

Improving the interface between nuclear regulators and operators

Ensuring that nuclear installations are operated and maintained in such a way that their impact on public health and safety is as low as reasonably achievable has been and will continue to be the cornerstone of the nuclear safety landscape. But it is clear that this landscape is changing. The introduction of competition into electricity markets, technological advancements and government oversight are a few of the many factors creating challenges today.

The number of players involved in nuclear electricity generation is considerable, but two key players stand out when it comes to the issue of nuclear safety: the nuclear regulator and the nuclear industry. While the industry is responsible for safety, it is the regulator who ensures that licensees operate their plants in an acceptably safe manner. Although many fora are organised in this area, few bring together top-level participants from regulatory organisations and the nuclear industry for an exchange of views with a goal of reaching common understandings.

Recognising this, the NEA Committee on Nuclear Regulatory Activities (CNRA) and the World Association of Nuclear Operators (WANO) held a joint international forum in June 2002. The forum sought to improve communication between the parties as well as understanding of the rationale used by each group. Discussions focused on three areas of interest: market competition, asset management, and measuring and communicating safety performance. In order to better understand the results of these discussions, it is helpful to know how each of these terms was approached at the forum.

Market competition – In the present environment, issues such as industry restructuring, market liberalisation, grid stability, safety performance, maintaining competence, management of change and impact of regulatory changes are primary drivers to changes in industry practices, which in turn require the regulator to discern the associated impacts on regulation and safety. A key aspect of market competition is the speed of change, which brings about changes in what industry or regulators perceive, and may result in added tensions or pressures on both. Other issues include organisational changes and the increased demand by the public to ensure safety.

Asset management – The nuclear industry needs to maintain adequate resources to carry out its work both now and in the future, while at the same time maximising its economic return. A key element in addition to financial issues (i.e. liabilities, relationships, internationalism, etc.) and physical questions (life extension, periodic safety reviews, decommissioning) is human assets. The need to maintain capability, skills and staff is considered to be a very important issue.

Measuring and communicating safety performance – It is essential for any organisation to have relevant indicators of its performance. Both nuclear regulators and the nuclear industry have made numerous efforts in the past years to

* Dr. Barry Kaufer (barry.kaufer@oecd.org) is a member of the NEA Nuclear Safety Division.

establish systematic, meaningful and reliable ways to measure safety performance. Both parties have established systems for collecting information on safety performance, with each recognising that there are pros and cons in using performance indicators. Issues needing to be addressed include: ways to share this information; what types of indicators (e.g. lagging or leading) are used; and transparency and openness in relation to market competition and as part of a safety management system.

Forum discussions

Throughout the forum, participants regularly sought ways to define the respective roles of operators and regulators; develop usable performance indicators, especially in the management area, and improve mutual confidence between both parties. They also addressed the control of outside contractors, the regulator's role and competence with respect to the operator's organisational and staffing matters, and the need to react to international pressures to achieve more harmonised nuclear safety standards.

Both regulators and operators noted that the economic pressures of competition in electricity markets have led to greater focus on efficiency in plant operations, raising some concern about sustaining efforts to maintain a good nuclear safety culture. It was clear from the discussions that market competition has created challenges to safety for both regulators and operators. Encouragingly, both sides see trends that liberalisation can actually lead to better safety performance, but they also acknowledge the need for continued caution and vigilance.

Regarding asset management, regulators and operators alike stressed that one of the biggest challenges in the future would be to have reliable and adequately trained staff. Work is needed, both nationally and internationally, to sustain a skilled knowledge base. Doing so will be a key test of the success of joint efforts between regulators and operators.

Measuring safety performance was a more difficult area in which to achieve consensus because of the different approaches taken by each side. It was recognised that sharing safety performance information would be greatly beneficial to both regulators and operators, especially in improving the effectiveness of their responses to events. This is possible provided a firm understanding is reached on how the information is to be used by

both sides. Two very difficult areas were also discussed: performance indicators related to management issues and the continuing problem of identifying performance indicators that help reveal worsening safety situations. The general problem of operators (and regulators) using performance indicators as targets was also recognised.

Open and clear communication with the public has largely been a priority and has been achieved by both parties. The remaining challenge is to ensure that not only are improved messages delivered, but also that they are understood and believed.

Concerns remain

The general sentiment at the end of the meeting was that coming together was a beginning, remaining in contact would be progress, and working together would be the demonstration of success. The forum enlarged the scope of existing relationships between regulators and licensees from a national perspective to an international interface across borders.

A real concern remains, however, about the measurement and communication of safety performance in the modern era of market competition and openness. Industry is worried about the regulators misusing the results of peer reviews or performance indicators, either to take precipitate regulatory action or to make premature comments in public. To a large extent this goes right back to a mutual appreciation of each other's roles in the overall safety system and how this has been altered by the new circumstances that operators and regulators have to face.

Other concerns include:

- **Safety:** Is there agreement on the issue of safety culture? How does the operator assess it and where does the regulator fit into the picture? How safe is "safe enough" and how can the regulator and the operator reach agreement?
- **Economic pressure:** It can be good for safety, but there needs to be awareness that organisational changes can have negative consequences for safety.
- **Regulation:** Good co-operation between the regulator and operator is necessary to ensure that resources are targeted at real safety issues, but the regulator also needs to retain the confidence of other stakeholders, particularly the public.

- **Public demands:** Both nuclear regulators and the nuclear industry need to understand how to satisfy the public's ever-increasing demands for openness without damaging the operator's commercial interests or financial standing.

Both the NEA and WANO recognised that communication is a key area in which regulators and industry could work together to ensure that other stakeholders, that is government and the public, not only openly receive information but are also able to understand what it means and believe it. The forum succeeded in initiating a consensus-building process for regulators and operators for the first time in a truly international setting. The next step is to begin working together to increase co-operation and develop common approaches, while respecting the independence of each party.

Future co-operation

Several practical recommendations were developed by the forum participants for future co-operation:

- The NEA, through its two safety committees (the CNRA and the CSNI), should review the results of the forum and prepare reports of interest and use by their member countries as appropriate. For example, the CNRA is currently focusing on the subjects of analysis of operating events, accident precursors and near misses, and the continuing development of safety performance indicators. WANO is considering developing guidance for plant operators on change management, human performance, operational decision making and other specific issues as they develop. Both organisations commit to providing information on their respective (future) programmes of work and to exchange information in the future, when possible.
- Participation of WANO members in selected meetings or activities of the NEA committees or working groups, as agreed on a case-by-case basis, would help maintain a co-operative relation. The mutual convenience of holding a follow-up forum should be considered in two to three years.



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- The NEA and WANO should exchange information on concepts, such as the performance indicators they develop or their criteria for event reporting, and might define a protocol for exchanging such information.
- The NEA and WANO recognise that knowledge management (concerning in this case personnel ageing and maintaining technical competencies) is an area of concern to both organisations and to other interested parties. They favour the development of programmes aimed at attracting and retaining young people into the nuclear field and maintaining technical expertise in the future. Both organisations agree to exchange information on initiation of actions taken on knowledge management.

In line with the latter recommendation and based on the positive feedback received, the NEA plans on holding another Regulator/Industry Forum in 2004 (RIF 2004). The topic of this forum will be "Maintaining a Sound Basis for Continued Safe Nuclear Power Plant Operation". The main focus will be on one of the key issues raised in the 2002 forum: the use of contractors. ■