SIKA AT WORK
STRENGTHENING AND CORROSION PROTECTION OF STRUCTURAL CASING OF WELLS, SARAWAK, MALAYSIA

OFFSHORE & MARINE CONSTRUCTION
CONVENTIONAL ENERGY

BUILDING TRUST

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PROJECT DESCRIPTION

In mid-2017, Sika was engaged by Sarawak Shell Berhad to strengthen and repair two corroded wellhead conductors on one of its offshore platforms in East Malaysia. Visual inspections had revealed significant corrosion and deterioration in the surface casings of two wells, prompting immediate intervention to arrest the degradation and restore structural performance.

Sika delivered a complete well integrity solution, combining high-performance materials, engineered components, and diverless offshore execution to meet the client's urgent asset integrity needs.

Project name:	Strengthening and Corrosion Protection of Structural Casing of Wells
Client:	Sarawak Shell Berhad
Location:	Offshore Sarawak, East Malaysia
Year:	2017
Application:	Well integrity
Product:	A predecessor of SikaGrout®-9550

PROJECT REQUIREMENTS

Corrosion in the splash zone and upper annular regions of the wells posed a threat to both the long-term operability and structural safety of the platform. The client required a permanent strengthening and sealing solution that could restore full load transfer capability between the well casing and conductor, while protecting the repaired zone from further corrosion and chemical attack.

Execution needed to be carried out safely and efficiently within a short campaign window, using materials and methods proven to perform in offshore conditions.

SIKA SOLUTIONS

Sika carried out a pre-job visual inspection to assess the condition of the conductor casings, the extent of rust and perforations, and any existing blockages within the annulus. The damaged concrete was broken and removed from inside the annulus to prepare for infill grouting. Rebar cages and prefabricated mould sections were installed around each well conductor to facilitate structural reinforcement.

Sika then supplied and injected 4 metric tons of its propritary ultra-high performance cementitious (UHPC) grout material, developed specifically for structural repairs in marine environments. The material's dense matrix, extremely low permeability, and exceptional bond characteristics made it ideally suited to both strengthening and corrosion protection.

All materials, equipment, and offshore crew – including engineers and technicians – were provided by Sika as part of a turnkey service. Grout strength was verified through third-party testing by an accredited laboratory to confirm compliance with project performance requirements.

CUSTOMER BENEFITS

Sika's UHPC materials are formulated with advanced binder technology and nanostructure-optimized aggregates to deliver superior performance. The material used in this project offered exceptional resistance to chloride and sulfate ingress, extremely high compressive and flexural strength (up to 10 times stronger than standard concrete), and an E-modulus exceeding 60 GPa.

Importantly, all Sika UHPC grouts are shrinkage-compensated, eliminating the risk of bond failure over time – an essential property for reliable long-term adhesion to steel. By using this advanced material system, Sarawak Shell Berhad was able to restore the structural function of both wells while preventing further corrosion and extending the platform's service life.

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