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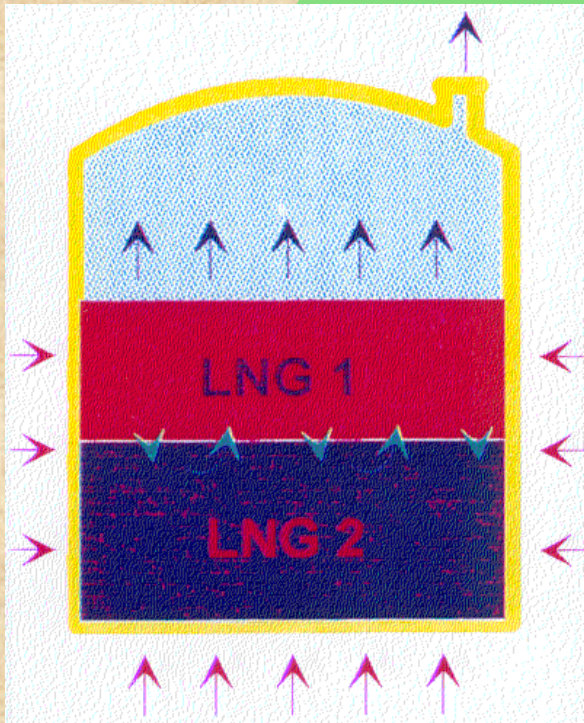
Providing gas-related technologies to the American Gas Industry

LNG Master

Software package for computer-assisted management
of liquefied natural gas storage tanks

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A major European has developed a software package named LNG Master designed to simulate the rollover phenomena occurring in LNG storage tanks.

The LNG Master software also predicts the following consequences:

- ✓ filling of a storage tank with LNG differing from the existing stock
- ✓ storage of a homogenous stock of LNG over a long period

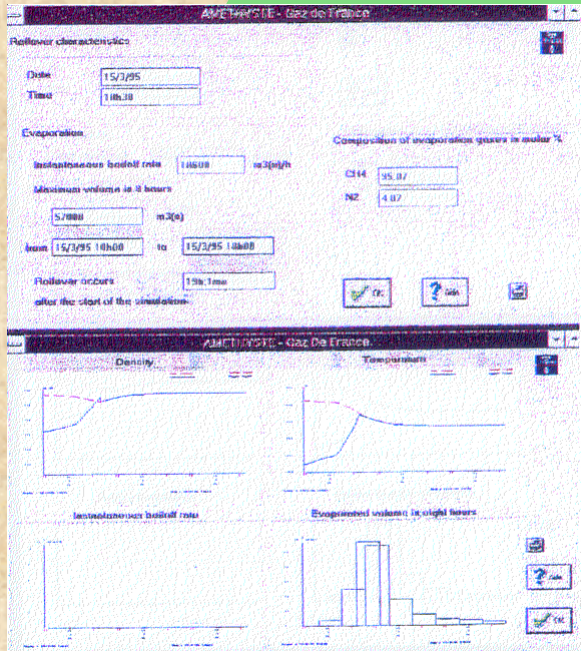
➤ Validation

- ✓ LNG rollover trials in the 18,000 ft³ tank in Nantes
- ✓ Large scale incidents (La Spezia) and large scale trials (Le Havre, Tokyo Gas)
- ✓ Real site operational data on aging, tank filling and stratifications (Montoir and Fos reception terminals)

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➤ Characteristics



LNG Master provides the following information:

- ✓ moment of rollover occurrence
- ✓ maximum instantaneous boil-off rate
- ✓ evolution of storage parameters (density, temperatures, gas boil-off rate, levels, compositions)

The software operates on PC-type microcomputers and includes on-line help.

It is supplied with a user's manual.

➤ Background

LNG Master is currently installed and used by the French Fos-sur-Mer and Montoir-de-Bretagne methane reception terminals. It has also been purchased by the Osaka Gas (Japan) and SNAM (Italy) gas companies. It is intended both as a safety and optimization tool for tank management operations in LNG storage sites (reception terminals, liquefaction plants, peakshaving sites).