

Background

Insulation maintenance was extremely expensive due to elevated fixed pricing.

Lack of uniform or consistent methods for defining scope of work.

Inadequate training and qualifications of personnel resulting in poor work quality.

A need for overview of performed maintenance and cost.

Reducing and Controlling Cost for Insulation Maintenance

PROJECT Control and reduce cost associated with insulation maintenance
KEY WORDS Oseberg Field - North Sea

The Problem

- The involved parts had various descriptive terms used for identification.
- Use of unqualified personnel.
- Insufficient knowledge and monitoring of cost and budget history.
- Overcharged for inferior services rendered.

The Results

From the accomplished survey a descriptive and comprehensive outline of findings and recommended corrective actions and practices were delivered.

This resulted in full control and overview of the installation's insulated volume/area including current condition and integrity assessments therefore making it possible to establish long term plans and realistic budgets from the information obtained.

Easily able to identify and prioritize insulation maintenance after determining conditions and criticality of systems for both short and long term perspectives and subsequent implementation.

The study resulted in effortless selection and preparation of concise and meaningful work scope directives.

With a defined scope of maintenance work outlined and used in conjunction with a fixed price comparison tool, a 46% cost savings was achieved.

Accurate fixed pricing correlation resulted in a

The Solution

- Measure all lines within scope of work.
- Establish a budget tool that gives full cost control and a predictable annual budget.
- Prioritize insulation maintenance after condition, system and/or criticality assessment.
- Determine an accurate and defined scope of work for maintenance.
- Establish requirements for personnel and inspectors.
- Evaluate a fixed cost pricing comparison.
- Mandate quality and guarantee on all work.
- Establish requirements for insulation program and materials.
- Provide competent technical support to the installations during the maintenance.

considerable better value.

The survey identified safety barrier concerns and offered applicable resolutions for satisfying government requirements and demands.

Our system is still in use on the Oseberg field and satisfies the Petroleum Safety Authority requirements.

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

Savings 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 Insulation 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 and coating inspections, preparation of detailed work directives, third party inspections and sufficient training of inspection personnel.

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 AGR SOLV program has been in use for 18 years and our customers have realized cost savings up to 70%.

Oddmund Landro,
Department manager Corrosion Management



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 includes Integrity & Inspection, Maintenance Management, Operations & Maintenance, Project Management & Engineering, Subsea Services and Alternative Energy. Our staff is comprised of approximately 900 employees with offices in Norway, Sweden, UK, Malaysia, Singapore, Australia, USA and Brazil.

We support both operators and asset owners with broad based expertise, knowledge and successful proven methods to maximise efficiencies and profitability.

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

solutions for equipment and facility integrity throughout our service lines. Our solutions are designed to support recommended and best practice to a wide range of global customers.

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

AGR Field Operations has 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 license 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 following operating divisions:

- AGR Petroleum Services
- AGR Drilling Services
- AGR CannSeal
- AGR Field Operations:

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