

PORT OF FERROL COAL TERMINAL



ENVIRONMENTAL DECLARATION
2004



CONTENTS

	Page
0. Letter of presentation	3
1. INTRODUCTION	4
2. DESCRIPTION OF THE FACILITIES	5
3. QUALITY AND ENVIRONMENT POLICY	9
4. ENVIRONMENTAL-MANAGEMENT SYSTEM	11
5. ENVIRONMENTAL INFRASTRUCTURE	13
5.1 Measures to minimise atmospheric emissions	13
5.2 Integrated Water Management	17
5.3 Measures for appropriate waste management	18
6. ENVIRONMENTAL ISSUES	19
7. ENVIRONMENTAL BEHAVIOUR	22
7.1 Consumption of resources	22
7.2 Coal-dust immission	25
7.3 Effluent from the water-treatment plant	27
7.4 Noise	37
7.5 Waste	39
8. ENVIRONMENTAL GOALS AND TARGETS	40
8.1 Environmental goals and targets for 2004	40
8.2 Environmental goals and targets for 2005	43
9. DATE OF NEXT DECLARATION	45

[An ink stamp of AENOR, the Spanish Standardisation and Certification Association appears on the bottom of each page from page 2–45, dated 17 May 2005]

The steps taken by Endesa with regard to the company's commitment towards sustainable development include the implementation and certification of environmental-management systems (EMSs) at its facilities.

The implementation and certification of an integrated quality and environmental management system at the Port of Ferrol coal terminal, in accordance with the international standards ISO 9001 and ISO 14001, respectively, and the EMAS Regulation (CE 76112001) falls within the



Corporate Programmes included in Endesa's Strategic Environmental and Sustainable Development Plan 2003–2007.

In relation to the EMS implemented under EMAS, which focuses on achieving continuous improvement in environmental behaviour, Endesa's coal terminal at the Port of Ferrol publishes this Environmental Declaration, containing information on the environmental behaviour of the facility and the environmental impact of its activities.

With this declaration, Endesa's coal terminal at the Port of Ferrol further confirms its commitment to sustainable development and makes information available for all stakeholders on the environmental issues and impact of its activities.

A handwritten signature in blue ink, appearing to read 'Juan Colorea Ibáñez', written over a horizontal line.

Juan Colorea Ibáñez
Representative of Endesa Generación



1. INTRODUCTION

Endesa's coal terminal at the Port of Ferrol was commissioned in 1995 to address the demand for imported coal for Endesa's power station at As Pontes de García Rodríguez.

Currently, annual traffic of approximately 3,000,000 tonnes of sub-bituminous coal passes through the terminal, transported on Panamax-type ships (65,000-tonne load capacity), most of which began their voyages in Indonesia or the eastern United States.

The purpose of the terminal is the unloading of coal from these ships, temporary storage of the coal and loading the coal onto trucks for transport to As Pontes power station, with an average traffic of 15,000 tonnes per day and a fleet of approximately 115 vehicles.

PLANT DETAILS:

ENDESA – PORT OF FERROL COAL TERMINAL

- Address: **MUELLE NUEVO, S/N**
- Town/city: **FERROL**
- Postcode: **15401**
- Province: **A CORUÑA**
- Tel.: **+ 34 981 300 410**
- Fax: **+ 34 981 300 411**
- Personnel: **13 Endesa employees**
150 contractors' employees

2. DESCRIPTION OF THE FACILITIES

The Port of Ferrol coal terminal occupies a total area of approximately 24,532 m², of which 24.332 m² is used for the temporary storage of coal and the facilities and services necessary for the operation of the terminal, plus a 300-square-metre scale area for weighing trucks. The terminal was built in 1995.

EQUIPMENT AT THE COAL-TERMINAL FACILITIES:

- Continuous direct unloader from the ship to the coal mound.
- Coal storage with capacity for 60,000 t (up to 100,000 t in exceptional cases), equipped with drainage system, retaining walls, watering system and wind screens protecting the entire height of the mound, to avoid dust emissions during the most adverse weather conditions.



- Truck-washing system sited before the exit from the terminal to avoid dust emissions during transport.
 - Truck-weighing and control system.
 - Treatment plant for effluents from the terminal.
 - Electrical installation
 - Firefighting and access-control system.
 - Services building
 - Weather station
- **CONTINUOUS UNLOADER DIRECT FROM THE SHIP TO THE COAL MOUND**

This device basically consists of a bucket hoist mounted on a mobile boom to access the holds of the ships, which transfers the coal directly onto a series of conveyor belts to transport the coal to the storage area. All this equipment is mounted on a mobile gantry that moves along the length of the quayside.

The use of this machinery means that coal to be unloaded and transported to the mound with minimum dust emission, thanks to the environmental-protection systems installed.

- **COAL STORAGE**

The coal-storage area occupies an area of 14.600 m² parallel to the quayside, with a mound 16 m high, enabling up to 60,000 t to be stored (up to 100,000 t in exceptional circumstances).

The entire perimeter of the coal-storage area is closed off by a concrete wall 2 m high. Wind screens, 18 m high (i.e. 2 m higher than the coal mound itself), run for 80 m along the east and west sides of the perimeter wall. The area also has an exterior runoff-water collection channel, 1.50 m wide and varying in depth, sized to handle maximum rainfall of 151/h.m², functioning free fall at a speed of 1m/seg. This channel discharges into the wastewater tank at the treatment plant.

- **TRUCK-WASHING SYSTEM**

Before the trucks leave the terminal they pass through the washing area, where a spray system using water from the treatment plant removes any coal dust stuck to the outside of the vehicle.

This washing area has a drainage system that collects the runoff water to be pumped back to the treatment plant.





- **TRUCK-WEIGHING AND CONTROL SYSTEM**

Access to the terminal entrance is controlled by an optical reader and cameras to identify all vehicles and persons entering the terminal.

A weighing system is located at the exit from the terminal for the coal-transport trucks, connected to a computer system that identifies and records the data for each truck before issuing the corresponding exit ticket. Any truck weighing more than the legal limit is not allowed to leave the terminal.

The data collected by this weighing system is processed by the terminal's central computer, which automatically compiles a full record of the coal shipped at any time.

- **WATER-TREATMENT PLANT**

All waste and runoff waters generated at the terminal are channelled to the wastewater tank and subsequently treated at the water-treatment plant for reuse or dumping.

- **ELECTRICAL INSTALLATION**

The power supply is received at 20 KV and then fed to the terminal equipment from the transformer and distribution units.

The fire-fighting and uninterrupted-power systems, to be used in the event of power failures, are equipped with an emergency diesel-powered generator, with a power rating of 300 KVA, at 380/220 V and 50 Hz.



- **SERVICES BUILDING**

The terminal has the following services facilities:

- Administration and staff changing-room buildings. The control and operation personnel's offices are located inside the terminal building.

The terminal building also contains an area accessible from the exterior for staff changing-room and toilet facilities.

- Workshops and storage areas for equipment repairs and maintenance: the workshops and storage areas for the repair and maintenance of the equipment and facilities are located in a separate building, 28 x 16 m² y 7 m high, to enable parts to be moved freely inside the building using a 10-tonne bridge crane.

- **WEATHER STATION**

A weather station is located on the roof of the terminal building to record and transmit the relevant meteorological and environmental parameters to the computer in order for the terminal to operate under conditions of optimal safety, triggering the watering systems as necessary to minimise the emission of coal dust.



3. QUALITY AND ENVIRONMENT POLICY

The strategic goal of the management of the Port of Ferrol coal terminal is to provide a service with levels of quality and environmental responsibility in accordance with its clients' needs and the those of the environment in which it is located.

The management of the Port of Ferrol coal terminal fully accepts Endesa's Environmental Commitment and Code of Conduct as applicable, including the following commitments:

- Satisfy clients' expectations with regard not only to specified requirements but also to others not explicitly fixed, while maintaining maximum respect for the environment in all activities at the terminal.
- Assure permanent compliance with the applicable environmental legislation, requirements and commitments, regularly reviewing the environmental behaviour and safety of the facilities.
- Develop actions to prevent, eliminate and minimise the environmental impact of the terminal's activities, making rational use of resources and reducing as much as possible the production waste, emissions and effluents.
- Strive to achieve continuous, reasonable improvement of the quality of the terminal's services and its environmental behaviour.
- Provide the organisational structure with appropriate human and material resources to meet the above commitments, including the prevention of pollution, within the scope of its powers and resources.

The management of the Port of Ferrol coal terminal further refines the definition of its quality and environmental policy with the following action principles.

- Permanently assess and supervise the environmental repercussions of the coal terminal.



- Implement an integrated quality and environmental management system to foster and assure the participation and involvement of all personnel at the terminal in the maintenance of the quality and environmental policy.
- Disseminate the quality and environmental policy among all the terminal's personnel and implement appropriate training schemes, enforcing worker participation.
- Develop a management programme for the terminal, including specific quality and environmental goals and targets based on the quality and environmental policy, defining the actions to be taken to reach these goals and facilitating the review of these targets and actions
- Carry out regular audits and reviews of the integrated quality and environmental management system, implementing any mechanisms necessary in the event of any incompliance.
- Regularly publish the environmental declaration to report on the terminal's environmental behaviour, environmental and quality policy, integrated quality and environmental management system, environmental goals and any significant related issues.
- Assess in advance any repercussions on the quality of the service rendered and the environment of any changes or alterations made to the terminal's facilities.
- Work with the local and port authorities towards enhancing the terminals' environmental performance.
- Take appropriate measures to ensure that suppliers and contactors related to the terminal area aware of and apply the environment- and quality-related standards in force at the Port of Ferrol coal terminal.

Fernando Vázquez Vázquez
Coal Terminal Manager



4. ENVIRONMENTAL MANAGEMENT SYSTEM

The Port of Ferrol coal terminal has implemented an integrated management system (IMS), including the environmental-management system under the UNE EN ISO 14001:2004 standard and the quality-management system under UNE EN ISO 9001:2000.

The IMS implemented is based on the quality and environmental policy to ensure that environmental management at Endesa's coal terminal is carried out in accordance with international environmental standards, assuring continuous improvement of its environmental behaviour via the goals and targets of its management programme.

The IMS at the Port of Ferrol coal terminal, which includes all the resources necessary to establish and implement the quality and environmental policy, consists of:

- Organisational structure:** definition of responsibilities for people whose work directly or indirectly affects the environmental behaviour of the coal terminal.
- Identification, access and updating of legal and other requirements:** via a specific procedure to identify, access and update legal and other applicable requirements associated with environmental issues related to its facilities, activities and services.
- IMS documents:** consisting of the IMS manual, procedures and technical instructions, and the corresponding associated records.
- Environmental goals and targets. Management programme:** objectives that the terminal aspires to reach within the framework of continuous improvement of environmental behaviour, allocating specific resources, assigning persons in charge and fixing deadlines accordingly, as set out in the management programme.
- Communication:** a procedure is in place covering internal and external communications.



- Auditing:** systematic, documented, objective assessment carried out to determine whether the terminal's IMS and environmental behaviour meet the requirements set out in the IMS documents implemented and the applicable standards.

- Management review:** carried out annually to verify the effectiveness of the IMS and continuously improve the environmental behaviour of the terminal.



5. ENVIRONMENTAL INFRASTRUCTURE

The terminal is equipped with environmental-protection equipment to monitor noise and dust emissions into the atmosphere, recover the coal carried by runoff water, reuse treated waters as industrial water for the terminal's processes and control effluent emissions into the sea.

The terminal's operations personnel work with a high degree of multitasking, being responsible for the operation and maintenance of the key equipment while supervising and monitoring the auxiliary firms involved in different stages of the process.

The current measures and management practices aimed towards minimising the environmental impact of activities at the terminal are described below.

5.1 Measures to minimise atmospheric emissions

5.1.1 Minimisation of coal-dust emissions

a) Sealed handling equipment:

The coal is protected against being blown away by the wind all the way from the ship's hold to the storage yard.

b) Side wind screens

Following studies and calculations of sizes and locations, wind screens were installed to minimise dust emissions caused by the wind. The efficiency of these screens is due to their ability to reduce local wind speeds acting on the coal mound by up to 50%, thereby avoiding dispersion, and any particles that are carried by the wind are retained within the terminal complex by the screens.

The screens also serve to contain the coal mound, as well as acting as a sound and visual barrier by partially hiding the mound and facilities from view.

These installations, combined with the practice of watering the coal mound whenever weather conditions are unfavourable, have allowed the emission of coal dust from the terminal to be avoided.



c) Watering system

Watering the coal is a common practice wherever coal is handled and stored. Its effectiveness is based on the fact that moistened coal dust requires a much higher wind speed in order to be blown away.

The moistening system used consists of six cannons sited on the perimeter ring surrounding the coal-handling and storage area. These cannons moisten the mound and coal-handling surface, thereby avoiding dust being blown away during the plant and vehicle manoeuvres.

The catering cannons are controlled from a panel in the control room of the terminal building, allowing the length, direction and spray of the water jet to be controlled.

Tanker trucks fitted with watering systems and a lance are also used to clean roads, water the coal-handling systems and deal with any emission sources that may occasionally arise.

Additionally, water hydrants are available to allow flexible hoses to be coupled quickly for direct use by the workers at the terminal.

The continuous unloader is also fitted with its own moistening system, which can be used throughout the entire unloading process if necessary.

d) Operational measures

In extreme weather conditions additional measures are applied.

- Shutdown of the unloader and truck-loading with auxiliary machinery when northerly or southerly wind speeds of over 68.4 Km/h are recorded at a height of 30 m, maintaining the area-free pile subjected to mechanical tasks and increasing the frequency of watering.



e) Automatic truck washing

Before leaving the terminal all trucks pass through an automatic washing system to prevent coal dust from being carried and dispersed outside the terminal complex.

f) Covering trailers during transport

Before leaving the terminal all trucks are covered to prevent any coal spills or dust emissions during transport.

g) Preventive measures at source

Addition of a surfactant to the coal load, carried out by the supplier at the port of origin.



5.1.2 Minimisation of noise emissions

a) Machinery used

The auxiliary machinery used at the terminal to load trucks and handle loads complies with all the applicable safety regulations and standards.

All manoeuvres made by the continuous loader are carried out by hydraulic motors, the oil pressure of which is generated by three pressure units housed in soundproofed casings to minimise noise emissions.

b) Operational measures

To reduce the noise generated by vehicle manoeuvres inside the terminal, all heavy machinery and trucks are driven as slowly as possible.

Trucks are loaded inside the area container by the screens and/or perimeter wall around the handling surface, further limiting noise emissions.

In order to minimise noise and coal-dust emissions, the companies involved in the handling and transport of coal have been issued with "Loading Rules", which specify a number of measures to be taken in order to reduce the impact generated by the companies' activities inside the coal terminal facilities.



5.2 Integrated Water Management

- **Rainwater-drainage system**

A perimeter open-channel system surrounds the complex, between the roads and protective wall. This perimeter channel receives waters drained off from the interior area as well as the quayside and side roads.

On the north side of the terminal the channel is linked to the wastewater tank of the treatment plant.

These channels act as primary decanters and store coal deposits, which are regularly collected by a vacuum truck to be returned to the coal mound.

- **Water re-use and treatment**

Drainage waters are treated by decanting in the clarifier, which functions at an adjustable flow rate up to 70 m³/h. The decanter/clarifier is of the reactivating type, with a flocculation chamber and the option of internal sludge recirculation. Coal sludge is pumped to the decanting pools, from where the coal is extracted to be returned to the coal mound.

The resulting water is reused as industrial water to wash trucks and for anti-pollution watering.

- **Effluents from the coal terminal**

During prolonged periods of heavy rainfall, more treated water is produced than can be stored or used by the processes at the terminal. This surplus treated water is released into the Ferrol estuary via an undersea outlet pipe, in accordance with the effluent licence issued by the Aguas de Galicia basin authority on 27 May 2003 (registration key DH.V15.8936).



5.3 Measures for appropriate waste management

Appropriate waste management is assured by segregating waste into separate containers for the different kinds of waste generated at the terminal. These containers are identified by signs to ensure that all personnel are aware of where each type of waste should go.

The coal terminal is licensed as a small-scale producer of hazardous waste and has delimited a special area for the temporary storage of such waste for periods of under six months until it is collected by an authorised waste-management firm.



6. ENVIRONMENTAL ISSUES

The coal terminal has identified the direct and indirect environmental issues raised by its activities and services to determine which ones have or could have significant environmental impact.

Direct environmental issue: generated as a result of organisational activities and over which management control can be exercised.

Indirect environmental issue: generated as a result of how activities transpire and over which full management control cannot be exercised.

Environmental issues are identified taking into account a number of factors, including the following:

- The Port of Ferrol coal terminal's quality and environmental policy
- Applicable environmental legislation and requirements under voluntarily assumed commitments
- New projects and changes
- Activities undertaken by subcontractors

Environmental issues are assessed both under normal operating conditions and in emergency situations and abnormal operating conditions.

The criteria taken into consideration when it comes to assessing the significance of environmental issues under normal conditions are magnitude and hazardousness. Magnitude refers to the quantity, volume or concentration of the effect of the issue, whereas hazardousness refers to the level of toxicity, effect or innocuousness of the effect on human beings, animals or the environment in which the issue-generating activity takes place. Environmental issues under abnormal and emergency conditions are assessed by taking into account the frequency or periodicity of the abnormal or emergency situation that generates the environmental issue and its consequences (i.e. environmental damage or incidents caused by the situation).

The following table shows the environmental issues identified in 2004, indicating which of them were found to be significant.



ENVIRONMENTAL ISSUE	D/I(1)	GENERATING ACTIVITY	IMPACT	OPERATING CONDITION N/A/E(2)	ASSESSMENT RESULT S/N(3)
Water consumption	D	Coal-mound watering, wheel washing, clearing, etc.	Exhaustion of natural resources	N	N
Electricity consumption	D	Power supply for the terminal as a whole	Exhaustion of natural resources	N	N
Fuel consumption	D	Vehicles, auxiliary diesel generator units	Exhaustion of natural resources	N	N
Paper consumption	D	Offices	Exhaustion of natural resources	N	N
Toner consumption	D	Offices	Potential pollution of water and soil	N	N
Effluent from the water-treatment plant	D	Water-treatment plant	Deterioration of quality of the aquatic medium	N	N
pH					N
Colour					N
Solids in suspension					N
DQO _{TOTAL}					N
DBO ₅					N
Oil and grease					N
Dissolved cadmium					N
Dissolved lead					N
Quality of the receptor medium					I
pH	N				
Colour	N				
Solids in suspension	N				
Oil and grease	N				
Dissolved cadmium	N				
Dissolved lead	N				
Faecal coliforms	N				
Faecal streptococcus	N				
Total coliforms	N				
Control of sediments and organisms	I	Water-treatment plant	Deterioration of quality of the sea bed	N	N
Emission of sedimentation particles	D	Coal handling	Deterioration of air quality	N	N
Emission of particles in suspension	D	Coal handling	Deterioration of air quality	N	N
Hazardous waste	D	Maintenance	Potential pollution of water and soil	N	S(4)
Non-hazardous waste	D	Maintenance and offices	Potential pollution of water and soil	N	S(4)
Solid waste	D	Maintenance and offices	Potential pollution of water and soil	N	S(4)

(1) D DIRECT I= INDIRECT

(2) N = NORMAL A= ABNORMAL E= EMERGENCY

(3) S= SIGNIFICANT N= INSIGNIFICANT

(4) Since no historical data is available, the assessment technique used for environmental issues considers significant aspects.



ENVIRONMENTAL ISSUE	D/I(1)	GENERATING ACTIVITY	IMPACT	OPERATING CONDITION N/A/E(2)	ASSESSMENT RESULT S/N(3)
Day-time noise	D	Loading and unloading coal onto/from trucks	Local nuisance	N	N
Night-time noise	D	Unloading coal	Local nuisance	N	S
Coal transport	I	Vehicles	Deterioration of fair quality and local nuisance	N	N
Subcontractors and suppliers' environmental behaviour and practices	I	Contractors, subcontractors and suppliers	Exhaustion of natural resources, potential pollution of the atmosphere, water and soil	N	N
Atmospheric emissions	D	Coal-mound fire	Deterioration of air quality	E	N
Dumping of hazardous substances	D	Coal-mound fire	Deterioration of water quality	E	N
Atmospheric emissions	D	Fire at facilities	Deterioration of air quality	E	N
Dumping of hazardous substances	D	Fire at facilities	Deterioration of water quality	E	N
Generation of hazardous waste	D	Fire at facilities	Pollution of water and soil	E	N
Atmospheric emissions	D	Unloader fire	Deterioration of air quality	E	N
Dumping of hazardous substances	D	Unloader fire	Pollution of water	E	N
Dumping coal into the sea	D	Water-treatment plant failure	Deterioration of water quality	E	N
Dumping coal into the sea	D	Unloader failure	Deterioration of water quality	E	N
Dumping of hazardous substances	D	Spillage of hazardous substances	Deterioration of water quality	E	N
Dumping of hazardous substances	D	Flooding of terminal building	Deterioration of water quality	A	N
Generation of non-hazardous waste	D	Flooding of terminal building	Pollution of water and soil	A	N
Generation of hazardous waste	D	Flooding of terminal building	Pollution of water and soil	A	N
Generation of non-hazardous waste	D	Changing unloader chains	Potential pollution of water and soil	A	N
Generation of hazardous waste	D	Changing unloader oil	Pollution of water and soil	A	N
Generation of hazardous waste	D	Works at facilities	Pollution of water and soil	A	N
Generation of non-hazardous waste	D	Works at facilities	Pollution of water and soil	A	N

(1) D DIRECT I= INDIRECT

(2) N = NORMAL A= ABNORMAL E= EMERGENCY

(3) S= SIGNIFICANT N= INSIGNIFICANT



7. ENVIRONMENTAL BEHAVIOUR

7.1 Consumption of resources

7.1.1 Water

The water consumed at the coal terminal is obtained from the following formula:

$$A_c/m^3 = (A_t + A_r) - A_v$$

A_c = water consumed (m^3)

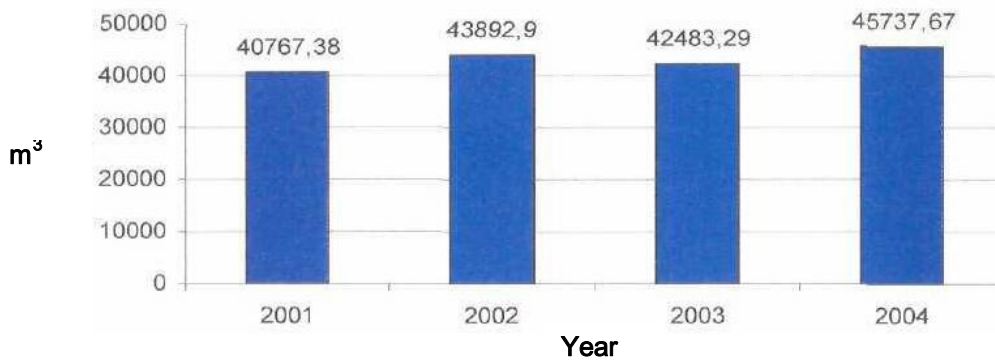
A_t = water treated (m^3) at the terminal's effluent-treatment plant

A_r = mains water supply (m)

A_v = water dumped (m^3) after treatment at the water-treatment plant

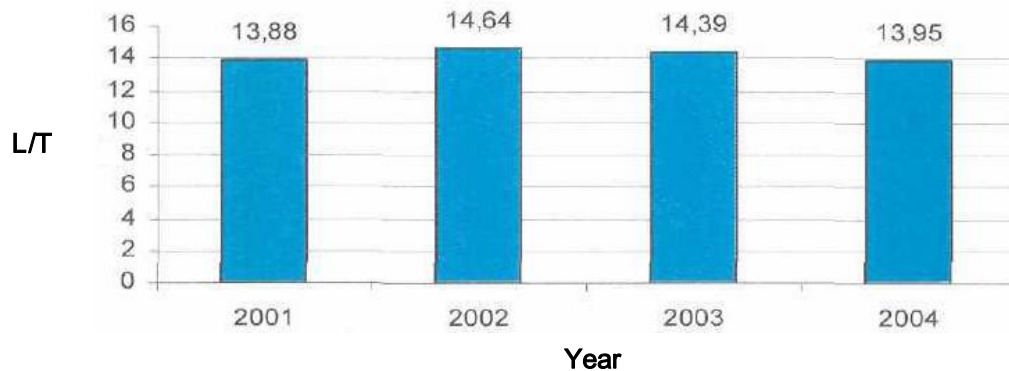
The water consumption (m^3) at the coal-terminal facilities is shown in the following graph:

m^3 of water consumed at the coal terminal



The following graph shows the water consumed (L) per tonne of coal handled:

L/T consumed at the coal terminal

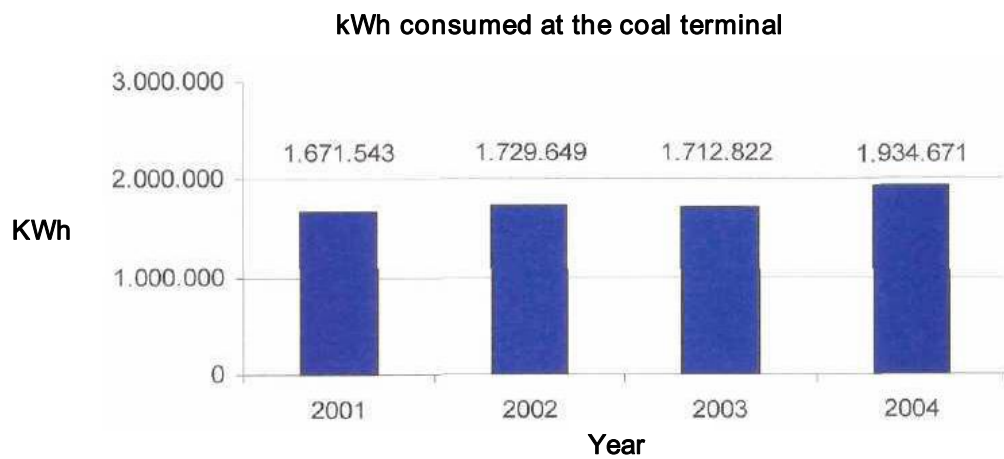




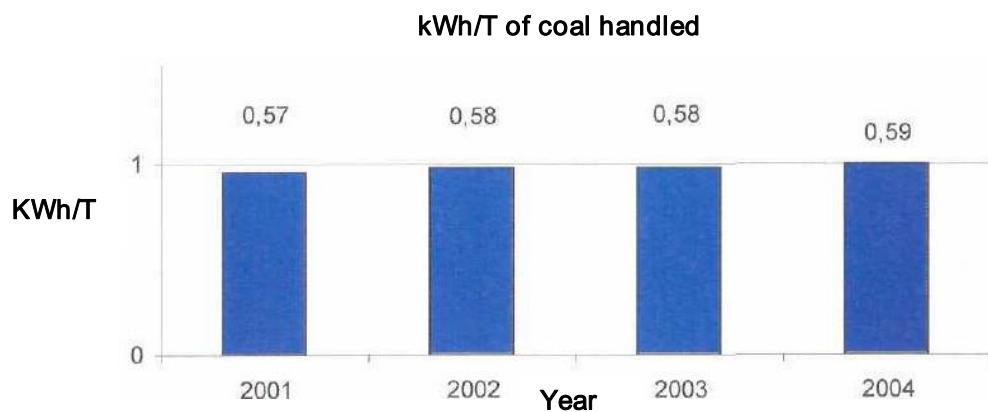
Since the coal terminal’s demand for water consumption is linked to weather conditions, such as the wind speed and sunlight — both of which are totally uncontrollable — the LIT water-consumption indicator enables checks to be made to ensure that water consumption remains within a certain range, although a reduction in water consumption cannot be fixed as a target, since it depends so heavily on the weather.

7.1.2 Electricity

Electricity consumption (kW/h) at the coal terminal in recent years is shown in the following graph:



The following graph shows the electricity consumption as kWh/T of coal handled:

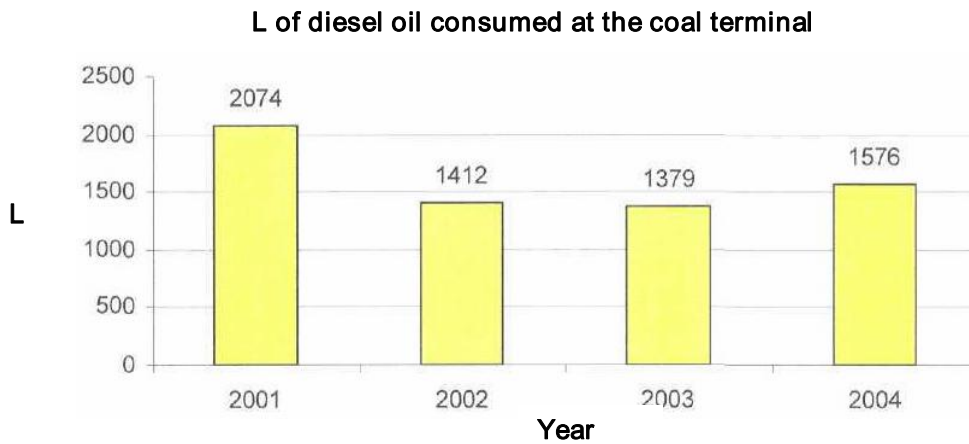


As these graphs show, in recent years the kWh/T of coal handled ratio has stayed within a narrow range of values. Consequently, this parameter may be considered to have remained constant over the last few years.



7.1.3 Fuel

The fuel used at the coal terminal is diesel oil; consumption in recent years is shown in the following graph:



The fuel is used to power the hoist, services van and auxiliary diesel-powered generator units.

7.1.4 Paper

In 2004 a total of 150 Kg of paper was consumed at the coal-terminal offices. No historical is available for the purposes of comparison, since the supply of paper comes from Endesa's storage facilities at As Pontes. Following the implementation of the integrated quality and environmental management system (IMS) the amount of paper consumed is now recorded, and this data will always be provided in the future.



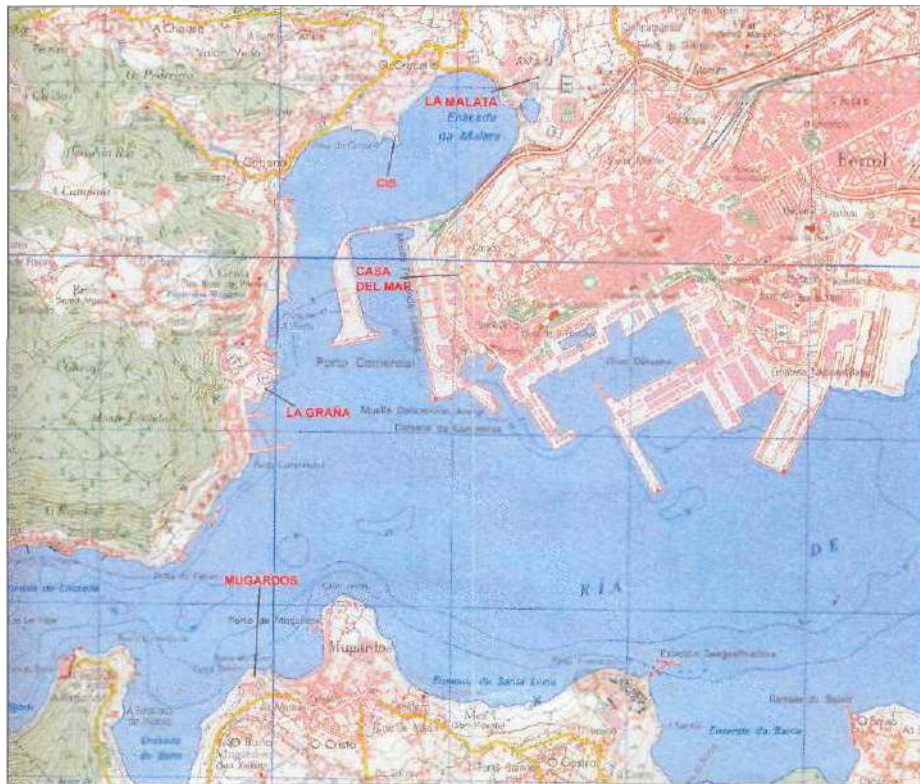
7.2 Coal-dust immission

The Port of Ferrol coal terminal has voluntarily installed an atmospheric surveillance network to control the air quality of the surrounding area. This network consists of:

- 5 control stations for sedimentation emissions (standard gauge)
- 2 control stations for particles in suspension (low-volume traps)

Sampling and analysis is carried out by an authorised control organisation. All the equipment making up the network meets the requirements stipulated by the relevant legislation (the order of 10 August 1976 on technical standards for the analysis and valuation of chemical pollutants).

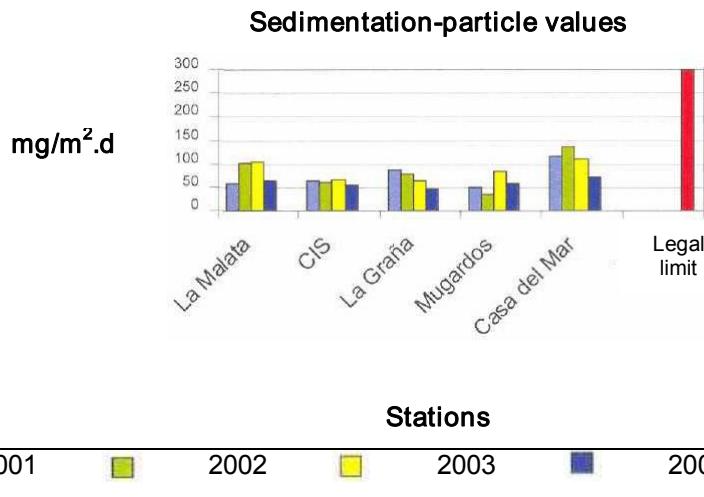
The following map¹ shows the spatial distribution of the control points described.



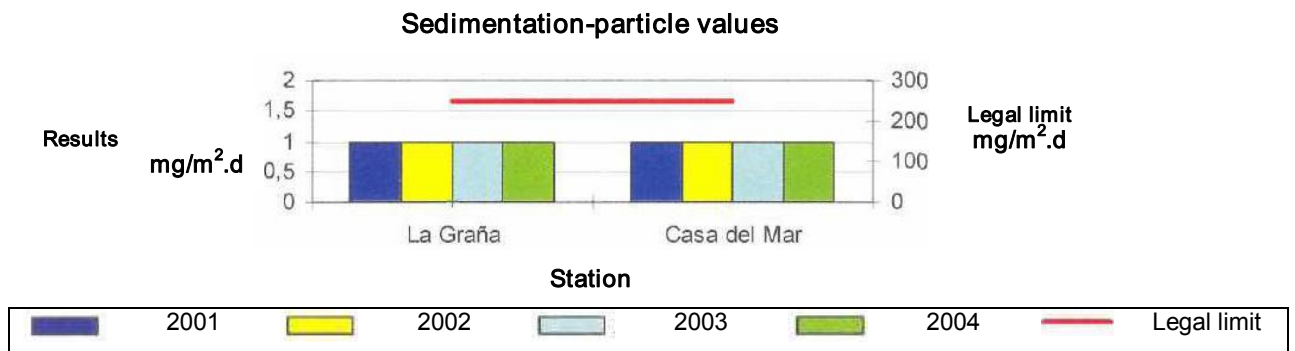
¹Source: National survey map. Scale 1:25000_II FERROL



The following graphs show the data collected from the control stations for sedimentation particles and particles in suspension. The data shown corresponds to the mean of the monthly values obtained at each air-quality control station. As can be seen, all the values are considerably below the legally fixed limit (300 mg/m².d)².



The following graph shows the data obtained for particles in suspension. Considering the results obtained, we find that all the values are below the applicable limit value³ of 250 mg/m².d, which may not be exceeded for more than three consecutive days.



² Annex | Point 7 Decree No. 833/75 (6 February 1975), developing the Atmospheric Protection Act 1972 (No. 38/72, 22 December 1972).

³ Given the lack of fixed limit values in the current legislation for 24-hour sampling periods, the limit level of 250 mg/m².d is assumed (Table B of Royal Decree No. 1312/92).



7.3 Effluents from the water-treatment plant

Under the effluent licence⁴ granted to the Port of Ferrol coal terminal, controls of the quality of the effluent released from the effluent-treatment plant at the terminal, the quality of the receiving medium (Ferrol estuary) and annual control of sediments and organisms are carried out by an authorised control organisation

Thanks to the integrated water management implemented at the terminal (see section 5.2), the water obtained at the water-treatment plant is reused in the production process itself. Only during extended periods of heavy rainfall, when the water-storage capacity of the facilities at the treatment plant is exceeded, is any effluent released. Effluent releases by the Port of Ferrol coal terminal may therefore be said to be only occasional, depending on the rainfall at any given time of the year.

⁴ Effluent licence dated 27 May 2003, registration key DH.V15.8936.



7.3.1 Liquid effluents from the terminal

The mean values for the parameters controlled at the outlet from the coal terminal's effluent-treatment plant for 2003 and 2004 were as follows:

PARAMETER	2003	2004	Effluent licence limit value
pH	7.91	8,51	5.5–9.5
Flow rate (m ³)	12.872,87	5.498,77	25,200
Colour (dilution units)	Not appreciable in 1/2 dissolution	Not appreciable in 1/3 dissolution	Not appreciable in 1/20 dissolution
Solids in suspension (mg/L)	7	6	80
DQO _{total} (mg/L)	22	15	160
DBO ₅ (mg/L)	7.5	4	40
Oil and grease (mg/L)	2.5	0.5	20
Dissolved cadmium (mg/L)	<0.0004	<0.0004	0.2
Dissolved lead (mg/L)	<0.0004	<0.0004	0.5

As we can see, all the values are considerable lower than the limit values fixed by the effluent licence.



With a view to optimising the efficiency of the water treatment plant, its functioning is closely monitored. In addition to the monitoring required under the effluent licence, the following non-compulsory controls are also carried out at one of Endesa's own laboratories.

- First effluent emission of the month: turbidity, conductivity, iron.
- Second and third emissions of the month: turbidity, conductivity, iron, oil and grease, and solids in suspension.

The following table shows the results for the mean values obtained for the parameters analysed at the Endesa laboratory in recent years.

PARAMETER	2001	2002	2003	2004
Turbidity (ntu)	13.70	12.72	22.91	6.21
Conductivity (mS/cm)	1578.87	1429.15	889.38	2602.62
Iron (mg/L)	<L.D*	<L.D	0.07	0.07
Oil and grease (mg/L)	<L.D	<L.D	<L.D	<L.D
Solids in suspension (mg/L)	12.99	12.59	14.10	10.25
pH (pH units)	7.91	7.28	7.32	7.68

*L.D= lower than detection limit



While the effluent licence was being processed, the coal terminal monitored the quality of the water being dumped. The annual mean figures recorded in recent years were as follows:

PARAMETER	2001	2002	2003	RD 849/86 LIMIT VALUE (Table 1)
Effluent flow rate (m ³)	14213.48	13536.25	12872.87	Not regulated
pH (pH units)	7.73	7.2	7.62	5.5–9.5
Solids in suspension (mg/L)	8.67	6	8.13	300
DQO (mg/L)	18	20	15	500
Fe (mg/L)	0.57	0.11	0.14	10
Oil and grease (mg/L)	1.87	0.2	1.54	40
Solubility (mS/cm)	1412	1320	913	Not regulated

As can be seen from the results shown in these tables, all the values recorded fall within the limit fixed by the applicable legislation.



7.3.2 Quality of the receiving medium

Under the effluent licence controls of the receiving medium must be made twice annually. The sampling points for the quality of the receiving medium are shown in the following table, followed by a location map:

POINT	LOCATION	X (UTM)	Y (UTM)
1	Outlet of the effluent pipe.	560.520	4.814.666
2	On the coastline 50 metres north of the beginning of the effluent pipe.	560.484	4.814.714
3	On the coastline 50 metres south of the beginning of the effluent pipe.	560.508	4.814.624
4	Nearest shellfish area to the effluent site (Ensenada do Baño).	559.375	4.812.500
5	Nearest bathing area to the effluent site.	560.000	4.814.625
6	Unaffected area.	561.250	4.813.750



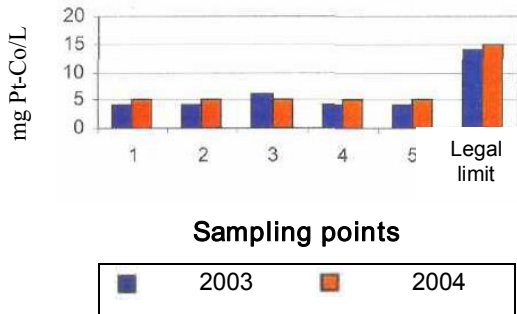
Map showing sampling points of surface-water sampling sites⁵

⁵ Source: National survey map. Scale 1: 25000, II FERROL

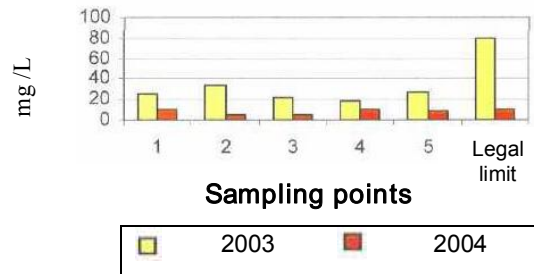


The results of the controls of the quality of the receiving medium obtained for 2003 and 2004 are shown in the following graphs:

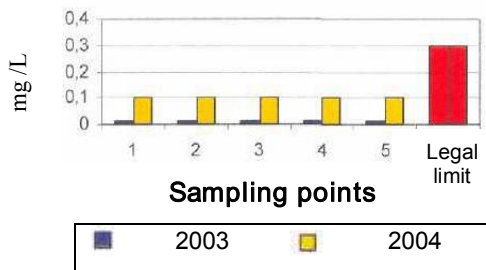
Receiving medium colour values



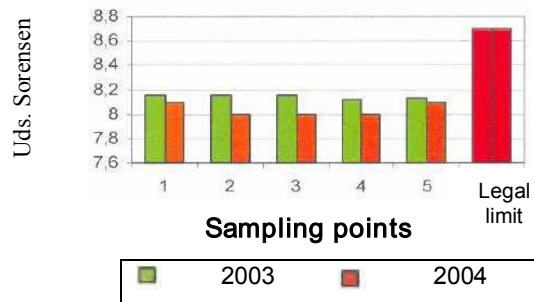
Receiving medium solids-in-suspension values



Receiving medium oil/grease values



Receiving medium pH values

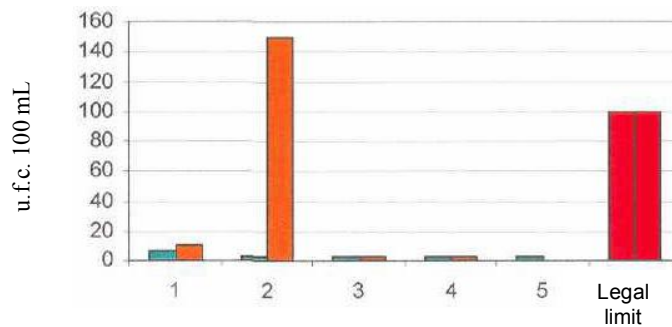


NOTE: Under the applicable legislation (Act No. 8/2001, 2 August 2001, on the protection of the waters of the Galician estuaries and arrangements for the public service for the treatment of urban wastewaters and Royal Decree 345/1993, establishing quality standards for waters and the production of molluscs and other live marine invertebrates, the limit value for the parameters of solids in suspension (mg/L) and colour (mg Pt-Co/L) is established according to the value obtained at a sampling point considered as being unaffected. Consequently, the limit value under consideration for each sample taken will vary depending upon the value obtained at the unaffected site.



The value for faecal coliforms obtained at point 2, located on the coastline 50 metres north of the beginning of the effluent pipe, which is higher than the corresponding fixed limit (150 versus 100 u.f.c. 100 ml) is influenced by other activities outside the coal terminal's control, given the differences in the concentration of micro-organisms found at points 1 and 3, which are located near the outlet of the effluent pipe.

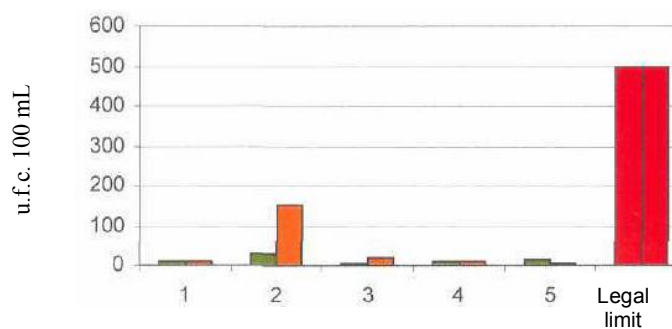
Receiving medium faecal-coliform values



Sampling points

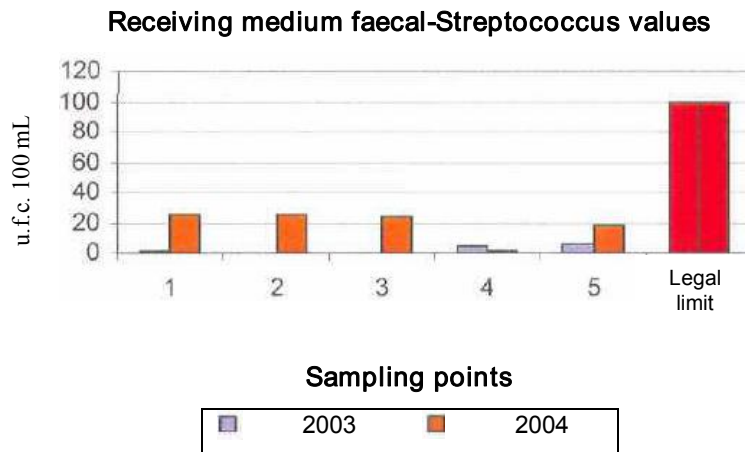


Receiving medium total-coliform values



Sampling points





The values for dissolved cadmium (mg/L) obtained in 2003 from all the sampling points were <0.005 mg/L and in 2004 <0.004 mg/L — i.e. in both cases under the legally established limit⁶ of 0.005 mg/L.

The values for dissolved lead (mg/L) obtained in 2003 from all the sampling points were <0.02 and in 2004 <0.04 — in both cases below the legally established limit⁷ of 0.05 mg/L.

The results obtained from the analyses carried out to monitor the quality of the receiving medium show the negligible influence of operations at the coal terminal, since all the limits fixed under the applicable legislation are complied with (except for one isolated value obtained for faecal coliforms, which was influenced by factors beyond the terminal's control).

⁶ Act No. 8/2001 (2 August 2001), on the protection of the waters of the Galician estuaries and arrangements for the public service for the treatment of urban wastewaters.



7.3.3 Control of sediments and organisms

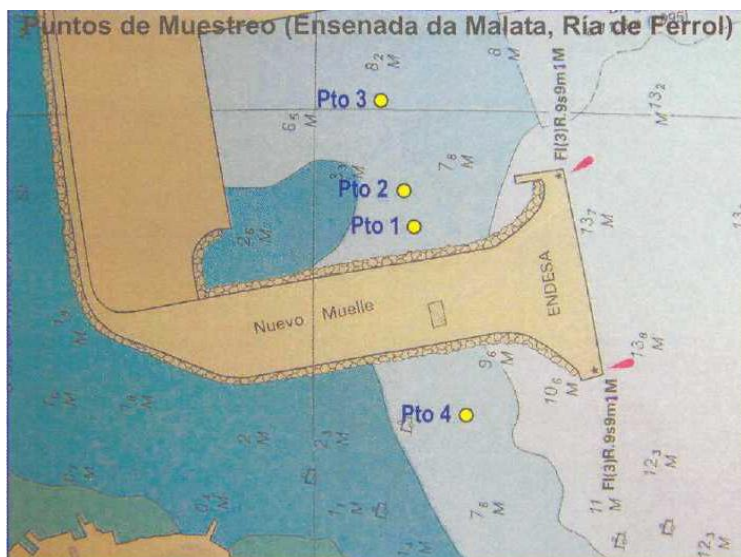
With a view to assessing the effect of effluents on zoo-Bentonic communities in the area, annual sampling of sediments and organisms is carried out at various representative sites in the area of influence of the effluents released by the coal terminal, under the terms of the effluent licence.

The sampling area is the Ensenada da Malata (Ferrol Estuary) at four sea-bed stations close to the coal terminal, numbered 1–4 (see map below). The following table shows the UTM-coordinate data and depth at which the sampling was carried out.

Sampling station	UTM coordinates	Depth
Point 1 (outlet)	X: 560.485 Y: 4.814.718	9.9 m
Point 2	X: 560.503 Y: 4.814.780	8.9 m
Point 3	X: 560.617 Y: 4.814.811	9.9 m
Point 4 (unaffected area)	X: 560.223 Y: 4.814.714	10.7 m

The sampling points for this study are shown on the following plan:

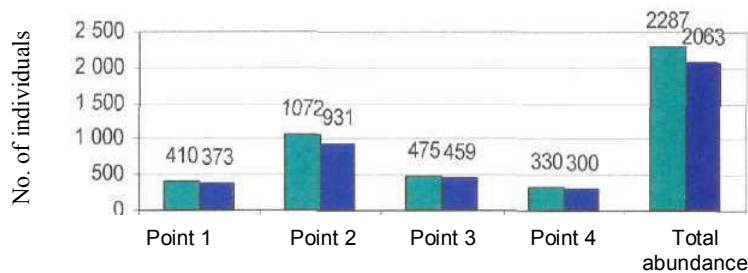
Sampling points (Ensenada da Malata, Ferrol Estuary)





As part of the study to assess and characterise sediments and organisms (zoo-Bentonic characterisation), the taxonomic composition of the sampling stations is analysed, represented as species richness and abundance (number of individuals). The following graphs show the abundance and species-richness data obtained from the sampling carried out in 2003 and 2004 at the various sampling stations.

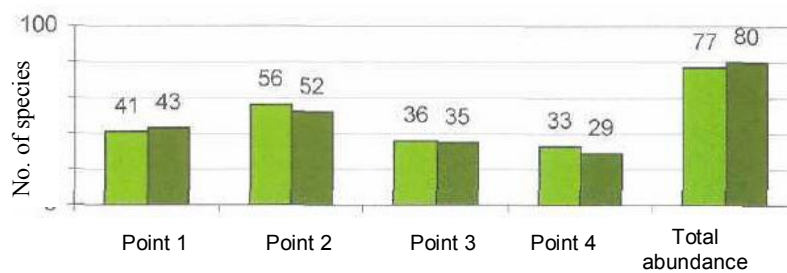
Abundance by station



Stations



Species richness by station



Stations



The results of the zoo-Benthonic-characterisation studies show the negligible influence of effluents from the coal terminal at the potentially most affected site (point 1, located at the outlet of the effluent pipe). This statement is based on the results obtained at point 2, which is barely 65 metres away from point 1, where the highest values for both abundance and species diversity were obtained.



7.4 Noise

The Port of Ferrol coal terminal has implemented operational measures to minimise noise emissions in the area of influence of the complex. The results for sound-pressure levels recorded in the area of La Graña in 2001, 2002, 2003 and 2004 are shown below:

CONTROL DATE	POINT	Sound-pressure level dB(A)		Maximum level	
		Terminal peak hours (day-time)	Terminal peak hours (day-time)	Day-time period (0800–2200)	Night-time period (2200–0800)
02/01/2001	G1 (c/Real Alta)	57.4	54	60 ⁷	55 ⁷
	G2 (Coastline)	54.7	50.7		
19/06/2001	G1 (c/Real Alta)	58.8	51.6		
	G2 (Coastline)	56.3	49.1		
19/12/2001	G1 (c/Real Alta)	59.3	54.4		
	G2 (Coastline)	60.2 ⁸	53.3		
06/03/2002	G1 (c/Real Alta)	59.0	52.2		
	G2 (Coastline)	57.2	52.6		
05/06/2002	G1 (c/Real Alta)	53.7	46.7		
	G2 (Coastline)	53.3	50.6		
03/09/2002	G1 (c/Real Alta)	53.7	48.6		
	G2 (Coastline)	54.2	50.9		
12/12/2002	G1 (c/Real Alta)	52.8	54.0		
	G2 (Coastline)	53.4	53.3		

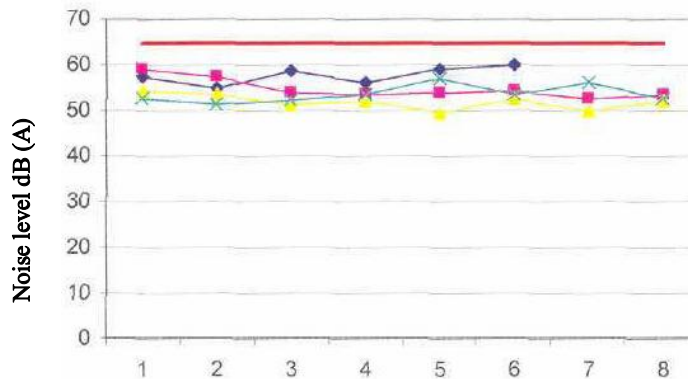
⁷ Maximum noise-reception levels for day-time (65) and night-time (55) under the "Ferrol District Council Municipal Order to Regulate Protection from Atmospheric Pollution by Forms of Energy" (BOP 3/11/1998). This value was increased by 5 dB(A) under section 10(8) of Annex 1 of the Municipal Order, since the coal terminal qualifies as established industrial activity and in accordance with the area in which it is located.

⁸ The value obtained is influenced by activities beyond the coal terminal's control (vehicle traffic in A Graña).



CONTROL DATE	POINT	Sound-pressure level dB(A)		Maximum level			
		Terminal peak hours (day-time)	Terminal peak hours (day-time)				
25/03/2003	G1 (c/ Real Alta)	54.2	52.1	60 ⁷	55 ⁷		
	G2 (Coastline)	53.6	53.1				
05/06/2003	G1 (c/ Real Alta)	51.3	51.4				
	G2 (Coastline)	52.2	54.2				
12/09/2003	G1 (c/ Real Alta)	49.5	50.5				
	G2 (Coastline)	52.6	52.4				
22/12/2003	G1 (c/ Real Alta)	50.1	49.5				
	G2 (Coastline)	52.3	52.0				
16/03/2004	G1 (c/ Real Alta)	52.7	51				
	G2 (Coastline)	51.3	51.6				
24/06/2004	G1 (c/ Real Alta)	52	51.7				
	G2 (Coastline)	53.6	53.6				
09/09/2004	G1 (c/ Real Alta)	57	51.2				
	G2 (Coastline)	53.6	48.7				
29/12/2004	G1 (c/ Real Alta)	55.9	52 ⁹			60 ¹⁰	50 ¹⁰
	G2 (Coastline)	52.8	48				

Day-time noise levels



Measurements taken at La Graña

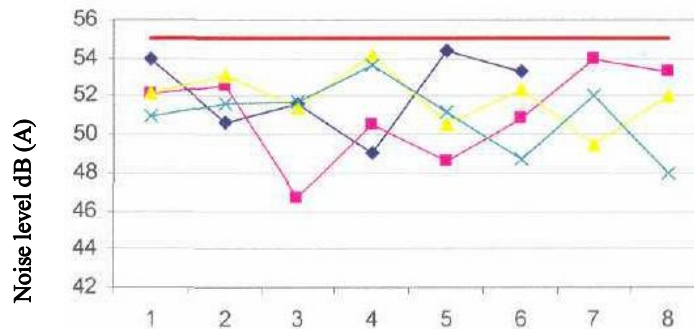


⁹ The value obtained is influenced by activities beyond the coal terminal's control (vehicle traffic in A Graña).

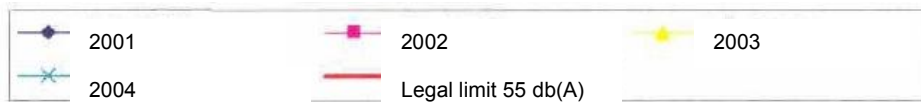
¹⁰ Maximum noise-reception levels for day-time and night-time under the amendment to the "Ferrol District Council Municipal Order to Regulate Protection from Atmospheric Pollution by Forms of Energy" (BOP No. 220, 22/09/2004). This value was increased by 5 dB(A) under section 10(8) of Annex 1 of the Municipal Order, since the coal terminal qualifies as established industrial activity and in accordance with the area in which it is located.



Night-time noise levels



Measurements taken at La Graña



As can be seen, at no point are the legally fixed limits exceeded either for day-time or night-time noise levels.

7.5 Waste

The production of hazardous waste in 2004 was 3,000 Kg of oil and 80 Kg of absorbent material impregnated with hazardous substances.

The amount of non-hazardous industrial waste generated at the terminal in 2004, including scrap metal, was 15,632 Kg.

In 2004 928 Kg of solid waste equivalent to urban waste was generated.

No historical data is available for waste production. In future years this data will be provided for the purposes of comparison.



8. ENVIRONMENTAL GOALS AND TARGETS

8.1 Environmental goals and targets 2004

OBJETIVO	METAS/PLAZOS	RESPONSABLE	MEDIOS
<p>Mejorar la segregación de residuos</p> <p><u>OBJETIVO LOGRADO</u></p>	1. Se detecta deficiencia en la segregación de residuos y por tanto se planifica la adquisición de nuevos contenedores para optimizar la segregación en origen/Abril 2004.	1. Responsable de la Terminal de Carbón.	<ul style="list-style-type: none"> - Contenedores - Carteles - Tabiques metálicos - Herramientas
	2. Solicitud de pedido y compra de contenedores específicos para plásticos y envases, residuos orgánicos, papel y cartón/Junio 2004.	2. Responsable de la Terminal de Carbón	
	3. Colocación y señalización de los contenedores mediante carteles identificativos/Agosto 2004.	3. Especialistas y Profesionales de Terminal Portuaria	
	4. Comunicación a los empleados/Agosto 2004.	4. Técnico de los Sistemas de Gestión	
	5. Construcción y montaje de tabiques metálicos de separación entre zonas de almacenamiento de residuos industriales no peligrosos/Agosto 2004.	5. Especialistas y Profesionales de Terminal Portuaria	
	6. Solicitud de pedido y compra de carteles indicativos para cada tipo de residuo elaborados con soporte en chapa de aluminio lacado con rotulación en vinilo adhesivo de alta calidad para intemperie/Noviembre 2004.	6. Responsable de la Terminal de Carbón	
	7. Colocación de nuevas carteles identificativos en los contenedores asignados a cada tipo de residuo/Diciembre 2004	7. Profesionales y Especialistas de Terminal Portuaria	
	8. Verificación de la adecuada segregación mediante controles periódicos no detectándose no conformidades al respecto/Septiembre Octubre Diciembre 2004.	8. Técnico de los Sistemas de Gestión	



Environmental goals and targets 2004 — continued

OBJETIVO	METAS/PLAZOS		RESPONSABLE		MEDIOS
<p>Realizar mediciones sistemáticas de los niveles de inmisión de polvo de carbón en el entorno de la Terminal de Carbón (voluntario).</p> <p><u>OBJETIVO LOGRADO</u></p>	1.	Renovar contrato con Organismo de Control Autorizado para la realización de controles mensuales de inmisión en una red de muestreo en los alrededores de la Terminal de Carbón/Abril 2004.	1.	Responsable de la Terminal de Carbón	- Organismo de Control Autorizado para la realización de controles periódicos.
	2.	Verificación a partir de los informes trimestrales elaborados por OCA 1 Primer informe Abril 2004, Segundo Informe Julio 2004, Tercer Informe Octubre 2004, Cuarto Informe Diciembre 2004.	2.	Responsable de la Terminal de Carbón	- Informes trimestrales de OCA.
<p>Ampliar la Formación y contribuir a la sensibilización del personal de la Terminal sobre la gestión de residuos</p> <p><u>OBJETIVO LOGRADO</u></p>	1.	Convocar al personal de la Terminal de Carbón para la jornada formativa sobre residuos/Noviembre 2004.	1.	Responsable de la Terminal de Carbón	-No implica dotación de medios específicos
	2.	Jornada de sensibilización y formación al personal de la Terminal sobre la correcta manipulación, segregación y almacenaje de los residuos generados en la Terminal de carbón / Diciembre de 2004.	2.	Técnico de empresa externa	



Environmental goals and targets 2004 — continued

OBJETIVO	METAS/PLAZOS	RESPONSABLE	MEDIOS
<p>Realizar controles de los niveles de presión sonora en el ámbito de dispersión del ruido generado por la Terminal de Carbón (voluntario).</p> <p><u>OBJETIVO LOGRADO</u></p>	<ol style="list-style-type: none"> 1. Renovar contrato con Organismo de Control Autorizado para la realización de controles trimestrales de presión sonora en el ámbito de dispersión del ruido generado por la Terminal de Carbón/Abril 2004. 2. Verificación a partir de los informes trimestrales elaborados por OCA 1 Primer informe Abril 2004, Segundo Informe Julio 2004, Tercer Informe Octubre 2004, Cuarto Informe Diciembre 2004. 	<ol style="list-style-type: none"> 1. Responsable de la Terminal de Carbón 2. Responsable de la Terminal de Carbón 	<ul style="list-style-type: none"> - Contratación de un Organismo de Control Autorizado para la realización de controles periódicos. - Informes trimestrales de OCA.
<p>Realizar control mas exhaustivo que el exigido en la Autorización de vertido (voluntario), para tener un seguimiento mas amplio del funcionamiento óptimo de la planta de tratamiento de aguas de la Terminal de Carbón.</p> <p><u>OBJETIVO LOGRADO</u></p>	<ol style="list-style-type: none"> 1. Toma de muestras en los 3 primeros vertidos del mes/Todos los meses en que haya vertido en 2004. 2. Envío al Laboratorio de As Pontes/Todos los meses en que haya vertido en 2004. 3. Realizar análisis en los tres primeros vertidos del mes de [os siguientes parámetros: turbidez, conductividad y hierro. En el segundo y tercer vertido del mes se analizan: aceites y grasas y sólidos en suspensión/Todos los meses en que haya vertido en 2004. 	<ol style="list-style-type: none"> 1. Técnicos Gestores de Terminal Portuaria 2. Responsable de la Terminal de Carbón 3. Laboratorio de As Pontes. 	<ul style="list-style-type: none"> - Botes de muestreo - No supone asignación de medios para la analítica ya que los análisis son realizados en el Laboratorio de la Central Térmica de As Pontes.
<p>Aumentar el control sobre el comportamiento medioambiental de los buques que descargan en la Terminal de Carbón.</p> <p><u>OBJETIVO LOGRADO</u></p>	<ol style="list-style-type: none"> 1. Solicitar el Certificado MARPOL de Gestión de los residuos del buque por empresa Gestora Autorizada/Mayo 2004. 2. Archivarla en la Carpeta de buque/A partir Mayo de 2004 y en cada buque que llegue a la Terminal. 	<ol style="list-style-type: none"> 1. Responsable de la Terminal. 2. Técnicos Gestores de Terminal Portuaria. 	<ul style="list-style-type: none"> - No implica dotación de medios por emplearse los canales de comunicación habituales buque-Terminal.



8.2 Environmental goals and targets 2005

OBJETIVO	METAS/PLAZOS	RESPONSABLE	MEDIOS
Mejorar la eficacia del lavado de ruedas de camiones para reducir la dispersión de polvo de carbón.	1. Cambio de emplazamiento del detector de presencia de camiones en el lavadero, aumentando así el tiempo de lavado con agua reciclada, al menos un 50 % (pasando de 4 seg a 6 seg)/Febrero 2005	1. Técnico Gestor de Terminal Portuaria	- No implica la asignación de medios por disponer de los recursos necesarios (herramientas y personal)
Mejorar la sensibilización medioambiental del personal de empresas subcontratadas que desarrollan trabajos en las instalaciones de la Terminal de Carbón	1. Elaboración de un Manual de Buenas Prácticas Ambientales/Julio 2005. 2. Edición y distribución del Manual de Buenas Prácticas al personal de empresas subcontratadas/1 Septiembre 2005	1. Responsable de la Terminal y Técnico de los Sistemas de Gestión. 2. Técnico de los Sistemas de Gestión.	- Papel y tinta
Reducción del consumo de papel en un 5% respecto a los 149.64 Kg de 2004	1. Aprobación del Plan de Formación 2005/Febrero 2005. 2. Comunicación interna al personal/Marzo 2005. 3. Jornada de sensibilización sobre reducción del consumo de papel/Abril 2005. 4. Evaluación de la reducción/Diciembre 2005.	1. Responsable de la Terminal. 2. Responsable de la Terminal. 3. Técnico de los sistemas de Gestión. 4. Técnico de los sistemas de Gestión.	- No implica medios adicionales por ser impartida por Técnico de los Sistemas de Gestión.
Realizar mediciones sistemáticas del nivel de inmisión de polvo de carbón adoptando los criterios establecidos en la nueva legislación (voluntario)	1. Solicitud y aprobación de una Planificación de la sistemática de control de los niveles de PM10 a Organismo de Control Autorizado/Marzo 2005. 2. Realización de los controles de inmisión de PM10/Marzo, Junio, Septiembre, Diciembre 2005. 3. Verificación de los niveles de inmisión/Abril, Julio, Septiembre, Diciembre 2005.	1. Responsable de la Terminal. 2. Organismo de control Autorizado. 3. Responsable de la Terminal.	- No implica dotación de medios por incluirse dentro del contrato establecido con Organismo de Control Autorizado.



Environmental goals and targets 2005 — continued

OBJETIVO	METAS/PLAZOS		RESPONSABLE		MEDIOS
Mejora del sistema de traslado de bidones de aceite usado desde el punto de recogida a la zona de almacenamiento temporal	1.	Diseño y fabricación de un dispositivo para acoplar a la carretilla de transporte de bidones logrando un acople perfecto del bidón en la zona de almacenamiento/Febrero 2005	1.	Especialista y Profesional de Terminal Portuaria.	- Material y herramientas disponibles en Taller de la Terminal de Carbón.
Mejora del depósito de almacenamiento de tubos fluorescentes	1.	Diseño y fabricación de un sistema de división del contenedor para evitar la rotura de tubos fluorescentes/Enero 2005.	1.	Especialista y Profesional de Terminal Portuaria.	- Material y herramientas disponibles en Taller de la Terminal de Carbón.
Realizar controles de los niveles de presión sonora en el ámbito de dispersión del ruido generado por la Terminal de Carbón (voluntario).	1.	Renovar contrato con Organismo de Control Autorizado para la realización de controles trimestrales de presión sonora en el ámbito de dispersión del ruido generado por la Terminal de Carbón/Abril 2005.	1.	Responsable de la Terminal de Carbón.	- Contratación de un Organismo de Control Autorizado para la realización de controles periódicos.
Realizar control mas exhaustivo que el exigido en la Autorización de vertido (voluntario), para tener un seguimiento mas amplio del funcionamiento óptimo de la planta de tratamiento de aguas de la Terminal de Carbón.	1.	Toma de muestras en los 3 primeros vertidos del mes/Todos los meses en que haya vertido en 2005.	4.	Técnicos Gestores de Terminal Portuaria.	- Botes de muestreo.
	2.	Envío al laboratorio de As Pontes/Todos los meses en que haya vertido en 2005.	5.	Responsable de la Terminal de Carbón.	- No supone asignación de medios para la analítica ya que los análisis son realizados en el Laboratorio de la Central Térmica de As Pontes.
	3.	Realizar análisis en los tres primeros vertidos del mes de los siguientes parámetros: turbidez, conductividad y hierro. En el segundo y tercer vertido del mes se analizan aceites y grasas y sólidos en suspensión/Todos los meses en que se haya vertido en 2005.	6.	Laboratorios de As Pontes	



9. DATE OF NEXT DECLARATION

The management of the Port of Ferrol coal terminal undertakes to submit the next Environmental Declaration by March 2006.

Fernando Vázquez Vázquez

Manager, Port of Ferrol Coal Terminal

ENVIRONMENTAL DECLARATION VALIDATED BY

AENOR

Spanish Standardisation and
Certification Association

UNDER REGULATION No. 761/2001

DATED:

17 MAY 2005

NACIONAL VERIFICATION AGENT No. E-V 0001

Signature and stamp:

[Ink stamp of AENOR, Spanish Standardisation and Certification Association]

[Illegible signature]

Ramón NAZ PAJARES
Director General, AENOR