

April 19, 2006

The Honorable George V. Voinovich
Chairman, Subcommittee on Clean Air,
Climate Change, and Nuclear Safety
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

I am pleased to provide the enclosed responses to the post-hearing questions that were submitted by members of the Committee from the March 9, 2006 hearing to conduct oversight on the Nuclear Regulatory Commission.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

/RA/

Nils J. Diaz

Enclosure: As stated

cc: The Honorable Thomas R. Carper

Response to Post Oversight Hearing Questions

QUESTIONS FROM SENATOR INHOFE:

1. As you know, for many years, I have been advocating that a stable and predictable licensing process is an absolute must if we are to proceed with constructing new nuclear plants in this country. In fact, we changed the law in the Energy Policy Act of 1992 to address the problem of a utility having to get a Construction Permit and then an Operating License. Although we have made numerous changes to improve this process and a number of utilities have already begun developing their application for Combined Operating License, the Commission is still tinkering with the rule on the licensing process. During the hearing, the Commission stated that the Part 52 rule will not be finalized until mid-January. What do you suggest to those utilities that are currently in the middle of developing their applications?

ANSWER:

The NRC's proposed changes to the Part 52 requirements governing the contents of combined license applications are not significantly different from the current requirements. The majority of the changes involve clarification and reorganization of the existing requirements and the addition of requirements to address operational program information (e.g., information on programs such as occupational dose control, physical security, and fitness for duty) to implement recent Commission policy decisions in this area. The Commission believes that revising Part 52 at this time, on the brink of a potential renaissance of nuclear energy in this country, will provide long term benefits, not only for future license applicants, but for prospective applicants who may be developing applications before the final rule is issued. The proposed requirements provide a greater level of specificity than the current requirements and therefore should be a useful aid to companies that are currently preparing combined license applications. The amendments to the rule clarify the applicability of various requirements to each of the licensing processes addressed in Part 52.

Since the proposed rule is publically available, applicants and other stakeholders have access to the changes being considered. In addition, on March 14, 2006, the NRC staff conducted a public workshop to facilitate stakeholder comments on the proposed rule. During this workshop, the NRC staff discussed the proposed changes for the Part 52 requirements and answered stakeholder questions on these changes. The NRC believes that this workshop clarified further the bases for the proposed changes and should also aid companies preparing combined license applications.

2. I agree completely that it is the responsibility of each applicant to submit a complete and quality application that meets all of the NRC's requirements and guidance. Having said that, I understand that the nuclear industry has been working for several years with the NRC and is currently in its fifth round of revisions to develop guidelines on what a "complete and quality" application entails. When do you expect this regulatory guidance to be finalized? Also, what steps are you taking to ensure that your Standard Review Plan is developed to match the application guideline? When will your Standard Review Plan be available?

Enclosure

ANSWER:

NRC guidance for new reactor applications includes a planned combined license (COL) application regulatory guide (DG-1145) for use by applicants preparing COL applications and an update of pertinent standard review plan (SRP) sections for use by NRC staff reviewing COL applications.

The NRC staff estimates that the COL application regulatory guide will be completed by December 2006, which is compatible with the schedule for the promulgation of the final Part 52 rule. The NRC staff is scheduled to issue the draft COL application regulatory guide (DG-1145) in June 2006. In the interim, the staff is placing draft work-in-progress sections of DG-1145 on the NRC web site to solicit early stakeholder feedback and interaction. Several public workshops have been scheduled to discuss these draft work-in-progress sections as they become available. There will also be one or more public workshops after DG-1145 is issued formally for public comment. This COL application regulatory guide contains the information that COL applicants need to provide in their applications. The schedule for issuing DG-1145 supports prospective applicants who are planning to submit COL applications in late 2007 and 2008.

Complementary to the COL application regulatory guide, the NRC staff has developed an SRP update plan to support the anticipated new site and reactor licensing applications. The SRP and the plan for updating the SRP is publicly available on the NRC web site at: www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/. The staff has prioritized the SRP section updates to support new reactor licensing activities and expects to complete all of the high priority SRP Section updates by December 2007. The high priority sections are those most important to reviewing COL applications. The medium priority SRP sections represent knowledge transfer and have been previously used during the design certification review process. The staff has identified a goal of having 70 percent of medium priority sections updated by December 2007, with the balance of these sections scheduled for completion in 2008. The low priority SRP sections were either recently updated or are of low safety significance for new reactor designs.

The NRC staff has taken several actions to ensure consistency between these documents. The project management staff that has the responsibility for managing the development and updates to both documents has been reorganized so that they are in the same part of the organization. In addition, the same technical staff will support both guidance documents. Furthermore, the NRC staff plans to leverage the development of the COL application regulatory guide during the subsequent updates to the SRP. Specifically, during public comment solicitations, the NRC staff plans to extend the scope of these interactions to include both the COL application regulatory guide as well as the associated SRP sections. This will allow early public interaction on the SRP update.

3. One of the problems that caused the licensing process to bog down in the late 1970s and the 1980s was that there was no end to reopening issues during the licensing process. What steps is the NRC taking to ensure that legitimate safety and technical issues get resolved promptly, as required by your safety mandate, but that once they are resolved, they do not get reopened?

ANSWER:

Differences between the new licensing processes and those in place in the late 1970s and early 1980s are expected to clarify and address questions about relitigation. Under the 10 C.F.R. Part 50 licensing process, a construction permit (CP) could be issued on the basis of preliminary design information. This preliminary design was often changed and finalized during plant construction, and the modified design was submitted in an operating license application that was filed after the CP. Thus, when a CP holder subsequently requested an operating license (OL) during construction, it would be the first time that the staff reviewed the new final information and it would be the first opportunity for the new information to be challenged in a hearing. Construction-related quality assurance problems also contributed to protracted litigation, including reconsideration of matters previously thought to have been resolved. In addition, the hearing process – including the scope of contentions being raised – was affected by the need for the NRC and the industry to address, on a generic basis, a number of significant safety and technical issues, notably issues stemming from the Three Mile Island Unit 2 accident in March 1979.

The current licensing regime in 10 C.F.R. Part 52, which the Commission first established in 1989, provides for an applicant to submit more detailed, final design information to support a combined license (COL) application. The licensing process in Part 52 is itself intended to provide the opportunity to resolve certain important issues early in the process -- through the standard design/design certification and early site permit processes -- before the Commission issues a COL and plant construction begins. While litigation is by its nature somewhat uncertain, the Commission believes Part 52 offers a much more stable and predictable licensing process than that previously used.

The Commission recently issued a proposed rule to amend Part 52 to explicitly clarify many procedural matters, thus reducing the risk of litigation of such matters in the first COL proceedings. Of course, even under Part 52, late design changes by an applicant, a poor-quality application, or construction-related issues could still cause delays apart from the hearing process.

With respect to the procedures for reopening a matter previously litigated before the Atomic Safety and Licensing Board (ASLB) or raising a late-filed contention, the NRC's procedural regulations ensure that the NRC complies with the Atomic Energy Act of 1954, as amended, and the Administrative Procedure Act, and does so with due regard for the rights of all parties and without undue delay of the adjudicatory proceeding. These regulations, which were most recently revised in 2004 to streamline the agency's Rules of Practice, build upon earlier changes to ensure that adjudications focus on matters that are truly material to the NRC's licensing decisions and that decisions are reached in a timely manner. These actions should further reduce the potential for unnecessary delay in NRC proceedings from matters raised late in licensing proceedings.

4. As I mentioned in my opening statement, I am concerned about the length of time it takes to issue new, risk-related regulations. What can you do to address this problem?

ANSWER:

The NRC has completed several activities that involve issuing new risk-informed regulations: changes to the requirements for the design of combustible gas control systems (10 C.F.R. 50.44); adoption of performance-based fire protection design requirements from the national fire protection code (10 C.F.R. 50.48); and risk-informed categorization and special treatment requirements for structures, systems, and components (10 C.F.R. 50.69). In addition, the NRC recently published a proposed rule to provide a voluntary, risk-informed design basis for the emergency core cooling system design (10 C.F.R. 50.46a). Most recently, the Commission has approved issuance of an advance notice of proposed rulemaking to solicit stakeholder comments about broader risk-informed revisions of our reactor regulations particularly as they relate to new reactor designs.

The time period associated with completion of these regulations included both the time to develop a sound technical basis to demonstrate that there would be reasonable assurance that public health and safety will be adequately protected when risk-informed changes in the regulations are implemented and the time to implement the rulemaking process to ensure that stakeholder comments are solicited and considered and that other statutory obligations are met. Risk-informed regulatory requirements must also be supported by sound analysis methods, and the NRC has worked closely with national consensus standard bodies on appropriate standards to ensure consistent treatment of the analysis methods and results.

Nevertheless, the Commission will continue to pursue ways to improve the timeliness and effectiveness of the rulemaking process and closely monitor the progress of the staff's activities associated with risk-informed changes to the regulations, as well as the other high priority rulemaking activities to codify new security requirements and improve the licensing process for new reactors.

QUESTIONS FROM CHAIRMAN VOINOVICH:

1. New Plant Licensing:

In your testimony, you stated that the Commission may receive 11 or more applications for new nuclear plants in the next few years, beginning in 2007. At the same time, NRC will have to review two Design Certification applications for new reactor designs.

- a) How many NRC staff (or FTEs) is needed in FY 2007 and FY 2008 to deal with this workload without delays?

ANSWER:

Since the passage of the Energy Policy Act of 2005, industry has accelerated its plans to submit combined license (COL) and early site permit (ESP) applications. This has created challenges to the staff's ability to sustain the planned review schedules of 24 months for an ESP, 30 months for a COL application, and 42 months for a design certification. To sustain originally planned review schedules based on current industry plans, the NRC estimates that, after accounting for expected attrition and the currently

identified new work associated with new reactor licensing, it will need to hire approximately 350 to 400 new staff each year for the next two to three years. This estimate is subject to change primarily because the industry continues to make additional announcements about its plans for future reactor applications.

- b) Does the Commission's proposed FY 2007 budget reflect the preparatory work necessary for receiving 11 or more combined license (COL) applications?

ANSWER:

No. At the time the FY 2007 budget was developed, the NRC was expecting 4 COL applications for new nuclear power reactors. Based on currently available information, the nuclear industry plans to submit 13 to 15 combined license applications to NRC during 2007 - 2009. This has affected the staff's ability to sustain the planned review schedules described in Question 1.a above. The staff estimates that in order to sustain the planned review schedules, an additional \$40 million in budget authority will likely be required for FY 2007 to support the additional preparatory activities and pre-application consultations for the expected COL applications. The NRC is taking steps to address the need for additional resources for the expanded workload.

- c) Has the Commission considered more staff to these projects as a way to gain scheduling efficiencies?

ANSWER:

The NRC currently projects the need for additional resources by FY 2008 as described in response to Question 1.a and b. to support the currently identified new work associated with new reactor licensing. The level of effort associated with these resources is consistent with our design-centered approach, which will use a single technical decision to support multiple combined license applications for the same technical area of review when common elements of multiple applications permit. This should significantly improve the efficiency of our process, but this assumption is predicated upon applicants providing a consistent level of standardization of the applications.

As to increased efficiency with even more staff than what is described above, some incremental improvements may be possible, but these are unlikely to improve dramatically the already aggressive proposed schedules.

- d) Has the Commission devised a specific training program to get the new employees qualified to work on these applications? If yes, then please describe it for the Committee.

ANSWER:

The agency recognizes that the challenge to assimilate new employees fully into the agency goes beyond ensuring that they possess the technical expertise needed to make a safety determination. To be assimilated fully into the agency, new employees will need to be oriented and trained in our regulatory processes as well as our internal

business processes. The NRC maintains a wide range of engineering and regulatory courses, which are conducted at the agency's Technical Training Center and Professional Development Center. When a new employee reports for the first day of work, the Office of Human Resources provides an employee orientation from an agency-wide perspective. In addition, the Office of Nuclear Reactor Regulation (NRR), which will experience the largest growth in new employees, has developed a new employee orientation and training program, which includes training courses, seminars, self-study activities, and partnering with more experienced employees, to expedite the new employee's adjustment to the office and need for training. Training topics include regulatory processes, such as the licensing process and allegations, and, business processes, such as information security, computer security, Freedom of Information Act, and the agency electronic document storage system. Additional position-specific qualification or training plans are developed for employees to gain detailed knowledge in specific areas of expertise, such as new reactor licensing, risk assessment, or health physics. The Office of Human Resources, in partnership with NRR, is scheduling additional courses, as needed, to support the orientation and training program and the staff training plans. Further, to ensure that the agency provides the right training for the influx of staff, a job task analysis is currently being conducted to identify needed skills and knowledge areas explicitly for new reactor licensing. From this assessment, the agency can develop new courses to prepare the large number of employees needed to meet the projected demand for new reactor licensing activities.

Additionally, the NRR new employee orientation and training program explicitly requires a new employee to be paired with a more experienced employee from the new employee's immediate working group that will serve as a guide to help the new employee learn the business processes of the agency. This is especially important to assimilate new employees due to the challenge of office space. Because of the lack of office space, new employees can not be co-located with their working group. In addition, mentors and subject matter experts will continue to be utilized as resources for new employees to discuss technical and regulatory issues.

By using a combination of training, self-study, seminars, and current employees as mentors, the agency is confident that new employees will be trained and assimilated into our organization.

- e) Delays in the licensing process make nuclear power a less attractive investment to utilities and Wall Street. What is the NRC doing to reduce the risk of delay in the licensing process?

ANSWER:

The 10 C.F.R. Part 52 regulations promote stability by prescribing the various licensing processes for the NRC and applicants to govern the issuance of early site permits (ESPs), standard design certifications, and combined licenses. Part 52 provides for resolution of important issues at an early stage in the licensing process, prior to applicants expending significant resources on plant design and construction. Furthermore, both the NRC and applicants learned valuable lessons during the review of

the three first-of-a-kind ESP reviews with respect to resolving issues, such as the need for the applicant's early interactions with State and local officials, proposal of new methodologies (for example, seismic), and the tracking and timely resolution of public comments. As noted in our response to Senator Inhofe's Question 1, the staff is currently pursuing proposed revisions to 10 C.F.R. Part 52 to enhance the NRC's regulatory effectiveness and efficiency in implementing its new reactor licensing and approval processes.

The NRC staff has developed a practical and efficient "design-centered licensing review approach" for the review of the reactor technology and the COL applications that reference the technology. The objective of the design-centered licensing review approach, which is, in effect, a complement to the design certification process in Part 52, is to conduct one technical review for each reactor design and use this one decision to support the design certification and multiple COL applications. Successful implementation of such an approach depends upon applicants choosing a consistent level of standardization. The overall quality and completeness of an application can have a substantial impact on the review schedule; therefore, as noted in our response to Senator Inhofe's Question 2, the staff is working to develop a COL Regulatory Guide and to update the SRP guidance.

With respect to the conduct of fair, orderly, and efficient hearings, the Commission amended its Rules of Practice for adjudications in 2004 to include model milestones for the conduct of contested proceedings, including hearings held in connection with ESP and COL applications. See 10 C.F.R. Part 2, Appendix B. The regulations provide that the presiding officer should use the milestones as a starting point and set detailed litigation schedules based upon all relevant information.

- f) Currently, the NRC estimates a design certification process could take as long as 60 months to complete. Could a multinational design approval program (MDAP) allow the NRC to shorten the schedule for completion of design certifications? What are the resource and budgetary implications of MDAP in terms of costs and benefits?

ANSWER:

It is too early to say how much the MDAP will affect the schedule for NRC review of future design certification applications. The benefits of the MDAP on the NRC's schedule to complete design certification reviews depends on many factors. The first factor is the degree of similarity among the designs proposed in the U.S. and internationally. The second contingent factor is the level of review undertaken by the participating regulatory agencies to meet their national standards and how similar these standards are to those of the NRC. In order for the NRC to shorten its overall design certification schedule, it would be critical to shorten its review in technical areas. Some areas of technical review will have more benefits than others due to design or regulatory differences. The MDAP will provide the NRC additional information regarding potential technical issues during pre-application reviews and allow the agency to leverage work done by our foreign regulatory peers (e.g., work on AREVA's Evolutionary Power Reactor (EPR)) prior to the actual submittal of applications. The staff will consider the

benefits of international cooperation, particularly the technical information that can be leveraged from other regulatory agencies, when developing a review schedule for a reactor design that is also being reviewed by our international counterparts. For the coming generation of U.S. power reactors, the MDAP will benefit the NRC's safety review of the EPR design. Other designs that prospective applicants have already chosen (Westinghouse's AP1000 and General Electric's ESBWR) are not currently expected to be reviewed by the NRC for the U.S. market utilizing a multinational approach.

The MDAP will require a small amount of resources (about 2 FTE in FY 2007) to plan and coordinate interactions with the NRC's foreign counterparts. It is anticipated that these resources could be offset by improved effectiveness and efficiency of the NRC's design certification process because the NRC will be alerted to various issues and insights encountered by its MDAP partners in their design certification reviews.

- g) I am encouraged by the NRC's plan for a new "design-centered approach" to help move applications along by allowing common issues for the three new reactor types to be resolved generically. To what extent will this approach speed up the schedule for licensing a new plant? Are there any legislative changes needed to help establish an expedited licensing process?

ANSWER:

The staff's objective in the design-centered licensing review approach is to conduct one technical review for each reactor design and use the resulting decision to support the design certification and multiple COL applications. The design-centered licensing review approach optimizes the review process for the large number of anticipated new reactor licensing applications while providing quality technical and safety reviews in accordance with the NRC's regulations. The staff estimates that utilizing this approach could result in approximately a 40% savings in FTE and a 35% reduction in schedule as compared to that necessary to perform individual design certification and combined license reviews. Success of the design-centered licensing review approach depends on industry's willingness and ability to standardize COL applications referencing the same reactor design.

At this time, the staff has not identified a need for any legislative changes to support an expedited licensing process.

2. Human Capital and Infrastructure Challenges:

Your budget proposal for FY 2007 projects staffing at 3,309 employees.

- a) What is your best current projection for total FTEs at the NRC for the next five years? To the extent possible, please explain the projected increases/decreases in the aggregate and by function including new reactor licensing, Yucca Mountain licensing, nuclear security, license renewal, power uprate application and others that are appropriate.

ANSWER:

Based on current information, NRC expects the FTE for most of its programs to remain relatively constant over the next five years. However, NRC expects a net increase of 500 to 700 FTE over the next five years to review new reactor licensing applications, DOE's license application for the Yucca Mountain high-level waste repository, industry applications to increase the number of fuel cycle production facilities, and potential NRC involvement in other initiatives. This would result in a total FTE projection of 3,700 - 3,900 for the next five years. This projection is based on current information and is subject to change.

- b) What steps are you taking to train and assimilate new hires into your organization? Is there a formal training/qualification program to ensure that they understand the formal regulatory processes used by the NRC?

ANSWER:

As described in detail in response to Question 1.d., the NRC maintains a wide range of engineering and regulatory courses, which are conducted at the agency's Technical Training Center and Professional Development Center.

- c) Presumably, the majority of new employees that you are bringing on board to replace the retiring employees are recent college graduates with little or no relevant work experience. What is the NRC doing to compensate for the inevitable "brain drain"?

ANSWER:

NRC is using a variety of human capital strategies to maintain its technical knowledge and skills during a time when experienced staff members are increasingly eligible to retire and current and new employees need the benefit of their knowledge. These include the use of authorities NRC obtained in the Energy Policy Act of 2005 to waive dual compensation limitations for re-hired annuitants with critical skills, offers of retention allowances to keep highly-skilled technical staff members on board, and knowledge management tools and techniques.

The NRC is recruiting a mixture of recent graduates and experienced professionals. Approximately 25% of NRR's FY 2006 new hires are entry level (i.e., recent college graduates). The remaining 75% are experienced professionals (some with an excess of 20 years experience) from nuclear generating companies, architect-engineering firms, consultants, military, etc. Therefore, our training/development and knowledge management programs consider the needs not only of current employees but of both entry-level and experienced new hires, particularly the "what we do" and "how we do it" information unique to NRC's safety and security mission.

Knowledge management is a top priority at the NRC and we are working to better integrate initiatives in this area across the agency. The NRC is implementing an agency-wide knowledge management program that is designed to provide an overarching framework for the agency.

Examples of NRC knowledge management (KM) tools and techniques in place or being tested for broader application include:

- knowledge capture interviewing of experienced staff
 - cataloguing expert document collections
 - establishing electronic communication groups for a network of people, centered on critical business practices, who come together virtually to share and learn from others experiences, insights, and best practices
 - maintaining a KM website with best practices, tools, conferences and seminars, and other information
 - identifying KM champions and staff leads for each office and region to facilitate choosing and implementing appropriate KM tools and techniques.
- d) I am encouraged by the agency's ongoing effort to institutionalize the lessons learned as mentioned in your testimony. I think this is absolutely necessary considering that hundreds of new people that you are bringing onboard may not have even heard of "the Davis-Besse incident" for which the agency went through such an extensive corrective action program. When do you expect to complete this program so that new employees will benefit from a collection of corporate knowledge?

ANSWER:

The base Lessons Learned Program is expected to be implemented in June 2006. This base program consists of a Lessons Learned Program Management Directive, the required implementing procedures, and assignment of staff to implement the program. The base program will apply to new lessons learned going forward. It is anticipated that the full program, which includes web-based staff and public access to a growing record of historical agency lessons learned information, will be completed in fall 2007.

- e) I understand that NRC has a goal of hiring 350 people annually for the next several years, and as a result, the agency will need additional office space to support this growth. During the hearing, you and other Commissioners stated that the agency may need support from this Committee in working with the General Services Administration in acquiring additional space in close proximity to the agency's Rockville campus. Please explain the situation and how the Committee can help.

ANSWER:

The NRC's accelerated hiring program will steadily exhaust the space in our headquarters building, despite our aggressive space optimization program. The NRC is working with GSA in a two step approach to address the growth associated with new work. The Commission wrote a letter to the Committee on April 5, 2006, which provided details on the NRC's office space requirements and how the Committee can assist the NRC with obtaining appropriate space. A copy of the letter is attached (Attachment 1).

- f) During the hearing, I mentioned middle management as one of the problems in the Federal government that I have observed from my other committee

chairmanship (Subcommittee on Oversight of Government Management, the Federal Workforce and the District of Columbia). We do not do a very good job of bringing people in from outside, who can bring different ideas and approaches to problem solving. How is the agency doing in this regard?

ANSWER:

The NRC has historically filled the majority of its supervisory and managerial positions from within the agency, placing graduates of two highly competitive programs, the Leadership Potential Program (LPP) for movement into first- and second-line supervisory positions and the Senior Executive Service (SES) Candidate Development Program (CDP) for movement into the SES. This is especially true in cases where the first-line supervisor is expected to have technical skills and knowledge as well as provide administrative oversight and leadership. Thus, the technical experience gained at the NRC is deemed to be extremely valuable in the selection process for supervisory positions. In the administrative offices, however, there is a more diverse mix of managers who were selected from both within and outside the agency.

The NRC hires almost exclusively from the outside for its full performance level scientific and engineering positions. These hires feed the pipeline for the staffing of first-line supervisory positions, which in turn feeds the applicant pipeline for middle management positions. Therefore, the external experience and ideas these hires bring to the NRC serve to make our agency more diverse at all levels. Currently, approximately 20% of the agency's supervisors and managers have less than ten years of service with the NRC.

3. Implementation of the Energy Policy Act of 2005 Provisions:

- a) The NRC has taken measures on radioactive materials licenses, through orders and rulemaking changes, to enhance the security of radioactive materials in quantities of concern. There must be a coordinated effort in the regulation of radioactive materials security. How does NRC intend to address this need in its ongoing effort to regulate materials security? Does the NRC plan to expand on its current enhanced security requirements to include Category 3 and other materials?

ANSWER:

After the 9/11 terrorist attacks, the NRC initiated a comprehensive security assessment of its licensees, including radioactive materials licensees, to determine whether additional security measures were warranted. This effort identified a number of immediate, intermediate, and long-term actions needed to enhance the security of risk-significant radioactive materials in an elevated threat environment. These actions have included issuing safeguards advisories, issuing Orders to licensees imposing additional security and control requirements, conducting rulemaking to establish new security requirements and to incorporate the requirements imposed through Orders into NRC's regulations, and developing a National Source Tracking System. These actions are based on a "graded" approach; in general, licensees possessing significant quantities of

radioactive material or material that is potentially more attractive to adversaries require more rigorous security measures to be in place. This effort has involved and been coordinated with other Federal agencies, including intelligence and law enforcement agencies; State regulatory agencies; NRC licensees and industry groups; and international partners, such as Canada, Mexico, and the International Atomic Energy Agency (IAEA).

The NRC will continue to address the potential need for additional or revised security measures through a risk-informed and integrated approach that also includes an evaluation of the adequacy of existing regulations against the threat environment. The ongoing efforts will continue to be coordinated with other Federal agencies, State agencies, NRC licensees and industry groups, and international partners. Consistent with the IAEA Code of Conduct on the Safety and Security of Radioactive Sources, the NRC's efforts have focused on materials licensees possessing or authorized to possess Category 1 and Category 2 sources. The NRC, as part of the National Source Tracking System rulemaking, solicited and received stakeholder comments on the need to track Category 3 Sources. The issue of whether or not to include Category 3 sources as part of the National Source Tracking System is currently under consideration by the Commission. The NRC is also evaluating its existing programs as they apply to sources below Category 2 quantities to identify areas where increased licensee accountability or access control requirements may be warranted for Category 3 sources.

- b) The NRC has announced and asked for public comment on their plans to establish a Radiation Source Protection and Security Task Force, with the NRC as its chair, to evaluate and provide recommendations relating to the security of radiation sources in the United States. Is the NRC planning to involve individuals and organizations outside of the government into this task force?

ANSWER:

Yes. A representative of the Organization of Agreement States and the Conference on Radiation Control Program Directors is a non-voting member of the Task Force. Each Subgroup of the Task Force also has a non-voting member representing State interests. In addition, the Task Force sponsored a closed facilitated stakeholder meeting with representatives of State and local government organizations.

4. Reactor Oversight Process (ROP):

During the hearing, you testified that the revised ROP, which was implemented in April 2000, has matured and improved. Separately, during our private meeting on January 30, you mentioned that there has been a significant improvement in overall safety at nuclear power plants as demonstrated by the number of plant events, shutdowns, and extended shutdowns in the last few years. Please quantify for the Committee this improvement. Additionally, does the Commission believe there is a correlation between the improved safety records at nuclear plants and the implementation of the ROP? Do recent trends in inspection findings and performance indicators support your conclusion?

ANSWER:

The NRC initiated an Industry Trends Program (ITP) to monitor trends in indicators of industry performance as a means to confirm that the safety of operating power plants is being maintained. Should any indicators show a statistically significant adverse trend, the NRC evaluates them and takes appropriate regulatory action using its existing processes for resolving generic issues and issuing generic communications. The NRC formally reviews these indicators each year, and any adverse trends are reported to Congress in the NRC's Performance and Accountability Report. No statistically significant adverse trends have been identified to date.

Over the past ten years, most of the ITP indicators show improved operating performance. The latest results can be found on the NRC web site at: www.nrc.gov/reactors/operating/oversight/industry-trends.html, and are attached (Attachment 2) for your convenience. Also, attached (Attachment 3) is a chart that shows an annual count of shutdown months resulting from unplanned extended reactor shutdowns. This chart was first presented at the 26th Annual INPO CEO Conference and shows a significant improvement in industry performance in this area.

The NRC believes that its Reactor Oversight Process (ROP) has had a positive impact on improving nuclear plant safety in the United States. All commercial nuclear power plants in the United States are inspected as part of the ROP. All plants receive a baseline level of inspection activity independent of their overall performance. When significant performance problems are identified, the NRC performs additional inspections to ensure that the licensee takes appropriate corrective actions. In addition, the NRC inspects on a graded approach to determine if other plant problems exist. If significant problems exist, the NRC has the regulatory authority to either confirm that certain actions be taken or issue Orders for certain actions, which could include a plant shutdown. This approach to regulatory oversight is risk-informed and performance-based, which allows the NRC to focus resources on weaker performing plants.

Over the past six years of implementation, there have been a total of 5,529 inspection findings identified by the licensees the NRC regulates and by NRC inspectors through routine inspection activities. These findings can be accessed by the public on the NRC's public web page. Of this total number of inspection findings, the NRC has identified over 4,239 findings, some of which were of moderate to high safety importance. The remaining 1,290 findings were identified by the licensees. Although the NRC has not quantified this impact on the improved safety record of commercial nuclear plants, the NRC is confident that these inspection findings correlate to improved safety. The overall effectiveness of the ROP is reported each year to the Commission.

5. Public Confidence:

During the hearing, I emphasized the importance of the NRC's redoubling its efforts to shore up public confidence. Chairman Diaz briefly summarized the Congressional district office outreach program as an example of the NRC's recent public relations efforts. Please describe the NRC's current public relations programs so that the Committee can better assess the agency's efforts in this very important area.

ANSWER:

The NRC conducts a number of programs and initiatives for bolstering public confidence and employing openness as a key cornerstone in agency communications and its regulatory processes. Building and maintaining public trust is critical to carrying out the NRC's mission. Recognizing that openness must be balanced with national security concerns, the NRC employs a strategy to make as much information available to the public without providing information that would be useful to potential terrorists.

Our strategic plan identifies the following key strategies to support openness:

- Provide accurate and timely information to the public about the uses of and risks associated with radioactive materials.
- Enhance the awareness of the NRC's independent role in protecting public health and safety and the environment.
- Provide accurate and timely information to the public about the safety performance of the licensees regulated by the NRC.
- Provide a fair and timely process to allow public involvement in NRC decision-making in matters not involving sensitive unclassified, safeguards, classified, or proprietary information; provide authorized and cleared individuals security information as needed.
- Obtain early public involvement on issues most likely to generate substantial interest and promote two-way communication to enhance public confidence in the NRC's regulatory processes.

Examples of how we carry out these strategies include holding an annual public meeting near each nuclear power plant site to discuss the plant's safety performance and NRC's oversight of the plant. We maintain an up-to-date website with user-friendly information that is of interest to the public and provide a direct portal to the vast majority of NRC documents that are public. This information helps the public understand agency decisions and to participate effectively in the regulatory process. Additionally, we engage the public early in rulemakings and reactor license renewals, explaining the process in public meetings near a plant before an application is discussed. Numerous public meetings and workshops are held each year to obtain input on key issues such as new reactors, emergency preparedness, and high-level waste. We also develop communication plans for high-profile issues and agency decisions to communicate with a wide array of stakeholders, including Congress, the news media, licensees, Federal, State and local governments, the general public, and the international community. We also use fact sheets and brochures to convey information.

NRC's Office of Public Affairs has a forward-leaning approach to communicating the NRC's message to reporters and responds rapidly to the media to correct misstatements. We also use "For the Record" on our website to post accurate information on issues in the media. In addition to issuing news releases frequently, we

talk on a regular basis to reporters who cover NRC activities to ensure that the reporters have accurate information on the activities they are reporting on. Use of op-eds, and press releases in advance of meetings is also helpful in communicating directly with citizens.

Interviews, speeches and press conferences by key agency officials is another way to get our message out. When Commissioners travel to a licensed facility or to another country, they typically talk to the media in the area about their visit and other issues of interest. In addition, all public Commission meetings are broadcast live over the internet and are available in the archives for viewing at any time by those who are interested. We are also exploring the possibility of providing podcasts, a method of publishing files to the internet so that they can be downloaded, of other public meetings that reporters and the public can access from our website.

Recently, we developed a web page to be used during emergencies involving licensed facilities to keep the public informed of our actions to keep them safe. Plans are also underway to produce a new video about the NRC that, in conjunction with our DVD on security at licensed nuclear facilities, will be offered to educational and vocational institutions around the country and be available on our website.

As you know, the offices of Public Affairs, Congressional Affairs, and State and Tribal Programs have collaborated on a local Congressional outreach program that meets with representatives of selected Congressional district offices and local government officials. During this pilot program, the NRC has been meeting with Congressional staff across the country in the members' home States. The purpose of the outreach program is to ensure that Congressional offices are kept aware of NRC activities and the status of nearby licensed facilities.

6. Organizational Performance and Efficiency:

During the hearing, one of the management issues I highlighted for the Commission was the need to apply the "Total Quality Management" concept to continually improve the agency's performance and productivity. The NRC has to be more efficient in order to meet the unprecedented challenges associated with the anticipated workload. Please describe the Commission's effort to improve the organizational performance and efficiency. What metrics do you have in place to assure you are making progress in this area and what feedback have you received from stakeholders?

ANSWER:

Regarding performance and productivity, each year since FY 2002, the NRC has met all targets established for the agency's Strategic Plan safety and security goals. The NRC is committed to ensuring that resources are well managed. Productivity and output measures have been met except in cases where safety and security concerns took precedence. During this period, at least two key process improvements have been achieved in each of the Reactors, Materials, and Waste programs.

Annually, the Commission provides guidance on the agency's outcome-based performance measures, which indicate the level of success needed to achieve the agency's goals. In addition, the NRC identifies which activities support the NRC's outcome-based performance measures and uses these as guides to formulate the budget. Beginning in FY 2006, the NRC has developed a number of efficiency measures for the activities under the agency's two major program areas of Nuclear Reactor Safety and Nuclear Materials and Waste Safety. The measures support the agency's Strategic Plan goal of Efficiency and Effectiveness as reported in the agency's FY 2007 Performance Budget to Congress. As examples, the NRC intends to achieve an average five percent reduction in license renewal resources for applications in FY 2007. The NRC also plans to implement process enhancements to permit a five percent improvement in the timeliness of acting on rulemaking petitions. Further, the agency plans to reduce resources expended in support of incident response and emergency preparedness exercises by five percent while still accomplishing agency goals for each exercise. In addition, the enforcement process for handling discrimination allegations has targeted a 10 percent reduction in the average enforcement processing time.

With respect to efficiency measures, a number of examples include FY 2004 gains associated with the Reactor Oversight Process (ROP), which resulted in approximately fifteen FTE savings per year for reactor inspection activities. Further, improved implementation guidance in a license renewal regulatory guide and standard review plan has resulted in a permanent thirty percent efficiency gain in resources needed to review license renewal applications. In addition, since 2000, materials licensing labor rates have been reduced twenty-two percent for new applications, ten percent for amendments, and fifty percent for renewals. During the same period, materials inspection labor rates have been reduced by thirteen percent while the number of inspections required was reduced by twenty-four percent. These efficiencies were achieved without impacting program performance.

During the NRC's most recent Program Assessment Rating Tool (PART) review, the Office of Management and Budget (OMB) recognized the validity of such measures as supporting long term efficiency gains. Additionally, since 2003, five of NRC's seven major programs dealing with Nuclear Reactor Safety and Nuclear Materials and Waste Safety have been subjected to OMB's PART review screening. Of the programs evaluated, four were rated as "effective," which is OMB's highest rating, with the fifth rated as "moderately effective," the second highest rating. An important component to receiving favorable PART ratings is the adoption and use of effective performance and efficiency measures to gauge the results of the programs.

With respect to stakeholder feedback, the NRC has been favorably evaluated by OMB and a number of other stakeholders. As examples, in 2004, the NRC staff conducted a survey with stakeholders that measured the effectiveness of NRC's strategic goal of enhancing openness in our regulatory process. The survey mainly involved local and county officials living near nuclear plants because they are opinion leaders who could influence residents in their surrounding communities and because they already may have some knowledge of the NRC and our regulatory activities. The NRC's overall

“Satisfaction” score was 68 out of 100, which is relatively high for a regulatory agency, particularly for the first measurement. The survey results showed that NRC staff was found to be professional, competent, and helpful. We also received high scores for the information we provide to our stakeholders. The respondents seemed to be more satisfied with the openness of NRC than the opportunities the agency offers them to participate in the regulatory process. The 2004 government-wide scores, including those for the NRC, were subsequently published in *The Washington Post*.

As a follow-up, the Commission will conduct a series of focus groups to help identify how the NRC can improve these messages and ultimately enhance confidence in the regulatory process, enable the NRC to assess more specifically how much the public knows about the NRC, and determine their perceptions about nuclear security, emergency planning and safety issues. The results of the focus group effort, combined with the results of the survey on “openness,” will give us a better awareness of the specific elements of public outreach that need to be enhanced and the next steps required of our public outreach efforts.

7. Nuclear Security:

In your testimony, you stated that the Commission is making good progress in implementing the security provisions that this Committee passed as part of the Energy Policy Act of 2005, such as a rulemaking on the revised Design Basis Threat. However, I want to make sure that after the rulemaking is completed NRC does not continue to require security changes without going through the appropriate process. According to a report (OIG-05-A-19) from the NRC Inspector General, the NRC has issued a series of safeguards advisories (total of 65) from September 11, 2001 to January 26, 2005. The OIG determined that 40 advisories, out of 65, were used for requesting or requiring information or licensee action, containing regulatory guidance, and conveying apparent requirements, without going through the established process required by the Administrative Procedures Act. What steps has the NRC taken to respond to the concerns identified in that report?

ANSWER:

The NRC has implemented steps to include the Paperwork Reduction Act provisions and to include a specific consideration of potential backfit impacts on licensees. Additionally, the NRC now also includes a statement in its Advisories that affirms the specific Advisory contains no new requirements. Further, the NRC is incorporating security Advisories into the established generic communications process, which will formalize the process of issuing safeguards advisories and embody the salient provisions of the Administrative Procedure Act.

8. Research and Test Reactors:

It is my understanding that the Massachusetts Institute of Technology had submitted an application for a power uprate of its research and test reactor in 2001, but the NRC has yet to act on it. What is the current status of the agency's review of this application? When do you expect to complete the review?

ANSWER:

The Massachusetts Institute of Technology (MIT) requested a power uprate of 20% (5 MW thermal to 6 MW thermal). MIT submitted the request as part of its license renewal application. The NRC staff has treated it as one action because of the interdependence of the analyses and review. After the initial review of the application, NRC sent three requests for additional information (RAI) to the licensee in 2001 and 2002. The licensee responded to all three RAIs by letter on January 29, 2004. Since 2004, the staff has focused efforts on other competing priorities, including security and other license renewal reviews of RTRs whose licenses would expire before MIT's.

The staff is resuming the review of the adequacy of the licensee's response to the RAIs to determine whether there is an adequate technical basis to approve the amendment for the power uprate and license renewal. The goal for completion of this safety evaluation and amendment to the license is the middle of FY 2007.

9. **USEC:**

USEC's planned American Centrifuge Plant (ACP) will be located on the DOE Portsmouth reservation, will utilize the GCEP buildings constructed by DOE, and will use centrifuge technology developed by DOE. There are on-going DOE remediation efforts throughout that site and DOE is also constructing a DUF6 conversion facility adjacent to the planned ACP. I understand that DOE will lease the GCEP buildings to USEC under an amendment to the existing lease for the enrichment site. It is also my understanding that DOE has concluded that it is appropriate to continue the DOE Price Anderson indemnification for the ACP. Does NRC agree with DOE's decision to continue the DOE Price Anderson indemnification of those areas leased for the ACP?

ANSWER:

The NRC has not concluded its analysis and consideration of legal issues regarding the insurance requirements for the proposed USEC ACP facility. At this time, NRC is, as part of its analysis, discussing this matter with DOE.

QUESTIONS FROM SENATOR JEFFORDS:

1. You state in your written testimony that the NRC has approved 108 power uprates to date, with approximately 17 more applications pending. How much power is that exactly, and what was the regulatory cost associated with the application review and other NRC actions that were necessary to get that power?

ANSWER:

The 108 power uprates to date represent about 4599 megawatts-electric, or the equivalent of about 4.6 large nuclear power plants.

There are three types of power uprates. Measurement uncertain recapture power uprates are less than 2 percent and are based on the use of enhanced techniques for

calculating reactor power. Stretch power uprates are typically up to 7 percent and are within the design capacity of the plant. Extended power uprates are greater than stretch power uprates, have been approved for increases as high as 20 percent, and require significant plant modification. The 108 power uprates approved by the NRC since 1977 include 34 measurement uncertainty recapture power uprates, 60 stretch power uprates, and 14 extended power uprates. Since 1998, the average regulatory cost associated with the review of the three types of power uprate applications has been as follows: (1) a measurement uncertainty recapture power uprate application has used, on average, about 0.7 FTE of staff review effort; (2) a stretch power uprate application has used, on average, about 1.3 FTE of staff review effort; and (3) an extended power uprate application has used, on average, about 3.1 FTE of staff review effort. Currently, 7 applications for 10 plants are under review.

2. Several organizations argue that the Independent Safety Assessment (ISA) that was done at Maine Yankee in 1996 is the "gold standard" of plant inspections. They say this because of the length of time it took, and because of the systems that were examined at the plant. I understand that after the NRC's experience at Maine Yankee it changed its inspection procedures to incorporate lessons learned from that experience and to focus inspections on safety issues. Am I correct in my understanding that since 1996 the NRC now focuses more inspection attention on plants with known safety problems?

ANSWER:

You are correct, the NRC focuses more inspection attention on plants with known safety problems. As part of the development of the Reactor Oversight Process (ROP), the NRC used lessons learned from the 1996 Maine Yankee inspection as well as other lessons learned reports and information. The current regulatory framework for the ROP is a risk-informed, tiered approach to ensure plant safety. There are three key strategic performance areas: reactor safety, radiation safety, and safeguards. Reviews of plant performance, using both the performance indicators and inspection findings, determine what additional action the NRC will take if there are signs of declining performance. The process utilizes different levels of regulatory response with NRC oversight increasing as plant performance declines. As performance declines, additional NRC resources are applied with inspection teams focused on the cause of issues and overall degraded performance.

3. Is it also correct that the Maine Yankee suffered from an inspection deficit which is why a team of 24 people were needed to do the ISA?

ANSWER:

No. The NRC Chairman at the time directed the independent safety assessment (ISA) in response to concerns about safety and regulatory oversight associated with the emergency core cooling system analyses. As stated in the Maine Yankee ISA report,

In December 1995, the Union of Concerned Scientists forwarded anonymous allegations to the State of Maine, and the State submitted the allegations to the NRC. The allegations were that Yankee Atomic Electric Company knowingly

performed inadequate analyses to support an increase in the rated thermal power at which Maine Yankee Atomic Power Station (MYAPS) may operate. After performing a technical review, the NRC Office of Nuclear Reactor Regulation (NRR) issued a confirmatory order on January 3, 1996, limiting power operation at the plant to the original licensed power level of 2440 MWt.

The NRC Office of the Inspector General (OIG) completed an inquiry into this allegation on May 8, 1996. OIG established that MYAPS had experienced problems with, and made modifications to, the RELAP/5YA computer code which was used in the emergency core cooling analysis for a small-break loss-of-coolant accident. The problems and subsequent modifications were not reported to the NRC as is required and the code was not used in accordance with the Safety Evaluation Report and with the Three Mile Island Action Plan Item II.K.3.3.1. OIG also reported weaknesses in the NRC review and followup activities which contributed to NRC failure to detect these deficiencies.

The RELAP issue raised a question of whether similar problems existed in other areas. In order to address this question, as well as to respond to concerns by the Governor of Maine about the safety and effectiveness of regulatory oversight at Maine Yankee, the NRC Chairman initiated an independent safety assessment of MYAPS. This assessment was to be performed by a team comprised of staff who were independent of any recent or significant regulatory oversight responsibility for Maine Yankee. Additionally, the assessment was to be coordinated with the State of Maine to facilitate participation by State representatives consistent with the Commission's policy on cooperation with States at commercial nuclear power plants.

4. Will you provide the Committee with a document that lists the systems, procedures, and particular equipment inspected at Maine Yankee in 1996 during the Independent Safety Assessment and in 2004 during the independent engineering assessment at Vermont Yankee?

ANSWER:

The October 7, 1996, Maine Yankee report listed the overall goals of the independent safety assessment. The goals were to: (1) independently assess the conformance of MYAPS to its design and licensing bases including appropriate reviews at the site and corporate offices; (2) independently assess operational safety performance giving risk perspectives where appropriate; (3) evaluate the effectiveness of licensee self-assessments, corrective actions, and improvement plans; and (4) determine the root cause(s) of safety-significant findings and draw conclusions on overall performance.

An in-depth assessment was conducted in the areas of plant operations, maintenance, testing, engineering, analytic code support, and self-assessment and corrective actions. The assessment consisted of interviews; system walkdowns; extended control room observations; system reviews of service water, high pressure safety injection, and emergency diesel generators; program, process, and procedure reviews; and analytic code reviews. In addition, an extensive reliability analysis of auxiliary feedwater,

emergency feedwater, high pressure injection, and emergency diesel generator systems was performed. Emphasis was placed on identifying both licensee strengths and performance weaknesses. The press release issued on October 8, 1996, that summarizes the ISA findings is attached (Attachment 4).

In selecting samples for the Vermont Yankee review, the team focused on the most risk-significant components and operator actions. The team selected these components and operator actions by using the risk information contained in the licensee's Probabilistic Risk Assessment (PRA) and the NRC's Simplified Plant Analysis Risk (SPAR) models. Many of the samples selected were located within the reactor core isolation cooling, main feedwater, safety relief valve, onsite electrical power, and off-site electrical power systems. In addition, inspection samples were added based upon operational experience reviews.

A complete listing of all components, operator actions and operating experience issues reviewed by the inspection team is contained in Attachment A to the Vermont Yankee report (Attachment 5). A total of 91 samples were chosen for the team's initial review. Based on a number of considerations, 45 of the original 91 samples were selected for a more detailed review. The staff used Temporary Instruction 2515/158, "Functional Review of Low Margin/Risk Significant Components and Human Actions," to conduct this inspection.

5. Constituents have also argued that the Independent Safety Inspection done at Maine Yankee in 1996 should be repeated at other plants because it was independent of the NRC. Constituents liken it to having an outside audit of a plant. My understanding is that the inspectors that did the inspection were independent of the plant and of the region, but only few were contractors. Most were NRC employees. Is that correct?

ANSWER:

Most of the inspectors were NRC employees. The ISA team members were independent of the NRC Region I office, the Office of Nuclear Reactor Regulation (NRR), and the plant. The Independent Safety Assessment (ISA) team comprised 25 members: 16 NRC members, 3 State of Maine members, and 6 contractors. The team was organized with five functional area leaders reporting to a team leader. The team leader reported to the team manager, who reported directly to the NRC Chairman.

6. Senator Clinton has asked the NRC to conduct an Independent Safety Assessment at the Indian Point plant in her state. As you know, a similar request was made by citizen groups during the power uprate process at Vermont Yankee. The Advisory Committee on Reactor Safeguards determined that this level of inspection was not needed at Vermont Yankee in order to determine the power uprate could proceed. My understanding of your commitment during the hearing to Senator Clinton is that the NRC will conduct an engineering inspection at Indian Point, similar to that done at Vermont Yankee during the power uprate. Is my understanding accurate? Will you provide me with a copy of the letter you agreed to send Senator Clinton during the hearing summarizing the inspection commitment you announced for Indian Point?

ANSWER:

Yes, your understanding is correct. NRC will conduct an engineering team inspection (similar to the inspections conducted at Vermont Yankee) at each Indian Point unit. The inspection will be focused on the review of plant components significant to safety; the inspection is expected to last seven weeks, including four weeks of on-site time and approximately 700 hours of direct inspection. The inspection for Unit 2 is scheduled to begin in January 2007, and Unit 3 in September 2007. The inspection will include an evaluation of changes to the plant's licensing basis to ensure that safety margins remain adequate.

The letter to Senator Clinton is attached (Attachment 6). We received a subsequent letter from Senator Clinton, dated April 3, 2006, and are developing a response.

7. When the Independent Safety Assessment was conducted at Maine Yankee in 1996, legislation was not required. The NRC had sufficient legal authority to conduct such an inspection. Several House members have introduced legislation to require an Independent Safety Assessment at Indian Point. Does the NRC now need legal authority to conduct such an inspection? Does the NRC support plant-specific legislation to set inspection protocols?

ANSWER:

The NRC currently has the legal authority to conduct inspections at nuclear power plants. Plant-specific legislation is not necessary to set inspection protocols.

8. I understand that NRC conducted the inspection at Maine Yankee because, in December 1995, anonymous allegations were sent to the State of Maine and to the NRC regarding falsification of computer modeling in the plant's power uprate analysis. The plant's power had been boosted in 1989, several years earlier. It was alleged that the NRC staff knew the modeling was faulty, and colluded with the plant owners to conceal that fact. The NRC Inspector General did an investigation. The NRC Chairman at the time, in response to the IG report, and a request from the Governor of the State of Maine, ordered the Independent Safety inspection. Are you aware of any possible criminal activity or collusion between NRC staff and the operators at Indian Point over modeling or any other aspect of plant operation?

ANSWER:

The Commission is not aware of any criminal activity or collusion between NRC staff and the operators at Indian Point over modeling or other aspects of plant operation.

9. I also want to ask a question about the scope of the Maine Yankee Independent Safety Assessment. I have also been told that this was a superior inspection because it was a thorough top to bottom look at the plant's operation. My understanding is that it was an in-depth look at some safety systems, but not an entire audit in the popular sense. The inspectors did not look at the entire plant, and they did not look at external issues, such as emergency evacuation plans. They did not examine every nut and bolt and every piece of paper. Is that correct?

ANSWER:

That is correct, the independent safety assessment did not include external plant issues, such as, emergency preparedness. As stated in the Maine Yankee report, “An indepth assessment was conducted in the areas of plant operations, maintenance, testing, engineering, analytic code support, and self-assessment and corrective actions. The assessment consisted of interviews; system walkdowns; extended control room observations; system reviews of service water, high pressure safety injection, and emergency diesel generators; program, process, and procedure reviews; and analytic code reviews. In addition, an extensive reliability analysis of auxiliary feedwater, emergency feedwater, high pressure injection, and emergency diesel generator systems was performed. Emphasis was placed on identifying both licensee strengths and performance weaknesses.”

10. There are repeated calls among New Englanders to revive a 10 year old inspection procedure that was used once. What can be done to give the public more confidence in NRC's current inspections, and particularly the inspections of older plants that may have changes to their license conditions?

ANSWER:

All commercial nuclear power plants in the United States are inspected on a continual basis as part of the Reactor Oversight Process (ROP). All plants receive an annual baseline level of inspection activity independent of their overall performance. When significant performance problems are identified, the NRC performs additional inspections to ensure that the licensee takes appropriate corrective actions. In addition, the NRC inspects on a graded approach to determine if other plant problems exist. If significant problems exist, the NRC has the regulatory authority to either confirm that certain actions be taken or to issue Orders for certain actions, which could include a plant shutdown. This approach to regulatory oversight is risk-informed and performance-based, which allows the NRC to focus resources effectively on weaker performing plants.

The ROP is very open to the public in that all inspection procedures, inspection reports, and assessments are available through the NRC's public web page. Public meetings are held to discuss certain important inspection findings and on an annual basis, overall assessment of licensee performance is discussed with the licensee in a meeting open to the public.

When a licensee elects to amend its license, the licensee must submit a license amendment application to the NRC. This is a formal process that involves a high degree of regulatory review, including whether the proposed change to the license is safe from a public health and safety perspective, in addition to an assessment of environmental effects. The results of these assessments are also publically available.

The 10-year old inspection that was conducted at Maine Yankee referred to in this question is not part of the NRC's regulatory oversight process as described above. However, important elements of this inspection can be performed by the NRC when licensee performance has resulted in significant performance deficiencies. Currently,

there are no plants in the Northeast United States whose performance demands such an inspection. In addition, the NRC conducts a rigorous team inspection referred to as the Component Design Bases Inspection. This inspection examines the structures, systems, and components at each plant to confirm that important selected components will perform as they are intended to prevent serious accidents. All plants in the Northeast will receive this inspection within the next two years.

The NRC believes that these processes effectively protect public health and safety and the environment and are open to the public.

11. The NRC recently released a draft rule on the design basis threat for public comment. In the Energy Policy Act of 2005, Congress clearly directs NRC to consider 12 factors as part of the DBT rulemaking, including the need to defend against attacks by large groups, attacks by air, and other types of attacks. Instead, the Commission has chosen not to address 6 of the 12 factors as directed by Congress and has solicited public comment on “whether or how” all 12 matters should be addressed. I am concerned that deferring the analysis to the final rule is contrary to the rulemaking process, because it makes genuine comment impossible. How does the NRC legally justify its decision not to examine in its draft all of the 12 factors identified in the Energy Policy Act of 2005?

ANSWER:

Section 651(a) of the Energy Policy Act directed that while the NRC is conducting its rulemaking to revise the Design Basis Threat (DBT) set forth in its regulations, it shall “consider,” along with other factors, twelve factors specified in that provision of the Act. The NRC did consider each of the factors in developing the text of the proposed rule. In addition, the Federal Register notice (FRN) of proposed rulemaking (70 FR 67380) enumerates all twelve factors and asks for comments on whether or how each of the factors should be addressed in the rule (70 FR 67381-82). A number of the factors are already reflected in the proposed DBT rule text, such as requiring protection against suicidal attackers, insiders, and waterborne threats (70 FR 67382). Some of the factors are not included in the proposed text of the rule, such as the attribute of air-based threats (70 FR 67382). The Commission has received over one hundred comment letters, including comments on the consideration of the twelve factors. The NRC will address them as part of the final rulemaking determining the elements of the revised DBT specified in NRC regulations. This public rulemaking process fully comports with the requirements applicable to the Commission’s conduct of rulemakings and is the mechanism by which the NRC will continue its consideration of all twelve factors.

12. Will you commit to informing the public how you considered these 12 factors, and whether you will revise the design basis threat to address them?

ANSWER:

Yes, the FRN for the Final DBT Rule will address the NRC’s consideration and final action regarding each of the 12 factors included in the Energy Policy Act, as described in response to Question 11. That response will provide as much detail as possible to the public without compromising sensitive or classified information that has been integrated into the process of vetting each factor.

13. I continue to hear from constituents that changes to the hearing process have made requests more difficult and less likely to be granted. Since the changes, are you seeing a reduction in the number of hearing requests overall, and particularly in the number of successful requests that result in a hearing being granted?

ANSWER:

It is too early to tell how the number of hearings requested or granted will be affected. Although the most recent changes to NRC's hearing procedures, which became effective for proceedings noticed on or after February 13, 2004, did change certain procedural requirements, including the time frame in which petitions for leave to intervene and requests for hearing (including contentions) had to be submitted, the revisions did not include any substantive changes to the longstanding requirements for standing and the admissibility of contentions. The revised rule requires that contentions are now part of the initial petition for leave to intervene and request for hearing, but, at the same time, allows more time, 60 days after the publication of a notice of opportunity for hearing in the Federal Register, for submission of such petitions. Furthermore, because of the varying number and complexity of applications being considered during any given time period concerning facilities at different locations and with varied degrees of stakeholder interest, it is not possible to isolate meaningfully any specific factor that would generally result in a higher or lower total number of requests for hearing, or grants or denials of such requests. The revisions were implemented to enhance the efficiency and effectiveness of NRC adjudications while ensuring that the rights of all parties to fair, effective, and timely adjudications are maintained.

14. The Yucca Mountain repository is designed to house 70,000 metric tons of nuclear waste. By the year 2035, the U.S. is projected to produce 105,000 metric tons of nuclear waste from existing plants. Since the Nuclear Waste Policy Act requires the government to assume responsibility for permanently disposing of the nation's nuclear waste, we need to fully understand the impact of the current waste situation on the future of nuclear power generation?

NRC has said it wouldn't license reactors without reasonable confidence spent fuel can be safely disposed. Has NRC ever said success at Yucca was necessary for such confidence, and to keep licensing old and new reactors?

ANSWER:

No, it has not. In 1990, the Commission found reasonable assurance that at least one mined geologic repository would be available, somewhere within the U.S., within the first quarter of the 21st century. Later, in 1999, the Commission found no basis to reevaluate its earlier finding of confidence. The Commission decided that it would reevaluate its earlier Waste Confidence findings only when the impending repository development and regulatory activities had run their course or if significant and pertinent unexpected events occur, raising substantial doubt about the continuing validity of the 1990 findings.

If DOE abandons the Yucca Mountain site, the Commission may need to reevaluate the 2025 availability date. Until such time, it would be inappropriate for the Commission to prejudge the outcome of a Yucca Mountain licensing proceeding or to speculate about the availability or acceptability of any alternative to Yucca Mountain.

15. In our full Committee hearing the week of March 1, 2006, we learned that DOE now does not have a firm deadline for submitting the Yucca Mountain application to the NRC. Is the NRC able to decide whether storage or disposal of high-level nuclear waste at Yucca Mountain will be safe without reviewing a full license application?

ANSWER:

Any Commission decision about the safety of storage or disposal at the proposed repository would be reached only after a comprehensive technical review of a license application and careful consideration of the record established in an adjudicatory proceeding.

16. The Administration is pursuing a new nuclear waste reprocessing program called the Global Nuclear Energy Partnership that could impact the amount and type of nuclear waste generated in the U.S. This new program relies on reprocessing technologies that are currently under development. Existing reprocessing technologies produce a byproduct which is a highly radioactive sludge-like residue that must be solidified and sealed in stainless steel canisters before it is shipped. Wouldn't this waste require special handling and wouldn't new regulations be required to govern its management?

ANSWER:

The NRC has the responsibility under Section 202 of the Energy Reorganization Act of 1974 to license facilities used primarily for the receipt and storage of high-level radioactive wastes resulting from activities licensed under the Atomic Energy Act or facilities authorized for the express purpose of long-term storage of radioactive waste generated by the Department of Energy which are not used as part of research and development activities. Although the NRC does not have regulatory authority over a DOE reprocessing facility, if a facility used to store the resulting high-level waste falls within NRC's jurisdiction, it is likely that NRC would find that some waste streams would require special handling and any necessary requirements to ensure the safe handling of the waste streams would be a part of the regulatory infrastructure developed by the NRC.

17. DOE is proposing to develop reprocessing technologies and build a reprocessing demonstration plant in the next 10 years. What is your position on whether the NRC would be responsible for licensing such a facility?

ANSWER:

Section 202 of the Energy Reorganization Act of 1974 defines NRC regulatory authority over DOE activities. Under the current law, the NRC does not have regulatory authority for, and would not license, any DOE reprocessing facility used to demonstrate the

advanced recycling technology selected or any DOE facility used to reprocess commercial spent nuclear fuel. However, it should be noted that in 1974 all recent and contemplated reprocessing facilities for commercial spent fuel were under private sector control and subject to NRC licensing. In Section 202, Congress explicitly gave NRC authority over the Clinch River Breeder Reactor and other demonstration nuclear reactors, such as the burner reactor included in GNEP.

18. The first nuclear plant operating license will expire this year, approximately 10 percent will expire by the end of the year 2010 and more than 40 percent will expire by the year 2015. The Atomic Energy Act and NRC regulations limit commercial power reactor licenses to an initial 40 years but also permit such licenses to be renewed. Due to this selected period, however, some structures and components may have been engineered on the basis of an expected 40-year service life. How does the fact that some plants have an engineering design life of 40 years impact their ability to perform safely for potentially another 20 years?

ANSWER:

The Atomic Energy Act (AEA) permits the Nuclear Regulatory Commission (NRC) to issue operating licenses with terms up to 40 years. The AEA limits the duration of operating licenses for nuclear power plants to a maximum of 40 years, but permits renewal of the licenses. The original 40-year license term was selected on the basis of economic and antitrust considerations, not design or operational limitations. However, once established, the designs of some structures, systems, and components within the plant were subsequently based on a 40-year operating life.

The license renewal rule (10 C.F.R., Part 54), focuses the NRC's license renewal review on the effects of aging on the functionality of certain plant systems, structures, and components in the period of extended operation and a few other issues related to safety during extended operation. The NRC believes that sufficient technical understanding of age-related degradation exists to enable licensees to develop activities for ensuring safe operation of their plants for the additional 20 years beyond expiration of their existing licenses.

If a licensee chooses to apply for license renewal, the application must provide the NRC an assessment of the technical aspects of plant aging and must describe how the aging will be managed. Time-limited aging analyses within the scope of the rule that specifically rely on the assumption of a 40-year operating life must also be re-evaluated. In addition, the licensee must also prepare an evaluation of the potential impact on the environment to support plant operation for an additional 20 years. The NRC documents its reviews in publicly available documents and performs verification inspections at the licensee's facilities before making a decision on issuing a renewed license. Therefore, the NRC's license renewal process provides reasonable assurance that aging will be managed for all structures, systems, and components within the scope of the rule (including those with an initial specified design life of 40 years) such that they will continue to perform their required safety functions for the period of extended operation.

QUESTIONS FROM SENATOR ISAKSON:

1. During the hearing, I brought up the issue of potassium iodide, but didn't get a chance to pursue my question with the Commission. It is my understanding that the Department of Health and Human Services (HHS) has made a recommendation to expand the stockpiling of potassium iodide beyond the 10-mile radius around a nuclear facility which is the current requirement. Please provide the Commission's position on the HHS's recommendation for the record.

ANSWER:

Based on the NRC's decades of experience with nuclear power plant emergency preparedness and radiological protection of the public, it is the NRC's conclusion that expanded distribution of potassium iodide (KI) is unnecessary. Expanded distribution of KI is unnecessary because of the current, well-established, and scientifically sound framework of the NRC's emergency preparedness regulations. This framework includes predetermined protective actions for populations within the 10- and 50-mile ingestion exposure pathway Emergency Planning Zones (EPZs) to provide the necessary protection of public health and safety. These predetermined protective actions include interdiction of contaminated milk, food, and water, as well as protective measures for livestock. NRC's conclusion is supported by a January 2004 study by the National Academy of Sciences, which found that food testing and interdiction programs in place throughout the United States are more effective preventive strategies than expanded distribution of KI for ingestion pathways. Additionally, many States and other interested entities, including Federal agencies, have expressed opposition to the distribution of KI beyond the existing 10-mile EPZs.

Additional detail on the Commission's position on HHS's draft guidelines for expanded KI distribution are provided in the November 1, 2005 letter from Mr. William Kane, NRC's Deputy Executive Director for Reactor and Preparedness Programs, to Dr. Claypool of HHS's Office of Mass Casualty Planning, which is attached (Attachment 7) for your convenience.

QUESTIONS FROM SENATOR OBAMA:

1. Will you please provide me with a list of the other tritium leak incidents elsewhere in the country over the past 10 years, including location, and level of radiation?

ANSWER:

This information is being compiled as part of several issues being addressed by the task force the NRC created to examine the issue of inadvertent, unmonitored releases of radioactive liquid containing tritium from nuclear power plants. The NRC has deemed it necessary to do a broad review to determine the extent of the issue and to recommend possible agency actions. Specifically, the Task Force will conduct a review of known inadvertent releases (1996 to present) of radioactive liquid to the environment at power reactor sites, including power reactors in decommissioning. At this time, Attachment 8 presents a preliminary listing of events that have included tritium leaks.

The updated information will be included in a report expected to be released in September 2006. The creation of the Task Force and its responsibilities are posted as a news release item on the NRC website (www.nrc.gov). The news release is attached (Attachment 9).

2. Will you please provide me with the NRC's views on the Nuclear Release Notice Act (S. 2348), which I introduced earlier this month?

ANSWER:

The Nuclear Regulatory Commission supports the notification objectives of S. 2348 but believes certain changes in S. 2348 are desirable.

Section 2 of the bill would amend the Atomic Energy Act to require that in the case of certain unplanned releases, licensees of utilization facilities "shall immediately notify the Commission, and the State and county in which the facility is located, of the release." The required "immediate" notification to States and counties does not appear commensurate with other NRC notification requirements. For example, 10 C.F.R. 50.72 (a)(3) requires that after a licensee declares an emergency within one of the Emergency Classes, the licensee must notify the affected State and county and the NRC no later than one hour after the time of the declaration. Unplanned releases below the level of an emergency present a substantially smaller risk to the public. Unplanned releases that are a microscope fraction of the facility's normal releases pose a minimal risk to the public. Furthermore, the nature of unplanned releases is such that it may take substantial time to determine whether such a release has occurred and its potential impacts.

Section 2 of the bill would also apply the reporting requirements to any unplanned release of quantities of fission products or other radioactive substances within allowable limits for normal operation established by the Commission or other applicable Federal laws or standards but that occurs more than twice within a 2-year period originating from the same source, process, or equipment at a facility. The breadth of the definition of "unplanned release" raises scope issues. Additionally, the proposed legislation does not set a lower bound for recurrent unplanned releases within allowable limits that are subject to the reporting requirements. For example, an unplanned pathway release of several thousand gallons of contaminated liquid could be readily recognized and tracked for possible reporting. If a second event occurs for the same system but only results in the release of one gallon of contaminated liquid, it seems questionable whether, as the bill requires, such a release should trigger reporting requirements. Also, the wording "originating from the same source, process, or equipment at a facility" lacks precision. This could cause confusion for tracking "releases" and determining whether the criterion of two occurrences within a 2-year period has been met.

3. Mr. Diaz, you stated that the NRC is taking a comprehensive look at the tritium problem, including the way it is monitored, the environmental situation, and communications between the NRC and state environmental protection agencies. Do you expect this analysis to be completed by Memorial Day? Upon completion of this analysis, will you please submit it to the members of this Committee?

ANSWER:

An NRC Task Force has been established to examine the issue of inadvertent releases of radioactive liquid to the environment at power reactor sites, highlighted by recently identified incidents at Braidwood, Indian Point, Byron, and Dresden. Given the mandate of the Task Force, the report is expected to be released in September 2006. When the report is issued, it will be provided to you and the other members of the Committee.

4. On March 13, 2006, almost days after our hearing, approximately 200 gallons of water spilled at the Exelon Braidwood station from an on-site tank where radioactive liquids are temporarily being stored in the wake of the recent issue on tritiated water leaks. I am told that testing onsite of the water in the berm area showed about 255,000 picocuries per liter. I understand that the leakage was not reportable to the NRC, but the licensee has informed State and local officials and issued a news release.
- a) Why was this leakage not reportable to the NRC? What thresholds for reporting were not met that otherwise would require NRC reporting?
 - b) Are there reporting thresholds that differentiate between releases that occur on the licensee property as opposed to off-site?

ANSWER:

As indicated in the question, the spill which occurred on March 13, 2006, at the Braidwood site involved approximately 200 gallons of water with low levels of tritium contamination. The total amount of tritium in the water was about a millionth of that found in a typical exit sign. Some of the water, remaining on the surface, was collected and pumped back into the reinforced berm, and ultimately into a storage tank. The water spilled from the berm remained in the immediate vicinity, and there was no evidence of an off-site release of the slightly contaminated water.

NRC's reporting requirements include thresholds that are linked to potential impacts on radiological protection of public health and safety. The types of events discussed in the question, involving low concentration, localized spills with no off-site impacts, are not required to be formally reported to the NRC because the thresholds of the reporting requirements contained in NRC regulations were not met. These requirements are more specifically described below and focus on emergency events and events involving exposures to individuals in excess of regulatory requirements or significant releases of radioactive materials in excess of regulatory requirements, both on site and off site.

Although not required by NRC regulations, the on-site resident inspector was informed of the event, and NRC staff from the Regional office, in addition to the resident inspector, conducted follow-up activities. To put this communication in context, the resident inspectors located at the plant maintain a day-to-day awareness of plant activities, including routine and non-routine evolutions and occurrences. As such, there is on-going dialogue relative to issues at the plant as well as issues which may be of particular NRC or public interest.

In addition, NRC's regulations in 10 C.F.R. 20.1501 require the licensee to perform radiological surveys and evaluations that are necessary to ensure compliance with NRC requirements and to evaluate the magnitude and extent of radiation levels, the concentrations or quantities of radioactive material, and the potential radiological hazards. The licensee is expected to evaluate on-site spills, and these evaluations are subject to NRC review and inspection.

NRC regulations include several requirements addressing NRC notification of incidents and accidents. As indicated above, these requirements primarily focus on actual or potential doses to individuals and significant releases. These requirements are as follows:

- i. 10 C.F.R. 20.2202 (Notification of incidents). Examples of the types of notifications required under this part include immediate notification of exposures to individuals (25 rem) and releases of radioactive material, inside or outside the restricted area, so that, if an individual was present for 24 hours, the individual could inhale radioactive materials in excess of five times the annual limit.
- ii. 10 C.F.R. 20.2203 (Reports of exposures, radiation levels, and concentrations of radioactive material exceeding the constraints or limits). Examples of the types of notifications required under this part include reporting within 30 days of an individual member of the public receiving a radiation dose of 100 mrem or more, and concentrations of radioactive material in restricted areas in excess of 10 times the applicable limit.
- iii. 10 C.F.R. 50.72(b)(2)(xi) (Immediate notification requirements for operating nuclear power reactors) requires the licensee to notify NRC within 4 hours of any event related to the health and safety of the public, or protection of the environment, for which a news release is planned or notifications have or will be made to other government agencies. As noted earlier, the Braidwood event was communicated to our resident inspector on site and follow-up was conducted by the NRC staff on site and from the Regional office.
- iv. 10 C.F.R. 50.73 (Licensee event reporting system). An example of the type of notifications required under this part includes a 30-day written report for any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentration for all radionuclides except tritium and dissolved noble gases.

For nuclear power plants, the operating license also requires that, as part of the Radiological Environmental Monitoring Program (REMP), the licensee implement a program for the control and monitoring of liquid and gaseous radiological effluents released to off-site locations. The REMF identifies reporting levels for radioactivity identified in off-site environmental samples, including levels for tritium as one among other radionuclides in water. As an example for tritium, the reporting levels are 20,000 picocuries per liter for drinking water and 30,000 picocuries per liter for non-drinking

water. The REMP is one of several requirements mandated by the operating license in each plant's radiological effluent technical specifications.

Although not specifically a reporting requirement, the NRC also has record keeping requirements associated with on-site radiological conditions. These requirements are contained in 10 C.F.R. 50.75(g) and relate to site decommissioning. For this, the licensee is required to maintain records of spills or other unusual occurrences involving the spread of contamination in and around the facility or site. These records are maintained for the life of the plant and are subject to NRC inspections.

Attachments:

- Attachment 1 - Letter to Senator George Voinovich on the NRC's current space requirements
- Attachment 2 - Industry Trend Results
- Attachment 3 - Operating Experience: Unplanned Reactor Shutdowns (6 months or longer)
- Attachment 4 - Press Release on the Maine Yankee Independent Safety Assessment Results
- Attachment 5 - Attachment A to the Vermont Yankee report
- Attachment 6 - Letter to Senator Clinton on an Independent Safety Assessment at Indian Point
- Attachment 7 - Letter to Dr. Robert Claypool on Commission's position on HHS's draft guidelines for expanded KI distribution
- Attachment 8 - Preliminary listing of Events Involving Tritium Leaks
- Attachment 9 - Press Release on the Creation of a Liquid Radioactive Release Lessons-Learned Task Force