



WRITTEN STATEMENT FOR THE RECORD
by
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to the
Subcommittee on Clean Air and Nuclear Safety
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Chairman Carper, Ranking Member Vitter, Members of the Subcommittee, thank you for the opportunity to testify on the future of new nuclear energy and the critical role of the Nuclear Regulatory Commission's (NRC) new licensing process: 10 CFR Part 52. This oversight hearing demonstrates your commitment to provide periodic assessments that help ensure involvement of all stakeholders, refocus attention on performance and goals, and provide a sense of accountability and responsibility.

My name is George Vanderheyden. I am the President and Chief Executive Officer of UniStar Nuclear Energy, a strategic joint venture between Constellation Energy and EDF Group. UniStar was formed after the passage of the Energy Policy Act of 2005 to support and advance the development of a fleet of nuclear energy facilities in the United States. To date, UniStar and our partners have submitted four combined license applications to the NRC to construct and operate nuclear energy facilities in Maryland, Pennsylvania, Missouri, and New York.

UniStar is committed to a fleet of new reactors and, therefore, I also represent the interests of future nuclear projects that will follow the first wave of applications. I should mention that I had the opportunity to provide input to the Bipartisan Policy Center's 2010 independent review of the NRC licensing process for new reactors and I agree with their overall assessment.

It is important to note that the United States has not licensed or built a new nuclear energy facility in more than 30 years. Given this fact, the federal government has attempted to address two historically problematic issues: the ability to finance the facilities; and the regulatory uncertainty of obtaining a federal license for construction and eventual operation of the plant.

The federal loan guarantee program is an important first step at addressing the financial challenges of raising the investment capital. UniStar's proposed Calvert Cliffs 3 project in Maryland remains one of three projects under consideration for a share of the \$10.2 billion remaining in Congress's original appropriation of \$18.5 billion in guarantees for advanced nuclear energy projects.

The following table highlights Calvert Cliffs 3 loan guarantee chronology:

Year	Date	Loan Guarantee Chronology
2005	08/08/05	President George W. Bush signs the Energy Policy Act of 2005 into law
2008	07/31/08	Calvert Cliffs 3 Loan Guarantee Application (Part I) submitted to Department of Energy
	12/18/08	Calvert Cliffs 3 Loan Guarantee Application (Part II) submitted to Department of Energy
2009	05/19/09	Calvert Cliffs 3 among four projects selected by Department of Energy to enter final phase of due diligence

The issuance of the NRC Part 52 licensing process, which the NRC commissioners earlier discussed, was designed to address regulatory uncertainty. My testimony today is based on UniStar’s experience as a current participant in the NRC licensing process. UniStar’s Calvert Cliffs 3 combined license application under Part 52 was submitted to the NRC on March 14, 2008.

Since the enactment of the Atomic Energy Act of 1954, there has never been such a significant change in regulatory framework as was created by the Part 52 process. The Part 52 process allows the NRC to issue a single license, at the beginning of a project before the start of construction, to ensure that licensing issues are addressed prior to significant expenditures. While this process holds much promise, it has never been fully exercised for assessing a combined license application.

Our interactions with the NRC staff have been professional, timely, open, transparent, predictable, and valuable. The NRC is using new project management tools, such as resource loaded schedules and earned-value metrics to manage and monitor the simultaneous licensing of over seventeen independent Part 52 applications. The NRC has demonstrated its ability to be a learning organization, to be insightful, and able to create a culture of continuous improvement. This is in contrast to the management of license applications in the 1960s and 1970s. The NRC is performing well overall, and it is my judgment that they are meeting their Principles of Good Regulation.

In terms of planning a project of this magnitude, the most critical milestone is the issuance of the combined license from the NRC, which allows the start of safety-related construction of the facility. However, as of today, the NRC has not provided a specific combined license target issue date. As with any project of this size and overall importance to the energy objectives of our nation it is reasonable to establish an end goal to which all parties are working to meet. It is not our intent to expedite the review process in a way that would compromise safety or lose the public’s confidence in the NRC. The goal is to create a predictable and efficient process for the current and future project applicants.

Secondly, as in all major projects, there is opportunity to improve and capitalize on the lessons learned from the initial licensing projects. The way to develop a comprehensive lessons-learned initiative is to

provide objective data which will enable the process to detail why items are completed early or late. The nuclear industry has demonstrated the merit of applying lessons learned in its operations by improved capacity factors and fleet efficiencies. The NRC recently provided UniStar with only limited portions (approximately 85 milestones) of their 1,000-activity schedule for Calvert Cliffs 3 combined license application. Not having detailed knowledge of activities needed for the NRC's review milestones, coupled with the large uncertainty in the remaining review activities, challenges any applicant's ability to prioritize the deliverables to best support the NRC staff, and in having a precise date for the start of safety-related construction. This lack of detail inhibits the licensing process from developing comprehensive lessons learned, limiting overall process improvement, and reducing efficiency.

We believe that this commitment to continuous improvement could result in reducing the NRC review time for the next wave of combined license applicants, from approximately 42 months to as little as 24 months. However, this will only be possible through the application of the Principles of Good Regulation - independence, openness, efficiency, clarity, reliability, and I would add greater schedule transparency. Another key element of openness, demonstrated through this hearing, is Congressional oversight which provides appropriate examination and guidance.

I believe that the NRC's Principles of Good Regulation are designed such that they would lend themselves to an appropriate self-assessment mechanism for the Commission and NRC staff. Therefore, I encourage you to request the NRC to provide annual feedback to this Committee on how the NRC comports with these principles in the 10 CFR 52 new licensing process. This should be coupled with public and industry comments on the NRC's performance, as well as periodic hearings which could afford you the opportunity to hold license applicants accountable as well to the timely implementation of the new license process.

We are working with the NRC staff to improve efficiency by examining opportunities for schedule acceleration, and to create schedule certainty. We support the Commission's ongoing independent examination of the license hearing process to identify ways to improve and streamline that process. A similar effort in 2009 was successful in significantly reducing the duration of the certified design rulemaking process and improving schedule predictability – we believe such opportunities also exist for the combined license process.

With respect to the subject of this hearing an examination is provided regarding how the NRC is meeting each of the following five NRC core Principles of Good Regulation in licensing new reactors:

- Independence,
- Openness,
- Efficiency,
- Clarity, and
- Reliability.

Independence:

Nothing but the highest possible standards of ethical performance and professionalism should influence regulation. However, independence does not imply isolation. All available facts and opinions must be sought openly from licensees and other interested members of the public. The many and possibly conflicting public interests involved must be considered. Final decisions must be based on objective, unbiased assessments of all information, and must be documented with reasons explicitly stated.

Regarding the principle of independence, the NRC, under the direction of the Commissioners, has earned the utmost respect for the job they have done. I think the reasons behind this success are best summarized in remarks often made by Chairman Gregory B. Jaczko. The following quotes are taken from his remarks at "The Howard Baker Forum" in Washington, DC on September 24, 2009, and from remarks at "EnergyBiz Leadership Forum" in Washington, DC on March 1, 2010:

[The NRC does] not have a role in deciding how many new nuclear reactors may potentially be built in the United States. Our focus is ensuring public health and safety in the use of nuclear materials. Ensuring that the NRC maintains its focus on safety and security, and continues to be viewed as a firm regulator with the confidence of the public, is important.

... it is not the role of the Nuclear Regulatory Commission (NRC) to promote or discourage the use of nuclear power. The future of nuclear power – whether it expands or contracts – is ultimately one for the public to determine through the actions of the public and private sector, the Administration, and the Congress.

In maintaining this independence, the NRC does an admirable job of fairly taking inputs from the various stakeholders (even conflicting inputs) and making objective and unbiased assessments. There is no recommendation for improvement related to this principle.

Openness:

Nuclear regulation is the public's business, and it must be transacted publicly and candidly. The public must be informed about and have the opportunity to participate in the regulatory processes as required by law. Open channels of communication must be maintained with Congress, other government agencies, licensees, and the public, as well as with the international nuclear community.

Over the last few years, the NRC has received several license applications for the construction and operation of a number of nuclear power plants, nuclear materials facilities, and a geologic repository. These activities have and will continue to generate a great deal of public interest. Overall, the NRC's openness and independence policies have been instrumental to the fundamental shift in the public perception of nuclear power. The professional approach and priority that the NRC gives to these principles is noteworthy.

Specifically with regard to the NRC's new reactor licensing process, there are many opportunities for public participation. Before the NRC receives an application, the agency talks to residents in the community near the location where a proposed new reactor may be built to explain how we review an application and how the public may participate in the process. The NRC listens to comments on what factors should be considered in the agency's environmental review of the application. The public may then comment on the NRC's draft environmental evaluation that is posted to the agency's Web site. In addition, the public is afforded the opportunity to legally challenge a license application through Atomic Safety and Licensing Board hearings that are announced in press releases and posted to the NRC Web site.

As an example of the opportunities for public interaction, the following table lists many of the public meetings on the Calvert Cliffs 3 docket:

Year	Date	Meeting Topic
2010	3Q 2010 (planned)	MDE public meeting - wetlands permit
	5/25/10 (planned)	Joint NRC/USACE public meeting – DEIS comments in Solomons, MD (two sessions afternoon and evening)
	04/19/10	PSC public meeting - Case 9218 in Solomons, MD
	04/19/10	PSC Hearing – Case 9218 in Baltimore
	2/18/10	Public Meeting –Presentation of Final Safety Analysis Report Chapter 8 to the Advisory Committee on Reactor Safeguards (ACRS)
	3/17/10	Public Meeting to discuss NRC requests for additional information in the area of geotechnology
	4/ 20/10	Public Meeting –Presentation of Final Safety Analysis Report Chapters 4, 5, 12, and 17 to the Advisory Committee on Reactor Safeguards
2009	4/17/09	Public Meeting to Discuss Intake Structure Relocation, Geotechnical Issues and Seismic Analysis Issues
	5/8/09	Public Meeting to Discuss the Alternative Siting Process for the Proposed Calvert Cliffs Unit 3
2008	3/9/08	NRC Public Environmental Scoping Meeting
	8/14/08	NRC Public Meeting with AREVA NP, UniStar, and AmerenUE
	10/30/08	Public EPR Design Center Working Group Meeting
	08/19/08	PSC Case 9127 Public Meetings in Solomons, MD
	08/11/08	PCS Case 9127 evidentiary hearings in Solomons, MD

Year	Date	Meeting Topic
	08/11/08	PSC Case 9127 Public Meetings in Solomons, MD
	08/4/08	PSC Case 9127 Public Meetings in Solomons, MD
2007	8/14/07	Public Outreach

In maintaining this level of public transparency and openness, the NRC does an admirable job of outreach to the public. There is no recommendation for improvement related to this principle.

Efficiency:

The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities. The highest technical and managerial competence is required, and must be a constant agency goal. NRC must establish means to evaluate and continually upgrade its regulatory capabilities. Regulatory activities should be consistent with the degree of risk reduction they achieve. Where several effective alternatives are available, the option which minimizes the use of resources should be adopted. Regulatory decisions should be made without undue delay.

Almost half of the NRC's current workforce has been at the agency for less than five years. In this time, the number of NRC employees has grown by 25 percent, and the size of the budget has grown by more than 50 percent. The renewed interest in nuclear power has substantially increased the licensing and regulatory workload. That reflects the dramatic challenges for the NRC management and administration. This challenge is shared within the private sector as well. This makes it critical that together the NRC and the private sector find ways to be as efficient as possible. Efficiency is a joint endeavor.

The topic of schedules impacts directly on efficiency and on openness. The typical NRC review schedule assumed a standard short duration window (e.g., 30 days) for completing and transmitting a response to an NRC request for additional information. In most cases, the response may require significantly more time and effort. The key to enhancing efficiency is minimizing the delays between handoffs -- more so than meeting an arbitrary pre-defined window. If we and the NRC staff can manage our resources such that questions and answers flow towards a final decision with minimal delay, then we have done all that we can do to be efficient. This is not an easy task, nor can it realistically ever be completely achieved. However, to make any realistic strides, we need to openly and completely share our resource and schedule constraints. I think this is one area where we both could apply some improvements.

Let me first note that the NRC's statement of this principle includes the statement that the NRC's statement of this principle includes the statement that the "NRC must establish means to evaluate and continually upgrade its regulatory capabilities." The recommendation that the NRC establish a "self assessment" evaluation process, whereby the industry feedback could be part of that evaluation

and the NRC's continual upgrade, is consistent with this principle. The industry lessons learned regarding self assessments is discussed in more detail below.

Clarity:

Regulations should be coherent, logical, and practical. There should be a clear nexus between regulations and agency goals and objectives whether explicitly or implicitly stated. Agency positions should be readily understood and easily applied

There are enormous strides the NRC staff has made in upgrading the regulatory guidance in an effort to achieve consistency in submittals and the ensuing review. The NRC staff has continued promulgated continuous Interim Staff Guidance and draft revisions to Regulatory Guides, which reflects the desire to capitalize on lessons learned. This reality reflects on competing concerns. First is the desire to have the regulations reliable and not in a state of transition. Evolving guidance creates opportunity for reviewers to continue to request more or different content for the submittals, which increases uncertainty and extends schedules. Second is the positive aspect of establishing a consistent expectation where perhaps there was not a clear nexus. As discussed in the additional information section, lack of clarity in NRC regulatory expectations have caused problems for the first applicants. However, it is expected that future applicants will benefit from the improvements in regulatory clarity currently being developed.

In this first wave of applications and reviews, the first concern is more evident than desired; and there is an expectation that this will diminish as subsequent applications are reviewed. The resultant reworking of the application to address these changes can and has had impacts on many of the other principles also (like efficiency and reliability).

Reliability:

Regulations should be based on the best available knowledge from research and operational experience. Systems interactions, technological uncertainties, and the diversity of licensees and regulatory activities must all be taken into account so that risks are maintained at an acceptably low level. Once established, regulation should be perceived to be reliable and not unjustifiably in a state of transition. Regulatory actions should always be fully consistent with written regulations and should be promptly, fairly, and decisively administered so as to lend stability to the nuclear operational and planning processes.

Reliability, as related to new nuclear plants, is a central element of the regulatory process. This requires a predictable licensing process for the review and inspection of new reactor designs and new construction. The industry and the financial community must have confidence that the licensing process provides the level of predictability necessary to support large capital investments.

On April 26, 2005, Mike Wallace (who is now Executive Vice President, Constellation Energy Group, Inc.) testified before the United States Senate Committee on Energy & Natural Resources. Mr. Wallace noted the following regarding the challenge of a reliable new reactor licensing process:

... until the process is demonstrated, the industry and the financial community cannot be assured that licensing will proceed in a disciplined manner, without unfounded intervention and

delay. Only the successful licensing and commissioning of several new nuclear plants ... can demonstrate that the licensing issues ... have been adequately resolved.

At that time, there were only two applications being seriously contemplated. Barely five years later, the NRC has received 18 combined operating license applications (COLA) for a total of 26 new nuclear units. That speaks for itself in support of the fact that the NRC and Industry have been working systematically through the licensing process to ensure that application development and review will be as efficient and consistent as possible. The industry has sufficient confidence in the process to invest to the degree it has in the pursuit of licensing new reactors. A couple of key developments evolved over this period:

- Agreement to a process that takes advantage to the extent practical of implementing a design-centered approach to facilitate review of multiple standardized COLAs in parallel based on the use of "one issue, one review, one position."
- Guidance documents, both from the Industry working through NEI and from the NRC in revisions to Regulatory Guides and Standard Review Plans, for implementing 10 CFR Part 52.

Overall, the progress that has been made to reduce the review schedules, increasing efficiency and effectiveness of the available man-power, and reduce uncertainty and financial risk has been a huge success for us all to be proud of. However, we have not yet achieved the goal of "*the successful licensing and commissioning of several new nuclear plants.*"

Just as it was five years ago, the unknown risks associated with the remaining untried steps in the process represent an uncertainty that demands continuing focus on improvement. The significant headway and associated reduction in uncertainty must be applied to the remaining steps leading to commercial operations of the fleet of new reactors. The overall aim should be to reduce the licensing burden without affecting the quality, scope or the thoroughness of the review.

Specific challenges ahead where we need to focus our attentions to continue to identify the risks and appropriately contain them, or in some cases define the risk, are in the areas of

- Mandatory Public Hearing

The mandatory hearing at the end of the COL process is required by the Atomic Energy Act, even in the absence of a successful intervention by a party opposing a license. Unknowns in scheduling the hearing window could reflect between 15% and 35% of the entire COLA review and approval duration. It is critical for this process to become much more reliable and stable. There are multiple opportunities for public involvement that are now a standard part of the staff's review of the licensing application and the environmental impact statement. There is also the detailed review that is undertaken by the independent experts on the Advisory Committee on Reactor Safeguards that also affords public awareness and interaction. As a result, the Commission is considering a legislative-style hearing to ascertain the sufficiency of

the licensing review. Rather than limiting public involvement, a legislative-style hearing might allow appropriate and efficient wide-scale scrutiny to supplement the other opportunities for public involvement. Chairman Jaczko at the NRC Regulatory Information Conference in Rockville, MD on March 9, 2010 acknowledged that it is incumbent on the Commission to lay out a vision on how these hearings will look and concrete, transparent plans about how they will be conducted.

- NRC Review Schedule

Certainty in scheduling is even more crucial than speed when planning for multi-billion dollar projects. Nonetheless, although the Part 52 process largely serves to move regulatory decisions as early in the process as they can reasonably be made, and while this is noteworthy, given the overall length of the license process, there often are significant expenditures that must be incurred for long-lead-time components before the licensing process has been completed. With hundreds of millions of dollars at stake, even a small delay can have a significant adverse financial impact. Therefore, efforts should be made to avoid unnecessary delays and where unavoidable, anticipate them as early in the process as possible.

Additional Discussion Topics:

Environmental Report Challenges: Initially, the NRC safety and environmental branches had different approaches to the process for NRC requests for additional information (RAI). In the safety RAI process the applicant has a ten day period to review and if necessary obtain clarification (from the NRC) of RAIs before they are formally submitted. In the case of environmental RAIs, the NRC's environmental group would forward final RAIs without any pre-screening or ability for clarification but with the same expectation of receiving responses within a 30 day period. It should be noted that based on discussions with UniStar the NRC recognized the discrepancy between the two branches in the processing of RAIs.

Without the benefit of preliminary discussions, the applicant would be required to initially bin the questions into the appropriate discipline areas (socioeconomics, hydrology, ecologies etc), provide the RAIs to the subject matter experts for review and determination of clarity and effort required to respond, discuss any clarifications with the NRC, develop the response, conduct applicants review of the response and forward to the NRC. Needless to say, this would be challenging with just a handful of RAIs.

However, the initial environmental RAIs were submitted in what can be described as batch mode. Specifically, UniStar received 358 environmental RAIs on May 13, 2008. Many of the environmental RAIs consisted of multiple questions.

Of these 358 environmental RAIs, the UniStar team managed to respond to 299 within the expected 30 day period. By the end of 2008, UniStar had responded to nearly 400 environmental RAIs issued that year. Subsequent submittals included a batch of 71 and a batch of 23 environmental RAIs.

In recognition of the improved process on the safety side of RAIs, the last set of RAIs issued in 2009 were pre-screened in a similar manner as is done with safety RAIs, albeit only seven days in advance of the formal submittal of the RAIs. This did however facilitate a quicker turnaround allowing UniStar to respond within 7 days thus imposing less impact on the schedule.

By the end of 2009 when the NRC began their final writing session for the draft EIS (DEIS) for Calvert Cliffs 3, a total of 474 environmental RAIs had been issued by the NRC and responded to by UniStar (see Figure 1 below). During the above described 1½ year period UniStar was not aware of a formal closure process in which the NRC would acknowledge that a particular RAI response was complete and sufficient. More than one and a half years after the majority of RAI responses were provided, UniStar was informed that there would be no more RAIs issued and that the NRC was starting their final writing session for the DEIS. By default, UniStar assumed that the responses to the 474 RAIs were complete and sufficient.

The Calvert Cliffs 3 DEIS was originally scheduled to be issued in February 2008. However it was ultimately issued 14 months later. A major contributing factor to this delay was the alternative site screening and evaluation process. While Part 3, "Environmental Report", of the Calvert Cliffs 3 COLA was submitted in July 2007, the NRC only informed UniStar of an issue with the alternative site process described therein, Section 9.3, in early 2009. The issue stemmed from new NRC guidelines based on NRC's Atomic Safety and Licensing Board (ASLB) experience with the North Anna's ESP alternative site evaluation (ASLB's Memorandum and Order was issued November 27, 2007) and clarification of vague language of the same guidelines.

This led to a public meeting (NRC & UniStar) in May 2009 where NRC identified gaps in UniStar alternative site process that did not meet NRC unpublished (a Revision to NUREG-1555 is in process) expectations/interpretation guidelines. It should be noted that this was a generic issue affecting all COLAs (Calvert Cliffs 3, South Texas Project, Luminant, et al). As a result, UniStar quickly and efficiently reconstituted the entire alternative site approach that in final analysis met NRC needs/requirements.

The NRC worked very closely with UniStar during the reconstitution period, at times on a daily basis, to ensure that their expectations of requirements continue to be met. It is recognized that this open communication was a key factor in facilitating the reconstitution process in a timely manner recognizing that maintaining overall schedule was an important factor in the process.

The reconstitution process which consisted of development of a comprehensive site selection process and update of Section 9.3 of the Calvert Cliffs 3 Environmental Report did however take several weeks and along with additional site walkdowns, an environmental audit of proposed alternative sites, and the issuance of 23 additional RAIs (discussed above). As a result, the DEIS issuance was impacted by an additional 11 months. The Calvert Cliffs 3 DEIS was issued on April 16, 2010, approximately 14 months after the initially scheduled date, which closed Phase II of the four phase COLA environmental review process.

The next two phases of the COLA environmental review process involve a 75 day public comment period which closes July 9, 2010, resolution of comments and final update of the Calvert Cliffs 3 EIS. Unless additional RAIs are issued by the NRC to UniStar, these last two phases should not involve or be contingent on any UniStar input or interaction.

The NRC's generic schedule for the last two phases has typically been 12 months. The NRC has been sensitive to the finality of this process and believes that even with the last unanticipated DEIS delay of six weeks they can still finish and issue the FEIS by February 2011. UniStar believes that the NRC has room for improving the schedule if little or no change to the DEIS is required to make it into an FEIS. It should be noted that other agencies such as FERC have managed to turnaround this process (DEIS to FEIS) within 6 months on numerous large projects^{1,2,3}. In addition, FERC has completed the DEIS to FEIS turnaround with the US Army Corps of Engineers (USACE) as a cooperating agency in as little as 4-5 months^{4,5}.

Not unlike the NRC, UniStar is processing multiple COLAs with a finite resource pool. Planning and scheduling are critical to managing resources and maintaining efficiency. It is critical for UniStar, or for that matter any applicant, to have critical insight into content and timing of the NRC's RAIs as well as the issue of the DEIS and more importantly the FEIS.

The latter is not only a critical element of the NRC's licensing process but a critical element for the NRC's contributing agency, the USACE, and the Maryland Department of Environment (MDE). Both USACE and MDE are relying on the Calvert Cliffs 3 FEIS as the basis for their processing of wetlands permits. The issue of the wetlands permits is a critical construction milestone for the Calvert Cliffs 3 project as it triggers the mobilization of a large construction workforce that will implement the resource-intensive initial site grading process. Accordingly, opportunities exist to improve efficiency and clarity in this area.

¹ Ruby Pipeline Project (Docket No. CP09-54-000). The draft EIS was filed with the U.S. Environmental Protection Agency (EPA) and a formal notice of availability was issued in the Federal Register on June 26, 2009. The final was issued January 8, 2010. The Federal Register notice established a 45-day comment period on the draft EIS that ended on August 10, 2009.

² Dominion Cove Point Expansion Project (Docket Nos. CP05-310-000 et al.). FERC issued the draft EIS and a notice of availability on October 28, 2005 and filed it with the EPA. FEIS issued April 28, 2006. A formal notice indicating that the draft EIS was available was also published in the Federal Register, and the document was mailed to approximately 1,550 individuals and organizations on the mailing list prepared for the project. In accordance with the Council on Environmental Quality (CEQ) regulations implementing NEPA, the public had the opportunity to comment on the draft EIS in the form of written comments up through December 21, 2005 (53 day comment period).

³ Catawba-Wateree Hydroelectric Project (Project No. 2232-522). The draft EIS was issued March 9, 2009. Final Environmental Impact Statement issued: July 23, 2009. Public meetings were held on April 21 and 22, 2009.

⁴ Floridian Natural Gas Storage Project (DEIS 3/21/08 – FEIS 7/22/08) -- 4 months

⁵ Rockies Express East Project (DEIS 11/23/07 – FEIS 4/21/08) -- 5 months

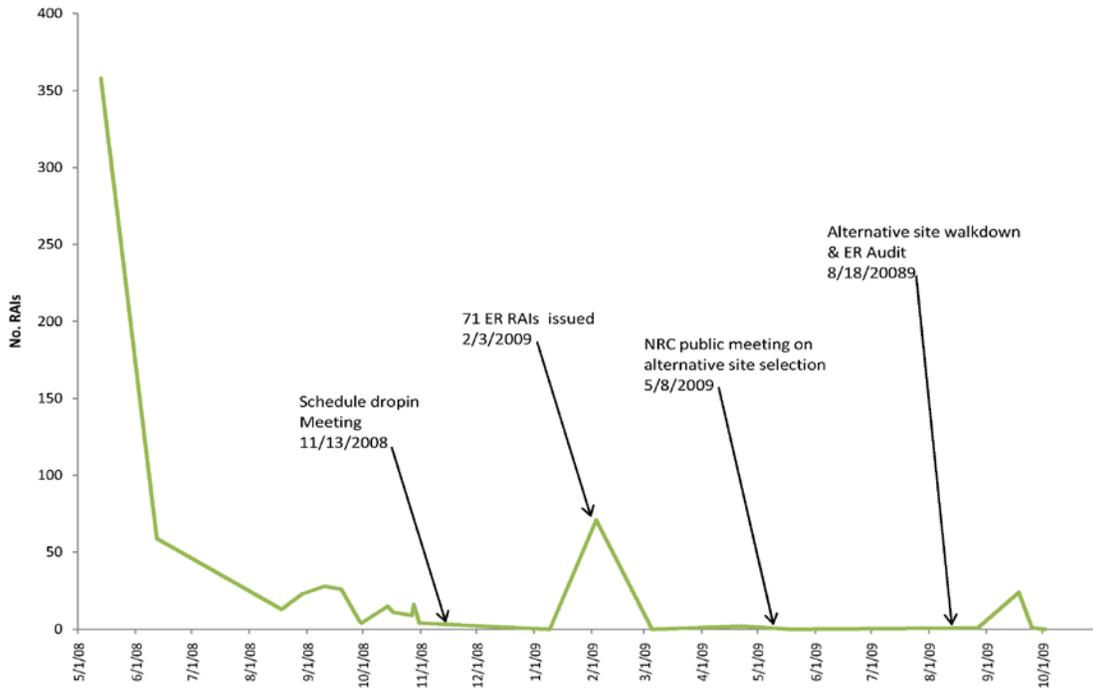
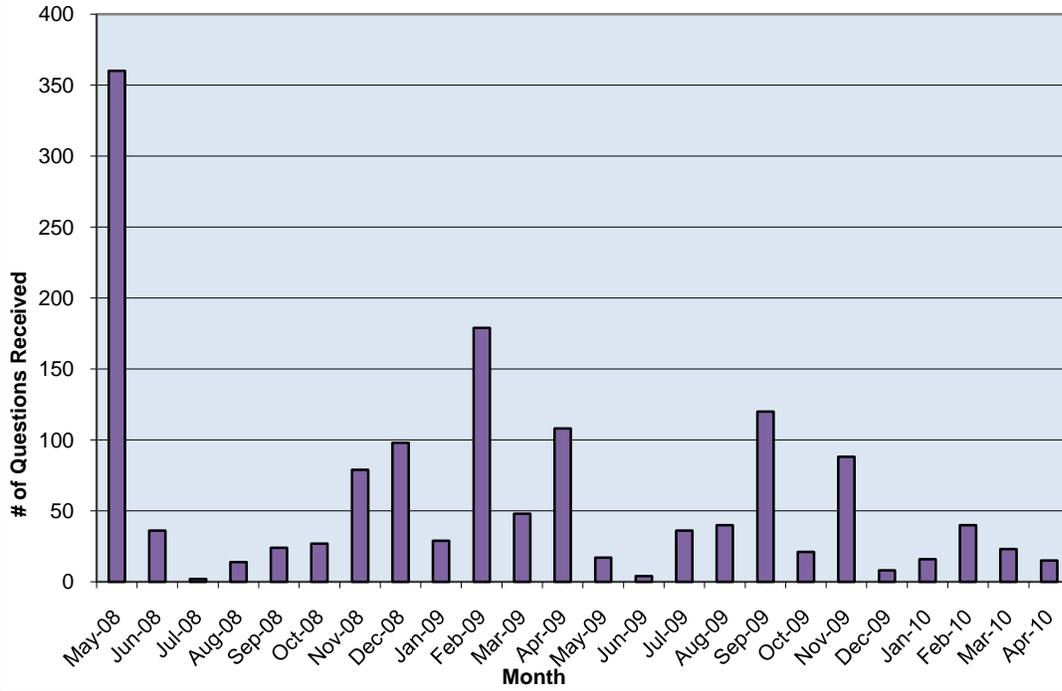


Figure 1 - Calvert Cliffs Unit 3 Environmental RAI Workoff Summary

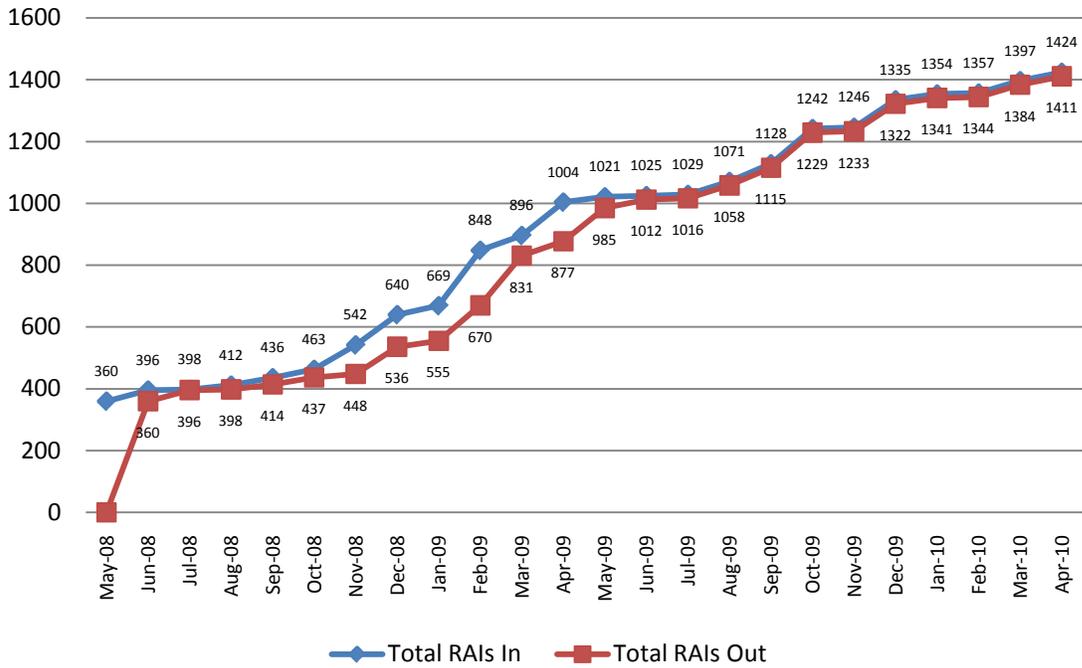
Request for Additional Information (RAI) Process: When the NRC issues an RAI, either the response or a schedule for providing the response to the RAI is due within 30 days. The 30 day response time was jointly developed between the NRC and the Nuclear Industry and is one of the assumptions used in the development of the COLA schedule. Using this time frame, NRC resources can be scheduled based on the anticipated response time. Thus, delays in providing responses can have adverse effects on the review schedule. While some responses can be provided quickly, experience has shown that response to any given RAI set requires an average of 75 days. Thus, a review schedule based on a 30 day response would not be realistic and would require continuous re-evaluation. A more realistic default response time may help to reduce the scheduling impacts in the future.

It is natural for reviewers to have questions as they review the different sections of the license application. These questions are transmitted to the applicant as RAIs. From a resource scheduling standpoint, this presents a problem since there is currently no indication that an RAI is being issued until it arrives. Consequently, the applicants maintain resources that are ready to respond to the RAIs. In general, each RAI set averages approximately four questions. As discussed above, over 300 questions were transmitted at one time. This required a large diversion of resources and a rush to obtain external vendor support to address these questions. The following tabular depiction of RAIs per month and graphical depiction of total RAIs received and responded to over time demonstrate this issue:

Calvert Cliffs Unit 3 COLA - NRC Questions Received



Calvert Cliffs Unit 3 COLA - RAI Status



Another factor affecting the timeliness of applicant responses to RAIs is regulatory guidance. The level of detail the NRC reviewers expected to be included in the COLA was not completely understood by the applicants. In some cases, NRC staff RAIs requesting additional information required extensive work to develop and provided responses. Additionally, conflicts between regulatory guidance required extensive effort to resolve. One example of conflicting guidance involved post-accident monitoring (PAM) instruments. The list of PAM instruments is determined during the development of the emergency and abnormal operation procedures. These procedures are typically developed just prior to fuel load (i.e., several years from now); not in the current conceptual design phase. Regulatory guidance specifies that PAM instruments meeting certain criteria be placed in the technical specifications prior to issuance of the license. This requires the list of post-accident monitoring instruments to be developed three to four years earlier than anticipated. The conflict between these two requirements took over a year to resolve through the RAI process.

Once an RAI response is provided, there is no clear status on whether the RAI response has been reviewed and/or accepted. One recommendation for improvement would be to include a timeframe for NRC reviewers to evaluate RAI responses (i.e., review responses within 60 days). This transparency in the schedule would facilitate the availability of applicant resources and promote a more timely response to NRC follow-up questions should the initial RAI response need additional clarification.

Self Assessment Process: Self-assessment is essentially a critical comparison of existing activities and results against a predetermined set of performance expectations. Self-assessments can help to identify and overcome weaknesses and obstacles to the achievement of performance objectives. The Nuclear Industry has successfully used self-assessment as a method for evaluating and improving performance in many areas. The Nuclear Industry also relies on external assessments to confirm the results of the self-assessments and to ensure that objectivity is maintained.

The self-assessment process, in conjunction with other forms of external assessments, is a major factor in reaching the desired overall performance expectations. A strong commitment to the self-assessment process can motivate individuals to seek improvements in performance and to develop a greater sense of ownership in existing processes. The full set of performance expectations can be the set of goals, targets and objectives, including those set by the organization management, that are to be followed and achieved by the staff as a whole. The NRC's Principles of Good Regulation establish the principles used to ensure safety and security while appropriately balancing the interests of the NRC's stakeholders. These Principles of Good Regulation are focused primarily on how the NRC interfaces with the public, licensees, and applicants, which are all external groups. Without input from those external groups, the assessment cannot be considered objective or complete.

The NRC does solicit information from external sources such as through surveys in order to improve its programs and processes. The self-assessment process associated with the conformance to the Principles of Good Regulation could also benefit from external input, such as from the public, licensees and applicants. Such improvements would be in accordance with the principle of efficiency. Posting the results and making the self-assessments publicly available for comment would be in accordance with the

principle of openness. The benefits of this approach could be applied when evaluating the performance of the Office of Nuclear Reactor Regulation, the Office of New Reactors; and Regional Offices – Inspection and Enforcement.

Given the rate at which the new reactor licensing process is moving forward, a more frequent self-assessment may be warranted, but I would like to offer the suggestion that the NRC seek stakeholder feedback on how it is complying with its principles at least on an annual basis. A more frequent self-assessment in the near term may help to identify potential areas of improvement on a timelier basis. The goal would be to ensure a stable and predictable regulatory process for the licensing and construction of new reactors.

In closing, I would thank the Committee. We have an opportunity, as a nation, to create jobs, stimulate the economy, rebuild the domestic manufacturing infrastructure, and curb greenhouse gases with nuclear energy – a clean, reliable, base load energy source. As a new plant license applicant, I am encouraged by the high-level of commitment demonstrated by the NRC staff to act in a fair and consistent manner. The industry hopes and expects that rigorously applying the lessons learned in the first round of applications will make the processing of subsequent applications more efficient.