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Version	Description	Amended pages	Complete verification* OK/NOK**
0	Nieuw document		
01	Afspraken met leverancier en scheikunde toegevoegd		
02	Aanpassing koppelingen zuur/loog naar aanleiding van WF425		
03	Aanpassing spatten op huid bij brandstof spill		
04	Aanpassen logo en verduidelijking nom. Lijst		OK
05	Gravitair lossen HCl verwijderen	Blz. 1&2,7	
06	§3.2 modified i.e. PP400178582, "Make sure that the relevant service is notified when the driver is not listed."	1, 3, 6	

\* Carrying out of a complete verification as stipulated in "10000739058/000 – Verification of quality documents".

\*\* If nothing is entered, this will be interpreted as "NOK" (except in case of version 00).

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## 1 PURPOSE

This procedure outlines the required regulations, instructions, facilities and precautions for carriers when unloading liquid chemicals, cryogenic liquids, pressure gases and fuels from tankers at the various unloading stations at the Doel SITE that need to be duly observed in order to contain the risk of release into the environment. This procedure is NOT a detailed unloading procedure.

## 2 DUTIES AND RESPONSIBILITIES OF THE CARRIERS

- Only recognised carriers that have been awarded a quality assurance certificate are permitted to supply liquid chemicals, gases, cryogenic liquids and fuels by tanker.
- Through the order, the transport company has taken due cognisance of, amongst other things, the safety measures as specified below that are in place at KCD (*Doel Nuclear Power Plant = DNPP*).
- The transport company shall instruct a limited number of drivers as regards the rules and regulations specified below.
- Procurement will manage the nominative list of drivers who have been informed of the KCD rules in place as set out in this procedure (10000796500).
- Procurement will check and update this list each year.  
Each year, Procurement will submit the version of procedure 10000796500 "Safety measures for carriers" that is in place at the time to the contractor for the services/goods in question.
- To remain on this list, drivers shall duly sign the procedure 10000796500 "Safety measures for carriers" each year indicating that they have read it.  
Only drivers for whom the contractor has returned the signed procedure to the local procurement department will be included in the list of drivers who have access to the site. Otherwise they will be removed from the list.
- The contractor for the services/goods due to be supplied shall provide prompt notice (from 28 days to 3 months for the technical perimeter) of any new drivers so that they can be added to the list.
- Each year, Procurement will provide the updated list to Care Site Security.
- Site Security uses this list to identify the drivers of the **tanker transport runs** that are to be admitted to the site.
- Deliveries made using compartmentalised trucks that contain other products that are alien to KCD, or known products that have not been ordered by KCD are not permitted.
- The KCD supervisor in charge will use a checklist that details the actions to be performed by the driver.
- Specifications of the products to be supplied, together with the certificate requirements are communicated in the order sheet.
- When unloading Hydrazinhydrat and Ammonia: a cleaning certificate for tanker and hoses will be asked.
- When "Dedicated wagons" are used for these products we will only ask for the document that proves this dedicated use
- The carrier is to duly observe the requirements specified below.

## 3 DELIVERY PREPARATION

### 3.1 COUPLINGS TO BE PROVIDED BY THE CARRIER

Product		Coupling
Sodium hydroxide	NaOH 50%	AKZO 2" black, right-hand thread
Sulphuric acid	H <sub>2</sub> SO <sub>4</sub> 96%	AKZO 2" black, right-hand thread
Hydrazine hydrate	N <sub>2</sub> H <sub>4</sub> 15%	TW 3" (+ 2" TW (DIN 28450) VK50, with blinding for connection of N2 on the truck)
Ammonia	NH <sub>4</sub> OH 24,5%	TW 3"
Sodium hypochlorite	NaOCl 150-160 g act. Cl	AKZO 2" white, left-hand thread
Fuels	Diesels / Vehicles	Fuel nozzle
Cryogenic liquids	CO <sub>2</sub> / N <sub>2</sub>	No KCD property

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Pressure gases	H <sub>2</sub>	No KCD property

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- **The use of adapters for making the coupling is prohibited as a matter of principle**

If circumstances should nonetheless be such so as to require the use of adapters, this is to be performed subject to the following strict conditions:

- The carrier is responsible for the quality and safety of the connection established between tanker and permanent KCD installation. The guaranteed quality of the adapters used is to be duly assured by the carrier's quality assurance certificate (e.g. ISO9001).
  - (On request) the carrier is to present the latest test certificate of the discharge hoses and couplings. (Periodic test according to Belgian legislation for tool safety) These are to be carried on board the tanker at all times.
  - Per discharge hose only **one** adapter will be permitted. The KCD operator supervising the unloading operation will make a prior visual check of the adapter used and approve or disapprove its use.
  - No modifications may be made to the permanent infrastructure on site.
- The tanker must be equipped with a purging device.

### 3.2 RECEPTION AT THE SITE

- Upon arrival at the site, the driver is to report to Reception during office hours and to Security at the main entrance/TGB outside of office hours.
- The reception clerk or Security officer applies the "Access to the Power Plant" procedure, checks the driver's papers and verifies that the driver's name duly features on the nominative "List of permitted transport companies / Drivers" list.
- The reception clerk or Security officer notifies the MAH procurement supervisor.
- [If the driver is not on the nominative list, though reads and signs the safety instructions at the reception desk, so to be added and to be able to perform a delivery on site, the reception clerk will - in addition to the warehouse purchase responsible - also inform the person in charge of Operations \(where the delivery will take place\).](#)
- The TGC Security guard inspects the vehicle and checks the nominative "List of permitted transport companies / Drivers" list a second time. [If the driver is not on the list, he verifies - by contacting the receptionist clerk - if that the driver has read and signed the safety instructions. If this is not the case, the driver and his vehicle will not be granted access to the site and the CARE Site Security team, will be informed.](#)
- The driver (and his vehicle) proceeds to the MAH Supplier Registration office.
- The MAH warehouse supervisor checks the order sheet and notifies the OPS supervisor of the unloading station.
- The driver will be escorted by the MAH or OPS supervisor to the appropriate unloading station.

### 3.3 VERIFICATION BY OPS

The following items will be verified by the OPS supervisor BEFORE UNLOADING OPERATIONS WILL BE ALLOWED TO START.

- The OPS supervisor uses the appropriate checklist for the product being delivered (ref. 1, 2 of 3)
- The OPS supervisor checks all the documents asked for in §2.
- The OPS supervisor checks the bill of carriage detailing the **nature** and **concentration** of the tank content.
- The OPS supervisor checks to make sure the tanker parks at the right berth (marked or unmarked) or at least on an asphalted or concreted (liquid-proof) ground surface.

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- The OPS supervisor checks to see if the handbrake of the tanker is on.
- The OPS supervisor checks if the driver has put in place wheel chocks.
- The OPS supervisor checks to see if the tanker is grounded where necessary (diesel).
- Connections between the tanker and the permanent installation are put in place by the driver.



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- The OPS supervisor makes sure no (or maximum 1) adapter(s) is/are used to establish the connection between the permanent installation and the tanker (see 3.1).
- The driver is to inform the OPS supervisor as to how swiftly the unloading operation can be halted.
- Unloading to tanks located on a lower floor than the unloading point (e.g. RI cellar D3&D4) may ONLY be carried out gravitatively.
- During the operation, the driver of the tanker and the OPS supervisor are to remain present in a safe location that affords a view of the operation (e.g. shelter).
- Mandatory clothing for drivers: the driver is to make sure he brings his own PPE.
  - ◇ General:
    - \* Full body cover working clothes (jacket + trousers, or overalls; closed, and sleeves folded down)
    - \* Hard hat, safety shoes
    - \* Appropriate gloves
    - \* Face shield
    - \* Ear protection (wherever necessary to guard against noise nuisance during unloading)
  - ◇ For emergency interventions (leakages, potential or expected calamities, emergency interventions, ...)
    - \* Wellington boots
    - \* Acid-proof suit with hood (to be worn over the wellies).

Permission for unloading will only be given when all of the above requirements are duly met.

## 4 MEASURES TO BE PUT IN PLACE IN CASE OF ACCIDENTS

### 4.1 GENERAL

- Report the accident to the 4444 emergency number.
- Send for the nurse or the nearest designated first responder and continue to assist the victim with all means available to you.
- The tables below list the most urgent actions to be implemented after contact with any of the various bulk chemicals. For further information, please consult the user fact sheets on site or the MSDS.

### 4.2 EYE SPATTERS

Product		Action in case of eye spatters
Sodium hydroxide	NaOH 50%	<b>Rinse with water immediately and for a protracted period of time</b> (15 minutes at least) keeping the eyelids open as widely as possible. Remove contact lenses
Sulphuric acid	H <sub>2</sub> SO <sub>4</sub> 96%	
Hydrazine hydrate	N <sub>2</sub> H <sub>4</sub> 15%	
Ammonia	NH <sub>4</sub> OH 24,5%	
Sodium hypochlorite	NaOCl 150-160 g act. Cl	
Fuels	Diesels / Vehicles	
Cryogenic liquids	CO <sub>2</sub> / N <sub>2</sub>	
Pressure gases	H <sub>2</sub>	Not applicable



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**4.3 SPATTERS ON THE SKIN, SOAKED CLOTHING**

Product		Action in cases of soaked clothing
Sodium hydroxide	NaOH 50%	<b>First place the victim under the emergency shower fully dressed</b> , then take off the contaminated clothing items and profusely shower rinse the victim with water for a protracted period of time (15 minutes at least). Then take the victim to the nearest sanitary installation and continue to rinse using <b>tepid</b> water for at least 30 minutes.  <b>Take off the victim's clothing immediately</b> and rinse (the exposed parts of the body) for a protracted period of time (15 minutes at least) under the emergency shower. Then take the victim to the nearest sanitary installation and continue to rinse using <b>tepid</b> water and soap for at least 30 minutes.
Sulphuric acid	H <sub>2</sub> SO <sub>4</sub> 96%	
Hydrazine hydrate	N <sub>2</sub> H <sub>4</sub> 15%	
Ammonia	NH <sub>4</sub> OH 24,5%	
Sodium hypochlorite	NaOCl 150-160 g act. Cl	
Fuels	Diesels / Vehicles	Head to the nearest sanitary installation and rinse using water and soap. Remove contaminated clothing and shoes
Cryogenic liquids	CO <sub>2</sub> / N <sub>2</sub>	In case of cryogenic liquid spatters: <b>DO NOT take off ingrained clothing items</b> (clothing that has not been ingrained into the skin should be removed) <b>Rinse frost bite injuries in the same way as burns.</b>
Pressure gases	H <sub>2</sub>	Not applicable

**4.4 INGESTION**

Product		Action in case of ingestion
Sodium hydroxide	NaOH 50%	Rinse mouth using cold water, <b>DO NOT</b> allow the victim to <b>drink</b> the water, <b>DO NOT</b> allow the victim to <b>vomit</b> .
Sodium hypochlorite	NaOCl 150-160 g act. Cl	
Fuels	Diesels / Vehicles	
Sulphuric acid	H <sub>2</sub> SO <sub>4</sub> 96%	<b>HAVE</b> the victim <b>drink</b> a lot of water, <b>DO NOT</b> allow the victim to <b>vomit</b> .
Ammonia	NH <sub>4</sub> OH 24,5%	
Hydrazine hydrate	N <sub>2</sub> H <sub>4</sub> 15%	Transfer to hospital immediately
Cryogenic liquids	CO <sub>2</sub> / N <sub>2</sub>	Is not considered likely
Pressure gases	H <sub>2</sub>	Not applicable

**4.5 INHALATION**

Product		Action in case of inhalation
Sodium hydroxide	NaOH 50%	<ul style="list-style-type: none"> <li>• Fresh air, rest, semi-upright position.</li> <li>• Apply artificial respiration as soon as respiration stops.</li> </ul>
Sulphuric acid	H <sub>2</sub> SO <sub>4</sub> 96%	
Hydrazine hydrate	N <sub>2</sub> H <sub>4</sub> 15%	
Ammonia	NH <sub>4</sub> OH 24,5%	
Sodium hypochlorite	NaOCl 150-160 g act. Cl	
Fuels	Diesels / Vehicles	
Cryogenic liquids	CO <sub>2</sub> / N <sub>2</sub>	
Pressure gases	H <sub>2</sub>	

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#### 4.6 SUDDEN RELEASE OF THE PRODUCT

Product	Action in case of sudden release of the product
Sodium hydroxide	NaOH 50%
Sulphuric acid	H <sub>2</sub> SO <sub>4</sub> 96%
Hydrazine hydrate	N <sub>2</sub> H <sub>4</sub> 15%
Ammonia	NH <sub>4</sub> OH 24,5%
SODIUM HYPOCHLORITE	NaOCl 150-160 g act. Cl
Fuels	Diesels / Vehicles
Cryogenic liquids	CO <sub>2</sub> / N <sub>2</sub>
Pressure gases	H <sub>2</sub>

- Report the accident to the 4444 emergency number.
- If there is no risk for direct contact with the products, immediately attempt to shut all feeder taps causing the calamity.
- Clear the danger zone and (have it) cordoned off.
- Wait for the KCD fire service to arrive.

#### 5 SAFETY DEVICES

- The safety devices: telephone, eye and emergency shower, signposting materials and rinse hose are usually located in the vicinity of the unloading coupling. In the event any of these devices should fail to operate to appropriate standards as part of the mandatory test, the officer is to immediately take the appropriate steps, notifying the maintenance department.
- OPS stores the PPM that are required in the event of excess risk, in the cabinets containing the protective clothing (.
- The ATEX guideline applies inside the EX zone: hatched floor area.
  - Electrical installations are built to explosion-proof standards. (at least Ex II 2G EEx\_ IIC T4)
  - During unloading operations: no open fire in the vicinity.
  - Connecting or disconnecting is to occur using non-sparking equipment (e.g. bronze spanners)

In the event materials are found damaged, spoiled or lacking, the operational department in charge is to put in place the necessary actions with immediate effect.

#### 6 ENVIRONMENTAL INTERVENTION RESOURCES

**Spill-kit box:** in all cases, these boxes are located in the vicinity of the various filling points, offering protection for absorber cloths, absorber sausages and plastic bags.

**Drip collector:** any liquids found leaking whilst connecting and disconnecting the pipes are to be collected by a drip collector.

At some of the filling points, the drip collectors are equipped with an automatic drainage system. The other drip collectors are to be emptied manually.

**Chemically resistant absorber cloths:** are used to catch and absorb minor leaks or spatters during or following the filling operation.

**Chemically resistant absorber sausages:** are only used in cases where considerable amounts of chemicals have been spilled onto the ground surface.

The absorber sausages are to be positioned in such a way as to counteract the spreading of the contamination. Especially unsurfaced ground surface areas must be prevented from being contaminated.

**Chemically resistant plastic bags:** these bags are available to dispose of contaminated cloths or absorber sausages. Filled bags are to be taken to the environmental disposal warehouse as soon as possible.

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**Thule box:** in all cases these boxes are located in the vicinity of the unloading points for liquid fuels to protect the folding mobile piste. For each filling operation, this **Folding mobile piste** (a 288 litre capacity drip collector) is to be put in place underneath the tanker's pumping station to prevent potential contamination of soil and surface water.

The environmental health department is to replenish used stocks of environmental intervention resources.  
**Please notify this department if required (17-5666).**

## 7 REFERENCES

**Has Part:**

**References:**

10000004402/000/00 (3011/872):	Lossen vloeibare chemicaliën tankwagens
10000004546/000/01 (3011/271):	Lossen gassen uit tankwagens
10000736846/000/02:	Maatregelen lossen vloeib. brandstoffen

**Replaces:**