Survey of NDI Training

FAA Academy

AMA-250

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Overview

• NDI – Nondestructive Inspection and Evaluation (22518)
• Accidents
• FAA Guidance/Advisory Circular
• Systematic NDI Evaluation Process
• Common misconceptions and tribal knowledge
• Effective Surveillance
Nondestructive Inspection and Evaluation Course (22518)

- Common NDI/NDT/NDE Methods
- Certification of Personnel / Organization
- NDI Related Accidents
- Role of the Aviation Safety Inspector (FAA)
- Systematic NDI Evaluation Process
Accidents with NDI Implications

United 232
Aloha 243
Delta 1288
NDI Related Accidents

Delta 1288 - Pensacola, FL

• “...the probable cause...was the fracture of the left engine’s front compressor fan hub, which resulted from the failure of Delta Air Lines’ fluorescent penetrant inspection process to detect a detectable fatigue crack initiating from an area of altered microstructure that was created during the drilling process...and that went undetected at the time of manufacture.”

– NTSB-AAR98/01
ASI Job Functions

• Aviation Safety Inspector/SME/Auditor
• ASI’s do NOT perform actual NDI.
• Certification-Design Assessment
• Surveillance- Performance Assessment
FAA Publications

• Regulations 14 CFR Part
  – 121.375, 145.163 Training and qualified personnel
  – 121.367 Competent personnel and adequate facilities

• FAA Guidance
  – 8900.1 Vol.6, Chap.11, Sec. 27
    • Inspect a Nondestructive Program/Facility

• Advisory Circular
  – 65-31B Training, Qualification and Certification of NDI Personnel
  – AC 25-29 Development of a Nondestructive Inspection Program/Organization
  – AC 43.13B Chapter 5
Online NDI Job Aid?

- A tool designed to help the ASI apply the systematic NDI evaluation process when evaluating an NDI facility

- Provides a set of questions from which the ASI may utilize in preparing to evaluate an NDI facility
Systematic NDI Evaluation Process

SAFETY

ENVIRONMENT

TRAINING

ORGANIZATION

CALIBRATION

DOCUMENTATION

REGULATORY GUIDANCE
Systematic NDI Evaluation Process

Documentation

- Manuals
- Personnel
- Procedures
- Data
- Record keeping
Systematic NDI Evaluation Process

Organization

• Management perspective of NDI
• Structure
• Resources
Systematic NDI Evaluation Process

Environment

- Safety
- Housekeeping
- Storage
- Consumable management
Calibration

- Process by which an item is checked against a standard
Systematic NDI Evaluation Process

Training

• Methods
• Standards
• Training Plan
Systematic NDI Evaluation Process

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REGULATORY GUIDANCE
Common misconceptions and tribal knowledge

- A&P can perform FPI if shown in vo-tech school?
  - CFR Part 147 - Appendix B
  - This appendix lists items required in general curriculum subjects for an A&P school
- Need for System performance checks
- Repair Station (Part 145) has Company level II perform inspection on a part 121 Air Carrier
- Difference between Relevant/Non-relevant Indication
Effective Surveillance

• Systematic Approach
• Scoped for the operation
• Policies vs. Procedures
• Controls to mitigate unacceptable risk
• Process Measurement – ID issues and corrective action
• Interfaces
THANKS!