

Background

The existing Surface Protection Maintenance Program was over budget due to lack of qualified personnel, use of inadequate products and poor planning. This combination contributed to more frequent and unscheduled maintenance than anticipated leading to costly budget overruns.

- Poor record keeping and unqualified personnel resulted in more frequent maintenance applications than budgeted due to lack of quality control.
- The program was implemented without planning or review of maintenance and budget histories.

More effectively Surface Protection Maintenance at Mongstad Refinery

PROJECT Achieving an effective solution for Surface Protection Maintenance
KEY WORDS Mongstad Refinery

The Initial Situation

- The maintenance scope was based on individual's priorities and available budget.
- Difficult balancing act between budget, personnel and required scope of work.
- Most inexpensive paint, materials and methods are preferred.
- Poor communication regarding scope of work, quality and guarantee.
- Bad workmanship resulted in shorter product life expectancy.
- The surface protection maintenance was accomplished incorrectly.
- Missing or wrong qualifications on performing personnel and poor quality control.
- The customer overpaid for poorly executed work.
- Lack of maintenance and budgetary oversight.
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The Solution

- Begin an analysis to establish a descriptive study according to customer's requirements
- Measure all painted and passive fire protected areas and register the condition.
- Establish a budget tool that gives full cost control, and provides predictable annual budget needed.
- Make long term planning schedules for Surface Protection Maintenance.
- Prioritize surface maintenance according to condition and/or criticality and be able to select the most important areas first.
- Determine an accurate and defined scope of work for Surface Protection Maintenance.
- Establish fixed pricing system that guarantees quality workmanship.
- Follow up guarantee requirements.
- Provide technical support and competence to the installations during the maintenance.

This system is still in use on Mongstad, and satisfies the Petroleum Safety Authority requirements.



The Results

The survey with a descriptive study resulted in full control and overview on the installations volume/area, condition and integrity.

It was possible to establish long term planning and realistic budgets based on the collected information.

Made it easier to prioritize surface maintenance according to condition and/or criticality in both short- and long terms.

The customer was now equipped with a usable tool that identified items of priority.

By preparing work packs with accurate and defined scope of work for maintenance, and using a fixed pricing scenario resulted in a cost savings up to 40% and considerable more efficiency.

The requirements for paint system, paint materials and follow up guarantee requirements resulted in extended surface lifetime from 3-5 years to 10-15 years.



0 %	5 - 15 %	20 - 30 %	30 - 40 %	40 - 55 %	Savings with SOLV
Hourly based work	Hourly based work with advisory	Hourly based work with SOLV	Hourly based work with incentive and SOLV	Fixed price with SOLV	

AGR Facility Maintenance & Corrosion Management

SOLV Facility Maintenance and Corrosion Management (FM/CM) has worked with the main oil & gas operating companies in the North Sea. The following services is provided by SOLV FM/CM:

External corrosion management and Insulations Maintenance systems aligned to industry safety & integrity best practice.

Consulting specialists providing technical solutions to external coatings, corrosion and insulation problems, including external integrity audits, failure investigation and the preparation of specifications for problem areas.

Management services including the preparation of insulation and coatings strategies, long term plans and detailed work packs and project management of related activities such as scope definition, procurement, safety management and quality control. Inspection & quality management services including insulation and coatings inspections/surveys; preparation of detailed insulation/coatings/corrosion inspection work packs; third party insulation/paint inspection; and the training of coating/corrosion/insulation inspectors.

These services are delivered by the SOLV FM/CM's expert

team of insulation and corrosion engineers, coatings and insulation inspectors and auditors, which includes many FROSIO-certified inspectors. SOLV's unique management support system provides a comprehensive and cost effective matrix of responsibilities to asset owners who require advice and confident direction concerning corrosion, coatings or insulation maintenance programs.



The system has been used the last 18 years and the costumers has achieved cost savings up to 70 %.

*Oddmund Landro,
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AGR Field Operations

AGR Field Operations offers a variety of valuable products and services needed for field development, operations and operational support of oil and gas infrastructures through the entire life of a field. Our services include Integrity & inspection services, Maintenance Management, Operations & Maintenance, Project Management & Engineering, Subsea Services and Alternative Energy. With a staff of approximately 900 employees and offices in Norway, Sweden, UK, Malaysia, Singapore, Australia, USA and Brazil, AGR Field Operations can deliver these services anywhere and at anytime.

We support both operators and asset owners with product expertise, knowledge of industry and proven methods to maximize efficiencies and profitability.

Our goal is to continuously improve client business performance in conjunction with technical, administrative and regulatory compliant services on a fully-managed or integrated basis. To achieve this, we provide unique technology and engineering

solutions for equipment and plant integrity, inspection, maintenance management, operations, subsea services and alternative energy. All our solutions are designed to support best practice for our wide range of global customers.

AGR Field Operations inspection techniques are among the most advanced and cost-effective in the industry, using state-of-the-art ultrasound technology combined with sophisticated data transmission and storage facilities. Our Subsea unit has proven experience of high-performance asset management, and offers a total managed service from design to operation of subsea production equipment, including trees, manifolds, flow lines and control umbilical.

We have earned a reputation for providing highly-competent and experienced teams of engineers, technicians, supervisors and managers, who combine rigorous professional skills with outstanding service levels. We pride ourselves on strictly upholding personnel safety, equipment integrity and production levels.

ABOUT AGR GROUP

AGR Group is a leading provider of essential services and technologies to the international oil and gas industry. Our services range from assisting small exploration companies with their first licence applications through to constructing and managing ambitious drilling programmes for major organisations. In addition, we provide expertise, technology and critical solutions for exploration, development, production and maintenance projects for some of the world's largest oil companies.

We have a worldwide reputation for our innovative, safe, environmentally-friendly and cost-effective solutions to key exploration and production challenges and have established a leadership position in a number of key sectors. We focus on growth and earnings performance while pursuing sound and ethical business practices.

We have three operating divisions:

- AGR Petroleum Services
- AGR Drilling Services
- AGR Field Operations: Maintenance management

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