PLATFORM ZERO INCIDENTS
join the journey, break the pyramid

Connecting and Disconnecting Terminal and Barge

Version 1,
2025

DISCLAIMER

The information in this document was drawn up with the highest possible accuracy. However, the Platform Zero Incidents and its participants cannot be held liable in any way for its content. Adopting measures, suggestions, warnings, etc. must therefore always be preceded by weighing up and risk assessment. Spreading this document among third parties is allowed provided that this is done in the original form.

ABOUT Platform Zero Incidents

Platform Zero Incidents (PZI) is an initiative of the inland shipping sector. As the name suggests, PZI strives for 0 (zero) accidents in inland shipping. PZI wants to achieve this by:

- A platform where near misses and incidents are shared among members.
- Preventing recurrence of near misses/incidents by developing and promoting best practices based on research and analysis of (trends of) near misses/incidents.
- Building sustainable relationships with stakeholders.
- Increasing awareness and responsibility of safety within the industry.
- PZI will be the centre of expertise in the field of prevention of safety and environmental incidents in inland shipping.

This publication contributes to achieving the mission and vision of PZI. The document was developed by and for inland shipping.

It can be used for various purposes, such as:

- Reference work for crew members and fleet managers.
- Training of crewmembers.
- Safety meetings on board.
- Teaching materials for educational institutions.
- As a basis for procedures and work instructions.

If things are unclear or questions arise during the loading/unloading process, this should be discussed with the shore organisation.

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1. INTRODUCTION

1.1. Why this document?

Connecting and disconnecting arms and hoses in inland shipping can be risky. Crew or terminal staff might be exposed to dangerous substances if the arm is not empty or still under pressure.

This Best Practice Guidance (BPG) helps you reduce that risk.

It was made by experts in inland shipping, including:

- Fleet managers;
- QHSSE managers;
- Terminal representatives.

In addition, relevant rules and regulations, like ADN and CDNI are followed

1.2.How to use this document

This document doesn't describe the only way of working. Every barge and terminal is different.

But it does help you make better decisions in different situations.

You can use this BPG:

- As part of your safety management system
- For training your crew and personnel
- During safety talks
- To raise safety awareness on board and ashore
- As a base for procedures or work instructions

If you have suggestions to further improve this document, then please contact Platform Zero Incidents via info@platformzeroincidents.com.

2. CONNECTING

The main risk of connecting a pipeline is that it is not empty. People can be exposed to unknown or dangerous substances.

This section explains what to check when connecting the barge to the shore installation.

2.1.Before connecting

2.1.1. Shore side

- The loading arm/hose must be empty and not under pressure from the last valve up to the flange. Check this.
- If you ate unsure whether the arm/hose is empty, talk with each other.
- Make sure the arm is balanced and cannot fall on the deck.
- Make sure the installation and staff are ready to connect.
- Provide a new gasket.
- You have the right to stop the work if it feels unsafe (stop-work-authority). See section 2.5.

2.1.2. Barge

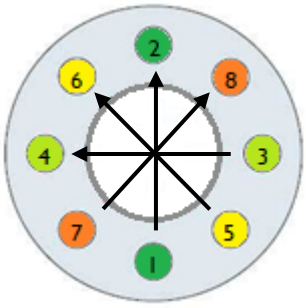
- Pipes must be empty and not under pressure before connecting.
- Make sure the barge and crew are ready.
- If unsure whether the hose/arm is empty, talk to the operator.
- Always prepare for incidents (have a drip tray ready and wear the right PPE for the substance).
- You have the right to stop the work if it feels unsafe (stop-work-authority). See section 2.5.

2.2. Connecting

According to ADN 8.6.3, the shore side is responsible up to the point of actual coupling, after which both the shore side and the barge have joint responsibility.

These are the steps:

- Both sides wear PPE suited to the substance.
- Remove the flange cap from the arm/hose, starting from the bottom to catch any drips in the tray.
- Shore provides a new gasket.
  In case of a claw coupling, visually check the sealing rubber.
- Connect the hose/arm together (operator + crew).
  See image on the right. Watch your fingers!
- Tighten bolts in a cross-pattern with the correct non-sparking tools. If using a claw coupling, follow instructions from shore staff.
- Check if the connection is tight. Perform a pressure test (use leak spray if needed).
- If required, place a splash guard over the connection.



Sequence of tightening bolts and nuts.

2.3. Vapour return

- The vapour return hose (shore side) must be empty and not under pressure up to the flange.
- Connect the vapour return together (operator + crew).
- Shore provides a new gasket.
- Be ready for product or vapour to come out, for example from condensed product — which might be from a previous cargo and different from the current to be loaded/unloaded product.

2.4. Communication

Communication is an important part of safe working. Especially where different parties come together, good agreements and consultation with each other are essential. Below are a number of things that support good communication:

- Fill in the ADN checklist (mandarory) together based on the real situation. This is your risk analysis for the process. Ask questions if you are unsure.
- Optionally, fill in the VOW checklist together and ask clarifying questions if necessary.
- Make clear agreements on how pipelines will be emptied after loading/unloading (see sections 3.1 and 3.2).

2.5.What to do in unsafe situations?

If you have any doubts about the safety of a situation or action, discuss this with each other. If you cannot resolve it together, contact the office/the control room.

In the event of a calamity, your own procedure will be followed. Keep the other party informed here too.

Stop-work-authority

Everyone — on board and on shore — has the right to stop work if something is unsafe. This is called the *stop-work-authority.* Measures can be made (in agreement with each other) to improve safety, after which the work can be restarted.

3. DISCONNECTING

Disconnecting also comes with risks. This chapter describes the steps for safe disconnection.

3.1. Emptying the pipeline – barge side

- Communicate and make agreements together.
- Use efficient stripping after discharging, if needed.
- See Annex A for a best practice to empty the vapour return line.
  If nitrogen is used, make sure it is blown through the working air line and not the breathing air line.
  Always wear the correct PPE during connecting and disconnecting. Even during disconnection, the line can still be under pressure.

3.2. Emptying the pipeline – shore side

Before disconnecting, the pipeline must be empty. There are different ways to do this — discuss them together.

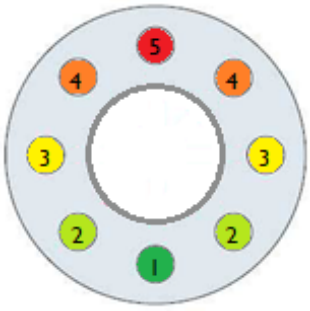
Options include:

- Blowing with nitrogen when handling products with a flashpoint below 60°C (e.g. gasoline, naphtha, kerosene). If unsure about the product or flashpoint, discuss it with each other.
  Nitrogen clears the line of product and prevents flammable mixtures (by removing oxygen). It is blown through the arm or offered at the manifold.
  Nitrogen should only be connected to the working air line, not the breathing air system.

- Draining the loading arm: From the last valve on the shore side to the flange at the manifold of the barge, the arm must be empty and not under pressure.
- Keep in mind: the longer the line between the valve and the flange, the more product can flow back.
- First release the pressure. Then slowly open a drain to check if the arm is empty.
- If unsure if the arm is empty, discuss this together.
- Repeat draining or blowing if the arm is not empty. Insist on this if needed.

3.3. Disconnecting product lines and vapour return

- Always wear the correct PPE when connecting or disconnecting. There may still be pressure in the lines.
- From the last valve (shore side) to the flange at the barge manifold, the loading arm/hose must be empty and not under pressure.
- Residue lines or hoses must also be empty and pressure-free.
- The terminal confirms when the arm/hose is empty and pressure-free. If unsure, check this together.
- Disconnect the arm/hose together (operator + crew).
- Loosen bolts in a cross pattern using suitable non-sparking tools. Start at the bottom, turn away from yourself. (See image) .
- If using a claw coupling, disconnect based on terminal instructions.
- Place the blind flange back on the arm with a new gasket (provided by shore).
- Make sure both flange connections are closed properly.



Order of loosening bolts and nuts.

3.4. Transfer residues from drip tray

According to CDNI, the shore side must collect product residues (unless agreed otherwise). Discuss in advance how residue will be collected. If not collected, issue a Letter of Protest and mention this in the discharging statement.

3.5.Communication

Good communication is essential for safe work — especially between different parties. Better too much communication than too little.

3.6.What to do in unsafe situations?

If you have safety concerns about a situation or action, talk to each other. If you can't agree, call the office or control room.

In case of an emergency, follow your own emergency plan. Also, inform the other party.

4. TECHNICAL SPECIFICATIONS

In this best practice, and based on the current available connections, the following connections are used for blowing through with nitrogen:

- Shore side: Camlock coupling 1.5" female with a valve, according to EN 14420-7 DN 50 (female connection).
- Barge side: Camlock coupling 1.5" male, according to EN 14420-7 DN 50 (male connection)

If these couplings are not available, discuss and agree on which alternative coupling or adapter to use.

Example camlock/safety lock – shore side:



Example camlock – barge side:



SOURCES

ADN (1.4.1.1, 8.6.3 & 7.2.4)

CDNI (Deel B)

EN 14 420-7 DN 50

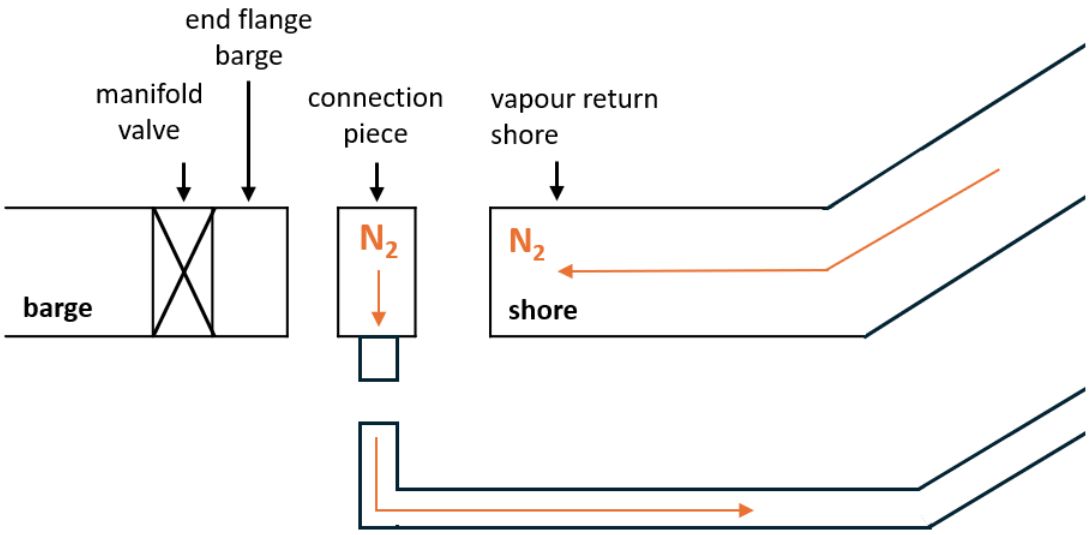
ISGINTT

PGS 29 (NL)

REVISION MATRIX

Version nr.	Changes	Date
1	First version	28 May 2025

ANNEX A – BEST PRACTICE: EMPTYING VAPOUR RETURN LINE



Explanation: coupling and how it works

After loading, the vapour return line is flushed with nitrogen (N_2).

The connection piece has a connection for a stripping hose.

The stripping hose pushes leftover vapours back to the shore.

This prevents product from condensing in the vapour return line after loading.