

Quality Standard in Nuclear Industry





A changing environment

- ▶ **Initiatives by nuclear Industry about standardization of requirements and practices**
- ▶ **A supply chain to be re-installed in a global environment**
- ▶ **With higher safety and quality expectations from regulators, utilities and manufacturers due to evolution of technologies**



A changing context for the supply chain



Why a « new » quality standard ? NSQ100 (1/2)



- ▶ **Initiatives by nuclear entities about standardization of requirements and practices**
 - ◆ Nuclear safety authorities
 - ◆ Design processes (assessment, approval, certification)
 - ◆ Licensing processes
 - ◆ Training etc.

- ▶ **A supply chain to be re-installed**
 - ◆ Loss of competencies in traditional suppliers due to the lack of new constructions in the past years
 - ◆ A more diversified and complex supply chain due to globalization effects
 - ◆ New supply chain players without nuclear experience

Why a « new » quality standard ? NSQ100 (2/2)

- ▶ **The control of the supply chain considered by the Authorities as a major stake in the Nuclear environment with higher safety and quality expectations**
 - ▶ **Customers expecting certainties regarding quality of products and services and lead time**
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- ▶▶ **To better manage risks related to the construction of a nuclear power plant all along the supply chain in particular to secure the time schedule**

The objectives of NSQ100 (1/2)

- ▶ **Improve understanding of quality requirements by the suppliers**
 - ◆ **Translating very general requirements and providing guidance for implementation**

- ▶ **Benefit from existing industry quality standards and practices**
 - ◆ **Combining both product and production orientations**
 - ◆ **Complemented by major nuclear quality requirements including all safety related requirements**

The objectives of NSQ100 (2/2)

- ▶ **Standardize the requirements**
 - ◆ Developing a common language
 - ◆ Integrating the major nuclear quality codes and standards

- ▶ **Guide suppliers through an unique and shared quality platform**
 - ◆ To be better prepared and to use external supports to get support by developing and verifying their level of compliance
 - ◆ To increase capitalization of experience and know-how in nuclear quality

The method used to develop NSQ100

- ▶ **Based upon ISO 9001:2008 structure : an industry consensus quality standard ensuring the integration of Nuclear QA requirements in well-known industrial quality practices**

- ▶ **Integration of two major reference nuclear codes**
 - ◆ IAEA GS-R-3:2006
 - ◆ ASME NQA-1-2008

- ▶ **Development process inspired by the approach followed in other industries, mainly Aircraft Industry**

(EN 9100 Quality management systems / Requirements for Aviation, Space and Defense Organizations)

 - ◆ **Similar context: strong safety requirements, high quality and industrial expectations combined with a product/process and low production volume orientation**
 - ◆ **Integration of specific requirements into a largely deployed standard**

The content of NSQ100

5 MANAGEMENT RESPONSIBILITY
5.1 Management Commitment
5.2 Customer Focus
5.3 Quality Policy
5.4 Planning
5.4.1 Quality Objectives
5.4.2 Quality Management System Planning
5.5 Responsibility, Authority and Communication
5.5.1 Responsibility and Authority
5.5.2 Management Representative
5.5.3 Internal Communication
5.5.4 Communication with Authority
5.6 Management Review
5.6.1 General
5.6.2 Review Input
5.6.3 Review Output
6 RESOURCE MANAGEMENT
6.1 Provision of Resources
6.2 Human Resources
6.2.1 General
6.2.2 Competence, Qualification, Training and Awareness
6.3 Infrastructure
6.4 Work Environment

Basics of ISO 9001:2008 dealing with quality system replicated as is

Slight adaptation to complement with nuclear specificities

In depth revision to comply with nuclear specificities and standards

Focus on main requirements

3 main orientations



NSQ100 – Consequences for concerned entities

NSQ100 objectives and life cycle are different from those of design code and from specificities of utilities or of owners

NSQ100



Quality and Safety Management Requirements

for companies and adapted to nuclear industrial sector

(Duration of their evolution cycles are around 5-10 years)

= QUALITY MANAGEMENT

CODE



Technical Requirements

dedicated to specify product's characteristics and performances to be used in a nuclear facility

(Code's evolution is linked to technologies and lessons learned)

= QUALITY CONTROL

Utility and Owner role and responsibility still remain to demonstrate the « ability to do » through a qualification phase:

- ➔ of suppliers,
- ➔ of manufacturing processes (technical aspect).

Progress status: Where are we today ?

- ▶ **Standard = QA specification**
 - ◆ A first version of the new standard has been developed

- ▶ **Guidance book = provide additional explanations, implementing methods**
 - ◆ in preparation and first version will be available by the end of 2011

- ▶ **Pilot phase with some selected suppliers**
 - ◆ Get feedback on accessibility, clarity of requirements, effort of implementation

Next steps: a joint work open to partners

► Step 1

◆ A joint AREVA and BUREAU VERITAS work

- AREVA implements this new quality standard up from 1st January 2011 for new contracts
- AREVA Suppliers workshops to present this new standard
- Information/communication to nuclear safety authorities and operators
- BUREAU VERITAS will train and qualify auditors worldwide

◆ But non exclusive and designed to be open to all major nuclear procurement organizations: utilities, engineering, major vendors as well as other certification bodies

Next steps: a joint work open to partners



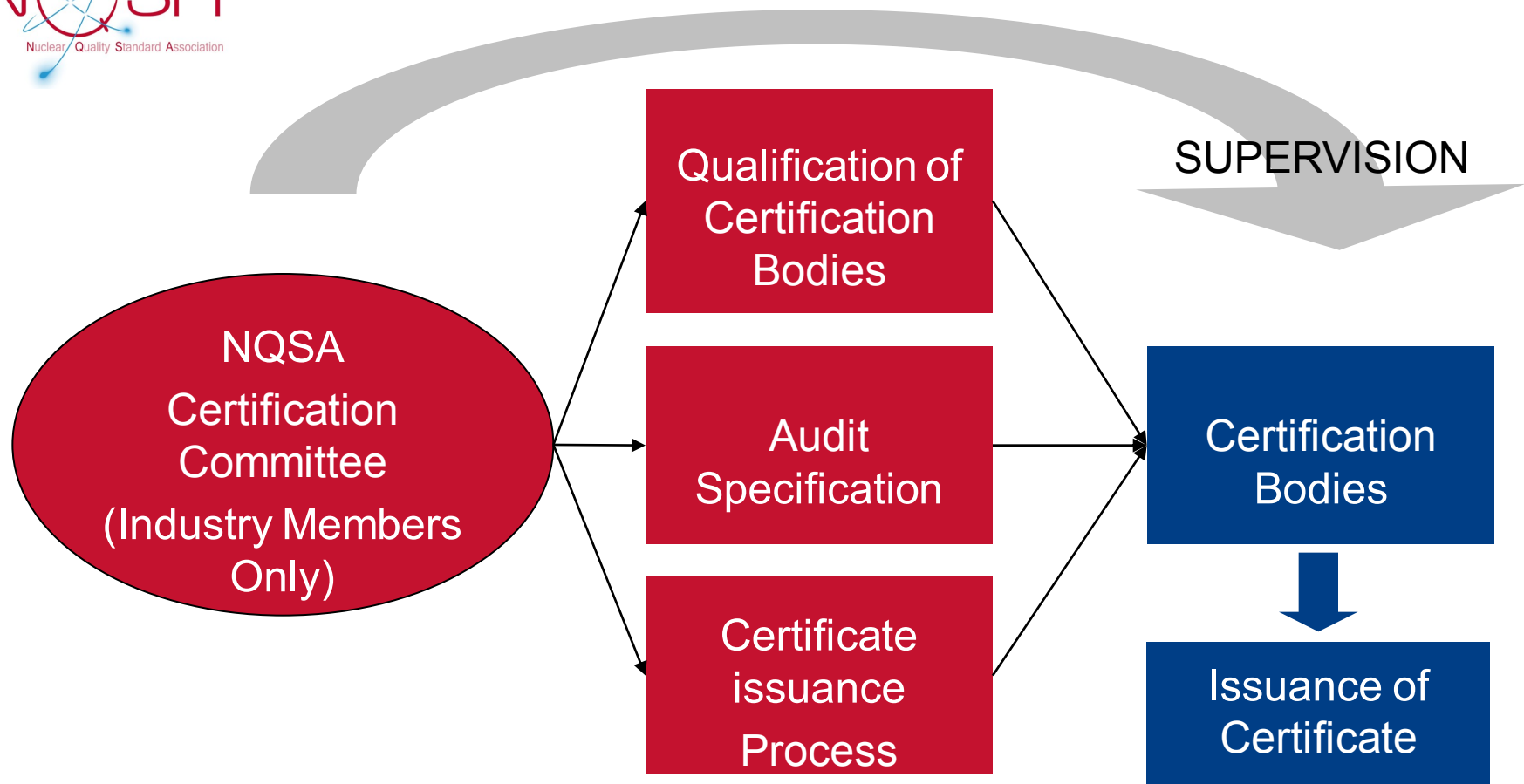
► Next Steps: building NQSA (Nuclear Quality Standard Association)

An association of Major Nuclear Industry Actors to :

- ◆ Promote the application of a robust quality standard
- ◆ Provide a framework for further evolutions of the standard
- ◆ Set a “nuclear oriented” supplier evaluation process to further prepare a new certification scheme



Certification Process



- ▶ **The quality of the certificate is guaranteed by the Industry Members through NQSA oversight by performing periodic surveillance and witness audits**

The Nuclear Industry is organizing itself for a new era!



All major nuclear industry players will **work** in the **same direction** with their suppliers



It will help increasing the **safety culture**



A way to capitalize on **industrial practices** already well understood and applied in other industries while strengthening the integration of the nuclear requirements



A greater **attractiveness** for suppliers to cope with the demand



A **capitalization** of know-how and competence of supply chain



A strong message to the whole industrial world

Our proposal



Join NQSA to



Support future evolution of NSQ100



Elaborate and improve the implementation guide



Develop the certification process



Share best practices and implement initiatives that make significant improvements in quality, reductions in cost and time delivery

Thank you for your attention

and

Join us on NQSA website: www.nqsa.org