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NRC NEWS

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REALISTIC CONSERVATISM

Remarks of Chairman Nils J. Diaz
United States Nuclear Regulatory Commission

before the

NRC Regulatory Information Conference

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I. Introduction and Overview

My fellow Commissioners, distinguished foreign guests, distinguished representatives of the NRC staff, of the industry, of stakeholder organizations of all kinds, of the media, and of the public, it is a privilege and a pleasure to address you today. I see many familiar faces here, and at this, the seventh Regulatory Information Conference I have attended since joining the Commission, my face is probably familiar to most of you as well.

What is different this year: I am addressing you as NRC Chairman. We are thankful for Chairman Meserve's service to the nation. The transition has been seamless, and I would like to thank all those who have helped make that possible. The NRC discharges all of its responsibilities, come rain, sun or snow. Most of these activities escape headlines or outside attention, but inside they continue to be effected; these are indispensable components of what we are and what we do, and I want to thank the staff that labors day in and day out to get them done.

Today I would like to focus on three issues of major concern to the NRC and its stakeholders that are in the limelight: nuclear security, nuclear safety, and the need of the public for sound

information about nuclear issues. Before doing so, however, I would like to talk briefly in broader terms, about my conception of the NRC and its mission.

A great deal has changed since I first addressed the NRC Regulatory Information Conference six years ago. At the time, I was comparatively new to the NRC, though not to nuclear engineering or nuclear regulation: I had devoted virtually all my adult lifetime to nuclear technology, in various capacities: as a nuclear engineer, as an academic, as an entrepreneur, and even as a senior licensed reactor operator.

In that first talk, in 1997, I surprised some people, and perhaps even ruffled some feathers, by making the point that compliance and safety were not the same thing. Today, that may seem self-evident; but it was controversial at the time. It was an expression of my philosophy as a regulator, which focuses on putting the highest priority on issues of highest safety significance. An important application of this philosophy is what I have described of late as "realistic conservatism." (For purposes of simplicity, I am using "conservatism" in the sense of preserving adequate safety margins, and I am using "realistic" in the sense of being anchored in the real world of physics and experience).

Our objective should be to regulate in a manner that corresponds to the actual risk presented, and that must be realistically conservative. Neither under-regulation nor over-regulation serves anyone's interests. Under-regulation puts the public safety and the licensees' investment at risk; over-regulation increases costs to licensees and thus to consumers, without a matching safety or security benefit. It could be counter-productive to safety by diverting resources from the important safety issues. That was my belief in 1997, and it hasn't changed.

One other thing that hasn't changed is that I continue to view the NRC and the nuclear industry first and foremost through an engineer's eyes, and I express my views as an engineer. Engineers build based on sound science and technology; nuclear regulation must be built on sound science and technology, *and* be in accordance with the law. There should be no "maybe," "however," "in general," or "but" used to increase or decrease the importance or significance of a regulatory finding, whether positive or negative. It is or it is not. It meets requirements or it does not.

Regulators need to make decisions based on the best technological facts, bounded by law, when the requisite information is there. It should be recognized that sometimes failing to decide is itself a decision, a decision to maintain the status quo, which may be the wrong decision. My pledge to you is that if it's a "damned if you do, damned if you don't" choice, put me with the "do's" -- I would rather be faulted for action than for inaction. As I discharge my present responsibilities, I will endeavor to see that the NRC is known for acting decisively and expeditiously -- and not only that we are acting but that we are making it known. Not everyone may like our decisions -- it is the nature of our business that we cannot satisfy everyone, and we certainly never have in the past -- but at least they should be able to criticize us for the decisions we make, not for the ones we don't make, or take too long making.

Likewise, I would rather be faulted for speaking my mind, as clearly and candidly as possible, than for failing to do so. The great 19th Century English scientist Thomas Huxley used to say,

"Be clear, even if you are wrong, for if you are wrong, sooner or later some fact will come along to set you right." He added the warning that if your objective in using words is to create ambiguity and wiggle room and possible escape hatches for the future, then you are lost, and there is no hope for you.

So this is a further pledge to you: of continued plain speaking. On the issues that concern the NRC and its stakeholders -- the industry, the public, states and other agencies -- you will know where I stand, as in the past. There is just one limitation on my freedom: since the Chairman is by law spokesman for the Commission, I must now be careful to make clear when I am speaking on behalf of the agency and when for myself alone. Today, except when I specifically refer to Commission decisions, I will be expressing my own views.

II. Nuclear Security

I'd like to turn now to those three areas of central concern for the NRC, for its stakeholders, and for the public, that I already mentioned. They are security; nuclear safety; and the need to keep the public informed. They are so interrelated and intertwined that it is really impossible to speak of any one without immediately involving the other two, but the issues are nevertheless distinct. I'll begin with nuclear security, just because it is the issue that has been most prominent in the public mind over the past 18 months.

The terrorist attacks of September 11, 2001, focused public concern on the vulnerability of the national infrastructure to hostile action. For many in the public, the media, and the Congress, one immediate question was: suppose the terrorists had chosen to attack a nuclear power plant? What then?

There was nothing unreasonable about asking that question; on the contrary, it would have been unreasonable *not* to ask it, given the public prominence of anything related to nuclear power or radioactivity. The first answer, as the Commission has been stating, is that nuclear power plants, to a greater extent than any other kind of facility in our entire civilian infrastructure, are built to withstand powerful impacts; the second is that nuclear power plants have been required *for a generation* to assume that attack by well-armed terrorists is a real possibility, to be guarded against 24 hours a day, 365 days a year. Third, we have mitigation systems in place, including emergency planning and response, to minimize any impact on public health and safety. There is no doubt that today, both in our understanding and in our actions on how these three levels work together, there are significant improvements in the protection of public health and safety. They are not easily seen -- and sometimes that is intentional, for security doesn't always advertise -- but they are there. As I have said in the past: "We will take care of our people, promptly and passionately.... Make no mistake, America will deliver the necessary responses to protect public health and safety, and therefore, there will be no 'American Chernobyl.'"

There is one thing that should be said at once regarding terrorism: President Bush and his Administration are absolutely correct in believing that the *first* objective should be to find and neutralize the terrorists. Accomplish that and you have protected the nation's nuclear power plants *and* all its bridges, tunnels, chemical plants, office buildings, etc., at the same time.

Trying to identify and defend individually all the potential targets of terrorism in this country is definitely a second-tier objective. Nevertheless, those second-tier objectives are very much part of the NRC mandate of common defense and security.

Another important point bears emphasizing: it is not possible to resolve all new security issues that confront the nation and the NRC as quickly as they appear, or as fast as we would want. As the NRC confronts such issues, we must review them in the context of our long-standing and enhanced requirements, of the capabilities of the affected regulated entities, and of the multiple sources of information and coordination that are part of the NRC's exercise of its ongoing common defense and security responsibilities. Those issues that present the higher risk deserve earlier consideration. For certain issues, such as the use or range of weaponry for guard force, legislative action may be appropriate. I also have to say that one would be hard pressed to find a faster or more comprehensive and effective response to an increased security threat than has been demonstrated by the NRC and the power reactor sector, and that is a fact.

At the risk of getting a little ahead of myself, this is where issues of presentation are so critical. You have to steer your way between the twin pitfalls of unduly minimizing problems, on the one hand, and exaggerating them, on the other. When the American public is looking to you for solid information about real life issues that concern their safety and their families' safety, you do them a disservice if you understate risks; you do them an equal disservice if you overstate them. Consideration of major reactor accidents and terrorist attacks is not new to the NRC and that's a fact. As I have long said, security is an important subset of safety.

In this regard, when there are problems and gaps, we can and should acknowledge them. At the same time, we don't need to bend over backwards and exaggerate dangers just to demonstrate the seriousness of our commitment to public safety. I think it was James Thurber who once observed that you can wind up just as flat bending over backwards as falling forward onto your face.

I don't mean to suggest that communicating well is easy. We live in a world of sound bites, where sometimes you are lucky if you get a whole sentence to make your point. At a press conference, you are not likely to be asked to give your thoughts on the safety and security of nuclear plants generally, or the X nuclear plant in particular. You are more likely to be asked, "Is the X nuclear plant at risk, yes or no?" You may try to answer that by saying, "The X nuclear plant poses no unacceptable risk," and then going on to explain what that means, but don't count on seeing those exact words in the headline or in the explanation given the next day. It's easy to blame reporters when subtle distinctions get lost in the shuffle, but we have to remember that the reporter is often at the mercy of an editor, and the person who writes the headline may not consult either one.

Thus, I think it is critically important that not just the NRC, but everyone else concerned -- the media, the industry, public groups -- appreciate their responsibility to the public to maintain accuracy and perspective. It's an effort well worth making. The American people have a lot of solid common sense, and a proven capacity to arrive at sound decisions, if they are provided accurate information to work from. At this point, they are having to process a barrage of data

about risk of various kinds, including information on nuclear issues. In that regard, the NRC has to do a better job. This has been and will continue to be one of my highest priorities.

To return to the issue of security. In the aftermath of the September 11 attacks, the Commission, unanimously, undertook a number of measures to improve security at nuclear power plants and to assess areas of possible vulnerability, with the intention to quickly arrive at the probables and work out mitigation strategies. The lessons learned and being learned guide the agency's and licensees' actions.

The enhanced security construct we are establishing for the defense of nuclear power reactors includes three strongly interdependent elements, like the legs of a tripod, all of them directed to one fundamental goal: how to best protect our people, with the appropriate resources placed at the right places. These three elements are:

- enhanced access controls, to prevent unauthorized entry of persons and materials to nuclear facilities;

- enhanced work and training requirements for security personnel, to increase their capability to detect and respond to threats; and

- a revised Design Basis Threat and associated defensive capabilities, derived from the interim compensatory measures previously put in place, with appropriate enhancements.

There are other complementary measures; for example, force-on-force security exercises at nuclear power plants, which have begun at a pace of approximately two per month.

The aim of the security construct is clear enough: deny access to potential wrongdoers, ensuring an ever-present security force that serves as a strong deterrent and as a tactically and weaponry-qualified defensive detail that is capable of defending a facility with high assurance against a Design Basis Threat.

The framework we are now putting in place will add assurance, I believe, of the continued security of operating nuclear power plants, and we have provided adequate interim measures for other significant nuclear facilities as well. We expect to promulgate soon the revision in the Design Basis Threat for operating nuclear power plants and Category 1 nuclear fuel cycle facilities. While the Design Basis Threat describes possible threats against which certain licensees are required to defend, as the Commission said: "[O]ur regulations stipulate that power reactors are not required to be designed or to provide other measures to counteract destructive acts by 'enemies of the United States.'" The Commission explained that "the national defense establishment and various agencies having internal security functions have the responsibility to address this contingency, and that requiring reactor design features to protect against the full range of the modern arsenal of weapons is simply not practical." Yet, the Commission also understands that it may not always be able to draw a bright line between security responsibilities of NRC-regulated entities and those of defense, security and law enforcement authorities.

Responses may overlap for certain threats and coordination or integration of the responses of the various private and governmental organizations would be required.

Nor have we neglected the security of radioactive materials. The Commission decided to use a risk-informed approach in regulating in this area. NRC and the Department of Energy are working to strengthen the U.S. regulatory infrastructure to increase the protection of high-risk radioactive sources which could be used to make a radiological dispersal device. The Commission recently approved the initial study of a joint NRC/DOE Working Group which provided action thresholds for radioactive materials of greatest concern. This report also addressed issues such as tracking and control of radioactive sources and recovery of unsecured radioactive material.

In the area of security we are getting better everyday, and so are our licensees.

Returning to the issue of power reactors, in a statement issued last week, I summarized the current status of our security measures as follows:

> With the completion of the revised design basis threats, we expect that there will be a period of regulatory stability during which our power reactor licensees can consolidate the various enhancements that we have ordered. But we intend to continue to work with the Department of Homeland Security and other Federal agencies, as well as State and local law enforcement and emergency planning officials, to ensure an overall integrated approach to the security of these critical facilities. At each step over the past 17 months, we have done what needed to be done to secure these facilities, but as we learn more, I am confident that the NRC, the Department of Homeland Security and other agencies will do whatever it takes to protect the people of this country.

III. Nuclear Safety and Reactor Regulation

As many of you already know, I have long been a strong advocate of risk-informed regulation. I want to change that perception. I want you to know that now I am a strong advocate of risk-informed and performance-based regulation. Last year at this conference, I was frank in stating my concern that the pace of risk-informing NRC's regulations had slowed down; the outlook then was not promising. It has taken a year, but the impasse that prevailed back then is over, and there is significant progress to report. At last year's Regulatory Information Conference, I spoke of the need to accelerate the work on risk-informing loss-of-coolant accident requirements and special treatment requirements. I have taken a strong personal interest in these issues and have worked intensively with my fellow Commissioners and the staff to get these risk-informing initiatives moving.

I am pleased to say that, as of today, the Commission has approved, and directed the staff to issue for public comment, voluntary risk-informed approaches to 10 CFR Part 50 (Commission requirements for licensing nuclear reactors). A proposed rulemaking to risk-inform 10 CFR 50.46, the basic requirements for emergency core cooling systems, includes consideration of redefining the design basis LOCA. This is a fundamental shift in reactor regulation. We know

much more about the probability and consequences of LOCAs than we did in the 1970's and we are now acting on that knowledge. In addition, a new proposed rule, 50.69, which would allow licensees to use a risk-informed alternative to the current Special Treatment requirements, would incorporate risk information into plant operations on a day-to-day basis.

When we add these measures to the changes already made to the maintenance rule, 50.65, in the area of risk assessment and management, to the proposed changes to risk-inform the combustible gas control requirements of 50.44, to the hundreds of license amendment changes accomplished through Regulatory Guide 1.174, and to the new Reactor Oversight Process, we have the *foundation* for a risk-informed and performance-based regulatory program. Risk-informed regulation cannot and should not be expected to carry the whole load; it is time to pair it, where appropriate, with performance-based regulation, so that these two powerful and sometimes interdependent improvements to our regulatory processes can act synergistically. The result, I believe, will lead progressively to more safety-focused licensing and regulation, enabling licensees to achieve correspondingly greater safety focus in the design, construction, operation, and maintenance of nuclear power plants.

We now know that performance-based regulation is possible and has great potential in a democracy like ours, where the marketplace is results-oriented. The Commission defined it in a 1997 White Paper, appropriately titled "Risk Informed and Performance-Based Regulation" which, by the way, is ripe for updating. Simply put, it means regulating outputs and outcomes, rather than inputs. It is a matter of monitoring performance rather than programs; of monitoring what is achieved rather than what is attempted.

The best example of performance-based regulation is the maintenance rule, 10 CFR 50.65. It monitors the effectiveness of maintenance rather than prescribing how it is to be performed. The most recent change to the rule, section (a)(4), requires licensees to assess and manage the risk of maintenance activities, and it is working well. Again, it establishes *what* must be done, and not how it must be done. You won't find paint-by-the-numbers directions. At the same time, there is a role for guidance as to how licensees can meet requirements. Such guidance can be extremely helpful, but guidance is not the same as regulation, and it allows flexibility and innovation on the part of licensees, and that is all to the good.

I can tell you that 10 CFR Part 50 will not be the same when all is said and done, and I am confident that it will never go back to being its old prescriptive self. Quite honestly, I was never sure that we would get this far; but we have, and licensees, the public, and the NRC are all better off for it. If I stop and look at all of these elements, I think we have a strengthened safety construct that allows us to do our job better and the industry to do its job better.

I cannot leave the subject of nuclear safety without discussing the case of Davis-Besse. Davis-Besse is uniquely instructive in many respects -- for what it was, and also what it wasn't. If there is anyone here who doesn't know about the hole in the pressure vessel at Davis-Besse, they probably wandered into the wrong hall by mistake, so I will spare you a restatement of the facts of the case. The existence, undetected for so long, of a hole in the head of the reactor was an enormous failure on the part of the licensee and of the NRC. I want to say that loud and clear.

Specifically, it was a failure to conduct the activities necessary to minimize the potential for degradation of the primary coolant pressure boundary. In other words, process execution broke down.

I want to say equally loudly and clearly that it was not close to being the impending disaster publicly portrayed. It may be asked, aren't those two statements inconsistent? They are not. In this case, our preliminary analysis indicates that the stainless steel liner of the vessel head, thin as it was, was more than adequate to contain the pressure generated within, and it would have done so for quite a while. For the potential break, very conservatively assuming *no leak before break*, the reactor cooling systems, the emergency core cooling systems, and the containment systems, combined with operators' actions, procedures, and emergency plans, constitute a multi-faceted defense to protect the public.

Having said that, I should also emphasize that licensees and the NRC need to make every effort to prevent incidents that *require* reliance on safety systems. I definitely do not want *to need* to depend on the containment, unless I have to. These systems are sound, they are in place as part of defense-in-depth, but reliance should be, first and foremost, on all the systems for normal operation and for anticipated transients. The only good thing to be said about the Davis-Besse event was that it was an *incident* and not an *accident*; and that it served as a reminder of the need for constant vigilance and improved oversight, leading to more timely corrective action.

It's reasonable to assume that the precise situation that occurred at Davis-Besse is something we will never see in the U.S. again. That does not mean that we won't see other unanticipated occurrences or incidents of different kinds. It is in the nature of all industrial concerns that 100% error-free operation from day one to decommissioning may be your goal, but it is not a realistic expectation. Mistakes *will* occur; human beings are fallible; machines will break; we know enough to expect the unexpected; we acknowledge and learn from our mistakes; and we move on, with our experience base enriched. And, nuclear reactors are designed and operated precisely with this in mind, as TMI proved beyond a shadow of a doubt. Nevertheless, it is the NRC's responsibility to ensure that requisite safety margins are not decreased due to lack of attention or poor corrective actions.

The case of Davis-Besse illustrates, I think, some of the problems involved in presenting issues of nuclear safety to a lay audience. Frankly, it *sounds* counter-intuitive to say that public health was not at imminent risk. It *sounds* as though a hole in the reactor head should automatically mean that the public was endangered. As a nuclear engineer and as a regulator, I know otherwise.

At the beginning of this talk, I said that I would be focusing on three areas. That does not mean that the agency is focused only on these issues. We continue progress on license renewals, power uprates, oversight of reactors, materials and waste, as well as all the other functions that are part of our mandate. These and other issues will be discussed in detail in the course of this conference.

IV. Public Perceptions of Nuclear Energy

I'd like to preface my concluding remarks about public perceptions of nuclear energy, and the role of the media in presenting nuclear issues, with some observations from my own life experience. As many of you know, I spent approximately the first third of my life in Cuba. Those of us who have known what it is to live in a society where freedom and democracy do not exist, cherish America's freedoms passionately and appreciate the blessings of democracy intensely.

A free press is one of the greatest assets of a free society. Freedom of the press allows individuals to print what they believe to be accurate, balanced, unbiased, and fair, and also what is not. That is part of democracy and the marketplace of ideas. We trust the people to make their own judgments, rather than a Ministry of Information to censor what is written and broadcast. Anyone who has ever lived in a society with government-controlled media will tell you that if you had to choose between a controlled press that never made a mistake and a free press that made errors every day, you would *always* choose the free press, errors and all.

Having said that, I should also say that errors are no more desirable in publishing a newspaper than running a government agency, a nuclear power plant, or a doctor's office. Inevitable yes, desirable no. When errors are made, I think that too many Americans receive greatly exaggerated notions of the risk posed by nuclear plants, as though incident equaled accident equaled doomsday scenario. And I ask, is it good for the people of America to be unduly fearful, without just cause, and especially so in these trying and turbulent times?

It may very well be that we have been conditioned by so many decades of Hollywood disaster epics that the line between fiction and reality has been blurred. It is certainly true that in the television news business, which is what many Americans depend on for information, the division between hard news and entertainment has eroded over time. Whatever the cause may be, it seems all too often that where nuclear issues are concerned, we see a tendency to hype up what might otherwise be a humdrum story with a whiff of impending danger, or danger narrowly averted. Media hype contributes to public anxiety; public anxiety itself becomes a topic of media coverage; and public worries snowball -- "and there you go again," as President Reagan would say. I think it is appropriate for all of us -- not only the media, but those of us who tend to get quoted in the media on nuclear issues -- to weigh our words, and make sure that we are neither underplaying nor overplaying the actual risks to the public.

As far as the dangers posed by terrorism, I would observe that even terrorists cannot change the laws of physics. They would also confront the robust American infrastructure and the American system of protecting our civilians, and believe me, no one does it better.

On a side note, those of you who are nuclear technologists know that nuclear power isn't rocket science any more. But some people still think it is. That means that communicating to the public in plain terms continues to be a very important and challenging part of our responsibilities.

V. Conclusion

In this talk, I have given my thoughts on some of the major issues facing the NRC, and I have tried to summarize my own regulatory philosophy of “realistic conservatism” -- prudence and hard-headed common sense, firmly grounded in real-world conditions, coupled with a commitment to make decisions and move on. I’m going to practice what I preach. It matches the theme of this conference: building on what was good in the past, and moving to what is better in the future.

The work of the NRC is, in microcosm, a reflection of the nation as a whole. There are competing interests and different points of view, strongly held, but what unites us is far greater than what divides us. All of us -- the NRC, its licensees, the public, stakeholders of all kinds -- have a common interest in nuclear safety and security, and the well-being of our nation. All of us have different perspectives and insights to contribute; at its best, democracy permits a synthesis, in which we glean the best from divergent viewpoints and apply them to our common purposes. I look forward to the opportunity to join with all our constituent stakeholders toward a goal we all share, which is to benefit the American people.

May God keep America, and especially our troops, safe. Have a great conference and thank you.