



TRAINING PITFALLS

Common Pitfalls of Training Programs at US Nuclear Power Plants: An Alternative Perspective

Excerpts from the 2006 MANTAG Instructor Workshop, June 7, 2006, Gettysburg, PA

By Frank Tsakeres, NWI

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Nuclear Power Training programs occasionally en-

counter a "bump" in the road from time to time creating a serious challenge to continued accreditation renewal. But...are these really "bumps" or have issues been festering for years just to have them surface at an "inopportune" time...perhaps during an Accreditation Training Visit (ATV)? Experience has shown that accreditation challenges can be attributed to several factors including; absence of or just plain weak change management (e.g., experienced instructors or key managers leave the department, new programmatic modifications to procedures and/or policies, key leadership changes in training, line or senior management, etc.),

non-critical self-assessments, documentation-only effectiveness reviews, disinterest in using training as a key performance improvement change agent, and/or disengagement by line and/or training personnel, just to name a few. The key is recognizing the behaviors, adverse conditions, or broad breadth changes that can significantly affect the programmatic "health" of your training program...before the "bumps" change your entire professional life.

So...what is the "alternative perspective?" Really, there's nothing new in terms of pitfalls. It's the same old thing! Why does training program health continually cycle from good to poor performance? Training processes can be quite complicated and with human intervention and varying degrees of implementation, over time train-

ing programs can degrade...Just like the "boiled frog" that is put into a mild temperature water bath that is slowly raised to the level of boiling ultimately killing the frog. If you had put the frog into boiling water from the onset, the frog would have certainly jumped out...recognizing the abrupt change in temperature. This is analogous to our training programs which can recognize severe issues (e.g. NRC exam failures) due to the clear outward consequence. But the key is recognizing and acting on transition or change elements in enough time before the severe outcomes occur...that is the trick!

One of the toughest challenges for nuclear management is to identify change elements that may significantly affect the health of a



ILT THROUGHPUT - CAN YOU CONTINUE TO AFFORD TO SPEND \$330K WITHOUT A RETURN?

By Frank Tsakeres, NWI

How often do you think about spending \$300,000.00 on an investment and getting nothing in return? This is basically what has been happening across our nation's nuclear utilities when an initial reactor operator license candidate "washes out" of initial license training (ILT). This can be for all sorts of good reason's... but the bottom line is the same; ZERO ROI (return on invest-

ment). Since "good people" are put into ILT class, it can't be the people...so therefore it must be the instruction? Or is it. Could it be the candidates skills, abilities and /or situational awareness potential.

The NWI Throughput Assessment Center is a program that applies a rigorous and objective performance analyses of potential licensed opera-

tor (ILT) candidates. This decision-making tool is designed using a three phase approach;

- Fundamental Knowledge Spectrum (Basic Math and Science)
- Technical Knowledge Inter-relationships (Comprehension)



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training program one or two years down the road. Since training health is a leading indicator, accreditation challenging issues/findings may not be realized until the current management team moves on to other assignments. Therefore, the absence of, or weak change management will be realized sometime years from the actual change...well after the historical perspective is lost, causing a substantial recovery effort creating unplanned expenditures, resources, and in some cases personnel casualties. Some change elements typically not recognized include; experienced instructors and/or key managers leave the department; key revisions or new procedures and/or policies; key leadership changes in training creating a new direction (i.e., line, training and/or senior management). Sometimes, several changes of these types of changes occur at the same time complicating an already challenging transition that threatens the very foundation of the training program. Timing is everything!

Another contributor to training program health is weak self-assessments (SA). Too often, SA's are narrowly scoped with key objectives/criteria not fully explored. Why does this happen? Usually, last minute planning affects the scope identified for the SA as well as choosing the incorrect topical targets (e.g., usually based upon a limited review of training program historical performance) and/or limiting outside perspectives by starting with an unbalanced SA team (or even possibly a team of 1). When the corrective action program (CAP) input is limited (e.g., training issues are not including in CAP for disposition), senior management may remain unaware of significant "sleeping" issues.

A part of most CAP programs are effectiveness reviews (ER), checking

Where have all the Instructors Gone....

By Bill Hensley, NWI

The NWI Services team is currently administering a unique approach to SRO Instructor Certification. For many years we have taken a new instructor and either gave them 90 days to self study or enrolled them into a 26 week turbo certification program or just enrolled them into an upcoming Initial License Class as an SRO and prayed that in a year and a half they would be successful. The later approach seemed to get good technical results. But soon thereafter, they were recruited into operations to support critical staffing issues and the resource was no longer available to training.

What we have done at Quad Cities is partner with Exelon and INPO to

build a program that will give the candidates SRO knowledge and skill but also prepare them for instructional duties when the 40 week course is complete. INPO had a need to develop 3 future BWR team managers. In partnership with Exelon and NWI, critical portions of the instructors certification course were selected for attendance and satisfactory evaluation results. The INPO and Exelon candidates receive the same instruction and evaluation tools and work with NWI on this win-win scenario.

This model can only be effective if you have the right staff for the right time. During the fundamentals phase Rob Brixey and Ken Gerling successfully lead the team with an

overall class average of > 95%. The final examination (most recent NRC GFE exam) average including instructors and INPO was 93.8%. With the team currently finishing week 4 of 19 weeks of plant systems, the team consists of again Rob Brixey and Henry Joyce. This combination of many years of plant experience has proven to be extremely beneficial in basically teaching Initial License Training level plant systems with ONLY 2 instructors.

This instructional system is a product of Roger Armitage (Training Director) and Dan Snook (Operations Training Manager) along with Bill Hensley. The model was designed to follow a current



ILT THROUGHPUT - CAN YOU CONTINUE TO AFFORD TO SPEND \$330K WITHOUT A RETURN? (CONTINUED FROM PAGE 1)

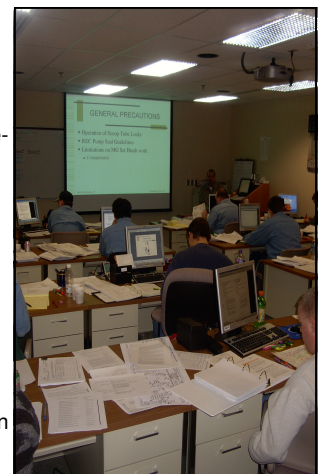
- Situational Awareness.

It is conducted as a 2 day assessment with a confidential candidate performance profile identifying the resultant testing outcome including recommendations for ILT class entry.

Most utilities test for basic mathematics and science abilities with test batteries...so does NWI. In addition, a comprehension evaluation is used to ensure successful

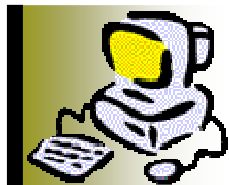
short-term understanding (reading and understanding ability). In addition, NWI has added a unique feature, situational awareness, to assist in predicting ILT candidate performance. The situational awareness tool is used to evaluate the candidates' decision-making abilities in a non-linear timed interactive environment. With a non-traditional keyboard, the computer skills of the candidate is taken out of the equation. There are parallels to the control room environment

including complex and vigilant monitoring of multiple indications, distractions (bonus activities to secure points with varying worths) like procedural/surveillance activities on shift, short term memory tests (tracking paths analogous to system flow paths) and visual recognition of changing/developing abnormalities. Scoring is based upon the candidate's ability to successfully predict an outcome in a timely fashion (points awarded based on recognition time and successful prediction deci-



CBT = FLEXIBILITY

By Frank Tsakeres, Ph.D., NWI Consultant



Computer-Based Training or CBT has adds a unique dimension to a

training program; FLEXIBILITY! Trying to coordinate schedules of numerous students spread over a wide region of the country has its frustrating challenges. That is why Exelon's Reactor Services has chosen NWI to develop and implement a CBT-based training program for its reactor services technicians and supervisors. The reactor services technicians support Exelon regional outages sometimes at the same plant site but normally at numerous stations during the same or nearly

the same timeframes. This fact makes it difficult for their supervisors and trainers to schedule classroom and OJT activities when typically their personnel are spread hundreds of miles apart. For Dry Cask Storage, a combined training program is being converted to a CBT-based system by NWI. Dry Cask Storage is the temporary storage of spent fuel in helium-cooled concrete overpacks until a final storage location is built and fully functional (see Yucca Mountain Project at <http://www.ocrwm.doe.gov> for further information on this subject). Project team leader Steve Pettinger is taking this training program input and with a very talented team con-

sisting of Bill McNeill, Ken Gerling, and Karen Pettinger, is fashioning a completely interactive training program. This CBT is being designed not just a page turner but a "smart" system, fully interactive geared toward the learners knowledge (for requal) with exams and feedback built in. Ultimately, reactor services technicians will be able to access this training system 24 hours per day 7 days per week on their company's wide area network. Now that is FLEXIBILITY. So, wherever these students are supporting outages or fuel pool cleanup projects, or dry cask storage campaigns, their training activities are but as close as their accessible company computer.

Where have all the Instructors Gone....

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Initial License Training Class by 3 weeks. This allowed the training material and exam bank recently used to need minimal update and produce fresh power point presentations. This sequencing allowed Exelon to get a turn-key ILT type course at NON-ILT costs. I would like to say that this has worked without challenge but there have been a

few bumps in the road. ...

Stay tuned for the next "News Letter" where I will outline challenges and successes.

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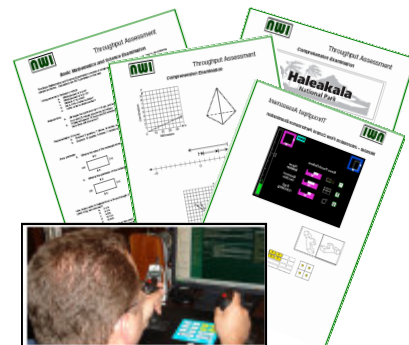
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sions). NWI has developed a unique complex series of algorithms with inter-relationships between each testing module normalized to readily identify differences between high and weak performers.

Several advantages that this unique program offers includes:

- Removal of personal bias from final selection decision
- Assessment yields significant client cost savings
- Program uses multiple prioritization skill evaluation

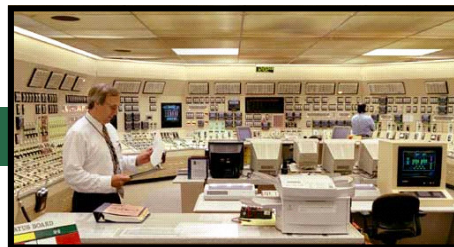
Key programmatic features result in a prediction tool that has a technologically and instructionally sound foundation. Inquire soon to find out more about this program from your NWI representative! Call today and start improving the successful throughput of your ILT candidates and save your company lots of resources at a fixed practical price structure.





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With competitive rates, NWI Services provides projects and staff augmentation power plant services in numerous areas including training, operations, maintenance, radiation protection, chemistry and emergency preparedness. High value and results oriented, NWI Services has a broad portfolio of clients nationwide.

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Employee Hotline: **WELCOME NEW NWI EMPLOYEES....**

Exelon's Quad Cities Nuclear Station has teamed with NWI Services to conduct a Turnkey Project in certifying new instructors. New NWI employee **Henry Joyce** and NWI vendor Rob Brixey are teaching the QC candidates that commenced in April, 2006. A special thanks is due to new NWI employee **Ken Gerling**, who helped fill in for the Generic Fundamentals portion of the class until Mr. Joyce could arrive. Included in the class are 3 INPO employees. **Welcome Henry and Ken to the NWI Services team!**

We wish to express special thanks to the following clients for making NWI a preferred consulting company.

- AEP's D.C. Cook Nuclear Power Plant
- Exelon's Outage and Reactor Services
- SCE's San Onofre Nuclear Generating Station
- Exelon's Braidwood Station
- TVA's Watts Bar Plant

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on whether the corrective action completed actually fixes the problem. Sometimes, documentation reviewed as evidence of effectiveness does not really represent reality. This can create a false sense of assurance that everything is alright leaving brewing issues non-detected. ER pitfalls include; narrow review of the issue supposedly resolved, no or limited outside perspective on significant issues during the ER review, and issues are not systematically identified in CAP (e.g., CAP not used for disposition and follow-up of "sleeping" issues) leading to issues continuing to go below the radar system.

At some utilities, the training program is put on the "back burner" due to competing priorities leading to a disinterest in using training as a key performance improvement change agent. Sometimes this is due to senior leadership in-experience while training leadership are not vocal/action-oriented "champions" or "keepers of the Holy Grail." Complicating management of this issue is the limited appreciation of training pitfalls' lag time, indicator of program health, and a training committee (s) "check box mentality." That is the training committee is meeting frequently but not really accomplishing much value-added action. Disengagement by line and/or training personnel, due to being overcome by other key priorities such as outages, inspections, etc., can result in issue avoidance or even denial. After significant issues are raised and inputted in CAP, regulators and others reduce the margin extended to the utility, resulting in a highly reactive environment. Disinterest by both training and the line affect cost-benefit decisions yielding a lack of investment in the site training programs, further eroding key training activities such as material maintenance.

Next issue—How do you keep from falling into those "Pitfalls."



Editor's Note: Further information about the 2006 MANTG Workshop at the Eisenhower Inn in Gettysburg, PA. June 8, 2006 can be obtained at <http://www.mantg.com/Workshop.htm>

