

UTILITY WORKING CONFERENCE

Big picture, tight focus share attention

ALTHOUGH IT CONTINUES to be held at the Amelia Island Plantation, north of Jacksonville, Fla., ANS's Utility Working Conference this year made use of more of the resort's facilities, with two of the three plenary sessions held in a large, climate-controlled tent separate from the convention center. During the meeting, held August 2–5, the five half-days of sessions were divided between plenary sessions on topics of interest across the nuclear power community, and the focused breakout sessions on day-to-day plant operational concerns that have long been the staple of this meeting.

Despite the relaxed setting of the resort, the meeting is taking on more aspects of a trade show, with the exhibit area now spilling over from the main hall to the foyer outside, and exhibitors bringing in entertainment (two magicians and a troupe of actors performing as characters from the *Back to the Future* movies, in keeping with the theme of the meeting). While the meeting has traditionally addressed the operation of existing reactors, the growth of the exhibit area is closely related to prospects for new reactor construction, and this year (as has been the case in other recent years) the plenary sessions—and some of the breakout sessions—were generally about new reactors.

The first speaker at the opening plenary session was Digby, Lord Jones of Birmingham, the United Kingdom's former minister of state for trade and investment. With a breezy, witty style that pleased the crowd, he surveyed the energy scene of essentially the entire world outside the United States, citing nuclear power as fundamentally important to meeting energy demand and climate change mitigation goals. He said that the United Kingdom is committed to building eight new nuclear power plants in the next 15 to 20 years.

Jones said that away from the Pacific Coast, most people in China are still poor. As a result, enterprises that began on the coast are moving some of their operations inland, where costs are now lower, and for-

Half of the conference was devoted to plenary sessions on broad issues, and the other half to technical sessions on specific plant concerns and experience.

eign investment is taking a larger share of the coastal enterprises because for them, the costs on the Chinese coast are lower than they are in the developed world. Jones's overall view, which guided his work while he was in office, is that foreign investment should be welcomed anywhere, and he welcomed it in the United Kingdom. He said that he was less interested in who owned a plant or business than he was in where it operated and to whom the jobs were available.



Jones

growth engine, about 70 percent of the population still works in agriculture, so while its share of pollution is low now, much more industrialization is likely to take place, and with it comes the potential for much more pollution. Jones said that the United States and the rest of the developed world, having become wealthy through industrialization, cannot justify any attempt to limit climate change by curbing emissions in the developing world. In the case of India, Jones encouraged guiding industrial growth to avert pollution without imposing continued poverty—and one example would be the sale of power reactors to India.

Jones went on to say that Russia has squandered its opportunity to use its oil and gas resources for sustainability and wealth creation; that the Persian Gulf is now the fulcrum of world trade, and Abu Dhabi's

nuclear energy research spending is now second only to that of the United States; that Germany is now “a very worrying place to be” with the nuclear phaseout in the constitution and requiring a three-fourths vote for it to be repealed; and that for all his jibes at the French, they got nuclear power deployment right. In closing, he warned that the economic recovery would falter if nations adopt protectionist policies and if the revived growth does not provide many new jobs.

Joseph Kelliher, former chairman of the Federal Energy Regulatory Commission and now executive vice president of federal regulatory affairs at FPL Group, said that there is a great deal of effort among new reactor license applicants to obtain federal loan guarantees. He asked why the federal government could not simply be an agent for building the first 10 or 12 new reactors, noting that this would provide more certainty for the projects than federal backing of reactor financing. He said that carbon reduction and clean energy legislation are excellent vehicles for nuclear regulatory reform, but he also said to watch for the effects of the change in the administration on the filling of vacancies at the Nuclear Regulatory Commission. Also, sounding a note similar to Jones's acceptance of foreign ownership and concern over protectionism, Kelliher noted during the question-and-answer session that in 1998 he had tried to change the Atomic Energy Act's proscription on foreign ownership of U.S. nuclear facilities and said that he believes that in the post-Cold War world, insistence on domestic ownership serves no purpose.

Former Sen. Trent Lott (R., Miss.) provided an overview of current federal legislation. He said that the Waxman-Markey cap-and-

trade bill goes far beyond what the Congress



Lott

as a whole would accept and that he expected a filibuster by Sen. Mitch McConnell (R., Ky.). He said that he liked the bill worked out in the Senate by Jeff Bingaman (D., N.M.) and Lisa Murkowski (R., Alaska), and he read from Sen. Lamar Alexander's (R., Tenn.) "blueprint," which calls for 100 new power reactors within 20 years, among other things. He encouraged nuclear professionals to sell nuclear power expansion to the public. Lott said he believes that energy legislation will be passed this year and that it can benefit nuclear power.

The final speaker was Aris Candris, chief executive officer of Westinghouse Electric Company. He said that Westinghouse is setting up "buy where we build" supply chains within its customers' countries, with China now in place and plans under way in the United Kingdom. Candris said he believes that engineering talent is now being drawn to the industry, much more so than it was five years ago, but he still expects shortages in craft labor as reactor construction ramps up. Westinghouse itself hired 1261 people in 2007, and 1854 in 2008.

Candris also noted that within Westinghouse, fuel quality is improving, with 86 percent of its reactors worldwide now leak-free. The first module for the first AP1000, Sanmen-1 in China, has been installed, and the placement of the bottom of the reactor vessel was expected in September or soon after. In addition, he said that he expected the next stage of the U.S.-India nuclear agreement to be finished shortly, and that he hoped to "make announcements" regarding a reactor deal in the United Kingdom by the end of the year.

At the plants

In the breakout session on equipment reliability, Paul Von Hatten, director of the Equipment Reliability and Maintenance Supply Strategy Project for Ontario Power Generation and vice chair of the Equipment Reliability Working Group (ERWG), described the trend toward improvement throughout the industry, beginning with the Institute of Nuclear Power Operations' issuance in 2000 of AP-913, *Equipment Reliability Process Description*. He then discussed the effects on individual plants as AP-913 came into use and the formation of the ERWG in 2004. For three years, the group members focused on learning from each other how to implement AP-913, and in 2007 they began using performance data to identify and address gaps in reliability.

In 2008, the group issued guidance on interfaces between equipment reliability and

corrective action organizations, on improving preventive maintenance, and on life cycle management. This year, the group has developed guidance on how to implement a preventive maintenance organization, focus maintenance on critical components, and improve system health, as well as insights on critical component failure analysis and revisions to the Equipment Reliability Index (ERI). Von Hatten said that a "cross-functional" approach is needed to make significant gains—not just through engineering. He said that the ERI can be used to identify program gaps (which continue to be a big contributor to equipment failures), and that use of the preventive maintenance template is seen by some utilities as costly.

In the session on new construction, Raul Baron, manager of project nuclear assurance for the Tennessee Valley Authority's Watts Bar-2, spoke on lessons learned from the large project recently completed by TVA—the refurbishment and restart of Browns Ferry-1 after 22 years off line—and TVA's now ongoing project—the completion and eventual startup of Watts Bar-2. To some extent, he said, the experience gained from both projects may be applicable to the construction of entirely new reactors. He said that one of the key differences between the two projects is the role that TVA played in each. (TVA was its own architect-engineer for Browns Ferry-1, and Bechtel is acting as the prime contractor for Watts Bar-2.)

Baron noted that among the issues that arose during the five-year Browns Ferry-1 project were the availability of craft workers; the verification of parts compliance with specifications, especially from alternative and international suppliers; documentation completeness; and the use of vendor- and industry-approved construction practices. On Watts Bar-2, TVA has learned of the need to develop a quality assurance infrastructure early; the value of centralizing all QA functions and defining the scope of QA applicability; and the need to be aware of the American Society of Mechanical Engineers' Code Section III and to align the work with it. (Browns Ferry-1 work had not required specific observance of ASME Code.) Baron recommended that new construction projects start QA planning early in the schedule; define the scope of training and plan all training early; define and incorporate quality engineering functions; and plan for expanded oversight of suppliers, including those for important nonsafety items.

In the session on the new regulations on worker fatigue, Michael Cheok, deputy director of the Division of Inspection and Regional Support in the NRC's Office of Nuclear Reactor Regulation, outlined the status of the rule. He said that Subpart I of 10 CFR Part 26 is to go into effect in November, setting requirements for licensees to detect and respond to situations that produce excessive fatigue. A temporary instruction to NRC inspectors was to go into

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effect on October 1.

Cheok said that more meetings with licensees and the public were planned prior to the effective date, and he noted that one of the issues that has been raised so far is that exemptions from the fatigue rule are available for plants during hurricanes, but the rule is silent regarding the time before hurricane arrival, when the plant must be prepared and (if necessary) shut down. Cheok advised using the NRC's "traveler" process (the use of approved generic changes) to revise technical specifications so as to remove old fatigue-related practices that would not conform to the new rule.

Donna Alexander, regulatory affairs engineer for nuclear operations at Progress Energy, described the company's experience with adopting the rule. She said that Progress Energy was "late getting out of the gate" but is now ready, with software testing now complete. (The software is intended to track worker hours on various tasks and help determine whether more work could lead to a fatigue situation with an impact on safety.) She said that the rule is "ambiguous and complex"—the three-and-a-half-page rule is accompanied by a 60-page guide and a 180-page software code explanation. She added that the industry and the NRC are still discussing some differences of opinion. While the industry considers refueling a maintenance activity, the NRC sees some aspects of it as operational. Alexander said that the time spent in each type of activity can be interpreted as different contributors to fatigue.

A report on the session on whether the risk assessment requirements in the Maintenance Rule need to be redone appears as

a separate feature article on page 62 of this issue.

The other plenary sessions

At the second plenary session, which was a panel of utility executives, Jeff Gasser, chief nuclear officer of Southern Company, described how his firm is working to keep the growing effort to build new reactors at the Vogtle site in Georgia from adversely affecting the performance of the company's six operating reactors. He said that Southern has split its organization so that there are two executive vice presidents, one for operating and one for new reactors, with no overlap between the two branches. As needed, the two branches work together on matters such as whether all of Vogtle will be under a single protected area or each pair of reactors will have a separate area.

Gasser said that Southern's history is a good reason for the split in the organization. The startup of Vogtle-1 and -2 in the late 1980s adversely affected operation at Southern's two-unit Hatch plant, he said, and this has influenced operations at Hatch for the 20 years since then. Staf-



Gasser

ing for Vogtle-3 and -4 has mostly involved leadership transferred from elsewhere within Southern, with other employees brought in mostly from outside. Gasser added, however, that not everyone at Southern who wants to go to Vogtle-3 and -4 will necessarily be allowed to go, and that when personnel from other Southern plants transfer to Vogtle-3 and -4, the new reactors must pay for finding replacements for them at the other plants.

Tony Pietrangelo, senior vice president and CNO of the Nuclear Energy Institute, spoke on the closing of various operational and regulatory issues. The groundwater protection/tritium issue was a "success story," he said, because of early agreement that the



Pietrangelo

issue was about public confidence, not public safety, an industry initiative that complemented regulatory requirements (including voluntary notification to the NRC of on-site tritium detection of at least 1 percent of the Environmental Protection Agency activity limit for drinking water wells), and engagement with all stakeholders.

Pietrangelo termed as "work in progress"

the issues of safety culture, fire protection, and pressurized water reactor sump screen/strainer performance. The challenges for the first issue include the need for consistent terms and methods and its "inherent subjectivity"; for the second, evolving knowledge and the need for flexibility in application; and for the third, evolving knowledge and ill-defined criteria for acceptance or success.

Also addressing issue closure was Mike Kansler, CNO of Entergy. He called security-related orders (such as for force-on-force exercises) intrusive, with the potential to interfere with plant operations. There is a March 2010 deadline for implementation, and Kansler said that there is no guidance. He said that the industry needs to address the matter directly with the agencies, apart from the NRC, that are involved: the Federal Bureau of Investigation, the Central Intelligence Agency, and the Department of Homeland Security. Kansler also called the worker fatigue rule cumbersome and unclear in its goals. He said that industry officials should engage directly with their congressional representatives as constituents to press their case, and not just rely on NEL.

William Borchardt, executive director for operations at the NRC, touched on some of the same topics cited by the previous two speakers, stating that the keys to successful interaction include defining success early and ensuring adequate resources. The latter

includes qualified personnel, and Borchardt said that there is not enough infrastructure in the industry at present to provide sufficient experience to new hires as veteran professionals retire.

At the plenary session on new reactor project planning, Michael Johnson, director of the NRC's Office of New Reactors, said that the agency may be facing "inter-

handover of new reactors to the oversight process for operating reactors. Beyond that, Johnson said, the office will address the Next Generation Nuclear Plant and the designs for small and mid-sized reactors proposed for certification.

Next to speak was J. A. "Buzz" Miller, who holds one of the jobs Gasser referred to: executive vice president for nuclear development at Southern. He showed photos of tubesheet and vessel head forgings for Vogtle-3 and -4 at Japan Steel Works. He also noted that the fabrication of the steam generators and reactor vessels will be done by Doosan, in South Korea, and that a Southern employee will move to

STP Nuclear Operating Company, had his own forgings report. He said that Japan Steel Works has started on the work for South Texas-3 and will start on South Texas-4 by the end of the year. Unlike with Vogtle-3 and -4, which use the AP1000 reactor design originally intended for the American market, reactor vendor Toshiba has to "Americanize" its ABWR design for South Texas -3 and -4 in order to meet U.S. codes and standards, regulatory requirements, and the use of English measurement units instead of metric.

George Vanderheyden, president and chief executive officer of UniStar Nuclear Energy and senior vice president of Constellation Nuclear Group, also has to have a reactor design "Americanized"—Areva's U.S. EPR, based on the EPRs being built in Finland and France. He said that he will not get a fixed-price contract for engineering, procurement, and construction of Calvert Cliffs-3 in Maryland, and that there will be extensive "partnering" to cover the project's costs. It took two years to get to the term sheet announced this summer, which itself only defines how the contract negotiations are to go. He estimated that it may take another year to get to a signed contract. As for forgings, he said that Japan Steel Works has already done the turbine shafts and is now working on the ingot for the lower vessel head.—*E. Michael Blake* **IN**

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esting" times, with its budget for fiscal years 2011 and 2012 perhaps at about the same level as for FY 2010, despite license applications progressing through the approval process. He said that the NRC is putting emphasis on the applications that appear to have the greatest chance of success to support startups in the 2016 time frame. His office is already planning for the

South Korea for the duration of the work. While Miller is hoping that Southern will receive the combined construction and operating licenses in October 2011, he said that the company may also apply for another limited work authorization to get some other work (such as with rebars) done in advance.

Kevin Richards, senior vice president of