

Hazard and crisis management on the River Danube

Warehouse Smederevo

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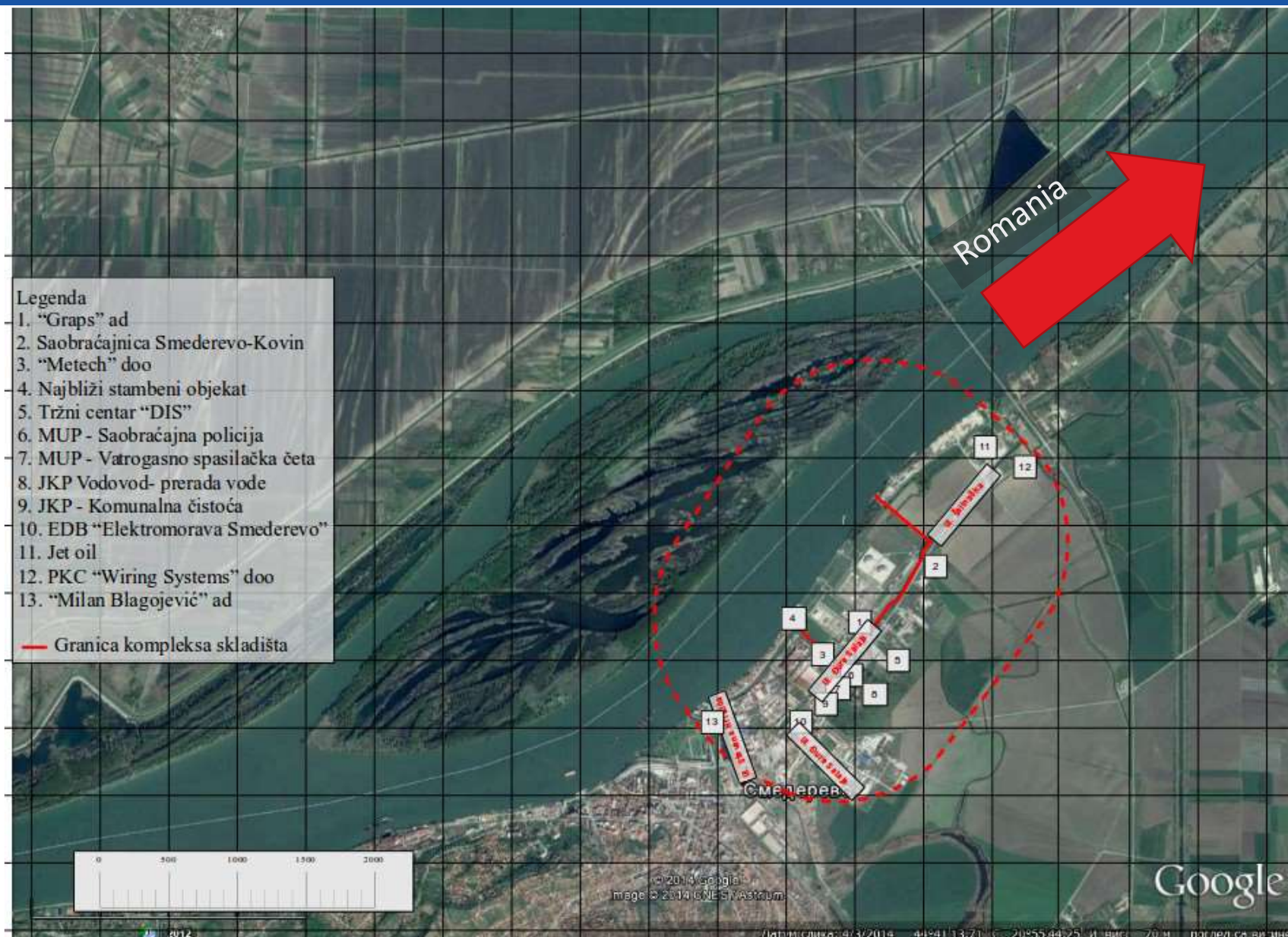
Vladan Petrović Manager of Warehouse Smederevo

Block for sale and distribution

Location of Warehouse Smederevo

- North-east part of city Smederevo, in industrial zone, 2 km away from center of city
- On right side of river Danube on 1.114 km river stretch.
- It takes 71 ha land surface on which there are objects for reception, storing and shipping of goods

Location of Warehouse Smederevo



Capacity of Warehouse Smederevo

On the location there are five vertical overhead reservoirs:

- Reservoir R1 with capacity of 15.000 m³
- Reservoir R19 with capacity of 3.000 m³
- Reservoir R20 with capacity of 3.000 m³
- Reservoir R27 with capacity of 60.000 m³
- Reservoir R29 with capacity of 60.000 m³
- Other small reservoirs

Total capacity of warehouse is **141.000 m³**



Classification of Warehouse Smederevo

According to Rule book on the list of hazardous substances and their quantities and criteria for determining the type of document prepared by the operator of SEVESO plant, or complex ("Official Gazette of RS", No. 41/2010, 51/2015 and 50/2018) or DIRECTIVE 2012/18/EU **Warehouse Smederevo is classified as upper-tier establishment**

Dangerous substance	CAS number	Max quantity of dang. substance (t)	Qualifying quantity (tonnes) for the application of	
			Lower-tier requirements	Upper-tier requirements
Euro diesel (diesel fuels)	68334-30-5	116.200	2.500	25.000
Euro BMB 95 (gasolines)	Mixture	2.250	2.500	25.000

Warehouse Smederevo on river

Manipulation of oil products by river is done by three river piers:

- **River pier 1** – manipulation is made by three loading arms and pipelines connected to reservoirs R1, R19 and R20
- **River pier 2** – manipulation is made by two loading arms and pipelines connected with two reservoirs with capacity of 2x100 m³. This pier is used as bunkering station
- **River pier 3** – manipulation is made by one loading arms and pipelines connected to reservoirs R27 and R29



Five different scenarios for possible levels of accidents were made according to Safety Report, from which following scenarios involve river Danube:

- Scenario 4A - Leaking on one chamber of the barge, defined as III level accident
- Scenario 4B – Collapse of barge, defined as **V level accident**

V level accident is defined as international level where consequences of accident is felt beyond the border of Republic of Serbia.

Scenario 4B – Collapse of barge, defined as V level accident

According to scenario 4B, 1.200 tones of fuel were considered for accident

Crucial event: Catastrophic discharge of petroleum products into the Danube

Causes: Shipwreck, war events

Events: Water pollution

Duration of accident: limited up to 30 minutes

Training of Employees

Employees are trained according to SD-09.05.08 HSE training

For purpose of training, following documents are also used:

- Plan of training of employees
- Plan of HSE exercises
- Organizing and performing HSE exercises
- Set of presentation and tests for checking level of knowledge



Steps that should be taken in case of accident are defined in following documents:

- Emergency preparedness and response plan for warehouse Smederevo
- Instructions for safe work with dispersant for neutralization of spilled petroleum products on the water surface of manipulative surfaces in NIS a.d. Novi Sad
- Accident Instructions Warehouse ND "Smederevo"
- Instructions for work with equipment for accident situations at the river junction - pier on the bank of the Danube

Following crews for reaction on accident were formed from employees from location:

- Crew 1 – Stopping process of production, extinguishing starting fires and stopping starting impacts
- Crew 2 – Extinguishing and cooling tanks with flammable substances, stopping fires and rescuing
- Crew 3 – Notification, alerting and informing
- Crew 4 – Detection and control of pollution
- Crew 5 – Decontamination of people, utilities and space
- Crew 6 – Informing and contacting with public

Accident on Warehouse Smederevo (01.11.2011.)

During loading euro diesel in vessel on river pier 1, small amount of euro diesel was seen by employee in water.



Accident on Warehouse Smederevo (01.11.2011.)

Loading of euro diesel was stopped and additional activities were taken for stopping further leakage of dangerous good into the river.

Floating absorbers and skimmer were put into the water for collecting dangerous good that entered the water



Accident on Warehouse Smederevo (01.11.2011.)

Because of fast reaction there were no environmental hazards caused by leakage

From commission of investigation accident following conclusions were made:

- Continue with regular training of employees for reaction in accidental situations, with often changing of accidental scenarios
- Follow operation and HSE procedures

Smederevo warehouse – environmental protection activities

1

Floating protective system and a skimmer in place for potential spills, a contract with a provider of emergency response services concluded



2

Environmental monitoring (testing of waste, surface, and ground water, soil quality analysis, gas emissions measurement)

3

Waste management



The Smederevo warehouse has a permit for storage of oil and petroleum products and discharge of wastewater (no. 325-04-475/2020-07 dated December 15, 2020) issued by the Republican Water Directorate of the Ministry for Agriculture, Forestry and Water Management.

THANK YOU