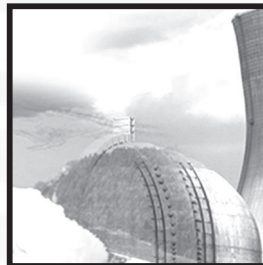


12th International Conference on

ENVIRONMENTAL DEGRADATION

of Materials in Nuclear Power Systems-Water Reactors



August 14-18, 2005
Snowbird Resort
Salt Lake City, Utah, USA

ADVANCE BROCHURE

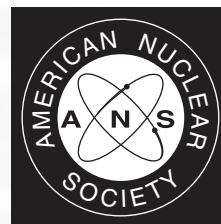
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<http://www.tms.org/meetings/specialty/ED2005/home.html>

12th International Conference on
**ENVIRONMENTAL
DEGRADATION**
of Materials in Nuclear Power Systems-Water Reactors

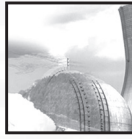


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**Registration and housing forms are
located in the center of booklet.**

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TECHNICAL THRUST

Environmentally induced materials problems cause a significant portion of nuclear power plant outage time and are of great economic and safety concern both for operating light water reactors that continue to age and for the next-generation systems that are currently being designed. The purpose of this conference is to foster the exchange of ideas about such problems and their remedies in nuclear power plants using water coolant.

The conference will continue to focus on the degradation of nickel base alloys, stainless steels, pressure vessel and piping steels, zircalloys, and other alloys in water environments relevant to reactor vessels and internals, steam generators, fuel cladding, irradiated components, fuel storage containers, and balance of plant components and systems. A new topic for the 12th conference is materials degradation issues for supercritical water-cooled reactors and other generation IV water-cooled nuclear energy systems.

The established conference format allows scientists and engineers concerned with environmental degradation processes (corrosion, mechanical, and radiation effects) to exchange views and present their latest results through a combination of invited and contributed presentations. The conference will be of interest to utility engineers, reactor vendor engineers, plant architect engineers, and consultants involved in design, construction, and operation of water reactors, as well as to researchers concerned with the fundamental nature of materials degradation. This meeting promises to be a highly beneficial forum where new insights into materials, methods, and techniques will be shared and gained by everyone.

ADVANCE REGISTRATION

Take advantage of the discounted advance registration fees. Complete the 12th International Conference on Environmental Degradation of Materials in Nuclear Power Systems – Water Reactors Advance Registration form in the center spread of this brochure and return it to TMS no later than **Monday, July 25, 2005. Advance registration is encouraged.** For your convenience, you may charge your registration fees on MasterCard, VISA, American Express, or Diners Club credit cards. Full payment of registration fees must accompany the completed Advance Registration form. Complete the registration form in this brochure, and mail or fax it today.

You may also register any time, day or night, via the Environmental Degradation Home Page at www.tms.org/meetings/specialty/ED2005/home.html. TMS Online provides detailed information on this and all TMS sponsored conferences.

Advance Registration Deadline: Monday, July 25, 2005

- Full conference registration fee includes access to the technical sessions, coffee breaks, welcoming reception, conference banquet and a copy of the post-conference proceedings on CD-ROM.
- Student registration fee includes access to the technical sessions, coffee breaks, welcoming reception, and the conference banquet.

QUESTIONS ON ADVANCE REGISTRATION?

Contact TMS Meeting Services

Telephone: (724) 776-9000, ext. 243; Fax: (724) 776-3770; E-mail: mtgserv@tms.org

VENUE

Snowbird is one of North America's few true Alpine resorts. The Snowbird Village sits at 8,000 feet above sea level, and the mountain rises 3,240 feet to Hidden Peak at 11,000 feet. The Snowbird Aerial Tram provides access to over 2,500 acres of natural terrain where hiking, biking, scooter riding, ATV tours, horseback riding and much more can be enjoyed.

Take advantage of the discounted housing cost available only to attendees of the 12th International Conference on Environmental Degradation of Materials in Nuclear Power Systems – Water Reactors.

Complete the housing form located in the center spread of this brochure and return it to The Snowbird Resort no later than **Friday, July 22, 2005**. *Early arrangements are encouraged.*

Housing Deadline: Friday, July 22, 2005

SNOWBIRD/AIRPORT TRANSFERS

Canyon Transportation vans will provide transportation between the Salt Lake City Airport to Snowbird Resort on a daily basis. Arrangements may be confirmed through Snowbird Central Reservations at (800) 453-3000. Round trip transportation is \$50 per person. Reservations are required for optimal service. Return reservations need to be confirmed at least 24 hours in advance.

Taxi service is also available at the cost of approximately \$90 to \$100 for a one-way trip.

DRIVING DIRECTIONS

Snowbird is only 29 miles (40 minutes) from Salt Lake City International Airport and 25 miles (30 minutes) from downtown Salt Lake City.

From the Salt Lake City International Airport

Take I-80 East to I-215 South. Take Exit 6 and turn right at the light towards the mountains. This road leads directly to Ut-210 and to Snowbird.

From downtown Salt Lake City

Take 700 East Street south to I-80 East to the I-215 Beltway South. Take Exit 6 and turn left at the light.

SOCIAL FUNCTIONS

Included in the full conference registration fee:

Sunday, August 14, 2005

Welcoming Reception

Snowbird Resort

Wednesday, August 17, 2005

Conference Banquet

Off-site at the La Caille Restaurant

AMERICANS WITH DISABILITIES ACT



TMS strongly supports the federal Americans with Disabilities Act (ADA), which prohibits discrimination against and promotes public accessibility for those with disabilities. In support of and in compliance with ADA, we ask those requiring specific equipment or services to contact TMS Meeting Services in advance at (724) 776-9000, ext. 243.

AUDIO/VIDEO RECORDING POLICY

TMS reserves the right to any audio and video reproduction of all presentations at every TMS-sponsored meeting. Recording of sessions (audio, video, still-photography, etc.) intended for personal use, distribution, publication, or copyright without the express written consent of TMS and the individual authors is strictly prohibited. Contact TMS Technical Programming to obtain a copy of the waiver release form at (724) 776-9000, ext. 212.

ADDITIONAL POST-CONFERENCE PROCEEDINGS

Conference proceedings will be published as a CD-ROM planned for completion in October 2005. One copy of the proceedings will be shipped to each full registrant when the CD is available. Additional proceedings CD-ROMs can be purchased on the registration form. The cost of each volume is \$102 (shipping and handling included).

TMS NONMEMBER ATTENDEES

Join TMS today and pay only \$52.50 for membership for the remainder of 2005.

Benefit form technical information and networking specific to your field.

You'll receive:

- Print and electronic subscription to *JOM*, the magazine that explores the traditional, innovative, and revolutionary issues in the minerals, metals, and materials fields
- Members-only discount on *JEM*, a joint TMS and IEEE publication of critical new developments in the electronics field
- Electronic subscription to *TMS Letters*, a peer reviewed journal consisting of two-page technical updates of research presented at TMS meetings but not published elsewhere
- Networking opportunities with a prestigious membership through international conferences
- Discount on TMS publications and conference fees
- Access to TMS' searchable online membership directory, and more!

To begin enjoying these benefits, complete a membership application at TMS' registration desk during the conference and return it with the \$52.50 membership fee. You may also join online at www.tms.org/Society/membership.html, or mail your application to TMS, 184 Thorn Hill Road, Warrendale, PA 15086, USA. For more information, visit www.tms.org, e-mail membership@tms.org, or call (724) 776-9000, ext 259.

Students living in North America may apply for Material Advantage Student Membership for \$25 which includes benefits from TMS, ASM International, and the American Ceramic Society. Students living outside North America may apply for TMS Student Membership for \$15.

SPECIAL CAR RENTAL



Hertz has been selected as the official car rental company for the 12th International Conference on Environmental Degradation of Materials in Nuclear Power Systems – Water Reactors, August 14-18, 2005 in Salt Lake City, Utah.

Advance reservations may be made by booking online at www.hertz.com or calling the Hertz reservations line at 1(800) 654-2240 in the US; 1 (800) 263-0600 in Canada. International travelers should contact the nearest Hertz reservation center. Identify yourself as an attendee of the 12th International Conference on Environmental Degradation of Materials in Nuclear Power Systems – Water Reactors and reference CV# 02QJ0018. You must give the reservations agent the Hertz CV# to receive the special rates. Advance reservations are recommended.

Rates are available from Hertz locations in Salt Lake City.

Terms and Conditions:

- UNLIMITED MILEAGE ALLOWANCE.
- One-way service fee will apply when cars are not returned to renting location.
- Additional daily charges for optional coverage (loss damage waiver, personal accident insurance, personal effect protection, refueling and state tax) are not included in the above rates.
- Drivers must meet standard Hertz age, driver, and credit requirements.
- Hertz is a frequent flyer partner with US Airways, Delta, Northwest, United, and American Airlines. Frequent flyer information may be requested at time of car booking.
- Weekly rentals are from five to seven days. Weekend rentals have a minimum two-day keep, and Thursday pickup requires a minimum three-day keep.

SPECIAL AIRFARE



U·S AIRWAYS

US Airways has been designated as the official carrier for the attendees of the 12th International Conference on Environmental Degradation in Nuclear Power Systems – Water Reactors. US Airways is pleased to offer the various discount options listed below.

For travel into **Salt Lake City, Utah** attendees will receive a **5%** discount off First Class and any published US Airways round trip fare booked in F, C, D, A, Y, B, M or U class of service. A **10%** discount off unrestricted "Y" or B8US / B4AUS fares will apply with seven-day advance reservations and ticketing required. ***Plan ahead and receive an additional 5% discount by ticketing 60 days or more prior to departure.*** These discounts are valid provided all rules and restrictions are met and are applicable for travel from all points on US Airways' route system.

US Airways will also offer ***exclusive negotiated rates*** for attendees who are unable to meet the restrictions of the promotional round trip fares. Certain restrictions, including advance purchase requirements, may apply. These special rates are applicable for travel from the continental United States.

The above discounts are not combinable with other discounts or promotions and are valid three days before and after the meeting dates. Additional restrictions may apply on international travel.

To obtain these discounts, you or your professional travel consultant must call US Airways' Group and Meeting Reservation Office toll-free at (877) 874-7687; 8 a.m. to 9:30 p.m., Eastern time.

REFER TO GOLD FILE NO. 57153207

PRELIMINARY SCHEDULE OF EVENTS

<i>DATE</i>	<i>TIME</i>	<i>LOCATION</i>
Sunday, August 14		
2 to 6 p.m.	Registration	Cliff Lodge, Ballroom Lobby
6 to 7 p.m.	Welcome Reception	Cliff Lodge, Golden Cliff/Eagle's Nest
Monday, August 15		
7 a.m. to 5 p.m.	Registration	Cliff Lodge, Ballroom Lobby
8 a.m. to noon	PWR Primary – I	Cliff Lodge, Ballroom I
8 a.m. to noon	BWR SCC & Modeling – I	Cliff Lodge, Ballroom II
1:30 to 5:30 p.m.	PWR Primary – II	Cliff Lodge, Ballroom I
1:30 to 5:30 p.m.	BWR SCC & Modeling – II	Cliff Lodge, Ballroom II
Tuesday, August 16		
7:30 a.m. to 12:30 p.m.	Registration	Cliff Lodge, Ballroom Lobby
8 to 10 a.m.	PWR Primary – III	Cliff Lodge, Ballroom I
8 to 10 a.m.	LAS & RPV Steel	Cliff Lodge, Ballroom II
8 a.m. to noon	Super Critical Water-Cooled Reactors	Cliff Lodge, Ballroom III
10:30 a.m. to noon	Zircaloy	Cliff Lodge, Ballroom I
10:30 a.m. to noon	Operational Experience I	Cliff Lodge, Ballroom II
4 to 8 p.m.	Registration	Cliff Lodge, Ballroom Lobby
6 to 8 p.m.	Noble Metal & SCC Mitigation	Cliff Lodge, Ballroom I
6 to 8 p.m.	Operational Experience II	Cliff Lodge, Ballroom II
Wednesday, August 17		
7:30 a.m. to 5 p.m.	Registration	Cliff Lodge, Ballroom Lobby
8 a.m. to noon	PWR Secondary – I	Cliff Lodge, Ballroom I
8 a.m. to noon	IASCC - I	Cliff Lodge, Ballroom II
1:30 to 5:30 p.m.	PWR Secondary – II	Cliff Lodge, Ballroom I
1:30 to 3:30 p.m.	IASCC - II	Cliff Lodge, Ballroom II
4 to 5:30 p.m.	Crack Growth	Cliff Lodge, Ballroom II
6:30 to 9:30 p.m.	Conference Banquet	La Caille
Thursday, August 18		
7:30 a.m. to 2 p.m.	Registration	Cliff Lodge, Ballroom Lobby
8 a.m. to noon	Ni-Base Alloys – I	Cliff Lodge, Ballroom I
8 a.m. to noon	Irradiation Effects	Cliff Lodge, Ballroom II
1:30 to 5:30 p.m.	Ni-Base Alloys – II	Cliff Lodge, Ballroom I
1:30 to 3:30 p.m.	Waste Materials & Mechanical Properties	Cliff Lodge, Ballroom II

PWR Primary - I

Monday AM Room: Ballroom I
August 15, 2005 Location: Cliff Lodge

Influence of Orientation of Cold Work and Carbide Precipitation on IGSCC Behaviors of SUS 316 in Hydrogenated High Temperature Water: *Koji Arioka*¹; Goro Chiba¹; Takuyo Yamada¹; Takumi Terachi¹; ¹Institute of Nuclear Safety System, Incorporated

Intergranular Stress Corrosion Cracking and Selective Internal Oxidation of Ni-Cr-Fe Alloys at 400°C in Hydrogenated Steam: *Brent Capell*¹; Gary Was¹; ¹University of Michigan

Alloy Oxidation Studies Related to PWSCC: *Fabio Scenini*¹; Roger Newman²; ¹University of Manchester; ²University of Toronto

Stress Corrosion Cracking of 304L Stainless Steel in PWR Environment: *Thierry Couvant*¹; Francois Vaillant¹; Jean-Marie Boursier¹; Yves Rouillon²; ¹Electricité de France R&D; ²Electricité de France/DIN/CEIDRE

Initiation of SCC in Alloy 600 Wrought Materials: A Laboratory and Statistical Evaluation: *Jacques Daret*¹; ¹Commissariat à l'Énergie Atomique

Crack Growth Rates in Primary Side Materials in Elevated pH PWR Water: *Richard J. Jacko*¹; Robert E. Gold¹; ¹Westinghouse Electric Company

Environmentally Assisted Crack Growth of Cold-Worked Type 304 Stainless Steel in PWR Environments: *David R. Tice*¹; Norman Platts¹; Keith Rigby¹; John Stairmand¹; Howard Fairbrother¹; ¹Serco Assurance

Modeling the Electrochemical Properties of PWR Primary Coolant Circuits: *Digby D. Macdonald*¹; Mirna Urquidi-Macdonald¹; John H. Mahaffy¹; Jonathon Pitt¹; ¹Pennsylvania State University

Development of Intraspecimen Method for the Application to Life Prediction: Hoi Su Choi¹; Chi Bum Bahn¹; Ji Hyun Kim²; *Il Soon Hwang*¹; ¹Seoul National University; ²Massachusetts Institute of Technology

SCC of Cold-Worked Austenitic Stainless Steels in Primary Water of PWRs: *Olivier Raquet*¹; Emmanuel Herms¹; Thierry Couvant²; François Vaillant²; Jean Marie Boursier²; ¹Commissariat à l'Énergie Atomique Saclay; ²Electricité de France Les Renardières

BWR SCC & Modeling - I

Monday AM Room: Ballroom II
August 15, 2005 Location: Cliff Lodge

Correlation Between Deformation-Induced Microstructures and TGSCC Susceptibility in Low Carbon Austenitic Stainless Steels: *Akihiko Kimura*¹; Hideki Ohkubo¹; Tomohiro Noda¹; ¹Kyoto University

Effects of Hydrogen Peroxide and Oxygen on Corrosion of Stainless Steel in High Temperature Water: *Shunsuke Uchida*¹; Tomonori Satoh¹; Yoshiyuki Satoh¹; Naoshi Usui²; Yoichi Wada²; ¹Tohoku University; ²Hitachi, Ltd.

Evaluation of the Fracture Research Institute Theoretical Stress Corrosion Cracking Model: Ernest D. Eason¹; Raj Pathania²; Tetsuo Shoji³; ¹Modeling & Computing Services; ²Electric Power Research Institute; ³Tohoku University

Effect of the Plastic Strain Level Quantified by EBSP Method on the Stress Corrosion Cracking of L-Grade Stainless Steels: Yoshinori Katayama¹; Motoji Tsubota¹; Yoshiaki Saito¹; ¹Toshiba Corporation

The Electrochemistry of Boiling Water Reactors: Digby D. Macdonald¹; HanSang Kim¹; Mirna Urquidi-Macdonald¹; ¹Pennsylvania State University

Stress Corrosion Cracking Growth Behavior of Cold Worked Austenitic Stainless Steel in High Temperature Water: Motoji Tsubota¹; Yoshinori Katayama¹; ¹Toshiba Corporation

Stress Corrosion Cracking of Type 316 and 316L Stainless Steels in High Temperature Water: Nobuhisa Ishiyama¹; Masami Mayuzumi¹; Yoshihiro Mizutani¹; Junichi Tani²; ¹Tokyo Institute of Technology; ²Central Research Institute of Electric Power Industry

Use of High Resolution Microstructural Characterisation for Investigation Environmentally Assisted Cracking in Light Water Reactor Structural Materials: David R. Tice¹; Simon Dumbill²; Susan Ortner²; John C. McGurk²; ¹Sercos Assurance; ²BNFL Nuclear Sciences and Technology Services

Effects of Silicon on SCC of Stainless Steels and Alloy 182 Weld Metal: Peter L. Andresen¹; Martin M. Morra¹; ¹GE Global Research Center

PWR Primary - II

Monday PM
August 15, 2005

Room: Ballroom I
Location: Cliff Lodge

Crack Initiation in Alloy 600 Tubing in Elevated pH PWR Primary Water: Richard Jacko¹; Robert Gold¹; ¹Westinghouse Electric Company

Boric Acid Corrosion of the Davis-Besse Reactor Pressure Vessel Head: Hongqing Xu¹; Steve Fyftch¹; James W. Hyres²; ¹Framatome ANP, Inc.; ²BWXT Services, Inc.

Influence of Surface Films on the Susceptibility of Alloy 600 to SCC in PWR Primary Water: Thomas M. Devine¹; Todd S. Mintz¹; ¹University of California

Cracking of Alloy 600 Nozzles and Welds in PWRs: A Review of Cracking Events and Repair Service Experience: Warren Bamford¹; John F. Hall¹; ¹Westinghouse

Effects of PWR Water Chemistry on SCC Growth Rates of Alloy 600: Peter L. Andresen¹; Martin M. Morra¹; John Hickling²; ¹GE Global Research Center; ²Electric Power Research Institute

In Search of the True Temperature and Stress Intensity Factor Dependencies for PWSCC: David Morton¹; Steven Attanasio¹; Edward Richey¹; George Young¹; ¹Lockheed Martin (KAPL)

SCC Initiation Testing of Nickel-Based Alloys using In-Situ Monitored Uniaxial Tensile Specimens: Edward Richey¹; David Morton¹; Maureen Schurman¹; ¹Lockheed Martin (KAPL)

The Mechanisms and Modeling of Intergranular Cracking in Ni-Cr-Fe Alloys Exposed to High Purity Water: George Young¹; David Morton¹; Weldon Wilkening¹; John Wuthrich¹; Edward Richey¹; John Mullen¹; Nathan Lewis¹; ¹Lockheed Martin (KAPL)

BWR SCC & Modeling - II

Monday PM Room: Ballroom II
August 15, 2005 Location: Cliff Lodge

Influence of Heat Treatment, Ageing and Neutron Irradiation on the Fracture Toughness and Crack Growth Rate in BWR Environments of Alloy X-750: *Anders Jenssen*¹; Pål Efsing²; Johan Sundberg¹; ¹Studsvik Nuclear AB; ²Ringhals AB

Crack Growth Behaviors of Low Carbon 316 Stainless Steels in 288C Pure Water: *Mikiro Itow*¹; Masao Itatani¹; Masaaki Kikuchi¹; Norihiko Tanaka¹; ¹Toshiba Corporation

Modelling and Experimental Studies of Intergranular Corrosion in Austenitic Steels: *Roy Faulkner*¹; Paul Moreton²; Ian Armson²; Youfa Yin¹; Jesus Cintas³; Manuel Montes³; ¹Loughborough University; ²Rolls Royce plc; ³University of Sevilla

The Initiation of Environmentally Assisted Cracking in BWR High Temperature Water: *Shengchun Wang*¹; Yoichi Takeda¹; Kazuhiko Sakaguchi¹; Tetsuo Shoji¹; ¹Tohoku University

Finite Element Calculation of Crack Propagation in Type 304 Stainless Steel in Diluted Sulphuric Acid Solution under Stress Corrosion Conditions: *Serguei Gavrilov*¹; Marc Vankeerberghen¹; Johan Deconinck²; ¹SCK-CEN; ²Vrije Universiteit Brussel

Advances in Electrochemical Corrosion Potential Monitoring in Boiling Water Reactors: *Sam Hettiarachchi*¹; ¹GE

PWR Primary - III

Tuesday AM Room: Ballroom I
August 16, 2005 Location: Cliff Lodge

Evaluation of Crack Growth Rate for Alloy 600 Vessel Penetration in Primary Water Environment: *Yutaka Yamamoto*¹; Masayoshi Ozawa¹; Kiyotomo Nakata¹; Kentaro Yoshimoto²; Masahiko Toyoda²; Junichiro Okuda²; ¹Japan Nuclear Energy Safety Organization; ²Mitsubishi Heavy Industries, Ltd.

Boric Acid Corrosion of Light Water Reactor Pressure Vessel Head Materials: *Jong Hee Park*¹; Omesh Chopra¹; Ken Natesan¹; William J. Shack¹; William Cullen²; ¹Argonne National Laboratory; ²U.S. Nuclear Regulatory Commission

Discussion of the Activity of Hydrogen on Free Surfaces and at Crack Tips in Alloy 600 in Primary PWR Coolant: *Pierre Combrade*¹; Peter M. Scott¹; ¹Framatome-ANP

Oxidation of Ni Base Alloys in PWR Water: Oxide Layers and Associated Damage to the Base Metal: *Pierre Combrade*¹; Marc Foucault¹; Peter M. Scott¹; Eric Andrieu²; Philippe Marcus³; ¹Framatome-ANP; ²ENSIACET; ³Ecole Nationale Supérieure de Chimie de Paris

SCC Crack Growth Behaviour of Austenitic Alloys in PWR Primary Water Conditions: *Catherine Guerre*¹; Olivier Raquet¹; Guy Turluer²; ¹Commissariat à l'Energie Atomique; ²Institute de Radioprotection et de Sécurité Nucléaire

Zircaloy

Tuesday AM Room: Ballroom I
August 16, 2005 Location: Cliff Lodge

Effect of Zinc Injection on Crevice Corrosion Resistance of Pre-Filmed Zircaloy-2 Tube Under Heat Transfer Condition: *Hirota Kawamura*¹; Hiromi Kanbe¹; Ryo Morita¹; Fumio Inada¹; ¹Central Research Institute of Electric Power Industry

Effect of Pre-Deposited Magnetite on Deposition of Nickel Oxides at Zr Surface in 573K Pressured Water: *Jei-Won Yeon*¹; Yongju Jung¹; Hansook Lee¹; Myung-Hee Yun¹; Won-Ho Kim¹; ¹Korea Atomic Energy Research Institute

Transient Oxide Film Growth on Zirconium in High Temperature Aqueous Solutions: Yingzi Chen¹; *Digby D. Macdonald*¹; ¹Pennsylvania State University

Characterization of Oxides Formed on Model Zirconium Alloys in 360 C Water Using Micro-Beam Synchrotron Radiation: Aylin Yilmazbayhan¹; *Arthur T. Motta*¹; H. G. Kim²; Yong Hwan Jeong²; Jeong Yong Park²; Robert J. Comstock³; Barry Lai⁴; Zhonghou Cai⁴; ¹Pennsylvania State University; ²Korean Atomic Energy Research Institute; ³Westinghouse Electric Company; ⁴Argonne National Laboratory

LAS & RPV Steels

Tuesday AM Room: Ballroom II
August 16, 2005 Location: Cliff Lodge

Mitigation Effect of Hydrogen Water Chemistry on SCC and Low-Frequency Corrosion Fatigue Crack Growth in Low-Alloy Steels: *Hans-Peter Seifert*¹; Stefan Ritter¹; ¹Paul Scherrer Institute

Effect of Radiation on Embrittlement and Matrix Cu Content of a RPV Weld with Different PWHT Conditions: *Mikhail A. Sokolov*¹; Randy K. Nanstad¹; Michael K. Miller¹; ¹Oak Ridge National Laboratory

Corrosion of SA 508 Low Alloy Steel in Primary Water of PWR: *Hong Pyo Kim*¹; Jin Ki Hong¹; Dong Jin Kim¹; Seong Sik Hwang¹; Bong Sang Lee¹; Jun Hwa Hong¹; ¹Korea Atomic Energy Research Institute

The Effect of Transients on the Crack Growth Behaviour of Low Alloy Steels for Pressure Boundary Components under Light Water Reactor Operating Conditions: *Armin Roth*¹; Bastian Devrient¹; Dolores Gómez-Briceño¹; Jesús Lapeña²; Miroslava Ernestová³; Miroslav Zamboch³; Ulla Ehrnstén⁴; Jürgen Föhl⁵; Thomas Weibenberg⁵; Hans-Peter Seifert⁶; Stefan Ritter⁶; ¹Framatome ANP GmbH; ²Centro de Investigaciones Energéticas Medioambientales y Tecnológicas; ³Nuclear Research Institute; ⁴Technical Research Centre of Finland; ⁵Materialprüfungsanstalt Universität Stuttgart; ⁶Paul Scherrer Institut

Operational Experience - I

Tuesday AM Room: Ballroom II
August 16, 2005 Location: Cliff Lodge

German Experience with Intergranular Cracking in Austenitic Piping in BWRs and Assessment of Parameters Affecting the In-Service IGSCC Behavior Using an Artificial Neural Network: *Renate Kilian*¹; Ulrich Wesseling¹; Karin Kuester²; Harald Hoffmann³; Ulf Ilg⁴; Erika Nowak⁵; Martin Widera⁶; ¹Framatome ANP; ²Vattenfall Europe; ³VGB PowerTech e. V.; ⁴EnBW Kraftwerke AG; ⁵E.ON Kernkraft GmbH; ⁶RWE Power AG

Flow Accelerated Corrosion of Tube Support Plates at Bruce NGS Unit 8: *Peter J. King*¹; ¹Babcock & Wilcox Canada

Recent In-Service Experience with Degradation of Low Alloy Steel Components Due to Localized Corrosion and Environmentally Assisted Cracking in German PWR Plants: *Armin Roth*¹; Erika Nowak²; Martin Widera³; Ulf Ilg⁴; Ulrich Wesseling¹; Ronald Zimmer¹; ¹Framatome ANP GmbH; ²E.ON Kernkraft GmbH; ³RWE Power AG; ⁴EnBW Kraftwerke AG

Root Cause Failure Analysis of Defected J-Groove Welds in Steam Generator Drainage Nozzles: *Paul Efsing*¹; Björn Forssgren¹; Renate Kilian²; ¹Ringhals AB; ²Framatome ANP GmbH

Super Critical Water-Cooled Reactors

Tuesday AM Room: Ballroom III
August 16, 2005 Location: Cliff Lodge

Corrosion of Candidate Materials for Supercritical Water-Cooled Reactors: *Todd R. Allen*¹; Yun Chen¹; Lizhen Tan¹; Kumar Sridharan; ¹University of Wisconsin

Effect of Proton Irradiation and Grain Boundary Engineering on Stress Corrosion Cracking of Ferritic-Martensitic Alloys in Supercritical Water: *Gaurav Gupta*¹; Gary S. Was¹; ¹University of Michigan

Corrosion and Stress Corrosion Cracking of Ferritic-Martensitic Alloys in Supercritical Water: *Pantip Ampornrat*¹; Chi Bum Bahn¹; Gary S. Was¹; ¹University of Michigan

Corrosion-Resistant Coatings for Use in a Supercritical Water CANDU® Reactor: *David Guzonas*¹; John Wills¹; Glenn McRae¹; Karen Chu²; Mike Stone²; Kim Heaslip²; ¹Atomic Energy of Canada Ltd; ²Deep River Science Academy

Irradiation Effects on Microstructure and Stress Corrosion Cracking Resistance of Austenitic Candidate Alloys for the Supercritical Water Cooled Reactor: *Sebastien Teysseyre*¹; Zhijie Jiao¹; Gary Was¹; ¹University of Michigan

Stress Corrosion Cracking and Corrosion Fatigue in 12% Cr Martensitic Strainless Steels: Role of Microstructure and Hydrogen Ingress: *Gajanana Vithal Prabhugaunkar*¹; Chandrashekhar Kerkar¹; *Raju Chintaman Kadam*¹; ¹Indian Institute of Technology, Bombay

Corrosion of Zirconium-Based Fuel Cladding Alloys in Supercritical Water: *Yong Hwan Jeong*¹; Jeong Yong Park¹; H. Kim¹; Busby Jeremy²; Eric Gartner²; Michael Atzmon²; Gary Was²; Robert Comstock³; Marcelo Silva⁴; Arthur T. Motta⁴; ¹Korean Atomic Energy Research Institute; ²University of Michigan; ³Westinghouse Electric Company; ⁴Pennsylvania State University

Composition and Structure of Corrosion Films of Candidate Materials for Supercritical Water-Cooled Reactors: *Junya Kaneda*¹; Shigeki Kasahara¹; Jiro Kuniya¹; Kumiaki Moriya¹; Fumihisa Kano²; Norihisa Saito²; Akio Shioiri²; Tamaki Shibayama³; Heishichiro Takahashi³; ¹Hitachi, Ltd.; ²Toshiba Corporation; ³Hokkaido University

Noble Metal & SCC Mitigation

Tuesday PM Room: Ballroom I
August 16, 2005 Location: Cliff Lodge

Effect of Bulk Water Chemistry on ECP Distribution Inside a Crevice: *Yoichi Wada*¹; Kazushige Ishida¹; Masahiko Tachibana¹; Motohiro Aizawa¹; ¹Hitachi, Ltd.

Effect of Zn on SCC of 316L Stainless Steel at Low Potential: *Martin M. Morra*¹; Peter L. Andresen¹; Michael Pollick¹; ¹General Electric Global Research Center

OnLine NobleChem Mitigation of SCC: *Peter L. Andresen*¹; Young Jin Kim¹; Sam Hettiarachchi²; Thomas P. Diaz²; ¹GE Global Research Center; ²GE Nuclear Energy

Electrochemical Behavior of Oxygen and Hydrogen on ZrO₂ Treated Type 304 Stainless Steels in High Temperature Pure Water: *Tsung-Kuang Yeh*¹; Chuen-Horng Tsai¹; Chang-Tong Liu¹; ¹National Tsing-Hua University

The Impact of Oxygen and Hydrogen Recombination Efficiency on the Effectiveness of NMCA in Reducing the Corrosion Potential in Boiling Water Reactors: *Tsung-Kuang Yeh*¹; ¹National Tsing-Hua University

Corrosion Mitigation of BWR Structural Materials by the Photoelectric Method with TiO₂ -Laboratory Experiments of TiO₂ Effect on ECP Behavior and Material Integrity: *Masato Okamura*¹; Tetsuo Osato¹; Nagayoshi Ichikawa¹; Tadasu Yotsuyanagi¹; Kenro Takamori²; Shunichi Suzuki²; Junichi Suzuki²; ¹Toshiba Corporation; ²Tokyo Electric Power Company

BWR SCC Mitigation Experiences with Hydrogen Water Chemistry: *Sam Hettiarachchi*¹; ¹GE

Operational Experience - II

Tuesday PM Room: Ballroom II
August 16, 2005 Location: Cliff Lodge

Preliminary Results of a Chemical Treatment Trial at Darlington Using Titanium Dioxide for Mitigation of Flow-Accelerated-Corrosion: *Mike Dymarski*¹; ¹Ontario Power Generation

Laboratory Investigation of the Stainless Steel Cladding on the Davis-Besse Reactor Vessel Head: Hongqing Xu¹; Steve Fyfitch¹; *James W. Hyres*²; ¹Framatome ANP, Inc.; ²BWXT Services, Inc.

Laboratory Investigation of PWSCC of CRDM Nozzle 3 and its J-Groove Weld on the Davis-Besse Reactor Vessel Head: Hongqing Xu¹; Steve Fyfitch¹; James W. Hyres²; ¹Framatome ANP, Inc.; ²BWXT Services, Inc.

Laboratory Investigation of the Alloy 600 Bottom Mounted Instrumentation Nozzle Samples and Weld Boat Sample from South Texas Project Unit 1: Hongqing Xu¹; Steve Fyfitch¹; James W. Hyres²; Francois Cattant³; Al Mcilree³; ¹Framatome ANP, Inc.; ²BWXT Services, Inc.; ³Electric Power Research Institute

Flow Accelerated Corrosion and Environmental Cracking of Carbon Steel Piping in Primary Water – Operating Experience at the Point Lepreau Generating Station: John P. Slade¹; Tracy S. Gendron²; ¹NB Power Nuclear; ²Atomic Energy of Canada Ltd

Environmental Cracking of Carbon Steel Piping in Primary Water – Risk Management Strategies at the Point Lepreau Generating Station: John P. Slade¹; Tracy S. Gendron²; ¹NB Power Nuclear; ²Atomic Energy of Canada Ltd

PWR Secondary - I

Wednesday AM Room: Ballroom I
August 17, 2005 Location: Cliff Lodge

Effect of Lead Contamination on SG Tube Degradation: Yucheng Lu¹; ¹Atomic Energy of Canada Ltd.

On the Relationship Between Grain Boundary Structure Properties and Intergranular Attack/Corrosion (IGA): Edward Mark Lehockey¹; Alex Brennenstuhl¹; Malcolm Clark²; Ian Thompson³; ¹Ontario Power Generation; ²Kinectrics Inc; ³Nuclear Safety Solutions

A New Technique for Intergranular Crack Formation on Alloy 600 Steam Generator Tubing: Tae-Hyun Lee¹; Il Soon Hwang¹; Han Sub Chung²; Jang Yul Park³; ¹Seoul National University; ²Korea Electric Power Research Institute; ³Argonne National Laboratory

Investigating Pb Effects on Secondary-Side Stress Corrosion Cracking of Alloy 600: Larry E. Thomas¹; Stephen Bruemmer¹; ¹Pacific Northwest National Laboratory

Effect of Water Chemistries on Stress Corrosion Resistance in Alloy 600 SG Tube Under Acidic Conditions: Shinichi Fukuchi¹; Kimihiro Koba¹; Hiroyuki Anada²; Manabu Kanzaki²; ¹Kyushu Electric Power Co., Inc.; ²Sumitomo Metal Industries Ltd

SCC Behavior of Model Alloy 600 Containing Minor Element Ce in a Caustic Solution: Joung Soo Kim¹; Yong-Sun Yi¹; Oh-Chul Kwon¹; Yunsoo Lim¹; Mahnkyo Jung¹; ¹Korea Atomic Energy Research Institute

Quantitative Morphological Characterization of Deposits Formed in Secondary Side of Comanche Peak Steam Electric Station Using Scanning Electron Microscopy: Seifollah Nasrazadani¹; Haritha Namduri¹; Jim Stevens²; Robert Theimer²; ¹University of North Texas; ²Texas Utilities

Stress Corrosion Cracking of Nickel Alloys in the “Complex” Environment in the Liquid Phase and in the Vapor Phase: Ellen-Mary Pavageau¹; Olivier Horner¹; Francois Vaillant¹; Odile de Bouvier¹; Frederic Delabrouille¹; ¹Electricité de France

Laboratory Examination of Pulled Steam Generator Tube with Free Span Axial ODS/CC: Albert Richard Vaia¹; Jim M. Stevens²; P. J. Prabhu¹; ¹Westinghouse Electric Company; ²Texas Utility

Irradiation Assisted Stress Corrosion Cracking - I

Wednesday AM Room: Ballroom II
August 17, 2005 Location: Cliff Lodge

The Effect of Oversized Solute Additions on the Irradiation-Assisted Stress Corrosion Cracking Resistance of Austenitic Stainless Steels: *Micah J. Hackett*¹; Gary S. Was¹; ¹University of Michigan

Irradiation Assisted Stress Corrosion Cracking of Heat Affected Zones of Austenitic Stainless Steel Welds: *Raluca Stoenescu*¹; Didier Gavillet¹; Bob van der Schaaf²; Armin Roth³; Carsten Ohms⁴; Steven Van Dyck⁵; Maria-Luisa Castano⁶; ¹Paul Scherrer Institute; ²NRG; ³Framatome ANP; ⁴JRC; ⁵SCK-CEN; ⁶CIEMAT

Effect of Metallurgical Condition on Irradiation-Assisted Stress Corrosion Cracking of Commercial Stainless Steels: *Jeremy Todd Busby*¹; Ed A. Kenik²; Gary S. Was¹; ¹University of Michigan; ²Oak Ridge National Laboratory

Irradiation Effects in a Highly Irradiated Cold Worked Stainless Steel Removed from a Commercial PWR: *Joyce Conermann*¹; Regis Shogan¹; Koji Fujimoto²; Toshio Yonezawa²; Yoichiro Yamaguchi³; ¹Westinghouse Electric Company; ²Mitsubishi Heavy Industries, LTD.; ³Nuclear Development Corporation

Crack Growth Behavior of Irradiated Austenitic Stainless Steel Weld Heat Affected Zone Material in High-Purity Water at 289°C: *Omesh K. Chopra*¹; Bogdan Alexandreanu¹; William J. Shack¹; ¹Argonne National Laboratory

Effect of the Accelerate Irradiation and Nuclear Transmuted Gas on IASCC Characteristics for Highly Irradiated Austenitic Stainless Steels: *Koji Fujimoto*¹; Toshio Yonezawa¹; Eiji Wachi¹; Yoichiro Yamaguchi²; Morihito Nakano³; Regis P. Shogan⁴; Jean-Paul Massoud⁵; Thomas R. Mager⁴; ¹Mitsubishi Heavy Industries, Ltd.; ²Nuclear Development Corporation; ³The Kansai Electric Power Company, Inc.; ⁴Westinghouse Electric Corporation; ⁵Electricité de France

Development of Test Techniques for In-Pile SCC Initiation and Growth Tests and the Current Status of In-Pile Tests using Pre-Irradiated Materials at JMTR: *Hirokazu Ugachi*¹; Yoshiyuki Kaji¹; Junichi Nakano¹; Yoshinori Matsui¹; Kazuo Kawamata¹; Takashi Tsukada¹; Nobuaki Nagata²; Koji Dozaki²; Hideki Takiguchi²; ¹Japan Atomic Energy Research Institute; ²JAPCO

Plastic Deformation Behavior of IGSCC on Thermally-Sensitized and Irradiated Type 316LN Stainless Steel: *Yukio Miwa*¹; Takashi Tsukada¹; ¹Japan Atomic Energy Research Institute

Fractographic Observations on a Highly Irradiated AISI 304 Steel after Constant Load Tests in Simulated PWR Water and Argon and After Supplementary Tensile and Impact Tests: Ulla M. Ehrnstén¹; *Pertti Aaltonen*¹; A. Toivonen¹; W. Karlsen¹; J.-P. Massoud²; ¹VTT; ²Electricité de France

PWR Secondary - II

Wednesday PM Room: Ballroom I
August 17, 2005 Location: Cliff Lodge

Assessment of Amine Specific Effects on the Flow Accelerated Corrosion Rate of Carbon and Low Alloy Steels: *John M. Jevic*¹; Peter King¹; Cindy Pearce²; Keith Fruzzetti³; ¹The Babcock & Wilcox Company; ²Babcock & Wilcox Canada, Ltd; ³Electric Power Research Institute

Effects of Pb on SCC of Alloy 600 and Alloy 690 in Prototypical Steam Generator Chemistries: *Jesse B. Lumsden*¹; Allan McIlree²; Richard Eaker³; ¹Rockwell Automation; ²Electric Power Research Institute; ³Duke Energy

The Effect of Residual Stress and Environment on the Initiation and Propagation of ODS/CC Cracks in Thermally Treated Alloy 600 Steam Generator Tubing: *Ronald George Ballinger*¹; Thomas Esselman²; William McBrine²; Thomas McKrell²; Alan McIlree³; Russell Lieder⁴; Robert White⁴; ¹Massachusetts Institute of Technology; ²Altran Corporation; ³Electric Power Research Institute; ⁴FPL Energy, LLC

Modeling Concentrated Solution Transport and Accumulation in Steam Generator Tube Support Plate Crevices: *Allen Baum*¹; Karoline Evans¹; ¹Bechtel Bettis, Inc

Oxidation Behavior of Austenitic Materials Exposed to Secondary Side Water at 282°C: *Jeff Sarver*¹; Peter King²; ¹Babcock & Wilcox; ²Babcock & Wilcox Canada, Ltd.

Evaluation of Crack Growth Rate for Alloy 600TT SG Tubing in Primary and Faulted Secondary Water Environments: *Yutaka Yamamoto*¹; Masayoshi Ozawa¹; Kiyotomo Nakata¹; Takao Tsuruta²; Masafumi Sato²; Taketoshi Okabe²; ¹Japan Nuclear Energy Safety Organization; ²Mitsubishi Heavy Industries, Ltd.

Characterization of Austenitic Materials Exposed to Secondary Side Water at 282°C: *Sridhar Ramamurthy*¹; Ross D. Davidson¹; N. Stewart McIntyre¹; Peter J. King²; Jeff M. Sarver³; ¹Surface Science Western; ²Babcock & Wilcox Canada, Ltd; ³Babcock & Wilcox Research Center

The Use of Advanced Secondary Ion Mass Spectrometry Imaging Technique for the Characterization of Materials Employed in Nuclear Applications: *Sridhar Ramamurthy*¹; Gary M. Good¹; N. Stewart McIntyre¹; Alex M. Brennenstuhl²; Gino Palumbo³; Peter Lin³; ¹Surface Science Western; ²Ontario Power Generation; ³Integran Technologies Inc.

Impurity Source Terms and Behavior in Nuclear Once-Through Steam Generator Cycles: *Rocky H. Thompson*¹; ¹Progress Energy Florida

The Effect of Metal Cations Including Pb⁺⁺ on Dissolution and Passivation of Nickel Base Alloys: Harshan Radhakrishnan¹; *Roger C. Newman*¹; Anatolie Carcea¹; ¹University of Toronto

Clues and Issues in the SCC of High Nickel Alloys Associated with Lead: *Roger W. Staehle*¹; ¹Staehle Consulting

Experimental Investigation of the Erosion-Corrosion of UNS N044000 Steam Generator Tubing: Amy Lloyd¹; *Gabriel Ogundele*¹; Sandra Pagan²; ¹Kinectrics Inc.; ²Ontario Power Generation

Irradiation Assisted Stress Corrosion Cracking - II

Wednesday PM Room: Ballroom II
August 17, 2005 Location: Cliff Lodge

Influence of the Neutron Spectrum on the Tensile Properties of Irradiated Austenitic Stainless Steels, in Air and in PWR Environment: *Jean-Paul Etienne Massoud*¹; Miroslav Zamboch²; Petr Brabec²; Valentin Shamardin³; Valeriy Prokhorov³; Philippe Dubuisson⁴; ¹EDF/R&D; ²NRI; ³RIAR; ⁴CEA/SRMA

In-Core Crack Growth Rate Studies on Irradiated Austenitic Stainless Steels in BWR and PWR Conditions in the Halden Reactor: *Torill Karlsen*¹; Peter Bennett¹; Nils Walther Høgberg¹; ¹OECD Halden Reactor Project

Irradiation Assisted Stress Corrosion Cracking Susceptability of Core Component Materials: *Kazuhiro Chatani*¹; Yuji Kitsunai¹; Mitsuhiro Kodama¹; Shunichi Suzuki²; Yoshihiko Tanaka²; Suguru Ooki²; Hiroshi Sakamoto³; Tomomi Nakamura⁴; ¹Nippon Nuclear Fuel Development Co., Ltd.; ²Tokyo Electric Power Co., Inc.; ³Toshiba Corporation; ⁴Hitachi Ltd.

Study on SCC Growth Behavior of BWR Core Shroud: *Suguru Ooki*¹; Y. Tanaka¹; K. Takamori¹; S. Suzuki¹; S. Tanaka²; Y. Saito²; T. Nakamura³; T. Kato³; K. Chatani⁴; M. Kodama⁴; ¹Tokyo Electric Power Company; ²Toshiba Corporation; ³Hitachi, Ltd.; ⁴Nippon Nuclear Fuel Development Co., Ltd.

Crack Growth

Wednesday PM Room: Ballroom II
August 17, 2005 Location: Cliff Lodge

High-Resolution Characterizations of Stress-Corrosion Cracks in Austenitic Stainless Steel from Crack Growth Tests in LWR-Simulated Environments: *Larry E. Thomas*¹; Peter L. Andresen²; Stephen Bruemmer¹; ¹Pacific Northwest National Laboratory; ²General Electric Global Research

Effects of Positive and Negative dK/da on SCC Growth Rates: *Peter L. Andresen*¹; Martin M. Morra¹; Ron M. Horn²; ¹GE Global Research Center; ²GE Nuclear Energy

The Effect of Hold Time on the Crack Growth Rate of Sensitized Stainless Steel in High Temperature Water: *Anders Jenssen*¹; Christer Jansson²; Johan Sundberg¹; ¹Studsvik Nuclear AB; ²SwedPower AB

Application Specific Evaluation of Stress Corrosion Crack Growth Rate Based on Inspection Data on Alloy 600 Tubing: *Yogen Garud*¹; Brian Woodman¹; Gary Boyers²; ¹APTECH Engineering Services, Inc.; ²Florida Power & Light Company

Nickel-Base Alloys – I

Thursday AM Room: Ballroom I
August 18, 2005 Location: Cliff Lodge

Examination of Stress Corrosion Cracks in Alloy 182 Weld Metal after Exposure to PWR Primary Water: *Peter M. Scott*¹; Marc Foucault¹; Brigitte Brugier¹; John Hickling²; Al McIlree²; ¹Framatome ANP; ²Electric Power Research Institute

Development of Crack Growth Rate Disposition Curves for Primary Water Stress Corrosion Cracking (PWSCC) of Alloy 82, 182, and 132 Weldments: *Glenn A. White*¹; John Hickling²; Craig Harrington³; ¹Dominion Engineering, Inc.; ²Electric Power Research Institute; ³TXU Power

Stress Intensity and Temperature Dependence for Crack Growth Rate in Weld Metal Alloy 182 in Primary PWR Environment: *Kjell Norring*¹; Martin Konig¹; Jan Lagerstrom²; ¹Studsvik Nuclear; ²Ringhals

Reduction of Toughness Results for Weld Metal 182 in a PWR Primary Water Environment with Varying Dissolved Hydrogen, Lithium Hydroxide and Boric Acid Concentrations: *Bruce A. Young*¹; Allan R. McIlree²; Peter J. King³; ¹The Babcock & Wilcox Company; ²Electric Power Research Institute; ³Babcock & Wilcox Canada

Influence of a Cyclic Loading on the Initiation and Propagation of PWSCC in Weld Metal 182: *François Vaillant*¹; Jean-Marie Boursier¹; Thierry Couvant¹; Claude Amzallag¹; ¹Electricité de France

Microstructural and Stress-Corrosion Crack Characteristics in Alloy 182 Weldments: *Larry E. Thomas*¹; John Vetrano¹; Stephen Bruemmer¹; ¹Pacific Northwest National Laboratory

Alloy 182 Weld Structures and SCC Growth Behavior: *Martin M. Morra*¹; Michelle Othon¹; ¹General Electric Global Research

The Effect of Grain Orientation on the Cracking Behavior of Alloy 182 Weld in PWR Environment: *Bogdan Alexandreanu*¹; Omesh K. Chopra¹; William J. Shack¹; ¹Argonne National Laboratory

SCC Behavior in the Transition Region of an Alloy 182-SA 508 Cl.2 Dissimilar Weld Joint Under Simulated BWR-NWC Conditions: *Qunjia Peng*¹; Tetsuo Shoji²; Stefan Ritter³; Hans-Peter Seifert³; ¹University of Michigan; ²Tohoku University; ³Paul Scherrer Institute

Irradiation Effects

Thursday AM Room: Ballroom II
August 18, 2005 Location: Cliff Lodge

Void Swelling of Austenitic Steels Irradiated with Neutrons at Low Temperatures and Very Low dpa Rates: *Frank Albert Garner*¹; Sergey I. Porollo²; Yury V. Konobeev²; Oleg P. Maksimkin³; ¹Pacific Northwest National Laboratory; ²Institute of Physics and Power Engineering; ³Institute of Nuclear Physics

Hydrogen Trapping in 18Cr10NiTi Steel Under Conditions of Double or Triple Ion Irradiation: Victor V. Bryk¹; Victor N. Voyevodin¹; Galina D. Tolstolutsкая¹; *Frank Albert Garner*²; ¹Kharkov Institute of Physics and Technology; ²Pacific Northwest National Laboratory

Irradiation-Induced Microstructure, Swelling and Post-Irradiation Deformation of 18Cr-10Ni-Ti Irradiated with Ions to 1-100dpa at 300-635°C: Oleg V. Borodin¹; Victor V. Bryk¹; Alexander S. Kalchenko¹; A. A. Parkhomenko¹; Victor N. Voyevodin¹; *Frank Albert Garner*²; ¹Kharkov Institute of Physics and Technology; ²Pacific Northwest National Laboratory

Dose Rate Effects on Microchemistry and Microstructure Relevant to LWR Components: *Edward P. Simonen*¹; Danny J. Edwards²; Stephen M. Bruemmer; ¹Battelle; ²Pacific Northwest National Laboratory

Influence of Deformation Mode on Irradiation-Assisted Stress Corrosion Cracking of Proton-Irradiated Austenitic Alloys: *Jeremy Todd Busby*¹; Ryoji Obata¹; Gary S. Was¹; ¹University of Michigan

Deformation Structures in 316 Stainless Steel Irradiated in a PWR: *Koji Fukuya*¹; Katsuhiko Fujii¹; Yuji Kitsunai²; ¹Institute of Nuclear Safety System; ²Nippon Nuclear Fuel Development

Weldability of Neutron Irradiated Stainless Steels Studied by YAG Laser Welding: *Koji Kashiwakura*¹; Masayoshi Ozawa¹; ¹Japan Nuclear Energy Safety Organization

Response of PWR Baffle-Former Bolt Loading to Swelling, Irradiation Creep and Bolt Replacement as Revealed Using Finite Element Modeling: *Edward P. Simonen*¹; Frank Garner¹; Nickolas Klymyshym¹; Mychailo Toloczko¹; ¹Pacific Northwest National Laboratory

Microstructural and Microchemical Evolution in Neutron-Irradiated Stainless Steels: Comparison of LWR and Fast-Reactor Irradiations: *Danny J. Edwards*¹; Stephen Bruemmer¹; Edward P. Simonen¹; ¹Battelle

Microstructural Study and In Situ Investigation of Strain Localization in Ions Irradiated Austenitic Stainless Steels: *Cédric Pokor*¹; Philippe Pareige²; Jean-Paul Massoud³; Philippe Dubuisson⁴; Yves Brechet⁵; ¹Electricité de France; ²Université de Rouen; ³Electricité de France-R&D-MMC; ⁴Commissariat à l'Énergie Atomique; ⁵Laboratory of Thermodynamics & Metallurgical Physico-Chemistry

Nickel-Base Alloys – II

Thursday PM Room: Ballroom I
August 18, 2005 Location: Cliff Lodge

Low Temperature Crack Propagation in PWR Service?: *Allan R. McIlree*¹; Anne Demma¹; ¹Electric Power Research Institute

Effects of Defect Acuity and Load Path on the Fracture Toughness of Alloy 82H and 52 Welds in Low Temperature Water: Catherine M. Brown¹; *William J. Mills*¹; ¹Bechtel Bettis Inc

The Effect of Cold Work and Dissolved Hydrogen in the Stress Corrosion Cracking of Alloy 82 and Alloy 182 Weld Metal: *Denise J. Paraventi*¹; William C. Moshier¹; ¹Bechtel Bettis, Inc

Evaluation of SCC Crack Growth Rate in Alloy 600 and its Weld Metals in Simulated BWR Environments: *Masayoshi Ozawa*¹; Yutaka Yamamoto¹; Kiyotomo Nakata¹; ¹Japan Nuclear Energy Safety Organization

Establishment of Experimental Conditions for the SCC Growth Rate Test of Alloy 600 and Ni Base Weld Metal in High Temperature Oxygenated Water: *Masayoshi Ozawa*¹; Yutaka Yamamoto¹; Kiyotomo Nakata¹; Michiyoshi Yamamoto²; Zenmi Sagawa³; Jiro Kuniya²; Mikiro Itow⁴; Masaaki Kikuchi⁴; Norihiko Tanaka⁴; ¹Japan Nuclear Energy Safety Organization; ²Hitachi, Ltd.; ³Hitachi Engineering Company; ⁴Toshiba Corporation

Evaluation of Mechanical and Environmental Parameters Affecting Primary Water Stress Corrosion Cracking of Nickel-Based Alloys: *Junhyun Kwon*¹; Yong-Sun Yi¹; Seolhwan Eom¹; Yun Soo Lim¹; Joung-Soo Kim¹; ¹Korea Atomic Energy Research Institute

Fracture Surface Morphology of Stress Corrosion Cracks in Nickel-Base Welds: *William J. Mills*¹; ¹Bechtel Bettis Inc

Waste Materials & Mechanical Properties

Thursday PM Room: Ballroom II
August 18, 2005 Location: Cliff Lodge

SCC Initiation and Growth in Alloy 22 and Titanium Alloys Concentrated Groundwater: *Peter L. Andresen*¹; Gerald M. Gordon²; ¹GE Global Research Center; ²Areva

Materials Degradation Issues in the U.S. High-Level Nuclear Waste Repository: *Kevin Mon*¹; Fred H. Hua²; ¹Framatome ANP; ²Bechtel SAIC Company, LLC

Stiffing of Crevice Corrosion in Alloy 22: Venkataraman Pasupathi¹; Gerald M. Gordon²; Kevin G. Mon²; Ahmet Yilmaz³; Gregory E. Gdowski³; *Raul B. Rebak*³; ¹Bechtel BSC; ²BSC/Framatome; ³Lawrence Livermore National Laboratory

Comparison of the Fatigue Life of 304L SS as Measured in Load and Strain Controlled Tests: *Harvey D. Solomon*¹; Claude Amzallag²; Ron De Lair³; Alexander J. Vallee¹; ¹GE-GRC; ²Electricité de France; ³GE-Retired

Statistical Analysis of the LCF Behavior of 304L SS Tested at 150°C and 300°C in Air and PWR Water: *Harvey D. Solomon*¹; Claude Amzallag²; ¹GE-GRC; ²Electricité de France

Dynamic Strain Aging of Ni-Base Alloys Inconel 600 and 690: *Hannu Eelis Hänninen*¹; Mykola Ivanchenko¹; Yuriy Yagodzinsky¹; Vitaliy Nevdacha¹; Ulla Ehrnstén²; Pertti Aaltonen²; ¹Helsinki University of Technology; ²VTT Technical Research Centre of Finland

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