

Advanced NDT for Oil & Gas

MISTRAS Group is the recognized leader in delivering advanced proprietary products, systems, monitoring and services to the Oil & Gas industry. As such, our asset protection solutions enhance the ability of critical infrastructure to comply with safety and environmental regulations, extend asset lifecycles, increase productivity, minimize repair costs, manage risk – and most importantly – help avoid catastrophic disaster. So let us help protect your assets. It's what we do.

Find your Asset, Discover our Solutions

Match your asset's letter key with our asset protection solutions below.
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**One Source for
Asset Protection
Solutions**

**Schedule an
inspection today!**
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 <p>A OFFSHORE AE, API, LSI™, MI, OLM, PdM, Engineering Services - AIMS, Phased Array, Rope Access, TOFD, Ultraview™, VPAC™</p>	 <p>E VESSELS & SPHERES AE, Engineering Services - AIMS, LSI™, MonPAC™, MI, OLM, PEC, Phased Array, Rope Access, P-Scan, Ultraview™, TOFD</p>
 <p>B MARITIME AE, Engineering Services - AIMS, LSI™, MI, OLM, PdM, TPC, VPAC™</p>	 <p>F HEAT EXCHANGERS & CONDENSERS Tube Inspection - ET, IRIS, MI, NFT, RFT, Engineering Services - AIMS</p>
 <p>C PIPING AE, CR, GUL, LSI™, MI, PEC, TPC, Engineering Services - AIMS, VPAC™, Phased Array, P-Scan, Ultraview™</p>	 <p>G ROTATING EQUIPMENT BOILER TUBE MON. & TRANSFORMERS AE, Engineering Services - AIMS, MI, OLM, PdM, Balance of Plant</p>
 <p>D TANKS & TERMINALS AE, Engineering Services - AIMS, LSI™, MI, TALRUT™, Think-Tanks (TankPAC™+RBI Services), TOFD, Rope Access</p>	 <p>H PROCESS PLANT AE, AUBT, API, CR, Ultraview™, TOFD, TPC, Engineering Services-AIMS, MI, VPAC™, Phased Array, Rope Access, PCMS®, PdM, PEC, P-Scan, RBI, LSI™</p>



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Find your Asset, Discover Our Solutions

Match your asset's letter key below
with our solutions to the right.

KEY

Assets

- A Offshore
- B Maritime
- C Piping
- D Tanks and Terminals
- E Vessels and Spheres
- F Heat Exchangers/Condensers
- G Rotating Equip./Transformers
- H Process Plant

Additional Information

★ Center of Excellence

A MISTRAS Center of Excellence (COE) is a focused approach to solving problems in an industry or inspection methodology by synthesizing traditional & advanced NDT techniques, along with standardized procedures & reporting.

👤 Video Available Online

Scan this 2D Code with your smartphone's barcode reader.



Local Presence,
Global Reach!

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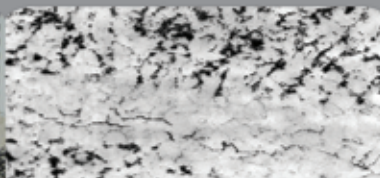
AE

A B C D E F G H



Acoustic Emission Services

Acoustic Emission (AE) testing is a powerful method for examining the behavior of materials deforming under stress. AE may be defined as a transient elastic wave generated by the rapid release of energy within a material. Materials "talk" when they are in trouble and with AE equipment, MISTRAS can "listen" to the sounds of cracks growing, fibers breaking, and many other modes of active damage in the stressed material.



AUBT

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Automated UT Backscatter Technique

Certain low alloy carbon steel material operating at temperatures and hydrogen partial pressures above the Nelson Curve can be subject to decarburization, as well as micro fissuring, and macro cracking, with catastrophic consequences. With the use of AUBT, a UT technology, MISTRAS is able to evaluate frequency dependence, velocities, and several other factors to help determine which pieces are affected by High Temperature Hydrogen Attack (HTHA).

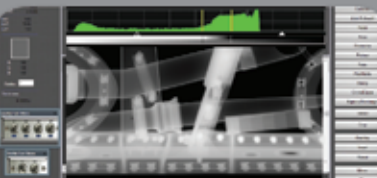


API

A H

API Turnaround Management

Our API COE specializes in managing your turnaround on schedule and on budget while satisfying your staffing needs with full-time experienced API inspectors. We utilize the latest in project management software and leverage decades worth of API turnaround management experience for your project. In addition, MISTRAS project managers are well-versed in various advanced inspection techniques to lower your overall turnaround inspection budget.



Computed Radiography w/ DFA

C H

CR with Digital Film Archiving

Computed Radiography (CR) produces digital X-ray images without using film and is especially effective when used with profile radiographic techniques when looking for quantitative and qualitative data for piping. CR may be used during ASME or other code welding processes in lieu of traditional radiography. Using an imaging plate instead of film allows Digital Film Archiving (DFA), which transfers images onto electronic media for easy file sharing, manipulation, and record keeping.



Tube Inspection - ET

F

Eddy Current Testing

Eddy Current Testing (ET) is the predominant inspection technique for alloy tubes. ET does not require the tubes to be as clean as some other techniques and is relatively fast compared to more quantitative techniques like IRIS. MISTRAS' Tube Inspection COE specialists utilize the latest ET technology, along with electronic reporting that allows for quick analysis and generation of tube sheet drawings and results in an easy to read template.



NFT/RFT

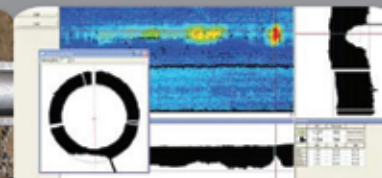
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Near Field Testing (NFT)

NFT is used to inspect fin fan (air cooler) designed tube bundles and to determine ID anomalies, such as inlet erosion/corrosion and pitting that occur during service.

Remote Field Testing (RFT)

RFT inspection of carbon steel tubes uses the ET platform to show defect data along the entire tube determining cause, damage, and to avoid future problems.



IRIS

F

Internal Rotary Inspection Services

Internal Rotary Inspection System (IRIS) uses ultrasonic technology with a rotating transducer to deliver quantifiable data on the ID or OD damage to tubes. Primarily used as a prove-up tool, IRIS requires tubes to be cleaner than other tube inspection techniques and scan speeds to be slightly slower. Also available in our ET equipment platform, all IRIS tube data is presented in a C-Scan and B-Scan profile, and archived for playback.



GUL

C

Guided Wave Ultrasonic Services

Guided Wave (GUL) technology utilizes torsional and longitudinal waves to inspect large sections of piping bidirectionally from the source location. Guided Wave is used as a screening tool, and in most cases on insulated piping, buried piping, wharf and jetty piping, offshore piping (in splash zones), and in traditionally inaccessible areas. It is also used as part of a PMI Retrofit program to locate piping welds between attachments.



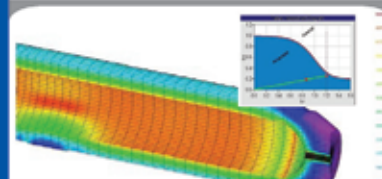
LSI™

A B C D E F G H



Large Structure Inspection Services

MISTRAS' Ultrasonic LSI™ is a rapid erosion/corrosion scanning tool used for UT "drops" down the tank shell or roof. The device is magnetically attached to the tank and operated remotely. The data is far superior to UT thickness readings in that actual trending can be visualized, as in the case of liquid to air interface corrosion. In the case of roof readings, the ability to attach the scanner enhances the safety of the project, as there is no need to access the roof by inspection personnel.



Engineering Services - AIMS

A B C D E F G H



Engineering Services

Our Engineering Services COE formulates engineered inspection plans, gathers data, evaluates results and issue repair/replace or operational recommendations to plant personnel. These services determine the operating "health" of critical components and are based on regulatory, process or inherent operating risks. Other services also include: **Fitness for Service (FFS)** evaluation and **Fixed Equipment Mechanical Engineering**.



PCMS®

H

Plant Condition Management Software

PCMS® is a comprehensive, cost effective, preventative maintenance software program developed for the process industry. PCMS® offers tremendous advantages for a facility to organize, link, and synchronize information, enabling a thorough evaluation of the inspection results, and to provide the economic tools necessary for the budgeting and planning of long-term maintenance strategies. PCMS® also supplies seamless integration into a variety of systems and equipment.



TankPAC™ + RBI Services = Think-Tank

D H

Think-Tanks

A fusion of on-line, in-service Acoustic Emission (AE) Monitoring and other advanced NDT inspection technologies, with Risk-Based Inspection (RBI) services and solutions. Global solution provides real-time tank condition data, which continually feeds RBI methodologies that provide various testing and inspection recommendations. The integrated approach allows for API 653 compliance along with more informed operational decision-making.



MI

A B C D E F G H

Mechanical Integrity Services

The protection of people, property and the environment at industrial facilities is a serious concern. We offer a Mechanical Integrity (MI) program that meets the requirements of OSHA 29 CFR 1910.119 Section (j). Our mechanical integrity experts advise plants on the development of MI programs and critique and modify existing programs. Inspection audits, procedural development, advanced NDT technologies, and risk based methodologies, are customized to fit each facility's unique needs.



MonPAC™

E

AE Pressure Vessel Testing Services

MonPAC™ technology service package was developed by MISTRAS and is used to inspect pressure vessels to determine the relative condition while the asset is still in service. Potential anomalies are detected and located for use in follow up inspections. The use of MonPAC™ greatly reduces the need to further perform costly out-of-service inspections of vessels that show no signs of degradation.



Offshore

A

Offshore Production

AE on-line monitoring and strain gauges were applied to a floating oil production platform to measure and correlate with AE results to provide an early warning of flaws after eight areas on subsea nodes were identified as highly stressed. MISTRAS developed test procedures, flaw detection algorithms, and real-time monitoring analysis solutions for in-service flexible risers. Use of this technology avoids environmental pollution, production delays, and endangerment of personnel.



OLM

A B E G

24/7 On-line Monitoring

Our On-Line Monitoring (OLM) systems allow the user and/or MISTRAS engineers to continuously monitor the status of a remotely sensed (via Acoustic Emission, Vibration, Ultrasonic or strain sensors) asset over the internet. OLM is an excellent way to detect, locate, and quantify damage such as cracking and leaking to enhance process safety.



PdM

A B G H

Predictive Maintenance Services

Our PdM services range from development of reliability centered maintenance (RCM) programs to walk-around data collection services, and on-line continuous monitoring and training. Technologies include vibration, infrared thermography, ultrasonics, motor condition monitoring, oil analysis, stress analysis, and partial discharge detection in transformers. We also offer proactive maintenance services, such as precision dynamic balancing and laser alignment.



PEC

C E H

Pulsed Eddy Current Services

PEC is an inspection technique for measuring the thickness of steel objects without direct surface contact. The electromagnetic test identifies general corrosion through insulation or concrete surfaces by introducing an electric current into the transmitter coil, magnetizing the steel and measuring wall thickness. MISTRAS' PEC services are ideal for surveying large sections of piping or pressure vessels to detect moisture trapped under insulation causing corrosion of the asset.



P-Scan

C E H

P-Scan Services

Whether you're looking for a more thorough service to evaluate the quality of a weld or for environmentally assisted cracking, such as fatigue, stress corrosion cracking and others, our P-Scan inspection services are capable of imaging these flaws in a way to better evaluate, characterize and size them.



Ultraview™

A C E H

Ultraview™ Inspection Services

An integrated Phased Array UT inspection process used in lieu of radiography to ensure savings, limit safety hazards and increase productivity, based on providing the systematic and disciplined approach required by code. Our approach integrates specific training requirements, unique internal qualification/certification standards, specialized equipment kits, calibration standards, examination procedures, and procedure qualifications vital to the success of this program.



Phased Array

A C E H

Phased Array Services

Phased Array is a versatile tool that electronically produces multiple wave modes and angles in nanoseconds. This is an excellent choice for detecting damage from many sources and is highly beneficial in providing accurate sizing data for use in Fitness for Service calculations. This application results in substantial savings to owners by eliminating the restricted areas required when performing radiography.



Rope Access

A D E H

Rope Access Services

Certified rope access technicians work in difficult or inaccessible areas efficiently and without the need for scaffolding, cranes, or mobile work platforms. Using rope access for inspection and maintenance activities generates significant cost-savings for asset owners, especially where traditional access methods comprise a major portion of the overall project budget.



TALRUT™

D

Tank Annular Ring Long Range UT

The proprietary LSI™ system, generates semi-quantitative data regarding the tank floor integrity adjacent to the shell-to-floor weld. This inspection technique encompasses approximately 10" into the tank floor from the exterior of the tank using an Ultrasonic technique and a proprietary algorithm. The annular area of the tank is critical to the support structure, and safe operation of the tank.



Sulfidation Corrosion

C

Integrated Solution Plan

A unique, programmatic approach to the industry-wide problem of Sulfidation and Naphthenic Acid Corrosion. A comprehensive blend of traditional and advanced NDT services (UT thickness, Real Time Radiography, CR, GUL), rope access, and PCMS® driven by AIMS engineering professionals, which presents a real-time assessment of assets' current condition. This allows for confident, informed decisions on piping system integrity and subsequent actions to combat the issue.



TOFD

A D E H

Time of Flight Diffraction Services

Ultrasonic Time of Flight Diffraction (TOFD) is a rapid survey tool used to evaluate the shell and/or roof weld, and weld heat affected zone looking for original fabrication type defects, or in-service corrosion occurring in the heat affected zone. Follow-up Phased Array inspection may be required in any area that exhibits potential damage discovered through the TOFD inspection.



TPC

B C H

Touch Point Corrosion Services

A unique inspection methodology utilizing Ultrasonics with Visual and Guided Wave inspection. Piping is surveyed using an API-570 inspector to identify visual signs of degradation followed by a Guided Wave inspection for a rapid survey. Areas illustrating degradation are inspected using our proprietary TPC methodology utilizing a Pocket UT™ system. This produces grading criteria of pipe condition in percentage of wall loss and provides guidance for further maintenance follow up.



VPAC™

B C H

AE Valve Testing and Monitoring

Studies show that 5-10% of the valves in a refinery leak, and just 1-2% of valves account for about 70% of losses from leakage. This makes qualification and quantification of the size of each leak imperative. The VPAC™ II is a through valve, (portable or remote-based) leak detection system based on our AE technology. It improves safety due to better maintenance planning, reduces losses to atmosphere through vent pipes, and reduces loss and cost due to flaring.