June 10, 2009

MEMORANDUM TO: Bruce A. Boger, Associate Director
Operating Reactor Oversight and Licensing
Office of Nuclear Reactor Regulation

FROM: Nancy Salgado, Chief **/RA/ David Muller-for**
Operator Licensing and Human Performance Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE 2009 ANNUAL U. S. NUCLEAR REGULATORY COMMISSION/INSTITUTE OF NUCLEAR POWER OPERATIONS COORDINATION MEETING ON TRAINING-RELATED ISSUES

On May 11, 2009, a periodic public U. S. Nuclear Regulatory Commission (NRC)/Institute of Nuclear Power Operations (INPO) coordination meeting on training-related issues was held at INPO Headquarters, Atlanta, Georgia. Such meetings are conducted in accordance with the NRC/INPO Memorandum of Agreement dated December 10, 2007. The purpose of the meeting was to discuss items of mutual interest concerning INPO's training program accreditation process. Participants included representatives of the NRC's Division of Inspection and Regional Support, NRR; NRC's Division of Construction, Inspection, and Operational Programs, NRO; Regional Operator Licensing Branch Chiefs; representatives from NRC's Technical Training Center, and INPO's Training and Accreditation Division. The list of meeting attendees is provided as Enclosure 1. The meeting agenda is provided as Enclosure 2. In addition to the two enclosures, there were 2 handouts presented at the meeting: (1) INPO Organizational Chart (ML091340383) and (2) The 2008 INPO Annual Report (ML091340375). A summary of the discussions related to key agenda topics covered during the meeting follows.

Introductions and Opening Remarks

An introduction of the members of the public and NRC and INPO personnel present was conducted. NRC/INPO provided opening remarks. As part of the opening remarks, INPO and NRC discussed organizational changes since the 2008 Coordination Meeting.

INPO focus areas include work force development, faster identification of trends and timely resolution and accountability, and improved performance in the areas of safety culture, sustainability, recovery. INPO is attempting to determine what can be done to sustain the nuclear industry work force. In addition, INPO is advancing nuclear safety world wide through the use of improved communication technologies.

The NRC stated that in moving forward, the agency will work more with the international nuclear community and will be participating in an international review of the NRC regulatory process and comparing the process to international standards.

Accreditation Update

New members of the National Nuclear Accrediting Board are Bill Kane, retired NRC; Lloyd Yates, Progress Energy; and Bill Spence, PPL. NRC observed one Accreditation Team Visit (ATV) and observed all accrediting boards during calendar 2008.

The 2009 Training Warning Flags letter was sent, earlier this year, to the industry's Chief Nuclear Officers (CNO). Topics for 2009 include potential training problems and actions to take if a licensee discovers any warning flags in their training programs.

Accreditation focus areas are evaluated during ATV visits and include:

> Training program self assessment process - additional rigor is needed during self-assessments,
>
> Weaknesses in the use of systems approach to training - such as staff turnover, a reduction in use of training system specialists, important tasks are not being completed, and a reduction in the number of "must perform" tasks required for job qualification,
>
> Initial licensed operator training – throughput (people who are in class that plan to be licensed) rates, high failure rates, training is designed for one background but accepting others without adjustment, possible complacency in management oversight (i.e., mentoring and monitoring classes), and training staff turnover, and
>
> Weaknesses in on-the-job training / task performance evaluation - management expectations are not being identified, soft skills are not being evaluated, error prevention is not stressed during the evolution, and there is no set grading structure.

New Reactor Accreditation

INPO has reissued ADAD 00-003, "Guidelines for Initial Training and Qualification of Licensed Operators," as ACAD 09-001 to support new reactor licensed operator training.

With initial accreditation requests expected in 2010, INPO is working with the National Nuclear Accrediting Board on initial accreditation and how initial accreditation differs for the renewal of accreditation.

INPO also announced that the task list for the Westinghouse AP1000 will reside at INPO.

Representatives from the NRC Technical Training Center in Chattanooga provided an update on preparations for training and qualifying NRC inspectors and operator licensing examiners.

Regulatory Issues

Scenario-based testing and ANSI/ANS-3.5-1998, "Nuclear Power Plant Simulators for Use in Operator Training and Examination, "(ANSI 3.5) was discussed. Regulatory Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations" will be updated after approval of ANSI 3.5. Nuclear Energy Institute (NEI) 09-09, "Nuclear Power Plant-Referenced Simulator Scenario Based Testing Methodology" (ADAMS accession number ML091310538), has been reviewed by the NRC. NRC comments have been provided to and satisfactorily responded to by NEI.

The process for scheduling operator licensing examinations was discussed. The NRC reported seeing more rescheduling of exams and more parallel classes. Rescheduling examinations effectively increases class size, requires additional examination weeks.

INPO described a current initiative to address ways to improve the examination process, including potential improvements to account for the current learning environment and for a different type of student.

NRC noted that reports have been received that the number of operators needed for the operation of new reactors is increasing.

INPO and NRC agreed that there was good dialogue at the March 17, 2009 closed meeting related to eligibility guidelines in ADAD 00-003, "Guidelines for Initial Training and Qualification of Licensed Operators." Additional public meetings to discuss the eligibility guidance will be held in the near future.

NRC reported on trends in operator licensing and consistency across exams and regions. Nationally, as reported on the Operator Licensing website (http://www.nrc.gov/reactors/operator-licensing.html) there is generally a greater than 80% pass rate. It was determined that those examinations with high failure rates over the past several years were generally the result of training program problems rather than problems with the examination. Concerns have been raised that there are differences in the level of examination difficulty across the Regions. NRC has processes in place to ensure there is consistency across Regions including in-office reviews. The NRC does not see examination consistency problems but will continue to monitor the operator licensing examination process. INPO asked if it would be possible for an INPO representative to participate in an NRC office audit as an observer.

NRC reported that the number of medical findings discovered during inspections is increasing. A new generic communication to describe the process is being developed.

The 2007 Annual Training Report was published in September, 2008 (ML082420278). INPO noted that the report had been discussed with National Nuclear Accrediting Board and INPO Board of Directors

Common Cause Analysis

Due to reports of low licensed operator candidate throughput and high failure rates since 2004 on the initial licensed operator examination, INPO evaluated the root cause/causal analysis reports from fifteen facilities to determine a common cause. Actions to be taken will be based on the review. Causes identified in this review were similar to the common causes identified during the previous review. In addition to not following the facility procedure for exam development, causes identified in the review include:

Development / preparation of NRC exam

The examination is not aligned with current industry practice
Examination developers had limited exam development experience
Guidance provided to examination validators was open to interpretation

Strategy for evaluation of candidates

Analysis of examination results did not evaluate generic weaknesses
Weekly initial licensed operator training examinations did not prepare the students for the NRC licensing examination
The audit examination was not necessarily a good predictor of student performance on the NRC licensing examination

Management oversight of student and trainee performance

Training materials contained insufficient content; there were instructional shortfalls; or oversight of trainee performance was limited
Marginally performing students were not removed from the training program
Changing training schedules reduced required core training

INPO provided the results of the review to all CNOs with the request to evaluate their facility training programs and to determine actions to be taken to correct the issues. CNO comments are due to INPO in August 2009. INPO recommended actions to be taken will be determined and then shared with the NRC in a future public meeting.

Future of Training

INPO discussed the project to determine if current training techniques will be effective in the 2015 – 2020 timeframe. Interviews have been conducted with CNOs, site vice presidents, training managers and plant managers. In addition, site visits and visits to colleges and universities were conducted. Training in the nuclear industry was compared to defense department training and training in non-nuclear industries. Strengths included a strong business alignment; behavioral and cultural support that was visible and vocal; measurement of training results and accountability; the actual conduct of training; clear expectations and performance indicators. Weaknesses or areas where the nuclear industry lags behind other industries included delivery of training and the use of technology; training was usually instructor-led rather than using other mediums, and was not student paced; there was little sharing, development, and maintenance of training materials.

Recommendations have been provided to the INPO Board of Directors. The first recommendation is in the area of new instructor training. Most of the instructor training programs in the industry use the same material provided in a similar 7 – 10 day basic knowledge course. To improve instructor training, a blended learning approach that uses either an on-line delivery system or centralized training location to deliver a standard course was recommended. In this method, mentors would be available discuss the training, assign new tasks, and would use of station procedures. The course would start with a 4-day basic knowledge classroom phase at which point students would return to their station to finish the site specific aspects of the program, fill any holes, and complete qualification. This method would provide flexibility for training new instructors.

The second recommendation involves the concept of “nuclear citizenship” for new workers. This includes what nuclear citizenship is, what their role is in safe operation of the facility, why nuclear power generation is different from non-nuclear power generation, and an overview of the nuclear industry. The 2 – 3 hour eLearn course was piloted last fall with the intent of instilling safety focus early, shaping new worker attitudes, and being motivational.

It is expected that future training will involve more electronic learning, more partnerships with educational institutions, and more use of computer capabilities, i.e., blogs and avatars.

NANTel Update

The National Academy for Nuclear Training e-Learning (NANTeL) system is a national web-based system that provides standardized, generic training for the supplemental workforce that satisfies the industry and the insurer. All U.S. nuclear power plants have agreed to accept training delivered through NANTeL. NANTel training is available via the Web

(https://www.nantel.org/NANTELprod/nanteldefault.asp) and uses the personnel access data system (PADS). INPO and the National Academy for Nuclear Training manage and operate the system for the U.S. nuclear industry.

NANTeL allows the conduct of common core training online followed by site specific training and qualification. New courses are be added constantly, e.g., NRRPT exam prep, EPRI engineering fundamentals, other EPRI courses. EPRI is developing additional courses for addition to the system.

Qualification of the individual remains the responsibility of site. In order for the concept to work, the site has to maintain ownership of the programs.

Other Items of Mutual Interest Related to Training

A decision was made by INPO to no longer maintain or keep current the Examination Bank. The decision was made as INPO members did not use the bank enough to make it worth the resources and the information is available from other sources.

An industry CNO examination process review has been proposed and will focus on the future of written examinations, how the exam is assembled, and how to improve the exam process.

INPO reported that there have been no ATV findings directly related to examination “uniform conditions”. Facilities have incorporated uniform condition philosophies into training procedures. Uniform conditions have been incorporated into the ATV evaluator guide.

INPO provided the following update on revision of the Knowledge and Ability (K/A) catalogs –the Westinghouse AP1000 owner’s group is meeting regularly and developing a revision based on the PWR K/A catalog. South Texas Project Nuclear Operating Company is developing an ABWR K/A catalog and is trying to get GE involved in the process, work on the ESBWR K/A catalog has stopped. It is expected that the EPR/APWR group will meet during 2010.

With the current turnover rate of facility management, INPO is emphasizing enrollment of new supervisors in the supervisor leadership development course. A new Facility Manager course is being developed and will cover the technical aspects of the position but will not cover the leadership aspects of the position.

Utilities have increased the number of partnerships with local colleges and universities, reducing the amount of required on-site training. Partnership guidance is in draft form. Training provided will initially focus on mechanical, electrical, and NLO training.

The NRC reported that the actions being taken for the next generation of student are similar to those being taken by INPO and the industry. There are currently four generations of learners at the NRC. Advanced training methods, including asynchronous learning, synchronous on line training, virtual environment, blended are being evaluated to determine which methods works with NRC training courses. The biggest challenge faced by the NRC is computer security (infrastructure) and how much simulator fidelity is necessary for NRC students.

NRO provided an overview of international trips to Japan and Taiwan.

INPO thanked the Commission and staff for their participation in Senior Managers Course and other courses offered by INPO.

Closing Remarks

In closing, it was decided that additional meetings related to the licensing and examination of reactor operators will be held. No final positions were taken during the meeting.

CONTACT: R. Pelton, NRO/DCIP/COLP
301-415-1028

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Meeting Handout Accession Numbers: ML091340375, ML091340383
Meeting Summary Accession Number: ML091560192

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ATTENDEES

INPO-NRC Coordination Meeting, May 11, 2009

Institute of Nuclear Power Operations

Phil McCullough, Vice President, Training and Accreditation
Kent Hamlin, Director, Accreditation
George Hutcherson, Director, Industry and External Relations
Kim Dahlberg
George Mortensen
Michael Sopko
Pete Knoetgen
Bob Wood

Nuclear Regulatory Commission

Bruce Boger, Associate Director for Operating Reactor Oversight and Licensing, NRR
John Tappert, Deputy Director, Division of Construction, Inspection, and Operational Programs, NRO
Mike Cheok, Deputy Director, Division of Inspection and Regional Support
Nancy L. Salgado, Chief, Operator Licensing and Human Performance Branch, NRR
Michael Junge, Chief, Operator Licensing and Human Performance Branch, NRO
Samuel Hansell, Chief, Operations Branch, RI
Malcolm Widmann, Chief, Operations Branch, RII
Ryan Lantz, Chief, Operations Branch, RIV
Scott Egli, Chief, Reactor Technology Training Branch (PWR), TTC
Steve Rutledge, Chief, Reactor Technology Training Branch (BWR), TTC
Mark Miller, Deputy Associate Director, TTC
Fred Guenther, Operator Licensing and Human Performance Branch, NRR
Richard Pelton, Operator Licensing and Human Performance Branch, NRO

Other

Robert Meyer, Professional Reactor Operator Society (connected via telephone bridge)
Mike Wagner, STPNOC
Derek Edmunds, APS/PVNGS

AGENDA FOR PUBLIC MEETING
WITH INPO ON TRAINING AND QUALIFICATION

May 11, 2009
8:00 a.m.-2:00 p.m.

Institute Of Nuclear Power Operations
700 Galleria Parkway, SE –Room 206
Atlanta, Georgia 30339-8549

Introductions and Opening Remarks	INPO/NRC
Public Input	Public
Accreditation Update • Training focus areas	INPO
New Reactor Accreditation Update	INPO
Regulatory Issues	NRC
Future of learning	INPO
NANTeL Update	INPO
Other items Of Mutual Interest Related to Training	
• License Operator Initial Training/License Operator Examination Process	INPO/NRC
• Leadership & Development Seminars Updates	INPO
• Simulator	INPO/NRC
• Eligibility and ACAD 09-01	INPO/NRC
• New and Revised K&A Catalogs	NRC
• Training Methods for New Generation of Operators	All
• Maintaining Non-licensed Requalification Instructor Technical Knowledge	NRC
Public Comment	Public