PORT INFORMATION

PECÉM / CEARÁ / BRAZIL

Avenue A, No. 4165, Room 105, B1 Tower 03, Empresarial Novo Mundo,
Cabo de Santo Agostinho, Pernambuco, Brazil — ZIP 54522-005
Mobile: +55 81 99896-2959 | +55 81 94888-0110 | Phone: +55 81 3203-9316
CSTRAMP AOH: +55 21 98428-8884 | cstramp@benevidesagency.com.br

General Information

General Description

The Port of Pecem is an artificial external port for mixed use and a property of the State Government of Ceará, whose port authority is:

Companhia de Integração Portuária do Ceará – CEARA PORTOS

Esplanada do Pecém, s/n°– Distrito do Pecém São Gonçalo do Amarante – Ceará - CEP: 62.674- 000, Municipality of São Gonçalo do Amarante, west coast of Ceará, 56 km away from the city of Fortaleza via highway.

Telephone: (55 85) 3315-1977 (24 hour assistance)

Fax: (55 85) 3315-1974

E mail: cearaportos@cearaportos.ce.gov.br

The Port of Pecém

The Port of Pecém is essentially made up of an L-shaped protection jetty - Berma style, paralleled to quay 868 m away and another paralleled to the beach 2000 m away from coastline with tree berthing facilities, two in the shape of a pier, with two berths each and one with continuous berth, being pier 1 for commercial operations with no solid cargo, pier 2 for LNG transshipment between vessels and pier 3 for commercial operations with general cargo and solid cargo.

The ocean floor topography in the Port of Pecém region is dominated by rock occurrence along the surf zone. By Ponta de Pecém there are significant extensive areas covered by these outcrops.

Results from the seismic survey indicate volcanic rocks forming the bedrock covered by sand sediments and sludge. The thickness of the sediment layer varies inconstantly from 0 to 18 m in the shore / offshore directions and on the portion paralleled to the coastline. This is caused mostly by the fluctuation of the rocky base’s bottom layer.

Sand layer thickness is not much at depths lower than 10 m.

At depths between 10 m and 16 m, volcanic rocks dominate. At depths lower than 16 m, the ocean floor surface is covered mostly by the sand sediments.

The port is operative 24 hours a day, during all the year.

Location

Coordinates

Geographic position: latitude 03°30’00” S and longitude 39°50’00” W

Anchorage Areas

Designated or Recommended Anchorage Areas

Number	Location	Radius	Depth
01	03º28’50 S 038º49’50 W	0.3 nautic miles	15.5
02	03º29’50 S 038º46’50 W	0.5 nautic miles	15.5

Navigation Help

No beacon-marked access channel. Berthing facilities are directly linked to the deep sea.

Port Limits

The authorized limits at the Port of Pecém are 200 meters from port structures (Piers, Bridge and Breakwater) all the way up to the buoys which limit the maneuvering area, as shown in the picture below:

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Port Control or VTS (Vessel Traffic Service)

The Maritime Authority at the Port of Pecém is the State of Ceará Port Authorithy, from the Navy Ministry. Capitania dos Portos – Marine Authority

Rua Dragão do Mar, 160 – Praia de Iracema Fortaleza – CE

Telephone: +55 (85) 3219-7555

Fax: +55 (85) 3219-7555

e-mail: secom@cpce.mar.mil.br

The use of the anchorage area and access to the port by the vessels shall be authorized by CEARÁPORTOS, in accordance with previous authorization by the Maritime, Customs, Sanitary Authorities and the Maritime Police. With the exception of the “arribada” (where a vessel docks into any national port for purposes other than loading/discharging, such as in the cases of bunker, fix and repair of the vessel), the shipowner, the waterborne carrier or agent, depending on the case, must request the previous authorization by providing the following information in no less than 24 (twenty-four) hours prior to arrival:

Name of the Ship;

Flag under which it sails;

Navigation type and purpose;

Last port of clearance and next port;

Name and address from the person in charge of the vessel and the payment of port taxes;

Vessel’s characteristics: (1) total length and beam; (2) dead weight tonnage, gross tonnage and net tonnage;

(3) maximum draft, arrival draft and expected departure draft;

Type of operation;

Loading or discharging cargo bill or tentative detailed information on the cargo. This information is by EDI to Customs System and the Single Window system;

Number of passengers disembarking or boarding;

Expected arrival and departure dates;

Any irregularity or abnormality which might affect navigation safety or harm the effective use of the port facilities;

Indicate any need for the use of equipments and services, and log;

Expected time for the handling and organization of cargo;

Miscellaneous services to be used.

In the case of vessels carrying hazardous cargo, the shipowner, the waterborne carrier or agent must, in addition to the information above, provide the following specific data:

Name of product, in accordance with the classifications in the Code of the INTERNATIONAL MARITIME ORGANIZATION - IMO, the United Nations Organization – U.N.; indicate flash point, where applicable;

The quantity of hazardous cargo on board, identifying both the cargo which shall be dispatched at the Terminal and the cargo which shall remain on board, indicating its exact location on the vessel.

The status of the hazardous cargo and the possibility of causing accidents;

Information on any insurance certificate the vessel may hold for the transportation of the hazardous cargo.

PROCEDURES

Arrival

The Terminal reserves itself the right to refuse the berthing or operation of any vessel considered to be inadequate or which does not comply with safety or mooring conditions, or due to any other circumstances that might cause

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risks to the Terminal, including its personnel, equipments and the environment.

Vessels heading to the Pecém terminal must inform their estimated time of arrival (ETA) 72, 48, 24 and 4 hours in advance, directly to the respective agent and to the operations department via e-mail, telex or telephone. Change or confirmation of the vessel's arrival time must be informed at least 12 hours in advance. The ETA must always be informed using the UTC time.

Arrival

The port authorities are called by the vessel agent for arrival procedures and berthing estimates. Normally, the visit takes place after berthing.

Pilotage

Pilotage is mandatory for all vessels heading to the Port of Pecém, inside or outside port area. Pilots can be requested by the vessel representative 24 hours prior to arrival. They can also be requested through channel 13 or 16 on VHF radio telephone.

Pilots boarding and disembarking station is situated at:

>LAT = 03º 29' 0" S and LONG = 038º 48' 4" W.

Vessels must be sufficiently ballasted and properly equipped in terms of mooring and respective accessories. Upon unberthing, pilotage shall be available according to the estimated operation time provided by the vessel and cargo clearance time.

The Master is the sole responsible for the maneuvers, therefore he shall provide the pilot with thorough information about any peculiarity, specific conditions or existing difficulties, such as defective machinery or boilers, damaged navigation devices or mooring or any other element which might cause damage concerning the vessel's mooring, unmooring, loading and discharging.

The pilotage organizations operating at the Port of Pecém may be freely chosen by user. They are:

Ceará Marine Pilots – Pilotage Company from the State of Ceará Ltd, located on Rua Osvaldo Cruz, nº 01, salas 1307/1308, Meireles, Fortaleza-CE, CEP 60125-150, telephone/fax (85) 3242-4638 and VHF-FM Station 16, operating 24 hours every day. It works as the Pilotage Representative Entity, as stated in the item 0119 b) of NORMAM-12/DPC; and

Ceará State Pilots – Pilotage Company from the State of Ceará Ltd, located on Avenida Monsenhor Tabosa, 111, salas 39/41, Praia de Iracema, Fortaleza-CE, CEP 60165-010, telephone/fax (85) 3219-3849.

Navigation Risks

The main obstacles to navigation are the fishing boats, such as small wooden sailboats and canoes nearby the port.

General Restrictions

There are no restrictions in vessel maneuvering: ships may berth and unberth in any tide, unless there are specific conditions, such as lack of light beacons or in the case of recurring events, natural or not, or other joint decisions between the pilots and the companies involved, which might impose time restrictions.

Maneuvering Area

There is a maneuvering basin 310 meters away where ships up to 300 m length can maneuver, between Pier 02 and Pier 03 (the NW arm of the breakwater). For ships bigger than 300 m length, maneuvers shall take place with tug support and outside berthing area.

Berthing Support

For berthing and unberthing procedures, the Port of Pecém relies on its own workforce and contractors.

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Bathymetric Survey

The Basin of Ceará is located on the continental platform of the Brazilian equatorial margin, comprising an area of approximately 34.000 km2. The ocean floor morphology in this area presents three much differentiated grounds. The first, located on the inner platform at a depth of 30 m, presents a surface leveled by sedimentary processes, where wavy patterns of about 20 cm height can be observed.

On the second ground, between 30 m and 50 m depth, one can observe the presence of a topographic gradient which varies from smooth to abrupt. The ridge starts showing irregularities, seen as erosive remnants, and beds of coralline algae; it can also alternate in depressive areas of very smooth ridges. The third identified ground goes all the way down to 70 m depth and has a topographic gradient more abrupt with the presence of beds of calcareous algae.

Dimensions Of Vessels

Pier	Berth	Death Weight	Length [m]	Bean [m]
1	1	75,000 t	280	37.50
1	2	125,000 t	300	47.00
2	3	100,000 t	290	42.00
2	4	175,000 t	310	52.00
3	5	140,000 t	330*	60.00
3	6	140,000 t	330*	60.00

the pier 3 is continuous and this length is due to two vessel using on same time

Weather Conditions

Predominant Winds

Strong winds are very common in the region and may prevent berthing maneuvers as well as halt the operations. The predominant winds are shown on the table below:

Direction	Frequency	Average Speed
SE / NO	70%	15 Km/h

With winds stronger than 30 knots, direction 67 – 112 degT, with wave height 2,4m and period Tp 15s, vessel operations must be interrupted and the arms must be disconnected.

With winds stronger than 35 knots, direction 67 – 112 degT, with wave height 2,4m and period Tp 23s, vessel must leave the pier.

Waves

The directional wave measurer in Pecém lies at latitude 03°29’ 31” and longitude 38°59’ 03”.

Waves above 3.00 m have frequency of 11.23%. Above 4.00 m, 0.22%, being the highest wave of the 4.6 m and

4.7 m class, happening twice in the period as of 13/03/97 through 23/01/99.

The most frequent Significant Wave height (Hs) varies from 1.30 m to 1.40 m, with an 11.84% frequency. The occurrence of Hs between 0.90 m and 2.10 m is of 96.32%. The maximum significant wave class varies from 2.4 m to 2.5 m with three occurrences in the period as of 13/03/97 through 23/01/99.

In terms of direction, there are two dominant groups:

>90°D <_ 120°with a 66.74% frequency;

>30°D <60°with a 21.19% frequency.

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Rain and Humidity

Rainfall varies, with a monthly average of 13.4 mm (in November) to 336.3 mm (in March), with air humidity varying between 70% and 85%.

Atmospheric Pressure

>Minimum: 1,0074 bar;

>Medium: 1,0087 bar;

>Maximum: 1,0100 bar.

Visibility

Usually it varies between good and excellent. It might be reduced during rain period. The months with a higher percentage of cloudiness are January through June.

Tidal Currents

Tidal current has the speed of 1 knot in the SE direction.

The current along the internal and external berths is weak due to the NW arm protection.

Tide

>Average Level: 1.42 m;

>High Water Springs Average Amplitude: 2.36 m;

>Mean High Water Springs: 2.70 m;

>Mean High Water Neaps: 2.08 m;

>Maximum Amplitude: 3.01 m.

Measuring

The Terminal has up-to-the-minute information on wind and current intensity and direction. Whenever the vessels approach the port in order to berth, this information can be made available through VHF radio to the vessel by the Terminal operator.

Management and Control

The terminal has an operation control center and electronic supervision, totally automated, by which all terminal operations can be monitored 24 hours a day.

Major Risks

The communication between vessel and terminal is instantaneous and made through a VHF/UHF radio, amongst other means. In the case of abnormalities, any of the parties, terminal or ship, may execute or request the operation’s immediate shutdown. In the event of leakage, pollution, fire, pressure surge, product contamination, tension oscillation from mooring lines and/or storms and lightning, the terminal or the ship must interrupt the operations immediately, isolate the area, execute contingency plan (where applicable) and initiate the event mitigation.

Berthing

Ship/terminal access

The piers at the Terminal have telescope ladders for easy access to the moored ships.

Crewmembers who disembark to use the Terminal’s installation, besides following all the procedures of the ISPS Code, must wear closed shoes, long pants and sleeved shirts and may circulate only in the demarcated area. The gangway on the side of the ship opposite to the mooring side must always be kept on deck while the ship remains moored, for the safety of the Terminal and the ship. That gangway may only be used in case of emergency.

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Prior communication for start of mooring

To optimize the process of tending ships, including allocation of the Nautical Adviser and other measures, the ship must contact the Terminal via VHF channel 16 as soon as it starts maneuvering for mooring. The Terminal recommends that maneuvers for mooring at the jetty be started at least 30

Unberthing and Leaving Port

The pilot usually disembarks at the same boarding location stated in sub-item 5, where a pilotage boat from the Port will be awaiting.

ISPS CODE Compliance

The Terminal of Pecém has implemented entrepreneurial safety measures applicable to ships and port facilities, in compliance with the International Maritime Organization – IMO, by adopting the ISPS Code – International Ship and Port Facility.

These preventive measures can be put into action, where applicable, by the Ship through the Port Facility Security Officer (PFSO) or via VHF radio, on channels 16, 09 or 11.

The Terminal of Pecém operates normally at the security level 01. For further details, the Port Facility Security Officer (PFSO) must be contacted through the chosen agent.

CONTACTS

Organization	Contact	Telephone (55 85)	Fax (55 85)	E-Mail	VHF/UHF Channels Call
Port Authorithy	Captain	3219-7555	3219-7555	secom@cp ce.mar.mil. br	16
Port Control	Supervisor	3219-7555			
Pilots	Pilots	Pilots	Pilots	Pilots	Pilots
Ceara Marine Pilots	Dispatcher	3242-4638	3242-4638		
Ceara State Pilots	Dispatcher	3242-4638	3242-4638		16

Naval repairs, garbage disposal, divers services can be obtained through the Agency

C – Port of Pecém’s basic information Start of operations: November 2001

Administration: Companhia de Integração Portuária do Ceará/Ceará Portos

Address: Esplanada do Pecém, s/ nº - Distrito do Pecém

City, State, ZIP Code: CEP 62674-000 – São Gonçalo do Amarante – CE

Customer Service: (55 85) 3315-1122

Website: www.cearaportos.ce.gov.br

E-mail: cearaportos@cearaportos.ce.gov.br

Coordinates: Lat 3º30'00''S Long 39º50'00''W

PORT ACCESS

Highway: BR-222 / BR-116 / CE-422

Railway: Companhia Ferroviária do Nordeste – CFN

Maritime: Does not exist

ACCESS CHANNEL

Length: Not applicable Width: Not applicable Maximum Depth: 18 m

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PORT DIMENSIONS

Storage Area: 380.000 m2 Quay Length: 2,100 m Number of Berth: 3

Significant wave height (Hs)

Berthing Facilities

The design of the terminal, to seek deep water, and preservation of environmental conditions , makes the facilities for berthing of vessels are located some distance from the shore, making it therefore necessary to construct a bridge linking together " piers " berthing and onshore facilities . To this was bridged with the following characteristics:

Access Bridge to the piers

Length to Pier 1: 1789.33 m

Length to Pier 2: 2142.61 m Tread width: 7.20 m

Walking for pedestrian: 1.30 m Tubing support: 6.75 m

Support for conveyor belt: 6.20 m

Channel service for electrical cables and optical communication cables under the pedestrian promenade: 1,10 m x 0,27 m

Pier 1 - Pier steel products and general cargo

Length: 350 m

Width 45 m

02 berths

Maximum permissible load: 10tf / m² Internal quay: 16 bollards with 100 tf External quay: 16 bollards with 16 150 tf Internal quay: 14.0 m of draught External quay: 15,0 m of draught

Pier 2 - Pier for bulk liquids and liquefied gases

Pier 2 was designed to operate with bulk liquid and liquefied gases, should primarily serve the oil products (gasoline , diesel , jet fuel , fuel oil , LPG , etc), Anhydrous and hydrous ethanol and crude oil to be imported the oil refinery.

Length: 336,56 m

Mooring platform: 45m x 32m 02 berths

Bridge deck access: 145.96 m Support for pipe: 6.20 m

Draught in Internal and External quays: 15.5m Mooring dolphins: 04

Mooring system: Trelleborg Harbour Marine Berthing dolphins: 08

Four loading arms of 12 " diameter for receiving operations of diesel / kerosene oil and petrol / alcohol. Two loading arms of 10 " diameter for receiving operations of fuel oil .

Two loading arms 8 " diameter for receiving operations of LPG.

Pier for tugboats

Next to the pier 2 access point, built a pier for the tugs that should assist ships in docking maneuvers , both the pier as in pier 1 2 .

Length: 6.55 m

Operation platform: 60.0 mx 12.5 m

02 berths

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Breakwater

Due to be a Maritime Terminal "OFF SHORE", artificially sheltered, built a berm type (rubble mound breakwater) breakwater in the form of "L" with a total length of 1,768 m. Its purpose is to create an artificial bay of standing water, where are the piers for berthing. This type of breakwater has, in general, a trapezoidal shape with a central part built of clay and fragmented stones of varying sizes and sides sloping, large stones, aiming to absorb wave energy.

Shape: Trapezoid

Length: 1,768 m in the form of "L" Volume of Stones: 2416.85 m³

The average width of 80.00 m elevation

Depth of the submerged part ranging from 14.00 m to 18.0 m Width at top 18.0 m in elevation of the berm (6 m)

5.0 m in dimension crest (8 m)

Access bridge to breakwater

Alignment of Pier 1, to the contrary, a bridge was built which gives access to the breakwater. The Dimension of the bridge are:

Length: 62.15 m

Width: 7.15 m

Storage Facilities

The product storage terminal in Pecem, can be taken on the yard or in bounded warehouses. Yard Storage

The storage yard was built to store coils and flat sheets for the Steelworks. A study of "Layout" was also done to allow the storage of containers and reserved a special area for refrigerated containers.

Courtyard area of 380,000 m² Covered warehouses

The warehouses were contruidos to meet the movement of other loose loads that need to be sheltered from the weather as well as for use in roe and spawn containers operations.

Covered area of 6,250 m² warehouse 1 Covered area of 10,000 m² warehouse 2

Port Equipments

In this first stage of the project is expected movement of raw materials for the steel industry (iron ore), finished products (flat plates and coils) and bulk liquids such as crude oil being moved by the refinery and petroleum products which will initially be handled by the terminal Petrobras. For receiving operations or shipment of these products, the following port equipment, related below were designed:

Equipment for Material Handling at Pier 1 on Rails

Crane Multiple Use

Is installed in the cradle 2 (external) of pier 1 and will be used in maritime operations handling bulk cargo and containers. This is a gantry crane with a capacity to handle 15 cycles / hour, in operations with containers and 20 cycles / hour, in operations with loose cargo . Has ability to lift loads ranging from 45 t to a length of 35 m boom, 35 t to a maximum length of 52m boom.

Ship Unloader

Is installed in the cradle 1 (Internal) pier 1 and will be used in the maritime dry bulk handling operations, being originally planned in the project, the movement of iron ore for the steel mill. However, such equipment is likely to move other loads if necessary. This is a device discharge, endowed with "clam shell" and has been designed to operate at a rate of 1,250 t / h of ore. Its load capacity is 35t (maximum) and its vertical movement varies from

17.9 m below the rail level to 24.5 m above the same level. Can operate with up to 34 m wide vessels.

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Equipment for Material Handling at Pier 1 Tyre (Mobiles)

Cranes Gottwald

Two cranes GOTTWALD can operate on both berths. Derrick Length: 11.0 m - 100.0 tons of cargo

Derrick Length: 50.0 m - 38.0 tons of cargo

Number of movements: 28 containers / hour / crane

Conveyor

Will be installed in the cradle 1 (internal) . This is a double belt conveyor , 42 " wide, with similar capacity to ship unloader , or 1250 t / h .

Equipment for Material Handling at Pier 2

Loading Arms for liquid and LPG vessels

Four loading arms of 12 " diameter for receiving operations of diesel / kerosene oil and petrol / alcohol. Two loading arms of 10 " diameter for receiving operations of fuel oil .

Two loading arms 8 " diameter for receiving operations of LPG.

Equipment for weighing

Scales Road

Four road electronic scales, two input and two in the terminal with a capacity of 80 t each.

Draft Restrictions

Kindy note that as per local regulation TERMINAL PORTUÁRIO DO PECÉM has below drafts restrictions:

Pier 1 int: 14,0 e ext: 15,0;

Pier 2 int e ext: 15,5

TMUT Sheds nº 5 e 6: 14,00 depending of tide restrictions since 12.50.

Agency Full Style

BENEVIDES AGENCY SHIPPING