



PORT PLOMIN PLOMIN

GUIDELINES FOR SHIPMASTERS

OPERATIONAL INSTRUCTIONS FOR THE HANDLING OF SOLID DANGEROUS SUBSTANCES IN BULK
WITHIN THE PORT OF PLOMIN

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1. IMPORTANT TELEPHONE NUMBERS

Port Representative/PFSO	+385-(0)99-2206-875,+385-(0)52-866-170
PFSO	+385-(0)99-3905-805,+385-(0)52-866-165
Foreman	+385-(0)98-254-821
Duty Engineer	+385-(0)98-434-224
Pilot (Istra Pilot)	+385-(0)52-216-389, +385-(0)98-495-654
Terminal Fire-Fighting Service	+385-(0)52-866-201
National Protection And Rescue Directorate	112
General Fire-Fighting Service	193
Ambulance.....	194
Health Centre Labin.....	+385-(0)52-855-333
Harbourmaster's Office Pula	+385-(0)52-222-037
The Port of Rabac Branch-Office	+385-(0)52-872-085
RCC.....	195
Police Station Labin	+385-(0)52-856-222,+385-(0)52- 857-091
Rijeka Customs.....	+385-(0)51-338-111
Labin Customs Post	+385-(0)52-851-821, 851-822
Port of Raša - Customs Section.....	+385-(0)52-875-110

Agents

Adriatica	+385-(0)51-214-511
Alianca	+385-(0)51-211-271
Alpex-Rijeka.....	+385-(0)51-214-778
Bura	+385-(0)51-213-403
Cambiaso & Risso	+385-(0)51-212-850
Capris Croatia	+385-(0)51-212-915
Euromar.....	+385-(0)51-213-126
Flumen.....	+385-(0)51-211-239
Garma	+385-(0)51-211-287
JPS - Agencija	+385-(0)51-331-111
Jadroagent.....	+385-(0)52-875-106, 098-257-325
Korkyra	+385-(0)51-216-709
Profi Trans	+385-(0)51-212-634
Samer & Transadria	+385-(0)51-213-189
Transadria - Agencija	+385-(0)51-213-235
Transagent.....	+385-(0)51-227-922

Airports

Pula	+385-(0)52-550-900
Rijeka	+385-(0)51-842-132 (055)
Trieste.....	+39-481-773 224
Ljubljana	+386-4-206 10 00
Zagreb.....	+385-(0)1-626-52 22

Coach Stations

Labin	+385-(0)52-855-220
Pula	+385-(0)52-219-074
Rijeka	+385-(0)51-211-222, 051-338-811

Taxi Services Labin	+385-(0)98-981-3300, (0)98-366-030
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2. GENERAL INFORMATION

Location	$\phi = 45^{\circ}07'45''N$, $\lambda = 014^{\circ}11'23''E$, The Bay of Plomin,
Maps and Pilots	map number 2719 and Pilot NP 47 (British Admiralty), map number 50-4, Plan number 14 and Croatian Pilot - Eastern Coast of the Adriatic
Berth name	Terminal for Panamax (21/11)
Length of Landing Place	210 m
Length Between Berthing Points	275 m
Depth Along the Landing Place	15 m
Height of Quay above the Sea Level	3.56 m
Height of Hatch Edge above the Sea Level	17 m at the most
Water Density at the Landing Place	approx. 1025 kg/m ³
Maximum Ship Draught Allowed	13.20 m
Free Space Under Keel	must not be smaller than 1 m
Sea Tide Amplitudes	up to 0.6 m
Notice of the Time of Arrival (ETA)	after the departure from the port of loading and then 5, 3 and 1 day before arrival
Notice of Arrival	to the VTS (Vessel Traffic Service) Rijeka (VHF ch 14) 2 hours before arrival and to the Pilots (VHF ch 8) 1 hour before arrival
Anchorage	Koromačno anchorage ($\phi = 44^{\circ} 56' N$, $\lambda = 014^{\circ} 06' E$)
Fuel Supply	at the Rijeka anchorage
Fresh Water Supply	by lighter
Ship Repair Works	the shipyards in Pula, Rijeka, Kraljevica and Mali Lošinj
Working Hours	24 hours per day all year round and during national holidays; the opening and closing of cargo hatches is done by the ship crew
Average Unloading Capacity	vertical elevator - 800 t / hour
The Port Storage Capacity	approximately 180,000 tons
Classification Societies (Representatives in Rijeka and Pula)	Croatian Register of Shipping, Lloyd's Register, Bureau Veritas, American Bureau of Shipping, Det Norske Veritas, Russian Register of Shipping
Official Time	European mean time [UT + 1 during winter and UT + 2 during summer]
Currency	1 kuna = 100 lipa [1 US \$ = 6,64 kuna (February 2022.)]
Consulates (Rijeka)	Austria, Denmark, Finland, Hungary, Italy, The Netherlands, Norway, Sweden
National Holidays	January 01 (New Year's Day), January 06 (Epiphany), Easter Sunday, Easter Monday, May 01 (Labour Day), May 30 (National Day), Corpus Christi, June 22 (The Antifascist Struggle Day), August 05, (Victory and Homeland Thanksgiving Day), August 15 (Assumption of Mary), November 01 (All Saints' Day), December 25 and 26 (Christmas Holidays)

3. GEOGRAPHICAL LOCATION OF THE PORT OF PLOMIN

3.1. Basic information about the Adriatic

The Adriatic Sea is a bay of the Mediterranean Sea, 420 M long and of 134 M of the average width. The southern point of the Adriatic is in the Strait of Otranto (40°07' N, 18°31' E), whilst the northern point is in the Bay of Trieste (45°47' N, 13°35' E).

The seabed of the Adriatic is shallow in its northwestern part (in the north Adriatic the depths reach not more than 50 m), whilst it is considerably deeper in the southern Adriatic depression, especially south of the island of Palagruža, reaching over 1,400 m.

The Adriatic Sea temperature varies from 7° C to 14° C in the winter, whilst during the summer it reaches between 23°C and 26°C.

The prevailing Adriatic Sea winds are bora, jugo and considerably less so westerly winds.

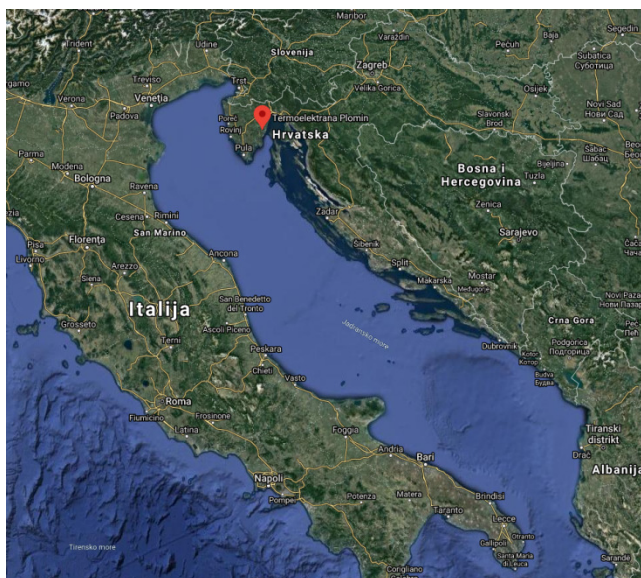
Bora prevails in the north Adriatic whilst jugo prevails in the south.

As far as the duration and repetition of gale winds is concerned, these are considerably more prolonged in the area of the north Adriatic than in the south.

The basic characteristics of bora are sudden and strong blows (up to 47.5 m/s). Since bora blows from the shore, it does not raise bigger waves (up to 2.5 m), but even at the velocity of 6.5 m/s it provokes considerable amounts of sea spray. Contrary to bora, jugo is a wind which, due to its considerably longer fetch, provokes the appearance of much higher waves, up to 50 m long and 5 m high, although considerably higher waves than those have been registered.

The fog in the Adriatic is more frequent in its northern than in its southern area. The fog is most frequent in the area of Venice. The highest frequency of fog is in January when there are up to five foggy days, whilst during other months fog appears on an average of up to two days a month.

The primary groups of waves in the Adriatic are: wind waves, swell waves and crossed waves. The basic characteristic of the Adriatic waves is the exceptional repeatability of waves up to 1.25 m (80% in comparison to 42% for the oceans and 66% for the rest of the Mediterranean), because of the shorter length of their fetch, i.e. because of the shorter time of blowing. Adriatic Sea is considered more dangerous than in the high seas, in particular for smaller vessels.



Picture 1 The Adriatic Sea

Bf	0	1-2	3	4	5	6	7	8	>9	Σ
N	1.3	1.4	2.4	4.1	1.4	0.3	0.5	0.2	0.0	11.6
NE	0.5	0.5	1.7	1.5	3.4	2.2	1.4	0.2	0.0	11.4
E	0.6	0.6	1.7	2.6	1.4	0.7	0.5	0.0	0.0	8.1
SE	0.4	0.5	1.2	2.4	2.9	3.6	1.7	1.0	0.0	13.7
S	1.3	1.4	2.2	2.6	3.4	1.2	0.3	0.2	0.0	12.6
SW	1.8	1.8	1.5	1.4	0.9	0.3	0.3	0.0	0.0	8.0
W	1.8	1.8	2.2	2.9	0.7	0.3	0.2	0.0	0.0	10.4
NW	2.5	2.6	8.0	6.2	3.9	0.7	0.3	0.0	0.0	24.2
Σ	10.2	10.6	20.9	23.7	18.0	9.3	5.2	1.6	0.3	100

Gale wind waves between 2.4 and 3.6 m can be noticed practically all over the Adriatic, with a variable probability. The waves of a height of 3.6 - 6.9 m have the same spatial diffusion with approximately half the frequency, whilst the waves of the biggest heights (6-9 m) can be met only at the wider area of the Kvarner bay during jugo (SE), and in the area of Otranto during jugo or oštro (S).

The general system of water circulation in the Adriatic consists of currents flowing along the eastern coast and directed towards NW, whilst currents flowing along the western coast are directed towards SE with several cross-flows from the eastern to the western coast of the Adriatic (Lastovo and Lošinj). The general characteristic of the Adriatic currents is that they are variable, i.e. of a considerable irregularity of the direction and velocity. The velocity of the currents in the most part of the Adriatic does not exceed 0.5 knots.

The significant proportion of the maritime traffic in the Adriatic flows is directed towards the northern Adriatic ports, starting from the island of Fano (along the Albanian coast) or from cape Santa Maria di Leuca (along the Italian coast). The following should be differentiated:

- the coastal route which passes between the islands of Vis and Biševo; it is often used by smaller vessels because of a better protection and because of sailing with the prevailing current, and
- the route which passes southwest of the island of Palagruža.

The length of the navigation route to the Port of Plomin is:

- Fano - Palagruža (162 M) i.e. Otranto - Palagruža (170 M) and
- Palagruža - Plomin (185 M)

The areas with the heaviest traffic on the navigation route to the North Adriatic ports are the areas around Vis i.e. Palagruža, the entrance to the Bay of Kvarner (between the islands Susak-Porer-Galiola) where frequent crossings occur and where ships from the Rijeka basin join the primary navigation route, either towards other northern Adriatic ports or towards the southern Adriatic.

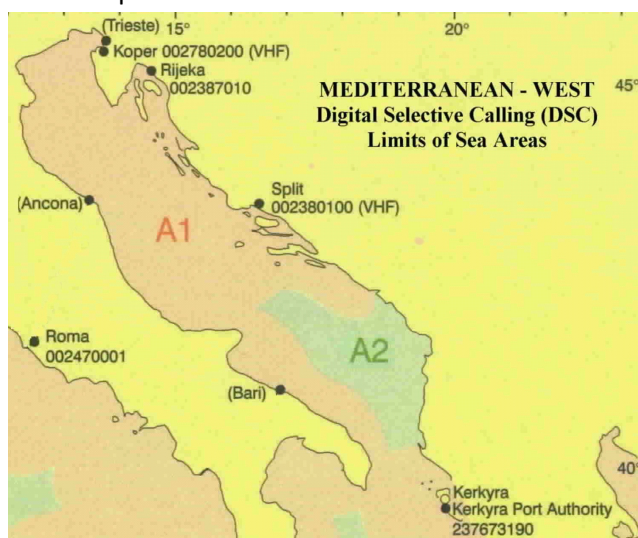
The coverage of the Adriatic Sea by the navigational aids satisfies the needs, with enough lighthouses and coastal lights. The radar panoramas are easily recognizable and enable the satisfactory determination of the ship position.

The Adriatic Sea is well covered by the coastal VHF DSC stations so that it is listed as the A1 sea area according to the requirements of the GMDSS system.

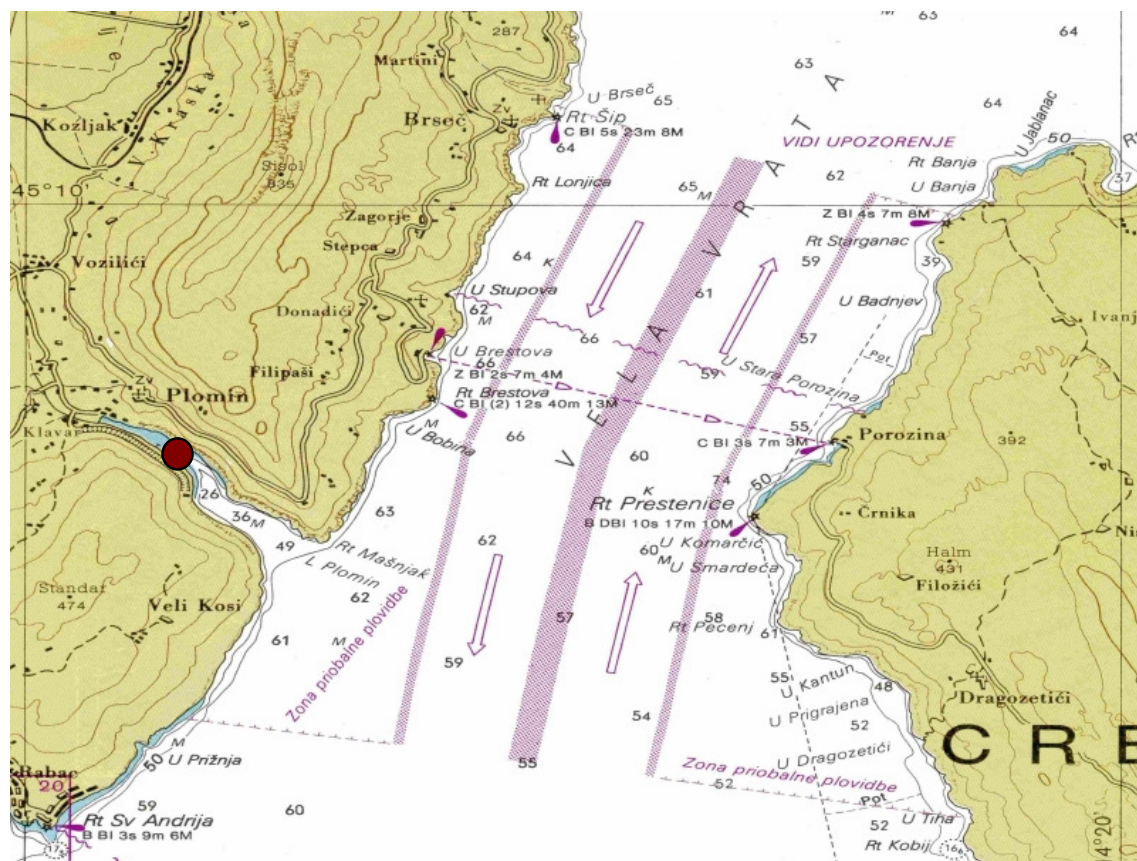
In addition, communications coverage on the eastern coast of the Adriatic, are also ensured by the three coastal radio - stations (Rijeka, Split, Dubrovnik) in the MF, HF, and VHF area.

3.2. The Bay of Plomin

The Bay of Plomin is located on the eastern side of the Istrian peninsula. It extends less than 2 M in length. The sea depth at the mouth of the bay is approximately 40 m. Its coasts are steep and stripped of trees, and wooded on the northern side. At the end of the bay there is a settlement of Plomin – luka with approximately 300 inhabitants.



Picture 2 Adriatic Sea - area covered by the DSC



Picture 3 Approach to the Bay of Plomin

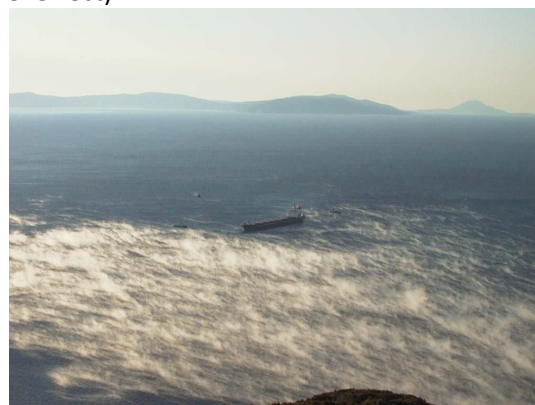
In order to approach the Bay of Plomin, the data found in the Pilots NP 47 (British Admiralty edition) or in the Pilots of Croatian Hydrographic Institute - HHI - The eastern Adriatic coast, could be used. The charts to be used in the port area are the chart number 2719 (British Admiralty edition) and the chart number 50-4 plan 14 (HHI edition).

There are two berths in the bay: the smaller one for the passenger ships and fishing boats at the end of the bay and the bulk cargo terminal on the southern cost of the bay, approximately 1 M from the entrance into the bay.

The prevailing winds in the Bay of Plomin and the area in front of its entrance are the winds from the NNE, NE and ENE directions. The probability of such winds to appear in winter is somewhat greater (40%), whilst during summer months it is less (20 %), with the increased probability of the NW and NNW winds. There is a possibility of considerable deviation of the prevailing winds in the bay, primarily because of the surrounding relief (Channel effect).

The highest average wind velocities belong to the winds from the NE and NNE direction and during the winter months they can reach the mean hourly rate of up to 30 m/s. At that, the wind gusts of the highest velocity can be considerably higher than the hourly values and can reach up to 45 m/s.

During the summer months the sudden local storms could occur as a consequence of the local atmospheric disturbances and are, therefore, difficult to predict.



Picture 4 Fog in the Bay of Plomin

The main characteristics of these local storms are mainly sudden short lasting gusts of westerly winds, sometimes of a gale force and the velocity of over 20 m/s, accompanied with heavy rain. In this case, the wind creates short and sharp waves.

In the area of Kvarner, i.e. the Bay of Plomin, the possibility of calm seas (the wind of a velocity lower than 0.3 m/s) is relatively small (the annual average is of 2.2%). Due to this fact it should be expected that the highest number of maneuvers of berthing and leaving the berth would be carried out under the more or less windy conditions.

The highest waves appear in the Kvarner area during winter months, primarily in the case of southerly winds that can last for several days, when they can reach the height of 6.5 m. In the area in the immediate vicinity of the mouth of the Bay of Plomin, i.e. in its mouth, the wave height does never exceed, not even in case of the strongest gales, the height of 2.5 m.

The general direction of the sea current in the area of Kvarner goes from the Bay of Rijeka through Vela Vrata and along the coast of Istria towards the unsheltered waters of the Adriatic. Along the coast of the island of Cres slower southwesterly currents are possible. The velocity is rarely higher than 0.5 knots except in case of long-lasting winds from the NE direction, when the speed of currents, first of all of the surface one, can be higher than 2.0 knots.

In the area of the Kvarner bay the tidal motion of the sea occurs on a regular basis, thus two tides of unequal intensity occur during the day. The disturbance of the sea tide sequence is possible during the jugo and bura periods. The high atmospheric pressure, together with a strong bura, can lower the low water level up to - 60 cm under the hydrographical zero level. Contrary to this, strong jugo and a low atmospheric pressure have the opposite effect and raise the sea level considerably above the maximum height of the spring tides, up to + 90 cm.

The variability of relative humidity in the observed area is not a very significant, the lowest being in July and the highest in November. The annual average approximately equals 75 %.

Fog appears in case when the relative humidity is very high so that the number of foggy days rarely exceeds five days per annum. The microclimate conditions are more favorable for the fog in the Bay of Plomin, than they are in the Bay of Kvarner. Consequently, there is a frequent appearance of thick patches of fog in the Bay of Plomin. They are born in the depths of the Bay of Plomin, from where the local winds blow them out to the area in front of the mouth of the bay, where they, in most cases, disappear.

3.3. The Anchorage

Vessels whose destination is the Port of Plomin (bulk carriers of PANAMAX size), if required, have to use the anchorage in Koromačno ($\phi = 44^{\circ} 56' \text{ N}$, $\lambda = 014^{\circ} 06' \text{ E}$). The depths at this anchorage are between 35 - 45 m and the seabed is muddy. Therefore, in case of heavier storms, vessels often have to leave the anchorage and take shelter in better-protected areas or sail around.

There are three separate anchorages in the Bay of Rijeka:

- for merchant vessels and vessels without dangerous cargo,
- for tankers,
- for liquefied gas carriers.

Anchoring or the free floating of a vessel in the area of the Bay of Kvarner, in front of the Bay of Plomin, is allowed only in cases of extraordinary circumstances. In such a case the anchoring position has to be outside the traffic separation scheme and the usual navigational routes, and the vessel has to contact the port authorities regularly, as agreed upon in advance (not longer than 60 minutes).

4. NOTICE, ARRIVAL AND VESSEL BERTHING

4.1. Notice of arrival

The notice about the estimated time of arrival (ETA) to the Port of Plomin has to be transmitted immediately after the departure from the port of loading and then 5, 3 and 1 day before the arrival.

The ship's arrival, as a rule, has to be announced by the agent, at least 24 hours before the ship actually arrives. It is the agent's duty to deliver the notice of arrival to the Pula Harbor Master's Office, the authorized pilot association, the customs officials and to the Labin Police Station.

The notice of arrival should contain at least:

- the vessel's flag and name, the port of registry, total cargo, length and vessel draught on arrival,
- number of crew members and passengers
- type and amount of cargo for discharge and in transit
- previous port and date of departure, day and hour of estimated time of arrival to the pilot station

It is a vessel's obligation to inform the VTS (Vessel Traffic Service) Rijeka (VHF ch 14) at least two hours before the arrival.

If berthing immediately after arrival is not possible, a vessel should proceed to the Koromačno anchorage.

4.2. Pilotage at the arrival

Pilotage is compulsory for all vessels over 500 GT. Port pilotage is also compulsory in the port if the vessel moves along the berth using its own engine.

One hour before the arrival, the ship must contact the pilot station on VHF 8.

The pilot will board a ship approximately at the location $\phi=44^{\circ} 56' N$; $\lambda= 14^{\circ} 06' E$ or at some other convenient place in the immediate vicinity, if, according to the prevailing circumstances, they find this place more suitable, and is disembarked ashore after the ship is safely moored.

As a rule, the pilot boards by the ship accommodation ladder or pilot ladder, according to the pilot's advice.

After the pilotage, it is the shipmaster's duty to sign the pilotage receipt.

4.3. Tugboats

The characteristics of the common tugboat used at the terminal are shown in the following table.

TUGS crane/barge	POWER	PROPULSION	CALL SIGN	BUILT	GROSS TONNAGE	BOLLARD PULL	SPEED	LOA	BREADT	DRAFT	TOWING	FLAG	F.F. CAPACITY
1. CHAMPION	2X1920	ASD	9AA7379	2010	484	69/68	13,3	32	11,60	5,8	YES	CROATIA	FIFI 1
2. LIBURNIA	2X1830	ASD	9A6447	2000	353	65/62	13	30,6	10,60	5,6	YES	CROATIA	FIFI 1
3. TRSAT	2X1830	ASD	9A6576	2001	397	65/52	13	31,4	10,60	5,6	YES	CROATIA	FIFI 1
4. SVETI VID	2X1650	ASD	9A6547	2000	307	54/52	12	30	10,00	5	YES	CROATIA	600 m3/h
5. LUKAS	2X1305	N, TS	9AA6428	2009	176	50	13	26,09	7,95	1,02	YES	CROATIA	600 m3/h
6. MAK	2X1014	N, TS	9AA4527	2006	140	40	1108	22,57	7,84	3,74	NIL	CROATIA	300 m3/h
7. BAKAR	2X1370	ASD	9A4428	1993	314	43	12	29,41	9,50	4,00	YES	CROATIA	600 m3/h
8. OMIŠALJ	2X1370	ASD	9A4426	1992	314	43	12	29,41	9,50	4,00	YES	CROATIA	600 m3/h
9. VENUS	2220	N, SS	9A2475	1989	195	35	13	29,85	8,00	4,00	NO	CROATIA	120 m3/h
10. POLLUX	2220	N, SS	9A2436	1984	195	35	13	29,85	8,00	4,00	NO	CROATIA	120 m3/h
11. F/C DOBRA	FLOATING CRANE			1957	701			40,32	19,00	2,00		CROATIA	
12. BARGE FIUMANKA		deck cargo barge		2009	1097			10	30,00	2,00		CROATIA	

Table 1 The tugboats basic data

4.4. Navigation mark

The existing navigation marks in the Bay of Plomin satisfy the general navigation safety requirements. Although the maneuver of sailing in and out is expected to take place during daylight only, the marks do have lights, thus ensuring the navigation essentially safer if, due to special circumstances, it is necessary to leave the berth during the night.

The navigation marks in the bay are posted according to the IALA A system.

4.5. Berthing maneuver

The number of tugboats used for the ship maneuvering is decided upon by the shipmaster together with the pilots and the responsible port manager.

During the maneuver of sailing and berthing of the PANAMAX size vessels, at least four tugboats to be used.

If pilots find that the provided number of tugboats and their characteristics do not satisfy the required level of safety of the vessel and the port facilities during the maneuver, he has to inform the Harbor Master's Office. The Harbor Master's Office will then determine the minimum number of tugboats necessary for the safe maneuver of the vessel.

The maneuver starts in the vicinity of the cape Mašnjak by turning the vessel by a tugboat, so that it can stern into the Bay of Plomin.

The exact position and the speed of turn are chosen by the ship Master, based on the, pilot's advice and in accordance with the prevailing wind and sea conditions. After the turn, the ship moves approximately along the centerline of the bay, using her own propulsion device and assisted by the available tugboats. The vessel's advance and its position could be verified by observing the directional bearings. The vessel is then directed towards the landing place. After the ship is stopped, parallel to the berth, the tugs, which were previously tied at the bow and the stern, starts pushing it alongside.

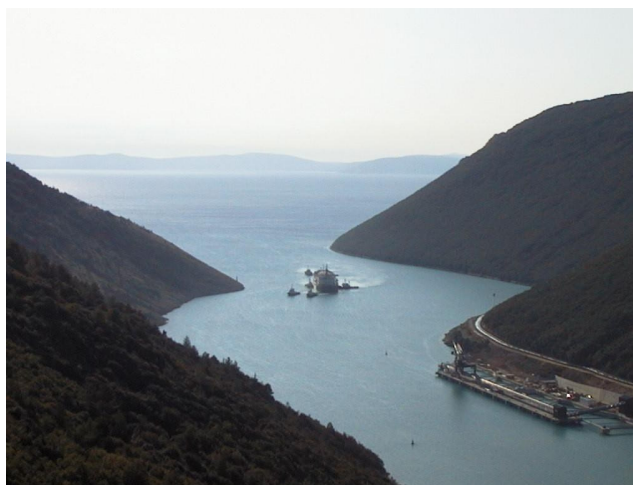
The angle between the ship's buttock line and the landing place immediately before leaning against the quay must not be greater than 5°. While coming alongside, the use of the ship anchor is not expected, except in cases of absolute necessity.

The speed of approaching the berth immediately before reaching, it must be lower than 0.1 m/s.

As a rule, vessels moor with their starboard side so that the center of their cargo hatches is positioned as close to the mark on the quay as possible. Berth name is Terminal for Panamax (21/11).



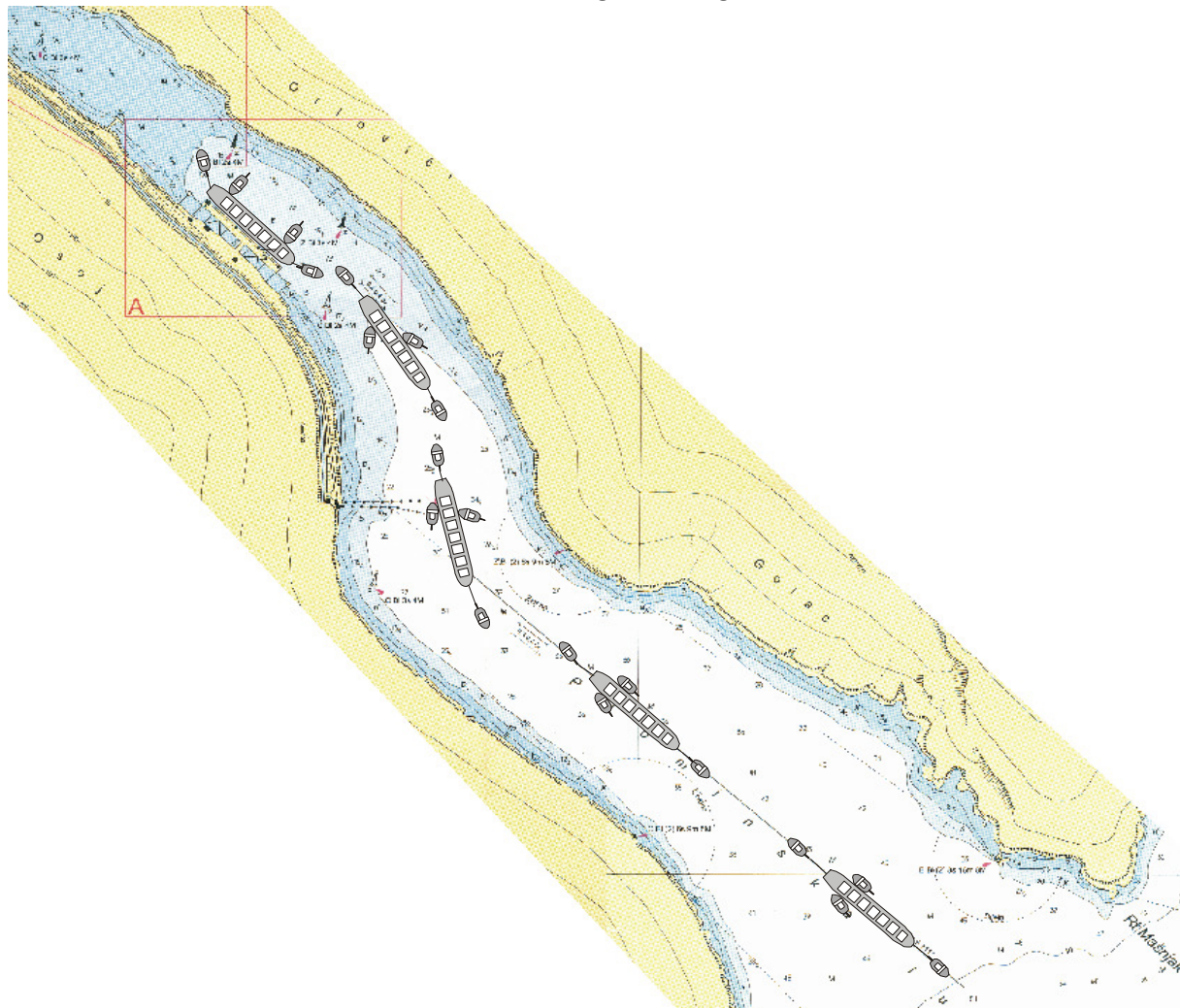
Picture 5 The maneuver of sailing into the Bay of Plomin



Picture 6 The vessel approaching the berth

Ship's ropes are carried to the shore by the mooring boat.

Immediately close to the berth, the sea depth is 15 m. The ship draught in no circumstances can exceed 13.20 m, i.e. the under keel clearance during unloading must not be less than 1 m.



Picture 7 the maneuver of a ship arrival

In the usual weather conditions the ship should be moored alongside with at least:

- 3 head lines
- 2 breast lines
- 2 bow spring lines
- 3 stern lines
- 2 stern spring lines

While the ship is alongside, the fire wire- lines at the bow and stern have to be ready for use in case of emergency.

The mooring and unmooring fee is calculated according to the service provider's price list. It is the shipmaster's duty to sign the given mooring receipt and to write down his comments, if any. It is the ship crew's duty to be on duty for mooring until the vessel is not safely moored next to the quay.

The certificate of Free Pratique is issued by the Harbor Master's Office after the sanitary, immigration and customs control is affected. In order to acquire the Free Pratique the shipmaster has to prepare to the Port Authorities the following documents:

- 6 copies of the Crew List
- 5 copies of the Passenger List
- 3 copies of the Stowaway List
- 2 copies of the Crew's Effects Declaration
- 3 copies of the Ship's Store Declaration
- 2 copies of the Arms and Ammunition List
- 2 copies of the Narcotic List
- 1 copy of the Maritime Declaration of Health
- 3 copies of the Cargo Manifest

Apart from the above-mentioned documents, if need be, the shipmaster has also to hand over:

- 3 copies of the Dangerous Cargo Manifest
- 2 copies of the Bill of Lading

It is not allowed to leave the ship before the Free Pratique is granted. Before it is granted in writing, no one is allowed to board the ship except the pilot and the authorities.

Immediately after mooring the vessel, the hawsers have to be fitted with the rat guard. After the vessel is safely moored and prior to any cargo operations, the port workers will set up the protective boom.

4.6. Ship alongside

Visits to the ship are allowed with the permission of the shipmaster. The boarding pass is issued by the Labin Police Station.

It is allowed to board the ship only using the accommodation ladders. Underneath it, between the quay and the ship, a safety net has to be fitted. In the close vicinity, the life buoy with rope has to be fitted. The approach to the accommodation ladders has to be kept clear and on both sides it has to be equipped with a handrail, at least 1 m high.

During the night times the approach to the ship has to be adequately illuminated.

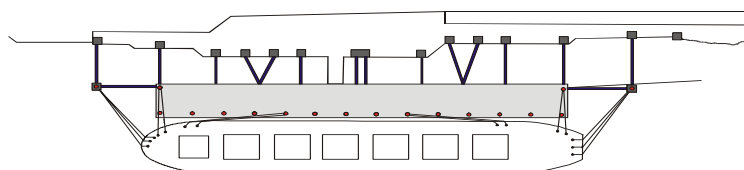


Picture 8 Vessel at landing place

The cargo hatchway and all other openings have to be fenced off or shut. There has always to be enough crewmembers on duty on board the ship, capable of carrying out the departure maneuver in case of extraordinary circumstances.

While being alongside the fresh water (using barges), as well as food and other supplies and necessities, could be supplied. Fuel supply is normally done at the Rijeka anchorage, but upon request it can be done while at berth.

If the vessel is being supplied with fuel and/or lubricant oil alongside, it is her duty to shut all the deck openings and during the daylight to erect the flag "B" of the International Code of Signals in a noticeable place. During the night, a red light, visible from all directions, has to be switched on.



Picture 9 Manner of mooring

During the fuel and/or lubricant oil supply, the ship's crew, the firefighting equipment and equipment for the prevention of pollution has to be stand-by and all the actions, if any, should be carried out according to common rules.

The receipt of oily waters or wastes will be carried out upon the shipmaster's or his agent's order.

It is the vessel's duty to collect the garbage from galleys, accommodations and other spaces and store it appropriately on board. Smaller quantities of it can be unloaded ashore in dedicated depots. Larger quantities can be handed over to authorized companies on request of the shipmaster or his agent's.

While the ship is in port, repairs, that render her incapable for safe navigation, must not be carried out and she must always be ready for maneuvering. The works and repairs that render the ship incapable for maneuvering can be carried out in a manner and at the time as approved by the port manager and with the official authorization of the Pula Harbor Master's Office. Major repair undertakings can be carried out in the, nearby shipyards in Pula, Rijeka, Kraljevica or Mali Lošinj.

It is not allowed to lower lifeboats, rescue boats, rafts and other floating objects in the port without the approval of the Pula Harbor Master's Office and the permission of the port manager in charge.

While the vessel is berthed in the port area, it is forbidden to carry out activities which can threaten human lives, cause fire, pollute the sea and/or the environment or cause damage to other vessels and crafts, to the quay, port installations and equipment.

Within the port area it is particularly forbidden:

- to smoke in the open air;
- to block the approach to mooring devices;
- to move, change or move away ropes, anchors and other ship's equipment or craft's, except when this is necessary in order to prevent the threat or when this is necessary because a ship is coming alongside;
- to fasten ship's ropes or crafts to navigational and other marks, apparatus and devices which are not intended to be used for this purpose and to walk on them;
- to install, move, modify, move away or damage navigation and other marks or mooring devices;
- to damage embankments by placing on them objects heavier than weight limit, to damage embankment walls or carry out any other activity which damages the shores;
- to weld, work with open fire ashore, on board a ship, craft and mooring devices;
- to clean, scrape and coat above-water or under-water parts of ship or craft plating;
- to release dust, smoke or other gases above the usual and allowed amounts;
- to keep the ship propeller moving, except when carrying out the needed ship maneuver;
- to swim or catch fish and other sea organisms;
- to threaten the navigation safety in any other way.

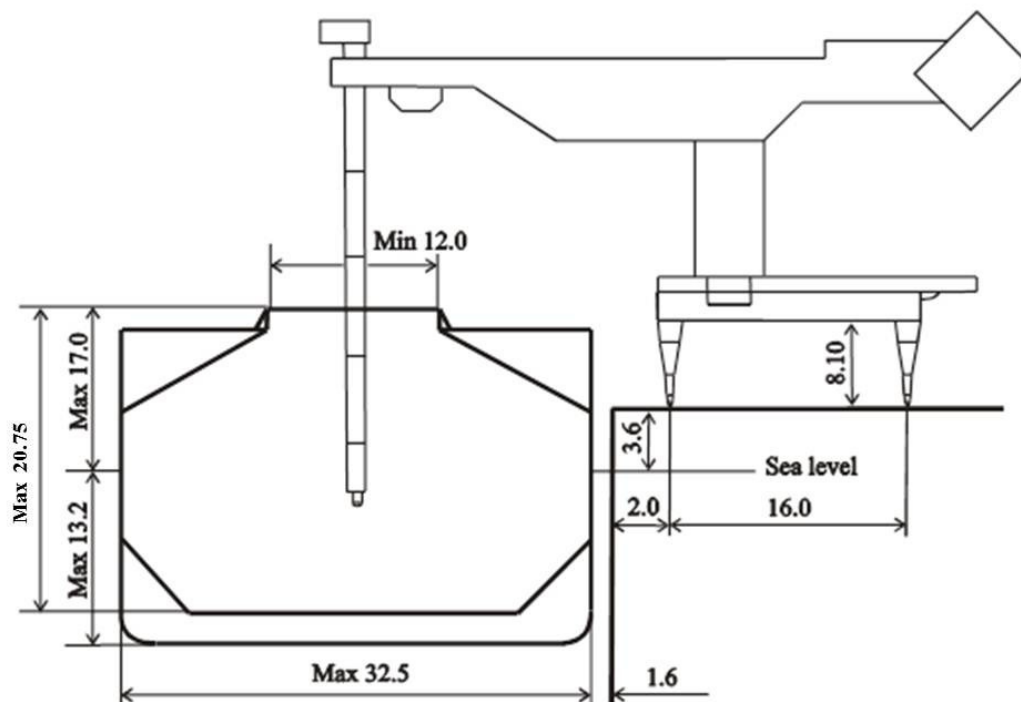
It is not allowed to discharge garbage, leave the cargo leftovers and discharge liquids and other substances in the port that can pollute the sea or the port. In case of pollution, it is the shipmaster's duty to, immediately and as quickly as possible, inform about the person in charge of the port and the Pula Harbor Master's Office.

4.7. Discharging Operations

Before the cargo unloading starts, it is the shipmaster's duty to deliver to the person in charge of the port the following documents:

- Cargo Plan
- Discharging Plan

If the discharging plan does not contain all the data needed, it has to be subsequently worked out on the form used by the Port of Plomin.



Picture 10 Vertical unloading elevator (dimensions in meters)

The subsequent changes of the discharge plan have to be mutually agreed to by the shipmaster or the chief deck officer and the person in charge of the port.

The notice of readiness can be delivered on working days from 07:00 to 15:00 in the local business office. The acceptance (or refusal) of the notice of readiness has to be confirmed in writing.

The discharging operations are carried out 24 hours a day, every day of the week, the whole year round. The discharging rate has to be agreed in advance.

The stowage capacity in the port area is approximately 180,000 tons of coal.

The unloading operation is carried out by the vertical elevator of the average discharge capacity of 800 tons per hour. Unloading equipment is movable and it moves on rails along the ship in the length of 180 m. This unloading equipment has some work limitation, the height of the ship and wind speed (20 m/s) and if possible cargo holds number 1. and 7. should be cleaned first. In favorable weather conditions, the elevator is capable to unload 60,000 tons of coal of an adequate purity and granulate from the gearless PANAMAX ship in 3 days.

The vertical distance between the bottom of the hold and the upper hatch edge must not be greater than 20,75 meters.

The hatch covers are to be opened after the ship is moored and before the unloading operations start and it has to be carried out by the ship crew.

During discharging operations, it is the vessel's duty to provide the lighting and other necessary means.

Before the unloading operation starts, it is the ship's duty to undertake all the safety measures as well as other measures in order to prevent pollution of the marine environment, in accordance with the common rules applicable to coal transportation.

It is the duty of the shipmaster and the port representative to fill in together the Ship-Shore Safety Checklist on the adequate form, before the discharging operations can start.

Upon the arrival to the port, it is the shipmasters duty to deliver to the port representative a copy of the shipper's declaration about the cargo characteristics (the degree of moisture in cargo, the Sulphur concentration, does the coal leak methane and is it self-combustible).

The amount of the unloaded cargo is determined by the Draft Survey.

The SI measuring system is to be applied in the port. The water density at the landing place usually equals 1025 kg/m³. The exact water density has to be determined immediately before the final or any intermediate Draft Survey is carried out in order to determine the amount of cargo on board. The summer freeboard mark is applied in the port.

If the ship damages the port or port devices or if the shore workers damage the ship, the extent of damage will be determined by a three-member panel. One member is the ship representative, one is port representative and the third has to be mutually agreed. If the agreement is not reached, the third member will be appointed by the Pula Harbor Master's Office.

Damage to the ship caused with the port installations and cargo-unloading gear will be fixed on the port's expense after the cargo is completely unloaded and before the ship's departure.

Prior to that, the ship's master has to explicitly approve or not the repair work.

Damages, which the port is not capable of repairing, will be described and officially signed by the port representative and the ship's Master.

Upon the completion of the cargo operations, the ship can stay alongside free of charge for two hours. If required, and with the approval of the port representative, the ship can stay at berth even longer. In any other case it has to pay berthage.

While the ship is alongside, it is forbidden to enter the hold areas or the neighboring spaces if they are not ventilated and/or the atmosphere is not safe to enter. If the atmosphere in the enclosed spaces is not safe to enter, the access to the area is allowed only in special circumstances with the compulsory use of breathing apparatus and according to the common procedures and rules.

It is the shipmaster's duty to inform the port representative as soon as possible, if the cargo temperature exceeds 55°C and continues to rise, or the level of carbon monoxide is rising, in which case the hatches have to be closed immediately and the ventilation turned on.

During the ship's stay in the port, it is the shipmaster's duty to permit to authorized representatives certain institutions which carry out inspections as well as to the persons responsible for safe work and protection of the crew and cargo providing their activities has been approved by the port representatives, the supervision of the quantity and quality of the cargo.

5. DEPARTURE

5.1. Notice of departure

The ship departure has to be announced by the shipmaster or his agent at least 3 hours before the sailing out maneuver. The announcement of departure has to be submitted to:

- Pula Harbor Master's Office,
- Labin Police Station,
- Customs Authorities,
- Authorized pilot association.

The ship must prepare for the departure:

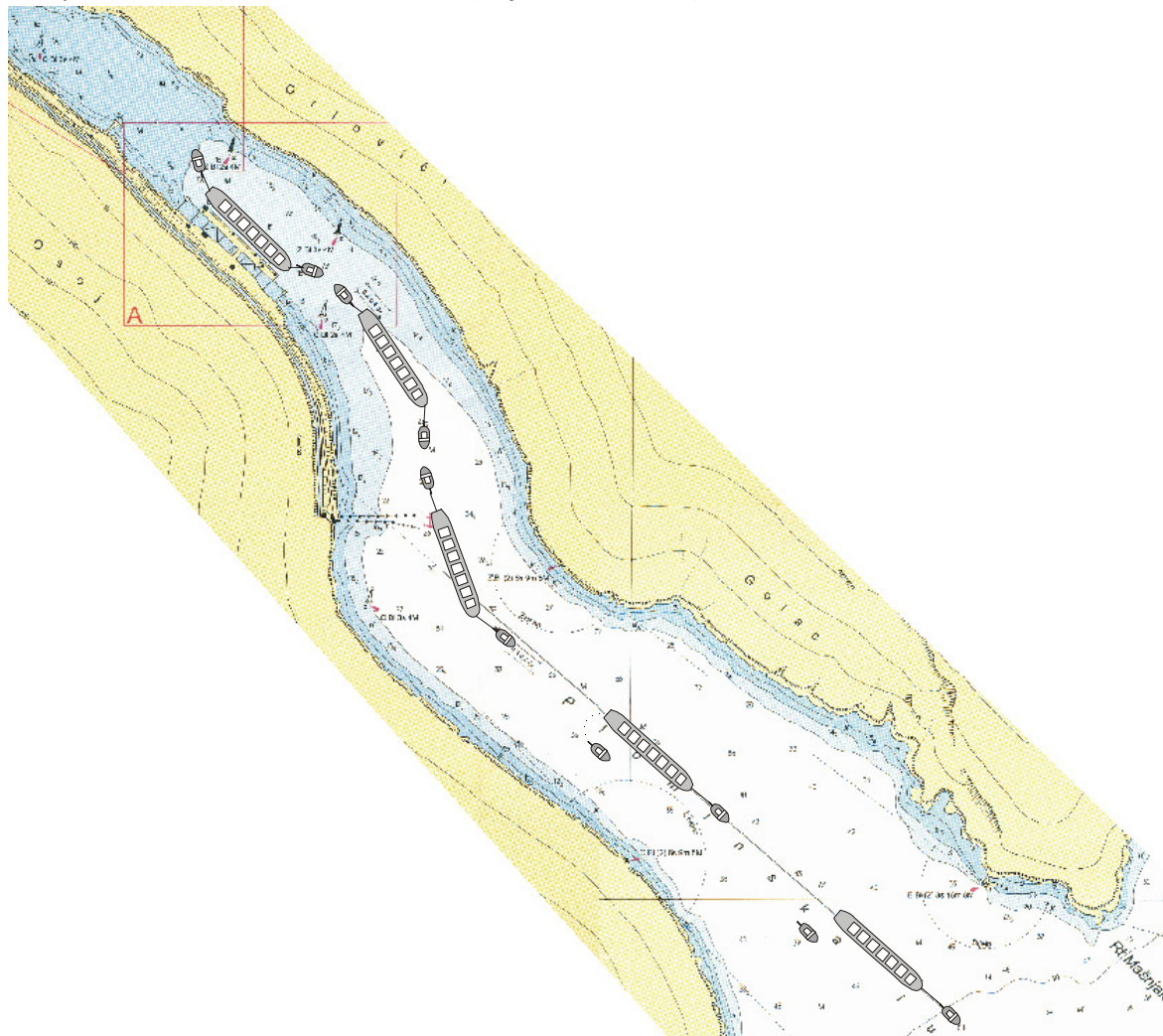
- 5 copies of the Crew List
- 5 copies of the Passenger List.
- 3 copies of the Ship's Stores Declaration,

After the Port Authorities' inspection, the Clearance to Departure is issued to the vessel.

Upon the issuing of the clearance it is not allowed to leave the vessel and, apart from the pilots, no one else is allowed to board or disembark from the ship.

It is the ship's agent's duty to inform the pilots and tug services about the time of the ship's departure.

After the ship leaves the berth at the exit of the bay and after tugs are released the Master has to report the VTS (Vessel Traffic Service) Rijeka (VHF ch 14).



Picture 11 The maneuver of the ship's departure

5.2. Pilotage during departure

Pilotage is compulsory for all vessels over 500 BT.

The pilots are disembarked at the location that he suggests safe enough, considering the weather conditions at the time. The pilots are disembarked with the accommodation ladder or pilot ladder, according to the pilot's guidelines for every particular case.

Upon the completion of the piloting it is the shipmaster's duty to sign the pilotage receipt.

5.3. Unberthing maneuver

Under the usual sailing out maneuver conditions of the PANAMAX size vessel, two tugs are used, one at the bow and one at the stern. After the pilots are accepted, the ship leaves the quay under its own propulsion and followed by the tugs leaves the Bay of Plomin.

The pilots are disembarked after the ship has completely sailed out of the Bay of Plomin.

6. PROCEDURES IN CASE OF ACCIDENT

6.1. General procedure

In case of existing danger to the ship, human lives or property, it is the shipmaster's duty to immediately report the port person in charge. Exceptionally, in case of justified circumstances, the shipmaster can also inform about the existing danger directly the MRCC Rijeka through the VHF 16 or by telephoning to the number 195.

In cases where the accident occurs somewhere in the port area or in the immediate vicinity of it, it is the shipmaster's duty to stop unloading, and to prepare the ship for leaving the berth in case of emergency.

Leaving the berth by the vessels of the PANAMAX size without the assistance of pilots is not allowed, except with the explicit permission of the Port Authorities.

6.2. Injuries

In case of any injury that threatens health or life of crewmembers or shore workers on board, it is the Master's duty to inform, as soon as possible, the port representatives. The information should contain the number of injured persons and the nature of the injuries. Upon the receipt of such information, the port representative shall organize medical first aid and proper transport of injured persons to local health institutions.

If non-urgent health care is required, the ship Master shall inform his agent who is supposed to organize medical help.

6.3. Unfavorable weather conditions and local storms

In case of unfavorable weather conditions or local storms, it is the shipmaster's duty to:

- increase the number of mooring ropes,
- secure all the mobile parts of the ship,
- Contact port representatives in order to agree upon the further action.

In case of wind of the velocity of over 20 m/s, the cargo unloading will be stopped.

The departure of the ship is not expected in case of storm in the port of Plomin area.

In case that a storm of 10 Bf or more is announced, it is the shipmaster's duty to provide, in due time, the required number of tugs via agent in order to secure the safety of the vessel at berth.

6.4. Fire on board

In case of fire on board or the possibility that a fire on board will break out soon, it is the shipmaster's duty to inform the port representative about it as soon as possible and to undertake the measures of putting it out or reducing the danger of it.

In case of fire within the port, it is the shipmaster's duty to:

- prepare the ship firefighting system,
- inform all the persons on board about the arisen circumstances,
- stop the unloading and prepare the vessel for sailing out, if the circumstances are such that this may be necessary,
- Follow instructions given by the port representatives.

Pursuant to article 6 of the Regulation on Handling Dangerous Substances, on the Conditions and Manner of Loading and Unloading Dangerous Substances, Bulk and Other Cargo in Ports, and Preventing Oil Spillage Spreading in Ports (Official Gazette of the Republic of Croatia No. 51/05, 127/10, 34/13 and 88/13), and following the decision made by the manager of the thermo-electric power plant „TE Plomin“, on 25.9.2015, the „Hrvatska elektroprivreda d.d.“ (The Croatian Electric Power Supply, a joint stock company), has issued the following

7. OPERATIONAL INSTRUCTIONS FOR THE HANDLING OF SOLID DANGEROUS SUBSTANCES IN BULK WITHIN THE PORT OF PLOMIN

I. GENERAL PROVISIONS

1. These Instructions hereby provide the essential facts and circumstances for the ship's berthing and staying in the port, the handling of solid dangerous substances in bulk within the port, the location of protection means, the procedure for calling protection services in the port and for ship's supplies.
2. The Port of Plomin area covers the land and sea-water space as prescribed by the Decision on the Maritime Domain Concession for the Economic Use of Special-purpose Ports - of the Special-purpose Port of Plomin (Official Gazette of the Republic of Croatia No. 73/97, 2/98).
3. Handling dangerous substances in the port of Plomin must be performed pursuant to the Regulation on Handling Solid Dangerous Substances in Bulk within the Special-purpose Port of Plomin Area, to the rules and instructions prescribed by the Port of Plomin in accordance with the above-mentioned Regulations and other relevant regulations as well.
4. Apart from safety measures prescribed by the Regulation on Handling Solid Dangerous Substances in Bulk within the Special-purpose Port of Plomin Area, the relevant provisions of the following regulations with subsequent amendments are to be applied when unloading and handling solid dangerous substances in bulk:
 1. International Convention on the Safety of Life at Sea – SOLAS 1974 and Protocols (hereinafter referred to as: SOLAS 1974),
 2. International Convention on the Prevention of Marine Pollution from Ships and Protocols (hereinafter referred to as: MARPOL 73/78),
 3. International Maritime Dangerous Goods Code (IMDG Code),
 4. International Maritime Solid Bulk Cargo Code (IMSBC Code, 2008),
 5. International Code for the Safe Bulk Cargo Loading and Unloading (BLU Code, 1998),
 6. EU Regulations,
 7. Rules of the Recognized Organization for Statutory certification of Ships.

5. Information on essential factors and circumstances for the notification of the ship's arrival, berthing and stay in the port of Plomin are given in the *Instructions to the Master*.
6. The Port officials are obliged to inform the Master of the ship carrying solid dangerous substances in bulk of the *Instructions to the Master* and of the *Regulation on Order in the Special-purpose Port of Plomin*.
7. Unloading and handling solid bulk dangerous substances in the port of Plomin are carried out in accordance with the Regulation on Handling Solid Dangerous Substances in Bulk within the Special-purpose Port of Plomin Area and the Regulation on the class and quantity of dangerous substances to be handled or the ship loaded with can enter the special-purpose port of Plomin.
8. The shipping agent is obliged to inform the Master of the ship carrying solid dangerous substances in bulk with the provisions of the above-mentioned Regulations and other rules to be applied in the port during the solid dangerous substances in bulk unloading and handling procedure.
9. The solid bulk dangerous substances handling procedure must be carried out in such a way and under such conditions that can ensure a safe operation, especially with regard to the type of dangerous substances, means of work, cargo handling area and weather conditions.
10. Dangerous substances must be handled under the supervision of a Port qualified technical personnel.
11. The Port is obliged to stop the dangerous substances handling procedure if no appropriate protection measures have been used.
12. The Port dangerous substances handling supervisory service keeps order and supervises the application of safety, protection and other measures within the port area where handling dangerous substances is carried out.
13. During the whole handling dangerous substances procedure, an appropriate firefighting equipment must be kept in an easily accessible place enabling its quick and efficient use.
14. The Master of the ship ensures the proper operation of the firefighting equipment on board the ship and its quick and efficient use.
15. During the dangerous substances handling procedure, the firefighting appliances on board the ship must be ready for operation at any time, and one pump at least must keep the pressure in the main pipeline.
16. The Port must ensure a sufficient number of firefighting appliances as well as their good working order. The Port must ensure that the protection means are placed at clearly marked prominent places.
17. A safety and security service operates at the Port.

II. FEATURES AND CHARACTERISTICS OF COAL

According to the International Maritime Solid Bulk Cargoes Code 2008 IMSBC with amendments

COAL

(See also the appendix to this schedule)

Description

Coal (bituminous and anthracite) is a natural, solid, combustible material consisting of amorphous carbon and hydrocarbons.

Characteristics

Angle of repose	Bulk density (kg/m ³)	Stowage factor (m ³ /t)
Not applicable	654 to 1,266	0.79 to 1.53
Size	Class	Group
Up to 50 mm	MHB	B (and A)

Hazard

Coal may create flammable atmospheres, may heat spontaneously, may deplete the oxygen concentration, may corrode metal structures. Can liquefy if predominantly fine 75% less than 5 mm coal.

Stowage and segregation

Refer to the appendix to this schedule.

Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

Weather precautions

When a cargo may liquefy during voyage in case that the moisture content of the cargo is in excess of its TML and the cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

1. the moisture content of the cargo shall be kept less than its TML during voyage;
2. unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
3. unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
4. the cargo may be handled during precipitation provided that the actual moisture content of the cargo is sufficiently less than its TML so that the actual moisture content is not liable to be increased beyond the TML by the precipitation; and
5. the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

Loading

Trim in accordance with the relevant provisions required under sections 4 and 5 of the Code.

Without reasonable trimming, vertical cracks into the body of the coal may form, permitting oxygen circulation and possible self-heating.

Precautions

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. *Refer to the appendix to this schedule.*

Ventilation

*Refer to **Special precautions** in the appendix to this schedule.*

Carriage

Refer to the appendix to this schedule.

Discharge

No special requirements.

Clean-up

No special requirements.

Emergency procedures

<p align="center">Special emergency equipment to be carried</p> <p align="center">Nil</p>
<p align="center">Emergency procedures</p> <p align="center">Nil</p> <p align="center">Emergency action in the event of fire</p> <p align="center">Batten down. Exclusion of air may be sufficient to control the fire.</p> <p align="center">Do not use water.</p> <p align="center">Seek expert advice and consider heading to the nearest port.</p> <p align="center">Medical First Aid</p> <p align="center">Refer to the <i>Medical First Aid Guide (MFAG)</i>, as amended.</p>

Remarks

The use of CO₂, or inert gas, if available, should be withheld until fire is apparent.

Appendix

COAL

Properties and characteristics

1. Coals may emit methane, a flammable gas. A methane/air mixture containing between 5% and 16% methane constitutes an explosive atmosphere which can be ignited by sparks or naked flame, e.g. electrical or frictional sparks, a match or lighted cigarette. Methane is lighter than air and may, therefore, accumulate in the upper region of the cargo space or other enclosed spaces. If the cargo space boundaries are not tight, methane can seep through into spaces adjacent to the cargo space.
2. Coals may be subject to oxidation, leading to depletion of oxygen and an increase in carbon dioxide or carbon monoxide concentrations in the cargo space. Carbon monoxide is an odorless gas, slightly lighter than air, and has flammable limits in air of 12% to 75% by volume. It is toxic by inhalation, with an affinity for blood hemoglobin over 200 times that of oxygen.
3. Some coals may heat spontaneously and the spontaneous heating may lead to spontaneous combustion in the cargo space. Flammable and toxic gases, including carbon monoxide, may be produced.
4. Some coals may be liable to react with water and produce acids which may cause corrosion. Flammable and toxic gases, including hydrogen, may be produced. Hydrogen is an odorless gas, much lighter than air, and has flammable limits in air of 4% to 75% by volume.

Segregation and stowage requirements

1. Unless expressly provided otherwise, boundaries of cargo spaces where this cargo is carried shall be resistant to fire and liquids.
2. This cargo shall be "separated from" goods of classes 1 (division 1.4), 2, 3, 4 and 5 in packaged form (see IMDG Code) and "separated from" solid bulk materials of classes 4 and 5.1.
3. Stowage of goods of class 5.1 in packaged form or solid bulk materials of class 5.1 above or below this cargo shall be prohibited.
4. The master shall ensure that this cargo is not stowed adjacent to hot areas.^{1*}
5. This cargo shall be "separated longitudinally by an intervening complete compartment or hold from" goods of class 1 other than division 1.4.

Note: For interpretation of these terms, see section 9.

* See also MSC.I/Circ.1351 on Interpretation of stowage and segregation requirements for brown coal briquettes and coal related to "hot areas" in the IMSBC Code.

General requirements for all types of these cargoes

1. Prior to loading, the shipper or his appointed agent shall provide in writing to the master the characteristics of the cargo and the recommended safe handling procedures for loading and transport of the cargo. As a minimum, the cargo's contract specifications for moisture content, Sulphur content and size shall be stated, and especially whether the cargo may be liable to emit methane or self-heat.
2. Before loading, the master shall ensure the following:
 - 2.1. All cargo spaces and bilge wells are clean and dry. Any residue of waste material or previous cargo is removed, including removable cargo battens; and
 - 2.2. All electrical cables and components situated in cargo spaces and adjacent enclosed spaces are free from defects. Such cables and electrical components are safe for use in an explosive atmosphere or positively isolated. The provisions of this clause need not apply to engine-rooms where the engine-room is separated from the cargo space by a gastight bulkhead with no direct access.
3. The ship shall be suitably fitted and carry on board appropriate instruments for measuring the following without requiring entry in the cargo space:
 - 3.1 concentration of methane in the atmosphere;
 - 3.2 concentration of oxygen in the atmosphere;
 - 3.3 concentration of carbon monoxide in the atmosphere; and
 - 3.4 pH value of cargo space bilge samples.
4. These instruments shall be regularly serviced and calibrated. Ship personnel shall be trained in the use of such instruments. Details of gas measurement procedures are given at the end of this appendix.
5. It is recommended that means be provided for measuring the temperature of the cargo in the range 0°C to 100°C to enable the measurement of temperature of the cargo while being loaded and during voyage without requiring entry into the cargo space.
6. Smoking and the use of naked flames shall not be permitted in the cargo areas and adjacent spaces and appropriate warning notices shall be posted in conspicuous places. Burning, cutting, chipping, welding or other sources of ignition shall not be permitted in the vicinity of cargo spaces or in other adjacent spaces, unless the space has been properly ventilated and the methane gas measurements indicate it is safe to do so.
7. Prior to departure, the master shall be satisfied that the surface of the material has been trimmed reasonably level to the boundaries of the cargo space to avoid the formation of gas pockets and to prevent air from permeating the body of the briquettes. Casings leading into the cargo space shall be adequately sealed. The shipper shall ensure that the master receives the necessary cooperation from the loading terminal.
8. The atmosphere in the space above the cargo in each space shall be regularly monitored for the concentration of methane, oxygen and carbon monoxide. Details of gas monitoring procedures are given at the end of this appendix. The results of monitoring shall be recorded. The frequency of the monitoring shall be determined based upon the information provided by the shipper and the information obtained through the analysis of the atmosphere in the cargo space.

9. Unless expressly provided otherwise, surface ventilation shall be conducted in all cargo spaces carrying this cargo for the first 24 hours after departure from the loading port. During this period, the atmosphere in the cargo spaces shall be monitored once from one sample point per cargo space and, for the purpose of the gas monitoring, the ventilation shall be stopped for an appropriate period prior to the gas monitoring.
10. When the methane concentrations monitored within 24 hours after departure are at an acceptably low level, the ventilation openings shall be closed and the atmosphere in the cargo spaces shall be monitored. When the methane concentrations monitored within 24 hours after departure are not at an acceptably low level, surface ventilation shall be maintained, except for an appropriate period for gas monitoring, and the atmosphere in the cargo spaces shall be monitored. This procedure shall be followed until the methane concentrations become acceptably low level. In any event, the atmosphere in the cargo spaces shall be monitored on a daily basis.
11. When significant concentrations of methane are subsequently observed in unventilated cargo spaces, the appropriate special precautions for coals emitting methane shall apply.
12. The master shall ensure, as far as practicable, that any gases which may be emitted from this cargo do not accumulate in adjacent enclosed spaces.
13. The master shall ensure that enclosed working spaces such as storerooms, carpenter's shop, passageways, tunnels, etc., are regularly monitored for the presence of methane, oxygen and carbon monoxide. Such spaces shall be adequately ventilated.
14. Regular hold bilge testing shall be systematically carried out during voyage carrying this cargo. If the pH monitoring indicates that a corrosion risk exists, bilges shall be frequently pumped out during the voyage in order to avoid possible accumulation of acids on tank tops and in the bilge system.
15. If the behavior of the cargo during the voyage differs from that specified in the cargo declaration, the master shall report such differences to the shipper. Such reports will enable the shipper to maintain records on the behavior of the coal cargoes, so that the information provided to the master can be reviewed in the light of transport experience.

Special precautions

1 Coal emitting methane

When the shipper has informed that the cargo is liable to emit methane or analysis of the atmosphere in the cargo space indicates the presence of methane in excess of 20% of the Lower Explosion Limit (LED), the following additional precautions shall be taken:

1. Adequate surface ventilation shall be maintained, except for an appropriate period for the purpose of gas monitoring.
2. Care shall be taken to remove any accumulated gases prior to operation of the hatch covers or other openings for any reason, including discharging. Care shall be taken to operate hatch covers of the cargo spaces and other openings to avoid creating sparks. Smoking and the use of naked flame shall be prohibited.

3. Personnel shall not be permitted to enter the cargo space or enclosed adjacent spaces unless the space has been ventilated and the atmosphere tested and found to be gas-free and to have sufficient oxygen to support life. Notwithstanding these provisions, emergency entry into the cargo space may be permitted without ventilation, testing the atmosphere or both, provided that the entry into the cargo space is undertaken only by trained personnel wearing self-contained breathing apparatus under the supervision of a responsible officer and special precautions are observed to ensure that no source of ignition is carried into the space.
4. The master shall ensure that enclosed working spaces such as storerooms, carpenter's shops, passageways, tunnels, etc., are regularly monitored for the presence of methane. Such spaces shall be adequately ventilated and, in the case of mechanical ventilation, only equipment safe for use in an explosive atmosphere shall be used.

2 Self-heating coals

When the shipper has indicated that the cargo is likely to self-heat or analysis of the atmosphere in the cargo space indicates an increasing concentration of carbon monoxide, then the following additional precautions shall be taken:

1. The cargo spaces shall be closed immediately after completion of loading in each cargo space. The hatch covers may also be additionally sealed with a suitable sealing tape. Only natural surface ventilation shall be permitted and ventilation shall be limited to the absolute minimum time necessary to remove methane which may have accumulated.
2. Personnel shall not enter the cargo space during voyage, unless they are wearing self-contained breathing apparatus and access is critical to safety of life and the safety of the ship.
3. Prior to loading, temperature of this cargo shall be monitored. This cargo shall only be accepted for loading when the temperature of the cargo is not higher than 55°C.
4. When the carbon monoxide level is increasing steadily, a potential self-heating may be developing. In such a case, the cargo space shall be completely closed and all ventilation ceased, and the master shall seek expert advice immediately. Water shall not be used for cooling material or fighting coal cargo fires at sea, but may be used for cooling the boundaries of the cargo space.
5. When the carbon monoxide level in any cargo space reaches 50 ppm or exhibits a steady rise over three consecutive days, a self-heating condition may be developing and the master shall inform the shipper and the company of, at least, the following information if an accurate assessment of the situation is to be achieved:
 - 5.1 identity of the cargo spaces involved; monitoring results covering carbon monoxide, methane and oxygen concentrations;
 - 5.2 if available, temperature of the cargo, location and method used to obtain results;
 - 5.3 time gas sample taken (monitoring routine);
 - 5.4 time ventilators opened/closed;
 - 5.5 quantity of coal in hold(s) involved;

5.6 type of coal as per cargo information, and any special precautions indicated on information;

5.7 date loaded, and ETA at intended discharge port (which shall be specified); and

5.8 comments or observations from the ship's master.

3 Gravity-fed self-unloading bulk carrier

1. A gravity-fed self-unloading bulk carrier means a vessel that has gravity-fed systems from the bottom of cargo holds, using gates that may be opened or closed to feed the cargo onto conveyor belts. Such belts run in a fore-and-aft direction underneath the holds; from there the cargo is carried by means of conveyor systems to the deck and discharged onto shore with a self-unloading boom that can extend over the shore and has a conveyor belt. This is not applicable for the vessels with unloading systems such as cranes and grabs.
2. When this cargo is carried on a gravity-fed self-unloading bulk carrier, the following requirements of this appendix need not apply:
 - paragraph 1 of "Segregation and stowage requirements"; and
 - paragraph 9 of "General requirements for all types of these cargoes"

3. Loaded voyage procedures for atmospheric monitoring of cargoes

3.1 Bulk coal cargo safety procedures

3.1.1 These requirements apply when these cargoes are to be carried on a gravity-fed self-unloading bulk carrier. It is recommended that a document, such as a flow chart, describing cargo operations and carriage procedures for these cargoes be provided to the ship by the vessel's operator.

4. Ventilation

4.1. When ventilating, it shall be ensured that excess air does not ingress excessively into the body of the cargo of coal as this may eventually promote self-heating.

4.2 Due to the presence of non-airtight unloading gates at the bottom of the cargo hoppers just above the tunnels, the following methods of ventilation shall be used:

- if methane is detected in the tunnel, it shall be "positive-pressure" ventilated (more supply than exhaust in the tunnels, to remove methane gas); and
- if carbon monoxide is detected in the tunnel, it shall be "negative-pressure" ventilated (more exhaust than supply in the tunnels, to remove carbon monoxide). The release of carbon monoxide may be an indication of self-heating.

Procedures for gas monitoring of coal cargoes

1 *Observations*

- 1.1 Carbon monoxide monitoring, when conducted in accordance with the following procedures, will provide a reliable early indication of self-heating within this cargo. This allows preventive action to be considered without delay. A steady rise in the level of carbon monoxide detected within a cargo space is a conclusive indication that self-heating is taking place.
- 1.2 All vessels engaged in the carriage of this cargo shall carry on board an instrument for measuring methane, oxygen and carbon monoxide gas concentrations, to enable the monitoring of the atmosphere within the cargo space. This instrument shall be regularly serviced and calibrated in accordance with the manufacturer's instructions. Care shall be exercised in interpreting methane measurements carried out in the low oxygen concentrations often found in unventilated cargo holds. The catalytic sensors normally used for the detection of methane rely on the presence of sufficient oxygen for accurate measurement. This phenomenon does not affect the measurement of carbon monoxide or measurement of methane by infrared sensor. Further guidance may be obtained from the instrument manufacturer.

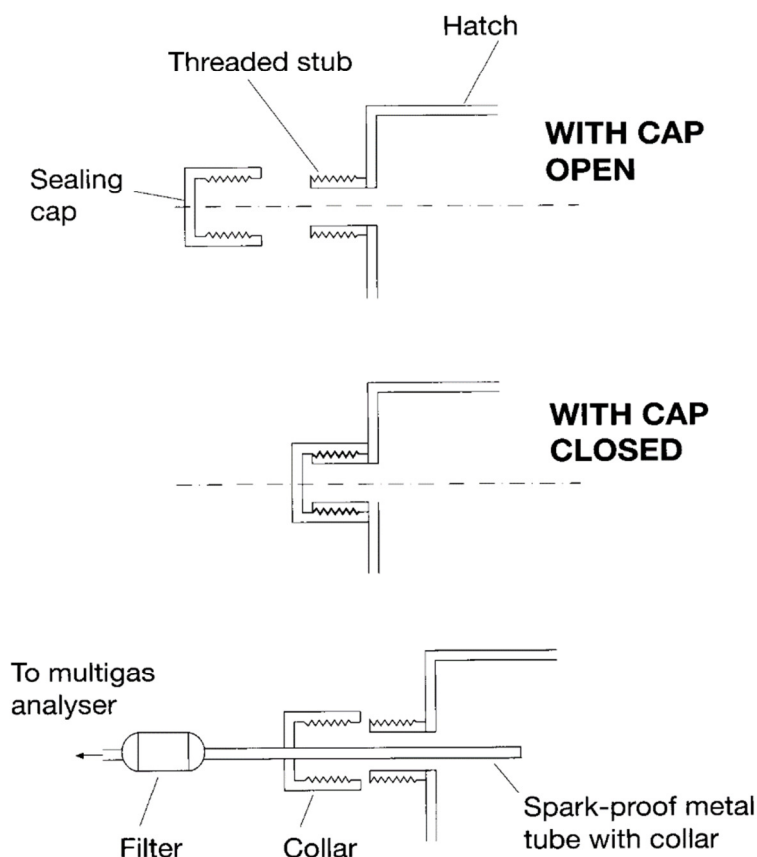
2 *Sampling and measurement procedure*

2.1 *Equipment*

- 2.1.1 An instrument which is capable of measuring methane, oxygen and carbon monoxide concentrations shall be provided on board a ship carrying this cargo. The instrument shall be fitted with an aspirator, flexible connection and a length of spark-proof metal tubing to enable a representative sample to be obtained from within the square of the hatch.
- 2.1.2 When recommended by the manufacturer, a suitable filter shall be used to protect the instrument against the ingress of moisture. The presence of even a small amount of moisture will compromise the accuracy of the measurement.

2.2 *Siting of sampling points*

- 2.2.1 In order to obtain meaningful information about the behavior of this cargo in a cargo space, gas measurements shall be made via one sample point per cargo space. To ensure flexibility of measurement in adverse weather, two sample points shall be provided per cargo space, one on the port side and one on the starboard side of the hatch cover or hatch coaming. (Refer to the diagram of gas sampling point.) Measurement from either of these locations is satisfactory.



2.2.2 Each sample point shall comprise a hole of diameter approximately 12 mm positioned as near to the top of the hatch coaming as possible. It shall be sealed with a sealing cap to prevent ingress of water and air. It is essential that this cap is securely replaced after each measurement to maintain a tight seal.

2.2.3 The provisions of any sample point shall not compromise the seaworthiness of the vessel

2.3 Measurement

2.3.1 The explanation on procedures for measurement is as follows:

- remove the sealing cap, insert the spark-proof metal tube into the sampling point and tighten the collar to ensure an adequate seal;
- connect the instrument to the sampling tube;
- draw a sample of the atmosphere through the tube, using the aspirator, until steady readings are obtained;
- log the results on a form which records cargo space, date and time for each measurement; and
- put back the sealing cap.

2.4 Measurement strategy

The identification of incipient self-heating from measurement of gas concentrations is more readily achieved under unventilated conditions. This is not always desirable because of the possibility of the accumulation of methane to dangerous concentrations. This is primarily, but not exclusively, a problem in the early stages of a voyage. Therefore, it is recommended that cargo spaces are initially ventilated until measured methane concentrations are at an acceptably low level.

2.5 Measurement in unventilated holds

Under normal conditions one measurement per day is sufficient as a precautionary measure. However, if carbon monoxide levels are higher than 30 ppm then the frequency shall be increased to at least twice a day at suitably spaced intervals. Any additional results shall be logged.

2.6 Measurement in ventilated holds

2.6.1 If the presence of methane is such that the ventilators are required to remain open, then a different procedure shall be applied to enable the onset of any incipient self-heating to be detected.

2.6.2 To obtain meaningful data the ventilators shall be closed for a period before the measurements are taken. This period may be chosen to suit the operational requirements of the vessel, but it is recommended that it is not less than four hours. It is vital in the interests of data interpretation that the shutdown time is constant whichever time period is selected. These measurements shall be taken on a daily basis.

2.7 Measurement in cargo and self-unloading spaces of gravity-fed self-unloading bulk carrier

2.7.1 Measurement in unventilated cargo and self-unloading spaces

2.7.1.1 When the shipper has declared that the coal cargo has or may have self-heating characteristics, the holds shall not be ventilated unless otherwise specified in this section.

2.7.1.2 Under normal conditions, one measurement per day is sufficient as a precautionary measure. If carbon monoxide levels are higher than 30 ppm then the frequency of measurements shall be increased to at least twice daily, at suitable intervals. Any additional results shall be logged.

2.7.1.3 If the carbon monoxide level in any hold indicates a steady rise or reaches 50 ppm, a self-heating condition may be developing and the owners of the vessel shall be notified as outlined in the procedures. Above this level, the vessel shall operate on "negative-pressure" ventilation, in order to reduce the amount of carbon monoxide. Regular monitoring of carbon monoxide levels shall continue.

2.7.1.4 Persons entering cargo or unloading spaces with carbon monoxide levels higher than 30 ppm shall not do so without self-contained breathing apparatus.

2.7.2 Measurement in ventilated cargo and self-unloading spaces

2.7.2.1 If the presence of methane is indicated by monitor, and such that ventilation is required, then a different procedure shall be applied to enable the onset of any possible self-heating to be detected. "Positive-pressure" or "through" ventilation shall be operated to remove the methane.

2.7.2.2 To obtain meaningful data, the ventilators and/or ventilation shall be closed for a period before measurements are taken. This period may be chosen to suit the operational requirements of the vessel, but it is recommended that it is not less than four hours. It is vital, in the interests of data interpretation, that the shutdown time is constant whichever time period is selected. These measurements shall be taken on a daily basis. If the carbon monoxide results exhibit a steady rise, or exceed 50 ppm on any day, the owner shall be notified.

2.7.2.3 In addition, the following points shall be considered:

- at no time shall ventilation be shut down when crew members are in the self-unloading spaces;
- special fire-fighting equipment and/or procedures may be necessary for the vessel; and
- establish specific crew training for gravity-fed self-unloading bulk carriers.

8. FORMS

UNLOADING PLAN

ANY DEVIATION FROM ABOVE PLAN WILL BE AGREED BETWEEN THE SHIP AND TERMINAL

UNLOADING PLAN Version No.		Date	Vessel				Voyage No.					
Loading port		Cargo	Assumed stowage factor of cargo		Dock water density		Draught forward		Draught aft	Mean draft		
		Last cargo	Discharge rate		Ballast pumping rate							
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px;">Hold No.7</div> <div style="border: 1px solid black; padding: 5px;">Hold No.6</div> <div style="border: 1px solid black; padding: 5px;">Hold No.5</div> <div style="border: 1px solid black; padding: 5px;">Hold No.4</div> <div style="border: 1px solid black; padding: 5px;">Hold No.3</div> <div style="border: 1px solid black; padding: 5px;">Hold No.2</div> <div style="border: 1px solid black; padding: 5px;">Hold No.1</div> </div>												
our No.	Cargo		Ballast operation	Time required (hours)	Comments	Calculated values				Calculated values		
	Hold No.	Tones				Draught		Maximum		Air draught	Draught mid	Trim
						Fwd	Aft	BM*	SF*			
TOTAL					Signed Terminal	Signed Ship						

* Bending moments (BM) & shear forces (SF) are to be expressed as percentage of maximum permitted in-port values for intermediate stages, and of maximum permitted at sea values for the final stage. Every step in the unloading plan must remain within the allowable limits for hull girder, shear forces, bending moments and tonnage per hold, where applicable.

**BROD/OBALA SIGURNOSNA KONTROLNA LISTA ZA UKRCAJ ILI ISKRCAJ
BRODOVA ZA SUHI RASUTI TERET**

**SHIP/SHORE SAFETY CHECKLIST FOR LOADING OR UNLOADING DRY BULK CARGO
CARRIERS**

Ime broda:		Datum:	
Ship' name:		Date:	

Luka:	PLOMIN	Terminal/ Vez	COAL TERMINAL
Port:		Terminal/ Quay	

Raspoloživa dubina vode na vezu:	15m	Najmanja visina broda:	
Available depth of water at berth:		Minimum air draught:	

Gaz na dolasku/pročitano:		Visina broda:	
Arrival draught/ read:		Air draught:	

Izračunati gaz odlaska:		Visina broda:	
Calculated departure draught:		Air draught:	

Zapovjednik i predstavnik terminala, ili njihovi zastupnici, zajednički moraju ispuniti kontrolnu listu. Šira objašnjenja o kontrolnim pitanjima dana su dodatku 4 BLU Kodeksa. Sigurnosne operacije zahtijevaju da na sva pitanja bude potvrđen odgovor u predviđene kućice, ako to nije slučaj mora se navesti razlog te postignuti dogovor između broda i terminala o neophodnim mjerama opreza. Ako se smatra da pitanje nije primjenjivo upisati nije primjenjivo (N/P), uz popratno objašnjenje.

The master and terminal, or their representatives, should complete the checklist jointly. Advice on points to be considered is given in the accompanying guidelines. The safety of operations requires that all questions should be answered affirmatively and the boxes ticked. If this is not possible, the reason should be given, and agreement reached upon precautions to be taken between ship and terminal. If a question is considered to be not applicable write »N/A«, explaining why if appropriate.

	Brod Ship	Terminal Terminal
<p>Da li su dubina vode na vezu i visina broda dostatni za završetak operacija s teretom?</p> <p><i>Is the depth of water at the berth, and the air draught, adequate for the cargo operations to be completed?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je vez broda siguran od vremenskih prilika, plime-oseke, utjecaja morske struje, ostalih privezanih plovila te prometa.</p> <p><i>Are mooring arrangements adequate for all local effects of tide, current, weather, traffic and craft alongside?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je brod uvijek spreman za isplovljenje u slučaju nužde?</p> <p><i>In emergency, is the ship able to leave the berth at any time?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je pristup između privezanog broda i obale siguran?</p> <p><i>Is there safe access between the ship and warf?</i></p> <p>Nadzor pristupa brod/terminal, upiši odgovarajuće:</p> <p><i>Tended by ship/terminal, cross out as appropriate</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je usaglašeni komunikacijski sustav između broda/terminala ispravan?</p> <p><i>Is the agreed ship/terminal communication system operative?</i></p> <p>Način komuniciranja:</p> <p><i>Communication method</i></p> <p>Jezik:</p> <p><i>Language</i></p> <p>Radni kanali/telefonski br.:</p> <p><i>Radio channels/phone numbers</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li osobe za komunikaciju za vrijeme operacija usko surađuju?</p> <p><i>Are the liaison contact persons during operations positively identified?</i></p> <p>Osobe za vezu od strane broda:</p> <p><i>Ship contact persons</i></p> <p>Osobe za vezu od strane terminala:</p> <p><i>Shore contact person(s)</i></p> <p>Mjesto operacija:</p> <p><i>Location</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je posada na brodu, i odgovarajuće osoblje na terminalu spremno za slučaj nužde?</p> <p><i>Are adequate crew on board and adequate staff in terminal, for emergency?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>

<p>Da li su operacije ukrcaja goriva najavljene i dogovorene? <i>Have any bunkering operations been advised and agreed?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li su bilo kakvi namjeravani popravci na obali ili brodu najavljeni i dogovoreni? <i>Have any intended repairs to wharf or ship whilst alongside been advised and agreed?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li su postupci za izvještavanje te zapisi o šteti uslijed operacija s teretom dogovoreni? <i>Has a procedure for reporting and recording damage from cargo operation been agreed?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li su brodu dostavljeni propisi luke i terminala uključujući zahtjeve za sigurnost, i sigurnosnu zaštitu, onečišćenje okoliša te postupci u slučaju nužde? <i>Has the ship been provided with copies of port and terminal regulations, including safety and pollution requirements and details of emergency services?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je krcatelj dostavio zapovjedniku svojstva tereta u skladu s odredbama glave VI SOLAS Konvencije? <i>Has the shipper provided the master with the properties of the cargo in accordance with the requirement of chapter VI of SOLAS ?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je atmosfera u skladištima i zatvorenim prostorima sigurna za slučaj ulaska u te prostore, da li je fumigirani teret identificiran i da li je dogovoreno praćenje atmosfere od strane broda i terminala? <i>Is the atmosphere safe in holds and enclosed spaces to which access may be required, have fumigated cargoes been identified, and has need for monitoring of atmosphere been agreed by ship and terminal?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je količinski kapacitet rukovanja teretom i bilo kakvo ograničenje pomaka naprava za ukrcaj/iskrcaj tereta prosljeđene brodu/terminalu? <i>Have the cargo handling capacity and any limits of travel for each loader/unloader been passed to the ship/terminal?</i> Naprava za ukrcaj: Loader/unloader Ukrcajno/iskrcajna norma: t/sat Loading/unloading Rate tones/hr</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je plan ukrcaja ili iskrcaja tereta uračunat za sve faze krcanja/debalastiranja ili iskrcaja i balastiranja? <i>Has a cargo loading or unloading plan been calculated for all stages of loading/deballasting or unloading/ballasting?</i> Preslika pohranjena kod: Copy logged with</p>	<input type="checkbox"/>	<input type="checkbox"/>

<p>Da li su predviđena skladišta za ukrcaj/iskrcaj tereta jasno naznačena u planu tereta prikazujući faze rada, da li je naznačena vrsta i količina tereta koja se ukrcava u brodsko skladište?</p> <p><i>Have the holds to be worked been clearly identified in the loading or unloading plan, showing the sequence of work, and the grade and tonnage of cargo to be transferred each time the hold is worked?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je razmatrana mogućnost da se teret u skladištima poravnava, te da li je način i opseg dogovoren?</p> <p><i>Has the need for trimming of cargo in the holds been discussed and the method and extent been agreed?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li predstavnici broda i terminala razumiju i prihvataju da, u slučaju da se program balastiranja ne provodi u skladu s operacijama s teretom, da će biti potrebno prekinuti s operacijama s teretom dok se balasne operacije ponovo ne usklade s programom?</p> <p><i>Do both ship and terminal understand and accept that if the ballast program becomes out of step with the cargo operation, it will be necessary to suspend cargo operation until the ballast operation has caught up?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je namjeravani postupak čišćenja ostatka tereta u skladištima tijekom iskrcaja objašnjen i prihvaćen od strane broda?</p> <p><i>Have the intended procedures for removing cargo residues lodged in the holds while unloading, been explained to the ship and accepted?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li su postupci trimovanja nakrcanog broda jasno određeni i dogovoreni?</p> <p><i>Have the procedures to adjust the final trim of the loading ship been decided and agreed?</i></p> <p>Zaostala količina tereta na teretnoj traci terminala:</p> <p><i>Tonnage held by the terminal conveyor system</i></p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Da li je terminal obaviješten o potrebnom vremenu da se brod pripremi za isplovljenje nakon teretnih operacija?</p> <p><i>Has the terminal been advised of the time required for the ship to prepare for sea, on completion of cargo work?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>

SUGLASNO S GORE NAVEDENIM:

THE ABOVE HAS BEEN AGREED

Vrijeme:

Time

U ime broda:

For ship

Rang/Zvanje:

Rank

Datum:

Date

U ime terminala:

For terminal

Djelatnik/Zvanje:

Position/Title