

# **CONTINGENCY PLAN FOR PORT WATERS IN THE POLICE PORT COMPLEX**

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## Symbols and abbreviations used in the Plan

Acronym	Polish	English
DP	Dyspozytor Portu	Port Dispatcher
DUM	Dyrektor Urzędu Morskiego	Director of the Maritime Office
DZ	Dyspozytor Zakładu	Plant Dispatcher
HOO	Szef Operacji Zwalczania Zanieczyszczeń	Head of Operation
HRC	Centrum Koordynacji Akcji Ratowniczej w Porcie	Harbor Response Center
JRG	Jednostka Ratowniczo - Gaśnicza	Rescue and Fire Unit
KAZ	Koordinator Akcji na Terenie Zakładu	Site Incident Coordinator
KZ	Kierownik Zmiany	Shift Manager
KDR	Kierujący Działaniem Ratowniczym	Incident Commander
KP	Kierownik Portu	Port Operation Manager
KPSz	Kapitan Portu Szczecin	Szczecin Harbour Master
KZ MTG	Kierownik Zmiany Morskiego Terminala Gazowego	Maritime Gas Terminal Shift Manager
MPCK	Morskie Pomocnicze Centrum Koordynacyjne w Świnoujściu	Maritime Rescue Sub-Center in Świnoujście
MRC	Morskie Centrum Zwalczania Zanieczyszczeń	Marine Pollution Response Center
MRCC	Morskie Ratownicze Centrum Koordynacyjne w Gdyni	Maritime Rescue Coordination Centre in Gdynia
Plan	Krajowy Plan Zwalczania Zagrożeń i Zanieczyszczeń Środowiska Morskiego (Plan Krajowy)	National Contingency Plan, National Plan
PSP	Państwa Straż Ratownicza	State Fire Service
PSP	Portowa Straż Pożarna (Szczecin)	Port Fire Service
SAR	Służba SAR	Search and Rescue
SCU	Sztab Ratowania Mienia	Salvage Control Unit
WIOŚ	Wojewódzki Inspektorat Ochrony Środowiska	Voivodeship Inspector for Environmental Protection
WPOR	Wewnętrzny Plan Operacyjno - Ratowniczy	Internal Rescue Emergency Response Plan
ZMPP	Zarząd Morskiego Portu Police	Police Seaport Authority
ZSP	Zakładowa Straż Pożarna	Company Fire Service

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# 1. Legal basis and content of the study

This CONTINGENCY PLAN FOR PORT WATERS IN THE POLICE PORT COMPLEX was prepared in accordance with Article 50a(8)(1) of the Act of March 21, 1991, on maritime areas of the Republic of Poland and maritime administration (Journal of Laws of 2016, item 2145).

The scope of the plan covers (Fig. 1.1):

1. Police Port Morski (Police Seaport),
2. Grupa Azoty Polyolefins S.A. Marine Gas Terminal (MTG),
3. Barkowy Port in Police, where Partner Shipyard (Stocznia Partner) also operates,
4. Mijanka (Police Pier – Mijanka),
5. Gunica Terminal.

The plan was prepared for **Zarząd Morskiego Portu Police** Sp. z o.o. (Police Seaport Authority), ul. Kuźnicka 1, 72-010 Police, tel. +48 91 317 31 01. This is the entity managing the Police port area, whose main shareholder is Grupa Azoty Zakłady Chemiczne „Police” S.A.

According to the Regulation of the Minister of Maritime Economy and Inland Navigation of December 21, 2016, on fire supervision in Polish maritime areas, ports, and marinas (Journal of Laws 2017.118), such a plan should contain information in accordance with Appendix 1 (DETAILED SCOPE OF INFORMATION NECESSARY TO BE SPECIFIED IN THE PLAN FOR COMBATING THREATS AND POLLUTION IN PORT WATERS). The plan for combating threats and pollution to port waters, hereinafter referred to as the "**PLAN**," contains information:

- 1) about the entity submitting the plan for approval, hereinafter referred to as the "entity," including:
  - a) its name,
  - b) registered office and contact details of its management;
- 2) about the area covered by the plan, including:
  - a) its boundaries,
  - b) the activities carried out within it,
  - c) the types of dangerous cargo handled by the entity, according to the IMO classification, and the places of their transshipment, processing, and storage,
  - d) the types of hazards and pollution that may occur within it,
  - e) places where hazards and pollution are most likely to occur,
  - f) places requiring special protection against hazards and pollution;
- 3) possible scenarios for the occurrence of the most serious hazards and pollution;
- 4) on the possibility of responding to hazards and pollution, including information on:
  - a) the entity's response forces, resources, and procedures for hazards and pollution occurring within the area covered by the plan,
  - b) the organizational structure and operational capabilities of the entity performing fire protection tasks in the port,
  - c) the relevant units referred to in Article 118 of the Maritime Safety Act, which participate in combating hazards and pollution in the area covered by the plan,
  - d) the applicable emergency procedures, depending on the type of hazards and pollution,
  - e) methods of removing hazards and pollution, taking into account specific operating conditions (such as icing, flooding, storms),
  - f) methods of dealing with pollution and methods of its disposal,
  - g) communication arrangements in the event of hazards and pollution;
- 5) on exercises and training in responding to potential hazards and pollution, including exercises organized jointly with the State Fire Service or the competent units referred to in Article 118 of the Maritime Safety Act;
- 6) on the compliance of the processes and procedures described therein with the relevant requirements referred to in paragraph 3;
- 7) required under regulations issued by the competent director of the maritime office or considered relevant by the entity.

The following annexes are attached to **the Plan**:

- 1) a map of the area covered by the plan, indicating the locations of transshipment, processing and storage of dangerous cargoes, the location of the entity's emergency response forces and resources, including the location of equipment for combating port water pollution and fixed fire-fighting installations, fire-fighting and rescue equipment, and escape routes;
- 2) contact details of entities or persons responsible for safety matters designated by entities operating in the area covered by the plan, and information on how to alert the entity performing fire protection tasks in the port and the relevant entities referred to in Article 118 of the Maritime Safety Act, which participate in combating hazards and pollution in the area covered by the plan, together with an indication of the method of directly alerting the entity or person concerned;
- 3) a list of technical equipment of the ZSP (Company Fire Service), JRG (Rescue and Fire Unit) Police, and the PSP (State Fire Service) Szczecin;
- 4) maps of specially protected areas located in the vicinity of the Police Seaport;
- 5) basic properties of hazardous substances transshipped at the Police Seaport;
- 6) a diagram of how to notify the services at the Port of Police in the event of a hazard;

The information referred to in paragraph 1 shall be prepared by the entity on the basis of the requirements set out in:

- 1) the International Convention for the Prevention of Pollution from Ships, 1973, drawn up in London on November 2, 1973, as amended by the Protocol drawn up in London on February 17, 1978 (Journal of Laws of 2016, items 761 and 773);
- 2) The codes referred to in Chapter VII of the International Convention for the Safety of Life at Sea, 1974, done at London on November 1, 1974 (Journal of Laws of 2016, item 869);
- 3) The Convention on the Protection of the Marine Environment of the Baltic Sea Area, done at Helsinki on April 9, 1992 (Journal of Laws of 2000, item 346).

### ***1.1. Location and territorial scope of the study***

The Police port complex is located on the left bank of the Police Canal on the Odra River, between 45 km (Gunica Terminal, entrance to the Police Canal) and 50 km (Mijanka) of the Świnoujście-Szczecin fairway. Deep-water access to the complex by waterway from Obrotnica Policka (Policka Turning Place, the so-called Mijanka Turning Place) for vessels with a maximum draught of approx. 11 m for the Świnoujście-Szczecin fairway or via the Police Canal for smaller vessels with a draught of up to approx. 4 m.

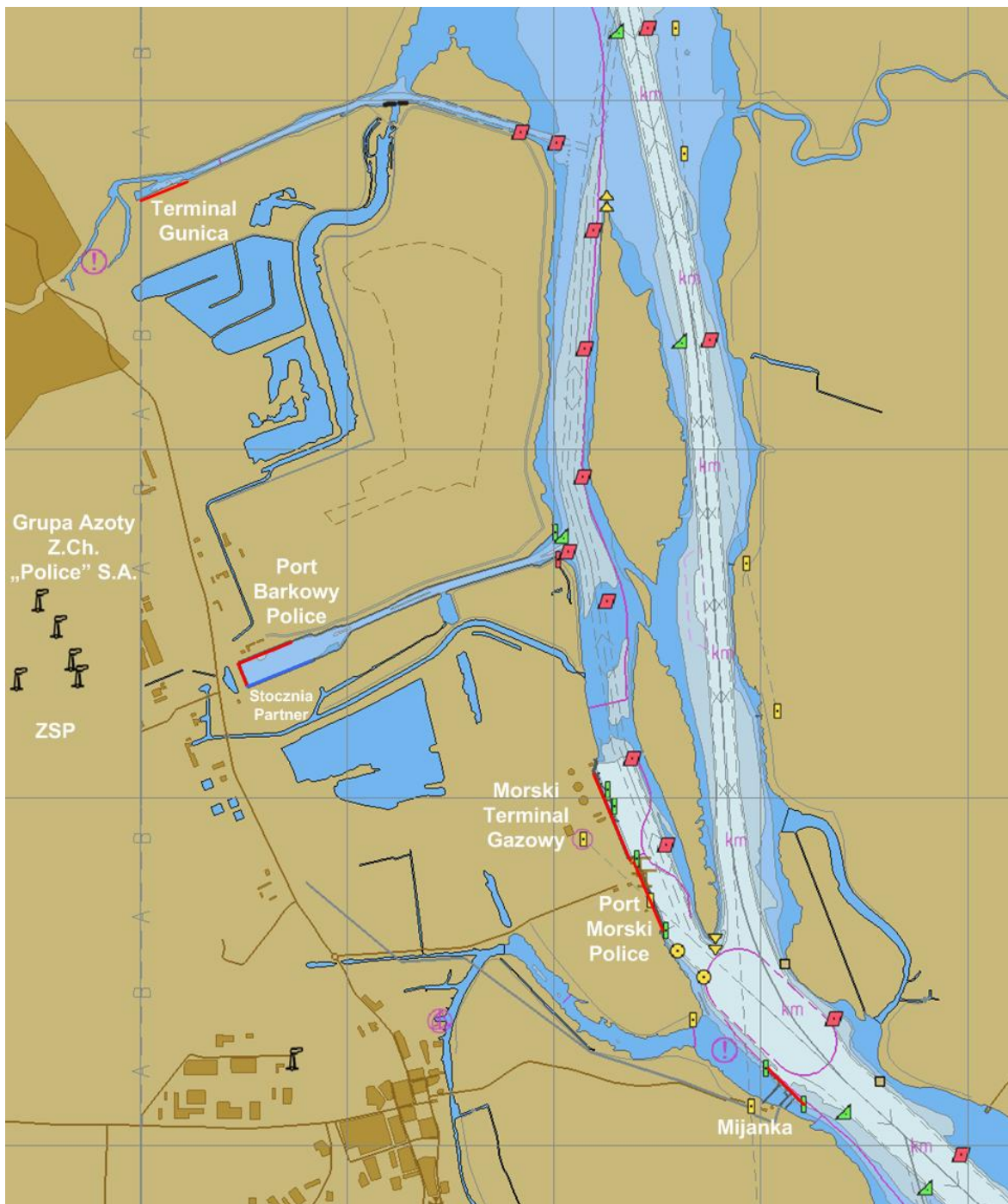


Fig. 1.1. Territorial scope of the study and activities of ZMPP (Police Seaport Authority) (marine map background, marked in red: quays and terminals of the Port of Police).

## ***1.2. List of legal acts related to combating port water pollution and fire protection in ports and the infrastructure of the Port of Police***

### **Key legal acts:**

- Act of March 21, 1991, on maritime areas of the Republic of Poland and maritime administration (consolidated text: Journal of Laws of 2023, items 960, 1688, and 2029, amended in Journal of Laws of 2024, item 834).
- Regulation of the Minister of Maritime Economy and Inland Navigation of December 21, 2016, on fire supervision in Polish maritime areas and maritime ports and harbors (Journal of Laws of 2017, item 67).

- Regulation of the Council of Ministers of August 8, 2017, on the organization of combating threats and pollution at sea (consolidated text: Journal of Laws 2022, item 216), announced in the announcement of the Prime Minister of January 11, 2022.
- Act of March 16, 1995, on the prevention of marine pollution by ships (consolidated text: Journal of Laws 2024, item 1786). Order No. 3 of the Director of the Maritime Office in Szczecin of April 6, 2023, on Port Regulations, as amended (consolidated text of October 15, 2024).
- National Plan for Combating Threats and Pollution of the Marine Environment. Gdynia 202 5, approved by the Minister of Infrastructure in June 2025.

#### **Additional legal acts:**

- International Convention for the Prevention of Pollution from Ships, 1973, drawn up in London on November 2, 1973, amended by the Protocol drawn up in London on February 17, 1978 (Journal of Laws of 2016, items 761 and 773);
- Codes listed in Chapter VII of the International Convention for the Safety of Life at Sea, 1974, done at London on November 1, 1974 (Journal of Laws of 2016, item 869), including the International Maritime Dangerous Goods Code (IMDG Code), adopted by the IMO Maritime Safety Committee (MSC), developed on the basis of Chapter VII of the SOLAS Convention.
- Convention on the Protection of the Marine Environment of the Baltic Sea Area, done at Helsinki on April 9, 1992 (Journal of Laws of 2000, No. 28, item 346).
- International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 (OPRC Convention) (Journal of Laws of 2004, No. 36, item 323);
- Act of April 27, 2001 – Environmental Protection Law (consolidated text: Journal of Laws of 2022, item 2556, as amended).
- Order No. 2 of the Director of the Maritime Office in Szczecin of May 11, 2018, on the designation of port waters and publicly accessible facilities, equipment and installations forming part of the port infrastructure in seaports on the designation of port waters and publicly accessible facilities, equipment and installations forming part of the port infrastructure in seaports in Dziwnów, Kamień Pomorski, Lubin, Mrzeżyno, Nowe Warpno, Police, Przytorze, Sierosław, Stepnica, Trzebież, Wapnica, and Wolin, as well as in the marinas in Karsibór, Międzyzdroje, Niechorze, and Rewal.
- Act of May 12, 2022, on port facilities for the reception of waste from ships (Journal of Laws 2022, item 1250) – regulates the obligation to install and use port waste reception facilities.
- Plan for the management of waste from ships in the seaport of Szczecin, approved by the Marshal of the West Pomeranian Province. (also applies to the Port of Police).

#### **Other documents**

- WPOR (Internal Rescue Emergency Response Plan) Grupa Azoty Zakłady Chemiczne "Police" S.A.
- WPOR (Internal Rescue Emergency Response Plan) Grupa Azoty Polyolefins S.A.
- Instructions for the safe operation of ships for individual quays.

#### **1.2.1. Obligations and responsibilities of entities involved in pollution response actions based on the presented legal acts**

The National (Contingency) Plan introduces the scope of responsibility of entities and the decision-making process in the event of spills in ports (point 10 of the National Plan).

The Regulation of the Council of Ministers of August 8, 2017, on the organization of combating threats and pollution at sea (consolidated text: Journal of Laws 2022, item 216) defines the rules of organization, responsibility, and cooperation of entities and services in the field of combating threats and pollution of the marine environment in Polish maritime areas and ports, including operating procedures, command structure, and the tasks of the maritime administration and SAR Service.

The scheme of responsibility for combating pollution **in ports** according to the National Plan and the regulation on the organization of combating threats and pollution at sea is presented in Fig. 1.2.

The entity responsible for coordinating spill response operations at the scene of the incident is the HRC (Harbor Response Center), an entity appointed by the port operator. This may be the Company Fire Service (ZSP) or the Port Fire Service (PSP), if it has such competence.

Operational and Relational Diagram for Marine Pollution Response in Ports, based on the Regulation on the Organization of Combating Hazards and Pollution at Sea (Journal of Laws 2022, item 216) and the National Plan 2020.

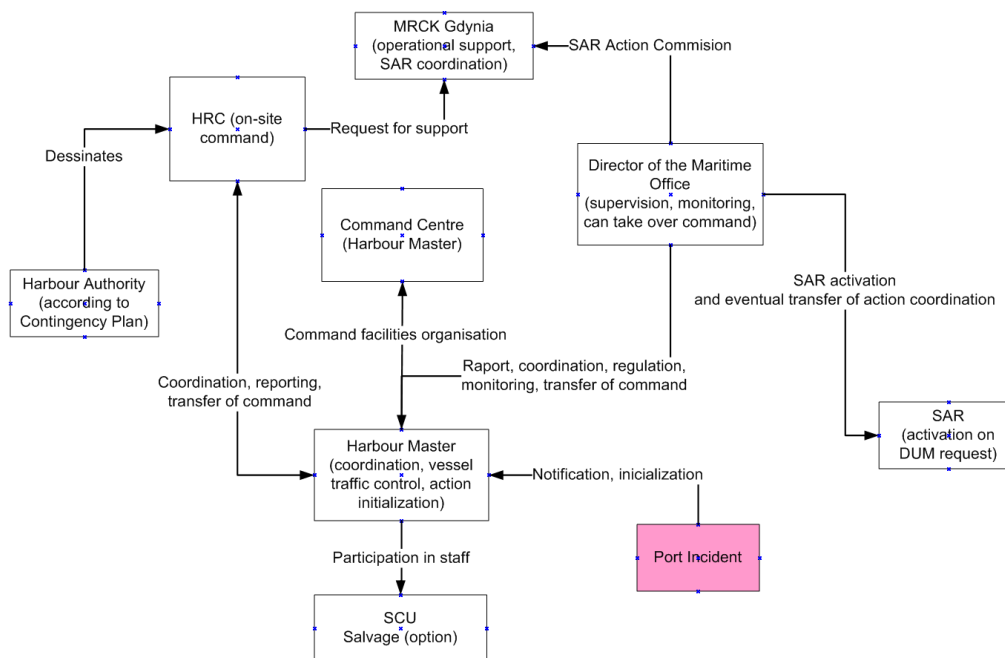


Fig. 1.2. Diagram of responsibilities for combating pollution in ports according to the National Plan and the Regulation (Journal of Laws 2022, item 216)

### 1.2.2. Spill size and pollution response levels

**The National Plan for Combating Threats and Pollution of the Marine Environment** (National Contingency Plan, 2020), there is no single table with a typical classification of oil spills by size (e.g., "small," "medium," and "large"), but the plan contains tables and estimates of spill volumes depending on the size of the ship and the extent of damage. Based on these, it can be concluded that:

- **A spill of 700–1,000 m<sup>3</sup>** can be considered **small or medium**, depending on the location and type of substance.
- **Above 10,000 m<sup>3</sup>** – a **large-scale spill**.

**The National Contingency Plan 2020** introduces a **three-stage response structure**, which is the basis for planning forces, resources, and training (Table 1.1).

Table 1.1.

Response levels based on the National Contingency Plan (2020)

Level	Scope	Nature of the incident	Examples	Forces and resources
1	Local (Quay user, port, terminal)	Small spills, typical in port operations	Bunkering, fuel transshipment, port tank leakage	Local forces (port, transshipment base)
2	Regional (e.g., DUM)	Medium spills, major technical failures	Pipeline damage, spill from a smaller vessel	Local forces + regional/national support
3	National (MRCK, SCU, SAR)	Major incidents, disasters, transboundary spills	Tanker collision, major accident during a storm	National coordination, SAR forces, foreign support

### 1.2.3. Responsibilities of entities in emergency situations

Based on national regulations, tables of responsibilities (Table 1.2) were developed for fires, i.e., events that could potentially lead to pollution of port waters and spills of pollutants on land and water (local, small-scale).

Table 1.2.

Division of responsibility in the event of fire and spills of pollutants on land and local spills on water

Event	Entity responsible for response	Who physically acts (in order)	Who coordinates the action (strategic level)	Who commands the action on site (tactical level)	Who is responsible for the consequences (legally/financially)
Fire on a ship at the quay	1. Ship crew 2. State Fire Service	1. Ship's crew 2. Company or Port Fire Department 3. State Fire Department	Harbour Master – coordinates activities within the port (ship traffic, access, logistics).	KDR from the State Fire Service or Port Fire Service – directly commands firefighting operations.	Shipowner/Operator or other entity if responsible
Spill on the quay (on land)	1. Perpetrator 2. Port manager 3. PSP (in case of chemical hazard)	1. Perpetrator 2. Port authority services 3. State Fire Service (especially chemical rescue)	Action team appointed by the State Fire Service / State Fire Service Commander – coordinates the involvement of services.	KDR from the State Fire Service or Municipal Fire Service – commands the removal of the spill on land.	Perpetrator of the spill. Shipowner/operator, bunkering company, etc.
Small-scale spill on water (local, port)	1. Perpetrator 2. Port manager	1. Perpetrator 2. Port authority resources and means (or contracted company) 3. Port/plant fire brigade, if it has such powers	Harbour Master – supervises and maintains strategic control over the operation within the port.	Port manager or a person designated by him (action manager on behalf of the manager, HRC).	Polluter, shipowner/operator, bunkering company, etc.

## 1.3. Port regulations

Port regulations govern local matters relating to navigation safety and order in seaports. Below are selected excerpts from port regulations specifically concerning the safety and transshipment of vessels carrying dangerous cargo in the area under study, according to Order No. 3 of the Director of the Maritime Office in Szczecin of April 6, 2023. on Port Regulations, as amended (consolidated text of October 15, 2024).

### Section I General provisions

#### Chapter 2. Protection of the marine environment

##### § 15.

1. It is prohibited to pollute waters, port areas, port facilities, and equipment.
2. In the event of pollution, the perpetrators or users are obliged to remove it at their own expense immediately or within the time limit specified by the port authority officer. If the pollution is not removed within the specified time, the port authority officer may order its removal and charge the perpetrator or user with the costs.

##### § 16.

7. It is prohibited to use means other than mechanical ones to remove petroleum substances from the water surface without the consent of the Director of the Maritime Office in Szczecin.

#### Chapter 3

##### Maintaining order

## § 27

1. The rescue of ships that have suffered a maritime accident, in particular those on which a fire has broken out or other events have occurred that threaten the safety of the ship or cargo, is regulated by separate provisions.
2. The occurrence of the events referred to in paragraph 1 shall **be immediately reported to the port authority and VTS** and, depending on the needs, to the SAR Service, Port Service or State Fire Service.
3. **The harbor master shall coordinate rescue operations until the competent service takes over the overall management of the rescue operation.**

## Section II Navigation Regulations

### Chapter 3. Use of VTS

#### § 70.

3. The master of a ship, regardless of whether he uses VTS, should inform VTS as early as possible of any events that may affect the actions taken by VTS, in particular:
  - 3) **any situation that may lead to pollution of the waters** or coastline, such as the discharge or threat of discharge of polluting products into the sea;
  - 9) any **patches of pollution** and floating objects or packaging **observed on the surface of the sea.**
4. The correspondence referred to in paragraph 3 shall be conducted on the VTS frequency (VHF channel) in force in the area concerned, unless otherwise ordered by the VTS.

### Chapter 4

#### Transshipment and storage of goods

#### § 192.

1. Before commencing the transshipment of polluting cargoes carried in bulk, with the exception of bunkering and oil waste delivery operations, the ship should be surrounded by an oil barrier for the duration of the transshipment, and if the harbor master deems it necessary, be assisted by a vessel equipped to collect oil. However, the transshipment facility should ensure that the oil boom is immediately ready for use in the event of pollution. However, the transshipment base should ensure that the barrier is immediately ready for use in the event of pollution.
2. The same requirements apply to the transshipment of hazardous cargoes lighter than water and insoluble in water, transported in bulk.

#### § 194.

1. **Bunkering of vessels should take place while the vessel is moored** at a berth approved by the port authority. In justified cases, the harbor master may, at the request of the shipowner, grant permission for bunkering in the roadstead or anchorage, specifying the conditions for carrying out the operation. All costs related to bunkering in the harbor roadstead or anchorage shall be borne by the party requesting permission.
2. Bunkering of a ship from a tanker may take place at the quay in a place designated by the user, properly prepared and secured, and approved by the port authority.
3. Before commencing bunkering, a checklist shall be drawn up to confirm compliance with safety requirements regarding the condition of the vessels involved in the operation, communication during the operation, transshipment rules, emergency procedures, and the safety of people and the environment. After bunkering is complete, a copy of the checklist should be sent to the relevant port authority.
4. The start and end of bunkering shall be reported to the port authority and VTS, where this system is in force.
5. Ships receiving and supplying fuel are required to maintain continuous monitoring of the VHF working channel of the competent port authority or VTS during such operations, where this system is in force, and display signals in accordance with the provisions of the International Code of Signals.
6. Vessels navigating in port waters should be warned in advance by vessels undergoing bunkering of the need to avoid them.
7. Bunkering of a ship carrying dangerous or polluting cargoes in bulk may take place before or after the completion of loading, unloading, and ballasting operations, under the conditions specified in the safety procedures of the ship, bunker vessel, and quay.

8. The provisions of paragraphs 1-7 shall also apply mutatis mutandis to the disposal of oily waste.

#### § 195.

The commencement and completion of the transshipment of dangerous or polluting cargoes carried in bulk shall be reported to the competent port authority and VTS, where this system is in force.

#### § 196.

Before commencing the loading of dangerous or polluting cargoes, the shipper shall provide the ship's captain with the following information:

- 1) the correct technical name of the cargo being transported;
- 2) the UN (United Nations) identification number of the goods, if available;
- 3) the hazard class of the goods as defined by the classification adopted by the IMO in the IMDG Code, IBC Code, IGC Code, and Annex II - Supplements I, II, and III to the MARPOL Convention;
- 4) the class of the ship as defined by the IMO in the INF Code, in accordance with Regulation VII/14.2, where applicable;
- 5) a statement of compliance of the packaging and labeling of the goods with the requirements of the IMDG Code;
- 6) the quantity of cargo;
- 7) details and address of the person from whom detailed information on the cargo being transported can be obtained.

### Chapter 5. Lights, signs, and signals of vessels

#### § 126.

A vessel on which a fire has broken out, regardless of whether the port authority and VTS, where this system is in force, and the rescue services of the port concerned have been notified, shall transmit a signal consisting of two short and one long sounds (\* \* -), repeated at intervals of no more than one minute, using a siren, whistle, horn, or a signal in the form of continuous ringing of the ship's bell. The signals should be sounded until the arrival of the fire brigade.

### Appendix No. 5 Communication Instructions

For the purposes of ship traffic and port operations, the following rules shall be observed:

2. Szczecin VTS area:

- 1) working channel: 69 VHF;
- 2) call sign: Szczecin Traffic;
- 3) area: VTS area on the Szczecin Lagoon, Roztoka Odrzańska, ports in Police and Szczecin, and the Świnoujście-Szczecin fairway from Gate II;

#### 1.3.1. General procedure in the event of pollution in ports and on the Świnoujście-Szczecin fairway based on port regulations

In the event of marine pollution in the port, in accordance with port regulations (Order No. 3 of the Director of the Maritime Office in Szczecin of April 6, 2023), the following actions should be taken:

1. **Immediately report the incident to:**
  - a. **The Harbour Master or VTS** (if the system is operational in the port),
  - b. Reported by: **port users, ship crew, equipment operators**, etc. [§ 7(2)].
2. **Immediate removal of pollution by the perpetrator or user** – at their own expense, or within the time limit set by the port authority [§ 15(2)].
3. In the event of failure to comply with this obligation, the port authority shall order the removal of the pollution and charge the costs to the perpetrator [§ 15(2)].
4. The following are prohibited:
  - a. Using **chemicals** to remove spills without the consent of the DUM [§ 16(7)],
  - b. Pollution of port waters and port areas in any form [§ 15(1)].
5. The harbor master may order:
  - a. The closure of bilge and sanitary valves on the ship if there is a risk of pollution [§ 17],
  - b. Removal of the ship from the port if it poses a threat to the environment or safety [§ 29].

## 2. General characteristics of the entity's activities and the water area

Zarząd Morskiego Portu Police Sp. z o. o. manages port infrastructure (Table 2.1) for various purposes, including:

1. **Police Port Morski Terminal** (English: Seaport Police), intended for the transshipment of bulk cargo,
2. **Marine Gas Terminal (MTG)**, used mainly for the transshipment of propane and ethylene.
3. **Mijanka Terminal** (commonly known as the "Mijanka" transshipment station), designed for the transshipment of liquid cargo, mainly ammonia,
4. **Port Barkowy Police** (English: Police Barge Terminal), designed for transshipment of bulk cargo from smaller ships and inland vessels.
5. **The Gunica Terminal**, designed for general cargo and large-size cargo transhipped from inland vessels.

The port is operated by the **Water Transport Department** of Grupa Azoty Zakłady Chemiczne "Police" S.A. It provides services in the form of transshipment, mooring and berthing of ships, storage of goods, leasing of storage yards, sale of drinking water, and other services for ships serviced at the port. **The Water Transport Department** is managed by a manager and a deputy manager for the port. **The Port Dispatcher** (Shift Supervisor) is responsible for routine, round-the-clock operations at the port. At MTG, the role of **Port Dispatcher** is performed by the **MTG Shift Manager**.

Table 2.1.

Characteristics of the Police Port terminals (based on data from ZMPP and Maritime Office Szczecin)

Name	Length of quays [m]	Max. length of ships [m]	Maximum draft of ships [m]	Transshipped goods including dangerous goods
Port Morski (Police Seaport)	415	220	11.0	Phosphates Coal
Maritime Gas Terminal (MTG)	280	220	11.0	Ethylene * Propane *
Mijanka terminal	246	approx. 180m	9.2	Ammonia *
Port Barkowy	789.5	120	2.2 – 4.0	Potassium chloride
-Surowca Quay	258		2.2 – 4.0	Iron sulfate
-Produktu Quay	393.5		2.3 – 4.0	Sodium hydroxide
-Czołowe Quay	138		2.3	Urea
Gunica Terminal	220	100	1.5-1.7	General cargo

\* See characteristics of dangerous goods, Appendix 6

### 2.1. Ship traffic in the port

The intensity of transport activity to date covering the analyzed area, including the Seaport, the Mijanka transshipment station, and the Marine Gas Terminal, is presented in Table 2.2.

Table 2.2

Transshipment volumes at the Police Seaport, Polimery Police, and the Mijanka transshipment site in 2013-2024 (tons)

Years	Police Port Morski	Mijanka transshipment site	Maritime Gas Terminal	Total	Total with the Marine Gas Terminal
2013	1,106,048	89,776		1,195,824	
2014	1,382,192	86,883		1,469,025	
2015	1,351,686	67,231		1,418,917	
2016	1,405,012	45,076		1,450,088	
2020	1,286,561	0		1,286,561	
2021	1,013,785	53,802		1,067,587	
2022	898,688	54,955	22,062	953,643	975,705

2023	587,872	5,018	51,661	592,890	644,551
2024	660,027	0	266,759	660,027	926,786

The volume of raw materials (phosphates) and chemical products (fertilizers) shipped by sea and the volume of liquid chemical cargoes are derived from the production needs of Grupa Azoty Zakłady Chemiczne "Police" S.A. and have been determined for a specific production volume.

Approximately 15 ships per year with an average size of approx. 10,000 DWT are operated at Mijanka (Police Pier – Mijanka).

The Bakowy Terminal handles approximately 70 small ships per year (average tonnage 2,700 DWT) and 200 barges per year (average tonnage 800 DWT).

Currently, bulk carriers with parameters close to the maximum for the Świnoujście–Szczecin fairway (i.e., for a cargo ship Lc=240 m, B=32.3 m, T=11.0 m) are operated in the Police Port Morski. Table 2.3 shows the number of vessels handled based on the Statistical Yearbooks of Maritime Economy.

Table 2.3.

Year	Total number of ships	Including those with cargo
2012	276	198
2013	220	162
2014	264	187
2015	275	189
2016	323	230
2017	337	222
2018	267	206
2019	277	219
2020	290	204
2021	253	194
2022	227	174
2023	150	110
<b>Average</b>	<b>263</b>	<b>191</b>

## 2.2. Hydrometeorological conditions

The so-called average unfavorable conditions for combating pollution and spills and their frequency of occurrence have been determined. Selected hydrometeorological and hydrological conditions affecting operations in port areas include:

- winds,
- currents,
- visibility and fog,
- icing.

### 2.2.1. Winds

Wind distribution depends mainly on atmospheric circulation, while in coastal areas, local conditions influence wind speed and direction. Fig. 2.1 shows the wind rose for Szczecin. A predominance of southwesterly winds can be seen.

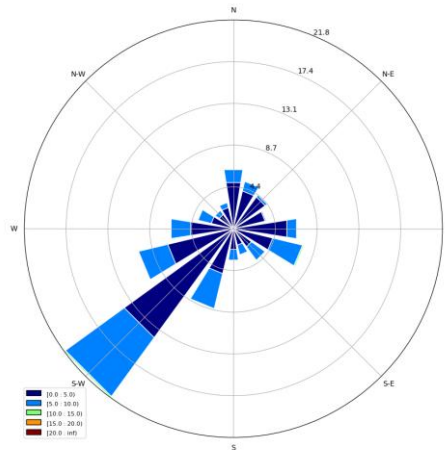


Fig. 2.1. Wind rose for Szczecin 2001-2021, all months.

In Szczecin, the average annual wind speed is approximately 3.5 m/s. The highest average speeds are recorded in December, January, and February (4.6 m/s), but in the other months they do not differ significantly (the lowest in July and August, 3.1 m/s).

### 2.2.2. Waves

The analyzed water area is sheltered and wind waves do not cause any difficulties in conducting operations.

### 2.2.3. Visibility

Szczecin has an average of 50 foggy days per year. A significant increase in the frequency of fog in the port can be observed from August to November. During this period, October was the foggiest month.

### 2.2.4. Ice

On average, the ice season lasts from the end of December to the end of February, but there are also many ice-free winters. One of the most significant hazards may be the outflow of river ice when ice jams break up upstream (average ice thickness 20 cm). Currently, due to global warming, ice phenomena may occur less frequently.

### 2.2.5. Currents

A natural current resulting from the flow of the Oder River is observed on the section from Szczecin to Chelminek and then in the straits connecting the Lagoon with the sea. It rarely reaches a speed of more than 1 m/s.

Current speeds, flows, and water level changes are interrelated. However, at the mouth of the Oder, on the section from Szczecin to the Szczecin Lagoon, there are situations where there is no direct influence of the flow at the top of the system (Szczecin) on the water level at the bottom (Trzebież) and vice versa. This occurs as a result of the backwater effect of storm surges (sea, Szczecin Lagoon) and the effect of wind on the flow velocity in the surface layer.

In the Odra cross-section at Police, typical river flows (97%) were observed, and in exceptional cases, reverse flows (so-called backwater) as a result of water being held back by the high water level of the Szczecin Lagoon (3%).

Maximum flows and associated maximum velocities of 1.0 m/s (approx. 2 m/s) occur during river floods, but last less than 1% of the time per year. These are the maximum velocities observed in the river current and on its surface. Due to the low probability of their occurrence, simulation studies should use average velocities from the maximum annual velocities with a probability of occurrence of  $P = 5\%$ , which is approximately 0.7 m/s (approx. 1.4 w) at the Police cross-section.

## 2.3 Specially protected areas

The specially protected areas designated under the European Natura 2000 Ecological Network located near the Port of Police are areas of special habitat protection and special bird protection. These include the following areas: PLB 320003 Lower Odra Valley, PLB 320009 Szczecin Lagoon, and PLH 320018 Odra Estuary and Szczecin Lagoon. The extent of these areas near the Port of Police is shown in Appendix Z5.

## 3. Identification of hazards and assessment of the risk of water pollution at

The identification of hazards and assessment of the effects of water pollution in selected terminals of the Port of Police most vulnerable to pollution are presented in order to determine possible response measures.

### 3.1. Analysis of statistical data on accidents and incidents at the Port of Police

#### Spills of petroleum products and oils for the period 2012-2024

During the analyzed period of 2012-2024, there were 11 incidents related to port water pollution in Police.

Spill locations:

Barkowy Port 6/11=55%, Port Morski 5/11=45%, Mijanka 0%.

Spill size:

Not recorded, most of them were minor spills, probably up to 10 kg of spilled substance. **Note: a system for reporting pollution incidents in accordance with the form presented in Appendix Z2 should be introduced.**

Types of spills:

The most common substances were hydraulic oils or paint and oil residues washed off the deck of the vessel by precipitation.

Frequency of spills:

0.84 per year, an average of 0.0032 spills per vessel serviced.

#### Chemical spills for the period 2013-2024

None observed

#### Bunkering for the period 2013-2024

73 bunkering operations, mostly at Mijanka

#### Navigation accidents and fires for the period 2013-2024

None observed

### 3.2. Example risk scenarios

Risk management methods are used to analyze threats, which are defined as the possibility of losses occurring. In ports, losses can be grouped according to their importance as follows:

1. losses in human life and health,
2. **losses to the environment, including water,**
3. material losses,
4. losses incurred by entities operating in the port.

This plan focuses on **losses to the marine environment** and methods of compensating for them.

Pollution of port waters can have the following sources:

1. ships,
2. land-based,
3. other external sources.

### 3.2.1. Estimating the frequency of events related to port water pollution

This subsection presents selected probability values for emergency events that may directly or indirectly lead to marine pollution. These include human error during ship operation, failure of marine loading arms, ship fires, and damage to tanks as a result of collisions.

The actual number of possible scenarios leading to the spillage of hazardous substances is, in practice, infinite, especially in the case of human error, which can occur in a wide variety of circumstances and configurations. Nevertheless, the scenarios presented here have been considered the most relevant for risk analysis and event frequency modeling.

It should be emphasized that these values **do not have to and should not be treated as a direct basis for operational pollution control plans**. Their purpose is to provide a statistical background that allows us to understand the approximate frequency of such events in the operational practice of ports, terminals, and maritime transport systems.

#### Probability of human error ( $P_b$ )

Assessing the reliability of navigators (pilots and captains) and VTS operators is a very complex process involving sophisticated methods such as HREP (Human Reliability Evaluation Program).

To estimate the probability of navigator error, a baseline human error value of  $P_b=2.0E-4$  per operation (one error per 5,000 operations). An operation is understood as an event in which key decisions are made (e.g., passing ships, passing near danger, turning the rudder, etc.).

In cases where there is a duplicate crew on the bridge (e.g., captain and pilot), the probabilities of human error are multiplied together.

#### Probability of spillage during marine loading arm operations ( $P_r$ )

Based on [Ronza A. et al. A quantitative risk analysis approach to port hydrocarbon logistics Journal of Hazardous Materials. 2006], the probability of a spill resulting from critical damage to a loading arm is  $Pr_1=6E-5$  per operation. Partial (non-critical) damage to the arm is 10 times greater and amounts to  $Pr_2=6E-4$  per operation. Based on [RISK CALCULATIONS MANUAL Guidelines for quantitative risk analysis, indirect risks and environmental risk analysis – version 2.0 of 01/04/2019 ] the probability of a leak from the loading arm is  $Pr_2=3.0E10-7$  per 1h of loading operations, and the probability of total damage to the loading arm is 10x lower and amounts to  $Pr_1=3.0E10-8$  per 1h of loading operations.

#### Probability of fire on the ship during mooring ( $P_p$ )

Based on [Severity, probability and risk of accidents during maritime transport of radioactive material, IAEA-TECDOC-1231, IAEA 2001], the probability of a fire on a ship in ports is  $P_p=5.4E-5$  per port entry. Approximately 40% of all ship fires occur in ports, and 60% at sea. The average time to extinguish a fire in a port is:

- 0-30 min – 20%
- 30 min-2 h – 31%
- 2h-10h – 29%
- 10h-1 day – 9%
- >1 day – 11%

The statistical probability that a collision between ships or a collision with a moored ship will cause a fire is  $2.6E-2$  ( $0.026=2.6\%$ ).

ITOPF [Oil Tanker Spill Statistics. ITOF 2024], based on data from 2010-2023 for the entire global fleet, gives the probabilities of a spill as a result of a fire as:

- Small spill (7-7,000 tons): 8%
- Large spill (>7,000 tons): 13%

### Probability of ship tank leakage after impact (*Pru*)

Based on [TNO, Guidelines for Quantitative Risk Assessment, CPR18E. Purple Book, TNO, Apeldoorn, 1999], the probability of cargo tanks on tankers and gas carriers leaking and, as a consequence, cargo spilling after a collision with another ship is:

- $Pru=0.1$  (tanker, single hull).
- $Pru=0.0015$  (oil tanker, double hull).
- $Pru=0.00012$  (liquefied gas carriers).

Calculations were made for the very general assumptions of the Police Port Authority and the frequency of events was determined assuming that 300 ships are handled annually, including 50 liquefied gas tankers. The results are presented in Table 3.1. The main measure is the mean time between accidents (MTBA), given in years. For maritime operations where a serious accident may occur, it is assumed that a time between 50 and 100 years is within ALARP (As Low as Reasonably Practicable) limits, and an MTBA above 150 years is within tolerable limits. A time of less than 50 years is considered intolerable. Equipping terminals, e.g., with stationary fire protection systems covering the entire ship, significantly reduces the risk of potential spills.

Table 3.1.

Frequency of emergency situations that may lead to pollution at the terminals of the Police Port (total)

Name	Value	Unit
Annual ship traffic (total)	300	ships/year
Annual gas tanker traffic (future)	50	ships/year
Probability of fire per ship entry	5.40E-05	
Probability of fire in Police per year (all ships)	1.62E-02	
Time between ship fires in Police (MTBA)	<b>62</b>	years
Probability of a major spill as a result of a fire	0.13	
Probability of a major spill as a result of a fire in Police per year	2.11E-03	
Time between major spills resulting from a fire in Police	<b>475</b>	years
Probability of a small spill as a result of a fire	0.08	
Probability of a minor spill as a result of a fire in Police per year	1.30E-03	
Time between small spills resulting from a fire in Police	<b>772</b>	years
Average number of hours of transshipment 1 ship for transporting liquefied gas	20	h
Probability of leakage from the reloading arm per hour of operation	3.00E-07	
Probability of leakage from the loading arm in Police per year	3.00E-04	
Time between gas loading arm leaks (MTBA)	<b>3</b>	years

### 3.2.2. Ship pollution

As a result of an expert analysis of possible hazards in the Port of Police, the following possible hazard scenarios that could lead to pollution of port waters were selected:

- Z.1. Collision of ships on the Police turntable, in the channels or on the approach to the quays, and leakage from its hull, resulting in a spill from the tanks.
- Z.2. A ship passing through the fairway or canal colliding with a moored ship, causing its hull to leak and, as a consequence, a spill from its tanks.
- Z.3. A ship colliding with a quay or other port infrastructure elements, causing damage to its hull and, as a consequence, leakage from its tanks.
- Z.4. Running aground while approaching the quay or turning, causing damage to its hull and, as a consequence, leakage from the tanks.
- Z.5. Leakage of the installation during ammonia transshipment operations.
- Z.6. Spillage during bunkering or waste collection from the ship.

- Z.7. Fire or explosion on a moored ship and leakage from its hull, resulting in leakage from tanks.
- Z.8. Leakage of the ship's deck equipment hydraulic system.
- Z.9. Leakage from the ship's underwater equipment, including the steering gear or shaft sleeve.
- Z.10. Flushing of oil, paint, etc. residues from the ship.
- Z.11. Leakage of the installation during reloading operations involving propane or ethylene and other substances used in the process, including Marlotherm XC.

The potential consequences of the above scenarios are:

- S.0. No contamination, other material losses.
- S.1. Spillage of a very small amount of oil or petroleum products (up to 10 kg).
- S.2. Spillage of a small amount of petroleum derivatives (up to 100 kg).
- S.3. Catastrophic spill of petroleum derivatives equal to half the size of a single bunker tank (for a 20,000 DWT vessel, the total bunker capacity is approx. 1,000 t, distributed in 2 tanks with a capacity of 500 t, so half of one tank is approx. 250 t).
- S.4. Spill of a small amount of ammonia (up to 4.0 m<sup>3</sup>).
- S.5. A significant, catastrophic leak of ammonia equal to half the size of a single tank (the maximum vessel for Mijanka is a tanker with a cargo capacity of 10,000 m<sup>3</sup>, with tanks of approx. 1,700 m<sup>3</sup> and half a tank of approx. 850 m<sup>3</sup>).
- S.6. Leakage of a small amount of propane/ethylene (up to 10.0 m<sup>3</sup>).
- S.7. Leakage of a significant amount of ethylene/propane and probable ignition/explosion of the gas tanker.

### 3.2.3. Pollution from land

Land-based pollution can be grouped as follows:

1. Pollution from damaged cranes and other unloading equipment.
2. Pollution from damaged means of transport.
3. Pollution resulting from damaged storage tanks and transmission pipelines.

#### Note

It should be remembered that in reality the number of scenarios may be unlimited. All new scenarios should be analyzed in order to determine the appropriate preventive action.

### 3.3. Police Port Morski

Table 3.2. presents possible hazards with their estimated probability of occurrence for the Police Port Morski Terminal.

Table 3.2.

Hazards and their assessment at the Police Port Morski

Scenario	Probability of scenario	Possible maximum consequences	Comments
Z1	X	none	Possible collision site only on the turntable (not part of the Port area), as one-way traffic applies in the Police and Barkowy Canals.
Z2	MP	S0	Small effects due to the low speed ( $v < 3w$ ) of passing vessels
Z3	P	S0	as above
Z4	MP	S0	As above, plus there is a soft bottom, so running aground does not pose a serious threat.
Z5	X		Not applicable
Z6	MP	S2	There were no bunkers in the Seaport.
<b>Z7</b>	<b>EMP</b>	<b>S3</b>	<b>As a result of an uncontrolled fire, the bunker spills.</b>
Z8	P	S1	
Z9	P	S1	

Scenario	Probability of scenario	Possible maximum consequences	Comments
Z10	P	S1	
Z11	X		Not applicable

Probability legend:

X – impossible

EMP – extremely low probability

BMP – very unlikely

MP – unlikely

P – probable

In summary, it can be noted that during the stop and approach to the Marine Terminal (Police Seaport), the probability of large and catastrophic spills resulting from leaks in bulk carriers' bunker tanks is minimal. However, minor incidental spills can be expected.

### 3.4. Mijanka Terminal

Table 3.3. presents the possible hazards with their estimated probability of occurrence for the Mijanka Terminal.

Table 3.3.

Hazards and their assessment at the Mijanka Terminal

Scenario	Probability of scenario	Possible maximum consequences	Comments
Z1	EMP or X	S3/S5	Possible collision site only on the turntable (not part of the port area), other ships' traffic is suspended during the gas tanker's maneuvers. Practically possible only in <b>intentional acts</b> .
Z2	EMP or X	S5	Catastrophic, especially during eastern circulation. The speed of ships on the track up to 8w and turning at the mooring point make this scenario potentially possible only in <b>intentional acts</b> .
Z3	P	S0	Due to the low speed of approach to the quay, there will be no leakage from the hull.
Z4	MP	S0	The seabed is soft, so running aground does not pose a serious threat.
Z5	MP	S4	
Z6	MP	S2	
<b>Z7</b>	<b>EMP</b>	<b>S3/S5</b>	<b>As a result of an uncontrolled fire, the bunker spills or a significant amount of ammonia is released.</b>
Z8	MP	S1	
Z9	P	S1	
Z10	P	S1	
Z11	X		

Probability legend:

X – impossible

EMP – extremely low probability

BMP – very unlikely

MP – unlikely

P – probable

In summary, it can be noted that during the stop and approach to Mijanki, the probability of large and catastrophic spills resulting from leaks in the cargo tanks of a chemical tanker is minimal. The most likely spills are incidental spills resulting from leaks, damage, or human error during the transshipment of ammonia. The most dangerous scenario is an uncontrolled fire during unloading.

#### 3.4.1. Analysis of emergency leakage from the ammonia transshipment installation

Ammonia dissolves well in water. Spillage of liquefied ammonia onto the water surface results in the formation of a strongly alkaline solution that is toxic to aquatic organisms.

Assumption in accordance with OCIMF: unloading must be stopped within approx. 20 seconds after triggering an ESD (Emergency Shutdown Alarm). The time required to close the manifold and disconnect the automatic arm (PERC) is approx. 5 seconds. The time required to stop the loading pumps is approx. 10 seconds. An optimistic value for stopping unloading and closing the valves can be assumed to be 15 seconds, and a least optimistic value 30 seconds.

The remaining cargo in the arm and manifold on an LPG/chemical tanker  $L_c=190$  m is approx. 0.8-1.5 m<sup>3</sup> (the length of the pipeline from which the contents will escape is approx. 3 m). At a transshipment rate of 300 t/h and assuming damage to the arm, an NH<sub>3</sub> leak can be expected under normal conditions, i.e., 273.15 K and a pressure of 1013.25 hPa:

$$q = 300 \text{ t/h}$$

$$d = 0.64 \text{ t/m}^3$$

$$V = q/d = 300/0.64 = 468.8 \text{ m}^3/\text{h}$$

$$G_{\min} = V \cdot t_{\min} = 468.8 \cdot (15/3600) = 1.95 \text{ m}^3$$

$$G_{\max} = V \cdot t_{\max} = 468.8 \cdot (30/3600) = 3.91 \text{ m}^3$$

where:

- d – ammonia density [t/m<sup>3</sup>]
- q – unloading rate [t/h]
- V – flow [m<sup>3</sup>/h]
- G<sub>max</sub> – maximum leak [m<sup>3</sup>]

Therefore, the total incidental leakage during unloading may reach a value equal to:

$$G_{\max} \approx 4.0 \text{ m}^3$$

### 3.5. Marine Gas Terminal

Table 3.4 presents possible hazards with their estimated probability of occurrence for the MTG.

Table 3.4.

Hazards and their assessment at the MTG

Scenario	Probability of scenario	Possible maximum effects	Comments
Z1	EMP or X	S3/S5	Possible collision site only on the turntable (not part of the port area), other ships' traffic is suspended during the gas tanker's maneuvers. Practically possible only in <b>intentional acts</b> .
Z2	EMP or X	S5	Catastrophic, especially during eastern circulation. The speed of ships on the track up to 8w and turning at the mooring point make this scenario potentially possible only in <b>intentional acts</b> .
Z3	P	S0	Due to the low speed of approach to the quay, there will be no hull leakage.
Z4	MP	S0	The seabed is soft, so running aground does not pose a serious threat.
Z5	X		
Z6	MP	S2	
Z7	<b>EMP</b>	<b>S3/S7</b>	<b>As a result of an uncontrolled fire, the bunker spills or a significant amount of ethylene/propane is released/explodes.</b>
Z8	MP	S1	
Z9	P	S1	
Z10	P	S1	
Z11	MP	S6	

Probability legend:  
 X – impossible  
 EMP – extremely low probability  
 BMP – very unlikely

MP – unlikely  
P – probable

In summary, it can be noted that during the stopover and approach to MTG, the probability of large and catastrophic spills resulting from leaks in the cargo tanks of a chemical tanker is minimal. The most likely spills are incidental spills resulting from leaks, damage, or human error during the transshipment of ethylene and propane. The most dangerous scenario is an explosion during unloading.

### 3.5.1. Analysis of emergency leakage from MTG installations (ethylene and propane)

Ethylene and propane are not soluble in water, and when spilled on water in a liquefied state, they immediately evaporate to form a gas cloud. Therefore, they do not pose a major threat to the aquatic environment.

## 3.6. Analysis of the effects of oil pollution

A series of simulations were carried out in the PISCES II simulator to determine the impact of weather conditions on the spread of a spill of DIESEL FUEL OIL with a density of  $0.837 \text{ g/cm}^3$  from a 60-ton tank.

It was assumed that the incident took place at the Mijanka Terminal, which, due to its location, poses the greatest challenge in terms of securing the coast and collecting the spill.

In the first scenarios, the fuel leak gradually decreased from 30 tons in the first 30 minutes to stopping after 6.5 hours. The total amount of fuel spilled was approximately 57.6 tons. An outgoing current with a speed of 0.5 w was simulated. At bends and near the shores, currents within the range of 0 to 0.2 knots were simulated, taking into account the shape of the shore. The simulation results are presented in Figs. 3.1 and 3.2.

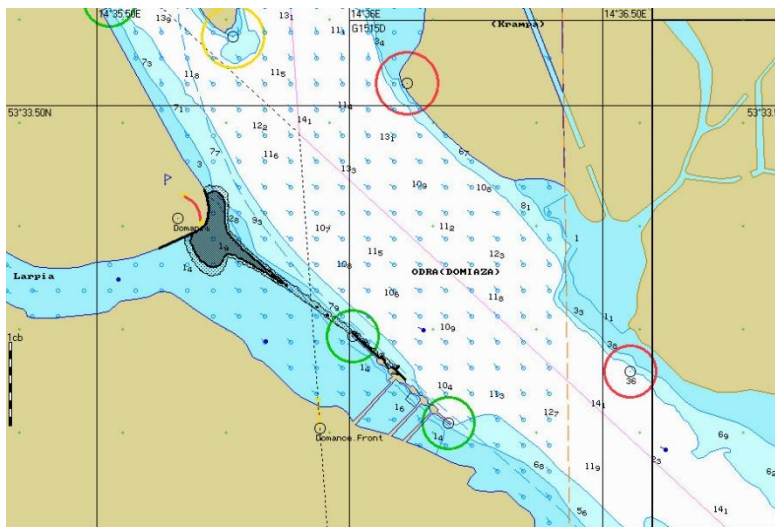


Fig. 3.1. Spread of the slick and contamination of the shore in calm weather

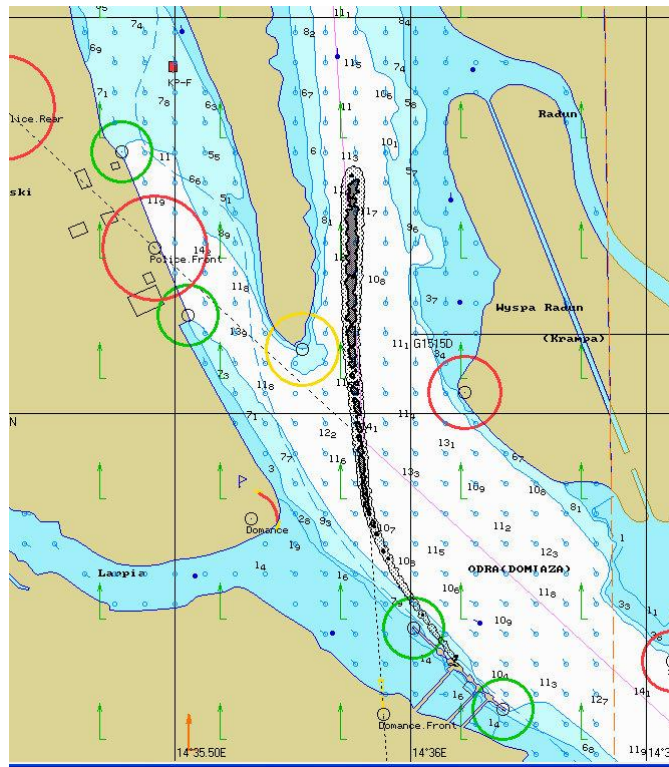


Fig. 3.2. Fuel slick with a southerly wind and a speed of 10 w (approx. 5 m/s)

At any point during the simulation, it is possible to determine the amount of fuel that has already reached the shore. An example of this is shown in Fig. 3.3. The table in Fig. 3.4 shows how much fuel is already on the shore and how much is still floating on the water surface.

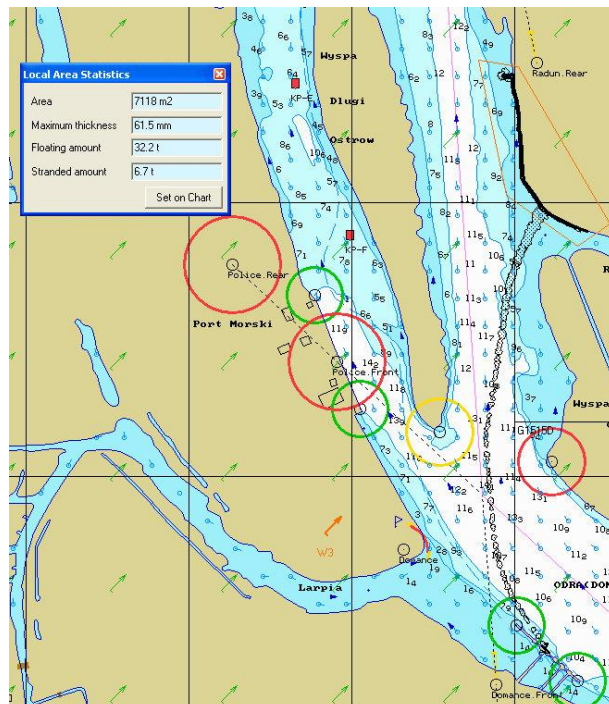


Fig. 3.3. Determination of the amount of pollution in a selected section of the coast. NW wind 5 w

Data Browser - PollutionSpill statistics\History							
	Time	Amount spilled	Amount floating	Amount evapora...	Amount dispersed	Amount stranded	Amount
Pollution	17.07.2017 10:27	0.0 t	0.0 t	0.0 t	0.0 t	0.0 t	0.0 t
Spill sources	17.07.2017 10:42	10.9 t	10.9 t	0.0 t	0.0 t	0.0 t	0.0 t
Spill statistics	17.07.2017 10:57	19.8 t	19.7 t	0.0 t	0.0 t	0.0 t	0.0 t
History							
Air	17.07.2017 11:12	26.7 t	26.7 t	0.0 t	0.0 t	0.0 t	0.0 t
Environment	17.07.2017 11:27	32.3 t	32.3 t	0.0 t	0.0 t	0.0 t	0.0 t
Weather	17.07.2017 11:42	36.8 t	36.7 t	0.0 t	0.0 t	0.0 t	0.0 t
Meteo data	17.07.2017 11:57	39.9 t	39.9 t	0.0 t	0.0 t	0.0 t	0.0 t
Currents	17.07.2017 12:12	42.4 t	42.4 t	0.0 t	0.0 t	0.0 t	0.0 t
Coastline	17.07.2017 12:27	44.9 t	43.7 t	0.0 t	0.0 t	1.2 t	0.0 t
Wind	17.07.2017 12:42	47.1 t	44.9 t	0.0 t	0.0 t	2.2 t	0.0 t
ESA	17.07.2017 12:57	48.7 t	45.6 t	0.0 t	0.0 t	3.0 t	0.0 t
Incident data	17.07.2017 13:12	50.0 t	45.5 t	0.1 t	0.0 t	4.4 t	0.0 t
Locations	17.07.2017 13:27	51.2 t	45.2 t	0.1 t	0.0 t	5.9 t	0.0 t
Viewpoints	17.07.2017 13:42	52.5 t	45.8 t	0.1 t	0.0 t	6.6 t	0.0 t
Targets							
Area objects							
Formations							
Response resources							
Assignments							
Air operations							
Division 1							
Division 2							
Division 3							
Organizations							
Events							
Event log							
Event script							
Add info							
Symbol							

Fig. 3.4. Example of spill statistics (spread of fuel spill at the Mijanka quay)

By running a simulation for given weather conditions, it is possible to determine the time it will take for the pollution slick to reach a specific area, which can facilitate the decision on where to deploy vessels to set up oil booms. The time it takes for the vessels to reach the site and the time it takes to set up the boom must be taken into account. An example of such a simulation is shown in Figs. 3.5 to 3.7. Wind during the simulation: SE 10 w.

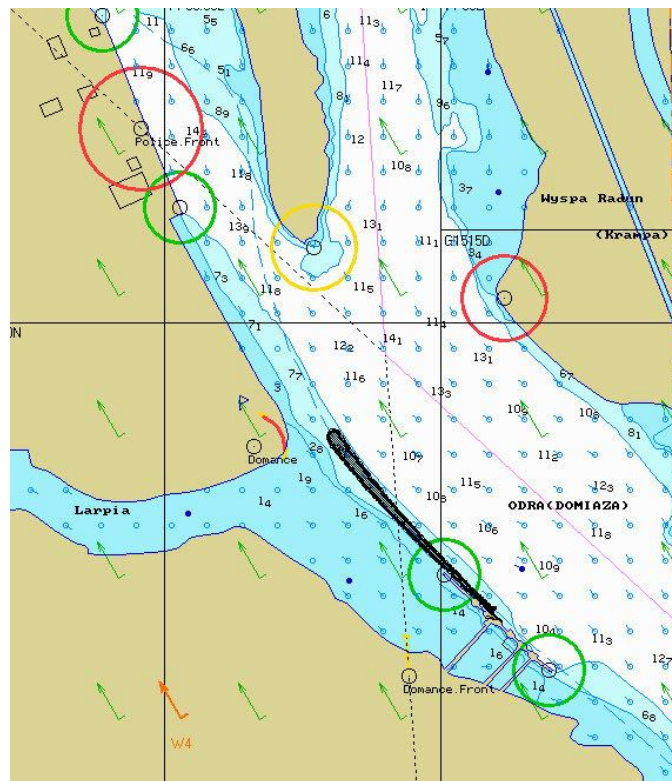


Fig. 3.5. The slick after 24 minutes of simulation – it has passed the mouth of the Łarpija River and is heading towards the Police Canal

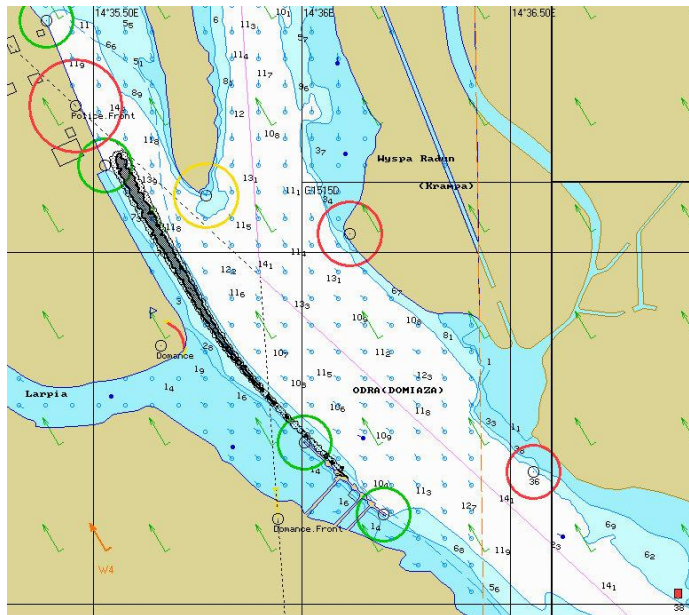


Fig. 3.6. The slick after 1 hour and 13 minutes of simulation has reached the southern shore of the Seaport

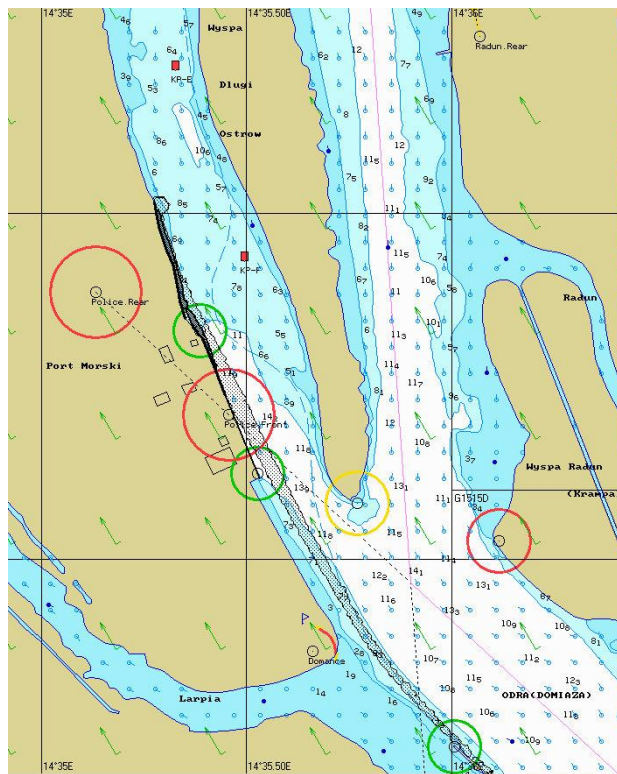


Fig. 3.7. Pollution of the Seaport and the shore after 2 hours and 16 minutes from the start of the spill simulation

The simulations clearly show that, given the typical currents in the Police Port area, the most unfavorable wind directions are westerly (from SW through W to NW) because they cause the pollution to flow towards the Szeroki Nurt of Odra River, making it difficult to set up oil barriers (two units will be required, difficulty in collecting oil, blocking of the Szczecin-Świnoujście route during the operation – Fig. 3.8).



Fig. 3.8. Spread of large oil pollution from Mijanka with a westerly wind

### 3.6.1. Analysis of the effects of oil pollution in the Port of

When simulating currents such as those in the event of an accident at the Mijanka station, a spill of approximately 7 tons of fuel at the Sea Terminal was simulated. The characteristics of the spill are shown in Fig. 3.9.

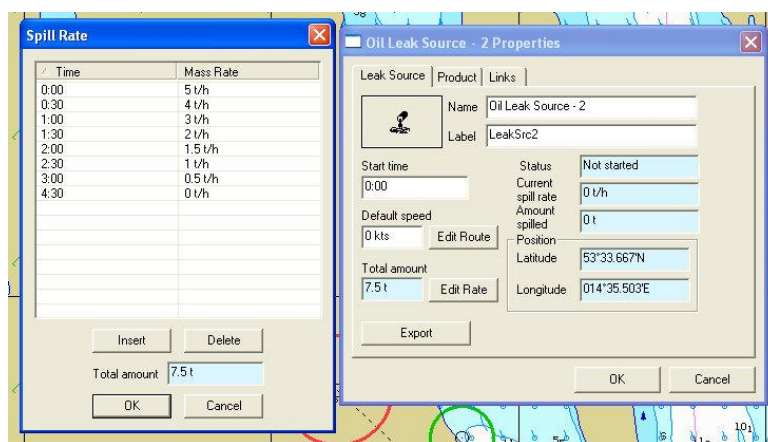


Fig. 3.9. Fuel type and spill rate simulated during a spill in the Port Morski

The first simulation concerned windless conditions. Based on the simulation, the speed of the spill's movement was determined, which allows for the assessment of the location where the barrier should be placed in order to limit the spread of pollution, taking into account the response time of the units involved in the operation (Fig. 3.10).

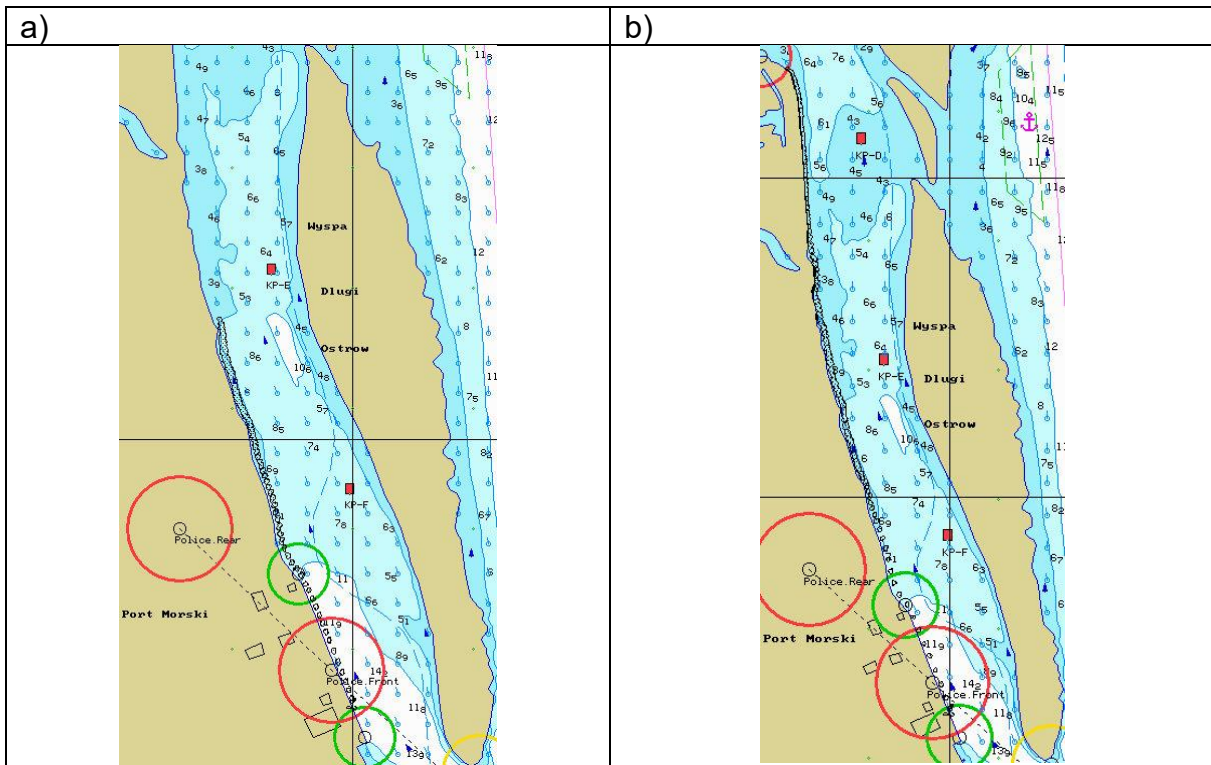
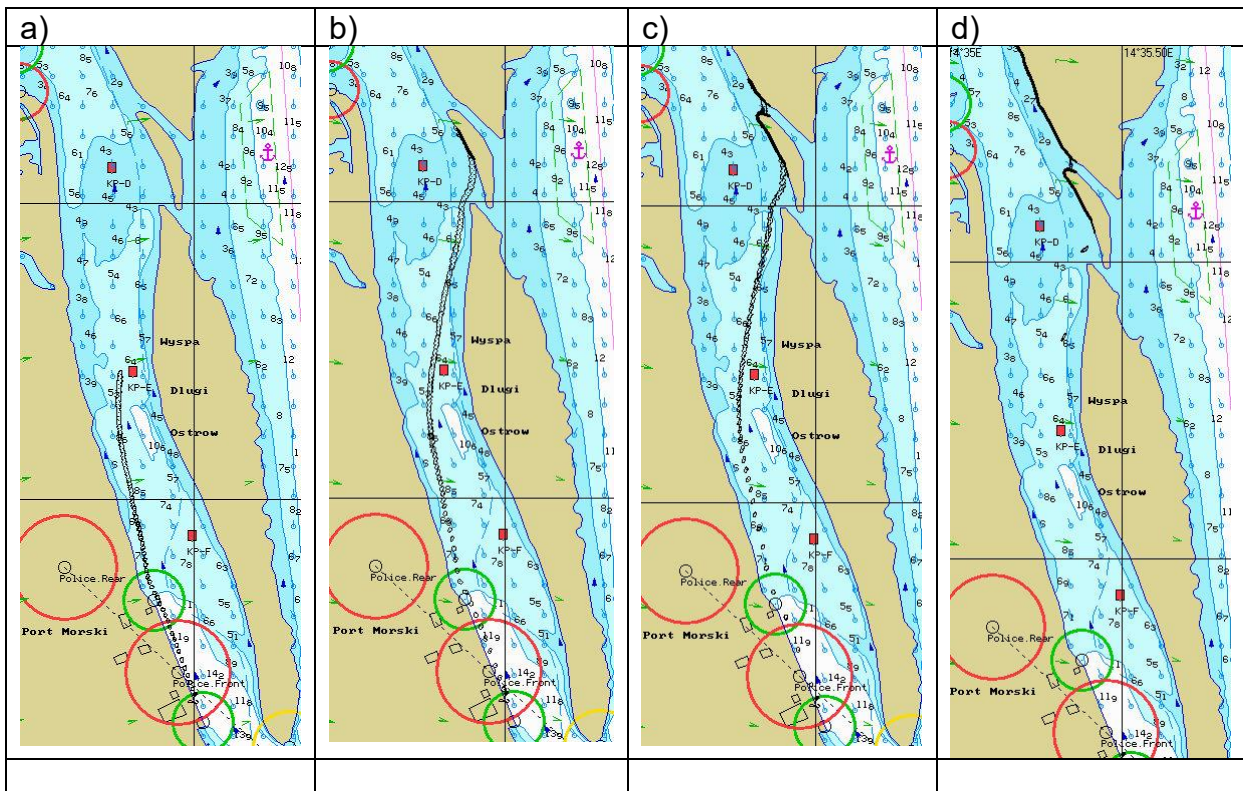


Fig. 3.10. Spread of oil pollution after an accident in the Police Seaport in calm weather: a) 1 hour after the accident; b) 2 hours after the accident.

The simulation clearly shows the need to move the oil boom if possible within one hour of the spill. The units assigned to the operation should take into account weather conditions (mainly wind and current) and determine the available location to start the operation. Two hours after the spill began, the contamination reached the entrance to Barkowy Port.

The second simulation takes into account a westerly wind of force 5. The subsequent stages of the spill's spread are shown in Fig. 3.11.



e)

Time	Amount spilled	Amount floating	Amount evaporated	Amount dispersed	Amount stranded	Amount burned	Amount sunk	Amount recovered	Recovered oil o...	Recovered soil ...	Amount floating ...	Amount recover...	Max thickness	Slick area
17.07.2017 10:27	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0 mm	0.0 m2
17.07.2017 10:42	1.11	1.11	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.11	0.01	2.1 mm	1897 m2
17.07.2017 10:57	2.21	2.21	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2.31	0.01	1.8 mm	3962 m2
17.07.2017 11:12	3.11	3.11	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	3.31	0.01	1.9 mm	5991 m2
17.07.2017 11:27	4.01	3.91	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	4.21	0.01	1.7 mm	8542 m2
17.07.2017 11:42	4.61	4.61	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	4.91	0.01	1.5 mm	10561 m2
17.07.2017 11:57	5.21	5.21	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	5.61	0.01	1.5 mm	13807 m2
17.07.2017 12:12	5.71	5.51	0.01	0.01	0.11	0.01	0.01	0.01	0.01	0.01	6.11	0.01	1.5 mm	16725 m2
17.07.2017 12:27	6.11	5.01	0.11	0.01	1.11	0.01	0.01	0.01	0.01	0.01	5.51	0.01	3.6 mm	17165 m2
17.07.2017 12:42	6.41	4.91	0.11	0.01	1.51	0.01	0.01	0.01	0.01	0.01	5.51	0.01	4.8 mm	13905 m2
17.07.2017 12:57	6.71	4.81	0.11	0.01	1.81	0.01	0.01	0.01	0.01	0.01	5.41	0.01	5.0 mm	13981 m2
17.07.2017 13:12	6.91	4.61	0.11	0.01	2.31	0.01	0.01	0.01	0.01	0.01	5.21	0.01	4.5 mm	12682 m2
17.07.2017 13:27	7.11	4.31	0.11	0.01	2.71	0.01	0.01	0.01	0.01	0.01	4.81	0.01	4.5 mm	11380 m2
17.07.2017 13:42	7.21	3.91	0.11	0.01	3.21	0.01	0.01	0.01	0.01	0.01	4.51	0.01	4.6 mm	10386 m2
17.07.2017 13:57	7.31	3.61	0.11	0.01	3.61	0.01	0.01	0.01	0.01	0.01	4.11	0.01	4.7 mm	9138 m2
17.07.2017 14:12	7.41	3.31	0.11	0.01	3.91	0.01	0.01	0.01	0.01	0.01	3.91	0.01	4.5 mm	8054 m2
17.07.2017 14:27	7.41	3.01	0.11	0.01	4.31	0.01	0.01	0.01	0.01	0.01	3.51	0.01	4.5 mm	6390 m2
17.07.2017 14:42	7.51	2.61	0.11	0.01	4.71	0.01	0.01	0.01	0.01	0.01	3.11	0.01	4.1 mm	5383 m2
17.07.2017 14:57	7.51	2.31	0.11	0.01	5.01	0.01	0.01	0.01	0.01	0.01	2.71	0.01	7.5 mm	4254 m2
17.07.2017 15:12	7.51	2.01	0.11	0.01	5.31	0.01	0.01	0.01	0.01	0.01	2.41	0.01	5.0 mm	3402 m2
17.07.2017 15:27	7.51	1.71	0.11	0.01	5.71	0.01	0.01	0.01	0.01	0.01	2.01	0.01	4.8 mm	2837 m2
17.07.2017 15:42	7.51	1.31	0.11	0.01	6.01	0.01	0.01	0.01	0.01	0.01	1.61	0.01	4.5 mm	2216 m2
17.07.2017 15:57	7.51	1.11	0.11	0.01	6.21	0.01	0.01	0.01	0.01	0.01	1.31	0.01	3.8 mm	1831 m2

Fig. 3.11 Simulation of spillage in the Police Port Morski with a westerly wind of 5 knots:

- a) after 1 hour of simulation
- b) after 2 hours of simulation (the spill has reached the opposite shore)
- c) after 3 hours of simulation
- d) after 5 hours and 30 minutes (the entire spill settled on the shore)
- e) summary of the spill with details of individual batches of spilled fuel throughout the simulation.

Methods of setting up barriers to contain oil spills near the shore are shown in Fig. 3.12. At any point during the simulation, you can determine the amount of pollution contained. It is also possible to use devices to remove pollution from the water, which is also updated in the simulation statistics.

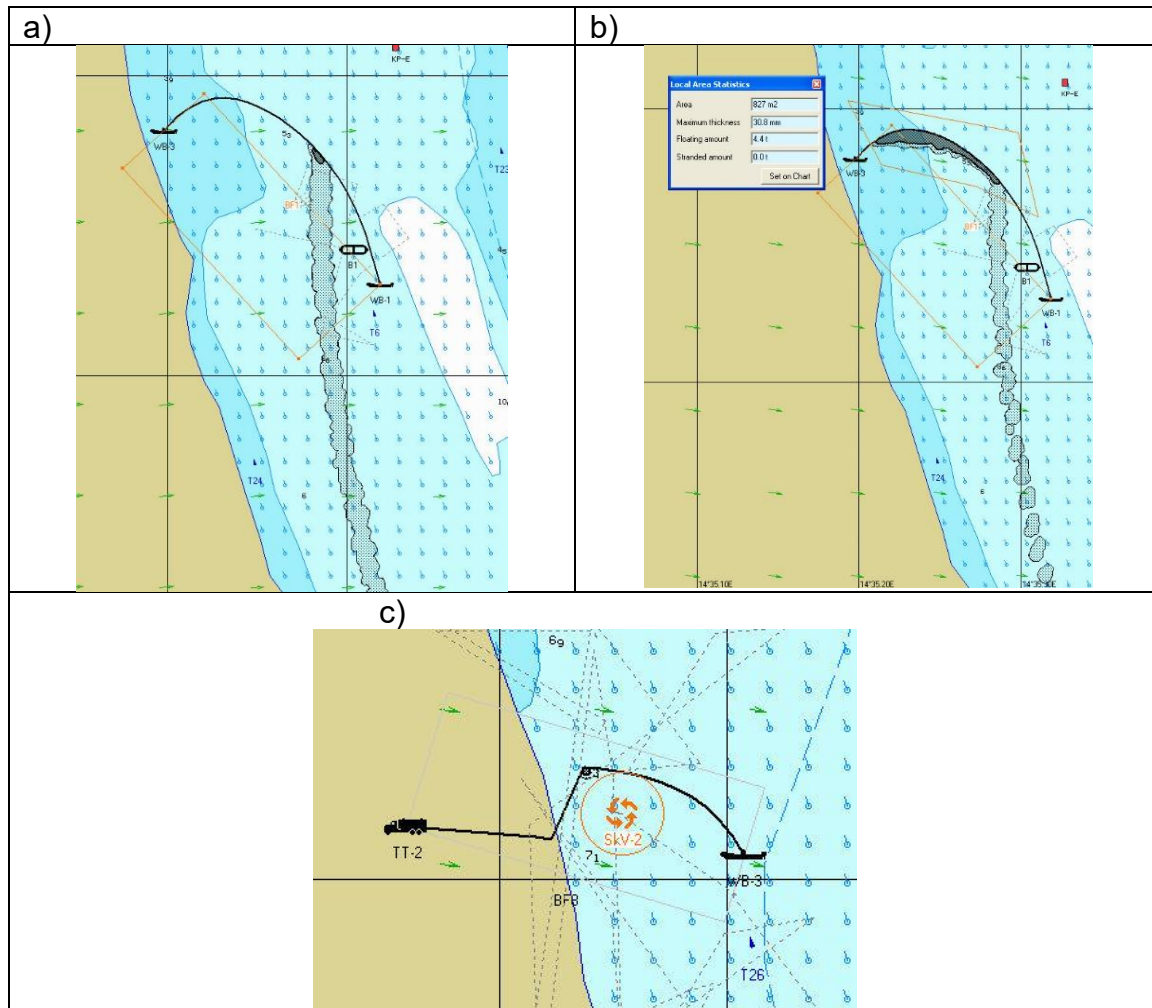


Fig. 3.12. Setting up oil booms:

- a) using two floating units
- b) determining the amount of pollution retained by the boom
- c) positioning the boom between the shore and the floating unit using a skimmer.

### **3.6.2. Contamination with Marlotherm XC**

Marlotherm XC is used in MTG to heat ethylene and, if it passes through the safety systems (trays), it can enter the water. The main component of Marlotherm XC is Cumen (isopropylbenzene). Other ingredients may vary depending on the manufacturer. It can be classified as a petroleum-derived aromatic hydrocarbon (synthetic oil). In terms of spill response, its physicochemical properties are important, i.e., high density compared to marine fuels (approx. 860 kg/m<sup>3</sup>), low flash point, and significant toxicity to the marine environment (H411).

In terms of spill response, Marlotherm XC behaves similarly to diesel fuel on water, i.e., it floats on the surface, forms a thin slick, and partially evaporates, but due to its aromatic nature, it is more toxic and requires immediate intervention. Compared to a ship fuel spill, it is necessary to limit crew exposure to its vapors.

Spill control with Marlotherm XC consists primarily of immediately limiting the spread of the stain with floating barriers, followed by the use of surface sorbents. The most effective are oil-type sorbent rolls and mats and surface skimmers, without the use of dispersants. It is important to avoid agitating the water because Marlotherm XC does not dissolve, but can form a thin, difficult-to-collect layer if it is broken up too much.

It should be added that MTG is equipped with trays with a capacity equal to at least the capacity of Marlotherm XC, so a leak of this substance can only occur in the event of:

- Damage to the tray.
- Accidental or intentional opening of the drain valves of a filled tray.

### **3.6.3. Conclusions from the oil spill simulations carried out**

Based on the simulations of selected oil spill scenarios in the Police port complex area, the following conclusions can be drawn:

1. The spill response tactics will depend on the hydrometeorological conditions, which are key to the spread of the spill, mainly the current and wind. These should be determined immediately after the spill is detected in order to effectively plan the response.
2. The key to the success of the response is to determine the size of the spill and estimate whether oil derivatives are continuously entering the environment and the rate of such discharge. Once this information has been obtained by the KDR (Incident Commander), it should be immediately forwarded to the Response Coordinator.
3. It is crucial to make a quick decision on the tactics of the operation, including whether to surround the ship with a boom or launch the boom to secure the potential spread of the spill with the current and wind. The location for launching the barrier should be decided based on knowledge of hydrometeorological conditions (see point 1). The resources involved and the time it takes for help to arrive are also important factors in the decision.
4. The above points should be taken into account when planning exercises.

## **3.7. Barkowy and Gunica Terminals**

Due to the significantly smaller vessels served at the Barkowy Port and Gunica Terminal, and their separation from the surrounding waters by closed channels, it is easy to isolate a potential spill, so the risks are significantly lower than those described above.

## **3.8. Risks to port waters from land-based pollution**

### **3.8.1. Port Morski**

At the Port Morski Terminal of Grupa Azoty Zakłady Chemiczne S.A. "Police," rainwater is directed to the industrial sewage system and then treated at the Plant's Wastewater Treatment Plant. In addition, there are settling tanks at the port, whose purpose is to preliminarily separate any pollutants from rainwater.

### 3.8.2. Marine Gas Terminal (MTG)

There is a rainwater and oily water drainage system at the MTG. The open drainage system for rainwater collects all spills and overflows from equipment, walkways, drainage trays, and piping throughout the terminal. Rainwater is collected in two wells via a U-shaped channel before being discharged into the Odra River.

There are two oily water separators located on the south and north sides of the Terminal. A coalescence separator is installed in the wells to remove oil from the water surface. The oil film is then collected in the oily part of the separator. The oil collected in the separator will be removed when it is full. Clean rainwater is discharged through a rainwater well into the river.

The rainwater and oily water drainage system at MTG is equipped with a control and measurement system.

### 3.8.3. Mijanka Terminal

The terminal has a rainwater drainage system (a drainage system suspended from the platform structure, and on the land side, a rainwater drainage system consisting of pipes and drainage wells) for draining rainwater, as well as a sand trap and an oil separator. The sedimentation tank located upstream of the separator reduces mineral and easily settleable contaminants.

### 3.8.4. Barkowy Terminal

Rainwater from the storage area at the Surowca Quay in the Barkowy Terminal is directed to the Plant's Wastewater Treatment Plant. In addition, there is a sedimentation tank in the port area, which pre-separates any contaminants from rainwater.

From the area paved with road slabs on the Południowe Quay of the Barkowy Terminal, covering an area of 3065 m<sup>2</sup> rainwater is drained into the Barge Terminal basin and may potentially pose a threat of water pollution. In addition, there is periodic vehicle traffic in this area.

### 3.8.5. Gunica Terminal

There is no sewage system at the terminal. The quay was designed as a transshipment point for construction materials, mainly aggregates delivered by water. Currently, the terminal is used for mooring inland vessels, i.e., push boats, barges, and work pontoons.

## 3.9. Summary

Based on the estimates presented in Table 3.5, the main pollutants occurring in the Police port complex are listed, together with an assessment of their impact on the aquatic environment.

Table 3.5.

List of potentially polluting substances and their degree of threat to the aquatic environment.

Substance	Possibility of entering port waters	Degree of threat to water and living organisms	Duration of action
Phosphates	Negligible	May cause eutrophication of waters, indirect threat to organisms	Long-term impact – gradual release of phosphates over many years
Coal	Negligible	Minimal water contamination, mainly mechanical suspensions; low threat to organisms	Long-term impact – particles may remain in sediments and gradually release pollutants
Ethylene	Negligible	No significant water contamination, minimal risk to organisms	Non-persistent impact – ethylene evaporates quickly and does not remain in the aquatic environment
Propane	Negligible	Virtually no water contamination, negligible risk to organisms	Non-persistent impact – propane does not dissolve, it evaporates into the atmosphere
<b>Ammonia</b>	<b>Negligible</b>	<b>Severe water contamination, very high risk to aquatic</b>	<b>Short-term impact – ammonia dissolves and biodegrades</b>

Substance	Possibility of entering port waters	Degree of threat to water and living organisms	Duration of action
		<b>organisms (toxicity, rapid pH changes)</b>	<b>quickly, effects mainly sudden</b>
Potassium chloride	Negligible	May cause water salinization, moderate risk to organisms (especially freshwater organisms).	Long-term impact – dissolves easily and persists in the aquatic environment.
Urea	Negligible	Causes an increase in the concentration of nitrogen compounds in water, indirect threat – promotes eutrophication and algae blooms.	Medium-term impact – dissolves easily but decomposes quickly.
<b>Sodium hydroxide</b>	<b>Negligible</b>	<b>Significantly increases the pH of water, very high risk to aquatic organisms.</b>	<b>Short-term impact – it neutralizes quickly, but the effect is rapid and destructive.</b>
Iron sulfate	Negligible	May cause toxic effects at high concentrations, but the main effect is an increase in salinity and acidification of water; moderate risk	Medium-term impact – dissolves and reacts well in water, partially bound in sediments
<b>Petroleum derivatives</b>	<b>Low or negligible on a large scale</b>	<b>Form a film on the water surface, limit oxygen exchange and are toxic to aquatic organisms – high risk</b>	<b>Long-term impact – part of the fraction evaporates quickly, but heavier hydrocarbons remain in water and sediments for years</b>
<b>Marlotherm XC</b>	<b>Negligible</b>	<b>May form an oil film on the water surface and be toxic to organisms – moderate to high risk</b>	<b>Long-term impact – poorly biodegradable, may remain in water and sediments for years.</b>

## 4. Summary of forces and measures to combat hazards and pollution in the Police Port

### 4.1. Company Fire Service (ZSP)

The Company Fire Service (ZSP) is a permanent organizational unit within the Security Department, established and performing tasks on the basis of the Fire Protection Act of August 24, 1991 (Journal of Laws 2017.736, consolidated text of April 10, 2017).

The ZSP has a permanent staff of 13 people, of which the minimum number on duty is set at 10, and in special cases at 9 (Table 4.2).

Table 4.1. Organizational structure of the ZSP (WPOR GA)

Unit/Cell	Position	Number of positions/persons
GT – Technical Security Department	Director of DBT (TSD)	1
GTE – Technical Security Office	Head of TSB (TSO)	1
	Chemical Rescue and Technical Rescue Coordinator	1
	Prevention and ATEX Specialist	1
	Fire Protection Specialist	1
	Technical Specialist	1

Unit/Cell	Position	Number of positions/persons
TES – Company Fire Service (ZSP)	ZSP Commander	1
	Shift Commander	4
	Deputy Commander	12
	Emergency Response Center Duty Officer	4
	Rescue worker – Garage manager	4
	Rescue worker – Driver	16
	Rescue worker – Lumberjack	4
	Rescue worker	8

The Company Fire Service is managed by the Fire Service Commander. The ZSP combat division consists of 4 shifts. The full-time shift consists of 13 people. The minimum staffing level for a combat division shift is set at 10 people, and in special cases (when rescuers from the off-duty shift are unable to work overtime) at 9 people.

The basic equipment for rescue and firefighting operations is located on the vehicles belonging to the Company Fire Service. A detailed list of the chemical rescue equipment of the Ammonia Synthesis Department – Stokaż and Mijanka is provided in Appendix Z3.

The duties of the Company Fire Service in the field of combating port water pollution include:

- carrying out activities aimed at limiting the spread of pollution in port waters;
- limiting or eliminating the spread of spills into the environment using available technical means;
- neutralizing or removing the resulting pollution,
- directing rescue operations,
- cooperating with the State Fire Service.

#### 4.2. State Fire Service (PSP)

In the event of spills of petroleum-derived substances or harmful chemicals requiring action at the regional or national level, it may be necessary to call in additional PSP or SAR units (decision of the Director of the Maritime Office). The arrival time of PSP fire trucks is shown in Table 4.2.

Table 4.2.

Response time of PSP fire engines

Unit headquarters	Name of unit	Resources and means	Distance in km	Time of arrival	Method of alerting.
Police ul. Tanowska 4a	JRG Police	GBA 2/24 GCBA 8.5/60 GCBM 18/16 SRtBA 1/2.5 SCRChem SLRChem	4	6 min.	PSK tel.914316800
Szczecin ul. Nad Odrą 2	JRG 4	GCBA 5/48	12	20 min.	MSK tel. 914348502
Szczecin ul. Klonowica 4	JRG 3	GCBA 8/50/2.5	18	30 min	MSK
Szczecin Grodzka Street 1/5	JRG 1	GBA 2.5/16/4	22	35 min	MSK
Szczecin 9/14 Firlika Street	JRG 5	GCBA 8.3/65	20	30 min	MSK

Unit headquarters	Name of unit	Resources and means	Distance in km	Time of arrival	Method of alerting.
Szczecin ul. Struga 4	JRG 2	SCRChem	28	45 min.	MSK

MSK – Command Post of the Municipal Fire Service Commander in Szczecin

PSK – Command Post of the County Fire Service Commander in Police

Due to the shortest travel time, the forces under the jurisdiction of JRG Police should be dispatched first. A detailed list of the equipment available to this unit is presented in Appendix Z4.

The use of specific forces and resources of the State Fire Service will depend on the scale of the incident. The dispatch procedure is based on the guidelines of the Chief Commander of the State Fire Service for the development of rules for the dispatch of fire protection units and rules for the ad hoc operational securing of the area after the dispatch of rescue resources, which means that the duty service of the State Fire Service command post is responsible for the proper deployment of resources to incidents, depending on the type of threat and the forces and resources currently available.

## 5. Description of the main tasks of the entities responsible for the organization and conduct of hazard control operations

In accordance with the Internal Rescue Emergency Response Plan (WPOR) for Grupa Azoty Zakłady Chemiczne "Police" S.A., the coordinator of rescue and technological activities on the premises of the plant is **the Plant Dispatcher (DZ)**. He is obliged to assess the effects of the failure and, in the event of a serious industrial accident, to notify the relevant services and institutions. The Plant Dispatcher will act as **the Site Incident Coordinator (KAZ)**.

At the **Marine Gas Terminal (MTG)**, the role of **KAZ** is performed by **the Shift Manager (KZ)**. KZ cooperates with ZSP and informs the Plant Dispatcher (DZ) about the development of the emergency situation.

In cases of operations on the quays of the Port of Police, other than MTG, in order to improve communication and cooperation with **the Harbour Master in Szczecin (KPSz)**, **the Port Dispatcher (DP)** and **Port Operation Manager (KP)** should be involved, after he has been notified and arrived at the scene, as they are responsible for contacting **the Harbour Master in Szczecin (KPSz)** and conducting a risk assessment at the scene. This is because the Port Dispatcher has the knowledge and appropriate communication channels and maritime communication means to quickly contact the Harbour Master in Szczecin, ships, and VTS.

**The Incident Commander (KDR)** is taken over by **the commander of the ZSP unit who is the first to arrive** at the scene of the hazard control operation.

Subsequently, in the event of an escalation of the threat and the involvement of further units, **the KDR** is obliged to be taken over by: **the Commander of the Team, Section, Shift, Deputy Commander and finally Commander of the ZSP**, and in the event of the involvement of **the PSP (State Fire Service)**, the relevant PSP officer. The activities of the State Fire Service are carried out in accordance with its statutory tasks, through operations on land.

The procedure and notification scheme is presented in Appendix 8 and Table 5.1.

Table 5.1.

Responsibilities and tasks of units participating in hazard control operations

No.	Unit participating in the operation	Tasks
1	Harbour Master of Szczecin (KPSz)	- initiates and coordinates the action to combat threats and pollution - cooperates with the Site Incident Coordinator (KAZ)

No.	Unit participating in the operation	Tasks
2	Site Incident Coordinator (KAZ)  Plant Dispatcher (DZ) together with: - Port Dispatcher (DP) - Port Op. Manager (KP)  At MTG, the role of KAZ is performed by the MTG Shift Manager (KZ)	- coordinates the cooperation of individual rescue services at the scene of the incident (DZ, DP/KP) - assesses the magnitude and type of risk (DP/KP together with KDR) - cooperates and coordinates cooperation with other organizational units (DZ, DP/KP) - notifies the relevant services and institutions of a serious accident (DZ)
3	Incident Commander (KDR)  Commands the operation at the site: ZSP or PSP if dispatched.	- directly manages the activities of units aimed at combating hazards and pollution at the scene of the incident (KDR) - establishes and, if necessary, modifies the action plan (KDR) - informs KAZ (DZ, DP/KP) about the current situation at the scene of the operation; - determines the needs for rescue operations at the scene of the incident (KDR) - assesses the effects of the accident at the scene of the accident (KDR)
4	Director of the Maritime Office (DUM)	- supervises the conduct of the operation in accordance with the local plan - may take command of the operation when deemed appropriate - in the event of the ineffectiveness of the operation conducted by means , notifies the Governor and the Provincial Environmental Inspector and decides to involve SAR units and other relevant external units
5	Voivodeship Inspector for Environmental Protection (WIOŚ)	-in the event of contamination of the port waters that does not originate from a ship or is not clearly of a maritime nature, conducts investigative and control activities
6	Company Fire Service (ZSP)	- conducting rescue operations in accordance with the plan Internal
7	SAR Service	- upon request, provides the necessary forces and resources for rescue operations - organizes communication for the purposes of the operation
8	State Fire Service (PSP)	- Upon arrival at the scene, the PSP carries out activities on land in accordance with its statutory tasks
9	Szczecin Maritime Office Vessel Traffic Service (SKRS)	- cooperates with KPSz and DP/KP in the supervision of of ships moving along the Świnoujście-Szczecin waterway within the scope specified by the internal procedures of the Maritime Office in Szczecin.
10	Environment Department of the Maritime Office in Szczecin	- cooperates with KPSz in the field of environmental protection within the scope specified by the internal procedures of the Maritime Office
11	West Pomeranian Voivodeship	- coordination if the situation exceeds the capabilities of the Maritime Office

### **5.1. Procedure for reporting incidents of danger and pollution of port waters in the Police Port Complex**

Information about the occurrence of a hazard or pollution of port waters should be reported to the ZSP Emergency Response Center. The ZSP Emergency Response Center is open 24 hours a day.

**Procedure for reporting an incident by an employee:**

1. Noticing a disturbing phenomenon – e.g., a leak, fire, suspicious emission, damage to equipment.
2. Immediately notify:
  - the nearest supervisor or operator on duty,
  - the Company Fire Service (ZSP) – by phone or in person (if nearby),
  - Traffic/production dispatcher – depending on location.
3. Activate the alarm system (if available and required): e.g., alarm button, telephone reporting system.
4. Provide basic information:
  - location of the incident,
  - type of hazard (e.g., spill, fire, gas emission),
  - possible hazardous substance (if known),
  - number of victims (if applicable).
5. Take action in accordance with your responsibilities and authority:
  - do not take risky actions if you have not been trained or do not have protective equipment,
  - close valves, turn off power – if safe and permissible,
  - evacuate if necessary and help others.

**Action of the Emergency Response Center after reporting an incident:**

The Emergency Response Center should obtain the following information from the person reporting the incident:

- time of occurrence of the hazard;
- location of the hazard (name of the quay, hazard area);
- the nature of the reported incident (type of pollution, description of the appearance and behavior of the pollution, estimated amount of pollution);
- the potential source of the pollution (name of the ship, company, etc.);
- type of property damaged or polluted;
- details of the person reporting (first name, surname, telephone number, name of the company where they work, job title).

After receiving the report, the ZSP Emergency Response Center Duty Officer notifies:

- The Shift Commander;
- The Plant Dispatcher;
- The Port Dispatcher;
- Port Security Office.
- The Harbor Master of Szczecin (via the duty services).

The Emergency Response Center Duty Officer, in consultation with the Shift Commander, dispatches a team to the scene.

The Shift Commander goes to the scene of the incident, where he directs the operation, assesses the extent of the pollution and any threat to the environment. If the incident is local in nature, he coordinates the operation using ZSP forces until the pollution is removed.

The management of rescue operations begins when the first ZSP forces and resources arrive at the scene. Rescue operations are managed in the following order:

- ZSP Unit Commander;
- ZSP Section Commander;
- ZSP Shift Commander;
- Deputy Fire Department Commander;
- Fire Department Commander.

Immediately after receiving information about an incident, the Plant Dispatcher prepares and provides the ZSP with information about cargo being unloaded/loaded onto the ship(s) moored at the quay.

The ZSP Emergency Response Center operator, after receiving feedback from the Shift Commander regarding the contamination and the possibility of its removal, (depending on the extent of the pollution) forwards it to the KAZ (Site Incident Coordinator), and the Harbour Master of Szczecin.

If the extent of the pollution prevents effective action using ZSP forces, the Harbour Master of the Port of Szczecin, in consultation with the KAZ and the Director of the Maritime Office in Szczecin, appoints external units (State Fire Service, SAR Service, Police, Port Fire Service, etc.) to carry out the operations (depending on the scale of the incident). The Harbour Master of Szczecin appoints an action manager in consultation with the owner of the area/facility where the pollution occurred. He also notifies the Voivodeship Inspector for Environmental Protection.

## **6. Description of the procedure for combating pollution in port waters Police**

### **6.1. Combating chemical pollution with ammonia**

#### **6.1.1. Characteristics of ammonia**

A summary of the product characteristics based on its Safety Data Sheet is presented in Appendix 6.

Liquid ammonia is a colorless liquid, visually resembling water. It has a sharp, pungent odor that is detectable by most people even at very low concentrations – between 2 and 5 ppm.

When transitioning from the liquid to the gaseous phase, ammonia boils violently, absorbing significant amounts of heat from the environment. This can lead to local surface freezing and cryogenic burns. In the gaseous phase, ammonia forms a visible white cloud.

Although pure gaseous ammonia is lighter than air, in emergency conditions – especially in high humidity, in the presence of fog or precipitation – the vapor cloud often sinks and settles on the ground or on the surface of water. In addition, at high concentrations (above 16–20% by volume), the density of the cloud increases and its behavior becomes more similar to that of heavy gases. Such conditions typically occur in the event of sudden leaks from tanks or installations.

Health effects of exposure to anhydrous ammonia (NH<sub>3</sub>) – concentrations in ppm (parts per million):

- up to 100 ppm. The average person does not experience significant symptoms even with prolonged exposure; no health effects with short-term contact.
- 400 ppm. Immediate irritation of the nose and throat; no serious effects with exposure for 30-60 minutes.
- 700 ppm. Rapid eye irritation, burning sensation; symptoms usually disappear after exposure ends (up to 1 hour).
- 1700 ppm. Intense coughing, severe irritation of the eyes and upper respiratory tract; possible toxic effects and life-threatening if exposed for longer periods (>30 min).
- 2000–5000 ppm. Convulsive coughing, acute pain in the mucous membranes; exposure for more than 15 minutes can lead to serious injury or death.
- >5000 ppm. Severe bronchospasm, suffocation (asphyxia); exposure for several minutes may be fatal.

#### **6.1.2. Conducting activities related to ammonia release**

### Action after a hazard has occurred

In the event of an ammonia leak or suspected release, the following steps should be taken immediately on the ship and at the terminal, in parallel with the actions of the ZSP team present during loading, in accordance with the Terminal Safety Operating Instructions:

- raise the alarm and immediately notify the terminal, ship, and on-duty services;
- notify chemical rescue services and activate stationary water cannons (Mijanka);
- suspend all loading operations;
- close all access doors to the rooms; switch off all ventilation systems, except for closed systems;
- prohibit the use of open flames and limit the use of electrical equipment to the minimum necessary;
- activate the ship's water system (it should be ready for operation during transshipment);
- gather and prepare fire protection and personal protective equipment, including breathing apparatus and protective clothing.

### Risk assessment

In order to make a decision, the risk should be assessed as:

- local, covering the ship's area;
- covering the port and terminal;
- covering the community living in the vicinity.

It is crucial to gather information quickly in order to make a decision about a possible evacuation of the population. For this purpose, information about the current weather, especially wind conditions, and the weather forecast for the coming hours is also needed.

### Meteorological conditions and their forecast

Wind direction and strength, as well as precipitation and humidity, should be monitored (the weather station is located in Mijanka) on an ongoing basis and, if possible, forecast several hours in advance during the operation, as these are the factors that most influence the shape of the pollution cloud.

### Limiting the spread of released ammonia

To effectively limit the spread of the ammonia cloud, a **dispersed stream of water (water mist)** should be used. Its effect is to:

- **directing the cloud** in the desired direction (e.g., over water, away from people),
- **dissolving ammonia vapors** in water,
- **diluting the gas concentration** through turbulence and air entrainment,
- **heating the cold cloud**, which increases its buoyancy and promotes lifting.

Water mist can also serve as a shield for rescuers and equipment.

### It is prohibited to:

- directing a concentrated stream of water directly at a pool of liquid ammonia – this causes **rapid evaporation** and increases the risk,
- directing water into the interior of tanks – this may **increase pressure** and damage the installation,
- spraying valves and control elements – this may cause them to **freeze**.

### Emergency procedures

Detailed emergency procedures for combating ammonia spills are included in the Internal Rescue Emergency Response Plan of Grupa Azoty Zakłady Chemiczne "Police" S.A.

When assessing the risk, the impact of the accident on the movement of other vessels should be assessed and, if necessary, traffic on waterways should be closed.

## 6.2. Combating chemical pollution with propane

### 6.2.1. Characteristics of propane

A summary of the product characteristics based on its Safety Data Sheet is presented in Appendix 6.

Liquid propane evaporates rapidly when released into the atmosphere, absorbing significant amounts of heat and causing surfaces to freeze and posing a risk of frostbite. As a result of expansion, it forms a characteristic white cloud, which is a mixture of cold gas and condensed water vapor.

Propane in the gas phase is heavier than air – the cloud spreads horizontally along the ground, filling depressions, channels, basements, and wells. In windless conditions and during temperature inversions, it can remain for a long time, creating an explosive zone.

Propane itself **is not toxic** in low concentrations, but it acts as a **suffocating** (oxygen-displacing) and **flammable gas**.

### 6.2.2. Conducting activities related to propane release

#### Action after a hazard has occurred

In the event of a propane leak or suspected leak, the following actions should be taken immediately, both on the ship and at the terminal, in accordance with emergency procedures:

- sound the alarm and immediately notify the ship, terminal, and on-duty services;
- suspend all loading operations and close the ESD valves;
- prohibit the use of open flames, avoid switching electrical circuits;
- close all doors and hatches, switch off ventilation (except for intrinsically safe systems);
- monitor the atmosphere using gas detectors; identify hazard zones;
- prepare fire protection measures, grounding equipment, and personal protective equipment, including antistatic clothing and breathing apparatus.
- activate the fire protection system.

#### Risk assessment

In order to make a decision, the hazard should be assessed as:

- local, covering the ship's area;
- covering the port and terminal;
- covering the community living in the vicinity.

It is crucial to gather information quickly in order to make a decision about a possible evacuation of the population. For this purpose, information about the current weather, especially the wind, and the weather forecast for the coming hours is also needed.

#### Meteorological conditions and their forecast

Wind direction and strength, as well as precipitation and humidity, should be monitored on an ongoing basis and, if possible, forecast several hours in advance during the operation, as these are the factors that most influence the shape of the pollution cloud.

#### Limiting the spread of released propane

For propane, a dispersed water stream has **limited application**. Propane does not dissolve in water, and its cloud is highly flammable and heavier than air. Water mist can only be used to:

- creating **protective curtains** between the source of the leak and the danger zones,
- **cooling installation components** at risk of overheating or ignition.

#### It is prohibited to:

- directing the water stream directly at the liquid propane spill – this may **increase the evaporation surface** and spread the gas,

## Detailed emergency and rescue procedures

Detailed emergency procedures for combating propane spills are contained in the GAPoly WPOR.

When assessing the risk, the impact of the accident on other vessel traffic should be evaluated and, if necessary, waterway traffic should be closed.

## 6.3. Chemical pollution control with ethylene

### 6.3.1. Characteristics of ethylene

A summary of the product characteristics based on its Safety Data Sheet is provided in Appendix 6.

Ethylene in liquid form evaporates rapidly on contact with the environment, leading to intense cooling of the surface and a risk of frostbite. The transition is accompanied by the formation of a dense white cloud composed of condensing water vapor.

Gaseous ethylene is slightly lighter than air, but under conditions of high emission, low ambient temperature, and high humidity, the cloud may behave like a heavy gas and move along the ground. In this case, it must be treated as a typical explosive hazard cloud.

Ethylene is **low in toxicity**, but in high concentrations it acts as a **suffocating and flammable gas**.

### 6.3.2. Conducting activities related to ethylene release

#### Action after a hazard has occurred

In the event of an ethylene leak or suspected leak, the following actions should be taken immediately, both on the ship and at the terminal, in accordance with emergency procedures:

- sound the alarm and immediately notify the ship, terminal, and on-duty services;
- stop all loading operations and close the ESD valves;
- prohibit the use of open flames, avoid switching electrical circuits;
- close all doors and hatches, switch off ventilation (except for intrinsically safe systems);
- monitor the atmosphere with gas detectors, identify danger zones;
- prepare fire protection measures, grounding equipment, and personal protective equipment, including antistatic clothing and breathing apparatus;
- activate fire protection systems

#### Risk assessment

In order to make a decision, the hazard should be assessed as:

- local, covering the ship's area;
- covering the port and terminal;
- covering the community living in the vicinity.

It is crucial to gather information quickly in order to make a decision about a possible evacuation of the population. For this purpose, information about the current weather, especially the wind, and the weather forecast for the coming hours is also needed.

#### Meteorological conditions and their forecast

Wind direction and strength, as well as precipitation and humidity, should be monitored on an ongoing basis and, if possible, forecast several hours in advance during the operation, as these are the factors that most influence the shape of the pollution cloud.

#### Limiting the spread of released propane

For ethylene, a dispersed water stream has **limited application**. Ethylene is not soluble in water, and its cloud is highly flammable and heavier than air. Water mist can only be used to:

- creating **protective curtains** between the source of the leak and the danger zones,
- **cooling installation components** at risk of overheating or ignition.

**It is prohibited to:**

- directing the water stream directly at the liquid propane spill – this may **increase the evaporation area** and spread the gas,

**Emergency procedures**

Detailed emergency and rescue procedures for combating ethylene and propane spills are contained in the GAPoly WPOR.

When assessing the risk, the impact of the accident on other vessel traffic should be evaluated and, if necessary, waterway traffic should be closed.

**6.4. Combating oil pollution**

The primary method of combating oil pollution is mechanical collection. Dispersal of pollution is only permitted with the prior consent of the Director of the Maritime Office.

Mechanical collection consists of:

- limiting the spill;
- collecting the spilled substance;
- transporting the collected mixture to a disposal point.

The spill itself is contained by properly positioning oil booms. This limits the spill area, protecting the shore from contamination and maintaining the thickness of the slick, which facilitates the collection of the pollution. Due to the processes that occur during spillage (e.g., emulsification or sinking), the contamination should be removed as quickly as possible. Emulsification causes an increase in volume (up to five times) in relation to the amount of spilled petroleum substance. Therefore, during the operation, the number of available tanks for collecting the water-oil mixture should be monitored to ensure the continuity of the collection units' work.

Due to the specific nature of the Police Port Complex, it is necessary to position the booms in such a way as to take advantage of the currents in the water area or to completely cut off the port basins.

The positioning of barriers on flowing waters is shown in Fig. 6.1.

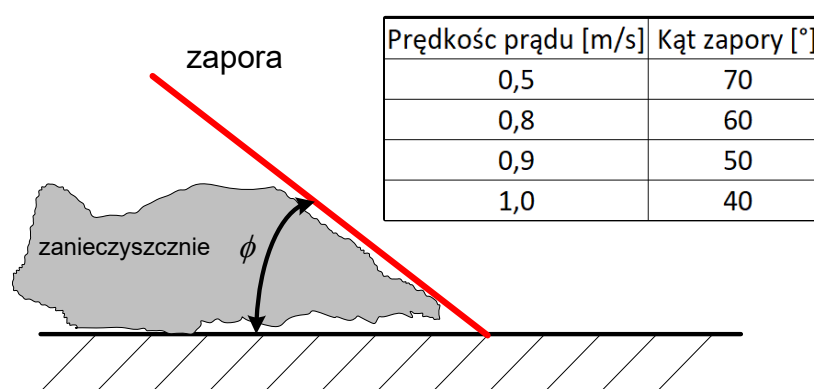


Fig. 6.1. Positioning of barriers on flowing waters  
Based on: National Contingency Plan

The location of the spill using booms should take into account both the location of the spill itself and the possibility of launching the booms, enabling their quick deployment and the start of pollution collection. When deploying booms, the direction of the current (especially in the case of a backwater) and the speed and direction of the wind should be taken into account.

It should be remembered that if it is necessary to launch the boom in a different location and tow the boom components to the site of the accident using motorboats, the time required to set up the boom will be significantly longer. The boom components should be towed at a speed that will not cause damage or flooding.

In the event of a large spill, it may be necessary to set up several lines of booms, which will require calling in the fire department or SAR units.

The boom should be positioned at a distance that prevents the spill from flowing outside the boom and allows the spill to flow to the pumping station. It is recommended that the boom be at least three times the length of the ship.

If there is a risk of land contamination through storm drains, they should be secured.

If possible, all vessels hindering the operation should be removed from the spill site. Vessels in the center of the spill should not be removed.

From the point of view of the risk of the spill spreading, the easiest body of water to combat it is the Barkowy Port. In this case, the quays that have not been contaminated should be separated as effectively as possible and, if necessary (in the event of heavy contamination), the entrance to the port basin should be closed with a boom.

In the case of the Seaport, due to the possibility of access and the usual hydrometeorological conditions, a dam should be erected at an angle appropriate to the speed of the current from the end of the quay (or, if the slick has already drifted from a convenient location on the shore) towards the island of Długi Ostrów Island.

The Mijanka transshipment station is (due to the openwork structure of the quay, the distance of the quay from the shore, and difficult access) the most difficult element of the Port of Police to protect.

In the case of standard meteorological conditions (outgoing current), due to the time needed for units to arrive and set up the barrier, as well as technical conditions (length of available barriers), cooperation between the ZSP and PSP is necessary. In this scenario, the ZSP should secure the northern direction of the spill by deploying a boom from the seaport shore towards Radzin Island. Upon reaching the Mijanka quay, the PSP Police units should secure the shores of Polickie Łąki Island and the waters of Łarpia with booms.

The National Plan does not set out strict rules for distinguishing between local and regional incidents. It should be remembered that as the situation develops during the operation, the classification of the incident may change. Therefore, the role of the Director of the Maritime Office in Szczecin in the case of local incidents is limited in the initial phase to supervising the implementation of the local plan, and in the event of the incident spreading or the plan being ineffective, he takes command of the operation and notifies the West Pomeranian Voivodeship and the Voivodeship Inspector for Environmental Protection.

#### **6.4.1. Combating pollution, taking into account specific operating conditions**

The area of the Port of Police is specific in that it is dominated by a marshy coastline covered with low vegetation and reed beds, which are often very difficult or impossible to access from land. Spill response should focus on quickly locating the spill on the water, taking into account the need to surround the damaged vessel with booms. If it is impossible to stop the spill on the water, sorbents should be used as available and vessels designed for mechanical spill collection should be called in for assistance. Once the spill has reached land or the shoreline, it should be accessed from the water using floating vessels and collected mechanically and with motor pumps.

#### **Winter conditions**

In winter conditions, oils increase their viscosity, which limits the rate at which the spill spreads. In addition, icing can prevent the spread of such pollution. At low temperatures, the amount of volatile substances evaporating into the atmosphere is much lower, and frozen soil hinders the penetration of pollutants. However, it is possible for the spill to penetrate under the ice, which poses a major threat due to the subsequent difficulties in collecting it.

In icy conditions, access from the water may require the use of an icebreaker, which cannot operate at the water's edge. The decision on the direction of the operation depends on the extent of the spill. In the case of spills on ice, the pollution should be collected together with the ice. If the ice is thin, the pollution may seep through – in this case, it is recommended to set up a second barrier on the water after breaking the ice.

## 7. Cooperation between SAR services and the Port of Szczecin-Świnoujście

In the event of a local incident that does not require the use of additional external forces and resources, only measures within the competence of the ZSP should be used.

In the case of incidents requiring broader, multi-directional action due to the possibility of escalation of the threat or the lack of technical capabilities to counteract it at the local level, the Director of the Maritime Office in Szczecin decides on the use of additional SAR forces or other specialized units (PSP, forces at the disposal of ZMPSiŚ S.A. – Szczecin-Świnoujście Port Authority).

The National Contingency Plan regulates situations in which the SAR service and other cooperating units are required to take action and provide support in terms of advice, equipment, and human resources.

When deciding on the use of external resources, particular consideration should be given to the FiFi class units owned by the Port Fire Service of ZMPSiŚ S.A.:

- *Strażak 26* (stationed in Świnoujście) FiFi1 class
- *Strażak 24* (Szczecin Tureckie Quay)
- *Strażak 28* (stationed in Szczecin and Świnoujście) FiFi1 class

and those belonging to SAR:

- *Czesław II* oil spill response vessel stationed in Świnoujście
- SAR 3000 – PASAT stationed in Trzebież as an auxiliary vessel.

The oil skimmer ŁA-SHIPSERVICE-4, owned by SHIP-SERVICE S.A. and stationed in Szczecin, should also be taken into account.

In the event of incidents on water, where the access of the State Fire Service resources may be limited, a special plant unit may be called in to participate in the response to the threat – the Port Fire Service of the Szczecin and Świnoujście Seaports Authority. However, it should be borne in mind that if the Port Fire Service forces and resources are involved in combating hazards elsewhere or in the unit's statutory tasks, the unit may not be able to take action. In such a case, information on the availability of forces and resources for combating hazards and pollution will be provided immediately after receiving a telephone report. The use of the forces and resources of the Port Fire Service is financed by the entity responsible for the pollution, in accordance with the "polluter pays" principle.

## 8. Description of the procedure for handling waste generated after the removal of pollution

At the Seaport in Police, **Infra-Port Sp. z o.o.**, ul. Bytomska 3–6, 70-603 Szczecin, is responsible for the collection of oil waste collected during rescue operations at sea.

Infra-Port Sp. z o.o. is registered by the Maritime Office in Szczecin as an authorized collector of waste, including oil waste, from ships in the ports of Szczecin and Świnoujście.

Waste collection is carried out in accordance with the procedures specified in the applicable port regulations and ship waste management plans.

Waste collected during the course of combating hazards and removing pollution in port waters will be transferred by the port management to Infra-Port under separate agreements.

The transfer of waste to recipients who do not have valid relevant decisions is **not permitted**.

## 9. Obligations of participants in the operation and its financing

Pursuant to § 170 of the port regulations of the Director of the Maritime Office in Szczecin, all persons using the port and its facilities are obliged to maintain cleanliness, order, and take precautions to ensure safety in the port and avoid damage to port facilities, mutual damage, and damage to the natural environment.

In the event of pollution, the perpetrators or users are obliged to:

- notify the Harbuor Master of Szczecin,
- remove the pollution or arrange for its removal,
- cover third-party claims arising from the pollution.

In the event of failure to comply with this obligation, the Director of the Maritime Office in Szczecin may order its enforcement and charge the costs to the perpetrator or user.

Pursuant to the Regulation of the Council of Ministers of August 8, 2017, on the organization of combating threats and pollution at sea (Journal of Laws of 2017, item 1631, as amended), the captain of a ship that has caused pollution of a port area or the sea is obliged to take immediate action to stop the discharge of harmful substances and prevent the spread of pollution. The shipowner is obliged to take immediate action to minimize the effects of pollution on the marine environment. These actions are carried out under the supervision of the director of the competent maritime office, who may instruct the SAR Service or another specialized unit to carry them out.

In accordance with the **"polluter pays"** principle, all costs related to the removal of pollution shall be borne by the polluter, which in the case of a ship is its owner.

In the case of pollution of port waters caused by ships, the proceedings are conducted by the Director of the Maritime Office. In the case of pollution from land-based sources, the competent authority is the provincial environmental protection inspector.

If the polluter cannot be identified, the costs of the clean-up operation may be covered by the user of the port areas or waters, in accordance with the provisions of agreements concluded with port authorities.

## 10. Training, exercises, updating and location of the Plan

### 10.1. Training and exercises

This Contingency Plan will be updated on an ongoing basis by the Police Seaport Authority, in consultation with the Director of the Safety Department or the Head of the Technical Safety Office, in accordance with § 10(2) of the Regulation of the Minister of Maritime Economy and Inland Navigation of December 21, 2016 (Journal of Laws 2017, item 67). The update should take into account any organizational changes and changes in technical equipment.

The updated Plan will be sent for approval to the Director of the Maritime Search and Rescue Service (SAR) and the Commander of the State Fire Service, who will verify the changes made. The plan will then be sent to the Director of the Maritime Office in Szczecin.

At least once a year, the Port Authority will conduct exercises to test the effectiveness of alarm, communication, and response procedures of individual units in the event of a threat of port water pollution, including the practical use of equipment to limit the size of the spill and remove pollution.

Each time, an assessment of the exercises carried out will be conducted in order to remove any shortcomings and report corrections aimed at improving the effectiveness of the activities.

The proposed exercise scenarios are:

1. Oil spill at Mijanka. Objective: to set up a barrier as quickly as possible to prevent the spill from spreading to the Szeroki Nurt and the Policki Canal;
2. Oil spill in the Port Morski. Objective: to set up a barrier as quickly as possible to prevent the spill from spreading to the Policki Canal;
3. Ammonia leak in Mijanka. Objective: coordination of services in the worst-case scenario of a leak. Active cooperation to mitigate the effects of the leak and prevent the ammonia cloud from reaching populated areas.
4. Fire involving liquefied gas (propane/ethylene) as a result of the rupture of the connection between the loading arm and the ship's manifold.

It is proposed that the exercises be carried out once a year.

Exercises according to scenarios 1, 3, and 4 are proposed to be carried out jointly with the State Fire Service in Police and SAR.

Exercises according to scenarios 3 and 4 can be carried out jointly with the Szczecin-Świnoujście Port Fire Service.

Employees of the plants should be familiarized with this plan, depending on their involvement in the ship reloading process and their position, preferably as part of routine training aimed at improving safety.

## **10.2. Plan update**

The plan is updated on an ongoing basis in the event of significant changes. The update sheet is included in Appendix 10.

## **10.3. Location of the Plan**

**A paper version** of the Plan is available at the Police Seaport Authority, the Port Operation Manager's office, and the Marine Gas Terminal Shift Manager's office.

# **11. Handling of oiled animals**

If an oiled or chemically contaminated animal is observed, the person in charge of the operation (KAZ) should notify the veterinary services, providing the following information: species, location and health condition of the animal. KAZ informs the Harbour Master of Port of Szczecin about this fact.

KAZ, either independently or through a designated representative, contacts the Animal Rehabilitation Center in Szczecin or another center designated by the General Directorate for Environmental Protection (a list of centers for the West Pomeranian Voivodeship can be found at: <https://www.gov.pl/web/gdosc/wykaz-osrodkow-rehabilitacji-zwierzat>) in order to determine the procedure for transferring the animal there. Animals found in the water should be caught in a safe and humane manner by trained personnel using appropriate equipment. After being caught, they should be transported to the shore or to a safe place in the area where the operation is being carried out, where they will be handed over to specialists from the rehabilitation center.

If infectious diseases such as rabies are suspected, the District Veterinary Officer in Szczecin should be notified immediately and the animal should be secured until the appropriate decisions are made.

## **Attachments**

## **Z1. List of addresses, telephone numbers, and communication channels of persons and institutions responsible for protection**

<b>No</b>	<b>Institution/unit</b>	<b>Telephone</b>	<b>Address</b>	<b>Availability</b>
<b>Police Services</b>				
1	ZSP Emergency Response Center Duty Officer	Tel: 91 317 19 98 Tel: 91 317 40 40 Fax: 91 317 35 01	ul. Kuźnicka 1 Police	24 hours
2	Shift/Team Commander ZSP	Via the ZSP Emergency Response Center or Tel: 91 317 11 38 519 501 539		24 hours
3	ZSP Commander	Via the ZSP Emergency Response Center or Tel: 91 317 31 46 887 744 602		Limited outside working hours
4	Technical Safety Office Manager	Tel: 91 317 30 07 Tel: 519 501 024		Limited outside working hours
5	Plant Dispatcher	Tel: 91 317 16 16 Fax: 91 317 45 50		24 hours
6	Security Office Manager/Plant Security Chief	Through the Plant Dispatcher		Limited outside working hours
7	Plant Security Shift Commander	Via the Plant Dispatcher		24 hours
8	Port Operational Manager	Tel: 91 317 43 30 Mobile: 519 501 224	Seaport ul. Kuźnicka 1 Police	Limited outside working hours
9	<b>Port Dispatcher</b>	Tel: 91 317 43 76 Mobile: 519 501 469		24 hours
10	<b>Port Security Office</b>	Tel: 91 317 25 54		
<b>GA Polyolefins (MTG) Services</b>				
11	Shift Manager Maritime Terminal (ZPT)	Tel.: 91 317 28 37 Tel.: 887 742 259 VHF CH78		24 hours
12	Shift Commander Facility Security	Tel.: 91 317 28 43 Tel.: 697 772 348		24 hours
13	Manager of the Maritime Terminal Manager	Tel.: 91 317 28 37 Tel.: 887 742 259	Maritime Gas Terminal Gas Terminal ul. Kuźnicka 1 Police	Limited outside working hours hours
14	Facility Security Officer Port	Tel.: 887 742 214	ul. Kuźnicka 1 Police	Limited outside working hours working hours
<b>Other units</b>				
1	<b>Szczecin Harbour Master</b>	Through the duty service of the Szczecin Port Authority	ul. Jana z Kolna 9 Szczecin	Working days 0700-1500
1.1	<b>Duty Service of the Szczecin Port Harbour</b>	Tel: Channel 69 VHF		24 hours

No	Institution/unit	Telephone	Address	Availability
1.2	Ship Traffic Control Service (VTS)	Tel: 91 44 03 384 Channel 69 VHF		24 hours
1.3	Maritime Office Environment Department	Tel: Tel: 91 44 03 532		Working days 0700
2	SAR Auxiliary Coordination Center (spill removal)	Tel: 91 321 49 17 Fax: 91 321 59 29 Mobile: 505 050 969 e-mail: polratok@sar.gov.pl	ul. Nabrzeże Władysława IV 1 Świnoujście	24 hours
3	Police	Tel: 997	--	24 hours
4	Emergency Medical Services	Tel: 999 Tel: 91 423 03 02	Szczecin	24 hours
5	Police Fire Service PSP Crisis Management Center in Police	Tel Tel: 91 431 68 00 Tel: 91 431 68 01 Fax: 91 431 68 03	ul. Tarnowska 4a Police	24 hours
6	Crisis Management Center of the West Pomeranian Voivodeship	Tel: 91 430 33 42 Tel: 91 430 33 60 Fax: 91 433 85 22	ul. Wały Chrobrego 4 Szczecin	24 hours a day
7	Voivodeship Inspector for Environmental Protection	Tel: 91 485 95 00 Tel: 91 485 95 01 Fax: 91 485 95 09	ul. Wały Chrobrego 4 Szczecin	Working days 0700-1500
8	Communication for the purposes of coordinating actions related to port water pollution, fires, floods, and local rescue operations.	Channel 10 VHF	--	24 hours
9	Single European emergency number	Tel: 112	Emergency Notification Center	24 hours
<b>Specialist companies</b>				
1	INFRA-PORT Sp z o.o.	Mobile: 693 719 893 Mobile: 601 795 813 Fax: 91 424 38 31	ul. Bytomska 3-6 Szczecin	24 hours

## Z2. Report forms documenting the course of pollution events

GAP – Grupa Azoty Police (the so-called Accident Qualification Sheet) and GAPoly – Grupa Azoty Polyolefins (the so-called Substance Incident Card) have their own internal pollution incident registration cards.

All **entities involved in pollution control activities** should keep a record of events by making entries regarding the reports received and the actions taken, including the time of their commencement and completion.

### FORM FOR REPORTING INCIDENTS TO THE MARITIME OFFICE IN SZCZECIN

(in accordance with §7 of the Regulation of the Minister of Maritime Economy and Inland Navigation of December 21, 2016, Journal of Laws 2017, item 67)

1. Reporter's details	
Name of entity:	
Address / contact details:	
Person preparing the report:	
Phone / e-mail:	
2. Date and place of the incident	
Date:	
Time of commencement of activities:	
Time of completion of actions:	
Location (waterfront, water body, facility):	
3. Facility affected by the operation	
Name of vessel/floating facility:	
Type of vessel/facility:	
Description of cargo or land facility:	
4. Forces and resources used in the operation	
Number of vessels:	
Number of vehicles/land units:	
Other resources used:	
5. Casualties	
Number of injured persons:	
Description of injuries sustained:	
6. Material losses	
Estimated value of damage (PLN):	
7. Comments and conclusions	
Comments:	
8. Date and signature of the person preparing the report	
Date	
Signature	

### Z3. Technical equipment of the ZSP

#### List of basic equipment for rescue and firefighting operations of the ZSP located on vehicles

Type of equipment	Operational number	Specialized equipment	Quantity	
<i>Rescue and firefighting vehicles</i>				
<b>GBAPr 2.5+0.25+0.25/25/50</b>	508 Z 21	Dräger telemetry board with frame	1	
	Right front compartment	Tripod for panel frame	1	
		Orthopedic board - set	1	
		12 kg powder fire extinguisher	2	
		Leader MT236 Neo smoke extraction fan	1	
		Milwaukee M12 charger	2	
		Holmatro charger	2	
		Milwaukee Mx charger	1	
		Dräger NIMH charger	1	
		Milwaukee 12 Ah battery	1	
		Milwaukee 5 Ah battery	1	
		Milwaukee MX battery	1	
		Holmatro PBP battery	2	
		Lighting mast remote control	1	
		Right-hand center compartment	Hose saddle	2
	ZW-75 water curtain		2	
	Collector W110/W75-W75		1	
	Line suction device Z-4		1	
	W-52 pressure hose		8	
	Hose for W-25 linear suction device		1	
	Box 1P		1	
	Box 2P		1	
	Box 3P		1	
	Right rear compartment	W75/ W52-W75-W52 splitter	1	
		Cage splitter W52/W52-W52	1	
		Switch W25/W52	1	
		Switch W52/W75	2	
		Key for underground hydrant	1	
		Swedish wrench for above-ground hydrants	1	
		Polyolefin wrench for above-ground hydrants	2	
		Standard wrench for above-ground hydrants	2	
		Key for Storz connectors	4	
		Rosenbauer ProJet W52 nozzle	2	
		Rosenbauer FlowRBW52 nozzle	2	
		Firefighting lance - attack	1	
		Firefighting lance - defense	1	
		Hammer with punch	1	
		Rapid assault module	1	
		Foam cap	1	
		Portable CAFS foam module	1	
		W75 discharge hose	1	
		Spigot/adaptor for underground hydrant	3	
		Emergency ratchet wrench	1	
		Emergency key for pneumatic valve	1	
		Rear wall compartment	Traffic cone	5
			Niagara floating motor pump	1
	Fire engine		1	
Roof	WP-2-75 foam generator	1		

Type of equipment	Operational number	Specialized equipment	Quantity
		WP-4-75 foam generator	1
		Heavy-duty service wedge	1
		Water-foam cannon	1
		Lighting mast	1
		Left box	1
		Right box	1
	Left front compartment	Holmatro battery-powered diagonal cutters	1
		Holmatro hydraulic arm spreader	1
		Holmatro telescopic spreader	1
		Holmatro extension	1
		Set of chains	1
		Cross bracket set	1
		Accessory set - case	1
		Threshold bracket	2
		Holmatro battery	3
		Milwaukee battery	3
		Milwaukee cordless cutter	1
		Milwaukee chainsaw	1
		Milwaukee cordless LED lamp	1
		Stihl chainsaw	1
		Milwaukee cutting disc	3
		Set of Mctronic light discs	2
		Stihl combi tank with funnels	1
		Fiskars demolition hammer	1
		Knipex cutting pliers	1
		Short hook	1
		Large Fiskars axe	1
		FatMax balancing tool	1
		Hooligan	1
		Dielectric axe	1
		Toolbox	1
	Foldable drip tray	1	
	Dielectric rod	1	
	Left-center compartment	W75 pressure hose	10
		W1 case	1
		W2 suitcase	1
		Suitcase W3	1
		Suitcase W4	1
		W5 suitcase	1
		Box 1L	1
		Box 2L	1
	3L box	1	
	Left rear compartment	W52 pressure hose	6
Hydrant stand fi80		1	
Hydrant stand fi100		1	
W75 distributor		1	
W52 stairwell distributor		1	
Switch		2	
PP2 foam nozzle		1	
PP4 foam nozzle		1	
Rapid attack module	1		
Crew compartment	Drager breathing apparatus	4	
	Composite air cylinder	5	
	Medical backpack set	1	
	Set of Kramer splints	1	
	Primedec defibrillator	1	
	Burn kit	2	

Type of equipment	Operational number	Specialized equipment	Quantity
		Motorola charger	4
		Thermal imaging camera	1
		Jack up to 10T	1
		Planetary wrench	1
		Emergency tool kit	1
		Air hose	1
<b>GCBA 5/24</b>	508 Z 25	Partner 1200 concrete saw	1
		Hooligan multifunctional rescue tool	1
<b>GCBA 10+4+1/62</b>	<b>508 Z 27</b>		
	Driver's cab	MIO MI VUE video recorder	1
		Motorola mobile radio	1
		Remote control for the gun	1
		Small Peli flashlight	4
		Planetary wrench set	1
		Hydraulic jack	1
		Tube + tube with foot	2
		Set of small tools	1
		Winch remote control	1
		Wheel inflation hose	1
		Air gun with hose	1
	Crew cabin	Rechargeable flashlight with charger	4
		Motorola radio charger	4
		Dräger breathing apparatus with telemetry	4
		Active thermal imaging camera	1
		Large Peli flashlight (searchlight)	2
		Remote control for air conditioning	1
	Left front compartment	W52 pressure hose	7
		W52 hose package in cassette	2
		W75 pressure hose	8
		Hose saddle	1
		10 kg powder fire extinguisher	1
		R1 bag	1
		Kramer splint set	1
		Orthopedic board	1
		Key for underground hydrants	2
		Hydrant stand 80	1
		Hydrant stand 100	1
		Knipex cutters	1
		Dielectric axe	2
		Hand hook	1
		Hooligan	1
		Remote control for lighting mast	1
	Left rear compartment	W52 pressure hose	3
		W75 pressure hose	2
		Water curtain W75	2
		Collector 2x 75/110	3
		PWT-52 nozzle	3
		Hose saddle	1
		75/52 switch	2
		110/75 switch	2
		Key for connectors	3
		75/52 splitter	2
		Suction device (injector)	1
		Key for above-ground hydrants	2
	Right front compartment	W110 pressure hose	4
		Power generator	1
		20 l fuel canister	1

Type of equipment	Operational number	Specialized equipment	Quantity	
		50 m extension cord on a reel	1	
		USC-4 heat-resistant clothing	2	
		Set of signal discs	1	
	Box1	Lightweight heat-resistant clothing	2	
	Box2	1 m hose connector	4	
		firefighter rescue rope 100 m	1	
		30 m auxiliary rope	1	
		P70 safety harness	1	
	Right rear storage compartment	110/75 switch	2	
		75/52 switch	2	
		Key for above-ground hydrants	2	
		Key for connectors	3	
		75/52 distributor	1	
		Z-4 linear suction device	1	
		Z-8 linear suction device	1	
		TurboJet water nozzle	4	
		Foam nozzle	1	
		Remote control for fire pump	1	
		Roof	Wooden crossing bridge	2
	Float		3	
	WP2/75 foam generator		1	
	WP8/75 foam generator		1	
	Suction hose		6	
	D10W ladder		1	
	Step ladder		4	
	Rigid tow bar		1	
	Box 1	Long serrated crowbar	1	
		Suction hose W52	3	
		Suction hose W25	1	
		Non-sparking spade	2	
		Non-sparking shovel	1	
		Dielectric shovel	1	
		Large wheel chock	2	
	Box 2	Straight suction hose	2	
		Angled suction hose	1	
		Dragon net	3	
		PP2 foam nozzle	1	
		PP4 foam nozzle	1	
		PP8 foam nozzle	1	
		Rosenbauer portable cannon	1	
		Foam nozzle for cannon	1	
	<b>GCBA 5+5/60</b>	508 Z 26	Medium heat-resistant clothing	2
			Water-foam cannon 2000 l/min	1
Auer breathing apparatus - positive pressure			3	
8 kVA power generator			1	
PSP R-1 medical kit			1	
Car winch			1	
<b>GCPPrSn 3000/480</b>	508 Z 35	Auer air apparatus - overpressure	2	
		Dielectric equipment set	1	
<b>SCRChem</b>	508 Z 60	Lighting mast	1	
		Ex 7-3 D submersible pump	1	
		Auer breathing apparatus - positive pressure	4	
		GUP 3-1.5 ELRO multi-purpose pump, type GP 20/10 Ex	1	
		Vetter PAB 3000 tank	1	
		11 kVA power generator.	1	

Type of equipment	Operational number	Specialized equipment	Quantity
		Vetter sealing kit	1
		Lutz barrel pump	1
		Mobilus fuel pump	1
		Manual diaphragm pump	1
		Non-sparking tool kit	1
		Decontamination cabin	1
		Gas-tight clothing	1
<b>SH62</b>	508 Z 53	Evacuation stretcher mounted on a basket	1
		14 kVA power generator	1
		Telescopic fire hose	1
<b>SKw Dz2</b>		<b>508 Z 81</b>	
<b>SLRtech</b>	508 Z 43	DOCMA portable petrol rope winch	1
		MILWAUKEE MX Fuel cordless cutter	1
		MILWAUKEE M18 cordless cutter	1
		MILWAUKEE cordless column spreader.	1
		MILWAUKEE cordless saw	1
		Battery-powered cutter-spreader. HOLMATRO	1
		Battery-powered column spreader. HOLMATRO	1
		Extension for column spreader.	1
		MILWAUKEE battery charger	3
		HOLMATRO battery charger	2
		MILWAUKEE rechargeable batteries (additional)	6
		HOLMATRO rechargeable batteries (additional)	2
		Magnetic flares - set	1
		R1 bag	1
		Protective pants for loggers	1
		Safety glasses	2
		Escape hood	2
<b>SLOp</b>	508 Z 91		
<b>Specialized equipment outside vehicles</b>			
		Separator – OLSEP 3000	1
		High-performance pump 8/8000	1
		Oil barrier 750 MP – 300m	1
		Rigid hull pontoon S 5400	1
		AP-250 powder aggregate	2
		DWP-2400 water cannon on a trailer	2
		Slurry pump	2
		W-110 hose trailer, 800 m	1
		Aluminum tripod	1
		Vacuum stretcher	1
		Gasoline winch	1

### List of fire extinguishing agents, neutralizers, and sorbents

No	Name of extinguishing agent	Quantity
1	ROTEOR M foam concentrate (3%)	1000 l
2	FOMIN S3 foaming agent (3%)	1000 l
3	ORCHIDEX FF foaming agent	4800 l
No	Name of neutralizer or sorbent	Quantity
1	Sorbent for water surfaces/solid surfaces	30/195 kg
2	Dispersant - concentrate	20 dm <sup>3</sup>

### Equipment for the chemical rescue base of the Ammonia Synthesis Department – Stokaž and Mijanka

Facility	Equipment	Quantity	Storage location
174	Gas-tight clothing	3	Base at the control room
	BD COM+mask breathing apparatus	4	
	Pneumatic stretcher	1	
	Pneumatic clamp	2	
	VETTER sealing plug set	1	
	Helmet	3	
	Communication set (microphone, earpiece)	3	
	Electric flashlights	1	
P-85	Communication set (microphone, headset)	1	Staff room
	Auer gas-tight suit	1	
	BD COM breathing apparatus + mask	2	
	Helmet	1	

### Equipment for the Marine Gas Terminal with chemical rescue equipment

Box containing oil spill response equipment (sorbent equipment) located on the unloading platform, containing, among other things (in accordance with IMO recommendations):

- absorbent nonwoven mats (40x50 cm),
- cylindrical channel cushion (1;2m),
- absorbent pads (25x25 cm),
- dispersant 101,
- 20 kg of loose sorbent,
- shovel and brooms for granules,
- sprayers
- waste bags
- containers on wheels

### Equipment of the Faculty Chemical Rescue Group at the Marine Gas Terminal Faculty

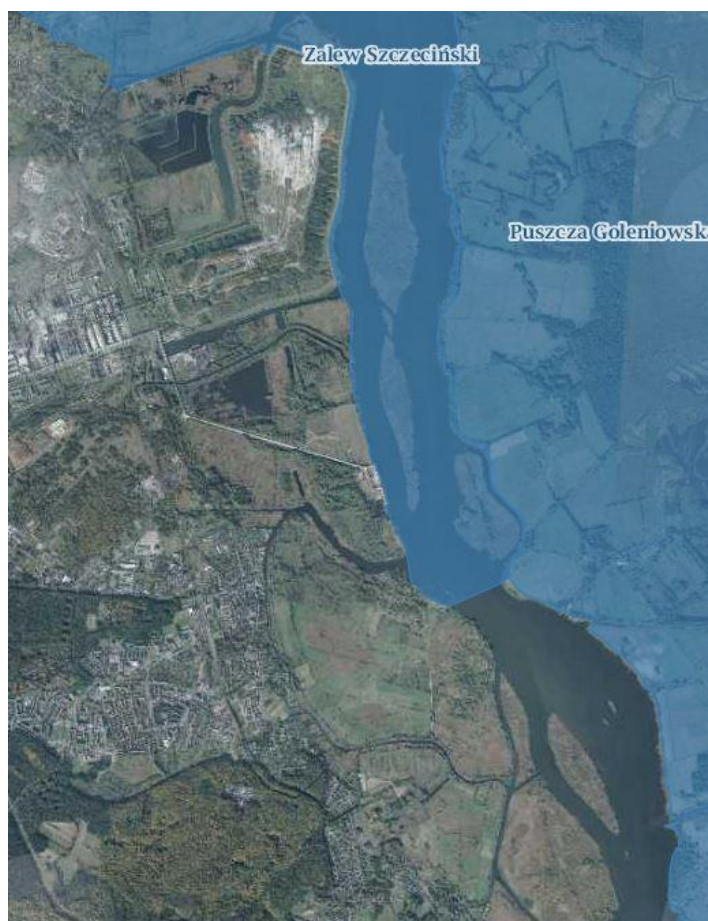
Region	Equipment	Quantity	Storage location
HST	Air apparatus + mask motion detector	4	Chemical Rescue Base (control room building 1000-CR-22)
	Helmet with communication set	4	
	Orthopedic board	1	
	First aid kit	1	
	Explosion-proof radio	1	
	Electric flashlight (Ex)	4	
	Multi-gas detector	4	
	Explosion-proof mobile phone	2	

## 24. Technical equipment of the Police Fire and Rescue Unit

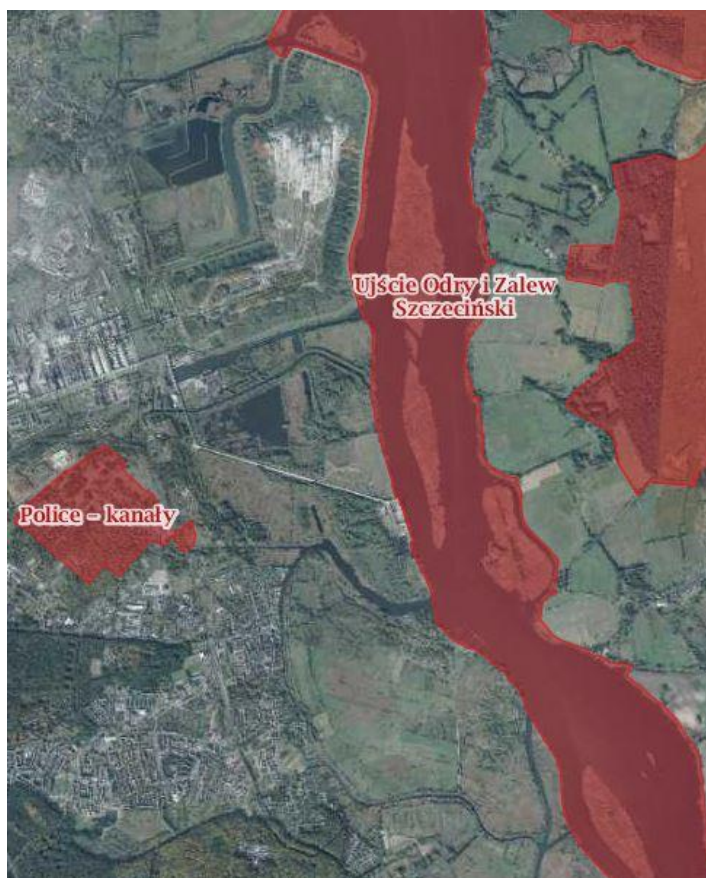
No	List of equipment	Quantity
1	GBA 2.5/16/16 VOLVO vehicle	1
2	GCBA 4.1/32 VOLVO truck	1
3.	GCBA 8.5/60 SCANIA vehicle	1
4.	GBA 2.5/24/4 MIDLUM vehicle	1
5.	SHD 23 MAN vehicle	1
6.	SLRR Nissan	1
7.	DJI Mini 4 Pro drone	1
8.	Quad ACCESS	1
9.	High-performance pump	1
10.	High-capacity pump trailer	1
11.	Flexible barrier on a 4x40m + 1x15m trailer	1
12.	Turbo water jets	9
13.	Portable motor pumps	1
14.	Floating motor pumps	4
15.	Air cushions	2
16.	Thermal imaging camera	2
17.	Arm spreaders	3
18.	Hydraulic cutters	4
19.	Column spreader	4
20.	Radiation meter	2
21.	Door spreader with hand pump	6
22.	Pedal cutters	1
23.	Stabilizing wedges	3 sets
24.	Airbag cover	3
25.	Pump with combustion engine powering 2 devices	3
26.	Overpressure air apparatus	13
27.	Cylinders for breathing apparatus	42
28.	Positive pressure masks for breathing apparatus	20
29.	Saw for concrete and steel	7
30.	Chain saw	7
31.	Stationary electric air compressor	1
32.	Power generators up to 5 kW	3
33.	Power generators up to 10 kW	2
34.	Reflector up to 0.5 kW	5
35.	Reflector above 0.5 kW	4
36.	Motion detectors	15
37.	Flashlights	37
38.	Barrel pump	1
39.	Portable radiotelephones	20
40.	Heat-resistant clothing	4
41.	Slurry motor pump	1
42.	Turbine submersible pump	2
43.	Rescue boat with engine	2
44.	Trailer for boat/dinghy	2
45.	Multi-gas detector	3
46.	Mobile cannon	1
47.	Buoyancy vest	12
48.	Rope reel with 100 m rope	2

## Z5. Specially protected areas in the Police Port area

Area code	Name	Type of protection	Area [ha]	Date of designation	Description
PLB320003	Lower Odra Valley	SPA (Special Protection Area)	61,605.38	November 5, 2004	Lower Odra Valley – key habitats for water and marsh birds.
PLB320009	Szczecin Lagoon	SPA (Special Protection Area)	47,194.57	November 5, 2004	The Szczecin Lagoon – feeding grounds and resting places for migratory birds.
PLH320018	The mouth of the Oder River and the Szczecin Lagoon	SOO (special area of conservation)	13,116	January 15, 2008	Protected habitats and species in the Odra River estuary and part of the Szczecin Lagoon.











Natura 2000 area – Birds Directive (based on GEOSERVIS GDOS)



Natura 2000 area – Habitats Directive (based on GEOSERVIS GDOŚ)

## Z6. Basic properties of selected hazardous substances

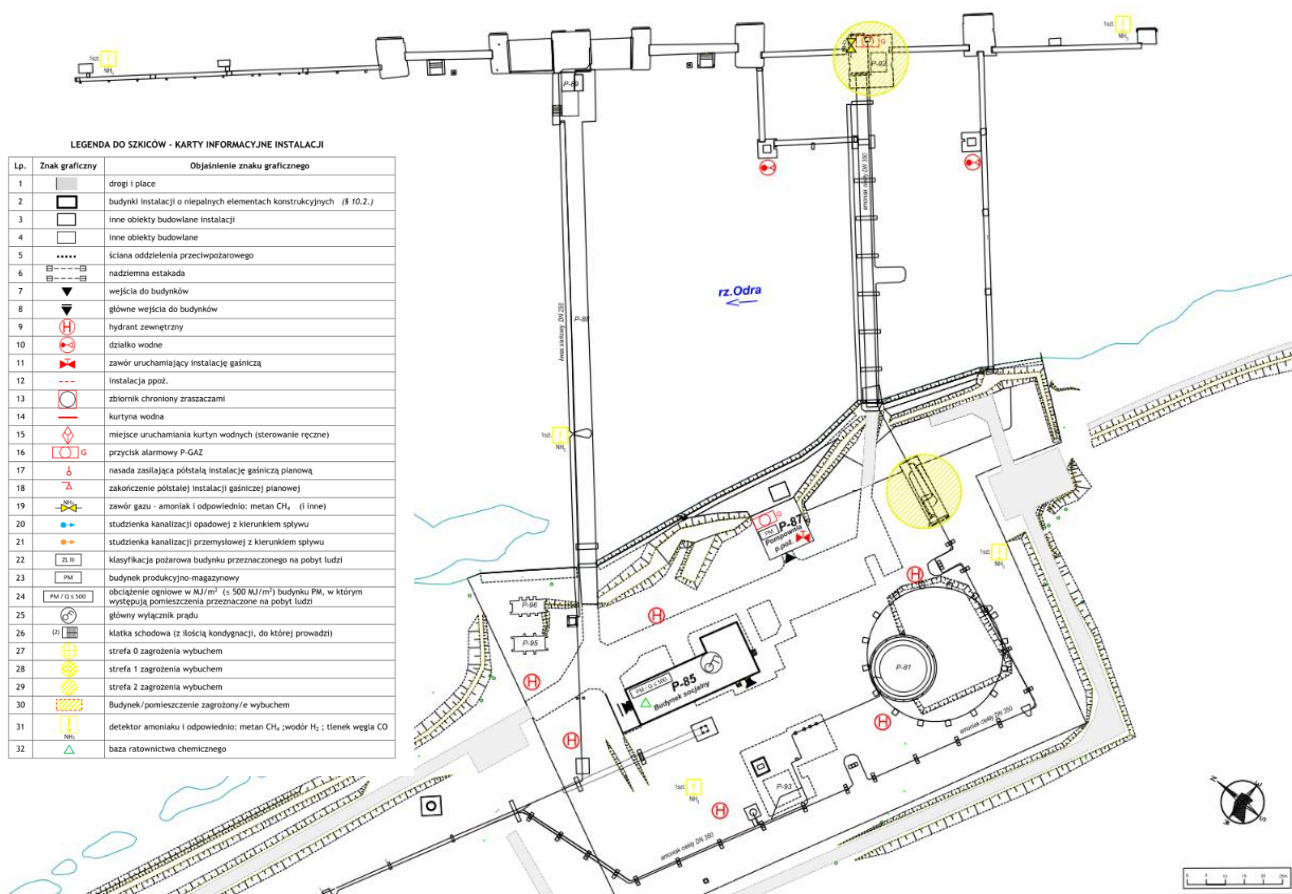
### Z6.1. Basic characteristics of hazardous substances in Police

Substance	IMDG name	UN	Class	IMDG class	Label	Pictogram	Hazard description
Ammonia	AMMONIA, ANHYDROUS	1005	2.3 (toxic gas) 8 (corrosive)	2.3	Toxic gas Corrosive	 	Toxic gas, corrosive, highly irritating to the respiratory tract
Sodium hydroxide	SODIUM HYDROXIDE SOLUTION	1824	8 (corrosive)	8	Corrosive		Strongly corrosive, causes chemical burns
Ethylene	ETHYLENE	1962	2.1 (flammable gas)	2.1	Flammable gas		Flammable gas, explosion hazard, suffocating in high concentrations
Propane	PROPANE	1978	2.1 (flammable gas)	2.1	Flammable gas		Flammable gas, explosive in mixture with air, suffocating in high concentrations
Marlotherm XC	Main component: CUMENE (isopropylbenzene)	1918	3 (flammable liquid)	3	Flammable liquid	  	Flammable liquid. May be fatal if swallowed and enters airways. Toxic to aquatic life.

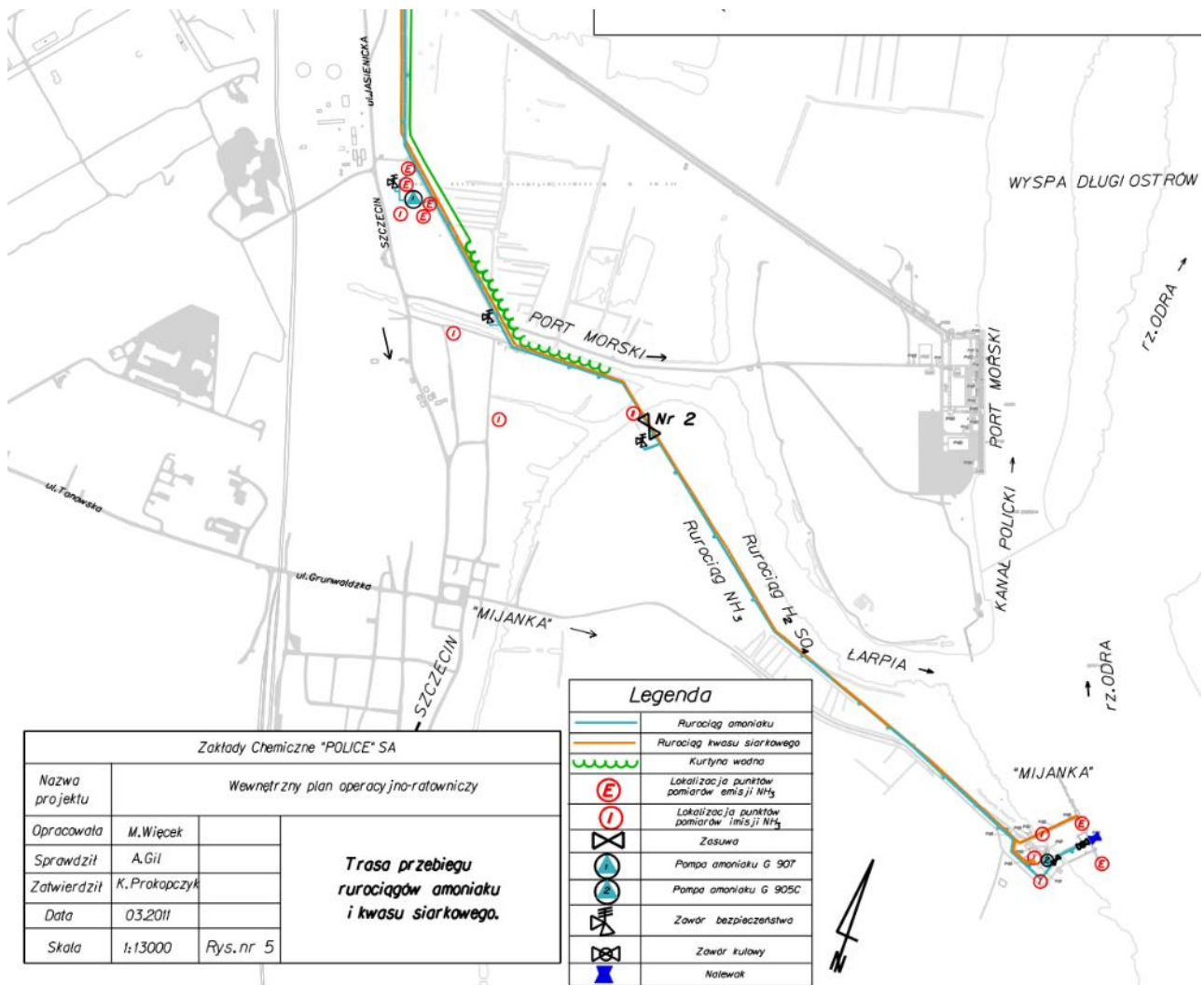
### Z6.2. Transport parameters (bulk transport) for liquefied gases

Substance	Transport temperature [°C]	Transport pressure [MPa]	State	Comments on tanks
Ammonia	-33	approx. 0.6 – 0.8	Pressurized liquid	Pressure or semi-pressure tanks (IMO type 2)
Propane	-42	approx. 0.4 – 0.6	Pressurized liquid	Typical LPG tanks, carbon steel
Ethylene	-104	approx. 0.4	Cryogenic liquid	Cryogenic tanks (IMO type 1G), vacuum insulated

## Z7. Maps

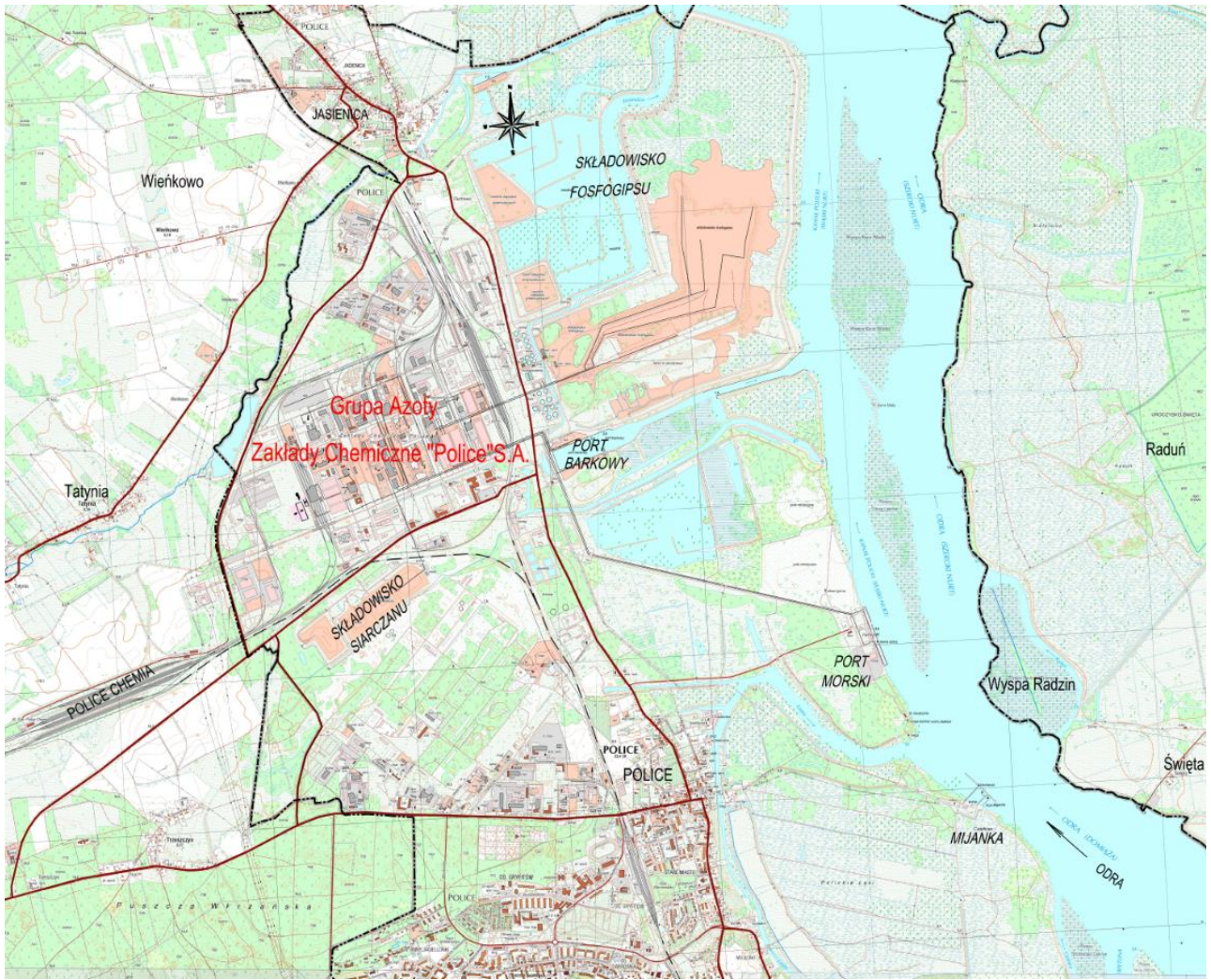


Mijanka, location of rescue facilities



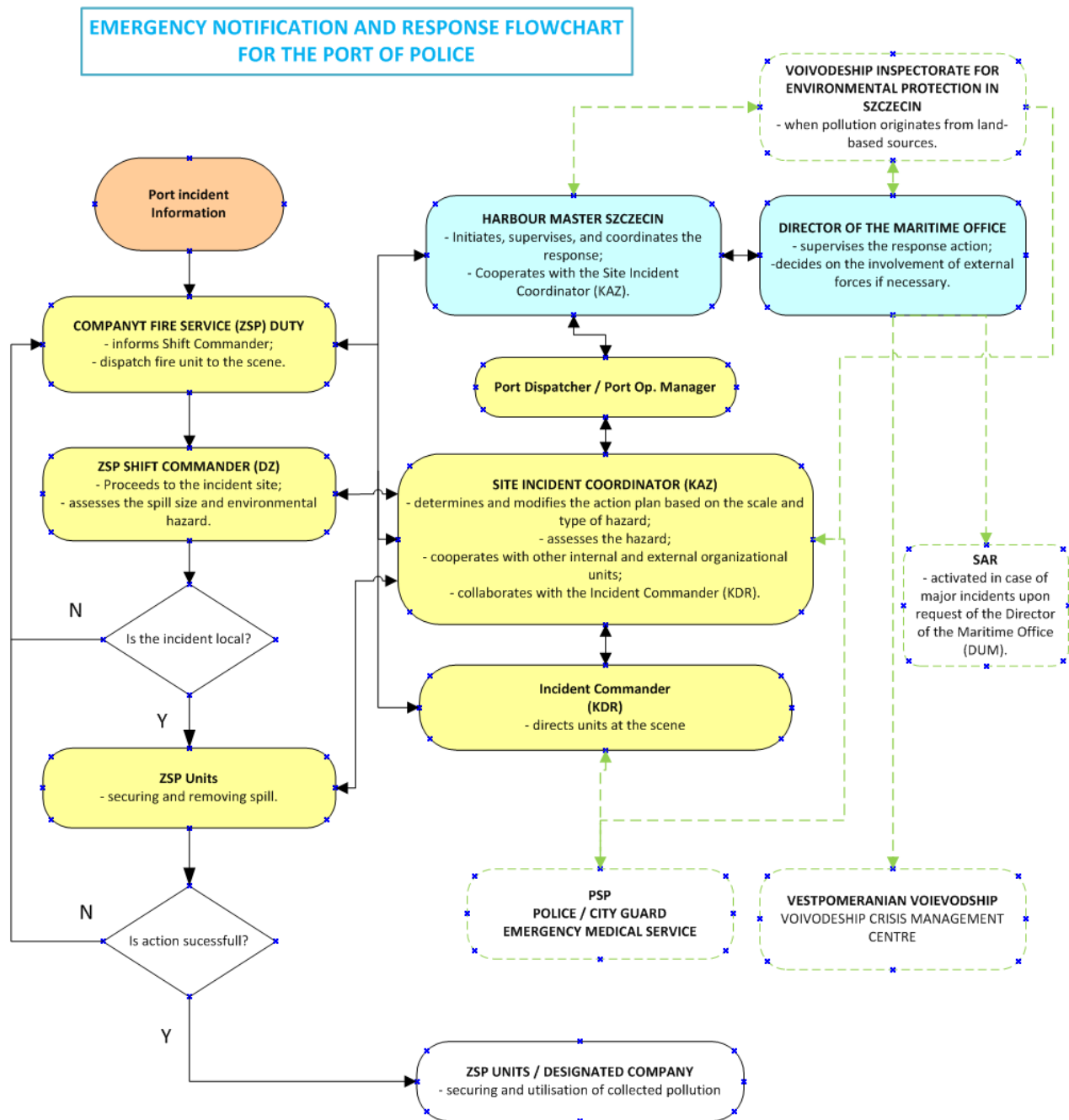
Port Morski and Mijanka, pipeline routes and access roads





Port Police, general plan

## Z8. Procedure and notification scheme for response services at Port Police



### DIRECTORY OF ADDRESSES AND PHONE NUMBERS - APP. Z1

Legend: Green dotted line – optional depending on the scale of the incident.

## ***Z9. Determination of methods of alerting and informing about incidents causing threats or pollution to the marine environment and contact points in the Port of Police***

In accordance with WPOR GA and WPOR GAPoly, any employee who notices an incident posing a threat should immediately notify their colleagues, ZSP, and supervisor. If a person who is not an employee of the plant notices a threat, they should notify the ZSP emergency center, PSP, or plant employees.

### **Ways of alerting and informing**

Any effective and available means of alerting should be used, with preference given to fast telephone communication channels and VHF communication. A list of addresses, telephone numbers, and communication channels of persons and institutions responsible for security is provided in Appendix Z1 to this plan.

### **Procedure diagram**

A logical procedure and notification scheme for services at the Police Port in the event of an emergency is presented in Appendix Z8.

### **Scope of responsibilities**

Chapter 5 (Description of the main tasks of the entities responsible for the organization and conduct of emergency response operations) contains a description of the responsibilities of the main entities responsible for emergency response operations.

### **Contact points**

Contact points and means of communication are presented in the "List of addresses, telephone numbers, and communication channels of persons and institutions responsible for security" in Appendix Z1.

## Z10. Change log

Change log			
Date	First name Last name (person making the change)	Signature	Scope of update