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Accidental water pollution of Vistula River in 2007; Procedures for hydrophobic pollution; setting up response operation sections

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Contamination of the Vistula (Wisła) with heating oil on 10 December 2007

Source:

- A pipeline of the Przedsiębiorstwo Eksploatacji Rurociągów Naftowych „Przyjaźń” (PERN) in Płock, the operator of the “Przyjaźń” (Friendship) oil pipeline.

Cause of leak:

- Cracking of a transverse weld on the joint of pipes, as a result of heavy external loads and a reduction of the material strength of the pipeline due to pressure fluctuations in the period preceding the incident.

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The consequences of the heating oil leakage

Approximately 270 m³ of heating oil was released into the Vistula River,
The contamination extended in the area of 150 km,
The width of the river in the contaminated section ranges from 400 m to 800 m,
The rate of surface water in the contaminated section ranges from 0.8 to 2.0 m/s.

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Foto

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- The leak was observed at 2.00 pm on 10 December 2007.
- The pipeline operator, PERN, did not know about the failure.
- After an inspection, at about 5.30 pm the failed pipeline was shut off and the heating oil was routed through an emergency pipeline, situated 50 m from the main pipeline

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Foto

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At 2.30 pm notifications of the accident were sent to:

- the State Fire Service,
- the provincial governors' office,
- the Provincial Inspectorate for Environmental Protection,

The SFS took reconnaissance and recovery actions at once.

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After a preliminary assessment of the consequences the contaminated area of the river was divided into the following four operational sections:

- Operational Section I – Aleksandrów Kujawski,
- Operational Section II – Włocławek,
- Operational Section III – Toruń,
- Operational Section IV – Bydgoszcz.

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In the second phase of the rescue operation, due to dynamic changes of the circumstances, three new operational sites were established to remove the oil spill more effectively:

- in the area of Nieszawa,
- in Torun,
- and in Bydgoszcz-Fordon.

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- The recovery operation lasted from 10 December until 29 December 2007.
- As a result, 37,700 litres of a water and oil mixture was recovered,
- The State Fire Service deployed the following resources for the recovery operation:
 - 112 vehicles,
 - 29 watercraft,
 - 1018 metres of barriers: 360 m platform barriers
384 m sorbent barriers
274 m jacket barriers

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Foto

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Unfavourable conditions faced during the recovery operation:

- Low viscosity of the heating oil which spread on the affected area of the river in the form of a very thin oil film
- High flow rate of the surface water on the Vistula River, ranging from 0.8 to 2.0 m/s.
- Limited technical capacity of the equipment used to constrain the spill

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- An analysis of the performance of the SFS shows that the decisions on setting up operational sections were suitable, considering the development of the situation on the river.
- The conditions in which the recovery operation was carried out were, as it was noted before, very difficult.

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- Throughout the recovery operation the level of pollution of the Vistula River was continuously monitored by the PIEP and, as a consequence of follow-up orders, also by PERN.
- The results of an analysis of the accident carried out by PERN were submitted in a report of 31.10.2008.
- The report covers a river section of 65 km, downstream from the village of Winduga.

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Monitoring points on the Vistula River to control the level of pollution with oil-derivative substances

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Actions taken by PERN

- As a result of follow-up orders issued by the inspector of the PIEP for the Kujawsko-Pomorskie Province, PERN performed an inspection of the technical condition of its pipelines.
- The inspection of long-range pipelines operated by PERN applied the inspection standards introduced in 2008, using latest methods, such as static testing and dynamic analysis, to all sections of the pipeline.
- The pipeline section from Płock to Schwedt (Germany) is being tested by a German company, MIDiC GmbH of Halle.

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- The final report will be ready in the last quarter of 2009.
- The aim of the inspections and tests is to develop recommendations regarding corrective measures, if required, and to evaluate the impact on the hydrologic conditions at the points of passage through watercourses.

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Thank you for your attention.