REFLECTIONS ON NUCLEAR SECURITY

THE USA'S TOP NUCLEAR REGULATOR REVIEWS THE 9/11 RESPONSE

DR. RICHARD A. MESERVE

In the aftermath of the September 2001 terrorist attacks in the United States, the security surrounding the nation's critical infrastructure, including its commercial nuclear power plants, has become a central concern. I have been particularly gratified to have played a part in the collaborative work that has occurred among the Federal government, State and local officials, Nuclear Regulatory Commission (NRC) licensees, and industry working groups to ensure that the already robust protection of these facilities was further enhanced. All levels of government, as well as NRC licensees, have made significant contributions to bolster defenses against the increased threat of a terrorist attack. I would like to express my heartfelt appreciation to them.

The events of September 11 have also had a broader impact. We all look at the world in a different way. Society is wary of potential terrorist activities and is concerned about the facilities that they might be interested in attacking.

This heightened alertness is manifested in the increased reporting by members of the public of possible suspicious activities in the vicinity of nuclear plants. It is also clear that the threat of terrorism will be an abiding issue for the long term. As a result, there is a demand for action by government to preserve the security of its citizens.

The NRC has fully accepted that responsibility. But this is not a task that can be completed overnight. Although the NRC has taken many significant actions, some major challenges remain. Let me take a moment to reflect upon the state of security at NRC-licensed facilities and then to focus on the future.

There are three fundamental points that I would like to emphasize at the outset.

- First, the physical protection at nuclear power plants was strong before September 11. I am aware of no other industry that has had to satisfy the tough security requirements that the NRC has had in place for a quarter of a century. And these requirements have been significantly augmented over the past year. The plants are surrounded by multiple fences with continuously monitored perimeter detection and surveillance systems. They are guarded by well-trained and well-armed security forces. Nuclear power plants are constructed to withstand hurricanes, tornadoes, and earthquakes, making them among the most formidable structures in existence.

The plants also benefit from redundant and diverse safety equipment so that if any active component becomes unavailable, another component or system will satisfy its function.

Dr. Meserve (center in the above photo) is Chairman of the US Nuclear Regulatory Commission. He moderated the session on Nuclear Security at the IAEA Scientific Forum, September 2002. The article is based on his address, "One Year After: Reflections on Nuclear Security", at the InfoCast Conference in Washington, DC, on 11 September 2002.

Operators are trained to respond to unusual events, and carefully designed emergency plans are in place. In short, the security at power plants is very strong and the plants have an inherent capacity to withstand severe events of all types, including those that might be initiated by terrorists.

■ Second, there have been no specific credible threats of a terrorist attack on nuclear power plants since September 11. The NRC has worked closely with intelligence and law enforcement personnel to assess the threats that may be directed at nuclear facilities. Although it is difficult to predict when and where terrorists may strike next, the robust security at nuclear plants should serve as a significant deterrent. Nonetheless, it is prudent to presume that al Qaeda may consider nuclear facilities as potential targets. As a result, NRC has put in place a five-level threat advisory and protective measures system that requires licensees to take specific actions in response to changes in the threat conditions.

■ Third, in light of the events of September 11, the NRC has recognized the need to reexamine past security strategies to ensure that we have the right protections in place for the long term. Shortly after the attacks, we began a comprehensive review of our requirements for physical protection and security. We are undertaking a re-examination of the assumptions that underlie the current regulatory framework and we are making any changes that are necessary. We have already taken actions as a result of this review, and more will be taken in the coming months.

NRC's Response After 9/11. Following the attacks, the NRC issued over 30 safeguards and threat advisories to the major licensed facilities, placing them on the highest security level. Security across the nuclear industry was enhanced as a result of these actions, and many of the strengthened security measures are now requirements as a result of subsequently issued NRC Orders.

The security enhancements include increased security patrols, augmented security forces, additional security posts, increased vehicle "stand-off" distances, and enhanced coordination with the law enforcement and intelligence communities.

The Commission has also enhanced access control at nuclear power plants. This may be one of the most effective means of preventing a successful attack, because an insider could provide significant assistance to an attacking force. NRC regulations require that individuals having unescorted access to nuclear power plants undergo a background investigation which includes credit checks, employment history, reference examination, psychological testing, and a criminal history check conducted by the FBI. Further restrictions include prohibitions on the use of temporary unescorted access in sensitive areas.

Improvements in communications have been a central feature of our activities. Not only have we had frequent interactions with licensees concerning the security of their facilities, but also we have improved linkages with other parts of government. For example, we are in close and continuous contact with the intelligence and law enforcement communities and we have advised licensees to enhance protocols for involving governmental entities in the defense of their facilities.

The Commission has also completed an initial assessment of power reactor vulnerabilities to the intentional malevolent use of commercial aircraft in suicidal attacks and has initiated a broad-ranging research programme to understand the vulnerabilities of various classes of facilities to a wide spectrum of attacks. We are developing measures to mitigate vulnerabilities that are identified.

Although our work in this area is ongoing, the Commission has directed nuclear power plant licensees to develop specific plans and strategies to respond to an event that could result in damage to large areas of their plants from impacts, explosions, or fire. In addition, licensees must provide assurance that their emergency planning resources are sufficient to respond to such an event.

The Commission is working closely with other Federal agencies to revise the design basis threat that provides the foundation for the security programs of power plant licensees. Significant changes are likely. The Commission's Orders effectively provide enhanced security in the interim while this work in underway.

Inspection of security capability is necessary to provide confidence in the adequacy of defensive measures. The Commission has decided that full security performance reviews, including force-on-force exercises, will be carried out in the future at each nuclear power plant on a three-year

cycle, instead of the eight-year cycle that had been applied in the past. These reviews have commenced with "tabletop" exercises that for the first time involve a wide array of Federal, state, and local law enforcement and emergency planning officials.

The NRC has developed a new Threat Advisory and Protective Measures System in response to Homeland Security Presidential Directive-3. When a new threat condition is declared, the NRC will promptly notify affected licensees of the condition and refer them to the predefined protective measures that we have developed for each threat level. The new system has been formally communicated to licensees, Governors, State Homeland Security Advisors, Federal agency administrators, and other appropriate officials. We had the opportunity to exercise this system on 10 September 2002 when the Attorney General announced that the threat condition had moved to the Orange (high) level.

Radiological Dispersion Devices (RDDs). The Commission is actively involved in efforts to defend against possible terrorist use of radiological dispersal devices. Following the terrorist attacks of September 2001, NRC alerted licensees, suppliers, and shippers of the need to enhance security against the threat of theft of radioactive material.

The NRC is conducting a comprehensive evaluation of controls to protect those radioactive materials that constitute the greatest hazard to public health and safety. For example, we are evaluating approaches for "cradle-to-grave" control of radioactive sources which might be used in a radiological dispersal device and are reexamining the import and export licensing for these isotopes. We are also working with the Office of Homeland Security and other agencies to ensure that the Federal Government is prepared to respond to an event involving a radiological dispersal device.

Security & Safeguards Issues. In April, we established the Office of Nuclear Security and Incident Response (NSIR) to improve communications and coordination both within and external to the NRC on security and safeguards issues. This office is responsible for developing overall safeguards and security policies and is the central point of contact with the Office of Homeland Security. It contains our Incident Response organization; coordinates with Federal response and law enforcement agencies; and directs our counter-intelligence, information security, and secure communications activities.

In short, the NRC has taken a wide variety of steps over the past year in response to the changing environment in which we find ourselves.

Looking to the Future. Nonetheless, there are issues that remain before us and the nation. Let me mention a few:

- First, there are limits to the defensive capabilities that should be expected of nuclear plant operators. For example, the defense against aircraft attacks should certainly be the responsibility of governmental authorities, as should the defense against attackers with significant military capabilities. As a result, there must be an allocation of responsibility between the licensee's security organization and the government. Establishing the boundary that defines the responsibilities that should be borne by the private sector and those that should be assumed by the government has proven difficult for all types of civilian infrastructure. There is no quick answer that can be developed by the NRC in isolation from the other parts of government.

  Let me note in this connection that, given the current threat environment, an abundance of governmental response forces — local, state, and Federal — would be dispatched to engage any attackers at a nuclear facility and to lend assistance, regardless of the scope and nature of the attack. The real issue is not whether governmental entities will provide assistance, but rather when such resources will arrive and how they will be used to defend the facility. This has practical implications because the security framework should reflect the joint security capability of both the licensee and the government.
- Second, there needs to be an integrated national strategy to protect critical infrastructure of all types. The defense of nuclear facilities should not be viewed in isolation, but should be part of an overall national defensive scheme. The effort to develop such a strategy is underway. In some respects the nuclear industry is the pathfinder because of the extensive security capabilities that it had in place before September 11. Establishing and implementing an integrated national strategy will be an important task for the new Department of Homeland Security.

■ Third, we need to ensure coordination with Agreement and non-Agreement states in implementing security measures for radioactive materials. Agreement states have responsibility for roughly three quarters of the radioactive sources in the United States. Thus, any action the NRC might take to prevent a terrorist from using a radiological dispersal device will impact Agreement state licensees. In enhancing the security of nuclear materials, we must preserve NRC's ultimate responsibility for protection of common defense and security, while maintaining the integrity of the Agreement state programs. Moreover, states must be heavily involved with securing hazardous unlicensed sources and in establishing holding or disposal areas for materials.

■ Fourth, there is a difficult challenge in maintaining the appropriate public access to information. The NRC has strived to ensure public confidence by being one of the most open agencies in the US government; we recognize the reality that suspicions are nurtured if our activities are not fully accessible to the concerned public. But some information must be withheld because it could help a terrorist. We thus have the dilemma of trying to balance the public's right to know against the need for secrecy in certain areas.

■ Fifth, we must confront the reality that the concern for nuclear matters arises from an abiding public fear that devastating consequences will necessarily result from an attack on a nuclear power plant or from the detonation of a radiological dispersal device. These fears are certainly greatly exaggerated. But putting nuclear events in context has proven extraordinarily difficult because of ingrained public attitudes. This may have the unfortunate consequence that too little attention is provided to the defense of other types of infrastructure for which the consequences of a successful terrorist attack could be far greater.

■ Finally, although security must be an abiding concern, we cannot allow it to displace or to diminish the obligation to protect public health and safety from accidents. This has been a particular challenge in the United States because, for reasons wholly apart from security, we are in a period of dramatic change. Our nuclear plant licensees continue to seek to extend their operating licenses beyond the original 40-year term and to increase the power output of their facilities. There continues to be interest in the possibility of new construction. And after decades of technical studies and political debate, we confront the need for decisions associated with the establishment of a possible national disposal facility for spent fuel and high-level waste. September 11 has added another important task at a time of intense activity in the nuclear arena.

In conclusion, let me note again that our nuclear facilities are the strongest and most well protected civilian facilities in our country. But we recognize the need to enhance those protections. The NRC is dedicated to meeting the obligation to protect the public health and safety and the common defense and security from threats of all kinds. We have accomplished much over the last year, but we have more to do and we are on track to do it. ❑

IAEA NUCLEAR SECURITY ACTION PLAN

Put in place within months of the September 2001 terrorist attacks in the USA, the IAEA's Action Plan on Nuclear Security is now being implemented on many fronts worldwide.

Work includes helping countries upgrade levels of security in key areas. Peer reviews by international experts, for example, are assisting countries to assess and strengthen the physical protection of nuclear material. Workshops and training courses also are helping governments to assess threats to their nuclear facilities, raise their standards of security, improve controls over nuclear and radioactive material, upgrade their border monitoring to prevent illicit trafficking, and prepare response plans for nuclear and radiological emergencies.

The Action Plan is funded by contributions from IAEA Member States. As of December 2002, more than $12 million had been pledged by 22 countries and the Nuclear Threat Initiative, an organization in the United States.

Separately, through a joint initiative involving the United States, Russia, and the IAEA, an international conference on the security of radioactive material is being held in Vienna, Austria, in March 2003. One focus is on reducing threats related to "dirty bombs", or radiological dispersion devices. For more information about the IAEA and its work, visit the Agency's WorldAtom pages at www.iaea.org.

INSPECTIONS IN IRAQ: 2002 IN REVIEW

After a four-year absence, IAEA and UN weapons inspectors returned to Iraq for on-site inspections under terms of a new resolution adopted 8 November 2002 by the UN Security Council. The resolution demands that Iraq "cooperate immediately, unconditionally, and actively" with the IAEA, which is responsible for the nuclear file, and the United Nations Monitoring, Verification, and Inspection Commission (UNMOVIC), responsible for the chemical, biological, and missile files. The resolution further states that:

- Iraq is to provide IAEA and UNMOVIC "immediate, unimpeded, unconditional, and unrestricted access to any and all" sites and facilities they wish to inspect; as well as "immediate, unimpeded, unrestricted, and private access" to all officials and other persons they wish to interview.
- Within 30 days, Iraq is to provide to the IAEA, UNMOVIC and Security Council a "currently accurate, full, and complete declaration of all aspects of its programmes to develop chemical, biological, and nuclear weapons, ballistic missiles, and other delivery systems". (Iraq subsequently submitted the declaration, which the IAEA received at its headquarters 8 December 2002.)
- The IAEA and UNMOVIC are to report immediately to the Council "any interference by Iraq with inspection activities, as well as any failure by Iraq to comply with its disarmament obligations". In that event, the Council would "convene immediately...to consider the situation and the need for full compliance with all of the relevant Council resolutions in order to secure international peace and security".

Inspections resumed 27 November 2002, and the first preliminary assessment by the IAEA and UNMOVIC is scheduled for submission to the Security Council at the end of January 2003. For the latest briefings and full 2002 chronology, visit the Iraq Special Report pages of the Agency's *WorldAtom* Web site at www.iaea.org.