**The Preparatory Meeting Minutes**

**of the ‘Expert Mission for Bushehr Nuclear Power Plant Unit**

*XX April 2018, IAEA, Vienna and Bushehr NPP, Iran (organized by emails)*

Participants of preparatory meeting:

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Name** | **Organization/position** | **E-mail** |
| **Bushehr Nuclear Power Plant** |
| 1 | M. Talebi | Head of Technical and Engineering Department, | tavanaengdep@nppd.co.ir |
| **IAEA** |
| 2 | Gábor Petőfi | Safety Officer, NSNI/OSS  | G.Petofi@iaea.org |
| 3 | Robert Krivanek  | LTO Project Manager, NSNI/OSS | R.Krivanek@iaea.org |

On xx April 2018, a preparatory meeting for the ‘Expert Mission for Bushehr Nuclear Power Plant in Iran’ was organized by email exchange between Bushehr NPP and IAEA responsible personnel (see participants above) to discuss planned expert mission. The main subject of the discussion was the definition of scope and organization of the expert mission to be held in Bushehr NPP (further referred as the “plant”).

The Expert Mission was approved as part of the TC project IRA2013:3.8.1-1 Expert Mission on ‘Review of BNPP1 Ageing Management Programmes and TLAAs’. The date of the mission was agreed with the BNPP: October 7-10, 2018.

The IAEA is ready to perform this mission as an ‘expert mission based on SALTO guidelines’ as described in IAEA Safety Series 26 [21].

After discussions of the items included, the following was agreed:

1. IAEA Technical Officer - The following staff member has been designated as an IAEA Technical Officer (TO):

Mr. Gabor Petofi

Operational Safety Section, Division of Nuclear Installation Safety

Phone: +43 1 2600 22633

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E-mail: G.Petofi@iaea.org

TO is responsible for discussion with counterparts during preparation period including the preparatory meeting and, as a rule, is a team leader of the IAEA review team.

1. Host plant peer - The plant should designate a host plant peer who will participate in the expert mission team meetings, advises the team members when information may not be complete or correct and during the mission will not have any other plant responsibilities. His main role is to act as a liaison officer between the plant and the IAEA team.

Host plant peer of this organization is:

Name:

1. Dates and place – The expert mission will be organized on 7-10 October 2018 at Bushehr NPP. The expert mission programme is enclosed as Attachment A but can be still modified by the team leader before or during the mission.
2. IAEA review team – Preliminary composition of the IAEA review team is enclosed as Attachment B and will consist of IAEA team leader, three experts and up to two observers.
3. Expert mission scope - The expectation is that this IAEA expert mission should review a progress in selected review areas of a SALTO peer review service:
* Area B - Scoping and screening and plant programmes relevant to LTO
* Area C - Ageing management review, review of ageing management programmes and revalidation of time limited ageing analyses for mechanical components;
* Area D - Ageing management review, review of ageing management programmes and revalidation of time limited ageing analyses for electrical and I&C components;
* Area E - Ageing management review, review of ageing management programmes and revalidation of time limited ageing analyses for civil structures.

SALTO peer review service areas A and F will not be reviewed during this expert mission.

1. Review basis and methodology - The team uses three methods to acquire the information needed to develop the report:
* Review of documents / written materials, including advance information package,
* Interview / discussions with plant personnel and TSOs, if necessary,
* Direct observations of physical conditions of SSCs in the plant (plant walk-downs).

The following are used as a review basis:

IAEA Safety Standards and relevant application documents (see Attachment D). The peer review compares observed practices with existing IAEA Safety Standards. The comparisons may result in:

* Recommendations (offer proposals for improvement);
* Suggestions;
* Encouragement;
* Identification of good practices or good performances.
1. Documents to be reviewed - The following documents will be reviewed:
* Advance information package which summarizes related regulatory requirements, general plant information and information on plant LTO activities;
* Regulatory Body documents, such as – legislation, regulations or regulatory guides;
* NPP documents such as procedures, reports, records etc.;
* Documents prepared by suppliers for LTO purposes.
1. Content of advance information package (AIP)
* Standard Requirements for the Structure and Contents of an AIP for an IAEA SALTO Mission are shown in ‘IAEA Services Series 26, SALTO Peer Review Guidelines, January 2014’ in Annex I. Information for area A ‘Organization and functions, CLB, configuration/ modification management’ and area F ‘Human resources, competence and knowledge management for LTO’ is not necessary for this expert mission;
* The plant will send the names and emails of counterparts for each review area as a part of AIP;
* The plant should send the AIP written in English to the IAEA before 6 September 2018.
1. Official language and interpreters - Official language of the expert mission is English. English interpretation / translation will be provided by the plant for each reviewer and the team leader, if necessary.
2. Secretarial Service - A secretary will be provided by the host organization during the mission.
3. Work space, supplies and equipment at the plant facilities - Each reviewer and TL will be provided with (as far as feasible):
* Working place / room with connection to a printer;
* Internal telephone;
* Power supply;
* International telephone line and wired Internet connection in Team Leader’s workplace;
* Personal protective equipment according to plant industrial safety rules (for plant walkdowns).

Reviewers will be allowed to bring their own laptops or USB with all files to the plant.

The Review Team will have a meeting room to be equipped with:

* A large table;
* A white board or a paper board;
* An internal telephone;
* A data-projector and screen;
* A PC with Microsoft Office software (English version);
* A printer;
* A copy machine.

The Review Team will also have a meeting room in the hotel to be equipped with:

* A large table;
* A white board or a paper board;
* A data-projector and screen;
* A PC with Microsoft Office software (English version);
* A printer;
* A copy machine.

The meeting room in the hotel has to be available from Sunday to Tuesday each day from 19:00 till 22:00.

For plant walk-downs, the plant guide will have a digital camera.

1. Access control – The plant should be provided with detailed information on team members for the access to the plant site. Access control for team members should follow domestic rules and plant regulations. The plant will make the necessary arrangements for access to the plant in relation to the escorted plant walk-down.

The plant will provide a list with necessary documents for escorted plant access by 6 August 2018.

Team members will submit necessary information for the access to the plant and its radiation controlled area before 6 September 2018.

1. Dress code of counterparts and IAEA team - A formal dress code for counterparts and IAEA team is agreed for entrance and exit meetings. An informal dress code for counterparts and IAEA team members during the rest of the mission is standard.
2. The mission will take place at the plant site. The team briefing and initial meeting with counterparts will be on Saturday, 6 October 2018 at the hotel at 7 p.m.
3. The plant will arrange transportation each day from hotel to the plant at 7:15 a.m. and back at 6 p.m.
4. The SALTO team and all counterparts will be allowed to work at the plant from 8 a.m. till 6 p.m.
5. The entrance meeting will take place on Sunday, 7 October 2018, 10:30 – 11:45. An exit meeting will take place on Friday, 8 December 2016, 10:30 – 11:45 in the plant. Counterparts, NPP experts, plant management and regulatory authority will be invited to attend and to make speeches.
6. The output of the IAEA SALTO Peer Review Service is the Mission Report, including the issue description and issue sheets. The format of the report will be as described in SALTO Guidelines [21].
7. Financial agreements - The costs of the mission (e.g. travel, lodging, fees of team members) will be covered from IAEA Technical Cooperation project IRA2013. BNPP will cover all locally incurred costs, e.g.:
* Lodging, local transportation, translation and other necessary logistics;
* Office premises and provision of other secretarial support.
1. BNPP will take care of:
* Hotel reservation (the hotel addresses and telephone numbers will be included in the AIP);
* Hotel rooms will be equipped with reliable internet connection;
* Hotel will provide breakfast at 7:00 and dinners at 18:30 for the team during the whole mission;
* Meeting room as specified in Item 11 above.
* All local transportations:
	1. From/to the international airport to/from the hotel;
	2. From/to the hotel from/to the plant.
1. Logistic support and experts` personal data
* Experts will bring their own laptops and they will be allowed to use them at the plant during the Mission;
* Team members will inform the plant before 6 September 2018 about the names, passports details, addresses and flight schedules;
* Each IAEA team member is responsible for his/her visa application to enter the country. To support his/her visa application the plant will provide an invitation letter and reference numbers to the concerned by 6 August 2018;
* Team members will arrive to Shiraz/Tehran Airport on Saturday, 6 October 2018 before 3 p.m;
* Team members will depart from Shiraz/Tehran International Airport on Wednesday, 10 October 2018, after 5 p.m. or later;
* Host organization will announce transportation details to the team members before 29 September 2018.
1. Public information and media interaction - The IAEA is also ready to issue a press-release by the end of the mission and participate in a press conference, if requested by the plant in advance. The host organization or regulatory authority has to ask the IAEA to do so not later than two weeks before the mission due to IAEA procedures for public interaction.
2. Plant check list - see Attachment C.
3. The assigned contact points are:
* Mr M. Talebi (Tavana - TSO for Bushehr NPP)
* Gabor Petofi (IAEA)

**Attachment A - PROGRAMME OF EXPERT MISSION FOR BUSHEHER NUCLEAR POWER PLANT (7-10 October 2018)**

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| --- | --- | --- |
| **Day 1, Saturday,****6 Oct** | **AM** | Arrival of team members to the Tehran International Airport / Shiraz International Airport before xxTransportation from the airport to Bushehr organized by counterpart18:00 – 19:00 IAEA team briefing in the hotel, preparatory activities19:00 Official dinner - Pre-meeting with counterparts |
| **Day 2, Sunday,** **7 Oct** | **AM** | 07:15 Departure from the hotel 08:00 – 08:30 Plant access formalities08:30 – 10:15 **IAEA team training** 10:30 – 11:45 **Entrance meeting**Opening of the mission – host plant peerNPP expectations - plant managerRegulatory authority expectations Objective and schedule – team leaderIntroduction of participants – both sidesMethodology of review – team leaderLTO activities – host plant peer |
|  | **PM** | 13:30 – 16:30 **Parallel sessions in review areas** – interview and discussion 16:30 – 16:45 Debrief with counterpart 16:45 – 17:15 Preparation for Team meeting17:15 – 17:45 Team Meeting with host plant peer18:00 Departure to the hotel |
| **Day 3, Monday, 8 Oct** | **AM** | 07:15 Departure from the hotel 08:00 – 11:45 **Parallel sessions in review areas** – interview and discussion11:00 – 11:30 Information meeting of PM and TL |
|  | **PM** | 13:30 – 16:30 **Parallel sessions in review areas** – interview and discussion 16:30 – 16:45 Debrief with counterpart 16:45 – 17:15 Preparation for Team meeting17:15 – 17:45 Team Meeting with host plant peer18:00 Departure to the hotel |
| **Day 4, Tuesday, 9 Oct** | **AM** | 07:15 Departure from the hotel 08:00 – 11:45 **Parallel sessions in review areas** – interview and discussion |
|  | **PM** | 13:00 – 16:00 Development of issues and evaluative section of report13:30 – 14:00 Information meeting of PM and TL 14:00 – 16:00 Review of issues and evaluative section of report by TL16:00 – 17:00 Discuss and agree the issues and evaluative section of report with counterparts17:15 – 18:00 Team Meeting with host plant peer - Team meeting with host plant peer – issues and evaluative section of report presentation, agreement by team18:00 – 18:45 – Exit speeches training and incorporating comments 18:45 Departure to the hotel 20:00 Farewell dinner |
| **Day 5, Wednesday,** **10 Oct** | **AM** | 07:15 Departure from the hotel 08:00 – 09:00 Finalization of the report09:00 Deadline for any changes in draft report09:00 – 10:00 Preparation of exit meeting speeches10:00 – 10:15 Preparation for exit meeting speeches, “cleaning” of offices 10:30 – 11:30 **Exit meeting** - (including plant management)Opening by the host plant peerDescription of Mission scope - team leader – 3 minutesDetail findings (each reviewer) - 3 \* 10 (30) minutesObservers remarks and lesson learned: 1 \* 3 (3) minutesMain finding and conclusions - team leader – 5 minutesHost plant peer’s remark (comparison against initial expectation) - 5 minutesRegulatory authority speech - 5 minutesSpeech by a plant manager- 5 minutesClosing by the plant manager |
|  | **PM** | 14:00 Transportation of the team to the airport organized by counterpartDeparture of team members from the Shiraz/Tehran International Airport after. |

Plant Walk-down will be organized as optional for reviewers based on their requests.

**Attachment B** - **IAEA REVIEW TEAM**

**Main Mission: 1 staff member + 4 external experts**

**IAEA Team Leader**: **Mr. Gabor Petofi**, IAEA, NSNI – OSS, Austria, P.O. Box 100, 1400 Vienna, Tel: +43 1 2600 22633, cell phone: +36 20 464 0964, fax: + 43 126007, E-mail: g.petofi@iaea.org, petofigabor@gmail.com

**Reviewer B (Scoping and screening and plant programmes relevant to LTO):**

**Ms. Maria Magdalena Gris Cruz,** Mexico, Comission Federal de Electricidad (CFE), Laguna Verde NPP, 91680 Veracruz, phone: + (229) 989 90 90 Ext. 8691, cell phone: + (229) 2 13 36 86, e-mail: mgris.cruz@cfe.gob.mx (funding from TC RLA9080)

**Reviewer C (Ageing management review, review of ageing management programmes and revalidation of time limited ageing analyses for mechanical components):**

**Mr. Miroslav Zamboch**, the Czech Republic, UJV Rez, a. s., phone: +420 266 173545, cell phone: +420 725 648 916, email: miroslav.zamboch@ujv.cz

**Reviewer D (Ageing management review, review of ageing management programmes and revalidation of time limited ageing analyses for electrical and I&C components):**

**Mr. Kabelo Moroka**, South Africa, Koeberg NPP, Senior Engineer, SALTO/LTO Technical Lead, Equipment Qualification Programme Engineer, Koeberg NPP, Off R27, Melkbosstrand, Cape Town, 7441, Tel: +27215223013, e-mail: MorokaKI@eskom.co.za

**Reviewer E (Ageing management review, review of ageing management programmes and revalidation of time limited ageing analyses for civil structures):**

**Mr. James Mok,** Canada,Consultant, 79 Gabriel-Lacasse, Gatineau, Quebec, J9A 1K2, Cell Phone: +1 613 889 1175, email: jamesmok99@yahoo.ca

**Observers:**

**??? –**

**Attachment C - Plant Check List for Preparations of SALTO**

1. **Information to be submitted to IAEA and directly to team members at least one month before the start of the mission**

a) Advance Information Package - “AIP Standard Requirements”.

1. **Team arrival**

a) Meet individual team members (they should arrive on Saturday) and provide transportation to hotel.

1. **Daily arrangements**

a) Breakfast for team in the Hotel

b) Transport to and from site

c) Lunch for team on site

d) Hotel arrangements for duration of mission

* Dinner
1. **Cultural programme**

Cultural programme is not foreseen for this expert mission.

1. **Team departure**

a) Transport team to airport after exit meeting.

b) Arrange hotel accommodation and transport to airport for team members flying out on the day after the exit meeting (if necessary).

1. **Administration**

a) Interpretation: (if necessary) – English is the common language during the SALTO – interpreters only required if English is not spoken by the counterparts.

* One interpreter for team leader
* One interpreter for each reviewer
* Interpreters may be required to work in the evenings (e.g. if translation is necessary)
* They will be asked to translate, as well as interpret

 b) Secretaries:

* Normally 1 required
* Must be able to work in English

 c) Word processing equipment:

* One terminal for secretary, each team member and observer (s) + TL and DTL with English language interface.
* LAN for team and secretaries.

c) Photocopying machine:

* A self-feeding copier with sorting and collating capabilities should be available for providing draft and final copies for Technical Notes
* At least one high speed copier (preferably two, one being able to print color) is needed for normal daily use.

e) Communications:

* Telephones with international connection, minimum for TL, DTL and team members
* Access to internet for team and site e-mail address for team members

f) Conference room:

* Needed daily after 16:30
* Large enough for at least 6 persons
* Equipped with overhead projector + PC and connected to team LAN

g) Office or work space:

* Enough for each review area
* One for TL and DTL, large enough for interviewing team members and plant staff

h) Office supplies:

* Stationery, pens, staplers, hole-punchers, binders, etc.
* Plant telephone directories
* Instructions on how to use telephones

**Attachment D - IAEA REFERENCE DOCUMENTS**

1. INTERNATIONAL ATOMIC ENERGY AGENCY, Safety of Nuclear Power Plants: Design, Specific Safety Requirements No. SSR-2/1 (Rev.1), IAEA, Vienna (2016).
2. INTERNATIONAL ATOMIC ENERGY AGENCY, Safety of Nuclear Power Plants: Commissioning and Operation, Specific Safety Requirements No. SSR-2/2 (Rev.1), IAEA, Vienna (2016).
3. INTERNATIONAL ATOMIC ENERGY AGENCY, Safety of Nuclear Power Plants: Leadership and Management for Safety, General Safety Requirements No. GSR Part 2, IAEA, Vienna (2016).
4. INTERNATIONAL ATOMIC ENERGY AGENCY, Application of Management system for Facilities and Activities, Safety Guide No. GS-G-3.1, IAEA, Vienna (2006).
5. INTERNATIONAL ATOMIC ENERGY AGENCY, Management System for Nuclear Installations, Safety Guide No. GS-G-3.5, IAEA, Vienna (2009).
6. INTERNATIONAL ATOMIC ENERGY AGENCY, Modifications to Nuclear Power Plants, Safety Guide No. NS-G-2.3, IAEA, Vienna (2001).
7. INTERNATIONAL ATOMIC ENERGY AGENCY, The Operating Organization for Nuclear Power Plants, Safety Guide No. NS-G-2.4, IAEA, Vienna (2001).
8. INTERNATIONAL ATOMIC ENERGY AGENCY, Maintenance, Surveillance and In-service Inspection of Nuclear Power Plants, Safety Standards Series Safety Guide No. NS-G-2.6, IAEA, Vienna (2002).
9. INTERNATIONAL ATOMIC ENERGY AGENCY, Recruitment, Qualification and Training of Personnel for Nuclear Power Plants, Safety Guide No. NS-G-2.8, IAEA, Vienna (2002).
10. INTERNATIONAL ATOMIC ENERGY AGENCY, Conduct of Operations at Nuclear Power Plants, Safety Guide No. NS-G-1.10, IAEA, Vienna (2008).
11. INTERNATIONAL ATOMIC ENERGY AGENCY, Periodic Safety Review of Nuclear Power Plants, Safety Standards Series No. SSG-25, IAEA, Vienna (2013).
12. INTERNATIONAL ATOMIC ENERGY AGENCY, A system for the Feedback of Experience from Events in Nuclear Installations, Safety Guide No. NS-G-2.11, IAEA, Vienna (2006).
13. INTERNATIONAL ATOMIC ENERGY AGENCY, Ageing Management and Development of a Programme for Long Term Operation of Nuclear Power Plants, Safety Standards Series Safety Guide No. SSG-48, IAEA, Vienna (2018).
14. INTERNATIONAL ATOMIC ENERGY AGENCY, Conduct of Operations at Nuclear Power Plants, Safety Guide No. NS-G-2.14, IAEA, Vienna (2008).
15. INTERNATIONAL ATOMIC ENERGY AGENCY, Dispersion of Radioactive Material in Air and Water and Consideration of Population Distribution in Site Evaluation for Nuclear Power Plants, Safety Standards Series Safety Guide No. NS-G-3.2, IAEA, Vienna (2002).
16. INTERNATIONAL ATOMIC ENERGY AGENCY, Chemistry Programme for Water Cooled Nuclear Power Plants, Specific Safety Guide No. SSG-13, IAEA Vienna (2012).
17. INTERNATIONAL ATOMIC ENERGY AGENCY, Equipment Qualification in Operational Nuclear Power Plants: Upgrading, Preserving and Reviewing, Safety Report Series No. 3, IAEA, Vienna (1998).
18. INTERNATIONAL ATOMIC ENERGY AGENCY, Application of Configuration Management in Nuclear Power Plants, Safety Report Series No. 65, IAEA, Vienna (2010).
19. INTERNATIONAL ATOMIC ENERGY AGENCY, Ageing Management for Nuclear Power Plants: International Generic Ageing Lessons Learned (IGALL), Safety Report Series No. 82, IAEA, Vienna (2015).
20. INTERNATIONAL ATOMIC ENERGY AGENCY, Maintaining the Design Integrity of Nuclear Installations throughout their Operating Life, INSAG-19, IAEA, Vienna (2008).
21. INTERNATIONAL ATOMIC ENERGY AGENCY, SALTO Peer Review Guidelines, Guidelines for Peer Review of Safety Aspects of Long Term Operation of Nuclear Power Plants, IAEA Services Series No. 26, IAEA, Vienna (2014).

**Attachment E - ABBREVIATIONS AND GLOSSARY FOR THE MISSION**

AIP advance information package

AMP ageing management programme

AMR ageing management review

CLB current licensing basis

DBD design basis documentation

EBP extra budgetary programme of the IAEA (joined on voluntary basis by some countries)

EQ equipment qualification

FSAR final safety analyses report

I&C instrumentation & control

IAEA International Atomic Energy Agency

ISI in-service inspection

LTO long term operation

MS&I maintenance, surveillance and inspection

NPP nuclear power plant

P&ID piping and instrumentation diagram

PLiM plant life management

PSA probabilistic safety assessment

PSR periodic safety review

QA quality assurance

SALTO safety aspects of long term operation

SCs structures and components

SSCs structures, systems and components

TC technical cooperation

TLAA time limited ageing analysis

ToR terms of reference

TSO technical support organization

**Ageing**

General process in which characteristics of a structure, system or component gradually change with time or use. We distinguish between:

1. **Physical ageing** is a general process in which characteristics of SSCs gradually change with time or use. It occurs due to physical or material degradation processes (i.e. chemical and/ or biological).
2. **Non-physical ageing** is the process of becoming out of date (i.e. obsolete) owing to the availability, evolution of knowledge and technology, and associated changes in requirements, codes and standards.

Physical ageing is referred as ageing while non-physical ageing is referred as obsolescence. Types of **obsolescence** are:

1. Obsolescence of technology (**technological obsolescence**) - lack of spare parts and technical support, lack of suppliers, lack of industrial capabilities;
2. Obsolescence of regulations, codes and standards - deviations from current regulations, codes and standards, both hardware and software, design weaknesses (e.g. in equipment qualification, separation, diversity or severe accident management capabilities);
3. Obsolescence of knowledge - knowledge of current regulations, codes and standards and technology relevant to SSCs not updated.

**Ageing Management**

Engineering, operations and maintenance actions to control ageing degradation and wear of structures, systems or components, within acceptable limits. Examples of engineering actions include design, qualification, and failure analysis. Examples of operational activities include surveillance, carrying out of operational procedures within specified limits, and performance of environmental measurements.

**Ageing management programmes (AMPs)**

Programmes developed using a structured methodology, to ensure a consistent approach for defining and implementing ageing management. AMPs should be developed specific to ageing effects/ degradation mechanisms or specific to a structure or component and should be consistent with the generic attributes of an effective AMP. Each AMP should identify specific actions relating to the prevention, detection, monitoring and mitigation of the ageing effects. Such specific actions may include plant programmes for maintenance, equipment qualification, in-service inspection, testing and surveillance, as well as controlling operational conditions. Each AMP includes a mechanism that ensures timely feedback of operating experience as well as research and development results (if applicable).

**Ageing management review**

Systematic assessment of ageing effects and their related degradation mechanisms that have been experienced or are anticipated. The assessment should include an evaluation of the impact of the ageing effect on the ability of the in-scope structures or components to perform their intended function(s), including consideration of the current condition of the structure or component.

**Current Licensing Basis (CLB)**

The current licensing basis is the set of regulatory requirements applicable to a specific plant, the operating organization’s commitments to ensuring compliance with and operation within applicable regulatory requirements and the plant specific design basis (including all modifications and additions to such commitments over the life of the licence). The current licensing basis also includes the plant specific design basis information as documented in a safety analysis report (which typically includes time limited ageing analyses), reports of periodic safety reviews and other plant documents.

**Design Basis**

The range of conditions and events taken explicitly into account in the design of a facility, according to established criteria, so that the facility can withstand them without exceeding authorised limits by the planned operation of safety systems.

**Design life**

The period of time during which a facility or component is expected to perform according to the technical specifications to which it was produced.

**Licensing Basis**

A set of regulatory requirements applicable to a nuclear installation.

**Long Term Operation (LTO)**

Operation of a nuclear power plant beyond an established time frame defined by the licence term, the original plant design, relevant standards, or national regulations.

**Periodic Safety Review**

A systematic reassessment of the safety of an existing facility (or activity) carried out at regular intervals to deal with the cumulative effects of ageing, modifications, operating experience, technical developments and siting aspects, and aimed at ensuring a high level of safety throughout the service life of the facility (or activity).

**Plant Life Management or Lifetime Management (PLIM)**

The integration of ageing management with economic planning:

(1) to optimize the operation, maintenance and service life of structures, systems and components;

(2) to maintain an acceptable level of safety and performance; and

(3) to improve economic performance over the service life of the facility.

**Programme for long term operation**

A set of activities, including evaluations, assessments, maintenance, inspections and testing, aimed at justifying, demonstrating and assuring plant safety during the period of LTO.

**Time limited ageing analyses (TLAA)**

Plant specific calculations and safety analyses (time limited ageing analyses or residual life assessments) using time limited assumptions that are based on an explicitly assumed time of plant operation or design life. The licensee calculations and analyses:

* Involve systems, structures, and components within the scope of license renewal or life extension;
* Consider the effects of ageing;
* Involve time-limited assumptions defined by the current operating term, for example, 40 years;
* Were determined to be relevant by the licensee in making a safety determination;
* Involve conclusions or provide the basis for conclusions related to the capability of the system, structure, and component to perform its intended functions; and
* Are contained or incorporated by reference in the Current Licensing Basis.
* TLAAs are generally applied to demonstrate that the analysed ageing effects will not adversely affect the ability of the structure or component to perform its intended function throughout an assumed period of operation.