



# PII NEWSLETTER

A Quarterly Publication of Performance Improvement International

*Re-defining the quality standard by reducing errors to near zero, in the Error-Free Zone®.*

## The Vision

PII’s ultimate vision is a world where there are no preventable mishaps - and with Error-Free® Technology - the highest level of performance and quality can be achieved by eliminating all possible errors, in the Error-Free Zone®.

PII’s Error-Free® Predictive Methodology and Software revolutionizes the quality standard, where companies can avoid all costly consequences of unexpected operating events, and individuals can rid their fears of unexpected injuries.

## Error-Free® Tip

Did you know that error rate increases in March for about 2-4 days after daylight savings time change?

## Inside this Issue

- ✦ PII at Exelon..... 1
- ✦ KALE™ 1.4.1 Update.... 2
- ✦ PII at Entergy..... 4
- ✦ Q4 2015 Highlights..... 5



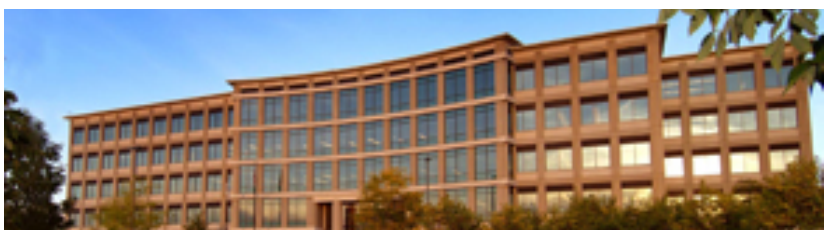
Exelon Headquarters, Kennett Square, PA

## PII at Exelon Generation

“By far the best training I have received”.

- Trainee, Exelon

Exelon Generation, America’s leading provider of zero-carbon nuclear energy, partnered with PII for a 4-class Error-Free® Equipment Troubleshooting and Equipment Failure Mode Training Pilot Program. All five-day classes were held at Exelon Generation facilities at Cordova, Illinois, Kennett Square, Pennsylvania, and Wilmington, Illinois; led by Dr. Chong Chiu, Ph.D., founder of PII and ANS fellow. Each class of 20 participants included selected Exelon site troubleshooters with





## KALE™ 1.4.1 Release Update!

“KALE™ is great!” - William Clark, Engineer, Exelon

KALE™ is an Error-Free® Intelligence Software that empowers engineering and maintenance staff to not only troubleshoot existing problems, but also to calculate error probability and mitigate risk through a patented predictive technology. This software will help achieve the highest level of quality by eliminating all possible errors, guiding each company into the Error-Free Zone®.

What’s new in KALE™:

- PDF download and printing
- New Company Manager Tools
- KALE™ Glossary Tool: instant reference in each module
- Server upgrades for a faster user experience
- Notification Center for report sharing and other updates

all levels of experience across many locations; including Byron, Calvert Cliffs, Ginna, Limerick, Nine Mile Point, Oyster Creek, Peach Bottom, and Nuclear Corporate.

This technical training course is built on the experience of 100% successes of more than 5,000 field troubleshooting cases on various types of complex equipment (e.g. control system failures, motor failures, pump failures, generator failures, relay and breaker failures, transistor failures, etc...). When a piece of critical electrical or mechanical equipment fails, PII stresses the importance to troubleshoot and identify which component(s) are responsible for the failure in a timely fashion. After identification; replacement, repair, or other corrective actions of the problematic component should be performed immediately to avoid forced outages, powerless, or manufacture downtime. In order to quickly and efficiently perform these actions, PII taught Exelon site troubleshooters how to apply a Systematic Integrated Troubleshooting (SIT) process and organization.

“Provided a clear systematic approach to troubleshooting and a wide variety of common failure modes.”

- J. Fogarty, Branch Manager, Exelon

### Error-Free Equipment Troubleshooting and Equipment Failure Mode Training



#### Organizational Effectiveness & Talent Management

The Error-Free Equipment Troubleshooting and Equipment Failure Mode Training course was held at Kennett Square in November. The training was developed for identified site troubleshooters to learn a systematic troubleshooting process that will enable confident failure cause determinations. This is targeted for engineers designated to become experts in equipment troubleshooting.

Participants in this session included engineers from Byron, Calvert Cliffs, Ginna, Limerick, Nine Mile Point, Oyster Creek, Peach Bottom and Nuclear corporate.

This session was led by Dr. Chong Chiu, the founder of PII. He founded PII in 1987, with a sole mission to advance technology in preventing equipment failures and human errors. Since 1990, PII has been one of the major catalysts in starting the human error reduction and equipment failure reduction programs in the nuclear industry. PII’s current endeavors focus on establishing “Error Free Zones” and “Failure-Free Zones” for its clients.

Exelon Newsletter on PII Training

While PII teaches a systematic approach that can be applied to many different situations, PII customized and tailored this program to cover Exelon-specific cases and top 10 components so troubleshooters can easily apply methodologies and lessons learned immediately and effectively.

This 5-day class, covers a thorough look at troubleshooting and mechanical/electrical failure modes, including:

- Systematic Integration Troubleshooting (SIT) process and organization
- Data collection methods
- Failure initiation time analysis
- Symptom characterization analysis
- Failure mode characterization
- Failure mode refuting analysis
- In-depth look at electrical and mechanical failure mode case studies



Exelon Generation Headquarters, Kennett Square, PA

Through a mix of lecture, group discussions, and a collaborative look at failure mode case studies, Exelon trainees learned how to approach troubleshooting confidently diagnosing failure causes and preventing future errors; a very important step to working towards an Error-Free Zone®.

### *What Exelon Generation is saying about PII*

“The simple but comprehensive methodology that can be applied to any issue, regardless of the issue type or severity. The book also provides an excellent reference for failure modes.”

- C. Johnson, Engineer, Exelon

“Linking failure modes to specific events makes this approach more memorable and applicable.”

- J. Hopson, Engineer, Exelon

“Short, successful, accurate means of performing troubleshooting error free.”

- J. Koroglu, Engineer, Exelon

“This training has tremendously exceeded my expectations. I would highly recommend this training to anyone working at a power plant.”

- R. Wade, Engineer, Exelon

### *Error-Free® Troubleshooting & Failure Modes Course*

For more information on this course, please visit [PIIOnline.com](http://PIIOnline.com) or contact us at [info@piionline.com](mailto:info@piionline.com)

# PII at Entergy Nuclear, River Bend Station

“Before there was no guide, training, or method to our reviews. This provides our brains a thought process and road map.”

- R. Barrios, Design Engineer, Entergy

Entergy Corporation, an energy company with one of the nation’s leading nuclear generators, partners with PII to teach Entergy engineers how to become an effective Error-Free® Reviewer.

This two-day intensive and comprehensive training course was held at River Bend Nuclear Station in St. Francisville, Louisiana for a class of engineers with all levels of experience. Led by Dr. Andrew C. Kadak, Ph.D. and Training Director, Michelle Chen.

This course used a combination of lecture, group discussions, an interactive look at case studies, and KALE™ Error-Free® Intelligence Software to teach students how to:

1. Understand the behaviors and mindset of an Error-Free® Reviewer, by learning various error traps, Event Probability Model, and appropriate behaviors for Time Pressure Management

2. Learn the best Error-Free® Reviewer Tools, such as methods to predict engineering project failure rates and techniques for reviewing information quality.

3. Deploy an Error-Free® Review System, a systematic, efficient, and effective 3-Pass Review method to detecting engineering errors.

With PII’s proprietary Error-Free® integrated software, KALE™, instructors and students used the 3-Pass Review module to assist in interactive case studies and



PII Error-Free® Reviewer certified Entergy Trainees

discussion. This module allows engineers to quickly and effortlessly deploy Error-Free® methodologies, such as FUSE™ Matrix, QV&V™, and OAR-Pass™, during the review process; instantly building a complete review report upon completing the module. This software provides engineers with the most cost-effective tool to perform reviews with an error rate of near zero.



Entergy Nuclear, River Bend Station

### *What Entergy is saying about PII*

“Revolutionary approach that can exponentially improve work quality and increase knowledge.”

- S. Kulkarni, System Engineer, Entergy

“This method causes me to step out of the “groupthink”. Makes me think of what is needed before I begin my review.”

- A. Coates, Design Engineer, Entergy

### *More about the Error-Free® Reviewer Course*

PII’s Error-Free® Reviewer Course was initiated from industry failures such as SONGS, DC Cook, and Crystal River where PII was the lead investigating team. PII’s reviewer training covers all findings from these events and provides an all-inclusive review structure to prevent errors from happening. Before training, PII found that 80% of errors are not caught; yet, after training, 95% of errors are caught. The goal of this course is to reduce “enterprise waste” that is caused by reviewer errors.

Every engineering failure (engineering project problems, incorrect root cause analysis, troubleshooting etc...) has a companion review failure. PII research found that improving engineering review effectiveness is the most cost-effective way to improve the overall quality of the engineering product. Engineering reviewers are experts of engineering errors, not subject-matter technical experts. They set out to find errors, not to compete with the engineering document preparers on technical expertise.

This training course is designed to reduce engineering product failure rates by a factor 10 or more. This training is a low cost investment to ensure the high quality of engineering products, which include engineering design, analysis, calculations, and projects. Engineering reviewers will learn all human error traps and characteristics, methods to predicting engineering project failure rates before they review, potential problematic areas demanding review attention, and how to implement the 3-Pass Review.

For more information regarding this course, please visit [PIIOnline.com](http://PIIOnline.com) or contact us at [info@piionline.com](mailto:info@piionline.com).

## Q4 2015 Highlights

### PII at CNPEC

Chinese Nuclear Power Energy Company (CNPEC) asked PII to hold the following courses:

- Error-Free® Engineer
- Error-Free® Supervisor
- LOP Management Training
- Job Observation Training



CNPEC Trainee Class with Trainers Hayes Cheung and Michelle Chen

### PII at DNMC

After an Error-Free® Assessment for Design Modification was performed by PII, Daya Bay Nuclear Operations and Management Co., Ltd. (DNMC) and PII launched a 3 year Error-Free® Pilot Program from 2014-2016 with continual, periodic courses covering:

- Error-Free® Engineer
- Error-Free® Reviewer
- Job Observation Training
- Equipment Troubleshooting

# Contact Us

Performance Improvement International, LLC  
462 Stevens Ave, Suite 306  
Solana Beach, CA 92075  
(760) 722-0202  
[info@piionline.com](mailto:info@piionline.com)

