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Gary Brooks – Independent Consulting Expert & Forensic Engineer

BSc (Hons), MSc, CEng, Int PE (UK), CSci, FDSc
FWeldI, FIMMM, M*Inst*NDT, AICorr, ACIArb
Cert.-IWE/EWE, Cert.-MEWI, CUBS (Cert.)

BIOGRAPHY & PROFESSIONAL SUMMARY

His professional standing is underpinned by advanced academic training and ongoing research in welding, materials, and non-destructive evaluation. He holds a Master's degree in Welding Engineering, foundation degrees in Metallurgy and Engineering Materials and in Non-Destructive Testing (NDT) and is completing a BSc (Hons) top-up in NDT. Beyond formal academic study, he is currently undertaking a research programme with the University of Birmingham, focusing on the use of acoustic emission techniques for early-stage corrosion detection and corrosion mapping. He is a certified International and European Welding Engineer (IWE/EWE), a Fellow of The Welding Institute and the Institute of Materials, Minerals and Mining, a member of the British Institute of Non-Destructive Testing, an Affiliate Member of the Institute of Corrosion, and an Associate Member of the Chartered Institute of Arbitrators. He is currently obtaining a Professional Engineer (PE) licence to practice in the United States. This combination of academic depth, professional recognition, and active research underpins a scientifically grounded, evidence-led approach to forensic engineering and the formation of independent expert opinion.

A Chartered Engineer (CEng), International Professional Engineer (IntPE (UK)), Chartered Scientist (CSci), and Certified Civil Expert Witness with over 30 years' experience in practical, technical, leadership, and consultancy roles. He began his career as a labourer, progressed through college to become a welder and fabricator, and later moved into plater/fabricator and pipefitter roles. He specialised in general fabrication, plant maintenance, outages, and new-build projects. Over the years, he has worked for numerous companies across various sites and sectors, gaining broad exposure to multiple industries. He progressed to an Advanced Coded Welder, working for organisations such as Babcock, Alstom, and ABB, where he worked on shutdowns and outages, new builds, and gas pipelines (LNG), covering all types of structural and pressure-retaining systems and fabrications.

Building on this practical foundation, he moved into engineering and technical leadership. He began by heading up the technical and quality function for a specialist fabricator of pressure-retaining structures serving the petrochemical and nuclear markets across Europe. He then joined Rolls-Royce as technical lead, first on the nuclear submarine programme and subsequently on civil nuclear new build. At Alstom Power, he served as Welding and Training Manager before being appointed Global Programme Manager at General Electric following their acquisition of Alstom Power. Through Bureau Veritas, he was engaged as Technical Manager and Subject Matter Expert, acting as the technical authority on multi-billion-pound construction projects, including the Atomic Weapons Establishment and Hinkley Point C. He also served as a Subject Matter Expert for Costain Defence and Nuclear, providing technical authority on large, highly regulated projects across oil and gas, nuclear defence, aviation, transportation, and large-scale pipeline infrastructure.

Now operating as an Independent Consulting Expert and forensic engineer, he applies this depth of industry experience to expert witness services, forensic engineering investigations, and project advisory work. He prepares CPR-35-compliant reports and joint expert statements, provides impartial testimony in arbitration, litigation, and adjudication proceedings, and conducts root cause failure analyses for legal, insurance, and corporate clients. His appointments span multiple jurisdictions and international arbitration frameworks, including ICC, LCIA, UNCITRAL, SCC, DIAC, and SIAC.

GEOGRAPHIC EXPERIENCE

North America
South America
UAE
Asia
UK
Europe

SECTOR / INDUSTRY EXPERIENCE

Civil Nuclear
Nuclear Defence
Biomass and Renewables
Hydrogen Storage & Transportation
Oil & Gas
Refining & Petrochemical
Fossil Fuel
Waste to Energy
Offshore Wind
Marine/Naval
Flood Alleviation & Tunnels
Infrastructure

MEMBERSHIPS & ASSOCIATIONS

FWELDI
FIMMM
M*Inst*NDT
MEWI (Certified)
AICorr
ACIArb

CERTIFICATIONS

Certified – IWE/EWE
CUBS (Certified)

AREAS OF EXPERTISE

Welding Engineering
Metallurgy
Non-Destructive Testing (NDT)
Corrosion
Damage Mechanisms
Fatigue & Fracture of Materials
Welding & Fabrication
Infrastructure
Standards & Specifications
Quality Assurance
Quality Control
Inspection
Failure Mechanisms
Failure Investigation
Heat Treatments
Coatings

EDUCATION & TRAINING

His academic and professional development reflect a commitment to continuous learning across the disciplines central to his expert-witness and forensic-engineering practice. From foundation degrees in metallurgy and non-destructive testing through to a Master's degree in Welding Engineering and an active research programme at the University of Birmingham, his qualifications span the full breadth of his technical authority. He holds chartered status across engineering and science, international welding engineer certification, and specialist expert witness training in report writing, joint statements, and arbitration practice.

Complete

MSc	Master's Degree in Welding Engineering	Cranfield University
FDSc	Metallurgy & Engineering Materials	Leeds Beckett University
FDSc	Non-Destructive Testing	Northampton University
CEng	Chartered Engineer	The Engineering Council
IntPE (UK)	International Professional Engineer	The Engineering Council
CSci.	Chartered Scientist	Science Council
Cert.-IWE/EWE	Certified International & European Welding Engineer	The Welding Institute
Cert.-MEWI	Certified Full Member	Expert Witness Institute
CUBS (Cert.)	Civil Expert Witness Certificate	Cardiff University & Bond Solon
EWI	Core Training, Law for Experts, Report Writing, Experts Meetings & Joint Statements	Expert Witness Institute
CIArb	Introduction to Mediation, Introduction to International Arbitration, Applying Project Management Principles to Arbitration Practice	Chartered Institute of Arbitrators

Current

BSc (Hons)	Bachelor's Degree (Honours) top-up in Non-Destructive Testing (NDT)	Northampton University
MScR	Master's Degree by Research – Metallurgy & Materials	Birmingham University

EXPERT & SECTOR EXPERIENCE

BUILDINGS & INFRASTRUCTURE

HS2 Rail Project and National Highways – A46 Binley Junction and A428, UK.

Appointed as a single technical expert in an insurance claim concerning the fabrication of steel bridge structures for major UK transport infrastructure projects. The role required assessment of welding engineering, non-destructive testing, physical and mechanical metallurgy, and quality assurance and control, including a detailed review of fabrication quality, material compliance, and inspection records to support the evaluation of liability and causation. Two independent expert reports were produced to address the technical issues in dispute.

Large warehouse roof collapse – construction phase, Maryland, USA

Appointed as a technical expert to investigate the collapse of a large warehouse roof during the construction phase. The structure comprised both welded and bolted steel elements. My role focused on identifying the cause of failure, assessing whether it was related to material defects, fabrication or erection errors, and/or external contributing factors. The investigation formed part of an insurance claim and required a detailed review of construction records, design drawings, welding and bolting specifications, site photographs, and failure pattern analysis. Findings contributed to an expert report used to inform liability and causation issues in the dispute.

Flood Alleviation Scheme – Tidal, River Trent, Gainsborough, UK.

Responsible for leading all welding activities on a 4km flood defence infrastructure project along the tidal stretch of the River Trent. The scope covered temporary works through to permanent structural installations, requiring coordination across multiple phases of marine and civil construction. Key responsibilities included overseeing the development and approval of welding procedures, site fabrication, and ensuring QA/QC compliance, as well as addressing engineering challenges arising from tidal and environmental conditions. Work was delivered to high-integrity standards under demanding site constraints and regulatory oversight.

ENERGY

Al Layyah – Natural Gas Combined Cycle Power Plant (CCPP), Sharjah, UAE

Appointed as a corrosion and materials science expert in a technical dispute involving accelerated degradation within a gas turbine enclosure. The core issue was whether the observed corrosion was caused by recent seawater ingress from a tube failure or had developed progressively due to prolonged atmospheric exposure. At the same time, the unit remained dormant in a coastal marine environment. The assessment required a detailed review of corrosion morphology, environmental exposure history, photographic and inspection evidence, and relevant material behaviour under marine and stagnant conditions. Contributed findings to a joint expert report for legal proceedings.

Jimah East Power Plant (JEPP), Malaysia

Appointed as Metallurgy and Corrosion Expert in the investigation of HP feed heater tube failures at a 2,000MW ultra-supercritical coal-fired power plant. The investigation focuses on the metallurgical aspects of tube degradation and corrosion mechanisms in high-pressure feed heaters. The scope includes assessing material failure modes and corrosion patterns, conducting metallurgical analysis to support an international arbitration between the plant owner and the OEM, and working as part of a multidisciplinary team to evaluate the technical causation of material degradation and corrosion.

Atomic Weapons Establishment – Nuclear Defence New Build Projects, UK

Appointed as the Technical Authority for nuclear defence new build projects at the Burghfield and Aldermaston sites, both multi-billion-pound construction projects. Responsible for technical oversight of all on-site and supply chain activities, covering welding engineering, materials and metallurgy, NDT, corrosion, heat treatment, protective coatings, and inspection processes. Additionally, serve as Deputy to AWE's Lead Technical Authority across their broader capital project portfolio, supporting UK and global defence partnerships.

Multiple Power Station Outages and New Builds, Europe

Progressed from Advanced Coded Welder to Global Programme Manager, delivering critical maintenance, repair, and construction activities across a wide range of power generation assets, including fossil fuel, biomass, and combined cycle plants. Work spanned numerous outages and new-build programmes throughout Europe, involving high-integrity welding operations, procedure qualification, QA/QC oversight, and project delivery leadership. Provided technical guidance on weld integrity, inspection planning, and material suitability under demanding operational conditions.

Astute Class Submarine Programme – Nuclear Steam Raising Plant (NSRP), UK.

Rolls-Royce & Babcock International.

Served as Manufacturing Engineer and Technical Specialist supporting the manufacture of the Nuclear Steam Raising Plant (NSRP) for the Astute Class Submarine fleet. Oversaw nuclear-grade welding operations, ensuring compliance with stringent defence, EN ISO, and ASME code requirements. Successfully supported the business in achieving ASME 'N' Stamp accreditation, managing welding procedures, welder qualifications, and non-conformance resolution within a highly regulated environment. Experience directly applicable to expert witness roles involving high-integrity fabrication, nuclear compliance, and defence-sector infrastructure.

Hinkley Point-C (HPC) – Nuclear Power Station New Build, UK

Appointed as a Technical Manager and Subject Matter Expert through Bureau Veritas for the Hinkley Point-C Nuclear New Build project. Responsible for overseeing quality assurance, welding engineering, and technical compliance across the supply chain and on-site activities. Reviewed and approved welding procedures, materials, inspection records, and vendor documentation to ensure alignment with EDF requirements and UK nuclear regulatory standards.

PIPELINE, PETROCHEMICALS, AND PROCESS

Shotton Paper Mill – Process Plant Tanks, UK.

Appointed as a single technical expert in an adjudication concerning inspection and test planning, engineering documentation, QA/QC, and staged mechanical completion on process plant tanks. The role required assessing the adequacy of inspection regimes, documentation systems, and compliance with contractual and technical requirements across key dates within the construction programme.

TAURUS Project — UPM Single Line Eucalyptus Pulping Mill, Uruguay.
Appointed as a single technical expert in an international arbitration concerning quality assurance and quality control on a major pulp mill construction project. The dispute required assessment of QA/QC management systems, welding, fabrication, and inspection regimes, documentation, and compliance across the fabrication and construction phases.

Aviation Fuel Pipeline Infrastructure, Manchester, Gatwick, and Heathrow Airports – UK
Appointed as Technical Subject Matter Expert across multiple BP-led aviation infrastructure projects, including the installation of 4 m-deep subsurface pipelines for aviation fuel distribution at major UK airports, including Manchester, Gatwick, and Heathrow. I provided technical expertise in welding engineering, physical metallurgy, NDT, and inspection methodology, all of which required rigorous QA/QC oversight. As the appointed technical authority, I reviewed and approved all technical procedures and quality records to ensure full compliance with project and regulatory standards. A key aspect of the role was addressing post-installation NDT non-conformances. Failure to demonstrate that the risks were negligible and to gain BP's acceptance would have triggered a major insurance-led excavation and retesting. My intervention prevented this, protecting programme integrity and cost.

RAPID Project – Refinery and Petrochemical Integrated Development, Pengerang, Malaysia.
Appointed as Technical Expert (joint Report) in an international arbitration concerning a critical failure within a major petrochemical processing facility. The dispute involved a duplex stainless steel (DSS) REAC header failure within a high-pressure hydrogen environment, requiring forensic analysis of welding engineering, design, failure mechanisms, material selection and appropriateness, fabrication, quality, NDT effectiveness, and metallurgical behaviour under process conditions. Provided expert input into joint reports and hearings, drawing on in-depth knowledge of high-integrity component performance, failure mechanisms, and compliance with international codes and industry practices.

Oil and Gas Compound – Storage Tank Failure Investigation, Peterhead, Scotland
Appointed as a Technical Expert to investigate the rupture of a storage tank at an oil and gas compound in Scotland. The assignment involved conducting a root cause analysis focused on corrosion mechanisms, material degradation, quality control, inspection, and the progression of failure. Assessed inspection records, environmental exposure, material condition, and fabrication history to determine the origin and timeline of the failure. Findings supported an insurance claim evaluation and were presented as part of formal expert reporting.

TNZ (Teesside Net Zero) and Breagh Oil Field Projects, UK
Subject Matter Expert through Costain for BP's strategic infrastructure projects: the Teesside Net Zero (TNZ) 31km hydrogen transportation network FEED phase and Breagh Oil and Gas Field pipeline developments. Providing technical authority across welding, NDT, physical metallurgy, and materials science disciplines. Responsibilities include developing technical specifications, serving as SME for supply chain manufacturing and fabrication, overseeing technical compliance, and serving as the primary technical authority for issue resolution, repairs, and non-conformances. Supporting project execution in compliance with regulatory frameworks and BP's technical standards, ensuring the integrity of both hydrogen and hydrocarbon transportation infrastructure for the UK's first integrated net-zero industrial cluster.

VOLUNRARY WORK

- STEM (Science, Technology, Engineering and Mathematics) Ambassador & Mentor

CURRENT ACTIVITIES

- **PE Licence** (via Board of Texas)
- Membership of the Institute of Corrosion (MICorr).
- **BSc (Hons)** top-up in NDT (completed in February 2026 – awaiting results)
- **MSc by Research (MScR)** at Birmingham University (2-year part-time research project) within the Metallurgy & Materials department – 2026 to 2028