Local Content / Global Supply Chain Perspectives

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CONTENT OF PRESENTATION

• Nuclear Quality Background
• Nuclear Safety Related Criteria
• Supplier Qualification Process
• Discussion on Polish Nuclear Content Perspectives
Nuclear Quality Background

• Started in ‘60 with development of commercial nuclear plants

• US Nuclear Regulatory Commission (USNRC) regulates civilian nuclear work including new plant construction and provides regulatory oversight of the nuclear industry

• July 1970 -US Standards (10CFR50 Appendix B) defines 18 basic criteria

• Reinvigorated from industry lessons learned (3-Mile Island and Human Performance program)
Nuclear Quality Background - 10CFR50; Appendix B – 18 Criteria

- Organization – Structure & Functional Responsibility
- Quality Assurance Program
- Design Control
- Procurement Document Control
- Instructions, Procedures, & Drawings
- Document Control
- Control of Purchased Materials & Services
- Identification & Control of Materials, Parts, and Components
- Control of Special Processes
- Inspection
- Test Control
- Control of Measuring and Test Equipment
- Handling, Storage, and Shipping
- Inspection, Test, and Operating Status
- Non Conforming Materials, Parts, or Components
- Corrective Action
- Quality Assurance Records
- Audits
Nuclear Quality Background - Company Quality Overview

- Driving Culture to all levels in the organization
- Incorporates Industry Lessons Learned
- Human Performance Tools
- 6-sigma statistical improvement and lean principles … lasting changes

Driving to Quality at the source

Continuous improvement

- Independent quality inspection and complete records
- Independent audits to all the organization functions
- Control of procurement product …Approved Supplier List controls

Solid product/process oversight

Regulated Environment

Inspection Auditing

- 10CFCR50 App B, Part 21
- ASME (10CFR 50.55a)
- ASME NQA-1
- ASME NCA-3800, 3900, 4000
- ISO 17025

Includes in-house and outsourced activities

Training & people

- Initial training commensurate with position
- Qualifications for Quality Roles (Inspectors, NDE, Lead Auditors)
- Retrain and maintain production staff
- Procedure Reliance vs. culture of tribal knowledge

Dedicated Quality Resources

Continuous improvement

Driving to Quality at the source

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**Nuclear Safety Related Criteria - Nuclear Safety Related Components**

- **Safety related** (reactor vessel, primary piping,..) ~60%
- **Important to safety** (piping, steel, concrete, instruments, valves, pumps, heat exchangers) ~10%
- **Non-safety related** (turbine, condenser, cooling water, lighting) ~30%
Nuclear Supply Chain - Safety Related Procurement

- Procurement of a Safety related component:
  - From ASME-NQA supplier
  - Commercial Grade Dedication
- Non-Safety related
  - Supplemented Quality Requirements for Important to Safety items
  - Commercial Supplier

- Nuclear Island: N-Stamp Required
- Turbine Island: ASME Code Requirements
Nuclear Supply Chain - Supplier Quality

Qualification
- Ability to meet product requirements
- Production rigor
- Control of key processes
- Supplier capacity

Regulatory Flowdown
- Audits/Right of Access ... in process inspection
- QA requirements ... certificate of conformance, documentation requirements, notification of product defects in accordance with regulations.
- Customer approval of non-conformance dispositions

Performance
- Ability to monitor supplier on time delivery & defects
- Supplier side to side comparison
- Improvement plan if necessary

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Nuclear Supply Chain - Supplier Quality

• Meeting quality & schedule requirements. Proven delivery performance
• Strong quality program in accordance with industry norms
• Technical expertise and problem solving
• Supplier adequate capacity & production rigor
• Requirements driven by component criticality & safety function

Rigorous process to confirm function and quality
Nuclear Supply Chain - Compliance With Regulations

- Right to access, on-site audit on QA program, periodic surveillances
- Witness and Hold points
- Reporting latent defects per current regulations
- Responsible for sub-tier supplier compliance
- Full cycle material/documentation conformance
- Segregation of non-conformance product
- Handling & storage product

Always looking to improve … controlling with quality systems
Nuclear Supply Chain – Monitor Supply Chain

• Monitoring
  ▪ on-time delivery
  ▪ non-conformances/deviations
• Periodic reviews with supplier
• Regular communication during production including witness and hold points
• Performance improvement plan with suppliers as needed

Develop strategies to mitigate risk and realize opportunities
Nuclear Supply Chain - Where to go? What to do?

Where do you go from here?

• Monitor the Development of the country Nuclear regulations to ensure compliance *(will the regulations be similar to the US model? Or any other?)*
• Check the nuclear oriented industry groups … they are a great way to interface with other vendors and to improve your QA
• Indicate your interest in becoming a qualified vendor to utilities and design companies
Nuclear Supply Chain & Local Content

PYTANIA?
QUESTIONS?
THANK YOU FOR YOUR ATTENTION

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