

Slide 1 – World Association of Nuclear Operators (WANO)

My name is Ron Crawford and I am pleased to have the opportunity to speak with you today about the World Association of Nuclear Operators, also known as WANO.

Slide 2 – Who is WANO?

WANO is an international organization with the single aim of promoting the highest levels of safety and reliability at nuclear power plants around the world.

WANO is a non-profit organization that has no commercial ties and no direct affiliation with any government or regulatory bodies. However, WANO is intended to compliment the regulatory organizations and holds periodic meetings with the International Atomic Energy Agency (IAEA) to share program information. WANO does not advocate for or against the nuclear industry. WANO's role comes into play after an entity chooses to operate a nuclear plant, and then that role is to ensure the plant is operated as safely as possible.

Slide 3 – WANO Formation

WANO was formed in 1989, following the 1986 accident at the Chernobyl nuclear plant in Ukraine. The goal was to unite the worldwide nuclear industry to improve nuclear safety, and to prevent the recurrence of such accidents.

Slide 4 – WANO Mission

WANO's mission is to maximize the safe reliable operation of its member plants through the effective exchange of information and by encouraging communication, comparison, and emulation.

The mission is carried out by a governing board, five regional centers, and implementation of four basic programs.

Note that the mission does not include any objective to influence public or political opinions related to nuclear power.

Slide 5 – WANO Charter

The WANO charter, signed by each of its members, states that each nuclear plant operator has two fundamental responsibilities:

First, is an individual responsibility to guarantee nuclear safety at the plants they operate; and

Second is a collective responsibility to work together to improve performance and continually upgrade the safety of operating plants around the world.

This second point reinforces the important concept that members are really hostages of each other's performance, and therefore own a responsibility for ensuring the collective safety of plant operations. These straightforward and intuitive concepts are fundamental to the way WANO operates.

Slide 6 – WANO Organization

The WANO organization and staff are based in four regional centers and a central coordinating center, located in London. Regional centers are located in Tokyo, Moscow, Paris, and Atlanta.

WANO strategy and policies are established by a Governing Board, consisting of a Chairman and two Governors from each of the four geographic regions.

WANO policies and programs are carried out by Directors, appointed to run each of the four WANO Regional Centers. A WANO Managing Director works from the Coordinating Center based in London.

Regional Centers are semi-autonomous and are governed by their respective regional governing boards. However, the regional centers work closely together as a team to ensure activities are coordinated across the regions.

Slide 7 – WANO Structure

WANO's membership includes 447 operating nuclear units located in 32 countries or regions.

WANO relies heavily upon the industry to provide technically competent personnel to staff the regional centers. In addition, the industry supplies peers needed to carry out its key programs, such as peer reviews and technical support missions - - programs I will discuss in more detail in a few minutes. Over 300 member utility peers participate annually on peer review and technical support missions. This involves utility staff members stepping away from their normal jobs for anywhere from one to four weeks at a time to support a WANO Technical Support Mission or Peer Review.

Slide 8 – WANO Programs

WANO implements four complementary programs to accomplish its mission. They include:

- Peer Reviews
- Operating Experience
- Technical Support and Exchange
- Professional and Technical Development

I will briefly describe some of the programs and their role in supporting the WANO mission, but first, I'd like to reflect on a quote that really captures the bases for WANO programs.

Slide 9 – WANO Programs

"You must learn from the mistakes of others. You can't possibly live long enough to make them all yourself."

Sam Levenson (1911 – 1980) (Teacher, Author, and Entertainer)

Slide 10 – Peer Reviews

The first WANO program that I will discuss is peer reviews. A peer review is an evaluation of a station's operational performance, conducted by a cross-functional group of industry peers. Peer Review teams are led by team leaders, typically assigned to one of the four WANO regional centers.

The peer review program has been active for 17 years, with the first peer review conducted in 1992. Operating stations are now scheduled to receive peer reviews at least every six years. Many stations, including those in Canada, place a high value on the benefits of peer reviews and have chosen to receive them every two or three years.

Although WANO and nuclear regulators, such as the CNSC, share the goal of safe nuclear plant operations, we approach that goal from different perspectives. Regulators assess plant performance relative to minimum standards that are essential for safe operation. WANO peer reviews compare plant performance to standards of excellence, identifying potential gaps to industry best performance.

We've learned that for peer reviews to be effective, it is important to create an environment that fosters the candid and open exchange of ideas and frank discussion of problems.

Having been the recipient of a WANO peer review and the critical nature of the process, I can attest to the difficulty of accepting a critical message that relates current performance to the best in the industry. This next quotation by Franklin P. Jones may best capture the thoughts of utility managers following completion of a WANO peer review.

Slide 11 – Peer Reviews - Quotation

"Honest criticism is hard to take, particularly from a relative, a friend, an acquaintance, or a stranger."

Franklin P. Jones, President of the American Management Association

Slide 12 – Peer Reviews

Peer review teams are made up of around 20 industry peers that come from diverse locations. The teams are typically together for three weeks and spend at least 2 of those weeks onsite observing operations and maintenance activities, reviewing documents, and interviewing the station staff.

As part of the peer review, operating crews are typically observed responding to simulated events on a control room simulator.

Peer review teams identify specific areas for improvement that need to be addressed to help move the station to a higher level of performance. Likewise strengths are identified that are worth emulating.

Areas for Improvement identified during the Peer Review are discussed with senior plant and utility executives, typically including the company Chief Executive Officer. This discussion occurs in an Exit Meeting that is scheduled about one month after the completion of onsite peer review. To foster a candid exchange of ideas and frank discussion, Peer Review results are treated as confidential between WANO and the utility receiving the review.

Within about three months after the completion of the peer review, the member utility provides written responses outlining actions that will be taken to address the areas for improvement identified by the peer review team. These actions are then reviewed in subsequent WANO peer reviews.

To check on progress in addressing the areas for improvement, WANO participates on a midcycle review visit, about one year after the completion of the peer review.

Slide 13 – Peer Reviews (historical trends)

This next slide illustrates the cumulative and annual peer reviews completed since they began in 1992. In 2009, WANO is on track to complete 43 peer reviews,

bringing the cumulative total to 384. As a point of reference, the Atlanta Center Region typically completes about 15 peer reviews each year.

Slide 14– Pre-startup Peer Reviews

WANO also conducts pre-startup Peer Reviews, which specifically focus on those elements needed to transition a unit from the construction phase to the operational phase.

Pre-startup peer reviews have recently been conducted in India, Romania, and Japan (last 3 years). In addition, pre-startup Peer Reviews are used to review the status of plants that have been shut down for an extended period and are preparing for restart. (These have recently been conducted in the USA, Canada, and Japan.)

Slide 15 – Operating Experience

The next WANO program I will discuss is Operating Experience. The Operating Experience Program is intended to promote the free sharing of nuclear plant event information via the secure WANO Member Website. All WANO members have access to the website and can review events reported from other stations, with the intent of learning from each other and avoiding a repeat of similar events.

Slide 16 – Operating Experience

WANO staff members analyze event information and trends and use a variety of tools to communicate and highlight problem areas for the industry attention and action. These range from communications targeted at line managers up to Chief Executives, depending on the issues involved and the needed response level.

Slide 17 – Technical Support Missions

The next WANO program is that of Technical Support. Where Peer Reviews are evaluative or diagnostic in their purpose, Technical Support Missions are intended to help resolve known issues, most often issues that were identified by peer review teams.

Technical support missions typically focus on addressing a problem in a specific functional or cross-functional area and include between 2 and 4 external industry peers that work collaboratively with key station managers.

So, to use a medical analogy, peer reviews are intended to be evaluative or diagnostic in their approach and technical support missions are equivalent to the treatment stage.

Slide 18 – Technical Support Missions (Historical Trends)

This next slide illustrates the number of Technical Support Missions conducted annually over the past 10 years.

Slide 19 – Performance Indicators

To facilitate benchmarking and emulation of industry best practices, WANO publishes performance indicators in the areas of nuclear safety, plant reliability, and personnel safety.

Examples of specific performance indicators include safety system unavailability, fuel reliability, collective radiation exposure, forced loss rate, and industrial safety accident rate.

Individual member stations can compare their own performance with that of similar stations throughout the world.

Slide 20 – Communications

Considering the geographic and cultural boundaries that WANO must address, communications among its members is vital to the WANO mission.

WANO maintains a member Website (www.wano.info) for exchanging important information as well as distributing over 8,000 copies of a member magazine several times/year.

WANO also maintains a public website, which includes copy of the WANO magazine and industry performance indicator results.

Slide 21 – Biennial General Meeting

Biennial General Meetings are conducted to promote the alignment of industry executives to the WANO mission and the importance of a strong Nuclear Safety Culture.

The Biennial General Meetings or BGMs report on industry progress during the preceding two years and discuss plans for the future.

The last BGM, conducted in 2007, hosted over 400 nuclear executives and presented the WANO Nuclear Excellence Award to six individual recipients.

The next BGM will be held in Delhi, India in January 2010.

Slide 22 – The Role of WANO

In summary, WANO's role is to provide its members with performance feedback, through use of peer reviews and individual interactions with senior management. In addition, WANO provides tools to help improve performance; including Operating Experience, technical support missions, guidelines, good practices, performance indicators, workshops and seminars.

WANO's emphasis is on safe operations. WANO is obligated to its collective membership to ensure actions to improve performance are reflected in individual response to peer reviews.

In addition, WANO recognizes its role in ensuring that new nuclear entrants adopt high standards of performance throughout the life of the plant's operations

Slide 23 – WANO Slide

This concludes my prepared remarks. Thank you for allowing me the opportunity to share this information about the World Association of Nuclear Operators.