



# PERFORMANCE IMPROVEMENT

## CONTE 2009: ANS Training and Education Conference

The 2009 American Nuclear Society’s Conference on Nuclear Training and Education was at the Hyatt Regency Riverfront Hotel in Jacksonville, Florida from February 8 - 11, 2009. The theme for CONTE 2009 is “Education, Training and Workforce Development – The Global Path to the Nuclear Energy Future”. Themes for the conference included Human Performance Improvement, Workforce Planning/Recruiting/Diversity, Personnel Training/Qualification/Education, Knowledge Retention, New Educational Partnerships – University/Industry/Government, Engineering Education – Distance Learning, Leadership Development/Succession Planning, International Per-

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## Monticello Outage Schedule Integration: Vertical Slice Meetings

Mike Gallaway and Bill Stairs are providing maintenance & construction and project management support for both EPU (Extended Power Uprate) and balance of outage activities for Xcel Energy’s Monticello Nuclear Generating Plant (MNGP). Resource loaded scrubs as well as integrated schedule reviews are just some of the ways NWI is providing value added support. Prior to their arrival at MNGP, Bill McNeill, Roger Armitage and Frank Tsakeres provided outage training support and readiness assessment support for their MNGP’s RF24 outage. From the assessment results, focused scheduling /execution opportunities were selected for prompt action. The quickest way to ensure schedule accuracy is just put the supervisors that are implementing the outage activities in one room and reviewing the outage schedule, line by line. The vertical slice meeting is a challenge of the accuracy and integration thoroughness of the existing schedule.

Everyone working or supporting the outage owns the schedule, its accuracy and must follow the sequence of the work activities to ensure work in system windows are controlled, configuration is maintained and technical specifications are followed. The fastest way to perform the work is being prepared, deliberately executing the work as scheduled, ensuring that your group is ready and is looking ahead to be prepared to support the entire outage team. The execution success depends upon each and everyone being successful in executing our work safely, doing it right the first time and in the timeframe sched-

## SONGS Performance Improvement Initiative Commences

NWI has undertaken an assignment to assist San Onofre Nuclear Generating Station’s analyses and programmatic enhancements. NWI’s Tim Bostwick is onsite providing coaching, mentoring and initiating industry-proven enhancements including;

- Current metrics - Site and department performance is routinely monitored by senior management and intervention actions promptly employed (Generation #s, line ownership behaviors, overall process health)
- Front-end screening - Operability/Reportability decisions challenged, significance and investigation levels established, various

program attributes determined, ownership established, code and close triage performed, corrective actions that are not held in open status creating duplicate backlog (for Work Orders only)

- In-line review – Improved quality of evaluation documentation, actions are focused, specifically worded, and aligned with identified causes, consistent investigation and report quality, strategic Effectiveness Reviews that keep the end-in-mind
- Improvement of review by site committees – Overall team product review challenges and comments reflect a consistent

## SONGS Performance Improvement Initiative Commences

level of quality and understanding.

eliminate any peer pressure or conflict of interest

- Common Cause Analysis - Corrective actions are being directed at a cause that has proven to be a continual impact to multiple people, programs, or departments.
- Organizational Advocate – Assigned to specifically ensure organizational and programmatic aspects of an event are identified and addressed. Reports directly to the Plant Manager to

- Oldest Ones Open – Backlog of actions is being systematically eliminated in a quality controlled manner, management team has learned the attributes of a quality action, current action development reflects that understanding

The above focus areas are being integrated into the overall performance improvement program.

## Monticello Outage Schedule Integration: Vertical Slice Meetings

uled. This is the fastest and safest way to complete the outage on time, safely (radiologically, industrially and maintaining nuclear safety at all times) and event free. The following areas are to be covered during the meeting by each presenter; 1. Brief description of work scope (system, component, activity, and why), 2. Activity Duration (start time/date, number of hours for the ENTIRE activity, end time/date), 3. Successors/Predecessors (include all support activi-

ties needed – scaffolding, RP coverage, insulators, boilermakers, laydown requirements and work preceding and succeeding your work) & 4. Special tooling, equipment (cranes/critical lifts), clearances/temp lifts, parts) needed. Whether the activity is critical path, near critical path and which work window the work must be completed in to support the outage work window. The following areas can be used for meeting preparation execution readiness including; Support craft

needs (laborers, scaffolding, cleanup, lay down preps), lifting/equipment staging and when staging allowed based upon unit status and safety requirements (confined space, air sampling, heat stress monitoring, etc), Tagouts and package sign on / sign off – communicate logistics with the workforce, boundaries identification, & Walk down staging/lay down space and rope off requirements, and Isolations/temporary lifts needed to support work in progress (to be continued Summer issue).

## NRC Emergency Planning Change Impacts to Training

NRC issued SECY-09-0007 in January 2009. This document is a briefing white paper for the Commissioners to establish the basis for voting to approve publication for public comment of proposed rules relating to emergency planning for part 50 licensees. A comment period of 75 days is proposed. Changes include:

- Job Task Analysis (JTA) or time and motion study—In order to ensure that key ERO members do not have conflicting duties, each licensee will have to perform a detailed Job Task Analysis or a time / motion study for a large variety of accident sequence types for both design base accidents and design based threats. This is a large concern due to the unknowns about NRC expectations and the large number of individual JTAs that will have to be performed. NRC's discussion establishes that they already have an expectation of what the JTA results should show. For a single unit BWR the on shift ERO compliment would be in the range of 15-17 persons. For a plant like PNPS which has a shift ERO compliment of 9 persons this would mean adding 6-8 persons per shift. For six shifts this would be 36-48 additional persons based on ERO duties.
- On-Shift ERO duties. NRC proposal will require that on shift ERO members not have collateral or other duties that would interfere with their emergency response duties.
- Challenging Drills and Exercises. Scenarios will have to be provided to and approved by NRC (no such review and approval takes place today). Range of events includes; plume exposure pathway, ingestion pathway, hostile action threat, and events with success paths for licensee teams. Intent is to eliminate preconditioning of licensee and ORO response organizations because they know the scenario.
- Event Classification. NRC rule will require that events must be assessed, classified, and declared within 15 minutes. Large Impact for Operations Training and some EAL basis revisions. Today some EALs allow for unspecified time frame to assess plant conditions and make an evaluation. Only then does the "15 minute clock" start for declaration / notification. This will require that the station have the ability to assess within the 15 minute time frame.



## Palo Verde Update (3/9/09)

Although the results are preliminary, Palo Verde received positive initial feedback from the Nuclear Regulatory Commission (NRC) inspection team, a milestone in its ongoing efforts to move out of NRC heightened oversight. The NRC team that performed the fifth Confirmatory Action Letter inspection announced Friday it would recommend the closure of the remaining key areas of the Confirmatory Action Letter (CAL) based on the improvement Palo Verde has demonstrated. The recommendations of the team are subject to the review and approval of NRC senior management — which also will make the final determination regarding the closure of the Confirmatory Action Letter. The NRC inspection team expects to complete its final report of this inspection by March 16. A final decision regarding closing the Confirmatory Action Letter and removal from Column 4 could take weeks or months. The preliminary results were reported at an exit meeting Friday morning (*pictured above*) attended by more than 200 Palo Verde employees who filled the auditorium of the Energy Information Center. To enhance the objectivity of the inspection, the 10-person NRC team was made up of resident inspectors and other NRC personnel who had not had recent interactions with Palo Verde.

The NRC inspection team leader was Nick Taylor, senior resident inspector at Cooper Nuclear Station. Taylor said the NRC team will recommend closing the remaining 112 tasks reviewed during this inspection. In all, there are 452 tasks in the Confirmatory Action Letter. Additionally, the team announced it will recommend closing the remaining key performance areas — Recirculation Actuation Signal, Problem Identification and Resolution, Human Performance, Engineering Programs, Safety Culture, Standards and Expectations (Accountability) and Emergency Preparedness. "The Palo Verde team worked much harder and faster than I could have anticipated," said **Randy Edington**, Executive Vice President and Chief Nuclear Officer. "I'm grateful for the high quality work Palo Verde employees have accomplished with safety at the forefront and for the large volume of improvements that have been made. This is an important milestone as we seek to make a successful transition to 'Beyond CAL' and continue our journey to excellence." Other results of the inspection and meeting included:

- Eight potential performance deficiencies will be the subject of continued discussion with the NRC.
- More than 110 Palo Verde Action Requests (PVARs) were written throughout the inspection.
- The team concluded that the corrective action program at Palo Verde is effective and is seen as a driver for plant improvement. It was noted that the CARB (Corrective Action Review Board) and the Operability Determination Challenge Board are improving evaluation quality. As with most areas inspected, improvement opportunities were identified, specifically in the area of timeliness of corrective actions.
- Operability determinations were the subject of considerable discussion and investigation throughout the inspection. While the team commented that the quality has improved, they noted that the station's efforts are not yet fully effective.
- The team noted significant improvements in safety culture at Palo Verde, including confidence that the management team is committed to improvement, high standards and accountability. They also found a strong willingness of employees to raise concerns — especially with their supervisors. (The NRC team interviewed 34 Palo Verde employees during this inspection.)

"The corrective action program is important — the backbone of everything we do," said Edington. "We recognize the need for efficiency, effectiveness and process improvements in this area. We're also at a point where we can see the need for even greater plant knowledge — from the perspectives of risk awareness and design basis. A passion for the constant pursuit of knowledge will fuel our continued improvement." Mike Hay, NRC Region IV branch chief, commented that much had been done to restore the NRC's trust in Palo Verde. He challenged the group to ensure new employees understand how important it is to maintain the trust of the regulator, what it means to be in Column 4 of the NRC's reactor oversight process and how much work is required to emerge from it. Hay noted there will be follow-up inspections on some of the areas going forward. [ *Newsline thanks Palo Verde News for this article.* ]

## Nuclear power comeback sure to employ wireless tools

Power generation utilities are striving to use wireless technologies in nuclear power plants, but they face a number of important challenges including infrastructural issues, security risks, reliability questions, and interference problems. wireless technologies for equipment condition monitoring, process measurement, and other applications will find their way into the nuclear industry over the next five to 10 years, depending on how soon researchers resolve the implementation issues. EPRI has launched efforts over the last few years to examine the potential of wireless sensors for equipment condition monitoring and other applications in both fossil and nuclear power plants. For example, in cooperation with EPRI, the Comanche Peak Nuclear Power Station in Texas has taken advantage of wireless technologies to build a communication and networking infrastructure in the plant that also incorporates wireless sensors for

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**2009 ANS**

spectives and Training for New Nuclear Power Facilities. NWI’s Rob Brixey, Bill McNeill, Dave Hendrickson, and Frank Tsakeres attended CONTE 2009 with Rob and Frank providing presentations during the course of the 3 day meeting.

Rob Brixey presented considerations in training program development for new nuclear reactor sites. Rob’s talk clearly articulated the essential requirements currently being used in one of NWI’s new reactor support projects as well as the potential pitfalls encountered by numerous ongoing efforts with ways to avoid these “bumps in the road.”

Frank Tsakeres’ talk on the NWI Leadership Assessment Program (LAP) included the results recently obtained from one of NWI’s clients. These insights have proven to be valuable inputs into strategic changes made by the client going forward as well as identifying improvement initiatives for business plan inclusion.

The meeting was very well attended with participants from all around the world sharing training and educational good practices and improvement items. Universities and vendors exhibits lined the outside foyer with current support and product information as well as graphic and equipment demonstrations. We at NWI look forward to supporting CONTE 2011.

## Nuclear power comeback sure to employ wireless tools (Cont fm Pg 3)

equipment condition monitoring and diagnostics. Work in wireless application areas for nuclear power plants is also proceeding at international research organizations, laboratories, and universities. The next step is Phase II. That effort is due to run for two years to develop and implement a prototype system to use wireless technologies for a variety of applications in nuclear power plants. The table below is presented to show some of the current and potential future targeted wireless technology applications for nuclear stations.

### Points at nuclear plants conducive to wireless technology use

Nuclear plant system	Wireless measurement(s)	Application
Heat Exchangers	Temperature	Monitor ambient temperature to take into account the effects of such factors as seasonal changes in weather.
Secondary Side Valves	Position Indication	Replace periodic, labor-intensive valve indication readings with continuously monitored wireless measurements.
Inlet Water Intake	Level, Temperature, Flow	Monitor factors that affect performance such as changes in level, seasonal temperature variations, and intake flow.
Rotating Equipment (pumps, valves, motors, compressors, fans)	Temperature, Vibration, Motor Current	Monitor temperatures, vibration signatures, and load fluctuations to assess condition and improve performance.
Diesel Generators	Temperature, Level, Vibration, Motor Current	Augment existing sensor readings to provide redundancy and comprehensive performance assessment.
Spent Fuel Dry Cask Storage	Temperature, Radiation	Eliminate need for underground cabling and conduit by monitoring temperature and radiation with wireless sensors.
Weather Station	Temperature, Wind Velocity, Pressure, Humidity, etc.	Improve monitoring by replacing failure-prone equipment and cabling with wireless measurements.

# NWI Products And Services

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NWI Consulting, LLC is a professional consulting firm specializing in power generation performance improvement services, specialized learning interventions, computer-based training, organizational development, accreditation renewal/recovery, and professional staff augmentation. NWI has a broad portfolio of U.S. and international clients in the electric generation industry and is headquartered in Knoxville, TN. NWI's power plant services includes supporting such areas as Operations, Training, Outage Management, Nuclear Oversight, Maintenance, Radiation Protection, Chemistry, and Emergency Preparedness. NWI has assisted clients in other, more specialized efforts including Leadership/Management Development, Executive Coaching, Conflict Resolution, Multi-Discipline Assessments, Root Cause Analyses, Performance Improvement, NRC 95-002 & 95-003 and Preparations and specialized Safety Analysis (50.59).

## NWI News Update

The following key activities are being conducted by NWI professionals...

- Bruce Power Training Support & Nuclear Oversight Development Project
- SONGS Corrective Action Program support & Accreditation renewal project.
- Exelon's New Reactor Design & Development Project
- Xcel Energy's Monticello outage management, training, readiness assessments and support.
- DC Cook Simulator Development Technical Support



## Thank You

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
- APS's Palo Verde Nuclear Station
- Bruce Power
- Exelon's New Reactor Development Project
- SCE's San Onofre Nuclear Generating Station
- Xcel Energy's Monticello Nuclear Generating Plant
- Progress Energy's H.B. Robinson's Plant
- Constellation's Nine Mile Station

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