

## **Integrity Challenge Forum (ICF) Task Force 4 (TF4) New Technology Acceptance for In-Service Inspections**

### **Question:**

#### **How does New NDE Technology get authorized for In-Service Inspections?**

Industry members raised this question during the 2023 IPEIA ICF meetings. As it relates to New Construction, ASME BPVC has a process defined for new NDE processes, as permitted by the Authorized Inspector (ASME AIA Organization, Employing Commissioned AI Inspector).

However, the process is not clearly addressed for NDE performed on In-Service Pressure Equipment. ICF TF4 discussed this question with multiple industry representatives before reaching out to local Jurisdictional Authorities.

### **Response:**

An Administrator has established NDE requirements within Alberta's AB-500 documents issued by the Alberta Boiler Safety Association (ABSA). TF4 focused on the requirements from AB-506, AB-512, and AB-515.

In AB-506, Inspection & Servicing Requirements for In-Service Pressure Equipment Edition 3, Section 14.0 Non-destructive Examination (NDE), identifies the requirements, as it relates to NDE examinations.

In AB-512, Owner-User Pressure Equipment Integrity Management Requirements Edition 3, Section 4.17 Non-destructive Examinations and Testing, identifies the NDE requirements that an Owner/User needs to address within the Owner/User program to be able to accept NDE processes. Additionally, section 4.11 Purchasing and Material control, identifies key activities for the Owner/User to ensure when contracting this type of service.

In AB-512, Sections 5.11 and 5.17 provide guidance for the Owner/User to implement.

In AB-515, Quality Management System Requirements for Integrity Assessment Organizations Edition 3, Section 4.14 Non-Destructive Examination (NDE) and Testing, identifies the NDE requirements that an Integrity Assessment Organization needs to address within the Owner/User program or IMS to be able to accept NDE processes.

In AB-515, Section 4.14, Implementation Guidance, references AB-512 Section 5.17 for processes regarding NDE.

There are two main activities required for an Owner/User to be able to accept a "New Technology" (NDE Method/Special Process) for In-Service Equipment:

1. The Owner/User (or Integrity Assessment Organization) shall have a system within their Owner/User program that provides a methodology to measure, evaluate, and accept a "New Technology" (NDE Method/Special Process) in accordance with the AB-512, Sec 4.17 and/or AB-515, Sec 4.14.
2. The NDE Organization shall meet the requirements of AB-506, Sec 14.0. Please note that most NDE organizations meet this requirement by having an SNT-TC-1A Written Practise, following the Code of construction and ASME Sec V, Art 1, T-120 and T-150. However, instead of

demonstrating to the ASME AI, the demonstrations and acceptance would be from an Owner/User-designated representative with authority (usually the Owner/User Chief Inspector).

Both ABSA and TSASK agreed with the ICF TF4 interpretation above:

#### **ABSA**

“From the information you’ve provided and the current versions of AB-512 & AB-515, the ICF TF4 is accurate.

During an Owner-User or Integrity Assessment Organization audit, one of ABSA’s standard questions *should* be ‘has the organization implemented any new NDE technology since the last audit.’ Then a review to ensure all of the key elements have been addressed per AB-512 & AB-515. Essentially, some objective evidence must be found to ensure the NDE stands scrutiny.”

#### **TSASK**

“We expect that all NDE will be outlined in the Quality Management System (QMS) manual and will, as such, be subject to the review and acceptance of the TSASK auditor. We expect that new NDE processes will be added to the QMS manual, and the updated manual submitted for TSASK review and approval. Change records in the QMS manual would serve to document when revisions, such as new NDE processes, were added.”

#### **TSBC**

No response at this time.

#### **Summary**

The initial question was, “How does New NDE Technology get authorized for In-Service Inspections?”

The answer, by following the requirements established in documents AB-506 and AB-512 (AB-515), the Owner/User needs to establish their acceptance process within their PEIM system. The NDE organization needs to demonstrate that they have a Written Practice (SNT-TC-1A), an ability to identify anticipated damage mechanisms, and a suitable methodology for evaluating personal performance to the new NDE procedure.

#### References:

- AB-506, Inspection & Servicing Requirements for In-Service Pressure Equipment Edition 3, Revision 0 – Issued 2020-12-07.
- AB-512, Owner-User Pressure Equipment Integrity Management Requirements Edition 3, Revision 0 – Issued 2020-08-19.
- AB-515, Quality Management System Requirements for Integrity Assessment Organizations Edition 3, Revision 0 – Issued 2022-09-19.