

Career Summary

Michael Anderson

BSc (Eng) ACGI CEng MIMechE

Profile

Over thirty years experience in the structural design and analysis of mechanisms and structures. Extensive knowledge of hand/classical techniques and analytical software packages for practical applications.

Expert in safety case management, failure investigations, defect tolerance assessments, fatigue, creep, FEA, code assessments and structural design.

Registered as a Suitably Qualified and Experienced Person (SQEP) with EDF Energy for pressure vessel design code assessments, low temperature defect tolerance (fracture mechanics) and fatigue crack growth assessments (R6).

Registered as a Suitably Qualified and Experienced Person (SQEP) with EDF Energy for the assessment of the causes and hazards from rotating plant failure (missiles, damage, etc.).

Design codes used: ASME III / VIII, PD 5500, BS EN 13445, BS EN 13480, BS 806, BS 5950, BS 7910, BS 7608, BS 8118, BS 2573, R3, R5 and R6.

On the UK Register of Expert Witnesses.

Technical Authority (Structures) across the whole of Frazer-Nash.

Responsible for technical leadership and management of technical staff and the oversight of projects for structural integrity assessment, finite element analyses and the development of assessment techniques.

Project Experience

- ▶ Expert witness in High Court for transport-related fatigue failures of economiser blocks, providing evidence on transport loading, random vibration, dynamic response, resonance and fatigue.
- ▶ Investigations into the risks posed by high-speed impeller failures and the design of protective missile shielding.
- ▶ Investigations into the risk posed by steam turbine disc failures and the damage caused to adjacent condenser structures.
- ▶ Cracked body FE analyses of gas circulator impellers and steam turbine discs to assess the effect of postulated defects on the integrity of the components.
- ▶ Numerous site walkdowns to identify pipewhip and pressure vessel bursting risks, targets and consequences. Associated R3 impact calculations to quantify these risks and propose mitigations.

Date of Birth

1st August 1963

Qualifications

Imperial College of Science & Technology, University of London, Mechanical Engineering, BSc (Eng) (1st Class Honours).

Membership of Professional Institutions

Associate of the City and Guilds Institute.

Chartered Engineer (CEng).

Member of the Institution of Mechanical Engineers.

Main Disciplines

Structural Integrity
Pressure Vessels
Independent Peer Review
Failure investigations
Fatigue
Fracture Mechanics
Crack Initiation and Growth

Principal Market Sectors

Transport
Power Generation
Rail
Aerospace
Defence

Previous Employers

British Aerospace
Wallace Knight

Software Experience

ABAQUS
DYNA
FEMGV

Contact details

Frazer-Nash Consultancy Ltd
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Career Summary

- ▶ Investigation into cracking of liquid beverage carrying articulated HGV road tankers.
- ▶ Investigations into leaking seals on a large high pressure and temperature autoclave.
- ▶ Investigations into articulated HGV road tanker roll-overs.
- ▶ Investigations into car trailer tow-bar coupling failure.
- ▶ Investigations into racing car transporter lifting ramp failure.
- ▶ Assessment of spent nuclear fuel containers for drop impacts and aircraft collisions, including the development of energy absorbing protection systems.
- ▶ Independent Peer Review for the Nuclear Decommissioning Authority of the impact drop FE analysis on the B41 radioactive waste container.
- ▶ Crashworthiness assessments of railway vehicle bodyshells in collisions. This involved the use of DYNA3D to predict the forces and energies absorbed in the collision followed by successful validation against testing.
- ▶ Independent Peer Review of a fatigue analysis of a railway piling crane.
- ▶ Investigation into load monitoring and failure investigation of a railway crane.
- ▶ Independent Peer Review of proposals to increase the ultrasonic inspection interval of railway axles, based on ALARP and probabilistic fracture mechanics arguments.
- ▶ Investigations into railway wheel fatigue failures involving dynamic track forces, thermal effects, structural reliability, probability simulations and maintenance and inspection reviews.
- ▶ Investigation into the fatigue cracking of fresh water tanks on a submarine. This involved identifying the cause of the cracking via FEA and proposing solutions.
- ▶ Investigation into the fatigue cracking of chilled water plant on submarines. This involved a review of the OEM design, identification of excessive fatigue cycling, FEA, defect tolerance assessments, proposal of modifications to extend the lives of the pressure vessels to that required.
- ▶ Creep, fracture, fatigue and code assessments of numerous items of nuclear and conventional power generation plant. Includes pressure vessels, pipework, cranes, building structures, etc.
- ▶ Numerous independent peer reviews of impact, seismic and other structural integrity related subjects.
- ▶ Technical Lead for a development programme for inspecting submarine tailshafts in-situ, using NDT. This includes technical development, defect tolerance/fatigue crack growth assessments, safety case development, inspection guidelines, sentencing of indications found and provision of advice to the Ministry of Defence as regards return to service.

Employment History

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| 1987 - Present | Frazer-Nash Consultancy Limited Assistant Consultant, Consultant, Senior Consultant, Principal Consultant, Group Leader, Technical Authority. |
| 1985 - 1987 | British Aerospace, Bracknell Stress Engineer |
| 1982 | Wallace Knight Ltd Design Draughtsman |