



Dry mooring line monitoring for floating production systems

The LifeLine initiative, led by MARIN, seeks to develop a dry mooring monitoring alarm system based on position and motion measurements only and without the use of subsea equipment.

Floating production systems stay at fixed positions year after year without regular dry-docking. To ensure station keeping, these units are equipped with mooring systems, which must be able to withstand harsh weather conditions. However, over the last decade there has been a high rate of mooring incidents, raising concerns for owners and operators. Considering the consequences, alarm systems for mooring line failures are necessary.

The LifeLine system can be installed on existing floating production systems, which is a major advantage. Within the LifeLine project, which is being carried out in cooperation with representatives from oil companies, FPSO operators, suppliers and classification societies, a measurement system with an advanced realtime data processing will be developed whereby it takes changing environmental conditions into account. A more accurate and precise watch circle can be used which is especially important for shallow water applications.

Moreover, clear information is supplied to the operators on the mooring system integrity. The methodology developed within the project includes position estimation based on actual measured environmental and operational conditions. For this purpose, the heading and position of the floating production system will be calculated using wind, wave and current coefficients and the heading will be measured simultaneously. A comparison between the predicted and the measured heading over a limited period of time will be used to improve the calculated wind and current coefficients and mean drift forces. The measured offset will be compared with the most accurate prediction of the offset. The methodology will be implemented into the software and tailor-made for a spread moored and turret moored FPSO, which will both be monitored for a year.

The kick-off meeting is scheduled for the FPSO JIP Week in Korea this autumn. Participants are welcome to join. ▢

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