Asset Protection
for Offshore Pipelines

The Maritime Offshore solutions enable both crucial real-time response to potential threats and preventive actions based on historical data.

Proactive protection of pipelines - and timely responses to potential threats

The European offshore oil & gas pipeline infrastructure consists of many thousand kilometres of pipelines. This subsea infrastructure is often of critical importance and the global subsea pipeline infrastructure is continuously expanding.

Despite regulation of traffic and activities in protection zones around pipeline infrastructures as well as clear markings on navigational charts, damages caused by vessels may occur and pose substantial threats to the integrity and expected life time of pipelines. The environmental aspects and direct economical consequences can be significant.

Maritime Offshore Pipelines constitutes a proactive and automated solution which effectively reduces the risk of damages to the subsea pipeline infrastructure. It increases awareness in and around the offshore pipeline surveillance zones and assets such as loading buoys, and it provides the intelligence required to optimize preventive measures at sea level and focus maintenance efforts around the most exposed sections at the seabed.

Benefits

Minimize the risk of damage to pipelines
Event detection algorithms developed by GateHouse Maritime enable zone-specific detection of sea level events with probability of interference on the structural integrity of the subsea pipeline infrastructure. Vessels approaching and entering the protection zones are automatically notified and warned, by message on display, in case they show evidence of contingency or potentially violating behaviour. These timely warnings are a valuable tool for prevention of damages.

Preventive security measures
Traffic pattern analysis, traffic density plots, event type frequencies and locations provide basis for preventive measures at sea level such as placement of e.g. buoys, and virtual AtoNs.

Preventive maintenance efforts
Integrated surveillance statistics, based on ship traffic, provide the ability to focus maintenance efforts on the sections of the pipeline with the highest probability of damage. This can significantly reduce the cost related to for example pigging since you can easily identify the most exposed sections.

Identify and document perpetrators
All activity in the defined surveillance zones is logged which provides the best possible evidence for correlating the occurrence of damages with identifiable vessels.

Low operational costs
A high degree of system automation reduces active operator intervention to a minimum.
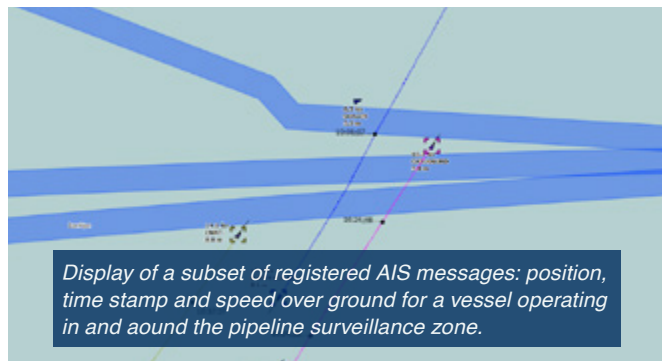
Features

WatchDogs

The GateHouse Maritime developed event detection algorithms enable zone-specific, rule-based surveillance and detection of sea level events with particular probability of interference and effect on the structural integrity of subsea pipeline infrastructure. We call this feature 'WatchDogs', which enables you to set up event triggers that accurately detects abnormal events and derivatives in the configured surveillance zone. Obvious events are anchoring, fishing, drifting/vessel in distress, and passage time. Surveillance zones are defined using pipeline way-points and width of the individual zone. It is highly configurable and flexible, and can be set up to fit the precise surveillance requirements in any

Ship information

When the user clicks on a target (e.g. an AIS equipped ship, base station, virtual area, etc.) on the map, information about the target is displayed in the information window. All ship information can be displayed as labels on the map, attached to each ship. Historical tracks and projected heading can also be displayed for selected ships

Automated and real-time surveillance

If a WatchDog is triggered, operators and watchstanding officers at the violating vessel are automatically notified in real-time. Intelligent filtering minimizes false positive alarms, e.g. alarms caused by vessels with legitimate presence in
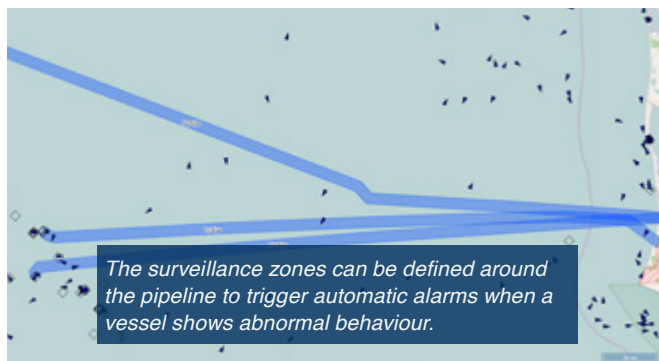

Display of a subset of registered AIS messages: position, time stamp and speed over ground for a vessel operating in and aound the pipeline surveillance zone.

the surveillance zone. Manual operator intervention is only required if a vessel continues to show abnormal behavior or the probability of violation is high.

Statistics and reports

Based on logged tracks and events, the system automatically and on schedule, e.g. on a weekly or a monthly basis, generates advanced statistical reports. Changes in traffic patterns and traffic density plots are reported and visualized for optimal usability of the data.

The surveillance zones can be defined around the pipeline to trigger automatic alarms when a vessel shows abnormal behaviour.

Technical description

The Offshore Pipelines solution is based on our widely used and field proven AIS software - implemented by coast guards and maritime administrations worldwide. The solution includes a web-based display for operators and an event notification server hosted by GateHouse Maritime.

Technology independence

The key enabling technology is AIS (Automatic Identification System), i.e. the availability of AIS data from vessels deriving from the operators own receivers and/or streamed from national maritime authorities. The system is, however, in no way limited or restricted to AIS but can be extended to comprise radar detection of smaller vessels without AIS, CCTV identification of radar targets, VHF, and sensors of any kind.

Training

GateHouse Maritime provides an online two-day training session where operators and administrators receive hands-on training in operating the solution for optimal utilization. The training session is included in the price of the solution.

Support & Maintenance

GateHouse Maritime offers 24/7 support and maintenance, in various degrees depending on individual customer requirements. Support and maintenance can be purchased in addition to the solution.

For more information please contact us at maritime@gatehouse.com or learn more at gatehouse.com