Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

Canada

Managing Obsolescence Through Commercial Grade Dedication The Canadian Approach and CSA N299

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CNSC CCSN

Roadmap from obsolescence to commercial grade dedication

4.7 Management of obsolescence

The licensee shall have a managed process for **obsolescence**.

The provisions for the management of **obsolescence** shall be documented in the licensee's management system.

Roadmap from obsolescence to commercial grade dedication

Guidance

The program for management of **obsolescence** should address the following:

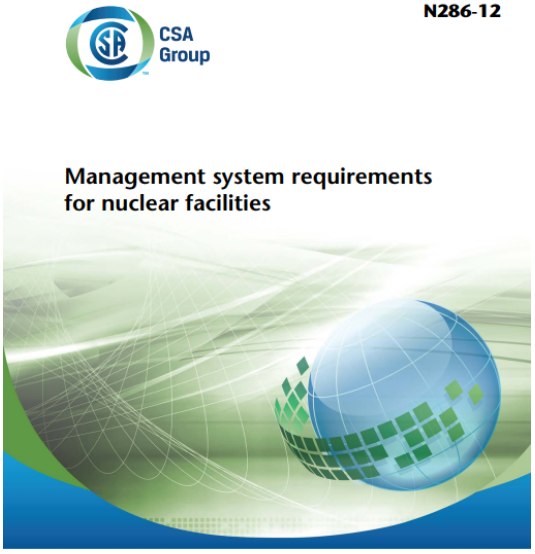
- spare parts suppliers for planned service life
- long-term arrangements for manufactures and spare parts suppliers, and for required technical support
- availability of documentation to support maintenance and replacement of SSCs
- availability and technology to support development SSCs, if needed
- arrangements for modernization and technology updates

Roadmap from obsolescence to commercial grade dedication

7.6.6 Supplier-customer relationship

The performance of the supplier-customer relationship shall be monitored to ensure purchasing requirements will be met. This should include

(e) supplier involvement in **obsolescence** identification and remediation.



CSA N299:2019

CSA N299:2019 categories

Safety culture first introduced in the 2016 edition

Category 4	Category 3 **Note:** *Category 3 includes Category 4 requirements.*	Category 2 **Note:** *Category 2 includes Category 3 and 4 requirements.*	Category 1 **Note:** *Category 1 includes Category 2, 3, and 4 requirements.*
QA program • Training requirements • Contract review • Document control • Calibration • Procurement • Verification activities • Identification • Handling and storage control • Production • Packaging and shipping • CFSIs • Records • Nonconformance and corrective action • Customer-supplied items and services • Statistical techniques	**QA program** • Training and qualification program • QA manual • Tender and contract review • Program descriptions • Design – Interfaces – Design inputs – Software – Design outputs – Design verification – Design changes • Verification planning • Identification and traceability • Production planning • Use of experience • Special processes • External audits • Dedication	**QA program** • Program procedures • Design – Planning – Preliminary design – Design analysis – Detailed design • Nonconformance cause analysis • Internal audits	**QA program** • Process review • Design – Alternatives • Nonconformance (preventive measures) • Corrective action for potential nonconformances

First introduced in the 2016 edition

First introduction

Least comprehensive → Most comprehensive

CSA N299:2019 categories (Cont.)

Category 1 – suitable for custom-designed, first of a kind, high-technology items and services that tend to require many complex processes and extensive design effort by either customers or suppliers, or both.

Category 2 – suitable for relatively high-technology items or services that tend to require design activities, design verification, and production planning, and have a significant number of complex processes.

CSA N299:2019 categories (Cont.)

Category 3 – suitable for items or services requiring some complex processes. They might be high volume services or mass-produced items and might include design changes and associated verification and production activities.

Category 4 – suitable for mass-produced items or for high-volume services designed to commercial technical standards or for simple processes such as custom machining and assembly. Designs are usually mature and established, and the production and interfaces are not complex.

CSA N299:2019

- Latest editions published in December 2019.
- Not yet implemented – yet to decide when to implement – will take time – two to three years.
- First time requirements added for dedication.
- Standards are **NOT** a regulatory requirement.
  - No reference from REGDOC-2.6.3 or N286-12.
- Developed by industry for industry – CNSC has a seat at the table.
- Primarily for replacement components, and services in current operating NPPs.
- May apply for new builds, aka SMRs, but only by applicant/licensee choice.

CSA N299:2019 (Cont.)

- Two selection methods to determine appropriate QA program category:
  - Analytical selection method
    - employees a decision flowchart – answers limited to ‘yes’ or ‘no’
  - Factor rating selection method
    - employs numerical values (0 to 4) added to obtain the value range
- The higher quality level shall be used.

CSA N299:2019 introduction of dedication requirements

Section 8 – CSA N299 dedication requirements

8.1 Application

8.2 Dedication eligibility

8.3 Planning

8.4 Work assignment

8.5 identification and maintaining traceability

8.6 Design evaluation

8.7 Acceptance

8.8 Conduct of acceptance activities

8.9 Dedication outputs

8.10 Dedication changes

N299:2019 Dedication – key points

- Similar to US approach with differences:
  - Applies to **all** components and services regardless of whether safety-significant, safety-related or non-safety-related.
- Requirements do not apply to other upgrade practices established by applicable Codes and Standards (for example, material upgrades in the ASME Boiler and Pressure Vessel Code, Section III NCA 3800).
- Evidence of conformance to the ASME NQA-1 program for dedication, in accordance with EPRI NP-5652 (Category's 1 and 2 only), provided by a recognized authority, may be considered as fulfilling the requirement to be defined as a dedication entity.

Current NPP licensee practice

- Applies NQA-1, 10 CFR part 21 and EPRI NP-5652.
- Specified through standard contractual clauses.
- Use of three qualified third-party dedication entities.
  - Applies accepted QA program to Z299.2 or N299.2.
  - Responsible to identify critical characteristics for acceptance.
  - Selects and employs applicable method/s of dedication.
  - Submits commercial grade item dedication plan.

Current NPP licensee practice (Cont.)

- Qualify third-party dedication entities through self and CANPAC* audits using NUPIC requirements.
  - **CANDU Procurement Audit Committee*.
- Licensees will accept, and sometimes participates in, NUPIC audit findings.

CNSC compliance approach

No direct involvement with industry players (but this may change); compliance is through:

- Desk-top reviews of licensee dedication related documentation.
- Inspections of licensee dedication activities through their ECC and related processes.
- Attending CANPAC and NUPIC meetings.
- Benchmarking the MDEP/VICWG program:
  - Observing an NRC audit of a Canadian third-party dedication entity.
  - Observing the NRC observing a NUPIC audit of a US third-party dedication entity.

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Thank You! Questions?

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