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Tel. 301-504-2240

BUILDING ON EXPERIENCE AS OPERATORS

FORREST J. REMICK, COMMISSIONER
U.S. NUCLEAR REGULATORY COMMISSION

PRESENTED AT REACTOR OPERATORS' WORKSHOP:
PROFESSIONAL OPERATORS IN OUR EVOLVING INDUSTRY:
BUILDING ON EXPERIENCE

SPONSORED BY
LONG ISLAND SECTION AND REACTOR OPERATOR DIVISION
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PROFESSIONAL REACTOR OPERATOR SOCIETY
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Good morning, ladies and gentlemen. It is a pleasure for me to join you in this reactor operator's workshop entitled, Professional Operators in Our Evolving Industry: Building on Experience. I am especially pleased that this workshop is being jointly sponsored by the Long Island Section and the Reactor Operator Division of the American Nuclear Society, in both of which I am a member, as well as by the Professional Reactor Operator Society. It is wise to build upon the experience of these two societies, which provide many services to operators.

I truly am pleased to be with you today because you, as operators, are very important people. You are the professionals upon whom the future of the nuclear option in the United States, and the world, is strongly dependent. You are the professionals to whom we look and upon whom we depend to make sure that your power plant or your non-power reactor is operated in a safe and efficient manner. You are an essential and important ingredient in a profession in which you can be proud.

Many of us think that we know how to do your job; many of us think that we know how to operate your plant or your reactor as well, or better, than you do. But it is you who have spent the endless hours of training and retraining; you have spent the hours at the board and in the plant to learn the feel for the plant, to know just how to notch that rod or jog that switch so the plant does exactly what you intend. You are the professional operator, who can be proud of what you do and take pride in what you've accomplished. But as a professional you also know that you can be better. As a professional, you must not forget that you cannot do it alone. As a professional, it is important that you realize that you are part of a team, a team consisting of those in the control room, those who rove the plant, those who maintain the plant and those who design and make the modifications. Without a team, truly working as a team, appreciating the value of the team, and openly communicating as a team, your overall performance will not be what it could and should be.

I'm proud of the fact that I once held an operator's license. NRC records show that I received the 62nd operator's license issued in the U.S. and the 4th senior reactor operator's license. I was excited, proud and enthusiastic about operations and saying that I was an operator. In those days, most everything we did was being done for essentially the first time. It was exciting. I became heavily involved in the ROD Division and presented many papers on operational topics here and abroad. I became involved in training others to become operators. Many of these trainees were from foreign countries where they have grown into senior positions, including the chairmanship of their AECs. I served as a part-time operator license examiner for the AEC and NRC for fourteen years and was technical program chairman for the first ANS Reactor Operation Division Topical Meeting held thirty years ago in Ottawa, Canada. I served as a consultant to INPO and was the first NRC nominee to the National Nuclear Accrediting Board and served as a charter member of the Board. And just before becoming a Commissioner, I organized and chaired the committee which advised DOE on establishing its training program accreditation effort, which I'm pleased to learn is off and running with some accreditation evaluation visits having been made and some accrediting board decisions perhaps not too far off. In short, I am proud of my operations background.

One thing that I learned from experience is that not everything that goes wrong in a plant is due to operator error. Now that is some experience we should continue to build upon. Although I like to believe that I still think like an operator, a look in the mirror reminds me of the fact that that was many years ago. Thus, I really do not know how to do your job and I will not try to tell you how to do it. My role, as well as that of other graybeards, is best to help make it possible for you to do your job in the professional manner you know.

For this reason, I'm pleased that the Commission has taken several actions which give greater recognition to you and your colleagues. In particular, I'm referring to the proposed amendment to 10 CFR Part 55, which was out for public comment. The amendment would delete the requirement for each licensed operator to pass an NRC administered requalification exam once during the term of his or her six year license. The amendment would thereby transfer the responsibility to administer operator requalification exams back to the licensee. I hope this will lead to the opportunity to have your written exams, simulator scenarios and walkthroughs more directly related to the activities you do most, and not be the most exotic situation an examiner can think of. The staff is reviewing the comments received and anticipates submitting a proposed final rule amendment to the Commission by the end of the year.

Also, I'm referring to recent Commission action to publish proposed modifications to fitness-for-duty program requirements. These were published on March 31st. The proposed rule is intended to permit licensees to reduce the random testing rate for licensee employees but maintain the 100 percent random testing rate for contractor and vendor employees. The comment period expired on June 22, 1993. The staff received about forty comments, and is currently preparing its responses to the public comments. Many licensees objected I believe to part of the proposal. They hold the view that everyone should be tested at the same rate, but at the lower rate of 50%. The final rule is expected to be published in the Federal Register toward the end of this year. The good news is that experience has shown that the trend of Fitness-For-Duty reports on licensed operators is down; 17 cases in FY 92 and 7 cases in FY 93.

Earlier, I mentioned the need for open communication within your team. This is necessary for all of you to be successful in operating your plant or reactor safely. I remember as a young operator having as part of our team an electronic technician, who was quite competent. When we operators encountered electronic equipment problems and called upon the technician for help, we'd ask, "Doug, what's wrong with this equipment?" He'd answer, "it's broke." After turning the equipment back to us, we'd ask, "Doug what did you do to it?" He'd answer, "Fixed it."

Although we found that Doug was usually right, inasmuch as he had "fixed it," other members of the team did not benefit from his knowledge or from a better understanding of the problem, and thus did not gain in their knowledge of the instrumentation that we as operators were directly dependent upon. Experience has shown that teams in which members openly communicate with one another perform better.

Incidentally, on a number of occasions in years past, I urged that health physics personnel, nuclear engineering personnel and reactor operators needed to communicate more with one another. I saw too many cases where health physicists and nuclear engineers modified charts, calibrated equipment or changed set-points without explaining to the operators, who had to rely on the equipment or charts, what they were doing or had done. After all, in effect the entire nuclear organization exists to make it possible for the operators to operate the plant or reactor in a safe and efficient manner. Members of a true team openly discuss and share information. A team does not allow intellectual machoism.

There is one aspect of performance based training that I have some concerns about. Incidentally, I am a firm believer in performance based training and the systematic approach to training. I am truly impressed with what has been accomplished by the industry in the training arena. It is essential that the knowledge, skills and abilities necessary to perform the important tasks of various jobs are systematically determined and that individuals are properly trained and retrained to perform those tasks. However, I believe that it is also important for a professional to be inquisitive, to be interested, and to want to learn and continue to learn beyond what is essential to conduct the tasks of one's position. One can learn much from other members of the team if open, inquisitive communication is part of the culture of the operations profession. In short, a professional should have a thirst for knowing and understanding more than just the essentials. A professional never stops learning.

Experience over the past decade has shown that one of the important developments which has led to considerable improvements in the operation and safety of nuclear reactors, whether they be power or non-power reactors, is professionals helping, assisting and working together with other professionals for the common good. I know of no other industry in which such cooperation, exchange of information and experience, and working together has been so extensive and has been and is proving to be so successful as in the nuclear utility industry.

The formation of INPO, the Institute of Nuclear Power Operations, following the TMI accident in the United States has had dramatic effects on the safe and professional operation of nuclear power reactors in the U.S. as utilities help one another in improving and seeking excellence in the operation of their plants.

The Professional Reactor Operator Society (PROS), which subscribes to the highest standards of excellence in operations and serves as a means of communication among, and as a voice for, operators, has greatly contributed to professionalism in operations and in improving and promoting safe reactor operation.

The formation and development of NUMARC, the Nuclear Management and Resources Council, in the United States has led to a highly productive exchange of views between the NRC and the nuclear power industry on regulatory matters. No one individual and no one organization, be they regulatory or industry, has the knowledge or the smarts to know the best answer to the myriad of technical issues that arise from time to time. But an open exchange of views, with mutual respect for one another's role and responsibility, frequently leads to solutions which more readily satisfy the requirements of the issue at hand.

The organization of Test, Research and Training Reactors (TRTR) continues to develop as an important body, performing for the non-power reactor community some of the activities performed for the power reactor community by INPO and NUMARC.

The formation and growing importance of WANO, the World Association of Nuclear Operators, is in essence a world-wide extension of INPO wherein utilities in one country help, assist and learn from sister utilities in other countries, transcending the restrictions of political, geographical or government agency boundaries. The importance of this effort is immeasurable, especially to utility personnel in countries with single nuclear plants and in countries shut off from open communication with the rest of the world.

I could continue with the mention of cooperation and information exchanges that result from the myriad of activities of such organizations as the IAEA in Vienna and the NEA in Paris, and professional societies such as the ANS and the ASME.

In short, we are involved with a technology that is an international technology. A technology in which international barriers of geography, politics and language have been overcome by the common desire of professionals to demonstrate that this technology can be used safely to benefit mankind and womankind.

My reason for raising the subject of the importance of cooperation with you today is to urge that you not take it for granted. It has not yet reached its full potential; it is something which is unique and has had, and continues to have, tremendous benefits. Therefore, it should be recognized, preserved and nourished. In the wake of your success as professional operators, don't forget the importance of learning from each other, and of sharing your knowledge and experience with others. Their success or lack of success can greatly affect you. Internationally, it is essential that we build upon the experience of one another.

Earlier, I mentioned that at one time I had been professionally active in reactor operator matters. With your forbearance, and taking advantage of my age and the fact that I have the microphone, I would like, in closing, to share with you some words from several of my sermons of those days. They express my continuing views on professionalism, excellence, and the importance of operators and operation.

In a keynote address to attendees at the Second National Symposium on Training of Nuclear Facility Personnel in 1975 (remember, this was four years before the accident at TMI), I said the following:

- o "In conclusion, I would like to return to the title of this paper, "Training of Nuclear Facility Personnel: Boon or Boondoggle?" So that there is no misunderstanding, it is my contention that the training of nuclear facility personnel, especially as it relates to the training and licensing of reactor operators, is both boon and boondoggle. Although I know that some disagree with me, there is no question in my mind that without the licensing requirements that make training necessary, the general standards and qualifications of reactor operating personnel would not be as good as they are today. At the same time, I submit that sometimes this same training appears to be a boondoggle. I do not direct this censure at the concept of licensing and the requisite training and retraining. However, I do direct it to those who do not utilize it to its fullest potential for developing an elite, professional operating team of high esprit de corps. I have met both young and old trainees who had transferred from fossil fueled plants who were extremely enthusiastic about the change because of the challenge that was before them in learning a new technology and who were enthusiastic about the amount that they had learned from their training. I consider it a boondoggle if the inspiration, leadership, or tools are not provided to capitalize on this interest, potential, and opportunity."

"I firmly believe that the magnitude of the capital investment and the safety of the general public warrant and necessitate highly trained personnel to operate our nuclear plants. Good training opportunities and the encouragement and rewards of professionalism attract better personnel. In turn, better personnel with improved training will lead to better and safer operation, which will yield increased reliability and plant capacity factors."

Then, in February 1981, while serving on INPO's Special Education, Training and Qualification Task Force (this was before INPO had established its training program accreditation effort and before the National Academy for Nuclear Training was established), I wrote to Red Thomas, who was INPO's training guru at that time, and said the following:

- o "I do not believe there will be a high level of professionalism and esprit de corps in reactor operations until reactor licensees decide to treat reactor operations as a profession and reactor operations personnel as professionals. I believe that there is too much of a view that if reactor operations personnel are kept professionally and intellectually "barefoot and pregnant," they will be happy to stay at the plant. The prevalent philosophy seems to be that if one hires individuals with intellectual drive and ambition, they will not spend a lifetime as a reactor operator. Apparently overlooked is the fact that a high degree of professionalism and esprit de corps in operations can by itself cause people to be attracted and to remain in the profession. Quality reactor operations and the opportunity for continued learning can continue to provide professional challenges which can lead to the retention of personnel. I believe if operations was approached more professionally, there is much to keep bright individuals interested in operations."
- o "Professionalism must start with professionalism at the upper levels of plant management."
- o "Management should make it explicitly clear that it wants, supports, and expects professionalism in plant operations."
- o "Management should go out of its way to officially and openly recognize the importance of professional plant operations and the eliteness of licensed personnel."
- o "Management should officially recognize individuals when they initially receive their RO or SRO license, or are promoted to shift foreman or supervisor. Management should openly acknowledge the effort expended in requalification."
- o "Management could bestow special fringe benefits to licensed personnel to recognize their importance."
- o "Personnel should be encouraged to qualify for other duties. For example, encourage reactor operators to qualify in instrument maintenance and vice versa. Recognize this qualification publicly and reward it with merit increases."
- o "The quality and appearance of shift foreman and shift supervisor offices should be made more professional."
- o "Operations personnel should be encouraged to continue their education and training. This should include continued formal education as well as in-plant training in health physics, instrumentation, supervisory or management training, oral and written communications, etc."
- o "I think that INPO is in a unique position to establish improved standards of professionalism and to push for their implementation. If not already doing it, INPO should develop standards during their evaluation visits. INPO should utilize their CEO seminars to stress the need for professionalism in plant operations. No other institution (except the NRC to a limited extent)

is so uniquely empowered to both routinely visit all nuclear power plants and to be in a position to influence utility CEOs."

My enthusiasm was somewhat deflated when INPO personnel indicated that, in response to these 1981 remarks, although they agreed with many of my points, INPO did not think that promoting professionalism was something it should undertake. I was surprised, because I have always been highly impressed by the professionalism in evidence by all INPO personnel with whom I've interacted. At the same time, I realized that INPO's plate was full at that time.

However, I forged on. In fact, INPO provided me with the opportunity and the forum to be heard. Also, people like Pat McDonald of Alabama Power encouraged me to continue to emphasize professionalism. I utilized the INPO CEO Workshop in September 1983 to stress some of the same things I just recited to you.

For example, I told them that:

- o "Excellence will be realized only if plant operations is treated as a profession, and only if plant personnel are treated as professionals."
- o Also, that "professionalism and the pursuit of excellence must come from the top."

Further, I used INPO's 1984 Plant Manager's Conference to make some of the same points. I told them that, "Professionalism and the pursuit of excellence must come from them as Plant Managers."

You can imagine my elation when the National Academy for Nuclear Training chose the name "The Nuclear Professional" for its journal. And when Angie Howard of INPO invited me to write an article for the January 1987 edition, I chose to talk about my dream of a program to educate and train a select group of plant operations personnel into an elite cadre of plant professionals.

Needless to say, I was further delighted with INPO President Zack Pate's speech to the 1987 CEO Conference on the subject of "Professionalism in Operations," also with the INPO stimulated industrial effort to develop a bottoms-up Professional Code for Operators, and the top-down Principles for Enhancing Professionalism of Nuclear Personnel.

Several years ago someone from Duke Power gave me a copy of a small card on which they'd printed their definition of professionalism. I liked it so much that I've kept it on the corner of my deskpad where you will find it today in my Commission office. It reads:

- o "Professionals stand above the crowd by the quiet confident way they approach their job. A confidence born of hours upon hours of vigorous training and retraining -- of qualification and requalification. Professionals are set apart from the amateur by the quality of their work and their meticulous attention to detail. The professionals are immensely proud of their status. They are good and they know it. And yet, they're smart enough to know they will remain good only as long as they work at it.

The professional demands a great deal of himself or herself and sets an example for others to emulate."

What better description of a professional operator than this?

The young woman who was custodian for my office at Penn State told me one day that she enjoyed reading that card on my desk. She said it reminded her to try to do a professional job. She said that she too wanted to be a professional.

Why have I taken your time today to discuss working together, helping one another, building upon experience, and professionalism? Why have I presumably been preaching to the choir? It's because I want you to know that professionalism in our plant operating crews is essential to the future of safe nuclear power. You as professional operators can stimulate increased professionalism in other plant personnel if you set the example.

You have many challenges to face in your continuing effort to attain excellence in your plants. You are key to their success and I sincerely wish you that success. What an important role you have to play. What satisfaction you can realize, if you know you are a professional and if you are viewed as a professional.

It's been a pleasure to be with you today. And I thank you for your attention. I'd be happy to answer any questions you might have.