NQA INITIATIVES & AALO ATOMICS APPROACH TO QA

Rachel Kelley Czuba, NQA Vice Chair

Les Taggart, Chair for NQA Sc for Assessment & Verification

PRESENTERS

Rachel Czuba and Les Taggart are both officers in NQA-1.
Les is the Director of Quality for Aalo Atomics. Together they have over 80 years' experience in Nuclear QA.

The combined presentation is from the perspective of NQA-1 and Aalo Atomics as an advanced reactor designer and manufacturer.

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OBJECTIVES

1. NQA History
2. NQA Standards Committee Initiatives
3. Historical Approach to use of ISO 9001 Suppliers
4. Aalo Atomics approach to QA

NUCLEAR QUALITY ASSURANCE HISTORY

Focused on **QC and acceptance inspection**

1954: QC-1 - Nuclear Weapons

1959: MIL-Q-9858A – Dept of Defense

During the research came across this interesting observation from 1967: "An ongoing discovery was that off-the-shelf commercial products were not always of sufficient quality for nuclear plant service conditions."

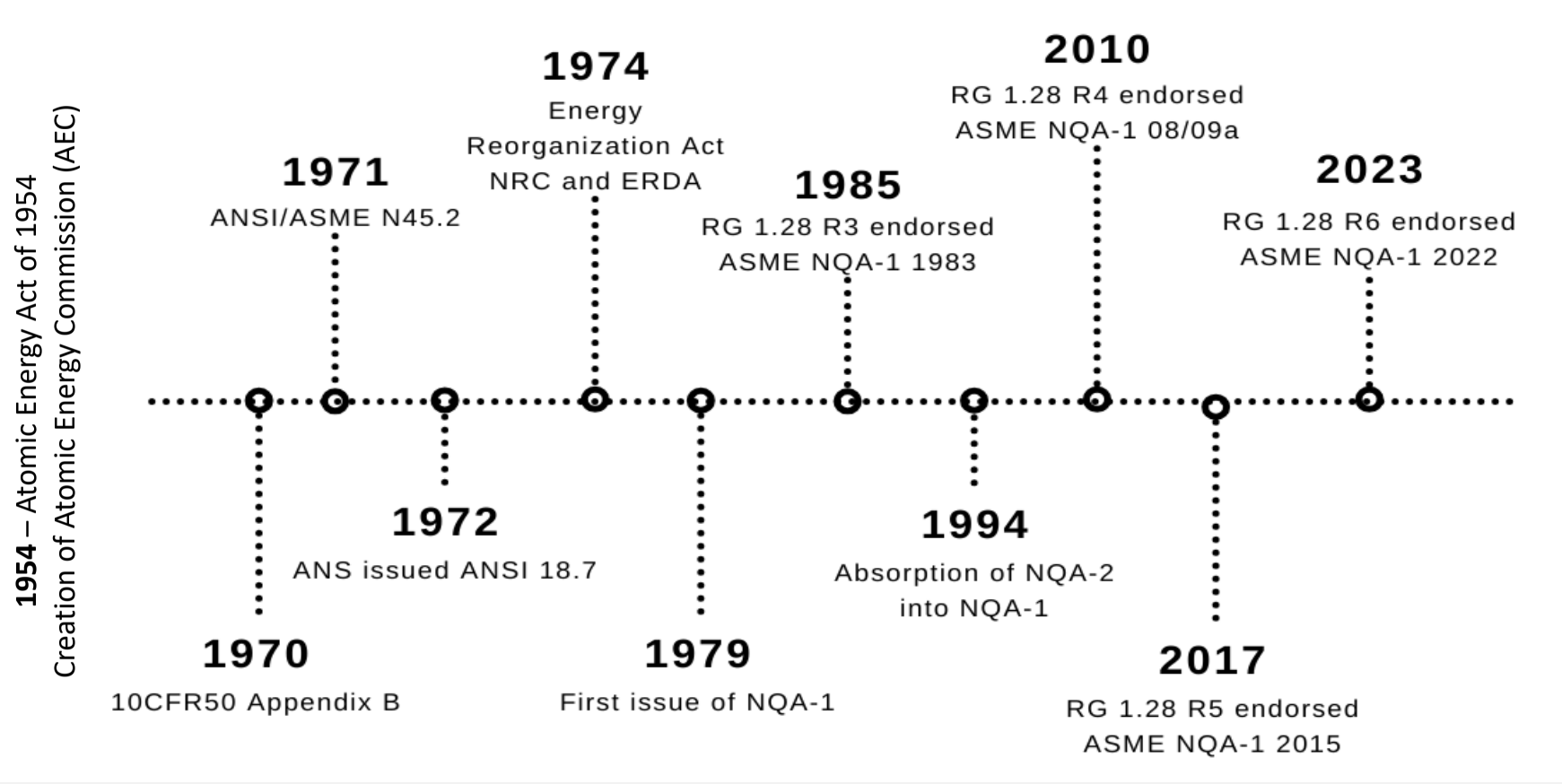
1970: 10CFR50 Appendix B

"All those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service"

NUCLEAR QUALITY ASSURANCE HISTORY

1954	Atomic Energy Act of 1954 - Creation of Atomic Energy Commission (AEC)
1966	Commander Ramey defined quality assurance "all actions necessary to provide adequate confidence that a product or facility will operate satisfactorily in service."
1967	ASME Boiler and Pressure Vessel Code issues Section III, Appendix IX - 15 quality assurance criteria
1969	AEC issued AEC RDT F2-2T - Quality Assurance for Govt Owned-Contractor Operated Facilities
	AEC Proposed 10CFR50 Appendix B for public comment
1970	10CFR50 Appendix B Issued
1971	ANSI N45.2 was first issued
1972	ANS 3.2 was issued
1974	Energy Reorganization Act of 1974 - Creation of NRC and Energy Research and Development Administration (ERDA)
1975	10CFR50 Appendix B Criterion 1 was revised
	ASME Committee for Nuclear Quality Assurance was created
1977	ERDA was abolished for creation of Department of Energy (DOE)
1979	NQA-1 was first issued
1991	10CFR830 and DOE O 5700.6C introduced 10 performance-based criteria
1998	DOE O 414.1 was first issued
2004	DOE/NNSA issued QC-1 Revision 10
2013	DOE/NNSA issued NAP-24 which absorbed QC-1 R10
	DOE/NNSA issued NAP-24A which absorbed NA-10

NUCLEAR QUALITY ASSURANCE HISTORY



NQA STANDARDS COMMITTEE INITIATIVES

Holistic Review 2024 edition

2-year effort - over 50 NQA-1 volunteers. Resulted in hundreds of conflicting statements and grammatical and editorial clarifications.

NQA-1 2026 Edition

Clear Language Initiative - Part 1 and Subpart 2.14

Advanced Reactor Working Group

- Procurement
- Software QA
- Graded Approach to Quality
- Nuclear Technical Bulletins

HISTORICAL PERSPECTIVE ON USE OF ISO-9000 SUPPLIERS

NEI-2204 is not the first effort to promote the use of ISO-9001 suppliers for the supply of items, material and services.

- EPRI document 1003104 – final report issued December 2001

  "Assessment of the ISO 9000 Quality Management System Registrar Accreditation and Supplier Certification Processes"

- EPRI document 1002976 – final report issued December 2023

  "An In-Depth Review of Licensee Procurement Options for Use With ISO 9000 Suppliers"

HISTORICAL PERSPECTIVE ON USE OF ISO-9000 SUPPLIERS

The EPRI efforts coincided with the NRC issuing SECY-03-0117 July 9, 2003:

"APPROACHES FOR ADOPTING MORE WIDELY ACCEPTED INTERNATIONAL QUALITY STANDARDS"

The SECY considered 4 different approaches, two were considered most viable:

- Approach 3: Licensee-Specific Controls for ISO 9001 Certified Suppliers
- Approach 4: ISO 9001 Certified Suppliers for Commercial-Grade Item Procurement

Success with either approach required additional efforts on the part of the purchaser.

From my early involvement in the EPRI Assessment of the ISO 9000 Quality Management Systems to today; to my knowledge no licensee has taken this approach. At TXU we determined it was a matter of direct cost and additional resources.

HISTORICAL PERSPECTIVE ON USE OF ISO-9000 SUPPLIERS

Personal perspective then and now.....

Then.....During the EPRI effort several of the representatives, myself included, wanted to discuss specific issues based on actual experiences. I clearly remember the Chair's dismissive attitude that those details were only antidotal data points.

Now.....Aalo requires that suppliers of items or material classified as Non-Safety Related Special Treatment (NSRST) have at minimum an ISO 9001, AS 9200, ASME Section VIII, or similar program. The difficulty is ISO 9001:2015 QMS statements such as.....ISO 9001 QMS manual states their ISO registration is a **"multi-site certificate"** and that the QMS covers "distribution centers and branches".

What is not stated is that the certificate defers to the supplier's internal audit program to cover those locations not included in the ISO Certification. Too often we're finding the location we prefer to use is not covered under the ISO certification and the internal audit is not covering many of the locations. You wil never know that just going by the certification.

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10CFR50 APPENDIX B, NQA-1 AND OTHER QUALITY STANDARDS

- The Rule vs The Standard
- Regulatory Acceptance
- Other Standards
  - ISO-9001
  - AS-9100D
  - ISO-19443
  - CSA-N299

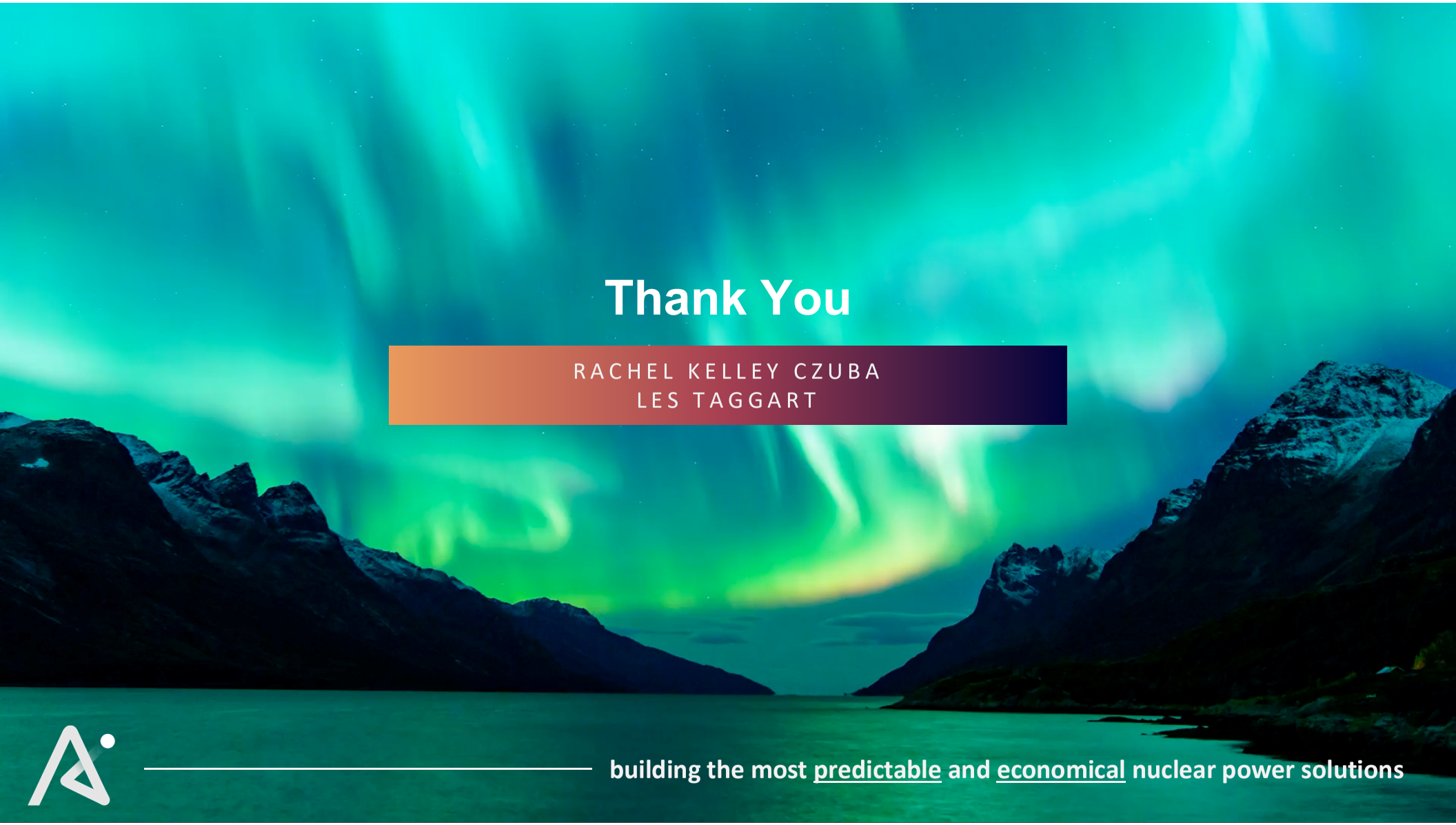
- As an advanced reactor designer and manufacturer the only QA program considered was NQA-1 2022 as the industry accepted standard that meets our expectations for quality and satisfies both NRC and DOE regulations.

AALO ATOMICS - LES

Is there a path for the standards to work together?

- As an advanced reactor designer and manufacturer, the only QA program considered was NQA-1 2022 as the industry accepted standard that meets our expectations for quality and satisfies both NRC and DOE regulations. The decision to use NQA-1 was made long before I joined.
- Aalo will not consider using ISO 9001 suppliers for SR application. For Non-Safety Related Special Treatment(NSRST) items and material, we require the supplier to have at minimum an ISO 9001, AS 9200, ASME Section VIII, similar certification or registration.
  - Aalo engineering determines the Special Treatment
  - QA evaluates the suppliers QA program, certification/registration, and scope of supply
  - If supplier program meets Aalo requirements they are placed on the ASL.

QUESTIONS


Thank You
RACHEL KELLEY CZUBA
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building the most predictable and economical nuclear power solutions


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THANK YOU
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