North	
N°1 El Volcán area	Sewage and Liquid Industry Waste	El Morado Stream	406.318	6.260.237	904
N°2 El Yeso area	Sewage and Liquid Industry Waste	Yeso River	398.485	6.273.314	551
N°3 Upper Aucayes areas	Sewage and Liquid Industry Waste	Aucayes* Stream	368.115	6.284.027	3.300
N°4 Lower Aucayes area	Sewage and Liquid Industry Waste	Colorado River	384.754	6.289.884	423
N°5 substation area (or Las Lajas tunnel)	Sewage and Liquid Industry Waste	Colorado River	379.801	6.287.377	20
N°6 - Caballo Muerto Area	Liquid Industry Waste	Colorado River	387.580	6.291.532	20
N°7 - Maipo River discharge area	Liquid Industry Waste	Maipo River	368.110	6.284.026	22

* Downstream of water collection for human consumption.

All the discharges into courses contemplated by the Project will count with a parameters registry and flow measurement according to established by DS N°90/2000. The monitoring reports will be presented to the Authority in regular bases.

It is precise to point out that there are no households or populated areas supplied by the courses, downstream of the discharge and treated water location is planned. In the following Table, the nearest villages to the treated water discharge points and its supply source are shown according to expressed on section 5.5.2.5 of the Base Line.

[3] It is estimated an average provision of 2500 workers, approximately 400 people in each camp site.
[4] A reduction of 25% in relation to what is consumed.

Table 3.3.2.3
Nearest Village to the Treated Water Discharge Courses and Water Supply Source

Treatment Plant / Sedimentation System	Discharge course	Nearest Village	Water supply source for the village
N°1	El Morado Stream	Baños Morales	Vertientes**
N°2	Yeso River	Without near villages	-
N°3	Aucayes* Stream	Los Maitenes	Aucayes Stream
Nº 4	Colorado River	Los Maitenes	Aucayes Stream
Nº 5	Colorado River	El Alfalfal	Hualtatas**Ravines
Nº 6	Colorado River	El Alfalfal	Hualtatas**Ravines
Nº 7	Maipo River	El Manzano	El Manzano Stream

* Downstream of water collection for human consumption.
** Without PHAM intervention.

In Annex 15 a sheet individualizing the areas where the water discharges of previously treated processes is attached.

c.3 Physical-chemical and bacteriological characterization of the treated affluent when discharged to the receptive course or body:

The physical-chemical and microbiological features of the treated waters are exposed in the following table:

Table 3.3.2.4
Treated Sewage Features

Parameter	Expected value
Ph	6 – 8
Temperature	25 to 29ºC
Total amount of suspended solids	80 mg/l
Oils and fats	20 mg/l
DBO_5	35 mg O2/l
Total Phosphorous	10 mg/l
Dissolved Iron	5 mg/l
Total Kjeldahl Nitrogen	50 mg/l
Faecal coliform or thermotolerants	103 NMP/100ml

During the construction stage, sewage and liquid industry waste will be treated and discharged to the superficial water courses strictly following the maximum limits established by D.S. N°90/2001 in its Table N°1 which "Sets maximum limits allowed for discharge of liquid wastes to the river water body" Complementary, the operational control of the discharges, will have as reference the NCh 1.333 "Requirements of water quality for different uses". Strictly speaking, although this standard is not applicable for the use planned by the Project, the contained parameters will be considered as reference values for the environmental follow up, besides those established by D.S 90/01.

c.4 The hydrologic features and quality of the receptive course, its current and foreseen:

a. El Morado Stream

- Hydrologic and quality features

El Morado stream is one of the main contributions to El Volcán river, presenting a hydrologic regime of snow and glacial origin. It presents an annual mid flow of 1, 71 m^3/sec. The biggest flows are generated between November and March due to the rise of the temperatures followed by the thaw (section 5.3.5.1 of EIA).

El Morado have conditions of high availability of dissolved oxygen (> 8, 2 mg/l), high run-off speed (0, 66 - 0, 96 m/s), high sediment load in transport and substratum constituted by stones and rocks. The substratum has scarce epilithic flora development. In field campaigning, neither coastal macrophytes development nor fish presence was observed in the course (See details in section 5.3.5.2 of EIA).

- Current and planned uses

Nowadays, there is no leisure activities associated to the course that might be affected by the treated water discharge in the area. There is no infrastructure or tourist equipment liable to be affected in those stretches. This area is exceptional with the presence of summer pastures and grazing areas of seasonal use.

b. Yeso River

- Hydrologic and quality features

The hydrologic features in Yeso river, as stipulated in section 5.3.5.1 of EIA, show that the sub-watershed of Yeso river has a watershed of 637km2 and is constituted by the main homonym course and by the secondary courses corresponding to the ravines and streams that are born in the high summits. The basin is regulated by El Yeso reservoir and has two important bodies, Laguna Negra and Lo Encañado small lake.

The average annual flow in natural regime of the sub-watershed of Yeso river is 10,99 m^3/s. Out of these, the affluent watershed to the reservoir is 353 km^2, contributes a mid-annual flow of 8,1 m^3/s.

From the quality of water point of view, the Yeso river in the Project's influence area presents a temperature of 12.5°C, conditions of high availability of dissolved oxygen, high run-off speed ((0,93 ± 0,16 m/s) and lower load of sediments in transportation. The substratum is very heterogeneous, constituted by sand, gravel, pebbles and stones with abundant development of epilithic flora. During field campaigning, coastal macrophytes development was observed (See details in section 5.3.5.2 of EIA).

- Current and planned uses

As declared in Annex 10, in Yeso river there are some isolated households (temporary) which have livestock and goat grazing as main economic activity. The supply of drinking water in this area comes from the water collection from ravines. Similarly, there is no infrastructure or tourism equipment associated to the course liable to be affected by the development of PHAM.

It is important to say that downstream Yeso river, that is to say, near to its confluence with Maipo river and, especially in summer, is common to observe visitors doing informal picnic activities in the banks of

the river which in that stretch occupies a wide strip and presents a very rocky substratum.

c. Aucayes Stream

- Hydrologic and quality features

Aucayes stream corresponds to one of the main affluent of Colorado river; its waters are collected for generation of the Maitenes Power Plant. Its annual mid flow of 0,81 m^3/sec.

In terms of quality of water, Aucayes stream predominates in stones and pebbles substratum without development of epilithic flora during the inspections campaigning. Besides, coastal macrophytes were not observed. It presents a lower flow compared to Colorado river and downloads solids in suspension which has gathered a high availability of dissolved oxygen, favorable conditions for aquatic biota. In spite of this, it presents low fish presence (See details in section 5.3.5.2 of EIA).

- Current and planned uses

Currently the Aucayes stream waters are used parallel to the supply of irrigation water and human consumption for Los Maitenes town. The discharge of treated waters in this area will be located downstream of the reception point, therefore, it is not foreseen alterations in the quality of waters in that area.

On the other hand, the area presents low physical access which sets the current uses of the course, not having infrastructure or tourism equipment, or recreational associated to Aucayes stream course (see Annex 10).

d. Colorado River

- Hydrologic and quality features

According to declared in section 5.3.5.1 of EIA, the Colorado river is born in the height summits of the Tupungato volcano (6.570 m.a.s.l), receiving later as main affluent, the Olivares river which is born in the glacial of the same name and the El Plomo hill (6.050 m.a.s.l). Then the confluence between both rivers, finally, the Colorado river flows into the Maipo river at an elevation of 890 m.a.s.l. This watershed, together with the Yeso river watershed, represents the system which has the greatest importance as flowing into the Maipo river in the Mountain range area.

The Colorado river watershed, before joining the Maipo, river is presented in a flatter area with 1.000 m.a.s.l approx. altitude. In this point the watershed has received flows from streams in the upper part of Colorado river, Olivares river and the Cabeza de León stream, Temblor and Aucayes streams.

The flow behavior in this stretch shows the maximum month as January, with 64,17 m^3/sec, while the minimum flow is presented in July with 16,87 m^3/sec. The mid annual flow corresponds to 32,75 m^3/sec, making Colorado river one of the main contributions to the Maipo watershed.

In terms of the quality of water, the Colorado river at the influence area of the Project, presents conditions of high availability of dissolved oxygen (8.2 - 8.4 mg/l), high run-off speed (0.70 - 0.72 m/s) and high load of sediments in transportation which represents an unfavorable habitat condition for development of ichthyofauna (See more details on section 5.3.5.2 of EIA).

- Current and planned uses

As stated in Annex 10, along the Colorado river stretch there is no infrastructure or tourism or recreational equipment associated to the river course. Neither are temporary informal activities in the course liable to be affected PHAM. The supply of drinking water for Los Maitnenes and El Alfalfal towns are done from the Aucayes stream and Hualtatas ravines, this will not be intervened by the project (see Chapter 2).

c.5 Characterization and management and disposal of sludge generated by the plant:

The typical characterization of the affluent of the sewage treatment plant in the modular treatment plants, are indicated in the following Table.

Table 3.3.2.5
Characteristics of Sludge Originated in the Sewage Treatment Plants

Sludge Characteristics			
	Primary Sludges	Secundaries (F.A.)	Digested (mixed)
S.S g/hab. d	30-36	18-29	31-40
Water Content (%)	92-96	97,5-98	94-97
S.S.V (% S.S)	70-80	80-90	55-65
Fats (% S.S)	12-16	3-5	4-12
Proteins (% S.S)	4-14	20-30	10-20
Carbohydrates (% S.S)	8-10	6-8	5-8
pH	5,5-6,5	6,5-7,5	6,8-7,6
Phosphorus (P) (% S.S)	0,5-1,5	1,5-2,5	0,5-1,5
Nitrogen (N) (%S.S)	2-5	1-6	3-7
Pathogen Bacteria (N° per 100 ml)	10^3-10^5	100-100	10-100
Parasitic Organism (N° per 100 ml)	8-12	1-3	1-3
Heavy Metals (% S.S.) (Zn, Pb, Cu)	0,2-2	0,2-2	0,2-2

During the construction stage, the management of sludge from sewage treatment plants considers the temporary storage of these ones in containers, specially manufactured for this, and the plant already have them available. Later on, these containers will be periodically withdrawn by the contractor of the works for its transportation and final disposal in authorized areas. Due to the municipality does not count with an authorized waste tip or landfill, the sludge will be taken into one of the authorized areas mentioned in Annex 18. On the other hand, the Contractor will keep a control registry over the volume of evacuated sludge; those documents will be available for the authority whenever they require them.

By part of the operation stage, sludge from sewage treatment plants will not be generated.

The silt sludge from decanting wells will be withdrawn from the bottom of the well through mechanical means and carried in trucks 8 m^3 capacity during the whole construction stage. It is estimated that the clearing frequency of sediment solids will be every 15 days. This frequency will be confirmed once there is an engineering design in the facilities. During the operation stage, sediment solids will not be generated.

3.3.3 Environmental Permit per Area of article 93

PERMIT	**Permit for construction, modification and extension of any garbage and waste treatment plant of any type; or for installation of any location destined for accumulation, selection, industrialization, trade or final disposal of garbage and wastes of any type.**	
STANDARD	SEIA Regulations	Article 93
	Reference per Area	Articles 79 y 80, Sanitary Code
AUTHORITY	Health Service	

In Relation to the Project

During the construction stage, solid wastes, proper of these activities, and household wastes will be generated by the camp sites. For the above the project will enable the areas destined to transit accumulation for these wastes according to the following:

In the Environmental Impact Declaration or Study, depending on the case, shall be pointed out the adequate measurements for control of those factors, elements or environmental agents that might affect the inhabitants health, according to:

a) General Aspects:

a.1. Wastes and type of treatment.

In Annex 18, Waste Management Plan for working faces, workplaces and camp sites", the details of types of treatment for each one of the generated wastes is generated during the execution of the project.

a.2. Location and features of the land.

The location of the transit accumulation areas are indicated in Annex 18 “Waste Management Plan for working faces, workplaces and camp sites".

a.3. Qualitative and Quantitative characterization of the wastes

The qualitative and quantitative characterization of wastes is pointed out in Annex 18 "Waste Management Plan for working faces and camp sites".

a.4. Forecast and existing civil works

The technical specifications and design of the garbage areas and rescue yards planned by PHAM is presented in Annex 18 "Waste Management Plan for working faces, workplace and camp sites".

a.5. Predominant winds.

In Chapter 5 the base line is characterized by the meteorological components of the location areas for camp sites.

a.6. Forms of Control and management of particulate material, gas emissions, particles from internal access roads which are to be implemented, odors, noises, liquid and vector emissions.

Forms of environmental management that will be carried out in the rescue yard and transit accumulation premises of household wastes are described in Annex 18 "Waste Management Plan in working face, workplaces and camp sites" Without prejudice of this, a general description of the control measurements to be implement are presented next:

- *Control measurements for odors, sanitary vectors:* Mainly in transit storage premises of

residential wastes where wastes will be temporarily accumulated in containers, especially manufactured for this, with caps to avoid visits of rodents and odor emanations in the camp site facilities. These containers will be withdrawn and changed with cleaned ones to be transported to an authorized dump. On the other hand, the precincts (container type) where the containers will be placed in charge of keeping them closed at all times, with a permanent cleaning. Finally, in the waste management yard is not foreseen the generation of bad odors and sanitary vectors because it deals with inert material.

- *Noise Emissions:* Associated to management of solid wastes of construction. An element to be highlighted is the absence of inhabited sectors near the camp site location, where the rescue yards will be located. The modeling of sound pressure levels allows confirming that the project will fully comply with the current standard (D.S. 146/97 MINSGPRES) nevertheless, in order to avoid noise emissions, trucks and machineries near the rescue yard, will transit at restricted speeds (30 Km/h) and will count with its technical review up to date.

a.7. Hydrological and hydrogeological Features

In Chapter 5 of the base line, the hydrological and hydrogeological components of the lands destined to the camp sites fitting out are characterized. It must be stated that in Chapter 2, besides the location criteria of sites, the safety measurements, and environmental safeguard are indicated.

a.8. Risk prevention plan and accident control plan, focusing on safety measurements and fires, spillages and compounds and wastes leeks control.

A complete PHAM Risk Prevention Plan is attached to Annex 32 of EIA.

a.9. Waste management generated within the plant.

Waste management generated during the construction of PHAM, is indicated in Annex 18 “Waste Management Plan for working faces, workplaces and camp sites".

Dealing with waste storage, besides what has been mentioned in letter a):

f.1. Precinct Characteristics.

Please refer to Annex 18 "Waste Management Plan for working faces, work places and camp sites".

f.2 Establishment of storage forms, such as bulk or in containers.

Please refer to Annex 18 "Waste Management Plan for working faces, work places and camp sites".

3.3.4 Environmental Permit per Sector of Article 95

PERMIT	**For investigation fishing that might be necessary for follow up of conditions of hydrobiologic species in the Environmental Follow Up Plan application.**	
STANDARD	SEIA Regulations	Article 95, DS Nº95/02, SEIA Regulations
	Reference per Area	Title VII of the Act N° 18.892, General Law on Fishing and Aquaculture
IN RELATION TO THE PROJECT		
During the operation stage of the project, an Environmental Follow up Plan will be carried out and will require the fishing of some specimens according to described in section 8.3.4 of Chapter 8 of this EIA.		
Requirements for its granting and technical and formal contents necessary to confirm its compliance		

In the Environmental Impact Declaration or Study, depending on the case, must be pointed out the characteristics of the establishment, taking into consideration:

a) Hydrobiologic species foreseen to be extracted, specifically declaring whether these are introduced or natives, and its preservation state.

The hydrobiologic species that will be object of follow up correspond to those registered in campaigns in the base line (see section 5.4.3, of Chapter 5 where the preservation category is indicated). Without prejudice of this, it is possible to detect new species from the river and streams shown by the sampling results of the Environmental Monitoring Programme pointed out in Chapter 8 of EIA. Out of these new species, the main ones are expected to be detected in those areas defined for monitoring, these are indicated in the next table:

Table 3.3.4.1
Identification of Species to be Extracted

Species	Common Name	State of Preservation at National Level	Regional supply
Trichomycterus areolatus	Small Catfish	Vulnerable	II to X
Nematogenys inermis	Catfish	Endengered	IV to X
Galaxias maculatus	Puye	Vulnerable	III to XII
Cauque mauleanum	Cauque	Vulnerable	IV to X
Cheirodon pisciculus	Pocha	Vulnerable	III to VIII
Diplomystes chilensis	Fresh Water Tollo	Endengered	IV to X
Basilichthys australis	Pejerrey	Vulnerable	V to X
Percichthys trucha	Creole Trout	Vulnerable	IV to XII
Percichthys melanops	Black Trout	Endengered	IV to VIII
Percilia gillisi	Carmelita	Vulnerable	IV to X

b) Identification of fishing areas, including chart IGM 1:50.000.

Fishing will be done in the following sectors:

Courses: Downstream in the foreseen works projected in Colorado, Yeso river, and Aucayes stream.

c) Identification of art, preparation or fishing system and characteristics of itself.

Generally for this type of activities, the collection of fish will be done with electric fishing equipment. The equipment is comprised of an alternating current generator of 3 A and 220 Volts which permits the extracting of specimens without damage and consequent return to the environment. The generator will be connected to a couple of electrodes which are introduced to generate discharge with the help of networks or Chinguillos, fish are extracted for measurements in the field and laboratory analysis.

d) Capture methodology and analysis to be applied

A description of fish assembly and a characterization of physical and chemical conditions for presence and

development of Ichthyofauna. 1 fish sample will be taken in the sampling areas before mentioned.

For description of fish assembly, in each sampling space a lineal stretch of approximately 50 and 100 m in the brook of each river or stream a search for fish for 20 min. long with electric fish will be carried out. In each capturing effort, a maximum of 10 specimens of each taxa of the sampling area will be collected, putting the surplus back into the environment. Samplings will be carried out for taxonomic identification of morphologic parameter measurements. The sexual reason (N° of males/females) per specie and Condition Factor (K), and Condition Factor (Lagler 1956) will be determined.

For description of fish habitat, measurements in the field in terms of physical, chemical and biological parameters will be done. A description of the unwanted aquatic flora and the presence of benthic fauna as feeding resource for the fish will be done as well.

e) Expected results.
It is expected to verify the measurements presented in the Environmental Management Plan, whether they are adequate and enough; and demonstrate that the state of the elements of the environment will evolve according to what have been established in the corresponding assessment and credit the compliance of the environmental standards if applicable.

f) Activities Schedule related to investigating fishing, declaring datelines for delivery of reports to the Fishing Under secretariat and National Fishing Service.
As stated in section 8.2.5 of Chapter 8 of this EIA. With regards reports and/or results of the monitoring, these will be delivered to the competent bodies.

3.3.5 Environmental Permit per Sector of article 101

PERMIT	**Permit for construction of hydraulic works referred on article 294 of the Code of Waters**	
STANDARD	SEIA Regulations	Article 101
	Reference per Sector	Article 294, DFL Nº1.122, Code of Waters
AUTHORITY	Directorate General of Waters	

Requirements for its granting and technical and formal contents necessary to credit its compliance

In the Environmental Impact Declaration or Study, depending on the case, the measurements, conditions and backgrounds which will allow proving that the work will not cause the contamination of waters will be declared.

The works referred to the permit and, considered in the development of PHAM, are:

- Forebay of Las Lajas Power Plant with a capacity of 300.000 m^3 (read letter a, Article 294, DFL Nº1.122). This work described in section 2.2.2 "superficial works" of chapter 2 and has the function of regulate waters from the discharge of Alfalfal Power Plan I and collection in Maitenes for the functioning of Las Lajas Power Plant.
- The works on conduction of water resources corresponding to tunnels and canals (letter b, Article 294, DFL Nº1.122).
- Crossing siphons of Colorado and El Yeso rivers (letter d, Article 294, DFL Nº1.122).

Constructibility Characteristics

The construction of the specified works will be carried out according to described in section 2.3.2 "Construction Stage". In terms of safety measures and environmental safeguard, during the construction stage of these works, are applicable those described in chapter 6, 7 and 8 of this EIA.

Environmental Safeguard Measures

In general terms, the environmental safeguard measures for these works will be those described in chapters 2, 6 and 7 of this EIA and in Annex 32 "Risk Prevention Plan and Contingencies for contractors". These environmental safeguard measures, among other measures, consider:

- While works are executed in courses, special precautions to avoid accidental spillages such as: avoidance of drum storage of lubricants in the course or next to it, and banning to park machineries on the course, will be demanded.
- There will be total prohibition to the Contractor of throwing any element and/or wastes towards the waters of the tank.
- It is banned the use of water for washing that may sweep solid materials or pollutants along.

In the case of accidental dumping of hazardous substances or burning material (according to DS 382/2004list), over natural resources such as water and land, or over private land (oils, lubricants and paintings), PHAM will adopt the following measures:

- The Communication Plan will be activated
- The evacuation procedure will be activated (if applicable)
- The emergency will be estimated, magnifying the event of spilling (minor, serious, serious risk)
- Immediate cleaning and withdraw over the affected land will proceed (in the case of spilling in the banks). In this regard, the necessary implementation will count with the withdrawal of the spilled substance, being these shovels, machineries, pumps, temporary storage tanks, as may be required. Similarly, the procedures established in the Safety Sheet on spilled substances shall be performed.

Although, it is foreseen any accidental spillage to have a low or minor magnitude, considering the type and amount of hazardous material, the planned response procedures will permit to have a significant impact.

3.3.6 Environmental Permit per Sector of article 102

PERMIT	**In the logging or exploitation of native forest permit, in any type of land or plantation located in lands of preferably forestry aptitude**	
STANDARD	SEIA Regulations	Article 102
	Reference per Sector	Article 21 of Law Decree N° 701, on Forestry Development
AUTHORITY	National Forestry Corporation	
IN RELATION TO THE PROJECT		
The execution of PHAM will require a surface of 31.26 ha of sclerophyllous forest for the carry out of the works or working areas located in the Colorado river watershed (see figures 5.4.1.3.21 up to 5.4.1.3.31, Chapter 5).		
Requirements for its granting and technical and formal contents necessary to credit its compliance		
In the Environmental Impact Declaration or Study, either be the case, it must be considered reforestation of an equal amount of land, or at least, to the logged or exploited area. According to the measures proposed by the project, it is considered the restoration of vegetation of zones that must be cleared out for the installation of works and the working areas under elevation 1.500. The above, through the execution of a Forest Management Plan for reforestation of the surfaces of sclerophyllous forest, allowing guaranteeing the regeneration capacity and biologic diversity of the area. Such Management Plan is attached to Annex 7 of this EIA and in has all the technical requirements demanded by the environmental authority on this matter.		

3.3.7 Environmental Permit per Sector of article 106

PERMIT	**Permit for regularization of works and defense of natural courses**	
STANDARD	SEIA Regulations	Article 106
	Reference per Sector	Article 171 of the Decree with Force of Law N° 1.122, Code of Waters
AUTHORITY	Directorate General of Waters	

Requirements for its granting and technical and formal contents necessary to credit its compliance

The project considers the construction of river fenders associated to the construction of the following works:

Table 3.3.7.1
Detail of Works requiring PAS 106 and its Location in Coordinates

Work	Location in coordinates UTM	
EL Yeso bridge (Access VA4 Encañado)	397265.40	6271895.80
Manzanito bridge N°1 (access VA4)	395863.90	6271993.50
Colorado river bridge- Las Puertas area	376630.11	6285519.89
Works of discharge to Maipo river and muck disposal 12	368147.00	6284072.00
Discharge to Yeso river	399446.50	6273667.70
Rectification Colorado river course - Forebay area	388858.50	6292371.10
La Engorda Stream intake	407256, 00	6259798.00
Colina Stream intake	407156.00	6260082.00
Las Placas Stream intake	406642.00	6260714.00
Morado Stream intake	405759.00	6261259.00
Yeso river intake	399669.40	6274117.00

According to the permit requirements of this EIA, the proper environmental measurements for these works must be pointed out taking into consideration:

a) Presentation of a general location sketch.
In Annex 1 "Project Layout and Work Details" and Annex 8, " Technical Information regarding the Environmental Permit per Sector 106" of EIA, the general and specific location is presented.

b) Presentation of plant plan of the modified sector which comprises at least one hundred meters (100m) before and one hundred meters (100m) after the modified sector.
In Annex 8, “Technical Information regarding the Environmental Permit per Sector 106", the plant plan of the modified sectors is presented.

c) Presentation of a longitudinal profile of the layout previously indicated.
In Annex 8, "Technical Information regards the Environmental Permit per Sector 106" of EIA, the longitudinal profiles or the modified sectors are presented.

d) Presentation of a transversal profile of the typical section and the critical section of the course to be modified.
In Annex 8, "Technical Information regards the Environmental Permit per Sector 106" of EIA, the transversal profiles of the typical section and the critical section of the courses to be modified are presented.

e) Presentation of transversal profile of the typical section and the critical section of the course planned.

The only work requiring alteration of the final course corresponds to the forebay of Alfalfal, located in the Colorado river watershed. With regards this, the transversal profile of the typical section and the critical section of the course planned presented in Annex 8 "Technical Information regards the Environmental Permit per Sector 106" of EIA.

f) Sings of pieces of art, if present, in the stretch to be modified.

In the stretch where the river fences will be deployed, there is no registration of pieces of art.

g) Description of the planned works;

Please refer to section 2.2.2 of Chapter 2 and Annexes 1 and 8 attached to this EIA.

h) And the presentation of a technical specification containing the necessary hydraulic calculations, including, at least, the maximum capacity calculation which the course has without modification, and maximum capacity calculation of the modified course.

Please refer to Annex 8 attached to this EIA.