April 29, 2008

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

FROM: Frederick Brown, Director **/RA/**
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF THE 2008 ANNUAL U. S. NUCLEAR REGULATORY COMMISSION/INSTITUTE OF NUCLEAR POWER OPERATIONS COORDINATION MEETING ON TRAINING-RELATED ISSUES

On April 10, 2008, a periodic public U. S. Nuclear Regulatory Commission (NRC)/Institute of Nuclear Power Operations (INPO) coordination meeting on training-related issues was held at NRC Headquarters, Rockville, Maryland. 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 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. 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 2007 Coordination Meeting.

Accreditation Update

For calendar year 2007, 196 training programs at 33 facilities renewed accreditation and 42 Training Assist visits were conducted. To date in 2008, 29 training programs at 5 facilities have renewed accreditation and the training programs at one facility are on accreditation probation. NRC nominees Ellis Merschoff and Hubert Miller have joined the National Nuclear Accrediting Board. NRC did not observe any Accreditation Team Visits (ATV) and observed eight of eleven accrediting boards during calendar 2007.

The 2007 Training Warning Flags letter was sent to the industry's Chief Nuclear Officers earlier this year. In the letter, actions that can be taken to prevent training warning flags were presented. These actions include:

> Find and fix training problems in a timely manner. Don't wait until it is too late to fix problems. Don't find a problem and then not implement a fix.

Minimize challenges to operations and operations training management. Changing the Operations Manager, the Training Manager, or the Operations Training Supervisor. Changing more than one person in a short period of time could challenge the training organization.

Reinforce management standards and expectations during training from both the student and the instructor perspectives.

Maintain worker qualifications records and keep them administratively updated.

Maintain the training facility in good working order.

Maintain an awareness of the training staff. For example, weaknesses in staff and trainer expertise, consistency of training staff and management and, knowledge transfer between senior staff and junior staff.

INPO is working with the industry to determine if emergency response organization (ERO) training is adequate to train and qualify the ERO staff. INPO is conducting on-site review visits. Questions asked during the visits include is ERO training SAT-based, should ERO training be SAT-based, how can the ERO training and qualification program be upgraded, how much vigor should be placed in the development of the training and qualification program, can a common position-specific job task analysis be customized to the needs of the site?

INPO has suggested that Training Managers talk to the Security training organization with the intent of offering the Training Department's services in the area of instructor requalification, initial instructor training, and instructor continuing training.

New Reactor Accreditation

INPO stated that, similar to ACAD 02-002, "The Process for Accreditation of Training in the Nuclear Power Industry," ACAD 08-001, "The Process for Initial Accreditation of Training in the Nuclear Power Industry," can be designated as being publically available.

INPO's accreditation plan is to treat accreditation of new reactor licensees as an initial accreditation. Initial accreditation will occur about 4 years prior to fuel load with renewal of all training programs about 6 months prior to fuel load. Initial accreditation and renewal of accreditation will occur for the 12 accredited training programs.

The objectives of the initial accreditation process will be to validate training content and implementation plans (initial accreditation), build on existing training materials, capitalize on plant standardization and technology, and allow training to be conducted as part of an accredited program. If sufficient material is not available to make an accreditation determination, accreditation will be deferred.

Renewal of accreditation prior to fuel load will be identical to the current renewal process and will ensure the facility training programs are ready to transition to operation.

INPO plans to review and revise ADAD 00-003, "Guidelines for Initial Training and Qualification of Licensed Operators," to support new reactor licensed operator training.

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. Comments have been received and are being evaluated by the working group to determine the action to be taken to satisfy the commenter. Regulatory Guide 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations" will be updated after ANSI 3.5 is approved and the Nuclear Energy Institute (NEI) submits a paper to the NRC describing the implementation of scenario-based testing.

The NRC stated that revisions to NUREG-1122, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Pressurized Water Reactors," NUREG-1123, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Boiling Water Reactors," and NUREG-1021, "Operator Licensing Examination Standards for Power Reactors" had been published during 2007.

The NRC stated that the Operator Licensing Branches in the Office of Nuclear Reactor Regulation and the Office of New Reactors are working together to minimize perturbations in the area of operator licensing and that both offices are working on acquiring additional operator licensing staff.

Future of Training

INPO discussed an on-going project with IBM to determine if current training techniques will be effective in the 2015 – 2020 timeframe. Interviews have been conducted with chief nuclear officers, site vice presidents, training managers and plant managers. Items of interest include:

How are current staffing issues resolved?
How do we train the next generation of plant operators?
How can we expedite the training process?
How do we leverage technology?
What opportunities are available for standardized training?
Can training delivery be centralized?
What can be done with outside institutions to have more people in the pipeline?

Additional areas being considered for further study include standardized radiation protection training, certification of instructors, and master instructor certification.

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, the insurer, and the NRC. 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.

To date, more than 50,000 workers have completed one or more of the 185 NANTeL courses, have completed more than 114,000 individual courses, have completed 3400 courses in one day, and have throughput rate for radiation worker/general employee training of 94%. Most of

U.S. nuclear power plants have site specific protected access/general employee training in the NANTeL catalog. The NANTeL system has a reliability factor of greater than 99%.

Other Items of Mutual Interest Related to Training

Due to several personnel changes, delays have been experienced in updating the INPO exam bank; however, INPO indicated they are working off the backlog. INPO is currently determining how to make exam bank data input less labor intensive and more electronic.

INPO and NRC discussed an apparent declining trend in operator exam performance. The apparent trend was initially discussed during the December 11, 2007 Operator Licensing Focus Group Meeting (ML073511714) in the form of student throughput and examination level of difficulty.

Exam performance items discussed included:

> The NRC reported that an evaluation of licensed operator training throughput and examination pass rates had been conducted. Based on that evaluation, the NRC presented average licensed operator initial written examination grades for reactor operators and senior reactor operators and pass rates for licensed operator initial operating exams. The data presented did not indicate any significant trends. Grades on the licensed operator initial examinations have been fairly constant from 1991 through 2007.
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> The NRC discussed expectations regarding the use of open references during licensed operator initial exams (the written exam is supposed to be closed book).
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> The NRC noted that the initial written examination is an evaluation of the level of knowledge of an applicant and how well the applicant is able to recall, comprehend, and answer/resolve issues and problems. The initial examination is not a test of an applicant's ability to answer a question by looking up information in reference materials.
>
> The NRC noted that student throughput issues could be a result of individual academic issues, differences in individual experience, or weaknesses in the training process.
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> Additional discussion topics included:
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> > Are initial licensing examinations testing operators the way in which they are expected to operate?
> >
> > How is the knowledge/experience base of the control room crews affecting performance?
> >
> > How does meeting minimum time on site guidance affect the stress level and exam performance of licensed applicants?

Knowledge management and transfer (KM) were discussed by the NRC and INPO. NRC has identified KM champions in each office and has established several "Communities of Practice." INPO, working with NEI and the industry, has participated in two KM working meetings over the past three years. INPO discussed a June 2008 knowledge transfer and retention working meeting and invited NRC to participate in a Best Practices symposium to be held in October.

INPO and NRC discussed the application of requalification examination practices that reinforce a set of common quality standards (uniform conditions) as discussed in ACAD 07-001, "Guidelines for Continuing Training of Licensed Personnel" and during previous INPO/NRC Coordination Meetings INPO noted uniform conditions are being implemented by the industry. INPO also noted that each operations Accreditation team Visit (ATV) includes an individual that has had recent experience writing requalification examinations using uniform condition principles. During the period of implementation, no significant issues have been identified.

INPO and NRC discussed licensed operator and instructor staffing. Topics included what the industry can do to improve the training pipeline for all positions and what impact the new working hour requirements will have on utilities. INPO stated that during team visits, work force planning is a major area of evaluation. Areas evaluated include staffing plans, future staffing needs, training resource requirements, and the size of future classes.

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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OFFICE	COLP/DCIP	C/IOLB/DIRS	D/DIRS/NRR
NAME	R Pelton	N Salgado	FBrown
DATE	04/24/2008	04/28/2008	04/29/2008

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ATTENDEES

INPO-NRC Coordination Meeting, April 10, 2008

Institute of Nuclear Power Operations

Phil McCullough, Vice President, Training and Accreditation
Kent Hamlin, Director, Accreditation
George Hutcherson, Director, Industry and External Relations

Nuclear Regulatory Commission

Bruce Boger, Associate Director for Operating Reactor Oversight and Licensing, NRR
Glenn Tracy, Director, Division of Construction, Inspection, and Operational Programs, NRO
John Tappert, Deputy Director, Division of Construction, Inspection, and Operational Programs, NRO
Frederick Brown, 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
Hironori Peterson, Chief, Operations Branch, RIII
Ryan Lantz, Chief, Operations Branch, RIV (connected via telephone bridge)
Fred Guenther, NRR
Richard Pelton, NRO
Richard Baldwin, RII
Patricia Eng, FSME
Ilyne Miller, NRR
Mark Lintz, NRO
Larry Vick, NRR
John Munro, NRR
George Usova, NRR

Other

Robert Meyer, Professional Reactor Operator Society (connected via telephone bridge)
Timothy Dennis, ANS Standards Committee

AGENDA FOR PUBLIC MEETING
WITH INPO ON TRAINING AND QUALIFICATION
April 10, 2008
8:00 a.m. - 4:00 p.m.

Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike -- Room O 16 B2
Rockville, MD 20852-2738

TOPIC	LEAD
• Introductions and Opening Remarks	NRC/ INPO
• Public Input	Public
• Accreditation Update	INPO
○ Renewals	
○ Probation status	
○ NRC observers	
• New Reactor Accreditation	INPO/NRC
• Regulatory Issues	NRC
• Future of Training	INPO
• NANTel Update	INPO
• Other Items of Mutual Interest Related to Training	INPO/NRC
○ Exam Bank	
○ Exam Performance	
○ New Reactor Operator Licensing Examination Initiative	
○ Knowledge Management	
○ Staffing concerns	
• Public Questions and Answers	Public
• Closing Remarks	NRC/INPO