IPEIA
Integrity Challenge Forum (ICF)
Task Force 4
Final Report

About ICF

- What is the intention of the forum?
- The Challenge: Industry working as a team to identify and solve industry issues
- IPEIA Mission - forum interaction between industry, regulators, and educators. Create a platform to discuss industry specific issues.
- IPEIA's role in ICF is to facilitate the process. IPEIA provides linkage between the various Industry Groups, volunteers, and staff to manage meetings and logistics. IPEIA schedules, hosts, chairs and takes ICF meeting minutes
- To ensure that all segments of industry were represented IPEIA requested that Industry Groups (IGs) provide committee volunteers representing their industry segment and that this representative group works on industry issues. Interested individual industry members were also part of the discussions
    - Participants in the ICF include:
        - IPEIA volunteers to provide ICF TF4 facilitation
        - Volunteer representatives from Industry Groups
        - Interested industry members
- The Integrity Challenge was an important part of the IPEIA Special Sessions Committee. Special Sessions activities include:
    - Industry specific training
    - Industry Group meetings
    - Webinars
    - Regulator Updates
    - Integrity Challenge Forum

Committee Members who regularly attended meetings:

Industry Group Representatives & Members			
• **Joel Pepin** • PCL/APPCA	• **Cam McDonald** • AECON/APPCA	• **Ryan Chaisson** • Mountain West/CCIA	• **Brad Vonkeman** • Prime Boiler/APPCA
• **Marc McGill** • ATW Inspections/CCIA	• **Doug Brett** • Secure/UCIA	• **Nathan Bartley** • Acuren/CCIA	• **Jim Yukes** • AVH Engineering/IPEIA
• **Todd Loran** • Cenovus/UCIA	• **Chantel Rivard** • Tourmaline Oil	• **Brett Goudy** • SaskPower/SIA	• **Koteswara Veeranki** • Suncor
• **Marrel Payne** • Pembina/UCIA	• **Jason Caron** • Keyera/ ARPIA		

ICF 2023/24

Prior to the February 2023 conference, IPEIA ICF volunteers approached IG Chairs to request for issues related to Pressure Equipment Integrity. The supplied discussion topics included:

- New Technology Adoption
- Red Tape Reduction

- The ICF meeting was held at the 2023 IPEIA conference as part of the Special Sessions segment of the conference. The meeting was held over a 2-hour period at Jasper Park Lodge. The ICF concept was described to the audience which was supplied the discussion questions. Discussions concerning the ICF topics were held by approximately 100 industry representatives with about 10 people per table. Each table had a monitor who gathered each table's comments. At the end of the discussion period table monitors read the comments from their table which were recorded by two scribes.
- Post-conference, the IPEIA ICF members organized the recorded comments and developed a plan to take to the IGs to request volunteers to continue to work on the issues. The working group was designated Task Force 4 (TF4).
- Benefits of the ICF for IG group members include:
    - an opportunity to work together as an industry
    - a platform for industry to communicate with the government
    - support of IPEIA services to the IGs
- IPEIA requested that the IGs select representatives from their groups to be TF4 members.
- To ensure industry participation, and at the same time discussions were taking place with the IGs, several individuals from companies interested in the process participated in the TF4.
- ICF TF4
    - TF4 continued using the same aggressive meeting schedule of a 1 hour meeting every second Thursday that previous Task Forces had followed. IPEIA set up on-line meetings, supplied meeting agendas based on agreed topics and IPEIA volunteers facilitated the meetings. Discussions were recorded both digitally and through minute taking. Meeting minutes are saved in an MS Teams folder accessible by TF members. IG liaisons provide progress reports to their respective groups at their regular meetings.

Topic Discussions

TF4 discussed the topics voted on at the Jasper Conference and added several topics that developed during the Task Forces' term.

New Technology Adoption

- Committee discussion identified that by following the requirements established in the AB-506 and the 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), procedures to find the anticipated damage mechanisms, and personal performance in the procedure.

Red Tape Reduction

- *Steam Technologies*
    - The Alberta Chamber of Commerce requested a letter to support them in streamlining inconsistent regulation between different governments for the lucrative steam technologies market
    - The ICF provided a letter supporting the Alberta Chamber of Commerce initiative
- *Skilled Trades and Apprenticeship Education Act, Statutes of Alberta, 2021 Chapter S-7.88 (STAE Act and Regulation) and the Safety Codes Act, and the Pressure Equipment Safety Regulation and Related Regulatory Requirements*
    - Conflicts between the Skilled Trades and Apprenticeship Education Act, Statutes of Alberta, 2021 Chapter S-7.88 (STAE Act and Regulation) and the Safety Codes Act, and the Pressure Equipment Safety Regulation and Related Regulatory Requirements was identified by Industry Groups and TF4 provided a Red Tape Reduction request to the Alberta government on their behalf.
    - TF4 facilitated meetings with Industry Group liaisons and other interested parties to get an update on the issue from an Alberta Municipal Affairs representative
    - TF4 facilitated a meeting with Apprenticeship and Industry Training (AIT) managers to learn more about the STAE Act and regulations.
        - AIT confirmed their inspectors may not halt work during an investigation unless safety issues are concerned
        - AIT is willing to hear any concerns related to the industry's engagement with AIT Officers onsite regarding regulation crossover with STAE Act. This will help to provide them with information on AIT's interactions with IPEIA members and the resulting impacts, leading to further conversations and positive outcomes.
    - TF4 reviewed the STAE Act and found that the Act:
        - Provides provisions for direct industry engagement with the governing board regarding restricted activities.
        - Acknowledges that there are other regulations which have specified training requirements not listed within the Act.
        - The Act allows provisions for classes of individuals to perform designated trade restricted activities.

- Although the provisions for classes of individuals may be perceived as prescriptive, the threshold requirements for training and competency are lower than ones required for Inspection or examination activities within an Integrity Management System
- TF4 work on this matter had a positive outcome informing our committee members and Industry Groups with the documentation and procedures to validate and verify staffing requirements for restricted activities and contractor requirements prior to the start of work.
- The ICF committee has compiled and documented our findings in the MS Teams RED Tape folder
- TF4 found that the STAE conflict with other regulations has not been completely resolved and may resurface in the future and advises committee members to be aware of their obligations under the ACT

Inter-Society Panel 2024

- This was the second year for the ICF inspired inter-society panel to introduce "Examination and Inspections" career opportunities to students.
- Participating associates included:
  - AMPP
  - CWB
  - AWS
  - SAIT
  - Careers, Next Gen
  - IPEIA
- Hybrid in-person and on-line panel discussions and technology demonstrations were held at SAIT May 8, 2024
- The 2025 Inter-society panel will be held at NAIT on May 13, 2025

CSA B51:24 Changes and Industry Feedback

- In April 2024, CSA released the 2024 edition of CSA B51 (Boiler, Pressure Vessel, and Pressure Piping Code) which had undergone substantial re-writes, reorganization, and streamlining.
- ABSA has alerted stakeholders of the changes, including with a presentation during the 2024 IPEIA Conference.
- APPCA (Alberta Pressure Piping Contractors Association) spearheaded an industry review of the document. Its members focused on proposed changes to supplemental Charpy V-Notch (CVN) test requirements for non-low-temperature carbon steels (e.g., A/SA 105, 106 Gr. B, 234 WPB) and determined that projects will suffer because of cost and schedule delays.
- Charpy test requirements may have had safety implications that were not clarified in the rewrite
- APPCA prepared letters that its members have distributed to their supply chain partners.
- Because of broad agreement across contacted industry groups, TF4 supported a letter requesting specific deviations from parts of the new CSA B51:24 requirements

CSA B56 Power Engineering

- TF4 facilitated a presentation on CSA B56 by Tom Lemming, CSA B56 Chair.
- B56 is being developed, with consultation from stakeholders, to:
    - Develop requirements that are supportive of the adoption of wet steam and waste heat conversion technologies for regulations within the steam and heating sector.
    - Ensure that the regulations apply to any new products, processes and technologies, as well as all existing products, processes and technologies.
    - Work to ensure that regulations provincially and federally are streamlined, consistently applied, and have a coordinated regulatory approval process; and
    - Implement a product-review standard between the various regulators. If the product or technology meets the criteria, then it passes for all the regulators.
    - 5. Allow for a streamlined process for exemption approval as new technologies are introduced

- TF4 discussed B56 but was unable to arrive at a solution and were unable to provide a response.

Appendix A

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 meets 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

Appendix B
Red Tape Reduction

Steam Technologies

14 August 2024

To Whom it may concern:

Regarding the initiative from the Alberta Chamber of Commerce of regulatory approval for heat and steam technologies and working towards having the Federal and Provincial Governments working together to streamline the regulations for new heat recovery and steam generation products entering Canada.

This is a letter in support from the International Pressure Equipment Integrity Association's (IPEIA) Integrity Challenge Form Task Force 4 (red tape reduction committee) for the Alberta Chamber of Commerce to lobby the Alberta Government to work with other Provincial and Federal Governments to streamline the regulation for new heat recovery and steam generation products entering Canada. .

We encourage the Alberta Chamber of Commerce to move forward the following recommendations:

- With consultation from stakeholders, develop requirements that are supportive of the adoption of wet steam and waste heat conversion technologies for regulations within the steam and heating sector.

- Ensure that the regulations apply to any new products, processes and technologies, as well as all existing products, processes and technologies.

- Work to ensure that regulations provincially and federally are streamlined, consistently applied, and have a coordinated regulatory approval process; and

- Implement a product-review standard between the various regulators. If the product or technology meets the criteria, then it passes for all the regulators.

- Allow for a streamlined process for exemption approval as new technologies are introduced.

On behalf of the IPEIA ICF TF4 Committee

Regards,

Jim Yukes
IPEIA Integrity Challenges Forum
IPEIA Co-Chair

Appendix C

Red Tape Reduction

STAE vs SCO Conflict

Adobe Acrobat
Document

Appendix D

Inter Society Dinners
Addressing Inspector/Examiner Personnel Shortages

AMPP / ASM / AWS / IPEIA

Edmonton March 15, 2023, University of Alberta

Technical Demonstrations & Panel

- Demo: corrosion or corrosion-related inspection tools

- (Technology demo support Jennifer Dowdle/Ryan Brosda)
  - Demo: tentatively some combination of drones and/or drones used for augmented reality inspections
- (Technology demo support Paul Toews)
  - Demo: data acquisition system used by Tourmaline
- (Technology demo support Brain Beesley)
  - Demo: tentatively some combination of robotics and/or PAUT

- Panel Discussion
  - What path did you take to get a career in Inspection/Examinations?

Neal Mills – Confederacy of Treaty No. 6 First Nations
Jennifer Dowdle – Acuren
Josh Wierenga – Tourmaline
Brian Beesley – IRISNDT

Calgary April 5, 2023, SAIT

2 Panels

- Youth Perspective:
  - How is current generation different from past generations?
  - Less interest in this sector as a career
  - How can industry better connect with this generation?
- Interfacing:
  - How can industry connect with this generation?
  - What opportunities are there in this sector?
  - What tools should industry know about to increase awareness of the sector?
  - Speakers
  - Gordon King – Program Development Specialist (Careers the Next Generation)
  - Bob Khan - Director of Operations (Canadian Catholic Immigrant's Society)
  - Rozlynn Wick - Manager for Strategic Youth Initiatives (SAIT)

Appendix E

CSA B51:2024 Appendix B

Alberta Pressure Piping Contractors Association

To: Members of our Supply Chain

From: Alberta Pressure Piping Contractors Association (APPCA) on behalf of:

- International Pressure Equipment Integrity Association (IPEIA) Integrity Challenges Forum Task Group #4
- Alberta Welding Optimization Committee (AWOC)
- Alberta Refinery and Petrochemical Inspection Association (ARPIA)
- Contract Chief Inspectors Association (CCIA)
- Upstream Chief Inspectors Association (UCIA)
- Saskatchewan Integrity Association (SIA)

Date: **2025-January-24**

Subject: CSA B51:24 and the use of off-the-shelf Carbon Steels for pressure-containing applications

In April 2024, CSA released the new 2024 edition of CSA B51 ("CSA B51:24"). Alberta's Jurisdictional Authority, ABSA, has not yet declared CSA B51:24 to be "in force" (see ABSA Information Bulletin No. IB24-002, https://www.absa.ca/media/2534/ib24-002r5.pdf), but that could change as early as April 2025. Please note that some provincial Jurisdictional Authorities will be declaring CSA B51:24 in force shortly (e.g., in British Columbia, CSA B51:24 will become in force on December 31, 2024).

While CSA B51:24 underwent a significant re-write, some of the most critical changes are in clauses 6.2.6 and 6.3.7 (please see excerpts on the next page). These clauses require most pressure-containing carbon steels to undergo Charpy V-Notch (CVN) testing even if the material specifications do not require impact testing (e.g., ASTM A105 / ASME SA 105). For pressure vessel carbon steels, CVN test results shall be reported directly on the MTR, while for pressure piping, 3rd party CVN test reports may be used for existing stock material.

If CSA B51:24 becomes "in force" as it is currently written, this could introduce substantial risk to suppliers, fabricators, and End Users when purchasing or using carbon steels for pressure vessels or piping such as:

- Supplemental CVN testing of existing stock materials may cause cost increases and schedule delays.
- Supplemental CVN testing may identify existing batches of regular carbon steels (e.g., A/SA 105, A/SA 106 Gr. B, or A/SA 234 WPB) as being unusable for registered pressure-containing applications.
- Short term demand for low temperature carbon steels (e.g., A/SA 350 LF2, A/SA 333 Gr. 6, or A/SA 420 WPL6) may increase dramatically while industry determines a path forward for purchasing or using carbon steels that don't by default undergo CVN testing by the original manufacturer.

Please note that suppliers are encouraged to review and compare CSA B51:24 with the previous edition (CSA B51:19) for a full understanding of the changes to technical requirements.

Best regards,

Joel Pepin
Chair - APPCA