



An Overview of NRC Operations

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Good morning. On behalf of the NRC staff I would like to add my welcome and to thank the staff of NRR and Research for organizing this Conference. This event provides a unique opportunity to address our licensees and domestic stakeholders; Congressional staff and other federal agencies; a broad cross section of the NRC staff; and our many international colleagues. I appreciate the opportunity to provide an overview of our important activities. Most of the items that I will mention this morning will be discussed in much greater detail during conference breakout sessions but it is my intent to provide a broad high level overview of



NRC Mission

To regulate the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment

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While the specific activities we work on may change from year to year, the dedication and focus on our core mission of protecting public health and safety, promoting security and protecting the environment remain unchanged. In addition, we remain committed to the principles of good regulation – Independence, Openness, Efficiency, Clarity, and Reliability.

I believe the staff demonstrates great adaptability as the demands of our job change – in both site-specific and programmatic ways. And, as we adapt to changing environments, I see us continuing to be responsive to our various stakeholder groups.

Our top priority will always be the safety of current reactor and radioactive materials licensee operations. However, in addition to the many activities supporting safe operations, we will be giving significant attention to the human capital development activities of knowledge management and staff training; upgrading and modernization of our information technology, and financial infrastructure; and continued work on new applications that cover the entire fuel cycle.

The pursuit of safety is a never ending endeavor, and as you will see in a few minutes I believe that safety performance has been good and we continue to learn from operating experience. Nonetheless, we (NRC and the industry) need



Our Regulated Community

- Operating Reactors: 104
- Materials Licensees: 22,500
- Uranium Recovery Licensees: 5
- Fuel Cycle Licensees: 14

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When the NRC was created, we were responsible for the oversight of 56 operating reactors. That number has grown over the years to the current fleet of 104. Those 104 reactors are spread across 65 sites in 31 states. They represent 80 different designs and are managed by 26 different operating companies. In fiscal year 2009 we completed 1150 operating reactor license amendments. We also received 5 license renewal applications for 8 units (at Duane Arnold, Palo Verde, Crystal River, Salem, and Hope Creek) and issued renewed licenses for 5 units (at Wolf Creek, Harris, Oyster Creek, and Vogtle).

In 1975 when the Energy Reorganization Act established the NRC, there were 19,000 materials licensees. As of the end of FY 09, there were 22,500, covering a range of medical, academic, industrial, and other uses.

Budget

- 2010: \$1,067M
- Breakdown Across Programs
 - Reactors: 76%
 - Materials/waste: 24%
- 2011 President's Budget: \$1,054M

Over time, as our workload has increased and our mission has evolved, our budget has grown to slightly over a billion dollars for the current fiscal year. The FY2010 budget is essentially flat with our FY09 budget. 76% of the budget is directed towards reactors and related support activities, and 24% for materials and waste and related activities.

The FY2011 President's budget submitted to Congress last month reflects a slight overall decrease from our FY2010 level. Proposed decreases from the FY 2010 budget are primarily due to reductions in

Staffing


- 2010: 3,962 FTE
- Changing Workforce
- Knowledge Management is Key

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We began FY 2010 with almost 4,000 staff. As an aside, I am pleased to say that during our recent 35th anniversary celebration, we honored 79 NRC employees who have been with us continuously since our creation in 1975! Staffing has stabilized over the past couple of years, and we will continue to be essentially flat as the President's FY 2011 budget includes roughly 4,000 full-time employees.

Even though our workforce is not growing, it does continue to change:

- Retirements are continuing. The 2009 attrition rate was approximately 4% and we expect to hire approx 200 people in 2010.
- The percent of staff who have been here less than 6 years now stands at 50% and



Enhancements to Support Doing an Even Better Job

- 3 White Flint North
- NewFlex/Workplace Flexibility
- Open, Collaborative Work Environment (OCWE)
- Open Government Initiative
<http://www.nrc.gov/open.html>

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Doing our jobs well requires more than having an appropriately sized and dedicated and trained workforce. We need facilities and tools that promote and support the effective completion of our responsibilities. We also need to support and promote a positive work environment.

I am pleased to report that we have signed a lease for what we are calling 3 White Flint North, to be located across the street from our current facilities, adjacent to the White Flint Metro Stop. We anticipate groundbreaking will occur in late April or early May and that we will begin to occupy the space in 2012. This will once again allow us to consolidate at the White Flint complex the staff currently working at multiple locations in the Rockville area.

In recent months we also have entered into a new bargaining agreement for our union employees that extends a new work schedule model to essentially all employees. This program is called NewFlex. It is one of a range of efforts we are pursuing towards better human capital management. NewFlex offers greater flexibility in establishing individual work schedules to meet the agency mission requirements and the needs of our workforce. We believe it can help us maximize employee productivity and is an important employee benefit that will help us keep and continue to attract highly qualified and motivated individuals to work at the NRC.

The agency also is pursuing information technology initiatives to promote “Work with Anyone” and “Work from Anywhere.” “Work with Anyone” supports groups of staff collaborating effectively, both within the agency and with stakeholders, to accomplish the agency’s mission. We pursue this through increased development and use of collaborative tools and services such as virtual meetings, collaborative web sites (such as Sharepoint), and communities of practice.

“Working from Anywhere” was the number 1 goal selected during the agency’s 2009 Information Technology (IT) Summit as having the greatest value to NRC staff. It enables NRC employees to securely access and use the systems and information needed to perform their jobs, regardless of where they’re located. In other words, “Work from Anywhere” provides “virtual workplace” capabilities.

This fiscal year, we are placing more emphasis on Open, Collaborative Work Environment communications and programs, with particular emphasis on ensuring that support offices recognize their roles and contributions to achieving the agency’s mission. OCWE is an environment that encourages trust, respect, and open communication to support and promote a positive work environment. It supports individuals coming together to solve problems. The OCWE concept encompasses the entire staff and seeks to promote administrative and corporate support personnel working together with members of the technical staff. It enables the NRC to maximize our capabilities and productivity by tapping into the energy and talent of every individual.

Finally, on December 9th, the President issued an Open Government Directive for Executive Departments and Agencies. Since early December, we have put a new Open Government Web page on the NRC web site and linked it to a new tool for the public to comment on our efforts in the areas of transparency, participation, and collaboration. We also have been developing an Open Government Plan that discusses in detail activities we have undertaken and those we propose to undertake in those same 3 areas. That plan will be published on our Open Government Web page by April 7th. I urge you to take a look at the



Selected Current Topics with the Existing Fleet

- Part 26, Subpart I Work Hour Controls
- Fire Protection/NFPA 805 Transition
- Part 73 Security Rule/Cyber Security
- Safety Culture

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Now, turning my attention to our technical activities, let me begin by highlighting a few of the key issues we are working on that affect the existing fleet of nuclear power reactors.

Last October, the fatigue management work hour controls requirements became effective. This represents our most recent efforts to enhance the 10 CFR Part 26 requirements regarding Fitness for Duty. The NRC actively engaged with the public and industry through a series of public meetings to answer questions, receive feedback on industry lessons-learned, and develop regulatory guides implementing rule requirements. The NRC is inspecting industry implementation of the Part 26 requirements and continues to coordinate with external stakeholders on potential future rulemaking to further enhance Part 26. There is no doubt that implementation of these new requirements has been challenging and several unanticipated issues have emerged. We look forward to discussing the results of this rule's implementation in the near future.

Operating nuclear power plants are required to maintain a fire protection plan with the objective of minimizing the likelihood and consequences of fire. Licensees may demonstrate compliance either by maintaining their approved fire protection program or by transitioning to a risk-informed, performance-based fire protection program based on the National Fire Protection Association (NFPA) Standard 805. This approach will provide greater regulatory consistency and clarity and provide more flexibility for licensees to address very low risk issues without prior NRC staff approval. Staff has and will continue to work with industry to develop and revise licensing guidance as the NRC and industry gain experience while transitioning to the new regulatory approach.

The power reactor security rule has a full implementation date of March 31, 2010 – the end of this month. While we have not agreed to a request for an industry-wide extension to this date, we have received and are acting on approximately 25 individual exemption requests. These sites may have difficulty achieving full compliance with certain aspects of the rule and have requested exemptions to extend the rule compliance date for specific requirements. The use of the exemption process enables the staff to give full consideration to the unique circumstances applicable to each exemption request, and to review the requests based on their individual merit.

Among the significant requirements of this new rule are additional provisions for protection against cyber security attacks. Both the agency and industry are developing written guidance to licensees regarding cyber security programs and plans. The NRC has formed a Cyber Assessment Team to provide a consistent process for evaluation and resolution of issues with cyber security-related implications. We expect to initiate a cyber security inspection program in the 2011-2012 timeframe.

The agency believes prompt, full implementation of the power reactor security rule is an important step in completing efforts to enhance security at licensed nuclear power reactors.

Following Commission direction received in 2008, NRC staff have been assessing, among other things, how to expand safety culture policy to address the unique aspects of security; whether safety culture, as applied to reactors, needed to be strengthened; and, how to increase attention to safety culture in the nuclear materials area. This work culminated last Fall, in the publication of a draft Safety Culture Policy Statement for public review and comment on November 6th. There was a public stakeholders workshop on February 3, 2010 and there will be additional workshops this year. The staff will submit the proposed final rule to the Commission in March 2011.

Additional Current Topics with the Existing Fleet

- Buried Piping
- Underground Cable
- Operations Beyond 60 Years
- Aggregate Impact of Rulemaking

The previous slide is only a sample of the many key issues we are currently working on with the existing fleet of nuclear power plants. This slide lists some of the other topics on which we spend a fair amount of our time.

Buried Piping: There has been recent operating experience regarding leaks from buried piping at nuclear power plants (approximately 10 leak reports since 2005). The staff is reviewing regulations and regulatory guidance, codes and standards, and industry practices to ensure degradation of buried piping is managed in

Reactor Industry Trends Program

- Identifies Trends in Safety Performance
- Communicates Performance To Stakeholders
- Complements the Reactor Oversight Process
- Supports NRC Performance Goals

We've started to collate the results of the Reactor Industry Trends Program for FY 2009, and I wanted to give you a preview of some of our results:

The Industry Trends Program looks at overall industry performance by tracking various industry performance indicators, as well as an indicator that looks for significant accident precursors. The Industry Trends Program allows us to step back and look at the broad, long term performance of the industry, and to assess whether there are trends that warrant more staff attention.

FY 2009 Results

- No Statistically Significant Adverse Trends in Safety Performance
- No Short-term Prediction Limits Were Exceeded
- Baseline Risk Index for Initiating Events (BRIIE) Indicates Better-Than-Baseline Industry Performance

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In fiscal year 2009, there were no statistically significant adverse trends in overall industry performance identified based on long-term trending. On an industry-wide basis, the performance indicators that we trend remained significantly improved compared to 10 or 15 years ago. These improvements are likely the result of a number of factors including, effective corrective action programs; the Maintenance Rule; effective operating experience programs; and increased focus on risk insights in plant operation due to Reactor Oversight Program (ROP) structure.

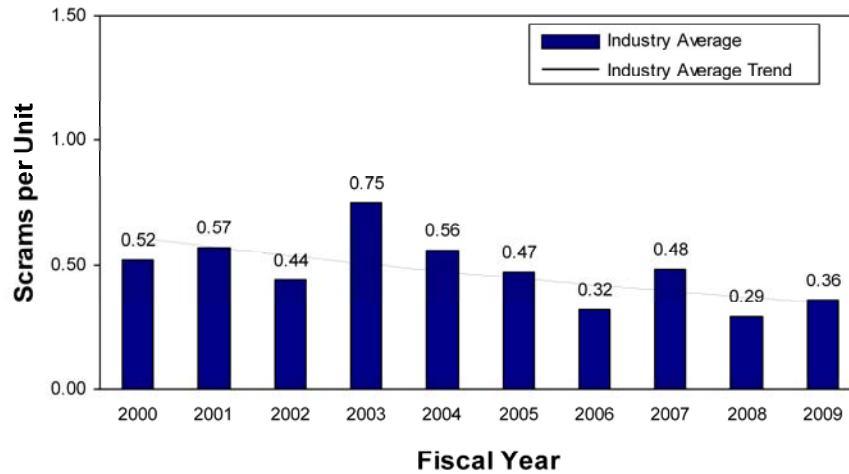
We also look at changes in the short-term. None of the indicators exceeded its short-term prediction limit and no issues were identified that warrant further analysis or program adjustments.

In 2008 we implemented a new industry-wide performance indicator (called the Baseline Risk Index for Initiating Events, or “BRIIE”) that introduces a risk-informed view of industry performance. BRIIE tracks several types of events that could potentially challenge a plant’s safety systems; it assigns a value to each initiating event according to its relative importance to the plant’s overall risk of damage to the reactor core; and it calculates an overall indicator of industry safety performance.

The FY 2009 BRIIE analysis indicates better-than-baseline industry performance and is well below the established reporting threshold.

The improving trend in overall industry safety performance continued in FY 2009 for all the indicators in the Industry Trends Program as can be seen in the following example slides.

Automatic Scrams While Critical



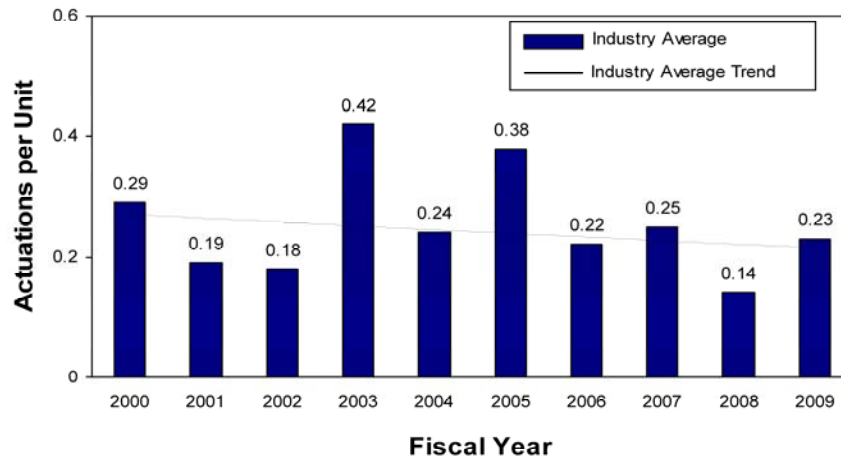
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Although the activity may increase or decrease in any given year as a result of operational occurrences or unforeseen events, the calculated line indicates a downward trend over time.

The “spike” in 2003 on scrams was the result of the August 2003 blackout and 9 Loss of Off-Site Power (LOOP) events.

Also, we do find that transformers are often times an issue in automatic scrams and forced outages.

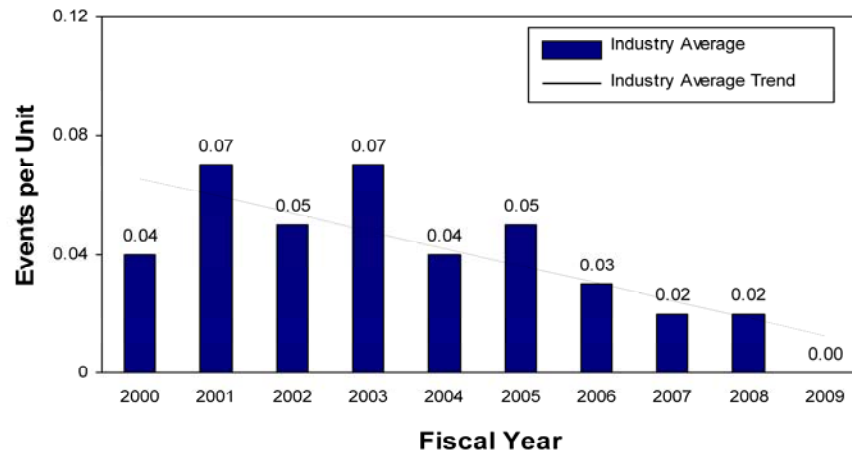
Safety System Actuations



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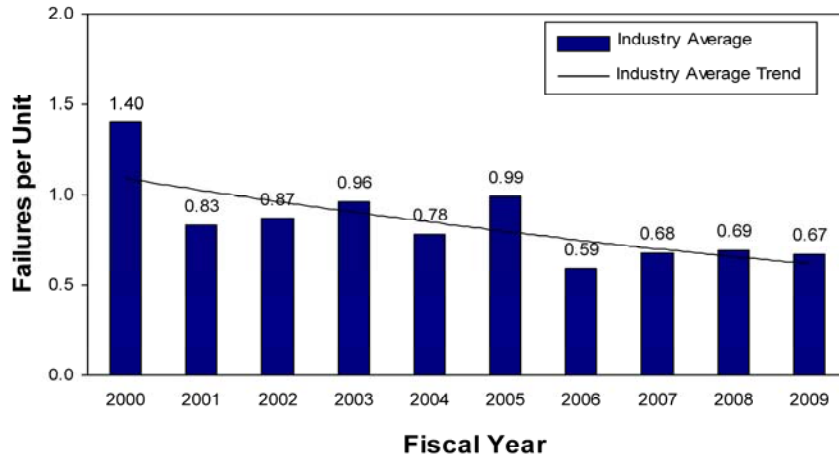
2003 spike here was, again, the result of the 2003 blackout. The **2005** spike, on the other hand, doesn't have a single initiating cause. The events occurred at many different sites and were caused by many different factors. But again, the calculated line indicates a downward trend over time.

Significant Events

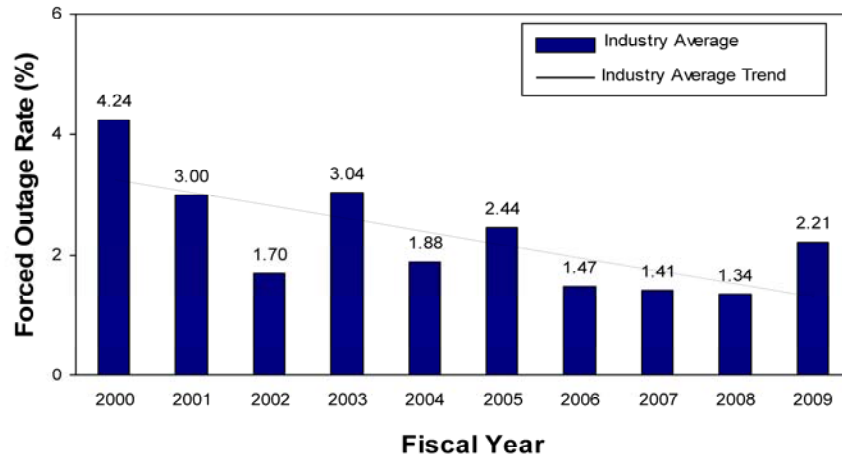


Again, **2003** – the 9 LOOP events.

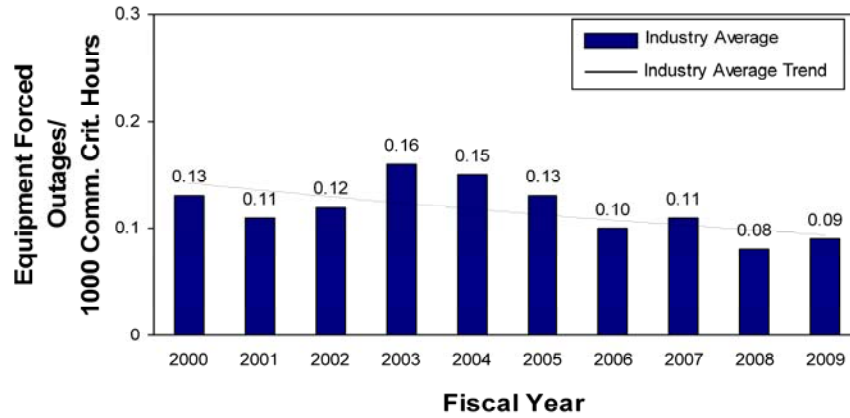
Safety System Failures



Forced Outage Rate (%)

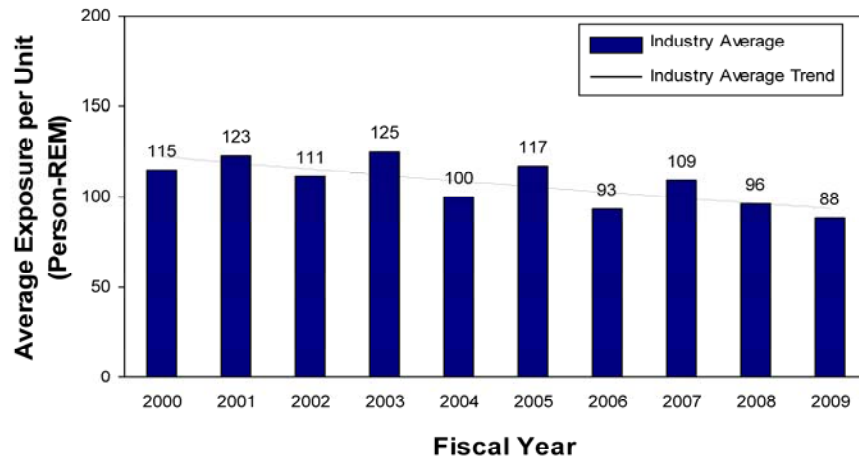


Equipment Forced Outages/1000 Commercial Critical Hours

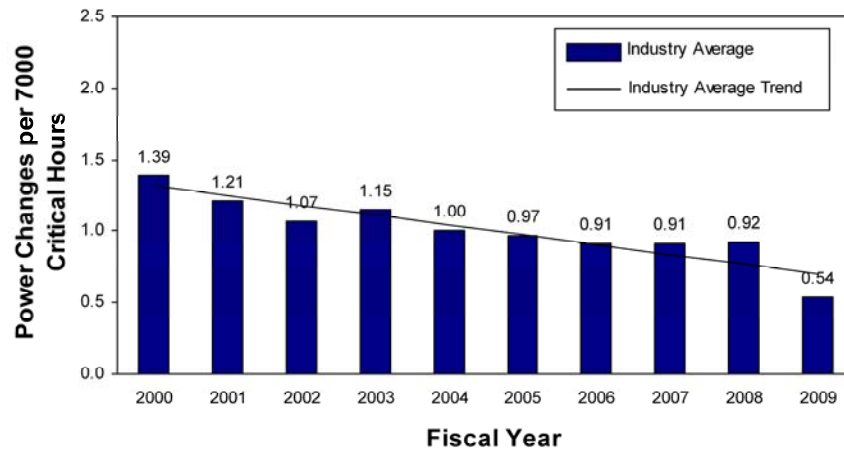


Again, **2003**, the 9 LOOP events.

Collective Radiation Exposure



Unplanned Power Changes



Again, on this last chart, the downward trend over time is quite clear.

New Reactors

- Design Certification and Combined License (COL) Applications
- Vendor Inspections/Construction Inspection Program
- Advanced Reactors

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Now I'd like to turn to new reactors. Currently, the Office of New Reactors has 5 Design Certification Applications under review: ESBWR, US EPR, and US APWR, as well as the AP1000 amendment and the ABWR design certification rule amendment. Thus far, the NRC has received 18 Combined License applications for 28 reactors. Five of those applications for six units have been deferred or suspended at the applicants' request. The reasons for these deferrals vary, but include energy demand and construction cost issues. I will also note that the President's 2011 budget request includes an increase in potential loan guarantees for selected projects, proposing to increase the \$18.5B available under current law to more than \$54B. Last month, the President announced the first of these loan guarantees – approximately \$8 billion to construct two AP1000 nuclear reactors at the Vogtle site in Georgia.

For those COL applications moving forward, we are committed to providing high-quality and timely review, but the process is certainly not without its challenges. Among those challenges: the designs on which the applications are based are not yet themselves final. There also are delays in the reviews themselves that arise from such things as the applicants' abilities to respond to requests for additional information in a timely way, the submittal of departures or changes in design, or changes in applicant business strategies. The NRC also faces internally driven challenges, including the training and mentoring of new staff and managing the growth in contracting to support the surge in new reactor licensing. The NRC continues to work with its applicants to address and overcome these challenges.

We are already implementing a vigorous vendor inspection program - both in the U.S. and internationally - and making excellent progress on the timely development of the construction inspection program. We will be prepared to carry out our responsibilities to oversee construction and, in fact, have already begun to do so. SRI at Vogtle selected and will be reporting soon

Selected Non-Reactor Key Topics

- Integrated Spent Fuel Management
- Oversight of Master Materials Licensees (Patient Treatment with Radioisotopes)
- Fuel Cycle/Uranium Recovery Construction and Applications
- Fuel Cycle Oversight Process

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Moving now to the non-reactor side of the house, there are several current initiatives or issues that I would like to mention.

With an orderly closure to the Yucca Mountain license application likely over this fiscal year and the next, we are developing a strategy for **Integrated Spent Fuel Management** to position the NRC to address future challenges related to spent nuclear fuel management. Specifically, this strategy will support the evaluation of issues and options for extended storage of spent nuclear fuel, reprocessing of spent nuclear fuel, and disposal of high-level waste in alternative locations. These activities will be closely coordinated with existing programs in the Spent Fuel Storage and Transportation and New Fuel Facilities arenas. You will be hearing more about this in the coming weeks and months.

Something you have already heard considerable discussion about in recent months has been issues associated with activities of **master materials licensees**, specifically patient treatment with radioisotopes by the Veterans Administration. We have been working with the VA, performed inspections of their facilities, and are now finalizing appropriate enforcement actions. The broader issue this raises - oversight of master materials licensees – is something we are now evaluating to determine what types of oversight enhancements are appropriate to ensure continuing protection of public health and safety.

On the front end of the nuclear fuel cycle, there are a couple of topics I would like to note for you.

We have had a lot of activity in the area of new **enrichment facilities** over the last few years. We are currently conducting the operational readiness review for the LES enrichment facility and are currently reviewing a license application from AREVA Enrichment Services for construction of the proposed Eagle Rock Enrichment Facility (EREF) in Bonneville County, Idaho and an application from General Electric-Hitachi Global Laser Enrichment, LLC, which submitted a license application to construct an enrichment facility in Wilmington, NC.

We have had good success thus far with enrichment facility applications, but the review schedules for these are challenging for a number of reasons, including the quality of the applications themselves and responses to requests for additional information, development of Environmental Impact Statements, and evaluation of non-proliferation concerns.

With regard to **uranium recovery**, we are expecting as many as 24 applications by 2013 for new recovery facilities and expanding or restarting existing uranium recovery facilities. As of this month, we have received 5 applications for new facilities and 4 applications to expand or restart an existing facility. In support of these licensing activities, the staff has developed an integrated safety and environmental review strategy for these applications, completed a generic environmental impact statement (GEIS) for in situ uranium recovery facilities, and is currently updating regulations, guidance, and policy while reviewing applications. I would note that, as with fuel cycle facility applications, the quality of these uranium recovery applications can impact the timeliness of our reviews.

Finally, after some initial meetings with stakeholders in 2009, and at the direction of the Commission, the staff is currently working on a plan for developing an integrated and phased approach to risk inform **fuel cycle oversight**, including short-term, medium term, and long term activities and milestones. The plan will focus on establishing the fundamental technical basis on which a more risk-informed and performance-based oversight program can be built.



Next I would like to touch on just a few of the activities we have underway in our broad international cooperative efforts. I know that the RIC now attracts a significant number of international attendees (including many technical session participants) and that nuclear power truly has become a global activity. Our international relationships, and the range of technical cooperation activities they include, are important to us because we believe they enhance our knowledge through shared expertise and best practices.

Due to the renewed global interest in developing nuclear power and safe uses of radiological materials, we are providing bilateral assistance to regulatory agencies to strengthen their nuclear safety and security programs. We are now engaging with more than two dozen countries considering nuclear power programs for the first time.

Conclusion

- Safety of Current Facilities is the Top Priority
- Responding Well to Emerging Demands
- Positioned for Continued Success
- Communications with Stakeholders is Vital

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Let me conclude by reiterating a few key thoughts about NRC operations and the broader nuclear community:

NRC staff remains focused on its core mission, with safety of current facilities – both the current fleet of reactors, as well as other licensees – as our top priority.

As an agency, I believe we have responded well to emerging demands, such as new reactor licensing and advanced reactors, and that we are well positioned for continued success as new challenges emerge.