

	<b>In the Matter of:</b>	Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)
	<b>ASLBP #:</b>	07-858-03-LR-BD01
	<b>Docket #:</b>	05000247   05000286
	<b>Exhibit #:</b>	ENT000617-00-BD01
	<b>Admitted:</b>	11/5/2015
	<b>Rejected:</b>	
	<b>Other:</b>	
	<b>Identified:</b>	11/5/2015
	<b>Withdrawn:</b>	
	<b>Stricken:</b>	

**Timothy J. Griesbach**  
**Senior Associate**

## Education

M.S. Metallurgy and Materials Science, Case Western Reserve University (1974)

B.S. Metallurgy and Materials Science, Case Western Reserve University (1972)

## Professional Associations

American Nuclear Society, 1982 to present

American Society of Mechanical Engineers, 1982 to present

## Professional Experience

2006 - Present *Sr. Associate*, Structural Integrity Associates, Inc. Mr. Griesbach is assisting utilities on reactor vessel integrity issues, materials degradation management programs, PWR reactor vessel internals and plant operating issues.

1993 - 2005 *Director of Technical Services*, ATI Consulting. Mr. Griesbach is internationally known for his expertise in the areas of reactor vessel embrittlement and vessel integrity management. Activities at ATI included component life assessment, life attainment and aging management strategies, ASME Code and regulatory issues concerning reactor vessel integrity, application of advanced fracture mechanics methods, utility cost control, and technical/management decision-making for long-term component life.

1982 - 1993 *Manager, Component Reliability Program*, Electric Power Research Institute (1985 - 1993). Directed major research initiative to develop remedial measures for managing reactor vessel embrittlement. Managed program to develop the on-line fatigue usage monitoring system for critical reactor system components.

*Project Manager, Nuclear Safety Analysis Center* (1982 to 1985). Developed methodologies to resolve generic safety issues including pressurized thermal shock, BWR pipe cracking, steam generator tube cracking, and containment integrity.

1977 - 1982 *Principal Engineer, Nuclear Plant Engineering*, Combustion Engineering, Inc. Evaluated Response to NSSS components to severe thermal, pressure and dynamic loads.

1974 - 1977 *Materials Engineer, Materials Engineering and Research Laboratory*, Pratt and Whitney Aircraft. Developed diffusion bonding process for fabrication of jet turbine blades.

## **Related Experience**

Chairman, ASME Section XI Working Group on Operating Plant Criteria, 1984 to present.  
Loaned employee to Commonwealth Edison, PWR Plant Engineering group, 1988.  
Participant, US/USSR Cooperative Program on Vessel Thermal Annealing, 1990 to 1993.  
Consultant to IAEA on Vessel Embrittlement and Materials Degradation, 1990 to 1996.  
Key Contributor to EPRI MRP Reactor Internals Issues Task Group, 2000 – 2015.

## **Summary**

Mr. Griesbach has over 35 years of experience in materials behavior and structural integrity of major nuclear components. He specializes in technical consulting utilizing state-of-the-art technologies for mitigating and resolving material degradation concerns in nuclear reactor vessels, internals, piping, and other major components. Key accomplishments include:

- In charge of numerous EPRI projects to develop tools for managing aging effects such as fatigue and reactor vessel embrittlement in nuclear pressure vessels.
- Authored many reports and technical papers on maintaining structural integrity of nuclear plant components, materials toughness and embrittlement prediction models, databases for monitoring vessel material properties, and strategic planning for license renewal.
- Interfaced with utilities, NEI, and NRC to resolve critical industry issues such as Pressurized Thermal Shock in PWRs and Integrated Surveillance Programs for BWRs
- Project team leader for successful competitive bids on major industry projects for reactor vessel thermal annealing, PWR internals aging management for license renewal, BWRVIP Integrated Surveillance Program, and probabilistic methods for developing operating P-T limit curves.
- Conducted workshops and utility training classes for managing reactor vessel integrity, nuclear plant surveillance programs, fracture mechanics for nuclear applications, and calculating plant operating P-T limits.
- Participated in strategic planning sessions, and developed technical justifications for resolving key plant issues at Calvert Cliffs 1&2, H. B. Robinson 2, Kewaunee, Beaver Valley 1, D. C. Cook 1&2, McGuire 1&2, Catawba 1&2, and Farley Unit 2.
- Part of the team that developed industry strategic plan for aging management of PWR vessel internals under the EPRI Materials Reliability Program.
- Member of the ASME Section XI Standards Committee.

## **Selected Publications**

1. B. Chexal, J. Chao, R. Nickell, T. Griesbach, “*Simple Mixing Model for Pressurized Thermal Shock Applications*,” Nuclear Engineering and Design, Volume 74, Issue 2, February 1983. pp 193–197.

2. Griesbach, T. J., Riccardella, P. C., and Gosselin, S. R., “*Application of Fatigue Monitoring to the Evaluation of Pressurizer Surge Lines*,” Nuclear Engineering and Design, Vol. 129, Issue 2, August 1991. pp 163–176.
3. T. J. Griesbach, “*Dynamic Elastic-Plastic Behavior of Circumferential Cracks in a Pipe Subject to Seismic Loading Conditions*,” Journal of Pressure Vessel Technology, Vol. 105, No. 1, February 1983. pp 63-72.
4. Timothy J. Griesbach, Dilip Dedhia, David O. Harris, Nathaniel G. Cofie, Kyle Amberge and Aparna Alleshwaram, “*The Influence of Flow Strength and Fracture Toughness on the Computed Reliability of Thermally Aged Grade CF-8M Cast Austenitic Stainless Steel Piping*,” ASME 2014 Pressure Vessels and Piping Conference, Paper No. PVP2014-28089, Anaheim, CA (2014).
5. H. S. Mehta, G. L. Stevens; D. V. Sommerville; M. Benson; M. Kirk, T. J. Griesbach, and J. Kusnick, “*Treatment of Stresses Exceeding Material Yield Strength in ASME Code Section XI Appendix G Fracture Toughness Evaluations*,” ASME 2014 Pressure Vessels and Piping Conference, Paper No. PVP2014-28397, Anaheim, CA (2014).
6. G. R. Odette, G. E. Lucas, and T. Griesbach, “*The Effect of Irradiation and Aging on Pressure Vessel Steel Embrittlement*,” Proceedings of the International Conference on Nuclear Plant Aging, Availability Factor, and Reliability Analysis, San Diego, CA, July 7, 1985, American Society for Metals, (1986). p. 375
7. T. J. Griesbach and B. M. Gordon, “*Materials Aging Management Programs at Nuclear Power Plants in the United States*, IAEA 2<sup>nd</sup> International Symposium on Nuclear Power Plant Life Management, October, 2007, Shanghai, China.
8. Griesbach, T. J., Licina, G. J., and Riccardella, P. C., “*A Probabilistic Approach to Baffle Bolt IASCC Predictions*,” 3<sup>rd</sup> International Conference on Nuclear Power Plant Life Management (PLiM) for Long Term Operations (LTO), May, 2012, Salt Lake City, Utah, USA.
9. Riccardella, P. C., Deardorff, A. F., and Griesbach, T. J., “*Fatigue Lifetime Monitoring in Power Plants*,” Proceedings of the Conference on Advances in Fatigue Lifetime Predictive Techniques,” San Francisco, CA, April 24, 1990, pp 460 – 473. International Journal of Fatigue, 12 (1), 65 (1993).
10. Kuo, A.-Y., Riccardella, P. C., and Griesbach, T. J., “*Development and Usage of P-T Calculator a PC-Based Computer Program for Constructing P-T Limit Curves*,” Proceedings of a Pressure Vessel and Piping Conference, Vol. 195: ASME, New York (1990). pp 141-148.
11. Griesbach, T. J., Nickell, R. E., Tang, H. T., and Gilreath, J. D., “*Aging Management Strategies for Pressurized Water Reactor Vessel Internals*,” ASME/JSME Pressure Vessels and Piping Conference, Paper No. PVP2004-3055, July 2004. pp. 37 – 41.

12. Ayres, D. J., and Griesbach, T. J., “*Opening and Extension of Circumferential Cracks in a Pipe Subject to Dynamic Loads*,” Paper F5/1, Structural Mechanics in Reactor Technology, SMiRT-5, Berlin, Germany, (1979).
13. Pavinich, W. A., Server, W. L., and Griesbach, T. J., “*Radiation Embrittlement Mechanistic Modeling*,” *Appl. Mech. Rev.*, Vol. 46, No. 5, (1993). pp 161 – 170.
14. Griesbach, T. J., and Server, W. L., “A Consideration of Scatter in Radiation Damage Trend Curves for Reactor Pressure Vessel Steel Plate,” *Effects of Radiation on Materials: 18<sup>th</sup> International Symposium, ASTM STP 1325*, R. K. Nanstad, M. L. Hamilton, F. A. Garner, and A. S. Kumar, Eds., American Society for Testing and Materials, (1999). pp 500 – 507.
15. Pavinich, W. A., Server, W. L., and Griesbach, T. J., “*An Overview of Radiation Embrittlement Modeling for Reactor Vessel Steels*,” *Radiation Embrittlement of Nuclear Reactor Pressure Vessel Steels: An International Review (Fourth Volume)*, ASTM STP 1170, L. E. Steele, Ed., American Society for Testing and Materials, (1993). pp 99 – 117.