RUTTER
OIL SPILL DETECTION AND MONITORING SYSTEM

TRUSTED FOR EFFECTIVE RESPONSE PLANNING AND REPORTING

RUTTER

PROTECT ASSETS
GLOBALLY

Assessing the risk of oil spills is a critical effort, and continuing to advance response technologies and procedures to ensure the least impact to the environment and to human safety is critical. Answer the demand for accurate oil spill detection and reporting with *sigma* S6 Oil Spill Detection (OSD) systems. Combining proven strength in early detection with tools that generate essential information about oil spill volume, thickness, deformation and drift, Rutter *sigma* S6 OSD systems provide accurate up-to-date situational awareness. Augmenting these capabilities with the data portability needed to share information in real-time with spill response teams, management and other key stakeholders, Rutter Oil Spill Detection systems protect offshore, onshore, and corporate assets around the world.

PROVEN SYSTEMS

As one of the first companies to develop a radar-based oil spill detection system, Rutter systems have been extensively tested and proven effective in independent trials conducted by the Norwegian Clean Seas Association for Operating Companies (NOFO).

Since introducing OSD systems in 2009, Rutter has established an extensive reference list. *sigma* S6 systems are installed on fixed platforms, FPSOs, offshore workboats, patrol vessels and specialty clean-up vessels in Brazil, the North Sea, Gulf of Mexico, Eastern Canada, China and Russia. For northern drilling operations, Rutter OSD systems have been integrated with *sigma* S6 Ice Navigator™ to provide simultaneous oil and ice detection and tracking capabilities on one display.

NEW *SIGMA* S6 CONNECT

A new web-enabled interface, allows external systems such as Google Earth Pro and GIS platforms to interface with the *sigma* S6 Oil Spill Detection System to display radar imaging and also oil targets, outlines and drift information.

NEW COASTLINE MASK

A new Coastline Mask feature provides automatic masking of land areas using a global coastline database and permits the masking of radar shadows to enhance the detection of oil spills, eliminating many false detections.

VERTICALLY POLARIZED ANTENNA

Rutter can supply a vertically polarized antenna for use where conditions or jurisdictions require the installation of a dedicated X-band (VV) oil spill detection radar. The *sigma* S6 OSD system connects to the Rutter Radar-100S6 with vertically polarized antenna in a master configuration and gives the operator full control over this radar.

FEATURES AND OPTIONS THAT FOCUS ON YOUR REQUIREMENTS

The requirements of an oil spill detection system can vary from basic detection and reporting to the support of more complex monitoring and management of clean-up operations. Rutter offers a range of models and features to deal with these differing requirements. Most products and their feature sets are upgradable should vessel tasks or primary assignments change.

FIG:3 – OSD Monitor in the foreground displaying oil spill that can be clearly seen outside from the ship's bridge.

FIG:2 – *sigma* S6 OSD radar image of an oil spill prior to acknowledgement and outlining.
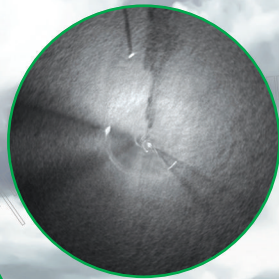
FIG:1 – An advantage of the OSD is the ability to share information between vessels in real time.
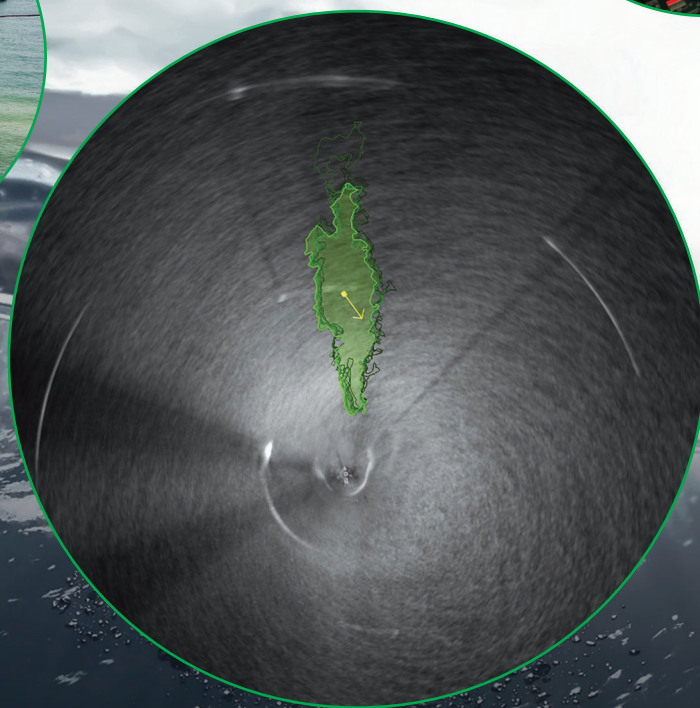
FIG:4 – Green area represents the auto-outlining of the current spill position. The historical outlines and vector arrow represent time series data revealing drift and dispersion of the spill.

LOW FALSE ALARM RATES

sigma S6 OSD systems permit the user to set parameters which mitigate the occurrence of false positive spill detections. Users can select regions of the scan area to ignore based on known anomalies and can also prescribe specific ranges or distances from the scanner to exclude for detection. Minimum alarm thresholds can also be set.

AUTOMATIC SPILL DETECTION AND OUTLINING

When the system alarms the operator can either acknowledge that alarm or cancel it based on ability to validate the anomaly as oil. When the alarm is acknowledged the anomaly is treated as a spill. It is automatically outlined and a vector is displayed. Historical spill outlines are maintained and displayed, revealing drift and dispersion information.

INFERRED THICKNESS AND ESTIMATED VOLUME

As thicker areas of a spill dampen the radar signal more, thickness can be inferred for more efficient cleanup. Modeled after the AMSA Oil Spill Monitoring Handbook method, user-defined thickness values are paired with the auto-calculated area information to provide an inferred oil volume. This information enable operators to determine if a growing spill area is related to increasing oil volume or dispersion.

CAMERA INTEGRATION AND CONTROL

Integration and control of EO/IR cameras is facilitated through the *sigma* S6 user interface. Features include the ability to support multiple cameras, intelligent selection of a best camera view for specific spills or targets and automatic slewing to a spill alarm area for prompt verification. Cameras will automatically track a spill as it moves and disperses.

INFORMATION SHARING AND PORTABILITY

OSD can export ESRI outlines to VTMS and tactical spill response systems as visual overlays. Screen captures can be exported to system folders for remote display and full *sigma* S6 data can be shared by networked Remote Clients or with bespoke information systems via the *sigma* S6 programming interface.

PRACTICAL AND
VERSATILE SOLUTIONS

Rutter *sigma* S6 technologies connect to most commercially available marine radars, enabling customers to extract additional value and effectiveness from their existing assets. Should it be required, Rutter provides the option of supplying a dedicated high performance radar as an input sensor. As with all Rutter *sigma* S6 product lines, our OSD systems can be combined with any of our other systems to meet your needs: Small Target Surveillance, Ice Navigator™, SeaFusion Data Integration and the WaMoS® II wave and current monitoring systems offered by OceanWaveS GmbH.

RUTTER OIL SPILL DETECTION SYSTEMS

Features:

- Automatic Spill Detection & Outlining
- Oil Spill Tracking (Direction and Speed)
- Manual Area Outlining
- Oil Spill Volumetric Calculations
- Screen Capture and Video Recording
- Motion Compensation
- Multiple Remote Clients
- ESRI Shapefile Output (Used for GIS Input)
- Cursor Serial Port Output (For IR Camera Input)
- TTM NMEA Serial Port Outputs (For IR Camera and ECDIS Inputs)
- *sigma* S6 Connect
- Coastline Masking

Options:

- Raw Data Recording
- SeaBridge - Multiple Client - Low Bandwidth Communication Link
- SeaFusion - Multiple Radar - Single Display
- Vertically Polarized Radar Antenna (VV)

Note: All models accept standard serial/network inputs from navigational instruments (NMEA 0183) including: AIS, wind anemometer, echo sounder, speed log, GPS, and gyrocompass.

Information about end user training, product support, product combinations, performance modeling, product references and reliability measures can be provided by e-mailing your request to *support@rutter.ca*

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