

## Sunken Barge

## Maritime Chemical Accident

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1988, November 22

Herculaneum, Upper Mississippi River, Missouri, USA

**Sulphuric acid** (Class 8) in barge cargo tanks; oily liquid that reacts violently with water creating heat and hazardous mist, corrosive when mixed with water, TLV 1 mg/m<sup>3</sup> (USA), IDLH 15 mg/m<sup>3</sup> (USA)

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**Summary:** On November 22, 1988, a barge sank in the Mississippi river loaded with 1,400 tonnes of **93% sulphuric acid**. The barge was lying upright under 3 m of water with no signs or readings that showed any leak from the cargo. Many different authorities were notified and the situation was evaluated by a team of specialists. The greatest threat at first was a major rupture in the tank. This was not unlikely as water could have entered the tanks and this would dilute the sulphuric acid which would then make it much more corrosive. Therefore it was necessary to remove the acid from the tanks. Three alternatives were discussed. The first option would be to transfer the acid from the sunken barge. This option was abandoned because of the difficulties to transfer the acid safely without endangering the personnel. The second option was refloating the barge with the cargo aboard. This would be safer, but the weight of the barge posed a threat as the barge might break if lifted incorrectly. Therefore the third alternative was chosen: **slow discharge of cargo** into the river. The environmental impact of a discharge of the acid into the river was evaluated thoroughly. A close monitoring of the pH in the river was considered as being sufficient protection against pollution of the area. Safety regulations for all personnel were set up and emergency back-ups were prepared. The operation started one week after the accident. An air-lift tube was lowered into the barge and compressed air was delivered by an air compressor. By letting the air bubble upwards through the acid inside the tube the acid was drawn from the tank and slowly discharged into the water. The rate of the discharge was easily controlled by altering the rate of introduced air in the system. After one week discharging of a sufficient amount of acid the **barge could be lifted** and the remaining acid recovered. The whole operation took several months but proved to be successful.

**Cause of Accident:** Small damages of the barge's outer skin resulting in water penetration into double hull.

**Comments on Response:** The response method to release the acid slowly into the river turned out to be successful. The impact on the environment was kept to a minimum.

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**Source of Information:** Cargo removal and salvage of the tank barge ACO-501, Report from the US Coast Guard.  
(Abstracted July 2001 by Edvard Molitor, Swedish Coast Guard HQ)