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“The Challenges Ahead: The Musings of a Pessimist/Realist”

**The Honorable Edward McGaffigan, Jr.
Commissioner
U.S. Nuclear Regulatory Commission
at the
Regulatory Information Conference**

March 7, 2006

When I last stood before you a year ago, I thought I was saying my farewells. In all honesty, I was feeling terrible as I endured year-long interferon treatment for the melanoma that had returned the previous August. My energy level was pretty low, at least compared to my normal hyperactive energy level.

Yet I wanted to continue to serve my country as I had been doing for almost thirty years. And I looked to the day when I would be fully recovered and I could continue to help the Nuclear Regulatory Commission sail through the turbulent waters that have always faced it and will continue to face it. Luckily, my health did recover. I ran 10 miles this morning, and I hope to run/jog/walk the Marine Corps Marathon and perhaps the JFK 50-mile this fall. In any case, thanks to the support of my former boss, Senator Jeff Bingaman (D-NM), his senior Republican colleague from New Mexico, Senator Pete Domenici, and the Senate Minority Leader, Senator Harry Reid (D-NV), President Bush decided to renominate me last May, and after the paperwork was completed my nomination was sent to the Senate in late July. I was confirmed in October and sworn in October 12, after a 103-day retirement. I have been trying to fix all the mistakes my colleagues made in my absence ever since! That's a joke. Actually they did a great job.

This is my tenth time addressing this conference, the tenth time I have shared that honor with Chairman Diaz. If the trade press is right (no sure thing), this may be our last time together on the stage at this conference. In case it is, I want to take a few moments to honor Nils.

I did not know Nils Diaz before 1996. But I quickly learned how dedicated he was to this, his adopted country. In that respect he reminded me of my father and my grandfather (my mother's father), both immigrants from Ireland who were devoted to this land of opportunity, although they were life long Democrats! I suspect the Chairman was never a Democrat! Nils Diaz could have stayed in

Florida and made vastly more money this past decade. He could have stayed in Florida, and avoided the stones and arrows often targeted on any member of the Commission and on our staff. “Wholly owned subsidiary of NEI! Lapdog of the nuclear industry! Etc., etc.” He could have stayed in Florida and enjoyed the weather, and his family. He could have stayed in Florida, and perhaps prevented the mutual mistake of the Washington Redskins hiring Steve Spurrier!

Nils has served honorably and worked tirelessly to bring about needed reforms at the NRC, at which we arrived together in August 1996. That was an NRC in need of reform. It is a better NRC today and it will be a better NRC tomorrow thanks to Nils’ service.

I have agreed with Commissioner and now Chairman Diaz much more often than I have disagreed over the past decade. We have made common cause on issues ranging from the design of the reactor oversight process to the use of potassium iodide as a supplemental emergency action to adjudicatory reform to the regulatory response to the September 11, 2001 attack. We have also had our differences over the years, risk-informed regulation comes to mind, but when we have differed, we have done so while preserving mutual respect.

A lot of our differences probably derive from our respective psychological makeups. Chairman Diaz is an unadulterated optimist, a characteristic he shares with the President, according to an article in today’s *Washington Post* about the Oval Office carpet. The President has the right person as Chairman! Chairman Diaz has often characterized me as the pessimist on the Commission. I prefer to think of myself as a realist, someone grounded in the gritty details of the issues before us. Often those details do not lend themselves to optimism. But by identifying the problems and possible solutions to those problems the realist can help make the optimist’s vision a reality.

What is the difference between an optimist and a pessimist? Here is a chart I recently saw in the viewgraphs of an NRC staffer who was talking about regulation of advanced reactors. An optimist thinks that this very ordered array of ducklings is a natural state of nature. A pessimist believes that this array is a rare circumstance and that this second viewgraph is a better description of nature. That does not mean that the first viewgraph’s order cannot be achieved, but that it takes extraordinary effort and is likely to be achieved for only brief periods of time.

NRC today faces two monumental interrelated challenges: The need to replace some of our most experienced and dedicated staff who are now retiring in large numbers and will continue to do so for the next decade, coupled with the need to prepare to license the tsunami of new reactor applicants unleashed by the Energy Policy Act of 2005's nuclear energy provisions. We will need to attempt to meet those challenges while not losing any focus on the safety and security of our existing licensees, and while preparing for a third challenge, not quite the magnitude of the first two, the licensing of the Yucca Mountain repository. That proceeding is likely to be the most complex administrative proceeding in the history of mankind in preparation for which there are already more than 30 million pages of documents in the Licensing Support Network (LSN), that proceeding’s discovery tool.

You earlier heard our optimistic Chairman talk about meeting the advanced reactor challenge. He had previously addressed this issue at a conference on February 13. According to *Inside NRC* some of you are doubters. One anonymous attendee grouched: “NRC wants a perfect application. They want it to include everything the industry hasn’t even thought of yet.” Another complained: “NRC hasn’t seen a complete application in its life because it is always changing its rules.” A third responded to the

Chairman's call for standardization in applications by stating: "We'll standardize the carpet; they'll look at the fibers."

There is a lot of truth in those complaints, but the problems we face in meeting the challenge of the twin tsunamis of retirements and complex applications are far deeper and broader as I will now try to lay out.

What has to go right for new plants to actually be under construction in 2011? An awful lot. To cope with the loss of senior experienced personnel, NRC will need to hire at least 350 people per year for the foreseeable future, about 200-220 to make up for losses, 130-150 new people to cope with our expanded workload. That is clearly a stretch for us, particularly when we will be competing with an industry in a rapid growth mode, an industry which may be interested in increasing our attrition rate to meet its need for people with regulatory experience.

The staff has told us that hiring 350 people this year is going to be a challenge. We are going to have to continue to use every tool available to us both for hiring and for retention. That is not going to be inexpensive.

Once we have the staff on board, we need to train them, and train them fast, to be able to take on significant responsibilities. At 350 new people per year, in four years about 40 percent of our staff will have been with us less than four years. These new folks are going to be assigned major responsibilities either with the safety and security of existing licensees, or with the new plant/Yucca Mountain/other major licensing proceedings. This will strain our training resources to their limits and make it absolutely essential that we ace our knowledge management program. We cannot afford to lose knowledge as we make this enormous demographic shift.

Next we need to have adequate infrastructure to support all these people. The most critical shortage is space. I hear staff complaining about the lack of availability of conference rooms because we have people working full time in conference rooms. Other work stations are in less than optimum spaces. And our initial experience with our friends at the General Services Administration (GSA) has been less than hopeful. Our headquarters training staff was already supposed to have taken up residence in Bethesda by this time. The latest guess as to when that might happen is August.

Our ultimate desire is to have significant new space proximate to headquarters. You would think that with all the office buildings going up in Rockville, that would not be a problem. But GSA has warned us that they cannot guarantee the space will be in Rockville, and that we may need legislative relief to bring that about. Any Congressional staff in the audience, please take a note. We cannot at a time of great stress on the organization go back to having NRC spread out all over the Maryland suburbs.

That's how we tackle the demographic tsunami. How do we tackle the license application tsunami? There are a lot of things that have to go right in a lot of places, not just NRC. First, Congress is going to have to be very supportive of NRC's budget requests, as they have been throughout my and Chairman Diaz's tenure with the one exception in 1998, when Senator Domenici wanted to get our attention focused on reforms. Our budget request for fiscal year 2007 is tens of millions of dollars underfunded because when put together last spring, it was predicated on a much slower rate of

applications for advanced reactor licenses, not what has happened since EPACT was enacted, and what may continue to happen as industry reassesses the nuclear option.

Second, NRC is going to have to complete four complex rulemakings over the next two years. The first rulemaking is the Part 52 rule. What I think of that proposed rule and the process that brought it about is fully laid out on our webpage. I characterized the proposed rule as a dump truck, 550 pages of rule language and statements of consideration drawn up without any stakeholder input. I thought we should pare the proposed rule down before publishing it for comment. My colleagues disagreed. I hope that with stakeholder input we can identify the jewels in the dump truck by fall 2006, but I am by no means confident of that. If I were in your shoes, I would think that this was not a very auspicious start to preparation for the tsunami of applications. Paternal NRC knows best. That's our motto, sort of like the old TV show.

We then have three security rulemakings to complete in order to place the new generation of reactors on solid ground. The comment period on the first of these, the design basis threat rule, has now closed. Staff will resolve comments and bring the Commission a final rule this summer. The second rule, dealing with everything from training requirements to force-on-force exercises to access authorization to safety/security interface matters, is due to the Commission in proposed form on May 28, 2006. It will be published for comment this summer and finalized as early next year as possible. The third security rulemaking will implement the Commission's decision of last September to require target set analysis for the new generation of reactors. Doing such analysis and implementing the results can make a terrorist's job extremely difficult, if not impossible. The staff will start writing that rule as soon as possible with the goal of a final rule by September 2007.

Next, NRC staff need to update the standard review plan for licensing new reactors. Much of that plan has not been updated for a very long time, in some cases a quarter century, because it has always been rated a low priority until now. In some respects this is an ideal tool for knowledge management. But it also needs to be done as soon as possible to find out where the problems are and resolve them in time to be fair to applicants.

NRC staff must also establish the contents of COL applications under various scenarios, a COL with a previous ESP and certified design, a COL with one or the other but not both, and a COL with neither. I understand NEI has submitted a proposal in this area for staff endorsement. Again, we need to identify any issues, preferably yesterday, and resolve them as soon as possible, preferably tomorrow.

NRC is going to need a significant amount of contractor support to cope with the tsunami of applications. This is particularly true on the environmental impact statement side of the licensing process, but we will also need contractor support on the safety evaluation report side of the process. Much of that support is likely to come from the DOE national laboratories and from our own federally-funded research and development center, the Center for Nuclear Waste Regulatory Analysis. These labs themselves are facing demographic shifts from retiring workforces that may pose challenges, and we will also need to manage conflict of interest issues consistent with the Atomic Energy Act.

Let me now bring in some other actors, besides NRC. We will not be successful without their help. I'll start with DOE. Despite the uncertainties of when DOE will submit a license application for Yucca Mountain and of what the Global Nuclear Energy Partnership might evolve into, DOE and the industry need to agree on a new standard contract for spent fuel management. It would be best if that

were done before the first COL applications are submitted. It has to be done before licenses are issued. If it is not done by submittal, there could well be contentions on this matter in the licensing proceedings.

The Department of Homeland Security (DHS) has responsibilities in two areas, security and emergency preparedness. Section 657 of the 2005 Energy Policy Act (EPACT) mandates a consultation with DHS on the potential vulnerabilities of the location of a proposed facility to terrorist attack. NRC and DHS need to put in place a Memorandum of Understanding (MOU) on how this consultation process will work. Presumably it will take advantage of the comprehensive security reviews already carried out at existing sites, and will follow a similar approach for new sites like Bellafonte. The sooner this MOU is in place, the better.

We will also need DHS to budget for its roles in the security and emergency preparedness reviews of license applications. We have begun those consultations and are very hopeful that DHS will aggressively support NRC's work.

Now let me turn to the industry's responsibilities, which have been the focus of Chairman Diaz's remarks both on February 13 and earlier this morning. I agree entirely that we need the industry to submit high-quality, stable COL, ESP and design certification applications.

If you expect the NRC staff to process these applications in a reasonable time period, they cannot be works in progress. You cannot repeat the mistake Dominion made in its ESP application by submitting an ESP that envisioned the third unit at North Anna would not have a cooling tower, while the fourth would, and then discovering that the third unit really needed a cooling tower, lest Lake Anna become Hot Tub Anna at times during the summer.

The NRC staff clearly made mistakes in its handling of the North Anna ESP, particularly being overwhelmed by the volume of comments on the draft EIS. But the fundamental responsibility for how long the ESP process may take at North Anna lies with Dominion. One of the commentators on Chairman Diaz's February 13 speech complained to *Inside NRC* that NRC is not capable of handling "incremental changes," and pointed to Dominion's change in cooling approach at North Anna as such a change that should not require the staff to "revisit everything." That commentator is wrong. Changes of this magnitude require us to rewrite parts of the draft environmental impact statement and solicit public comments again. That's the law. You may not like it. But fixing applications on the fly is the single thing that gets license applicants into the most trouble in our licensing process. They submit works in progress and are shocked, shocked that when they change the application in a significant fashion, the clock essentially starts over. I do want to commend Dominion for tackling a second issue, namely the expansion of their plant parameter envelope to address the fact that the ESBWR is a 4500 MW thermal reactor, not the maximum 4300 MW thermal reactor previously encompassed in the plant parameter envelope. It puzzles me that Grand Gulf is not making the same adjustment, and is instead planning to deal with the extra 200 MW thermal in the COL process, which will likely mean that various environmental issues that could have been closed in the ESP will be open again in the COL process.

Let me repeat again. We need stable, high-quality applications. I also believe that the industry will be best served by following the process that Southern is planning to use at Vogtle, namely the submittal of an ESP before the COL, and having the staff process those applications in parallel. The ESP will frame the environmental and emergency preparedness issues and any flaws in those areas of

the application may be discovered soon enough to recover under Southern's approach without a slip in NRC's final decision. Recovery will be far more difficult if everything is packed into the COL application.

I would urge industry applicants to resolve as many issues as possible involving non-NRC governmental stakeholders as you put together your applications. There are a lot of other entities besides NRC who can say no, or at least can delay the processing of an application. It is often these issues relating to the Historic Preservation Act or the Endangered Species Act or the Coastal Waterways Act or some other statute that turn out to be the most difficult to deal with, particularly in the EIS process, if the applicant has not fully anticipated and dealt with them.

What else needs to go right? For those planning to use the EPR design certification in the COL applications, you will want to see the Finnish and French support, which the Chairman has obtained, yield significant streamlining of NRC's design certification review. The decisions will be made by our staff, but it will clearly be a tremendous help to have the insights of regulators who have already approved this design available to our staff.

NRC staff will also need to make what the Chairman calls the design-centered approach really work as an organizing principle for their work on the COL safety evaluation reports (SER). This will require industry's support by standardizing COL applications to the maximum extent possible for each design, something I understand from conversations this morning that industry is committed to. This is clearly part of a solution to the most efficient use of NRC resources, but it is by no means an overall solution, because the environmental and emergency preparedness issues, on which there often are contentions in our hearings, are site-specific. The long pole in the tent is likely to be staff completion of the final EIS, not the final SER.

The Commission is also going to need to pay very close attention to our hearing process. If all the ESP/COL applications are submitted on the schedule currently projected, NRC will have more Atomic Safety and Licensing Boards (ASLBs) in operation at one time than in a quarter century. And I've not mentioned the Yucca Mountain proceeding that may be commencing in the same time period.

Chairman Diaz and I asked years ago why our ASLBs could not make decisions in the same sort of time frame as the famed Northern Virginia federal court that handles complex intellectual property/patent/copyright cases, the rocket docket. The result of asking that question was the new 10 CFR Part 2 under which all of these proceedings will be conducted. I cannot promise that our ASLBs will become rocket dockets, but I can promise that the Commission will enforce the timeliness goals established under Part 2.

But we will need to go further and streamline our own appellate reviews lest the Commission become the bottleneck in the hearing process. That work is ahead of us, although we are better prepared today than we have been in a long time for a tsunami of appellate decisions. We just need to get even more prepared.

What else can go wrong? I hope it does not happen. But Federal Appeals Courts can overturn NRC decisions and force us to revisit those decisions and/or change our processes. Obviously such decisions could have profound impacts, should they occur. Our experience is that this does not happen

often because our ASLBs' and Commission appellate decisions are soundly reasoned. But the possibility cannot be ruled out.

Similarly, I hope that nothing arises in the Department of Energy that would force the Commission to revisit its 1990 Waste Confidence Decision, which we reaffirmed in 1999. I do not worry about such a change during the current administration, but only note that 2008 is a Presidential election year and the Yucca Mountain issue unfortunately has often played a role in recent Presidential elections.

Let me now wrap up. I do not regard myself as a pessimist, but as a realist. There are a lot of things that have to go right in a lot of places for COLs to be issued in the 2011-2012 time frame. We are working on all those things, but I believe that NRC in the end will have to prioritize its work, and that some applicants will fall behind others. There are many reasons why that might happen. We might have resource issues. Applicants might give us "work in progress" applications. Other governmental entities might not fulfill their responsibilities in a timely way. A Federal Appeals Court might intervene. Perhaps prioritization will be needed up front, particularly if Congress does not augment our budget. Perhaps it will emerge as real circumstances arise.

I do worry about an expectations/reality mismatch. I do not want to create expectations that the Chairman's optimistic slide, that I used earlier, will prove to be reality. We will do our best to make it a reality, but the ducklings may not all line up in neat rows and columns. Stuff may happen.

I hope if stuff does happen, we will avoid the blame game, and that instead we will tackle the real issues as they arise as constructively as possible and work toward a successful licensing process.

"Success has many fathers, but failure is an orphan," the old saying goes. My goal is that there will be no orphans at the end of this process. I believe that we can achieve that goal.