### Workshop on "Current and Emerging Methods for Optimising Safety and Efficiency in Nuclear Decommissioning" 7–9 February 2017 Gandalf III room, Quality Hotel, Sarpsborg, Norway PROGRAMME Tuesday, 7 February 2017 Successful application of R&D in decommissioning and future needs Welcome and Opening Speeches Workshop Chair: Ákos HORVÁTH, Co-Chair: Jon KVALEM 8:30 Welcome and Introduction to IFE Nils Morten HUSEBY, CEO IFE 8:45 Introduction to the OECD Halden Reactor Project Jon KVALEM, OECD HRP Deputy Project Manager 8:55 Welcome address by Workshop General Chair Ákos HORVÁTH, MTA EK, Hungary 9:00 Introduction to the Workshop and Practicalities István SZŐKE. OECD HRP Session 1: Workshop Introductory Presentations Session Chair: Con LYRAS, Co-Chair: Jon KVALEM 9:05 Session opening 9:10 International Perspective on Decommissioning in OECD Nuclear Energy Agency Countries Inge WEBER, OECD NEA 9:35 IAEA Global support of decommissioning implementation with a focus on advanced technologies Vladimir MICHAL, IAEA 10:00 Decommissioning research within the OECD HRP and opportunities for application István SZŐKE, OECD HRP 10:25 Session closing

10:35

Coffee break

#### **Tuesday 7th February**

Session 2: Experience from starting, on-going and completed decommissioning projects Session Chair: Mika SHIMBA YAMADA, Co-Chair: Jan PORSMYR			
11:00	Session opening		
11:05	Dismantling of the SVAFO research reactors R2 & R2-0 in Sweden Hans-Uwe ARNOLD, AREVA, Germany		
11:25	Decommissioning and dismantling of nuclear research facilities in Switzerland: lessons learned Fritz LEIBUNDGUT, Paul Scherrer Institute, Switzerland		
11:45	Challenges of decommissioning of heavy water research reactor Yidong ZHOU, CIAE, China		
12:05	Lunch		
13:00	FiR1 TRIGA research reactor decommissioning project Antti RÄTY, VTT, Finland		
13:20	Implementing Waste Led Decommissioning in Practice - Experiences from a Research Facility Per LIDAR, Studsvik, Sweden		
13:40	Chernobyl NPP decommissioning efforts. Past, Present and Future Viktor KUCHINSKIY, Chernobyl NPP, Ukraine		
14:00	Lessons learned from ongoing decommissioning project of Fugen NPS Masashi TEZUKA, JAEA, Japan		
14:20	Coffee break		
14:40	Challenges of Ignalina NPP decommissioning – View of Lithuanian operator Pavel AKSIONOV, INPP, Lithuania		
15:00	International good practice on practical implementation of characterisation in decommissioning		
45.00	Arne LARSSON, WPDD Task Group on Radiological Characterisation and Decommissioning		
15:20	Progress in decommissioning the Low Flux Reactor in Petten Renate DE VOS, NRG, Netherlands		
15:40	TBD		
16:00	Session closing		
16:10	Group discussions: Needs and opportunities for improving decommissioning practices		
17:10	Adjourn		
17:40	Games		

## Wednesday, 8 February 2017

## R&D and application of advanced technologies for decommissioning

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Session 3: New technologies for decommissioning					
Session Chair: Richard MCGRATH, Co-Chair: Espen NYSTAD					
8:30	Session opening				
8:35	Evolution of R&D for nuclear decommissioning				
	Michele LARAIA, Italy				
8:55	Decontamination in preparation for dismantlement - AREVA's chemical decontamination technologies, projects performed and results obtained in the period 2011-2016				
	Luis SEMPERE BELDA, AREVA, Germany				
9:15	New developments of autoradiography technique to improve alpha and beta measurements for decommissioning facilities				
	Pascal FICHET, CEA, France				
9:35	Waste characterisation in a Swedish uranium facility during decommissioning using nuclide vectors and nuclide specific measurements				
	Patrik KONNEUS, Studsvik, Sweden				
9:55	Improvement of a separation method for the reduction of secondary waste from the waterjet abrasive suspension cutting technique				
	Martin BRANDAUER, Karlsruhe Institute of Technology, Germany				
10:15	How characterization and clearance process is planned to be optimized by combining MARSSIM methods with parametric statistics in decommissioning of Karolinska University Hospital in Stockholm				
	Jonatan JISELMARK, Studsvik Consulting AB, Sweden				
10:35	Session closing				
10:45	Coffee break				

18:30	Workshop dinner	
17:00	Adjourn	
16:00	<b>Group discussions:</b> Needs and opportunities for OECD-HRP and international research into advanced technologies for decommissioning	
	Advanced information technology developed at IFE for supporting decommissioning	
15:00	Demo session with coffee break (Room: TUNE)	
14:50	Session closing	
14:40	Learning decommissioning through gaming Espen NYSTAD, OECD HRP	
	Barbara C. OBERLÄNDER and István SZŐKE, IFE	
14:20	Historical fuel management at IFE and opportunities for application of advanced information technology	
14:00	Applying the HVRC VRdose planner in the design of a Pneumatic Transfer System Qasim KAPASI, NNL, UK	
13:40	IAEA assessment tools for nuclear and radiological emergencies Joseph George CHAPUT, IAEA	
13:20	Experiences of development of IT support systems for decommissioning of Fugen NPS Yukihiro IGUCHI, JAEA, Japan	
	Kristina KRISTOFOVA, KIND Consultancy, Slovak Republic	
13:00	Comparison of standardised decommissioning costing tools on pilot Vienna TRIGA MARK-II research reactor	
12:05	Lunch	
11.40	Advanced Technologies for Fuel Debris Retrieval towards Fukushima Daiichi Decommissioning Eiichiro WATANABE, IAEA	
11:45	Philip J. HARDING, Brenk Systemplanung, Germany	
11:25	Application of constraint satisfaction algorithms for conditioning and packing activated control rod assemblies in MOSAIK casks	
	Konstantin CHIZHOV, SRC-FMBC, Russian Federation	
11:05	Surface contamination activity reconstruction based on measurements of ambient dose equivalent	
11:00	Session opening	
	<b>4: Advanced information technologies for decommissioning</b> Chair: Christine GEORGES, Co-Chair: Michael LOUKA	

# Thursday, 9 February 2017

# Improving decommissioning management on project, national and international level

Session 5: Challenges and methods for improving decommissioning				
Session Chair: Michele LARAIA, Co-Chair: Grete RINDAHL				
8:30	Session opening			
8:35	EPRI Research and Development projects for NPP decommissioning			
	Richard MCGRATH, EPRI, USA			
8:55	Needs for R&D and innovations to address challenges of nuclear facility decommissioning after its normal shutdown versus advanced approaches required for Fukushima Daiichi NPS decommissioning			
	Gérard LAURENT, IN Solutions, France			
9:15	New requirements to collect operational data that are essential for facility decommissioning			
	Kristina KRISTOFOVA, KIND Consultancy, Slovak Republic			
9:35	Federal guidelines for estimating external exposure of radiation workers in Russia			
	Konstantin CHIZHOV, SRC-FMBC, Russian Federation			
9:55	Coffee break			
10:15	Long history of <sup>36</sup> CI assessment of graphite waste by EDF engineering and the latest suggested developments			
	Bernard PONCET, EDF-DP2D, France			
10:35	Innovative approaches to the management of irradiated nuclear graphite wastes: Addressing the challenges through international collaboration with project 'GRAPA'			
	Anthony J. WICKHAM, University of Manchester, UK			
10:55	Strategic aspects on waste management in decommissioning of nuclear facilities			
	Arne LARSSON, Cyclife-EDF, Sweden			
11:15	Human and organisational factors in decommissioning			
	Claire Taylor, IFE, Norway			
11:35	Session closing			
11:45	Lunch			
12:45	<b>Group discussions:</b> Needs and opportunities for OECD-HRP and international research for advancing management of decommissioning			
13:45	Coffee break			

#### Thursday 9th February

Session 6: Workshop closing Session Chairs: Ákos HORVÁTH, Vladimir MICHAL, Inge WEBER				
14:00	Summing-up and closure of the workshop (all chairs)			
14:30	Group discussion (HRP members only): Moderators: Ákos HORVÁTH, Jon KVALEM	Site Tour: Halden reactor and facilities		
	OECD-HRP research directions			
16:30	End of discussions			
~18:00		Back from site tour		