

Artificial Intelligence Advanced NDT Data Analysis

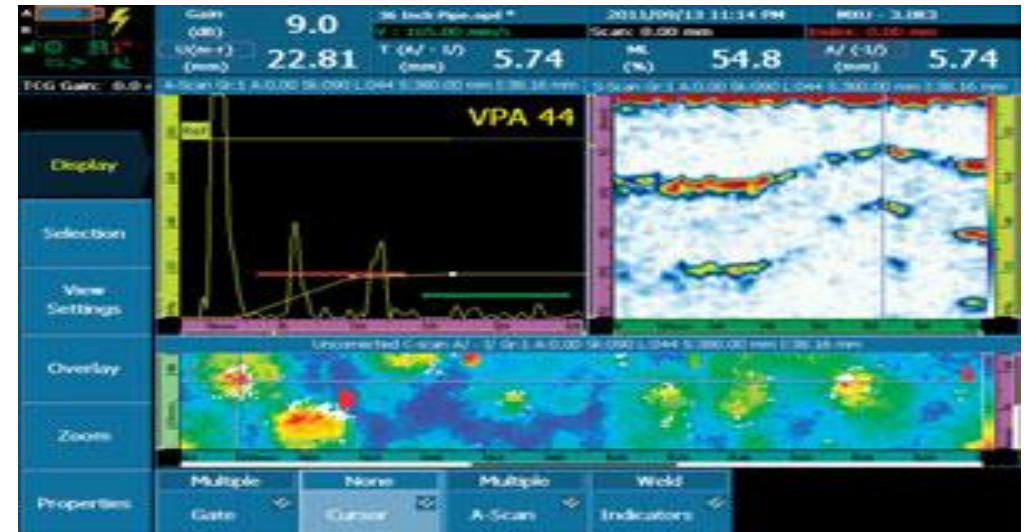
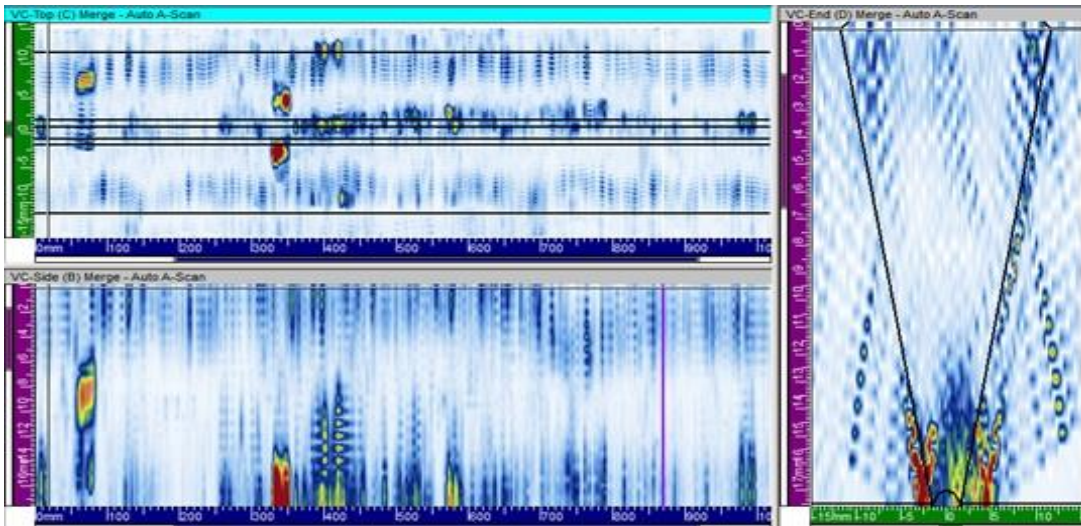
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NDT in Canada
NDT*i*C 2019
Inform - Engage - Advance

June 18 - 20
River Cree Resort & Casino
Edmonton, Alberta

Complex Ultrasonic Inspection and Analysis



Data Analysis Using Artificial Intelligence

Why?

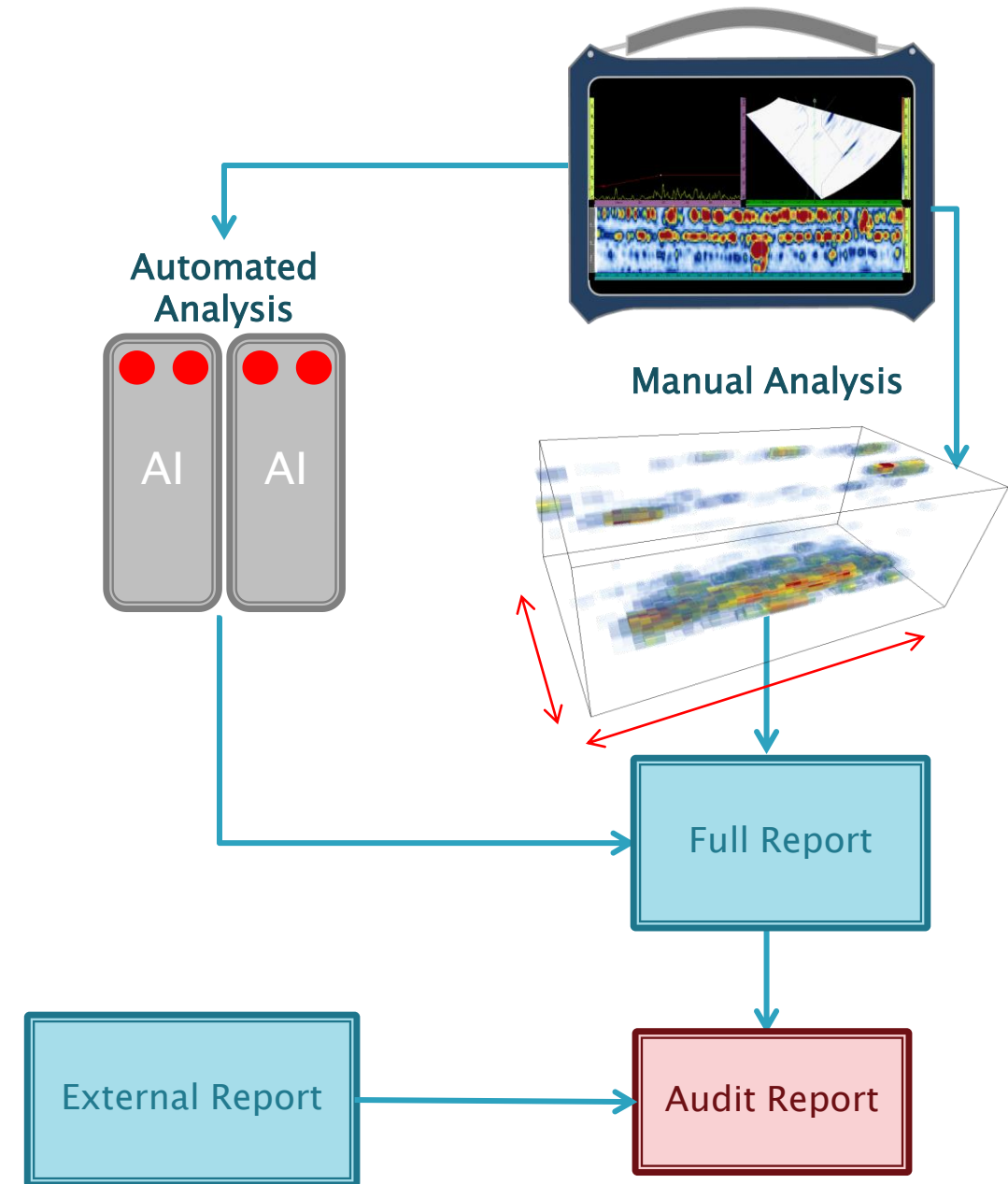
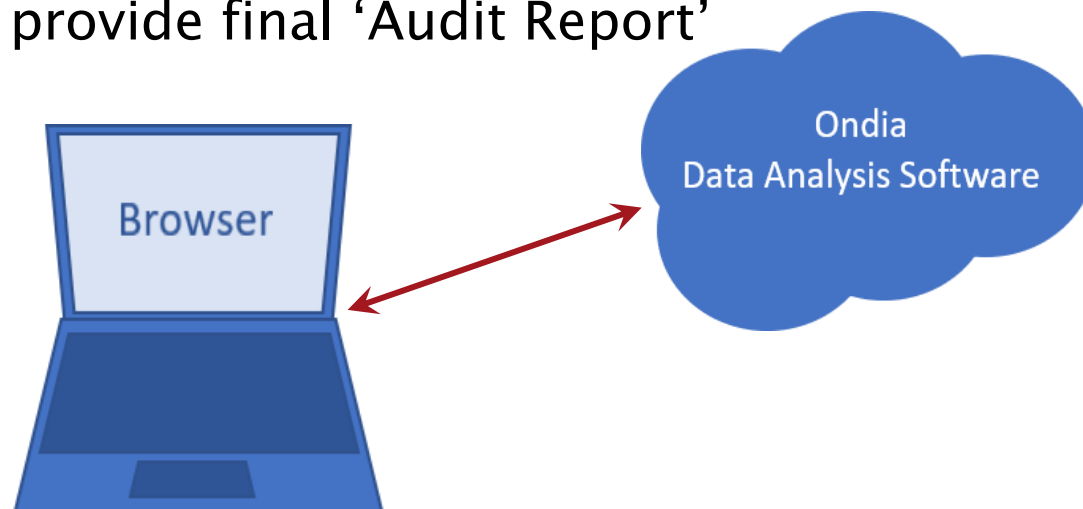
- 1) The volume of complex data is ever increasing
- 2) The number of competent data analysts is not !!
- 3) The need for consistent high quality 'Data Analysis,' to provide accurate quantification for Engineering Critical Assessment and Asset Integrity Management

The Solution

- 1) A Powerful, scalable, Cloud-based analysis software
- 2) Utilising 3D Artificial Intelligence algorithms
- 3) The 'Artificial Intelligence (AI)' becomes an invaluable assistant to the 'Data Analyst'

Software Description

- 1) Cloud-based data analysis software
- 2) Browser-based interface
- 3) Automated data analysis using Artificial Intelligence (AI)
- 4) Manual data analysis using 3D visualisation and measuring tools
- 5) Full reports for automated and manual analysis
- 6) Comparison of 'Manual Analysis' versus 'AI Analysis', and External Report, in order to provide final 'Audit Report'



Software Operation

- 1) Data is acquired by the operator
- 2) Data is sent to cloud-based servers
- 3) Data is analysed for quality (lack of data, lack of couplant)
- 4) A SMS or email is sent to the operator and the supervisor
- 5) Data is fully analysed by Artificial Intelligence
- 6) A full report is sent to the Supervisor



Reporting

- Data Quality Assessment
- Defect Detection and Measurement
- Location and Characterisation of Geometric Indications



Summary

- Audits
 - External audits: Checking the quality of external inspection company's work
 - Internal audits: Checking of inspectors competency
- Efficiency tool
 - More analysis per hour
 - Higher quality analysis
- Follow-up tool
 - Monitor the evolution of indications
 - Checking previous inspections
- Future Aspiration: Auto Defect Recognition(ADR)

Case Study

- Third Party Cross Check
 - Fabrication on High Pressure, High Temp System
 - Suspect quality issues with subject contractor
 - Initial investigation indicated that PAUT Data Files were being duplicated
- Using Conventional OEM 2D Software
 - Many Hours spent attempting to identify copied files – this proved inconclusive
- Using AI 3D Software
 - Random selection of 650 data files uploaded to cloud AI processed in minutes and identified that 40% of files proved to be duplicated



Thank You...

QUESTIONS PLEASE

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