

PSAM Topical Conference 2017

Human Reliability, Quantitative Human Factors, and Risk Management



7 – 9 June 2017 in Munich, Germany

Program

Wednesday, 7 June 2017

09.30 – 10.15 h Welcome and Opening Session

Marina Roewekamp	GRS gGmbH	General Chair	IAPSAM Board
Jeff Julius	JENSEN HUGHES	General Co-Chair	President, HRA Society
Vinh Dang	Paul Scherrer Institute	Technical Program Chair	

10.15 - 11.05 h Session 1 HRA Experience and New HRA

Markus Porthin, VTT
Jaroslav Holy, ÚJV Rez

18	Human Errors of Loviisa NPP PRA; Risk Contribution and its Development in (Time) History with the Focus on Post-initiators	Rasmus Hotakainen	Fortum, Espoo, Finland
06	Human Reliability Analysis for CAP1400 Nuclear Power Plant	Yongping Qiu, Jiandong He, Juntao Hu, Yucheng Zhuo, Jie He	Shanghai Nuclear Engineering Research & Design Institute, Shanghai, China

11.05 h Coffee Break

11.20 – 12.50 h Session 2 Addressing Novel Performance Issues

Jinkyun Park, KAERI
Cilla Andersson, Ringhals AB

30	An Approach to Assess the Likelihood of Timely Snow Removal from the Roofs of Safety Related Buildings in NPP Paks	Tamas Siklossy, Attila Bareith	NUBIKI Nuclear Safety Research Institute, Budapest, Hungary
15	Study on Seismic Safety Assessment of Human Based on Shaking Table Tests	Takenori Hida, Seiyo Warita, Tatsuya Itoi, Tsuyoshi Takada	The University of Tokyo, Tokyo, Japan
21	Multi-Unit Considerations for Human Reliability Analysis	Shawn St. Germain ^a , Ronald Boring ^a , Georgeta Banaseanu ^b , Yolande Ak ^b , Hayat Chatri ^b	^a Idaho National Laboratory (INL), Idaho Falls, ID, USA ^b Canadian Nuclear Safety Commission (CNSC), Ottawa, ONT, Canada
04	“What’s More Important – My Fire or Your Plant?” Human Actions under Conditions of a Large-Scale Disaster: Conflicts of Interest and Overlapping Areas of Authority	Dagmar Baumann, Lena Gaukel	TÜV SÜD Energietechnik GmbH, Mannheim, Germany

12.50 – 14.20 h Lunch

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14.20 - 15:50 h		Session 3	HRA Data Collection and Applications	Luca Podofillini, <i>PSI</i> Ash Grant, <i>CRA</i>
02	Human Error Probabilities from Operational Experience of German Nuclear Power Plants		Wolfgang Preischl ^a , Mario Hellmich ^b	^a Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH, Garching, Germany ^b Bundesamt für kerntechnische Entsorgungssicherheit (BfE), Salzgitter, Germany
23	An Approach of Simulator Data Collection and Analysis to Generate Human Error Probability		Wondea Jung, Jinkyun Park, Yochan Kim, Sun Yeong Choi, Seungwhan Kim	Korea Atomic Energy Research Institute (KAERI), Republic of Korea
47	Methods and Measures for Characterizing Operator Performance for Operator-in-the-Loop Studies		Bruce Hallbert ^a , Jinkyun Park ^b , Ronald Boring ^a , Wondea Jung ^b	^a Idaho National Laboratory (INL), Idaho Falls, ID, USA ^b Korea Atomic Energy Research Institute (KAERI), Daejeon, Republic of Korea
42	Simulator Data Collection in Support of Safe Operation of NPP Dukovany		Jan Kubicek, Jaroslav Holy	UJV Rez, a. s., Rez, Czech Republic
15.50 h		Coffee Break		
16.10 - 17.40 h		Session 4	Human Reliability in New and Modernized Control Rooms	Attila Bareith, <i>NUBIKI</i> Martin Reid, <i>EDF Energy</i>
25	Comparing Operator Reliability in Analog vs. Digital Human-System Interfaces: An Experimental Study on Identification Tasks		Salvatore Massaiu, Alexandra Fernandes	Halden Reactor Project – Institute for Energy Technology, Halden, Norway
17	A Comparison of Conventional and Computerized HMI in Main Control Rooms from a Human Reliability Sandpoint		Gerben Dirksen, Asriel Eisinger	AREVA GmbH, Erlangen, Germany
11	New Challenges for Performance Shaping Factors in Advanced Control Rooms		Markus Porthin, Terhi Kling, Marja Liinasuo	VTT Technical Research Centre of Finland Ltd., Espoo, Finland
26	Inter-dependency of Performance Shaping Factors in Nuclear Power Plants		Jooyoung Park ^a , Jonghyun Kim ^a , Wondea Jung ^b	^a Chosun University, Gwang-ju, Republic of Korea ^b Korea Atomic Energy Research Institute (KAERI), Daejeon, Republic of Korea

18.30 h **Cocktail Reception at the venue**

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09.00 - 10.10 h		Session 5	HRA for Applications in Novel Domains	Les Ainsworth, CRA Mary Presley, EPRI
09	Human Reliability and The Impact of Control Function Allocation in the Design of Dynamic Positioning Systems		Sandra Hogenboom, Børge Rokseth, Jan Erik Vinnem, Ingrid Bouwer Utne	NTNU, Trondheim, Norway
28	Analysis of Autonomous Vehicle Accidents and Implications for Human-Machine Interactions		Francesca Favaro, Nazanin Nader, Sky Eurich, Michelle Tripp, Naresh Varadaraju	RiSA ² S Research Center, San Jose State University, San Jose, CA, USA
49	The Human Element in Infrastructure Resilience – A Quantitative Analysis of Natural Gas Network Recovery Dynamics in Floods		Miltos Kyriakidis ^a , Peter Lustenberger ^a , Peter Burgherr ^b , Vinh N. Dang ^b , Stefan Hirschberg ^b	^a ETH Zurich, Future Resilient Systems, Singapore ETH Centre, Singapore ^b Paul Scherrer Institute (PSI), Villigen, Switzerland
10.10 h		Coffee Break		
10.30 – 12.00 h		Session 6 (Panel)	Developing HRA for a New Domain – the Petro-HRA Project	Barry Kirwan, EUROCONTROL
	Andreas Bye	IFE-OECD HRP	The Petro-HRA Project	
	Sandra Hogenboom	NTNU/DNV-GL	The petroleum perspective, QRA/HRA in the petroleum industry	
	Ron Boring	INL	Comparing nuclear and petroleum HRA application	
	Martin Rasmussen	NTNU	PSFs, multipliers and principles. Cross-sector observations	
12.00 – 13.00 h		Session 7	Emerging Methods and Approaches	Xuhong He, Lloyds Register Consulting - Energy AB Martin Rasmussen, NTNU
41	A Study of Scoping Method for Fire Human Reliability Analysis		Liu Kunxiu, Tian Xiufeng, Liu Jinggong, Liu Xinwei	China Nuclear Power Engineering Co., Beijing, China
13	The Early Warning System of Nuclear Power Station Oriented to Human Reliability		Ren Shuai ^a , Qian Hong ^{a,b} , Yang Ting ^a	^a Shanghai University of Electric Power, Shanghai, China ^b Shanghai Key Laboratory of Power Station Automation Technology, Shanghai, China
12	Research of Confidence Rule Base for Fault Diagnosis of Rolling Bearing Based on Faulty Sample (Combined presentation of both papers by request of the TPC)		Qian Hong ^{a,b} , Feng Yu-Qing ^a , Zheng Zi bin ^a	
13.00 – 14.30 h		Lunch		

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14.30 h Welcome by Uwe Stoll, GRS Director General

14.40 - 16.10 h	Session 8	Emerging Methods and Approaches	Sandra Hogenboom, <i>NTNU</i> Ronald Boring, <i>INL</i>
29	HAMSTER: Human Action Modelling - Standardized Tool for Editing and Recording	Vincent Bonelli, Julien Lopez	EDF SEPTEN, Lyon, France
07	Application of the HuREX Framework to Support Existing HRA Methods: Case Studies	Jinkyun Park, Yochan Kim, Wondea Jung	Korea Atomic Energy Research Institute (KAERI), Republic of Korea
19	Team Performance Comparison in Core-Melt Units of Fukushima Daiichi NPS Based on Dynamic Context Quantification of Accident	Gueorgui Petkov	Independent Consultant, Amsterdam, Netherlands
03	Study on Operator Monitoring Behavior in Digitized Nuclear Power Plant	Yanhua Zou ^a , Li Zhang ^a , Hong Hu ^a , Licao Dai ^b , Pengcheng Li ^b , Jianjun Jiang ^b	^a Hunan Institute of Technology, Hengyang, China ^b University of South China, Hengyang, China

16.10 h Coffee Break

16.30 - 18.00 h	Session 9	HRA Fundamental Issues	Bruce Hallbert, <i>INL</i> Wondea Jung, <i>KAERI</i>
27	Dependencies in HRA – NPSAG Phase II Project	Xuhong He ^a , Cilla Andersson ^b	^a Lloyd's Register Consulting (LRC) - Energy AB, Sundbyberg, Sweden ^b Ringhals AB, Väröbacka, Sweden
10	Dependence Assessment in Human Reliability Analysis based on Evidence Theory and ANP	Xiaoyan Su, Hong Qian, Dongliang Zhang, Ting Yang	Shanghai University of Electric Power, Shanghai, China
*	It's About Time: The Role of Time in Human Reliability Analysis	Martin Rasmussen ^a , Ronald L. Boring ^b , Karin Laumann ^c	^a NTNU Social Research, Trondheim, Norway ^b Idaho National Laboratory (INL), Idaho Falls, ID, USA ^c Norwegian University of Science and Technology (NTNU), Trondheim, Norway
48	Can we Improve our Application of Quantitative Performance Shaping Factors?	Les Ainsworth	Corporate Risk Associates, London, United Kingdom

19.00 h Dinner at the Hofbräuhaus, Munich

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09.00 - 10.30 h	Session 10 Advances in the HRA for Decision Making		<i>Francesca Favaro, SJSU</i> <i>John Wreathall, J. Wreathall & Co.</i>
33	Detailed Modelling of Failure to Take Proceduralised Actions	Attila Bareith, Zoltan Karsa, Tamas Siklossy	NUBIKI Nuclear Safety Research Institute, Budapest, Hungary
40	Predicting Errors of Commission in Nuclear Power Operations	Martin Reid	EDF Energy, Barnwood, Gloucester, United Kingdom
45	Investigating Command and Control Issues for Main Control Room Abandonment Scenarios in Fire Events	John Wreathall ^a , Stacey Hendrickson ^a , Jeff Julius ^c , Susan Cooper ^d , Mary Presley ^e , Erin Collins ^c , Kaydee Kohlhepp Gunter ^f , Ashley Lindeman ^e , Paul Amico ^c , Tammie Rivera ^d	^a J. Wreathall & Co., Inc., Dublin, OH, USA ^b Sandia National Laboratories (SNL), Albuquerque, NM, USA ^c JENSEN HUGHES, Rockville, MD, USA ^d US Nuclear Regulatory Commission (NRC), Rockville, MD, USA ^e Electric Power Research Institute (EPRI), Palo Alto, CA, USA ^f Curtiss-Wright, Seattle, WA, USA
24	Analysis of Knowledge-based Behavior in Dynamic Situations – Method and Exemplary Application	Jörg Peschke, Wolfgang Preischl, Werner Faßmann	Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH
10.30 h	Coffee Break		
10.50 - 12.00 h	Session 11 Bringing HRA into Design / V&V / Human Factors Engineering		<i>Jonghyun Kim, Chosun Univ.</i> <i>Salvatore Massaiu, IFE-OECD HRP</i>
01	Integrating Human Reliability Analysis and Human Factors Engineering for Risk-Informed Plant Design and Improvement	Claire Taylor	OECD Halden Reactor Project, Institute for Energy Technology, Halden, Norway
44	Some Insights from Human Reliability Analysis and Human Factor Engineering Integration Practices	Xiufeng Tian ^a , Xuhong He ^b , Jinggong Liu ^a , Kunxiu Liu ^a	^a China Nuclear Power Engineering Co., Beijing, China ^b Lloyd's Register Consulting (LRC) – Energy, Sundbyberg, Sweden
22	Preliminary Considerations for Human Reliability Analysis for Verification and Validation of New Designs	R. Boring ^a , H. Blackman ^b , M. Rasmussen ^c	^a Idaho National Laboratory (INL), Idaho Falls, ID, USA ^b Boise State University, Boise, ID, USA ^c NTNU Social Research, Trondheim, Norway

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12.00 – 13.00 h	Session 12	Looking to the Future: Research Needs and Ways Forward <i>(Moderated Closing Discussion)</i>	Jeff Julius, <i>JENSEN HUGHES</i>
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Introduction Mary Presley, Electric Power Research Institute

Discussion

13.00 – 14.30 h

Lunch and Farewell Ice Cream Social Reception

Organized by

Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH

on behalf of

The International Association for Probabilistic Safety Assessment and Management (IAPSAM)

The Human Reliability Analysis Society (HRAS)

Technical Program Committee

Les Ainsworth	Corporate Risk Associates	United Kingdom
Cilla Andersson *	Ringhals AB	Sweden
Attila Bareith	NUBIKI Nuclear Safety Research Institute	Hungary
Andreas Bye *	IFE-OECD Halden Reactor Project	Norway
Ronald Boring *	Idaho National Laboratory	USA
Y.H. (James) Chang	U.S. Nuclear Regulatory Commission	USA
Vinh N. Dang **	Paul Scherrer Institute	Switzerland
Francesca Favaro	San Jose State University	USA
Ash Grant	Corporate Risk Associates	United Kingdom
Bruce Hallbert +	Idaho National Laboratory	USA
Xuhong He *	Lloyds Register Consulting - Energy AB	Sweden
Stacey Marie Hendrickson *	Sandia National Laboratories	USA
Sandra Hogenboom	Norwegian University of Science and Technology	Norway
Jaroslav Holy	UJV Rez	Czech Republic
Jeff Julius *	JENSEN HUGHES	USA
Wondea Jung	Korea Atomic Energy Research Institute	Republic of Korea
Barry Kirwan	EUROCONTROL	France
Jonghyun Kim	Chosun University	Republic of Korea
Pierre Le Bot	Electricité de France	France
Salvatore Massaiu	IFE-OECD Halden Reactor Project	Norway
Michael Montecalvo *	U.S Nuclear Regulatory Commission	USA
Ali Mosleh *	University of California, Los Angeles	USA
Jinkyun Park *	Korea Atomic Energy Research Institute	Republic of Korea
Luca Podofillini *	Paul Scherrer Institute	Switzerland
Markus Porthin	VTT Technical Research Centre of Finland Ltd	Finland
Mary Presley	Electric Power Research Institute	USA
Martin Rasmussen	Norwegian University of Science and Technology	Norway
Martin Reid	EDF Energy	United Kingdom
Marina Roewekamp +	GRS gGmbH	Germany
Andrew Wright *	Corporate Risk Associates	United Kingdom

+ Member, Board of the IAPSAM

* Member, Board of the HRA Society (HRAS)