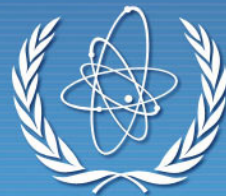


# Technical Meeting on IGALL Working Material



**IAEA**

International Atomic Energy Agency

# Technical Meeting on IGALL

J7-TM-37139



**INTERNATIONAL ATOMIC ENERGY AGENCY  
INFORMATION SHEET  
TECHNICAL MEETING  
ON**

*Activities related to International Generic Ageing  
Lessons Learned Database*

**18 to 20 May 2009  
IAEA Headquarters  
Vienna, Austria**



# Technical Meeting on IGALL

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Working Material – draft format IGALL for discussion

- WG 1
  - Structure and contents of proposed format of IGALL report
- WG 2
  - Format of tables collecting information on degradation mechanisms and AMPs

# Technical Meeting on IGALL

The meeting has the following primary objective:

- To discuss experience gained from the **implementation of ageing management programmes** dealing with **specific degradation mechanisms** as a part of an overall strategy of lifetime management;
- To review and comment on the draft structure of a report providing guidance on acceptable ageing management programmes.

# International GALL: Objective (1)

- Provide:
  - consistent (unified) information on experienced/potential ageing degradation mechanisms for SSCs of LWRs and CANDUs major Member States are taking into account;
  - information on good ageing management programmes major Member States are implementing or planning for the above mentioned ageing degradation mechanisms.
  - Information on how other countries established effective AMPs (preconditions, scope/screening, data collection, AMRs, implementation of AMPs)

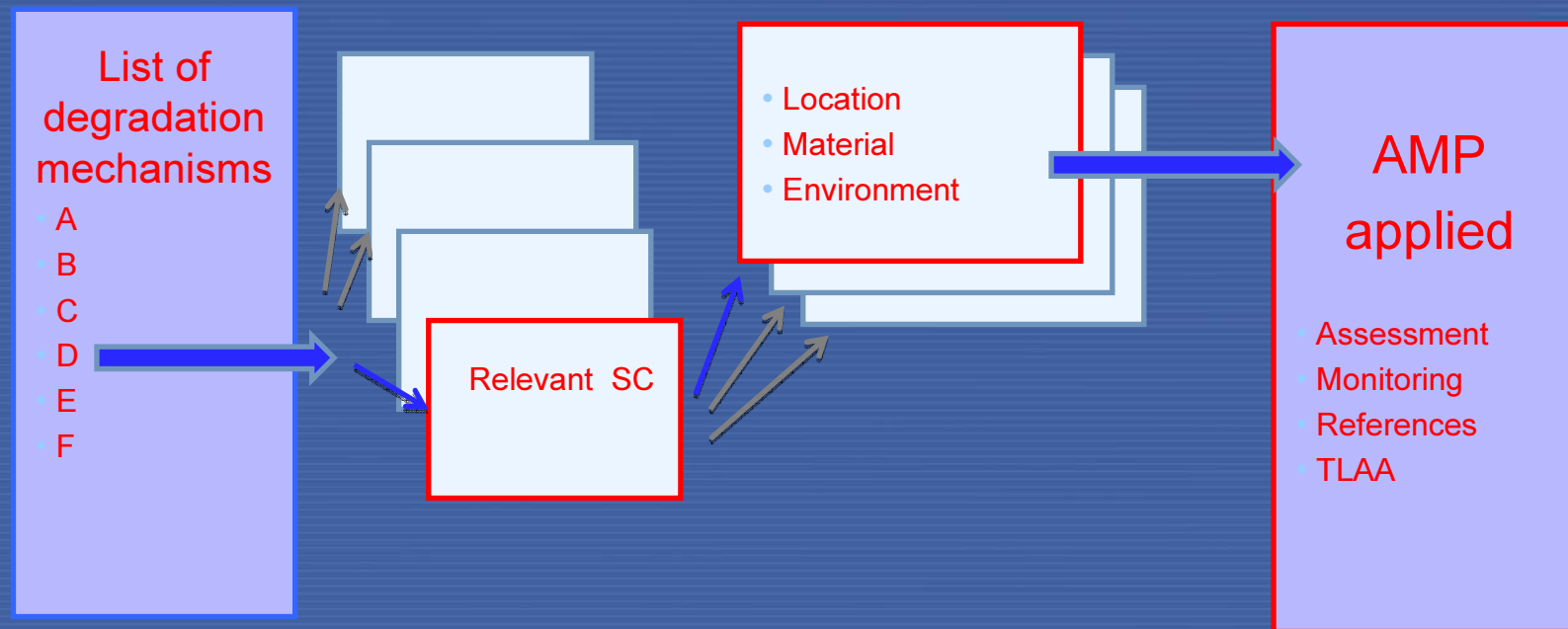
## International GALL: Objective (2)

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- NS-G-2.12 (Safety Guide on ageing management for nuclear power plants) provides general recommendations on developing/implementing/improving ageing management programmes.
- International GALL provides concrete examples of ageing management programmes for SSCs important to safety, and therefore technically supports NS-G-2.12.

# Technical Meeting on IGALL

## IGALL roadmap



# Technical Meeting on IGALL

## PROPOSED STRUCTURE OF IGALL REPORT

- 1. INTRODUCTION\_ (Background, objective, scope, structure)
- 2. AGEING MANAGEMENT PROGRAMMES
  - Broader background of the report
  - Why do we need Ageing Management Programmes
  - Generic attributes of an effective AMP
  - Different approaches to AMP
  - Introduction and development of US GALL approach
- 3. UNDERSTANDING OF AGEING MECHANISMS
  - Description of degradation mechanisms (examples such as irradiation embrittlement of RPV, degradation of cabling, low cycle thermal fatigue, FAC/ Erosion corrosion, SCC, loss of pre-stress of concrete structures)
- 4. RECOMMENDED AGEING MANAGEMENT PRACTICES
- APPENDIX 1
  - COMPREHENSIVE EXPLANATION ON TERMS USED IN CHAPTER 4 TABLES FOR STRUCTURES, COMPONENTS, MATERIALS, ENVIRONMENTS, AGEING EFFECTS, AND AGEING MECHANISMS
- APPENDIX 2
  - BASIS FOR THE RECOMMENDED AGEING MANAGEMENT PRACTICES
- REFERENCES



# Technical Meeting on IGALL

Degradation Mechanism / Ageing Effect	Typical SC	Critical location	Material	Environment	Generic AMP	Further action	Reference	Remarks
Irradiation embrittlement / Loss of fracture toughness	RPV	Shell (Belt Line) Base metal (HAZ)	Low alloy steel, cladding stainless steel inside surface	298°C High-purity water reactor coolant	ISI: Volumetric Inspection Planned: Monitoring	TLAA	<a href="#">JNES Review Manual (JNES-SS-0507-1)</a> "Neutron Irradiation-Induced Embrittlement of Reactor Pressure Vessel"	The Electric Association (JEA) Code, JEAC 4201-2007 "Method of Surveillance Tests for Structural Materials of Nuclear Reactors"
Low cycle thermal fatigue (incl. Environmental effects) / Cumulative fatigue damage	RPV	Shell	Low alloy steel, cladding stainless steel inside surface	298°C High-purity water reactor coolant	ISI: Volumetric Inspection Periodic: LT	TLAA	<a href="#">JNES Review Manual (JNES-SS-0509)</a> "Fatigue"	
		Nozzles (Feed water)	Low alloy steel	298°C High-purity water reactor coolant	ISI: Volumetric Insp. Periodic: LT	TLAA (including evaluation of effect of the exposed water environment)	<a href="#">JNES Review Manual (JNES-SS-0509)</a>	JSME Codes for Nuclear Power Generation Facilities - Environmental Fatigue Evaluation Method for Nuclear Power Plants -, JSME S NF1-2006
	Recirculation piping	Welds	Stainless steel	298°C High-purity water reactor coolant	ISI: Volumetric Insp. Periodic: LT	TLAA	<a href="#">JNES Review Manual (JNES-SS-0509)</a>	

# Knowledge Management

## Ageing degradation indices

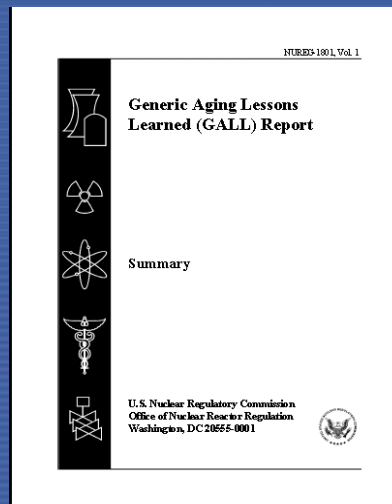
Knowledge Management  
on PLiM for LTO

Ageing Degradation Indices  
(International GALL)



Component specific ageing  
guidelines (13 TECDOCs)

EBP SALTO  
outputs



Practices in other  
Member States,  
relevant projects  
(OECD) results

# WG 1 – Structure of IGALL Report

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Chair person: Karen Gott

Co-chair: P. T. Kuo, O. Martin

Room: B 0482

P. Koutaniemi

M. Zamboch

R. Nakamura

M. Reid

J. Figueras

J. Ranalli

K. Kirkhope

S. Harikumar

# WG 2 – Format and contents of tables - IGALL Report

Chair person: Claude Faidy

Co-chair: M. Kanno, R. Krivanek

Room: C07 IV

L. Medina

J. Wandrol

V. Popov

B. Daniel

S. Hussain

N. Yamashita

S. Cepcek

C. Linde

A. Usanov

K. Germerdonk

P. Weiss

Thank you for your attention!