

A – Organization of ageing management and LTO activities

A-1 - Related regulatory requirements, codes and standards for AM and LTO and regulatory review (Day 1)

References: SSR-2/2 (Rev.1): Req.1, 3.3, Req.16, 4.53; SSG-48: 1.10, 3.2, 3.6, 3.18, 7.2, 7.8, 7.39-7.40

What are the regulatory requirements, codes and standards related to AM and LTO, are they consistent with the IAEA Safety Standards, and are the gaps, if applicable, addressed by the plant in the LTO programme?

[SSR-2/2 (Rev.1): Req.16, 4.53] [SSG-48: 1.10, 3.2, 7.2]

Has the plant established liaison with the regulatory body to facilitate common understanding and oversight of the AM and LTO requirements throughout the lifetime of the nuclear power plant?

[SSR-2/2 (Rev.1): Req.1, 3.3, Req.16, 4.53] [SSG-48: 3.6, 3.18, 7.39, 7.40]

What are the interfaces between regulatory requirements, codes and standards for LTO and PSR?

[SSR-2/2 (Rev.1): Req.16, 4.53] [SSG-48: 7.2]

Is there an adequate, commonly understood regulatory process to ensure safe LTO?

[SSR-2/2 (Rev.1): Req.1, 3.3, Req.16, 4.53] [SSG-48: 7.8]

A-2 - Principles and approach to AM and LTO (Day 1)

References: GSR Part 2: Req. 9, 4.26; SSR-2/2 (Rev.1): Req.1, 3.2 a, b, Req.16, 4.53, 4.54; GS-G-3.1: 3.10-3.12, 5.10; SSG-25: 3.7, 3.10; SSG-48: 3.31, 5.1, 7.5-7.15

Does a clear policy exist in the area of AM and LTO, consistent with related IAEA Safety Standards?

[SSR-2/2 (Rev.1): Req.1, 3.2 a, b, Req.16, 4.53, 4.54] [GS-G-3.1: 3.10-3.12, 5.10] [SSG-48: 3.31, 5.1, 7.7, 7.9]

Does the plant have plant level documentation covering principles and concept for AM and LTO?

[SSR-2/2 (Rev.1): Req.16, 4.53, 4.54] [SSG-48: 5.1, 7.5, 7.6-7.8, 7.11-7.15]

Is PSR adequately used to support decision making for LTO?

[SSR-2/2 (Rev.1): Req.16, 4.53] [SSG-25: 3.7, 3.10]

Is the plant personnel familiar with the LTO, its principles and concept and is it understood?

[GSR Part 2: 4.26] [SSG-48: 7.10]

A-3 - Organizational arrangements for AM and LTO (Day 1)

References: GSR Part 2: Req. 6, 4.11, Req. 9, 4.21-4.24; SSR-2/2 (Rev.1): Req.3, 3.8-3.9, Req.4, 3.10-3.11; GS-G-3.1: 2.28-2.31, 2.61, 2.62, 3.5, 4.1, 4.2; SSG-48: 3.5, 3.31, 5.1-5.8, 6.9, 7.3-7.4; NS-G-2.4: 3.2, 3.3, 3.18, 7.1-7.10

Are the roles and responsibilities of all organizations that participate in AM and LTO preparation properly defined and coordinated?

[GSR Part 2: 4.11, 4.23] [SSR-2/2 (Rev.1): Req.3, 3.8-3.9] [SSG-48: 3.5, 5.4, 5.6]

How is the clear division between the LTO related responsibilities of the corporate organization and those of the plant managed and documented? [SSR-2/2 (Rev.1): Req. 3; 3.8] [GS-G-3.1: 2.28-2.31] [NS-G-2.4: 3.2, 3.3, 3.18]

Has the plant adopted a suitable organizational structure for preparation and implementation of the AM?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.1-5.3, 5.5]

Has the plant adopted a suitable organizational structure for preparation for LTO?

[SSR-2/2 (Rev.1): Req.16, 4.53] [SSG-48: 3.31, 7.3, 7.4]

Are adequate resources (e.g. human resources, financial resources, tools and equipment, and external resources) allocated to support AM and LTO activities?

[GSR Part 2: Req.9, 4.21-4.22, 4.24] [SSR-2/2 (Rev.1): Req.4, 3.11] [GS-G-3.1, 4.1, 4.2] [SSG-48: 5.1, 7.4]

How are the interfaces with the corporate organization defined and understood at the plant? [SSR-2/2 (Rev.1): Req.3, 3.8] [GS-G-3.1; 2.28-2.31] [NS-G-2.4: 7.1-7.10]

Is personnel involved in AM and LTO activities properly qualified and trained?

[GSR Part 2: 4.23, 4.26] [SSR-2/2 (Rev.1): Req.4, 3.10] [SSG-48: 5.7, 6.9]

Do staff involved in AM and LTO activities have specific job descriptions/task responsibilities?

[GSR Part 2: 4.23, 4.24] [GS-G-3.1: 2.61, 2.62, 3.5] [SSG-48: 5.4, 5.6, 7.4]

A-4 - Periodic Safety Review (Day 2)

References: SSR-2/2 (Rev.1): Req.12, 4.44-4.47, 4.53, Req.14, 4.50, Req.16, 4.53; SSG-25: 2.3 - 2.4, 2.9, 3.2, 3.4, 3.5, 3.7, 3.8, 3.10, 4.5, 4.19, 4.22, 4.25 - 4.27, 5.4, 6.1, 6.6 - 6.9; SSG-48: 4.6-4.8, 7.15, 7.37, 7.38

Does the PSR (or similar safety assessment) provide comprehensive information on AM, equipment qualification and LTO (e.g. assumptions, activities, evaluations, assessments and results of the plant programme for AM, equipment qualification and LTO)?

[SSR-2/2 (Rev.1): Req.12, 4.44, Req.14, 4.50, Req.16, 4.53] [SSG-48: 4.3, 4.6-4.8, 5.73, 7.37] [SSG-25: 3.8, 5.29, 5.42-5.44, 5.49-5.51]

If the PSR is used as a licensing tool, does it consider the entire planned period of long term operation and not just the ten years until the next PSR? Is the policy, principles and concept for AM and/or LTO adequately documented in the PSR report?

[SSR-2/2 (Rev.1): Req.12, 4.44, Req.16, 4.53] [SSG-25: 3.7] [SSG-48: 4.3, 5.74, 7.2, 7.7, 7.38]

Does the scope of PSR review identify life limiting features of the plant in order to determine if there is a need to modify, refurbish or replace certain SSCs for the purpose of extending the operating lifetime of the nuclear power plant?

[SSR-2/2 (Rev.1): Req.12, 4.44, 4.47, Req.16, 4.53] [SSG-25: 3.2, 3.5] [SSG-48: 1.7, 7.15, 7.40]

Is the scope of national and international requirements, codes and standards, as well as practices used in the PSR appropriate and identified in the PSR basis document?

[SSR-2/2 (Rev.1): Req.12, 4.44] [SSG-25: 4.6-4.9] [SSG-48: 4.6]

Does the periodic safety review aimed at providing justification of the adequacy of AM for the planned period of long term operation focus on safety factors 1 - 4 (plant design, actual condition of SSCs important to safety, equipment qualification, ageing) and considers also adequately safety factors 8, 9, and 10 (safety performance, use of experience from other plants and research findings, and management system that addresses quality management and configuration management)?

[SSR-2/2 (Rev.1): Req.12, 4.44, Req.14, 4.50, Req.16, 4.53] [SSG-25: 3.6, 3.8] [SSG-48: 4.6, 4.8]

Does PSR review identify trends of reported events and their possible connection with degradation of SSCs?

[SSR-2/2 (Rev.1): Req.12, 4.44] [SSG-25: 2.5, 5.94, 5.95] [SSG-48: 2.7, 3.35, 4.8, 5.56, 7.40]

Are the results of the previous PSR examined in order to detect any long-term trends in deteriorating safety performance? [SSR-2/2 (Rev.1): Req.12, 4.44, Req.16, 4.53] [SSG-25: 2.5, 5.94, 5.95]

Is long term operation properly justified by safety assessment (that includes scope setting, AMR and revalidation of TLAAAs), with consideration given to the life limiting processes and features of SSCs in scope of the evaluation?

[SSR-2/2 (Rev.1): Req.16, 4.53] [SSG-25: 3.1, 3.2, 3.6] [SSG-48: 2.30, 2.31, 5.61]

Does PSR global assessment provide safety justification for proposed long term operation by evaluating the cumulative effects of both ageing and obsolescence on the safety and reflecting the combined effects of all safety factors (findings and proposed improvements)?

[SSR 2/2: Req.16, 4.53] [SSG-25: 2.17, 4.21, 4.26-27, 6.6-6.9, 6.12, Appendix II.5] [SSG-48: 2.5, 2.30, 2.32]

Is the PSR prepared (e.g. development of a "basis document") and conducted in co-operation with the regulatory body? Is the PSR report that demonstrates safety for long term operation provided to the regulatory body for review and approval at a level of detail, and in a manner adequate for this purpose?

[SSR-2/2 (Rev.1): Req.12, 4.45, Req.16, 4.54] [SSG-25: 4.5, 4.6, 6.6-6.9] [SSG-48: 7.40]

Does PSR review determine reasonable and practicable modifications to be made in order to ensure that a high level of safety is maintained during long term operation? Is justification for any improvements that cannot reasonably and practicably be made provided?

[SSR 2/2: Req.12, 4.47, Req.16, 4.54] [SSG-25: 3.5, 3.6, 3.10, 4.26-4.27, 5.12, 6.6-6.9, 8.14] [SSG-48: 1.7, 7.15, 7.40]

Does the integrated implementation plan to be developed after the PSR contain the reasonable and practicable safety improvement?

[SSR 2/2: Req.12, 4.47, Req.16, 4.54] [SSG-25: 2.18, 4.25, 6.7, 8.23, 9.1] [SSG-48: 1.7, 7.15, 7.40]

A-5 - Programme for LTO (Day 3)

References: SSR-2/2 (Rev.1): Req.16, 4.54; SSG-48: 2.31, 3.31 - 3.32, 7.7 - 7.9, 7.16-7.19, 7.29, 7.41

Does the plant have a LTO programme, established in line with the plant's principles and strategy for LTO, and consistent with the IAEA Safety Standards?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 2.31, 3.31 - 3.32, 7.7 - 7.9, 7.16-7.19]

Is the LTO programme a set of activities, including evaluations, assessments, maintenance, inspections and testing, aimed at justifying and demonstrating plant safety for the planned period of long term operation? Does the LTO programme include scope setting, AMR, review of plant programmes and of AMPs, identification and revalidation of TLAAs, and the development of a implementation programme? Is the LTO programme based on national regulatory requirements and does it consider international best practices, operating experience and research findings?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 2.31, 3.3, 3.30, 4.8, 3.31 - 3.35, 7.7 - 7.9, 7.16-7.19]

Is the LTO programme well documented (e.g., assumptions, activities, evaluations, assessments and results of the evaluation of AMPs and plant programmes) and retained in an auditable and retrievable form?

[SSR-2/2 (Rev.1): Req.16, 4.53-4.54] [SSG-48: 5.70 7.29]

Does the LTO programme address the safety improvements (such as modifications, major reconstructions and scheduled replacements) required as well as the related plant commitments and implementation schedule?

[SSR-2/2 (Rev.1): Req.16, 4.53-4.54] [SSG-48: 7.18e), 7.19, 7.41]

Does the plant have programme(s) or action plan for the resolution of issues identified during the review of AMPs, EQ and TLAAs?

[SSR-2/2 (Rev.1): Req.16, 4.53-4.54] [SSG-48: 7.18]

Has an evaluation of the existing NPP programmes and documentation been performed? Are evaluation results used as a basis for developing the foundation for successful LTO and will they remain effective for the planned period of LTO? Will this evaluation determine if modifications and/or new programmes are necessary to ensure that SSCs are available and qualified to perform their intended function for the planned period of LTO?

[SSR-2/2 (Rev.1): Req.16, 4.53-4.54] [SSG-48: 7.11-7.15, 7.16-7.18]

Are recommendations and other suggestions arising from different types of reviews incorporated into plant activities?

[SSR-2/2 (Rev.1): Req.12, 4.47, Req.16, 4.53-4.54] [SSG-25: 9.1-9.5] [SSG-48: 2.21, 7.18-7.19, 7.31]

A-6 - Configuration/modification management and design basis documentation (Day 3)

References: SSR-2/1 (Rev.1): Req.14, 5.3; SSR-2/2 (Rev.1) – Req.10, 4.38; Req.11, 4.39 - 4.43; SSG-48: 4.1-4.2, 4.13-4.15

Does the management system contain processes and activities relating to the configuration management programme and the modification management programme?

[SSR-2/2 (Rev.1): Req.10, 4.38, Req.11, 4.39 - 4.43], [NS-G-2.3: 1.2, 2.4] [SSG-48: 4.12]

Are all modifications to the plant (relating to the plant configuration: SSCs, process software, OLCs, operating procedures, as well as relating to management systems: organizational structures, operation, and safety assessment tools and processes) properly documented and retained in an auditable and retrievable form? Are all safety significant modifications addressed in the SAR?

[SSR-2/2 (Rev.1): Req.10, 4.38, Req.11, 4.39 - 4.43], [NS-G-2.3: 2.5 - 2.6, 11.1 - 11.6], [SSG-48: 4.10]

Is a design authority properly established including its role within configuration and modification management?

[SSR-2/2 (Rev.1): Req.1, 3.2(f)] [NS-G-2.3: 3.1, 3.5] [SSG-48: 4.11]

Does the plant have access to design basis documentation which contains design basis requirements and supporting design information?

[SSR-2/1 (Rev.1): Req.14, 5.3] [SSG-25: 5.25] [SSG-48: 4.13]

Is the design basis information and its changes included in the safety analysis report or in a separate design basis documentation?

[SSR-2/1 (Rev.1): Req.14, 5.3] [SSG-48: 4.14]

Are alternative arrangements in place, which compensate for the lack of complete design basis documentation at the plant, e.g. the programme of reconstitution of design basis?

[SSR-2/1 (Rev.1): Req.14, 5.3] [SSG-25: 5.25-5.25] [SSG-48: 4.15]

A-7 - Safety Analysis Report (Day 4)

References: SSR-2/2 (Rev.1): 3.2e, GS-G-4.1: 4.1, 4.3-4.4; SSG-25: 3.9; SSG-48: 3.11, 4.1-4.5

Are plant programmes and analyses relevant to AM and evaluation for long term operation properly documented in the safety analysis report (or in other current licensing basis documents)? Does the information clearly and adequately describe the current licensing basis and the design basis requirements for the plant?

[SSR-2/2 (Rev.1): Req.1, 3.2(e)], [SSG-48: 3.11, 4.1 - 4.2], [SSG-25: 3.9], [GS-G-4.1: 3.160-3.164, 3.166, 3.167, 3.173 - 3.175, 3.178 - 3.181, 4.3 - 4.4]

Is the justification for plant safety during the planned period of LTO properly documented in safety analysis report (both ageing aspects and safety upgrades)?

[SSR-2/2 (Rev.1): Req.1, 3.2(e)], [SSG-48: 4.3, 4.10], [SSG-25: 3.9], [GS-G-4.1: 3.160-3.164, 3.166, 3.167, 3.173 - 3.175, 3.178 - 3.181, 4.3 - 4.4]

Is the safety analysis report being updated to reflect the results of AM and LTO assessment activities (e.g., AMR, review of AMPs and plant programmes, revalidation of TLAAAs)?

[SSR-2/2 (Rev.1): Req.1, 3.2(e)], [SSG-48: 4.4, 7.36], [SSG-25: 3.9], [GS-G-4.1: 3.160-3.164, 3.166, 3.167, 3.173 - 3.175, 3.178 - 3.181, 4.3 - 4.4]

Does the safety analysis report update include information describing the assumptions, activities and results of the plant programme for long term operation (including documentation of the revalidation of the TLAAAs for the period of long term operation)

[SSR-2/2 (Rev.1): Req.1, 3.2(e)] [SSG-48:4.5, 7.36], [SSG-25: 3.9], [GS-G-4.1: 3.160-3.164, 3.166, 3.167, 3.173 - 3.175, 3.178 - 3.181, 4.3 - 4.4]

B – Scope setting, plant programmes and corrective action programme

B-1 - Methodology and criteria for scope setting of SSCs for AM and LTO (Day 1)

References: SSR-2/2 (Rev.1): 4.54; SSG-48: 5.14-5.21, 7.20

Does the plant have a systematic scope setting process and methodology(ies), documented and applied to all plant SSCs?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 5.14, 5.15, 7.20]

Are the criteria for SSCs scope setting for AM and LTO consistent with IAEA Safety Standards?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 5.16, 5.17]

Were dedicated plant walk-downs used to check the completeness of the list of SSCs whose failure may prevent SSCs important to safety from performing their intended functions in addition to the analysis of plant documentation?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 5.19]

Are the results of the scope setting process clearly and well documented (such as list of SSCs in scope and out of scope, indicating e.g. information sources, intended function, safety class, other scoping criteria, etc.)? Are boundaries between SSC within the scope and SSC out of the scope clearly defined?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 5.18,5.20 - 5.21, 5.70, 7.18a), 7.29-7.30, 7.33]

Are the boundaries for SCs which include interfaces between different areas (mechanical, electrical, I&C and civil structures) like control valves clearly established?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 5.14, 5.18]

Have SCs commodities groups (group of components/ structures which have similar functions, similar materials or are in similar environment) been defined and if so, how?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 5.20]

B-2 - Maintenance programme (Day 2)

References: SSR-2/2 (Rev.1): Req.16, 4.54, Req.31, 8.1, 8.3-8.5, 8.15, 8.17; NS-G-2.6: 5.33 - 5.37 (review of MS&I with respect to AM/LTO), 7.6 - 7.8 (ageing), 7.9 (plants built to earlier standards); 8.1 - 8.4 (prioritization); SSG-48: 3.21, 3.25, 3.33, 3.35, 4.16-4.22, 7.26-7.27

Is it clearly defined for each in-scope SC what maintenance programmes (e.g., preventive, predictive and corrective) are applied, which ageing effects they manage, what

maintenance/inspection methods are used, maintenance frequency, tasks, documentation, records and their storage (e.g., a database)?

[SSR-2/2 (Rev.1): Req.31, 8.1, 8.4-8.5, Req.16, 4.54] [NS-G-2.6: 2.5-2.6, 4.5, 4.21, 6.12, 8.1, 8.4] [SSG-48; 4.19, 4.20]

Are the results of the scope setting, AMR, and TLAA revalidations adequately reflected in the existing preventive and predictive maintenance programmes?

[SSR-2/2 (Rev.1): Req.16, 4.54] [NS-G-2.6: 2.6-2.9, 7.6-7.8, 8.1, 8.4-8.5] [SSG-48: 4.20-4.22]

Are preventive and predictive maintenance programmes periodically evaluated based on new regulatory requirements, vendors' recommendations, past maintenance history and feedback from related operational experience and research results and findings?

[SSR-2/2 (Rev.1): Req.31, 8.3-8.5, Req.16, 4.54] [NS-G-2.6: 2.7, 2.8, 2.10, 6.11-14] [SSG-48: 3.3, 3.30, 3.33, 3.35, 4.21-4.22]

Has the plant evaluated the existing preventive and predictive maintenance programmes used to manage ageing of in-scope SCs against the nine attributes of an effective AMP for the intended period of operation (i.e. including LTO)?

[SSR-2/2 (Rev.1): Req.31, 8.3-8.5, Req.16, 4.54] [SSG-48: 4.17, 4.21, 4.22]

Are the measures taken to ensure that spare parts are stored in an appropriately controlled environment to avoid degradation mechanisms owing to their storage environment (e.g., high or low temperatures, moisture, chemical attack, dust accumulation; for mechanical, EI&C, and civil as applicable)?

[SSR-2/2 (Rev.1): Req.31, 8.15, 8.17] [NS-G-2.6: 8.32] [SSG-48; 3.28]

B-3 - In-service inspection programme (Day 2)

References: SSR-2/2 (Rev.1): Req.16, 4.54, Req.31, 8.1, 8.3-8.5; NS-G-2.6: 5.33 - 5.37 (review of MS&I with respect to AM/LTO), 7.6 - 7.8 (ageing), 7.9 (plants built to earlier standards); 10.2 - 10.4; SSG-48: 3.21, 3.24, 3.33, 3.35, 4.16-4.18, 4.32-4.36, 7.26-7.27

Does the ISI programme for the in-scope SSCs clearly identify which ageing effects they manage, the inspection method, the links with AM programmes, the frequency, extent and tasks?

[SSR-2/2 (Rev.1): Req.31, 8.1, 8.4-8.5, Req.16, 4.54] [NS-G-2.6: 2.13-2.15, 4.5, 4.21, 6.12, 10.1, 10.7-10.8, 10.11, 10.16, 10.45-10.47] [SSG-48: 4.32-4.34, 4.36]

Are results of the scope setting, AMR, and TLAA revalidations for LTO adequately reflected in the existing ISI programmes?

[SSR-2/2 (Rev.1): Req.16, 4.54] [NS-G-2.6: 2.13, 2.15, 7.6-7.8, 10.2-10.4, 10.7] [SSG-48: 4.32, 4.35]

If ISI results indicate notable degradation, are similar locations appropriately determined? Are SSCs in redundant subsystems inspected independently to detect possible differences in their ageing behavior?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 4.35]

Are ISI programmes periodically evaluated based on new regulatory requirements, vendors' recommendations, past ISI results, operating experience, new knowledge and research findings?

[SSR-2/2 (Rev.1): Req.31, 8.3-8.5, Req.16, 4.54] [NS-G-2.6: 2.13-2.15, 6.11-14] [SSG-48: 3.3, 3.30, 3.33, 3.35, 4.33, 4.35]

Has the plant evaluated the existing ISI programmes used to manage ageing of in-scope SCs against the nine attributes of an effective AMP for the intended period of operation (i.e. including LTO)?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 4.17]

Have the methodology, equipment, and personnel, which are part of the ISI process, been qualified according to regulatory requirements, codes and standards, and IAEA safety standards as applicable?

[SSR-2/2 (Rev.1): Req.16, 4.54] [NS-G-2.6: 10.24-34] [SSG-48: 4.33]

Are ISI results documented in well-maintained database?

[SSR-2/2 (Rev.1): Req.16, 4.54, Req.31, 8.4] NS-G-2.6: 10.45-10.47] [SSG-48: 4.34, 4.36]

B-4 - Surveillance programme (Day 3)

References: SSR-2/2 (Rev.1): Req.16, 4.54, Req.31, 8.1, 8.3-8.5; NS-G-2.6: 5.33 - 5.37 (review of MS&I with respect to AM/LTO), 7.6 - 7.8 (ageing), 7.9 (plants built to earlier standards), NS-G-2.6: 9.1 - 9.2, 9.19; SSG-48: 3.21, 3.33, 3.35, 4.16-4.18, 4.37-4.44, 7.26-7.27

Does the surveillance programme for the in-scope SSCs clearly identify the surveillance measures, the links with AM programmes, the frequency, tasks, documentation, records and their storage (e.g. a database)?

[SSR-2/2 (Rev.1): Req.31, 8.1, 8.4-8.5, Req.16, 4.54] [NS-G-2.6: 2.11-2.12, 4.5, 4.21, 6.12, 9.1-9.3, 9.5, 9.19-9.22, 9.30, 9.45-9.46] [SSG-48: 4.37-4.38]

Are results of the scope setting, ageing management review, and TLAA revalidations for LTO adequately reflected in the existing surveillance programme?

[SSR-2/2 (Rev.1): Req.16, 4.54] [NS-G-2.6: 2.11-2.12,7.6-7.8, 9.1-9.9, 9.19-9.22, 9.30] [SSG-48: 4.39-4.40]

Is the surveillance programme periodically evaluated based on new regulatory requirements, vendors' recommendations, past surveillance results, operating experience, new knowledge and research findings?

[SSR-2/2 (Rev.1): Req.31, 8.3-8.5, Req.16, 4.54] [NS-G-2.6: 2.11-2.12, 6.11-14, 9.30] [SSG-48: 3.3, 3.30, 3.33, 3.35, 4.41-4.42, 5.8]

Has the plant evaluated the existing surveillance and monitoring used to manage ageing of in-scope SCs against the nine attributes of an effective AMP for the intended period of operation (i.e. including LTO)?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 4.17]

Has the plant implemented supplementary LTO related surveillance programmes, such as reactor pressure vessel supplementary surveillance programme, controlled ageing management programmes for cables, surveillance programme of concrete etc.?

[SSR-2/2 (Rev.1): Req.31, 8.1, Req.16, 4.54] [NS-G-2.6: 9.9, 9.30] [SSG-48: 4.42-4.44]

B-5 - Water Chemistry Programme (Day 3)

References: SSR-2/2 (Rev.1): Req.16, 4.54, Req.29, 7.13-7.17; SSG-13: 2.6, 2.9, 2.11, 2.21 - 2.23, 3.4, 4.4; SSG-48: 3.21-3.22, 3.33, 3.35, 4.16-4.18, 4.45-4.48, 7.26-7.27

Are results of the scope setting, ageing management review, and TLAA revalidations for LTO adequately reflected in the existing chemistry programme?

[SSR-2/2 (Rev.1): Req.16, 4.54, Req.29, 7.13-7.16] [SSG-13: 2.6, 3.1, 3.4, 4.1] [SSG-48: 4.45, 4.48]

Has the plant chemistry programme been reviewed based on regulatory requirements, vendors' recommendations, chemistry related surveillance results, operating experience, new knowledge and research findings?

[SSR-2/2 (Rev.1): Req.16, 4.54, Req.29, 7.14] [SSG-13: 2.4, 2.9-2.10, 3.3, 7.6-7.9] [SSG-48: 3.3, 3.22-3.23, 3.30, 3.35, 4.46, 4.47, 5.8]

Has the plant evaluated the existing chemistry programme used to manage ageing of in-scope SCs against the nine attributes of an effective AMP for the intended period of operation (i.e. including LTO)?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 4.17]

Are chemistry staff aware of implications of chemistry parameters on known aspects which could adversely impact safety during LTO (such as corrosion, erosion, inter-granular stress corrosion cracking, primary water stress corrosion cracking, etc. of SCs within the scope of LTO)?

[SSR-2/2 (Rev.1): Req.16, 4.54, Req.29, 7.13] [SSG-13: 2.6, 3.4, 4.1, 4.4, 4.47] [SSG-48: 4.48]

Does the chemistry programme include diagnostic parameters that provide useful information for determining and preventing the cause of unexpected ageing?

[SSR-2/2 (Rev.1): Req.16, 4.54, Req.29, 7.15-7.16] [SSG-13: 6.7-6.23] [SSG-48: 3.22, 4.45, 4.47]

B-6 - Corrective action programme (Day 4)

References: GSR Part 2: Req.13, 6.1-6.8, 4.20; SSR-2/2 (Rev.1): Req.1, 3.2e, f, 4.37, Req.9, 4.37; SSG-48: 4.49-4.53

Is there a corrective action programme in place to ensure that conditions adverse to quality, such as ageing related degradation, are identified and that corrective actions commensurate with the significance of the issue are specified and implemented?

[GSR Part 2 - Req.13, 6.1-6.3] [SSR-2/2 (Rev.1): Req.1, 3.2(e), Req.9, 4.37] [SSG-48: 3.25, 4.49]

Does the corrective action programme document occurrences of identified ageing related degradation (conditions adverse to quality) and the methods used to address the degradation, such as evaluation and acceptance, evaluation and monitoring, repair, or replacement? Is such information taken into account as plant specific operating experience?

[GSR Part 2 - Req.13, 6.7] [SSR-2/2 (Rev.1): Req.1, 3.2(f), Req.9, 4.37] [SSG-48: 3.3, 3.25, 3.30, 4.50]

Does the corrective action programme document the modifications to AM programmes, system configuration or plant operations that are made to manage the occurrence or the severity of the ageing effect?

[GSR Part 2 - Req.13, 6.3] [SSR-2/2 (Rev.1): Req.1, 3.2(f), Req.9, 4.37] [SSG-48: 4.51]

Is the corrective action programme and the associated plant specific operating experience routinely reviewed by individuals responsible for the relevant AM programme to determine whether AM programmes need to be enhanced?

[GSR Part 2 - Req.13, 6.4-6.6] [SSR-2/2 (Rev.1): Req.1, 3.2(f), Req.9, 4.37] [SSG-48: 3.3, 3.30, 3.35, 4.52]

Are the modifications of the existing AM programmes specified and implemented, or new AM programmes developed, if it is determined as needed through the evaluation of the corrective action programme and the associated plant specific operating experience?

[GSR Part 2 - Req.13, 6.3, 6.8] [SSR-2/2 (Rev.1): Req.1, 3.2(f), Req.9, 4.37] [SSG-48: 3.25, 3.30, 4.53]

C – Ageing Management of mechanical SSCs

C-1 - AMR of mechanical SSCs (Day 1)

References: SSR-2/2 (Rev.1): Req.14, 4.50, 4.51, Req.16, 4.53, 4.54; SSG-48: 3.3, 3.4, 3.20, 3.26, 3.30, 3.32, 3.35, 3.40, 5.22-5.36, 7.21-7.24

Is there a systematic process in place to perform AMR that is consistent with the IAEA safety standards?

[SSR-2/2 (Rev.1): Req.14, 4.50, Req.16, 4.54] [SSG-48: 5.22 - 5.26]

Identification of relevant ageing effects and degradation mechanisms of SCs

Does the AMR systematically identify and assess all ageing effects and degradation mechanisms that have been experienced or are anticipated based on understanding of ageing and to evaluate the impact of ageing on the in-scope SSCs' capability to perform their intended functions?

[SSR-2/2 (Rev.1): Req.14, 4.50, Req.16, 4.54] [SSG-48: 3.24, 5.27, 7.21, 7.23-7.25]

Is the comprehensive understanding of ageing effects and degradation mechanisms for SCs based on design data, fabrication data, operation and maintenance histories, acting stressors (including environmental conditions), results of ISI and surveillance, operating experience and results of research and development, results of walkdowns and condition assessments, and results of evaluation of TLAAs?

[SSR-2/2 (Rev.1): Req.14, 4.50, Req.16, 4.54] [SSG-48: 5.28, 5.69, 7.21, 7.28]

Is knowledge of the characteristics of the ageing effect (e.g., necessary conditions under which the effect occurs and rates of degradation), the related degradation mechanisms and their impact on the structure or component's intended function(s) adequately considered in the identification process?

[SSR-2/2 (Rev.1): Req.14, 4.50, Req.16, 4.54] [SSG-48: 5.29, 7.21]

Identification of appropriate programme for AM

Were appropriate methods to detect, monitor, prevent and mitigate ageing effects and degradation mechanisms specified for each structure or component?

[SSR-2/2 (Rev.1): Req.14, 4.51] [SSG-48: 5.30, 7.22, 7.24]

Are existing and proposed plant programmes that support LTO consistent with the IAEA recommendations including the nine attributes?

[SSR-2/2 (Rev.1): Req.14, 4.51] [SSG-48: 3.33, 5.31-5.32, 5.38-5.41, 5.43-5.49, 7.18, 7.20, 7.24, 7.26-7.27]

Is there a process in place to ensure that programmes that are not effective are improved, modified, or new programmes are developed?

[SSR-2/2 (Rev.1): Req.14, 4.51] [SSG-48:5.32, 7.24]

Reporting on the AMR

Is the approach to the AMR documented and justified in a way that logically demonstrates that the ageing effects will be adequately managed?

[SSR-2/2 (Rev.1): Req.14, 4.51, Req.16, 4.54] [SSG-48: 5.33, 7.32]

Is all information and conclusions regarding the scope of the AMR documented and include the description and justification of the methods used (methodology), list of SCs subject to the AMR and their intended functions, and the information sources to accomplish the above?
[SSR-2/2 (Rev.1): Req.14, 4.51, Req.16, 4.54] [SSG-48: 5.33-5.34, 7.33]

Does the documentation of the AMR results provide the following information:

- *Current performance and condition of individual SCs*
- *Identification of the ageing effects and degradation mechanisms requiring management;*
- *Understanding of ageing, monitoring of ageing, prevention and mitigation of ageing effects, as well as information on possible changes in the course of LTO;*
- *Identification of the specific programmes or activities that will manage the effects of ageing for each structure, component, or commodity grouping in scope of the AMR and the need for development of new AMPs;*
- *Description of how the programmes and activities will continue to identify and manage the effects of ageing such that the intended function of the SC will be maintained throughout the planned period of operation or LTO;*
- *Description of application of results of the AMR in plant operation, maintenance and design;*
- *List of substantiating references and source documents;*
- *All information and documentation necessary for an effective management of ageing effects is developed and retained in an auditable and retrievable form.*

[SSR-2/2 (Rev.1): Req.14, 4.51, Req.16, 4.54] [SSG-48: 5.33, 5.35-5.36, 5.70, 7.23, 7.29-7.31, 7.34-7.36]

C-2 - AMPs of mechanical SSCs (Day 2)

References: SSR-2/2 (Rev.1): Req.14, 4.50, 4.51; SSG-48: 3.33, 3.35, 3.37-3.39, 5.37-5.63, 7.26

Are AMPs and other plant programmes that are credited for managing ageing coordinated, implemented and periodically reviewed for improvements? Are they consistent with the nine attributes of an effective AMP?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 3.33, 5.37 - 5.38, 5.46, 7.26-7.27]

If the AMP involves inspection by sampling from a specific population of structures or components, does it describe and justify the methods used for selecting the samples to be inspected and the sample size (with respect to the performance of the SCs intended functions throughout its lifetime)?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.41]

Development of AMPs

Is the development of the AMPs based on the results of the AMR? Do the AMPs developed include provisions to prevent, detect, evaluate and mitigate the ageing effects of anticipated degradation mechanisms, based on the findings from the AMR?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.45, 5.48]

Are specific actions relating to the detection, monitoring and prevention or mitigation of ageing effects properly specified within each AMP (these may include maintenance, equipment qualification, in-service inspection, testing and surveillance, as well as for controlling operating conditions)?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.44]

Do all AMPs developed comply with relevant national regulatory requirements, codes and standards and the AM policy of the plant, and consistent with the nine attributes? Is justification provided if some of the attributes are not met?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.46]

Are appropriate acceptance criteria for ageing effects, based on the design basis, technical requirements and applicable regulatory requirements, codes and standards established to facilitate timely corrective actions?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.47]

Is the information on the current status of in-scope SCs collected for subsequent review of the effectiveness of the AMPs? Are performance indicators representing the effectiveness of the AMPs developed along with the development of the AMPs?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.49, 5.56]

Implementation of AMPs

Are AMPs implemented in a timely manner to ensure that the intended functions of structures or components continue to be met? Are data required for decisions on AM actions collected as a part of the AMP implementation?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.51, 5.53]

Are detailed implementation procedures that describe preventive and mitigatory actions, monitoring or inspection and assessment actions, acceptance criteria and corrective actions established and shared among the different units of the nuclear power plant (e.g. the operations, maintenance and engineering units) that are responsible for implementing AM programmes?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.52]

Review and improvement of AMPs

Is the effectiveness of AMPs periodically evaluated in the light of current knowledge and feedback from the programme? Are performance indicators, such as material condition, failure and degradation trends, newly revealed ageing, etc. established and used?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 3.35, 5.54, 5.56]

How are AMPs incorporated into the management system of the operating organization?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48: 5.55]

Are data and information newly acquired through the implementation of AMPs shared among responsible units and other internal or external organizations involved in AM? Are these data connected with the existing plant databases, such as the master equipment and component list?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48; 5.57]

Is an in-depth review of AM performed periodically (e.g. as part of PSR, of safety review for LTO, etc.) and does it demonstrate that ageing effects will continue to be identified and effectively managed? Are the results of the in-depth review documented and do they indicate findings and corrective actions as applicable (modifications of existing or development of new AMPs)?

[SSR-2/2 (Rev.1): Req.14, 4.50] [SSG-48; 3.35, 5.61, 5.62]

Does the plant conclude, after reviewing the existing plant programmes and/or AMPs, that the management of ageing is not adequate in some cases? If so, does the plant modify the existing programme or develop a new programme for the purpose of LTO?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 3.33, 3.35, 5.37, 5.54, 5.58, 5.59, 5.60, 5.63]

Provide selected examples of improved or new AMPs detailed documentation for review (examples to be selected by the reviewer). Does the plant reviewed AMPs for consistency with IGALL AMPs and are areas for improvement in AMPs identified and incorporated?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.55, 5.59-5.62]

C-3 - TLAAAs of mechanical SSCs (Day 3)

References: SSR-2/2 (Rev.1): Req.16, 4.54; SSG-48: 3.34, 5.64-5.69, 7.14, 7.18, 7.28

Identification of TLAAAs

Has the plant identified all TLAAAs?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 3.34, 5.64, 5.65, 7.14(b), 7.18(d)]

Which methods and information sources were used to identify the TLAAAs? Is the identification process (methods and information sources) documented?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.64, 5.65, 7.14(b), 7.18(d)]

Revalidation of TLAAAs

Were all identified TLAAAs revalidated using methods and criteria consistent with the IAEA recommendations?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.66-5.68, 7.14(b), 7.17, 7.18(d), 7.28]

What corrective or compensatory measures are taken in case TLAAAs cannot be revalidated?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 3.34, 5.68]

Is the revalidation of TLAAAs documented in an update to the FSAR?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.70-5.72, 7.36]

Provide selected examples of TLAA's revalidation detailed documentation for review (examples to be selected by the reviewer).

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 7.30, 7.36]

C-4 - Scope setting results verification for mechanical SSCs (Day 3)

References: SSR-2/2 (Rev.1): Req.16, 4.54; SSG-48: 5.16-5.21

Was a list or database of the plant SSCs (e.g., a master list) used as a basis for the scoping? Are the scoping process results provided in a list of SCs in the scope and a list of SCs out of the scope of AM/LTO?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.15, 5.17, 5.19, 5.21, 7.18(a), 7.20, 7.33]

If scope setting data is distributed into more than one database, how is data consistency assured?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.14-5.15, 7.20, 7.29-7.30, 7.33]

Have SCs commodity groups (group of components/structures which have similar functions, similar materials and are in similar environment) been defined and if so, how?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.20, 7.20]

C-5 - Data collection and record keeping for mechanical SSCs (Day 4)

References: SSR-2/2 (Rev.1): Req.15, 4.52; SSG-48: 3.13-3.19, 3.23, 5.9-5.13

Are efficient data collection and record-keeping systems in place so that trend analyses can readily be performed to predict SSC performance?

[SSR-2/2 (Rev.1): Req.15, 4.52] [SSG-48: 3.23, 5.9-5.12]

Do the data collection and record-keeping systems provide all information for AMR?

[SSR-2/2 (Rev.1): Req.15, 4.52] [SSG-48: 3.23, 5.9-5.12]

Is design documentation, including documentation from suppliers, available?

[SSR-2/2 (Rev.1): Req.15, 4.52] [SSG-48: 3.13-3.19, 5.9-5.12]

C-6 - Documentation of AM and documentation in support of LTO for mechanical SSCs (Day 4)

References: SSR-2/2 (Rev.1): Req.16, 4.53; SSG-48: 5.70-5.74, 7.29-7.38

Are the assumptions, activities, evaluations, assessments and results of the plant programme for AM and/or for LTO including the list of plant's commitments documented in accordance with national regulatory requirements and consistent with the IAEA Safety Standards in an auditable and retrievable form (see details of refs. provided next)?

[SSR-2/2 (Rev.1): Req.16, 4.53], [SSG-48: 5.70, 7.29-7.31, 7.33-7.35]

Does the documentation include respective methodologies (e.g. in the form of plant procedures, such as for scope setting, AMR, AMP review and improvement, TLAAs identification and revalidation, etc.)?

[SSR-2/2 (Rev.1): Req.16, 4.53], [SSG-48: 7.29-7.30, 7.32]

Does the documentation also include demonstration that ageing effects will be managed during the planned operating period?

[SSR-2/2 (Rev.1): Req.16, 4.53], [SSG-48: 7.35]

Does the documentation include an update of the safety analysis report reflecting the assumptions, activities and results of the plant programme for AM, and/or for LTO?

[SSR-2/2 (Rev.1): Req.16, 4.53], [SSG-48: 5.71-5.72, 7.36]

Are the assumptions, activities, evaluations, assessments and results of the plant programme for AM and/or for LTO reflected in the PSR report? Is the entire planned period of LTO considered?

[SSR-2/2 (Rev.1): Req.16, 4.53], [SSG-48: 5.73, 7.37-7.38]

D – Ageing Management of electrical and I&C SSCs

D-1 - AMR of electrical and I&C SSCs (Day 1) – use C-1

D-2 - AMPs of electrical and I&C SSCs (Day 1) – use C-2

D-3 - Equipment qualification programme for all SSCs (Day 2)

References: SSR-2/1 (Rev.1): Req.30, 5.48-5.50; SSR-2/2 (Rev.1): Req.13, 4.48-4.49; Req.16, 4.54; SSG-48: 3.12, 3.16, 3.17, 3.21, 3.33- 3.35, 4.16-4.18, 4.23-4.31, 5.67-5.69, 7.26-7.28; NS-G-2.13: 2.21, 3.1, 3.9, 3.11, 3.20

Has the plant developed, implemented, maintained and periodically reviewed comprehensive equipment qualification programme including its documentation and consistent with the IAEA safety standards?

[SSR-2/1 (Rev.1): Req.30 5.48-5.50] [SSR-2/2 (Rev.1): Req.13, 4.48-49, Req.16, 4.54] [SSG-48: 4.23-31]

Is there equipment qualification master list containing mechanical, electrical and I&C components in place? Does it include cables, connectors and penetrations? Is this list updated regularly?

[SSR-2/2 (Rev.1): Req. 13, 4.48] [SSG-48: 4.29-4.30]

Does the plant use appropriate seismic motions based on the latest knowledge, operational experience and research findings for seismic qualifications? Are possible ageing effects considered for seismic qualification?

[SSR-2/2 (Rev.1): Req.13, 4.48] [NS-G-2.13: 4.1-4.8]

Are the results of the scope setting, ageing management review, and TLAA revalidations for LTO adequately used to update equipment qualification programmes?

[SSR-2/2 (Rev.1): Req.13, 4.48, Req.16, 4.54] [SSG-48: 4.23, 4.28-4.30]

Is equipment qualification status preserved and updated through surveillance, maintenance, modifications and replacement, environment and equipment condition monitoring and configuration management? Are adequate interfaces with related programmes in place?

[SSR-2/2 (Rev.1): Req.13, 4.48] [SSG-48: 3.35, 4.18, 4.27, 4.30]

Has the plant evaluated the existing equipment qualification programmes for in-scope SCs against the nine attributes of an effective AMP for the intended period of operation (i.e. including LTO)?

[SSR-2/2 (Rev.1): Req.13, 4.48, Req.16, 4.54] [SSG-48: 4.17]

If the equipment qualification programme was designed according to earlier standards, is the re-qualification programme for in-scope SCs in place, focused on ensuring that the equipment can perform its function under current design basis condition?

[SSR-2/1 (Rev.1): Req.30 5.48, 5.50] [SSR-2/2 (Rev.1): Req.13, 4.48, Req.16, 4.53] [SSG-48: 4.28, 4.30]

Has it been demonstrated that environmental qualification will remain valid over the expected period of LTO? Does the demonstration support the technical justification that ageing effects will be managed effectively? Is timely replacement of equipment that cannot be qualified for the planned period of LTO adequately considered? Has a specific programme for replacement of mechanical, electrical and I&C equipment with qualified or stated lifetimes less than the planned LTO period been developed and implemented?

[SSR-2/2 (Rev.1): Req.13, 4.48, Req.16, 4.54] [SSG-48: 4.25, 4.26, 4.28, 4.30, 5.25(6)]

Can you provide the qualification results on safety related mechanical, electric and I&C equipment located inside containment? Do these results specify whether the equipment has been qualified to perform its safety functions in environmental conditions equivalent to design basis accident conditions for the planned period of LTO?

[SSR-2/1 (Rev.1): Req.30 5.48-5.50] [SSG-48: 4.25, 4.26, 4.28]

Is equipment qualification status documented and maintained throughout the life of the plant and consistent with the IAEA Safety Standards?

[SSR-2/2 (Rev.1): Req.13, 4.49] [SSG-48; 4.29, 7.30, 7.36]

Revalidation of EQ (as TLAA)

Were all identified TLAAs revalidated using methods and criteria consistent with the IAEA recommendations?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.66-5.68, 7.14(b), 7.17, 7.18(d), 7.28]

What corrective or compensatory measures are taken in case TLAAAs cannot be revalidated?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 3.34, 5.68]

Is the revalidation of TLAAAs documented in an update to the FSAR?

[SSR-2/2 (Rev.1): Req.16, 4.54], [SSG-48: 5.70-5.72, 7.36]

D-4 - Technological obsolescence management for all SSCs (Day 3)

References: SSR-2/2 (Rev.1): Req.10, 4.38; Req.16, 4.54; SSG-48: 3.20-3.21, 3.27-3.28, 3.33, 6.1-6.12

Has a dedicated plant programme to manage technological obsolescence consistent with the IAEA safety standards been developed and implemented? Does it address all SSCs important to safety and the spare parts required to maintain these SSCs? [SSR-2/2 (Rev.1): Req.10, 4.38, Req.16, 4.54] [SSG-48: 3.20, 3.27, 6.1, 6.2]]

Does the technological obsolescence programme involve the participation of the engineering, maintenance, operations and work planning units, plant senior management and supply chain organizations?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 6.3, 6.9]

Has the technological obsolescence programme been reviewed for consistency with the 9 attributes? Has it been made available to the regulatory body for review?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 4.17, 6.4, 6.5]

Are technological obsolescence programmes periodically reviewed based on new regulatory requirements, vendors' recommendations, operating experience, and new knowledge and research findings?

[SSR-2/2 (Rev.1): Req.16, 4.54, Req.24] [SSG-48: 3.3, 3.30, 3.33, 3.35, 6.10, 6.11]

Does the technological obsolescence programme include the three basic steps (identify and prioritize issues, implement solutions) and activities consistent with the IAEA Safety Standards?

[SSR-2/2 (Rev.1): Req.16, 4.54] [SSG-48: 3.20, 6.6-6.8]

D-5 - Scope setting results verification for electrical and I&C SSCs (Day 3) – use C-4

D-6 - Data collection and record keeping for electrical and I&C SSCs (Day 3) – use C-5

D-7 - Documentation of AM and documentation in support of LTO for electrical and I&C SSCs (Day 4) – use C-6

E – Ageing Management of civil SSCs

E-1 - AMR of civil SSCs (Day 1) – use C-1

E-2 - AMPs of civil SSCs (Day 2) – use C-2

E-3 - TLAAs of civil SSCs (Day 3) – use C-3

E-4 - Scope setting results verification for civil SSCs (Day 3) – use C-4

E-5 - Data collection and record keeping for civil SSCs (Day 3) – use C-5

E-6 - Documentation of AM and documentation in support of LTO for civil SSCs (Day 4) – use C-6

F- Human resources, competence and knowledge management for LTO

F-1 - Human resources policy and strategy to support LTO (Day 1)

References: GSR Part 2: Req.7, 4.15, Req.8, 4.16, Req.9, 4.21-4.27, Req.10, 4.29; SSR-2/2 (Rev.1): Req.4, 3.10-3.11; GS-G-3.1: 2.31, 2.53, 2.54, 2.23, 2.36, 3.2, 3.11-3.12, 4.1-4.12,

4.29, 4.6, 4.7, 5.11, 5.21, 5.59, 5.60, 6.3, 6.32; NS-G-2.4: 2.3, 2.7, 2.11, 3.1, 3.2(5) (9), 3.4, 3.7, 3.15, 4.5-4.10, 5.10, 6.1, 6.2, 6.11-6.15, 6.29, 6.30; NS-G-2.8: 2.2, 4.1, 4.44, 4.11

Do the plant human resources policy and strategy reflect LTO requirements? [GSR Part 2; 4.16] [SSR-2/2 (Rev.1): 3.10] [GS-G-3.1: 2.54] [NS-G-2.4: 5.10; 6.11]

Do management manuals and job descriptions determine roles, responsibilities and delegations of authority for all managers in key positions related to LTO? [GSR Part 2; 4.16] [SSR-2/2 (Rev.1): 3.8] [GS-G-3.1: 2.53, 2.54] [NS-G-2.4: 2.11, 3.4]

Is good coordination maintained among different plant groups, among the site organizations and contractors involved in LTO? [GSR Part 2: 4.29] [GS-G-3.1: 2.31, 6.3] [NS-G-2.4: 3.2(5) (9), 4.5-4.10]

Are staffing and resources sufficient to accomplish the tasks assigned? [GSR Part 2; 4.21-4.27] [SSR-2/2 (Rev.1): 3.10-3.11] [GS-G-3.1: 2.23, 3.2, 3.11-3.12, 4.1-4.12] [NS-G-2.4: 2.3, 3.1, 3.7, 3.15, 4.8, 5.10, 6.1, 6.2 6.11-6.15, 6.29, 6.30]

Does corporate management have sufficient resources to appropriately respond on plant requests and problems related to LTO? [GS-G-3.1: 3.12, 4.1-4.2]

Is the staffing policy directed to retaining a pool of experienced and knowledgeable staff? [GSR Part 2: 4.21-4.27] [SSR-2/2 (Rev.1): 3.11] [GS-G-3.1: 4.1, 4.2, 4.6, 4.7, 5.60] [NS-G-2.4: 2.7]

Are long-term staffing policy objectives for human resources established and maintained? [SSR-2/2 (Rev.1): 3.10-3.11] [GS-G-3.1: 4.2, 4.3, 4.7] [NS-G-2.4: 6.11, 6.12, 6.14] [NS-G-2.8: 2.2, 4.4]

Is long-term succession planning established and implemented? [SSR-2/2 (Rev.1): 3.10-3.11] [NS-G-2.8: 4.1, 4.11] [GS-G-3.1: 4.2-4.3, 4.29]

Do plant managers have the appropriate resources to carry out their assigned LTO responsibilities and accountabilities? [GSR Part 2: 4.15, 4.21-4.25] [SSR-2/2 (Rev.1): 3.10-3.11] [GS-G-3.1: 4.1-4.2, 4.6-4.7, 5.21, 5.59, 6.32]

F-2 - Competence management for LTO and recruitment and training/ qualification processes for personnel involved in LTO activities (Day 2)

References: GSR Part 2: Req.9, 4.21, 4.23, 4.24, Req.10, 4.28, Req.13, 6.1-6.5, 6.7; SSR-2/2 (Rev.1): Req.2, 3.4-3.7, Req.3, 3.8-3.9, Req.4, 3.10-3.11, Req.5, 4.1-4.3, Req.7, 4.21-4.22;

GS-G-3.1: 3.4, 4.6-4.9, 4.18, 4.20, 4.21, 6.8, 6.16; GS-G-3.5: 3.30, 4.12, 6.23; NS-G-2.4: 2.14, 2.15, 3.7; NS-G-2.8: 2.2, 2.4, 2.8, 2.12–2.14, 2.18, 3.1, 3.2, 3.31, 4.1, 4.4, 4.10, 4.13, 4.14, 4.15(b), 4.31, 4.45, 5.6, 5.24, 5.9, 5.35, 5.37, 6.5, Appendix I; NS-G-2.11: 2.5, 3.9, 7.6

Does the plant have a process to ensure competent human resources for LTO including external support? [SSR-2/2 (Rev.1): 3.4-3.7] [GS-G-3.1: 4.18, 4.20, 4.21] [NS-G-2.8: 2.18, 3.1, 3.2, Appendix I]

Does the plant have an adequate process for assessing and meeting the organizational competency requirements to support LTO? [GSR Part 2: 4.21, 4.23, 4.24, 4.28, 6.1-6.5] [GS-G-3.1: 4.8, 4.9] [NS-G-2.8: 2.2, 2.4, 2.12, 4.4]

Have specific competence requirements for LTO related positions been identified and are these used in the recruitment/selection process for these positions? [SSR-2/2 (Rev.1): 3.10-3.11] [GS-G-3.1: 4.6, 4.7] [NS-G-2.4: 2.14, 2.15] [NS-G-2.8: 2.12–2.14]

Have all key technical competences for LTO activities been identified and do all involved staff meet these requirements? [SSR-2/2 (Rev.1): 3.8-3.11] [NS-G-2.8: 4.13, 4.14]

Do personnel assigned to LTO duties that can affect safety have a sufficient understanding of the plant and its safety features? [NS-G-2.8: 3.2, 4.1]

Does plant management have the necessary management skills, experience and knowledge needed to manage safe LTO? [SSR-2/2 (Rev.1): 4.1-4.3] [NS-G-2.8: 3.31]

Is the opportunity given to managers and plant personnel to learn from external peer organizations and their lessons learned? [GSR Part 2: 6.7] [GS-G-3.1: 6.8, 6.16] [GS-G-3.5: 3.30, 4.12, 6.23] [NS-G-2.11: 2.5, 3.9, 7.6]

Does the plant have an appropriate plant recruitment policy for LTO? [NS-G-2.4: 2.14, 2.15, 3.7] [NS-G-2.8: 2.12–2.14] [GS-G-3.1: 4.6, 4.7]

Does the policy and role of plant management support training needs and allocate sufficient resources? [SSR-2/2 (Rev.1): 3.2 4.18] [NS-G-2.8: 4.10, 4.31, 6.5] [GS-G-3.1: 3.4]

Is personnel involved in LTO activities well trained through on-job-training and other appropriate processes? [NS-G-2.8: 2.8, 4.15(b), 4.45, 5.6, 5.9, 5.24]

Are there plans and processes in place to upgrade/update training programmes to reflect the changes/improvements made through LTO activities? [SSR-2/2 (Rev.1): 4.21] [NS-G-2.8: 5.35, 5.37]

Are training programmes updated based on national and international experience of other plants [SSR-2/2 (Rev.1): 4.22]

F-3 - Knowledge management and knowledge transfer for LTO (Day 3 and 4)

References:

GSR Part 2: Req.4, 4.3, Req.8, 4.16-4.17, Req.8, 4.20, Req.9, 4.21-4.27, Req.13, 6.1-6.2; SSR-2/1 (Rev.1):2.17; SSR-2/2 (Rev.1): Req. 3, 3.8, Req.7, 4.21, Req.24, 5.28-5.32, 8.4; GS-G-3.1: 2.4, 2.5, 2.28-2.31, 3.1, 3.11, 3.16, 4.1, 4.2, 4.4, 4.6, 4.7, 4.20, 5.6, 5.14; NS-G-2.3: 11.6; NS-G-2.4: 3.2, 3.3, 3.18; NS-G-2.6: 2.16, 3.6, 3.10-3.12, 6.1, 9.45, 10.45; NS-G-2.8: 4.48, 5.35-5.37; SSG-25: 5.7, 5.103-110, 8.13, 9.5; SSG-48: 2.21, 2.26, 2.29, 2.31, 2.7, 3.3-3.5, 3.10, 3.13-3.14, 3.16-3.18, 3.20, 3.30, 4.1-4.2, 4.8-4.10, 4.13-4.14, 5.8, 6.1-6.3, 7.16, 7.18

Does an appropriate KM policy exist? [GSR Part 2: 4.3, 4.27] [GS-G-3.1: 2.4, 2.5, 4.1, 4.2, 4.4, 5.6]

Are KM principles and practices embedded in the integrated management system? [GSR Part 2: 4.21-4.22, 4.26, 4.27] [GS-G-3.1: 2.4, 2.5, 3.1, 3.11, 4.1, 4.2, 5.6]

Is KM a part of the operating organization's long term strategy? [SSR-2/2 (Rev.1): 3.10, 3.11]

Is there clear ownership of KM processes and issues? [GSR Part 2: 4.23, 4.25-4.26] [GS-G-3.1: 4.6, 4.7, 5.14]

Are KM principles and practices embedded in the organization? [GSR Part 2: 4.22, 4.24] [SSG-48: 3.20]

Has the plant embedded KM principles and practices in its process for collecting and using operating experience feedback? [SSR-2/2 (Rev.1): 5.28, 5.29, 5.30, 5.31, 5.32] [SSG-48: 2.7, 2.21, 3.3, 3.30, 5.8, 7.16, 7.18] [SSG-25: 5.7, 5.103-110, 8.13, 9.5] [SSG-48: 4.8]

Has the plant implemented adequate processes for learning from the LTO experiences of other plants? [SSR-2/2 (Rev.1): 5.28, 5.29, 5.30, 5.31, 5.32] [SSG-25: 5.103-110] [SSG-48: 2.31, 7.16, 7.18]

Does the plant have a process for knowledge-loss risk assessment and mitigation for suppliers, TSOs and outside service providers? [SSR-2/1 (Rev.1): 2.17] [NS-G-2.6: 3.10, 3.11, 3.12] [SSG-48: 2.26, 2.29, 6.1-6.3]

Does the plant have established adequate processes for transferring knowledge, information and data to/from the vendor, critical equipment/component suppliers, outsourced services and TSOs? [SSR-2/1 (Rev.1): 2.17] [NS-G-2.6: 2.16, 3.6, 3.10, 3.11, 3.12] [SSG-48: 3.4-3.5, 3.10, 3.13-3.14, 3.16-3.18]

Do IT/IS processes support managing information and records and their availability? [GS-G-3.1, 4.2] [SSR-2/2 (Rev.1): 8.4] [NS-G-2.6: 6.1, 9.45, 10.45]

Does the plant retain records of traceability, rationale and assumptions of why and how operational, maintenance and design changes (corporate memory) have been made? [GSR Part 2: 4.16-4.17, 4.20] [GS-G-3.1: 3.16] [SSG-48: 4.1-4.2, 4.9-4.10, 4.13-4.14] [NS-G-2.3: 11.6]

Does the plant have plans/processes in place to extract, preserve, and reuse the critical knowledge gained during LTO activities for organizational performance? [SSR 2/2(Rev.1): Req.7, 4.21] [GS-G-3.1: 4.4] [NS-G-2.4: 3.2(5)(8)]

Does the plant/corporate monitor implementation of the KM programme and measure its effectiveness? [GSR Part 2: Req.13, 6.1-6.2] [SSR-2/2 (Rev.1): Req.7, 4.21] [GS-G-3.1: 4.20] [NS-G-2.8: 4.48, 5.35-5.37]

How is the clear division between the KM programme responsibilities of the corporate organization and those of the plant? [SSR-2/2 (Rev.1): Req. 3, 3.8] [GS-G-3.1: 2.28-2.31] [NS-G-2.4: 3.2, 3.3, 3.18]

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