

Phased array advanced flaw detection services

Operators of power stations and other major plant can face expensive consequences if a critical component fails leading to an unplanned plant outage. In addition to lost production, other components can be damaged adding costs and delays. Understanding the extent and progress of component flaws is vital in determining the most efficient response.

hrl: offers state-of-the-art ultrasonic flaw detection services – using phased array technology – that provide significant advantages when compared with traditional ultrasonic technologies.

Challenges

Operators face several challenges in maximising the efficiency of their plant – including maximising availability, minimising planned down time and undertaking only needed maintenance and component replacement. Specific challenges relate to:

- unexpected component failure
- costly repairs as a precaution
- determining fitness for service
- using conventional ultrasonic technology with limitations including:
 - limited ability to provide records to support monitoring and outage planning
 - only a real-time display that is open to operator interpretation
 - often being confused by complex geometries.

Solutions

HRL phased array services offer significant advantages over traditional ultrasonic technologies, including:

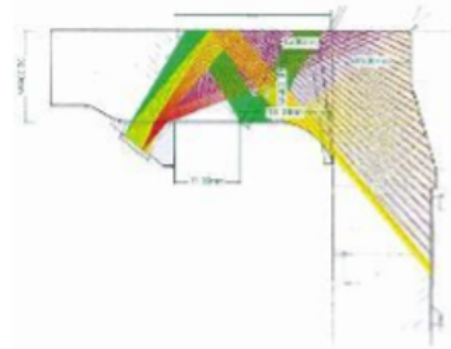
- greater confidence in determining the need for costly repairs
- graphic inspection results that provide permanent records
- allowing flaw detection in more complex geometries and better understanding of complex flaws.

Where greater confidence in the results is required, HRL engineers employ advanced defect response simulation software.

HRL engineers can use defect response simulation software to establish the best phased array scan program to optimise coverage, detect minimum-sized defects and reduce false calls.



HRL engineer performing phased array ultrasonic testing



Scan plan beam visualisation through the inspection site

Benefits

Clients operating plant with high-energy piping, pressure vessels and similar critical components and structures can benefit from HRL phased array ultrasonic flaw detection services through more informed run/repair/replace decisions that result in:

- greater plant availability
- reduced maintenance and repair costs
- greater confidence in flaw detection results through permanent, verifiable, records
- improved probability to detect and characterise defects
- greater versatility by applying the testing technology to many types of critical components across a wide range of industries.

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Case Study

Saving time and money by reducing outage time

Operators of the Loy Yang Power Station needed a fast, non-destructive, way to characterise cracking observed in the branch weld of a main steam strainer.

HRL used phased array ultrasonic testing, rather than time-consuming exploratory grinding, to gain the information required to develop a cost-effective repair strategy.

The strategy reduced plant outage by an estimated two days, and the potential outage cost by up to two million dollars.

Richard Elkington, an executive general manager with Loy Yang Power, noted that the phased-array project demonstrated how 'organisations can advance leading-edge technologies for application to assist industry solve real problems'.

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The company's NATA Accredited Laboratories number is 561.

HRL Technology Group's ISO 9001 Quality Management is certified by BSI under certificate FS605116

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