

- **PAPER 5**

ICorr Training Partner – Recent Advances in Corrosion and NDT Training at Sheffield and Fife by Dale O'Reilly

- **PAPER 5**

BIO – ICorr & Business Systems Manager at IMechE supporting Training, IT Systems, and Training Centre Operations.

**ARGYLL
RUANE**

Institution of
**MECHANICAL
ENGINEERS**

**IMECHE
FIFE NDT**

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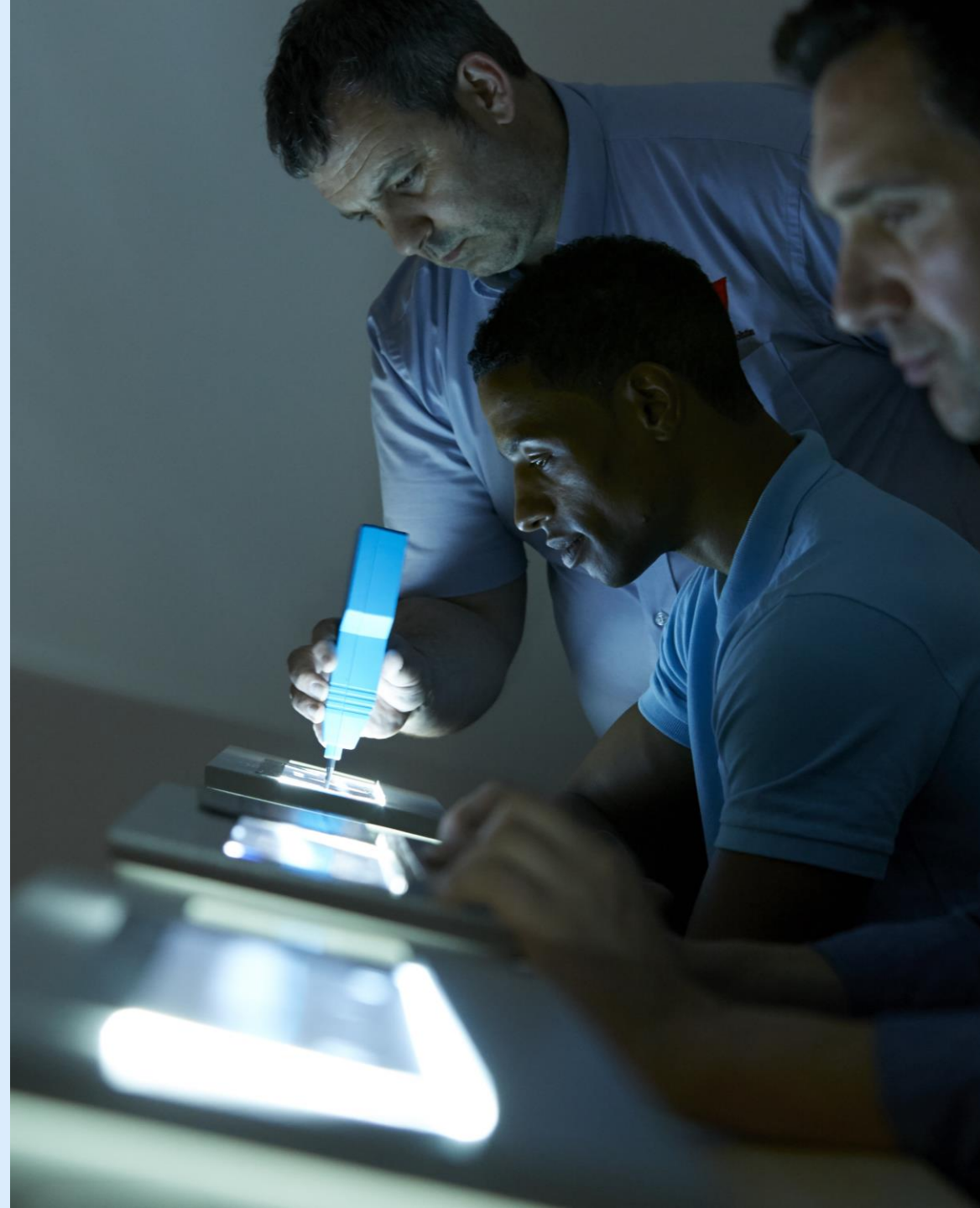
RECENT ADVANCES IN CORROSION & NDT TRAINING

Dale O'Reilly

ICorr & Business Systems Manager

ICorr AGM – 1st November 2023

Leaders in NDT, corrosion and coatings training



ABOUT ME

Dale O'Reilly

ICorr & Business Systems Manager

Dale.O'Reilly@imeche.org

IMechE Argyll Ruane

Been with IMechE for over 4 years.

Working closely with ICorr since 2020. Involvement ramped up in 2021 and 2022 which led to taking on the ICorr Manager role earlier this year

Background:

- Training Development, Online and Face-to-Face
- Training Delivery
- Operations Management
- Business Development
- Project Management
- People Leadership
- IT Systems Implementation



WHO WE ARE

Global providers of non-destructive testing (NDT) and coatings training, examinations and Level 3 Consultancy services.



supporting the
NDT industry.

OVER
20
YEARS

delivering coatings
training.



on NDT training courses
at our centres.

93%

of customers would
highly recommend us.



exams delivered
globally.

85%

global pass rate
on NDT exams.



OUR HISTORY

Incorporated in 1985 as Ruane Technical Services before becoming Argyll-Ruane Ltd

Acquired by the Institution of Mechanical Engineers (IMechE)

Became an Approved Learning Provider for the Ministry of Defence (MOD)'s Enhanced Learning credits (ELC) Scheme.

Partnered with Skills Training UK to support the delivery of NDT Apprenticeships within industry

One of the first UK training schools to launch new online training platform for Level 3 and Level 2 blended NDT courses

Implemented new secure remote examination system for ICorr exams

Introduction of Money Back Guarantee on NDT courses

Launch of ICATS course

Launch of FMC, TFM, TFMi and related technologies course

1985

1999

2001

2012

2015

2018

2019

2020

2021

2022

2023

Level 3 Consultancy Services department established

Partnership with the Institute of Corrosion (ICorr) established to deliver corrosion prevention training

New training centre opened in Sheffield, England

One of the first UK training schools to implement online exams for PCN
Became an approved provider for BINDT PCN's NDT Accelerated Work Experience Programmes

IMechE Fife NDT established with new training facility in Dunfermline, Scotland
Launched new PFP Epoxy Course with ICorr & PFPNet

Signed new 10-year agreement with ICorr



NDT AND COATING TRAINING

- In-depth, hands-on practical training by experienced and knowledgeable trainers
- Excellent training materials, written by industry experts and verified by professional bodies
- State-of-the-art facilities, the latest equipment and high-quality samples
- A relaxed, stress-free learning and examination environment
- Training to provide competency, not just to pass exams
- Trainers have significant industrial experience
- High quality Sonaspection training samples, with examination samples meeting the same specification
- Significant e-learning portfolio using the latest technology and developed by a dedicated team of educationalists.



EXAM SERVICES

- Students relaxed and familiarised with exam setting and staff
- All exams room fitted with CCTV
- Quality of examinations constantly reviewed to include:
 - Exam samples (fit for purpose)
 - Exam papers (relevance to standards and training syllabus)
 - Pass rates monitored to identify improvement opportunities
 - Fast turnaround of results
- Remote ICorr Examinations conducted globally and securely

COATINGS TRAINING AND EXAMINATION

Courses include:

- Industrial Coatings Applicator Training Scheme (ICATS)
- Protective Coating Inspector (Level 1, 2 & 3)
- Insulation Inspector (Level 2)
- Passive Fire Protection Inspector (Level 2 & 3)
- Pipeline Coating Inspector (Level 2)
- Hot Dip Galvanising Inspector

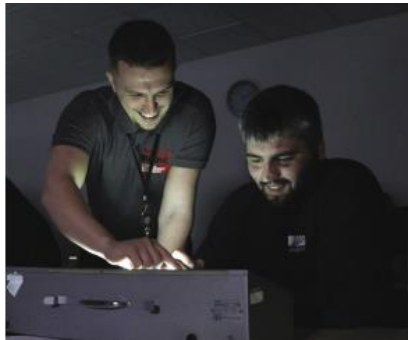


LEVEL 3 CONSULTANCY SERVICES



Consultancy Services

- Act as the responsible level 3
- NDT Programme set up and management
- Advice on any aspect of non-destructive testing
- Solutions provision
- Meeting legal requirements
- Expert testimony provision



Training and Examinations

- Level 1, 2 and 3
- Initial, refresher, additional and bespoke training
- Creation of exam materials, in compliance with the employer's written practice
- On-site invigilation of examinations, including, PCN, EN4179/NAS410, SNT-TC-1A

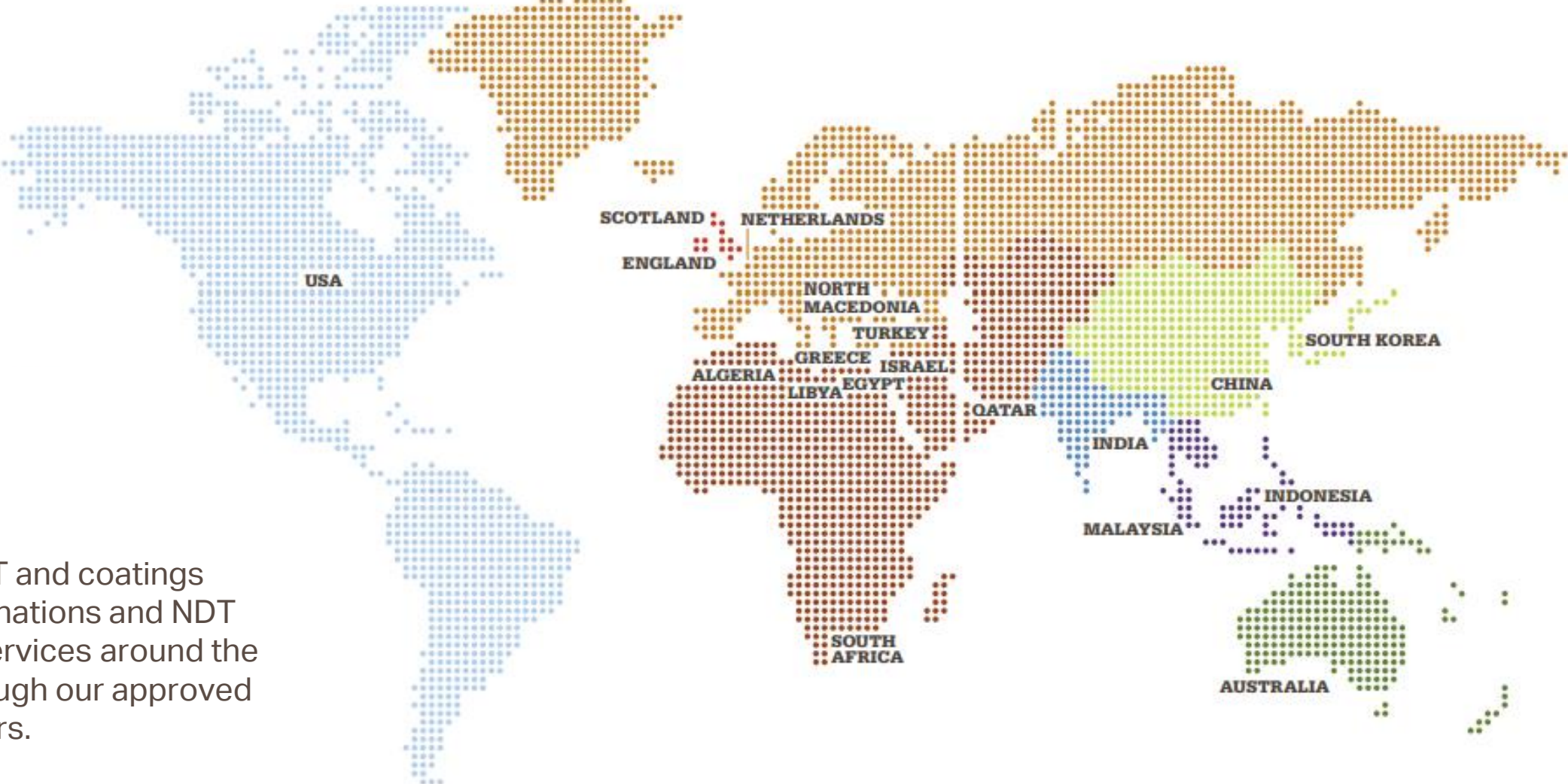


Auditing/Procedures/Techniques

- Internal auditing and support during external audits, e.g., NADCAP, ASME and CAA
- Procedure writing, review and approval
- Oversight/witnessing for operator compliance
- Technical document review



OUR INTERNATIONAL PRESENCE



We deliver NDT and coatings training, examinations and NDT consultancy services around the world and through our approved training partners.

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ADVANCES IN COATINGS & NDT

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ADVANCES IN ICORR

Training & Examinations

- Developing and reviewing of courses and Examinations in conjunction with ICorr including:
 - Passive Fire Protection Inspector (Epoxy) Levels 2 & 3
 - Pipeline Coating Inspector (In Progress)
 - Insulation Inspector Level 2 & 3
 - Protective Coating Inspector Levels 1 & 2
 - Plus more!
- Hosting Cathodic Protection Courses out of our Sheffield training centre
- Continued globalisation of all courses with approved partners
- Newly implemented secure examination system
 - Highest level of security
 - Anti-Cheat
 - Flexible – Can be used anywhere in the world
 - Easy-to-use – Even for people with limited computer knowledge



ADVANCES IN ICORR

Online Learning

- Courses being developed as Blended Learning or Fully Online where possible
- Online Learning Course Development – 70% of our portfolio is now completed since approval earlier this year
- Content created by a team of Educationalists and Online Learning Developers
 - Developed to aid students in learning – Not just reading information
 - Continual knowledge checking
 - Mix of text, videos, imagery and interactivity in a bite size format
- Using the latest industry standard software
- Up-to-date and modern Online Learning System
- Continual improvement on materials and quality of product

Click and drag the insulation type below to match the correct description.

Insulation to surfaces of pipes and vessels normally operating at temperatures greater than 60°C, where any leakage of heat is considered to be loss of energy.

Insulation to surfaces containing fluids likely to freeze in cold weather under normal operating conditions

Insulation to surfaces of pipes and vessels normally operating at temperatures less than -10°C, where any leakage is considered to be loss of energy.

Insulation to surfaces of pipes and vessels operating at temperatures less than -10°C, where any leakage of heat is not considered to be a loss of energy.

Insulation to surfaces normally operating at temperatures > 55°C and <-10°C, which can come into contact with personnel under normal operating conditions.

Frost Protection

Cold Conservation

Personnel Protection

Anti Condensation

Heat Conservation

Submit

88%

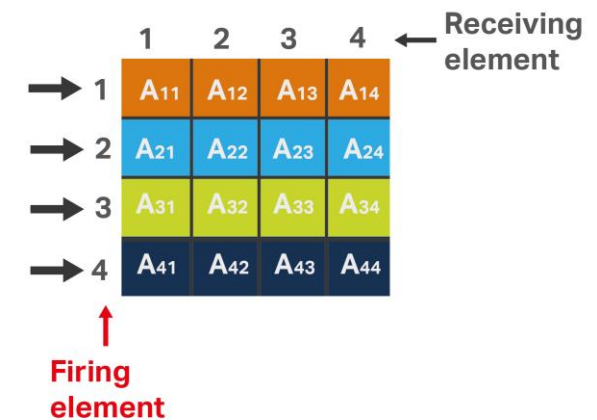
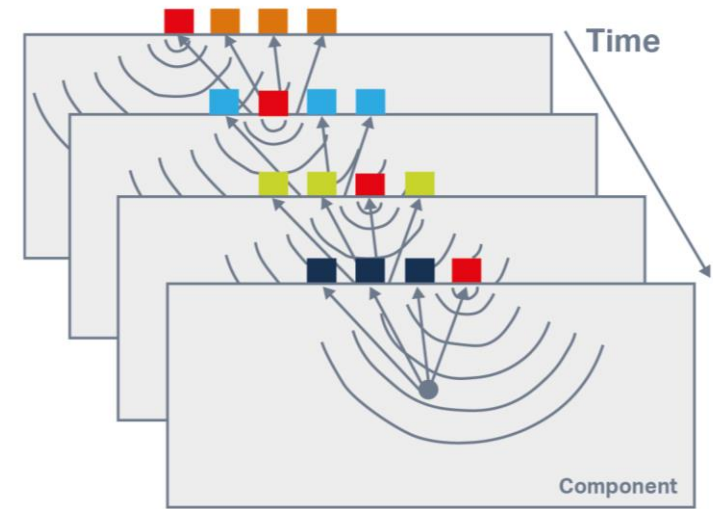
ADVANCES IN NDT

- Aim to keep up to date with the latest technologies
- New techniques often used in safety critical industries
- Progressions in Phased Array
 - Full Matrix Capture (FMC)
 - Total Focusing Method (TFM)
 - Intermodal TFM – TFMi™
 - Phase coherence
- Working with industry to develop training courses



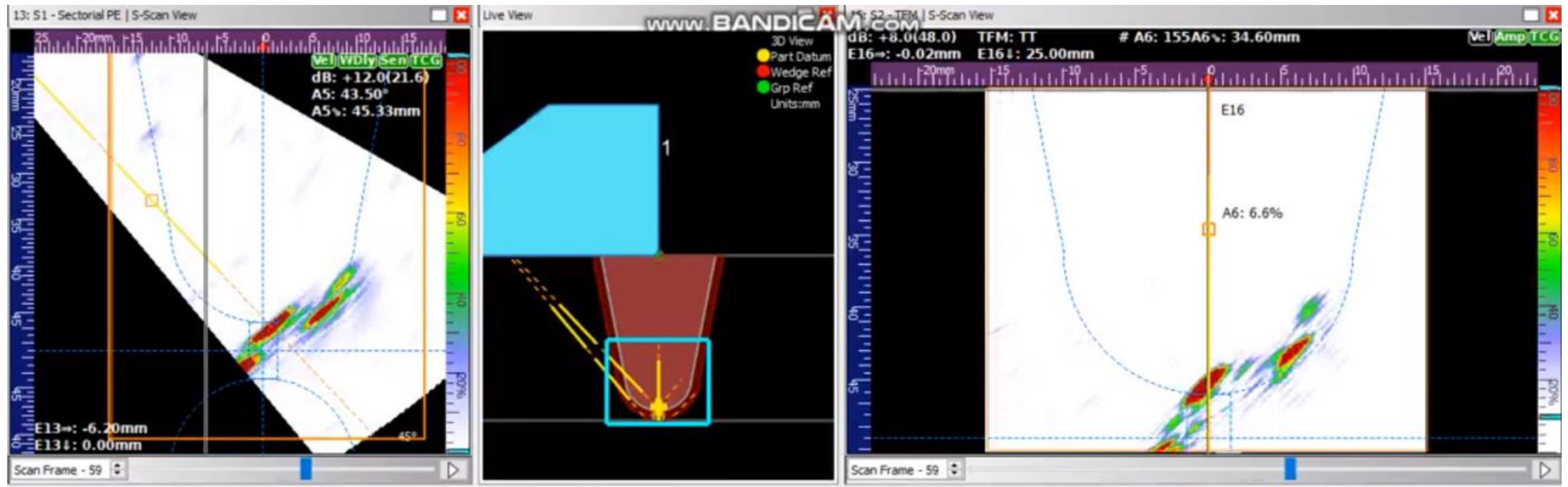
FULL MATRIX CAPTURE

- Capture all possible A-scans
- Transmit on one element and receive on all
- Raw data can then be processed in many ways
 - PAUT focal laws
 - SAFT
 - TFM
 - TFMi
 - Phase coherence Imaging (PCI)



TOTAL FOCUSING METHOD

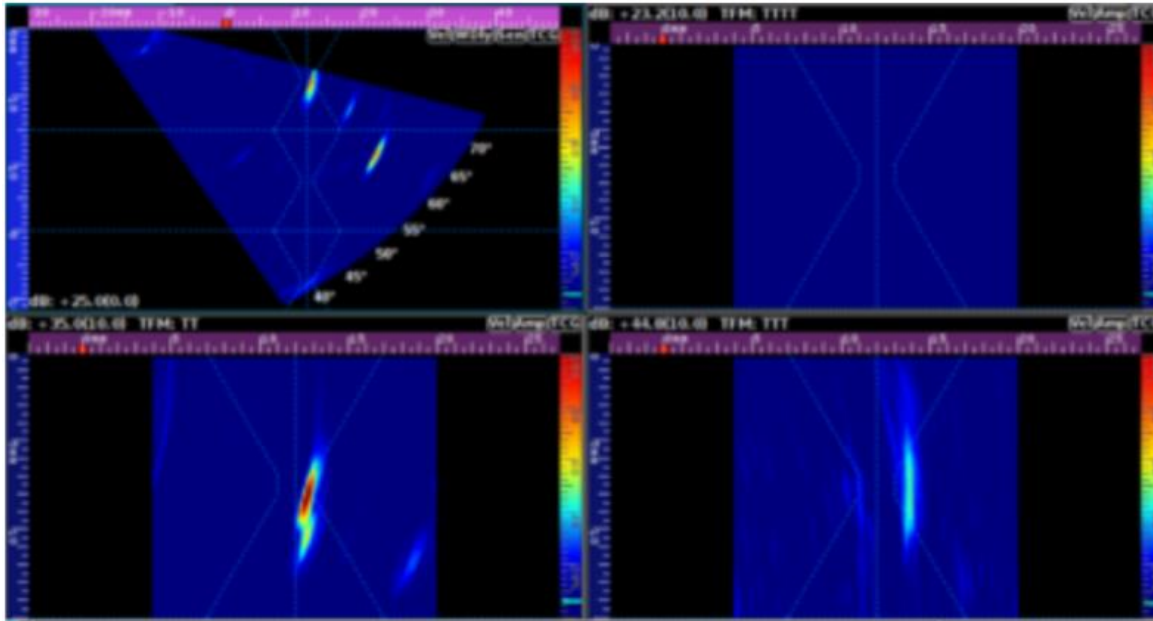
- Processes data collected by FMC
- Higher resolution in a defined region of interest
- Slower scanning speed and data analysis
- Range of instrumentation with real-time TFM



Focused PA inspection and TT TFM of a Root Crack in a U-prep weld

PROPAGATION MODES

- TFM utilises a range of propagation modes
- Certain propagation modes will image the defect well, others will miss it
- Must have an understanding of the type of defect you wish to detect
- Clearer images can allow more accurate sizing
- ISO 23864, 23865 & ASME Section V Article 4 standards exist

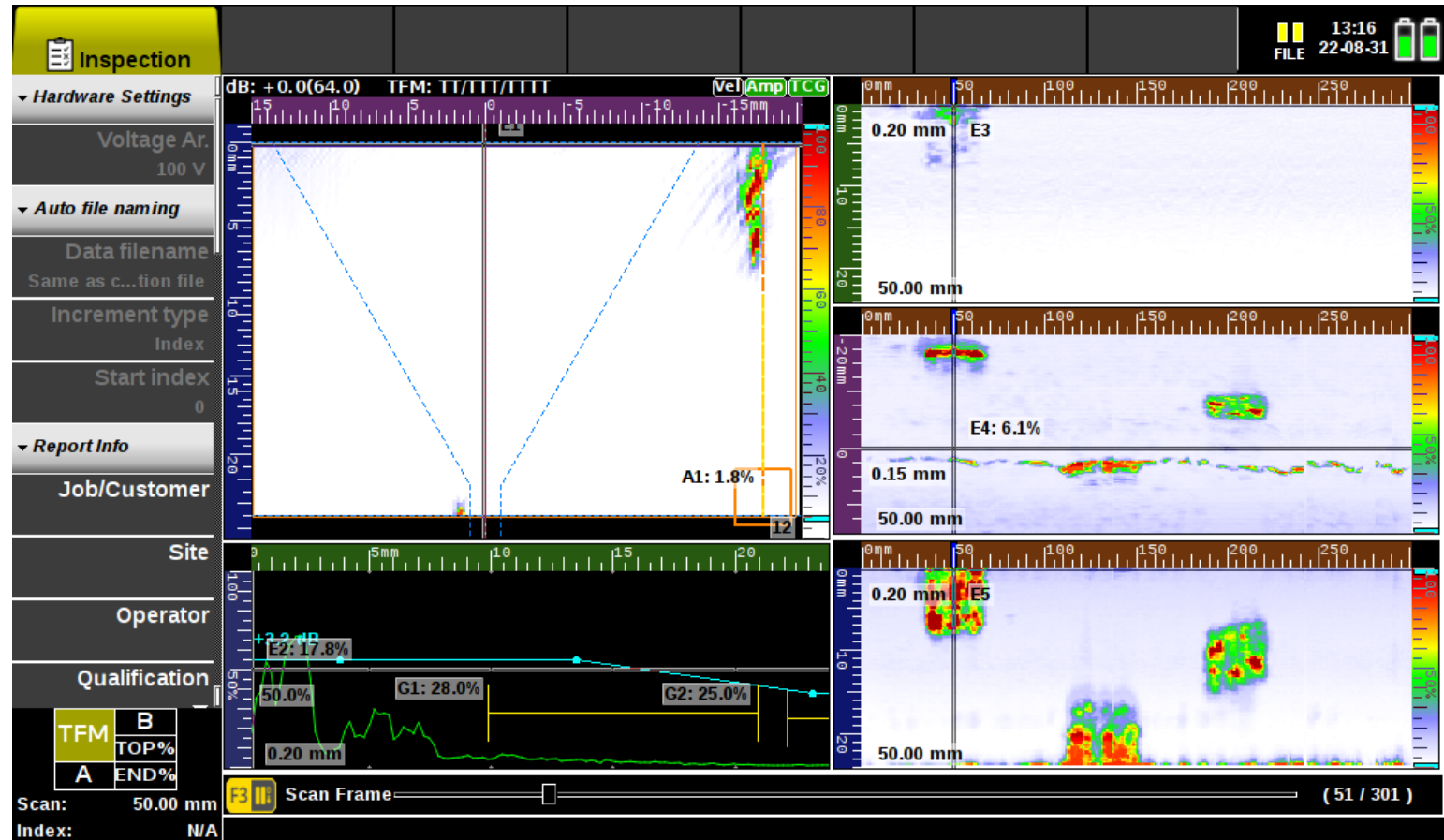


Multi-scan PA, TT, TTT & TTTT images

	LL, TT, LT
	LTT
	LLL, TTT
	LTL, TTL
	LLT, TLT, TLL
	LLLL, TTTT
	5T
	6T
	7T

TFMi™

- Two or more TFM modes are multiplied
- 4 propagation modes with Veo3 TFMi™
- Better defect sizing as tips defined
- Defects have truer orientation
- Less need to know defect orientation
- Can optimise once know defect



Intermodal TFM (TFMi™) scan image of a Toe Crack defect in a 24mm thick weld

NEW COURSE DEVELOPMENT

- FMC, TFM, TFMi and Related Technologies course
- Suitable for PA / UT technicians and others
- Developed with Holloway NDT & Engineering
- Invested in a fleet of Sonatest Veo3 instruments



THE CHALLENGES

- Standards
 - Revised and updated standards to include all new techniques and methods of inspection
- Training
 - Training courses that are certified against standards through the likes of ICorr and PCN
- Resources
 - The right people coming into industry to support the new roles
- Planning
 - Considerations at planning stages of all projects






FUTURE OF TRAINING

The questions

- How do we train the new generation?
- When is the change taking place?
- Why is training important?

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/company/imeche-fife-ndt/

THANK YOU.

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