



DI ROW

Case Study DESALINATION PLANT

For a thermal desalination plant, incoming oil spills from external pollutants can damage the reverse osmosis membranes used in the desalination process. Since these mechanisms are susceptible to oil spill contamination, the clean up efforts would cause the plant to shut down for extended periods. Early warning systems are critical to preventing such events.

PROBLEM

For desalination plants, oil spills are a considerable threat. Polluted seawater fouls piping and pumps, reduce exchange surfaces performance for osmosis systems, potentially shutting fresh water production for dependent populations. Take for example these two installations: first a desalination and power generation plant on the coastal waters of Mirfa, UAE; secondly the Tanjung Bin power plant on the Malaysian coast.

Both facilities intake sea water for processing or a source of cooling water. Both facilities are located adjacent major shipping lanes with considerable container ship traffic, including oil tankers. This mean routine bunkering operations and illegal ballast water discharges can be a regular source of oil contamination.



Recommendations

OFFSHORE NETWORK
OF ROW BUOYS



SMS ALERTS



OFF-GRID TELEMETRY



POWERED BY SOLAR PANEL



IP68 ALL-WEATHER
PROTECTION



SOLUTION

Installing a network of autonomous ROW oil spill detectors in the facility's surrounding water inlets allowed for early detection of potential threats. This provided the operators early warning and remote, real time water monitoring in real-time and, therefore, more options for pollution containment. Using offshore buoys as ROW sensor platforms are perfect for this application, being resilient to waves and storms, operating reliably 24/7, and allowing early warning.

For onshore installations, notification of a spill in the proximity of the plant gives time to shut down water inlet pumping until the pollution is confirmed and dealt with. Detecting oil spills earlier enables physical containment to be feasible, with more time to react and organize containment. Following this the responsible authorities can initiate the clean-up effort and allow operations to resume rapidly. For reverse osmosis systems, the use of chemical dispersants can even be considered if oil is detected further away from the water intake.

