

WENRA-WGWD approach to the back-end

Western European
WENRA WGWD
Nuclear Regulators Association

Armonización de los requisitos de seguridad en las etapas finales de la vida de las instalaciones nucleares (desmantelamiento y almacenamientos de residuos)

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- **Implementación de los SRL's**
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1. Introducción

WENRA (Western European Nuclear Regulators Association)

- **SI** es un “club” independiente de las agencias reguladoras de países con programas nucleares
- **SI** tiene como objetivo el de analizar y establecer (en su caso incrementar) los requisitos de seguridad en el campo nuclear
- **SI** establece mecanismos para armonizar dichos requisitos en el contexto europeo

WENRA (Western European Nuclear Regulators Association)

- **NO** es un órgano consultivo supranacional (se menciona en a veces en directivas europeas)
- **NO** delega trabajo en organizaciones externas a los propios cuerpos reguladores
- **NO** incluye consideraciones ajenas a las de seguridad nuclear o radiológicas

1. WGWD

WENRA

- Típicos miembros del comité director son directores (presidentes) de los cuerpos reguladores de los países miembros
 - Consejeros del CSN
- Frecuentemente asisten miembros de ENSREG
- Países observadores con parte activa
- Constituye grupos específicos de trabajo (RHWG, WGWD, etc)

WGWD (Working Group on Waste and Decommissioning)

- Típicos miembros del grupo son jefes de departamento de residuos
- Frecuentemente representantes en WASSAC del OIEA
- Generalmente hay miembros adicionales (temporales o no) por:
 - Diferentes responsabilidades organizativas (residuos físis – no físis)
 - Organizaciones reguladoras medioambientales

2. Metodología WENRA

Safety Reference Level SRL (requisitos de seguridad)

- Dirigidos a los titulares de las instalaciones (...)
- Requerimientos “shall statements”
- Para incluir en la normativa de obligado cumplimiento
- Ejecutable “enforceable”
- Consensuados en WENRA y en sus grupos de trabajo

Proceso de trabajo

1. Autoevaluación del grado de implementación de cada uno de los SRL en la normativa de cada país miembro

- **Calificación A** cumplimiento completo **NO SE REQUIERE ACCIÓN**
- **Calificación B** desviaciones justificadas **NO SE REQUIERE ACCIÓN**
- **Calificación C** no se cumple completamente **SE REQUIERE ACCIÓN**
- **Calificación C+** (propuestas de modificación normativa que cumplirían)

2. Metodología WENRA

2. Análisis comparativo de las autoevaluación "benchmarking"

- Verificar la calificación propuesta en la autoevaluación de cada país
- Plenario del grupo de trabajo (o subgrupos)

3. Planes de acción nacionales

- Para cada SRL calificado como C se diseñan actuaciones de mejora de la normativa de cada país que deben ser aceptados por el plenario del grupo
- Se informa al grupo de la implementación de las mejoras

4. Nuevo análisis comparativo de las autoevaluación de cada país, una vez ejecutado el plan de acción nacional

- De nuevo el plenario del grupo de trabajo lo debe recalificar.
- El resultado del nuevo análisis se incorpora en la tercera parte del informe WENRA correspondiente

3. WENRA - WGWD

Working Group on Waste and Decommissioning

- Cubre las instalaciones y prácticas que son parte integral del sistema nacional de gestión de residuos
- Elabora informes con criterios (SRL) sobre aspectos de seguridad en las etapas finales del ciclo nuclear
 - Desmantelamiento
 - Almacenamiento temporal de combustibles gastados y residuos radiactivos
 - Almacenamiento definitivo de residuos radiactivos
 - Tratamiento y acondicionamiento de residuos radiactivos
- Algunos SRL también dirigen responsabilidades a las autoridades competentes
- Incluyen el concepto de aproximación gradual al riesgo “graded approach”
- Son SRL derivados básicamente de requerimientos del OIEA

3. WENRA - WGWD

**decomm.report
(v 2.2 published)**



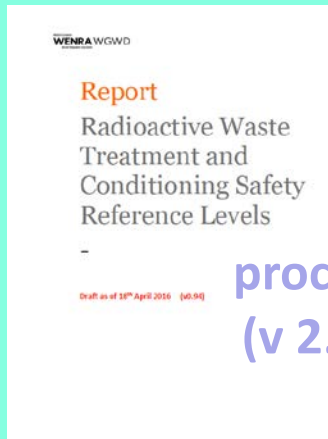
**storage report
(v 2.2 published)**



**disposal report
(v 1.0 published)**



**processing report
(v 2.2 published)**



**umbrella document
(published)**



<http://www.wenra.org/publications/>

3. Áreas de análisis consideradas

Storage	Decommissioning	Disposal
Safety management	Safety management	Safety management
Design	Strategy and planning	Safety requirements for the repository (all phases of the facility)
Operation	Conduct of decommissioning	
		Waste acceptance for final disposal
Safety verification	Safety verification	Safety verification

4. | Decomm. Safety Reference Levels

2.1 Safety area: Safety management

- 2.1.1 Safety issue: Responsibility
- 2.1.2 Safety issue: Organizational structure
- 2.1.3 Safety issue: Records and knowledge keeping
- 2.1.4 Safety issue: Implementation of a Management system

2.2 Safety area: Decommissioning Strategy and Planning

- 2.2.1 Safety issue: Facilitating decommissioning during design, construction and operational phase
- 2.2.2 Safety issue: Decommissioning strategy
- 2.2.3 Safety issue: Facility decommissioning plan during design, construction and operational phases
- 2.2.4 Safety issue: Final decommissioning plan
- 2.2.5 Safety issue: Decommissioning plan update during decommissioning operations

2.3 Safety area: Conduct of decommissioning

- 2.3.1 Safety issue: Safety classification
- 2.3.2 Safety issue: On-site emergency preparedness
- 2.3.3 Safety issue: Decommissioning experience feedback
- 2.3.4 Safety issue: Waste management
- 2.3.5 Safety issue: On-site and off-site monitoring
- 2.3.6 Safety issue: Maintenance, Testing and Inspection
- 2.3.7 Safety issue: Control of decommissioning activities
- 2.3.8 Safety issue: Period of Deferment

2.4 Safety area: Safety verification

- 2.4.1 Safety issue: Contents, review and update of the safety case for decommissioning
- 2.4.2 Safety issue: Decommissioning reporting
- 2.4.3 Safety issue: License termination conditions

Appendix A Example for a safety case for decommissioning

Appendix B Postulated initiating events

Appendix C Explanation of the relationship between Final Decommissioning Plan and Safety Case

4. Ejemplos SRL Decommissioning

Safety area: Decommissioning strategy and planning

Safety issue: Final decommissioning plan

(Footnote: For explanations on the relation between the final decommissioning plan and the safety case for decommissioning please refer to appendix C).

.....

DE-27:

If a facility is shutdown and no longer used for its intended purpose, a final decommissioning plan shall be submitted to the regulatory body not later than two years after the shut down of the facility, unless an alternative schedule for the submission of the final decommissioning plan is specifically authorized by the regulatory body.

Related IAEA safety standards:

... If a facility is shut down and no longer used for its intended purpose, a final decommissioning plan⁵⁾ shall be submitted for approval within two years of the cessation of the authorized activities, unless an alternative schedule for the submission of the final decommissioning plan is specifically authorized by the regulatory body. The operating organization shall not implement the decommissioning plan until the regulatory body has approved it. Any amendments to this plan shall also be submitted to the regulatory body for approval. The operating organization shall ensure that the facility is maintained in a safe configuration until the approval of the decommissioning plan. (WS-R-5, para 8.2)

4. Disposal Safety Reference Levels

2.1 Safety area: Safety management

- 2.1.1 Safety issue: Responsibility
- 2.1.2 Safety issue: Organizational structure
- 2.1.3 Safety issue: Management system
- 2.1.4 Safety issue: Record keeping
- 2.1.5 Safety issue: Records and knowledge keeping

2.2 Safety area: Disposal facility development

- 2.2.1 Safety issue: General requirements
- 2.2.2 Safety issue: Site characterization
- 2.2.3 Safety issue: Design
- 2.2.4 Safety issue: Information gathering and monitoring
- 2.2.5 Safety issue: Construction
- 2.2.6 Safety issue: Operation
- 2.2.7 Safety issue: Closure of disposal facility
- 2.2.8 Safety issue: Post-closure phase and release from regulatory control

2.3 Safety area: Waste acceptance

- 2.3.1 Safety issue: Derivation of waste acceptance criteria
- 2.3.2 Safety issue: Revision of waste acceptance criteria
- 2.3.3 Safety issue: Acceptance of waste

2.4 Safety area: Safety verification

- 2.4.1 Safety issue: Scope and content of the safety case
- 2.4.2 Safety issue: Operational and post-closure safety assessment
- 2.4.3 Safety issue: Periodic safety review

Appendix 1 Lifetime of a radioactive waste disposal facility and major decision points (Schematic diagram)
Appendix 2 Typical content of Waste Acceptance Criteria (WAC) for low- and intermediate level waste
Appendix 3 Typical Contents of a Safety Case
Appendix 4 Expected content of a Periodic Safety Review

4. Ejemplos SRL Disposal

Safety area: Disposal facility development

2.2.1 Safety issue: General requirements

(.....)

DI-30:

If construction, operation, decommissioning or closure activities take place concurrently, the licensee shall perform the works so that they will not have an unacceptable effect on operational or post-closure safety.

Related IAEA safety standards:

Excavation and construction of a disposal facility could continue after the commencement of operation of part of the facility and after the emplacement of waste packages. Such overlapping of construction and operational activities has to be planned and carried out so as to ensure safety, both in operation and after closure. (SSR-5, para 4.34)

4. Ejemplos SRL Disposal

Safety area: Disposal facility development

Safety issue: Post-closure phase and release from regulatory control

(.....)

DI-72:

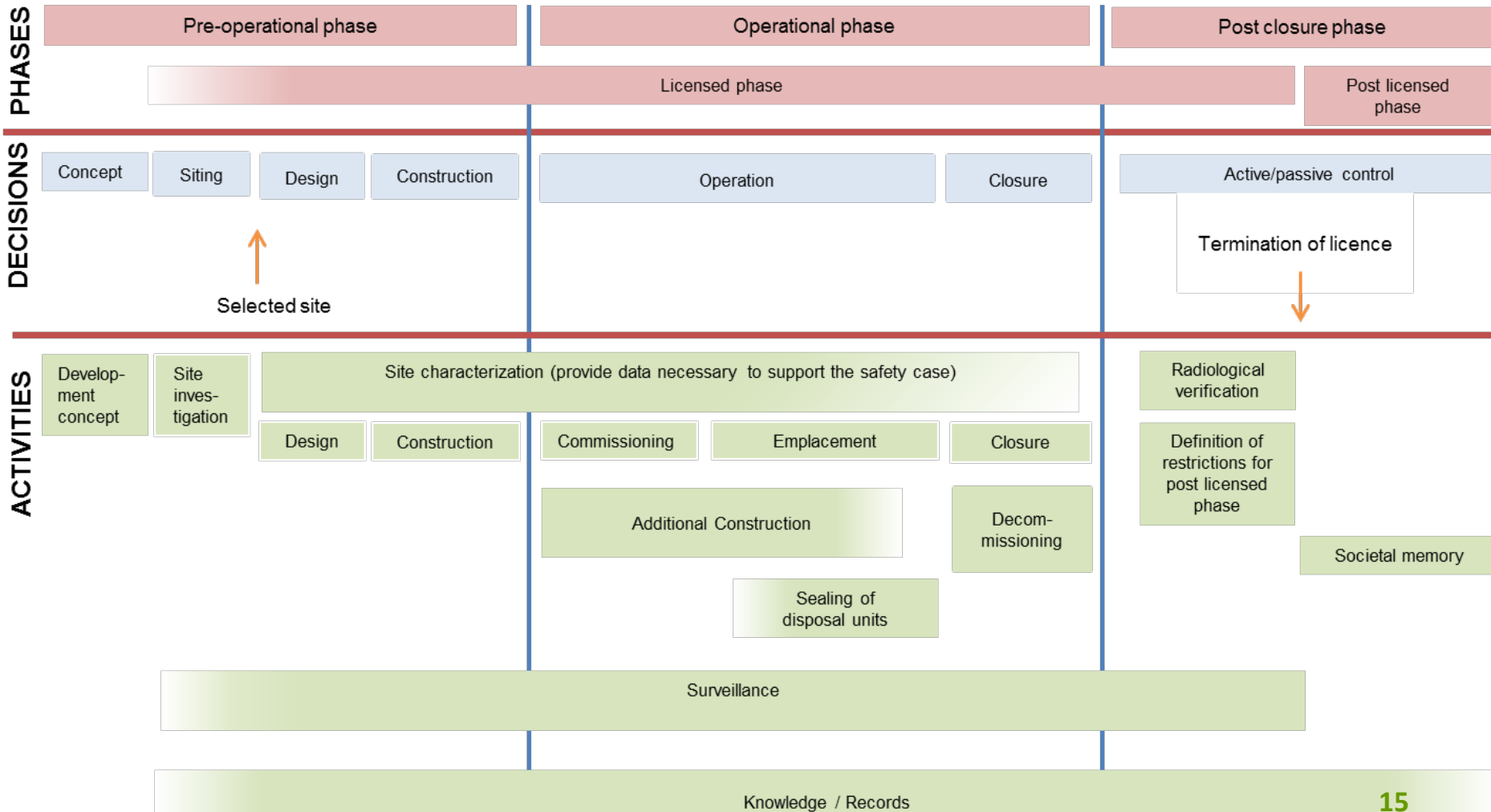
After closure and until termination of the licence, the licensee shall implement a post-closure surveillance program, if appropriate. In the event that surveillance demonstrates the need for remedial actions, the licensee shall implement such actions in accordance with the licence.

Related IAEA safety standards:

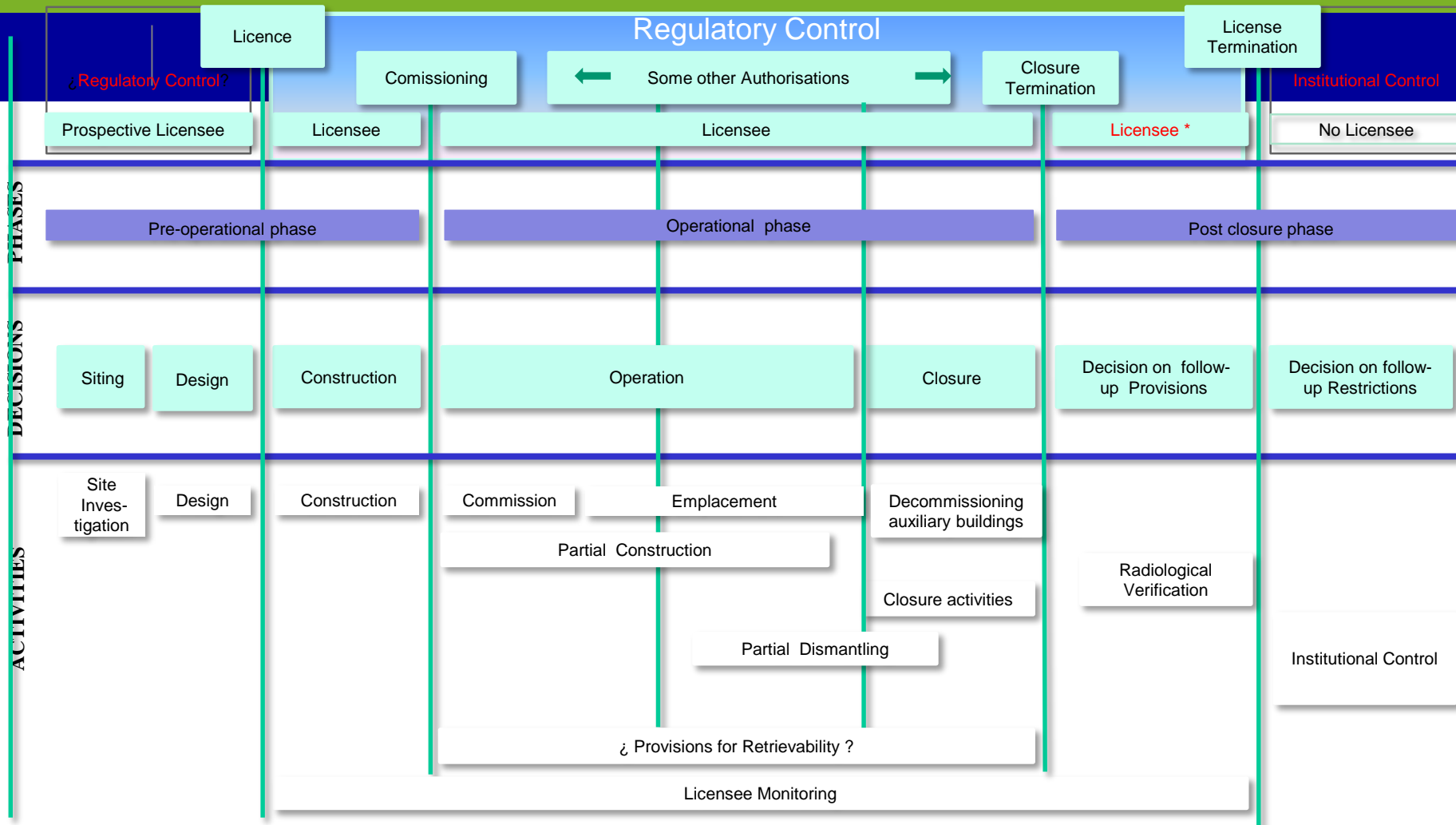
The operator of a disposal facility for radioactive waste shall be responsible for its safety. The operator shall carry out safety assessment and develop and maintain a safety case, and shall carry out all the necessary activities for site selection and evaluation, design, construction, operation, closure and, if necessary, surveillance after closure, in accordance with national strategy, in compliance with the regulatory requirements and within the legal and regulatory infrastructure. (SSR-5, Requirement 3)

A program of monitoring shall be carried out prior to, and during, the construction and operation of a disposal facility and after its closure, if this is part of the safety case. [...] Monitoring shall also be carried out at Radioactive Waste Disposal Facilities carried out to confirm the absence of any conditions that could affect the safety of the facility after closure. (SSR-5, Requirement 21)

Scope of WGWD-Report „Radioactive waste disposal“



Lifetime of a radioactive waste disposal facility and decision points



(* Licensees during operational and post-closure phases could be different according with each country policy)

5. Planes de Acción Nacionales

3 NAP Benchmarking Results (Decommissioning)

3.1 Benchmarking of original decommissioning
SRLs (V.1)

3.2 Benchmarking Results of SRLs (V.1)

3.3 Preparation of National Action Plans,
SRL-update

3.4 Benchmarking of National Action Plans

3.5 Country Implementation Reports

3.5.1 Belgium

3.5.2 Bulgaria

3.5.3 Czech Republic

3.5.4 Finland

3.5.5 France

3.5.6 Germany

3.5.7 Hungary

3.5.8 Italy

3.5.9 Lithuania

3.5.10 Romania

3.5.11 Slovakia

3.5.12 Slovenia

3.5.13 Spain

3.5.14 Sweden

3.5.15 Switzerland

3.5.16 The Netherlands

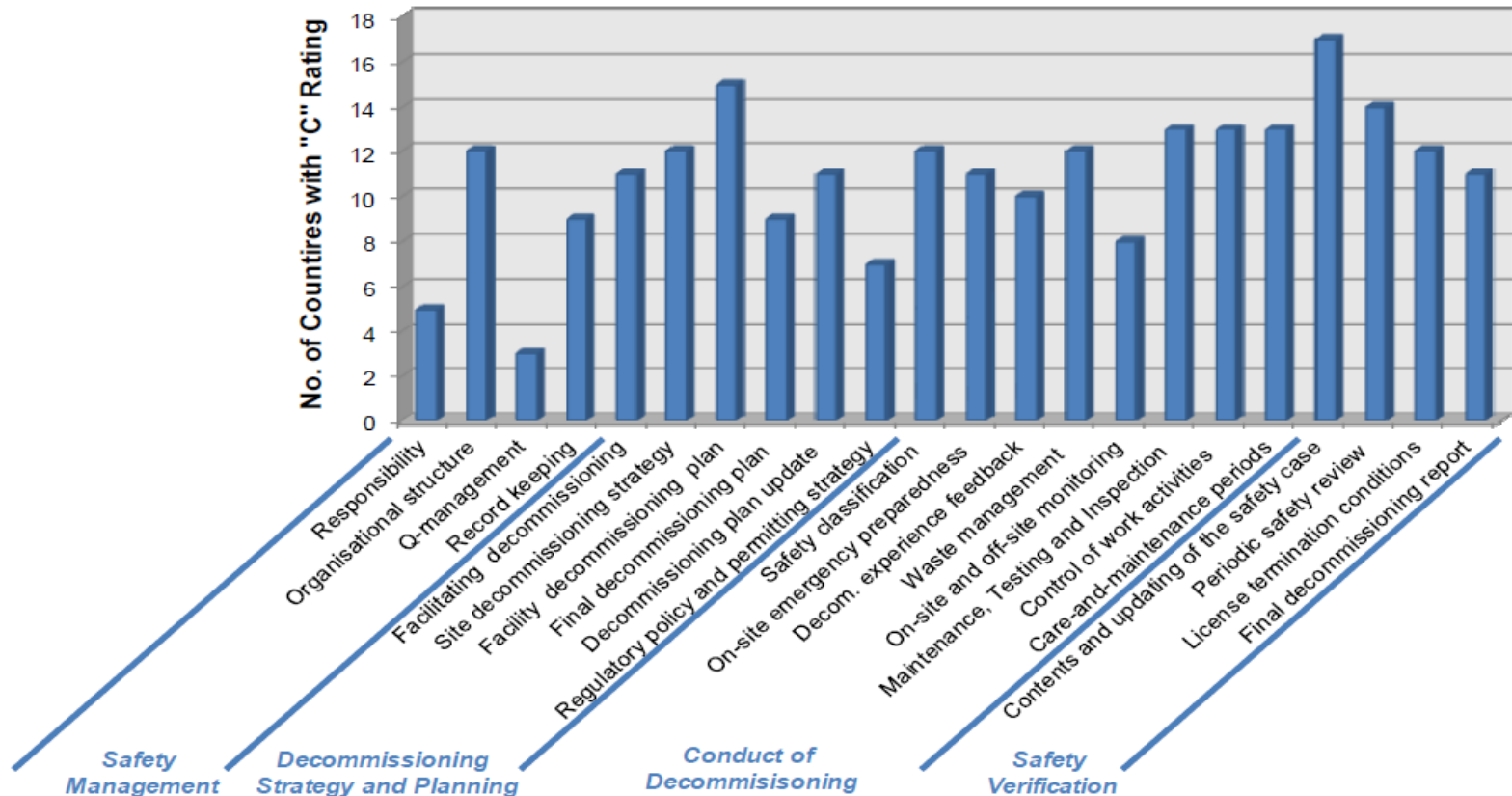
3.5.17 United Kingdom

4. Resultados del “benchmarking”

SRL No.	Country	Legal requirement (reference only)	Original benchmarking results	Agreed benchmarking results	Justification	Subgroup comment
D-67	LT	GRD article 5.2	C	C	There is no requirement to reflect modifications	D-67: The licensee shall update the safety case to reflect modifications and new relevant regulatory requirements, as soon as practicable and in accordance with safety relevance of the modification after the new information is available and applicable. The licensee shall use the safety case as a basis for assessing the safety implications of changes to the facility or to decommissioning practices.
	SLO	ZVISJV Article 80 (9-10)	A	A		
	SVK	AZ § 2 písm. u) bod 2) AZ § 23 ods. (4) AZ § 23 ods. 2) V 58/2006 § 26 ods. 2)	A	A		
	UK	LC22 Explanatory text SAP SC7 SAPs para *98 SAPs para 99 T/AST/026 – *A3.1.1 T/AST/051 – *10.5	A	A		
D-68	LT	There is no specific requirement	C	C		D-68: OLCs shall be reviewed and updated in the light of experience and every time modifications in the facility or in the safety case warrant it, and changed if necessary.
	SLO		C	C	JV5 Article 30	
	SVK	AZ § 2 písm. u) bod 2) AZ § 23 ods. (4) AZ § 23 ods. 4) V 50/2006 Pril. č. 4 část B (I) B ods. 2)	A	A		
	UK	T/AST/051	B	C		
D-69		GRD article 5.2	A	A		D-69: The licensee shall maintain an up-to-date

5. National Action Plan

Figure 1 Number of countries with C-ratings sorted by safety issues



5. NAP España “Decommissioning”

Results of the NAP Benchmarking

# SRL (new or changes req.)	Current status	Actions taken / relevant regulations
DE-01	C	IS-XX, 3.1.1 (not yet published)
DE-02	A	IS-19, 4.1.2
DE-09	C	IS-for-Operators (not yet published)
DE-10	C	IS-XX, 5.4.1 (not yet published)
DE-11	A	IS-19, 4.1.1
DE-13	A	IS-19, 7.1.1; IS-19, 7.2.4
DE-14	A	IS-19, 4.4.2
DE-17	C	IS-XX, 4.1.1 (not yet published)
DE-18	C	IS-XX, 4.1.2 (not yet published)
DE-19	C	IS-for-Operators (not yet published)
DE-20	C	IS-for-Operators (not yet published)
DE-21	C	IS-for-Operators (not yet published)
DE-22	C	IS-for-Operators (not yet published)
DE-23	C	IS-for-Operators (not yet published)
DE-25	C	IS-for-Operators (not yet published)
DE-28	C	IS-XX, 4.2.1 (not yet published)
DE-29	C	IS-XX, 4.2.2 (not yet published)
DE-30	C	IS-XX, 5.2.1 (not yet published)
DE-31	C	IS-XX, 5.8.1 (not yet published)
DE-32	C	IS-XX, 5.8.2 (not yet published)
DE-33	C	IS-XX, 5.8.3 (not yet published)
DE-34	C	IS-XX, 5.8.4 (not yet published)
DE-35	C	IS-XX, 5.3.1 (not yet published)
DE-36	C	IS-XX, 5.3.2 (not yet published)
DE-37	C	IS-XX, 5.3.3 (not yet published)
DE-39	C	IS-XX, 5.4.3 (not yet published)
DE-40	C	IS-XX, 5.4.4 (not yet published)
DE-42	C	IS-XX, 5.6.1 (not yet published)
DE-43	C	IS-XX, 5.6.2 (not yet published)
DE-44	C	IS-XX, 5.6.3 (not yet published)
DE-45	C	IS-XX, 5.1.2 (not yet published)
DE-46	C	IS-XX, 5.1.3 (not yet published)
DE-47	C	IS-XX, 5.1.4 (not yet published)
DE-48	C	IS-XX, 5.7.1 (not yet published)
DE-50	C	IS-XX, 6.1.1 (not yet published)
DE-51	C	IS-XX, 6.1.3 (not yet published)
DE-52	C	IS-XX, 6.2.4 (not yet published)
DE-54	C	IS-XX, 6.2.2 (not yet published)
DE-55	C	IS-XX, 6.2.2 (not yet published)
DE-56	C	IS-XX, 6.2.3 (not yet published)
DE-57	C	IS-XX, 6.2.1 (not yet published)
DE-58	C	IS-XX, 7.1.2 (not yet published)
DE-59	C	IS-XX, 7.1.3 (not yet published)
DE-62	C	IS-XX, 7.1.2 (not yet published)

Crterios propuestos en borradores de futuras instrucciones del Consejo de Seguridad Nuclear



C → C+

5. NAP España “Decommissioning” C+

Tres futuras Instrucciones del Consejo de Seguridad Nuclear

- Instrucción sobre el desmantelamiento y, en su caso, el cierre seguro de las instalaciones nucleares y de las instalaciones radiactivas del ciclo del combustible nuclear.
- Instrucción sobre requisitos básicos de seguridad para el desmantelamiento seguro de instalaciones nucleares aplicables en las fases de diseño, construcción y explotación.
- Instrucción sobre los criterios de seguridad en instalaciones de almacenamiento definitivo de residuos radiactivos.

Pendientes de una futura revisión del Reglamento de Instalaciones Nucleares y Radiactivas

Para incorporar en el RINR los conceptos y documentos reglamentarios en los que se basan las instrucciones

Muchas gracias