

*We wish you all a wonderful summer!*

## SEMINAR FEEDBACK INL WORKSHOP ON ENVIRONMENTAL DEGRADATION

### “Two days may have saved months of work”

THE IDAHO NATIONAL LABORATORY hosted a 1.5-day long seminar titled “Environmentally-Assisted Degradation of Structural Alloys in Light Water Reactors” on June 8<sup>th</sup> and 9<sup>th</sup>, 2010. Dr. Todd Allen, the Scientific Director of the Advanced Test Reactor National Scientific User Facility, organized the seminar. The goal of this seminar was to educate a number of junior INL staff and junior faculty from around the country on the key environmental degradation issues facing both pressurized water reactors and boiling water reactors. With the number of researchers in the U.S. studying issues relevant to light water reactors dwindling, the goal of this seminar was to reinvigorate interest and help kick start a new generation of researchers targeting better material performance in nuclear systems.

The instructors for the seminar, supplied by ANT International, were Peter Ford, Peter Scott, and Pierre Combrade who covered an introduction to stress corrosion cracking, the general phenomenology and mecha-

nistic hypotheses of stress corrosion cracking, stress corrosion cracking of stainless steels in low temperature environments, stress corrosion cracking in boiling water reactors, corrosion fatigue issues, stress corrosion cracking in pressurized water reactors, and irradiation effects on stress corrosion cracking.

The participants had backgrounds in material science, mechanical engineering, and water chemistry but in general, did not have any extensive knowledge of environmental effects in nuclear systems. Across the board, the attendees were extremely enthusiastic about the seminar. One stated “A rare and exceptional workshop. These two days bought together true deep expertise, representing over 100 years of industry experience, and an enthusiastic group of young scientists eager to bring state of the art tools to bear on cutting edge problems. Such a workshop is enormously more efficient than simply letting university researchers try to ferret out the real issues and problems on their own. These two



**Biography:** Todd Allen obtained his Ph.D. in nuclear engineering from the University of Michigan. His background is in radiation effects and corrosion in nuclear systems. He is the Scientific Director of the Advanced Test Reactor National Scientific User Facility at the Idaho National Laboratory and an Associate Professor at the University of Wisconsin.

days may have saved months of work on the part of the participants. Workshops of this type and caliber should be the standard for how new research areas are launched and promoted.”

The Idaho National Laboratory is planning a similar seminar in 2011 on zirconium alloy performance in nuclear systems.

#### The following Reports by ANT International contain the information presented at the INL Seminar:

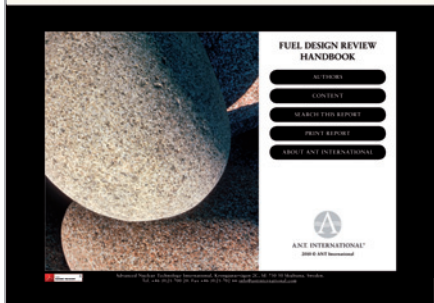
- Structural Material Degradation Report (SMDR)  
Dr. Peter Ford
- Environmentally-Assisted Degradation of Carbon and Low-Alloy Steels in Water Cooled Reactors (an LCC4 Special Topic Report)  
Dr. Peter Ford and Dr. Peter Scott
- Environmentally-Assisted Degradation of Stainless Steels in LWRs (EADS)  
Dr. Peter Ford, Dr. Peter Scott and Dr. Pierre Combrade

Read more about the International Network of Experts [here](#)

## NEW HANDBOOK

### Probably the most Comprehensive Report on Fuel Design Review ever Published

by Al Strasser and co-authors.



THE RELIABLE, SAFE and economical performance of nuclear fuel depends on its design, the processes used for its fabrication and the environment for its operation. Each of these three areas requires strict quality control (QC) and quality assurance (QA) to assure that those performance goals are achieved. The factors that control the quality are quite different in each of these areas, nevertheless they are interactive and the plant operator as well as the fuel vendor has to be aware of all of them. This Handbook provides a guide for reviewing and auditing the fuel design to assist in the assurance that it will perform its design functions adequately.

[Read more](#)

[Listen to what makes this Handbook unique](#)

# ANT International Presentation at NPC 2010 in Quebec City

ANT International and the Network of Experts has submitted the paper entitled: "ANT International Chemistry Update and best Practices" which has been selected for an oral presentation at the Nuclear Power Chemistry conference during October 3–7, 2010 in Quebec City, Canada. This paper will give the core conclusions of the detailed ANT International reports and results that have recently been gathered in the area of chemistry all over the world.

The LWR Chemistry and Component Integrity, LCC, Program run by ANT International has sponsored the paper that will be presented by Dr. Francis Nordmann.

His co-authors in this paper are: Dr. Suat Odar, Dr. Hartmut Venz, Dr. Jan Kysela, Dr. Wilfried Rühle and Dr. Rolf Riess.

Please take the opportunity to visit this valuable conference, to listen to the interesting International presentations (ANT International paper will be presented at session no 9) and posters. You will also be able to meet many experts including our two ANT International attendees, Dr. Nordmann and Dr Suat Odar.

More information about the Nuclear Power Chemistry conference can be obtained at: <http://npc2010.cns-snc.ca/>

*[Read the paper](#)*



## NETWORK CLOSE UP

### *Your name, title, where you live*

Hartmut Venz, Dr. rer. nat.; about nineteen years ago I moved from the northern part of Germany to Switzerland.

### *How did you get started as an engineer?*

I studied Chemistry at the University in Greifswald/Germany. Later I received my PhD in Dresden/Germany.

### *Your career history?*

After my studies I started my professional career as a chemist at the chemical industry in the former Eastern Germany in 1967. Three years later, January 1st 1970, I joined the Nuclear Power Plant Greifswald, working first as Head of the Hot Laboratory and later as Head of the Chemistry Department for all eight units of the power plant. The first unit of the NPP Greifswald went into operation in December 1973.

The first four years of site work during the construction and commissioning was very educative and informative for me. About two years of that time I spent in Germany's first commercial NPP Rheinsberg, that went into operation in May 1966. My job at Rheinsberg was Head of the Laboratory which included both hot and cold lab. During that time I learned a lot about nuclear power in general and especially in nuclear power chemistry.

During the 1970s, four of the at least five running units of NPP Greifswald went into operation. Unit 5 started in 1989 and three further units were under construction. Therefore, during my 22 years in Greifswald my work was consistently a mix of commissioning new units, safe operation of the running plants and training of new personnel. Some experiences in Greifswald have characterized my professional perception, like heavy fuel leakages, a major fire in the plant and a few steam generator leakages, but also tasks such as Full System Decontamination of the Primary Circuit and numerous decontaminations as well as chemical cleanings of all steam generators.

In the course of the reunification of Germany the decommissioning of all units in Greifswald was predictable.

Therefore I decided to join the NPP Beznau in Switzerland after receiving an offer in 1991. The following five years I was in charge of different projects in chemistry, radiation protection and treatment of radioactive wastes before I got the chance to become the head of the department dealing with Chemistry, Radiation Protection and Radwaste. Additionally I took over



## Hartmut Venz

the task as the Deputy of the Plant Manager in 2005 – about three years before my retirement.

A main focus of my work in Beznau was a continuous improvement of the collective and individual doses for example by optimization of the primary coolant chemistry and of the shutdown chemistry. For me a special concern was always a safe operation of the steam generators with the objectives to avoid corrosion damages as well as any chemical cleaning of the steam generators in the life-time of the plant. These objectives require a consistent minimization of the ingress of both corrosion products and pollutants into the secondary circuit and included thereby also a careful operation for the components of the water steam cycle.

### *How did you get introduced to ANT International and the LCC Program?*

I got some information about the LCC Seminars held by ANT International from some of my colleagues from other power plants as well as by letters from ANT International directly.

Since we hired new young engineers for generation replacement in Beznau; I thought these Seminars would be a suitable education for them. So we applied Beznau for LCC Membership and started attending with the ANT International LCC2 Seminar in 2007.

After the LCC3 Seminar in Malta I agreed with Peter Rudling to work for the ANT International LCC program after my retirement.

### *How has the field of water chemistry issues changed during your career?*

During the 40 years of my activities in the area of power plant chemistry, the issues in that field have changed a lot world-wide. Due to an inappropriate selection of materials and/or design it was necessary to perform a lot of decontamination and chemical cleaning in the 1970s and 80s. In the 90s several power plants started replacement programs, substituted unacceptable materials and improved the design. These measures enabled optimization of water chemistry which is a never ending process.

### *What do you foresee for the future in the nuclear industry and how does the LCC program fit in?*

In my opinion we are facing a renaissance of nuclear power and the number of new NPP will increase in the future. This demands a sufficient number of well-educated engineers in different areas of knowledge to construct, erect and operate the units. In the area of nuclear power plant chemistry, I think the LCC program can contribute a lot for the know-how transfer to the young generation.

### *How do you spend your leisure time?*

I prefer to spend my leisure time with my family. I enjoy traveling, swimming and visiting museums, theaters and operas but also important sight-seeing's in a lot of countries. At home, I like walking in the nature as well as gardening or reading historical books and maps and listen to folk and classical music.



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