

*Technical Presentations*  
*2007 IEEE HPRCT Conference*

**Monday, August 27, 2007**

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**8:30 a.m. – 10:00 a.m.**

**Plenary Session**

**San Carlos 1- 4**

**001 Jack Keenan, Chief Nuclear Officer, Pacific Gas and Electric Company**

**002 Commissioner Peter B. Lyons, U.S. Nuclear Regulatory Commission**

**003 Phillip J. Finck, Ph.D., Associate Laboratory Director for Nuclear Science & Technology, Idaho National Laboratory and GNEP Technical Integration Office Director**

**1:30 p.m. – 3:00 p.m.**

**Technical Sessions**

**New Technology Applications for Generation III+ Deployment, Ted Quinn and William Kemper – Co-Chairs – San Carlos 3**

**107 – Miljko Bobrek, Richard T. Wood, Christina D. Ward, Stephen M. Kollough, Don Bouldin, Michael E. Waterman:**

*Safe FPGA Design Practices for Instrumentation and Control in Nuclear Plants*

**Learn Safe I, Björn Wahlström – Chair – San Carlos 4**

**101 - Hans Maimer:**

*Learning from Low Level Events - Experience With an Electronic Tool Supporting the Report of Events, Evaluation, Analysis, and the Corrective Action Program Corrective Action Program*

**100 - Carl Rollenhagen and Joakim Westerlund:**

*Development of a Safety Climate Questionnaire for Nuclear Power Plants*

**99 - Björn Wahlström and Carl Rollenhagen:**

*Organizational Factors and Nuclear Safety – Issues to Address in Research and Development*

**Trending, Ben Marguglio - Chair – San Carlos 1**

**20 - Jung-Woon Lee, Tong-II, Dae-Ho Kim and Jaekyu Park:**

*A Proposition of Human Factors Approaches to Reduce Human Errors in Nuclear Power Plants*

**24 - Dale Wuokko:**

*Learning from Human Performance Cross-Cutting Aspects of Inspection Findings*

**Managing Safety Culture & Change Management, Kay Gallogly - Chair – San Carlos 2**

**18 - Edward Kennedy:**

*Integrating and Institutionalizing Human Performance Improvement into a DOE Integrated Safety Management System Continuous Improvement Program*

**19 - Edward Kennedy:**

*Initial Steps to Effectively Implement and Integrate HPI into a DOE Integrated Safety Management System*

**56 - Gil Crosby:**

*Culture Can Be Built: Lessons from the PECO Nuclear Turnaround - A Strong Nuclear Safety Culture and a High Productivity Culture are Based on the Same Behavioral Foundations, and can be Reliably Implemented and Sustained*

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**3:30 p.m. – 5:00 p.m.                      Technical Sessions**

**New Technology Applications for Generation III+ Deployment II, Ted Quinn and William Kemper – Co-Chairs – San Carlos 3**

**109 - Don W. Miller, Mehdi Reisi-Fard, Xiaodong Sun, Thomas E. Blue, Steven Arndt:**  
*A Review on Gamma Thermometer Applications in Nuclear Reactors*

**123 – Joseph Naser, Lewis Hanes:**  
*Visualization: The Enabler Limited only by Your Imagination*

**Learn Safe I, Björn Wahlström – Chair, Panel Discussion – San Carlos 4**

**98 – Björn Wahlström:**  
*The Learn Safe Project; a Three Year Perspective*

**Trending, Ben Marguglio - Chair – San Carlos 1**

**35 – George Tasick:**  
*Making the Transition from Trending to Performance Assessment at Entergy FitzPatrick*

**79 - Jeff Sword:**  
*How Do You Know What You Don't Know? Detecting "Hidden Trends" in Performance*

**HU Networking Boards, Karen Jennings – Chair – San Carlos 2**

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*Tuesday, August 28, 2007*

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**8:30 a.m. – 10:00 a.m.                      Technical Sessions**

**Empirical Testing of HRA Methods I, John Forester – Chair – San Carlos 3**

**77 – Vinh N. Dang, Andreas Bye, Erasmia Lois, John Forester, Alan M. Kolaczowski and Per Øivind Braarud:**  
*An Empirical Study of HRA Methods - Overall Design and Issues*

**65 – Helena Broberg and Alan M. Kolaczowski:**  
*Constraints in Designing Simulator Scenarios and Identifying Human Failure Events for Testing HRA Methods*

**78 - John Forester, Alan M. Kolaczowski, Vihn N. Dang and Erasmia Lois:**  
*Human Reliability Analysis (HRA) in the Context of HRA Testing with Empirical Data\**

**IEEE Root Cause Standard, Angelia Kozak- Chair – San Carlos 1**

**110 - Angie Kozak:**  
*Presentation on IEEE Standard Current Status followed by group discussion on need for standardization*

**Safety Culture for New Reactors, Christer Viktorsson - Chair – San Carlos 4**

**112 - Ronald Vijuk:**  
*Safety Culture and the AP1000 Plant Design*

**74 - Nina Koivula:**  
*New Reactor and Safety Culture Considerations in Finland-Oversight of Organizational Factors*

**111 - Christer Viktorsson:**  
*IAEA Safety Culture Assessment for Design Organizations*

# *Technical Presentations*

## *2007 IEEE HPRCT Conference*

### **INPO Initiatives, Karen Jennings - Chair- San Carlos 2**

#### **59 - Tony Muschara:**

*[INPO's Approach to Human Performance in the United States Commercial Nuclear Power Industry](#)*

#### **91 - Tom Kriesel:**

*[Industry Human Performance Indicators Comparison Project](#)*

**10:30 a.m. – 12:00 p.m.**

### **Technical Sessions**

### **The MERMOS Method, Erasmia Lois – Chair – San Carlos 3**

#### **85 – Pierre LeBot, H el ene Pesme and Patrick Meyer:**

*[The CICA Concept for use in the MERMOS Method Redefined by a New Organizational Reliability Model](#)*

#### **86 – Patrick Meyer, Pierre LeBot and H el ene Pesme:**

*[MERMOS: an Extended Second Generation HRA Method](#)*

#### **87 - H el ene Pesme, Pierre LeBot and Patrick Meyer:**

*[Little Stories to Explain Human Reliability Assessment: A Practical Approach of the MERMOS Method](#)*

### **Safety Culture – Assessments and Follow-up, Sonja Haber – Chair – San Carlos 4**

#### **55 - Sonja Haber, Deborah Shurberg and Kay Gallogly:**

*[Effecting Positive Safety Culture Change](#)*

#### **84 - Lars Axelsson: - Presentation Not Provided**

*[Safety Culture Enhancement and Safety Leadership](#)*

#### **Craig Rierersen: - Presentation Not Provided**

*[Maintaining Oversight of Licensee Safety Culture – Developing Approach of the UK Nuclear Installations Inspectorate](#)*

#### **113- J. Persensky and Valerie Barnes:**

*[NRC Safety Culture Assessment](#)*

### **Root Cause, Steve Davis - Chair – San Carlos 1**

#### **02- Mark Paradies: Presentation Not Provided**

*[Improving an Existing Root Cause Analysis and Corrective Action Program](#)*

### **Plant Initiatives, Jack Martin - Chair – San Carlos 2**

#### **25-Dale Wuokko:**

*[Application of a Plant Performance Improvement Model and Implementing Processes](#)*

#### **70- Hank Strahley, Leigh DeRue and Jeremy Titus:**

*[Setting the Standards in the Human Performance](#)*

**1:30 p.m. – 3:00 p.m.**

### **Technical Sessions**

### **New HRA Perspectives, Ronald Boring – Chair – San Carlos 3**

#### **47 - Lila Laux and Christopher Plott:**

*[Using Operator Workload Data to Inform Human Reliability Analyses](#)*

#### **42 - Jaewhan Kim, Wondea Jung and Jinkyum Park:**

*[AGAPE-ET: Advanced Guidelines for Human Reliability Analysis of Emergency Tasks](#)*

# *Technical Presentations*

## *2007 IEEE HPRCT Conference*

**60 – April M. Whaley, Ronald L. Boring, Harold S. Blackman and Patrick H. McCabe, Bruce P. Hallbert:**

*Lessons Learned from Dependency Usage in HERA: Implications for First-Generation HRA Methods*

**Safety Culture Applications and Research, Debbie Fisher – Chair – San Carlos 4**

**07 – Debbie Fisher: Presentation Not Provided**

*Cultural Aspects of an Incident Reporting and Investigation System within a Licensed Site in the UK Nuclear Industry*

**09 – Jussi K. Vaurio: Unable to present at conference**

*Human Factors and Risks in a Periodic Safety Review of a Nuclear Power Plant*

**64 - Kristiina Hukki and Jan-Erik Holmberg:**

*Systemic Approach to Development of Risk-Informed Management of Fire Situations at Nuclear Power Plants*

**Root Cause, Steve Davis – Chair – San Carlos 1**

**11 - Tyrone S. Tonkinson:**

*SAI's Behavior-Based Root Cause Analysis*

**Simplified Approaches to Improving Performance, Rob Fisher – Chair – San Carlos 2**

**97 - Rob Fisher: Presentation Not Provided**

*Simplified Approaches to Improving Performance*

**3:30 p.m. – 5:00 p.m.                      Technical Sessions**

**HRA for Non-Reactor Applications, Nathan Sui – Chair – San Carlos 4**

**114 - Susan Cooper and Tina Ghosh:**

*Key HRA Messages for High Level Waste*

**115 - William Brown, John Wreathall and Susan Cooper:**

*HRA-Informed Perspective on Human Errors in Medical Applications*

**116 - Jeffrey D. Brewer and Paul Amico:**

*HRA-Informed Insights on Spent Fuel Handling and Cask Operations*

**Safety Culture Applications and Research, Debbie Fisher – Chair – San Carlos 3**

**30- Teemu Reiman and Pia Oedewald:**

*Organizational Factors and Safe Human Performance – Work Psychological Model*

**12 – Carl Rollenhagen and Björn Walhström:**

*Management Systems and Safety Culture; Reflections and Suggestions for Research*

**71 – Rosario Sola and Inmaculada Silla:**

*Organizational Culture and Safety Expectations: The Mediating Role of Trust in Supervisors*

**Integrated Operations, A. Droivoldsmo, - Chair – San Carlos 1**

**13 - Tuan Q. Tran, Humberto E. Garcia, Ronald L. Boring, Jeffrey C. Joe and Bruce P. Hallbert:**

*Human Factors Issues for Multi-Modular Reactor Units*

**95 - Asgeir Droivoldsmo, Jim L. Kvamme, Espen Nystad, Linda Sofie Lunde-Hanssen, Ronny Larsen and Tore Berge-Leversen:**

*Integrated Operations and Insights on Functional Analysis Techniques*

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**89 - Bjorn Holst and Espen Nystad:**

*Oil & Gas Offshore / Onshore Integrated Operations - Introducing the Brage 2010+ Project*

**Human Performance, Panel Discussion, Karen Jennings - Chair – San Carlos 2**

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*Wednesday, August 29, 2007*

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**8:30 a.m. – 10:00 a.m.**

**Technical Sessions**

**Human Factors Design Tools, Angie Sebok, - Chair – San Carlos 3**

**21 - Tong IL Jang, Jae-Kyu Park, Dae-Ho Kim, Jung Woon Lee and Yong Hee Lee:**

*An Experimental Evaluation of Flowchart Type Operating Procedure for Nuclear Power Plants*

**54 - Jan Eric Larsson, Joseph DeBor:**

*Real-Time Root Cause Analysis for Complex Technical Systems*

**Empirical Basis for Human Reliability Analysis, Harold Blackman – Chair – San Carlos 4**

**14 - Tuan Q. Tran, Ronald L. Boring, Jeffrey C. Joe and Candice D. Griffith:**

*Extracting and Converting Quantitative Data into Human Error Probabilities*

**48 - Ronald L. Boring, Candice D. Griffith and Jeffrey C. Joe:**

*The Measure of Human Error: Direct and Indirect Performance Shaping Factors*

**57 –Ronald L. Boring and Harold S. Blackman:**

*The Origins of SPAR-H Method's Performance Shaping Factor Multipliers*

**117 - Vinh N. Dang:**

*An Initiative Aimed at Collecting and Exchanging Data for Human Reliability Analysis*

**Apparent Cause Evaluation & Problem Identification & Resolution, Steve Davis - Chair–  
San Carlos 1**

**83 – Steve Davis and Chester Rowe:**

*Apparent Cause Evaluation Myths*

**80 – Dana Cooley and Jack Martin:**

*Dodge the Bullet - Ways to Avoid PI & R Issues and CAP-Related AFIs*

**Performance Improvement Modeling, Karen Jennings - Chair – San Carlos 2**

**01 - Mark Paradies: Presentation Not Provided**

*Positive vs. Negative Enforcement: Which Promotes High Reliability Human Performance*

**10:30 a.m. – 12:00 p.m.**

**Technical Sessions**

**Human Behavioral Modeling, Angie Sebok – Chair – San Carlos 3**

**39 – Tuan Q. Tran, Karen M. Feigh and Amy R. Pritchett:**

*Supporting Multiple Cognitive Processing Styles Using Tailored Support Systems*

**51 – Tuan Tran, David I. Gertman, Donald D. Dudenhoefter, Ronald L. Boring and Alan R. Mecham:**

*Cognitive Virtualization: Combining Cognitive Models and Virtual Environments*

**73 - Par Axelsson, Kelly S. Hale and Sven Fuchs:**

*Optimizing Information Displays using Multimodal Design Science*

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### **Use of Simulator Data for HRA, Vihn N. Dang – Chair – San Carlos 4**

**40 – Wondea Jung, Jinkyun Park and Jaewhan Kim:**

*A Simulator Study and its Application to an HRA in NPPs*

**61 - Ronald L. Boring, April M. Whaley, Bruce P. Hallbert, Karin Laumann, Per Øivind Braarud, Andres Bye, Erasmia Lois and Yung Hsien James Chang:**

*Capturing Control Room Simulator Data with the HERA System*

**88 - Pierre LeBot, Helene Pesme and Patrick Meyer: Presentation Not Provided**

*Collecting Data for MERMOS Using a Simulator*

### **RCA Back to Basics, Steve Davis - Chair – San Carlos 1**

**94 - William Corcoran:**

*Safety Culture - Back to the Basics*

### **Human Performance Integration, Karen Jennings - Chair – San Carlos 2**

**58 – William Rigot and Bruce Hart: Presentation Not Provided**

*Implementation of Department of Energy Human Performance Initiative at the Savannah River Site with a well established Behavior Based Safety Program*

**82 –Marta Juhasz and Julianna Katalin Soos: Unable to present at conference**

*Impact of Non-Technical Skills on NPP Teams' Performance: Task Load Effects on Communication*

**109 – Robert Richards and Sheri Martin:**

*Human Performance Improvement Implementation at Idaho National Laboratory: Milestones, Successes and Lessons Learned*

**1:30 p.m. – 3:00 p.m.                      Technical Sessions**

### **Role of International Organizations, Craig Reiersen – Chair – San Carlos 3**

**120 - Craign Reiersen:**

*OECD Nuclear Energy Agency Committee for Safety of Nuclear Installations Working Group on Human & Organizational Factors*

**121 - Christer Viktorsson:**

*IAEA Human Resource Management in Nuclear Safety*

**122 - Tony Muschara**

*INPO's Approach to Human Performance in the U.S. Commercial Nuclear Industry*

### **Empirical Testing of HRA Methods II, Andreas Bye – Chair – San Carlos 4**

**118 – Erasmia Lois, Andreas Bye, Vinh Dang, John Forester, Alan Kolaczowski, Per Øivind Braarud:**

*Motivation for an Empirical Study of HRA Methods - Panel Discussion on the International Empirical Study of HRA Methods*

**Trending, Panel Discussion, Jack Martin - Chair – San Carlos 1**

### **Operating Experience, Panel Discussion, Fred Forck - Chair – San Carlos 2**

**119 – Fred Forck**

*Operating Experience Panel Session Flowchart*

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*Thursday, August 30, 2007*

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**8:30 a.m. – 10:00 a.m.**

**Technical Sessions**

**Performance Measurement Techniques, Christopher Plott – Chair, San Carlos 3**

**26 - Jaekyu Park and Yong Hee Lee: Presentation not Provided**

*An Information Requirement Analysis Based on Work Domain Analysis Techniques in Nuclear Power Plants*

**16 - Tuan Q. Tran:**

*Issues of Mitigation Strategies in Prognostic System for Next Generation Control Room*

**Root Cause, Steve Davis - Chair– San Carlos 1**

**22 - C. Robert Nelms:**

*The Problem with Root Cause Analysis*

**93 – William Corcoran, Stephen Davis and Chester Rowe:**

*Integrating Different Cause Investigation Approaches to Improve Results*

**Human Performance, John Summers, – San Carlos 2**

**108 - John Summers:**

*Assumptions and Their Influence on Errors and Events*

**Human-system Integration, Jeffrey Jones – Chair – San Carlos 4**

**33 - Francois Dionis and Dominique Pirus:**

*Ways to Improve Field Operation of NPPS Facilities by Bringing Additional Operator Aid*

**44 – Jeffrey Jones, Ruiqi Ma, Robert Starkey and Zhihua Ma:**

*Information Complexity and Appropriate Interface Design in Nuclear Power Plants Control Rooms*

**10:30 a.m. – 12:00 p.m.**

**Technical Sessions**

**Performance Measurement Techniques, Christopher Plott, - Chair – San Carlos 3**

**15 – Tuan Q. Tran, Ronald L. Boring Donald D. Dudenhoeffer, Bruce P. Hallbert, M. David Keller and Tessa M. Anderson:**

*Advantages and Disadvantages of Physiological Assessment for Next Generation Control Room Design*

**41 - Man Cheol Kim, Jinkyum Park and Wondea Jung:**

*Development of a Communication Database of Main Control Room Operators in Emergency Situations in Nuclear Power Plants*

**Human-system Integration, Jeffrey Jones – Chair – San Carlos 4**

**75 - Dhong Hoon Lee, Dai IL Kim and Choong Hwei Chung:**

*Regulatory Approach on Human Factors Engineering of Main Control Room Modernization: A Case of Kor-1 Nuclear Power Plant in Korea*

**Root Cause, Steve Davis - Chair – San Carlos 1**

**52 – Anthony J. Spurgin:**

*Plant Upgrades in Response to Accidents: HRA Considerations*

**38 - Marnelle Sheriff:**

*Corrective Action Program and the Safety Culture*



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**Human Performance, Discussion Session, Karen Jennings - Chair – San Carlos 2**

**124 - Tim Northcutt's**

*[If I Could Do It Again...A New Journey to Continuous Improvement Through A Systematic Approach](#)*

**1:30 p.m. – 3:00 p.m.                      Technical Sessions**

**Human-system Integration, Belen Torralba – Chair – San Carlos 4**

**62 – Anna Thunberg and Anna-Lisa Osvalder:**

*[What Constitutes a Well-designed Alarm System?](#)*

**67 – Belén Torralba, Rosario Martínez-Arias and Rosario Solá:**

*[An Experimental Study of Operator Activity Using an Advanced Alarm System in Nuclear Power Plant Control Room](#)*

**43 - Jung Taek Kim, Yoon Ki Kang, Hae Cheol Shin, Jung-Woon Lee, Sang Jung Lee and Sung Pil Lyu:**

*[An Application on Alarm Root Cause Tracking System \(ACTs\)](#)*

**Root Cause, Panel Discussion, Steve Davis - Chair – San Carlos 1**

**125 - Dominion Kewaunee Power Station The “4.0” Crew**

**126 - Kewaunee Power Station Proc-000-GNP-03.30.01.A**

**Security at Nuclear Power Plants, Val Barnes – Chair – San Carlos 2**

**105 - David I. Gertman, David J. Bruemmer, and R. Scott Hartley:**

*[Improving Emergency Response and Human-Robotic Performance](#)*

**127 - Sue Techau:**

*[Fitness for Duty Program Rule Update / Status](#)*

**128 - Kristi Branch and Kathryn Baker:**

*[Security During the Construction of the Critical Infrastructure in the Post 9/11 Context in the U.S.](#)*

**3:30 p.m. – 5:00 p.m.                      Technical Sessions**

**HRA Requirements for PRA Panel Discussion – Anthony Spurgin – Chair – San Carlos 2**

**53 – Anthony Spurgin:**

*[HRA Requirements for PRAs](#)*

**Fitness for Duty, Valerie Barnes – Chair – San Carlos 3**

**05 – Candice D. Griffith and Sankaran Mahadeven:**

*[The Influence of Fatigue on Human Performance: A Meta-Analysis of Sleep Deprivation Effect on Performance Measures](#)*

**27 – Daeho Kim and YongHee Lee:**

*[An Algorithm for Management of the Shift Schedule in Nuclear Power Plants with a Consideration for Human Factors](#)*

**68 – William Nelson and Richard Green:**

*[From Risk to Reality](#)*

**81 – Marta Juahsz: - Unable to present at conference**

*[Regular Assessment of Psychological Status and Psychological Health Service in NPP](#)*



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**Human-system Integration, Joe Naser – Chair – San Carlos 4**

**32- Rubek Jaroslav and Janeba Břetislav: Presentation Not Provided**

*Improvement of Conventional Power Plants Behavior by Qualified Maintaining of Plant Systems at Optimal Conditions by Control Systems Completed by on the Simulation Based Operator Support System*

**72 - Sven Fuchs, Kelly S. Hale, and Par Axelsson:**

*Augmented Cognition Can Increase Human Performance in the Control Room*

**34 - Dominique Galara and Dominique Pirus :**

*Finding the Way up to the Standardization of Human Machine Interface*

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*Friday, August 31, 2007*

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**8:30 a.m. – 10:00 a.m.**

**Technical Sessions**

**Knowledge Management, Richard Holman – Chair – San Carlos 4**

**03 – Jeffrey D. Brewer:**

*NAVIS-Based Knowledge Transfer from System Experts to Their Heirs Apparent*

**29 - Pia Oedewald and Teemu Reiman:**

*Measuring Conceptual Knowledge Among NPP Maintenance Personnel – A Tool for Knowledge Management*

**106 – Andrey Kosilov and Yanko Yanev:**

*Managing Nuclear Knowledge – the IAEA Approach and Activities*

**RCA & CAP, Discussion Session, Steve Davis – Chair – San Carlos 1**

**Human Performance Panel Discussion, Bruce Hallbert – Chair – San Carlos 2**

**69 - Bruce P. Hallbert, Jeffrey C. Joe, Molly J. Keefe and Julius J. Persensky:**

*Modeling and Simulation Approaches to Developing Human Performance Measures in Nuclear Industry*

**10:30 a.m. – 12:00 p.m.**

**Technical Sessions**

**Knowledge Management, Richard Holman – Chair – San Carlos 4**

**96 – Nativida Arrieta, Jr., Ted Leamons:**

*Knowledge Preservation*

**104 - Richard S. Hartley and Danny J. Swaim: Unable to Present at Conference**

*A New Causal Factor Analysis to Support a High Reliability Organization*

**12:00 p.m.**

**Conference Adjourns**

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