



IAEA

60 Years

Atoms for Peace and Development

PEER REVIEW MISSION METHODOLOGY— AGEING MANAGEMENT FOR RESEARCH REACTORS FOR CONTINUED SAFE OPERATION

The Hague

16 September 2016

Deshraju V.H.Rao

RRSS/NSNI

IAEA

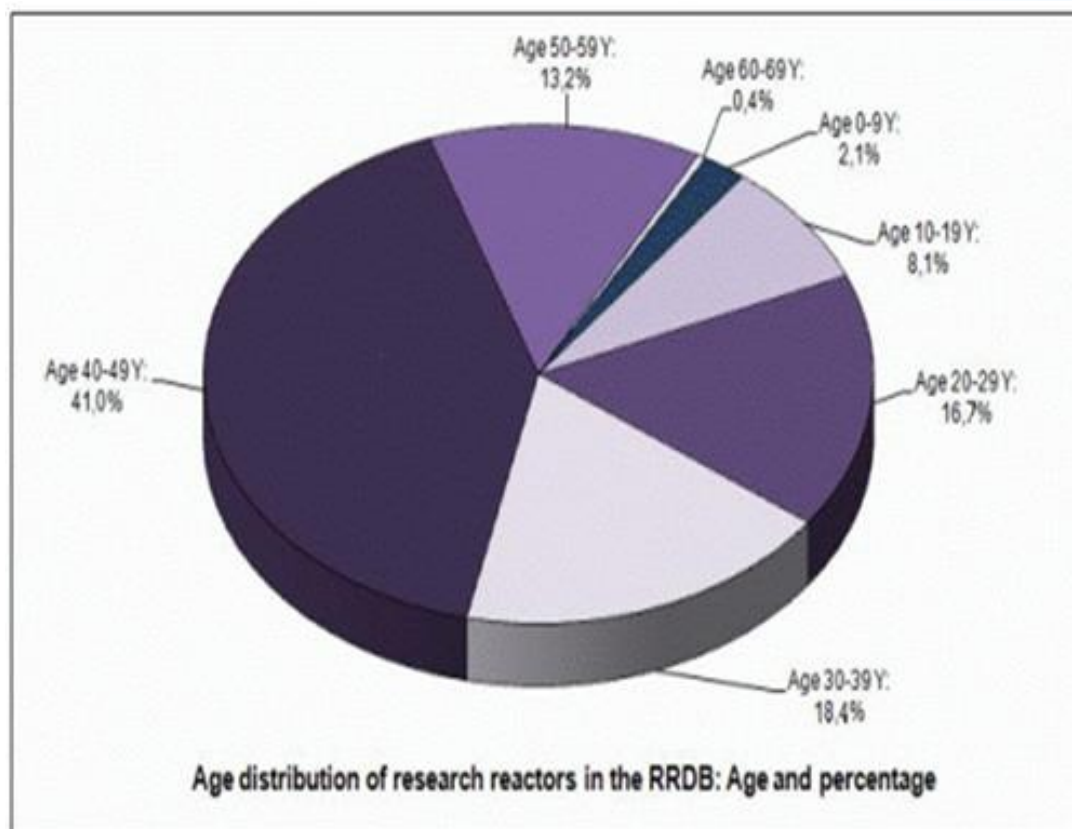
Table of contents

- Introduction
- Objectives and scope
- Preparations
- Methodology
- Technical areas
- Schedule
- Reporting results
- Follow-up mission

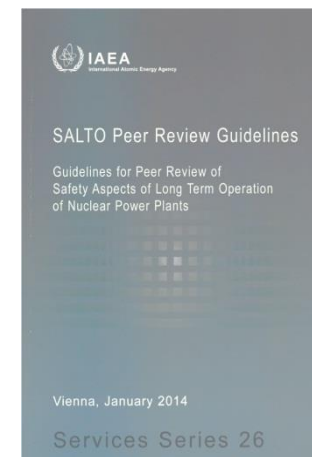
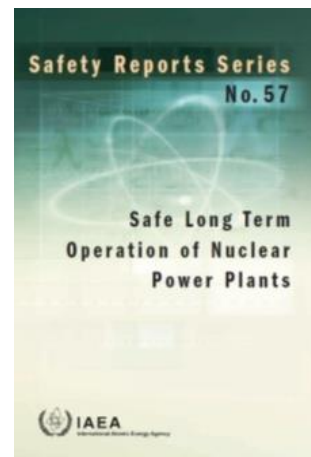
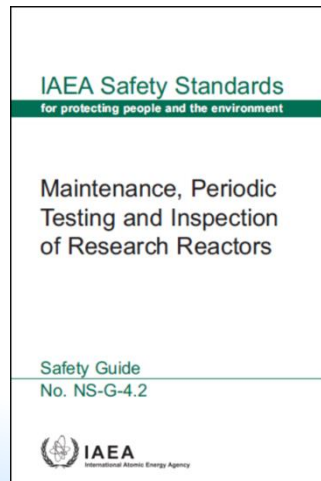
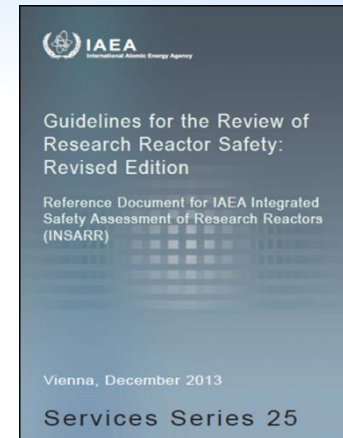
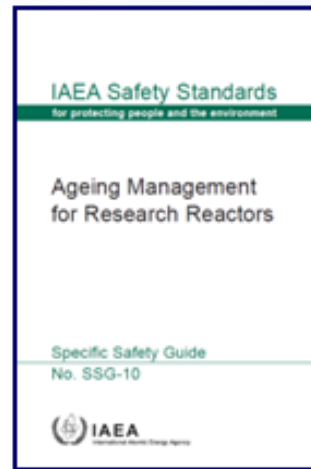
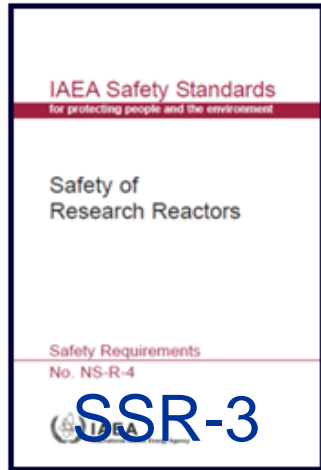
Introduction

- The safety aspects of long term operation (SALTO) for nuclear power plants are covered by the IAEA through a peer review service called SALTO mission on the request of a Member State.
- Long term safe operation of the nuclear power plant means its operation beyond a time-frame established in the licence conditions, design limits, safety standards and/or regulations.
- In most of the research reactors, the safety aspects for the continued operation are covered under the ageing management programmes.
- Upon request from Member States, the peer review mission for ageing management of research reactors for continued safe operation is conducted following the Agency's methodology for safety review services.
- Technical areas subject to review and relevant guidelines are adopted from SALTO mission guidelines.

Research Reactors - Age



Guides for review



Peer review of ageing management

- The peer review is a comprehensive safety review directly addressing strategy and key elements for safe ageing management of research reactors, which complements INSARR.
- The evaluation of ageing management programme and performance is made on the basis of IAEA safety standards.
- The review is neither a regulatory inspection nor is it an audit against national codes and standards.
- The review team is led by an IAEA staff, with participation of an International team of experts (agreed to by host organization).

Objectives of the mission

The key objectives of the peer review are to provide:

- the host organization with an objective assessment of the status of the preparedness for ageing management with respect to IAEA Safety Standards;
- the host organization with recommendations and suggestions for improvement;
- Member States with information regarding good practices identified in the course of the review.

Steps of the Peer Review Mission

Steps

- Request from host organization
- Preparatory meeting (including workshop)
- Advance information package
- Conduct of the mission
- Follow-up mission

Time schedule

Whenever

at least after 3 months from IAEA
accepting request (2-3 days)

2 months before mission

6 to 9 months after preparatory meeting
(5 days)

12 to 24 months after the mission (2-3
days)

- AREA A - Organizational aspects for ageing management and continued safe operation;
- AREA B - Scoping and screening of SSCs relevant to ageing management;
- AREA C - Ageing management and time limited ageing analyses (TLAA) of Mechanical SSCs;
- AREA D - Ageing management and time limited ageing analyses (TLAA) of Electrical and I & C SSCs;
- AREA E - Ageing management and time limited ageing analyses (TLAA) of Civil SSCs;
- Area F - Human resources, competence and knowledge management for ageing management. (Optional)

Preparations by Host Organization

- Develop an **A**dvance **I**nformation **P**ackage (**AIP**) – this is treated as a CONFIDENTIAL document by the review team – to be sent to IAEA team leader
- Select counterparts
- Prepare the logistics
- If desired, a self-assessment can be conducted by the host organization against the guidelines (adopted from SALTO)

Advance Information Package Contents

Administrative Information

- Logistics
- List of counterparts / contact persons
- Tentative review schedule

General Information

- Overview of the reactor
- Design information
- External organizations and relation to external organization

Technical Information

- Overview of ageing management programme
- Brief description of Ageing related modernization projects

Review Area Information

- One section for each area of review
- Self assessment results (if conducted)

Facility and counterparts prepare for mission using draft guidelines and other reference materials

Activities in conduct of the mission

- The peer review team acquires the information needed to develop their recommendations through following:
 - Review of written material (Advance Information Package and facility documents and procedures)
 - Discussions with counterparts
 - Direct observation of SSC status, environment
 - Discussion of evaluations/tentative conclusions within the team and with counterparts

AREA 'A' - ORGANIZATIONAL ASPECTS FOR AGEING MANAGEMENT AND CONTINUED SAFE OPERATION

Review topics

- **Related regulatory requirements, codes and standards**
- **Organizational structure for ageing management**
- **Facility policy for ageing management**
- **Ageing management programme implementation**
- **Current safety analysis report and other current licensing basis documents**
- **Configuration management and modification management including design basis documentation**



AREA 'B' - SCOPING AND SCREENING OF SSCs RELEVANT TO AGEING MANAGEMENT

Review topics

- Methodology and criteria for scoping and screening of SSCs for ageing management

AREA 'C', 'D', and 'E' - AGEING MANAGEMENT AND TIME LIMITED AGEING ANALYSES (TLAA) OF SSCs

Review topics

- Maintenance
- Equipment qualification
- In-service Inspection
- Surveillance and monitoring
- Monitoring of chemical regimes
- Review of ageing management programmes
- Ageing management review by facility
- Obsolescence management programme
- Existing time limited ageing analyses
- Revalidation of time limited ageing analyses

AREA 'F' - HUMAN RESOURCES, COMPETENCE AND KNOWLEDGE MANAGEMENT FOR AGEING MANAGEMENT (Optional)

Review topics

- Human resources policy and strategy to support ageing management
- Competence management
- Knowledge management and knowledge transfer for ageing management

Identifying, developing and reporting issues

Programme based

Review of programmes
Interviews



Collection of facts



Grouping in findings,
cause analysis



Issue formulation

SSCs conditions based

Field
Walk-downs,
observations

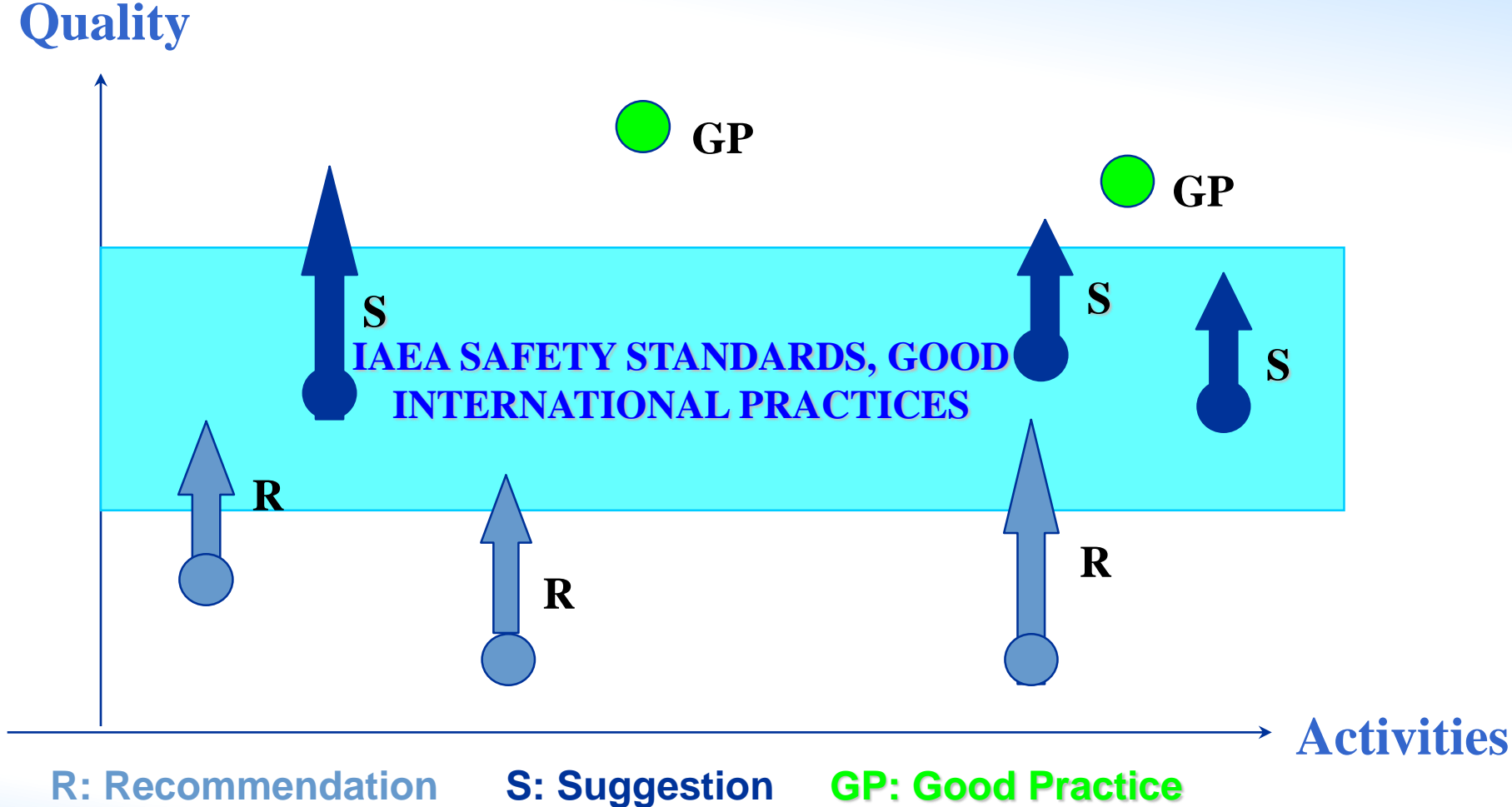


Collection of facts



feedback from:
• counterparts
• team members

Review Results



1. Drafting Issue Sheets;
2. Counterpart view on Issues;
3. Drafting Conclusions of Mission;
4. Draft Conclusions of Mission hand over during Exit meeting to counterpart;
5. Draft Mission Report;
6. Counterpart review of Draft Mission Report;
7. Final Mission Report. (Shared only with host organization)

Follow-up mission

Led by an IAEA staff and 1 or 2 experts

Purpose

- Check the progress in implementing recommendations and suggestions to resolve issues
- Assist the host facility in achieving maximum benefit from response actions

Benefits

- Gives outside perspective on adequacy of measures taken and progress made
- Provides target date for implementation of improvements resulting from main mission
- May assist in obtaining resources needed to complete improvement projects

Valuable source of feedback for IAEA on effectiveness of conducted missions



IAEA

60 Years

Atoms for Peace and Development



**Thank you
for
your attention!**



**Safety enhancement is a
continuous journey**