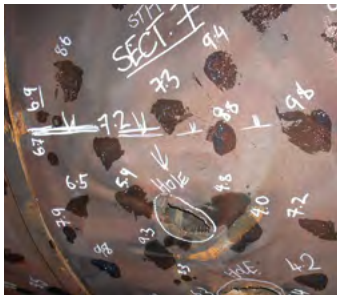
Asset Care of Power Plant and Pressure Equipment. Provision of a full suite of services for pressure equipment integrity, including inspection, supporting NDE, Engineering evaluation, reporting and statutory certification.

- Development of Reliability and Integrity Inspection Plans and Strategies
- Power Plant Integrity Inspection and Reporting
- Risk Based Inspection Strategies supported by Power Plant Technical knowledge
- Inspection support for statutory compliance and certification of pressure equipment
- Specialised Application for NDE inhouse to support Engineering and Fitness for Service Assessment
- Creep and Creep Fatigue analysis of High Temperature Plant
- Analysis of Boiler / Pressure Vessel design to AS and ASME Codes
- Calculation for repairs, alteration and fitness for service of existing Pressure Equipment
- Fatigue analysis to calculate the fatigue life of Pressure Equipment subject to pressure cycles and startup / shutdown cycles
- Root Cause Failure Analysis
- Finite Element analysis for Pressure Equipment
- Evaluation of cracks and flaws in Pressure Equipment by applying fracture mechanics.



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ALS Asset Care

Power Services

Capabilities and profile

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The methods of testing used below are applied strategically to evaluate plant condition and support recommendations for plant integrity and reliability in both immediate and long term evaluation.

Ultrasonics

Application of ultrasonic examination with experience to all major components including turbine rotors, headers, piping systems, vessels and boilers, thickness, weld scanning and defect assessment.

Surface Method Inspections

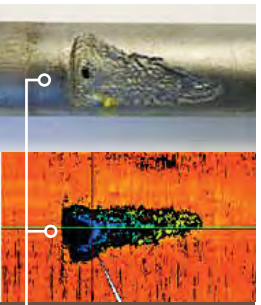
Specialised and experienced evaluation of power plant components using high sensitivity techniques for both penetrant and magnetic particle test methods.

Remote Visual Inspection

An important inspection aid when access is restricted. Areas inspected include tube bores for pitting, headers for ligament cracking and pipe work for blockages.

Positive Material Identification

Portable XRF units enable analysis of material type/grade in situ. Used to identify materials prior to welding, sorting, confirmation of alloying levels etc.



IRIS on damaged tube and IRIS scan below matches.

Heat Exchanger Tube Inspection

Eddy Current, IRIS and RFT capabilities.
Tube inspection techniques can be used for:

Breakdown Maintenance

Identify tube condition affecting short term reliability and immediate remedial maintenance needs.

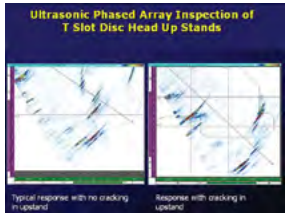
Predictive Maintenance

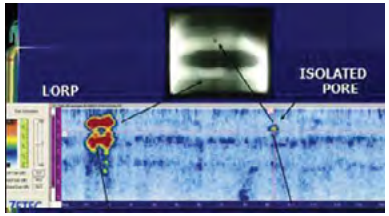
Identify trends for medium to long-term reliability and maintenance planning needs.

Phased Array Ultrasonics

Advanced ultrasonic technique with a number of benefits over traditional ultrasonic techniques:

- Accurate defect sizing
- Inspection of components with complex geometry
- Allows permanent records and ease of review
- Efficient and safer process than radiography
- Complex evaluation and modelling of turbine blades, roots and discs
- Small bore pipe and tube weld evaluation
- Evaluation of complex castings for defect assessment.



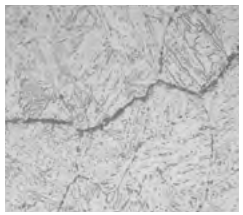


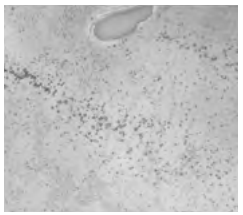
Power Plant Integrity Inspection

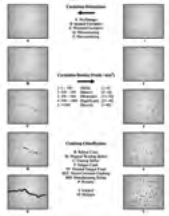
- Visual and tactile surveys of all plant including pressure vessels, piping, boilers, duct work, fans, air heaters, fabric filters, precipitators, pumps and all other plant components.
- Boiler, piping and vessel inspection for statutory compliance including risk based inspection strategies
- Tube erosion thickness surveys and plans
- Storage tank inspections
- Third party quality inspections for product conformity
- Pressure equipment management systems.

Creep Assessment

Presently the most reliable method of inspecting plant that is operating in the creep range is by replication.







ALS Power Services works with plant owners to determine the most likely areas that creep will develop and combined with reliable inspection techniques ensure damage is found before cracking initiates.

Non-Destructive Testing

Our portfolio of NDT services includes:

- Magnetic Particle Inspection
- Dye Penetrant Inspection
- Ultrasonics
- Phased Array Ultrasonics
- Metallurgical Replication
- Hardness Testing
- Positive Material Identification
- Eddy Current (Surface & Tube)
- IRIS (Internal Rotary Inspection System)
- RFT (Remote Field Testing)
- Radiography
- Pulse Radiography
- Remote Visual Inspection
- Thermography (Thermal Surveys)
- Strain Measuring

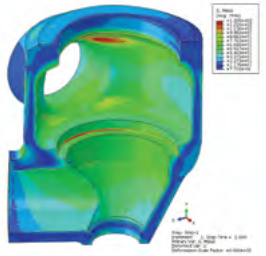
Power Plant Repair Management

When repairs become necessary, ALS Power Services can help organise all aspects of repairs including the following services:

- Weld Procedures
- Cert 10 Welding Supervision
- Restraints Guidelines
- Quality Assurance
- Support for Machining
- Heat Treatment
- NDT
- Technical Guidance

Defect Assessment

When defects are found, decisions on whether to run, repair or replace have to be made. ALS can provide defect assessment services including Finite Element Modelling, Fracture Mechanics Calculations and more to aid in the decision process.



Metallurgical Services

Small samples can be removed from components to allow for testing of creep and mechanical properties. ALS can provide an extensive range of metallurgical services including:

- Failure Analysis
- Plant Condition Assessment
- Remaining Life Assessment
- Welding Procedures
- Material Specification
- Chain Drilling