

**Iwan J.W.R.J. van Beurden**  
**Senior Safety Engineer, exida.com L.L.C.**  
**CFSE**

### Fields of Competence

Reliability Engineering  
Safety Integrity Level verification  
Field Failure Research  
Failure Modes Effects and Diagnostics Analysis  
Functional Safety Training

### Experience Summary

**Iwan van Beurden** has over 7 years of professional experience. He currently is a Senior Safety Engineer with exida where he performs Failure Modes, Effects, and Diagnostic Analyses, a variety of reliability analyses and SIL verifications. He also performs process gap analyses to determine the level of effort companies need to undertake for compliance with IEC 61508. He gives training for exida and is also an ISA instructor. Iwan is responsible for the development and maintenance of exida's automated tools like the Project Manager Suite of online Safety Lifecycle tools, integrating SILect for SIL selection, SRS for Safety Requirements Specification, and SILver for SIL verification. Iwan previously worked for Yokogawa Industrial Safety Systems in Apeldoorn, the Netherlands. He worked both in the R&D and in the Operations department as a Safety Assessment specialist. He was involved with the implementation of IEC 61508 within Yokogawa Industrial Safety Systems dealing with SIS reliability calculations and the safety education of engineers. Iwan is a member of ISA. He has published several papers and magazine articles. Iwan is a Certified Functional Safety Expert. He holds a master of science degree from Eindhoven University of Technology in Eindhoven, the Netherlands, where he majored in reliability engineering and graduated cum laude.

### Credentials

M.Sc., Mechanical Engineering, Eindhoven University of Technology, Eindhoven, the Netherlands 1998.  
CFSE, Certified Functional Safety Expert, 2003.

### Key Assignments

Responsible for the development and maintenance of exida's automated tools.

Provide manufacturer support to achieve IEC 61508 development process and product certifications.

Co-author of the exida Safety Equipment Reliability Handbook.

Project manager for the development of the exida Project Manager Suite of online Safety Lifecycle tools, integrating SILect for SIL selection, SRS for Safety Requirements Specification, and SILver for SIL verification. This project included managing and co-developing all aspects of the online tool like specifying the Markov model based calculation engine for the SIL verification tool, specifying the LOPA based calculation engine for the SIL selection tool, creating the web-page interactivity as well as the graphical user-interface.

Assisted in the development of the exida equipment database. This database linked to the SILver tool holds reliability data for a number of Safety Instrumented Function components.

Safety Integrity Level verification of complex voting logic. This project included the development of a custom Markov model for the complex voting logic in combination with verifying the voting logic against international standards.

Failure Modes, Effects, and Diagnostic Analysis of various types of equipment. The tasks involved are part of exida's certification assistance. Various FMEDA reports have been published.

Training instructor for various courses. This includes exida courses as well as ISA courses.

### Key Assignments - Continued

Safety Integrity Level verification of several safety instrumented systems. These tasks concerned various projects as part of a safety assessment specialist function at Yokogawa Industrial Safety Systems.

Implementing, developing, and teaching of IEC61508 training courses at Yokogawa Industrial Safety Systems. The training courses were given at various YISS Centers of Excellence as well as on customer sites.

Development of a RIFIT (Random Intelligent Failure Injection Technique) simulation tool used to evaluate safety systems under design at Yokogawa Industrial Safety Systems. This project included all aspects of the RIFIT tool including user-interface and calculation engine.

Field failure research of Quadlog modules at Moore Products Co. as part of a practical training. The research included reviewing the field returns and reporting on failed component statistics.

### Affiliations

The Instrumentation, Systems, and Automation society, member.

### Selected Publications

#### Magazine Articles

*Safety Integrity Level verification – a PFD average calculation is not enough*, Hydrocarbon Processing, October 2001.

*How to Justify the cost of Safety*, Control Solutions, February 2002.

*Emergency batch landing*, InTech, August 2002.

#### Technical Papers

*Using a General Purpose (Hot-Standby) PLC in Safety*, presented at ISA 2003, Technical Papers Collection ISA volume 439, 21-23 October 2003, Houston, Texas, USA. Co-Author: Mike Scott, Rachel Amkreutz

*What's the Safety Integrity Level of My Existing Burner Management System?*, presented at ISA 2003, Technical Papers Collection ISA volume 439, 21-23 October 2003, Houston, Texas, USA. Co-Author: Mike Scott.

*Integrated Safety Life Cycle Tools to increase the efficiency of new standards implementation*, presented at ISA 2002, Technology Updated ISA volume 424, 21-24 October 2002, Chicago, Illinois, USA.

*Selection of Failure Rate Data for SIL Verification*, presented at ISA 2002, Technology Updated ISA volume 424, 21-24 October 2002, Chicago, Illinois, USA. Co-Author: Rachel Amkreutz

*The Use of Markov Models in SIL verification*, presented at Safety Instrumented Systems for the Process Industry, ISA Technical Conference, ISA volume 430, 14-16 May 2002, Baltimore, Maryland, USA.

*Risk-Based Instrumented Safeguard Design*, presented at 2002 Spring National Meeting AIChE Refining processing – Application of Control in Refining, 10-14 March 2002, New Orleans, LA, USA. Co-Author: E.M. Marszal.

*Safety Integrity Level VERification*, presented at ISA 2001, Technology update ISA volume 414, 10-13 September 2001, Houston, Texas, USA.

*Safety in Batch Production Techniques*, presented at ISA 2001, Technology update ISA volume 414, 10-13 September 2001, Houston, Texas, USA. Co-Author: Rachel Amkreutz

*RIFIT: analyzing hardware and software in safeguarding systems*, published in Reliability Engineering & System Safety magazine, #66 1999, Elsevier Science Ltd. Co-Author: A.C. Brombacher.

*Using Stress-Strength Simulations to Characterize Common Cause*, presented at PSAM98. Proceedings of the 4th international conference on Probabilistic Safety Assessment and Management, 13-18 September 1998, New York City, USA. Co-Author: W.M. Goble.