

COMPANY PROFILE



AAAXAL
Advanced Inspection Solutions



COMPANY OVERVIEW

Founded in the UK in 2007, Aaxal has established itself as a leader in Advanced Non-Destructive Testing (ANDT) inspection solutions. Initially incubated at the Cranfield University Business Incubation Centre (CUBIC), the company has grown from its innovative roots to become a trusted player in the ANDT industry.

For almost twenty years, our Advanced NDT technologies have helped clients in the detection and assessment of weld cracks, material loss and Corrosion Under Insulation (CUI) on their structures and equipment

Aaxal is 100% committed to QHSE, ensuring the highest standards of operations and service delivery.

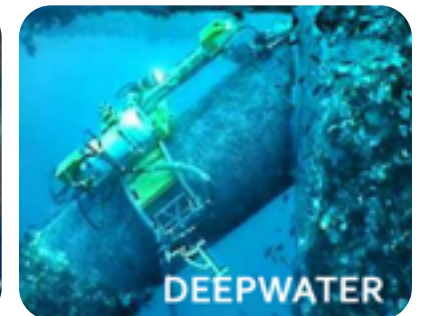
The company's dedication to these principles underpins all aspects of its work; from initial project planning through to execution and completion.

EXPERTISE:

Aaxal offers proven and world-class expertise in four critical ANDT structural inspection methods:

- Alternating Current Field Measurement (ACFM®)
- Phased Array Ultrasonic Testing (PAUT)
- Pulsed Eddy Current Testing (PECT)
- Long Range Ultrasonic Testing (LRUT)

These methods are offered both as stand-alone technologies, or in combination as part of a solutions package.



GLOBAL REACH AND EXPERIENCE:

With over two decades of project delivery experience, Aaxal has successfully completed projects in over ten countries. The company has partners, resources and support centers strategically located in Lagos and Port Harcourt (in West Africa), Durban (in South Africa) and Milton Keynes (in the UK).

CERTIFICATIONS AND SUSTAINABILITY:

Aaxal has been ISO 9001 and ISO 14001 certified since 2012, demonstrating its commitment to quality management and environmental responsibility. Furthermore, the company has been carbon-neutral since 2019, reflecting its dedication to sustainable and eco-friendly business practices.

OUR ADVANCED NDT TOOLBOX



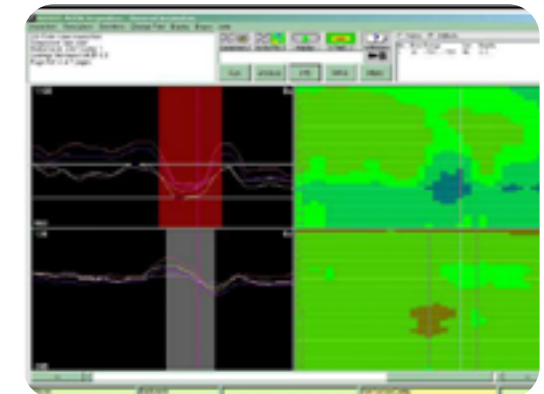
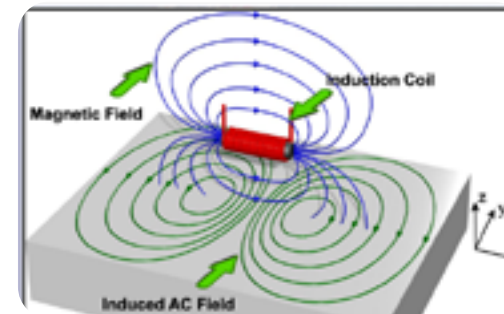
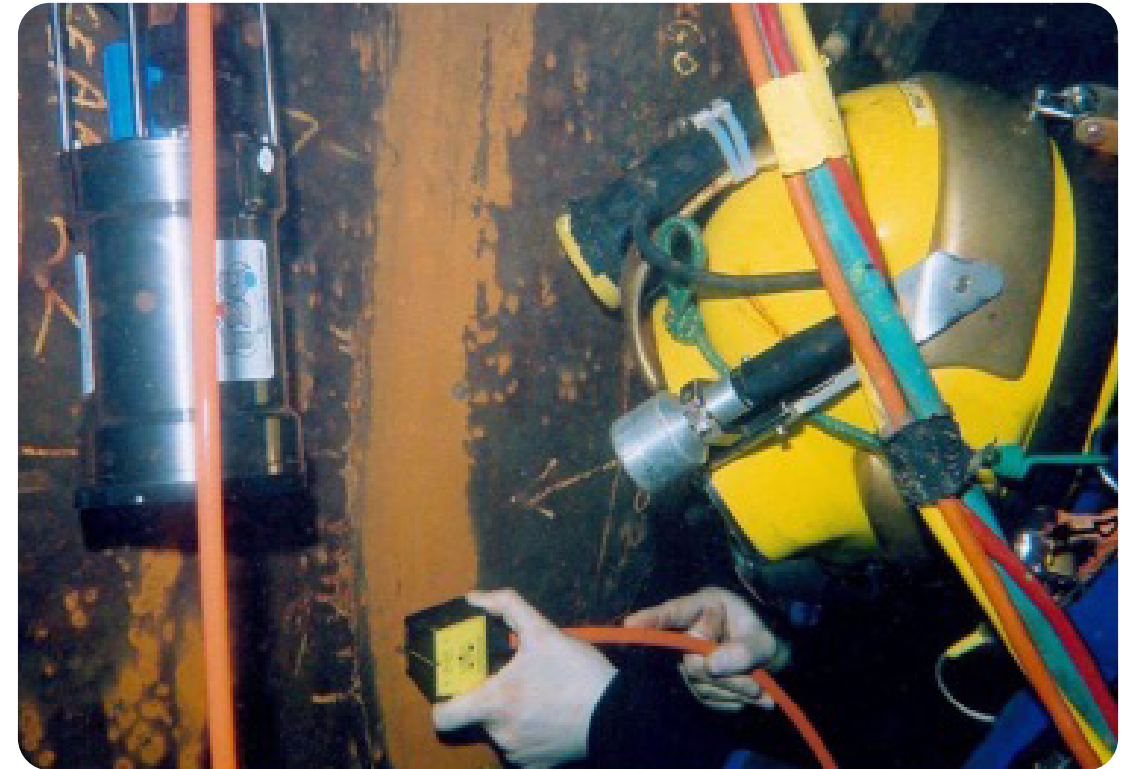
ACFM

ALTERNATING CURRENT FIELD MEASUREMENT

An advanced electromagnetic technique used for the detection and sizing of surface breaking cracks in metallic components and welds. It combines the advantages of the alternating current potential drop (ACPD) technique and Eddy Current Testing (ECT) in terms of defect sizing without calibration and ability to work without electrical contact respectively. It can size defects for both length and depth.

ADVANTAGES OF ACFM

- Ability to inspect through coatings, rust and grease
- Length and Depth sizing
- A ‘one-pass’ inspection / no on-site calibration
- Less reliance on an operator’s interpretation
- Data stored electronically
- Remote deployment using divers, abseilers or ROV
- Faster and easier to deploy
- Deployable in all sea states and visibility conditions
- Adaptable for automated deployment
- High & low temperature use



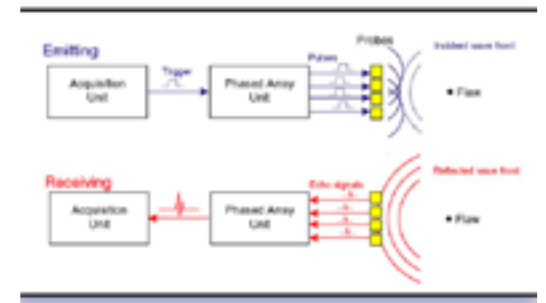
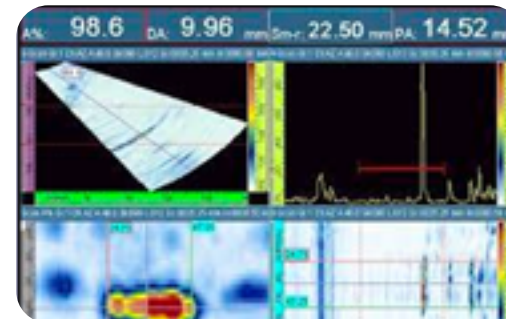
PAUT

PHASED ARRAY ULTRASONIC TESTING

An advanced non-destructive examination technique that uses ultrasonic probes capable of pulsing elements individually at different time intervals. Compared with conventional ultrasonics, PAUT provides higher probability of detection, it is faster, more reliable, and it provides 2D or 3D images and a permanent record of the inspection through the data recorded.

ADVANTAGES OF PAUT

- Speed of inspection (many probes)
- Simple and intuitive software to operate
- Suited for more complex geometries and welds
- Less time to set up and operate
- High probability of detection
- Inspection data stored electronically
- Adaptable to remote deployment using divers, abseilers and ROV
- Faster, safer and easier to deploy High and low temperature use



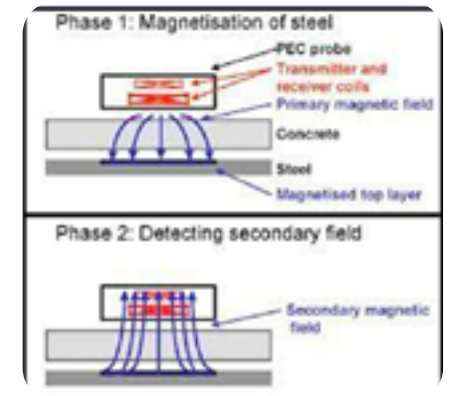
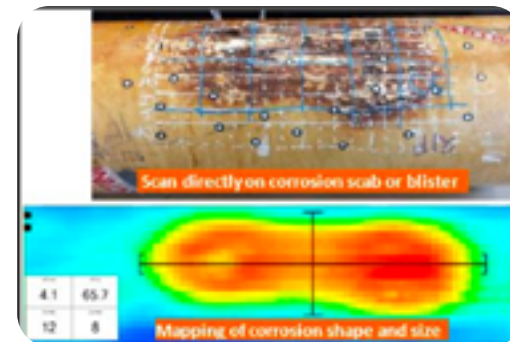
PECT

PULSED EDDY CURRENT TESTING

An advanced non-destructive testing method utilized primarily for corrosion assessment on insulated or enclosed ferromagnetic materials. Corrosion survey or a wall loss measurement can be performed without a need of removing insulation, cladding, asbestos, fireproofing, concrete or protective coating material from the test surface. PECT is a spot measurement technique which provides average thickness at the test location.

ADVANTAGES OF PECT

- Detecting and sizing cracks in carbon steel welds
- Detecting and corrosion under insulation (CUI)
- Sizing cracks as deep as 10mm for both length and position
- Allows simultaneous scanning of the weld cap, toe area and Heat Affect Zone
- Detects Longitudinal and transverse cracks without surface preparation or paint removal
- Assessing corrosion on aluminium and stainless steel tank floors
- Detecting and assessing Stress Corrosion Cracking on base metal



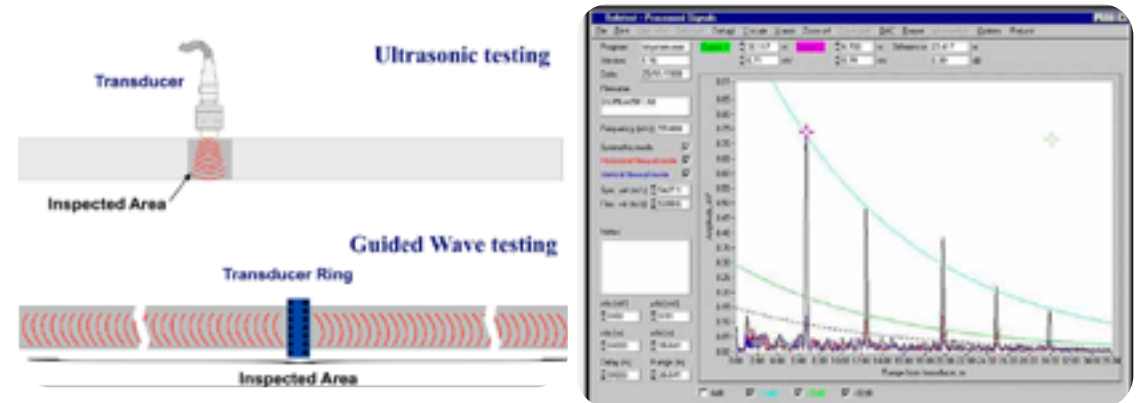
LRUT

LONG RANGE ULTRASONIC TESTING

A rapid screening test method for integrity assessment of pipelines, non-piggable, buried, encased piping, vertical or inaccessible piping or epoxy coated pipelines to locate areas of potential degradation or engineering concerns and gross discontinuities for targeted assessment and inspection. While conventional NDT test methods provide localised inspection, underneath or in the vicinity of the sensors, LRUT is able to test 100% circumferential wall over tens of meters of the pipe length from the single inspection location.

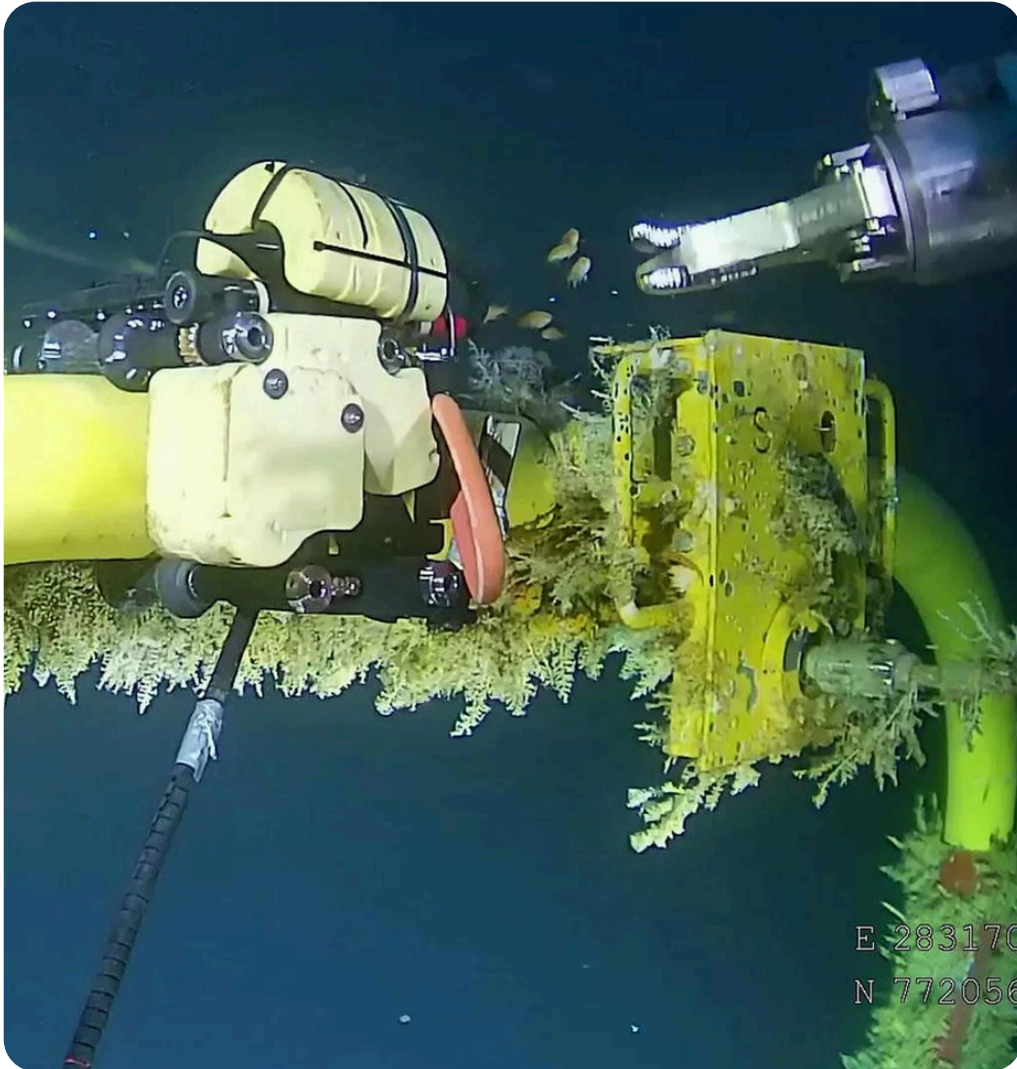
ADVANTAGES OF LRUT

- Detection of internal and external corrosion and defects
- Inspection wall penetrations
- Detection of weld defects
- Inspection of tubular columns without need for a scaffold Tens of meters can be screened from one test location
- Inspection data stored electronically
- Inspector rings of various diameters available and are easily positioned
- Topside and underwater applications High and low temperature use





OUR SPECIALISED ANDT SERVICES

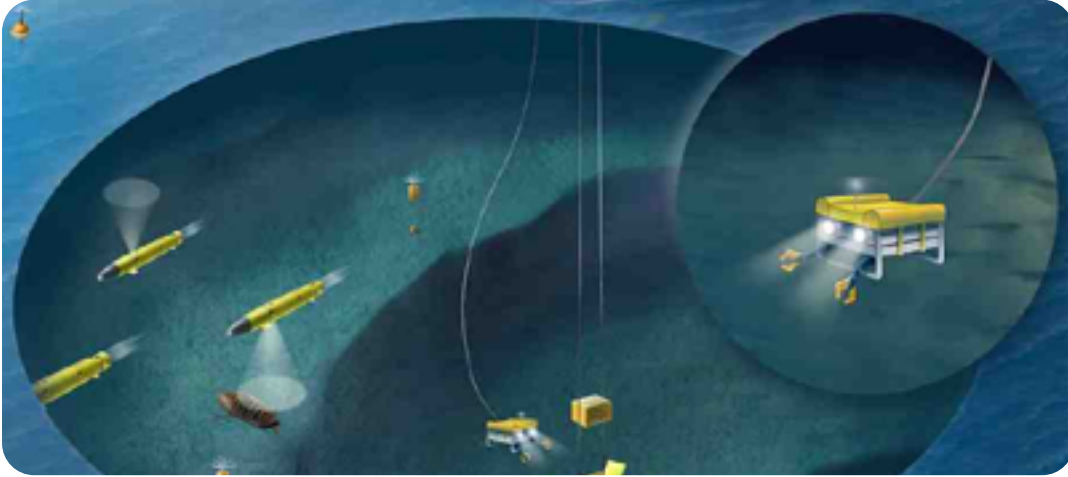


Axal Offshore Services Limited provides specialized Advanced Non-Destructive Testing (ANDT) solutions, focusing on ensuring the integrity and safety of subsea and offshore assets. Our ANDT services encompass the following areas:

- **Subsea Engineering:** Offering inspection, monitoring, and analysis services tailored to subsea structures and equipment. Our subsea engineering solutions enhance asset integrity in challenging underwater environments.
- **Mechanical Maintenance:** Providing routine and corrective maintenance for offshore and subsea assets. Our skilled technicians utilize ANDT methods to detect wear, corrosion, and structural weaknesses, extending the lifecycle of critical equipment.
- **Pipeline/Piping:** Advanced inspection techniques for pipeline and piping systems to identify corrosion, cracks, and defects. Our services cover both onshore and offshore pipelines, ensuring their safety, functionality, and compliance with industry standards.
- **Offshore Installation:** Comprehensive installation services for offshore equipment and structures, supported by ANDT inspection to verify integrity during and after installation. Our team ensures seamless project execution while maintaining safety standards.
- **Welding (Underwater & Specialty Welding):** Expertise in both underwater and specialty welding techniques, crucial for subsea structures and pipelines. We use cutting-edge technology to perform welding that withstands harsh marine conditions, ensuring structural resilience.

OUR OTHER ADVANCED INSPECTION SERVICES

DIVERLESS ANDT SOLUTIONS



Our ROV-DEPLOYED, DIVERLESS ANDT SOLUTIONS use autonomous underwater vehicles (AUVs) and remotely operated vehicles (ROVs) for precise inspections. This technology eliminates the need for divers, enhancing safety and cutting costs.

These robotic systems have advanced sensors and imaging tech for real-time data. They enable inspections in deeper, hazardous environments, boosting efficiency and accuracy in oil and gas industries.

TUBE INSPECTION



TUBE CLEANING AND INSPECTION uses specialized tools to check the condition of tubes in heat exchangers and boilers. Methods like Eddy Current Testing (ECT) and Ultrasonic Testing find cracks, corrosion and blockages.

These inspections ensure equipment performs well and lasts longer. Regular checks prevent failures, reduce downtime, and maintain industrial efficiency.

AERIAL ROBOTICS



AERIAL ROBOTICS involves drones and UAVs for surveying, inspection, and monitoring. These robots access hard-to-reach areas, capturing high-resolution images and data quickly.

Industries like agriculture, construction, and energy benefit from improved efficiency and cost savings. Drones with advanced sensors provide real-time data, aiding decision-making.

ASSET INTEGRITY MANAGEMENT SERVICES



ASSET INTEGRITY MANAGEMENT SERVICES ensure the safety and reliability of industrial assets. These services include inspections, maintenance, and monitoring to catch issues early.

Implementing asset integrity management extends equipment life, reduces risks, and boosts efficiency. It's crucial for oil and gas, petrochemicals, and power generation industries.

BALLAST & CRUDE TANK INTERNAL NDT USING MINI ROVs AND DRONES



BALLAST & CRUDE TANK INTERNAL NDT inspects tank interiors using Mini ROVs and drones which detect corrosion and cracks without damaging the tank.

Regular NDT inspections ensure tank safety and integrity. Early issue detection prevents leaks and costly repairs, ensuring compliance with industry standards.

CONVENTIONAL NDT (VT / UT / MT / PT / ET / RT)



CONVENTIONAL NDT uses methods like visual inspection, radiography, and dye penetrant testing to find defects without causing damage. These techniques ensure material safety and reliability.

Regular conventional NDT helps identify flaws early, preventing failures and extending equipment lifespan. It is essential for maintaining critical components in various industries.

THE AXAL ADVANCED NDT ADVANTAGE IN AFRICA

- Has wider range of Advanced NDT equipment and more certified engineers and operators on the continent than any other company
- One of the few companies in the Africa with certified Level-3 practitioners in ANDT technologies
- The leading company involved in Advanced NDT inspections on the continent
- No company has supported more asset owners and their main contracts in the deployment of Advanced NDT technologies on the continent
- Able to support Advanced NDT inspections from topside to over 2000M underwater
- Able to deploy ROV-deployed robotic Advanced NDT solutions to a depth of over 2,000m of water (in collaboration with SubseaRobotix/TSC subsea)
- More efficient logistics system - with all equipment transportable by air





OTHER **AAXAL** SERVICE OFFERINGS



FABRICATION

Our fabrication services are designed to provide high-quality, reliable components for critical industrial applications:

- **Custom Fabrication:** We offer bespoke fabrication solutions for steel structures, skids, platforms, and more, tailored to your specifications.
- **Steel Structure Erection:** Expertly managed projects that include the planning, assembly, and erection of steel frameworks.
- **Quality-Controlled Welding:** Our specialized welding techniques meet industry standards, ensuring durability and safety.

ENGINEERING

Our engineering division provides cutting-edge solutions tailored to meet the complex needs of modern industries. From conceptual designs to detailed engineering, AAXAL offers:

- **Front-End Engineering Design (FEED):** Our FEED services include comprehensive planning and initial engineering, ensuring optimal project scope and cost-effectiveness.
- **Detailed Engineering:** Utilizing advanced software and methodologies, we deliver precision and innovation for seamless project execution.
- **Engineering Consultancy:** Expert insights and technical guidance across various disciplines to support your project requirements.



FIELD SUPPORT

With comprehensive field support services, Aaxal ensures smooth project progression, from mobilization to completion:

- **Equipment Erection and Installation:** Our team oversees the setup and integration of equipment to optimize operations.
- **Maintenance and Repair Services:** Providing routine inspections, turnarounds, and corrective maintenance to maintain peak performance.
- **Technical Field Assistance:** Experienced technicians deliver hands-on support, troubleshooting, and guidance.



OFFSHORE PM & IRM (Inspection, Repair & Maintenance)

Specialized offshore services aimed at maintaining operational integrity in challenging marine environments:

- **Pipeline Inspection and Intervention:** Advanced techniques for subsea inspection & maintenance, ensuring pipeline integrity.
- **Diverless IRM Solutions:** Utilizing ROVs and AUVs to perform inspection, repair, and maintenance, reducing risks and enhancing safety.
- **Asset Integrity And Life Extension:** Proactive asset management and life extension strategies for offshore structures, ensuring longevity and compliance with regulatory standards.

ENGINEERING, PROCUREMENT, CONSTRUCTION, INSTALLATION & COMMISSIONING (EPCIC) SERVICES

AAXAL offers end-to-end EPCIC services, providing clients with a single-point solution for complex projects. Our holistic approach ensures seamless execution from the engineering and design phase through to final commissioning. We focus on delivering safe, efficient, and cost-effective projects that meet stringent industry standards:

- **Engineering Design:** Comprehensive front-end and detailed engineering services, including FEED (Front-End Engineering Design), detailed structural, process, and pipeline engineering.
- **Procurement:** Leveraging our global supply chain network to source high-quality materials, equipment, and components essential for project success.
- **Construction Management:** Overseeing the on-site construction process with a strong emphasis on safety, schedule adherence, and budget control.
- **Installation and Hook-Up:** Providing expert offshore and onshore installation services for various project types, including pipelines, process modules, and platforms.
- **Pre-Commissioning and Commissioning:** Conducting thorough testing and validation to ensure systems function as intended before full operational handover.





ACTIVE AXAL COLLABORATIONS



HYDRODIVE

MOPU UWILD for Oriental Energy



ATLANTIC MARINE

Underwater Inspection of Subsea Appurtenances for Bonga FPSO



ARIES MARINE

Underwater ANDT Inspection on Qatar Energy Subsea Assets



NNDT

IRIS/ECT Heat Exchanger Tube Inspection:
 Usan FPSO, Nigeria
 Punto Europa, Bioko, Eq. Guinea



EKSPAN

Fabrication & Installation of Bridge Bearings on AMQ/AMP Structures for TotalEnergies



ABL GROUP

QA/QC & Third-Party Inspection Services For The AKK Gas Pipeline Project



TSC SUBSEA

Robotic Deployment for Underwater Inspections



BGI

NDT for Dangote Group onshore assets

PAST PROJECTS EXECUTED BY

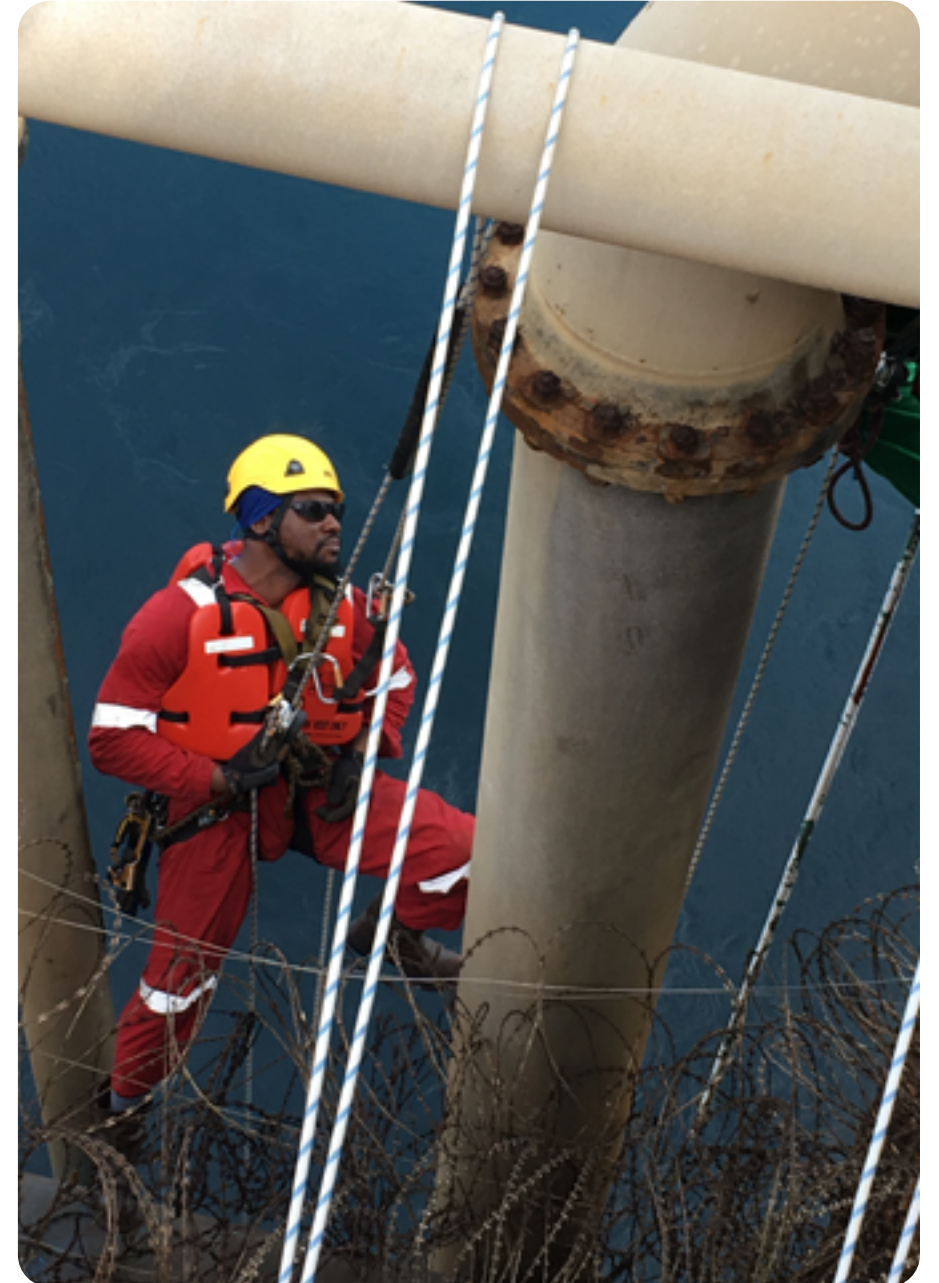
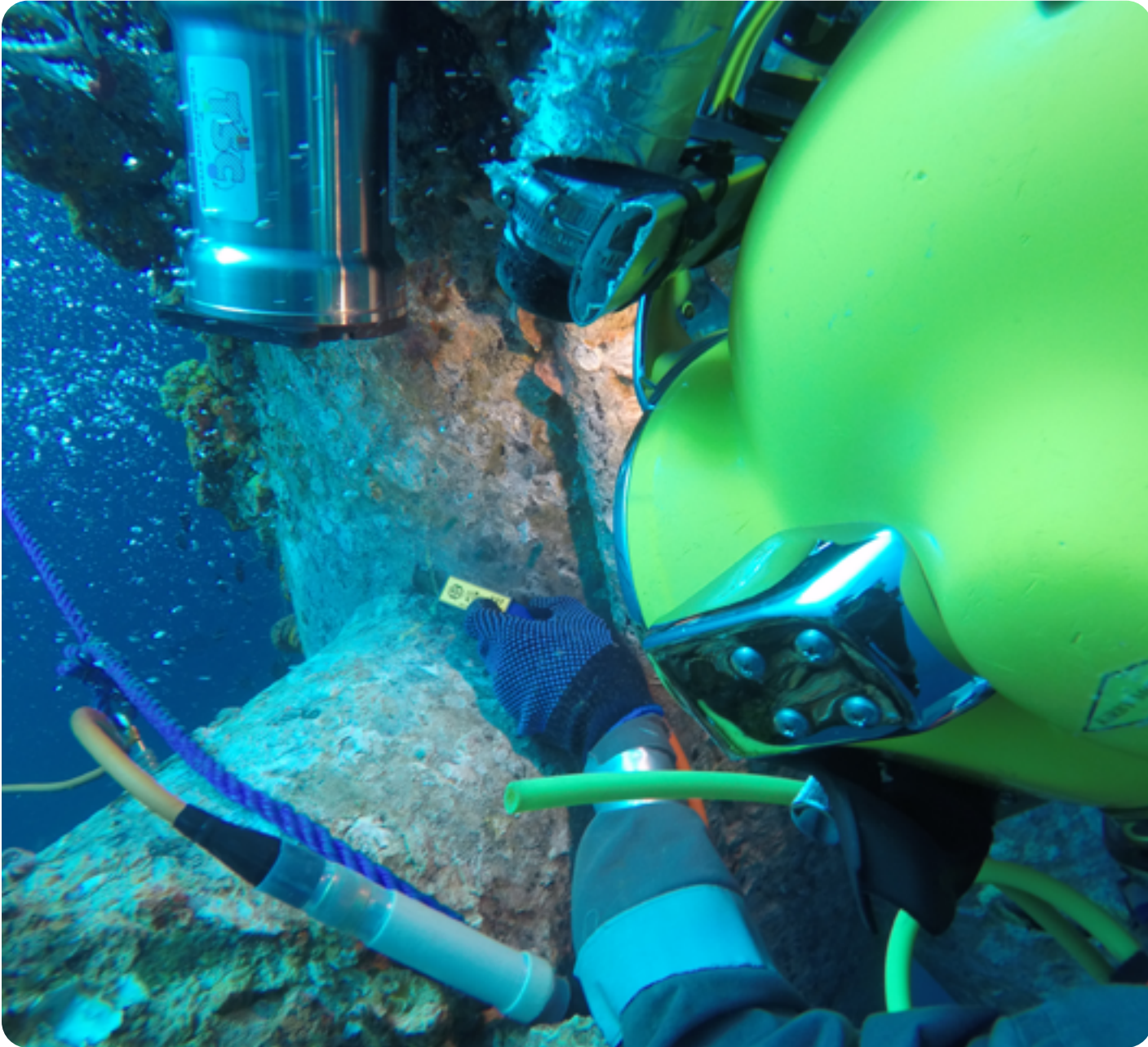
INSPECTIONS & ADVANCED NDT PROJECTS EXPERIENCE		
Client /Location	Dates/Duration	Job Description
Caracal Pioneer / Edumarine Ltd, Marina Harbour, Lagos, Nigeria	July 2024	Underwater NDT of Jackup Legs
TotalEnergies / FSO Unity, Offshore, Nigeria	April - 2024	Boat Landing Inspection
Shell/BongaFPSO Top Chain Replacement Project/GMTER, Offshore Nigeria	Aug 2023- Feb 2024	Lead Underwater NDT Engr
Caracal Pioneer / Edumarine Ltd, Marina Harbour, Lagos, Nigeria	September 2023	UWILD on Jackup Barge
Total E & P Denmark 2023 IRM, Offshore Denmark	July - August 2023	Nodal weld inspection using Nexus
Maersk (UK) / Technip 2023 IRM, Offshore UK	May-June 2023	Nodal weld inspection using Digital Edge
Stapem/Sonangol, Offshore Angola	Feb-March 2023	Pipeline inspection w/ DigjEdge DVR
TSC Subsea / Maersk Intrepid, North Sea, Offshore Norway	Oct - Nov 2022	Automated ANDT Inspection w/ Robotic Crawlers
Fugro / Remote Operations Centre, Aberdeen< Scotland	Sept - Oct 2022	Remote Underwater Pipeline Inspection
Hydrodive / Okpoho Platform, Offshore Nigeria	July - August 2022	Subsea Weld Crack Inspection and Lev III NDT Services
Subsea 7 / Thistle and Heather Platforms, N/Sea, Offshore UK	April June 2022	Structural Integrity NDT Inspection
TSC Subsea / Enquest Magnus Platform, UK N/Sea, Offshore UK	April - May 2022	Automated ACFM Inspection using Robotic Systems
UIML / Delta Conquest 8 UWILD, UIM Ltd, Marina Harbour, Lagos, Nigeria	2022	Subsea Weld Crack Detection Using ANDT & Lev III NDT
Hydrodive / WAEP OML72 Jackets Revamp Inpspection	2021	Subsea Weld Crack Detection Using ANDT & Lev III NDT
Eddyfi & Saudi Aramco / Dammam, S/Arabia	2021	ACFM (Electromagnetic Testing) PCN Certification Training
UIML / Teras Conquest 2 UWILD, Marina Harbour, Lagos, Nigeria	2019	Subsea Crack Inspection using ANDT & Lev III NDT
ExxonMobil Nigeria Offshore Jackets IRM Campaign	2018 to 2019	NDT Project Advisor and Leader
NNPC-ETD / Atlas Cove Terminal Tank Base Insp, Onshore Nigeria	2018	Subsea Crack Inspection using ANDT & Lev III NDT
NETCO-NPDC / FPSO Mystras, OOML 119, Offshore Nigeria	2016 to 2018	Structural Integrity & Life Extension Inspection Project
Hydrodive / Okpoho Platform, Offshore Nigeria	2016	Subsea Crack Inspection using ANDT & Lev III NDT
Thetys Plantgeria / Brass Buoy Offloading Platform, Offshore Nigeria	2016	Stress Analysis and Underwater Weld Detection



PAST PROJECTS EXECUTED BY

INSPECTIONS & ADVANCED NDT PROJECTS EXPERIENCE		
Client /Location	Dates/Duration	Job Description
Chevron / Agbami FPSO UWILD Campaign, Offshore Nigeria	2015 to 2016	Marine Structural Integrity Consultant
Nigerdock / Snake Island Quay Wall Insp, Onshore Nigeria	2015	Underwater Structural Stress Analysis & Crack Detection
Shell Nigeria / FPSO Sea Eagle Topside Inspection, Offshore Nigeria	2015	Topside Stress Analysis and Weld Crack Detection
BP Angola / Blocks 18 & 31 Devt, Angola, Luanda, Angola	2013 to 2015	Deepwater Inspection Project Management
Total E&P Congo / YAPF Platform Inspection, Offshore Congo	2013	Underwater/Subsea Asset Integrity Inspections
Fendercare Marine Kinsale 'A' Asset Inspection, Offshore Rep of Ireland	2013	Underwater/Subsea Inspections Project Management
Polimeri Europa / Pipeline Loops Assessment, Onshore Italy	2012	Stress Analysis and Crack Detection
Adriatic LNG / Sidewall Structural Inspection, Offshore, Italy	2012	Asset Integrity Inspections
Total E&P Angola / Angola Block 17 UWILD Campaign, Offshore Angola	2011	Subsea Asset Integrity Inspection
Bibby Offshore UK / Janice FPU Underwater Insp, N/Sea, Offshore UK	2010	Underwater Asset Integrity Inspection
Total E&P Cameroun / ESQ1 Platform Inspection, Offshore Cameroun	2010	Underwater Asset Integrity Inspection
Subsea7 / Maersk Field Inspect-Repair-Maintain (IRM), Offshore UK	2009	Underwater Asset Integrity Inspection
TSC / Sabratha Platform Inspection, Offshore Libya	2008 to 2009	Underwater Asset Integrity Inspections
Oceanteam / Hydralift 'A' Frame Inspection, Canada Quay, Liverpool, UK	2008	Topside Structural Inspection
Saipem / Halfdan II Pipeline System, Offshore Denmark	2008	Underwater Pipeline Inspection
Maersk Oil UK / Janice Floating Production Unit (FPU), Offshore UK	2007	Underwater Asset Integrity Inspection
British Gas / Central Area Transmission System (CATS), Offshore UK	2007	Underwater Pipeline Inspection







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