PORT INFORMATION AND JETTY REGULATIONS

DONGES OIL TERMINAL

TOTAL RAFFINAGE FRANCE

April 2018 – Rev. 5

Foreword

For the Donges oil terminal, consisting of the berths known as Donges 2, 3, 4, 5, 6 and 7, the Port Information and Jetty Regulation Book as mentioned by ISGOTT consists of:

- The port information book which contains nautical information and the main port regulations applicable in Donges
- This document which contains information and instructions applicable within the terminal concerning operations at the jetty.

Ships are also required to apply the OCIMF recommendations particularly those contained in the "ISGOTT" and the "Mooring Equipment Guidelines", as long as they are not contrary to the applicable law.

THE INSTRUCTIONS AND RULES SET FORTH IN THIS DOCUMENT DO NOT REPLACE THE APPLICABLE REGULATIONS CONTAINED IN THE MARITIME PORT CODE AND ITS APPLICATION DOCUMENTS, PARTICULARLY:

The General Police Regulations
The Specific Police Regulations of *Port de Nantes – Saint Nazaire*
Regulations governing transportation and handling of hazardous goods in maritime ports.
Regulations governing transportation and handling of hazardous goods in *Port de Nantes – Saint Nazaire*.

THE INSTRUCTIONS ISSUED BY THE HARBOUR AUTORITY SHALL BE STRICTLY COMPLIED WITH.

TOTAL RAFFINAGE FRANCE cannot be held liable for information that the ship's Captain is required to supply to the Harbourmaster's Office, or for instructions that the Harbourmaster's Office is required to issue to the ship's Captain.
This document was drawn up loyally and may be subject to modification. It belongs to TOTAL RAFFINAGE FRANCE. It applies only in the context indicated above.

Updates

N°	Détail	Date	Writen by	Approved by
0	First edition	09/12/2011	M. DELESTRE	S. GAULON
1	Minor corrections	01/06/2012	M. DELESTRE	S. GAULON
2	Corrected Berth 7' maximum draught	17/10/2012	M. DELESTRE	S. GAULON
3	Corrections to berth 6 caracteristics	25/03/2013	M. DELESTRE	S. GAULON
4	Correction 4.8 mooring Correction 6.1 Cargo slops Minor corrections	02/06/2016	M. DELESTRE	E. DE STANKIEWICZ
5	Correction section 5, 6 and 7	30/08/2018	M. DELESTRE	E. DE STANKIEWICZ

SECTION 1: General information

1. *Definitions*

Terminal: The terminal consists of 6 berths (Donges 2 to Donges 7) comprising on the one hand the structures, the fendering and mooring systems, and the landing gangways managed by the *Grand Port Maritime de Nantes – Saint Nazaire*, and on the other hand the oil installations managed by the TOTAL RAFFINAGE FRANCE Donges refinery. The refinery is the operator of the terminal

Loading Master: The loading master is the representative of the terminal

Control Room Operator: The operator in charge of the control and supervision of loading and unloading operations. He maintains permanent radio contact (see § communication …) with the vessels operating within the terminal.

Jetty operator: Ensures the monitoring of operations from the jetty and operates some installed elements (valves, pumps, sampling points, etc.). At Donges 5, 6 and 7, the jetty operators each have a separate control room.

Harbourmaster's Office: The harbour officers conducting their policing assignments as described in the maritime port code. The harbourmaster's office can be reached on a 24 hour per day basis by telephone on +33 (0)2 40 45 39 00 or by VHF channel 14, call sign "Loire Ports Control"

2. *The Terminal Operator*

The TOTAL RAFFINAGE FRANCE Donges Refinery is the Terminal operator.

3. *Traffic at the Donges oil terminal*

- Donges 2: Dedicated to bunker barge
- Donges 3 and 4: White, black products and LPG
- Donges 5: Crude oil, white and black products
- Donges 6 and 7: Crude oil and black products

4. *All participants calling in to port at Donges*

- ***For the vessel***
  Agent
  Pilot
  Tugs
  Boatmen

- ***For the Grand Port Maritime de Nantes Saint Nazaire***
  Harbour officers
  Personnel in charge of landing gangway

- ***For the refinery***
  Loading Master
  Control room
  Jetty operator
  Connecting operator

- ***For the parties to the commercial contract***
  Inspection company

5. Occupation of berths

Vessels moor at the jetty for the time required to carrying out loading, unloading or bunkering by arm operations, and where applicable, while waiting for the tide to sail. Extended occupancy of a berth for any reason other than bunkering (including bunkering by barge, unloading of engine sludge, repair/technical action), requires preliminary permission from the refinery. The vessel agent shall make the request in written form. Superintendence costs during these operations will be at the vessel's expense.

SECTION 2: Emergency procedures

Generally speaking, the Captain must inform the control room operator whatever incident is encountered by the vessel during her stay at port, by radio and the Harbourmaster's office on VHF 14 and the agent by phone.

1. Refinery / terminal sirens

Major fire in refinery (concerning only berths 2, 3 & 4)

"POI" alarm: Continuous sound (tested each Wednesday at 12 PM).
Operations may be interrupted at the request of the terminal control room.
Action to be taken by vessels:
- Stand by and follow the instructions from the control room operator and Harbourmaster's office

Emission of toxic gas in refinery (concerning only berths 2, 3 & 4)

"PPI" alarm: Modulated sound (tested on the first Wednesday of the month at 12 PM).
Operations are interrupted at the request of the terminal control room operator.
Action to be taken by the vessel:
- Stand by and follow instructions from the control room operator and Harbourmaster's office

H2S detection (concerning only berths 2, 3 & 4)

H2S alarm: Intermittent sound and blue flash on the concerned berth
Action to be taken by the vessels: Stand by and follow the instructions from the control room operator and the harbourmaster's office

Overrunning of the 1st arm deflection step

1st step Alarm: Intermittent modulated sound and red flash on the concerned berth
Related action: Automatic Emergency Shutdown in the event of loading, request for Automatic Emergency Shutdown by red box when unloading

Overrunning of 2nd arm deflection step

2nd step Alarm: Continuous sound and permanent red light on the berth concerned
Related action: Automatic disconnection of the arm concerned

2. Fire

Fire in terminal or refinery

Operations can be interrupted at the request of the terminal control room.
Action to be taken by vessels:
- Stand by and follow the instructions from the control room operator and the Harbourmaster's office

3. **Fire on board**

Action to be taken by vessel:
- Immediately inform the terminal control room by radio and the harbourmaster's office on VHF14.
- Stop transfer operations.
- Implement vessel fire fighting plan.

The refinery safety team will take the initial measures.
The state fire brigade will be notified and may provide support with fire fighting, using a tug boat whenever necessary.

4. **LPG leak**

Ashore

LEL detectors are set out on all berths
If a gas leak is detected or occurs at the berth, the terminal control room will indicate the actions to be taken by the vessel, depending on the circumstances.

On board

In the event of an LPG leak into the atmosphere, interrupt transfer operations and immediately inform the terminal control room and Harbourmaster's office.

5. Pollution

Leak in the terminal

Refinery personnel will take all necessary steps to contain or limit the spillage.
If discharging is in progress, the control room operator may ask the vessel to interrupt transfer.

Leak on board

Interrupt transfer operations and immediately inform the terminal control room and harbourmaster's office.
Take all necessary steps to contain or limit the spillage.

6. Emergency evacuation

Emergency evacuation of vessel:

Throughout the stay, in addition to safe access between vessel and shore, a second way of evacuation shall be available. A lifeboat may be a good means of evacuation as long as its launching is not impeded by a jetty, a vessel or the vessel's own mooring lines. A gangway or pilot's ladder ready to be lowered on the side opposite the jetty is also a means of evacuation.

Emergency evacuation of berth

Donges berths each have 2 escape ways: a normal exit and an emergency exit. The latter must only be used in case of emergency.

7. Injured person on board

If there is a casualty on board, the control room operator shall be notified immediately so that the refinery security team can provide first aid if necessary and prepare for the arrival of external aid to provide medical care under the best possible conditions.

SECTION 3: Operations

1. Message before arrival

A few days before arrival, the refinery maritime service sends the vessel, through the agent, a message comprising 2 parts:
- Information and recommendations
- Questionnaire and documents to be sent

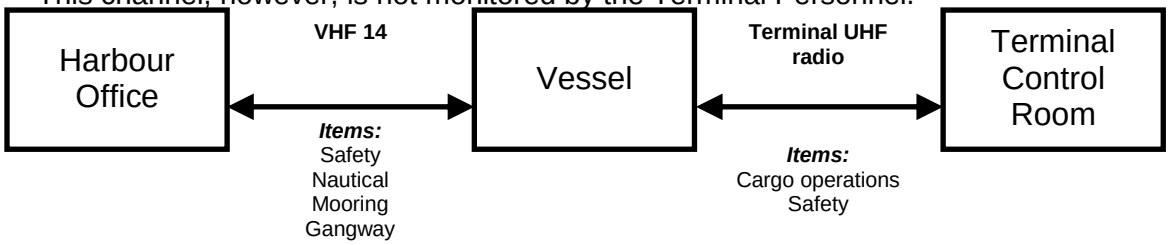
It is essential to carefully read the entire message, answer the questionnaire and send the requested documents before arrival. If there is no answer, or if the answer is incomplete, berthing can be delayed.

2. Vessel positioning

Upon berthing the information required for aligning the vessel's manifolds with the arms to be connected is supplied to the vessel by VHF.
If there is no crewmember ready at the center of the vessel during berthing, the manifold(s) to be connected shall be indicated by a sign or a flag.

3. Vessel / terminal and vessel / harbourmaster's office communication

During the transfer operations, communications between the vessel and the terminal are done using UHF radio. A case is handed over to the Chief Officer by the Loading Master after berthing, containing UHF radio, a charger and a spare battery.
The radio will not operate when placed on the charger. Only the spare battery shall be recharged.
Each berth has its dedicated working channel.
In the event of a failure of this communication system, the secondary means of communication will be done by VHF, channel to be given by Maritime Traffic Service by request of ship or terminal using channel 14.
The Maritime Traffic Service ("Loire Ports Control") requires ships to monitor VHF channel 14 at all times.
This channel, however, is not monitored by the Terminal Personnel.



4. Emergency shutdown system

An emergency shutdown unit (redbox) is installed in the vessel Cargo Control Room by a terminal operator when connecting the arms. This box is connected by radio to the terminal control room. Any fault in the radio link is immediately detected and an

alarm automatically sounds in the control room.
During loading, by pressing the "EMERGENCY STOP" pushbutton, the terminal valves automatically close, immediately stopping the loading process. The emergency shutdown box has no other effect on the terminal operations than at the concerned berth.
During unloading, the terminal can request a vessel to make an emergency shutdown using the box. In this case, an alarm sounds and the vessel must urgently stop all the cargo pumps and close the manifold valves. The terminal valves close automatically 50 seconds after the beginning of the emergency shutdown signal. The audible alarm from the box can be stopped by pressing the "EMERGENCY RECEIVED" pushbutton.

5. (Un) loading arm

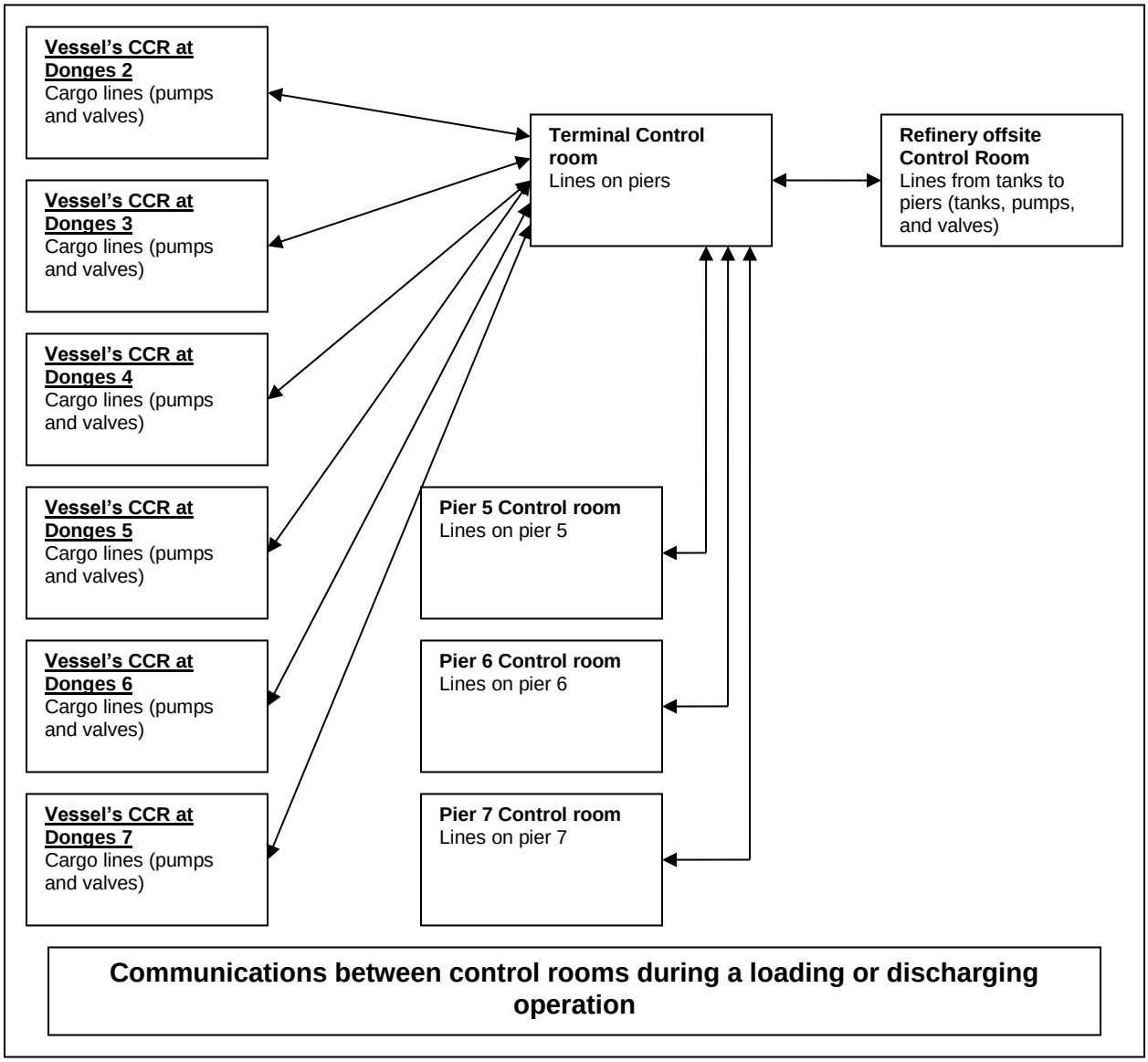
Arm connection / disconnection operations are performed by a connecting gang appointed by the refinery.
The reduction(s) fitted to the arms that will be used shall be installed before arriving at the jetty. The face of the reduction on the connection side shall be checked and rectified if necessary.
All terminal arms have an envelope limit detector. If the first step is exceeded an emergency shutdown is activated (see § 4). If the second step is exceeded the arm automatically disconnects. The envelope limits are indicated in section 7 – Berth characteristics.

6. Loading / unloading / bunkering procedure

Before the beginning of any operation, a loading/discharging sheet is filled jointly with the loading master to determine the loading, unloading and/or bunkering procedure. The Chief Officer (Chief Engineer, Bunkering) must carefully re-read all points on this sheet before signing it for agreement.
Loading is automated. Automated loading includes 3 phases:
Phase 1 – Covering over the tank bottoms
Phase 2 – Loading at maximum flow-rate
Phase 3 – Completion
The data needed to set up the loading automation program is given on the loading sheet:
- Volume and flow-rate of first phase
- Volume and flow-rate of last phase
- Total volume to be loaded at temperature.

7. Loading / unloading operations

The manifold valve(s) must not be opened before receiving the instruction from the terminal control room.
Transfer operations are supervised by several control rooms (see next page).
Some unloading lines do not have a non-return valve (refer to section 7 – Berth characteristics). In this case, the vessel must close its manifold valve or valves if loading stops, to prevent any product from being pumped back on board.


Vessel's CCR at Donges 2
Cargo lines (pumps and valves)
Vessel's CCR at Donges 3
Cargo lines (pumps and valves)
Vessel's CCR at Donges 4
Cargo lines (pumps and valves)
Vessel's CCR at Donges 5
Cargo lines (pumps and valves)
Vessel's CCR at Donges 6
Cargo lines (pumps and valves)
Vessel's CCR at Donges 7
Cargo lines (pumps and valves)
Terminal Control room
Lines on piers
Refinery offsite Control Room
Lines from tanks to piers (tanks, pumps, and valves)
Pier 5 Control room
Lines on pier 5
Pier 6 Control room
Lines on pier 6
Pier 7 Control room
Lines on pier 7
Communications between control rooms during a loading or discharging operation

SECTION 4: Terminal regulations

- **Inert gas**

  Tanker inerting
  Vessels that are required to have an inert gas installation according to the SOLAS agreement shall be in an inert atmosphere (oxygen content less than 8%) when the vessel reaches the jetty, and throughout the time in port. By application of the OCIMF recommendations, this obligation also extends to vessels with an inert gas installation, even if this installation does not correspond to any regulation obligation. The terminal shall be informed immediately if this rule is not complied with or if the installation is defective. Unloading shall be stopped immediately in the event of failure or malfunction of the inert gas installation.

  Tanker flushing
  The flushing of the tanks at the jetty may be authorized by the terminal under the following conditions:
  - Written request to terminal
  - Tanks empty
  - No hydrocarbon gases in tanks
  - Tank covers closed
  - Permission from the harbourmaster's office, issued in written form.

  Inert gas pressure
  The inert gas pressure in the tanks shall be as low as possible to limit gas emissions when inspecting tanks and taking samples.
  Vessels at the jetty, loaded with crude oil, must not release pressure into the atmosphere.

  Checks
  Checks on the operation and installation can be performed at any time during operations by a port officer or a terminal representative.

- **Static electricity related risks**

  Covering of tank bottoms
  ISGOTT recommendations of chapter 11.1.7 shall be strictly applied**.**
  For information, the maximum velocity through the lines shall not exceed 1 m/s during the tank bottom covering phase, when the vessel has not been inerted and 7 m/s during the remainder of the loading process.

  Sampling, ullage measurement
  For vessels that have not been inerted, the ISGOTT recommendations of chapter 11.8.2 shall be strictly applied.
  For information, a relaxation time of at least 30 minutes shall be allowed before bringing sampling or ullage measuring equipment into a non-inerted tank. If the tank has a sounding pipe reaching down to the bottom, this precaution does not apply (same as inerted tank).

Cross loading
This means loading a low volatility product into an unwashed tank having previously contained a high volatility product. Because of the incompatibility of these 2 types of product, in terms of quality, this situation should not occur if the tanks are prepared according to best practices. In any case, cross-loading on vessels whose tanks have not been inerted is prohibited at Donges.

- **Wind limits**

Arm maneuvers
At berths 2, 3, 4, 6 and 7, arm maneuvers are prohibited in winds stronger than 80 km/h.
At berth 5, the arms must not be maneuvered in winds stronger than 100 km/h.

Interruption of operations
In average winds exceeding 80 km/h, loading or unloading operations shall be interrupted and the arms drained The arms are left connected to the vessels.

Disconnection
There is no wind limit above which the arms shall be disconnected. In an emergency, they can be disconnected at a distance using the quick uncoupling system.

Unberthing
There is no wind limit above which vessels must leave berth.
However, at any time, depending on the conditions and circumstances, the Harbourmaster's office may demand that vessels leave the berth.

- **Storms**
When thunder or lightning is detected within a radius of 15 km all hydrocarbon transfer must cease. Operation may be resumed 30 minutes after the last impact within the 15 km radius.
"Storm" warnings are issued automatically by MétéoFrance to the terminal control room. The vessels are then sent the order to stop transfer.

- **Water washing at jetty**

Washing at the jetty may be authorized by the terminal under the following conditions:
- Written request to terminal
- Occupation of berth compatible with other planned operations.
- Vessel's tanks fully inerted
- Written permission from Harbourmaster’s office
- Prohibition to perform any other operation simultaneously (loading, unloading, bunkering)
- Testing of O_2 content and pressure in tanks concerned, in the presence of a Loading Master

- **Tank inspection and sampling**

  All tanks shall be kept closed throughout the time in port. Inspections are made using approved equipment. Similarly, samples are taken using a closed sampling system. The vessel must ensure that it has a sufficient quantity of equipment and spare parts in serviceable condition.

- **Vessel / terminal connection**

  If the manifold diameter is smaller than the arm diameter, connection can be made under the following conditions:
  - Manifold diameter at least equal to half the arm diameter
  - Single reduction
  - On-board header in good condition without excessive overhang

- **Mooring**

  Mooring plan
  The Harbourmaster's office recommends a mooring plan for all vessels depending on their length, the berth and the tidal coefficient. For vessels more than 150 m long, the Harbourmaster's office proposes to the Captain a mooring plan which he must return validated or amended. Vessels less than 150 m in length shall be given a number of mooring points recommended by the Harbourmaster's office indicated in the Donges Oil Terminal Reception Book issued by Grand Port Maritime de Nantes Saint Nazaire.
  Although the Captain is responsible for the safety of his vessel, and therefore its mooring, it is advisable to use at least the number of mooring lines recommended by the harbourmaster's office.
  It is advisable to choose hooks or bollards onshore for head/stern lines so that the latter work as perpendicularly as possible to the axis of the vessel.

  Monitoring of moorings

  - Monitoring of mooring shall be done according to the best practices and prevailing local conditions.

  - Advise shall be taken from Donges Oil Terminal Reception Book issued by Grand Port Maritime de Nantes Saint Nazaire, and specific information given by Harbour Master on vessel's berthing.

  - Mooring tension at berth 6 and 7 are monitored and logged at Harbour Master's office.
  - Additional shore mooring lines at berth 7 are equipped with self tension equipment to maintain a correct tension throughout the call.

- **Vessel access to the terminal**

  A shore gangway is provided at berths 5, 6 and 7. This is the safest access between vessel and shore and should be used whenever the vessel can accommodate it (all vessels over 160 m in length, and the majority of other vessels). The gangway is

installed by the personnel of *Grand Port Maritime* at the agent's request.
When the gangway is unavailable or cannot be used, the vessel is responsible for setting up a safe means of access between vessel and shore.
If vessel-shore access should become hazardous during a layover, point 1 of the SSCL is no longer valid: all transfer operations must immediately stop and access must be re-established as quickly as possible.

- **Jetty safety instructions**

No smoking.
Smoking is strictly prohibited on the jetty, including inside closed rooms.

Personal protective equipment
All persons bearing a nominative access badge or persons under the responsibility of the refinery must wear the following equipment:
- Safety helmet
- Safety shoes
- Coveralls
- Safety goggles
- Life jacket or inflatable vest
- H2S gas detector
- Emergency escape mask

Vessel visitors and crew members are strongly advised to wear the above-mentioned equipment.

Electric / electronic equipment
Within the jetty area, a work authorization issued by the refinery is required to use any non-ATEX certified equipment. Without a work authorization, their use is strictly prohibited. Non-ATEX equipment, especially cell phones, shall be switched off.

- **Work on board**

Work requiring shutdown of engines and rudder gear is prohibited in the berth.
Hot work is not allowed during cargo transfer

- **Work done by divers on a vessel in port**

The refinery can allow divers to work, subject to the following conditions:
- Written request to the terminal
- Engines and rudder gear still available.
- Request for access to jetty for divers (ISPS)
- Written permission from Harbourmaster's office

SECTION 5: Security

1. Port Facility Security Officer (PFSO)

The PFSO or one of his assistants is on site at all times. He can be contacted at any time by radio through the control room.

2. Transmission of information before arrival

The terminal shall receive the completed ISPS questionnaire no later than 2 hours before vessel berthing. All agents have a blank copy of this questionnaire. In addition to vessel safety related information, the questionnaire must contain the list of persons boarding and disembarking, the visitor list and the supplies list. A crew list shall be attached to this questionnaire.

3. Access to terminal

Access is permitted for any person carrying a personnel badge issued by the refinery.
Visitors carrying an identity document (e.g. suppliers, technicians and other visitors) from other vessels are allowed access as long as they are on the list of visitors handed in by the vessel's agent at the terminal.
Access is permitted to seamen who carry an identity document and whose name is shown on the vessel's crew list, and to boarding seamen whose name is included on the list handed in by the agents of the terminal.
A visitor badge will be issued to all persons entering the perimeter, provisioning an identity document or possibly a cell phone (some form of I.D. is required to board the vessel). This measure does not apply to boarding seamen.

Access to jetty 3 and 4:

Exit and entry for seafarers and visitors at jetty 3 & 4 is managed this way:
During working hours, register at the security gate.
Hand shape will be entered in the system by the security agent
Pin code will be given to the seafarer by the security agent
When the seafarer wants to come out or enter the jetty, he has to put his hand on the hand palm reader available at the gate and enter the pin code. The gate will be unlock to grant access.
Once registered, the access is granted troughout the call. Data will be kept in memory, thus no registering is needed for the next calls.
An intercom is available to call the security guard at all times.

Access to jetty 5:
A guard is available at the entrance during working hours on open days and upon each arrival/departure of vessels at the jetty. During off work and holidays, the security guard is available bay call using the intercom at the entrance of the jetty.
Exit and entry for seafarers and visitors at jetty 5 is managed this way:
During working hours, register at the security gate.
Hand shape will be entered in the system by the security agent
Pin code will be given to the seafarer by the security agent

When the seafarer wants to come out or enter the jetty, he has to put his hand on the hand palm reader available at the gate and enter the pin code. The gate will be unlock to grant access.
Once registered, the access is granted troughout the call. Data will be kept in memory, thus no registering is needed for the next calls.
An intercom is available to call the security guard at all times.

4. Supplies

In addition to the information to be given on the aforementioned ISPS questionnaire, the list of stores and spare parts to be received by the vessel shall be mailed ahead of time to the department in charge of terminal security, either by the agent or by the supplier.
The vessel is informed by radio on arrival of the supplier at the jetty entrance. A crew member must be sent to the entrance to process the supplier in.

5. Declaration of Security (DOS)

A DOS will be drawn up by the terminal solely under the conditions stipulated in paragraph 5.2 part A of the ISPS code. Other than under these conditions, in conformity with the circular, MSC/Circ.1132 and paragraph 5.3 part A of the ISPS code, the terminal will acknowledge receipt of any DOS request made by a vessel but will not sign the DOS.

6. ISPS levels

The ISPS level of the terminal is defined by the French Prime Minister and communicated to the Port Facility Security Officer by the Port Safety Agents.

SECTION 6: Services

1. Reception of cargo slops

The terminal can receive cargo slops following its internal procedure CPMAR08, summarized below:

At berth 3 and 4 :
- Water only, strictly no HC
- Absence of engine sludge, chemicals and detergents
- By ND65 flexible hose with Guillemin coupling, flexible hose supplied by vessel. This hose must comply with the terms of regulations governing the carriage and handling of hazardous goods in maritime ports.

White, black products or crude
- Absence of engine sludge and chemicals
- At berths 5, 6 and 7

Discharging of cargo slops should be requested by the ship to the agent at least 48 hours before arrival.
Wash water can be unloaded simultaneously with loading under the following conditions:

- Double segregation valve between wash water and loaded product(s).
- The tank containing wash water is not one of the tanks being loaded.

The refinery reserves its rights to refuse the operation depending on the available capacity in the reception facility.

2. Reception of engine sludge

The terminal does not accept engine sludge. However, the vessel's agent can arrange for engine sludge removal by a dedicated company. It is advisable to connect the flexible hose to remove engine sludge before starting cargo transfer as under port regulations this operation is prohibited during loading, whatever the position of the connection, and during unloading if situated less than 25 m from the arms.

3. Stores and spare parts supply

Supply conditions are defined by the port regulations. All supplies must be authorized in advance by the Harbourmaster's office hazardous goods department. For each authorization request, the Harbourmaster's office informs the vessel's agent in writing of the conditions. Vehicles may be authorized in the jetty area as long as they do not enter the vessel safety zone (25 m for an oil tanker, 50 m for a gas tanker) and as long as the weight of the vehicle does not exceed the maximum capacity of the jetty (see berth characteristics in section 7). Supply from the shore is prohibited at berths 2 and 3.

- **Supply of stores and spare parts**

  It is prohibited to deliver supplies by crane during loading, whatever the position of the crane, and during unloading at less than 25 m from the manifolds.

- **Bulk liquid supply**

  It is advisable to connect the flexible hose to remove engine sludge before starting cargo transfer asunder port regulations this operation is prohibited during loading, whatever the position of the connection, and during unloading at less than 25 m from the arms.

4. Fresh water supply

Industrial fresh water supply is available at all berths.
The flexible hose supplied either by the vessel or by the refinery is installed by the connection gang.
Only Jetty Operators are qualified to operate the fresh water valves on the berth.
The fresh water supply flow rate is 30 m3/h.
Price list may be requested to your local agent.

5. Bunkering or supply from the Loire river

- **FO**
  FO bunkering is available at all berth by arm. When vessels cannot bunker by arms because of terminal logistics availability, bunkering is done by barge. For information, the barge is not operated by the terminal although it is loaded there (at Donges 2).
  Bunkering by barge is done with an 8” connection at a maximum flow rate of 500 m3/hr.

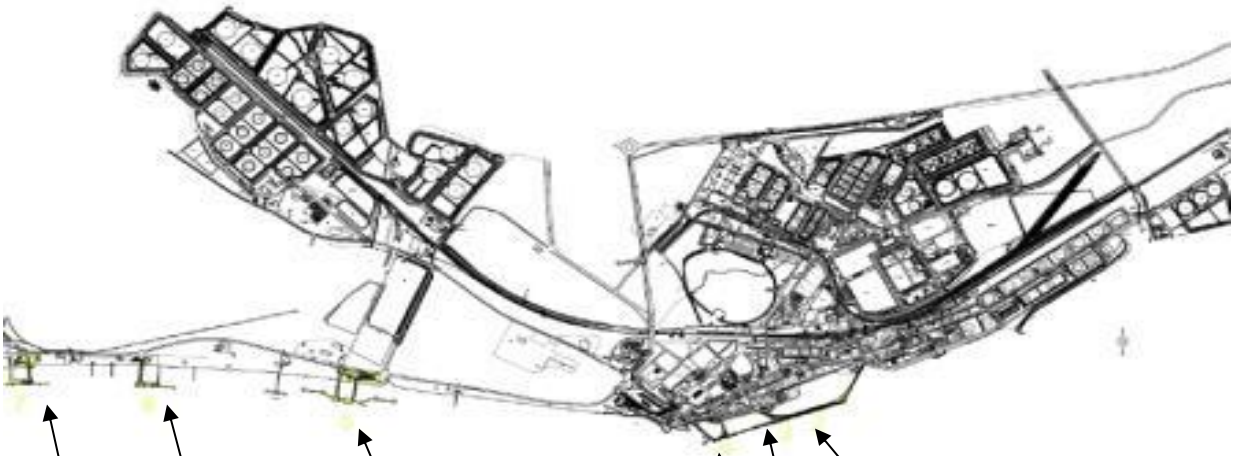
- **DO**
  DO bunkering is available at berth 3 and 4 by flexible hose (supplied by terminal), rate 30 m3/h.
  Vessels can be bunkered in DO by barge (as mentioned in the previous paragraph) at all berths.

- **Stores / Spare parts / Oil**
  At Donges 3, provisions, equipment or oil supplies can only be made via the Loire River. This service is also offered at the other jetties. These supplies shall be carried out in compliance with regulations and must not interfere with commercial operations.

Landing gangways

Shore gangways are used at berths 5, 6 and 7. This service is provided by the port personnel. During layover, any issues concerning gangways shall be reported to the harbourmaster's office on VHF 14.

SECTION 7 : Berth Caracteristics



Donges 2

Donges 7

Donges 5

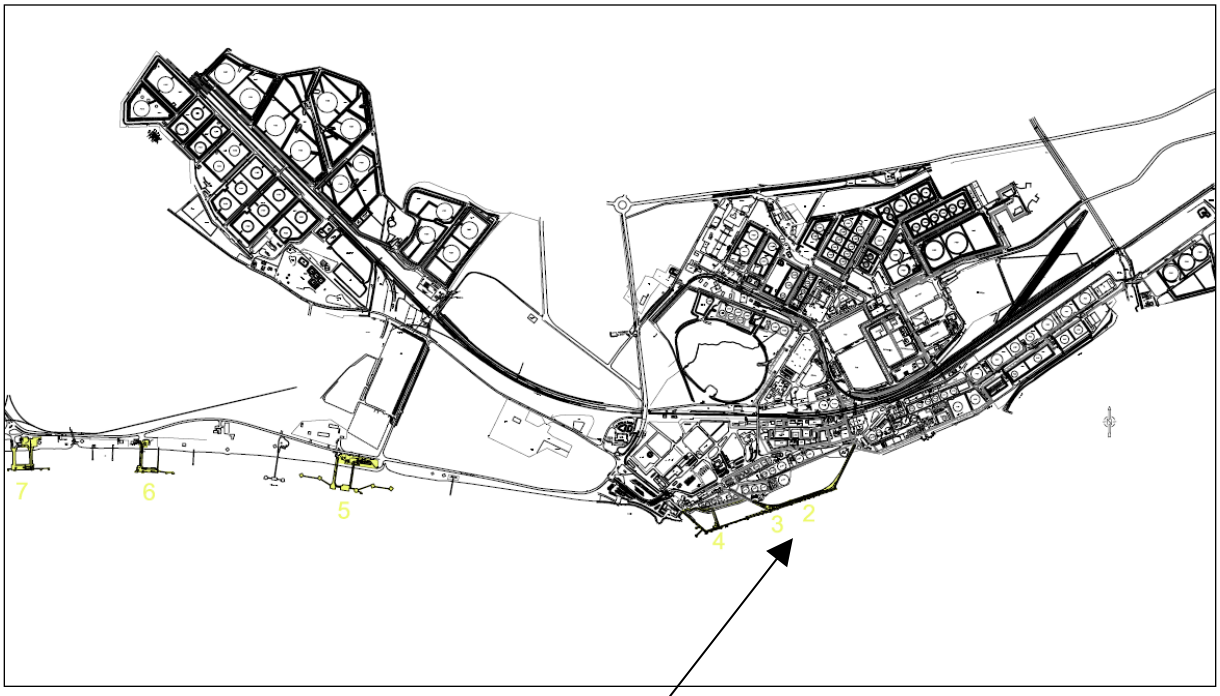
Donges 3

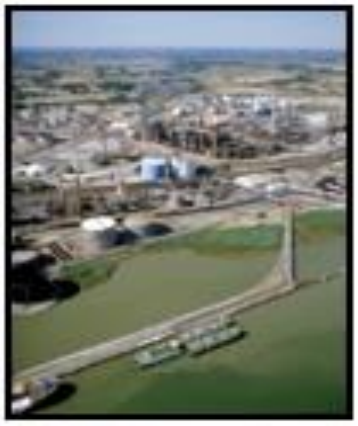
Donges 6

Donges 4

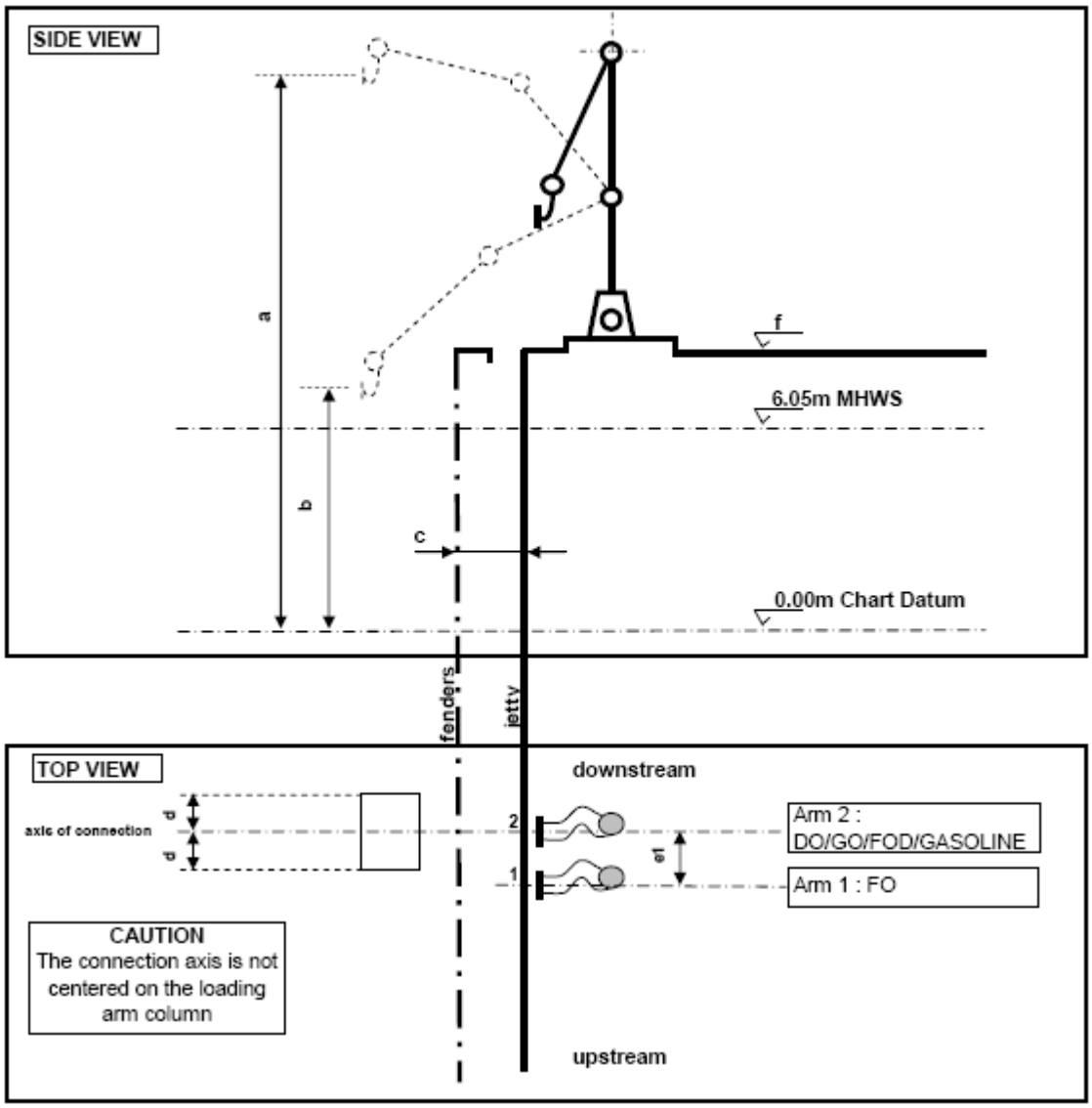
1. Donges 2

a. Location





b. (Un)Loading arms – Donges 2



	Arms	1	2
a	Highest connection point above Chart Datum (m)	12.45	12.45
b	Lowest connection point above Chart Datum (m)	1.15	1.15
(a-b)	Vertical range of rotation (m)	11.30	11.30
c	Berthing line (m)	1.60	
d	Horizontal range of rotation (m)	1.50	1.50
e1	Distance between axes (arm 1 / arm 2) (m)	5.0	
f	Top of the quay above Chart Datum (m)	7.15	
	Diameter of connections (“)	8	6
	Coupling (ANSI)	150	150

c. Technical clearance conditions – Donges 2

	Minimum	Maximum
Length Overall	40 m	110 m
Breadth	-	-
Actual Displacement	-	3 000 t
Parallele Body	-	-
Theoritical dredged depth (c.d.)	2.60 m	
Underkeel clearance	0.30 m	-
Draft	-	2.60 m
Load capacity on the pier	-	3.5 t
Distance ship's manifold / water level	1.15 m	6.40 m

d. Logistics – Donges 2

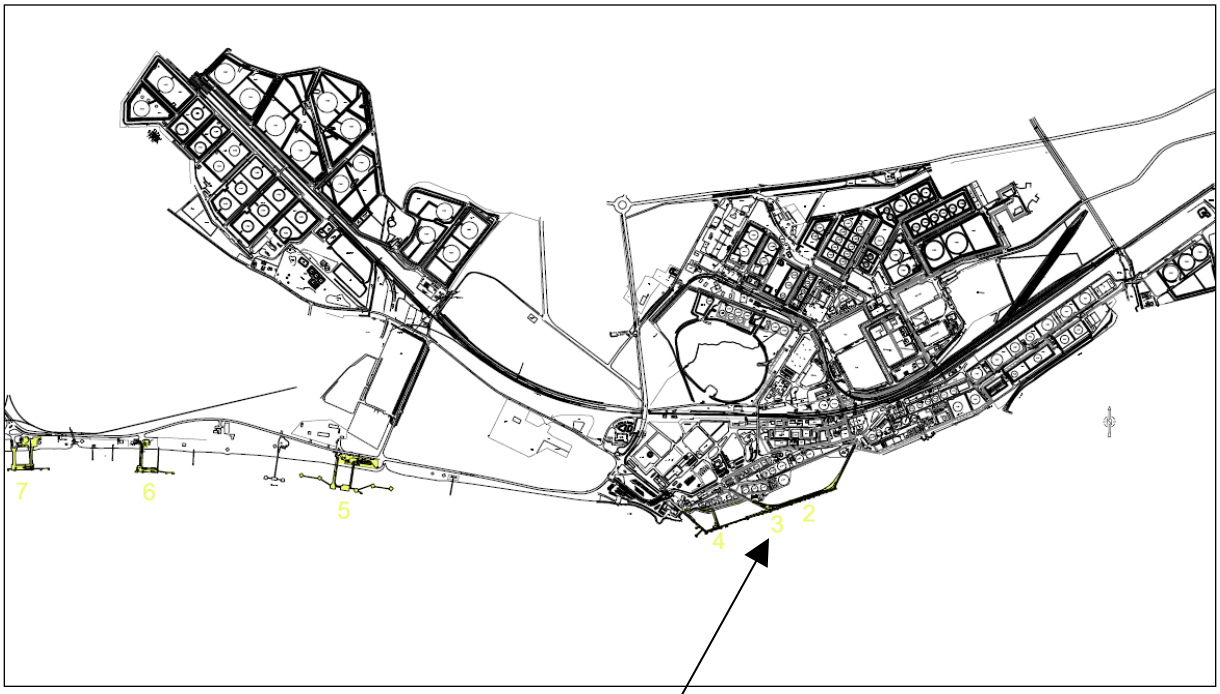
	Upstream	Downstream
Arms	**1**	**2**
Max pressure	10 bar	10 bar
Max temp.	100 °c	100°c

Products	Max flow rate	
Fuel Oil (bunker)	500 m3/h	
Diesel oil (bunker)		30 m3/h

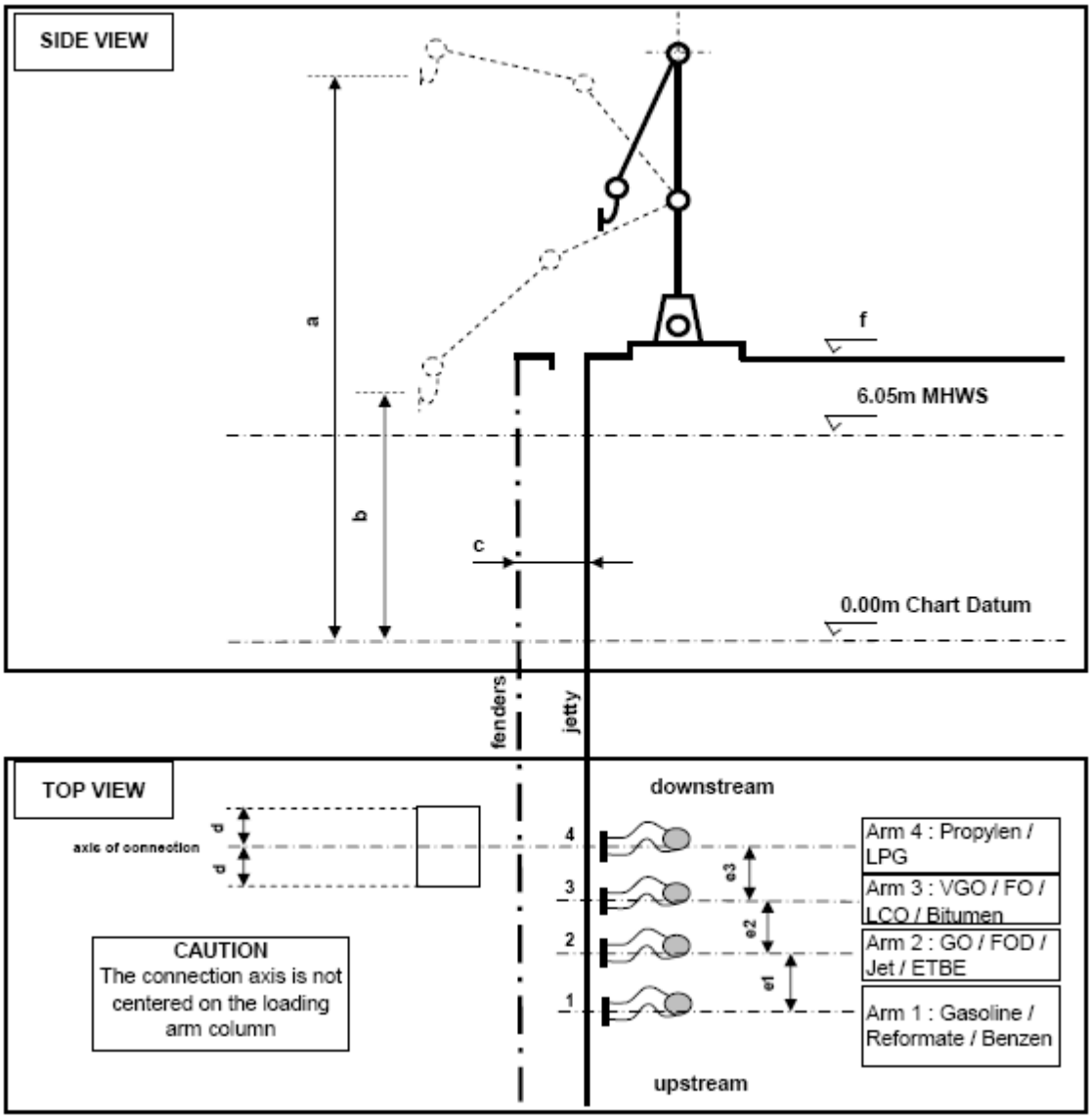
e. Berth safety plan – Donges 2

2. Donges 3

a. Location



b. (Un)Loading arms – Donges 3



	Arms	1	2	3	4
a	Highest connection point above Chart Datum (m)	15.05	15.05	15.05	15.05
b	Lowest connection point above Chart Datum (m)	1.15	1.15	1.15	1.40
(a-b)	Vertical range of rotation (m)	13.90	13.90	13.90	13.60
c	Berthing line (m)	1.60			
d	Horizontal range of rotation (m)	2.00	2.00	2.00	2.00
e1, e2, e3	Distance between axes (arm 1 / arm 2) (m)		3.90	2.90	2.90
f	Top of the quay above Chart Datum (m)	7.15			
	Diameter of connections (“)	8	8	8	6
	Coupling (ANSI)	150	150	150	300

c. Technical clearance conditions – Donges 3

	Minimum	Maximum
Length Overall	40 m	135 m
Moulded breadth	-	50 m
Actual Displacement	-	24 000 t
Parallele Body	-	-
Theoritical dredged depth (c.d.)	7.10 m	
Underkeel clearance	0.60 m	-
Draft	-	7.10 m(1)
Load capacity on the pier	-	3.5 t
Distance ship's manifold / water level	1.15 m (1.40 m LPG)	9.00 m

(1) Maximum draft may be adjusted by port authority according to the result of sounding (every month) and height of low tide

d. Logistics – Donges 3

	Upstream			Downstream
Arms	**1**	**2**	**3**	**4**
Max pressure	7 bar	7 bar	7 bar	12 bar
Max temp.	50°c	50°c	180°c	See below

Products	Max flow rate			
Gasoline	1300 m3/h			
Reformate	1000 m3/h			
Benzene	600 m3/h			
Alkylate	400 m3/h			
ETBE		800 m3/h		
Gasoil		1200 m3/h		
FOD		1200 m3/h		
Jet		600 m3/h		
VGO			1000 t/h	
LCO			800 t/h	
FO			500 t/h	
Bitumen			450 t/h	
Propane				See table below
Butane				
Propylene				
Slops (NRV)	Flexible hose supplied by ship ND 65, 30m3/h, max press. 8b			
DO (bunker)	Flexible hose supplied by terminal ND 65, 30m3/h, max press. 8b			

(NRV): A non return valve is fitted on the line (when discharging)
Minimum loading rate at this berth: 200 m3/h (except Gasoil: 400 m3/h)

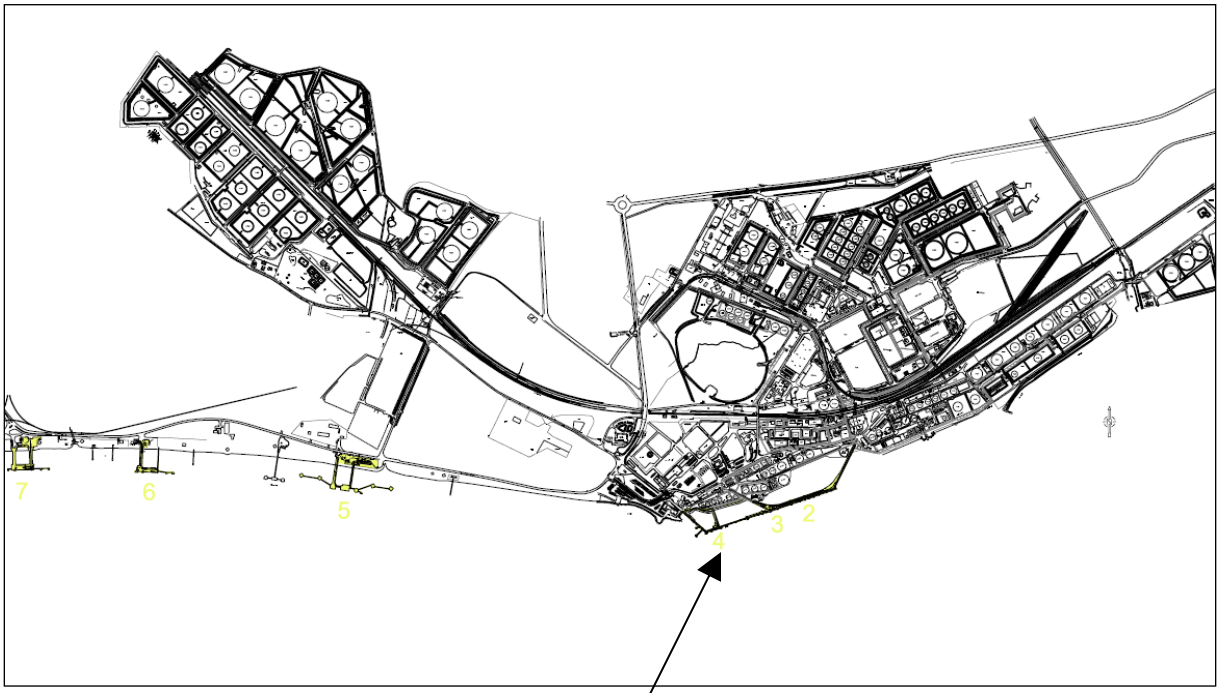
LPG Product	Line	Max press.	Loading		Discharging	
			Max rate	T°c	Max rate	T°c
Propane	4"	12 bar	150 m3/h	>0°c	150 m3/h	>0°c
Propylene	10"	12 bar	380 m3/h(1)	- 5°c<T°<0°c	-	-
Butane	6"	12 bar	200 m3/h	>0°c	200 m3/h	>0°c

(1) Loading rate of propylene at the beginning of loading: 100 m3/h at positive pressure

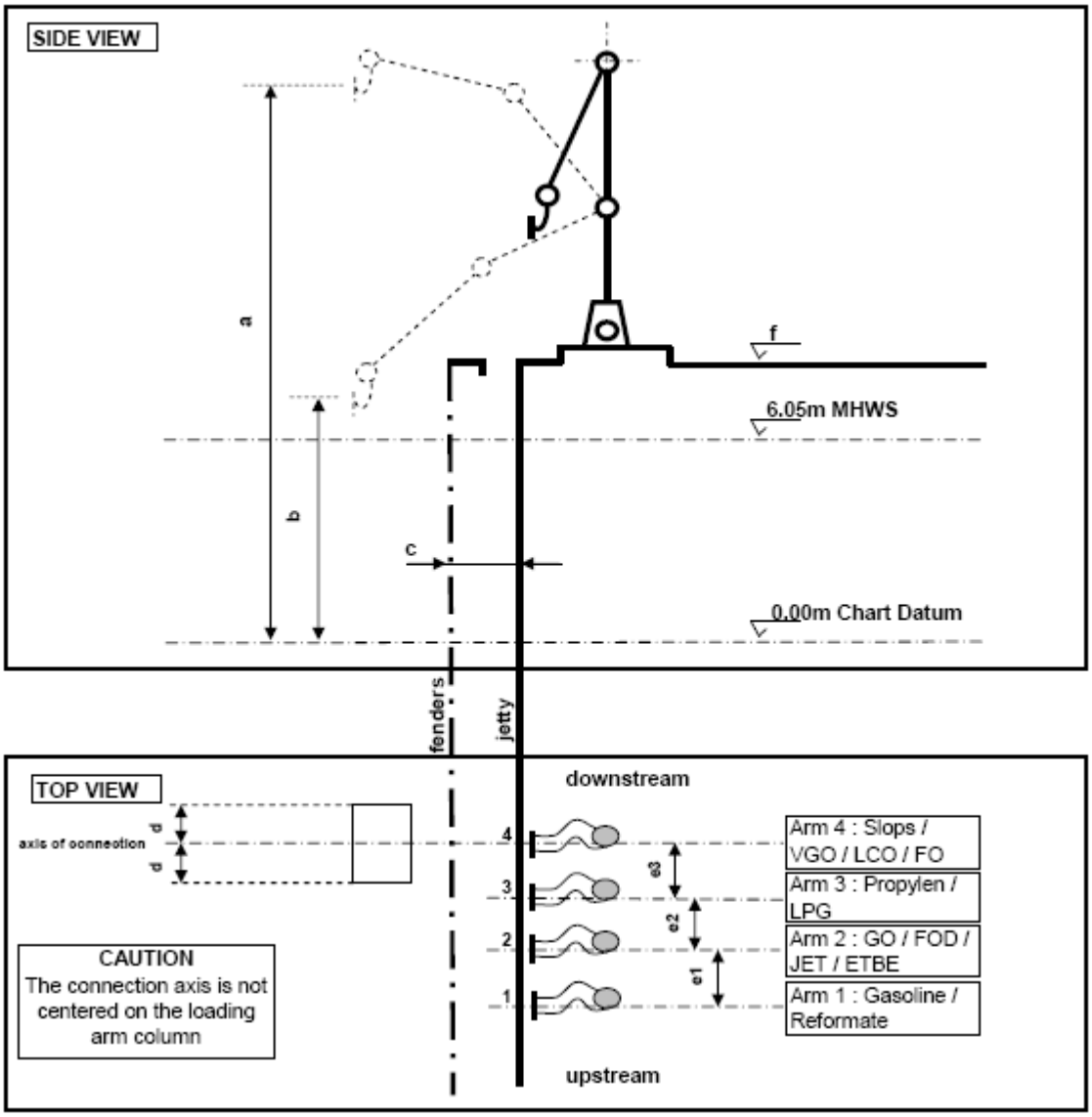
e. Berth safety plan – Donges 3

3. Donges 4

a. Location



b. (Un)Loading arms – Donges 4



	Arms	1	2	3	4
a	Highest connection point above Chart Datum (m)	20.05	20.05	21.50	20.05
b	Lowest connection point above Chart Datum (m)	4.30	4.30	3.80	4.30
(a-b)	Vertical range of rotation (m)	15.75	15.75	17.70	15.75
c	Berthing line (m)	3.00			
d	Horizontal range of rotation (m)	3.00	3.00	3.00	3.00
e1, e2, e3	Distance between axes (arm 1 / arm 2) (m)	2.60	1.90	3.00	
f	Top of the quay above Chart Datum (m)	7.71			
	Diameter of connections (“)	12”	12”	10”	12”
	Coupling (ANSI)	150	150	150	150

c. Technical clearance conditions – Donges 4

	Minimum	Maximum
Length Overall	95 m	206 m
Moulded breadth	-	50 m
Actual Displacement	-	32 000 t
Parallele Body	-	-
Theoritical dredged depth (c.d.)	9.00 m	
Underkeel clearance	0.60 m	-
Draft	-	9.00 m (1)(2)
Load capacity on the pier	-	12 t
Distance manifold / water level	4.30 m (3.80 m LPG)	14.00 m (15.50 m LPG)

(1) Maximum draft may be adjusted by port authority according to the result of sounding (monthly) and height of low tide
(2) Maximum draft: 9.00 m

d. Logistics – Donges 4

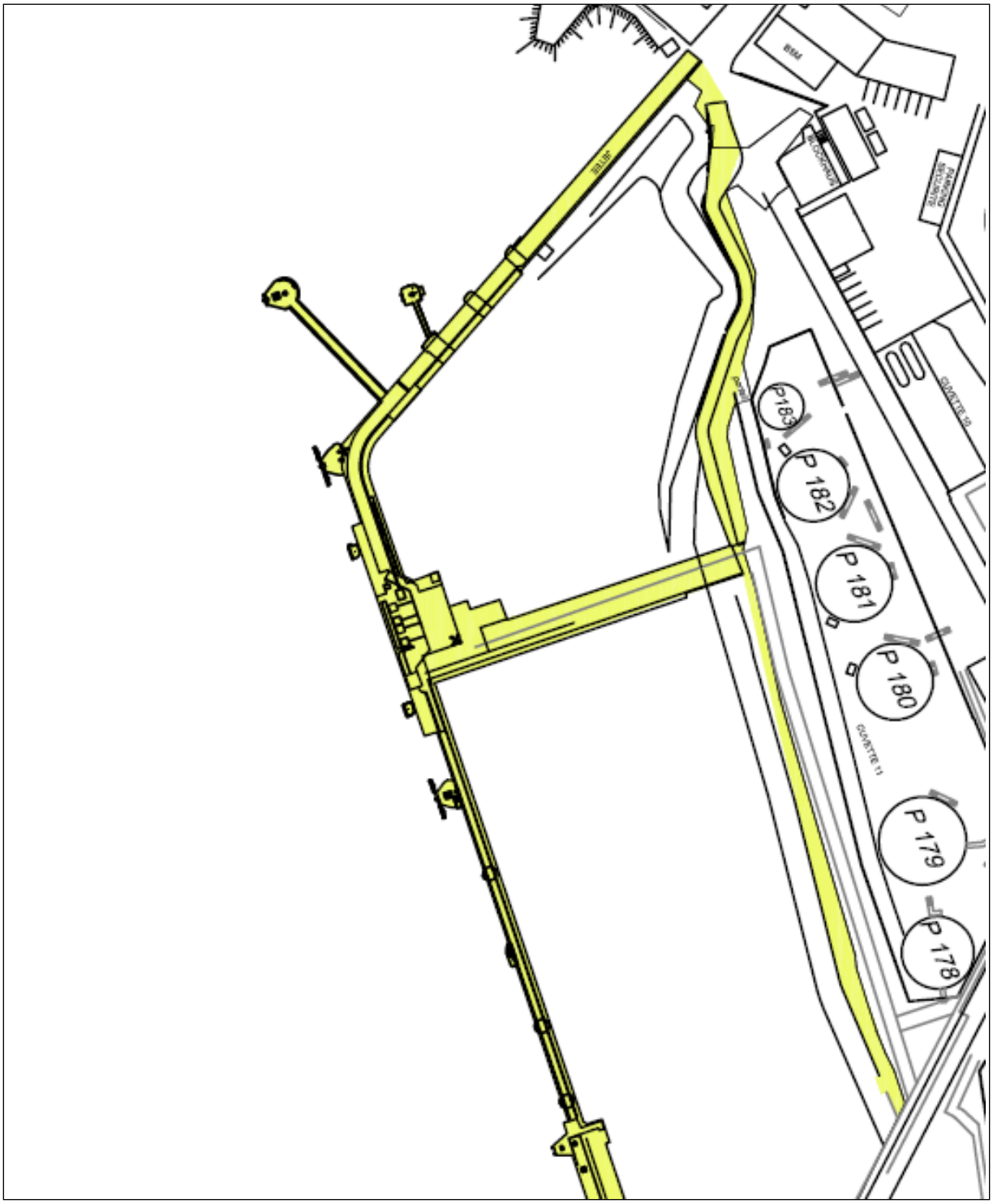
	Upstream			Downstream
Arms	**1**	**2**	**3**	**4**
Max pressure	7 bar	7 bar	12 bar	7 bar
Max temp.	80°c	50°c	See below	80°c
Products	Max flow rate			
Gasoline	1300 m3/h			
Reformate	1000 m3/h			
Alkylate	400 m3/h			
ETBE		800 m3/h		
Gasoil		1200 m3/h		
FOD		1200 m3/h		
Jet		600 m3/h		
Slops				2000 t/h
VGO				1000 t/h
LCO				800 t/h
FO (bunker)				500 t/h
FO (cargo)				1000 t/h
Propane			See table below	
Butane				
Propylene				
Slops (NRV)	Flexible hose supplied by ship ND 65, 30m3/h, max press. 8b			
DO (bunker)	Flexible hose supplied by terminal ND 65, 30m3/h, max press. 8b			

(NRV): A non return valve is fitted on the line (when discharging)
Minimum loading rate at this berth: 200 m3/h (except Gasoil: 400 m3/h)

LPG Product	Line	Max press.	Loading		Discharging	
			Max rate	T°c	Max rate	T°c
Propane (not refr.)	14”	12 bar	400 m3/h	>0°c	1000 m3/h	>0°c
Propane (refr.)	14”	12 bar	-	-	760 m3/h	-45°c
Propylen	10”	12 bar	380 m3/h	-5°c<T°<0°c	-	-

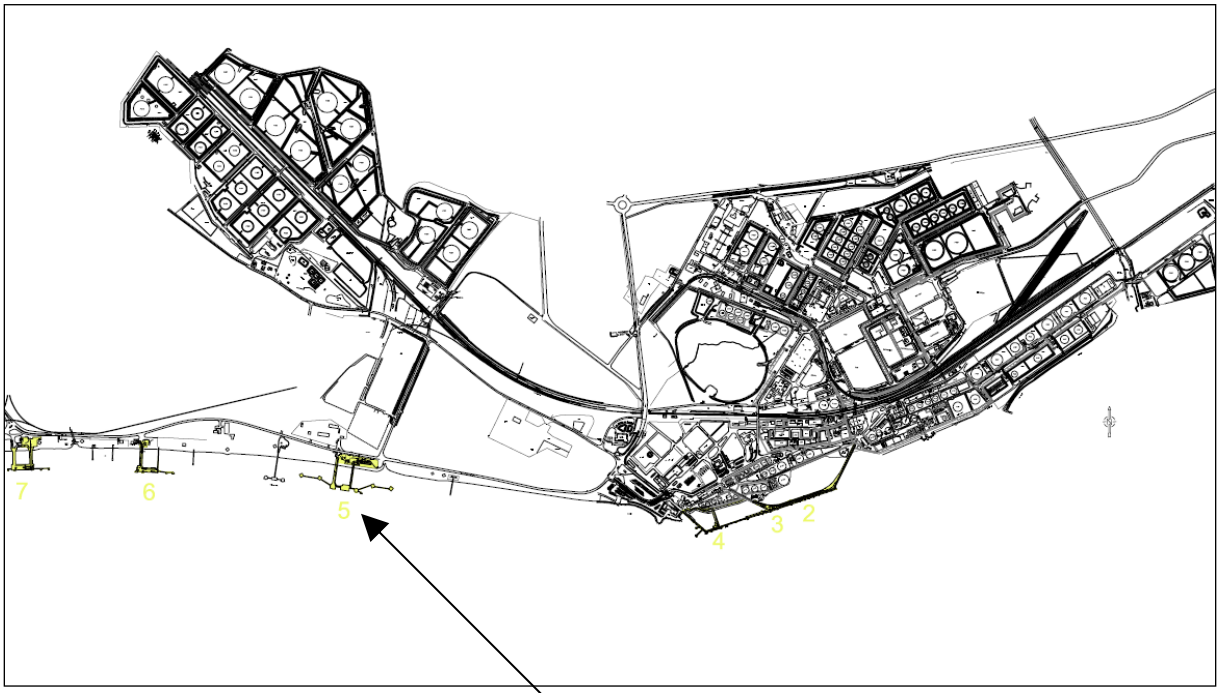
(1) Loading rate of propylene at the beginning of loading: 100 m3/h at positive pressure

e. Berth safety plan – Donges 4

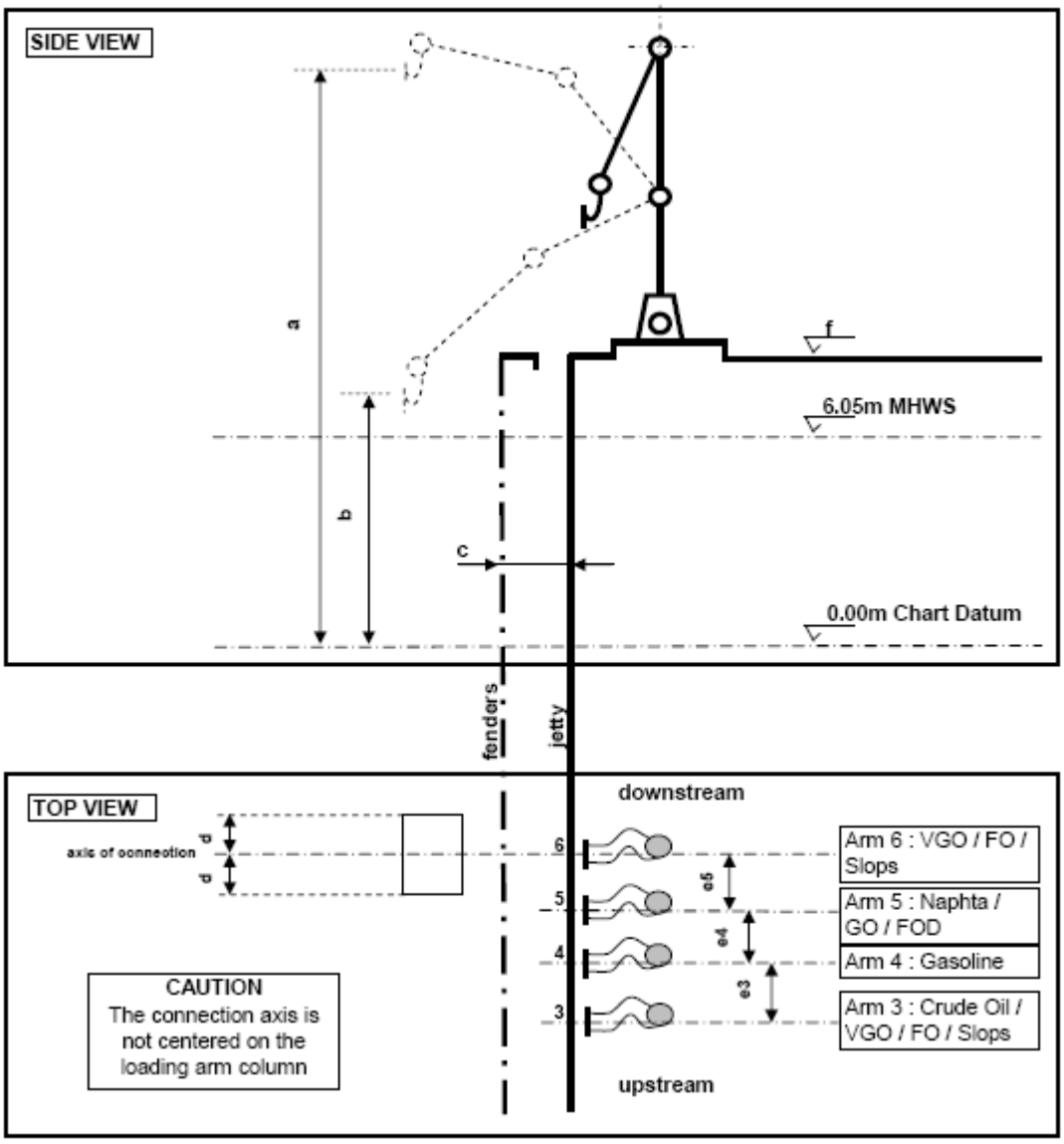


4. Donges 5

a. Location



b. (Un)Loading arms – Donges 5



	Arms	3	4	5	6
a	Highest connection point above Chart Datum (m)	23.55	23.55	23.55	23.55
b	Lowest connection point above Chart Datum (m)	4.50	4.50	4.50	4.50
(a-b)	Vertical range of rotation (m)	19.05	19.05	19.05	19.05
c	Berthing line (m)	2.30			
d	Horizontal range of rotation (m)	3.00	3.00	3.00	3.00
e3, e4, e5	Distance between axes (arm 1 / arm 2) (m)		2.60	2.80	2.60
f	Top of the quay above Chart Datum (m)	8.90			
	Diameter of connections (“)	12”	12”	12”	12”
	Coupling (ANSI)	150	150	150	150

c. Technical clearance conditions – Donges 5

	Minimum	Maximum
Length Overall	80 m	255 m
Moulded breadth	-	50 m
Actual Displacement	-	75 000 t
Parallele Body	-	-
Theoritical dredged depth (c.d.)	11.60 m	
Underkeel clearance	0.60 m	-
Draft	-	11.60 m (1)
Load capacity on the pier	-	30 t
Distance ship's manifold / water level	4.50 m	17.50 m

(1) Maximum draft may be adjusted by port authority according to the result of sounding (every month) and height of low tide

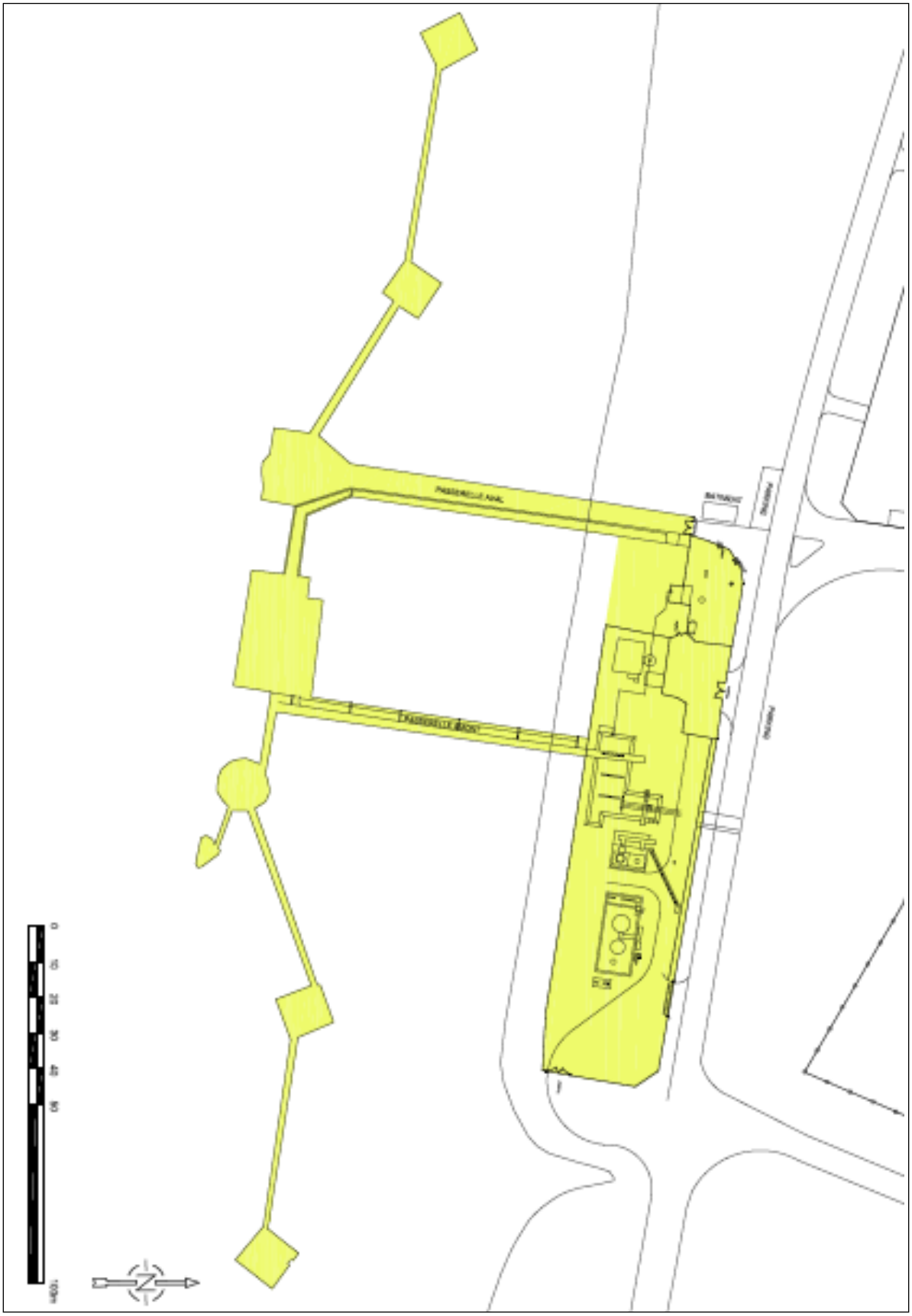
d. Logistics – Donges 5

	Upstream			Downstream
Arms	**3**	**4**	**5**	**6**
Max pressure	8 bar	8 bar	8 bar	8 bar
Max temp.	80°c (50°c for C.O.)	50°c	50°c	80°c

Products	Max flow rate			
Crude oil (NRV)	2500 m3/h			
Slops (NRV)	2000 m3/h			2000 m3/h
VGO	1000 m3/h			1000 m3/h
FO	1100 m3/h			1100 m3/h
Gasoline (cabotage) (NRV)		1600 m3/h		
Gasoline (export) (NRV)		1500 m3/h		
Naphtha (NRV)			1500 m3/h	
Gasoil (NRV)			2500 m3/h	
FOD (NRV)			2500 m3/h	

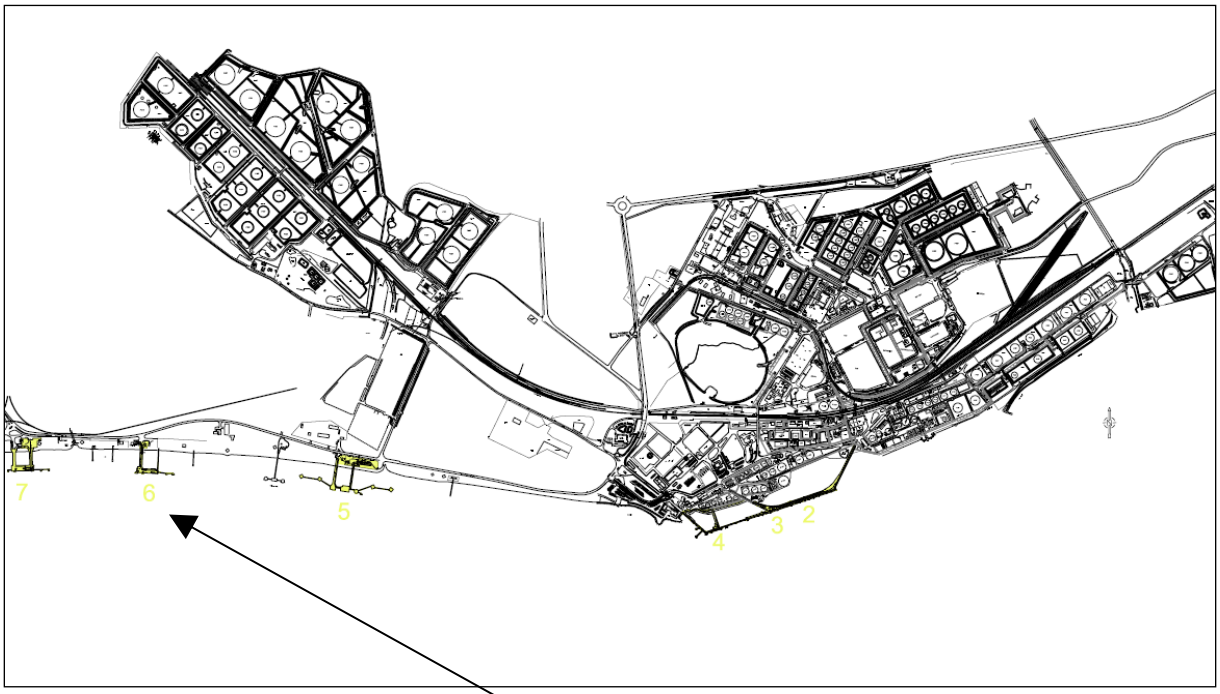
(NRV): A non return valve is fitted on the line (when discharging)

Berth safety plan – Donges 5

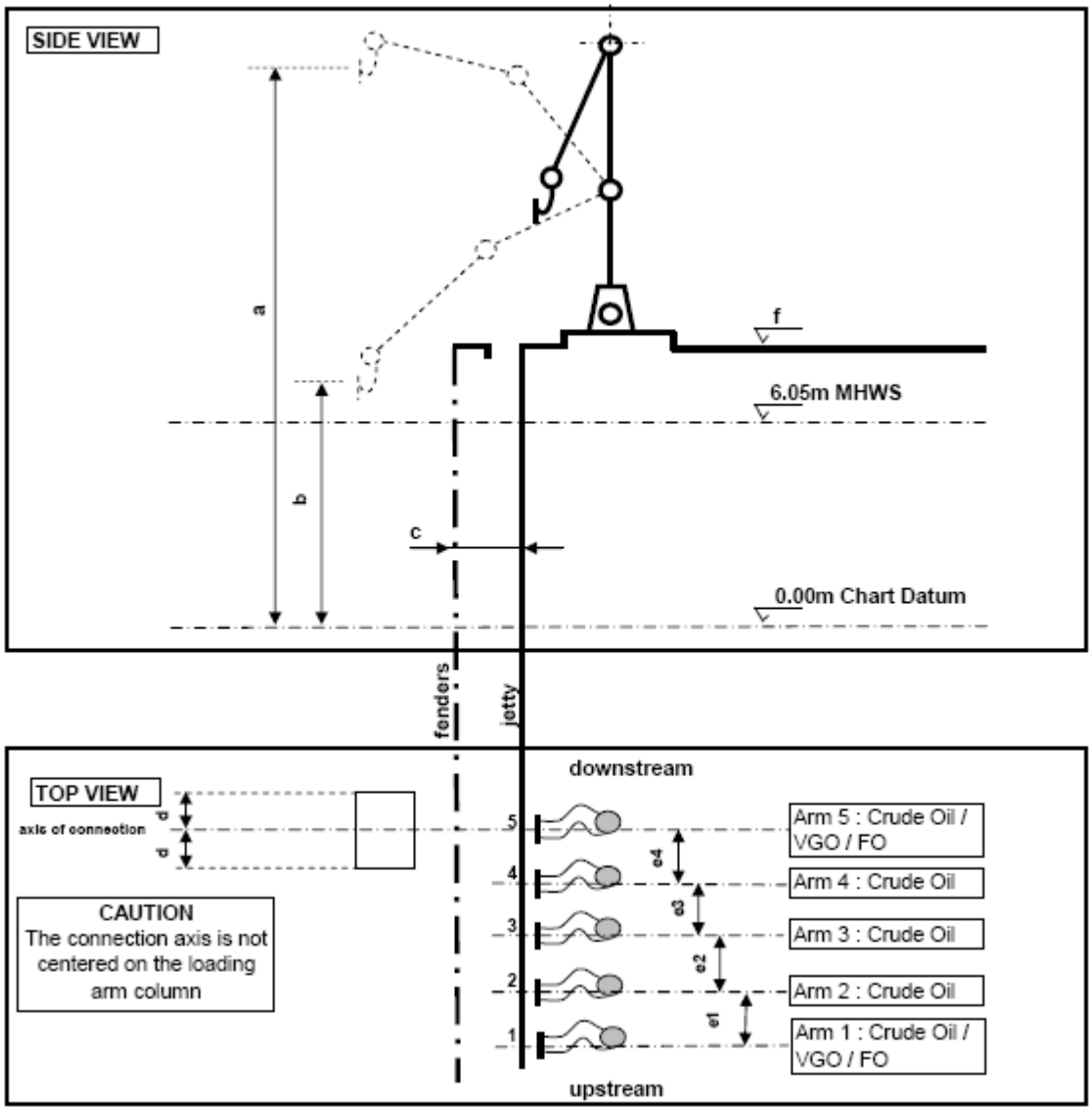


5. Donges 6

a. Location



b. (Un)Loading arms – Donges 6



	Arms	1	2	3	4	5
a	Highest connection point above Chart Datum (m)*	28.25	28.25	28.25	28.25	28.25
b	Lowest connection point above Chart Datum (m)*	5.00	5.00	5.00	5.00	5.00
(a-b)	Vertical range of rotation (m)	24.85	24.85	24.85	24.85	24.85
c	Berthing line (m)	4.20				
d	Horizontal range of rotation (m)	3.00	3.00	3.00	3.00	3.00
e1, e2, e3, e4	Distance between axes (arm 1 / arm 2) (m)		3.275	3.275	3.275	3.275
f	Top of the quay above Chart Datum (m)	8.90				
	Diameter of connections (“)	12	12	12	12	12
	Coupling (ANSI)	150	150	150	150	150

***See clearance conditions below for vessel acceptance**

c. Technical clearance conditions – Donges 6

	Minimum	Maximum
Length Overall	80 m	300 m
Moulded breadth	-	60 m
Actual Displacement	-	200 000 t
Parallel Body	40 m	-
Theoritical dredged depth (c.d.)	15.60 m	
Underkeel clearance	10% draft	-
Draft	SUEZMAX: 15.00 m / AFRAMAX: 15.00 m or depth + low tide - 10%draft(1)	
Load capacity on the pier	-	30 t
Distance ship's manifold / water level	5.00 m	22,20 m

(1) Whichever the smallest

d. Logistics – Donges 6

	Upstream				Downstream
Arms	**1**	**2**	**3**	**4**	**5**
Max pressure	10 bar	10 bar	10 bar	10 bar	10 bar
Max temp.	80°c (50°c for C.O.)	50°c	50°c	50°c	80°c (50°c for C.O.)

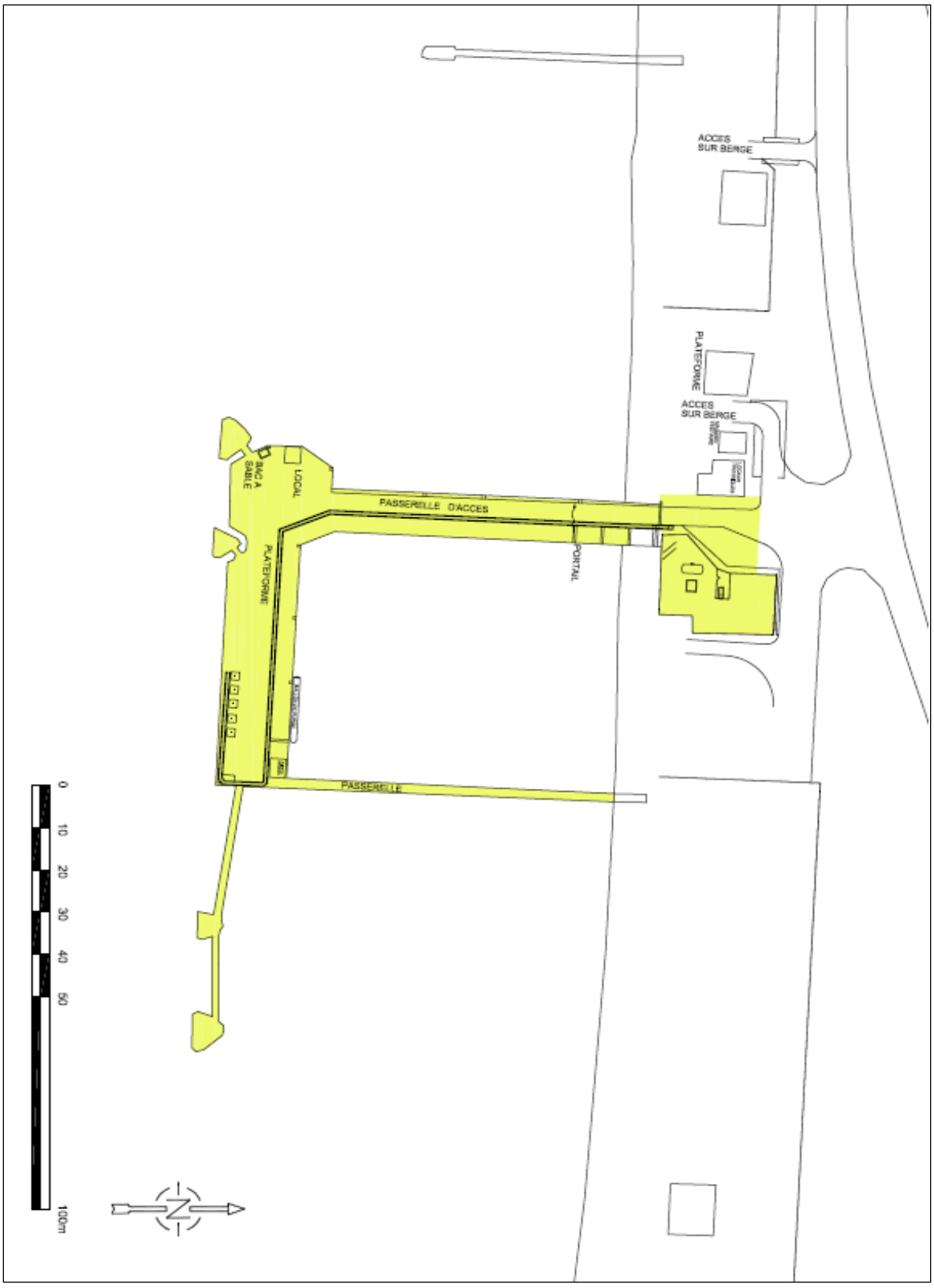
Products	Max flow rate				
Crude oil (NRV)	2500 m3/h	2500 m3/h	2500 m3/h	2500 m3/h	2500 m3/h
VGO	1000 m3/h				1000 m3/h
Fuel oil	1000 m3/h				1000 m3/h

(NRV): A non return valve is fitted on the line (when discharging)

Crude oil line particulars:

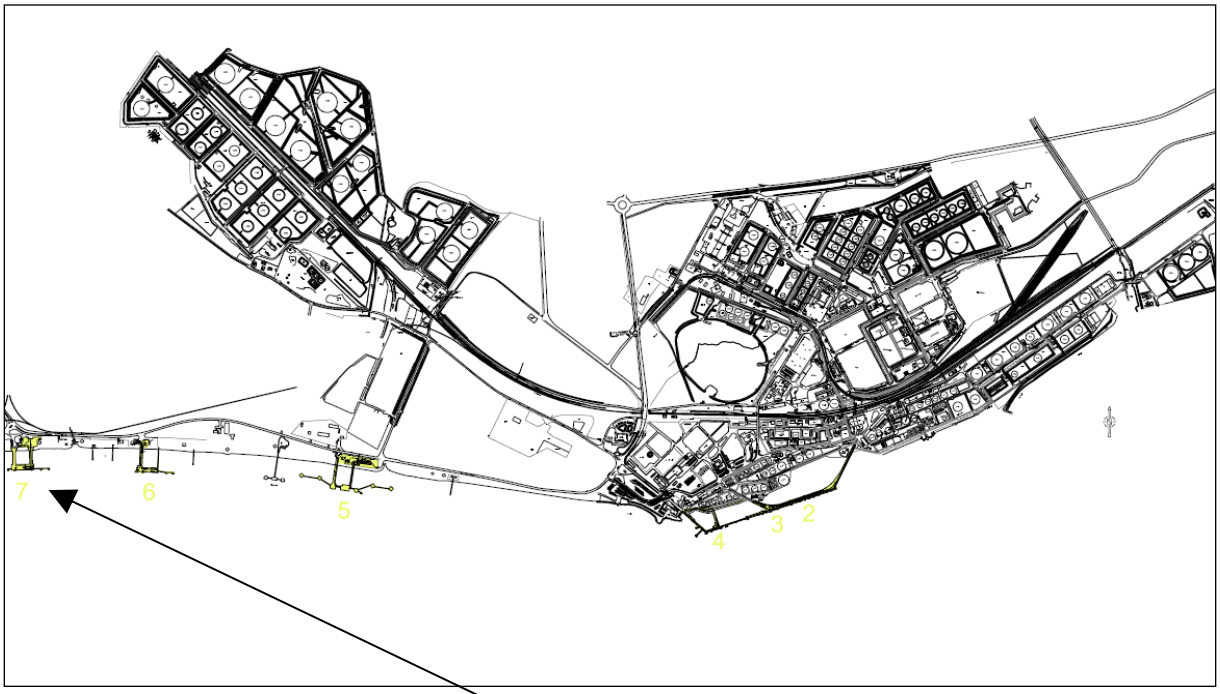
- Maximum total rate: 12 000 m3/h
- Distance between ship and storage tanks: 1 000 m
- Diameter of line: 36" or 34"
- Static back pressure: 1 bar

e. Berth safety plan – Donges 6

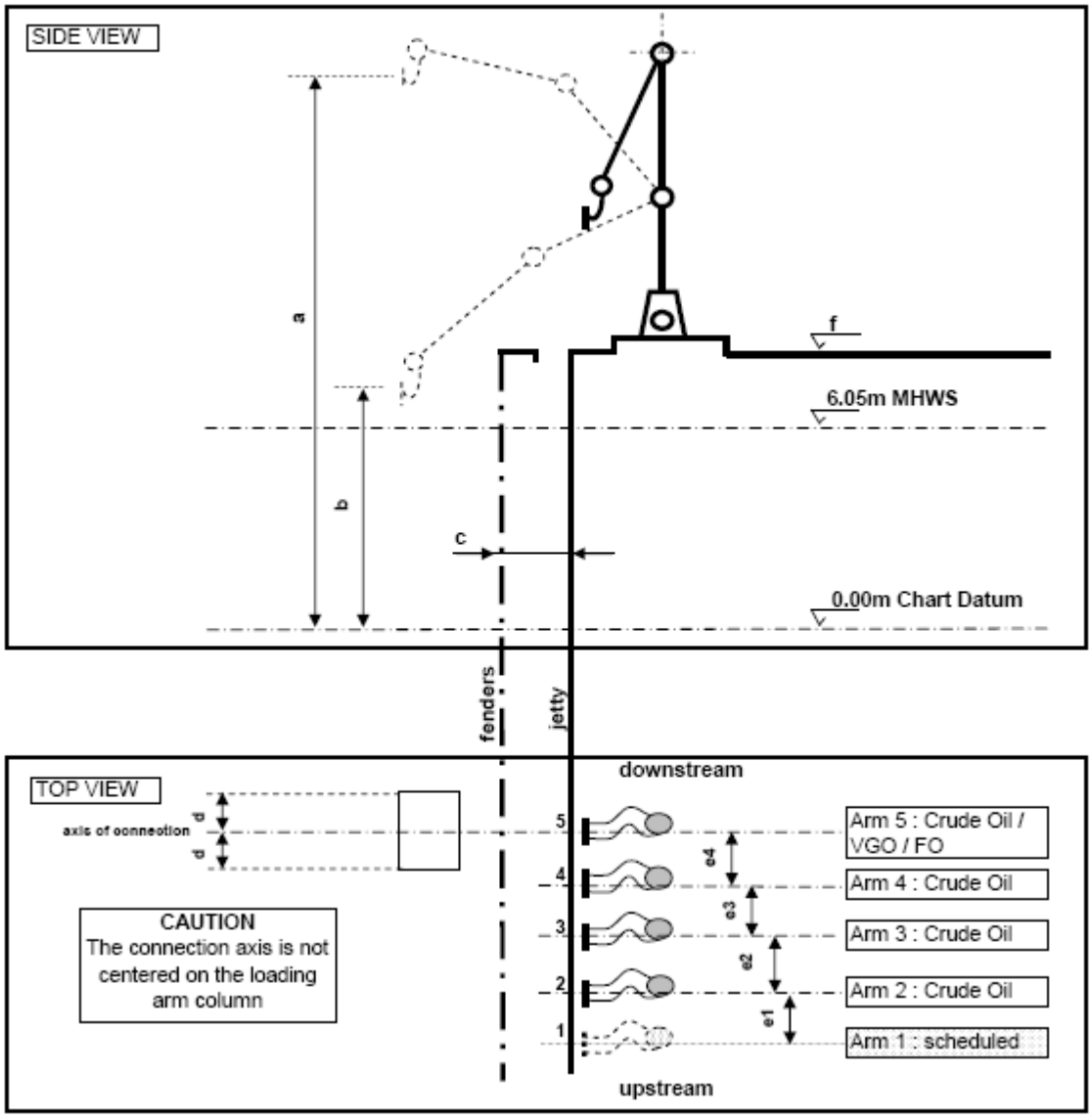


6. Donges 7

a. Location



b. (Un)Loading arms – Donges 7



	Arms	1	2	3	4	5
A	Highest connection point above Chart Datum (m)	33.75	33.75	33.75	33.75	33.75
B	Lowest connection point above Chart Datum (m)	6.40	6.40	6.40	6.40	6.40
(a-b)	Vertical range of rotation (m)	27.35	27.35	27.35	27.35	27.35
C	Berthing line (m)	2.10				
D	Horizontal range of rotation (m)	3.00	3.00	3.00	3.00	3.00
e1	Distance between axes (arm 1 / arm 2) (m)		4.00	3.50	2.50	4.00
F	Top of the quay above Chart Datum (m)	8.40				
	Diameter of connections (“)	16”	16”	16”	16”	16”
	Coupling (ANSI)	150	150	150	150	150

c. Technical clearance conditions – Donges 7

	Minimum	Maximum
Length Overall	195 m	350 m
Moulded breadth		60 m
Actual Displacement		250000 t
Parallele Body	N/A	N/A
Theoritical dredged depth	16.00 m	
Underkeel clearance	10% maximum draft	
Draft	VLCC: 14.50 m / SUEZMAX: 15.00 m / AFRAMAX: 15.00 m or depth + low tide - 10%draft (1)	
Load capacity on the pier		30 t
Distance ship's manifold / water level	6.4 m	27.7 m

(1) Whichever the smallest

d. Logistics – Donges 7

	Upstream				Downstream
Arms	**1**	**2**	**3**	**4**	**5**
Max pressure	10 bar	10 bar	10 bar	10 bar	10 bar
Max temp.	80°c (50°c for C.O.)	50°c	50°c	50°c	80°c (50°c for C.O.)
Products	Max flow rate				
Crude oil (NRV)	4750 m3/h	4750 m3/h	4750 m3/h	4750 m3/h	4750 m3/h
Fuel oil	1000 m3/h				1000 m3/h

(NRV): A non return valve is fitted on the line (when discharging)

Crude oil line particulars:
- Maximum total rate: 12 000 m3/h
- Distance between ship and storage tanks: 1 000 m
- Diameter of line: 36" or 34"
- Static back pressure: 1 bar

e. **Berth safety plan – Donges 7**