PVSA
PUERTO VENTANAS S.A.

ECOPORTS
PERS CERTIFIED

Port Environmental Review System (PERS) Application

June, 2020





ECO SLC

Sustainable Logistic Chain

INDEX

1. OUR COMPANY 4
2. DEVELOPMENT OF THE INFORMATION REQUIRED BY THE ECOPORTS GUIDE 23
   - 2.1. ENVIRONMENTAL POLICY STATEMENT: 23
   - 2.2. LOG OF ENVIRONMENTAL ASPECTS, LEGAL REQUIREMENTS AND PERFORMANCE INDICATORS 27
     - 2.2.1. Identification of aspects and assessment of environmental impacts 27
     - 2.2.2. Identification of legal requirements and other requirements: 29
     - 2.2.3. Puerto Ventanas S.A. Environmental Performance Indicators 49
   - 2.3. DOCUMENTED RESPONSIBILITIES AND RESOURCES ASSOCIATED WITH ENVIRONMENTAL ASPECTS 62
     - 2.3.1. Responsibility of key employees at Puerto Ventanas S.A.: 62
     - 2.3.2. Environmental Responsibilities of Key Personnel: 67
   - 2.4. REVIEW OF COMPLIANCE BY THE ENVIRONMENTAL POLICY AND LEGAL REQUIREMENTS 69
     - 2.4.1. Result of the LRQA Audit: 69
     - 2.4.2. Continuous Improvement Environmental Management 73
   - 2.5. ENVIRONMENTAL REPORT 79
     - 2.5.1. ENVIRONMENTAL MANAGEMENT 81
     - 2.5.2. CONTROL MEASURES AND MONITORING 94
   - 2.6. EXAMPLES OF THE BEST PRACTICES OR ENVIRONMENTAL MANAGEMENT SOLUTIONS 105
     - 2.6.1. Practices or environmental management solutions No.1 105
     - 2.6.2. Practices or environmental management solutions No.2 107

Port Environmental Review System 2020

1. OUR COMPANY

Puerto Ventanas S.A. is the main bulk port in the central area and one of the most important in the country. Located in the Quintero bay, Puchuncaví commune, it carries out its activity committed to the economic, environmental, and social development of its stakeholders, and especially to the communities in which it operates.
The Port offers its clients excellent services and complete assistance in integral docking, loading and unloading of liquid and solid bulks with innovative solutions, responsible and generating real progress, based on a model that seeks to generate value for all its groups of interest.

Puerto Ventanas S.A. is committed to the integral well-being of workers, promoting risk-free environments, and promoting self-care behaviors and a commitment to occupational health and safety. It also offers permanent opportunities for professional and personal development, promoting participation with innovative ideas.

Its facilities allow efficient and reliable operation with high standards of safety, quality, and respect for the environment.

FACILITIES AND EQUIPMENT

Maritime pier with greater capacity in the central area of the country. Its facilities have four deep draft berthing sites and enabled mechanized systems that allow loading and unloading of up to 24,000 tons per day, serving ships of more than 70,000 tons and 14.3 meters of liquid, solid and general cargo draft.

It has complete logistics equipment, warehouses and the capacity to transport and handle cargo in transit with efficient operation with high safety, quality, and environmental standards.

PIER Nº. 1

MAXIMUM DRAFT
8,00 MT.

MAXIMUM LENGHT
125 MT

EQUIPMENT:
Two valve boxes for the shipment of marine fuels to the mini-tankers.

PIER N.º 2

MAXIMUM DRAFT
9,57 MT.

MAXIMUM LENGHT
200 MT.

EQUIPMENT:
Connection manifold for shipping sulfuric acid.

Boarding tower
of mineral concentrates.

Valve box for fuel shipment, or required by ships.

PIER N.º 5

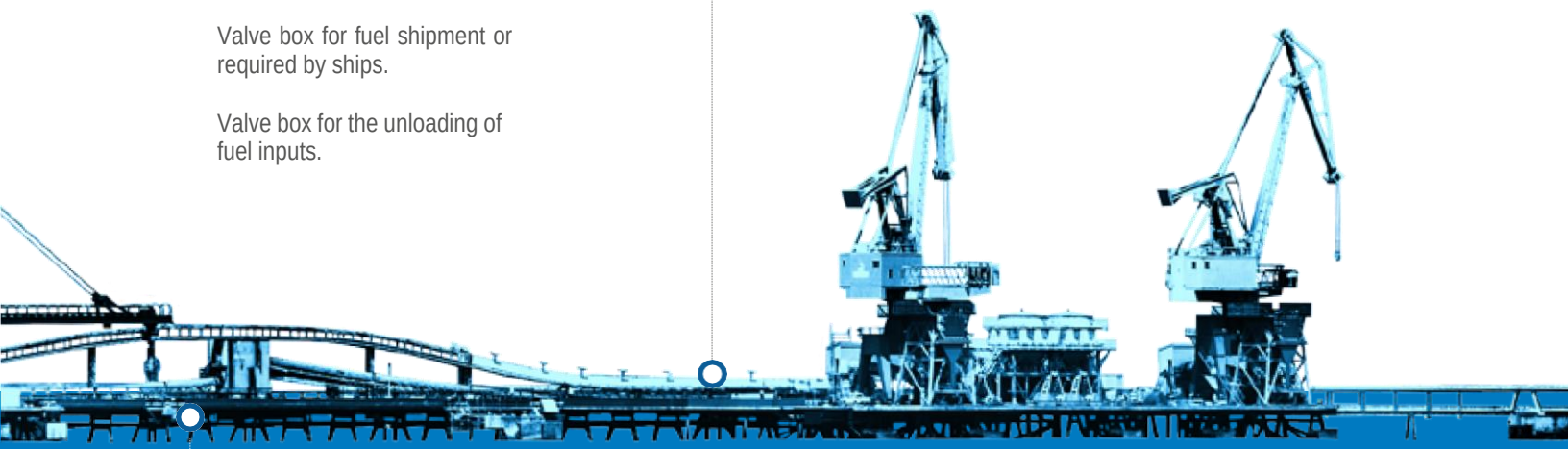
MAXIMUM DRAFT
14,30 MT

MAXIMUM LENGHT
245 MT

EQUIPMENT:
Two pantographic cranes with a capacity of 30 tons at 40 meters, with unloading yields of 750 tons / hour each.

Valve box for fuel shipment or required by ships.

Valve box for the unloading of fuel inputs.



PIER N.º 3

MAXIMUM DRAFT
11,70 MT.

MAXIMUM LENGHT
200 MT.

EQUIPMENT:
Ship-loader or “ship traveling loader” that allows loading the ship without the need to change its position.

Copper concentrate transfer system made up of more than 1.100 meters. of fully sealed conveyor belts and transfer towers.

Connection manifold for shipping sulfuric acid

Valve box for fuel shipment, or required by ships

Valve box for the unloading of fuel inputs for the Asphalt and Fuel Terminal.

1. **Two Cranes**
for unloading solid bulks connected to conveyor system.

2. Encapsulated and sealed conveyor system connected to a traveling Ship-loader for the transfer of copper concentrate.

3. Offices.

4. Copper concentrate Warehouse:
55.000 tons.

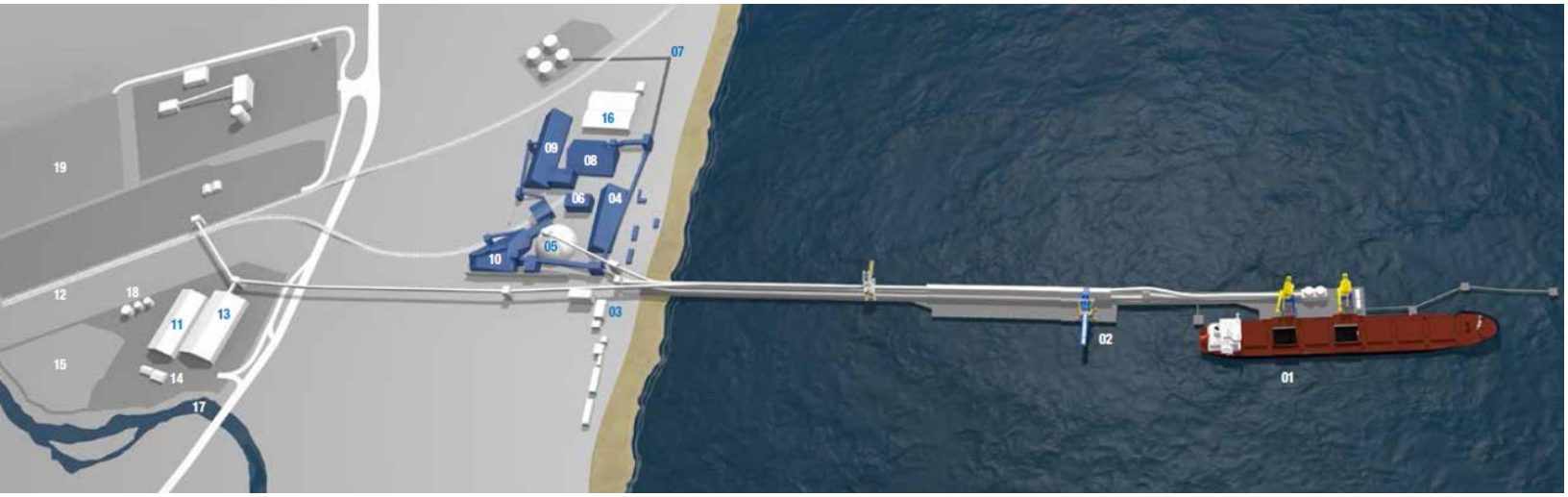
5. Clinker and cement Dome:
45.000 tons.
All download facilities are owned by Melón S.A.

6. Warehouse for storage of cargo:
6.000 tons.

7. Aciduct: shipment of sulfuric acid (H2SO4).

8. Copper concentrate Warehouse:
30.000 tons.

9. Anglo American Copper concentrate Warehouse:
60.000 tons.



10. La Greda Warehouse for solid bulk storage:
46.000 tons.

11. Grain Warehouse (TGL)
10.000 tons.

12. Railway Maneuvers Station

13. Grain Warehouse:
45.000 tons.

14. S.A.G Offices

15. Grain Dome
7.000 tons.

16. Covered area:
6.640 m2.

17. Campiche Stream

18. Asphalt and fuel lines

19. Petcoke Terminal (ENAP):
80.000 tons.

LOGISTIC EQUIPMENT FOR THE TRANSPORT AND HANDLING OF LOADS IN TRANSIT

EQUIPMENT FOR EFFICIENT AND SAFE OPERATION

- Loading and unloading conveyor systems.
- Tractors, front loaders, and piping systems connected to all sites under the dock slab.
- Truck wheel washing system with capacity for 300 vehicles per day, water recirculation tank with a capacity of 30 cubic meters.
- Rainwater treatment plant from Costa Terminal.
- Wide storage areas.
- Approximately 18,1 hectares of land available for extensions and / or new businesses.
- Ship-loader
- Industrial vacuum cleaner
- Firetruck

GRAIN WAREHOUSE

6.000m2 | **67.000 Tons of grain**

High technology for the operation, with an automatic control system and a Mechanized Transportation and Unloading System at site No. 5, evacuation system and dispatch to trucks and railways.

GENERAL CARGO WAREHOUSE

4.188 m2 | **10.000/ 15.000 Tons**

Warehouse equipped to store pallets, big bags, sacks, bulks, and all kinds of general cargo, which can be stacked up to 7 meters high, with a rate of 250 tons / hour.

STORAGE WAREHOUSE FOR COPPER CONCENTRATES

13.172 m2 | **240.000 Tons**

Negative pressure inside the warehouse and in the concentrate reception building, sleeve filters with optimal control of dust emissions, road, and rail access.

CORPORATE GOVERNANCE

The purpose of Puerto Ventanas S.A. is to contribute to the sustainable progress of Chile and Latin America, providing our clients quality, safe and sustainable port services, generating value and development opportunities for the community, collaborators, shareholders, suppliers and care for the environment. We are also responsible for the integral development of our internal and external collaborators, our strategic partners, suppliers, operators, and the creation of value for our shareholders.

The corporate government establishes and regulates the policies and practices within the organization, encourages the efficient management of resources, the achievement of goals and growth of the company. In accordance with the principles and values, Puerto Ventanas S.A. ensures transparency in decision-making, ethical action, and the application of good practices in processes and actions, creating value for shareholders and all its stakeholders.

VISION

We work everyday to be recognized as the best port company in quality and sustainable services for mining, energy, and industry in Chile.

MISIÓN

To contribute to the sustainable progress of Chile, providing our clients high quality port services and generating value and development opportunities for the community, shareholders, suppliers, and collaborators.

OUR VALUES

We take care of life

In each of our decisions and actions we put respect for life first. We privilege safe work, ensuring respect for the environment and the communities.

We reach the goals working as a team

We are a link in a great chain, we practice fair play and caring for the partner. Working together we succeed in exceeding our goals and achieving high performance.

.

We seek Excellence and Innovation

We care about being efficient, innovative, and exceeding our standards.

We have a passion for service

We are inspired by serving the development of the country, our clients, and the community.

We act with Commitment

We act with respect, we put all our capacity, energy to fulfill and honor the committed word.

COMMITMENT TO STAKEHOLDERS

Puerto Ventanas S.A. is committed to all interest groups, especially its shareholders, clients, workers, suppliers and the community, seeking to promote active cooperation, in order to responsibly relate to the country's social development, in addition to creating wealth and ensuring the sustainability of the business.

1. COLLABORATORS

To prioritize the health and safety of employees and promote respect, collaborative work, development opportunities, ethical behavior, in addition to fostering an environment that develops innovation, strengthens trust, and enhances training.

2. INVESTORS AND SHAREHOLDERS

Generate the highest profitability for the business with a long-term vision and high-quality standards, transparency, and access to relevant information for decision-making, providing real and timely information.

3. CLIENTS

Offer a service of excellence, establishing long-term relationships with quality, innovation, and operational continuity.

4. SUPPLIERS

Establish long-term and mutually beneficial relationships with fair, diligent, and timely treatment with clear rules for both parties. Likewise, empower local suppliers committed to the environment and sustainable development.

5. COMMUNITY

Maintain relationships based on trust and transparency, where the interests of the community, the expectations of society and sustainable development are considered in the decisions and activities of our company. Likewise, to value cultural identity, contribute to the quality of life and local, regional, and national development, with actions that contribute to generating value with a harmonious, collaborative, and respectful coexistence, establishing open and participative relationships.

6. AUTHORITIES

Act with transparency and formality in relations with the authority and regulatory bodies of our business and fully comply with the legal rules and regulations that apply to the operation.

7. COMPETITORS

Sustain relationships based on the principles of free competition and best ethical and business practices.

8. GREMIAL ASSOCIATIONS

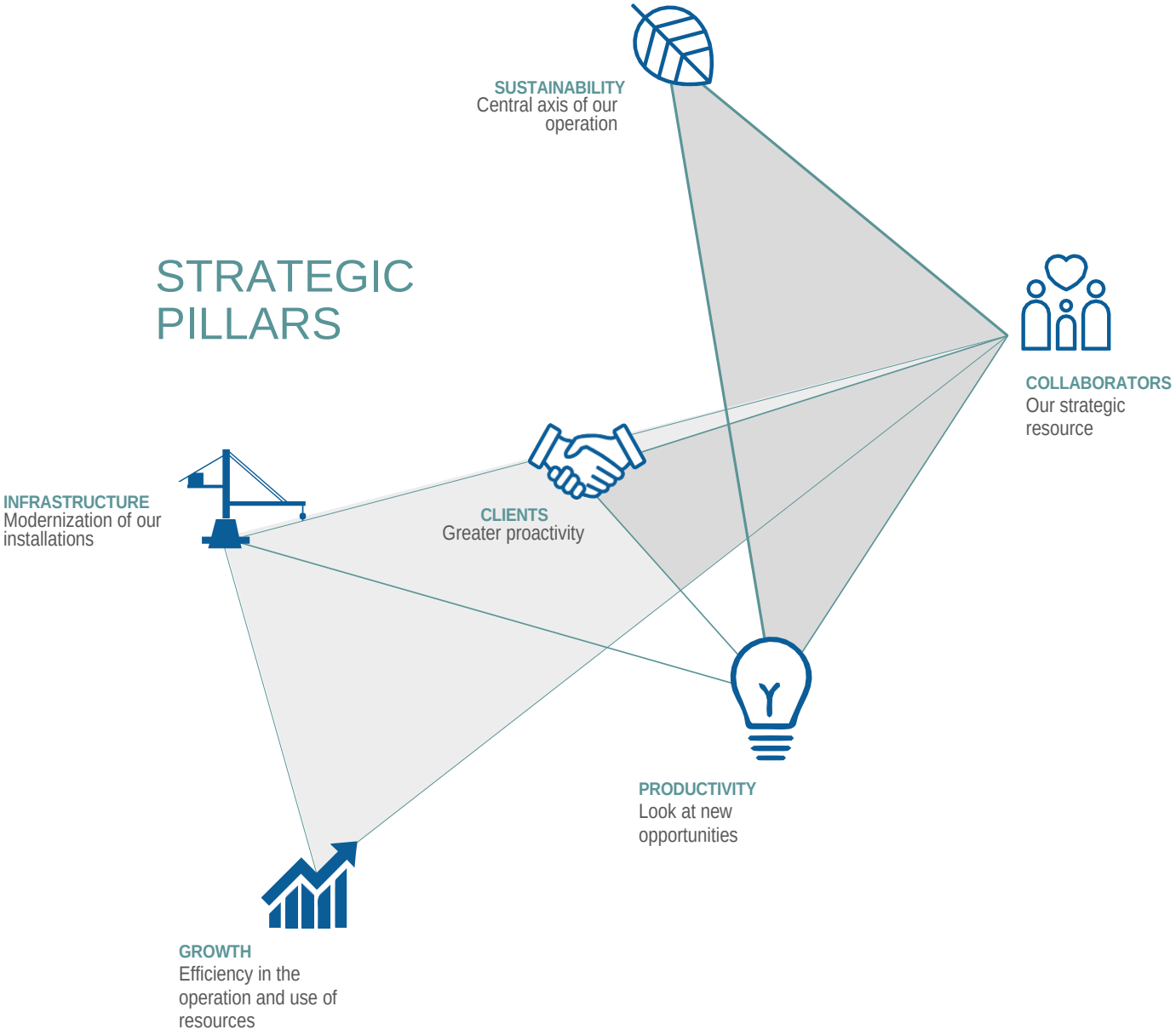
Establish collaborative relationships contributing with the best practices in the industry and the environment

E STRATEGY AND MODEL OF BUSINESS

Puerto Ventanas S.A.'s business strategy is mainly based on consolidating its current position as one of the main bulk ports in the central zone, growing in the liquid and solid bulk port operations and expanding its operations in the north of the country.

This strategy has been fundamental when implementing a successful business model that has allowed us to achieve a sustainable competitive advantage, creating value for its clients by offering innovative, safe and quality services and development opportunities to the community, collaborators, shareholders and suppliers. It is structured around six strategic pillars that guide management to achieve these objectives:

STRATEGIC PILLARS



BUSINESS OPPORTUNITIES AND RISKS

Puerto Ventanas S.A., like the port industry and bulk ports, faces challenging scenarios. In order to generate value for its stakeholders and make the operation sustainable, management, risks and investment opportunities are permanently evaluated.

OPPORTUNITIES

In 2019, the company continued to advance its bulk cargo growth and diversification plan, aligned with the guidelines of the shareholders and the board of directors. Operations began in the bay of Mejillones currently in the period of white march- which has a high demand for transfer stations to satisfy the need for specialized port services.

LOAD DIVERSIFICATION AND NEW OPPORTUNITIES

Since 2015, in anticipation of market changes, the company began a business plan focused on diversifying its cargo, especially clean grains.

INFRASTRUCTURE AND PRODUCTIVITY

In 2019, 434.225 tons of clean grains were transferred, representing an increase of 2.4% compared to 2018, the year in which a significant increase of 50% was achieved, allowing the growth experienced during 2018 to be consolidated.

The operation of the ship-loader or traveler loader, which began operations in 2018, has allowed a significant increase in the speed and capacity of cargo transfer, reducing the occupation rate of the dock sites, providing a service with more efficiency, security, greater productivity and operational flexibility.

During 2018, 415.427 tons were mobilized and in 2019, **983.900** tons through the Ship-loader

In June 2019, one of our main clients, Codelco, highlighted the best performance of shipment of copper concentrate through Pier No. 3, 43.630 tons were shipped obtaining an operational performance of 23.184 Tons / day, the best result since PVSA started the contract service by this dock site.

In July 2019, the first shipment of Petcoke was made at the Port's facilities, using the “traveler loader” or ship-loader, which offers technological advantages thanks to being connected to an encapsulated conveyor system that allows better security conditions in the operation, in the care of the environment and quality of service for customers. To carry out this process, Puerto Ventanas S.A. managed the permits from the Environmental Authority and has rigorously prepared and managed the change, developing the procedures required for this task in a process endorsed by external consultants.

ECONOMIC VALUE

During 2019, the dollar accumulated increases of 7.7%, which will affect the accounting of Puerto Ventanas S.A. because it is in dollars. Likewise, the Chilean decarbonization plan of the energy matrix was advanced, the tons transferred of this product fell by 16.68% compared to 2018.

Likewise, the ship-loader or “traveling loader” has meant greater efficiency in the operation, an increase in the speed of rotation of the cargo in the warehouses and as a consequence the storage capacity that has allowed adding economic value to the company and the service it offers to its customers.

TECHNOLOGY AND INNOVATION

Aligned with the business strategy, a safe and efficient operation with quality customer service, during 2019 it was a priority to advance in technology and innovation in the operation. In this sense, the consolidation of the Innovation Program started in 2018 in PVSA stands out.

Innovation Capacity Development Program with the Global Hub of the Pontifical Catholic University of Valparaíso (PUCV) and CORFO

Continuing with the challenges posed since the beginning of the program, during 2019 the organization has made progress in generating projects and incorporating capacities that promote innovation and development, with the aim of solving the company's strategic challenges.

Since 2018 PVSA has been developing annual meetings to generate and promote spaces intended to motivate the creativity and contribution of its workers to their own work. In this way, progress has been made and during 2019 the “INPVSA Program” was implemented, an initiative that seeks to strengthen the culture of innovation throughout the organization, with the technical support of the Pontifical Catholic University of Valparaíso and the co-financing of CORFO (Production Promotion Corporation).

During the year, the Innovation Area at Puerto Ventanas S.A. was created. and an Innovation Committee formed by the General Manager and different Port Representatives was formed. In addition, the innovation strategy and a policy were defined.

Thus, 2019 ended with the presentation of 45 initiatives, in which more than 150 people participated who worked collaboratively to present their proposals. Of these, a jury selected the 10 best initiatives.

New cabin for Crane No. 2 located at Pier No.5 of the Port

The cabin, installed in Crane No.2 on Pier No.5, is of German origin and has a series of highly technological features for new generation structures that will improve operation, providing greater efficiency in operation and delivering greater and better safety conditions for the operator.

HUMAN CAPITAL

The integral well-being of workers is a permanent commitment of Puerto Ventanas S.A. with their own collaborators. For this, risk-free environments are fostered, and self-care behaviors are promoted, encouraging the commitment of our workers to occupational health and safety.

The success and evolution of the company is based on its human capital, the workers are the greatest asset of Puerto Ventanas SA, for this reason the effort of its collaborators is recognized and rewarded, promoting and developing talent through programs of Formation and development..

Likewise, it fosters an integral and safe environment for personal and professional development in an environment of respect for diversity and equal opportunities and adopts new initiatives every year to develop and manage talent, while promoting equal remuneration and competitive policies.

STAKEHOLDERS

Transparent, truthful, and timely communication helps us align expectations and permanently improve the relationship with our Stakeholders.

We have a relationship model that structures work and communication with all audiences. After a first identification and characterization of the different actors, we establish dialogue channels to deliver information, especially on the issues that are relevant to them.

STRATEGIC RISKS

Puerto Ventanas S.A. has a matrix of risks, which are evaluated by the Executive Team and the Board of Directors, who focus their efforts on maintaining adequate control to manage and mitigate risks, actively intervening at all levels of the organization with clearly established roles and responsibilities.

In June 2019, an Agreement Plan of the Ministry of Energy was signed with the companies Aes Gener, Colbún, Enel and Engie. The plan contemplates, in a first stage that by 2024, the cessation of operations of eight thermoelectric plants throughout the country, two of which are located at the commune of Puchuncaví.

AES Gener represents 34.4% of the activity of Puerto Ventanas S.A, so the closure of these facilities represents a great challenge for the future development of the company. For this, work has been done on diversification and the search for new opportunities and new businesses in the current operation of Puerto Ventanas S.A and in other regions of the country.

RELATIONSHIPS WITH THE COMMUNITY

The base on which trust and long-term relationship with the communities has been built has been the excellent operational performance of Puerto Ventanas S.A. Therefore, we place a special focus on continually improving our environmental and operational management.

The permanent relationship work that has been developed with the community is based on transparency, communication, respect, and collaboration, which has allowed us to build a relationship based on trust and generate significant social capital.

In 2019 a Perception Study was carried out, which has been applied since 2011, which confirms that the community continues to perceive Puerto Ventanas S.A. as a socially and environmentally responsible company.

ECONOMIC CYCLE

It is important to highlight the relevance that the performance of the national and international economy acquires for our clients, given that this directly impacts their imports and exports.

OPERATIONAL RISKS

NATURAL DISASTERS

Our country is constantly exposed to the occurrence of natural disasters. To minimize the impact of possible risks to which it may be affected, PVSA has specialized operations, contingency plans, and associated insurance, so that its operations are not compromised.

CLIMATE CONDITION

During 2019, the closure of the port due to tidal conditions reached 93 days and although it was a lower number than in 2018, it continues to be a major challenge in terms of pier availability. This challenge was decided to tackle with technology that mitigates the effect of storm surges, investing in a ShoreTension system that will be operational during 2020.

ENVIRONMENTAL IMPACT

For avoiding and / or minimizing the effects that may have an impact on the environment, the company has made significant investments in infrastructure that provide greater security to the operation. It also has an environmental management system that allows anticipating the identification of the risks of the operation and taking preventive measures, achieving high environmental and safety standards, in addition to complying with current regulations.

For the second consecutive year, Puerto was recognized for its environmental and social management, receiving the 2018 Americas Maritime Award, and in November of the same year, the company was recertified in ISO 14.001 for the Environment and OHSAS 18.001 for Occupational Health and Safety, certifications valid for three more years.

WORK STOPPAGES

For minimizing the risk of work stoppages, Puerto Ventanas S.A has a labor policy aimed at implementing people and benefit management programs focused on job development and improving the quality of life of employees.

Thanks to permanent communication and dialogue with the workers and leaders of the two existing port trade union, two successful negotiation processes were carried out.

FINANCIAL RISKS

EXCHANGE RATE

Considering that the accounting and financial reports of PVSA are made through the US dollar, any operation carried out in a different currency must be converted to the dollar at the respective exchange rate. Therefore, the company must face the risk of exchange rate variations, mainly the Chilean peso.

Of the costs of Puerto Ventanas SA, given that an important part of these are in pesos and their accounting is expressed in dollars, during the year 2019 the North American currency accumulated an appreciation in relation to the peso, increasing, at accumulated level, 7 , 77% compared to 2018.

MARKET ANALYSIS

It is estimated that 90% of the volume of cargo of goods worldwide moves by sea. In the case of Chile, approximately 97% of the total cargo, imports / exports, moves through the ports. Throughout the country, as of December 31, 2019, there were 57 main port facilities, of which 32 are for private use and 25 are for public use, with Puerto Ventanas S.A being one of the three largest bulk ports in the country, where our main competitor in the central bulk cargo area is the Port of San Antonio.

The operation of Puerto Ventanas S.A is based on long-term contracts with clients, so the market share is stable despite the challenges of the industry. The main clients are large mining, electrical, cement and industrial companies

Additionally, we include and refer to the global emergency related to the **Coronavirus pandemic – COVID 19**
Associated with the safety and health of workers, together with the Company's Business Continuity, PVSA has carried out rigorous controls and will keep them exercising as long as necessary.

This is exposed in the Appendix 1_Health Emergency Prevention Plan for Coronavirus Covid-19.

SUSTAINABILITY STRATEGY

For Puerto Ventanas S.A, sustainability is a strategic focus of its management and operation. For this, it has a sustainability management model that seeks to achieve the strategic objectives while simultaneously addressing socio-environmental, safety, quality aspects and the permanent challenge of innovating, in balance and harmony with economic, social and environmental development.

Likewise, we seek to achieve the highest industry standards in operational efficiency, safety and health of our collaborators, and excellent environmental performance.

The corporate guidelines are known to all workers who are committed to caring for their health and safety, and especially caring for the environment. This commitment is reinforced through permanent activities, campaigns and internal communication, where different challenges such as water care, energy saving, waste management, among other aspects related to the sustainable management of the operation of Puerto Ventanas S.A are addressed.

The incorporation of new technologies and the continuous improvement of processes has resulted in a more efficient and competitive port, always ensuring that these advances are accompanied by security and commitment to collaborators and the environment.

KEY ASPECTS OF THE SUSTAINABLE MANAGEMENT MODEL

ACKNOWLEDGMENTS AND CERTIFICATIONS - 2019

Las Americas Maritime Award 2019 category "Rapprochement with the Community and Port-City Relations" CIP - OEA.

Recognition granted by the Inter-American Committee on Ports (CIP) belonging Organization of American States (OEA), in the category "Rapprochement with the Community and the Port-City Relationship".

ECOPORT Environmental Management of Ports

The only international standard of exclusive Environmental Management for Ports, being Puerto Ventanas S.A the first port in Chile to achieve this important European certification. The certification is valid until 2020.

Energy Efficiency Seal

Gold Seal, Energy Efficiency issued by the Ministry of Energy, valid until 2020.

ISO 14.001 - ISO 18.001

Puerto Ventanas S.A obtained Lloyds Register recertification - for three more years for the ISO 14.001 (Environment) and OHSAS 18.001 (Occupational Health and Safety) standards.

CEM Insight Award

Recognition granted to Puerto Ventanas S.A for its energy efficiency program. This distinction is delivered by a group of energy leaders and authorities, representing 24 governments that promote energy efficiency globally.

THE AMERICAS MARITIME AWARD

The recognition is annually granted by the Inter-American Committee on Ports belonging to the Organization of American States (OEA). It is delivered to those companies that apply and that are part of the 34 member states of the OEA for their sustainable management in the areas of environment, community, security, and inclusion.

Puerto Ventanas S.A, in 2019, was recognized in the category "Rapprochement with the Community and the Port-City Relationship", obtaining the award in that category, which was awarded in Honduras during the III Hemispheric Seminar on Port Legislation.

It was great news and recognition of the work that Puerto Ventanas S.A has been doing in this area. Even more considering that this call, has been the most competitive to date, with record of applications from the port sector.

Since 2011, consistent with the strategic plan for community relations, work has been carried out to generate permanent and sustainable links with the community, a commitment that materialized in the creation of the “Puerto Abierto” community center, an initiative through which activities are carried out, in addition to programs and training aimed at entrepreneurship, promoting sports and health, culture and creating a space for interaction with neighbors to meet their needs.

This award recognizes serious, responsible and long-term work that makes it possible to advance in a development that involves the entire port environment: its inhabitants, workers and authorities, a commitment of great importance to Puerto Ventanas S.A.

OEA | Más derechos para más gente

PREMIO MARÍTIMO DE LAS AMÉRICAS

CIP Comisión Interamericana de Puertos

GS-OAS/SEDI/CIP/OF-23-05-2019
15 de mayo de 2019

Antigua y Barbuda
Argentina
Bahamas
Barbados
Belize
Bolivia
Brasil
Canadá
Chile
Colombia
Costa Rica
Cuba
Dominica
Ecuador
El Salvador
Estados Unidos
Grenada
Guatemala
Guyana
Haití
Honduras
Jamaica
México
Nicaragua
Panamá
Paraguay
Perú
República Dominicana
San Kitts y Nevis
Santa Lucía
San Vicente y las Granadinas
Suriname
Trinidad y Tobago
Uruguay
Venezuela

Luis Fuentes Martínez
Gerente de Sostenibilidad
Puerto Ventanas
Chile

Estimado Sr. Fuentes:

En nombre de la Secretaría de la Comisión Interamericana de Puertos (S/ CIP) de la Organización de los Estados Americanos (OEA), es un gran honor felicitar a Puerto Ventanas por haber sido seleccionado ganador del Premio Marítimo de las Américas 2018 en la categoría Acercamiento con la Comunidad y Relación Puerto - Ciudad.

En esta convocatoria que hasta la fecha ha sido la más competitiva, donde se rompió el record de postulaciones, el jurado recibió candidaturas tanto del sector portuario público como del privado de Norte-, Centro- y Sudamérica, así como del Caribe. Además de obtener una alta puntuación, las prácticas ganadoras mostraron resultados medibles y sobre todo de impacto sostenible, contribuyendo significativamente a la prosperidad de las sociedades en donde operan.

La S/ CIP se enorgullece en honrar su destacado compromiso con el desarrollo de un sector marítimo-portuario competitivo, sostenible y socialmente responsable en las Américas.

La ceremonia de premiación se llevará a cabo durante la *III Seminario Hemisférico sobre Legislación Portuaria: Legislación eficiente como fundamento para la competitividad*, a realizarse el 18 y 19 de julio, 2019, en Roatán. Honduras. En el evento se le otorgará la palabra para presentar un resumen ejecutivo de su práctica ganadora (5 a 10 minutos) a los representantes de los puertos públicos y privados, la academia, empresas portuarias y funcionarios líderes de la industria.

Esperando tener el honor de su participación, aprovecho la oportunidad para una vez más felicitarle por su excelencia y dedicación, y agradecerle por haber contribuido a que el Premio Marítimo de las Américas 2018 fuera un éxito.

Atentamente,

Jorge Durán
Jefe de la Secretaría
Comisión Interamericana de Puertos

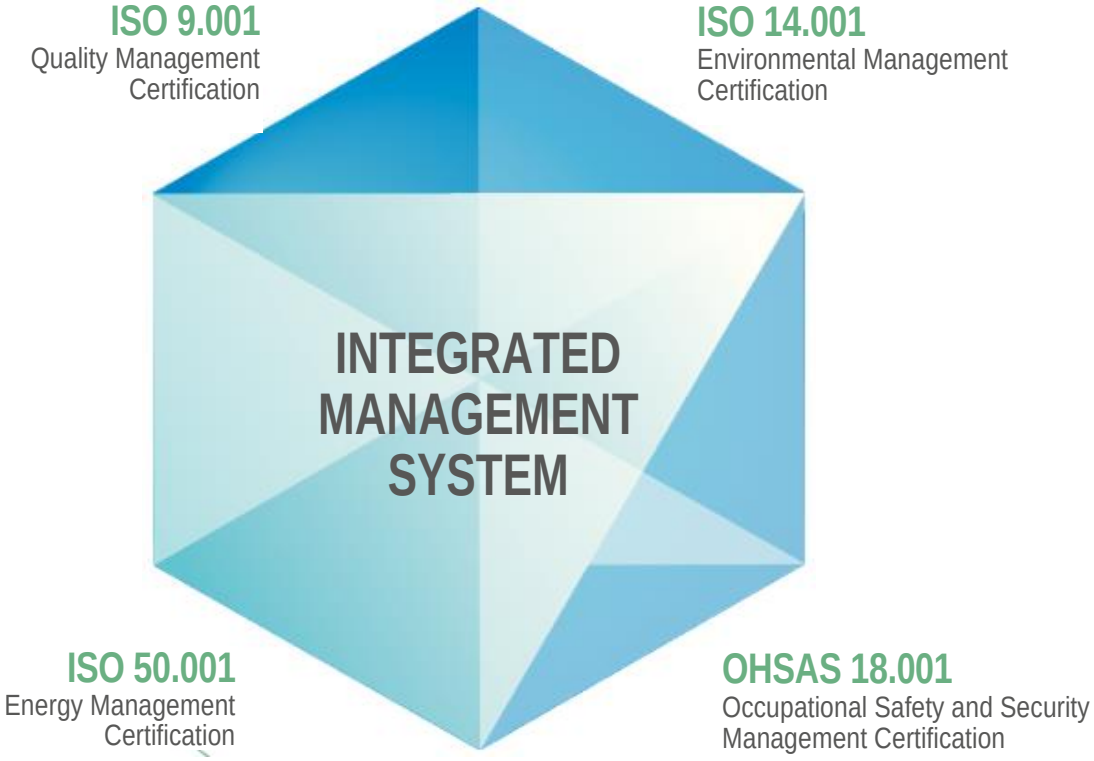
Ccp. Misión Permanente ante la OEA

2. DEVELOPMENT OF THE INFORMATION REQUIRED BY THE ECOPORTS GUIDE

2.1. ENVIRONMENTAL POLICY STATEMENT:

Puerto Ventanas S.A. has an Integrated Management System through which it manages the aspects associated with the Environment, Quality, Energy Efficiency and Occupational Health and Safety. Puerto Ventanas Integrated Management System has been structured based on the requirements contained in the ISO 14.001, ISO 9.001, ISO 50.001, and OHSAS 18.001 international standards.

This system, which started in 2013, manages and optimizes operations in a sustainable and consistent way. It constitutes the basis of the continuous improvement process allowing to deliver a quality service to customers, guaranteeing the safety and health of all the collaborators of the Port and the protection of the environment, aligned with the policies and strategic plan of Puerto Ventanas S.A.
Puerto Ventanas S.A. has environmental management certification under standard ISO 14.001, which is periodically verified, and It was recertified under the new upgrade standard ISO14.001: 2015 by the certifying company LRQA Business Assurance; the certification of this standard is valid until December 2022.



The Integrated Management System Policy was updated in 2020 and incorporates our commitment to:

Satisfying the needs of customers, through continuous improvement in the performance of the different processes, with the primary protection being for health and safety of our employees, the environment and optimizing the use of energy, generating sustainable development for our activity, our collaborators, and driving the economic development of the region.

That includes:

- ✓ Provide and maintain safe working environments for its employees and other people who are at its facilities.
- ✓ Ensure legal compliance and the domestic and international regulations applicable to its business activities.
- ✓ Ensure corporate standards associated with the principles of safety, occupational health, the environment, energy management and the quality of its services and processes.
- ✓ Implement all the necessary and feasible resources to ensure compliance with the objectives and targets established according to the following principles: quality of services, customer satisfaction, protection and prevention of pollution, prevention work-related accidents and illnesses, eliminating dangers and reducing risks in the processes.
- ✓ Purchase of efficient products and services, for the improvement of energy performance.
- ✓ Make available the Integrated Management System information to all Puerto Ventanas S.A. employees.
- ✓ Promote initiatives and innovation, in the principles of quality, environment, energy and occupational health and safety, strengthening leadership at all levels to achieve the objectives and targets.

PUERTO VENTANAS S.A.
INTEGRATED MANAGEMENT SYSTEM POLICY

Puerto Ventanas S.A, is the primary private port in the central region of the country, offering comprehensive and specialized services for the transfer, storage and dispatch of solid and liquid bulk products and non-container cargo.

We are committed to satisfying the needs of our customers, through continuous improvement in the performance of our processes, with the primary protection being for health and safety of our employees, the environment and optimizing the use of energy, generating sustainable development for our activity, our collaborators, and driving the economic development of the region.

For this, Puerto Ventanas S.A. agrees to:

1. Provide and maintain safe working environments for its employees and other people who are at its facilities.

2. Ensure legal compliance and the domestic and international regulations applicable to its business activities and corporate standards associated with the principles of safety, occupational health, the environment, energy management and the quality of its services and processes.

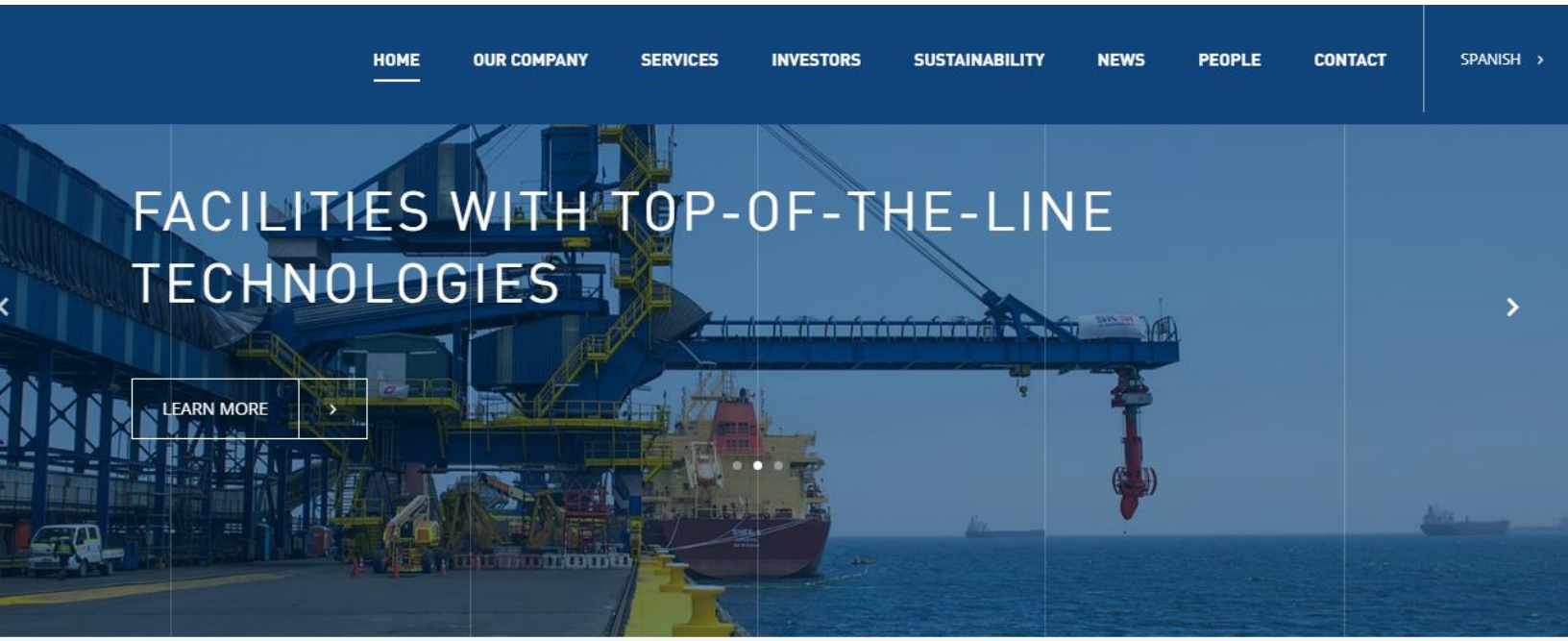
3. Implement all the necessary and feasible resources to ensure compliance with the objectives and targets established according to the following principles: quality of services, customer satisfaction, protection and prevention of pollution, prevention work-related accidents and illnesses, eliminating dangers and reducing risks in the processes, as well as the design and purchase of efficient products and services, for the improvement of energy performance.

4. Make available the Integrated Management System information to all Puerto Ventanas S.A. employees, as well as consultation and participation spaces, to promote initiatives and innovation, in the aforementioned principles, strengthening leadership at all levels to achieve the objectives.

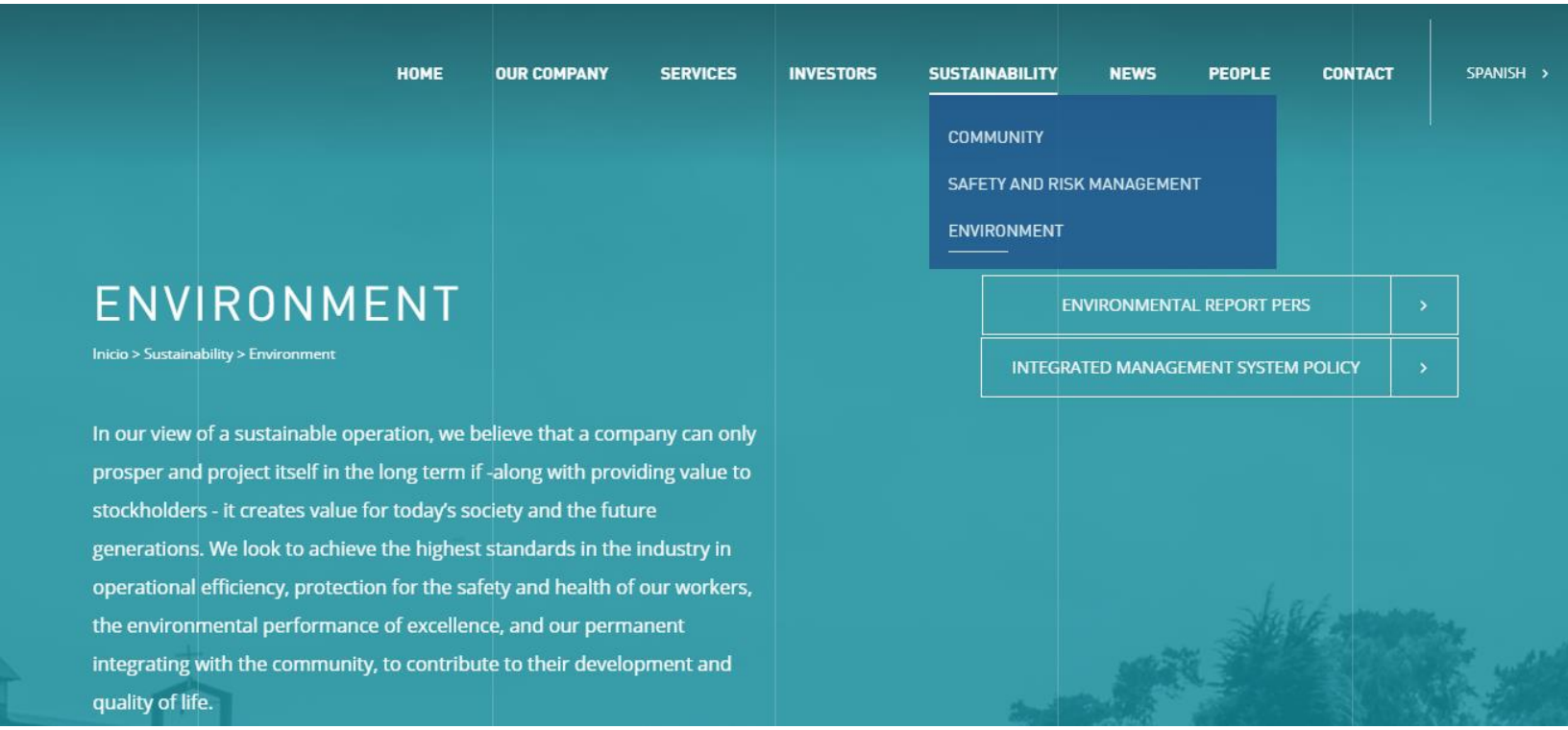
PUERTO VENTANAS S.A.

Jorge Oyarce Santibañez

General Manager



Integrated Management Policy and Environmental Report can be downloaded from Puerto Ventanas website www.puertoventanas.cl.
In addition, verified PERS reports are included in the Sustainability and Environment section of the website:
https://puertoventanas.cl/en/sustainability/environment/



2.2. LOG OF ENVIRONMENTAL ASPECTS, LEGAL REQUIREMENTS AND PERFORMANCE INDICATORS

2.2.1. Identification of aspects and assessment of environmental impacts

In order to define the methodology to be used for the identification and evaluation of the environmental aspects, Puerto Ventanas follows an internal procedure "P-002-SGI Identification of Environmental Aspects and Evaluation of Environmental Impacts", whether in normal or extraordinary operation.
This procedure is applicable to all activities and services currently performed in Puerto Ventanas.

Responsibilities Table

Stages	**Responsible**		
	Environment and Communities Coordinator	Environment Supervisor	All the staff
Evaluate environmental impacts		X	
Develop management plans for the management of significant environmental impacts	X		
Control aspect - environmental impact			X
Communicate the procedure	X		
Comply with the procedure			X

Identification of Environmental Impacts

1. Identify all the activities (normal, abnormal, and emergency) that are carried out in Puerto Ventanas, whether they are developed by the staff, contractors, or visits.
2. Identify the environmental aspects in each of the activities identified in the previous point. The way to carry out the identification of environmental aspects can be carried out by interviews with personnel, review of incident records, inspections of operations, measurements, or previous data.
3. Determine the environmental impacts for each environmental aspect (an environmental aspect can give rise to one or more environmental impacts).
4. Identification of the control and / or mitigation measures that currently exist in Puerto Ventanas.

Evaluation of Environmental Impacts

For the evaluation of environmental impacts, the Frequency, Severity and Legislation criteria are used, which determine the magnitude of the these.

- ✓ **Frequency**: Periodicity with which each incident occurs

NUMBER	FREQUENCY
1	It happens, or it would happen in more than 5 years
2	It happens, or it would happen between 1 to 5 years
3	It happens, or it would happen in less than 1 year
4	It happens, or it would happen in less than 1 month
5	It happens, or would happen continuously or daily

- ✓ **Severity**: The level of damage caused by the environmental aspect or impact.

NUMBER	SCALE AND SEVERITY
1	Despicable: It is confined to interior of buildings, to a team or activity, duration of a week.
2	Low: It is confined to the interior of property, in one or more areas, its effects can be extended to 1 month.
3	Medium: It can cause deterioration in the environment; its effects will last for a period of 1 year.
4	High: It can cause damage to the environment or deterioration to health, its effects can last for more than a year.
5	Very High: It can cause damage to the health of the community and / or the environment, its effects being irreversible over time.

- ✓ **Legislation**:

VALUE	LEGISLATION OR COMMITMENT
1	There is no legislation
3	There is legislation and / or voluntary commitments

Significance of the Environmental Impact (S):

S = F x Se x L

- Frequency = F
- Severity = Se
- Legislation = L

If the value of the significance of the impact is equal to or greater than 45, the environmental impact is significant and therefore the environmental aspect that originates it is also significant.

Management of significant Environmental Aspects

For monitoring and controlling the significant environmental aspects in Puerto Ventanas, the following tools can be used:

- Environmental management programs.
- Procedures and / or operational instructions.
- Monitoring

2.2.2. Identification of legal requirements and other requirements:

Environmental regulation of Port Complex.

Puerto Ventanas performs a review of legal and regulatory requirements within the framework of its management system that contains the requirements identified in environmental areas which is diffused through the internal procedure "R2-P004-SGI Identification and monitoring of environmental legal requirements".

Operating procedure of management platform of Environmental Qualification Resolution (EQR)

Objective and scope

From the need to have a system that manages and monitors all environmental requirements linked to an Environmental Qualification Resolution (EQR) of Puerto Ventanas S.A. An Environmental Qualification Resolution is an authorization delivered by the Environmental Assessment Service, which is obtained once the evaluation process is completed, which is carried out through the Environmental Impact Study or the Environmental Impact Statement.
The Environmental Qualification Resolution establishes whether the submitted project has been approved or rejected.

The procedure applies to all areas with responsibility for compliance with the environmental requirements established in the EQR, which are indicated in the environmental monitoring platform management of resolution of environmental qualification. The EQR involved are the following:

- EQR No. 263/2000 "Copper Concentrated Warehouse Project in Puerto Ventanas."
- EQR No. 229/2004 "Site 6 Project."
- EQR No. 009/2010 "Expansion of Copper Concentrates Storage Capacity in Puerto Ventanas."
- EQR No. 249/2014 "Expansion, Improvement and Modernization of the Shipment System for Copper Concentrates in Puerto Ventanas."
- EQR No. 066/2015 "Improvement of Storage Conditions for Copper Concentrate, 46.000 tons."

Responsibilities Table

Stages	Responsible			
	Head of Area	Environment and Communities Coordinator	Environment Supervisor	All the staff
Maintain and upload systematized information in platform "MIS COMPROMISOS"		X	X	
Comply with the established requirements and upload information indicated in these	X			
Train personnel regarding the operation of the platform		X	X	
Verifiers of fulfillment of demands in the platform		X		
Support in the fulfillment of all the environmental demands of the X system				X
Support heads of areas or respective managers of platform use with respect to its operation		X	X	
Monitor indicators of compliance with the requirements of the respective heads of area		X		

General description of the EQR platform.

The EQR management platform is created for the generation of an Environmental Monitoring Plan of PVSA which tracks compliance with the environmental requirements established in the Environmental Qualification Resolutions

Access to the site

To access the EQR management platform, each person in charge of the area assigned to responsibilities must enter with credentials, with this username and password.

Main screen of EQR management platform.

The main screen of the platform presents a summary on the management and states of compliance of responsibilities assigned to each EQR, which are visible in the presentation of graphical and statistical data that presents the progress of the fulfillment of responsibilities assigned to each area.

This platform contemplates a procedure P-004-MA "Operating procedure of platform "MIS COMPROMISOS"

EQR compliance reports through the electronic platform of the Environment Superintendence

The Environment Superintendence (ES), through resolution Exempt No. 223/2015, indicates the generation of environmental monitoring plans through the reporting of environmental monitoring reports and information generated during the execution of projects to activities in the Evaluation System of Environmental Impact (ESEI)

Therefore, Puerto Ventanas to comply with the new reporting system generates reports under the structure indicated in the Resolution. Which are reported on the electronic platform of the ES, in which the list of the five EQR of Puerto Ventanas S.A is registered, generating reports according to the commitment and frequency indicated by the EQR of each project and in the stage that it finds.

Management with the Authority

Puerto Ventanas S.A in its search for the best available technologies for sustainable operation makes constant coordination with the environmental authority to jointly define the definition of tools that allow Puerto Ventanas to be the best sustainable port.

Likewise, continuous contact is made with authority for the management of sectoral authorizations to prove that it complies with current legislation.

The environmental aspects and the legal requirements applicable to Puerto Ventanas S.A. operations are kept in a log, and each area has a matrix of environmental aspects with their respective controls and the legal requirements applicable to their processes.

The following tables show the environmental aspects, controls, and legal requirements, updated and applicable to the operations and processes of Puerto Ventanas S.A.

ADMINISTRATION AREA MATRIX

Activity	Environmental Aspect	Environmental Impact	Responsible person / organization	Applicable legislation	Legal requirements	Control Measures
Printer	Hazardous waste	Waste generation	Administrative staff	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Facilities for waste segregation Compliance with the waste management Plan	P-011-PEM: Hazardous waste management plan P-001-MA Comprehensive solid Waste Management
Supplying	Solid waste	Waste generation	Supply staff	Supreme Decree No.594/1999, Supreme Decree No.201/2001.	Basic sanitary and environmental conditions in the workplace	P-001-MA Comprehensive solid Waste Management
Meetings	Electricity	Non-renewable resource consumption	Administrative staff	N/A	Awareness of the use of electrical energy	P-011-PEM: Hazardous waste management plan P-004-EE- Energy Efficiency Appendix
Workplaces	Electricity	Non-renewable resource consumption	Administrative staff	N/A	Awareness of the use of electrical energy	P-011-PEM: Hazardous waste management plan P-004-EE- Energy Efficiency Appendix
Electronics	Electricity	Non-renewable resource consumption, generation of hazardous waste	Administrative staff	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Awareness of the use of electrical energy Facilities for waste segregation Compliance with the waste management Plan	P-004-EE- Energy Efficiency Appendix P-011-PEM: Hazardous waste management plan P-001-MA Comprehensive solid Waste Management
Dining Halls	Waste generation, energy consumption, water consumption	Natural resource consumption and soil contamination	Administrative staff	Supreme Decree No.594/1999, Supreme Decree No.201/2001.	Basic sanitary and environmental conditions in the workplace Awareness of the use of electrical energy	P-001-MA Comprehensive solid Waste Management D-001-EE PVSA energy management program
Recreation	Solid waste, liquid waste	Waste generation	Administrative staff			P-001-MA Comprehensive solid Waste Management D-001-EE PVSA energy management program
Dining Halls	Water, electricity	Water shortage and alteration of water quality	Administrative staff	Supreme Decree No. 1/1992.	Awareness of the use of water Management and disposal of liquid waste	I-001-AM Comprehensive Management of Sewage Septic and domiciliary sewage sludge D-001-EE PVSA energy management program

Restrooms and showers	Waste generation, energy consumption, water consumption	Natural resource consumption and soil contamination	Administrative staff	Supreme Decree No.594/1999 , Supreme Decree No.201/2001 (Art.18,19), DFL Law No.725 Sanitary Code (Art. 73), Supreme Decree No. 90/2000 (Art. 4.1.2), Supreme Decree (M) No.1/1992	Basic sanitary and environmental conditions in the workplace Regulation of pollutants associated with the unloading of liquid waste to marine and surface waters Awareness of the use of electrical energy	I-001-AM Comprehensive Management of Sewage Septic and domiciliary sewage sludge D-001-EE PVSA energy management program
Handwash	Waste generation, energy consumption, water consumption	Natural resource consumption, water shortage and alteration of water quality	Administrative staff			

PETCOKE TERMINAL MATRIX

Activity	Environmental Aspect	Environmental Impact	Responsible person / organization	Applicable legislation	Legal requirements	Control Measures
Petcoke unloading	Particulate material	Air quality alteration	Head of Terminal Petcoke	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015.	Perimeter mesh to contain dust	PO-001-TP Petcoke terminal procedure, covering and uncovering truck hopper
Petcoke stacking						
Truck traffic	Combustion gases					
Humidification of storage area	Liquid waste generation	Surface water contamination	Head of Terminal Petcoke	Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992.	Liquid waste management Water use awareness	Geomembrane and HDP reception system. Petocke piles humidification, wheel washing system at the exit of the truck.
Street washing system						
Truck wheel washing system						
Charging movement with front loader, bulldozer	Combustion gases, fuel spill	Air quality alteration, soil contamination	Head of Terminal Petcoke	Supreme Decree No. 148/2003 (Art. 6), Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Supreme Decree 138/2005 (Art. 3), Decree 112/2002, Decree 113/2002, Decree 114/2002.	Request for machinery documentation Spill control sector Management of hazardous waste according to the Management Plan	Perimeter closure with meshes in the material reception area. Vehicle maintenance program, technical reviews, I-005-PM Instructional control of minor spills to the floor
Water recirculation system	Liquid waste generation	Soil contamination	Head of Terminal Petcoke	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) , Statutory Decree 1/2013, Decree 75/1987.	Liquid waste management Water use awareness	Closed water recirculation system used for wetting and wheel washing.

Loading material into truck Truck dispatch Wheel wash	Particulate material	Air quality alteration	Head of Terminal Petcoke	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015.	Perimeter mesh to contain dust	Petcoke transfer station, wheel wash
Administrative work	Energy consumption, waste generation	Natural resource consumption, soil contamination	Petcoke Terminal staff	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Facilities for waste segregation Compliance with the waste management Plan	P-001-MA Comprehensive solid Waste Management, D-003 Hazardous waste management plan,
Restrooms and showers	Energy and water consumption, waste generation	Natural resource consumption, soil contamination	Petcoke Terminal staff	Supreme Decree No.594/1999 , Supreme Decree No.201/2001 (Art.18,19), DFL Law No.725 Sanitary Code (Art. 73), Supreme Decree No. 90/2000 (Art. 4.1.2), Supreme Decree (M) No.1/1992	Basic sanitary and environmental conditions in the workplace Regulation of pollutants associated with the unloading of liquid waste to marine and surface waters Awareness of the use of electrical energy	I-001-AM Comprehensive Management of Sewage Septic and domiciliary sewage sludge
Dining Halls	Energy and water consumption, waste generation	Natural resource consumption, soil contamination	Petcoke Terminal staff	Supreme Decree No.594/1999, Supreme Decree No.201/2001.	Basic sanitary and environmental conditions in the workplaceAwareness of the use of electrical energy	P-001-MA Comprehensive solid Waste ManagementD-001-EE PVSA energy management program
Maintenance activities	Generation of hazardous waste	Soil contamination	Head of Terminal Petcoke	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Maintaining health and environmental conditions in the workplace Compliance with the hazardous waste management plan, authorized by the sanitary authority	D-003-MA Hazardous waste management plan

WHEAT TERMINAL MATRIX

Activity	Environmental Aspect	Environmental Impact	Responsible person / organization	Applicable Legislation	Legal Requirements	Control and Mitigation Measures
Cargo wheat reception to transfer tower 15	Particulate Material	Air quality alteration, harm to flora and fauna	Head of Wheat Terminal	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Supreme Decree 138/ 2005 (Art. 3) Decree 112/2002, Decree 113/2002, Decree 114/2002, Decree 115/2002, Decree N. 12/2011, Decree 10/2015. Supreme Decree No. 594/1999 , Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	-Belts encapsulated with covers -Organizational standard: prohibition to store non-wettable fine granulometry products in the open air. -Cleaning of trucks prior to their leaving the warehouses (instructions included in I-001-TG unloading trucks in grains warehouse). -Warehouse gates always closed. -Periodic fumigation service and authorized documentation -Spill control sector Management of waste according to the Management Plan -Awareness of the use of electrical energy	PO-003 -TG Grain reception and stowage by conveyor belt
Cargo wheat storage in warehouse	Presence of vectors					Encapsulated belts with covers, closed gates, inspection during port activities
Cargo movement into the warehouse with payloader	Particulate Material, fuel spill	Air quality alteration, Soil contamination.	Head of Wheat Terminal			Organizational Standard: Prohibition of outdoor stockpiling of non-wettable fine grain products
Road-sweeper	Particulate Material	Air quality alteration.	Head of Wheat Terminal			
Cargo wheat unloading to warehouse	Particulate Material, Presence of vectors	Air quality alteration, harm to flora and fauna	Head of Wheat Terminal			PO-004-TG Reception and storage by truck
Cargo movement into the warehouse with payloader	Particulate Material, fuel spill	Air quality alteration, harm to flora and fauna	Head of Wheat Terminal			I-001-TG Truck unloading at grain warehouse
road-sweeper	Particulate Material	Air quality alteration	Head of Wheat Terminal			Truck wrapping, cleaning of trucks prior to the departures from thje warehouses, closed doors
Cargo wheat unloading from silo to truck	Particulate Material, Presence of vectors	Air quality alteration, harm to flora and fauna	Head of Wheat Terminal			PO-001- TG Truck dispatch, PO-002-TG Silo dispatch 100 railroad track
Reception of trucks at the terminal for cargo wheat dispatch	Combustion gases, Organic waste generation	Air quality alteration, Soil contamination.	Head of Wheat Terminal			P-001-MA Comprehensive solid waste management
Blowing, brooms	Particulate Material	Air quality alteration	Head of Wheat Terminal	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013, Decree No. 12/2011, Decree 10/2015. Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Decree 75/1987		PO-006-TG Instructive: Warehouse cleaning 1
	Waste generation	Soil contamination	Head of Wheat Terminal			P-001-MA Comprehensive solid waste management

Cargo transportation by conveyor belts	Energy consumption, Particulate Material	Natural resource consumption, Air quality alteration.	Head of Wheat Terminal			D-001-EE PVSA energy management program
Load Reception	Particulate Material	Air quality alteration	Head of Wheat Terminal	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Supreme Decree 138/ 2005 (Art. 3) Decree 112/2002, Decree 113/2002, Decree 114/2002, Decree 115/2002, Decree N. 12/2011, Decree 10/2015. Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Decree 75/1987		PO-014-MO Unloading Bauxite Procedure
Cargo storage inside the warehouse	Particulate Material					
Cargo movement with front loader	Combustion gases, fuel spill	Air quality alteration, Soil contamination				
Truck dispatch and pressure washer cleaning	Generation of liquid waste	Surface water contamination				
Administrative offices	Waste generation, Energy consumption, Water consumption	Natural resource consumption y Soil contamination	Wheat Terminal staff	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Facilities for waste segregation Compliance with the waste management Plan	P-001-MA Comprehensive solid waste management
Restrooms and showers	Waste generation, Energy consumption, Water consumption	Natural resource consumption y Soil contamination	Wheat Terminal staff	Supreme Decree No.594/1999 , Supreme Decree No.201/2001 (Art.18,19), DFL Law No.725 Sanitary Code (Art. 73), Supreme Decree No. 90/2000 (Art. 4.1.2), Supreme Decree (M) No.1/1992	Basic sanitary and environmental conditions in the workplace Regulation of pollutants associated with the unloading of liquid waste to marine and surface waters Awareness of the use of electrical energy	I-001-AM Comprehensive Management of Sewage Septic and domiciliary sewage sludge
Dining Halls	Waste generation, Energy consumption, Water consumption	Natural resource consumption y Soil contamination	Wheat Terminal staff	Supreme Decree No.594/1999, Supreme Decree No.201/2001.	Basic sanitary and environmental conditions in the workplace	P-001-MA Comprehensive solid waste management
Maintenance activities at the Terminal	Waste generation	Soil contamination	Head of Wheat Terminal	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Maintaining health and environmental conditions in the workplace Compliance with the hazardous waste management plan, authorized by the sanitary authority	D-003-MA Hazardous waste management plan

MAINTENANCE AREA MATRIX

Activity	Environmental Aspect	Environmental Impact	Responsible person / organization	Applicable legislation	Legal requirements	Control Measures
Shovel maintenance	Energy consumption	Soil and sea water alteration Consumption of non-renewable resources	Head of Maintenance	Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree No. 1/1992, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83)	Maintaining health and environmental conditions in the workplace Compliance with the hazardous waste management plan, authorized by the sanitary authority	PO-004-MAN: Shovel welding work P-007-PEM: Electrical work with low and medium voltage
Maintenance of charge and unloading system	Particulate material	Waste generation	Head of Maintenance			PO-001-MAN: General Maintenance and infrastructure procedure
Conveyor system maintenance	Filtration of dangerous substances into the sea	Alteration of water quality, water resources.	Head of Maintenance			PO-003-MAN: Full scale repair. P-001-PEM: Blocking of sources of energy and dangerous substances
Crane lubrication	Hazardous substances	Soil alteration	Head of Maintenance			PO-003-MAN: Full scale repair. P-011-PEM: Hazardous waste management plan P-001-PEM: Blocking of sources of energy and dangerous substances
Level scale maintenance	Waste generation	Sea water pollution	Head of Maintenance			PO-003-MAN: Full scale repair. P-001-PEM: Blocking of sources of energy and dangerous substances
Copper concentrate reception in multimodal system	Hazardous waste	Soil alteration	Head of Maintenance			PO-001-MAN: General Maintenance and infrastructure procedure
Copper concentrate reception and vesselment system	Used metals and spare parts	Waste generation	Head of Maintenance	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Maintaining health and environmental conditions in the workplace Compliance with the hazardous waste management plan, authorized by the sanitary authority	D-003-MA Hazardous waste management plan

General lubrication of crane bridge	Waste generation, filtration of dangerous substances	Soil contamination	Head of Maintenance	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Maintaining health and environmental conditions in the workplace Compliance with the hazardous waste management plan, authorized by the sanitary authority	PO-002-MAN: Maintenance procedure for the crane bridge at Costa Terminal P-011-PEM: Management Plan for hazardous waste
Compressors	Particulate material	Alteration in air quality	Head of Maintenance	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015.		PO-001-MAN: General Maintenance and infrastructure procedure
Works on dust collectors	Particulate material, hazardous waste, energy consumption	Alteration in air quality	Head of Maintenance	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015.		PO-001-MAN: General Maintenance and infrastructure procedure
Works in Petcoke reception area	Hazardous substances	Soil contamination	Head of Maintenance	Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree No. 1/1992, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83)	Maintaining health and environmental conditions in the workplace Compliance with the hazardous waste management plan, authorized by the sanitary authority	P-001-PEM: Blocking of sources of energy and dangerous substances P-011-PEM: Hazardous waste management plans
Works in Petcoke reception area	Electricity	Waste generation, non-renewable energy consumption	Head of Maintenance	N/A	Awareness of the use of electrical energy	P-004-EE: Energy efficiency plan Appendix D-001-EE: PVSA Energy Management Program
Warehouse structural work	Waste generation, emissions	Waste generation, non-renewable energy consumption	Head of Maintenance	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Maintaining health and environmental conditions in the workplace	PO-001-MAN: General Maintenance and infrastructure procedure
Air System	Electricity and products	Non-renewable energy consumption	Head of Maintenance	NCh elect.4/2003	Awareness of the use of electrical energy	P-004-EE: Energy efficiency plan Appendix D-001-EE: PVSA Energy Management Program I-003-EE Requirements for energy efficiency in design and purchasing
Conveyor system	Waste and particulate material	Alteration of air quality and generation of hazardous waste	Head of Maintenance	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Maintaining health and environmental conditions in the workplace	PO-014-MAN: Operational procedure of transfer hopper welds in conveyor system PO-001-MAN- General maintenance and infrastructure procedure

Conveyor system repair	Hazardous substances	Soil contamination	Head of Maintenance			PO-001-MAN: General Maintenance and infrastructure procedure
Welds	Energy consumption	Non-renewable energy consumption	Head of Maintenance	N/A	N/A	PO-001-MAN: General Maintenance and infrastructure procedure
Copper concentrate transfer equipment maintenance	Waste generation	Waste generation	Head of Maintenance	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Maintaining health and environmental conditions in the workplace	PO-001-MAN: General Maintenance and infrastructure procedure
Administrative office	Waste generation, energy consumption, water consumption	Natural resource consumption and soil contamination	Maintenance staff	Supreme Decree No.594/1999, Supreme Decree No.201/2001.	Basic sanitary and environmental conditions in the workplace Awareness of the use of electrical energy	P-001-MA Comprehensive solid waste management D-001-EE PVSA energy management prog
Energetically load work tools	Energy consumption	Natural resource consumption	Maintenance staff	N/A	Awareness of the use of electrical energy	P-004-EE: Energy efficiency plan Appendix
Dining Halls	Waste generation, energy consumption, water consumption	Natural resource consumption and soil contamination	Maintenance staff	Supreme Decree No.594/1999, Supreme Decree No.201/2001.	Basic sanitary and environmental conditions in the workplace Awareness of the use of electrical energy	P-001-MA Comprehensive solid waste management D-001-EE PVSA energy management prog
Restrooms and showers	Waste generation, energy consumption, water consumption	Natural resource consumption and soil contamination	Maintenance staff	Supreme Decree No.594/1999 , Supreme Decree No.201/2001 (Art.18,19), DFL Law No.725 Sanitary Code (Art. 73), Supreme Decree No. 90/2000 (Art. 4.1.2), Supreme Decree (M) No.1/1992	Basic sanitary and environmental conditions in the workplace Regulation of pollutants associated with the unloading of liquid waste to marine and surface waters Awareness of the use of electrical energy	I-001-AM Comprehensive Management of Sewage Septic and domiciliary sewage sludge D-001-EE PVSA energy management prog
Handwash	Waste generation, energy consumption, water consumption	Natural resource consumption and water shortage and alteration of water quality	Maintenance staff			

TERMINAL COSTA MATRIX

Activity	Environmental Aspect	Environmental Impact	Responsible person / organization	Applicable legislation	Legal requirements	Control Measures
Trains reception, weighing and unloading	Particulate material	Air quality alteration	Head of Terminal Costa	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013), Decree No. 12/2011, Decree 10/2015 Supreme Decree No. 594/1999, Supreme Decree No. 148/2003, Statutory Decree 1/2013, Decree 75/1987. EQR No. 263/2000 EQR No. 09/2010 EQR No.66/2015	Dust collection system in warehouses Dust extractors Keep gates closed in warehouses Towers and conveyor belts confined Keep sweeper circulating through the Terminal Copper Concentrate Spill contingency Plan Avoid the fall of copper concentrate from conveyor systems and storage warehouses	1. Operation of warehouses with closed gates.
	Copper concentrate spill	Soil contamination	Head of Terminal Costa			2. Receiving hoppers with dust extraction systems.
	Combustion gases	Air quality alteration	Head of Terminal Costa			3. Automatic curtains (Unloading System No.1, La Greda Warehouse, Andina Warehouse).
	Oil and fuel spill	Soil contamination	Head of Terminal Costa			4. Periodic inspections during tasks and actions.
Truck reception, weighing and unloading	Particulate material	Air quality alteration	Head of Terminal Costa			1. Operation of warehouses with closed gates.
	Copper concentrate spill	Soil contamination	Head of Terminal Costa			2. Encapsulated transfer belts and towers.
	Oil and fuel spill					3. Automatic curtains (Unloading System No.1, La Greda Warehouse, Andina Warehouse).
	Combustion gases	Air quality alteration	Head of Terminal Costa			
Transfer of cargo from conveyor belt to warehouse	Particulate material	Air quality alteration	Head of Terminal Costa	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013), Decree No. 12/2011, Decree 10/2015 Supreme Decree No. 594/1999, Supreme Decree No. 148/2003, Statutory Decree 1/2013, Decree 75/1987. EQR No. 263/2000 EQR No. 09/2010 EQR No.66/2015	Dust collection system in warehouses Dust extractors Keep gates closed in warehouses Towers and conveyor belts confined Keep sweeper circulating through the Terminal Copper Concentrate Spill contingency Plan Avoid the fall of copper concentrate from conveyor systems and storage warehouses	1. Sealed transfer belts and towers.
Cargo Stacking (Bulldozer)	Particulate material	Air quality alteration	Head of Terminal Costa			2. Operation of warehouses with closed gates. 3. Organizational standard: Prohibition of stockpiling in the open of non-wettable fine grain products. 4. Cover truck hopper. 5. Truck cleaning after leaving warehouses. 6. Vacuuming trucks and sweeping streets of the Terminal
	Combustion gases					7. D-003-MA Hazardous waste procedure. I-005-PEM Instructional control of minor spills to the floor.
	Oil and fuel spill	Soil contamination	Head of Terminal Costa			8. Vehicle maintenance program, technical revision up to date

Recovery of cargo inside warehouses with sweeping machine	Particulate matter, waste generation.	Alteration of air quality, soil contamination.	Head of Terminal Costa			1. P-001-MA Comprehensive solid waste management. 2. Truck performing operation has hermetic hoses.
Dispatch of copper concentrate by truck	Particulate material	Air quality alteration	Head of Terminal Costa	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013), Decree No. 12/2011, Decree 10/2015 Supreme Decree No. 594/1999, Supreme Decree No. 148/2003, Statutory Decree 1/2013, Decree 75/1987. EQR No. 263/2000 EQR No. 09/2010 EQR No.66/2015	Dust collection system in warehouses Dust extractors Keep gates closed in warehouses Towers and conveyor belts confined Keep sweeper circulating through the Terminal Copper Concentrate Spill contingency Plan Avoid the fall of copper concentrate from conveyor systems and storage warehouses	1. Covering or uncovering procedure for truck hoppers
	Combustion gases					Requirement for transport trucks with a maximum age of 5 years (EQR), daily technical reviews
Shipment of copper concentrate by conveyor belt system	Particulate material	Air quality alteration	Head of Terminal Costa			Sealed transfer conveyor belts and towers.
	Copper concentrate spill	Soil contamination	Head of Terminal Costa			Contingency plan against spills of copper concentrate
Drag Particulate Matter from Rain	Liquid Industrial Waste	Surface water contamination	Head of Terminal Costa	Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art.73), Supreme Decree 90/2000, Supreme Decree No. 1/1992 EQR No. 263/2000 EQR No. 09/2010 EQR No.66/2015	Rainwater treatment plant (EQR requirement 09/2010). Treatment plant duly authorized by the Health Authority.	1. Terminal Costa rainwater collector system. 2. Rainwater treatment plant (Physical-chemical treatment). 3. Monitoring of Rainwater treatment plant according to Table IV of Supreme Decree No. 90/01
Positioning of high vacuum truck in the sector	Combustion gases	Air quality alteration	Head of Terminal Costa	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013), Decree No. 12/2011, Decree 10/2015 EQR No. 263/2000 EQR No. 09/2010 EQR No.66/2015	Maintaining health and environmental conditions in the workplace. Cleaning Plan. Avoid emanation or atmospheric pollutants.	Terminal cleaning program
Cleaning process	Particulate material					Up-to-date technical reviews
Withdrawal of the high vacuum truck from the sector	Combustion gases					Hermetic used hoses
Chemical toilets	Wastewater	Surface water contamination	Head of Terminal Costa	Supreme Decree No.594/1999 , Supreme Decree No.201/2001 (Art.18,19), DFL Law No.725 Sanitary Code (Art. 73), Supreme Decree No. 90/2000 (Art. 4.1.2), Supreme Decree (M) No.1/1992	Basic sanitary and environmental conditions in the workplace Regulation of pollutants associated with the unloading of liquid waste to marine and surface waters	Receiving chambers with drain systems
						Periodic cleaning of chambers with authorized suppliers
						I-001-AM Integrated management of wastewater, septic sludge and assimilable

Truck entrance	Combustion gases	Air quality alteration	Head of Terminal Costa	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015.	Maintaining health and environmental conditions in the workplace. Cleaning Plan.	Closed system (water recirculation)
Truck wash cycle Truck exit	Liquid Industrial Waste	Surface water contamination	Head of Terminal Costa	Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992.	Regulation of pollutants associated with the unloading of liquid waste to marine and surface waters	Scheduled cleaning to system tank
Offices	Paper and paperboard	Soil contamination	Terminal Costa staff	Law 20.920 Art.1.	Recycling awareness. Reduce the generation of waste and promote recycling.	P-001-MA Integrated waste management
	Toner	Soil contamination	Terminal Costa staff	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73)	Facilities for waste segregation Compliance with the waste management Plan	D-003-MA Hazardous waste management plan
	Energy consumption	Natural resource consumption	Terminal Costa staff	N/A	Awareness of the use of electrical energy	Annual training plan, recycling campaigns (paper and cardboard recycling boxes). D-001-EE PVSA energy management program
Dining Halls	Energy consumption	Natural resource consumption	Terminal Costa staff	Supreme Decree No.594/1999, Supreme Decree No.201/2001.	Basic sanitary and environmental conditions in the workplace	P-001-MA Comprehensive solid Waste Management D-001-EE PVSA energy management program
	Water consumption					
	Organic waste generation	Soil contamination				
Sweeper machine cleaning	Sweeper machine waste	Soil contamination	Head of Terminal Costa	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013), Decree No. 12/2011, Decree 10/2015 EQR No. 263/2000 EQR No. 09/2010 EQR No.66/2015	Maintaining health and environmental conditions in the workplace Cleaning Plan Avoid emanation or atmospheric pollutants	Product recovery to the corresponding warehouse, dry vacuum Terminal cleaning program
Terminal maintenance	Waste generation	Soil contamination	Head of Terminal Costa	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Maintaining health and environmental conditions in the workplace Compliance with the hazardous waste management plan, authorized by the	D-003-MA Hazardous waste management plan

					sanitary authority	

PIER AREA MATRIX

Activity	Environmental Aspect	Environmental Impact	Responsible person / organization	Applicable Legislation	Legal Requirements	Control and Mitigation Measures
Loading Preparation	Operational failure product spills (Shore deck)	Alteration of the environment	Head of Operations	Supreme Decree No. 594/1999, Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992 Maritime Circular O-31/2004	Spill contingency Plan	Contingency Plan fuel oil spills at sea and other substances PO-009-OM Fuel to ships operation
Transfer Operation	Operational failure product spill (sea)	Surface Water Contamination				
Operation completed	Remaining products by drainage of hoses and transfer lines	Alteration of soil and water quality		Supreme Decree No. 594/1999. Supreme Decree No. 1/1992, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83). Maritime Circular O-31/2004	Management, storage and final disposal of waste	
Transfer Operation	Particulate Material	Air quality alteration	Head of Operations	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015. EQR No.249/2014	Conveyor belts and transfer towers confined Mesh use Dust collection systems	Encapsulated Conveyor Belts
	Copper concentrate on shore deck	Alteration of the environment				Hermetic transfer towers, stopping port activities over 18 knots (APL Client protocols)
	Copper concentrate spill on sea	Alteration of marine flora and fauna		Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992.	Copper concentrate Spill Plan Emergency Plan Monitoring of water in case of spill	Installation of wind deflection care net in vessel's hold doors, installation of mantles from vessel to shore deck
		Alteration of sea water quality				
	Contaminated PPE	Waste Generation		Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Management of hazardous waste according to the Management Plan	Compliance with requirements Maritime Authority according Ord. N° 12.000/463/12 included in operational procedures
Cargo hold completion (Payloader use)	Fuel Consumption	Depletion of natural resources	Head of Operations	Supreme Decree No. 148/2003 (Art. 6), Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Supreme Decree 138/2005 (Art. 3), Decree 112/2002, Decree 113/2002, Decree 114/2002.	Request for machinery documentation Spill control sector Management of hazardous waste according to the Management Plan	Fuel spill contingency plan D-003-MA Hazardous waste management plan
	Combustion gases	Air quality alteration				
	Oil and fuel spills from own equipment	Soil contamination				

Loading Preparation	Contaminated Wipes y Contaminated PPE	Soil contamination	Head of Operations	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987. Supreme Decree No.43/2016	Spill control sector Management of hazardous waste according to the Management Plan Storage of hazardous substances according to applicable legislation	PO-015-OM Sulfuric Acid loading at Pier 2
	Remaining acid of hoses	Soil contamination				D-003-MA Hazardous waste management plan
Transfer Operation	Sulfuric Acid Spill in shore deck	Soil contamination	Head of Operations	Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992. Maritime Circular O-31/2004	Spill contingency Plan Water monitoring in case of spills	P-010-PEM Handling of hazardous substances
	Sulfuric Acid Spill (Sea)	Marine water contamination				PO-015-OM Sulfuric Acid loading at Pier 2
Operation completed	Contaminated Wipes y Contaminated PPE	Soil contamination	Head of Operations	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987. Supreme Decree No.43/2016	Management of hazardous waste according to the Management Plan Storage of hazardous substances according to applicable legislation	D-003-MA Hazardous waste management plan
Acid hall maintenance						
Conveyor system cleaning, equipment maintenance	Contaminated Wipes y Contaminated PPE	Soil contamination	Head of Operations	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987. Supreme Decree No.43/2016	Management of hazardous waste according to the Management Plan Storage of hazardous substances according to applicable legislation	D-003-MA Hazardous waste management plan
Transfer Preparation	Product spillage operational failure (Shore deck)	Soil contamination	Head of Operations	Supreme Decree No. 594/1999. Supreme Decree No. 1/1992, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83). Maritime Circular O-31/2004	Spill contingency Plan	Contingency Plan oil spills at sea and other substances
Transfer Operation	Product spillage operational failure (Pier)	Surface water contamination		Supreme Decree No. 594/1999, Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992 Maritime Circular O-31/2004		PO-029-OM Oil unloading procedure Pier 3
Operation completed	Remaining products by drainage of hoses and transfer lines	Alteration of marine fauna		Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992. Maritime Circular O-31/2004	Management, storage, and final disposal of waste	PO-009-OM Fuel to ships operation
Unloading Preparation	Asphalt Spill in shore deck	Soil contamination	Head of Operations	Supreme Decree No. 594/1999. Supreme Decree No. 1/1992, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83). Maritime Circular O-31/2004	Spill contingency Plan	PO-019-OM Asphalt Unloading by trucks
Transfer operation to trucks	Asphalt waste	Waste Generation				D-003-MA Hazardous waste management plan
Operation completed	Remaining products by drainage of	Alteration of soil and surface water quality		Supreme Decree No. 594/1999, Supreme Decree 90/2000 (Art. 4.1.2), Supreme	Management, storage, and final disposal of waste	

	hoses and transfer lines			Decree No. 1/1992 Maritime Circular O-31/2004		
Wheat unloading into mobile hopper	Particulate Material, cargo wheat downfall	Air quality alteration	Head of Operations	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015. Supreme Decree No. 148/2003 (Art. 6), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Supreme Decree 138/2005 (Art. 3), Decree 112/2002, Decree 113/2002, Decree 114/2002.	Spill contingency Plan Management of hazardous waste according to the Management Plan Water monitoring in case of spills Emergency Plan Request for machinery documentation Spill control sector	PO-013-OM Wheats unloading procedure through pier 3
Wheat unloading to truck		Soil contamination				Constant cleaning by sweeper truck at pier
Wheat dispatch	Particulate Material, Wheat Spill, Combustion Gases	Air quality alteration				Carp on truck (wrapping truck)
Wheat storage in warehouse	Particulate Material	Air quality alteration				Wind deflection care net in vessel's hold doors, installation of mantles from vessel to shore deck
Maintenance (acid hall, fuel hall, among others)	Waste Generation	Soil contamination	Head of Operations	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Decree 75/1987		D-003-MA Hazardous waste management plan
Transfer Operation	Particulate Material	Air quality alteration	Head of Operations	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015. Supreme Decree No. 594/1999, Statutory Decree No. 725 (Art. 73), Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992. Supreme Decree No. 148/2003 (Art. 6), Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Supreme Decree 138/2005 (Art. 3), Decree 112/2002, Decree 113/2002, Decree 114/2002.		PO-016-OM Coal unloading through conveyor system in pier 5
	Coal on shore deck	Soil contamination				Encapsulated conveyor belts
	Accidental coal downfall to the sea	Alteration of surface water quality				Hermetic and closed transfer towers
		Alteration of marine fauna				High-pressure water mist system at hoppers coal
High-pressure water mist system at coal unloading	Water Consumption	Natural resource depletion				Installation of wind deflection care net in vessel's hold doors, installation of mantles from vessel to deck slab
Cargo coal hold completion (payloader use)	Fuel	Natural resource depletion				Coal stranding surveillance and monitoring plan
	Combustion gases	Air quality alteration				Constant cleaning by sweeper truck at pier
	Oil and fuel spills from own equipment	Soil contamination				D-003-MA Hazardous waste management plan
Clinker unloading from vessel to unloading hopper	Particulate Material	Air quality alteration	Head of Operations			PO-002-OM Clinker unloading pier 5
Clinker transfer by conveyer belt						Dust collectors in unloading hoppers

Clinker storage in warehouse-dome "Melón"						I-005-MA Notification to the Environmental Protection Department in case of air pollution events
Clinker dispatch						Installation of wind deflection care net in vessel's hold doors, installation of mantles from vessel to deck slab
Wheat unloading into fixed hopper	Particulate Material, Cargo wheat downfall	Air quality alteration	Head of Operations			PO-003-OM Wheat unloading through pier 5
Wheat transport by conveyor belt	Particulate Material, Wheat on shore deck	Soil contamination				Constant cleaning by sweeper truck at pier
Wheat storage in warehouse	Particulate Material	Air quality alteration, Soil contamination				Installation of wind deflection care net in vessel's hold doors, installation of mantles from vessel to deck slab
Maintenance work (example: shore cranes)	Waste Generation	Soil contamination	Head of Operations	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Maintaining health and environmental conditions in the workplace	Equipment maintenance program, D-001- EE Energy Management Program PVSA
Load transfer by conveyor belts	Energy consumption, Ullage, Particulate Material	Natural resource consumption, Air quality alteration	Head of Operations	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015. Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987. Statutory Decree No. 725 (Art. 73), Supreme Decree 90/2000 (Art. 4.1.2), Supreme Decree No. 1/1992.	Conveyor belts and transfer towers confined Dust collection systems	Loading and unloading procedure according type of cargo, D-003-MA Hazardous waste management plan
Load transfer by transfer towers	Energy consumption, Particulate Material	Natural resource consumption, Air quality alteration	Head of Operations			Loading and unloading procedure according type of cargo, D-001- EE Energy Management Program PVSA
Vacuum cleaning	Particulate Material	Air quality alteration	Head of Operations		Maintaining health and environmental conditions in the workplace Cleaning Plan Avoid emanation or atmospheric pollutants	PO-005-OM Conveyor Belts System cleaning for loading copper concentrate
	Ullage	Alteration of the environment				
	Waste Generation	Soil contamination				Cleaning Plan and constant vacuuming equipment during port activities (deck Operational Procedures)
Vacuum cleaning	Particulate Material	Alteration of surface water quality	Head of Operations			PO-016-OM Coal unloading through conveyor system in pier 5
	Ullage	Alteration of the environment				
	Contaminated PPE	Soil contamination				

Vacuum cleaning	Particulate Material	Alteration of surface water quality	Head of Operations			PO-028-OM Procedure for cleaning conveyor belts and transfer points prior to Petcoke loading
	Ullage	Alteration of the environment				
	Contaminated PPE	Soil contamination				
High-Pressure washing	Contaminated PPE, contaminated water	Soil contamination				
Vacuum cleaning	Particulate Material	Alteration of surface water quality	Head of Operations			PO-023-OM Cleaning conveyor belts and transfer points prior to wheats transfer
	Ullage	Alteration of the environment				
	Contaminated PPE	Soil contamination				
High-Pressure washing	Contaminated PPE.	Soil contamination				
Sweeping shore deck	Particulate Material	Air quality alteration	Head of Operations			Cleaning Plan, sweepers and vacuum cleaners
Use of sanitary facilities	Waste Generation	Waste Generation	Operations staff	Supreme Decree No.594/1999 , Supreme Decree No.201/2001 (Art.18,19), DFL Law No.725 Sanitary Code (Art. 73), Supreme Decree No. 90/2000 (Art. 4.1.2), Supreme Decree (M) No.1/1992	Basic sanitary and environmental conditions in the workplace Regulation of pollutants associated with the unloading of liquid waste to marine and surface waters Awareness of the use of electrical energy	Receiving bath sewage well with drainage systems
	Sewage water	Ground water contamination				Periodic cleaning bath sewage well with drainage systems with authorized suppliers
	Energy consumption	Natural resource depletion				D-001- EE Energy Management Program PVSA
	Water Consumption	Natural resource depletion				I-001-AM Comprehensive Management of Sewage Septic and domiciliary sewage sludge
Offices	Office Paper	Soil contamination	Operations staff	Supreme Decree No. 148/2003. Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83) Supreme Decree N. 594/1999. Statutory Decree No. 725 (Art. 73),	Facilities for waste segregation Compliance with the waste management Plan	Annual Training Plan, P-001-MA Comprehensive solid waste management, D-003-MA Hazardous waste management plan, Recycling boxes for paper and cardboard, recycling receptacles for electronic waste
	Food scraps and packaging					
	Toner, batteries					
	Energy consumption, Water consumption	Natural resource depletion			Awareness of the use of electrical energy	D-001- EE Energy Management Program PVSA
Hoses cleaning	Waste Generation	Soil contamination	Head of Operations	Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts.	Management of hazardous waste according to the	D-003-MA Hazardous waste management plan

				4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Management Plan	
Conveyor belts	Energy consumption	Natural resource depletion	Head of Operations	Decree No. 144/1961 (Art. 1), Supreme Decree No. 346/1993 (Art. 1), Decree 20/2013 (Arts. 1, 6, 12), Decree No. 12/2011, Decree 10/2015. Supreme Decree No. 594/1999, Supreme Decree No. 148/2003 (Arts. 4,6,8,25,27,29,31,33,34,80,83), Statutory Decree 1/2013, Decree 75/1987.	Conveyor belts and transfer towers confined Dust collection systems	D-001- EE Energy Management Program PVSA
	Ullage	Soil contamination				Encapsulated Conveyor Belts
	Particulate Material	Air quality alteration				
Transfer Towers	Energy consumption	Natural resource consumption	Head of Operations			D-001- EE Energy Management Program PVSA
	Ullage	Soil contamination				Hermetic transfer towers
	Particulate Material	Air quality alteration				

2.2.3. Puerto Ventanas S.A. Environmental Performance Indicators

Puerto Ventanas S.A. has a series of indicators, through which it monitors compliance with its legal and regulatory obligations and measures the improvement of its environmental performance and the continuous improvement of its environmental management system. Each indicator has a defined target at each point.
The main Puerto Ventanas S.A. environmental performance indicators are:

INPUT INDICATORS

- **Water Consumption**
- **Electrical Energy Consumption**
- **Diesel Consumption**
- **Gasoline Consumption**

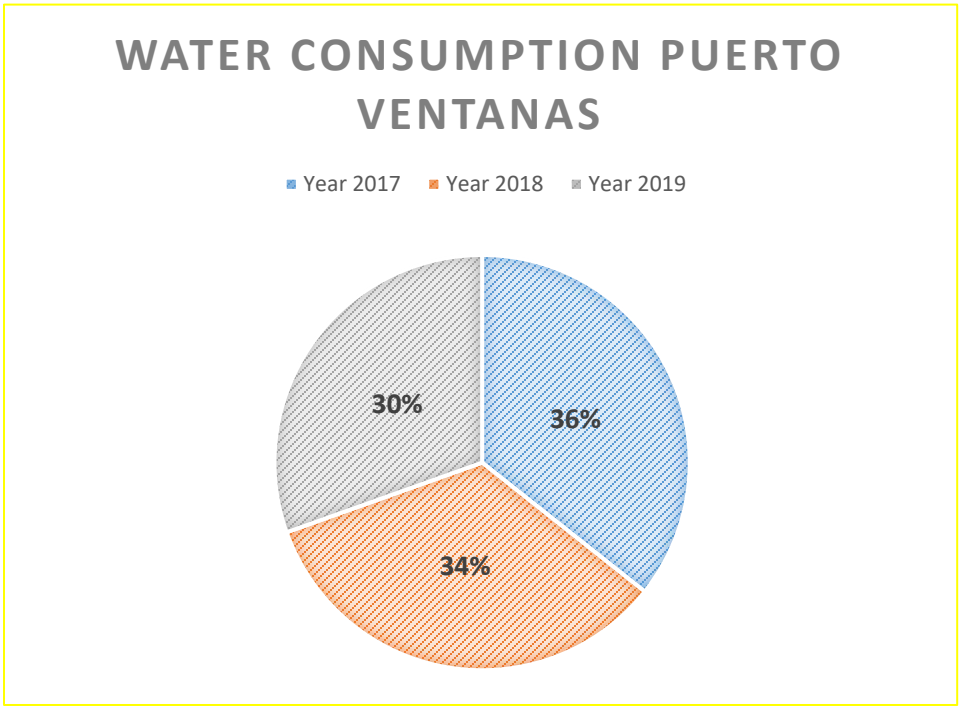
OUTPUT INDICATORS

- **Waste**
- **Sewage water**
- **Recycling**
- **Greenhouse gases**

OTHERS MANAGEMENT INDICATORS

- **Compliance EQR: Compliance 100% stage of construction and operation**
- **Environmental incidents: 0 in the years 2017, 2018 and 2019**
- **Environmental Training**

I. Water Consumption Puerto Ventanas



Target: Reduce water consumption per ton transferred in Puerto Ventanas

The following table shows the water consumption (m3) of the Puerto Ventanas facilities during the years 2017, 2018 and 2019. A decrease in the use of the resource is observed since 2018 of 3.597 m3 and 5.483 m3 compared to 2017.

Year	Water consumption (m3)
Year 2017	37.435
Year 2018	35.549
Year 2019	31.952

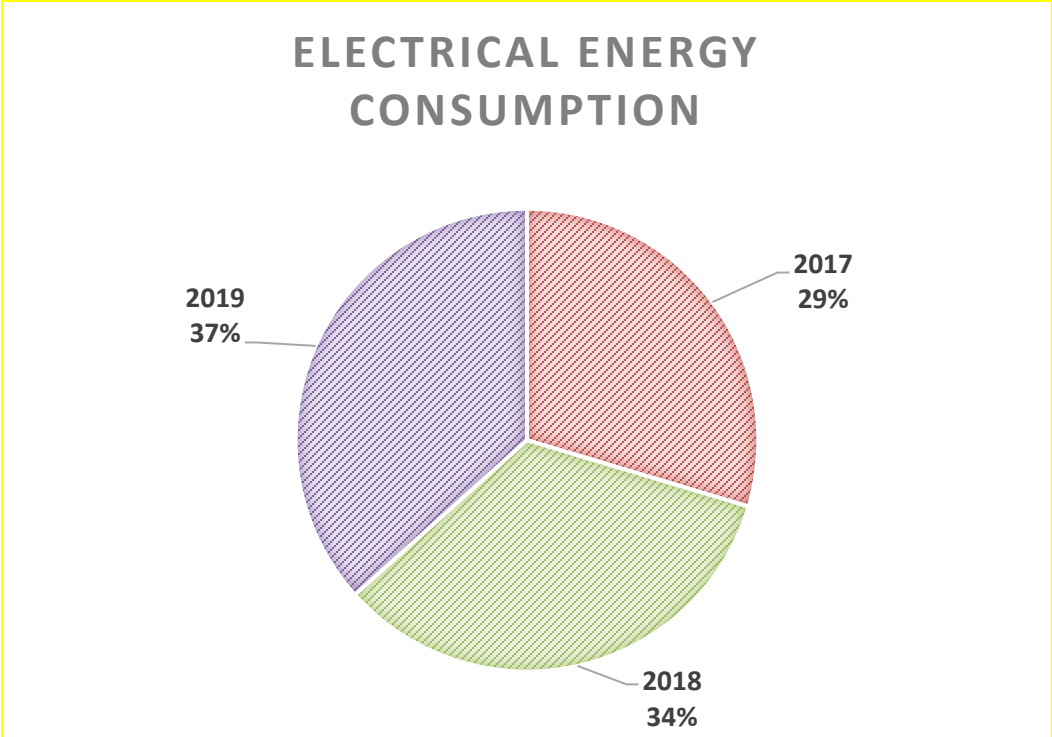
Additionally, Puerto Ventanas measures the performance and efficiency of water consumption through an indicator that relates water consumption (in cubic meters) with the tons of cargo transferred in the Port. In this sense, the following table represents this indicator, which also demonstrates an improvement in efficiency through a 7% reduction in water consumption per ton compared to 2018 and 17% compared to 2017.
The performance indicator that relates the quantity of cubic meters of water per ton mobilized shows an improvement, showing a reduction of 7% of water consumption per ton compared to 2018 and 18% compared to 2017. This has avoided consuming 7.066 m3.

This improvement in the performance of water consumption per ton moved is mainly due to awareness of the use of resources and also the installation of equipment and sensors that allow for more efficient control and dosing of water consumption at Terminals. For example, the investment in a new high-pressure mist sprinkler system in hoppers for the coal discharge process, which allows for a 30% improvement in water use.

The objective has been to reduce water consumption per ton transferred and this is demonstrated in the indicators shown below.

Year	2017	2018	2019	Unit
Transferred Cargo Functional Unit	0,0069	0,0061	0,0057	m3/Ton

II. Electrical Energy Consumption



Target: Maintain efficiency in energy consumption per transferred ton. (KWh / Ton)

The electricity consumption curve has increased since 2017 because important changes have been made to the facilities and infrastructure of Puerto Ventanas, incorporating new processes at the port, automating processes in bulk shipping systems. During 2018, Puerto Ventanas incorporates a new Bulk Loader system for dock site No. 3. This system is known as Ship-Loader and represents an increase in installed electrical capacity of 2.75MVA, 30% more than in 2017 .Additionally, in 2019 the movements of cargo transferred with the use of electrical energy have increased by 15% compared to 2017.

Year	2017	2018	2019	Unit
Electrical Energy Consumption	7.333.845	8.344.135	9.070.009	kWh

In 2019, the aforementioned systems along with the new operating processes entered a permanent operating regime, however, the necessary efforts have been made to keep the energy performance indicators at the expected values. Reflected directly in the indicator (kWh / Ton).

The stated objective has been to maintain the energy performance indicator at 1.2kWh / Ton., Demonstrating an improvement in energy performance since, although the indicator of electricity consumption per transferred ton has remained constant, this has been with a higher installed energy capacity and also with higher load movements, reflecting the efficiency achieved.

Year	2017	2018	2019	Unit
Transferred bulk cargo with energy consumption	6.277.214	7.191.690	7.195.879	kWh

Year	2017	2018	2019	Unit
Transferred Cargo Functional Unit	1,2	1,2	1,2	kWh/Ton

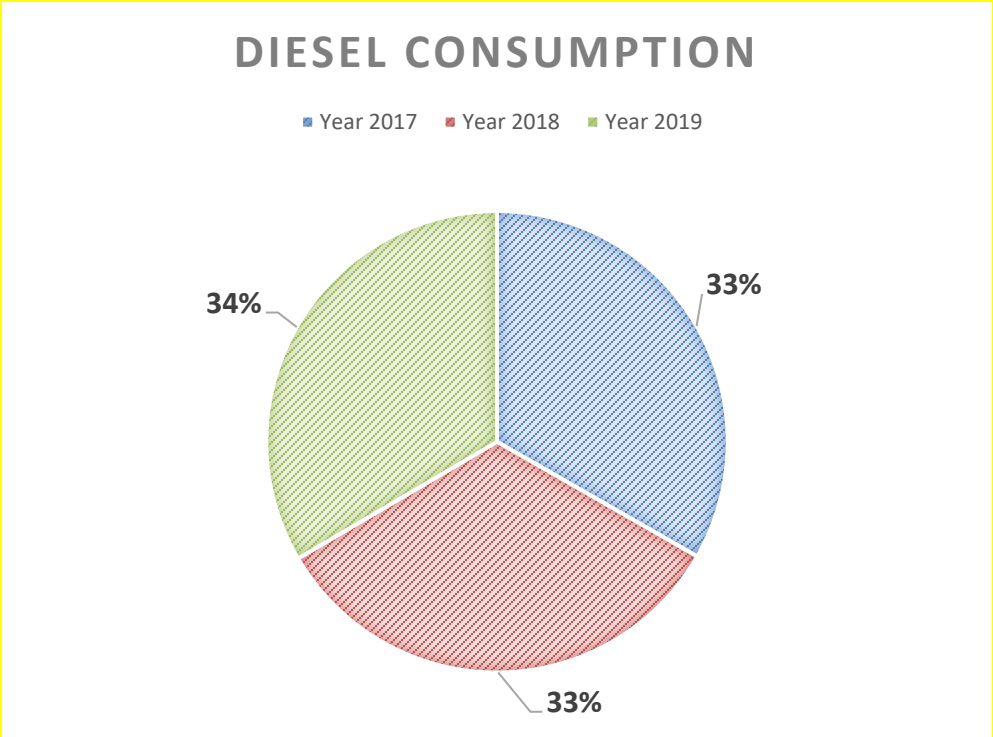
During 2019, analyzes and operational controls have been reinforced to optimize energy use in specific processes that are significantly important in energy demand.

SYSTEMS	MONTHS							
"La Greda" Copper Concentrate Receiving System	**September-2019**	**October-2019**	**November-2019**	**December-2019**	**January-2020**	**February-2020**	**March-2020**	**Unit**
IDE (Energy / Total load received)	0,71	0,64	0,53	0,54	0,47	0,43	0,52	kWh/Ton

"AngloAmerican 2" Copper Concentrate Receiving System	**September-2019**	**October-2019**	**November-2019**	**December-2019**	**January-2020**	**February-2020**	**March-2020**	**Unit**
IDE (Energy / Total load received)	0,7	0,76	0,60	0,67	0,38	0,38	0,42	kWh/Ton

The good evolution of the energy performance indicator (kWh / Ton) between September 2019 and March 2020 has allowed us to avoid consuming 130.265 kWh of electrical energy and has avoided costs of USD 18.897.

III. Diesel Consumption



Target: Maintain the efficient use of diesel consumption (Lt / Ton)

Diesel consumption between 2017 and 2019 can be seen in the following table:

Year	2017	2018	2019	Unit
Diesel Consumption	79.826	79.829	80.219	Lt

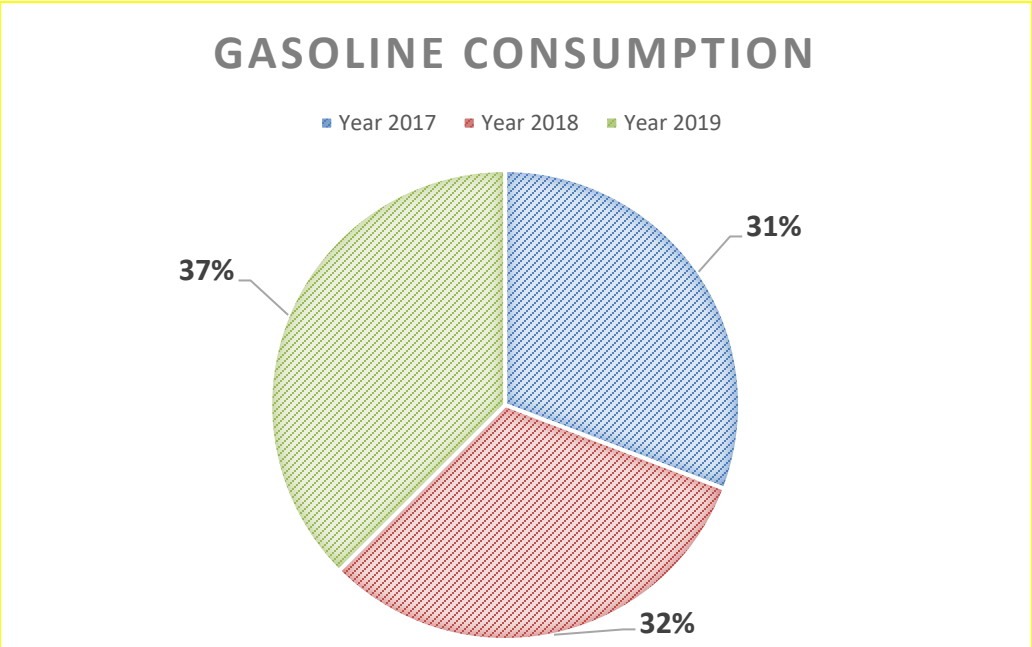
Diesel consumption is mainly necessary in cargo movement machinery activities (bulldozers and front loaders), personnel vehicles and support systems in the operation. Consumption has increased slightly since 2017, mainly due to the greater movements of cargo within the Terminals and since 2018 due to the acquisition of an industrial High Vacuum Unit with an electric power 200 HP that uses Diesel for its operation. However, greater control has been established in the use of this energy and the indicator that relates the liters of Diesel and the total mobilized tons has decreased.

Regarding the indicator of the year 2019 on the use of Diesel compared to the amount of cargo transferred (Lt / Ton), its value remains constant with respect to the year 2018 and registers a decrease of 12% compared to the year 2017. This has allowed to avoid consuming 22.915 liters of Diesel in 2 years.

The objective has been to maintain the amount of Diesel used to mobilize a ton of material and this has been demonstrated with the performance indicators indicated in the following table:

Year	2017	2018	2019	Unit
Transferred Cargo Functional Unit	0,013	0,011	0,011	Lt/Ton

IV. Gasoline Consumption



Target: Improve the use of gasoline consumption by vehicle (Lt-year / Vehicle)

The gasoline consumption table is shown below:

Year	2017	2018	2019	Unit
Gasoline Consumption	21.456	22.078	26.100	Lt

Gasoline consumption is oriented only to the use of vehicles by the Puerto Ventanas Staff (inside and outside the region). Consumption increased compared to previous years as the number of vehicles increased from 5 to 6 vehicles.

The following table shows the number of liters of gasoline used in a year per vehicle, and although this indicator increased in 2018, in 2019 its performance improved. Puerto Ventanas has implemented actions for which it has generated very strict Leasing contracts on issues of vehicle efficiency, performance, and technology. In addition, every 100 thousand km the vehicles are renewed by a technology that improves the efficiency of gasoline consumption.

The objective set for 2020 is to reduce the number of liters of gasoline consumed in a year per vehicle.

Year	2017	2018	2019	Unit
Functional Unit per Vehicle	4.291	4.416	4.350	Lt-year/vehicle

v. Waste

Target: Reduce waste disposal

The tons of waste disposed are shown in the following table:

Year	2017	2018	2019	Unit
Disposed Waste	740.001	242.646	195.179	Kg

The numbers demonstrate a lower disposal of waste due to a lower generation of these between the years 2017 and 2019.
The ratio of waste disposed per transferred ton decreases, so it can be concluded that for each ton that was mobilized, less waste was disposed of. This is thanks to efforts related to waste management and control. With this indicator it can be concluded that in 2019, 593.236 kg of waste were avoided in 2 years.

Year	Year 2017	Year 2018	Year 2019	Unit
Transferred Cargo Functional Unit	0,136	0,041	0,034	Kg waste disposed /Ton

The stipulated objective was to reduce the amount of waste disposed of and this was demonstrated with the indicator previously seen

Target: Strengthen the recycling culture in Puerto Ventanas personnel

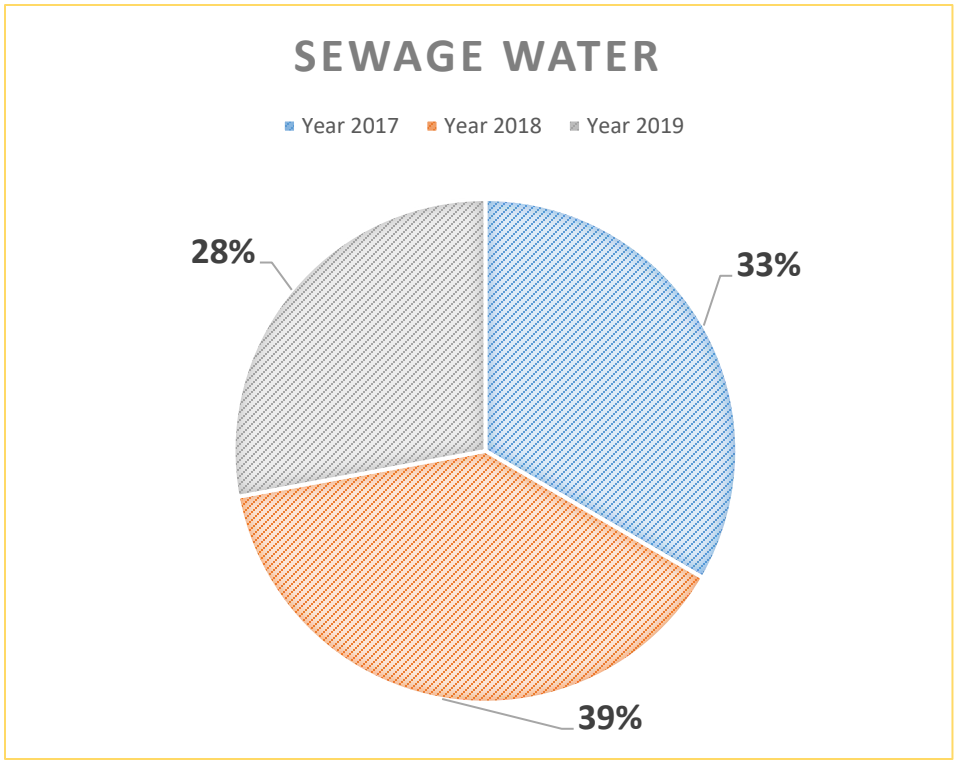
The following table shows the kg of waste recycled during the years 2017, 2018 and 2019.

Year	2017	2018	2019	Unit
Recycled Waste	7.297	2.687	1.030	kg

Between 2017 and 2018, as a result of PVSA's modernization projects, more scrap metal has been generated, including wood packaging and pallets that have been recycled.

The objective has been to strengthen a culture that allows recycling in all aspects through opportunities that allow all workers to be integrated. Staff awareness programs have been made available, such as the “PUERTO RECICLA PROGRAM” described later on page 86 of this report.
In addition, WATER FILLING STATIONS have been arranged with the aim of avoiding the purchase of water with disposable bottles. This system supplies pure and clean water for the use of workers.

VI. Sewage Water



Target: Decrease in the amount of sewage water per person

The number of liters of sewage water generated between the years 2017, 2018 and 2019 can be seen below:

Year	2017	2018	2019	Unit
Sewage water	2.488	2.880	2.079	m3

The amount of sewage water per person in 2019 decreased by 27% compared to previous years, however, although the number of workers has increased, the proportion of m3 per person shows a good performance.

The objective has been to decrease the generation of sewage water in one year per person and this is shown in the table below.
This has prevented 1.671 m3-year of sewage water per person in 2 years.

Year	2017	2018	2019	Unit
Personnel Functional Unit	11	11	8	m3-year /Person

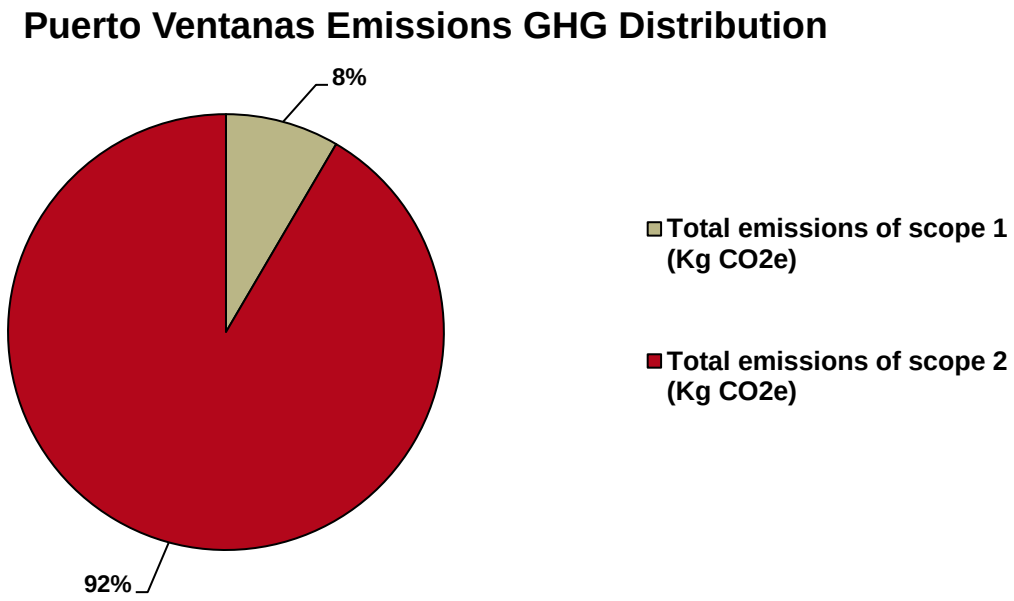
This has been achieved through the awareness of workers in the use of water and the installation of technology in bathrooms and showers that allow optimizing the discharge and use of the water resource.

VII. Puerto Ventanas Carbon Footprint

The carbon footprint defines the amount of Greenhouse Gas (GHG) emissions, because of the activity carried out in a company or building, the celebration of an event, or associated with the life cycle of a product. It is expressed as the amount of CO2 equivalent (CO2e).
As an additional benefit, the determination of the carbon footprint allows identifying opportunities for energy and economic savings, as a consequence of a better knowledge of the emission sources and the possibilities of reducing emissions.
For the calculation of the carbon footprint of the port's activities, the methodology described in the international standard of ISO 14064, developed by the International Organization for Standardization, has been used. The ISO 14064 standard establishes the requirements for the quantification, monitoring, reporting and verification of emissions and / or removals of greenhouse gases on a voluntary basis in order to improve GHG management.

The greenhouse gas emissions resulting from the activity carried out in Puerto Ventanas are distributed as follows.

Classification	GHG emissions Distribution Percentage
1. DIRECT GHG EMISSIONS	8%
2. INDIRECT GHG EMISSIONS BY ELECTRIC ENERGY	92%
TOTAL 1 + 2	100%



Most of the emissions generated in the Port are due to scope 2, that is, indirect emissions due to electricity consumption in the Port. As can be seen in the figure, these represent just over 92% of the total emissions calculated. These electricity consumptions are used for the operation of all the reception and boarding machines from and to the ships, and transportation to the port sectors.

The greenhouse gas emissions data for the years 2018 and 2019 are as follows:

CLASSIFICATION	TOTAL GHG EMISSIONS (TN CO2E)	
	2018	2019
1. DIRECT GHG EMISSIONS	326,49	329,24
2. INDIRECT GHG EMISSIONS BY ELECTRIC ENERGY	3.512,6	3.696,3
TOTAL	**3.839,1**	**4.025,5**

The increase in greenhouse gas emissions was mainly due to 2 situations:

- The electricity consumption associated with the Puerto Ventanas facilities increased by 10%, due to the incorporation of new operating processes and the entry for permanent regime of new systems.
- The aggregation of fugitive emissions associated with refrigerant gases used in the Port's air conditioning splits. These emissions represent 1% of the scope 1- Direct Emissions.

The objective has been to maintain the GHG generation indicator per ton mobilized. This is demonstrated in the following table.
Although GHG emissions increased compared to 2018, the performance indicator that relates the amount of CO2e per ton mobilized remains within the expected ranges. This has been possible, mainly, by developing operational controls in the most significant energy consumption processes and improving worker awareness.

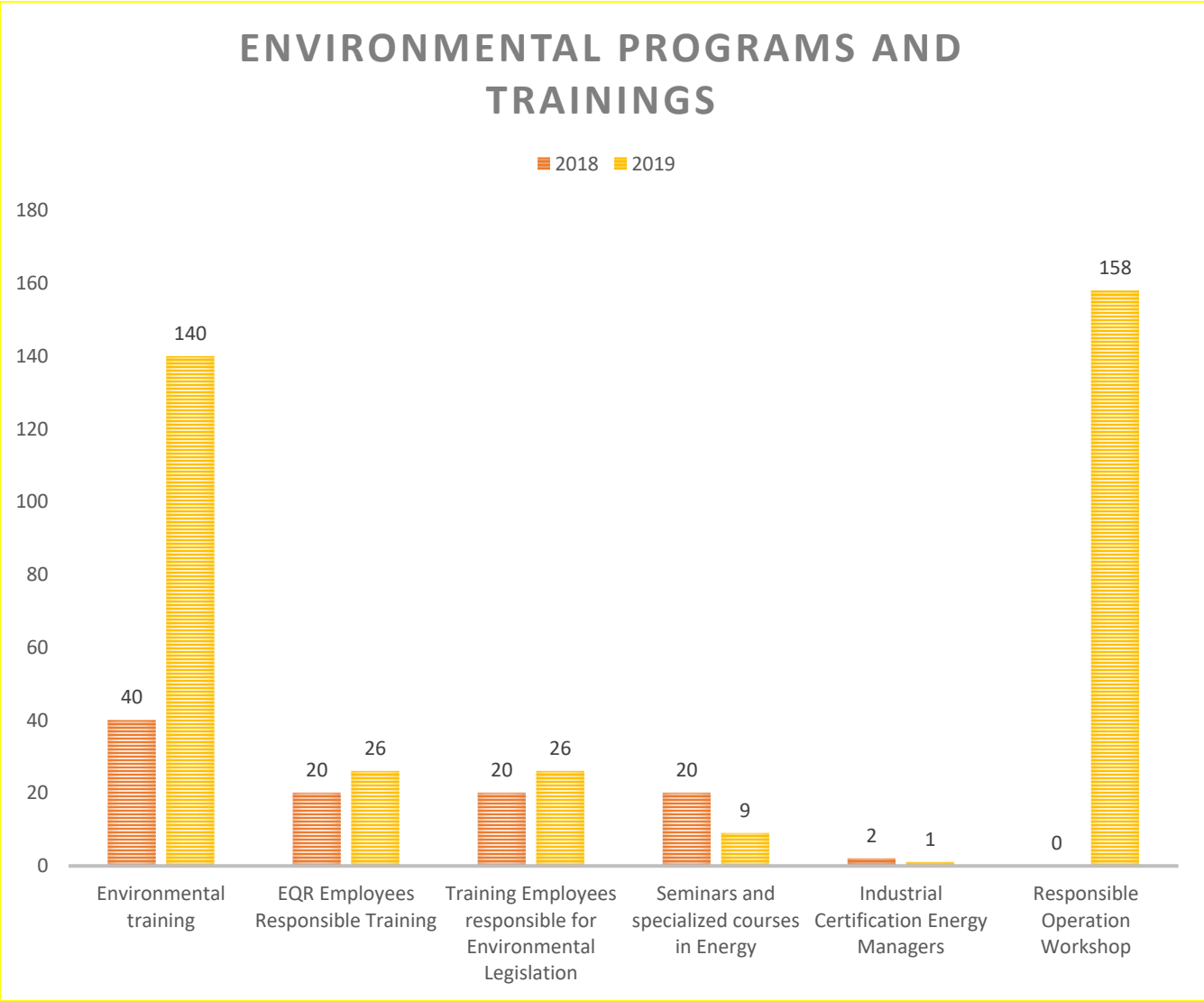
Classification	2018 (CO2e/Tons)	2019 (CO2e/Tons)
1. DIRECT GHG EMISSIONS	0,04	0,04
2. INDIRECT GHG EMISSIONS BY ELECTRIC ENERGY	0,5	0,5
TOTAL 1 + 2	0,54	0,54

To demonstrate the seriousness of its actions and reduce greenhouse gas emissions, Puerto Ventanas continues to participate and declare to the National Carbon Footprint Inventory Program **"HuellaChile"** administered by Ministry of Environment.

CONCLUSIONS REGARDING ENVIRONMENTAL PERFORMANCE:

The management indicators analyzed above show an improvement in the environmental performance of Puerto Ventanas. Many of the goals defined by each have been met during the year 2019 and challenge to continue improving continuously during the following years.

VIII. Environmental Training



The number of workers who have participated in environmental training and programs stands out. In 2019 the number of attendees tripled.

The Environmental Trainings include:

- Operational Plan (regulatory compliance)
- Environmental inductions
- EQR Administration and Compliance
- Waste management
- Hazardous substances
- Environmental legislation.

Regarding courses on energy topics, the certification of 3 workers as Industrial Energy Managers stands out. This Program aims to train professionals specialized in energy efficiency, providing the necessary tools to: detect

opportunities for improvement, contract Energy Efficiency services, manage energy consumption in the organization and carry out and measure and verify the savings obtained; in addition to leading, planning and implementing energy management systems based on ISO 50001. At the same time, it seeks to grant recognition to professionals through the **Industrial Energy Manager Certification (IEM), delivered by the Energy Sustainability Agency, and supported by the Ministry of Energy**. The certificates can be seen in Appendix 2_IEM Certified.

Finally, the Responsible Operation Workshop whose objective is to guide each worker in the importance and responsibility of operating responsibly, so that the staff understands the meaning and impact of the different functions they perform in aspects of safety, quality and environment.

2.3. DOCUMENTED RESPONSIBILITIES AND RESOURCES ASSOCIATED WITH ENVIRONMENTAL ASPECTS

2.3.1. Responsibility of key employees at Puerto Ventanas S.A.:

General Manager leads the executive team and has the control over the management and responsibility of directing the company's business, as well as being responsible for the judicial representation of Puerto Ventanas S.A. From his role he leads and delivers the necessary guidelines to manage and control adequately and the operation of the company, directly involved in the achievement of the objectives.

The functions of the main executives of the company is to ensure compliance with the corporative strategy, with the business challenges established by the Corporative Governance and the management of the Company.
The executive team of Puerto Ventanas S.A. is represented for

- General Manager
- Sustainability Manager
- Planning and Management Manager
- Operations and Maintenance Manager
- Administration and Finance Manager
- Commercial Manager
- Infrastructure Assistant Manager
- Human Resources Assistant Manager

Primary functions and responsibility of the Puerto Ventanas S.A. Executive Team

- **General Manager:** Jorge Oyarce S., Transportation Engineer.
  The General Manager is appointed by the Board and is responsible for the company in general. He also has the direct control of the various Puerto Ventanas departments. The General Manager is the company's legal representative and has the right to be heard in the Board meetings. The General Manager is responsible for the company's processes being carried out in compliance with the regulatory framework that is applicable to the port's operations. The General Management Department approves the objectives of the Integrated Management System and authorizes the resources necessary for its due implementation along with the Puerto Ventanas S.A. Integrated Management System Policy. The General Manager establishes, implement, and maintain an integrated policy within the scope defined by the Management System related to Safety, Environment, Quality and Energy Efficiency, appropriate to the purpose and context of the organization including the nature, magnitude and impacts, provide a framework of reference and include a commitment to comply with legal requirements and continuous improvement of the same system.

- **Sustainability Manager**: Luis Fuentes M.- Mining Engineer.
  Sustainability Manager must keep the port in compliance in terms of environmental regulations, security, energy efficiency and community ties, guarding his reputation in relation to communities and local and national authorities, guaranteeing its growth against the demands of the society, regulations and reputation.

Among the main functions of the Sustainability Manager are: building and consolidating the reputation of PVSA, as a "Green Port", installing a culture where one of its pillars is Sustainability and HSEC (Health, Safety, Environment, Community), ensuring the compliance with all HSEC regulations for port operations, maintaining fluid and close relationships with political, governmental and union authorities, installing a collaborative, respectful and close relationship model with the community, ensuring the efficiency and quality of the company's processes, proposing, plan and direct the implementation of the port sustainability strategy, participate in the Executive Team to ensure the advancement of the PVSA objectives, design and implement the corporate and internal communications plan for PVSA, know, promote and ensure knowledge, internalization and implementation of company policies related to issues of Safety, Environment, Quality and Energy Efficiency.

- **Planning and Management Manager:** Carlos Elgueta Olmos. – Civil Industrial Engineer.
  Planning and Management Manager must design, direct and control the processes related to the planning and evaluation of projects, maintaining the correct coordination of their evolution, corporate management control and budgetary control; in addition to assisting the general manager and business units in the development, communication, execution and support of corporate strategies and tactics, in relation to projects and management control, in order to generate a sustainable business model.
  Among the main functions of the Planning and Management Manager are: designing, directing and controlling the processes related to project planning and evaluation, generating economic evaluation models and maintaining the correct coordination of their evolution, controlling corporate management, through indicators, analysis trends, deviations and comparatives such as budgets and exercises from previous periods, assist the general manager and business units in the development, communication, execution and support of corporate strategies and tactics, regarding projects and management control, participate in the executive committee, providing technical and operational criteria for decision-making, supporting the development of innovation and continuous improvement projects to maximize the productivity and efficiency of port operations, knowing the company's policies in relation to Safety, Environment, Quality and Energy Efficiency, aligning its functions to the fulfillment of the same; being able to identify risks and / or deviations in the different areas of PVSA.

- **Operations and Maintenance Manager:** Rodrigo Pulgar – Mechanical Engineer.
  Operations and Maintenance Manager must give strategic direction to operations management, ensuring an efficient, competitive, modern, and safe operation that is an example in his sector.
  Among the main functions of the Operations and Maintenance Manager are: guaranteeing the execution of the service stipulated in the commercial plan according to the contracts agreed with each client and respecting the policies, norms and rules that govern port operations, participating in construction projects commercial and infrastructure development, evaluating the feasibility and analysis of the operational process of the services and tasks considered in these projects, managing the performance of teams and direct and indirect collaborators, to promote the development of the port, participate in the executive committee, providing criteria and operational techniques for decision-making, promoting and directing the development of innovation and continuous improvement projects to maximize the productivity and efficiency of port operations, ensuring alignment and coordination with ground operations, maritime operations and maintenance teams to guarantee the operational continuity and the fulfillment of the goals of the General Management, knowing the company's policies in relation to Safety, Environment, Quality and Energy Efficiency, aligning its functions to the fulfillment of the same; being able to identify risks and / or deviations in the different areas of PVSA.

- **Administration and Finance Manager:** Jorge Concha M. – Civil Industrial Engineer.
  Administration and Finance Manager must manage the resources of the company, taking care of their efficient and timely use, considering a coordination and supervision of the work teams of all the areas of Puerto Ventanas S.A and subsidiaries allowing an adequate decision making for profitability and business growth.
  Among the main functions of the Administration and Finance Manager are: managing the financial and accounting statements of Puerto Ventana and Subsidiaries, generating the processes of protection of the company's information and the continuity of the computer systems that support the operation of the company in all work areas, advise on decision-making regarding the company's major investments, analyzing feasibility, return, adequacy to the operation, financial status of the port and viability of the same, analyze, manage, negotiate and resolve the financing of operations according to needs, definitions of the board and company

policies, control the management and budget of Puerto Ventanas S.A and subsidiaries, monitoring the accounting management and the performance of the indicators defined for the areas for proper decision-making, control and manage the use of resources, ensuring continuity operational and adequate financial management in regulatory compliance, also, know, promote and ensure knowledge, internalization and implementation of company policies related to issues of Safety, Environment, Quality and Energy Efficiency.

- **Commercial Manager:** Pablo Hojman A. – Civil Industrial Engineer.
  The commercial manager must ensure the capture of new businesses and maintenance of current ones, loyalty to customers, trying to grow in services (inside and outside the port and Quintero Bay), in line with strategic planning, the operational feasibility of the Port and the profitability of the business.
  Among the main functions of the Commercial Manager are: ensuring the capture of new businesses according to the strategic planning and operational feasibility of the Port, loyalty to current customers, permanently monitoring their needs, satisfying the services provided and generating improvements to current services, assess the feasibility of potential businesses in other markets inside and outside Quintero Bay, other than the current ones, projecting future earnings and operational and financial implications, knowing the company's policies in relation to Safety, Environment, Quality and Energy Efficiency, aligning its functions to the fulfillment of the same; being able to identify risks and / or deviations in the different areas of PVSA.

- **Infrastructure Assistant Manager:** Eduardo Monsalve S. – Ocean Civil Engineer.
  The Infrastructure Assistant Manager must lead the development of the projects that are carried out inside and outside the port, complying with the regulations and supervising the specific areas that participate in the operation, which apply within the development of the Project.
  Among the main functions of the Infrastructure Assistant Manager are: reviewing and approving the necessary documentation to understand the project in progress, making each of the edges feasible to be implemented, supervising and ensuring compliance with the annual objective of the PVSA Projects area, reviewing and approving purchase orders and monitoring all the inputs required to execute the project, with opportunity and according to the defined budget, guaranteeing that the construction and commissioning of equipment and supplies are correctly executed under quality and safety standards of PVSA, knowing the company's policies in relation to Safety, Environment, Quality and Energy Efficiency, aligning its functions to the fulfillment of the same; being able to identify risks and / or deviations in the different areas of PVSA.

- **Human Resources Assistant Manager:** Paula García V. – Psychologist.
  The Human Resources Assistant Manager must direct and supervise the processes and tools that favor the development and growth of people, the attraction and retention through the people management systems (recruitment, selection, training, performance evaluation and others) of according to requirements, strategic objectives of the company and labor standards. Responsible also for labor relations, administration of collective agreements and benefits to personnel.
  Among the main functions of the Human Resources Assistant Manager are: leading the alignment, design, implementation and monitoring of the people development model, from the point of view of Organizational development, safeguarding the rational and efficient use of the resources assigned to the area, contributing to the achievement of the results of the company, control the resources and coherence of the organizational structures in relation to the business objectives, verifying internal and external equity of the remuneration by position, design and implement, disseminate and control the policies and procedures related to company people, manage compliance with the current collective agreement, maintaining labor relations in accordance with the company guidelines, generate guidelines for the quality of life unit in terms of benefits, agreements and events and celebrations of the port, also, know, promote and ensure knowledge, internalization and implementation of company policies related to issues of Safety, Environment, Quality and Energy Efficiency.

Puerto Ventanas S.A. Executive Structure is shown as follows:

Structure to support the Environmental Management at Puerto Ventanas S.A.

- ✓ The Sustainability Management is responsible for the environmental management of the Port, for which it has a team of multi-disciplinary professionals and extensive experience to provide support with the environmental management of all areas of Puerto Ventanas.
  The General Manager has appointed the Sustainability Manager as the Management Representative who has the powers to modify and implement the initiatives, controls and monitoring necessary to ensure the compliance with the provisions of the Integrated Management System and the relevant legislation in matters of Quality, Environment, Energy, Safety and Occupational Health. In the same way, it informs the General Manager about the performance of the System.

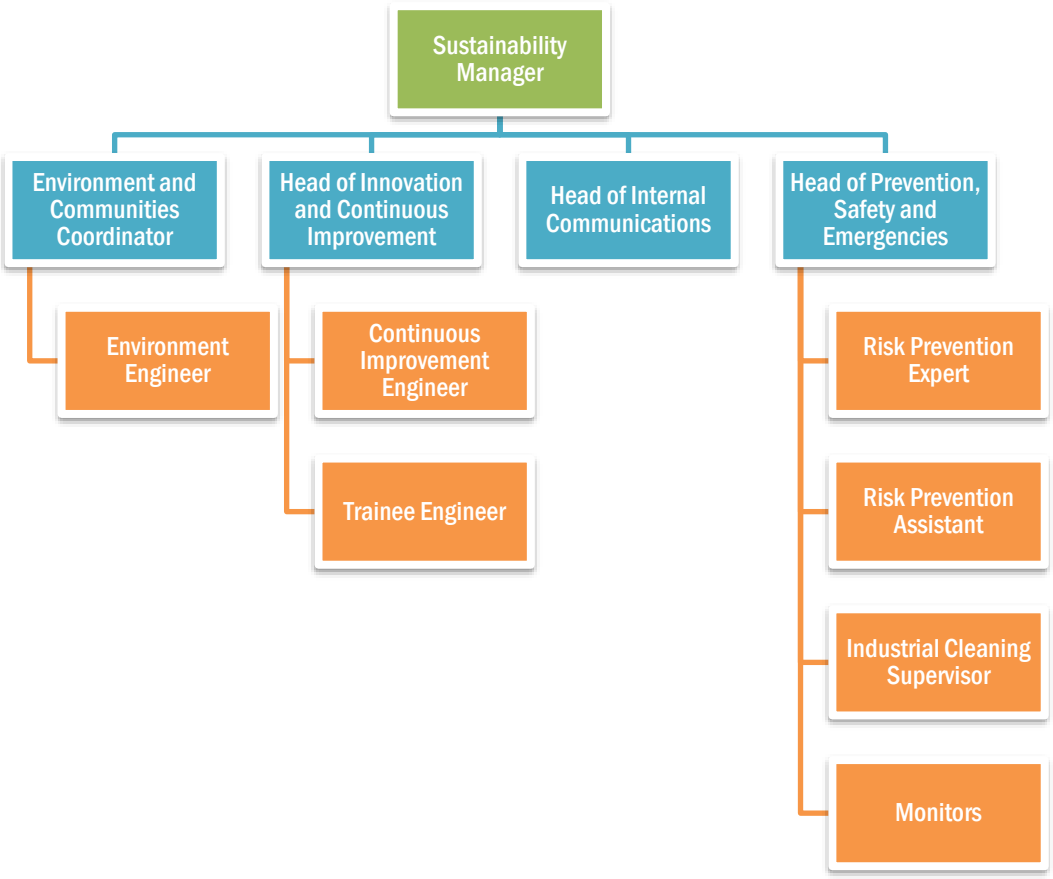
- ✓ The Environment Coordinator at Puerto Ventanas S.A. is the Environmental Engineer Mariette Aros E., a professional with over 12 years of experience in public and private entities, whose purpose is to lead the environmental management of Puerto Ventanas guaranteeing compliance with environmental regulations and national and international adherence standards defined by the company. In addition, design and ensure the correct implementation of an environmental management plan, according to the risks of the port, ensuring understanding and implementation in the different areas with opportunity and efficiency.
  Among the main functions, the Environment Coordinator must prepare and process environmental sanitary permits guaranteeing compliance with PVSA operations or improvements in accordance with established standards, ensuring that projects under development within the port operation comply with the Environmental Qualification Resolution, prepare the environmental program of PVSA according to internal policies and regulations, maintain continuous communication with Environmental Control Authorities.

- ✓ The Head of Innovation and Continuous Improvement is also part of Sustainability Management and must lead, manage and control the processes and actions of innovation and continuous improvement within the organization, being responsible for monitoring key performance indicators for the different areas, according to the standards in which the PVSA is certified, ensuring for the effective implementation of management tools. Related to environmental management, The head of Innovation and Continuous Improvement must generate monitoring of the performance of the Integrated Management System, in relation to environmental and energy indicators, findings, training and education, prevention actions and updating of the company's process map. In addition to leading the internal and external audit plan and program, together with Management's Review, in accordance with the defined methodology, guaranteeing that the areas comply with the standards to be reviewed.

- ✓ Finally, as part of Sustainability Management, a Continuous Improvement Engineer must maintain and improve the performance of the processes in the areas, ensuring the identification, documentation and control of key performance indicators of the integrated management system and energy efficiency, ensuring

compliance with current regulations and ISO 50001 standard. Additionally, the Continuous Improvement Engineer executes the Audit Plan with the respective team of internal auditors, together with the coordination of external audits, managing performance indicators and operational risks, to ensure the expected results of the same. Also leads certification, maintenance and / or re-certification of ISO 50.001 Standard.

The Sustainability Management Structure is shown next:



2.3.2. Environmental Responsibilities of Key Personnel:

The functions, responsibilities, and authority of all the personnel that participate or manage the Puerto Ventanas S.A processes are duly documented and are communicated to the pertinent employees in the various Port areas. The documentation of the responsibilities is formalized through the position descriptions of each function and are defined in the operational procedures and instructions, which in their structure establish the responsibilities for compliance and supervision of the Environmental, Safety, Quality and Energy Efficiency requirements that apply to each process.

For those areas for which the Port authority has responsibility, what personnel are responsible for the following functions?		
	Job Title or Name**	Department
Port Operations (Navigation)	Head of Operations	Operations
Port Operations (Shipping)	Ship Operator	Operations
Port Operations (Terminals)	Head of Operations	Operations
Cargo Handling Operations	Ship Operator	Operations
Jetty/Wharf Management	Operations Manager	Operations
Site Management	Head of Operations	Operations
Strategic Planning	Head of Operations	Operations
Supplies acquisition	Head of Supply	Administration
Licensing/Permits	Sustainability Manager	Sustainability
Quality Management	Sustainability Manager	Sustainability
On site Contractor Management	Contract Administrator	Maintenance
Emergency Planning	Head of Prevention, Safety	Sustainability
Waste Management	Environmental Coordinator	Sustainability
Environmental Document Management	Environmental Coordinator	Sustainability
Environmental Data Management	Environmental Coordinator	Sustainability
Soil pollution assessment	Environmental Coordinator	Sustainability
Air Quality monitoring	Environmental Coordinator	Sustainability
Energy and Carbon Footprint monitoring	Continuous Improvement Engineer	Sustainability
Water Quality monitoring	Environmental Coordinator	Sustainability
Noise management	Head of Prevention, Safety	Sustainability
Vehicular Management of Terminal traffic	Head of Prevention, Safety	Sustainability
Energy efficiency	Continuous Improvement Engineer	Sustainability
Integrated Management System Coordinator	Head of Innovation and Continuous Improvement	Sustainability
Occupational health	Head of Prevention, Safety	Sustainability

The environmental management budget is approved by the General Manager and the Company Main Board. The list of the articles that make up this budget for the year 2019 is shown next.

BUDGET	TOTAL
• Final disposal of Hazardous and Non-Hazardous Industrial Waste	
• Cleaning septic tanks	
• Chemical toilets	
• Pest control	
• Removal of plastic bottles	
• Maintenance of bottle cages	
• Operational Cleaning Service	
• Dust equipment calibration (dust emissions control)	
• Beach Cleaning Service	
• Cleaning of Campiche stream	
• Maintenance of Green Areas (plants, square, garden, trees)	
• Reagents system wheel washing	
• Supreme Decree No. 90 Rainwater Treatment Plant	
• Environment Day	
• Beach Cleaning Day	
• Campaigns Environment	
• Cleaning of Wheel washing system	
• Isokinetic Measurements for Dust Collector	
• Noise Measurement	
• Training in updating environmental regulations	
• Training for Area Managers and Internal Auditors. Planning based on Critical Business Risks (Methodology for Continuous Improvement teams)	
• Responsible Operation Awareness Program / Alignment with internal PVSA Procedures	
TOTAL	USD 720.807

2.4. REVIEW OF COMPLIANCE BY THE ENVIRONMENTAL POLICY AND LEGAL REQUIREMENTS

Analysis of the main development focuses on the implementation and monitoring of the Environmental Policy and legal aspects of Puerto Ventanas S.A.

As previously mentioned, Puerto Ventanas S.A is certified under the new upgrade standard ISO14.001: 2015 by the Certifying Company Lloyd's Register Quality Assurance Ltd (LRQA) and the certification is valid until December 2022.

2.4.1. Result of the LRQA Audit:

The audit corresponding to 2019 was performed in December and the main LRQA conclusions were:
Based on the result of the audit, the Audit Team recommends the certification ISO 14.001: 2015, ISO 9.001:2015 and OHSAS 18.001: 2007 for Puerto Ventanas S.A. about the agreed scope.

Targets

- To verify the proper implementation of the regulatory requirements of the ISO 14.001, ISO 9.001, and OHSAS 18.001 standards.
- To verify the effectiveness of the regulatory management system in achieving objectives and policy
- To verify the implementation of system improvements

Results

Two observations were recorded from the visit, which present approved action plans.
The previous observations were reviewed and closed. Opportunities for improvement and management attention issues were registered in each area for review and management as appropriate.

Conclusions and Recommendations

From the antecedents evaluated in the audit sample, observation of field operations, interviews with personnel and management, it can be concluded that the normative requirements of ISO 14.001 and OHSAS 18.001 and ISO 9.001 are verified implemented, the IMS is effective evidence in achieving safety and environmental objectives as well as business and customer requirements, and verifying the continuous improvement of processes, the Integrated Management System through improvement projects and the adequate management of findings and corrective actions. The observations have been properly managed for the continuous improvement in the certification cycle of ISO 14.001, OHSAS 18.001 and ISO 9.001, therefore the Audit Team recommends the Renewal of the Certifications ISO 14.001: 2015 and OHSAS 18.001: 2007 and the maintenance of the ISO 9.001 certificate until the next 2020 visit, in the following scope: Management of Loading, Unloading, Storage and Dispatch Services for Solid and Liquid Bulks and Fractional Loading.

The Audit Team Leader confirms that the contractual requirements for ISO 14001: 2015, OHSAS 18001: 2007 are correct. This includes any changes required because of the visit.

Audit routes and sources of evidence:

Regarding Monitoring and Measurement of the Environment:

- Management system objectives - Management review in Dec 2019 and 2020 objectives will be reviewed
- Annual area-specific environment program - customized program by area.
- Training in environment operational controls - August 2019
- Environmental aspects and life cycle
- Daily reports Environmental Authority
- Environmental control action plan

- Check list for operations by Dock Site, type of cargo and Terminal
- KPI and performance - PVSA indicators
- Energy consumption, diesel, water, gasoline, fuels - waste generated - performance
- Compliance with environmental commitments - Environmental Qualification Resolutions (5)
- Sept. 2019 letter on admissibility - improvement of storage conditions for copper concentrate and pier No.3 - report
- Legal Requirements and Compliance Assessment - Improvement of Performance Assessment Process
- EQR on web platform - reportability of areas - verifiers to upload in each area of PVSA
- Reports to the Maritime Authority
- Processing of permits - management
- Monitoring compliance - planning with third parties
- Business Requirements -SMA website
- Wastewater - analysis of samples
- Daily planning - daily inspections - emails for correction - internal WhatsApp
- Inspection Findings - Observation records and improvement opportunities
- Environmental performance metrics and statistics
- EQR information platform
- Reports to SMA
- RECT certificates annual affidavit certificate 15/Oct/2019
- Declaration of emissions D.S138
- Annual SYNADER - March 2019
- SIDREP examples
- Waste management - apply recycling

Legal requirements and compliance assessment

- Official Journal Review - new issues - legal matrix
- Improvement in legal requirements with evidence of compliance in each area
- Review of pending issues from previous visits - findings closed

Evaluation and conclusions

Conclusions

From the antecedents evaluated in the audit sample and the interviews, it can be concluded that the environmental management is verified in compliance with legal requirements and EQR environmental commitments.
Continuous improvement is evident in the processes of planning of environmental control and monitoring of the performance of indicators and parameters of legal compliance, and legal records are kept appropriately.

The LRQA communication about valid certifications in Puerto Ventanas S.A is shown as follow.

Lloyd's Register Central &
South America Limited

Blanco 625, Of. 112, Valparaíso
V Región - Chile

T +56 32 221 76 65
www.lr.org/cl

Puerto Ventanas S.A.
Camino Costero s/n
Ventanas
Puchuncaví

At.: Mr. Luis Fuentes Martínez
Sustainability Manager

Our ref : LR N° 0044_2020

Valparaiso, Tuesday 21st April , 2020

Dear Sirs:

To whom concern, through this communication, we confirm that Lloyd's Register Central and South America Ltd. – Agencia en Chile, have valid agreements to provide certification services to Puerto Ventanas S.A. under the requirements of the following Standards;

	Agreeement N°	Standard	Certificate Original Approval Date	Certificate Expiry date
1	SAC0703207	ISO 9001:2015	10 December 2008	9 December 2020
2	SAC6018361	ISO 14001:2015	23 December 2013	21 December 2022
3	SAC6018361	OHSAS 18001:2007	22 December 2013	11 March 2021
4	SAC6021363	ISO 50001:2011	09 January 2015	8 January 2021

This document is issued, for the purposes they deem convenient, without further responsibility for Lloyd's Register Central & South America Limited.

Best Regards,

Michael Ramdohr
Director of Business Development / Operations Coordinator
Business Assurance South America
Lloyd's Register Central & South America Limited

Signed Statement of a legal expert regarding the identified legal and other requirements is shown next:

ECO Sustainable Logistic Chain Foundation (ECOSLC)

Dear Sirs,

We declare that Puerto Ventanas S.A. identifies and complies with legal and other requirements applicable to significant environmental aspects, according with the Environmental Management Standard ISO 14.001: 2015, and which are included in the 2020 application for Environmental Port Review System (PERS).

Santiago, Chile

May 25th, 2020

Rodríguez Rosende y Cía Ltda Law Firm

2.4.2. Continuous Improvement Environmental Management

Definition of Objectives of the Integrated Management System Puerto Ventanas S.A:
The Port defines objectives within the framework of its Environmental Management System, considering the strategic objectives and the context in which the organization operates. The strategic planning process considers the business challenges in a medium-term horizon, establishing objectives and action plans with a Management focus for each of the aspects included in the Port Integrated Management System.
Objectives of the year 2019 are shown in the Appendix 3: "D-005-SIG_Objectives of the Integrated Manage System", which includes the Port's environmental objectives.

Monitoring and verification of compliance with the objectives
Based on the definition of Objectives of the Integrated Management System, different monitoring and control instances are defined to verify compliance or deviations. Compliance is verified systematically through:

I. Internal Audits:

One of the ways of verifying the performance and fulfillment of the objectives and action plans is through internal audits to verify if the activities of the Integrated Management System (quality, environment, safety, energy and occupational health) comply with the planned provisions and, therefore, determine the effectiveness of the system.
An annual Internal Audit Program is established (Appendix 4_R1P007SGI_Internal Audit Program 2019). In said planning, the areas of the organization and the periods scheduled for the respective audits are indicated. The Audit Plan (Appendix 5_R2P007SGI_ Internal Audit Plan 2019) is formulated considering the results of the evaluations of external and internal audits, the weaknesses observed in the areas, among others. The results of the audits are recorded in the internal audit reports and are addressed in the corrective and / or preventive action program.
The internal audits of the Integrated Management System are carried out by a team of duly qualified internal auditors, who belong to different areas of the Company.

The target and scope of the internal audit process is described below:

- ***Target:*** Verification of the degree of implementation of the Integrated Management System, in accordance with ISO 9001, ISO 50.001, ISO 14.001, OHSAS 18.001. (Up Grade 2015) and Carbon Footprint Inventory.

- ***Scope:*** According to the scope of the certifications that PVSA maintains, the areas and processes will be audited according to the criteria ISO 9001, ISO 50 .001, ISO 14.001, and OHSAS 18.001 / Up Grade 2015. Human Resources Department: Induction of New Personnel, Communication Protocol of Aspects related to workers (Update of Positions, Organization Chart); Management of Improvements and Previous Findings. Supply Department: Billing-Payment (Suppliers), Purchasing Process, Critical Stock, Delivery and Registration of Personal Protection Elements, Manual Handling of Cargo in Storeroom, Energy Management, Management of Improvements and Previous Findings. Maintenance Department: Evidence of use of maintenance plans and reliability system, RCA Compliance Matrix, Improvement Management and Energy Management. Costa Terminal: Train Unloading Procedure (Andina and AngloAmerican), Energy Management, Operation Plan Verifiers, Management of Improvements and Previous Findings. Dock Terminal: Petcoke Shipping Procedure, Verify MINSAL Protocol Compliance, Dissemination of Procedures, Energy Management, Management of Improvements and Previous Findings. Commercial Management: Records and evidence of Customer Claims (Commercial Management). Information Technology Department: Current Procedures, Information Policies. Petcoke Terminal: Current Procedures, Operation Plan Verifiers. Carbon Footprint Inventory: 2018 calculation inventory, calculation methodology, emission factors and calculation tool.

The conclusions of the internal audit process are recorded in Appendix 6_R4P007SGI_Internal Audit Reports.
This includes:

- Audit Report_Operations Terminal Costa
- Audit Report_Commercial Management)
- Audit Report_Carbon Footprint
- Audit Report_Human Resources
- Audit Report_Information Technology
- Audit Report_Operations Terminal Petcoke
- Audit Report_Maintenance Area
- Audit Report_Supply Area
- Audit Report_Pier Area

II. Review by the Management:

The Review by Management allows to review the performance of the Integrated Management System and ensure its adequacy and alignment to the risks of each process and area, in accordance with the requirements of the Standards that PVSA is certified: ISO 14.001, ISO 50.001, ISO 9.001 and OHSAS 18.001
Review focus December 2019:

- Management review by area, progress, and closure of incidents-Nonconformities-improvement opportunities, including other risk mitigation actions being carried out in each area.
- General Review of the Performance of the Port in aspects of the Integrated Management System, Environment, Safety & Health and Energy.
- 2020 focuses and objectives (Presented by Managers of each area)

Management Reviews were carried out in June and December 2019.

III. External audits:

Additional to the internal audits, Puerto Ventanas S.A voluntarily decides to submit to third-party audits conducted by Lloyd Register, in order to ensure that the Integrated Management System implemented is effectively maintained. This process is carried out twice a year.
The results of the audit are referred in the page 69 y 70 of this report.

IV. Learning due to unplanned events:

Findings management
Puerto Ventanas has a computer system accessible to all collaborators, in which they can directly record findings identified in the processes. Likewise, safety and operation are permanently monitored in order to identify findings and detect potential incidents in order to avoid or minimize the potential negative impact on collaborators, processes and the environment.

Regarding the total accumulated findings in the platform, the performance in the Management of Findings (Verified / Validated Findings) is as follows:

Year	Validated Findings	Verified Findings	Performance
2015	173	114	66%
2016	331	247	75%
2017	446	395	89%
2018	584	523	90%
2019	623	564	91%

V. Monitoring of EQR and Legal Compliance:

For monitoring the Legal Qualification Resolutions and legal compliance, the Environment area, through monitoring software, performs automatic reports, including warnings and alarms, to guarantee compliance with the reports, records, and deadlines in each EQR. Furthermore, compliance is reviewed in internal and external audits carried out during the year as mentioned above.
See the pages 29, 30 and 31 of this report.

Certification of Controls of the Coal Unloading Process

As part of the continuous improvement of the Port processes, during the first semester of 2020, the Technical University Federico Santa Maria certified that the controls associated with one of the critical activities of the business of Puerto Ventanas S.A are appropriate and are effectively complied with.

The certification process was carried out voluntarily and evaluates and audits, among other things, the equipment, maintenance, and competencies of the personnel that carry out the activity of unloading coal in bulk through the conveyor system in a correct, safe, and reliable manner, for each one of the elements that make up the Policy and

Integrated Management System to allow continuity in the application of the work procedure.

The stages associated with the certification of the coal unloading process for Puerto de Ventanas are described below:

1) Setting the context

At this stage, the object of analysis and scope of the certification were agreed, for which the pertinent field and documentary information were collected, in order to understand the organization's risk control logic and philosophy. This includes:

a) Technical analysis of the process and controls verifying that they are suitable for controlling the handling of coal.
b) Determination of the degree of compliance of the management system (audited procedure) with the audit criteria.
c) Assessment of the management system's capacity to ensure compliance with control measures.
d) Evaluation of the effectiveness of the management system to achieve the specified objectives.
e) The identification of areas for potential improvement of the management system.

The evaluation and audit had as extension and limits, the location, units of the organization, activities, and processes, those described in the Operational Procedure: PO-016-OM.

2) Identification of standards

Based on the standards defined and explicitly indicated in the procedure, the evaluation, audit, and verification stage of the operations associated with the coal unloading process was carried out. Therefore, all the Instructions, Procedures, Manuals, Risk Analysis, Incident Statistics, Training Programs, Certifications obtained, Process Map, and others pertinent to address and frame the process were collected and analyzed.

However, the most relevant for the design of the instruments (check and evaluation guidelines) was designed based on the standards that appear in the procedure.

3) Definition of criteria

For each of the tasks, for each activity, "measurement instruments" or "checklists" was designed, with their respective evaluation rubrics (with a description of levels of conformity and compliance for each point addressed), with which It was objectify the evaluation in the field, and each of the steps carried out, associated with each task, were verified.

These criteria, instruments, and headings were presented to the counterparty for adjustment and validation.

4) Qualification of the process

Through the application of the instruments, verification of checklists in the field, and the on-site observation of each of the activities and tasks mentioned above, the audit was carried out through verification of compliance with the standards and of documentary consistency supported by the aforementioned evidence.

In addition, the observation in the field was complemented by interviews with each of those responsible for each activity and task.

The application ran in 2 different unloading processes.

5) Issuance of the Final Report and Certificate

The certificate is issued based on the results obtained in the evaluation, verification, and audit process, which was accompanied by an executive closing report, with recommendations, opportunities for improvement or corrective actions if appropriate.

Audit and Certification Process Results

Regarding the results of this process, the Technical University Federico Santa María concluded that it was possible to establish the context of the organization based on the collection of field and documentary information using the Operational Internal Procedure: Bulk coal unloading through the Ven-5 on-site conveyor system (PO-016-OM).

The standards for each control and for each dimension of the evaluation model were identified, among which are: Procedures, Instructions, check list, as well as audiovisual material, applied check list, Excel spreadsheets, Competency Certifications , Calibration Certificates among others.

The Final Results can be credited with the certificate shown below:

UNIVERSIDAD TECNICA
FEDERICO SANTA MARIA

Dirección General de Asistencia Técnica

DGAT_CECCL-554 2020

CERTIFICADO

La Universidad Técnica Federico Santa María, RUT: 81.668.700-4, por intermedio de la Dirección General de Asistencia Técnica, y como resultado de un proceso de evaluación y auditoría a Puerto de Ventanas S.A.(PVSA) en su operación para evitar la dispersión de material durante la descarga y transferencia de carbón a granel a través del sistema transportador en sitio N°5, ejecutado entre diciembre del 2019 y marzo del 2020, certifica que los siguientes "Controles Operacionales" cumplen eficazmente con las especificaciones y los estándares declarados por la empresa.

CONTROL OPERACIONAL:

1. Descarga con grúas pantográficas
2. Operación con pala hermética tipo Nemag Ecológica
3. Tolvas de recepción
4. Sistema de abatimiento de polvo
5. Placa recolectora de material residual en las tolvas
6. Manteletas en la extensión del buque
7. Instalación de malla deflectora de viento
8. Circuito cerrado de televisión (CCTV)
9. Luminarias de alta intensidad
10. Sistema transportador cerrado
11. Limpieza sobre buque y muelle con sistema de aspiración
12. Camión aspirador de alto vacío
13. Restricción de operación con vientos sobre los 18 nudos
14. Inspección del fondo marino con robot (ROV)

La presente Certificación tiene una duración de 3 años a partir del 11 de marzo del 2020, sujeto a auditorías de seguimiento anuales. Las evidencias levantadas y el detalle del proceso de evaluación se encuentran en Informe "PVSA-CER-200617 Informe_Final USM" y Modelo de Evaluación "PVSA-CER-200310 Modelo de Medición Aplicado USM".

UNIVERSIDAD TECNICA FEDERICO SANTA MARIA
DIRECTOR GENERAL ASISTENCIA TECNICA

Jaime Espinoza Silva
Director General de Asistencia Técnica
Universidad Técnica Federico Santa María

Valparaiso, Junio 18 de 2020.

2.5. ENVIRONMENTAL REPORT

As mentioned in previous sections, Puerto Ventanas S.A determines the external and internal factors that are relevant to its purpose and strategic direction and that affect its ability to achieve the expected results of the Integrated Management System.
To define the context analysis, the SWOT tool (Strengths, Weaknesses, Opportunities and Threats) allows determining risks as negative factors and opportunities as positive factors, considering internal aspects such as organizational culture, knowledge, process performance, among others, and for the external context, incorporating the legal, technological, competitive, cultural, market and social environment, for example.
Strategic, operational, and financial risks were previously mentioned 16 and 17. Likewise, the business risks are evaluated and analyzed by each area of the company and are presented in the Management Review.

PVSA therefore considers the internal and external context to identify and evaluate risks, opportunities, and stakeholders mentioned on page 13, 14 and 15.

The following table shows the Stakeholders List, identifying each one of them and the quality and environmental requirements.

No.	Stakeholders	Quality Requirements	Environment Requirements
1	Community people	Hiring local people	Hiring local people
2	Fishing guilds and others	Economical support	Economical support
3	University community	Know the port sector	Know the port sector
4	Basic and average educational community	Improve your experiences in visits: example: ex. Getting on a ship	
5	Customers	Contract compliance	
6	Suppliers	Timely payments	
7	Certifiers	Comply with the rules implemented	Comply with the rules implemented
8	Workers / Trade Unions	• Labor union: quick coupling • Definition of clear attributions and responsibilities	
9	Joint Committee		That the rules and requirements indicated in minutes of meetings are met.
10	PVSA Owners	Fulfill customer contracts	Regulatory compliance and EQR and not appear in the media.
11	PVSA Directory	Fulfill customer contracts	Regulatory compliance and EQR and not appear in the media.
12	PVSA Management	Fulfill customer contracts	Regulatory compliance and EQR and not appear in the media.
13	PVSA Headquarters		Regulatory compliance and EQR
14	Local authorities		Regulatory compliance and EQR
15	Regional authorities		Regulatory compliance and EQR
16	National authorities		Regulatory compliance and EQR
17	Media		
18	Environmental organizations		• Regulatory compliance and EQR and beyond basic compliance.

			• They give permanent follow-up to the behavior of the companies to point out the breaches.

2.5.1. ENVIRONMENTAL MANAGEMENT

Puerto Ventanas S.A is committed to carrying out its activities with high environmental standards. Therefore, environmental management is a strategic objective that is applied in processes, business strategies and decisions at all levels of the organization. To achieve this purpose, the port has an Environmental Management System that is structured according to the requirements of ISO 14.001/2015, recertified in 2019 for three years, which verifiably establishes systematic and proactive management of the entire organization for the environmental protection.

It considers the monitoring of legal-environmental commitments to identify by area and scope of responsibility all obligations, ensuring compliance. Likewise, it identifies, and monitors aspects related to security, environment, quality, energy efficiency, occupational, administration and financial or legal aspects of processes and services.

As part of the continuous improvement process, the port has been incorporating improvements in all its activities. This is how the year 2019 installed a new Wheel Washing System in the Clean Grains Terminal.

The Company has 5 EQR in force until 2019, fully complying with the commitments acquired:

First Ecoport in Chileans Ports

For the second consecutive year PVSA obtained the Americas Maritime Award.

EQR
No. 263/2000

"Copper Concentrated Warehouse Project in Puerto Ventanas S.A."

EQR
No. 229/2004

"Site 6 Project."

EQR
No. 09/2010

"Expansion of Copper Concentrates Storage Capacity in Puerto Ventanas S.A."

EQR
No. 249/2014

"Expansion, Improvement and Modernization of the Shipment System for Copper Concentrates in Puerto Ventanas S.A"

EQR
No. 66/2015

"Improvement of Storage Conditions for Copper Concentrate, 46.000 Tons."

NEW TECHNOLOGIES AND IMPROVEMENTS IN PROCESSES

Investments in infrastructure, the incorporation of new technologies and the continuous improvement of processes have allowed Puerto Ventanas S.A a more efficient and competitive operation, providing more security and commitment to the environment that make possible the sustainable development of the operation.

Wave measurement equipment

In 2019, modern wave measurement equipment was installed at site 5 to measure wave levels and facilitate forecasting of storm surges. This system will allow, in the medium term, to mechanize the mooring of ships.

In the month of January 2020, the operation of this equipment began, which will be anchored in one of the docks sites and which has the particularity of having two sets of sensors that mainly seek to measure the water pressure in order to predict the height of waves.

This new technology will also provide information for the implementation of a mechanized system for the mooring of ships that arrive at the Port and that will allow controlling this task immediately, depending on the behavior of the sea.

The project is being worked together with the Maritime Authority and the Valparaíso University, who have a mathematical model with which they estimate and project the storm surges on the coasts of the area. In this way, the equipment that will be installed in Puerto Ventanas will allow said University to corroborate its figures reliably.

This wave measurement equipment is projected to be fully operational during the first half of 2020.

Wheel Washing Equipment at the Grain Terminal

It consists of a cleaning platform that trucks enter before they leave the facilities of Puerto Ventanas S.A. It has sprinklers that launch water under pressure and works mainly with a washing platform with a 4-meter ramp and a recycled water tank with a capacity of 15 cubic meters. In addition, the system comes with two submersible pumps that serve to control the recirculation of water.

The purpose is that the tires come out clean from the terminal, free of grains, dirt or any other component that generates dirt on the roads.

The main advantage of the system is that it recycles the water since it recirculates and is again absorbed into the storage tank. Its commissioning has allowed verifying that the wheels come out completely clean from PVSA.

Automatic Lubrication of the Cranes

Another advance that Puerto Ventanas S.A has implemented is about the automatic lubrication of the Cranes, which, like all machinery, needs the application of grease in its bearings and mechanical systems on a regular basis. During the 27 years of PVSA, this process was carried out manually, which involved stopping the unloading operation.

That is why to avoid this stoppage, this system was installed that performs this operation automatically, injecting the lubrication in the indicated places, at the right time and in the exact amount.

> “The rigorous planning that Puerto Ventanas has been developing in the implementation of this change in the Petcoke shipping mode of operation stands out. The best technology is being used to carry out this operation with the highest standards”
>
> ***Sergio Hodar,*** External consultant of the consulting firm ABC Consulting.

Petcoke First Shipment via Ship-Loader

In 2019, the first Petcoke shipment was made using the Traveling Loader or Ship-Loader, this milestone that was achieved thanks to rigorous planning, flexibility, and joint work by port workers. It uses all the technological advantages of the Traveling Loader, achieving greater efficiency in the shipping process. To carry out this process, the permits of the Environmental Authority were managed, and a rigorous preparation was carried out, developing the procedures required for this task, in a process endorsed by external consultants. The impacts of a shipment using containers moved by trucks compared to a mechanized transfer are as follows:

a) Avoid fugitive emissions in the transfer of the material because the shipment is made through a completely sealed conveyor system.
b) Increased transfer speed by 40% resulting in 37% fewer staff.
c) The risk of being run over on the dock site due to the circulation of trucks was reduced to 0.
d) The risk of trucks colliding on the way to the dock site is 0
e) The risk of entrapment in the container hitching maneuver was reduced to 0
f) Avoid the risk of lifting containers on the dock site when they were emptied onto ships during shipment.

New Cabin for Crane No.2

The cabin of German origin includes a series of technological innovations that ensure greater visibility, efficiency, and safety for the worker. In October 2019, the cabin destined for Crane No.2, located at Pier No.5, arrived, which is part of a gigantic structure destined for unloading. Its installation was carried out in the middle of a meticulous operation. It has a series of characteristics of great technological development typical of this type of new generation structures that will improve the operation of the Crane No.2, providing greater efficiency and providing better comfort and safety conditions for the operator who previously had a vision 180 degrees and with this new cabin it has a visibility of almost 200 degrees, with a greater range of vision, which facilitates operation.

"We are innovating in Puerto Ventanas and one of these innovations is this change in structure. All new advanced technology is being incorporated into this crane".

Carlos Bernal, Electromechanical staff.

New dust suppression system in Pier No.5

In order to improve each of its processes, Puerto Ventanas S.A carried out an update to the dust suppression system used at dock site, migrating to a system based on the use of dry mist. This system is more efficient in the use of water and maintains effective control over suspended dust during coal unloading operations.

Electromobility

To promote the use of clean energy, the Environmental Area acquired an electric vehicle for its supervision tasks.

Environmental Contest

This contest was led by the Environment Area and sought to encourage good environmental practices in the following 2 categories:

Category-1: Environmental Improvement and Innovation:
This category recognizes the ideas or projects that are applicable to Puerto Ventanas, which allow raising awareness, contributing, and implementing a new idea for environmental improvement or innovation in the activities of the Port.

Category-2: Promotion of Innovation in Environmental Education:
The proposals consider ideas or projects to strengthen environmental education in the Port, in one of the following topics: Guide to Good Practices in the Storage, Transport and Handling of Solid Bulks, Marine Waters, Waste, Recycling, Emissions, Flora and Fauna, Change Climate, Natural Disasters, Ecoefficiency, Carbon Footprint, Water Footprint, Environmental Risk, environmental journalism, Environmental Qualification Resolution (EQR), among others.

In both categories, a designated jury evaluates originality, creativity, positive impacts, and its application to allow improving environmental aspects of the Puerto Ventanas processes.

Recycling Program: "Puerto Recicla"

This program's main objective is to promote a recycling culture and strengthen the Port's waste management, segregating them according to their characteristics. The purpose of this initiative is to create, educate and promote a recycling culture within the Company and strengthen the Port's Waste Management Program. Recycling stations have been implemented at various points of the Port facilities that allow the waste to be properly collected and segregated, which are finally delivered to specialized companies.
The materials that are considered in the program are residues similar to domiciliary, as they are, plastics, paper, cardboard, plastic bottles, hazardous waste, batteries, irons and scrap.

Maintaining the Recycling Program allows:
Generate effective control of non-hazardous solid waste, hazardous and similar to household waste, temporary storage and final disposal.
Identify waste streams to be able to establish indicators and objectives associated with improving environmental performance.
Perform inventory or monitor the non-hazardous, hazardous, and assimilable solid waste generated in the different areas of the Port.
Segregate, in origin, non-hazardous solid waste, hazardous and assimilable to domiciliary originated.
Reduce the generation of waste.

Beach cleaning

The activity was carried out on September 27, 2019, it was organized by PVSA and the Chilean Navy within the framework of the International Beach Cleaning Day. Thus, workers of Puerto Ventanas S.A, residents of the communes of Puchuncaví and representatives of the Port Captaincy, met to collect the garbage that accumulates in the bay.

The purpose of this initiative was to raise awareness about caring for the environment and reduce the impact of human action on the seacoasts. With this, in addition, Puerto becomes part of the process of raising awareness of caring for the environment in an active way, encouraging the community to be protagonists in this process.

ACTIVITIES TO PROMOTE A CULTURE OF SUSTAINABLE OPERATION

III Hemispheric Seminar "Efficient Legislation as a Foundation for Competitiveness", Honduras

Seminar was held in Roatán, Honduras, organized by the Secretariat of the Inter-American Committee on Ports, where Puerto Ventanas S.A. was invited to present his environmental management as the first Ecoport in Chile.

Seminar "Port-City Relations: global competitiveness, local sustainability"

Meeting organized by the Port Authority of Peru and the Inter-American Committee on Ports, belonging to the Organization of American States (OAS). In this event a delegation of 4 workers from Puerto Ventanas S.A, participated sharing experiences with other ports in America.

Replacing plastic bags with gender bags and recyclable utensils

In 2019 PVSA eliminated the plastic bags in which work clothes were delivered to employees and replaced them with new gender bags, an initiative that was born from the same workers of the company. In the same way, glasses and plastic cutlery were changed for biodegradable utensils.

"Today I can say that the commitment that Puerto Ventanas S.A has regarding Social Responsibility and care for the environment, has been successful and has made many ports in the world look at our company and the work that we have been developing in these matters. In his presentation, the Board President of the Port Authority of Peru, gave as an example for other ports the successful experience of Puerto Ventanas S.A in managing the environment and its relationship with the community"

Andrés Burgos, PVSA Risk Prevention Expert.

Responsible Operation Workshop

It is intended for all Puerto Ventanas S.A staff with the aim of guiding their work on the importance and responsibility of operating responsibly, so that workers understand the meaning and impact of the different functions they perform.

ENERGY MANAGEMENT

Within its strategic pillars, the company has assumed a commitment to sustainable management and operation in which energy management plays a fundamental role. In 2016, the company was established as the first Ecoport in Chile, having obtained the PERS Certification, which verified its high environmental standards in its operations, and was also internationally recognized with the Americas Maritime Award in 2018, delivered by the Inter-American Committee on Ports, in the category "Green Port Operations".

Among the main actions carried out by the company in terms of sustainability, the development of a Master Investment Plan for the modernization of its facilities and infrastructure and the development of an Energy Efficiency Program are included.

In the last 5 years PVSA has been developing a systematic and successful energy management. During 2015, with the support of the Energy Sustainability Agency, the company implemented an Energy Management System based on the ISO 50.001 standard, where aspects of the efficient use of energy have been addressed, both technologically and in strengthening a culture of efficiency, involving all its workers through a training plan with the support of the Energy Sustainability Agency.

Electric power is one of the most relevant inputs in port operations, representing 91% of the total energy used. As a result of this energy efficiency program, until 2019, the consumption of energy per ton transferred through actions such as the incorporation of high energy efficiency equipment and operational controls established for this purpose have allowed the maintenance of energy performance levels.

As a result of its perseverance and management, the Company has been recognized by different entities that promote the efficient use of energy: the Gold Seal of Energy Efficiency (2014 and 2017), granted by the Chilean Ministry of Energy because the implementation of energy efficiency with demonstrable results and in the first quarter of 2020 Puerto Ventanas was recognized for the energy trajectory and CEM Insight Award, a recognition given by the leadership in energy management and administration endorsed by Clean Energy Ministerial. The publication in the media can be seen in Appendix 7_National media release acknowledging Energy Trajectory.

INNOVATION MANAGEMENT

The importance of innovation in companies has grown significantly over the years and has become an essential factor for the medium and long-term projection of companies. In this sense, innovation is no longer seen as an option and has become a strategic necessity for the development and projection of companies.

Puerto Ventanas SA, has great challenges ahead and understands that to face them and maintain leadership in the industry, all the innovative potential of its collaborators is required, therefore a pillar of its sustainable development is innovation and continuous improvement of its processes . An early adaptation to the change of technological scenario, market and operating context is vital for the projection of the company. For this reason, a culture of innovation and continuous improvement is fostered within the organization, where there is space for critical analysis of current processes and instances are created for the creative thinking of workers along with an investment plan for modernization and technology.

IN-PVSA Innovation Program

Through this program, which has the sponsorship and co-financing of CORFO, and has been developed with the support of the Center for Entrepreneurship and Open Innovation of the Catholic University of Valparaíso, it is sought that the company advance in line with the new challenges that society and the market requires.

In the first phase of the program, a diagnostic process was carried out that evaluated three dimensions: structure, culture, and capacity for innovation. To do this, focus groups were held for supervisors, technical, administrative workers, and area managers. An online survey on innovation applied to 84 collaborators was also developed via email and, in parallel, a personal interview was scheduled for the management line.

With these measurement tools, the main objective was to identify the vision of the collaborators on issues such as how Puerto can promote innovation; what factors can slow down the process; if they think that the company encourages innovation, among other concepts.

Creation of Innovation Area

The implementation of this program included important milestones such as the creation of an Innovation Area and a Committee, which developed the main guidelines for the implementation of the program; validating innovation strategies and plans and defining priorities to promote a culture of innovation in the Company.

The Innovation Committee, led by the company's general manager and made up of company executives and workers, meets regularly to review progress and compliance with the stages planned in the program and was responsible for defining an Innovation Policy.

"For us it is important to transmit the efforts of Puerto Ventanas to become an innovative company and the quality achieved in the activities leading to this objective, since we have been allies and witnesses of the commitment and participation shown by all its members in making innovation their new way of working. These facts make it one of the most significant experiences in our mission to foster innovation in the region."

Diego Nuñez, Manager of Ceinnova,
PUCV Open Innovation and Entrepreneurship Center.

Innovation and Environmental Focus

In 2019, more than 20 workshops were held in which more than 220 company workers participated. In them, tools were delivered to generate innovative projects and initiatives that arise from the experience of the workers, with a focus on sustainability, the environment, and the continuous improvement of the port's processes. The year ended with the presentation of 45 initiatives of the collaborators, from which 10 ideas were chosen through a selection process.

The selected ideas were focused on the following innovation challenges:

- ADAPTS: Increase efficiency of cleaning conveyor belts and transfer points
- ADJUSTMENT: Minimize impacts of closed port days
- DIGITALIZE: Optimization of logistics chain with digital tools.
- CONNECT: Generate quality, reliable, and available information for the entire Company.
- COLLABORATE: Improve our processes y promoting a sustainable culture through collaborative work to achieve new standards of risks control (environmental and people)
- DIVERSIFY: Generate value to attract new loads.

The ideas go to a final feasibility review where their implementation will be evaluated. The 10 ideas are as follows:

Cryogenic Cleaning: New cleaning method for the conveyor system called cryogenic cleaning. This method consists of a continuous pressure jet cleaning of Dry Ice Pellets.

Virtual Technical Support AVT: Incorporate technology that enables PVSA specialists to be linked off-site with PVSA technical personnel on-site using a cell phone or special glasses.

Desalination Unit: Desalination plant that works with reverse osmosis process, with dimensions smaller than a container.

Gray Water Reuse: Biological treatment for reuse of gray water through filters, in industrial processes of Puerto Ventanas.

New cargo transfer system for ships Pier No.2: The system is similar to the one installed in Ship-Loader for Pier No.3.

Self-consultation "Payroll": Virtual self-service platform for online delivery and entry of information for all PVSA workers.

Valve Remote-Control: Implementation of remote-control valves to start and end shipments of sulfuric acid.

Fog Cannon High Pressure: The system is oriented to suppress particulate matter.

Dry Mist Suppression System: System that combines air and a minimum of water, generating dry mist for the points of the conveyor system where required.

Port Information Integration: Integrated, unique, reliable, and real-time information system for decision making.

RELATIONSHIP WITH THE COMMUNITY

PUERTO ABIERTO COMMUNITY CENTER

For Puerto Ventanas S.A, the relationship with its neighboring communities is essential for the Company's sustainable development. Along these lines, the Company has a Strategic Community Relations Plan that aims to generate long-term and trustful links with the inhabitants of the Puchuncaví commune; contribute to the quality of life of its neighbors; communicate transparency and closeness; be protagonists of the development of Puchuncaví and contribute to the positioning of Puerto Ventanas S.A. as a company that grows together with the community.

To meet these challenges, in 2012, the Puerto Abierto Community Center was created, a non-profit corporation whose mission is to contribute to social and cultural development of the commune of Puchuncaví.

This in order to improve the quality of life of its inhabitants, fostering a meeting place, creation and development of cultural, academic, artistic and recreational manifestations, contributing to culture, education, support of local entrepreneurs, strengthening the role of women in society and putting in value the commune.

The relationship of the Port with the community is measured annually through a perception survey (carried out by an independent external consultant) that addresses three areas: Trust in the business of the company, connection of the Port with the community and perception of the environmental performance of the company. In the last 8 years a positive evolution of the perception of the community towards the company has been evidenced.

.

2.5.2. CONTROL MEASURES AND MONITORING

i. Description of improvements in the coal unloading process controls

According what was mentioned on page 76 and page 77 about the Coal Unloading Certification, the controls defined for the coal unloading process are as follows.

1. **Unloading with Pantographic Cranes:** Located on dock side to eliminate the risk of ship instability and/or tidal conditions during unloading. These are Babcock & Wilcox Cranes from Spain of the luffing type of 30 tons at 40 meters distance, with a performance of 750 t/h each.

2. **Operation with hermetic and ecologically friendly Nemag Clamshell Grab:** The ship unloading coal using ecological Nemag Clamshell Grab that correspond to four rope bivalve clamshell grab, Nemag brand, made in Holland. These clamshell grabs are completely closure of their grab with a capacity of 17.5 m3 designed for coal. They are built with special high resistance steels. The design and construction of the shovel is under the European Machinery Directive (2006/42/EC)

3. **Receiving hoppers completely sealed on the outside allowing full entry of the shovel:** The Port also has receiving hoppers to receive bulk cargo at the dock and each one is located on a 15 m high rectangular structure with mailbox-shaped stainless-steel lining, regulated with vibrating flow feeder. On the outside they are completely closed. Their range surface consists of 64 m2 (8m long x 8m wide) allowing to fully introduce the Ecological Nemag shovel and unloaded coal.

4. **Dust Suppression System:** High-pressure water mist system automatically activated by a proximity sensor from shovel to the receiving hopper. The dust suppression system consists of 20 nozzles distributed at the top of the hopper, being constantly supplied with pressurized water by 6 Bar pump system that generates a humid curtain that precipitates possible dust that could be generated at unloading on the hopper.

5. **Material Spill Plate at receiving hoppers:** Additionally, receiving hoppers have a spill plate front structure or folding element (“bib”) across the width of receiving hopper and its purpose is to contain the residual material that could fall in the path of the shovel to the receiving hopper. All residual material collected by spill plate is routed directly to the conveyor belt.

6. **Mantles on the ship extension along the front of the docking:** Mantles on the ship extension along the front of the docking between the ship’s deck and the dock. Made of laminated polyethylene, 100% waterproof, guaranteeing containment of waste material that could eventually fall during the unloading cycle.

7. **Environmental Care Net:** Wind deflection care net installed around hoppers and in front of ship holds by the starboard side, which covers the entire length of ship hold.

8. **Closed-Circuit TV:** The Port has under constant review of unloading process, recording through closed-circuit fixed camera system, and reviewed and supervised by internal personnel.

9. **High intensity lights:** The dock has high intensity lights to cover the path of unloading ecological shovel.

10. **Closed conveyor belts system:** The conveyor belt that transports coal has a length of 1.4 kilometers and is completely closed to prevent dispersion of dust particles. The unloaded coal is transferred through conveyor system directly to our client’s storage areas. Coal is not stored in any Port dependency.

11. **Cleaning on ship and dock with vacuum systems:** Cleaning of ship and dock is done using portable vacuum cleaners.

12. **High Industrial Vacuum System:** In addition, the use of a High Industrial Vacuum System has been implemented with a suction capacity of 3.531 CFM and an effective cargo storage capacity of 8 m3.

13. **Operation restriction on 18 knots:** Unloading process is performing according Resolution of The Maritime Authority over operational limit due to wind C.P.QUI. Ord N°12.000/_304 (According Port Captaincy of Quintero, ordinary circular 12.000/_304)

14. **Verification effectiveness of measures:** Periodically, the seabed is inspected in site 5 area and around its Maritime Terminal. Using a Robot remotely operated vehicle (ROV) in order to ensure control effectiveness during the unloading process.

In this line, PVSA has invested in improvements associated with the controls indicated above:

- Acquisition of a High Vacuum Industrial System
  With a tank of 8 m3 capacity. It has a suction range of 200 meters horizontal and 80 meters vertical and a suction capacity of 28 m3 / hr.

<Investment: **USD 417.000**>

- Material Spill Plate at receiving hoppers No.1 and No.2.

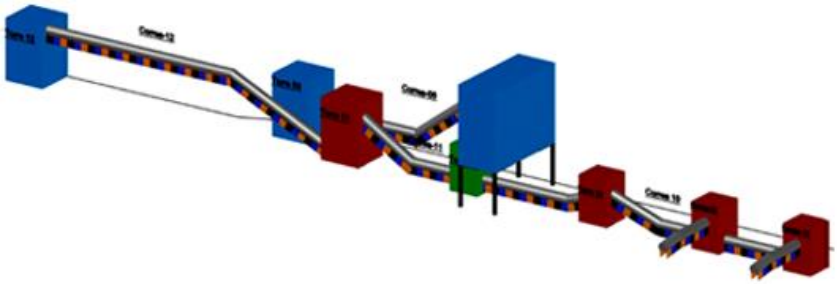
  Consider modifying the current containment system. Improvement of the structural canalization of the hoppers to return the residual material accumulated in the "bib" to the conveyor system.

<Investment: **USD 20.800**>

- Reseal of unloading conveyor system and sealing of Transfer Towers No.1 and No.2.

It incorporates resealing by means of metal plates (belt return area without load to the conveyor system). It allows access for inspection and maintenance. Includes structures of transfer towers No.1 and No.2, which will be confined. Consider the entire conveyor system (1.400 meters).

<Investment: **USD 128.000**>



- Upgrade sprinkler system (Dust abatement in Hoppers).

  Technological upgrade for dust suppression by means of a dry mist system. It will be extended to both receiving hoppers No.1 and No.2.

<Investment: **USD 188.900**>

- Renewal of ecological NEMAG shovels, through the acquisition of 2 latest generation units

Greater angle at the top, reduces the possibility of harboring any cargo residue.
Additional plates that help a perfect closure

<Investment: **USD 231.944**>

- Replacement of metal covers on conveyor belts at Pier No.5

  Replacement of sections of covers, migrating to a system of metallic covers of greater durability. It is considered progressive replacement in successive maintenance.

<Investment: **USD 31.940**>

Other control measures

Among other control measures that prevent the alteration or affectation of the environment are:

Process control measures	
Conveyor belts and closed towers for the transport of solid bulks.	✓
Encapsulated systems that prevent the dispersion of particulate material.	✓
Reception of copper concentrate by sealed containers which offers greater security for people, optimizes the time of operation, and contributes to the care of the environment.	✓
Solid bulk storage warehouses with last generation of emission control systems.	✓
Permanent industrial cleaning program for the entire conveyor system.	✓
Cover of trucks that enter and leave our facilities to avoid the dispersion of particulate material.	✓

Washing of truck wheels in order to avoid the dragging of material towards public roads.	✓
Rainwater treatment plant.	✓
Dust collectors installed in the transfer belt system to capture any suspended dust during the transfer of material.	✓
In the process of transferring bulk liquids such as fuel, asphalt and sulfuric acid, 6 and 10-inch quick coupling systems are used to make the connection / disconnection process of liquid bulk transfer hoses to the ship more secure and efficient; and the use of Break Away System (quick decoupling), for disconnection in case of emergency.	✓
Isokinetic measurements to verify efficiency conditions of dust collectors. On average the results show 99% efficiency.	✓

In addition, the Integrated Operations Center (IOC), which PVSA has maintained for 3 years, controls and monitors the operational variables of the production processes.
Screen applications are continuously developed within the Control System (Industrial Data Center) to benefit operational controls and allow the analysis of variables that directly influence quality, environment, safety, and energy standards.

IOC Main Indicators	
Number of applications processes that are displayed in the IOC are 180. This represents 63% more than the year 2018	✓
Control of main variables of load flow and transfer speed.	✓
Environmental control: supervises the operation of the 18 dust collectors installed in the transfer belts system.	✓
Allows online display of weather information such as wind speed.	✓
Monitor operation processes through a television closed-circuit system. Number of operational cameras are 90 units. This represents 80% more than the year 2018	✓

- Monitoring of energy parameters by ship

Among the new monitoring screen applications, one of them was considered to allow monitoring the energy performance of the copper concentrate shipping process. The monitoring of variables such as energy, power and energy performance are delivered and monitored by the control system to evaluate the instantaneous and final conditions of the process in each ship.

The screen application is shown in the images:

Other Internal Communications

In order to facilitate communication with employees, the company has different means through which information and communication spaces of interest to members of the organization are delivered. Along these lines, a communications committee is successfully developed, which is responsible for generating and facilitating fluid communication with content of interest and providing value for collaborators. Among the internal communication channels are:

- **Magazine "A Bordo"**, which is already 8 years old.
- **Mural newspaper "Puerto Informa"**, which is published monthly and distributed in different parts of the port.
- Use of the social network **"WhatsApp"** to report internal campaigns with news of interest to employees and testimonies that reinforce the sense of belonging and pride of workers.
- **TV screen** for broadcasting videos and audiovisual material

Some of the **Internal Communications** developed include:

Results of the Environmental Contest in the 2 defined categories:

- Category: Environmental Education
- Category: Environmental Improvement and Innovation

PROGRAMA DE CHARLAS 3ERA FERIA DE INNOVACIÓN

Francisco Gazmuri
18 de Diciembre 10:20 hrs.

Innovar o morir

Ingeniero Comercial de la Universidad de Los Andes, con 18 años de progresiva carrera ocupando cargos de alta responsabilidad en el sector público y privado. Líder, formador de equipos, con experiencia en Operaciones y Gestión de Personas. Profesor de Cátedra Emprendimiento y Liderazgo en la Escuela de Economía y Negocios de la Universidad del Desarrollo, Director ejecutivo de la Asociación de Emprendedores en Chile (ASECH).

Lorena Bearzotti
19 de Diciembre 12:00 hrs.

Innovación en Logística Portuaria

Profesor Escuela de Ingeniería en Transporte, Pontificia Universidad Católica de Valparaíso, Chile. Doctor en Ingeniería. FICH-UNL, Santa Fe, Argentina e Ingeniero en Sistemas de Información FRSF-UTN, Santa Fe, Argentina. Su principal línea de información se orienta a la aplicación de las tecnologías de información para las cadenas de suministro, cadena logística portuaria y puertos.

CHRYSALIS

Chrysalis
19 de Diciembre 16:00 hrs.

¿Cómo generar innovación?

La Incubadora de Negocios de la Pontificia Universidad Católica de Valparaíso (PUCV), Chrysalis, ha destacado como una de las organizaciones más activas en el financiamiento y apoyo a emprendimientos dinámicos de alto impacto.

PUERTO VENTANAS S.A. CHILE — ECOPORTS

PRIMER PUERTO VERDE DE CHILE

Sylvio Campos Ortega
20 de diciembre 12:00 hrs.

Liderazgo para la innovación

Ingeniero Civil de la Universidad de Chile, Magíster y Doctor en Comunicación Organizacional Universidad de Málaga de España, es uno de los gestores y mentores del Emprendimiento Innovativo en la Incubadora de Negocios Chrysalis de la Pontificia Universidad Católica de Valparaíso. Fue Director Ejecutivo del Programa de Fomento a la Innovación Tecnológica para la Región de Valparaíso (FITV) y Gerente de Desarrollo Tecnológico y Director Ejecutivo de FONTEC de Corfo.

Gianfranco Marcone O.
20 de diciembre 16:00 hrs.

Chile ante el escenario de Cambio Climático: ¿Qué nos depara el futuro?

Gianfranco cuenta con 15 años de experiencia en la meteorología trabajando en Canal 13 como meteorólogo de planta, posteriormente participa en la creación de empresas del ámbito meteorológico donde Chileweather es su principal y actual proyecto. Es Docente de la Escuela de Recursos Naturales de Duoc UC y Meteorólogo de los programas Mucho Gusto y Ahora Noticias de MEGA.

INPVSA
INspírate | INvolúcrate | INnova

Reserva tu cupo al mail: mario.ibacache@pvsa.cl
WhatsApp: +56 9 6845 1213

Third Puerto Ventanas Innovation Fair.

During the event different exhibitions were held, one of them was dictated by Gianfranco Marcone, whose title was:

"Chile before the Climate Change scenario. What does the future hold?"

Gianfranco Marcone has more than 15 years of experience in meteorology and is a meteorologist on Chilean Television.

International Beach Cleaning Day

Puerto Ventanas joins the change

Energy Efficiency International Day

At Puerto Ventanas we take care of Energy.
We are committed to the efficient use of resources!

World Water Day

Water is our treasure and today more than ever we must be responsible

2.6. EXAMPLES OF THE BEST PRACTICES OR ENVIRONMENTAL MANAGEMENT SOLUTIONS

2.6.1. Practices or environmental management solutions No.1

I. Background

a. *Contact for information:*

- Port of: Puerto Ventanas S.A
- Contact name: Luis Fuentes M.
- Job title/position: Sustainability Manager
- Telephone: +56 – 322272800
- E-mail: luis.fuentes@pvsa.cl

b. *Environmental issue:*

- ✓ Air quality (1)
- ✓ Climate change (energy efficiency, reduction of GHG emissions and adaptation) (5)
- ✓ Relationship with local community (32)
- ✓ Vehicle exhaust emissions (33)

II. Title: Incorporation of electromobility in a Corporate Fleet vehicle

a. *Project Description:*

Reaffirming its commitment to the acquisition of new technologies, energy saving and care for the environment, PVSA joins the world trend in electromobility.
At the beginning of 2019, the first electric car arrived in Puerto Ventanas, bringing the Company in line with the revolution that is taking place globally and which mainly seeks to stop climate change and end high levels of pollution.

Unlike cars that consume fossil fuels, such as gasoline, oil, or gas, **electric cars do not emit CO2**.
They are faster than combustion cars because they work with the force of the magnetic impulse, generating more revolutions per minute.
They are cheaper in terms of energy consumption because electrical energy consumption is less compared to fuel.
Electric cars **have a lower noise level, almost imperceptible vibrations and almost no heat emission.**

The vehicle purchased by PVSA has 0% pollutant emissions, without detracting from the traditional advantages of a vehicle: quality, convenient consumption, a modular and practical design.
This new 100% electric version favors the reduction of the carbon footprint, it has an electric motor that offers first-class dynamic performance, with a power of 49 kW (67HP) and autonomy of 170 km in NEDC cycle (New Driving Cycle European), in addition to a torque of 200 Nm, for greater freedom of action on a day-to-day basis.

The investment made reaches USD 27,425.

In the coming years, the incorporation of more vehicles of this type will be evaluated in order to generating a greater impact in this area.

2.6.2. Practices or environmental management solutions No.2

I. Background

a. *Contact for information:*

- Port of: Puerto Ventanas S.A
- Contact name: Luis Fuentes M.
- Job title/position: Sustainability Manager
- Telephone: +56 – 322272800
- E-mail: luis.fuentes@pvsa.cl

b. *Environmental issue:*

- ✓ Climate change (energy efficiency, reduction of GHG emissions and adaptation) (5)
- ✓ Energy consumption (11)
- ✓ Relationship with local community (32)

II. Title: Optimization of energy use in the Copper Concentrate Reception System

a. *Project Description:*

Removing particulate matter in suspension is essential in every process. However, this can be done efficiently. In order to control and reduce the energy consumption demanded by the copper concentrate dust collection system during the reception of trucks and containers, it was proposed to control a **variable-frequency drive** (**VFD**) with the aim of increasing or reducing the speed of the centrifugal dust fan every time the trucks or containers have been turned over.

Within the system operation, the centrifugal dust fan works at full load at 50Hz most of the time, whether there is material unloading or not.

Control over a **variable-frequency drive** (**VFD**)of the centrifugal dust fan that regulates the operating load of the equipment based on the actual needs for receiving copper concentrate. The system works automatically with the activation of **two ultrasonic sensors** installed in height and position perpendicular to the container, which will make the system work at 50Hz, or conversely at 25Hz when there is no container.

Estimated reduction in (kWh / year) is 190.000 and avoided costs could reach USD 22,800

The initial investment was USD 21.000.