

**Publications of H.P. Seifert, Dated August 2014.**

**Publications in PEER Reviewed Scientific Journals**

1. S. Roychowdhury, **H.P. Seifert**, P. Späti, S. Ritter, "Influence of Light Water Reactor Environment on the Fracture Behaviour of a Reactor Pressure Vessel Steel", submitted to Corrosion Science, August 2014.
2. **H.P. Seifert**, S. Ritter, H.J. Leber, S. Roychowdhury, "Stress corrosion cracking behaviour in the transition region of Alloy 182 / low-alloy reactor pressure vessel steel dissimilar metal weld joints in light water reactor environments", accepted for publication in Corrosion, 2014.
3. N. Ilchuck, P. Späti, **H.P. Seifert**, "Analytical determination of the constitutive behavior from micro-pillar testing: application to a tempered martensitic steel", AIP Advances, 4, 047126 (2014).
4. S. Ritter and **H.P. Seifert**, "Influence of Reference Electrode Distance and Hydrogen Content on the Electrochemical Potential Noise During SCC in High-Purity, High-Temperature Water", Corrosion Engineering Science and Technology, 2013, 48(3), pp. 199-206.
5. S. Ritter and **H.P. Seifert**, "Detection of SCC Initiation in Austenitic Stainless Steel by Electrochemical Noise Measurements", Materials and Corrosion, 2013, 64(8), pp. 683-690.
6. H.J. Leber, S. Ritter, and **H.P. Seifert**, "Thermo-Mechanical and Isothermal Low-Cycle Fatigue Behavior of 316l Stainless Steel in High-Temperature Water and Air", Corrosion, 2013, 69(11).
7. **H.P. Seifert**, S. Ritter, and H.J. Leber, "Corrosion Fatigue Initiation and Short Crack Growth Behaviour of Austenitic Stainless Steels under Light Water Reactor Conditions", *Corrosion Science*, 2012, 59, pp. 20-34.
8. **H.P. Seifert**, S. Ritter, and H.J. Leber, "Corrosion Fatigue Crack Growth Behaviour of Austenitic Stainless Steels under Light Water Reactor Conditions", *Corrosion Science*, 2012, 55, pp. 61-75.
9. M. Breimesser, S. Ritter, **H.-P. Seifert**, T. Suter, and S. Virtanen, "Application of Electrochemical Noise to Monitor Stress Corrosion Cracking of Stainless Steel in Tetrathionate Solution under Constant Load", *Corrosion Science*, 2012, 63, pp. 129-139.
10. M. Breimesser, S. Ritter, **H.P. Seifert**, S. Virtanen, and T. Suter, "Application of the Electrochemical Microcapillary Technique to Study Intergranular Stress Corrosion Cracking of Austenitic Stainless Steel on the Micrometre Scale", *Corrosion Science*, 2012, 55, pp. 126-132.
11. S. Ritter and **H.P. Seifert**, "Detection of Stress Corrosion Cracking in a Simulated BWR Environment by Combined Electrochemical Noise and Direct Current Potential Drop Measurements", *Energy Materials*, 2009, 3(2), p. 72 – 80.
12. **H.P. Seifert**, S. Ritter, "Stress Corrosion Cracking of Low-Alloy Reactor Pressure Vessel Steels under Boiling Water Reactor Conditions", Journal of Nuclear Materials, 372 (1), 2008, pp. 114 – 131.
13. S. Ritter, **H.P. Seifert**, "Effect of Corrosion Potential on the Corrosion Fatigue Crack Growth Behaviour of Low-Alloy Steels in High-Temperature Water", Journal of Nuclear Materials, 375 (1), 2008, pp. 72 – 79.
14. **H.P. Seifert**, S. Ritter, "Corrosion Fatigue Crack Growth Behaviour of Low-Alloy Reactor Pressure Vessel Steels under Boiling Water Reactor Conditions", Corrosion Science 50(7), 2008, pp. 1884 – 1899.
15. **H.P. Seifert**, S. Ritter, T. Shoji, Q.J. Peng, Y. Takeda, Z.P. Lu, "Environmentally-Assisted Cracking Behaviour in the Transition Region of an Alloy 182/SA 508 Cl.2 Dissimilar Metal

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- Weld Joint in Simulated Boiling Water Reactor Normal Water Chemistry Environment ", Journal of Nuclear Materials, 378(2), 2008, pp. 197 – 210.
- 16. **H.P. Seifert**, S. Ritter, "Strain-Induced Corrosion Cracking Behaviour of Low-Alloy Steels under Boiling Water Reactor Conditions", Journal of Nuclear Materials, 378(3), 2008, pp. 312 – 326.
  - 17. S. Ritter, **H.P. Seifert**, "Evaluation of the Mitigation Effect of Hydrogen Water Chemistry in BWRs on the Low-Frequency Corrosion Fatigue Crack Growth in Low-Alloy Steels", Journal of Nuclear Materials 2007 360(2), pp. 170 - 176.
  - 18. **H.P. Seifert**, S. Ritter, "The Role of Water Chemistry for Environmentally-Assisted Cracking in Low-Alloy Steel Primary Pressure Boundary Components of Boiling Water Reactors", Chimia, Special Issue "Chemistry and Materials in Nuclear Power Production" 2005 **59**(12), 2005.
  - 19. S. Ritter, **H.P. Seifert**, "Evaluation of the Mitigation Effect of Hydrogen Water Chemistry in BWRs on the Low-Frequency Corrosion Fatigue Crack Growth in Low-Alloy Steels", Journal of Nuclear Materials 2006 **360**(2), pp. 170 – 176, 2006.
  - 20. J. Hickling, **H.P. Seifert**, S. Ritter, "Research and Service Experience with Environmentally Assisted Cracking of Low-Alloy Steel", PowerPlant Chemistry 2005 **7**(1), ISSN 1438-5325, pp. 31 – 42, January 2005.
  - 21. S. Ritter, **H.P. Seifert**, "The Effect of Chloride and Sulfate Transients on the Stress Corrosion Cracking Behavior of Low-Alloy RPV Steels under Simulated BWR Environment", PowerPlant Chemistry 2004 **6**(12), ISSN 1438-5325, pp. 748 – 760, December 2004.
  - 22. **H.P. Seifert**, S. Ritter, J. Hickling, Research and Service Experience with Environmentally Assisted Cracking of Low-Alloy Steel Pressure-Boundary Components under LWR Conditions, Power Plant Chemistry, **6** (2004), pp. 111 – 123.
  - 23. S. Ritter, **H.P. Seifert**, Strain-Induced Corrosion Cracking of Low-Alloy RPV Steels under BWR Conditions, Power Plant Chemistry, **5** (2003), pp. 17 – 29.
  - 24. J. Heldt, **H.P. Seifert**, Stress Corrosion Cracking of Low-Alloy Reactor Pressure Vessel Steels in Oxygenated High-Temperature Water, Nuclear Engineering and Design, **206** (2001), pp. 57 – 89.
  - 25. S. Brosi, G. Duijvestijn, H. Hirschmann, B. S. Jäckel, K. Nakada, J. A. Patorski, R. Rösel, **H.P. Seifert** and Ph. Tipping, CORVIS. Investigation of Light Water Reactor Lower Head Failure Modes, Nuclear Engineering and Design, **168** (1997), pp. 77 - 104.
  - 26. K. Sasaki, **H.P. Seifert**, L.J. Gauckler, Electronic Conductivity of  $\text{In}_2\text{O}_3$  Solid Solutions with  $\text{ZrO}_2$ , Journal of the Electrochemical Society, **141** (1994), pp. 2759 – 2768.

## Publications in Books

- 27. **H.P. Seifert**, J. Hickling, and D. Lister, "5.06 - Corrosion and Environmentally-Assisted Cracking of Carbon and Low-Alloy Steels", in: *Comprehensive Nuclear Materials*, Editor R.J.M. Konings, Elsevier: Oxford, UK, ISBN: 978-0-08-056033-5, pp. 105-142, 2012.
- 28. S. Ritter and **H.P. Seifert**, "Detection of Stress Corrosion Cracking in a Simulated BWR Environment by Combined Electrochemical Potential Noise and Direct Current Potential Drop Measurements", in: *Corrosion Monitoring in Nuclear Systems: Research and Applications*, Editors: S. Ritter and A. Molander, EFC Publications, No. 56, Maney Publishing: London, UK, pp. 46 - 62, 2010.
- 29. S. Ritter, **H.P. Seifert**, "Chapter 10: The Effect of Sulphate and chloride Transients on the Environmentally-Assisted Cracking Behaviour of Low-Alloy RPV Steels under Simulated BWR Conditions", in "Corrosion Issues in Light Water Reactors: Stress Corrosion

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31. M. Ernestová, M. Žamboch, B. Devrient, U. Ehrnstedt, J. Föhl, D. Goméz-Briceño, J. Lapeña, A. Roth, T. Weissenberg, S. Ritter, **H.P. Seifert**, "Chapter 13: Crack Growth Behaviour of Low-Alloy Steels for Pressure Boundary Components under Transient Light Water Reactor Operating Conditions – CASTOC, Part 2: VVER Conditions", in "Corrosion Issues in Light Water Reactors: Stress Corrosion Cracking", Ed.: D. Féron, J.M. Olive, Woodhead Publishing Limited, EFC Publications No. 51, Cambridge, England, pp. 186 - 199, 2007.
32. S. Ritter, **H.P. Seifert**, "Chapter 15: Corrosion Fatigue Crack Growth Behaviour of Low-Alloy RPV Steels at Different Temperatures and Loading Frequencies under BWR/NWC Environment", in "Corrosion Issues in Light Water Reactors: Stress Corrosion Cracking", Ed.: D. Féron, J.M. Olive, Woodhead Publishing Limited, EFC Publications No. 51, Cambridge, England, pp. 211 - 230, 2007

## Keynote Lectures/Invited Talks at International Conferences

33. **H.P. Seifert and S. Ritter**, "Special Tutorial Session on EAC of Carbon & Low-Alloy Steel - Mechanistic Knowledge", in: *Annual Meeting of the International Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, Paper No. T03 (CD-ROM), Jeju Island, Korea, April 11 - 16, 2010.
34. **S. Ritter and H.P. Seifert**, "Special Tutorial Session on EAC of Carbon & Low-Alloy Steel - Experimental Background Knowledge", in: *Annual Meeting of the International Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, Paper No. T02 (CD-ROM), Jeju Island, Korea, April 11 - 16, 2010.
35. **H.P. Seifert, S. Ritter, and P. Scott**, "Environmentally-Assisted Cracking of Carbon & Low-Alloy Steels in High-Temperature Water", in: Quantitative Micro-Nano (QMN) Approach to Predicting SCC of Fe-Cr-Ni Alloys, Phenomenology Session, (CD-ROM), Sun Valley Resort, Idaho, USA, June 13 - 18, 2010
36. **H.P. Seifert**, S. Ritter, J. Hickling, Environmentally-Assisted Cracking of Low-Alloy RPV and Piping Steels under LWR Conditions, 11<sup>th</sup> Int. Conf. on Environmental Degradation of Materials in Nuclear Power Systems – Water Reactors, Invited Talk, CD-ROM, NACE/TMS/ANS, Stevenson, WA, USA, August 10 – 14, 2003.

## International Conferences with Proceedings

37. **H.P. Seifert**, S. Ritter, P. Späti, "Environmental-Assisted Fatigue in Austenitic Stainless Steels under Light Water Reactor Conditions, Proceedings of Fontevraud 8 - Contribution of Materials Investigations and Operating Experience to LWRs' Safety, Performance and Reliability, France, September 14 - 18, 2014.
38. S. Roychowdhury, **H.P. Seifert**, P. Späti, "Environmental effects on fracture behavior of a reactor pressure vessel steel", Proceedings of Fontevraud 8 - Contribution of Materials

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40. S. Ritter, **H.P. Seifert**, "Effect of chloride on EAC initiation of low-alloy steel in simulated BWR environment", in: Annual Meeting of the Int. Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials, Paper No. LAS (CD-ROM), Prague, Czech Republic, April 6 – 11, 2014.
41. **H.P. Seifert**, S. Ritter, H.J. Leber, and S. Roychowdhury, "SCC Behavior in the Transition Region of Alloy 182/Low-Alloy Reactor Pressure Vessel Steel Dissimilar Metal Weld Joints in Light Water Reactor Environments", in: 16th International Conference on Environmental Degradation of Materials in Nuclear Systems - Water Reactors, NACE/TMS/ANS, Paper No. ED2013-3155, Asheville, NC, USA, August 11-15, 2013.
42. **H.P. Seifert**, S. Ritter, H.J. Leber, and M. Schachermayer, "Environmental-Assisted Fatigue in Austenitic Stainless Steels under BWR/HWC & PWR Conditions", in: *Annual Meeting of the Int. Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, Paper No. AS14 (CD-ROM), Karuizawa, Japan, May 19-24, 2013.
43. **H.P. Seifert**, S. Ritter, and H.J. Leber, "SCC Behaviour in the Transition Region of Alloy 182/Low-Alloy Reactor Pressure Vessel Steel Dissimilar Metal Weld Joints in Light Water Reactor Environments", in: Annual Meeting of the Int. Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials, Paper No. W08 (CD-ROM), Karuizawa, Japan, May 19-24, 2013.
44. S. Ritter, P.V. Grundler, A. Ramar, L. Veleva, I. Günther-Leopold, and **H.P. Seifert**, "Pt Deposition Behaviour on Stainless Steel under BWR Conditions - Part I: Lab Results & Part II: Results from Specimens Exposed in KKL", in: Annual Meeting of the Int. Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials, Paper No. GP2 (CD-ROM), Karuizawa, Japan, May 19-24, 2013.
45. S. Ritter and **H.P. Seifert**, "Current Measurements During Scratching of Low-Alloy Steel in Simulated BWR Environment", in: Annual Meeting of the European Cooperative Group on Corrosion Monitoring of Nuclear Materials, WG1-3 (CD-ROM), Paris, France, June 10-11, 2013.
46. **H.P. Seifert**, S. Ritter, and H.J. Leber, "Effect of Load Ratio ("Mean Stress") on Corrosion Fatigue Initiation & Short Crack Growth from Sharply Notched Specimens in Austenitic SS under BWR/HWC Conditions", in: *Annual Meeting of the Int. Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, (CD-ROM), Quebec City, Canada, May 13-18, 2012.
47. S. Ritter and **H.P. Seifert**, "Effect of Chloride on EAC Initiation and Subsequent Crack Growth of Low-Alloy Steel in Simulated BWR Environment", in: *Annual Meeting of the Int. Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, (CD-ROM), Quebec City, Canada, May 13-18, 2012.
48. M. Breimesser, S. Ritter, **H.-P. Seifert**, T. Suter, and S. Virtanen, "Comparison of Micro- and Macroscopic Electrochemical Noise Measurements During SCC of Austenitic Stainless Steel", in: *10<sup>th</sup> Symp. on Electrochemical Methods in Corrosion Research*, Maragogi, AL, Brazil, November 18-23, 2012.
49. M. Breimesser, S. Ritter, and **H.P. Seifert**, "Comparison of Micro- and Macroscopic EN Measurements to Detect IG SCC in Austenitic Stainless Steel: Final Results", in: *Annual Meeting of the European Cooperative Group on Corrosion Monitoring of Nuclear Materials*, WG1-3 (CD-ROM), Petten, The Netherlands, June 18-19, 2012.

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51. **H.P. Seifert**, S. Ritter, and H.J. Leber, "Effect of Static Load Hold Periods on Corrosion Fatigue of Austenitic SS", in: *Annual Meeting of the International Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, F05 (CD-ROM), Dresden, Germany, May 8-13, 2011.
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54. M. Breimesser, S. Ritter, **H.P. Seifert**, T. Suter, and S. Virtanen, "IG SCC of Austenitic Steel: Characteristic Current Signals Measured by the Electrochemical Microcapillary Technique", in: *Annual Meeting of the European Cooperative Group on Corrosion Monitoring of Nuclear Materials*, WG1-4 (CD-ROM), Helsinki, Finland, June 20-21, 2011.
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56. **H.P. Seifert**, S. Ritter, and H.J. Leber, "Environmental Assisted Fatigue in Austenitic Stainless Steels under Light Water Reactor Conditions", in: *37<sup>th</sup> MPA-Seminar*, Paper No. 10 (CD-ROM), Stuttgart, Germany, October 6-7, 2011.
57. S. Ritter and **H.P. Seifert**, "Suitability of the Electrochemical Noise Technique for the Detection of SCC in Stainless Steel", in: *18<sup>th</sup> International Corrosion Congress*, ICC, 428, Perth, Australia, November 20-24, 2011.
58. S. Ritter and **H.P. Seifert**, "Environmentally-Assisted Crack Initiation Behaviour of Low-Alloy Steel in Simulated BWR Environment – Effect of Chloride", in: *18<sup>th</sup> International Corrosion Congress*, ICC, 429, Perth, Australia, November 20-24, 2011.
59. **H.P. Seifert** and S. Ritter, "Special Tutorial Session on EAC of Carbon & Low-Alloy Steel - Mechanistic Knowledge", in: *Annual Meeting of the International Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, Paper No. T03 (CD-ROM), Jeju Island, Korea, April 11 - 16, 2010.
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64. S. Ritter, **H.P. Seifert**, and H.J. Leber, "The Environmentally-Assisted Cracking Behaviour in the Transition Region of Nickel-Base Alloy/Low-Alloy Steel Dissimilar Metal Weld Joints under Simulated BWR Conditions", in: *Fontevraud 7*, SFEN, Paper No. A085-T04 (CD-ROM), Avignon, France, September 26 - 30, 2010.
65. H.J. Leber, **S. Ritter**, and H.P. Seifert, "Corrosion Fatigue Initiation Behaviour of Wrought Austenitic Stainless Pipe Steels under Simulated BWR/HWC and PWR Conditions", in: *Fontevraud 7*, SFEN, Paper No. A082-T03 (CD-ROM), Avignon, France, September 26 - 30, 2010.
66. **H.P. Seifert**, S. Ritter, and H.J. Leber, "Environmentally-Assisted Cracking Behaviour in the Transition Region of Alloy 182/Low-Alloy Reactor Pressure Vessel Steel Dissimilar Metal Weld Joints in Simulated Boiling Water Reactor Normal Water Chemistry Environment", in: *36<sup>th</sup> MPA-Seminar*, Paper No. 31, Stuttgart, Germany, October 7 - 8, 2010.
67. **H.P. Seifert**, S. Ritter, and P. Scott, "Environmentally-Assisted Cracking of Carbon & Low-Alloy Steels in High-Temperature Water", in: Quantitative Micro-Nano (QMN) Approach to Predicting SCC of Fe-Cr-Ni Alloys, Phenomenology Session, (CD-ROM), Sun Valley Resort, Idaho, USA, June 13 - 18, 2010
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69. **H.P. Seifert** and S. Ritter, "Corrosion Fatigue of Wrought Low-Carbon and Stabilized Austenitic Stainless Steels under LWR Conditions", in *Annual Meeting of the International Cooperative Group on Environmentally Assisted Cracking of Water Reactor Materials*, Paper No. AS-11 (CD-ROM), Boston, USA, April 19 - 24, 2009.
70. S. Ritter and **H.P. Seifert**, "Effect of RE Distance on the Potential Noise in High-Purity, High-Temperature Water", in *Annual Meeting of the European Cooperative Group on Corrosion Monitoring of Nuclear Materials*, Paper No. WG2-5 (CD-ROM), Cádiz, Spain, June 15 - 16, 2009.
71. S. Ritter and **H.P. Seifert**, "The Influence of Chloride Impurities on the SCC Crack Growth Behavior of Low-Alloy Reactor Pressure Vessel Steels under Simulated BWR Conditions", in *12<sup>th</sup> International Conference on Fracture*, Paper No. T32.009 (CD-ROM), Ottawa, Canada, July 12 - 17, 2009.
72. **H.P. Seifert**, S. Ritter, "Corrosion Fatigue of Austenitic Stainless Steels under LWR Conditions", 2008 Annual Meeting of the International Co-operative Group on Environmentally-Assisted Cracking of Water Reactor Materials, CD-ROM, , Båstad, Sweden, April 20 – 25, 2008.
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77. S. Ritter, **H.P. Seifert**, "Detection of SCC Initiation by EN Measurements in Thiosulphate Solution at Room Temperature", Minutes of 4th ECG-COMON Meeting, PSI, Switzerland, June 16 – 17, 2008.
78. **H.P. Seifert**, J. Hickling, A. Roth, "Crack Initiation Due to Environmentally Assisted Cracking in Carbon Steels and Low-Alloy Steels Exposed to High-Temperature Water - Part 1: Overview of Results from Laboratory Tests", Workshop on Detection, Avoidance, Mechanisms, Modeling, and Prediction of SCC Initiation in Water-Cooled Nuclear Reactor Plants, September 7 – 12, 2008, Beaune, Burgundy, France, CD-ROM.
79. A. Roth, **H.P. Seifert**, J. Hickling, „Crack Initiation Due to Environmentally Assisted Cracking in Carbon Steels and Low-Alloy Steels Exposed to High-Temperature Water - Part 2: Overview and Assessment of Operating Experience”, Workshop on Detection, Avoidance, Mechanisms, Modeling, and Prediction of SCC Initiation in Water-Cooled Nuclear Reactor Plants, September 7 – 12, 2008, Beaune, Burgundy, France, CD-ROM.
80. S. Ritter, **H.P. Seifert**, "Corrosion fatigue Crack Growth Behaviour of Austenitic Stainless Steels under Simulated LWR Conditions", 17th International Corrosion Congress, Corrosion Control in the Service of the Society, October 6 – 10, 2008, Las Vegas, Nevada, USA, CD-ROM.
81. S. Ritter, **H.P. Seifert**, "Detection of Stress Corrosion Cracking in Simulated BWR Environment by Combining the Electrochemical Noise and DCPD Technique", EUROCORR 2008, September 7 – 11, 2008, Edinburgh, UK, CD-ROM.
82. **H.P. Seifert**, S. Ritter, "Effect of Corrosion Potential on Corrosion Fatigue Crack Growth of Low-Alloy Steels in High-Temperature Water", 13<sup>th</sup> International Conference on Environmental Degradation of Materials in Nuclear Systems - Water Reactors, NACE/TMS/ANS, Paper No. 14, Whistler, B.C., Canada, August 19 - 24, 2007.
83. S. Ritter, **H.P. Seifert**, "Combination of EPN and DCPD Measurements under Simulated BWR Conditions - Preliminary Results", Annual Meeting of the European Cooperative Group on Corrosion Monitoring of Nuclear Materials, Paper No. WG2-4, Magdeburg, Germany, June 18 - 19, 2007.
84. **H.P. Seifert**, S. Ritter, "Corrosion Fatigue Crack Growth of Austenitic Stainless Steels under LWR Conditions", Annual Meeting of the International Co-operative Group on Environmentally-Assisted Cracking of Water Reactor Materials, Paper No. AS01 (CD-ROM), Taroko National Park, Taiwan, April 15 - 20, 2007.
85. **H.P. Seifert**, Y. Takeda, S. Ritter, T. Shoji, "EAC Crack Growth Behaviour in the Transition Region of an Alloy182/SA 508 Cl.2 Dissimilar Metal Weld Joint under Simulated BWR/NWC Conditions", Annual Meeting of the International Co-operative Group on Environmentally-Assisted Cracking of Water Reactor Materials, Paper No. L05 (CD-ROM), Taroko National Park, Taiwan, April 15 - 20, 2007.
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Plus more than 40 annual and final reports of various R & D (ENSI, BBW, EU, ...) or service projects (SKI, ENSI, HEW, KKG, ...)

Plus several strategy papers and documents for audits.