

25th „anniversary“ of the Sandoz accident

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UNECE – BMU - UBA

Is a repetition of the Sandoz accident impossible in Germany?

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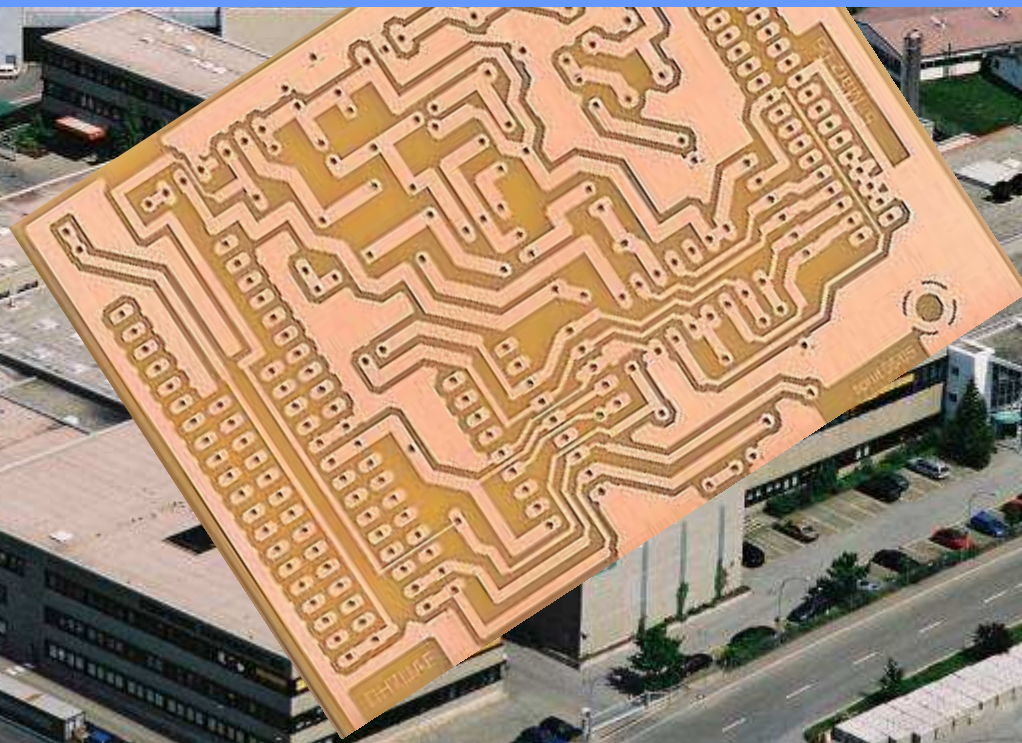
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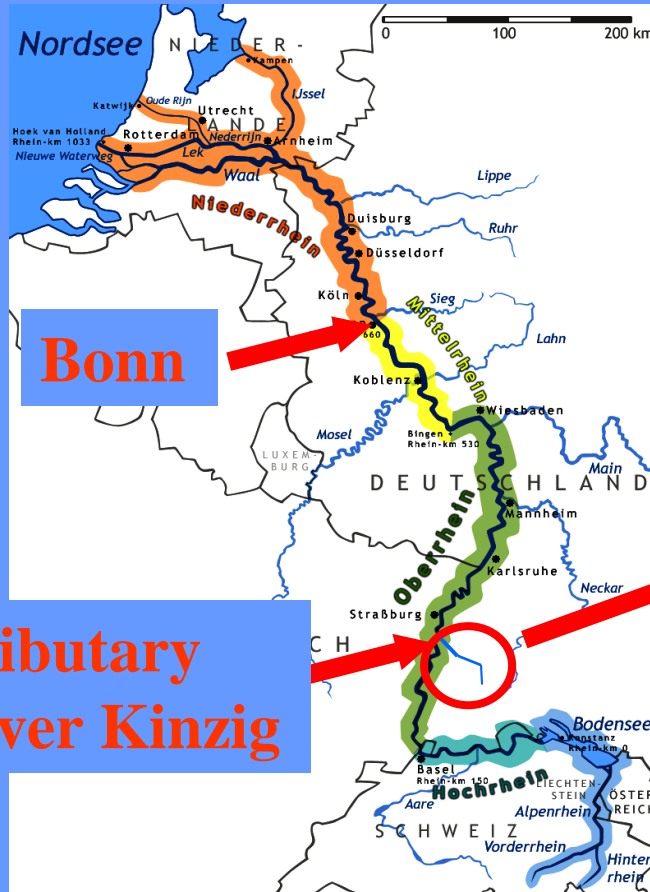
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A company produced printed circuit boards of high quality on an area of 34,000 m²

On 01.06.2005 a fire of unknown reason broke out in a chemical storage.



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tributary
river Kinzig

Bonn



Kinzig river flowing
to the Rhine river

Discharge of
fire fighting
water



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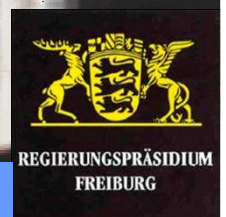
The fire temperature was at 1200 °C when the fire brigade arrived - 5 minutes after the fire broke out.

Extinguishing with foam was no longer possible because of the thermal heat. → Extinguishing with water was necessary



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The fire was fought with up to 18 m³ of water per minute



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3.500 cubic meters of water were used in 5 hours extinguishing time

A large part of the contaminated fire fighting water was retained in basins and improvised barriers, but not all ...



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In the chemical storage: 100 tons of chemicals solvents, concentrated acids and alkalis, partly containing heavy metals.

Actually German regulations after the Sandoz-accident require only 300 cubic meters of retention volume for this storage.

Really necessary were about 3500 cubic meters.



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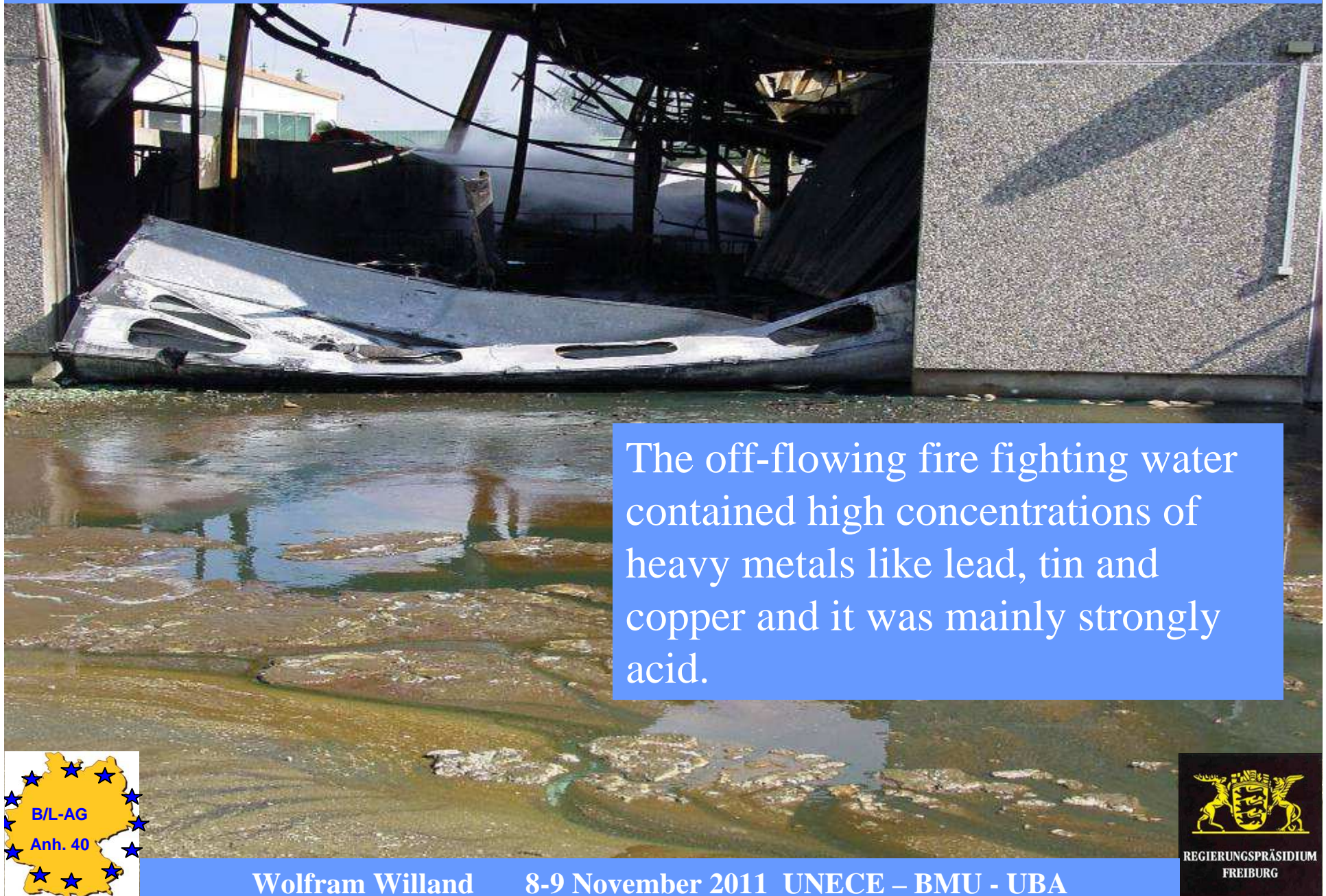
... but much more chemicals were used in the production process:

More than 300 tons of concentrated heavy metal containing acids, alkaline solutions and burnable solvents were used in production of printed circuit boards.

Shortcoming of German regulations: for the production process no retention of fire-fighting water is required.



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The off-flowing fire fighting water contained high concentrations of heavy metals like lead, tin and copper and it was mainly strongly acid.



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The sewage treatment plant of Schramberg fought in vain with 250 sacks of lime against the inflowing acid.



The whole biology was killed. The further discharge of fire fighting water to the treatmentplant and thus to the rivers Kinzig/Rhine had to be stopped immediately.



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In sum 950 m³ of highly contaminated firefighting water were retained in the plant and disposed of in whole Germany with highly specialized tankers under critical conditions (fire water developed poisonous gases – normal steel tanks were quickly etched through by it).

Another 1,200 m³ were retained in a municipal rain retention basin and later disposed of with conventional tankers.



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- most pressing problem: all retention basins were filled to the brim and heavy rain was announced
- risk of drainage of 400 tons of chemicals into the river Kinzig and Rhine (compare Sandoz: 10-30 tons)
- disposed firefighting water: 2100 m³
- 70 special tanker trucks drove up to 500 km to find a suitable fire-fighting water treatment plant
- amount of damage in sum: 142 million €
- order to dispose fire water immediately: 1 million €



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Conclusions - What can we learn?

- Sandoz II could be still possible in Germany.
- The regulations introduced in Germany after the Sandoz accident brought improvements, but still offer only limited protection.
- Fire water retention demands should be made not only to the storage, but also to the dealing with chemicals in production processes.
- The actually tightness of fire water retention basins should be reviewed regularly – risk of complacency in ensuring high safety levels.

